Earth Sc #559

NIMBUS 7
EARTH RADIATION BUDGET MAP ARCHIVE TAPE

78-098A-07A

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

http://nssdc.gsfc.nasa.gov/nmc/

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

a. Associated Documents To find associated documents you will need to know the document ID number and then click here. http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/

b. Core Catalog Materials

NIMBUS 7

LIMS INVERTED PROFILE ARCHIVAL TAPES

(IPAT/LAIPAT)

78-098A-01A

ERSB-00045

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED 36 9-TRACK, 1600 BPI TAPES WRITTEN IN BINARY, WITH A HEADER RECORD WRITTEN IN EBCDIC. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON AN IBM 360/91 COMPUTER. THE DR AND DS TAPES ALONG WITH THE CORRESPONDING D NUMBERS AND THE TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR004041	DS004041	D053623	1-89	10/25/78 - 11/01/78
		D053624	90-173	11/01/78 - 11/07/78
		D053625	174-257	11/07/78 - 11/13/78
DR004042	DS004042	D053626	1-83	11/13/78 - 11/18/78
		D053627	84-165	11/19/78 - 11/25/78
		D053628	166-231	11/25/78 - 12/01/78
DR004043	DS004043	D053629	1-84	12/01/78 - 12/07/78
		D053630	85-166	12/08/78 - 12/14/78
		D053631	167-236	12/14/78 - 12/19/78
DR004044	DS004044	D053632	1-60	12/20/78 - 12/25/78
		D053633	61-128	12/25/78 - 12/31/78
		D053634	129-213	01/01/79 - 01/07/79
DR004045	DS004045	D053635	1-70	01/07/79 - 01/12/79
		D053636	71-152	01/13/79 - 01/19/79
		D053637	153-234	01/19/79 - 01/25/79
DR004046	DS004046	D062462	1-82	01/25/79 - 01/31/79
		D053638	83-166	01/31/79 - 02/06/79
		D053639	167-249	02/06/79 - 02/13/79
DR004047	DS004047	D053640	1-29	02/13/79 - 02/15/79
		D053641	29-106	02/15/79 - 02/23/79
		D053642	107-190	02/23/79 - 03/01/79
DR004048	DS004048	D053643	1-71	03/01/79 - 03/07/79
		D053644	72-155	03/07/79 - 03/13/79
		D053645	156-235	03/14/79 - 03/20/79

DR#	D#	D#	FILES	TIME SPAN
DR004049	DS004049	D0536446	1-84	03/20/79 - 03/26/79
		D0536447	85-155	03/26/79 - 04/01/79
		D0536448	156-237	04/01/79 - 04/07/79
DR004050	DS004050	D0536449	1-84	04/07/79 - 04/13/79
		D0536450	85-152	04/13/79 - 04/20/79
		D0536451	153-222	04/20/79 - 04/25/79
DR004051	DS004051	D0536452	1-68	04/25/79 - 05/01/79
		D0566666	69-149	05/01/79 - 05/07/79
		D0566667	150-232	05/07/79 - 05/13/79
DR004052	DS004052	D0566668	1-84	05/13/79 - 05/20/79
		D0594452	85-155	05/20/79 - 05/26/79
		D0594453	156-176	05/26/79 - 05/29/79

REQ. AGENT	RAND NO.	ACQ. AGENT
BER	V0048	RWP
BAR	V0322	CYN
JPB	V0357	CYN

NIMBUS 7

ERB MAT

78-098A-07A

THIS DATA SET CATALOG CONSISTS OF 1799 MAGNETIC TAPES. THE TAPES ARE 9-TRACK, 1600 BPI, CONSISTING OF 3 FILES EACH.* THE TAPES WERE CREATED ON THE 360/91 CPMPUTER. THE FIRST FILE IS A HEADER FILE WRITTEN TWICE IN EBCDIC. THE SECOND FILE IS DATA WRITTEN IN BINARY. THE THIRD FILE IS A TRAILER RECORD ALSO WRITTEN IN BINARY. ALL TAPES, EXCEPT THOSE WITH C NUMBERS, HAVE BEEN SENT TO THE FEDERAL RECORDS CENTER. DOCUMENTATION CAN BE FOUND IN THE FILING CABINET. THE FRC BOX NUMBERS, D AND C NUMBERS, ALONG WITH THE TIME SPANS ARE AS FOLLOWS:

*AS OF NOVEMBER 2, 1980, TAPES ARE 6250 BPI, AND MULTIFILED.

SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-53553			11/16/78	
	D-53428			11/17/78	
	D-53549			11/18/78	
	D-53535			11/20/78	
	D-53356			11/21/78	
	D-53548			11/22/78	
	D-53601	C-22723		11/24/78	
	D-53460			11/25/78	
	D-53559			11/26/78	
	D-53350			11/28/78	
	D-53442			11/29/78	
	D-53448			11/30/78	
	D-53459			12/02/78	
	D-53360			12/03/78	
	D-53523			12/04/78	
	D-54345	C-22848		12/06/78	
	D-53421			12/07/78	
	D-53471			12/08/78	
	D-53478			12/10/78	
	D-53571			12/11/78	
	D-53621	C-22743		12/12/78	
	D-53524			12/14/78	
	D-53546			12/15/78	
	D-53465			12/16/78	
	D-53545			12/18/78	
	D533557			12/19/78	
	D-53357			12/20/78	

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX#
	D-53517			12/22/78	
	D-53433			12/23/78	
	D-53432			12/24/78	
83601-3	D-53547			12/26/78	5454
83611-3	D-53532			12/27/78	5453
83621-3	D-53480			12/28/78	5449
83641A3	D-53502			12/30/78	5451
83651-3	D-53562			12/31/78	5456
90011A3	D-53561			01/01/79	5456
90031-3	D-53615	C-22737		01/03/79	
90051-3	D-53514			01/04/79	5452
90041-3	D-53441			01/04/79	5446
90071-3	D-53344			01/07/79	
90081-3	D-53392			01/08/79	5443
90091-3	D-53482			01/09/79	5449
90111-3	D-53527			01/11/79	5453
90121-3	D-53496			01/12/79	5451
90131-3	D-53420			01/13/79	5445
90151-3	D-53551 x	D-53550?		01/15/79	
90161-3	D-53802	C-22755		01/16/79	
90171A3	D-53555 x	[illegible]		01/17/79	5455
90191-3	D-53603	C-22725		01/19/79	
90201-3	D-53429			01/20/79	5445
90211-3	D-53515			01/21/79	5452
90231-3	D-53490			01/23/79	5450
90251-3	D-53430			01/25/79	5445
90271A3	D-53488			01/27/79	5450
90291A3	D-53554			01/29/79	5455
90311A3	D-53382			01/31/79	5442
90331-3	D-53531			02/02/79	5453
90351-3	D-53572			02/04/79	5456
90371-3	D-53431			02/06/79	5446
90391-3	D-53483			02/08/79	5450
90401-3	D-53484			02/09/79	5450
90411-3	D-53516			02/10/79	5452
90431-3	D-53568			02/12/79	5456
90441-3	D-53348			02/13/79	
90451-3	D-53489			02/14/79	5450
90471-3	D-53498			02/16/79	5451
90481-3	D-53408			02/17/79	5444
90491-3	D-53509			02/18/79	5452
90511-3	D-53369			02/20/79	5441
90521-3	D-53605	C-22727		02/21/79	
90531-3	D-53618	C-22740		02/22/79	
90551-3	D-53612	C-22734		02/24/79	
90571A3	D-53529			02/26/79	5453
90591-3	D-53456			02/28/79	5447
90601A3	D-53349			03/01/79	
90611B3	D-53491			03/02/79	5450
90631-3	D-53473			03/04/79	5449

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX#
90641A3	D-53455			03/05/79	5447
90651A3	D-53539			03/06/79	5454
90671A3	D-53556			03/08/79	5455
90681A3	D-53533			03/09/79	5453
90691-3	D-53494			03/10/79	5450
90711A3	D-53505			03/12/79	5451
90721A3	D-53450			03/13/79	5447
90731-3	D-53393			03/14/79	5443
90751A3	D-53444			03/16/79	5447
90761A3	D-53506			03/17/79	5451
90771-3	D-53551	D53550?		03/18/79	5455
90791A3	D-53536			03/20/79	5454
90801-3	D-53611	C-22733		03/21/79	
90811A3	D-53449			03/22/79	5447
90831A3	D-53560			03/24/79	5455
90841A3	D-53454			03/25/79	5447
90851A3	D-53503			03/26/79	5451
90871A3	D-53493			03/28/79	5450
90881A3	D-53504			03/29/79	5451
90891A3	D-53525			03/30/79	5453
90911-3	D-53534			04/01/79	5453
90931A3	D-53526			04/03/79	5453
90951A3	D-53530			04/05/79	5453
90971B3	D-53469			04/07/79	5448
90991A3	D-53479			04/09/79	5449
91011A3	D-53520			04/11/79	5452
91031A3	D-53537			04/13/79	5454
91041A3	D-53543			04/14/79	5454
91051-3	D-53617	C-22739		04/15/79	
91061A3	D-53422			04/16/79	5445
91071A3	D-53437			04/17/79	5446
91081A3	D-53376			04/18/79	5441
91091A3	D-53375			04/19/79	5441
91111-3	D-53620	C-22742		04/21/79	
91121-3	D-53607	C-22729		04/22/79	
91131-3	D-53521			04/23/79	5452
91151A3	D-53569			04/25/79	5456
91161B3	D-53458			04/26/79	5448
91171A3	D-53400			04/27/79	5443
91181A3	D-53495			04/28/79	5450
91191-3	D-53508			04/29/79	5451
91211-3	D-53461			05/01/79	5448
91231-3	D-53440			05/03/79	5446
91241-3	D-53487			05/04/79	5450
91251-3	D-53378			05/05/79	5441
91271-3	D-53435			05/07/79	5446
91281-3	D-53388			05/08/79	5442
91291-3	D-53387			05/09/79	5442
91311-3	D-53394			05/11/79	5443
91331-3	D-53377			05/13/79	5441
91341-3	D-53507			05/14/79	5451

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX#
91351-3	D-53610	C-22732		05/15/79	
91371-3	D-53476			05/17/79	5449
91391-3	D-53557			05/19/79	5455
91401-3	D-53609	C-22731		05/20/79	
91411-3	D-53474			05/21/79	5449
91431-3	D-53619	C-22741		05/23/79	
91441-3	D-53403			05/24/79	5443
91451-3	D-53411			05/25/79	5444
91471-3	D-53434			05/27/79	5446
91481-3	D-53405			05/28/79	5444
91491-3	D-53367			05/29/79	5441
91511-3	D-53353			05/31/79	5440
91521-3	D-53501			06/01/79	5451
91531-3	D-53552			06/02/79	5455
91551-3	D-53438			06/04/79	5446
91561A3	D-53558			06/05/79	5455
91571-3	D-53410			06/06/79	5444
91591-3	D-53368			06/08/79	5441
91601-3	D-53622	C-22744		06/09/79	
91611-3	D-53563			06/10/79	5456
91631-3	D-53497			06/12/79	5451
91641-3	D-53614	C-22736		06/13/79	
91651-3	D-53541			06/14/79	5454
91671-3	D-53391			06/16/79	5442
91681-3	D-53452			06/17/79	5447
91691-3	D-53415			06/18/79	5444
91711-3	D-53499			06/20/79	5451
91721-3	D-53407			06/21/79	5444
91731-3	D-53467			06/22/79	5448
91751-3	D-53447			06/24/79	5447
91761-3	D-53372			06/25/79	5441
91771-3	D-53564			06/26/79	5456
91791-3	D-53446			06/28/79	5447
91801-3	D-53510			06/29/79	5452
91811-3	D-53352			06/30/79	
91831-3	D-53492			07/02/79	5450
91841-3	D-53424			07/03/79	5445
91851-3	D-53475			07/04/79	5449
91871-3	D-53370			07/06/79	5441
91881-3	D-53413			07/07/79	5444
91891-3	D-53443			07/08/79	5446
91911-3	D-53359			07/10/79	5440
91921-3	D-53384			07/11/79	5442
91931-3	D-53500			07/12/79	5451
91951-3	D-53419			07/14/79	5445
91961-3	D-53381			07/15/79	5442
91971-3	D-53371			07/16/79	5441
91991-3	D-53390			07/18/79	5442
92001-3	D-53439			07/19/79	5446
92011-3	D-53416			07/20/79	5444
92031-3	D-53417			07/22/79	5444

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX#
92041-3	D-53412			07/23/79	5444
92051-3	D-53573			07/24/79	5456
92071A3	D-53513			07/26/79	5452
92081-3	D-53522			07/27/79	5453
92091-3	D-53396			07/28/79	5443
92111-3	D-53414			07/30/79	5444
92121-3	D-53604	C-22726		07/31/79	
92131-3	D-53409			08/01/79	5444
92151-3	D-53540			08/03/79	5454
92161-3	D-53457			08/04/79	5448
92171-3	D-53398			08/05/79	5443
92191A3	D-53383			08/07/79	5442
92201B3	D-53342			08/08/79	
92211-3	D-53362			08/09/79	5440
92231-3	D-53470			08/11/79	5449
92241-3	D-53427			08/12/79	5445
92251-3	D-53453			08/13/79	5447
92271-3	D-53472			08/15/79	5449
92681-3	D-53567			08/16/79	5456
92291-3	D-53518			08/17/79	5452
92311-3	D-53365			08/19/79	5440
92321-3	D-53466			08/20/79	5448
93331-3	D-53468			08/21/79	5448
92351-3	D-53426			08/23/79	5445
92361-3	D-53361			08/24/79	5440
92371-3	D-53445			08/25/79	5447
92391-3	D-53570			08/27/79	5456
92401-3	D-53404			08/28/79	5443
92411-3	D-53425			08/29/79	5445
92431-3	D-53389			08/31/79	5442
92441-3	D-53616	C-22738		09/01/79	
92451-3	D-53436			09/02/79	5446
92471-3	D-53380			09/04/79	5442
92481-3	D-53385			09/05/79	5442
92491-3	D-53399			09/06/79	5443
92511-3	D-53401			09/08/79	5443
92521-3	D-53418			09/09/79	5445
92531A3	D-53602	C-22724		09/10/79	
92551-3	D-53406			09/12/79	5444
92561-3	D-53374			09/13/79	5441
92571-3	D-53477			09/14/79	5449
92591A3	D-53397			09/16/79	5443
92601A3	D-53462			09/17/79	5448
92611-3	D-53351			09/18/79	
92631-3	D-53386			09/20/79	5442
92641B3	D-53395			09/21/79	5443
92651-3	D-53379			09/22/79	5442
92671-3	D-53538			09/24/79	5454
92681-3	D-53423			09/25/79	5445
92691-3	D-53608	C-22730		09/26/79	
92711-3	D-53358			09/28/79	5440

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
92721-3	D-53345			09/29/79	
92731-3	D-53528			09/30/79	5453
92751-3	D-53464			10/02/79	5448
92761-3	D-53566			10/03/79	5456
92771-3	D-53519			10/04/79	5452
92791-3	D-53565			10/06/79	5456
92801-3	D-53544			10/07/79	5454
92811-3	D-53463			10/08/79	5448
92831-3	D-53485			10/10/79	5450
92841-3	D-53486			10/11/79	5450
92851-3	D-53347			10/12/79	
92871-3	D-53402			10/14/79	5443
92881-3	D-53363			10/15/79	5440
92891-3	D-53364			10/16/79	5440
92911-3	D-53366			10/18/79	5441
92921-3	D-53354			10/19/79	5440
92931-3	D-53542			10/20/79	5454
92951B3	D-53451			10/22/79	5447
92961-3	D-53512			10/23/79	5452
92971-3	D-53606	C-22728		10/24/79	
92991-3	D-53511			10/26/79	5452
93001-3	D-53373			10/27/79	5441
93011-3	D-53346			10/28/79	
93031-3	D-53343			10/30/79	
93041-3	D-53613	C-22735		10/31/79	
93051-3	D-53481			11/01/79	5449
	D-56753			11/03/79 -	5694
	D-56906			11/04/79 -	5705
	D-56797			11/05/79 -	5697
	D-56798			11/07/79 -	5697
	D-56791			11/08/79 -	5696
	D-56765			11/09/79 -	5694
	D-57601	D56701?		11/11/79 -	
	D-56800			11/12/79 -	5697
	D-56801			11/13/79 -	5697
	D-56799			11/15/79 -	5697
	D-56891			11/16/79 -	5704
	D-56766			11/17/79 -	5695
	D-56726			11/19/79 -	5691
	D-56764			11/20/79 -	5694
	D-56769			11/21/79 -	5695
	D-57605	D56705?		11/23/79 -	
	D-56921			11/24/79 -	5706
	D-56772			11/25/79 -	5695
	D-56773			11/27/79 -	5695
	D-56728			11/28/79 -	5692
	D-56727			11/29/79 -	5692
	D-56881			12/01/79 -	5703
	D-56796			12/02/79 -	5697
	D-56795			12/03/79 - 12/04/79	5697

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-56890			12/05/79 - 12/06/79	5704
	D-56820			12/07/79 - 12/08/79	5699
	D-56925			12/09/79 -	5707
	D-56926			12/10/79 -	5707
	D-56842			12/11/79 -	5700
	D-56699			12/13/79 -	5689
	D-57542	C-23134		12/14/79 - 12/15/79	5806
	D-56829			12/15/79 -	5699
	D-56923			12/17/79 -	5707
	D-56924			12/19/79 -	5707
	D-56832			12/21/79 -	5700
	D-56917			12/22/79 -	5706
	D-56922			12/23/79 -	5707
	D-56828			12/25/79 -	5699
	D-56789			12/26/79 -	5696
	D-56767			12/27/79 -	5695
	D-56871			12/29/79 -	5703
	D-56793			12/30/79 -	5697
	D-56794			12/31/79 -	5697
	D-56788			01/02/80 - 01/03/80	5696
	D-56790			01/03/80 - 01/04/80	5696
	D-56792			01/04/80 -	5697
	D-56870			01/06/80 -	5703
	D-56889			01/07/80 -	5704
	D-57241	C-23097		01/08/80 - 01/09/80	5708
	D-56895			01/10/80 -	5704
	D-56768			01/11/80 -	5695
	D-56918			01/12/80 -	5706
	D-56739			01/14/80 -	5692
	D-56746			01/15/80 -	5693
	D-56745			01/16/80 -	5693
	D-56743			01/18/80 -	5693
	D-56742			01/19/80 -	5693
	D-56783			01/20/80 -	5696
	D-56741			01/22/80 -	5693
	D-56736			01/23/80 -	5692
	D-56740			01/24/80 -	5693
	D-56883			01/26/80 -	5704
	D-56902			01/27/80 -	5705
	D-56900			01/28/80 -	5705
	D-56899			01/30/80 -	5705
	D-56903			01/31/80 -	5705
	D-56901			02/01/80 -	5705
	D-56908			02/03/80 -	5705
	D-56909			02/04/80 -	5706
	D-56907			02/05/80 -	5705
	D-56904			02/07/80 -	5705
	D-56771			02/08/80 -	5695
	D-57239	C-23095		02/09/80 -	5708
	D-56770			02/11/80 -	5695

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-56826			02/12/80 -	5699
	D-56733			02/13/80 -	5692
	D-56734			02/15/80 -	5692
	D-56780			02/16/80 -	5696
	D-56779			02/17/80 -	5696
	D-56778			02/19/80 -	5695
	D-56776			02/20/80 -	5695
	D-56777			02/21/80 -	5695
	D-56775			02/23/80 -	5695
	D-56825			02/24/80 -	5699
	D-56697			02/25/80 -	5689
	D-56821			02/27/80 -	5699
	D-56670			02/28/80 -	5688
	D-56911			02/29/80 -	5706
	D-56910			03/02/80 -	5706
	D-56916			03/03/80 -	5706
	D-58646	C-23151		03/04/80 - 03/05/80	
	D-56880			03/06/80 - 03/07/80	5703
	D-56915			03/07/80 -	5706
	D-56914			03/08/80 -	5706
	D-56913			03/10/80 -	5706
	D-56920			03/11/80 -	5706
	D-56919			03/12/80 -	5706
	D-57243	C-23099		03/14/80 - 03/15/80	5708
	D-56672			03/15/80 -	5688
	D-56671			03/16/80 -	5688
	D-56678			03/18/80 -	
	D-56677			03/19/80 -	
	D-56681			03/20/80 -	
	D-56676			03/22/80 -	
	D-56675			03/23/80 -	
	D-56682			03/24/80 -	
	D-56669			03/26/80 -	5688
	D-57244	C-23100		03/27/80 - 03/28/80	5708
	D-56853			03/28/80 -	5701
	D-56852			03/30/80 -	5701
	D-56897			03/31/80 -	5705
	D-56674			04/01/80 - 04/02/80	5688
	D-56818			04/03/80 -	5699
	D-56896			04/05/80 -	5705
	D-56787			04/07/80 -	5696
	D-56785			04/08/80 -	5696
	D-57240	C-23096		04/09/80 -	5708
	D-56784			04/11/80 -	5696
	D-56905			04/12/80 -	5705
	D-56786			04/13/80 -	5696
	D-56894			04/15/80 -	5704
	D-56898			04/16/80 -	5705
	D-56696			04/17/80 -	5689
	D-56694			04/19/80 -	5689

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-56725			04/20/80 -	5691
	D-59810	C-23461	3	04/21/80 -	5946
	D-56722			04/23/80 -	5691
	D-56721			04/24/80 -	5691
	D-56693			04/25/80 -	5689
	D-56719			04/27/80 -	5691
	D-56718			04/28/80 -	5691
	D-56688			04/29/80 -	5689
	D-56687			05/01/80 -	
	D-56695			05/02/80 -	5689
	D-56861			05/03/80 -	5702
	D-56862			05/05/80 -	5702
	D-56855			05/06/80 -	5701
	D-56863			05/07/80 -	5702
	D-56864			05/09/80 -	5702
	D-56859			05/10/80 -	5702
	D-56744			05/11/80 -	5693
	D-56860			05/13/80 -	5702
	D-56715			05/14/80 -	5691
	D-56819			05/15/80 -	5699
	D-56814			05/17/80 -	5698
	D-56717			05/18/80 -	5691
	D-56704			05/19/80 -	5690
	D-56868			05/21/80 -	5702
	D-56714			05/22/80 -	5691
	D-56710			05/23/80 -	5690
	D-56713			05/25/80 -	5690
	D-56869			05/26/80 -	5702
	D-56707			05/27/80 -	5690
	D-56712			05/29/80 -	5690
	D-56858			05/30/80 -	5702
	D-56700			05/31/80 -	5689
	D-56702			06/02/80 -	5690
	D-56703			06/03/80 -	5690
	D-56684			06/04/80 -	
	D-56837			06/06/80 -	5700
	D-56845			06/07/80 -	5701
	D-56848			06/08/80 -	5701
	D-56846			06/10/80 -	5701
	D-56877			06/11/80 -	5703
	D-56759			06/12/80 -	5694
	D-56878			06/14/80 -	5703
	D-56879			06/15/80 -	5703
	D-56758			06/16/80 -	5694
	D-56875			06/18/80 -	5703
	D-56757			06/19/80 -	5694
	D-56706			06/20/80 -	5690
	D-56810			06/22/80 -	5698
	D-56885			06/26/80 -	5704
	D-56882			06/27/80 - 06/28/80	5703

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-56806			06/28/80 -	5698
	D-56866			06/30/80 -	5702
	D-56711			07/02/80 -	5690
	D-56805			07/02/80 -	5698
	D-56716			07/04/80 -	5691
	D-56854			07/05/80 -	5701
	D-56865			07/06/80 -	5702
	D-56867			07/08/80 -	5702
	D-56781			07/09/80 -	5696
	D-56782			07/10/80 -	5696
	D-56886			07/12/80 -	5704
	D-56731			07/13/80 -	5692
	D-56732			07/14/80 -	5692
	D-56730			07/16/80 -	5692
	D-56729			07/17/80 -	5692
	D-58755	C-23192		07/18/80 -	
	D-56735			07/20/80 -	5692
	D-56738			07/21/80 -	5692
	D-56887			07/22/80 -	5704
	D-56737			07/24/80 -	5692
	D-56760			07/25/80 -	5694
	D-56761			07/26/80 -	5694
	D-56762			07/28/80 -	5694
	D-56763			07/29/80 -	5694
	D-56839			07/30/80 -	5700
	D-56841			08/01/80 - 08/02/80	5700
	D-56824			08/02/80 -	5699
	D-56840			08/03/80 -	5700
	D-56724			08/05/80 -	5691
	D-56844			08/06/80 -	5701
	D-56838			08/07/80 -	5700
	D-56723			08/09/80 -	5691
	D-56751			08/10/80 -	5693
	D-56690			08/11/80 -	5689
	D-56692			08/13/80 -	5689
	D-56747			08/14/80 -	5693
	D-57242	C-23098		08/15/80 - 08/16/80	5708
	D-56691			08/17/80 -	5689
	D-56755			08/18/80 -	5694
	D-56689			08/19/80 -	5689
	D-56750			08/21/80 -	5693
	D-56749			08/22/80 -	5693
	D-56748			08/23/80 -	5693
	D-56752			08/25/80 -	5693
	D-56756			08/26/80 -	5694
	D-56804			08/27/80 -	5697
	D-56872			08/29/80 -	5703
	D-56683			08/30/80 -	
	D-56873			08/31/80 -	5703
	D-56673			09/02/80 -	5688

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SEQ. ID	D#	C#	FILES	TIME SPAN	ERC BOX #
	D-56802			09/03/80 -	5697
	D-56857			09/04/80 -	5702
	D-56708			09/06/80 -	5690
	D-56709			09/07/80 -	5690
	D-56808			09/08/80 -	5698
	D-56812			09/10/80 -	5698
	D-56856			09/11/80 -	5701
	D-56893			09/12/80 -	5704
	D-56892			09/14/80 -	5704
	D-56811			09/15/80 -	5698
	D-56888			09/16/80 -	5704
	D-56803			09/18/80 -	5697
	D-56817			09/19/80 -	5698
	D-56816			09/20/80 -	5698
	D-56815			09/22/80 -	5698
	D-56807			09/23/80 -	5698
	D-56698			09/24/80 -	5689
	D-56813			09/26/80 -	5698
	D-56809			09/27/80 -	5698
	D-56851			09/28/80 -	5701
	D-56680			09/30/80 -	
	D-56843			10/01/80 -	5700
	D-56850			10/02/80 -	5701
	D-56847			10/04/80 -	5701
	D-56686			10/05/80 -	
	D-56849			10/06/80 -	5701
	D-56884			10/08/80 -	5704
	D-56685			10/09/80 -	
	D-56679			10/10/80 -	
	D-58647	C-23152		10/12/80 -	
	D-56874			10/13/80 -	5703
	D-56836			10/14/80 -	5700
	D-56822			10/16/80 -	5699
	D-56823			10/17/80 -	5699
	D-56835			10/18/80 -	5700
	D-56834			10/20/80 -	5700
	D-56830			10/21/80 -	5699
	D-56827			10/22/80 -	5699
	D-56833			10/24/80 -	5700
	D-56831			10/25/80 -	5700
	D-58645	C-23150		10/26/80 -	
	D-56912			10/28/80 -	5706
	D-56774			10/29/80 -	5695
	D-56876			10/30/80 -	5703
	D-56754			11/01/80 -	5694
	D-59812		6	11/01/80 - 11/04/80	5946
	D-59683	C-23660	6	11/05/80 - 11/08/80	5938
	D-59811	C-23542	6	11/09/80 - 11/12/80	5946
	D-59688		6	11/13/80 - 11/16/80	5938
	D-59659		6	11/17/80 - 11/20/80	5936

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-59665		6	11/21/80 - 11/24/80	5936
	D-59674		6	11/25/80 - 11/27/80	5937
	D-59671		6	11/29/80 - 12/02/80	5937
	D-59676		6	12/03/80 - 12/06/80	5937
	D-59678		6	12/07/80 - 12/10/80	5937
	D-56975		6	12/11/80 - 12/13/80	
	D-59681		6	12/15/80 - 12/18/80	5937
	D-59692		6	12/19/80 - 12/22/80	5938
	D-59660		6	12/23/80 - 12/26/80	5936
	D-59691		6	12/27/80 - 12/30/80	5938
	D-59661		6	12/31/80 - 01/03/81	5936
	D-59679		6	01/04/81 - 01/07/81	5937
	D-59687		6	01/08/81 - 01/11/81	5938
	D-59677		6	01/12/81 - 01/15/81	5937
	D-59654		6	01/16/81 - 01/19/81	5935
	D-59898		6	01/20/81 - 01/23/81	5950
	D-59693		6	01/24/81 - 01/27/81	5938
	D-59657		6	01/28/81 - 01/31/81	5936
	D-59689		6	02/01/81 - 02/04/81	5938
	D-59672		6	02/05/81 - 02/07/81	5937
	D-59694		6	02/09/81 - 02/11/81	5938
	D-59667		6	02/13/81 - 02/16/81	5936
	D-59673		6	02/17/81 - 02/20/81	5937
	D-59664		6	02/21/81 - 02/23/81	5936
	D-59690		6	02/25/81 - 02/28/81	5938
	D-59685		6	03/01/81 - 03/04/81	5938
	D-59663		6	03/05/81 - 03/07/81	5936
	D-59682		6	03/09/81 - 03/12/81	5938
	D-59670		6	03/13/81 - 03/16/81	5937
	D-59666		6	03/17/81 - 03/20/81	5936
	D-59684		6	03/21/81 - 03/23/81	5938
	D-59655		6	03/25/81 - 03/28/81	5935
	D-59669		6	03/29/81 - 04/01/81	5937
	D-59658		6	04/02/81 - 04/05/81	5936
	D-59656		6	04/06/81 - 04/09/81	5936
	D-59680		6	04/10/81 - 04/13/81	5937
	D-59662		6	04/14/81 - 04/17/81	5936
	D-59668		6	04/18/81 - 04/21/81	5936
	D-59686		6	04/22/81 - 04/25/81	5938
	D-59695		6	04/26/81 - 04/29/81	5939
	D-59977		6	04/30/81 - 05/02/81	5951
	D-59981		6	05/04/81 - 05/07/81	5951
	D-60166		6	05/07/81 - 05/10/81	5958
	D-59976		6	05/12/81 - 05/15/81	5951
	D-59975		6	05/16/81 - 05/19/81	5951
	D-59997		6	05/20/81 - 05/23/81	5953
	D-59991		6	05/24/81 - 05/27/81	5952
	D-59990		6	05/28/81 - 05/31/81	5952
	D-59966		6	06/01/81 - 06/04/81	5950
	D-60000		6	06/05/81 - 06/08/81	5953

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-60475		6	06/09/81 - 06/12/81	5980
	D-59971		6	06/13/81 - 06/16/81	5951
	D-60004		6	06/17/81 - 06/20/81	5953
	D-59992		6	06/21/81 - 06/24/81	5952
	D-59984		6	06/25/81 - 06/28/81	5952
	D-59974		6	06/29/81 - 07/02/81	5951
	D-59969		6	07/03/81 - 07/06/81	5951
	D-59970		6	07/07/81 - 07/10/81	5951
	D-59979		6	07/11/81 - 07/13/81	5951
	D-60477		6	07/15/81 - 07/18/81	5980
	D-60476		6	07/19/81 - 07/22/81	5980
	D-59978		6	07/23/81 - 07/26/81	5951
	D-60002		6	07/27/81 - 07/30/81	5953
	D-60003		6	07/31/81 - 08/03/81	5953
	D-60005		6	08/04/81 - 08/07/81	5953
	D-59999		6	08/08/81 - 08/11/81	5953
	D-59993		6	08/12/81 - 08/15/81	5952
	D-60167		6	08/15/81 - 08/18/81	5958
	D-59994		6	08/20/81 - 08/23/81	5952
	D-59968		6	08/24/81 - 08/27/81	5950
	D-59980		6	08/28/81 - 08/31/81	5951
	D-59983		6	09/01/81 - 09/04/81	5952
	D-59989		6	09/05/81 - 09/07/81	5952
	D-59996		6	09/09/81 - 09/12/81	5953
	D-59967		6	09/13/81 - 09/16/81	5950
	D-59982		6	09/17/81 - 09/20/81	5952
	D-59985		6	09/21/81 - 09/24/81	5952
	D-59986		6	09/25/81 - 09/27/81	5952
	D-59998		6	09/29/81 - 10/02/81	5953
	D-59995		6	10/03/81 - 10/05/81	5953
	D-60474		6	10/07/81 - 10/10/81	5980
	D-60006		6	10/11/81 - 10/14/81	5953
	D-59972		6	10/15/81 - 10/18/81	5951
	D-60001		6	10/19/81 - 10/22/81	5953
	D-59973		6	10/23/81 - 10/26/81	5951
	D-59987		6	10/27/81 - 10/30/81	5952
	D-59988		6	10/31/81 - 11/03/81	5952
	D-62600		5	11/04/81 - 11/07/81	6316
	D-62595		5	11/08/81 - 11/11/81	6316
	D-62536		5	11/12/81 - 11/15/81	6313
	D-62599		5	11/16/81 - 11/19/81	6316
	D-62580		5	11/20/81 - 11/23/81	6315
	D-62581		5	11/24/81 - 11/27/81	6315
	D-62546		5	11/28/81 - 11/30/81	6313
	D-62723		5	12/02/81 - 12/05/81	6319
	D-62726		5	12/06/81 - 12/09/81	6319
	D-62585		5	12/10/81 - 12/13/81	6315
	D-62572		5	12/14/81 - 12/17/81	6315
	D-62728		5	12/18/81 - 12/21/81	6319
	D-62543		5	12/22/81 - 12/25/81	6313

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-62716		5	12/26/81 - 12/29/81	6318
	D-62537		5	12/30/81 - 01/02/82	6313
	D-62596		5	01/03/82 - 01/06/82	6316
	D-62557		5	01/07/82 - 01/10/82	6314
	D-62722		5	01/11/82 - 01/14/82	6319
	D-62717		5	01/15/82 - 01/18/82	6319
	D-62538		5	01/19/82 - 01/22/82	6313
	D-62587		5	01/23/82 - 01/26/82	6315
	~~D-62459~~		~~4~~	~~01/26/82 - 01/29/82~~	~~6450~~
	D-62556		5	01/27/82 - 01/30/82	6314
	D-63449		4	01/30/82 - 02/02/82	6449
	D-62602		5	01/31/82 - 02/03/82	6316
	D-62535		5	02/04/82 - 02/07/82	6313
	D-62593		5	02/08/82 - 02/11/82	6316
	D-62540		5	02/12/82 - 02/15/82	6313
	D-62584		5	02/16/82 - 02/19/82	6315
	D-62719		5	02/20/82 - 02/22/82	6319
	D-62721		5	02/24/82 - 02/27/82	6319
	D-62559		5	02/28/82 - 03/03/82	6314
	D-62583		5	03/04/82 - 03/07/82	6315
	D-62591		5	03/08/82 - 03/10/82	6316
	D-62569		5	03/12/82 - 03/15/82	6314
	D-62590		5	03/16/82 - 03/19/82	6316
	D-62545		5	03/20/82 - 03/22/82	6313
	D-62534		5	03/24/82 - 03/27/82	6313
	D-62563		5	03/28/82 - 03/31/82	6314
	D-62589		5	04/01/82 - 04/04/82	6315
	D-62718		5	04/05/82 - 04/08/82	6319
	D-62567		5	04/09/82 - 04/12/82	6314
	D-62714		5	04/13/82 - 04/16/82	6318
	D-62562		5	04/17/82 - 04/19/82	6314
	D-62551		5	04/21/82 - 04/24/82	6313
	D-62542		5	04/25/82 - 04/28/82	6313
	D-62579		5	04/29/82 - 05/02/82	6315
	D-62730		5	05/03/82 - 05/06/82	6319
	D-62548		5	05/07/82 - 05/10/82	6313
	D-62733		5	05/11/82 - 05/14/82	6319
	D-62588		5	05/15/82 - 05/17/82	6315
	D-62574		5	05/19/82 - 05/22/82	6315
	D-62554		5	05/23/82 - 05/26/82	6314
	D-62550		5	05/27/82 - 05/30/82	6313
	D-62597		5	05/31/82 - 06/03/82	6316
	D-62577		5	06/04/82 - 06/07/82	6315
	D-62565		5	06/08/82 - 06/11/82	6314
	D-62598		5	06/12/82 - 06/14/82	6316
	D-62603		5	06/16/82 - 06/19/82	6316
	D-62561		5	06/20/82 - 06/23/82	6314
	D-62539		5	06/24/82 - 06/26/82	6313
	D-62560		5	06/28/82 - 07/01/82	6314
	D-62578		5	07/02/82 - 07/05/82	6315

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-62582		5	07/06/82 - 07/09/82	6315
	D-62549		5	07/10/82 - 07/13/82	6313
	D-62592		5	07/14/82 - 07/17/82	6316
	D-62544		5	07/18/82 - 07/21/82	6313
	D-62725		5	07/22/82 - 07/24/82	6319
	D-62547		5	07/26/82 - 07/29/82	6313
	D-62586		5	07/30/82 - 08/02/82	6315
	D-62594		5	08/03/82 - 08/06/82	6316
	D-62720		5	08/07/82 - 08/10/82	6319
	D-62601		5	08/11/82 - 08/14/82	
	D-62712		5	08/15/82 - 08/18/82	6318
	D-62576		5	08/19/82 - 08/22/82	6315
	D-62558		5	08/23/82 - 08/26/82	6314
	D-62575		5	08/27/82 - 08/30/82	6315
	D-62564		5	08/31/82 - 09/03/82	6314
	D-62715		5	09/04/82 - 09/06/82	6318
	D-62731		5	09/08/82 - 09/11/82	6319
	D-62553		5	09/12/82 - 09/15/82	6314
	D-62727		5	09/16/82 - 09/18/82	6319
	D-62724		5	09/20/82 - 09/23/82	6319
	D-62555		5	09/24/82 - 09/27/82	6314
	D-62570		5	09/28/82 - 10/01/82	6314
	D-62568		5	10/02/82 - 10/04/82	6314
	D-62732		5	10/06/82 - 10/08/82	6319
	D-62713		5	10/10/82 - 10/13/82	6318
	D-62573		5	10/14/82 - 10/17/82	6315
	D-62541		5	10/18/82 - 10/21/82	6313
	D-62552		5	10/22/82 - 10/25/82	6314
	D-62729		5	10/26/82 - 10/29/82	6319
	D-62571		5	10/30/82 - 11/02/82	6315
	D-62566		5	11/03/82 - 11/06/82	6314
	D-63456		4	11/07/82 - 11/10/82	6311
	D-63437		4	11/11/82 - 11/13/82	6449
	D-63436		4	11/15/82 - 11/18/82	6449
	D-63442		4	11/19/82 - 11/22/82	6449
	D-63434		4	11/23/82 - 11/25/82	6449
	D-63433		4	11/27/82 - 11/30/82	6449
	D-63457		4	12/01/82 - 12/04/82	6450
	D-63435		4	12/05/82 - 12/08/82	6449
	D-63444		4	12/09/82 - 12/11/82	6449
	D-63441		4	12/13/82 - 12/16/82	6449
	D-63440		4	12/17/82 - 12/20/82	6449
	D-63443		4	12/21/82 - 12/24/82	6449
	D-63438		4	12/25/82 - 12/28/82	6449
	D-63439		4	12/29/82 - 01/01/83	6449
	D-63460		4	01/02/83 - 01/05/83	6450
	D-63455		4	01/06/83 - 01/09/83	6450
	D-63470		4	01/10/83 - 01/13/83	6451
	D-63472		4	01/14/83 - 01/17/83	6451
	D-63453		4	01/18/83 - 01/20/83	6450

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-63454		4	01/22/83 - 01/25/83	6450
	D-63459		4	01/26/83 - 01/29/83	
	D-63449		4	01/30/83 - 02/02/83	
	D-65244		5	02/03/83 - 02/06/83	6793
	D-63474		4	02/07/83 - 02/10/83	6451
	D-63466		4	02/11/83 - 02/13/83	6450
	D-63465		4	02/15/83 - 02/17/83	6450
	D-63458		4	02/19/83 - 02/21/83	6450
	D-63452		4	02/23/83 - 02/26/83	6450
	D-63471		4	02/27/83 - 03/02/83	6451
	D-63473		4	03/03/83 - 03/06/83	6451
	D-63463		4	03/07/83 - 03/10/83	6450
	D-63475		4	03/11/83 - 03/14/83	6451
	D-63467		4	03/15/83 - 03/18/83	6450
	D-63450		4	03/19/83 - 03/22/83	6450
	D-63448		4	03/23/83 - 03/26/83	6449
	D-65927		5	03/27/83 - 03/29/83	6816
	D-63451		4	03/31/83 - 04/03/83	6450
	D-63461		4	04/04/83 - 04/07/83	6450
	D-63462		4	04/08/83 - 04/11/83	6450
	D-63464		4	04/12/83 - 04/15/83	6450
	D-63469		4	04/16/83 - 04/19/83	6451
	D-63447		4	04/20/83 - 04/23/83	6449
	D-63445		4	04/24/83 - 04/26/83	6449
	D-63446		4	04/28/83 - 05/01/83	6449
	D-63468		4	05/02/83 - 05/05/83	6450
	D-64695		5	05/06/83 - 05/09/83	6679
	D-64696		5	05/10/83 - 05/13/83	6679
	D-64706		5	05/14/83 - 05/17/83	6680
	D-64711		5	05/18/83 - 05/21/83	6680
	D-64712		5	05/22/83 - 05/24/83	6680
	D-64694		5	05/26/83 - 05/29/83	6679
	D-64699		5	05/30/83 - 06/02/83	6679
	D-64708		5	06/03/83 - 06/06/83	6680
	D-64700		5	06/07/83 - 06/10/83	6679
	D-64709		5	06/11/83 - 06/14/83	6680
	D-64713		5	06/15/83 - 06/18/83	6680
	D-64703		5	06/19/83 - 06/22/83	6679
	D-64698		5	06/23/83 - 06/26/83	6679
	D-64702		5	06/27/83 - 06/30/83	6679
	D-64707		5	07/01/83 - 07/04/83	6680
	D-64704		5	07/05/83 - 07/08/83	6679
	D-64697		5	07/09/83 - 07/12/83	6679
	D-64710		5	07/13/83 - 07/16/83	6680
	D-64701		5	07/17/83 - 07/20/83	6679
	D-64714		5	07/21/83 - 07/24/83	6680
	D-64721		5	07/25/83 - 07/28/83	6680
	D-64723		5	07/29/83 - 07/31/83	6680
	D-64725		5	08/02/83 - 08/05/83	6681
	D-64724		5	08/06/83 - 08/09/83	6681

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
	D-64737		5	08/10/83 - 08/12/83	6681
	D-64718		5	08/14/83 - 08/17/83	6680
	D-64729		5	08/22/83 - 08/25/83	6681
	D-64731		5	08/26/83 - 08/29/83	6681
	D-64719		5	08/30/83 - 09/02/83	6680
	D-64730		5	09/03/83 - 09/06/83	6681
	D-65243		5	09/07/83 - 09/10/83	6793
	D-64715		5	09/11/83 - 09/14/83	6680
	D-64722		3	09/14/83 - 09/15/83	6680
	D-64727		5	09/15/83 - 09/18/83	6681
	D-64720		5	09/18/83 - 09/21/83	6680
	D-64693		5	09/21/83 - 09/24/83	6679
	D-64705		5	09/24/83 - 09/27/83	6680
	D-64735		5	09/27/83 - 09/30/83	6681
	D-64734		5	09/30/83 - 10/03/83	6681
	D-64726		5	10/03/83 - 10/06/83	6681
	D-64736		5	10/06/83 - 10/09/83	6681
	D-64738		5	10/09/83 - 10/12/83	6681
	D-64739		5	10/12/83 - 10/15/83	6681
	D-64733		5	10/15/83 - 10/18/83	6681
	D-64732		5	10/18/83 - 10/21/83	6681
	D-64740		5	10/24/83 - 10/27/83	6681
	D-64728		5	10/27/83 - 10/30/83	6681
	D-64716		5	10/30/83 - 11/02/83	6680
	D-64717		5	11/02/83 - 11/05/83	6680
33091-3	D-72851		5	11/05/83 - 11/08/83	7173
33121-3	D-72369		5	11/08/83 - 11/11/83	7156
33151-3	D-72400		5	11/11/83 - 11/14/83	7157
33181-3	D-72376		5	11/14/83 - 11/17/83	7156
33211-3	D-72421		5	11/17/83 - 11/20/83	7159
33241-3	D-72422		5	11/20/83 - 11/23/83	7159
33271-3	D-72446		5	11/23/83 - 11/26/83	7160
33301-3	D-72419		5	11/26/83 - 11/29/83	7158
33331-3	D-72398		5	11/29/83 - 12/02/83	7157
33361-3	D-72418		5	12/02/83 - 12/05/83	7158
33391-3	D-72433		5	12/05/83 - 12/08/83	7159
33421-3	D-72372		5	12/08/83 - 12/11/83	7156
33451-3	D-72415		5	12/11/83 - 12/14/83	7158
33481-3	D-72440		5	12/14/83 - 12/16/83	7160
33511-3	D-72377		5	12/17/83 - 12/19/83	7156
33541-3	D-72444		5	12/20/83 - 12/23/83	7160
33571-3	D-72416		5	12/23/83 - 12/26/83	7158
33601-3	D-72441		5	12/26/83 - 12/29/83	7160
33631-3	D-72380		5	12/29/83 - 01/01/84	7156
40011-3	D-72417		5	01/01/84 - 01/04/84	7158
40041-3	D-72412		5	01/04/84 - 01/06/84	7158
40071-3	D-72413		5	01/07/84 - 01/10/84	7158
40101-3	D-72409		5	01/10/84 - 01/13/84	7158
40131-3	D-72402		5	01/13/84 - 01/15/84	7158
40161-3	D-72370		5	01/16/84 - 01/19/84	7156

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
40191-3	D-72436		5	01/19/84 - 01/22/84	7159
40221-3	D-72371		5	01/22/84 - 01/25/84	7156
40251-3	D-72374		5	01/25/84 - 01/28/84	7156
40281-3	D-72368		5	01/28/84 - 01/31/84	7156
40311-3	D-72401		5	01/31/84 - 02/03/84	7157
40341-3	D-72420		5	02/03/84 - 02/06/84	7158
40371-3	D-72423		5	02/06/84 - 02/09/84	7159
40401-3	D-72425		5	02/09/84 - 02/12/84	7159
40431-3	D-72424		5	02/12/84 - 02/15/84	7159
40461-3	D-72405		5	02/15/84 - 02/18/84	7158
40491-3	D-72414		5	02/18/84 - 02/21/84	7158
40521-3	D-72427		5	02/21/84 - 02/24/84	7159
40551-3	D-72359		5	02/24/84 - 02/27/84	7155
40581-3	D-72360		5	02/27/84 - 03/01/84	7155
40611-3	D-72367		5	03/01/84 - 03/04/84	7156
40641-3	D-72363		5	03/04/84 - 03/07/84	7155
40671-3	D-72352		5	03/07/84 - 03/10/84	7155
40701-3	D-72411		5	03/10/84 - 03/13/84	7158
40731-3	D-72430		5	03/13/84 - 03/16/84	7159
40761-3	D-72442		5	03/16/84 - 03/19/84	7160
40791-3	D-72429		5	03/19/84 - 03/22/84	7159
40821-3	D-72431		5	03/22/84 - 03/25/84	7159
40851-3	D-72406		5	03/25/84 - 03/28/84	7158
40881-3	D-72366		5	03/28/84 - 03/31/84	7156
40911-3	D-72410		5	03/31/84 - 04/03/84	7158
40941-3	D-72434		5	04/03/84 - 04/06/84	7159
40971-3	D-72390		5	04/06/84 - 04/09/84	7157
41001-3	D-72407		5	04/09/84 - 04/12/84	7158
41031-3	D-72432		5	04/12/84 - 04/15/84	7159
41061-3	D-72408		5	04/15/84 - 04/17/84	7158
41091-3	D-72435		5	04/18/84 - 04/21/84	7159
41131-3	D-72350		5	04/22/84 - 04/25/84	7155
41171-3	D-72404		5	04/26/84 - 04/28/84	7158
41211-3	D-72387		5	04/30/84 - 05/02/84	7157
41251-3	D-72443		5	05/04/84 - 05/07/84	7160
41291-3	D-72391		5	05/08/84 - 05/10/84	7157
41331-3	D-72392		5	05/12/84 - 05/15/84	7157
41371-3	D-72351		5	05/16/84 - 05/19/84	7155
41411-3	D-72428		5	05/20/84 - 05/22/84	7159
41451-3	D-72361		5	05/24/84 - 05/26/84	7155
41491-3	D-72447		5	05/28/84 - 05/31/84	7160
41531-3	D-72426		5	06/01/84 - 06/04/84	7159
41571-3	D-72393		5	06/05/84 - 06/08/84	7157
41611-3	D-72373		5	06/09/84 - 06/12/84	7156
41651-3	D-72385		5	06/13/84 - 06/16/84	7157
41691-3	D-72386		5	06/17/84 - 06/19/84	7157
41731-3	D-72448		5	06/21/84 - 06/23/84	7160
41771-3	D-72383		5	06/25/84 - 06/28/84	7157
41811-3	D-72384		5	06/29/84 - 07/02/84	7157
41851-3	D-72397		5	07/03/84 - 07/05/84	7157

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
41891-3	D-72382		5	07/07/84 - 07/10/84	7156
41931-3	D-72388		5	07/11/84 - 07/14/84	7157
41971-3	D-72375		5	07/15/84 - 07/17/84	7156
42011-3	D-72399		5	07/17/84 - 07/21/84	7157
42051-3	D-72846		5	07/23/84 - 07/26/84	7173
42091-3	D-72403		5	07/27/84 - 07/29/84	7158
42131-3	D-72396		5	07/31/84 - 08/03/84	7157
42171-3	D-72395		5	08/04/84 - 08/07/84	7157
42211-3	D-72381		5	08/08/84 - 08/11/84	7156
42251-3	D-72437		5	08/12/84 - 08/14/84	7159
42291-3	D-72378		5	08/16/84 - 08/19/84	7156
42331-3	D-72439		5	08/20/84 - 08/23/84	7159
42371-3	D-72445		5	08/24/84 - 08/26/84	7160
42411-3	D-72438		5	08/28/84 - 08/31/84	7159
42451-3	D-72847		5	09/01/84 - 09/04/84	7173
42491-3	D-72379		5	09/05/84 - 09/08/84	7156
42531-3	D-72852		5	09/09/84 - 09/12/84	7173
42571-3	D-72853		5	09/13/84 - 09/16/84	7173
42611-3	D-72389		5	09/17/84 - 09/20/84	7157
42651-3	D-72365		5	09/21/84 - 09/23/84	7156
42691-3	D-72394		5	09/25/84 - 09/27/84	7157
42731-3	D-72349		5	09/29/84 - 10/02/84	7155
42771-3	D-72362		5	10/03/84 - 10/05/84	7155
42811-3	D-72364		5	10/07/84 - 10/10/84	7156
42851-3	D-72849		5	10/11/84 - 10/14/84	7173
42891-3	D-72355		5	10/15/84 - 10/18/84	7155
42931-3	D-72848		5	10/19/84 - 10/21/84	7173
42971-3	D-72358		5	10/23/84 - 10/25/84	7155
43011-3	D-72356		5	10/27/84 - 10/30/84	7155
43041-3	D-72353		5	10/30/84 - 11/02/84	7155
43051-3	D-72354		5	10/31/84 - 11/03/84	7155
43071-3	D-72850		5	11/02/84 - 11/05/84	7173
43101A2	D-73406		6	11/05/84 - 11/08/84	
43131-2	D-73405		6	11/08/84 - 11/11/84	
43161A2	D-73407		6	11/11/84 - 11/14/84	
43191A2	D-73412		6	11/14/84 - 11/16/84	
43221A2	D-73397		6	11/17/84 - 11/20/84	7183
43251-2	D-73399		6	11/20/84 - 11/22/84	
43281B2	D-73408		6	11/23/84 - 11/26/84	
43311-2	D-73414		6	11/26/84 - 11/29/84	
43331-2	D-73400		6	11/28/84 - 12/01/84	
43341-2	D-73398		6	11/29/84 - 12/02/84	
43371A2	D-73401		6	12/02/84 - 12/05/84	
43401-2	D-73403		6	12/05/84 - 12/08/84	
43431A2	D-73404		6	12/08/84 - 12/11/84	
43461-2	D-73423		6	12/11/84 - 12/13/84	
43491-2	D-73413		6	12/14/84 - 12/16/84	
43521-2	D-73411		6	12/17/84 - 12/20/84	
43551-2	D-73410		6	12/20/84 - 12/23/84	
43581-2	D-73402		6	12/23/84 - 12/26/84	

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
43611A2	D-73409		6	12/26/84 - 12/29/84	
43641B2	D-73416		6	12/29/84 - 01/01/85	
50011A2	D-73418		6	01/01/85 - 01/02/85	
50041-2	D-73424		6	01/04/85 - 01/06/85	
50071A2	D-73425		6	01/07/85 - 01/09/85	
50101-2	D-73415		6	01/10/85 - 01/12/85	
50131-2	D-73420		6	01/13/85 - 01/15/85	
50161-2	D-73426		6	01/16/85 - 01/18/85	
50191-2	D-73419		6	01/19/85 - 01/21/85	
50221-2	D-73422		6	01/22/85 - 01/24/85	
50251-2	D-73417		6	01/25/85 - 01/27/85	
50281-2	D-73421		6	01/28/85 - 01/31/85	
50311-2	D-74716		6	01/31/85 -	
50341-2	D-74680		6	02/03/85 -	
50371	D-74815		6	02/06/85 -	
50401-2	D-74719		6	02/09/85 -	
50431-2	D-74712		6	02/12/85 -	
50461-2	D-74713		6	02/15/85 -	
50491A	D-74798		6	02/18/85 -	
50521	D-74807		6	02/21/85 -	
50551-2	D-74682		6	02/24/85 -	
50581	D-74805		6	02/27/85 -	
50611	D-74816		6	03/02/85 -	
50641-2	D-74686		6	03/05/85 -	
50671-2	D-74677		6	03/08/85 -	
50701	D-74799		6	03/11/85 -	
50731-2	D-74729		6	03/14/85 -	
50761-2	D-74678		6	03/17/85 -	
50791A2	D-74730		6	03/20/85 -	
50821-2	D-74721		6	03/23/85 -	
50851-2	D-74710		6	03/26/85 -	
50881-2	D-74681		6	03/29/85 -	
50911-2	D-74714		6	04/01/85 -	
50941-2	D-74594		6	04/04/85 - 04/07/85	
50971-2	D-74670		6	04/07/85 -	
51001	D-74808		6	04/10/85 -	
51031-2	D-74595		6	04/13/85 - 04/16/85	
51061-2	D-74698		6	04/16/85 -	
51091-2	D-74709		6	04/19/85 -	
51121-2	D-74674		6	04/22/85 -	
51151-2	D-74691		6	04/25/85 -	
51181-2	D-74693		6	04/28/85 -	
51211-2	D-74679		6	05/01/85 -	
51241-2	D-74675		6	05/04/85 -	
51271-2	D-74708		6	05/07/85 -	
51301-2	D-74683		6	05/10/85 -	
51331	D-74803		6	05/13/85 -	
51361-2	D-74692		6	05/16/85 -	
51391-2	D-74711		6	05/19/85 -	

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
51421-2	D-74671		6	05/22/85 -	
51451-2	D-74689		6	05/25/85 -	
51481-2	D-74668		6	05/28/85 -	
51511-2	D-74694		6	05/31/85 -	
51541-2	D-74673		6	06/03/85 -	
51571-2	D-74672		6	06/06/85 -	
51601-2	D-74727		6	06/09/85 -	
51631-2	D-74684		6	06/12/85 -	
51661-2	D-74676		6	06/15/85 -	
51691-2	D-74696		6	06/18/85 -	
51721-2	D-74726		6	06/21/85 -	
51751-2	D-74703		6	06/24/85 -	
51781-2	D-74702		6	06/27/85 -	
51811-2	D-74728		6	06/30/85 -	
51841-2	D-74688		6	07/03/85 -	
51871	D-74814		6	07/06/85 -	
51901-2	D-74690		6	07/09/85 -	
	D-74653		6	07/12/85 - 07/15/85	
51961-2	D-74706		6	07/15/85 -	
51991-2	D-74707		6	07/18/85 -	
52021	D-74804		6	07/21/85 -	
52051	D-74802		6	07/24/85 -	
52081-2	D-74663		6	07/27/85 -	
52111-2	D-74685		6	07/30/85 -	
52141-2	D-74695		6	08/02/85 -	
52171-2	D-74687		6	08/05/85 -	
52201-2	D-74722		6	08/08/85 -	
52231-2	D-74724		6	08/11/85 -	
52261	D-74813		6	08/14/85 -	
52291-2	D-74705		6	08/17/85 -	
52321-2	D-74725		6	08/20/85 -	
52351	D-74812		6	08/23/85 -	
52381-2	D-74704		6	08/26/85 -	
52411	D-74806		6	08/29/85 -	
52441-2	D-74665		6	09/01/85 -	
52471-2	D-74667		6	09/04/85 -	
52501	D-74810		6	09/07/85 -	
	D-75558		6	09/10/85 -	
52561-2	D-74666		6	09/13/85 -	
52591-2	D-74715		6	09/16/85 -	
52621-2	D-74697		6	09/19/85 -	
52651	D-74801		6	09/22/85 -	
52681-2	D-74700		6	09/25/85 -	
52711-2	D-74717		6	09/28/85 -	
52741-2	D-74718		6	10/01/85 -	
52771-2	D-74720		6	10/04/85 -	
52801-2	D-74699		6	10/07/85 -	
	D-74654		5	10/10/85 - 10/13/85	
52861-3	D-72357		5	10/12/85 - 10/15/85	7155
52861-2	D-74723		6	10/13/85 -	
52891-2	D-74669		6	10/16/85 -	

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SEQ. ID	D#	C#	FILES	TIME SPAN	FRC BOX #
52921	D-74811		6	10/19/85 -	
52951	D-74800		6	10/22/85 -	
52981	D-74809		6	10/25/85 -	
53011-2	D-74701		6	10/28/85 -	
53041-2	D-74664		6	10/31/85 -	
	D-76046		6	11/03/85 -	
	D-76045		6	11/06/85 -	
	D-76057		6	11/09/85 -	
	D-76058		6	11/12/85 -	
	D-76059		6	11/15/85 -	
	D-76060		6	11/18/85 -	
	D-76061		6	11/21/85 -	
	D-76062		6	11/24/85 -	
	D-76043		6	11/27/85 -	
	D-76044		6	11/30/85 -	
	D-76025		6	12/03/85 -	
	D-76024		6	12/06/85 -	
	D-76023		6	12/09/85 -	
	D-76022		6	12/12/85 -	
	D-76021		6	12/15/85 -	
	D-76020		6	12/18/85 -	
	D-76019		6	12/21/85 -	
	D-76018		6	12/24/85 -	
	D-76017		6	12/27/85 -	
	D-76016		6	12/30/85 -	
	D-76028		6	01/02/86 -	
	D-76029		6	01/05/86 -	
	D-76030		6	01/08/86 -	
	D-76031		6	01/11/86 -	
	D-76032		6	01/14/86 -	
	D-76033		6	01/17/86 -	
	D-76035		6	01/20/86 -	
	D-76036		6	01/23/86 -	
	D-76015		6	01/26/86 -	
	D-76037		6	01/29/86 -	
	D-76026		6	02/01/86 -	
	D-76027		6	02/04/86 -	
	D-76042		6	02/07/86 -	
	D-74817		6	02/10/86 -	
	D-76047		6	02/13/86 -	
	D-76048		6	02/16/86 -	
	D-76049		6	02/19/86 -	
	D-76050		6	02/22/86 -	
	D-76051		6	02/25/86 -	
	D-76052		6	02/28/86 -	
	D-76041		6	03/03/86 -	
	D-76040		6	03/06/86 -	
	D-76039		6	03/09/86 -	
	D-76014		6	03/12/86 -	
	D-76038		6	03/15/86 -	

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D#	C#	FILES	TIME SPAN
D-76034		6	03/18/86 -
D-76056		6	03/21/86 -
D-76055		6	03/24/86 -
D-76054		6	03/27/86 -
D-76053		6	03/30/86 -
D-78088		6	04/02/86 -
D-78089		6	04/05/86 -
D-78090		6	04/08/86 -
D-78091		6	04/11/86 -
D-78092		6	04/14/86 -
D-78093		6	04/17/86 -
D-78094		6	04/20/86 -
D-78095		6	04/23/86 -
D-78096		6	04/26/86 -
D-78097		6	04/29/86 -
D-78098		6	05/02/86 -
D-78099		6	05/05/86 -
D-78100		6	05/08/86 -
D-78101		6	05/11/86 -
D-78082		6	05/14/86 -
D-78060		6	05/17/86 -
D-78061		6	05/20/86 -
D-78062		6	05/23/86 -
D-78063		6	05/26/86 -
D-78064		6	05/29/86 -
D-78065		6	06/01/86 -
D-78066		6	06/04/86 -
D-78067		6	06/07/86 -
D-78068		6	06/10/86 -
D-78069		6	06/13/86 -
D-78070		6	06/16/86 -
D-78071		6	06/19/86 -
D-78072		6	06/22/86 -
D-78073		6	06/25/86 -
D-78046		6	06/28/86 -
D-78047		6	07/01/86 -
D-78048		6	07/04/86 -
D-78049		6	07/07/86 -
D-78050		6	07/10/86 -
D-78051		6	07/13/86 -
D-78052		6	07/16/86 -
D-78053		6	07/19/86 -
D-78054		6	07/22/86 -
D-78055		6	07/25/86 -
D-78056		6	07/28/86 -
D-78057		6	07/31/86 -
D-78058		6	08/03/86 -
D-78059		6	08/06/86 -
D-78084		6	08/09/86 -
D-78085		6	08/12/86 -
D-78074		6	08/15/86 -

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D#	C#	FILES	TIME SPAN
D-78075		6	08/18/86 -
D-78076		6	08/21/86 -
D-78077		6	08/24/86 -
D-78078		6	08/27/86 -
D-78079		6	08/30/86 -
D-78080		6	09/02/86 -
D-78081		6	09/05/86 -
D-78103		6	09/08/86 -
D-78083		6	09/11/86 -
D-78086		6	09/14/86 -
D-78087		6	09/17/86 -
D-78102		6	09/20/86 -
D-78104		6	09/23/86 -
D-78105		6	09/26/86 -
D-78106		6	09/29/86 -
D-78107		6	10/02/86 -
D-78108		6	10/05/86 -
D-78109		6	10/08/86 -
D-78110		6	10/11/86 -
D-78111		6	10/14/86 -
D-78112		6	10/17/86 -
D-78113		6	10/20/86 -
D-78114		6	10/23/86 -
D-78115		6	10/26/86 -
D-78116		6	10/29/86 -
D-80142		6	11/01/86 -
D-80147		6	11/04/86 -
D-80141		6	11/07/86 -
D-80140		6	11/10/86 -
D-80137		6	11/13/86 -
D-80139		6	11/16/86 -
D-82633		6	11/19/86 - 11/21/86
D-80138		6	11/22/86 -
D-80145		6	11/25/86 -
D-80227		6	11/28/86 -
D-82634		6	12/01/86 - 12/04/86
D-80199		6	12/04/86 -
D-82627		6	12/07/86 - 12/10/86
D-82628		6	12/10/86 - 12/13/86
D-82629		6	12/13/86 - 12/16/86
D-82626		6	12/16/86 - 12/19/86
D-82625		6	12/19/86 - 12/22/86
D-82624		6	12/22/86 - 12/25/86
D-82623		6	12/25/86 - 12/28/86
D-82644		6	12/28/86 - 12/31/86
D-83165		6	12/31/86 - 01/03/87
D-82643		6	01/03/87 - 01/06/87
D-80152		6	01/06/87 -
D-80228		6	01/09/87 -
D-80151		6	01/12/87 -
D-80150		6	01/15/87 -

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D#	C#	FILES	TIME SPAN
D-80149		6	01/18/87 -
D-80148		6	01/21/87 -
D-82642		6	01/24/87 - 01/27/87
D-80144		6	01/27/87 -
D-80143		6	01/30/87 -
D-80127		6	02/02/87 -
D-80126		6	02/05/87 -
D-80124		6	02/08/87 -
D-80125		6	02/11/87 -
D-80123		6	02/14/87 -
D-80225		6	02/17/87 -
D-80224		6	02/20/87 -
D-80136		6	02/23/87 -
D-80135		6	02/26/87 -
D-82641		6	03/01/87 - 03/04/87
D-80134		6	03/04/87 -
D-80133		6	03/07/87 -
D-80132		6	03/10/87 -
D-80131		6	03/13/87 -
D-80130		6	03/16/87 -
D-80209		6	03/19/87 -
D-82640		6	03/22/87 - 03/25/87
D-80129		6	03/23/87 -
D-80208		6	03/25/87 -
D-80128		6	03/31/87 -
D-82639		6	04/03/87 - 04/06/87
D-80210		6	04/06/87 -
D-82638		6	04/09/87 - 04/12/87
D-82645		6	04/12/87 - 04/15/87
D-82632		6	04/15/87 - 04/18/87
D-82630		6	04/18/87 - 04/21/87
D-82603		6	04/21/87 -
D-82631		6	04/24/87 - 04/27/87
D-80206		6	04/30/87 -
D-80198		6	05/03/87 -
D-80161		6	05/06/87 -
D-80160		6	05/09/87 -
D-80159		6	05/12/87 -
D-80158		6	05/15/87 -
D-80157		6	05/18/87 -
D-80156		6	05/21/87 -
D-80155		6	05/24/87 -
D-80232		6	05/27/87 -
D-80154		6	05/30/87 -
D-80153		6	06/02/87 -
D-80170		6	06/05/87 -
D-80171		6	06/08/87 -
D-80172		6	06/11/87 -
D-80173		6	06/14/87 -
D-80174		6	06/17/87 -

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D#	C#	FILES	TIME SPAN
D-80175		6	06/20/87 -
D-80176		6	06/23/87 -
D-80177		6	06/26/87 -
D-80178		6	06/29/87 -
D-80179		6	07/02/87 -
D-80219		6	07/05/87 -
D-80218		6	07/08/87 -
D-80217		6	07/11/87 -
D-80216		6	07/14/87 -
D-80215		6	07/17/87 -
D-80221		6	07/20/87 -
D-80212		6	07/23/87 -
D-80229		6	07/26/87 -
D-80213		6	07/29/87 -
D-80214		6	08/01/87 -
D-80220		6	08/04/87 -
D-80166		6	08/07/87 -
D-80205		6	08/10/87 -
D-80168		6	08/13/87 -
D-80167		6	08/16/87 -
D-80204		6	08/19/87 -
D-80165		6	08/22/87 -
D-80162		6	08/25/87 -
D-80230		6	08/28/87 -
D-80203		6	08/31/87 -
D-80181		6	09/03/87 -
D-80201		6	09/06/87 -
D-80233		6	09/09/87 -
D-80223		6	09/12/87 -
D-80231		6	09/15/87 -
D-80182		6	09/18/87 -
D-80169		6	09/21/87 -
D-80202		6	09/24/87 -
D-80196		6	09/27/87 -
D-80180		6	09/30/87 -
D-80146		6	10/03/87 -
D-80163		6	10/06/87 -
D-80164		6	10/09/87 -
D-80222		6	10/12/87 -
D-80226		6	10/15/87 -
D-80193		6	10/18/87 -
D-80200		6	10/21/87 -
D-80194		6	10/24/87 -
D-80195		6	10/27/87 -
D-80197		6	10/30/87 -
D-80211		6	11/02/87 -
D-79403		6	11/05/87 -
D-79404		6	11/08/87 -
D-79402		6	11/11/87 -
D-79401		6	11/14/87 -

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D#	C#	FILES	TIME SPAN
D-79400		6	11/17/87 -
D-79399		6	11/20/87 -
D-79398		6	11/23/87 -
D-79397		6	11/26/87 -
D-79396		6	11/29/87 -
D-79395		6	12/02/87 -
D-79394		6	12/05/87 -
D-79393		6	12/08/87 -
D-79392		6	12/11/87 -
D-79391		6	12/14/87 -
D-79381		6	12/17/87 -
D-79376		6	12/20/87 -
D-79377		6	12/23/87 -
D-79378		6	12/26/87 -
D-79379		6	12/29/87 -
D-79380		6	01/01/88 -
D-79385		6	01/04/88 -
D-79386		6	01/07/88 -
D-79387		6	01/10/88
D-79388		6	01/13/88 -
D-79389		6	01/16/88 -
D-79384		6	01/19/88 -
D-79383		6	01/22/88 -
D-79382		6	01/25/88 -
D-79406		6	01/28/88 -
D-79414		6	01/31/88 -
D-79407		6	02/03/88 -
D-79408		6	02/06/88 -
D-79409		6	02/09/88 -
D-79411		6	02/12/88 -
D-79412		6	02/15/88 -
D-79413		6	02/18/88 -
D-79420		6	02/21/88 -
D-79419		6	02/24/88 -
D-79418		6	02/27/88 -
D-79432		6	03/01/88 -
D-79433		6	03/04/88 -
D-79417		6	03/07/88 -
D-79416		6	03/10/88 -
D-79410		6	03/13/88 -
D-79415		6	03/16/88 -
D-79405		6	03/19/88 -
D-79375		6	03/22/88 -
D-79390		6	03/25/88 -
D-79428		6	03/28/88 -
D-79426		6	03/31/88 -
D-79431		6	04/03/88 -
D-79427		6	04/06/88 -
D-79434		6	04/09/88 -
D-79429		6	04/12/88 -

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D#	C#	FILES	TIME SPAN
D-79430		6	04/15/88 -
D-79496		6	04/18/88 -
D-79424		6	04/21/88 -
D-79497		6	04/24/88 -
D-79467		6	04/27/88 -
D-79472		6	04/30/88 -
D-79494		6	05/03/88 -
D-79465		6	05/06/88 -
D-79468		6	05/09/88 -
D-79469		6	05/12/88 -
D-79470		6	05/15/88 -
D-79466		6	05/18/88 -
D-79492		6	05/21/88 -
D-79471		6	05/24/88 -
D-79495		6	05/27/88 -
D-79464		6	05/30/88 -
D-79486		6	06/02/88 -
D-79493		6	06/05/88 -
D-79462		6	06/08/88 -
D-79447		6	06/11/88 -
D-79487		6	06/14/88 -
D-79488		6	06/17/88 -
D-79446		6	06/20/88 -
D-79444		6	06/23/88 -
D-79438		6	06/26/88 -
D-79442		6	06/29/88 -
D-79445		6	07/02/88 -
D-79441		6	07/05/88 -
D-79443		6	07/08/88 -
D-79440		6	07/11/88 -
D-79437		6	07/14/88 -
D-79436		6	07/17/88 -
D-79435		6	07/20/88 -
D-79439		6	07/23/88 -
D-79425		6	07/26/88 -
D-79423		6	07/29/88 -
D-79422		6	08/01/88 -
D-79421		6	08/04/88 -
D-79489		6	08/07/88 -
D-79490		6	08/10/88 -
D-79463		6	08/13/88 -
D-79475		6	08/16/88 -
D-79474		6	08/19/88 -
D-79473		6	08/22/88 -
D-79480		6	08/25/88 -
D-79491		6	08/28/88 -
D-79483		6	08/31/88 -
D-79478		6	09/03/88 -
D-79485		6	09/06/88 -
D-79460		6	09/09/88 -

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D#	C#	FILES	TIME SPAN
D-79482		6	09/12/88 -
D-79484		6	09/15/88 -
D-79481		6	09/18/88 -
D-79479		6	09/21/88 -
D-79454		6	09/24/88 -
D-79453		6	09/27/88 -
D-79452		6	10/01/88 -
D-79455		6	10/04/88 -
D-79459		6	10/07/88 -
D-79451		6	10/10/88 -
D-79458		6	10/13/88 -
D-79456		6	10/16/88 -
D-79457		6	10/19/88 -
D-79477		6	10/22/88 -
D-79450		6	10/25/88 -
D-79476		6	10/28/88 -
D-79449		6	10/31/88 -
D-79448		6	11/03/88 -
D-79461		6	11/06/88 -
D-86031		6	11/08/88 - 11/11/88
D-82552		6	12/03/88 - 12/06/88
D-82551		6	12/06/88 - 12/09/88
D-82565		6	12/09/88 - 12/12/88
D-82566		6	12/12/88 - 12/15/88
D-82567		6	12/15/88 - 12/18/88
D-82568		6	12/18/88 - 12/21/88
D-82569		6	12/21/88 - 12/24/88
D-82572		6	12/24/88 - 12/27/88
D-82571		6	12/27/88 - 12/30/88
D-82570		6	12/30/88 - 12/31/88
D-82561		6	01/01/89 - 01/04/89
D-82563		6	01/04/89 - 01/07/89
D-82562		6	01/07/89 - 01/10/89
D-82550		6	01/10/89 - 01/13/89
D-82560		6	01/13/89 - 01/16/89
D-82559		6	01/16/89 - 01/19/89
D-82558		6	01/19/89 - 01/22/89
D-82557		6	01/22/89 - 01/25/89
D-82554		6	01/25/89 - 01/28/89
D-82555		6	01/28/89 - 01/31/89
D-82556		6	01/31/89 - 02/03/89
D-82611		6	04/16/89 - 04/19/89
D-82613		6	04/25/89 - 04/28/89
D-82612		6	04/28/89 - 05/01/89
D-82614		6	05/01/89 - 05/04/89
D-82618		6	05/04/89 - 05/07/89
D-82617		6	05/07/89 - 05/10/89
D-82620		6	05/10/89 - 05/12/89
D-82619		6	05/13/89 - 05/16/89
D-82621		6	05/16/89 - 05/19/89

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D#	C#	FILES	TIME SPAN
D-82622		6	05/19/89 - 05/22/89
D-86032		6	06/15/89 - 06/18/89
D-86033		6	06/18/89 - 06/21/89
D-86034		6	06/21/89 - 06/24/89
D-86035		6	06/24/89 - 06/27/89
D-82616		6	06/27/89 - 06/30/89
D-82615		6	06/30/89 - 07/03/89
D-82595		6	07/03/89 - 07/06/89
D-82594		6	07/06/89 - 07/09/89
D-82593		6	07/09/89 - 07/12/89
D-82592		6	07/12/89 - 07/15/89
D-82591		6	07/15/89 - 07/18/89
D-82590		6	07/18/89 - 07/21/89
D-82589		6	07/21/89 - 07/24/89
D-82588		6	07/24/89 - 07/27/89
D-82587		6	07/27/89 - 07/30/89
D-82586		6	07/30/89 - 08/02/89
D-82585		6	08/02/89 - 08/05/89
D-82583		6	08/08/89 - 08/11/89
D-82564		6	08/11/89 - 08/14/89
D-82576		6	08/14/89 - 08/17/89
D-82575		6	08/17/89 - 08/20/89
D-82574		6	08/20/89 - 08/23/89
D-82573		6	08/23/89 - 08/26/89
D-82577		6	08/26/89 - 08/29/89
D-82605		6	09/01/89 - 09/04/89
D-82596		6	09/04/89 - 09/07/89
D-82610		6	09/10/89 - 09/13/89
D-82609		6	09/13/89 - 09/16/89
D-82608		6	09/16/89 - 09/19/89
D-82600		6	09/19/89 - 09/22/89
D-82606		6	09/22/89 - 09/25/89
D-82607		6	09/28/89 - 10/01/89
D-82602		6	10/01/89 - 10/04/89
D-82601		6	10/04/89 - 10/07/89
D-82598		6	10/07/89 - 10/10/89
D-82599		6	10/10/89 - 10/13/89
D-82597		6	10/16/89 - 10/19/89
D-82604		6	10/19/89 - 10/22/89
D-82687		6	10/22/89 - 10/25/89
D-82584		6	10/25/89 - 10/28/89
D-82553		6	10/28/89 - 10/31/89
D-82688		6	10/31/89 - 11/03/89
D-86036		6	11/03/89 - 11/06/89
D-86037		6	11/06/89 - 11/09/89
D-86038		6	11/09/89 - 11/12/89
D-86039		6	11/12/89 - 11/15/89
D-86040		6	11/15/89 - 11/18/89
D-86041		6	11/18/89 - 11/21/89

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D#	C#	FILES	TIME SPAN
D-86042		6	11/21/89 - 11/24/89
D-86043		6	11/24/89 - 11/27/89
D-86044		6	11/27/89 - 11/30/89
D-86045		6	11/30/89 - 12/03/89
D-86046		6	12/03/89 - 12/06/89
D-86047		6	12/06/89 - 12/09/89
D-86048		6	12/09/89 - 12/12/89
D-86049		6	12/12/89 - 12/15/89
D-86050		6	12/15/89 - 12/18/89
D-86051		6	12/18/89 - 12/21/89
D-86052		6	12/21/89 - 12/24/89
D-86053		6	12/24/89 - 12/27/89
D-86054		6	12/27/89 - 12/30/89
D-86055		6	12/30/89 - 12/31/89
D-84091		6	01/02/90 - 01/05/90
D-84092		6	01/05/90 - 01/08/90
D-84093		6	01/08/90 - 01/11/90
D-84094		6	01/11/90 - 01/14/90
D-84095		6	01/14/90 - 01/17/90
D-84096		6	01/17/90 - 01/20/90
D-84097		6	01/20/90 - 01/23/90
D-84098		6	01/23/90 - 01/26/90
D-84099		6	01/26/90 - 01/29/90
D-84100		6	01/29/90 - 02/01/90
D-84101		6	02/01/90 - 02/04/90
D-84102		6	02/04/90 - 02/07/90
D-84103		6	02/07/90 - 02/10/90
D-84118		6	02/10/90 - 02/13/90
D-84173		6	02/13/90 - 02/16/90
D-84174		6	02/16/90 - 02/19/90
D-84175		6	02/19/90 - 02/22/90
D-84176		6	02/22/90 - 02/25/90
D-84177		6	02/25/90 - 02/28/90
D-84178		6	02/28/90 - 03/03/90
D-84179		6	03/03/90 - 03/06/90
D-84180		6	03/06/90 - 03/09/90
D-84181		6	03/09/90 - 03/12/90
D-84182		6	03/12/90 - 03/15/90
D-84183		6	03/15/90 - 03/18/90
D-84184		6	03/18/90 - 03/21/90
D-84185		6	03/21/90 - 03/24/90
D-84119		6	03/24/90 - 03/27/90
D-84120		6	03/27/90 - 03/30/90
D-84121		6	03/30/90 - 04/02/90
D-84203		6	04/02/90 - 04/05/90
D-84204		6	04/05/90 - 04/08/90
D-84205		6	04/08/90 - 04/11/90
D-84206		6	04/11/90 - 04/14/90
D-84207		6	04/14/90 - 04/17/90

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D#	C#	FILES	TIME SPAN
D-84208		6	04/17/90 - 04/20/90
D-84209		6	04/20/90 - 04/23/90
D-84210		6	04/23/90 - 04/26/90
D-84211		6	04/26/90 - 04/29/90
D-84212		6	04/29/90 - 05/02/90
D-84213		6	05/02/90 - 05/05/90
D-84214		6	05/05/90 - 05/08/90
D-84215		6	05/08/90 - 05/11/90
D-84216		6	05/11/90 - 05/14/90
D-86056		6	05/14/90 - 05/17/90
D-86057		6	05/17/90 - 05/20/90
D-86058		6	05/20/90 - 05/23/90
D-86059		6	05/23/90 - 05/26/90
D-86060		6	05/26/90 - 05/29/90
D-86061		6	05/29/90 - 06/01/90
D-84122		6	06/01/90 - 06/04/90
D-84123		6	06/04/90 - 06/07/90
D-84124		6	06/07/90 - 06/10/90
D-84125		6	06/10/90 - 06/13/90
D-84126		6	06/13/90 - 06/16/90
D-84186		6	06/16/90 - 06/19/90
D-84187		6	06/19/90 - 06/22/90
D-84188		6	06/22/90 - 06/25/90
D-84189		6	06/25/90 - 06/28/90
D-84190		6	06/28/90 - 07/01/90
D-84191		6	07/01/90 - 07/04/90
D-84192		6	07/04/90 - 07/07/90
D-84193		6	07/07/90 - 07/10/90
D-84194		6	07/10/90 - 07/13/90
D-85861		6	07/13/90 - 07/16/90
D-84195		6	07/16/90 - 07/19/90
D-84196		6	07/19/90 - 07/22/90
D-84197		6	07/22/90 - 07/25/90
D-84199		6	07/25/90 - 07/28/90
D-84198		6	07/28/90 - 07/31/90
D-84127		6	07/31/90 - 08/03/90
D-84128		6	08/03/90 - 08/06/90
D-84129		6	08/06/90 - 08/09/90
D-84130		6	08/09/90 - 08/12/90
D-84131		6	08/12/90 - 08/15/90
D-84132		6	08/15/90 - 08/18/90
D-84133		6	08/18/90 - 08/21/90
D-84134		6	08/21/90 - 08/24/90
D-84135		6	08/24/90 - 08/27/90
D-84136		6	08/27/90 - 08/30/90
D-84137		6	08/30/90 - 09/02/90
D-84138		6	09/02/90 - 09/05/90
D-84139		6	09/05/90 - 09/08/90
D-84140		6	09/08/90 - 09/11/90

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D#	C#	FILES	TIME SPAN
D-84141		6	09/11/90 - 09/14/90
D-84142		6	09/14/90 - 09/17/90
D-84143		6	09/17/90 - 09/20/90
D-84144		6	09/20/90 - 09/23/90
D-84145		6	09/23/90 - 09/26/90
D-84146		6	09/26/90 - 09/29/90
D-86062		6	09/29/90 - 10/02/90
D-86063		6	10/02/90 - 10/05/90
D-86064		6	10/05/90 - 10/08/90
D-86065		6	10/08/90 - 10/11/90
D-86066		6	10/11/90 - 10/14/90
D-86067		6	10/17/90 - 10/20/90
D-86068		6	10/20/90 - 10/23/90
D-86069		6	10/23/90 - 10/26/90
D-86070		6	10/26/90 - 10/29/90
D-86071		6	10/29/90 - 11/01/90
D-86072		6	11/01/90 - 11/04/90
D-86535		6	04/30/91 - 05/02/91
D-86536		6	05/03/91 - 05/05/91
D-86537		6	05/06/91 - 05/08/91
D-86538		6	05/09/91 - 05/11/91
D-86539		6	05/12/91 - 05/14/91
D-86540		6	05/15/91 - 05/17/91
D-86541		6	05/18/91 - 05/20/91
D-86542		6	05/21/91 - 05/23/91
D-86543		6	05/24/91 - 05/26/91
D-86544		6	05/27/91 - 05/29/91
D-86466		6	07/02/91 - 07/04/91
D-86467		6	07/05/91 - 07/07/91
D-86468		6	07/08/91 - 07/10/91
D-86469		6	07/11/91 - 07/13/91
D-86470		6	07/14/91 - 07/16/91
D-86471		6	07/17/91 - 07/19/91
D-86472		6	07/20/91 - 07/22/91
D-86473		6	07/23/91 - 07/25/91
D-86474		6	07/26/91 - 07/28/91
D-86475		6	07/29/91 - 07/31/91
D-86476		6	08/01/91 - 08/03/91
D-86477		6	08/04/91 - 08/06/91
D-86478		6	08/07/91 - 08/07/91
D-86479		6	08/10/91 - 08/12/91
D-86480		6	08/13/91 - 08/15/91
D-86481		6	08/16/91 - 08/18/91
D-86482		6	08/19/91 - 08/21/91
D-86483		6	08/22/91 - 08/24/91
D-86484		6	08/25/91 - 08/27/91
D-86485		6	08/28/91 - 08/30/91
D-86486		6	08/31/91 - 09/02/91
D-86487		6	09/03/91 - 09/05/91

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D#	C#	FILES	TIME SPAN
D-86488		6	09/06/91 - 09/08/91
D-86489		6	09/09/91 - 09/11/91
D-86490		6	09/12/91 - 09/14/91
D-86491		6	09/15/91 - 09/17/91
D-86492		6	09/18/91 - 09/20/91
D-86493		6	09/21/91 - 09/23/91
D-86494		6	09/24/91 - 09/26/91
D-86495		6	09/27/91 - 09/29/91
D-86496		6	09/30/91 - 10/02/91
D-86497		6	10/03/91 - 10/05/91
D-86498		6	10/06/91 - 10/08/91
D-86499		6	10/09/91 - 10/11/91
D-86500		6	10/12/91 - 10/14/91
D-86501		6	10/15/91 - 10/17/91
D-86502		6	10/18/91 - 10/20/91
D-86503		6	10/21/91 - 10/23/91
D-86504		6	10/24/91 - 10/26/91
D-86505		6	10/27/91 - 10/29/91
D-86506		6	10/30/91 - 11/01/91
D-86507		6	11/02/91 - 11/04/91
D-86508		6	11/05/91 - 11/07/91
D-86509		6	11/08/91 - 11/10/91
D-86510		6	11/11/91 - 11/13/91
D-86511		6	11/14/91 - 11/16/91
D-86512		6	11/17/91 - 11/19/91
D-86513		6	11/20/91 - 11/22/91
D-86514		6	11/23/91 - 11/25/91
D-86515		6	11/26/91 - 11/28/91
D-86516		6	11/29/91 - 12/01/91
D-87163		6	12/02/91 - 12/05/91
D-86517		6	12/05/91 - 12/07/91
D-86518		6	12/08/91 - 12/10/91
D-86519		6	12/11/91 - 12/13/91
D-86520		6	12/14/91 - 12/16/91
D-86521		6	12/17/91 - 12/19/91
D-86522		6	12/23/91 - 12/25/91
D-86523		6	12/26/91 - 12/28/91
D-86524		6	12/29/91 - 12/31/91
D-87164		6	01/01/92 - 01/03/92
D-87165		6	01/04/92 - 01/06/92
D-87166		6	01/07/92 - 01/09/92
D-87167		6	01/10/92 - 01/12/92
D-87168		6	01/13/92 - 01/15/92
D-87169		6	01/16/92 - 01/18/92
D-87170		6	01/19/92 - 01/22/92
D-87171		6	01/23/92 - 01/24/92
D-87172		6	01/25/92 - 01/27/92
D-87173		6	01/28/92 - 01/30/92
D-86525		6	01/31/92 - 02/02/92

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DN	C#	FILES	TIME SPAN
D-86526		6	02/03/92 - 02/05/92
D-86527		6	02/06/92 - 02/08/92
D-86528		6	02/09/92 - 02/11/92
D-86529		6	02/12/92 - 02/14/92
D-86530		6	02/15/92 - 02/17/92
D-86531		6	02/18/92 - 02/20/92
D-86532		6	02/21/92 - 02/23/92
D-86533		6	02/24/92 - 02/26/92
D-86534		6	02/27/92 - 02/29/92
D-87174		6	03/02/92 - 03/04/92
D-87175		6	03/05/92 - 03/07/92
D-87176		6	03/08/92 - 03/10/92
D-87177		6	03/11/92 - 03/13/92
D-87652		6	03/14/92 - 03/16/92
D-87178		6	03/17/92 - 03/19/92
D-87179		6	03/20/92 - 03/22/92
D-87180		6	03/23/92 - 03/25/92
D-87181		6	03/26/92 - 03/28/92
D-87182		6	03/29/92 - 03/31/92
D-87183		6	04/01/92 - 04/03/92
D-87184		6	04/04/92 - 04/06/92
D-87185		6	04/07/92 - 04/09/92
D-87186		6	04/10/92 - 04/12/92
D-87187		6	04/13/92 - 04/15/92
D-87188		6	04/16/92 - 04/18/92
D-87653		6	04/19/92 - 04/21/92
D-87189		6	04/22/92 - 04/24/92
D-87190		6	04/25/92 - 04/27/92
D-87191		6	04/28/92 - 04/30/92
D-87192		6	05/01/92 - 05/03/92
D-87193		6	05/04/92 - 05/06/92
D-87194		6	05/07/92 - 05/09/92
D-87195		6	05/10/92 - 05/12/92
D-87196		6	05/13/92 - 05/15/92
D-87197		6	05/16/92 - 05/18/92
D-87198		6	05/19/92 - 05/21/92
D-87199		6	05/22/92 - 05/24/92
D-87200		6	05/25/92 - 05/27/92
D-87201		6	05/28/92 - 05/30/92
D-87202		6	05/31/92 - 06/02/92
D-87203		6	06/03/92 - 06/05/92
D-87204		6	06/06/92 - 06/08/92
D-87205		6	06/09/92 - 06/11/92
D-87206		6	06/12/92 - 06/14/92
D-87207		6	06/15/92 - 06/17/92
D-87208		6	06/18/92 - 06/20/92
D-87209		6	06/21/92 - 06/24/92
D-87210		6	06/24/92 - 06/26/92
D-87211		6	06/27/92 - 06/29/92
D-88268		6	06/29/92 - 07/01/92

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D#	C#	FILES	TIME SPAN
D-88269		6	07/02/92 - 07/04/92
D-88270		6	07/05/92 - 07/07/92
D-88271		6	07/08/92 - 07/10/92
D-88272		6	07/11/92 - 07/13/92
D-88273		6	07/14/92 - 07/16/92
D-88274		6	07/17/92 - 07/19/92
D-88275		6	07/20/92 - 07/22/92
D-88276		6	07/23/92 - 07/25/92
D-88277		6	07/26/92 - 07/28/92
D-88278		6	07/29/92 - 07/31/92
D-87212		6	08/02/92 - 08/04/92
D-87213		6	08/05/92 - 08/07/92
D-87214		6	08/08/92 - 08/10/92
D-87215		6	08/11/92 - 08/13/92
D-87216		6	08/14/92 - 08/16/92
D-87217		6	08/17/92 - 08/19/92
D-87218		6	08/20/92 - 08/22/92
D-87219		6	08/23/92 - 08/25/92
D-87220		6	08/26/92 - 08/28/93
D-87221		6	08/29/92 - 08/31/92
D-87654		6	09/01/92 - 09/03/92
D-87655		6	09/04/92 - 09/06/92
D-87656		6	09/07/92 - 09/09/92
D-87657		6	09/10/92 - 09/12/92
D-87658		6	09/13/92 - 09/15/92
D-87659		6	09/16/92 - 09/18/92
D-87660		6	09/19/92 - 09/21/92
D-87661		6	09/22/92 - 09/24/92
D-87662		6	09/25/92 - 09/27/92
D-87663		6	09/28/92 - 09/30/92
D-88156		6	10/04/92 - 10/06/92
D-88157		6	10/07/92 - 10/09/92
D-88158		6	10/10/92 - 10/12/92
D-88159		6	10/13/92 - 10/15/92
D-88160		6	10/16/92 - 10/18/92
D-88161		6	10/19/92 - 10/21/92
D-88162		6	10/22/92 - 10/24/92
D-88163		6	10/25/92 - 10/27/92
D-88164		6	10/28/92 - 10/30/92
D-88174		6	10/30/92 - 11/01/92
D-88175		6	11/02/92 - 11/04/92
D-88176		6	11/05/92 - 11/07/92
D-88177		6	11/08/92 - 11/10/92
D-88178		6	11/11/92 - 11/13/92
D-88179		6	11/14/92 - 11/16/92
D-88180		6	11/17/92 - 11/19/92
D-88181		6	11/20/92 - 11/22/92
D-88182		6	11/23/92 - 11/25/92
D-88183		6	11/26/92 - 11/28/92
D-92399		6	11/29/92 - 12/01/92

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D#	C#	FILES	TIME SPAN
D-92400		6	12/02/92 - 12/04/92
D-92401		6	12/05/92 - 12/07/92
D-92402		6	12/08/92 - 12/10/92
D-92403		6	12/11/92 - 12/13/92
D-92404		6	12/14/92 - 12/16/92
D-92405		6	12/17/92 - 12/19/92
D-92406		6	12/20/92 - 12/22/92
D-92407		6	12/23/92 - 12/25/92
D-92408		6	12/26/92 - 12/28/92
D-92409		6	12/29/92 - 01/02/93
D-92410		6	01/03/93 - 01/03/93
D-92411		6	01/04/93 - 01/06/93
D-92412		6	01/07/93 - 01/09/93
D-92413		6	01/10/93 - 01/12/93
D-92414		6	01/13/93 - 01/15/93
D-92415		6	01/16/93 - 01/18/93
D-92416		6	01/19/93 - 01/21/93
D-92417		6	01/22/93 - 01/24/93
D-92418		6	01/25/93 - 01/27/93
D-92419		6	01/28/93 - 01/30/93
D-92420		6	01/31/93 - 02/02/93
D-92421		6	02/03/93 - 02/05/93

Add
D1076616-36
to DSC

B R I E F D E S C R I P T I O N
ERB Master Archival Tape (MAT)
78-098A-07A

This experimenter-supplied set of solar and earth flux data was generated by IBM 360 and 3081 computers onto binary magnetic tapes. It contains preliminary calibrated radiances and raw digital counts in orbital sequence. Earth-located radiances are measured at 0.2 to 50 micrometer wavelengths by four fixed wide-field-of-view channels and at 0.2 to 4 and 5 to 50 micrometer wavelengths by eight scanning narrow-field-of-view (NFOV) channels. The NFOV footprint is 85 x 85 km at nadir. Solar radiation in raw counts is obtained from 10 solar channels. There are also orbital and daily summary records, data quality flags, housekeeping information, and a calibration adjustment table. Data are arranged in 16-s records, and there are usually 3 days of data per tape.

The first 19 months of data were transferred to the Langley DAAC in July 1996.

M A T E R I A L S F O R D I S T R I B U T I O N
78-098A-07A
ERB Master Archival Tape (MAT)

1) User's Guide for ERB-7 MAT, NASA/CR-170514 (4/84), B36699-000A, 2) ERB Master Archival Tape Specification T134081, Rev I (5/84), B36694-000A, and 3) memo from Lee Kyle dated March 31, 1994 regarding quality of Fall 1993 MATs and SEFDTs (4 pp.)

D A T A S E T R E M A R K S
78-098A-07E
Zonal Means Radiation Tape (ZMT)

Some of the tapes in this data set were released.

A C K N O W L E D G E M E N T S

When using the data in any reports, publications, or presentations, please acknowledge the National Space Science Data Center and the following individuals or groups:

78-098A-07A
Dr. H. L. Kyle, Nasa/Gsfc, Dr. Herbert Jacobowitz, Noaa/Nesdis, And Members Of The Erb Nimbus Experiment And Information Processing Teams

78-098A-07A
78-098A-07B

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771

4 P.

Reply to Attn of: 902.3

March 31, 1994

TO: Code 633/NSSDC, Ralph Post

FROM: H. Lee Kyle

SUBJECT: Archiving of Fall 1993 Nimbus-7 ERB MATs and SEFDTs

The Nimbus-7 Earth radiation budget (ERB) Master Archive Tapes (MATs) for October, November and December 1993 have been produced, checked and are hereby presented for archiving. The Solar and Earth Flux Data Tapes (SEFDTs) for November and December 1993 accompany them. No SEFDT for October 1993 was produced. The Sun was not visible to the solar sensors during the first part of October and there was an electronics problem from October 17 onward. The November and December SEFDTs contain data that was not bothered by the electronics problem. The Sun left the sensors' clear field-of-view about December 13 but the SEFDT is continued through December 30, 1993. The quality review statements for the Fall MATs and SEFDTs are attached. Please note that Item 3 in the MAT problem list refers to an algorithm problem. Good total solar irradiance measurements were obtained. The final, calibrated solar irradiances will, as is normal, be archived separately.

The ERB instrument was turned off on January 4, 1994.

3 Enclosures

cc:
HQ/YD/M. Ruzek
633/J. King
916/R. McPeters
Eppley Laboratory/J. Hickey
RDC/D. Hoyt
RDC/L. Penn

MEMORANDUM

DATE: April 1, 1994

TO: H. Lee Kyle

FROM: Lanning Penn

SUBJECT: Final QC of Fall, 1993 MATS

The following lists the sequence numbers and generation dates of the October, 1993 MATS QC'ed by RDC:

Sequence Number	Data Date	Generation Dates
AC32851-1	October 12-14, 1993	1993 298
AC32881-1	October 15-17, 1993	1993 313
AC32911-1	October 18-20, 1993	1993 308
AC32941-1	October 21-23, 1993	1993 308
AC32971-1	October 24-26, 1993	1993 309

The following lists the sequence numbers and generation dates of the November, 1993 MATS QC'ed by RDC:

Sequence Number	Data Date	Generation Dates
AC33161-1	November 12, 1993	1994 088
AC33191-1	November 15-17, 1993	1994 021
AC33201-1	November 16-18, 1993	1993 343
AC33231-1	November 19-21, 1993	1993 344
AC33261-1	November 22-23, 1993	1993 348
AC33321-1	November 28-30, 1993	1993 351

The following lists the sequence numbers and generation dates of the December, 1993 MATS QC'ed by RDC:

march 29, 1994

TO: Lee Kyle

FROM: Douglas Hoyt

SUBJ: SEFDT QC for Nov. and Dec. 1993

The SEFDT tapes for November and December 1993 were read and quality controlled. The only error found on the tapes were the gamma angle values which were listed as +200 at all times when it should have read -190. Later programs in the analysis procedure were modified to correct for this error, so it had no effect on the final results.

(2)

Sequence Number	Data Date	Generation Dates
AC33351-1	December 1-3, 1993	1993 354
AC33381-1	December 4-6, 1993	1993 355
AC33411-1	December 7-9, 1993	1993 355
AC33441-1	December 10-12, 1993	1993 357
AC33471-1	December 13-15, 1993	1993 357
AC33501-1	December 16-18, 1993	1993 361
AC33531-1	December 19-21, 1993	1993 364
AC33561-1	December 22-24, 1993	1994 014
AC33591-1	December 25-27, 1993	1994 021
AC33621-1	December 28-30, 1993	1994 024

1. The following orbits are missing:

October 15 - 75618,75619,75620,75621,75622,75626,75627
October 19 - 75678
October 20 - 75684
October 21 - 75706,75707,75710
October 23 - 75732
November 18 - 76099
November 20 - 76121,76122
November 21 - 76141
November 30 - 76265
December 3 - 76307
December 6 - 76348
December 9 - 76390
December 12 - 76431
December 15 - 76473
December 18 - 76514
December 21 - 76556
December 23 - 76576,76577
December 24 - 76597
December 27 - 76633,76634,76639
December 29 - 76657

2. The WFOV data appears normal until October 17, when innumerable delspike errors commence, and seem to continue throughout the remainder of the MAT's in October. As far as I can see, the problems begin during orbit 75652 on October 17, at about 1530 GMT. The WFOV data appears normal for most of the November and December period.

3. Average counts at time of solar peak became a problem again during this period with fill values for all channels.

INPUT PARAMETERS ARE: ED AL 1

Dsat 4

78-098A-07A
9/10/79
D-53602

TAPE NO. 1 FILE NO. 1
RECORD 1 LENGTH 630
NIMBUS-7 NOPS SPEC NO T134081 SQ NO AC92531A2 ERB SACC TO IPD START 1979 253 000000 TO 1979 253
235959 GEN 1982 110 040420
INGEST 10 12 16 81 CAL SET NO 4 09 14 79

TAPE NO. 1 FILE NO. 1
RECORD 2 LENGTH 630
NIMBUS-7 NOPS SPEC NO T134081 SQ NO AC92531A2 ERB SACC TO IPD START 1979 253 000000 TO 1979 253
235959 GEN 1982 110 040420
INGEST 10 12 16 81 CAL SET NO 4 09 14 79

***** JOB DONE.
$EXE TPDUMP BS

DUMP OF TAPE BOUT4

INPUT TAPE BOUT4 ON MT4
DATA INPUT H9 NF 3 SR 2 1 1 SR 2 LAST 1 SR 3 1 1 SR 3 LAST 1

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	2	2	630	0	0	0	0	0	0

FILE 2 RECORD 1 LENGTH 13464BYTES

(0)	00100B01	004F00FD	00270003	11520001	00000004	042AC47D	FEDE2DE4	FF51330B	0429E79F	FEDDA700
(40)	FF4CD06F	04290657	FEDD2150	FF486E8D	042820A5	FEDC9CD3	FF440D6A	FFFFC955	FFFFDE20	FFFEE738
(80)	FFFFC83B	FFFFDE6D	FFFEE76A	FFFFC720	FFFFDEBA	FFFEE79A	FFFFC606	FFFFDF07	FFFEE7C8	FC77FC61
(120)	FC4AFC33	FAC1FABC	FAB6FAB1	FC76FC61	FC4BFC34	FAC3FABE	FAB8FAB3	000E9A39	000E9A8C	000E9ADF
(160)	000E9B32	FFFD000F	FFFCFFFE	06D90355	418B418B	418B418B	020C0000	00000000	D8F1D8F1	02710271
(200)	02710271	00E700E8	00E900EA	00EB00EC	00ED00EE	00EF00F0	00F10CF2	00F30107	01070107	00F300F3
(240)	00F200F1	00F000EF	00EE00ED	00EC00EB	00EA00E9	00E800E7	00E600E5	00CE00CE	00CE00CE	00CE00CE
(280)	00CE00C5	00C500C5	00C500C5	00C500C5	00C500C5	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(320)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(360)	56CE56CE	56CE56CE	56CE56CE	03BC0324	023F011A	03CD0341	02680148	03E10361	02930160	03CA0331
(400)	024B0123	03DA034E	02730155	03EF036F	029F018A	03D80337	0257012D	03E80350	02800150	03FD037D
(440)	02AB0194	03E4034A	02600134	03F40367	02890166	04080388	02B5019C	03F20358	026D013E	04420376
(480)	02960170	04170397	02C301A6	04010367	027A0148	04110385	02A3017B	042603A6	02D001B1	04CE0373
(520)	0284014F	041E0391	02AE0183	04330383	02D501BA	041E0363	0292015A	042E03A1	02EC01BE	04430303
(560)	02EA01C6	042F0393	02A00165	043E03B1	02CA019A	04530303	02F901D2	043D03A1	02AC016D	044C03BF
(600)	02D701A3	04610 3E1	03050 1DB	044E03B2	02BB0179	045E03D0	02E601AF	04730 3F3	03150 1E8	04610 3C4
(640)	02CA0185	047003E2	02F601BB	04850405	03260 1F5	04710 3D3	02D8018F	048003F2	03040 1C6	04950415
(680)	03340200	048403E7	02E9019C	04930405	03150 1D3	04A80429	03460 20F	049903FB	02FA01AA	04A7041A
(720)	032701E1	04BC043E	03590 21D	04AB040D	030A01B5	04B9042C	033701ED	04CF0451	03690 22A	04C10423
(760)	031D01C4	04CF0442	034B01FC	04E50467	037E023A	04D9043B	03320 1D3	04E60 45A	03600 20C	04FB047F
(800)	03930 24B	04E7044A	033F01DD	04F40469	036D0217	05090 48E	03A20256	05000464	03560 1ED	05DD0482
(840)	03840228	05220 4A9	03BA0269	051B047F	036E01FF	05270 49E	039D023A	053D04C5	03D30 27C	052D0492
(880)	037E020B	05380 4B0	03AE0247	054D04D8	03E5028A	05480 4B1	039A021F	055504D0	03CA025B	056B04F7
(920)	04020 2A0	056B04D4	03B80234	05750 4F2	03E80272	058A051A	04220 2B8	058C04F8	03D70249	03950515
(960)	04080288	05AA053F	04430 2D0	05B30524	03FD0263	05BA0540	042E02A2	05CF056A	046C02ED	05DF0557
(1000)	042A027F	05E40572	045B02C0	05F8059E	049C030E	06105 6CE	56CE56CE	06115 6CE	56CE56CE	06255 6CE
(1040)	56CE56CE	0640 56CE	56CE56CE	0648 56CE	56CE56CE	0650 56CE	56CE56CE	0690 56CE	56CE56CE	0685 6CE
(1080)	56CE56CE	06A256CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1120)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1160)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1200)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1240)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1280)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1320)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1360)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1400)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1440)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1480)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1520)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1560)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1600)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1640)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1680)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1720)	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE	56CE56CE
(1760)	04FE037E	05D5056E	04B002D5	05D40584	048D0312	05E205A9	04C9035A	05AC053E	04370289	05AD0555
(1800)	046402F5	05BB0579	049C033B	05840515	04150 2A2	05860 52D	044102DD	05940 54F	04770321	05620 4F0
(1840)	03F4028B	05650508	041F02C4	0573052A	04540306	05420 4CE	03D60275	05470 4E6	040102AE	05550508
(1880)	043402EE	052304AE	03BB0261	05270 4C6	03E60299	05360 4E7	04180 2D9	05070491	03A1024E	050C04AA
(1920)	03CB0235	051B04CA	03FC02C3	04ED0476	03890 23C	04F3048E	03B30272	05010 4AE	03E302AF	04D10459
(1960)	036F0227	04D80472	03980 25D	04E60491	03C80299	04B90441	035A0217	04C1045A	03820 24C	04CF0479
(2000)	03B10287	04A3042A	03450207	04AA0443	036E023C	04B90462	03980275	048A0411	032F01F5	04920 42A
(2040)	03570229	04A10448	03840262	047603FC	031C01E6	047E0415	03440 21A	048D0433	03700252	04620 3E8
(2080)	030A01D8	046A0401	03320 20B	0479041F	035E0243	044C03D2	02F601C8	045503EB	031D01FA	04630408

```
( 12400)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12440)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12480)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12520)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12560)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12600)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12640)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12680)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12720)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12760)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12800)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12840)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12880)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12920)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 12960)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13000)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13040)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13080)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13120)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13160)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13200)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13240)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13280)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13320)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13360)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13400)  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
( 13440)  00000000 00000000 00000000 00000000 00000000 00000000
```

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
2	2447	2448	13464	0	18	0	0	18	18

```
FILE       3  RECORD        1  LENGTH      936BYTES
(      0)  001DCE01 004E000B 0010004F 000B0015 00500008 0C0B00C0 03E803E8 03E803E8 03E803E8 03E803E8
(     40)  03E803E8 03E803E8 04100418 0410041A 0410038E 03660398 03520398 03E803E8 03E803E8 00000000
(     80)  C0000000 00000000 0000003C 00000064 FFE2FFE2 00000000 00000000 00000000 00000000 000A000A
(    120)  000A000A 000A0014 0028003C 005A0065 00140014 00140014 00140014 00140014 0014000A 000A000A
(    160)  000A0000 C3C1D340 C1C4D140 C5E2E3C9 D4C1E3C5 C940C3C1 E2C5C440 D6D54040 40404040 C1D1D7D6
(    200)  D6E740F1 64F340D6 C64CC5D9 C2D6D540 C4C1E3E2 5EC1D5D5 E4C1D340 C1E5D740 E5C1D3D4 C5E34E4E
(    240)  E2C5C440 C6D6D940 C3C8C1D5 40F1F340 C4C5C440 D6D6E340 E3C1D2C5 40C9C5E3 D6404C1C3 C3D6E4C5
(    280)  E640E2D4 C1D3D340 F3F0F040 C4C5C7D9 C1C4C1D3 C7C6D540 D6C640C3 C8C10540 F1F34040 40404040
(    320)  40404040 E5C1D3E4 C5E240C9 D5C4C9C3 C1E3C5C4 40C1C2D6 E5C540C1 D9C540C9 D5404040 D6D9C4C5
(    360)  D940D6C6 40C9D5C3 D9C5C1E2 C9D5C740 C3C8C1D5 D5C5D3E2 40404040 C6D9D6D4 40F140E3 D640F2F2
(    400)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    440)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    480)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    520)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    560)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    600)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    640)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    680)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    720)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    760)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    800)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    840)  40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040
(    880)  40404040 40404040 40404040 40404040 40404040 00000000 00000000 00000000 00000000 00000000
(    920)  00000000 00000000 00000000 00000000
```

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
3	1	1	936	0	0	0	0	0	0

```
******     EOF ON COMPLETION OF DUMP FOR REQUEST SR=3=1=1
******     EOF ON COMPLETION OF DUMP FOR REQUEST SR=3=1=1

EOJ        DUMP STOPPED AFTER FILE  3          # OF PERM INPUT REAL ERRORS
```

BIBLIOGRAPHIC DATA SHEET

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
CR 170514		

4. Title and Subtitle	5. Report Date
Users Guide for ERB 7 MAT (Including the First Year Quality Control)	April 1984
	6. Performing Organization Code 910
7. Author(s) Brian Groveman	8. Performing Organization Report No.
9. Performing Organization Name and Address Research and Data Systems, Inc. 10300 Greenbelt Road, Suite 206 Lanham, MD 20706	10. Work Unit No.
	11. Contract or Grant No. NAS 5-27728 Task 3
	13. Type of Report and Period Covered Contractor Report
12. Sponsoring Agency Name and Address Goddard Space Flight Center Greenbelt, MD 20771	14. Sponsoring Agency Code NASA Goddard

15. Supplementary Notes

16. Abstract

In the first section of this report background information for the use of the ERB-7 Master Archival Tapes (MAT) is provided. The second section gives details regarding the scientific validity and quality of the MAT. The MAT data analyzed covers the period from November 16, 1978 to October 31, 1979.

17. Key Words (Selected by Author(s))	18. Distribution Statement
Earth Radiation Budget, ERB Users Guide, 1st year quality control.	Unlimited

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price*
Unclassified	Unclassified		

*For sale by the National Technical Information Service, Springfield, Virginia

GSFC 25-44 (10/77)

78-098A-07A
B 36694-000A

NASA

NIMBUS Observation Processing System Requirements Document #NG-13

ERB Master Archival Tape Specification No. T134081 ERB MAT

May 1984

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

NIMBUS-7

NIMBUS OBSERVATION PROCESSING SYSTEM (NOPS)

REQUIREMENTS DOCUMENT #NG-13

ERB MASTER ARCHIVAL TAPE

TAPE SPECIFICATION NO. T134081 ERB MAT

REVISION I

MAY, 1984

REVISED BY: Sheldon T. Nutter, Jr. 5/10/84
Sheldon T. Nutter, Jr./SASC (05/84)

REVIEWED BY: Richard J. Tighe 5/11/84
Dr. Richard J. Tighe (05/84)
SASC/NOPS ERB Project Manager

APPROVED BY: [signature] 5/11/84
Lonnie H. Bowlin (05/84)
SASC/NOPS Program Manager

NOTE: This document was provided to Systems and Applied Sciences Corporation for review and update as necessary.

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

Revision D: April 7, 1980 (RDH)

Calibration Adjustment Table (CAT) added.

Revision E: May 13, 1980 (RDH)

Updated CAT specs.

Revision F: July 22, 1981 (LHB)

Changed GHA from degrees to radians (Page 22).

Revision G: November 3, 1981 (SNR)

Tables VI-1, VI-4, and VI-5 added.

Revision H: November 4, 1982 (SNR)

Specified fill values for location errors and solar channels. Also specified range of GHA values correctly and corrected the numbering system of SUBFOV's (Page 22).

Revision I: April 17, 1984 (STN)

Added Trailing Documentation File (TDF) description. Also added description of Stacked (multi-day) MAT which became effective at start of Year-3.

ABSTRACT

ERB MAT tapes are generated by the ERB MATGEN software using the IBM 3081 computer system operated by the Science and Applications Computing Center at Goddard Space Flight Center. All MATs are 9-track and MAT data will be in ascending time order. The gross tape format for Nimbus Year-1 and Year-2 MATs is different from the format of MATs starting with Year-3. MATs from the first two years will contain one day's worth of data while all other MATs will contain multiple day's worth of data stacked onto the tapes. Each data file will represent one ERB instrument "ON" day. The gross tape format for a Year-1 or Year-2 MAT is shown in Figure 1 and is summarized here:

- Tape density is 1600 BPI.
- File 1 contains a standard header record written twice.
- File 2 contains one day's worth of data.
- File 3, the calibration file, is the last file on the tape.

The gross tape format for stacked MATs starting with Year-3 is shown in Figure 2 and is summarized as follows:

- Tape density is 6250 BPI.
- File 1 contains a standard header record written twice.
- Files 2 to N-2 will be data files that contain one day's worth of data per file. Normally there will be three data files stacked onto a MAT, but a few tapes have only two data files.
- File N-1 is the calibration file.
- File N is the Trailing Documentation File (TDF).

An orbit data block is defined as beginning at one descending node and ending at the following descending node. However, the data orbit number is incremented at each ascending node such that each orbit data block will contain data from two data orbits. Each record within the orbit data block and each orbit data block from the beginning of the tape to the end of the tape will contain data in ascending time order. Data will only be written when ERB subsystem is "ON" and no duplicate data will be written.

Each VIP frame of data occupies one logical data record. There are up to two logical data records to every physical record. After all the logical data records have been output, an Orbital Summary logical record will be written. This record will indicate the end of an orbit data block. In the last orbit data block of the day, a Daily Summary logical record will be written after the Orbital Summary logical record. Figure 3 shows the data file format for all MATs.

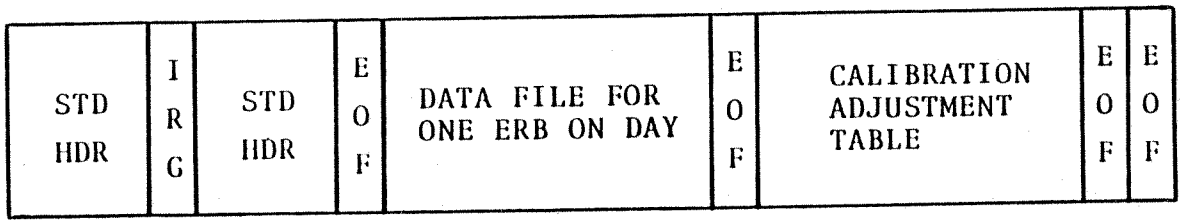


FIGURE 1. Gross Tape Format of Year-1 and Year-2 MATs

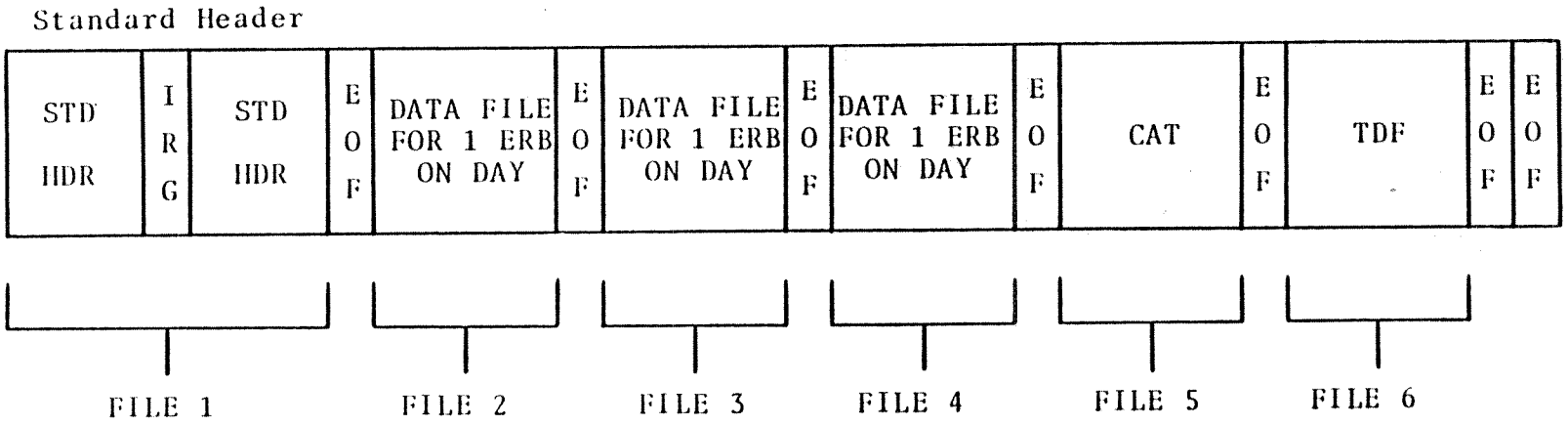


FIGURE 2. Gross Tape Format of a Typical Stacked MAT

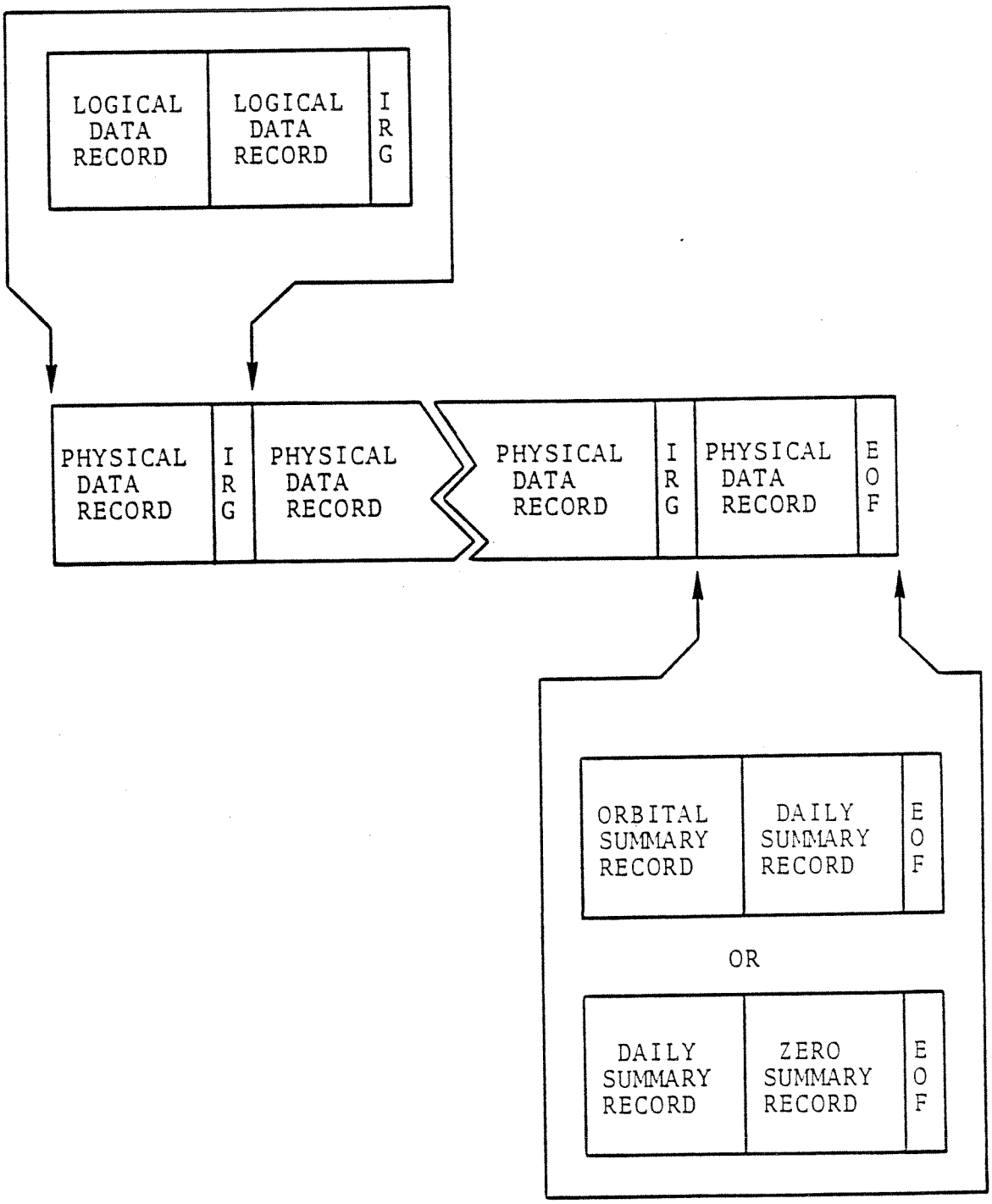


FIGURE 3. Data File Format for all MATs

I. REQUIREMENT IDENTIFICATION

ERB Master Archival Tape (MAT) Specification Number T134081.

II. INPUT DATA SOURCE

UFO-E (T113011) and ERB ILT (T123044).

III. OPERATING MODE

Data is available only when the instrument in "ON". When the ERB Subsystem is "OFF", data records covering that time period will not be available.

When the tape has covered one 24-hour period, the tape will be terminated and a new tape initiated. The tape sequence number will be incremented by one and the whole process restarted.

IV. GROSS OUTPUT FORMAT

Refer to Figure 1 and Figure 2.

V. STANDARD HEADER

All magnetic tapes used as interfaces within NOPS will require some form of identification. A standardized series of records in the initial file on each tape will be used and will be called a NOPS Standard Header File. Some tapes used within a NOPS facility, which do not pass an interface, will be exempt from this requirement, although it is a recommended procedure.

The Standard Header will contain the specification number of the tape generated. The interface specification numbering system is shown in Table V-1.

Each Standard Header will be written in EBCDIC so that it can be easily printed for quick identification of the tape. Figure V-1 shows the standard header format using 24-bit words.

Because of the real possibility of an original tape being damaged in handling (resulting in the loss of many computations) each processing facility within NOPS will generate duplicate copies of master tapes. These duplicates will be delivered to IPD for data product generation or user copy generation and will be indicated by the character 2 added to the sequence number in the Standard Header. The original will be indicated by the character 1 and will be retained in a secure environment at the originating facility. When IPD returns Copy No. 2 due to tape errors, a new copy will be sent to IPD with the copy number incremented by 1 (No. 3).

IPD will include a shipping letter with every tape distributed. The shipping letter will be printed directly from the Standard Header on the tape. In the case of copies made from tapes not generated in IPD, the original tapes Standard Header will be copied into a group of 126 characters in each record provided for that purpose and normally left blank.

V.1 GENERAL

All computer compatible tapes (CCTs) that are used as interfaces within NOPS, require some form of identification. This applies to all CCTs that are currently defined by a NOPS tape specification, and that are also used for distribution or archiving purposes.

In addition to defining a "latest" product, data relating to previous products that went into the making of the "latest" product provides useful information when system problems occur.

The purpose of this revision to existing NOPS tape specifications is to define a scheme that allows the recording of the genealogy of a "latest" product, and in general, adheres to existing tape documentation standards.

In brief, the system is as follows:

1) A documentation file that consists of a string of physical records follows the data on any tape defined by a current NOPS tape specification. This will be referred to as a Trailing Documentation File (TDF), and will be the last file on a tape when it exists.

2) The standard NOPS header file remains as defined, with minor modifications to the Standard Header record that reflect both the existence of a TDF and adherence to the IPD standard for sequence numbers.

The following sections define the NOPS Standard Header records and file, and the TDF. Data files as currently defined in NOPS tape specification remain unchanged.

V.2 STANDARD HEADER RECORD (SHR)

The SHR will consist of one physical record that consists of five logical records of 126 EBCDIC characters. The first 126 characters will remain as previously defined with the exception of CHARACTER 1, and those characters that define the sequence number (40-45). CHARACTER 1 will contain an asterisk (*) and serves to notify all systems that a TDF is likely to follow the main data files and that the next logical record contains information relevant to complete identification. As of the implementation date of this specification, all sequence numbers will have the following form that is an IPD standard:*

---

*This does not apply to CZCS data. For CZCS data, Characters 40 to 45 represent a 6-digit sequence number.

CHARACTER 40 = The last digit of the year in which the data were acquired.

CHARACTERS 41-43 = Julian day of the year in which the data were acquired.

CHARACTER 44 = Sequence number for this particular product (usually a 1) (eg., CLDTs will have a 1 and 2, as there are 2 products per day).

CHARACTER 45 = The existing hyphen remains unless there is a remake of the tape for any reason. In this case, an ascending alpha character will replace the hyphen, and the most recent reasons for remake will be recorded in logical record 4 of the header.

CHARACTER 47 = This will remain as a blank unless it is needed to remove ambiguities in CHARACTER 40. This may occur if data are being acquired on October 24, 1988.

This scheme will uniquely identify any tape when used in conjunction with the tape specification number, the PDFC code, and the subsystem identification.

The second logical record consisting of 126 characters will contain information that is required to complete the history of the product.

CHARACTERS 1-12 = Software program name and version number.

CHARACTERS 13-18 = Program documentation reference number, if it exists.

CHARACTERS 20-126 = User defined comments that may be more relevant to the user than the preceding ones.

The NOPS Standard Header File will continue to consist of two records, the second being a duplicate of the first. Logical records 3 and 4 may be used for anything desired if no remake information is required.*

---

*In the case of CZCS, these logical records are used to define the genealogy of the image rather than the method of V.3.

The Standard Header will contain the following:

Two identical records (physical) of 630 characters (8-bits each) followed by an End-Of-File (EOF).

The first 126 characters of the first record will consist of:

*NIMBUS-7$_b$NOPS$_b$SPEC$_b$NO$_b$T	(1, 24 CHAR)
XXXXXX (6-Digit Spec Number)	(25, 30 CHAR)
$_b$SQ$_b$NO$_b$	(31, 37 CHAR)
AIXXXXX (PDFC & 5-Digit Sequence Number)	(38, 44 CHAR)

NOTE: If sequence number is zero, tape is not a finished product (i.e., definitive ephemeris not used, artificial VIP data, etc.).[1]

-X (Copy Number 1 or 2) └── (Redo Character)	(45, 46 CHAR)
$_b$YYYY$_b$ (4-Character Subsystem ID)	(47, 52 CHAR)
YYYY (Generation Facility ID)	(53, 56 CHAR)
$_b$TO$_b$YYYY (4-Character Designation Facility ID)	(57, 64 CHAR)
$_b$START$_b$19XX$_b$DDD$_b$HHMMSS	(65, 86 CHAR)
(Start year, day of year, hours, minutes and seconds)	
$_b$TO$_b$19XX$_b$DDD$_b$HHMMSS$_b$	(87, 106 CHAR)
(End data and time of data)	
GEN$_b$19XX$_b$DDD$_b$HHMMSS$_b$	(107, 126 CHAR)
(Date and time tape was generated)	

The second group of 126 characters will contain continuation documentation of the original 126 characters when required.

---

[1] For CZCS, Characters 40 to 45 are a 6-digit sequence number.

The third, fourth, and fifth groups of 126 characters each are intended for the use of the Subsystem Analyst for further identifications of their data. They may contain blanks, EBCDIC, BDC, or binary characters or zeros.

The second record in the file is a duplicate of the first record of redundancy.

The PDFC codes are as defined in Table V-2.

EXAMPLE: An ERB MATRIX tape covering the month of February, 1979 is generated by SACC and sent to IPD for production of contour maps on 16mm microfilm. The NOPS Standard Header file on the tape that IPD receives would contain two of the following records:

*NIMBUS-7$_b$NOPS$_b$SPEC$_b$NO$_b$T134031$_b$SQ$_b$NO$_b$

First day of time period

AA90321-2$_b$ERB$_{bb}$SACC$_b$TO$_b$IPD$_b$START$_b$1979$_b$

032$_b$000432$_b$TO$_b$1979$_b$059$_b$235742$_b$GEN$_b$

1979$_b$104$_b$094500$_b$followed by 504 blanks

First day of time period may not be first data day in the event of multiday-stacked products that are based on an ILT week.

V.3 TRAILING DOCUMENTATION FILE (TDF)

The TDF will consist of all NOPS Standard Header records (non-duplicated) that relate to products that have gone into the making of the current product. Documentation records will be sequenced in accordance with their access; that is, first in is the first recorded. Every TDF is 630 bytes in length.

The first record of this file will serve to identify the file as a TDF. This will be accomplished by placing asterisks in CHARACTERS 1 to 10 followed by a NOPS TRAILER DOCUMENTATION FILE FOR TAPE PRODUCT T [SPEC NO. (6 digits)] GENERATED ON DDD HH MM. The exact spacing of this comment is noncritical as long as it is less than 116 characters. The second physical record will be a repeat of the header file NOPS Standard Header record for this type with the proviso that data referring to the end-time are correct for the data set. Following physical records will be an accumulation of TDFs of all input tapes. For those products that require more than one tape, the TDF will appear on the last tape only as well as the warning asterisk.

V.4 TAPE DUPLICATION

It has been determined that the duplication of master tapes is neither time nor cost effective, thus the requirement of duplication implied in the preceding specification is rescinded. However, some tapes that require a great deal of effort to produce in terms of manpower and computer time should be duplicated.

If a redo is required due to tape errors or algorithm changes, this will be noted both on the CCT (HEADER C-45) and on the canister.

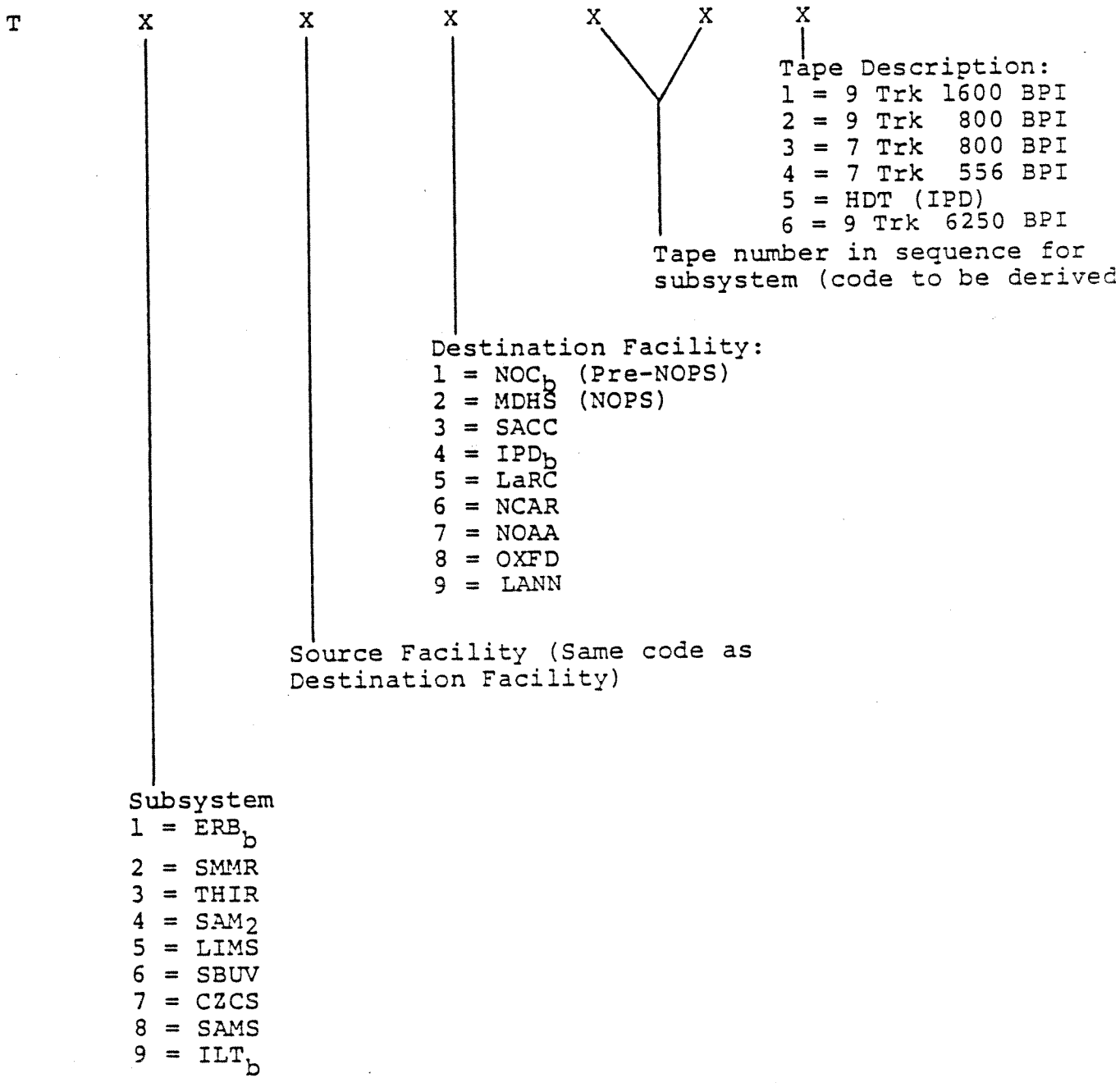
V.5 SHIPPING LETTERS

IPD will include a shipping letter with every tape distributed. The shipping letter will be printed directly from the first 126 (or 138) characters of the first physical record of SHF. In the event of copies made from CCTs that are not generated in IPD, a new physical record reflecting IPD as the source and the Nimbus experimentor to whom the tape is being sent as the destination, will be added as the second record of the TDF. All existing records in the TDF will be pushed down, but none will be lost. This record should also replace those in the SHF.

TABLE V-1

NOPS SPECIFICATION NUMBERING CODE

TAPES: A six digit number prefixed with a T to denote TAPE will be used.



STANDARD HEADER (PHYSICAL RECORD FORMAT)

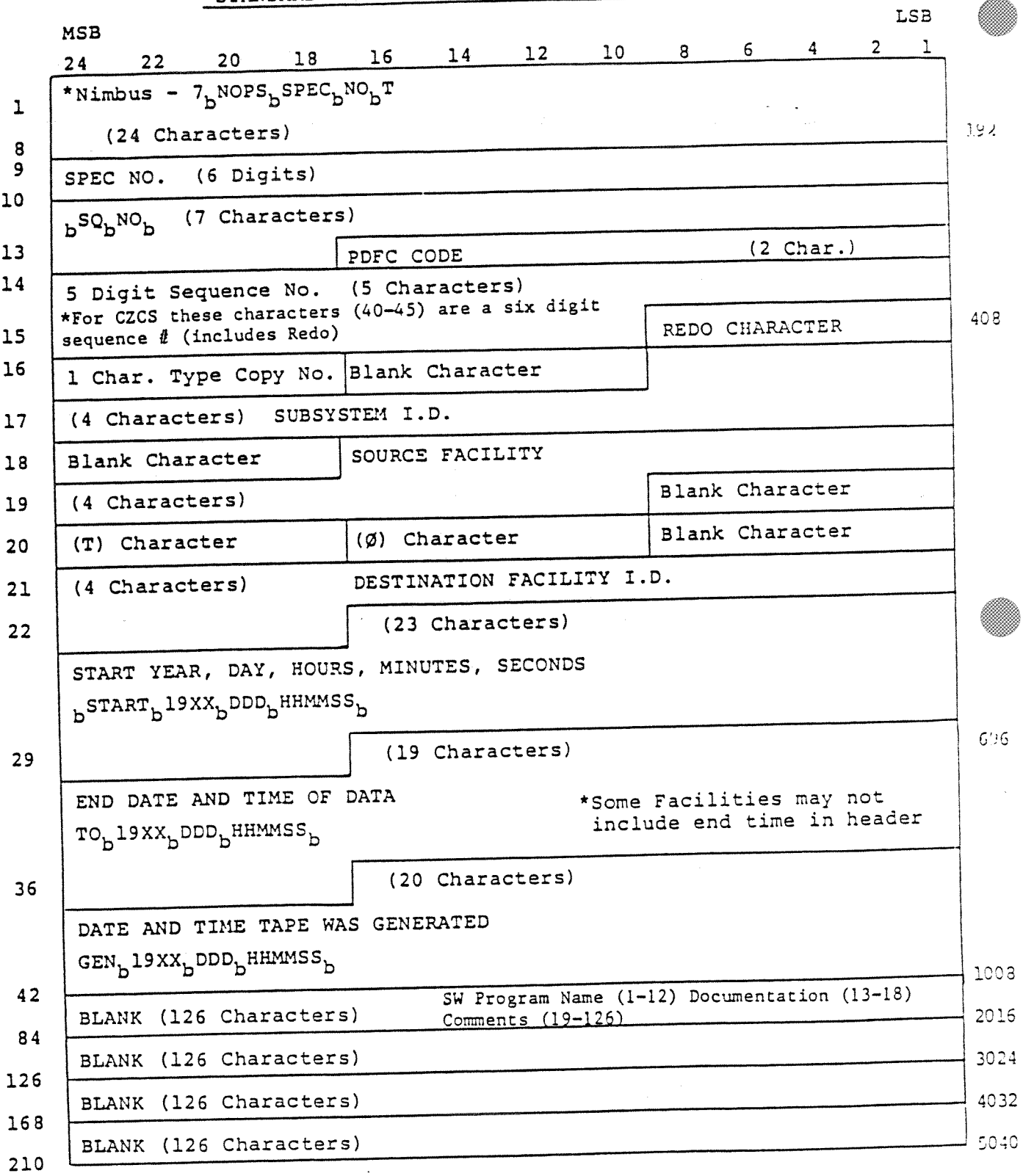


FIGURE V-1. EBCDIC Tape Format

TABLE V-2.

NIMBUS-7 PROJECT DATA FORMAT CODES, 1 AUG 81

(Rev. From 1 APR 81)

SENSOR	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
ERB	MATRIX	12	72	AA	MAAA	D RED	/ L RED
	TABLES	12	-	AB	TAAB	D RED	/ D PINK
	MAT*	263	[illegible]	AC	MTAC	D RED	/ D RED
	SEFDT*	12	36	AD	SEAD	D RED	/ YELLOW
	ZMT*	2	12	AE	ZMAE	L RED	/ L PINK
	STAGS	1	-	AG	STAG	D RED	/ D ORANGE
	MATRIX-C	12	60	AH	MAAH		
	SEASON	4	16	AI	SEAI		
TOTALS		*277	1100				
	OTHER	41	164				

SENSOR	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
LIMS	MATRIX-M	42	[illegible]	EA	MAEA	YELLOW	/ BLUE
	MATRIX-C	42	[illegible]	EB	MAEB	YELLOW	/ L GREEN
	PROFILE-R	7	[illegible]	EC	PREC	YELLOW	/ L PINK
	PROFILE-I	9	[illegible]	ED	PRED	YELLOW	/ L TAN
	RAT*	207	[illegible]	EE	RAEE	YELLOW	/ L PINK
	IPAT*	35	[illegible]	EF	IPEF	YELLOW	/ L ORANGE
	MAT*	35	[illegible]	EG	MTEG	YELLOW	/ YELLOW
	CAT*	9	[illegible]	EM	CTEM	YELLOW	/ GREY
	SMAT*	9	[illegible]	EI	SMEI	YELLOW	/ BROWN
	SCAT*	9	[illegible]	EM	SCEM	YELLOW	/ GREEN
	NMCT8+	6	-	EK	NMEK	YELLOW	EXP LABEL
	UFD8+	295	-	UE	UFUE	YELLOW	EXP LABEL
	ILT8+	30	-	LE	ILLE	YELLOW	EXP LABEL
TOTALS		*304	1328				
		+8331	-				
	OTHER (R)	100	561				

SENSOR	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
SAGE	MATRIX-30	12	-	BA	MABA	L TAN	/ YELLOW
	MATRIX-LO	12	-	BB	LOBB	L BRWN	/ L GRN
	MATRIX-SS	12	-	BC	SSBC	L BRWN	/ L ORAN
	MAP-30*	12	72	BD	MPBD	L BRWN	/ L PINK
	MAP-LO*	12	48	BE	LOBE	L BRWN	/ BLUE
	MAP-SS*	12	60	BF	SSBF	M TAN	/ M TAN
	PARM-30*	60	360	BG	PABG	M TAN	/ YELLOW
	PARM-LO*	30	120	BH	LOBH	M BRWN	/ YELLOW
	PARM-SS*	30	120	BI	SSBI	M BRWN	/ M BRWN
	TAT*	183	732	BJ	TABJ	D BRWN	/ YELLOW
	CELL-ALL*	61	732	BK	DEBK	D BRWN	/ L GRN
TOTALS		*600	1512				
	OTHER	36	-				

SBUV/ TOMS	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
	MATRIX	[illegible]	[illegible]	FA	MAFA	D GRN	/ D ORAN
	TABLES	12	-	FB	TAFB	L GRN	/ L PINK
	MONTAGE	52	-	FC	MOFC	D GRN	/ D PINK
	RUT-SPC	52	-	FD	SRFD	GREY	/ D GRN
(R)	OZONE-S*	52	52	FE	OSFE	L GRN	/ L BRWN
(R)	OZONE-T*	120	120	FF	OTFF	D GRN	/ D GRN
	ZMT*	2	12	FH	ZMFH	L GRN	/ L PINK
	RUT-T*	120	120	FJ	TRFJ	D GRN	/ YELLOW
TOTALS (R)		852	*[illegible]	396			
	OTHER		76	72			

THIR	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
	SOURCE	5110	-	IA	SOIA	D ORAN	/ D ORAN
	STT	1095	-	IB	STIB	D ORAN	/ YELLOW
	CLDT	730	720	ID	CLID	D ORAN	/ D GRN
	CLE	365	1460	IE	CLIE	D ORAN	/ D PINK
	CLT	365	365	IF	CLIF	M ORAN	/ GREY
	ILT-T	52	-	LI	ILLI	L ORAN	/ L PINK
	ILT-C	52	-	LC	ILLC	L ORAN	/ L BRWN
	MONTIR	2920	-	IQ	MOIQ	DK ORAN	/ DK ORAN
TOTALS (R)		10689	2555				

CZCS	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
(R)	CRT360*e	10	[illegible]	ZZ	CRZI	BLUE	/ BLUE
	SOURCE	4000	-	ZA	SOZA	STANDARD	STA LABEL
(R)	CRCST*	100	400	ZB	CRZB	BLUE	/ D GRN
	CAT	12	96	ZC	CAZC	BLUE	/ D ORAN
	CRT-L	100	200	ZD	CRZD	BLUE	/ YELLOW
	ILT	52	-	LZ	ILLZ	BLUE	/ M TAN
(R)	CRT	64800	10,800	ZE	CRZE	BLUE	/ D GRN
	ILT-L8	52	-	LL	ILLL	BLACK	EXP LABEL
(R)	CCT-F	100	-	ZH	CCZH	BLUE	/ PINK
(R)	LOIT#	10	-	ZF	LOZF	L GRN	/ GREY
(R)	DPIT#	100	-	ZG	DPZG	GRN	/ BLUE
TOTALS (R)		*[illegible]	164	400			
		#[illegible]	62	-			
(R)		6110	-				
(R)	10864		11,096				

SAM II	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
	MATRIX	4	-	DA	MADA	D PURP	/ D PURP
	PROFILE	12	-	DB	PROB	D PURP	/ D ORAN
	RDAT*@	12	-	DC	RDOC	M PURP	/ D GRN
	BANAT*@	12	-	DD	BADD	M PURP	/ YELLOW
	NMCT8+	6	-	DE	NMDE	D ORAN	EXP LABEL
	ILT8+	52	-	LD	ILLD	D ORAN	EXP LABEL
TOTALS		+[illegible]	-				
		#[illegible]	-				
	OTHER	16	-				

SAMS	TAPE ID	ORIG.	COPIES	POF	DATA TYPE	HORIZ LABEL	/ VERTIC COLORS
	MATRIX	[illegible]	[illegible]	HA	MAHA	TEL-OR	/ L PINK
	RAT#2	180	-	HC	RAHC	TEL-OR	/ YELLOW
	ILT8+	183	-	LH	ILLH	GREY	EXP LABEL
	NMCT8+	6	-	HD	NMHD	GREY	EXP LABEL
TOTALS		+8189	-				
		@9180	-				
	OTHER	[illegible]	[illegible]				

		ORIGINALS	COPIES	POF
	+ TOTALS	[illegible]	-	
(R)	* TOTALS	[illegible] 1375	4699	27
	@ TOTALS	[illegible] 318	-	8
(R)	# TOTALS	110	-	2
(R)	OTHER TOTALS	[illegible] 21858	[illegible] 8443231	
(R)	GRAND TOTALS	[illegible] 29239	[illegible] 19076	67

* PROCESSED BY METDEC AND COPIED BY IPD (Quality control by IPD)
@ PROCESSED BY METDEC AND [illegible]
# PROCESSED BY METDEC AND COPIED TO FILM BY IPF
+ PROCESSED BY METDEC AND SHIPPED BY TSDF

(R) - SENSORS WHERE REVISIONS WERE MADE. CHANGES TO LABEL COLORS MAY BE MADE DEPENDING ON AVAILABILITY AND QUANTITY.

NOTE: LOADING REFLECTS FIRST YEAR DATA SET ONLY (28 OCT 78 THRU 3 NOV 79)
TAPES SCHEDULED FOR QUALITY CONTROL CHECKING WILL BE PROCESSED ONLY ON WRITTEN REQUEST OF METDEC. ORIGINAL TAPES WILL BE FORWARDED TO ARCHIVAL CENTER UPON COMPLETION OF QUALITY CONTROL CHECK.

NIMBUS-7 PROJECT DATA FORMAT CODES

(Continued)

SENSOR	TAPE ID	PDFC CODE
Location	ILT/ERB	LA
	ILT/SMMR	LB
	ILT/THIR	LI
	ILT/SAMI I	LD
	ILT/LIMS	LE
	ILT/SBUV	LF
	ILT/CZCS	LZ
	ILT/SAMS	LH
User	UFO/ERB	UA
	UFO/SMMR	UB
	UFO/LIMS	UE
	UFO/SBUV	UF
	UFO/ILT	UL

1st CHARACTER	SOURCE/SENSOR	2nd CHARACTER	USER/SENSOR TAPE NUMBER
ERB	A		
SMMR	B		
THIR	I		
SAMI I	D		
LIMS	E		
SBUV/TOMS	F		
CZCS	Z		
SAMS	H		
ILT	L		
UFO	U		

VI. DATA RECORD

There are three types of logical records in each data file of the ERB MAT tape. Each file will begin with a data logical record and continue on a one VIP major frame per one data logical record basis until the end of the orbit data block or ERB S/S power is turned off, whichever occurs first. After the end of the data logical records, an orbital summary logical record will be written followed by more orbit data blocks until a day's worth of data have been written at which time a daily summary logical record will be written, the rest of that physical record padded out with zeroes, if necessary, and the file ended.

The format of the last physical record depends on the number of logical data records (VIP frames per orbit) in the file.

The orbital summary record contains the peak solar irradiances for Channels 1 through 10 as well as various quantities computed for the orbital summary. All physical records, except standard header records, will consist of 13,464 bytes of information.

Figure VI-1 is the basic physical record format. Formats and word descriptions for the three logical record formats are presented in Subsections VI-A, VI-B, and VI-C.

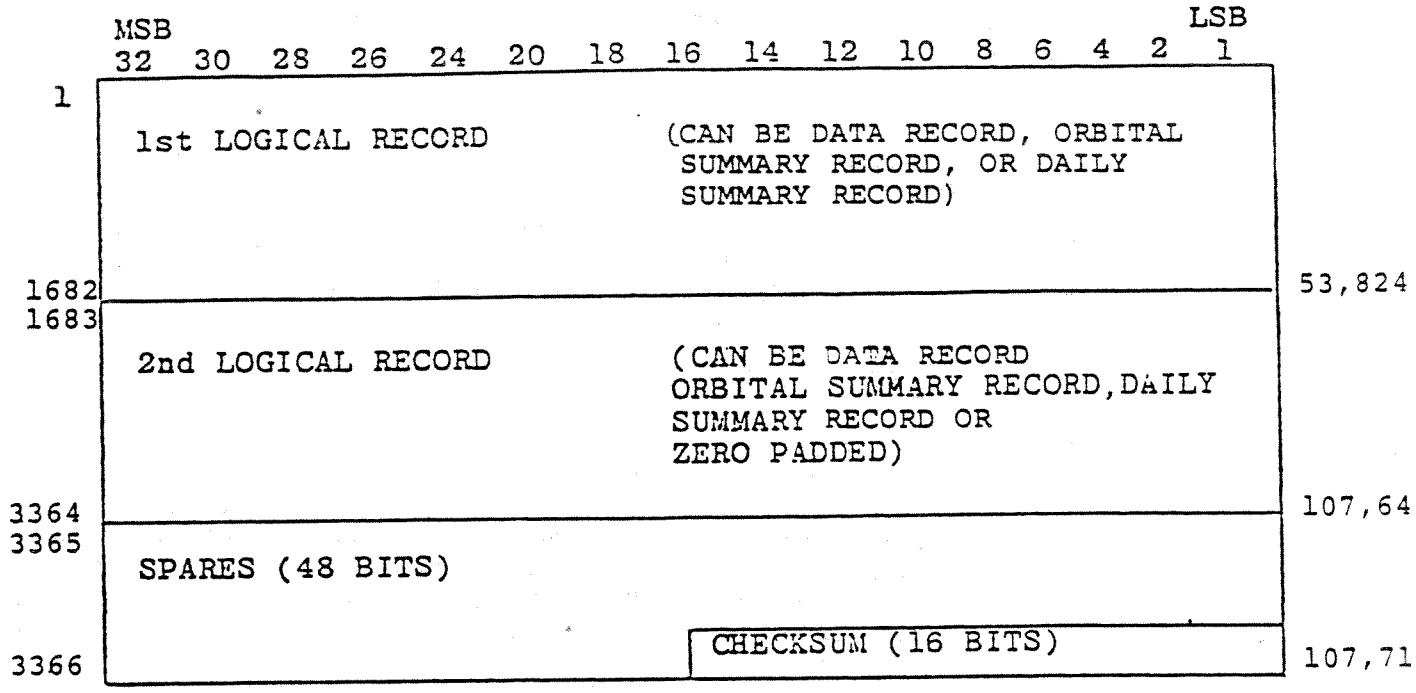
The last sixteen bits of the physical record is the checksum word. Each 32-bit word output to tape is divided into two 16-bit words and added with any overflow over sixteen bits added into the LSB side of the summation word. The final summation word is placed as the last word of the record as the checksum. An internal quality control program will check this number by recomputing what it has read in addition to other quality checks to ensure a quality output product.

When statistics for data are given, the order will be: minimum, mean, maximum, standard deviation, and number of samples. When only four statistics are given, the number of samples are omitted and the order remains the same.

The order in which data are presented on the MAT tape is given in the parameter description.

For example, if the description were (5 statistics x 10 channels x 16 bits = 800 bits) the words would be ordered as follows:

WORD	
1	Minimum for Channel 1
2	Mean for Channel 1
3	Maximum for Channel 1
4	Standard Deviation of Channel 1
5	Number of Samples for Chanel 1
6	Minimum for Channel 2
7	Mean for Channel 2
.	..
.	..
.	..
10	Number of samples for Channel 2
.	..
.	..
.	..
.	..
46	Minimum for Channel 10
.	..
.	..
.	..
.	..
50	Standard Deviation for Channel 10



2992	36 BIT WORD
3366	32 BIT WORD
4488	24 BIT WORD
6732	16 BIT WORD
8976	12 BIT WORD
13464	8 BIT BYTES

FIGURE VI-1. ERB MAT Physical Record Format

The scale factors indicated on the following word descriptions are used to retain the desired degree of signficance. For example, the quantity representing WFOV latitude if floated and divided by its scale factor of 100, will give the latitude in degrees.

VI-A. DAILY SUMMARY RECORD

This is the last unpadded logical record in each file. Figure VI-2 is the basic format for the daily summary record and the word description for this format is as follows:

(1) PHYSICAL RECORD NUMBER (12 BITS): This identifies the physical record within a file.

(2) RECORD ID (8 BITS): Identifies record type and the last record written in a file and records in the last file on the tape. The MSB of the first logical record of the last physical record will be set to "1", if that physical record is the last one written in the file. The second most MSB will be set on all logical records in the last file on the tape. The record type will use the six LSB of that byte to identify the type of record being read: 11 = LOGICAL DATA RECORD, 12 = ORBITAL SUMMARY RECORD, 13 = DAILY SUMMARY RECORD, 14 = CALIBRATION ADJUSTMENT TABLE RECORD.

(3) LOGICAL RECORD NUMBER (8 BITS): This identifies the logical record within a physical record.

(4) NUMBER OF ORBITS (16 BITS): The number indicates the number of orbits contained in this file.

(5) MONTH - FIRST ORBIT (16 BITS): This word is the month at the start of the first orbit block in this file.

(6) DAY - FIRST ORBIT (16 BITS): This word is the day at the start of the first orbit block in this file.

(7) YEAR - FIRST ORBIT (16 BITS): This word is the year at the start of the first orbit block in the file.

(8) TIME - FIRST ORBIT (16 BITS): This is the GMT hour and minutes (100 x hour + minute) at the start of the first orbit block in the file.

(9) MONTH - LAST ORBIT (16 BITS): This word is the month at the end of the last orbit block in the file.

(10) DAY - LAST ORBIT (16 BITS): This word is the day number at the end of the last orbit block in the file.

(11) YEAR - LAST ORBIT (16 BITS): This word is the year at the end of the last orbit block in the file.

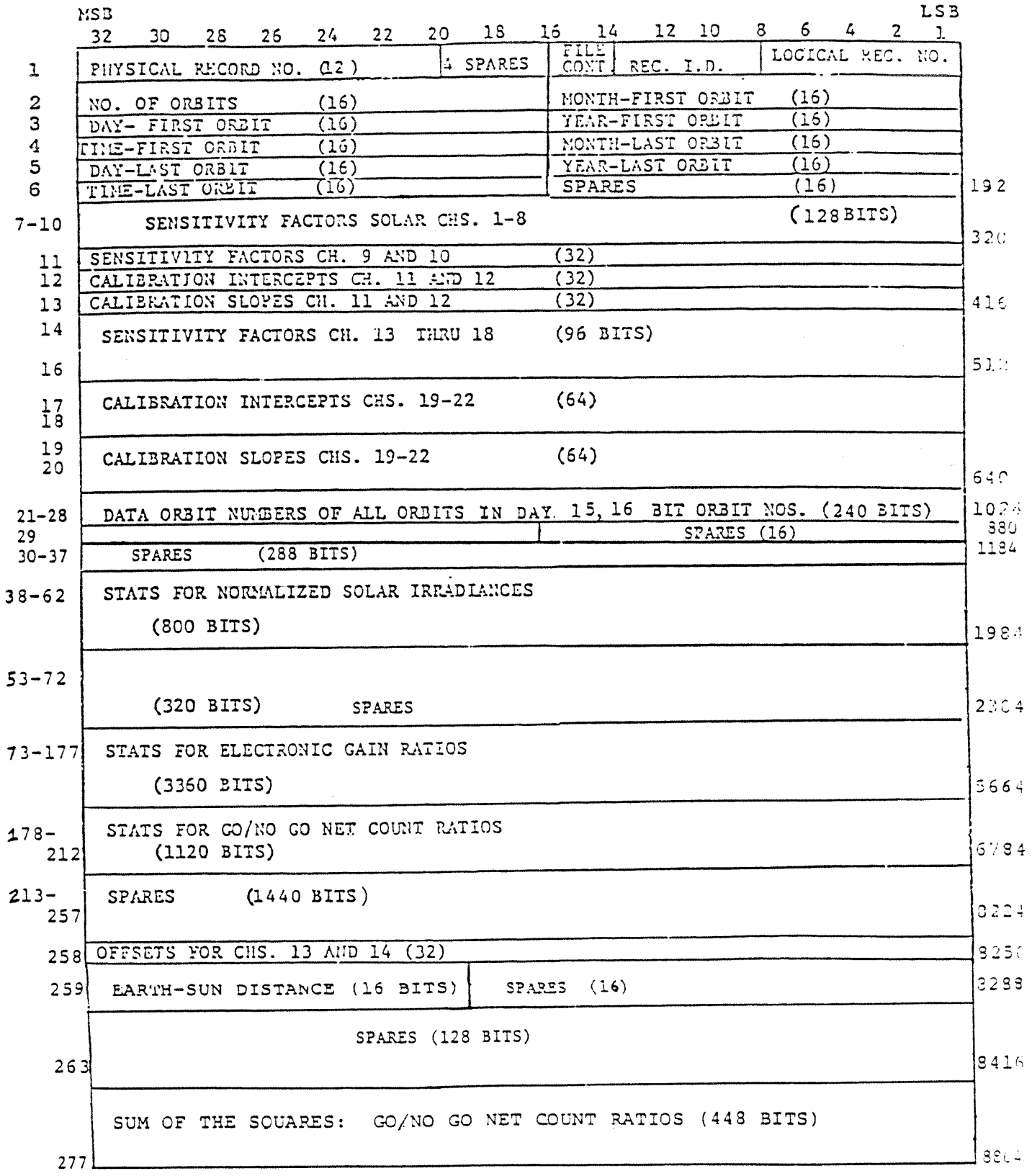


FIGURE VI-2. ERB MAT Daily Summary Logical Record Format

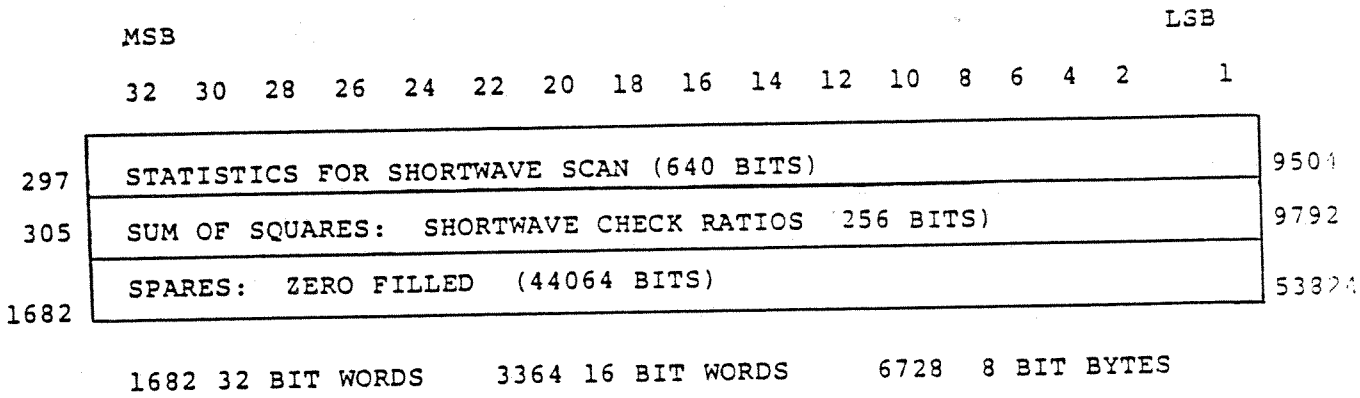


FIGURE VI-2. ERB MAT Daily Summary Logical Record Format

(Continued)

(12) TIME - LAST ORBIT (16 BITS): This is the GMT hour and minute (100 x hour + minute) at the end of the last orbit block in the file.

(13) SPARES (16 BITS): Zero filled.

(14) SENSITIVITY FACTORS, CHANNELS 1 THROUGH 8 (8 CHANNELS x 16 BITS = 128 BITS): Sensitivity factors for solar Channels 1 through 8 (with a scale factor of 10^3).

(15) SENSITIVITY FACTORS, CHANNELS 9 AND 10 (2 CHANNELS x 16 BITS = 32 BITS): Sensitivity factors for solar Channels 9 and 10 (with a scale factor of 10^2).

(16) CALIBRATION INTERCEPTS, CHANNELS 11 AND 12 (2 CHANNELS x 16 BITS = 32 BITS): Calibration intercepts for fixed Earth flux Channels 11 and 12 (with a scale factor of 100).

(17) CALIBRATION SLOPES, CHANNELS 11 AND 12 (2 CHANNELS x 16 BITS = 32 BITS): Calibration slopes for fixed Earth flux Channels 11 and 12 (with a scale factor of 10^3).

(18) SENSITIVITY FACTORS, CHANNELS 13 THROUGH 18 (6 CHANNELS x 16 BITS = 96 BITS): Sensitivity factors for fixed Earth flux Channels 13 and 14 and shortwave scanning Channels 15, 16, 17, and 18 (with a scale factor of 10^3).

(19) CALIBRATION INTERCEPTS, CHANNELS 19 THROUGH 22 (4 CHANNELS x 16 BITS = 64 BITS): Calibration intercepts for longwave scanning Channels 19, 20, 21, and 22 (with a scale factor of 100).

(20) CALIBRATION SLOPES, CHANNELS 19 THROUGH 22 (4 CHANNELS x 16 BITS = 64 BITS): Calibration slopes for longwave scanning Channels 19, 20, 21, and 22 (with a scale factor of 10^4).

(21) DATA ORBIT NUMBERS (15 ORBITS x 16 BITS = 240 BITS): Data orbit numbers at the start of all orbit blocks in this file including up to a maximum of 15 orbit numbers.

(22) SPARES (304 BITS): Zero filled.

(23) STATISTICS FOR SOLAR IRRADIANCE (5 STATISTICS x 10 CHANNELS x 16 BITS = 800 BITS): Statistics which include the minimum, mean, maximum, and standard deviation values plus the number of samples for normalized solar irradiances (scale factor for Channels 1 through 5 and 10 is 10, scale factor for Channels 6 through 9 is 100). The number of samples is not scaled.

(24) SPARES (320 BITS): Zero filled.

(25) STATISTICS FOR ELECTRONIC GAIN RATIOS (5 STATISTICS x 3 STEPS x 14 CHANNELS x 16 BITS = 3360 BITS): The statistics for electronic gain ratios have a scale factor of 1000, except for the number of samples which is unscaled.

(26) STATISTICS FOR GO/NO GO NET COUNT RATIOS (5 STATISTICS x 14 CHANNELS x 16 BITS = 1120 BITS): The statistics for the GO/NO GO net count ratios have a scale factor of 1000, except for the number of samples which is unscaled.

(27) SPARES (1440 BITS): Zero filled.

(28) OFFSET FOR CHANNELS 13, 14 (2 CHANNELS x 16 BITS = 32 BITS): The offset in counts for Channels 13 and 14.

(29) EARTH-SUN DISTANCE (16 BITS): The Earth-Sun distance in astronomical units (with a scale factor of 10^4).

(30) SPARES (144 BITS): Zero filled.

(31) SUM OF THE SQUARES: GO/NO GO NET COUNT RATIOS (14 CHANNELS x 32 BITS = 448 BITS): The sum of the squares for the GO/NO GO net count ratios for Channels 1 to 14, scaled by 100.

(32) STATISTICS FOR SHORTWAVE SCANS (5 STATISTICS x 4 SHORTWAVE CHANNELS x 2 SOLAR CHANNELS x 16 BITS = 640 BITS): These statistics are the count ratios during shortwave check for the shortwave scan channels (with a scale factor of 1000, except for number of samples).

(33) SUM OF THE SQUARES: SHORTWAVE CHECK RATIOS (4 SHORTWAVE CHANNELS x 2 SOLAR CHANNELS x 32 BITS = 256 BITS): The sum of the squares for the shortwave check ratios scaled by 1000.

(34) SPARES (44,064 BITS): These spare bits are used to fill out to logical record size and will be zero filled.

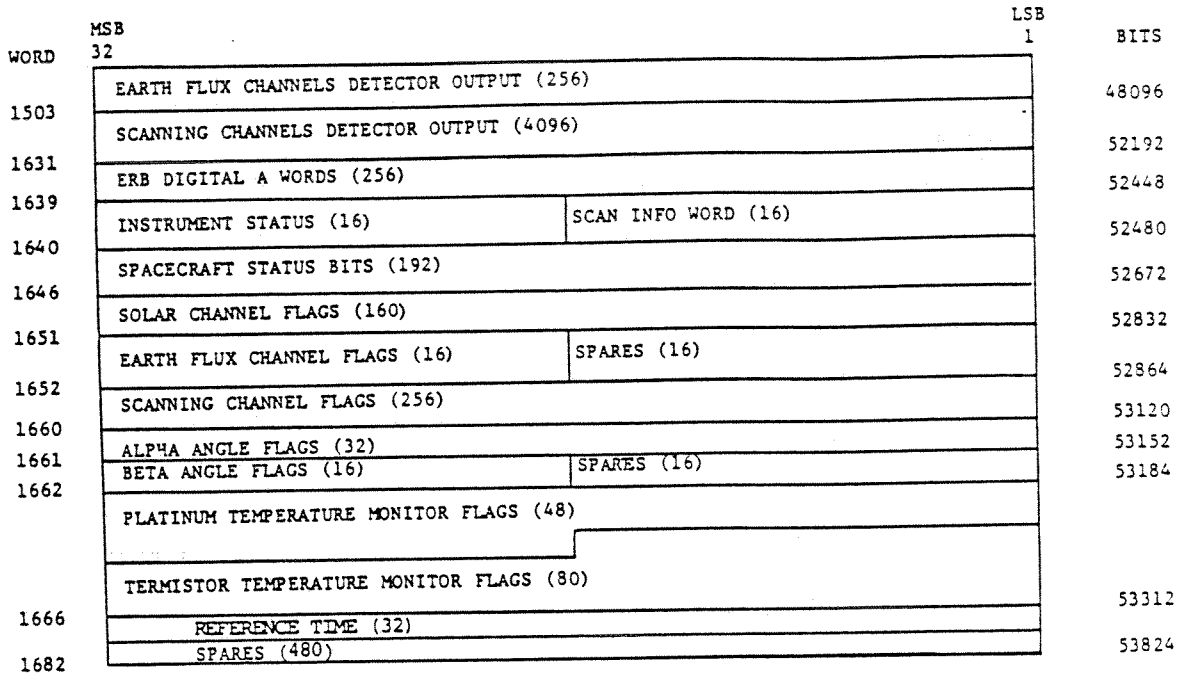
VI-B. LOGICAL DATA RECORD

Each logical data record contains one VIP major frame of ERB data. The format for this record is shown in Figure VI-3 with word descriptions as follows:

(1) PHYSICAL RECORD NUMBER (12 BITS): This word identifies the physical record number within a data file.

WORD	MSB 32				LSB 1	BITS
1	PHYSICAL RECORD NO. 12 BITS	4 SPARES	FILE CONT.	6 BITS RECORD I.D.	8 BITS LOGICAL RECORD NO.	32
2	YEAR (16)		DAY OF YEAR (16)			64
3	HOUR/MINUTE (16)		GMT SECONDS (16)			96
4	ORBIT NUMBER (16)		SPARE			128
5	TIME FROM ERB TURN ON (32)					160
17	POSITIONS OF THE SPACECRAFT (384)					544
29	VELOCITIES OF THE SPACECRAFT (384)					928
31	SUBSATELLITE LATITUDES (64)					992
33	SUBSATELLITE LONGITUDES (64)					1056
35	LATITUDES OF THE WIDE FIELDS OF VIEW (64)					1120
37	LONGITUDES OF THE WIDE FIELDS OF VIEW (64)					1184
41	SPACECRAFT ALTITUDES (128)					1312
42	SPACECRAFT PITCH ANGLE (16)		SPACECRAFT ROLL ANGLE (16)			1344
43	SPACECRAFT YAW ANGLE (16)		GAMMA ENCODER POSITION (16)			1376
44	SOLAR ZENITH ANGLE (16)		SOLAR AZIMUTH ANGLE (16)			1408
46	SOLAR RIGHT ASCENSIONS (64)					1472
47	SOLAR DECLINATION (16)		SPARES (16)			1504
48	SPARES (16)		SPARES (16)			1536
49	DSAS BETA ANGLE (16)		DSAS ALPHA ANGLE (16)			1568
51	GREENWICH HOUR ANGLES (64)					1632
67	32 ALPHA ENCODER POSITIONS 0-264 (512)					2144
75	16 BETA ENCODER POSITIONS 0-885 (256)					2400
651	LATITUDES FOR 1152 SUB FOVs FOR CHANNELS 15-22 (NFOV) (18432)					20832
1227	LONGITUDES FOR 1152 SUBFOVs FOR CHANNELS 15-22 (NFOV) (18432)					39264
1235	CHANNEL 11-14 (WFOV) IRRADIANCES (256)					39520
1363	CHANNEL 15-22 (NFOV) IRRADIANCES (4096)					43616
1375	INSTRUMENT TEMPERATURES (PLATINUM) (384)					44000
1415	INSTRUMENT TEMPERATURES (THERMISTOR) (1280)					45280
1495	SOLAR CHANNELS DETECTOR OUTPUT (2560)					47840

FIGURE VI-3. Logical Data Record Format



1682 32-BIT WORDS

3364 16-BIT WORDS

6728 8-BIT BYTES

FIGURE VI-3. Logical Data Record Format

(Continued)

(2) RECORD ID (8 BITS): Identifies record type and the last record written in a file and records in the last file on the tape. The MSB of the first logical record of the last physical record will be set to "1", if that physical record is the last one written in the file. The second most MSB will be set on all logical records in the last file on the tape. The record type will use the six LSB of that byte to identify the type of record being read: 11 = LOGICAL DATA RECORD, 12 = ORBITAL SUMMARY RECORD, 13 = DAILY SUMMARY RECORD, 14 = CALIBRATION ADJUSTMENT TABLE RECORD.

(3) LOGICAL RECORD NUMBER (8 BITS): This identifies the logical record within a physical record.

(4) YEAR (16 BITS): The two least significant numbers of the calendar year.

(5) DAY OF YEAR (16 BITS): The day of the year (1 to 365 or 366).

(6) HOUR/MINUTE (16 BITS): This word is the GMT hour and minute (100 x Hour + Minute) of the start of data in this record.

(7) GMT SECONDS (16 BITS): This word is the GMT seconds (0 through 59) of the start of data in this record.

(8) ORBIT NUMBER (16 BITS): The orbit data block number associated with this data.

(9) SPARE (16 BITS): Not zero filled. May contain Channel 12 shutter temperature.

(10) TIME FROM ERB TURN ON (32 BITS): Time, in seconds, from the ERB instrument being turned on, to the beginning of this major frame.

(11) POSITIONS OF THE SPACECRAFT (3 COORDINATES x 4 TIMES x 32 BITS = 384 BITS): The Earth-centered inertial cartesian position of the spacecraft at 2, 6, 10, and 14 seconds from the beginning of the major frame in kilometers scaled by 10^4.

(12) VELOCITIES OF THE SPACECRAFT (3 COORDINATES x 4 TIMES x 32 BITS = 384 BITS): The Earth-centered inertial cartesian velocity of the spacecraft at 2, 6, 10, and 14 seconds from the beginning of the major frame, in kilometers per second scaled by 10^4.

(13) SUBSATELLITE LATITUDES (4 LATITUDES x 16 BITS = 64 BITS): The geodetic subsatellite latitude (-90 degrees South to +90 degrees North) at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 100. A fill value of 22222 is used if no information is available.

(14) SUBSATELLITE LONGITUDES (4 LONGITUDES x 16 BITS = 64 BITS): The geodetic subsatellite longitude (-180 degrees West to +180 degrees East) at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 100. A fill value of 22222 is used if no information is available.

(15) LATITUDES OF THE WIDE FIELD OF VIEW (4 LATITUDES x 16 BITS = 64 BITS): The geodetic latitudes (-90 degrees South to +90 degrees North) for the Wide Field of View at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 100. A fill value of 22222 is used if no information is available.

(16) LONGITUDES OF THE WIDE FIELD OF VIEW (4 LONGITUDES x 16 BITS = 64 BITS): The geodetic longitude (-180 degrees West to +180 degrees East) at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 100. A fill value of 22222 is used if no information is available.

(17) SPACECRAFT ALTITUDES (4 ALTITUDES x 32 BITS = 128 BITS): The spacecraft altitude in kilometers at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 10^3.

(18) SPACECRAFT PITCH ANGLE (16 BITS): The spacecraft pitch angle in degrees at the middle of this major frame (with a scale factor of 100).

(19) SPACECRAFT ROLL ANGLE (16 BITS): The spacecraft roll angle in degrees at the middle of this major frame (with a scale factor of 100).

(20) SPACECRAFT YAW ANGLE (16 BITS): The spacecraft yaw angle in degrees at the middle of this major frame (with a scale factor of 100).

(21) GAMMA ENCODER POSITION (16 BITS): Identifies the solar channel subassembly position at the middle of this major frame (-20 to +20).

(22) SOLAR ZENITH ANGLE (16 BITS): This word is the solar zenith angle in degrees at the subsatellite point (0 degree - 180 degrees) with a scale factor of 10. A fill value of 22222 is used if no information is available.

(23) SOLAR AZIMUTH ANGLE (16 BITS): This word is the solar azimuth angle at the subsatellite point relative to the subsatellite TRACK on the Earth in degrees (0 degree - 360 degrees) with a scale factor of 10. A fill value of 22222 is used if no information is available.

(24) SOLAR RIGHT ASCENSION (4 RIGHT ASCENSIONS x 16 BITS = -180 degrees to +180 degrees, 64 BITS): Right ascension of the Sun in degrees at 2, 6, 10, and 14 seconds from the beginning of the major frame, scaled by 100. From ERB-ILT Ephemeris data.

(25) SOLAR DECLINATION (16 BITS): Declination of the Sun in degrees (-90 degrees to +90 degrees) from the ERB-ILT Ephemeris data (scaled by a factor of 100).

(26) SPARES (16 BITS): Zero filled spare bits.

(27) SPARES (16 BITS): Zero filled spare bits.

(28) SPARES (16 BITS): Zero filled spare bits.

(29) DSAS ALPHA ANGLE (16 BITS): The DSAS Alpha Angle (elevation of Sun relative to S/C axes) from the ERB-ILT. Value is in degrees (-180 degrees to +180 degrees) scaled by 10. If no DSAS data is available, the value will be set to -999.9 x 10.

(30) DSAS BETA ANGLE (16 BITS): The DSAS beta angle (azimuth of the sun relative to S/C axes) from the ERB-ILT. Value is in degrees (-180 degrees to +180 degrees) scaled by 10. If no DSAS data is available, the value will be set to -999.9 x 10.

(31) GREENWICH HOUR ANGLE (4 ANGLES x 16 BITS = 64 BITS): The angle between the x-axis in the Earth-centered inertial coordinate system and the x-axis in the Earth-centered fixed coordinate system (Greenwich Meridian) at 2, 6, 10, and 14 seconds from the beginning of the major frame. The values are in radians (0 to 2) scaled by 100. Negative when Greenwich Meridian West of vernal equinox.

(32) ALPHA ENCODE POSITIONS (32 POSITIONS x 16 BITS = 512 BITS): Contains 32 alpha angle positions from the scanhead encoder (0-264).

(33) BETA ENCODER POSITIONS (16 POSITIONS x 16 BITS = 256 BITS): Contains 16 beta angle positions (0-885) from the gimbal encoder.

(34) LATITUDE FOR SCANNING CHANNELS SUB FOV'S (4 CHANNELS x 9 SUBFOV x 32 FOV x 16 BITS = 18,432 BITS): Each of the 4 scanning channel telescopes has 32 FOVs per VIP frame. Each FOV is subdivided into 9 sub FOVs, each of which is located and assigned geodetic latitude and longitude corresponding to the center of the sub FOV. The sub FOVs are numbered as follows:

9	8	7
6	5	4
3	2	1

ERB FOV

The values of the latitudes are in degrees scaled by 100. When the NFOV telescopes do not see the Earth, the latitude and longitude are given a value of 22222.

The latitude words are ordered first by FOV, then by sub FOV, and finally by scanning channel group (telescope) as shown below:

WORD NO.	FOV	SUB FOV	CHANNEL GROUP
1	1	1	15,19
2	1	1	16,20
3	1	1	17,21
4	1	1	18,22
5	1	2	15,19
.	.	.	.
.	.	.	.
.	.	.	.
36	1	9	18,22
37	2	1	15,19
.	.	.	.
.	.	.	.
.	.	.	.
1152	32	9	18,22

(35) LONGITUDES FOR SCANNING CHANNELS SUB FOV'S (4 CHANNELS x 9 SUBFOVS x 32 FOVS x 16 BITS = 18432 BITS): Each of the four scanning channel telescopes has 32 FOVs per VIP frame. Each FOV is subdivided into nine sub FOVs, each of which is located and assigned a geodetic latitude and longitude corresponding to the center of the sub FOV. The longitude words are ordered as shown in Item 34. The longitude values are in degrees scaled by 100. A fill value of 22222 is used if no information is available.

(36) IRRADIANCES FOR CHANNELS 11 THRU 14 (4 IRRADIANCES x 4 CHANNELS x 16 BITS = 256 BITS): Four irradiances each for Channels 11 thru 12 (0-12000), four irradiances for Channel 13 (0-9000), and four irradiances for Channel 14 (0-5000), all with a scale factor of 10.

(37) IRRADIANCES FOR CHANNELS 15 THRU 22 (32 IRRADIANCES x 8 CHANNELS x 16 BITS = 4096 BITS): Thirty-two irradiances each for Channels 15 thru 18 (0-3000) and thirty-two irradiances each for Channels 19 thru 22 (0-1950), all with a scale factor of 10.

(38) INSTRUMENT TEMPERATURES (PLATINUM) (24 TEMPERATURES x 16 BITS = 384 BITS): Instrument temperatures in degrees Celsius from platinum thermometers (with a scale factor of 10).

(39) INSTRUMENT TEMPERATURE AND VOLTAGE MONITORS (80 x 16 BITS = 1280 BITS): Instrument temperatures in degrees Celsius from thermistors and logic level voltage in volts (all except the last quantity, which has a scaling factor of 100, are with a scale factor of 10). See Table VI-1 for description. For Channels 1 thru 10, thermopile base temperatures a fill value of 29 degrees Celsius is used if temperatures are out of range.

(40) SOLAR CHANNELS DETECTOR OUTPUT (10 CHANNELS x 16 SECONDS x 16 BITS = 2560 BITS): This is the solar channels detector output in counts.

(41) EARTH FLUX CHANNELS DETECTOR OUTPUT (4 CHANNELS x 4 SECONDS x 16 BITS = 256 BITS): This is the Earth flux channels detector output in counts).

(42) SCANNING CHANNELS DETECTOR OUTPUT (8 CHANNELS x 32 HALF SECONDS x 16 BITS = 4096 BITS): The detector output in counts of the scanning channels.

(43) "DIGITAL" WORDS (16 DIGITAL WORDS x 16 BITS = 256 BITS): 16 Digital words. The even 8 digital words are:

	COL	ROW
+ PTM Excitation Voltage BB	24	06
- PTM Excitation Voltage BB	24	16
+ PTM Excitation Voltage Scan Channel	24	26
- PTM Excitation Voltage Scan Channel	24	36
+ PTM Excitation Voltage Earth Channel	24	46
- PTM Excitation Voltage Earth Channel	24	56
+ 15 Volt Monitor	24	66
- 15 Volt Monitor	24	76

The odd eight digital words are also located in Column 24. These eight words are status words and each bit of each word indicates unique instrument status. The status for each of these bits is defined in Table VI-2.

TABLE VI-1.

Instrument Temperatures and Voltage Monitors

Number	Description
1	CH 11 Shutter Temperature
2	CH 12 Shutter Temperature
3	CH 19 Telescope Port Temperature
4	CH 20 Telescope Port Temperature
5	CH 21 Telescope Port Temperature
6	CH 22 Telescope Port Temperature
7	CH 9 Module Temperature
8	CH 10 Module Temperature
9	CH 13 Module Temperature
10	CH 14 Module Temperature
11	CH 1 Thermopile Base Temperature
12	CH 2 Thermopile Base Temperature
13	CH 3 Thermopile Base Temperature
14	CH 4 Thermopile Base Temperature
15	CH 5 Thermopile Base Temperature
16	CH 6 Thermopile Base Temperature
17	CH 7 Thermopile Base Temperature
18	CH 8 Thermopile Base Temperature
19	CH 9 Thermopile Base Temperature
20	CH 10 Thermopile Base Temperature
21	CH 11 Shutter Temperature
22	CH 12 Shutter Temperature
23	CH 19 Telescope Port Temperature
24	CH 20 Telescope Port Temperature
25	CH 21 Telescope Port Temperature
26	CH 22 Telescope Port Temperature
27	CH 19 Telescope Baffle Temperature
28	CH 20 Telescope Baffle Temperature
29	Shorted Out
30	Shorted Out
31	CH 1 Module Temperature
32	CH 2 Module Temperature

TABLE VI-1.

Instrument Temperatures and Voltage Monitors

(Continued)

Number	Description
33	CH 3 Module Temperature
34	CH 6 Module Temperature
35	Solar Channel Assembly Casting Top Temperature
36	Solar Channel Assembly Casting Bottom Temperature
37	Solar Channel Assembly Shield Attach Point
38	Solar Channel Assembly Amplifier Heat Sink
39	Earth Flux Channel Assembly, Front
40	Earth Flux Channel Assembly, Back
41	CH 11 Shutter Temperature
42	CH 12 Shutter Temperature
43	CH 19 Telescope Port Temperature
44	CH 20 Telescope Port Temperature
45	CH 21 Telescope Port Temperature
46	CH 22 Telescope Port Temperature
47	CH 9 Module Temperature
48	CH 10 Module Temperature
49	CH 13 Module Temperature
50	CH 14 Module Temperature
51	Earth FLux Channel Assembly Heat Sink
52	Main Frame Mounting Tab, Front
53	Main Frame Mounting Tab, Back
54	β Gimbal Bearing and Gear Box Temperature
55	β Gimbal Motor Temperature
56	Solar Channel Assembly Drive Motor Temperature
57	SWSC Det. Temperature
58	α Sweep Gear Box and Motor Temperature
59	Shorted Out
60	Post Amplifier Synch Demod Area Temperature
61	CH 11 Shutter Temperature
62	CH 12 Shutter Temperature
63	CH 19 Telescope Port Temperature

TABLE VI-1.

Instrument Temperatures and Voltage Monitors

(Continued)

Number	Description
64	CH 20 Telescope Port Temperature
65	CH 21 Telescope Port Temperature
66	CH 22 Telescope Port Temperature
67	CH 19 Telescope Baffle Temperature
68	CH 20 Telescope Baffle Temperature
69	Shorted Out
70	Shorted Out
71	Power Supply Area Temperature
72	A/D Area Temperature
73	Heat Radiator Temperature
74	Remote Scan Mech. (α) Axis Bearing Temperature
75	CH 12 FOV Stop Temperature
76	CH 11 Thermopile Base Temperature
77	CH 12 Thermopile Base Temperature
78	CH 13 Thermopile Base Temperature
79	CH 14 Thermopile Base Temperature
80	$\pm$ 5 V. Logic Level

(44) INSTRUMENT STATUS WORD (16 BITS): This status word indicates the status of the scanhead, the shutters for Channels 11 and 12, the Channel 12 Field Of View, the electronics calibration and the GO/NO GO heater. The status is interpreted as follows:

Units Decimal Digit (Indicates Position of Scanhead)

0 = Scan Mode
1 = Nadir Position
2 = Space Position
3 = LW Check Position
4 = SW Check Position
9 = Transition Mode

Tens Decimal Digit (Indicates Status of Shutters, Channels 11 and 12)

0 = Reference Channels CLOSED, Channel 12 OPEN
1 = Reference Channels CLOSED, Channel 12 CLOSED
2 = Reference Channels OPEN, Channel 12 OPEN
3 = Reference Channels OPEN, Channel 12 CLOSED
9 = Status Unknown

Hundreds Decimal Digit (Indicates Status of Channel 12 FOV).

0 = Channel 12 FOV Wide
1 = Channel 12 FOV Narrow
9 = Status Unknown

Thousands Decimal Digit (Indicates Status of El. Cal. and GO/NO GO Heater)

0 = GO/NO GO Heater OFF, El. Cal. OFF
1 = GO/NO GO Heater OFF, El. Cal. ON
2 - GO/NO GO Heater ON, El. Cal. OFF
3 = GO/NO GO Heater ON, El. Cal. ON
9 = Status Unknown

(45) SCAN INFORMATION WORD (16 BITS): This word provides scan information such as scan mode, position, and errors. If the instrument is not scanning, these bits will be zero.

Units Decimal Digit : Major Frame Count (1-7)
Tens Decimal Digit : Scan Mode (1-5)
Hundreds Decimal Digit : 0 = Mode 4 Portion of Mode 5
1 = Mode 3 Portion of Mode 5
Thousands Decimal Digit: 0 = No Scan Errors
1 = Alpha Scan Errors
2 = Beta Scan Errors
3 = Alpha and Beta Errors

TABLE VI-2.

ERB Odd Digital Word Format (VIP Column 24)

DIGITAL WORD NUMBERS	BIT NUMBERS: 1 (MSB)	2	3	4	5	6	7	8	9	10
1	SCAN COMMAND	MF 4	MF 2	MF 1	γ 6	δ 5	δ 4	δ 3	δ 2	δ 1
2	CAL 4	CAL 2	CAL 1	SCAN MODE 4	SCAN MODE 2	SCAN MODE 1	SHORT GRID	LONG GRID 2	RAD "A" 2	RAD "A" 1
5	PRP ON	ELECT ON (VERIFICA-TION)	SCAN OFF	SPACE LOOK COMMAND	SHORT WAVE CHECK COMMAND	LONG WAVE CHECK COMMAND	SOLAR LEFT COMMAND	SOLAR RIGHT COMMAND	GO/NO GO OFF	TEMP CONT ON
7	LONG GRID 2	SHORT GRID	12E FOV SMALL COMMAND	STEP OFF COMMAND	CAL CHECK COMMAND	NOT SPACE POSITION	SHORT WAVE $\alpha \neq 113^{\circ}$	SHORT WAVE $\beta \neq 0^{\circ}$	LONG WAVE $\alpha \neq 113^{\circ}$	LONG WAVE $\beta \neq 9$
9	CAL 4	CAL 2	CAL 1	ID 4	ID 2	ID 1	REFERENCE SHUTTER CLOSED COMMAND	CH 12 CLOSE COMMAND	RAD "B" 2	RAD "B" 1
11	$B \neq 273$	$\alpha \neq 0^{\circ}$	SYNC ERROR	SCAN ENABLED	ROUTINE 5 - 4	LONG GRID 2	SHORT GRID	SCAN ON COMMAND	SOLAR DOOR CLOSED	PRP NO ON
13	EX BB	$B \neq 357$	$B \neq 3$	$B \neq 87$	$B \neq 177$	$B \neq 205$	$B \neq 183$	$B \neq 19.5$	$B \neq 154$	$B \neq 3$
15	TDD	ELECT ON	SCAN OFF	CALIBRATE CHECK	SHORT WAVE CHECK	LONG WAVE CHECK	NOT SPACE POSITION	LONG GRID 2	SHORT GRID	$\alpha \neq 0$

(46) SPACECRAFT STATUS BITS (192 BITS): 192 Individual bits. Where digital B functions are used for status, all samples will be used. Events will use 3 bits (0-7) each time it is sampled, which is twice per major frame. The status and events are from the ERB-ILT and are given in the proper order in Table VI-3.

(47) SOLAR CHANNEL FLAGS (10 CHANNELS x 16 SECONDS x 1 BIT = 160 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(48) EARTH FLUX CHANNEL FLAGS (4 CHANNELS x 4 VALUES x 1 BIT = 16 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(49) SPARES (16 BITS): Zero filled.

(50) SCANNING CHANNEL FLAGS (8 CHANNELS x 32 HALF SECONDS x 1 BIT = 256 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(51) ALPHA ANGLE FLAGS (32 HALF SECONDS x 1 BIT = 32 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(52) BETA ANGLE FLAGS (16 SECONDS x 1 BIT = 16 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0), taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(53) SPARES (16 BITS) - Zero filled.

(54) PLATINUM TEMPERATURE MONITOR FLAGS (48 MONITORS x 1 BIT = 48 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

(55) THERMISTOR TEMPERATURE MONITOR FLAGS (80 MONITORS x 1 BIT = 80 BITS): 1-Bit flags indicating that the data was (BIT=1), or was not (BIT=0) taken in a data quality loss interval. In addition, these bits are set to 1 when locations are filled.

TABLE VI-3.

Spacecraft Status and Events

No.	Description	(1)/(0) BIT/STATE	FUNC/EVENT Nos	COL/ROW
1	SATELLITE DAY/NIGHT	DAY=1/NIGHT=0	EV-17	
2	TLM PWR ON/OFF	ON/OFF	FN-6601	6/8
3	DSAS PWR ON/OFF	ON/OFF	FN-16001	6/6
4	IR ZIP/DIP TO TR1	ZIP/DIP	FN-22008	6/16
5	IR ZIP/DIP TO TR2	ZIP/DIP	FN-22009	6/17
6	IR ZIP/DIP TO TR3	ZIP/DIP	FN-22010	6/26
7	TR1 POWER ON/OFF	ON/OFF	FN-18006	71/4
8	TR2 POWER ON/OFF	ON/OFF	FN-18036	71/4
9	TR3 POWER ON/OFF	ON/OFF	FN-18056	71/3
10	XPONDER A/B POWER	0=Both OFF/1=A ON 2=B ON/3=Both ON	(SPECIAL EVENT)	
11	XPONDER RANGING A	ON/OFF	FN-19002	6/2
12	" " B	ON/OFF	FN-19006	6/6
13	W B XMTR A PWR	ON/OFF	FN-7160	6/8
14	W B XMTR B PWR	ON/OFF	FN-7260	6/9
	W B XMTR A/B SELECTED	A/B	FN-7165	6/2
16	CZCS CHANNEL 1 PWR	ON/OFF	FN-8001	6/1
17	CZCS " 2 "	ON/OFF	FN-8002	6/2
18	" " 3 "	ON/OFF	FN-8003	6/3
19	" " 4 "	ON/OFF	FN-8004	6/4
20	" " 5 "	ON/OFF	FN-8005	6/5
21	" " 6 "	ON/OFF	FN-8006	6/6
22	CZCS ELECT. PWR	ON/OFF	FN-8007	6/7
23	CZCS SCAN DRIVE	ON/OFF	FN-8008	6/10
24	CZCS CAL LAMP STATUS	0=Both OFF/1=1 ON 2=2 ON/3=UNK	(SPECIAL EVENT	
25	CZCS RECORDING CZCS DATA	1=YES/0=NO	SPECIAL EVENT	
26	REAL TIME DATA COLLECTION	1=YES/0=NO	SPECIAL EVENT	
27	THIR STATUS	0=OFF/1=RAD.ON 2=ALL ON/≥ 3=FAIL	EV-88	
28	LIMS ELECT	ON/OFF	FN-11001	6/16
29	LIMS ADAPT SCAN	ON/OFF	FN-11004	6/19
30	LIMS ACQ SCAN	ON/OFF	FN-11005	6/20

TABLE VI-3. Spacecraft Status and Events

(Continued)

No.	Description	(1)/(0) BIT/STATE	FUNC/EVENT Nos	COL/Row
31	LIMS CALIB SPACE	YES/NO	FN-11006	6/21
32	LIMS SOURCE CALIBRATE	YES/NO	FN-11007	6/22
33	SAMS POWER	ON/OFF	FN-12001	6/1
34	SAMS LIMB SCAN DRIVE	ON/OFF	FN-12002	6/2
35	SAMS AZIMUTH SCAN DRIVE	ON/OFF	FN-12003	6/3
36	SBUV/TOMS MASTER POWER	ON/OFF	FN-13001	6/1
37	SBUV PWR ENABLE	ENA/DIS	FN-13002	6/2
38	SBUV STEP SCAN	SET/RESET	FN-13005	6/5
39	SBUV CONTINUOUS SCAN	SET/RESET	FN-13006	6/7
40	SBUV CAGE CAM	SET/RESET	FN-13007	6/14
41	SBUV/TOMS WAVSLENGTH CAL	SET/RESET	FN-13008	6/15
42	TOMS PWR ENABLE	ENA/DIS	FN-13009	6/16
43	SBUV/TOMS ELECT CAL	ON/OFF	FN-13020	6/22
44	SBUV/TOMS FRAME COUNTER (First in Time)	the 4th LSB, the 3rd LSB, the 2nd LSB Of Col.12 Row 0	SPECIAL EVENT	
45	(Second in Time)	the 4th LSB, the 3rd LSB, the 2nd LSB Of Col.12 Row 40	SPECIAL EVENT	
46	ERB ELECT	ON/OFF	FN-14001	6/1
47	ERB SCAN	ON/OFF	FN-14002	6/2
48	ERB STEPPER DRIVER	OFF/NO	FN-14011	6/21
49	ERB CHOPPER OPERATING	YES/NO	FN-14016	6/23
50	SMMR DATA SYSTEM	ON/OFF	FN-15001	6/3
51	SMMR CHANNEL 1 PWR	ON/OFF	FN-15002	6/4
52	" " 2 "	ON/OFF	FN-15003	6/7
53	" " 3 "	ON/OFF	FN-15004	6/17
54	" " 4 "	ON/OFF	FN-15005	6/18
55	" " 5 "	ON/OFF	FN-15006	6/19
56	SMMR SCAN POWER ON/OFF	ON/OFF	FN-15007	6/22
57	ENCODER OUTPUT A/B	A/B	FN-15009	6/26
58	SAM II POWER	ON/OFF	FN-17001	6/1
59	SAM II STANDBY	ON/OFF	FN-17015	6/26
60	SAM II SCAN MODE	ON/OFF	FN-17014	6/22
61	SAM II SLEW MODE	ON/OFF	FN-17013	6/21
62	SAM II GIMBAL MODE	ON/OFF	FN-17012	6/20
63	SBUV/TOMS DATA TAKING MODE	YES/NO	SPECIAL EVENT	
64	SPARE	---	---	

* Indicates frame status for the previous VIP major frame.

(56) REFERENCE TIME (32 BITS) - Time from 0^h 0^m 0^s GMT January 1, 1978 to the beginning of this major frame in seconds.

(57) SPARES (480 BITS) - Zero filled.

VI-C. ORBITAL SUMMARY RECORD

After the last logical data record in each orbit block is the orbital summary record. This record contains the peak solar irradiances for Channels 1 through 10 as well as various quantities computed for the orbital summary. The format for this record is shown in Figure VI-4 and contains the following:

(1) PHYSICAL RECORD NUMBER (12 BITS): This word identifies the physical record number within a data file.

(2) RECORD ID (8 BITS): Identifies record type and the last record written in a file and records in the last file on the tape. The MSB will be set to "1" if that record is the last one written in the file. The second most MSB will be set on all records in the last file on the tape. The record type will use the 6 LSB of that byte to identify the type of record being read: 11 = LOGICAL DATA RECORD, 12 = ORBITAL SUMMARY RECORD, 13 = DAILY SUMMARY RECORD, 14 = CALIBRATION ADJUSTMENT TABLE RECORD.

(3) LOGICAL RECORD NUMBER (8 BITS): This identifies the logical record within the physical record.

(4) ORBIT NUMBER (16 BITS): The data orbit number at the beginning of this orbit block.

(5) START YEAR (16 BITS): The units and tens digits of the calendar year.

(6) START NUMERIC DAY (16 BITS): The numeric day of the year (1 to 365 or 366).

(7) START HOUR/MINUTE (16 BITS): This word is the GMT hour and minute (100 x hour + minute) of the start of data contained in this orbit block.

(8) START LATITUDE (16 BITS): This is the subsatellite latitude (-90 degrees to 90 degrees) at the start of data in this orbit block (with a scale factor of 100).

(9) START LONGITUDE (16 BITS): This is the subsatellite longitude (-180 degrees to 180 degrees) at the start of data in this orbit block (with a scale factor of 100).

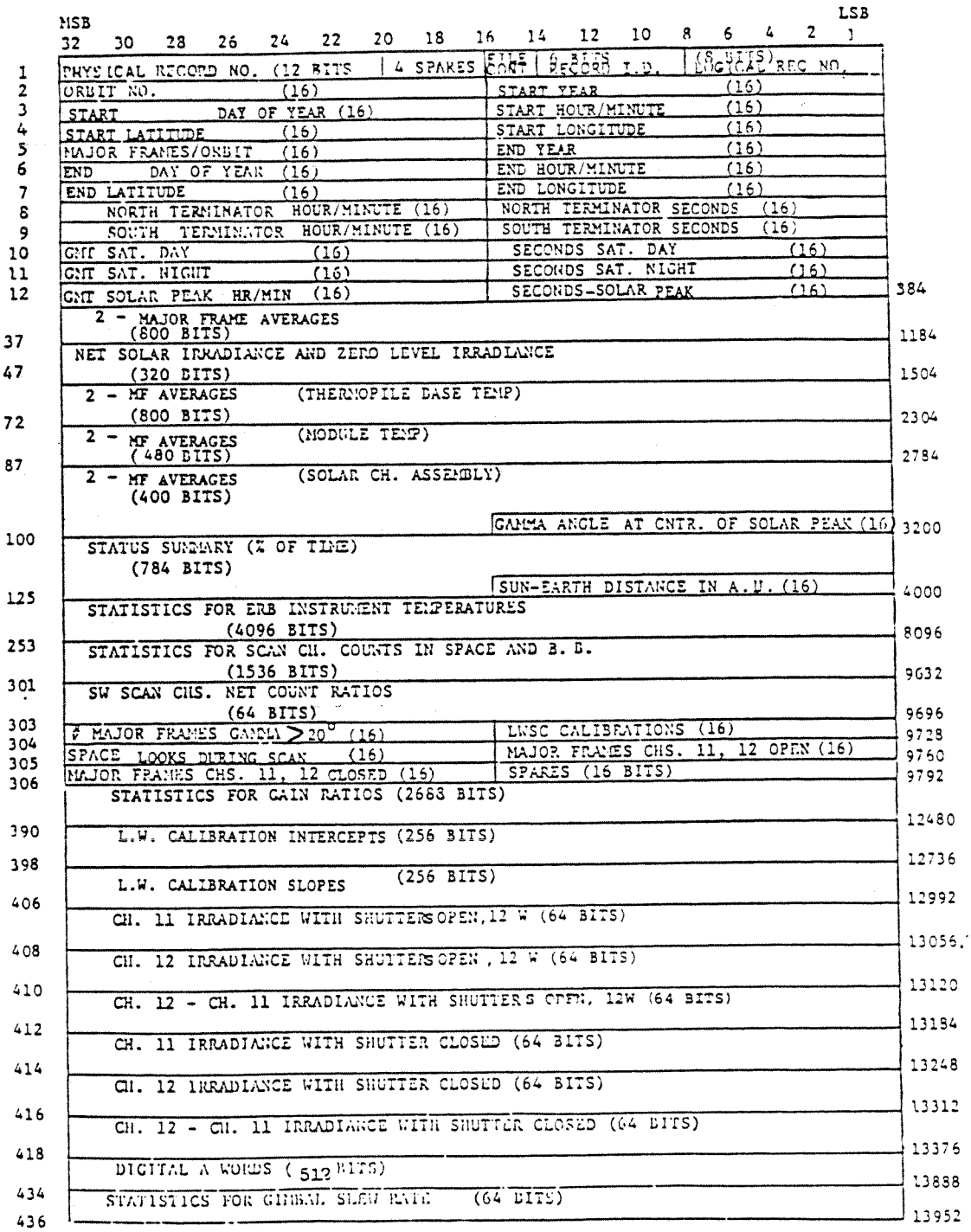


FIGURE VI-4. Logical Record Format for Orbital Summary

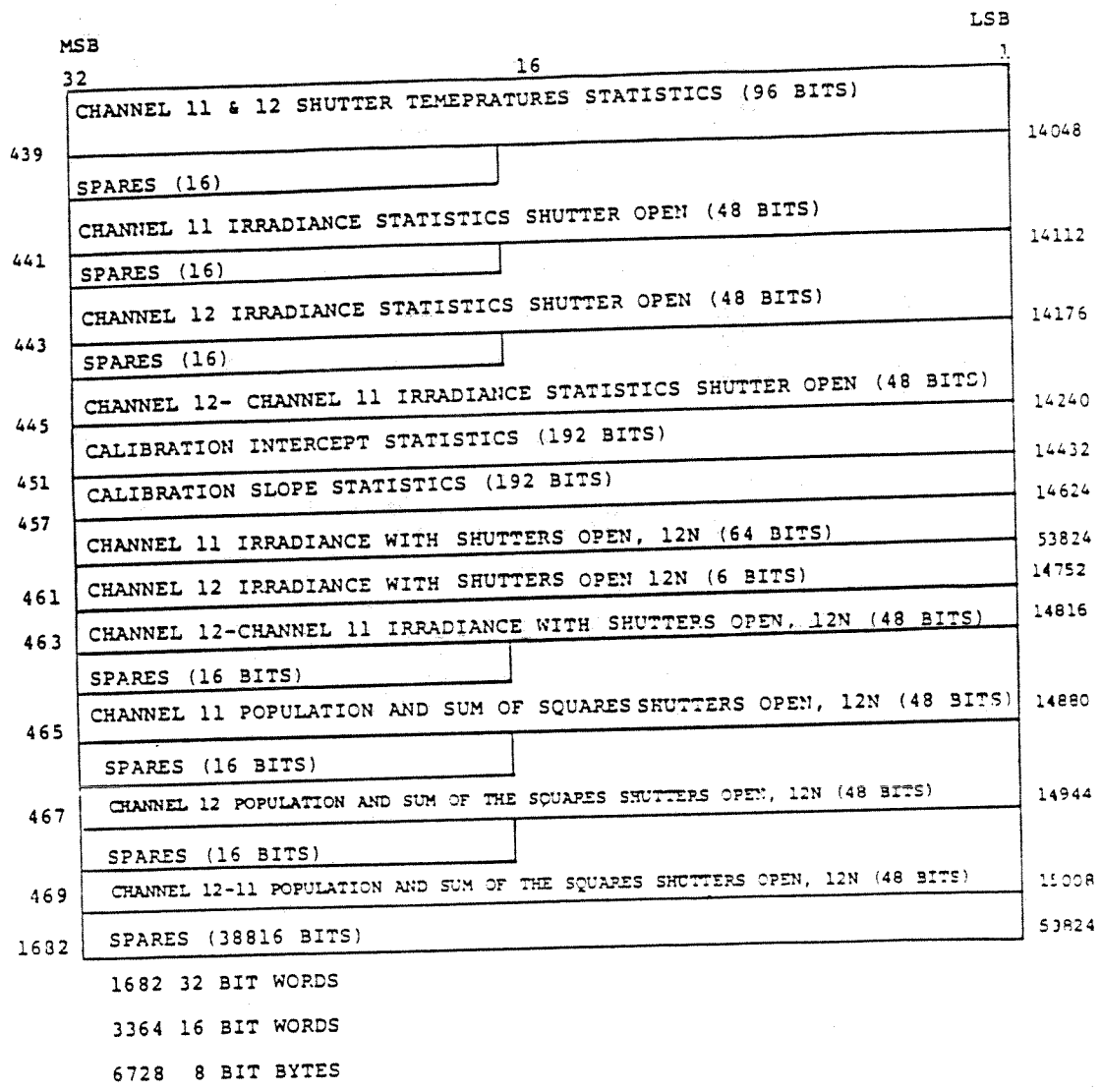


FIGURE VI-4. Logical Record Format for Orbital Summary

(Continued)

(10) MAJOR FRAMES PER ORBIT (16 BITS): The number of VIP major frames in this orbit block.

(11) END YEAR (16 BITS): The units and tens digits of the calendar year at the end of the orbit block.

(12) END DAY OF YEAR (16 BITS): The numeric day of the year (1 to 365 or 366) at end of the orbit block.

(13) END HOUR/MINUTE (16 BITS): The GMT hour and minute (100 x hour + minute) at the end of this orbit block.

(14) END LATITUDE (16 BITS): This is the subsatellite longitude (-90 degrees to 90 degrees) at the end of the orbit block (with a scale factor of 100).

(15) END LONGITUDE (16 BITS): This is the subsatellite longitude (-180 degrees to 180 degrees) at the end of this orbit block (with a scale factor of 100).

(16) TIME AT NORTHERN TERMINATOR (16 BITS): The GMT hour and minute (100 x hour + minute) of the northern terminator crossing.

(17) TIME AT NORTHERN TERMINATOR (16 BITS): The GMT seconds at the northern terminator crossing.

(18) TIME AT SOUTHERN TERMINATOR (16 BITS): The GMT hour and minute (100 x hour + minute) of the southern terminator crossing.

(19) TIME AT SOUTHERN TERMINATOR (16 BITS): The GMT seconds at the southern terminator crossing.

(20) GMT AT SATELLITE DAY (16 BITS): The GMT hour and minute (100 x hour + minute) at the satellite night to day transition.

(21) SECONDS AT SATELLITE DAY (16 BITS): The seconds portion of the GMT at the satellite night to day transition.

(22) GMT AT SATELLITE NIGHT (16 BITS): The GMT hour and minute (100 x hour + minute) at the satellite day to night transition.

(23) SECONDS OF SATELLITE NIGHT (16 BITS): The seconds portion of the GMT at the satellite day to night transition.

(24) GMT SOLAR PEAKS (16 BITS)*: The GMT (T_0 time of the solar channels peak signal. This word is hours and minutes (100 x hour + minute).

(25) SECONDS OF SOLAR PEAK (16 BITS)*: The seconds (T_0 time) of the solar channels peak signal.

(26) TWO MAJOR FRAME AVERGES (10 CHANNELS x 5 TIMES x 16 BITS = 800 BITS)*: Two major frame averages in counts for Channels 1 through 10 centered at times relative to T_0 as follows*:

V_1 at T_0-26 minutes

V_2 at T_0-13 minutes

V_3 at T_0

V_4 at T_0+13 minutes

V_5 at T_0+26 minutes

(27) NET SOLAR (R_p) AND ZERO (R_o) LEVEL IRRADIANCE (2 PARAMETERS x 10 CHANNELS x 16 BITS = 320 BITS)*: The net solar irradiance and the zero level irradiance:

$$R_p = V_3 - 1/2\ (V_2 + V_4)\ .\ S_v^{-1}\ .\ (STC)^{-1}$$

Channels 1 through 10 and $R_o = V_1$

$S_v^{-1}\ .\ (STC)^{-1}$, Channels 1 through 10

where

R_p = net solar irradiances

V_1 = two major frame averages of detector outputs as described in Item 26.

R_o = zero level irradiance (at T_0-26 minutes)

STC = sensitivity temperature correction factor

S_v^{-1} = channel sensitivity in a vacuum at 25°C

*This information was derived using a coarse method and is provided only as tentative information. A more precise method was used in producing the ERB Solar and Earth Flux Data Tape (SEFDT). A complete set of solar data is also on the SEFDT for those who wish to develop their own algorithm.

TABLE VI-4

Status Summary

NUMBER	DESCRIPTION
1	Percent of Major Frames with DSAS Unused or Unavailable
2	Errors in Beta Scan During Transition
3	Percent of Major Frames with Invalid Time
4	Duty Cycle DSAS Sensor #1
5	Duty Cycle DSAS Sensor #2
6	Duty Cycle DSAS Sensor #3
7	Duty Cycle DSAS Sensor #4
8	Percent Major Frames with Gross Longitude Error
9	Scan On Command(5) Verified
10	PRP On
11	Electronics On Command(1) Verified
12	Scan Off Command(3) Verified
13	Temperature Controller on Command(13) Verified
14	CH 12 FOV Narrow Command(19) Verified
15	Stepper Drives Off Command(20) Verified
16	Electronic Cal. Check Command(21) Verified
17	Reference Channels Shutters Closed Command(16) Verified
18	CH 12 Shutter Closed Command(17) Verified
19	Scan Logic Enabled
20	PRP Number 2 On
21	Space View Command(6) Verified
22	Shortwave Check Command(7) Verified
23	Longwave Check Command(8) Verified
24	Solar Channels Left Command(10) Verified
25	Solar Channels Right Command(11) Verified
26	GO/NO GO Test Off Command(12) Verified
27	Solar Door Close Command(25) Verified
28	Errors in Scan Pattern(α)
29	Errors in Scan Pattern(β)
30	Missing Major Frame in Scan Sequence
31	Scanning in Mode 1

For net solar irradiance, scale factor for Channels 1 through 5 and 10 is 10, and for Channels 6 through 9 the scale factor is 100. For zero level irradiance, scale factor for Channels 1 through 5 is 10, and for Channels 6 through 9 it is 100.

(28) TWO MAJOR FRAME AVERAGE THERMOPILE BASE TEMPERTURES (10 TEMPERATURES x 5 TIMES x 16 BITS = 800 BITS): The two major frame average for thermopile base temperatures (Celsius) for Channels 1 through 10 at T_0-26 minutes, T_0-13 minutes, T_0, T_0+13 minutes, and T_0+26 minutes. All values use a scale factor of 10.

(29) TWO MAJOR FRAME AVERAGE MODULE TEMPERATURES (6 TEMPERATURES x 5 TIMES x 16 BITS = 480 BITS): The two major frame average of module temperatures (Celsius) for Channels 1 through 3, 6, 9, and 10 at T_0-26 minutes, T_0-13 minutes, T_0, T_0+13 minutes, and T_0+16 minutes. All values use a scale factor of 10.

(30) TWO MAJOR FRAME AVERAGE ASSEMBLY TEMPERATURES (5 TEMPERATURES x 5 TIMES x 16 BITS = 400 BITS): The two major frame averages of five solar channel assembly temperatures at T_0-26 minutes, T_0-13 minutes, T_0, T_0+13 minutes, and T_0+26 minutes. All values use a scale factor of 10.

(31) GAMMA ANGLE (16 BITS): Gamma angle at the center of the solar peak.

(32) STATUS SUMMARY (49 STATUS PARAMETERS x 16 BITS = 784 BITS): Status summary (percent of time) as expressed in the orbital summary histogram (with a scale factor of 10). See Table VI-4.

(33) SUN-EARTH DISTANCE (16 BITS): The Sun to Earth distance in astronomical units (with a scale factor of 10^4).

(34) STATISTICS OF TEMPERATURES AND ± 5V LOGIC LEVEL (64 x 4 STATISTICS x 16 BITS = 4096 BITS): Statistics of ERB instrument temperatures and ± 5V logic level (all with a scale factor of 10, except the logic level voltage which is with a scale factor of 100). See Table VI-5.

(35) STATISTICS FOR SCAN CHANNELS (8 CHANNELS x 4 STATISTICS x 3 MODES x 16 BITS = 1536 BITS): Statistics for scan channels count during: (1) internal black body views, (2) fixed views of space, and (3) scanning views of space.

(36) SHORTWAVE SCAN NET COUNT RATIOS (4 CHANNELS x 16 BITS = 64 BITS): Shortwave scan channels net count ratios (with a scale factor of 1000 obtained during shortwave check positions.

TABLE VI-4

Status Summary

(Continued)

NUMBER	DESCRIPTION
32	Scanning in Mode 2
33	Scanning in Mode 3
34	Scanning in Mode 4
35	Scanning in Mode 5
36	Gamma Angle Less Than -20 Degrees
37	Heat Radiator A Front Open, Rear Open
38	Heat Radiator A Front Closed, Rear Open
39	Heat Radiator A Front Open, Rear Closed
40	Heat Radiator A Front Closed, Rear Closed
41	Heat Radiator B Front Open, Rear Open
42	Heat Radiator B Front Closed, Rear Open
43	Heat Radiator B Front Open, Rear Closed
44	Heat Radiator B Front Closed, Rear Closed
45	S Band-A Transmitter On
46	S Band-B Transmitter On
47	Electronics Bit Turned On in Header Block
48	Not Used
49	Not Used

TABLE VI-5

Statistics of Temperatures

The four (4) Statistics are: MIN, MEAN, MAX, and Standard Deviation. The first 53 temperatures refer to thermistor data. The 54th location refers to ± 5 V Logic Level. The last 10 temperatures refer to platinum temperature data.

NUMBER	DESCRIPTION
1-14	CHs 1-14 Thermopile Base
15	CH 1 Module
16	CH 2 Module
17	CH 3 Module
18	CH 6 Module
19	CH 9 Module
20	CH 10 Module
21	CH 13 Module
22	CH 14 Module
23	CH 11 Shutter Hub
24	CH 12 Shutter Hub
25	CH 10 Port
26	CH 20 Port
27	CH 21 Port
28	CH 22 Port
29	CH 19 Baffle
30	CH 20 Baffle
31	CH 21 Baffle
32	CH 22 Baffle
33	Solar Channels Assembly Casting, Top
34	Solar Channels Assembly Casting, Bottom
35	Solar Channels Assembly Shield Attached Point
36	Solar Channels Assembly Amplifier Heat Sink
37	Earth Flux Channels Assembly, Front
38	Earth Flux Channels Assembly, Back
39	Earth Flux Channels Assembly, Heat Sink
40	Main Frame Mounting Tab, Front
41	Main Frame Mounting Tab, Back

TABLE VI-5

Statistics of Temperatures

(Continued)

NUMBER	DESCRIPTION
42	Beta Gimble Bearing and Gear Box
43	Beta Gimble Motor
44	Solar Channels Assembly Drive Motors
45	Shortwave Scanning Channel Detectors
46	Alpha Sweep Gear Box and Motor
47	Chopper Motor
48	Post Amp. Synch Demod. Area
49	Power Supply Area
50	A/D Area
51	Heat Radiator
52	Remote Scan Mech. Axis Bearing
53	CH 12 FOV Stop
54	$\pm$ 5 Volt Logic Level
55	CH 11 Module
56	CH 12 Module
57	CH 19 Module
58	CH 20 Module
59	CH 21 Module
60	CH 22 Module
61	CH 19 Blackbody
62	CH 20 Blackbody
63	CH 21 Blackbody
64	CH 22 Blackbody

(37) MAJOR FRAMES (16 BITS): The number of major frames with a gamma angle greater than 20 degrees.

(38) LWSC CALIBRATIONS (16 BITS): The number of longwave scanning channels calibrations during this orbit block.

(39) SPACE LOOKS (16 BITS): The number of space looks during the orbit block.

(40) MAJOR FRAMES - CHANNELS 11, 12 OPEN (16 BITS): The number of major frames with Channel 11 and Channel 12 open.

(41) MAJOR FRAMES - CHANNELS 11, 12 CLOSED (16 BITS): The number of major frames with Channel 11 and Channel 12 closed.

(42) SPARES (16 BITS): Zero filled.

(43) STATISTICS FOR GAIN RATIOS (4 STATISTICS x 3 STEPS x 14 CHANNELS x 16 BITS = 2688 BITS): These are statistics for electronic gain ratios (current/prelaunch) with a scale factor of 1000.

(44) CALIBRATION INTERCEPTS (4 STATISTICS x 4 CHANNELS x 16 BITS = 256 BITS): These are statistics for longwave scan channels calibration intercepts (with a scale factor of 1000).

(45) CALIBRATION SLOPES (4 STATISTICS x 4 CHANNELS x 16 BITS = 256 BITS): These are statistics for longwave scan channels calibration slopes (with a scale factor of 10^5).

(46) CHANNEL 11 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12W (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 11 irradiance with shutter open (with a scale factor of 100).

(47) CHANNEL 12 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12W (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 12 irradiance with the shutter open (with a scale factor of 100).

(48) CHANNEL 12 - CHANNEL 11 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12W (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 12 - Channel 11 irradiance with both shutters open (with a scale factor of 100).

(49) CHANNEL 11 IRRADIANCE WITH SHUTTER CLOSED (4 STATISTICS x 16 BITS = 64 BITS): These are the statistics for Channel 11 irradiance with the shutter closed (with a scale factor of 100).

(50) CHANNEL 12 IRRADIANCE WITH SHUTTER CLOSED (4 STATISTICS x 16 BITS = 64 BITS): These are the statistics for Channel 12 irradiance with the shutter closed (with a scale factor of 100).

(51) CHANNEL 12 - CHANNEL 11 IRRADIANCE WITH SHUTTER CLOSED (4 STATISTICS x 16 BITS = 64 BITS): These are the statistics for Channel 12 - Channel 11 irradiance with the shutter closed (with a scale factor of 100).

(52) EVEN DIGITAL WORDS (8 CHANNELS x 4 STATISTICS x 16 BITS = 512 BITS): Orbital average for the eight even digital words. See Section VI-B, Item 43 for a description of these words.

(53) GIMBAL SLEW RATE (4 STATISTICS x 16 BITS = 64 BITS): These words are statistics for the gimbal slew rate.

(54) CHANNEL 11 AND CHANNEL 12 SHUTTER TEMPERATURE STATISTICS (2 CHANNELS x 16 BITS + 2 CHANNELS x 32 BITS = 96 BITS): The number of samples (16 bits) for Channel 11 and Channel 12 shutter temperatures and the sum of square (32 bits) for Channel 11 and Channel 12 shutter tempertures, sum of the squares, scaled by 10.

(55) SPARES (16 BITS): Zero filled.

(56) CHANNEL 11 IRRADIANCE STATISTICS WITH SHUTTER OPEN, 12W (48 BITS): The number of samples (16 bits) and the sum of the squares (32 bits) for the Channel 11 irradiance when the shutter is open, sum of the squares, scaled by 100.

(57) SPARES (16 BITS): Zero filled.

(58) CHANNEL 12 IRRADIANCE STATISTICS WITH SHUTTER OPEN, 12W (48 BITS): The number of samples (16 bits) and the sum of the squares (32 bits) for Channel 12 irradiance when the shutter is open, sum of the squares, scaled by 100.

(60) CHANNEL 12 - CHANNEL 11 IRRADIANCE STATISTICS WITH SHUTTER OPEN (48 BITS): The number of samples (16 bits) and the sume of the squares (32 bits) for Channel 12 - Channel 11 irradiance with the shutter is open, sum of the squares, scaled by 100.

(61) CALIBRATION INTERCEPT STATISTICS (4 CHANNELS x 16 BITS + 4 CHANNELS x 32 BITS = 192 BITS): The number of samples (16 bits) for the longwave scan channels calibration intercepts, and the sum of the squares for the longwave calibration intercepts (32 bits), sum of squares, scaled by 1000.

(62) CALIBRATION SLOPE STATISTICS (4 CHANNELS x 16 BITS + 4 CHANNELS x 32 BITS = 192 BITS): The number of samples (16 bits) for the longwave scan channels calibration slopes, and the sum of the squares for the longwave calibration intercepts (32 bits) sum of the squares scaled by 10^5.

(63) CHANNEL 11 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12N (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 11 irradiance with both shutters open and Channel 12 stopped to narrow (with a scale factor of 100).

(64) CHANNEL 12 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12N (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 12 irradiance with both shutters open and Channel 12 stopped to narrow (with a scale factor of 100).

(65) CHANNEL 12 - CHANNEL 11 IRRADIANCE WITH BOTH SHUTTERS OPEN, 12N (4 STATISTICS x 16 BITS = 64 BITS): These are statistics for Channel 12 - Channel 11 irradiance with both shutters open and Channel 12 stopped to narrow (with a scale factor of 100).

(66) SPARES (16 BITS): Zero filled.

(67) CHANNEL 11 IRRADIANCE STATISTICS WITH BOTH SHUTTERS OPEN, 12N (48 BITS): The number of samples (16 bits) and the sum of the squares (32 bits) associated with Item 63.

(68) SPARES (16 BITS): Zero filled.

(69) CHANNEL 12 IRRADIANCE STATISTICS WITH BOTH SHUTTERS OPEN, 12N (48 BITS): The number of samples (16 bits) and the sum of the squares (32 bits) associated with Item 64.

(70) SPARES (16 BITS): Zero filled.

(71) CHANNEL 12 - CHANNEL 11 IRRADIANCE STATISTICS WITH BOTH SHUTTERS OPEN, 12N (48 BITS): The number of samples (16 bits) and the sum of the squares (32 bits) associated with Item 65.

(72) SPARES (38,816 BITS): These bits are used to fill out the standard logical record size. These bits will be set to zero.

VII. CALIBRATION RECORD/FILE

This file contains a table of suggested adjustments to the ERB radiances and irradiances (Calibration Adjustment Table) for Channels 1 through 10C, 11, 12, 12N,1 and 13 through 22. These adjustment factors are computed after the MAT has been produced and are added to MAT before archiving. The description of the constituent items are as follows:

(1) PHYSICAL RECORD NUMBER (12 BITS): This number will be 1.

(2) RECORD ID (8 BITS): Identifies record type and the last record written in a file and records in the last file on the tape. The MSB of the first logical record of the last physical record will be set to "1", if that physical record is the last one written in the file. The second most MSB will be set on all logical records in the last file on the tape. The record type will use the six LSB of that byte to identify the type of record being read: 11 = LOGICAL DATA RECORD, 12 = ORBITAL SUMMARY RECORD, 13 = DAILY SUMMARY RECORD, 14 = CALIBRATION ADJUSTMENT TABLE RECORD.

(3) LOGICAL RECORD NUMBER (8 BITS): This identifies the logical record within a physical record.

(4) START YEAR (16 BITS): The units and tens digits of the calendar year of the start of the period for which the adjustments apply.

(5) START MONTH (16 BITS): The month (1-12) of the start of the period for which the adjustments apply.

(6) START DAY (16 BITS): The day of month of the start of the period for which the adjustments apply.

(7) STOP YEAR (16 BITS): The units and tens digits of the calendar year of the end of the period for which the adjustments apply.

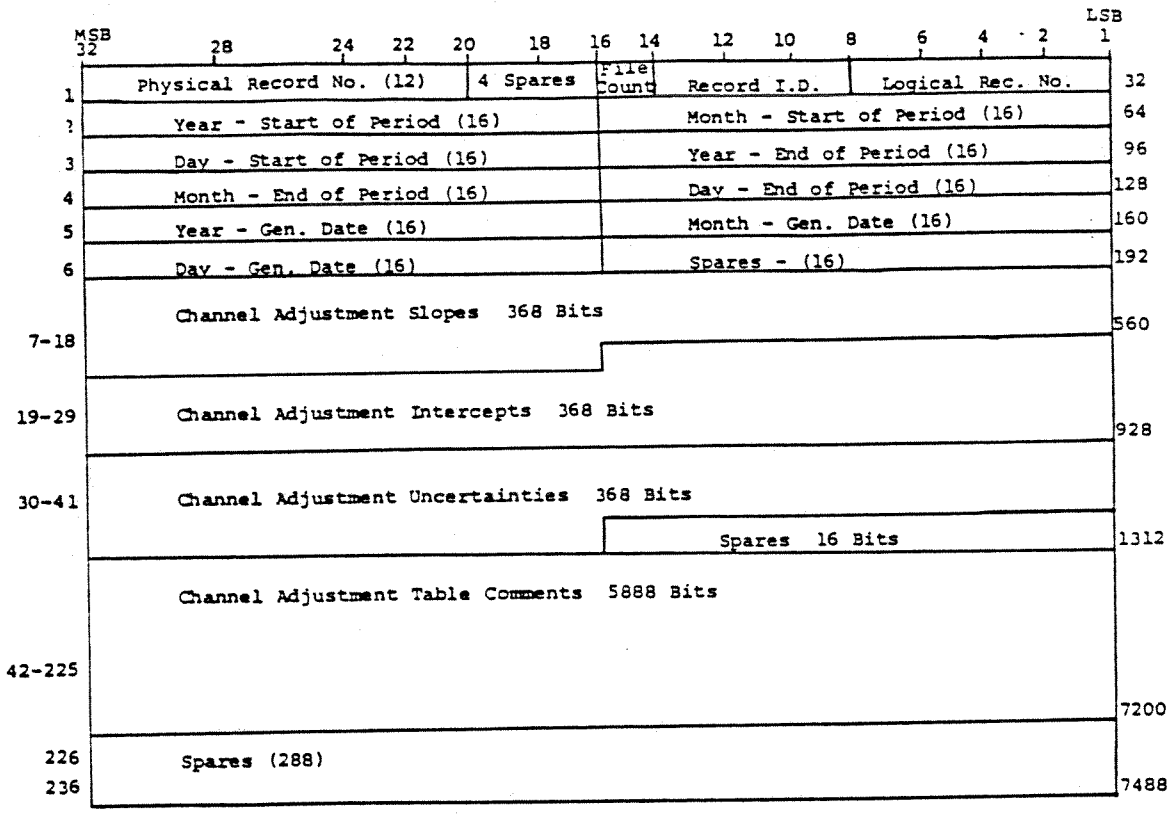
(8) STOP MONTH (16 BITS): The month (1-12) of the end of the period for which the adjustments apply.

(9) STOP DAY (16 BITS): The day of month of the end of the period for which the adjustments apply.

(10) GENERATION YEAR (16 BITS): The units and tens digit of the year in which Calibration Adjustment Table was generated.

(11) GENERATION MONTH (16 BITS): The month (1-12) in which the Calibration Adjustment Table was generated.

(12) GENERATION DAY (16 BITS): The day of month on which the Calibration Adjustment Table was generted.



208 36 BIT WORDS
234 32 BIT WORDS
312 24 BIT WORDS
624 12 BIT WORDS
936 8 BIT WORDS

FIGURE VII-1. ERB MAT Calibration Adjustment Table Record Format

(13) ADJUSTMENT SLOPES (23 CHANNELS x 16 BITS = 368 BITS): The adjustment slopes A_1 to be applied to the ERB channel radiances: $S^* = A_1 S + A_2$ where S* = corrected channel value, S = uncorrected channel value. The slopes are stored in the following order: Channels 1 through 10C, 11, 12, 12N, 13 through 22. The adjustment slopes are stored with a scale factor of 1000.

(14) ADJUSTMENT INTERCEPTS (23 CHANNELS x 16 BITS = 368 BITS): The adjustment intercepts A_2 to be applied to the ERB channel radiances: $S^* = A_1 S + A_2$ where S* = corrected channel radiance, S = uncorrected channel radiance. The intercepts are stored in the following order: Channels 1 through 10C, 11, 12, 12N, 13 through 22. The adjustment intercepts are stored with a scale factor of 10.

(15) ADJUSTMENT UNCERTAINTIES (23 CHANNELS x 16 BITS = 368 BITS): The percent uncertainty of the channel values after the correction has been applied (scaled by 10). The uncertainties are stored in the following order: Channels 1 through 10C, 11, 12, 12N, 13 through 22.

(16) ADJUSTMENT COMMENTS (32 CHARACTERS x 23 CHANNELS x 8 BITS): A comment field of 32 characters for each of the 23 adjustments above.

APPENDIX A.

MAT Tape Length Estimate

1. Standard Header = 6"

2. Data File

   394 VIPS/Orbit

   1 VIP/Logical Record

   2 Logical Records/Physical Record

   For an orbit have:

   394 VIPS + 1 Orbital Summary Record + VIP or Daily Summary Record or Zero-filled Record

   = 396 Logical Record/Orbit = 198 Physical Record/Orbit

   1 Physical Record = 13,464 bytes

   For 1600 BPI tape, 1 physical record = 8.415"

   Length of tape for orbit = 198 physical record x 8.415" + 198 IRG x 0.65" = 1794.9"

   Maximum of 14 orbits/day = 25,128.2"/data file

3. CAT File

   900 bytes long. This takes about .5" of tape

   Total length of tape = 25,128.2" + 6" + .5" = 25,134.7" = 2094.5'

BIBLIOGRAPHIC DATA SHEET

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4. Title and Subtitle	5. Report Date
ERB Master Archival Tape Specification No. T 134081 ERB MAT	May 1984
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9. Performing Organization Name and Address Goddard Space Flight Center Greenbelt, Maryland 20771	10. Work Unit No.
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	13. Type of Report and Period Covered Reference Publication
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15. Supplementary Notes

This revision represents the current ERB Archival Tape Specifications.

16. Abstract

ERB MAT Tapes are generated by the ERB MATGEN software using the IBM 3081 computer system operated by the Science and Applications Computer Center at Goddard Space Flight Center. All MATs are 9-track and MAT data will be in ascending time order. The gross tape format for Nimbus Year-1 and Year-2 MATs is different from the format of MATs starting with Year-3. MATs from the first two years will contain one day's worth of data while all other MATs will contain multiple day's worth of data stacked onto the tapes.

17. Key Words (Selected by Author(s))	18. Distribution Statement
Nimbus-7 ERB Processing Master Tape Specification ERB MAT	Unlimited

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price*
Unclassified	Unclassified	55	

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Contractor
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CR 170514

1984

User's Guide for ERB 7 MAT.

Brian Groveman

Prepared For:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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10300 GREENBELT ROAD
LANHAM, MARYLAND 20706

UNDER CONTRACT NO. NAS 5-27728
TASK ASSIGNMENT 3

Acknowledgments

The software used to generate the Master Archival Tape validation products described in this report were developed by Research and Data Systems, Inc., under the leadership of Dr. H. Lee Kyle, Technical Monitor. The author would also like to extend his sincerest appreciation to Philip Ardanuy for technical comments and guidance, Michael Fromm for technical comments; the Science and Applications Computing Center (SACC) at the NASA Goddard Space Flight Center for assistance in the data processing. This work was supported under NASA Contract NAS 5-27728.

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***Left the NET because of other committments

PREFACE

VALIDATION STATEMENT

The Nimbus-7 ERB NET, on 11/16/81, agreed that the first year ERB Master Archival Tapes are valid (the scientific algorithms represent our state-of-the-art knowledge and have been correctly implemented in computer code), provided that a document be written summarizing currently known anomalies, for distribution to archive users.

DOCUMENT INFORMATION CONTENT

This document will provide necessary background information to the scientific community for using ERB-7 Master Archival Tapes (MAT). Three separate documents are required to provide this information. Two are contained in this report.

- o MAT User's Guide and as Appendix D, the MAT Quality Control for the First Year

The third, the MAT Tape Specifications Document, is in The Nimbus Observation Processing System Requirements Document #NG-13.

Most of the references listed in the text are only available from Dr. Kyle, the NASA NET team leader. Those available from most technical libraries are also given in the reference section.

User's Guide for ERB-7 MAT

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1.0 INTRODUCTION

1.1 Content of this User's Guide

The MAT User's Guide will describe the Earth Radiation Budget (ERB) experiment along with a general description of the ERB instrument. The document will also include information on the contents of the MAT, the calibration, and the earth-location methods used in the production of the MAT. The User's Guide will serve as the principal document for using MAT data by the scientific community. The MAT Quality Control Document will be a supplement to the User's Guide and will contain a detailed description of the consistency of the format of the MAT and the scientific validity of the data on the MAT. These descriptions will be done on a daily basis for each data-year. A third document will contain the tape specifications for the MAT. The tape specifications document will provide the format of the MAT along with descriptions of the information contained on the tapes.

1.2 Background On Nimbus and ERB Experiment

The Nimbus-7 spacecraft was launched on October 24, 1978 from the Western Test Range of Vandenberg Air Force Base, California by a thrust-augmented Delta Vehicle. The spacecraft is in a 955 kilometer sun-synchronous polar orbit. The satellite orbit has equator crossings at close to local noon (ascending) and midnight (descending) with 26.1 degrees of longitude separation. The orbital period is about 104.16 minutes. The Nimbus-7 spacecraft is shown in Figure 1.

The Nimbus-7 mission has afforded the opportunity to conduct a variety of experiments in the pollution, oceanographic and meteorological disciplines. It provides an opportunity to assess each instrument's operation in the space environment and to collect a sizable body of data with the global and seasonal coverage needed for support of each experiment. This mission also extends and refines the sounding and atmospheric structure measurement capabilities demonstrated by experiments on previous Nimbus observatories. There are seven experiments and one subsystem (THIR) aboard the spacecraft.

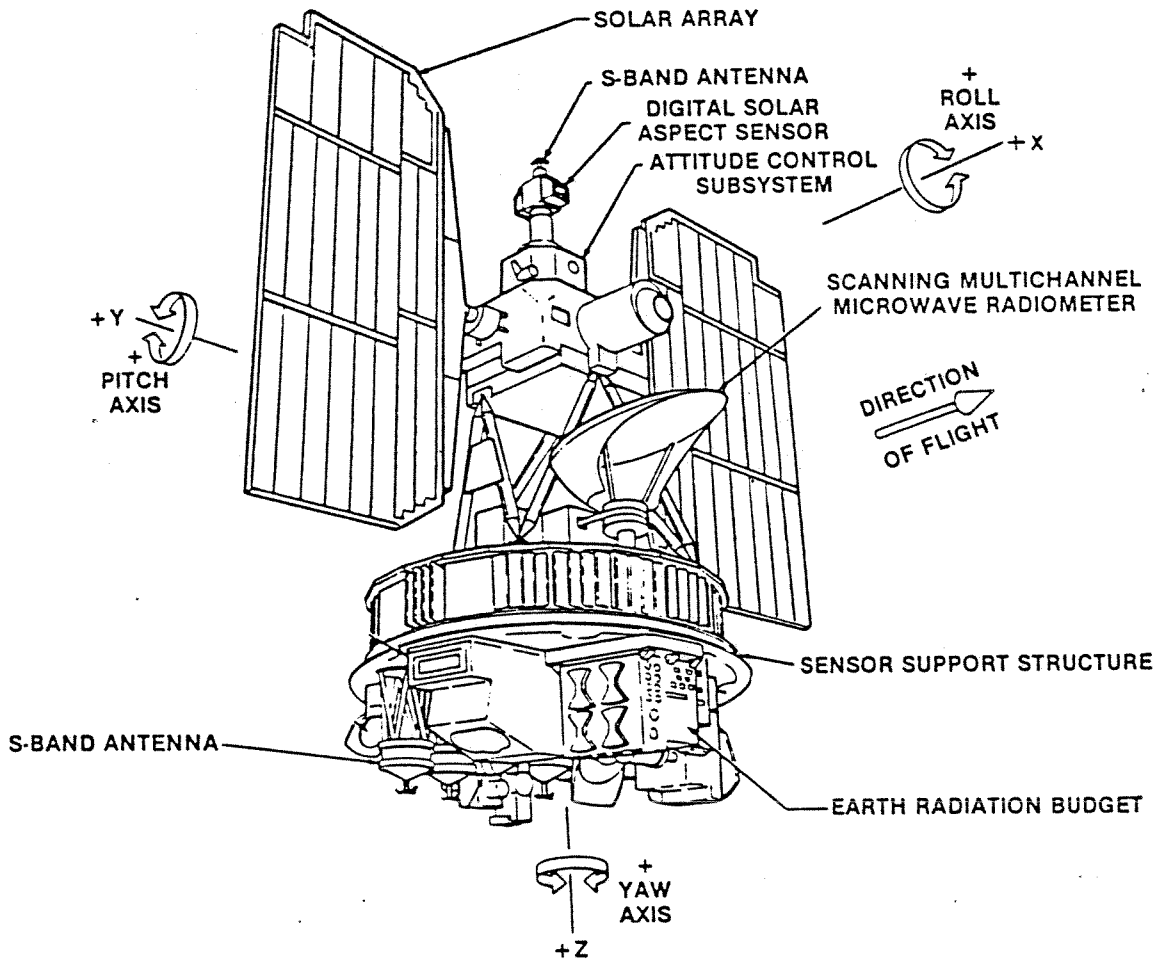


Figure 1 NIMBUS 7 Spacecraft System

The Earth Radiation Budget (ERB) experiment utilizes an instrument very similar to the ERB experiment on Nimbus-6. The ERB-7 instrument began recording data routinely on November 16, 1978. The objective of the experiment is to determine, over time scales of a year, the earth radiation budget on both synoptic and planetary scales by simultaneous measurement of:

- o Incoming solar radiation
- o Out-going earth-reflected (shortwave) and earth emitted long wave radiation by:
  - a. Fixed wide-angle sampling of these terrestrial fluxes at the satellite altitude.
  - b. Scanned narrow-angle sampling of the angular radiance components.

A second objective is to develop angular models of the reflection and emission of radiation from clouds and earth surfaces[1,2,3].

One purpose of this multi-instrument satellite was to allow data from two or more instruments to be used together to provide more information regarding the interaction between the sun and the earth's weather and climate. Some studies which include ERB data are: (1) The use of THIR cloud data in conjunction with the ERB scanner data to develop bi-directional reflectance models for sunlight reflected from various targets, e.g. high, middle, and low clouds, open ocean, snow and ice and various land surfaces[4]; (2) Data from the ERB NFOV channels were compared with co-located narrow-band (channel 5) data from the Coastal Zone Color Scanner to perform a cross-check on the inferred ERB calibration adjustments[5].

The ERB scanner operated on a two day on, one day off duty cycle (see Table 5 on page 47) from December 1978 - April 1979 due to interference from the LIMS instrument. When the LIMS instrument became inoperative around April 1979 the ERB scanner duty cycle became 3 days on, one day off. This pattern continued until the ERB-7 scanner failed on June 22, 1980. A daily tabulation of the ERB scan mode history can be found in the appropriate MAT QC Document.

1.3 Quality Statement on Master Archival Tapes (MAT)

The ERB-7 MAT's for the first year of data from November 1978 -October 1979 have been processed by the Nimbus Observation Processing System (NOPS) at Goddard Space Flight Center (GSFC). The MAT's contain calibrated radiances/irradiances and raw digital data values for all channels, plus temperature monitoring data, orbital and attitude data, and Digital Solar Aspect Sensor (DSAS) data. In addition, summary statistics and information are computed for each orbit and for the day. These tapes are then sent to the National Space Science Data Center (NSSDC) for archiving. The NSSDC will then make the MAT's available to the scientific community. To assist the user in making maximum utilization of this data set, the ERB Nimbus Experiment Team (NET) has scientifically evaluated the MAT data. The NET analysis indicates that the data contained on the first-year MAT's are of excellent quality; however, several peculiarities of the data must be properly understood in order to use it for scientific studies. The peculiarities of the data are explained in more detail in a later section of this document (see Appendix B) and also in the MAT QC Document. Information on the range of expected values for the digital count data and the irradiance/radiance data along with various other "housekeeping" data are also provided in the separate MAT QC Document. Monthly Summary (MS) tapes containing all the MAT QC data and the orbital and daily summaries from the first year MAT's have been created to assist the ERB NET in evaluating the overall scientific validity of the MAT data. The MAT QC data represents a complete and detailed analysis of the MAT data and should be helpful to users of this data.

Each MAT contains data which was calibrated by using the equations and coefficients developed by the ERB-7 NET team. These equations represent the latest state-of-the-art technology available when the processing software was developed (1977-1980). The calibration history will be discussed in somewhat more detail in a later section of this user's guide. For a more complete description of the calibration algorithms and history the user should review references 6 through 9.

The calibration methods used for some of the channels were not the optimal techniques for ERB-type studies. For example, degradation of the sensor (channel 13), sensor memory of the preceeding scenes (channel 13 and 14) and heating of the dome and sensor (channel 13, 14) are not corrected for in the processing of the MAT. However, in producing the solar and earth radiation budget products (SEFDT, MATRIX data sets) from the MAT's several improved calibration techniques were used. For example, a solar zenith angle and time dependent Calibration Adjustment Table (CAT) is applied to channel 13 in the processing of the SEFDT and MATRIX data sets. The calibration techniques and equations used in the processing of the MAT are discussed in more detail in the Calibration Section 4.0 (on page 27) and in Section 3.4-3.6 (on pages 21 through 26) on the Calibration Adjustment Tables.

2.0 OVERVIEW OF ERB EXPERIMENT AND INSTRUMENT DESCRIPTION

The ERB instrument consists of one radiometer unit with approximate dimensions 33 cm x 36 cm x 48 cm and a weight of 32.7 kg (Figure 2). The instrument measures radiation in 22 different optical channels. Ten solar channels (labeled 1 through 10c) measure incoming solar radiation. Four earth-viewing channels (11 through 14) with fixed wide-angle fields-of-view (FOV) measure radiation from the entire earth disc. Eight earth-viewing channels scan from nadir to horizon in several vertical planes with narrow-angle fields-of-view. Channels 15-18 measure short wavelength radiation while channels 19-22 measure long wavelength radiation[6]. The spectral characteristics of the solar, wide field-of-view (WFOV) and narrow field-of-view (NFOV) channels are provided in Tables 1, 2 and 3 respectively. Some additional details on the solar, WFOV and NFOV channels along with a brief description on the ERB scan modes and data sampling rates are provided by Jacobowitz et al. (1978) and Soule (1983).[7,8]

The following two journal papers provide a description of the Nimbus-6 ERB experiment and data and should be useful for general background information since both experiments are similar.

- Jacobowitz, H., W. L. Smith, H. B. Howell, F. W. Nagle, J. R. Hickey, 1979. The First 18 Months of Planetary Radiation Budget Measurements from the Nimbus-6 ERB Experiment. Journal of the Atmospheric Sciences, 36, 501-507.
- W. L. Smith, J. Hickey, H. B. Howell, H. Jacobowitz, D. T. Hilleary, and A. J. Drummond, 1977. Nimbus-6 Earth Radiation Budget Experiment. Applied Optics, 16, 306-318.

2.1 Solar Channels

The ERB experiment measures the incoming solar radiation in ten spectral channels at the southern terminator crossing as the satellite orbits over Antarctica. The spectral intervals monitored by these channels are shown in Figure 3 along with the 1971 standard extraterrestrial NASA curve. These bands were selected to provide meaurements of the "solar constant", necessary for earth heat budget

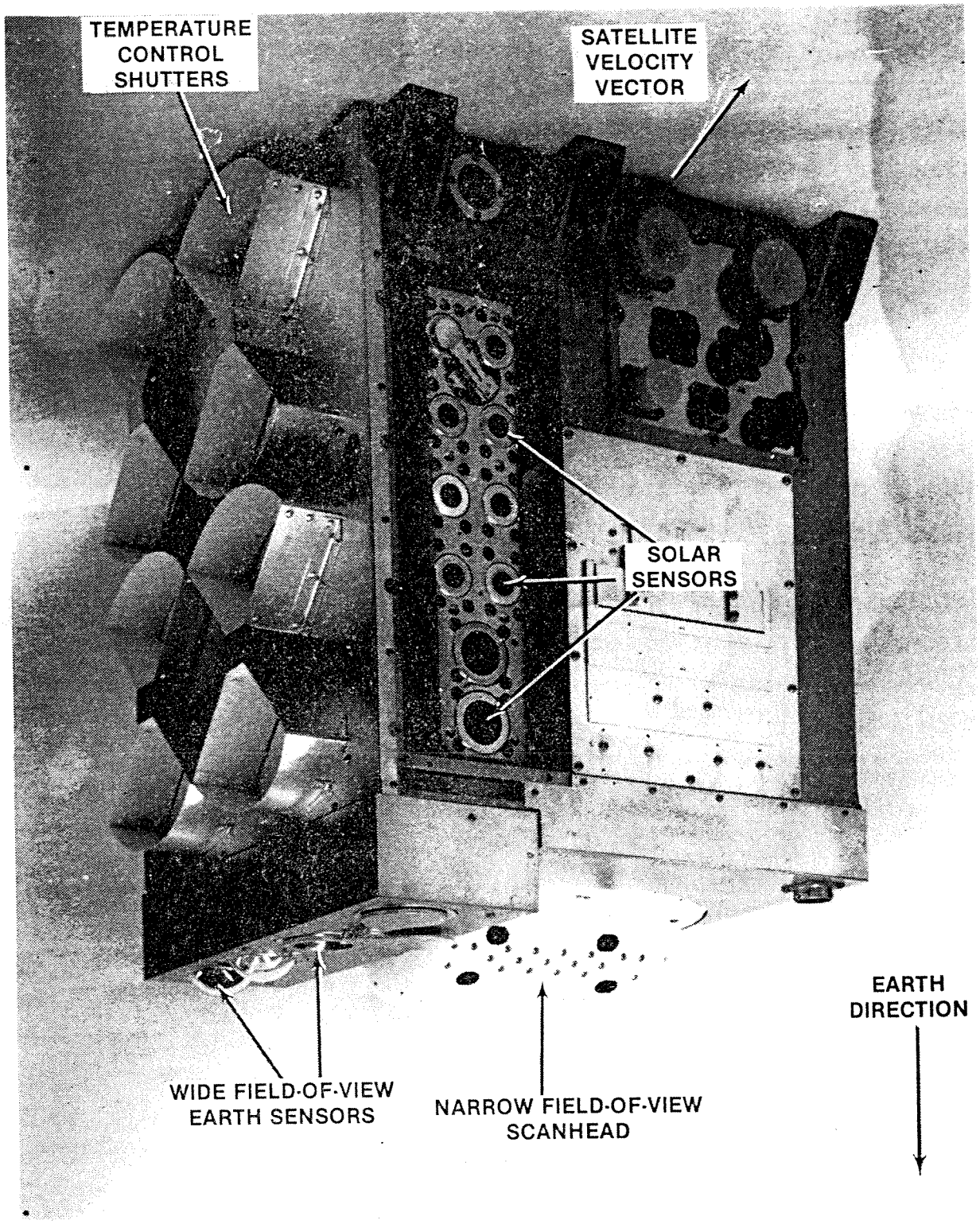


Figure 2 Earth Radiation Budget Sensor

TABLE 1

CHARACTERISTICS OF ERB SOLAR CHANNELS

Channel	Sensor (c) Type	Wavelength Limits (μm)	Filter	Solar Irradiance (d) Air Mass Zero (Wm^{-2})	Gain	Noise Equivalent Irradiance (Wm^{-2})
1	N3	0.2 – 3.8	Suprasil W	1370	692.3	1.77×10^{-2}
2 (a)	N3	0.2 – 3.8	Suprasil W	1370	685.8	1.77×10^{-2}
3	N3	⟨0.2 to⟩ 50	None	1370	607.2	1.43×10^{-2}
4	N3	0.526 – 2.8	OG530	970	974.5	1.94×10^{-2}
5	N3	0.698 – 2.8	RG695	679	1339.4	1.91×10^{-2}
6	N3	0.395 – 0.508	Interference Filter	206	8512.7	3.58×10^{-2}
7	N3	0.344 – 0.460	"	166	17964.7	5.73×10^{-2}
8	N3	0.300 – 0.410	"	109	26985.3	7.55×10^{-2}
9	K2	0.275 – 0.360	"	57	9808.6	0.94×10^{-2}
10C (b)	H-F	⟨0.2 to⟩ 50	None	1370	2791.0	2.39×10^{-2}

Notes: (a) Channels 1 and 2 are redundant. Channel 1 is normally shuttered and is open periodically to adjust value of Channel 2.

(b) Channel 10C is a self-calibrating cavity channel added to Nimbus 7 and replacing a UV channel on Nimbus 6.

(c) All are types of Eppley wire wound thermopiles.

(d) Values obtained from adjusted Nimbus 6 results.

- The unencumbered FOV for all channels is 10 degrees; the maximum field is 26 degrees for Channels 1 through 8 and 10C. The maximum FOV for Channel 9 is 28 degrees.

TABLE 2

CHARACTERISTICS OF ERB WFOV CHANNELS

Channel	Wavelength Limits (μm)	Filter	Irradiance Range Anticipated (Wm^{-2})	Approximate Non-Amplified Signal Output (mV)	Amplified Operational Sensitivity ($Bits/Wm^{-2}$)	Noise Equivalent Irradiance (Wm^{-2})
11	<0.2 to >50	None	-200 to +600	-2.1 to 7.6	1.707	6.55×10^{-3}
12*	<0.2 to >50	None	-200 to +600	-2.1 to 7.6	1.707	6.55×10^{-3}
13	0.2 to 3.8	2 Suprasil W Hemispheres	0 to 450	0 to 5.7	2.276	6.55×10^{-3}
14	0.695 to 2.8	RG695 Hemispheres Between 2 Suprasil W Hemispheres	0 to 250	0 to 3.2	4.096	6.65×10^{-3}

Notes: *Channels 11 and 12 are redundant channels. Channel 11 has black painted baffles and is used for in-flight calibration of Channel 12. Channel 12 has polished aluminum baffles similar to those on Nimbus 6.

- All channels have type N3 thermopile sensors.
- All channels have an unencumbered FOV of 121 degrees and a maximum FOV of 133.3 degrees. Channel 12 has an additional FOV selection of 89.4 degrees unencumbered, 112.4 degrees maximum.
- Output of these channels is a 3.8 second integral of the instaneous readings.

TABLE 3
CHARACTERISTICS OF ERB NFOV SCANNING CHANNELS

Channel	Wavelength Limits (μm)	Filter	FOV (Degrees)	Responsivity (V/W RMS/RMS)	Noise Equivalent Radiance (W cm^{-2} sr^{-1})	NEP (W $Hz^{-½}$)
15-18	0.2 to 4.8	Suprasil W	0.25 x 5.12	50	3.7×10^{-5}	6.65×10^{-9}
19-22	4.5 to 50	Deposited Layers On Diamond Substrate	0.25 x 5.12	50	1.8×10^{-5}	1.73×10^{-9}

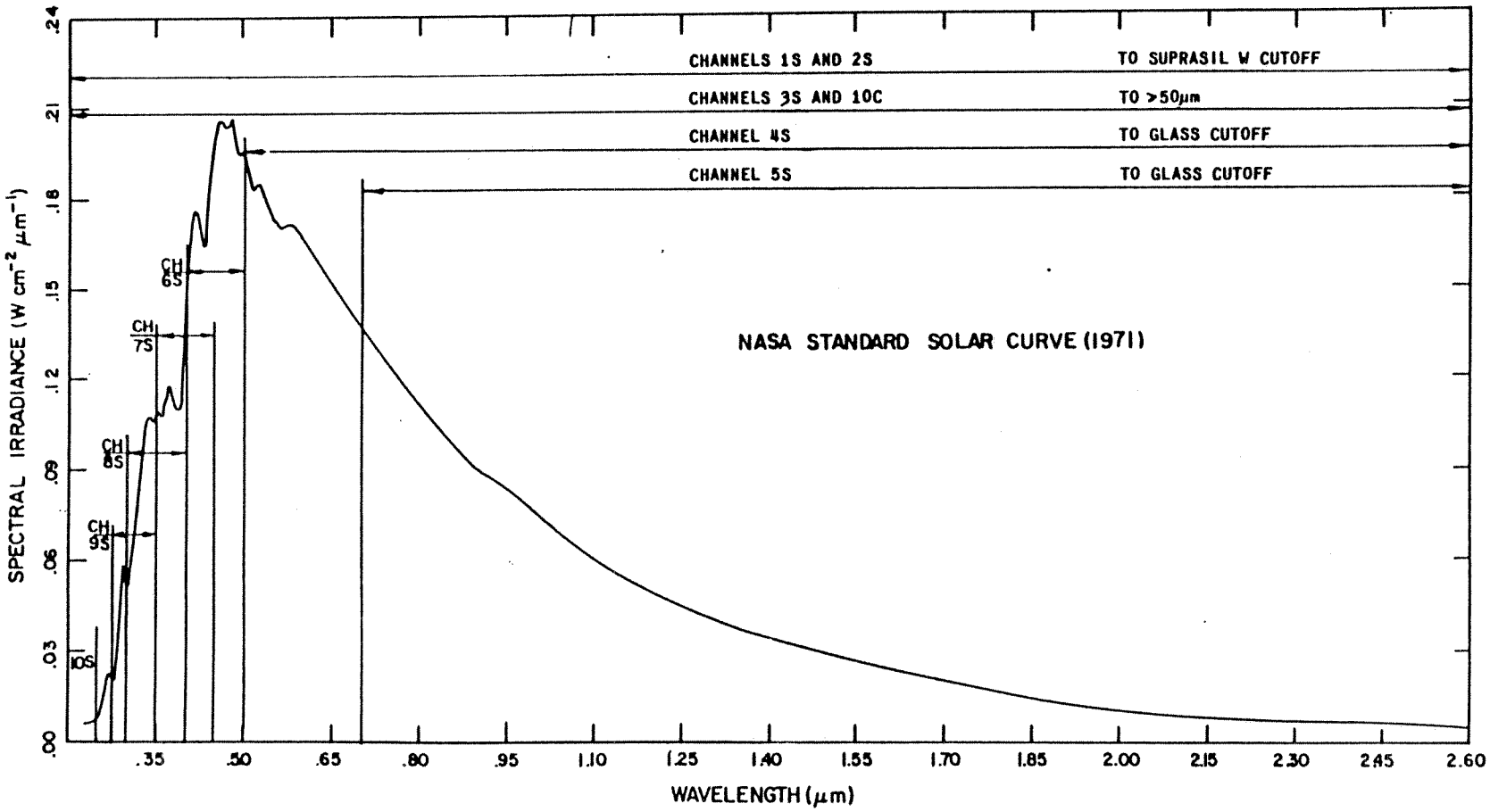


Figure 3: Spectral Intervals Monitored by the ERB solar channels (with 1971 NASA standard extraterrestrial solar curve)

computations, and of solar energy in spectral subdivisions in the ultraviolet and visible regions where solar emission variability may occur and where uncertainties exist in present values of the solar emission spectrum. The "solar constant" channels 3 and 10c measure the entire solar spectrum from 0.2 um to 50 um.

2.2 WFOV Channels

Earth-emitted infrared radiation and earth-reflected solar radiation are measured with fixed, wide-angle FOV sensors. The four sensors each have an unencumbered FOV of 121 degrees and a maximum FOV of 133.3 degrees. From the Nimbus-7 orbit altitude of 955 km the earth subtends an angle of 120.8 degrees. This angle is greater than that for the Nimbus-6 ERB because the Nimbus-6 altitude is higher; thereby reducing the angle subtended by the earth. The channel FOV's were not modified for Nimbus-7.

The measurements taken by these channels provide a direct measure of the terrestrial flux passing through a unit area at satellite altitude. An integration of these measurements over the entire globe, together with the solar constant observations, provide a measure of the net radiation balance for the earth-atmosphere system. Measurements of the radiation flux reflected in the shortwave region (0.2 um to 3.8 um), in addition to those of the total earth radiation flux (0.2 um to 50 um), permit separation of the planetary albedo and long wave flux components of the observed net radiation flux.

An earth flux channel (14) and a solar flux channel (5) measure radiation in the 0.698 um to 2.8 um interval enabling the planetary albedo to be defined for the spectral subregions below 0.695 um and above 0.695 um. These two spectral regions separate the total backscattered radiation into the molecular plus aerosol contribution and the aerosol-dominant spectral contribution. The separation is important for assessing the contribution of aerosols to any detectable variations of the earth's planetary albedo.

2.3 NFOV Scanning Channels

The ERB also obtains measurements of the radiance of earth-reflected solar radiation (0.2 um to 4.8 um) from channels 15 through 18 and earth-emitted long wave radiation (5 um to 50 um) from channels 19 through 22. These channels, which have a rectangular Instantaneous Field-of-View (IFOV) of 0.25 degrees x 5.12 degrees are designed to obtain a large number of angularly-independent views of the same geographical area as the Nimbus spacecraft orbits overhead. The orientation of the 5.12 degree width is in the direction perpendicular to the scan direction and the orientation of the 0.25 degree path is in the scan direction. As the scanner passes near nadir, 20 IFOV's are integrated by the onboard processor to form a single 5^{o} x 5.12^{o} effective aperture. This drops to 10 IFOV's at a nadir angle of 35^{o}, to 5 IFOV's at 50^{o} and to one IFOV at 56^{o} off nadir angle. The effective size of the earth footprints are indicated in Figure 4A for several satellite zenith angles as viewed from the center of the footprint. The speed of the scan slows at increased nadir angles so that the dwell time on an effective footprint remains constant.

The ERB Nimbus Experiment Team (NET) has utilized the scanner data in two relevant studies. Stowe et al., [2], [3] have constructed characteristic angular distribution models for a variety of reflecting surface conditions such as high, middle and low clouds, clear ocean, snow and ice, and various land surfaces. In addition, the NET is utilizing some of these models with the scanning channel observations to determine daily, monthly and seasonal radiation budgets on a scale of about 500 km (ERB-7 MATRIX). This data set will also be available from the National Space Science Data Center (NSSDC) at the NASA Goddard Space Flight Center.

2.4 Scan Geometry and Scan Modes

The basic scan geometry of the ERB is shown in Figure 4B. The five ERB scan modes are shown schematically in Figure 5. These scan modes permit the observation of radiation from various scenes over a wide variety of incident and emerging angles. Four scan patterns are a composite of long and short grids. A long grid in the forward direction is followed by a short grid in the cross-track

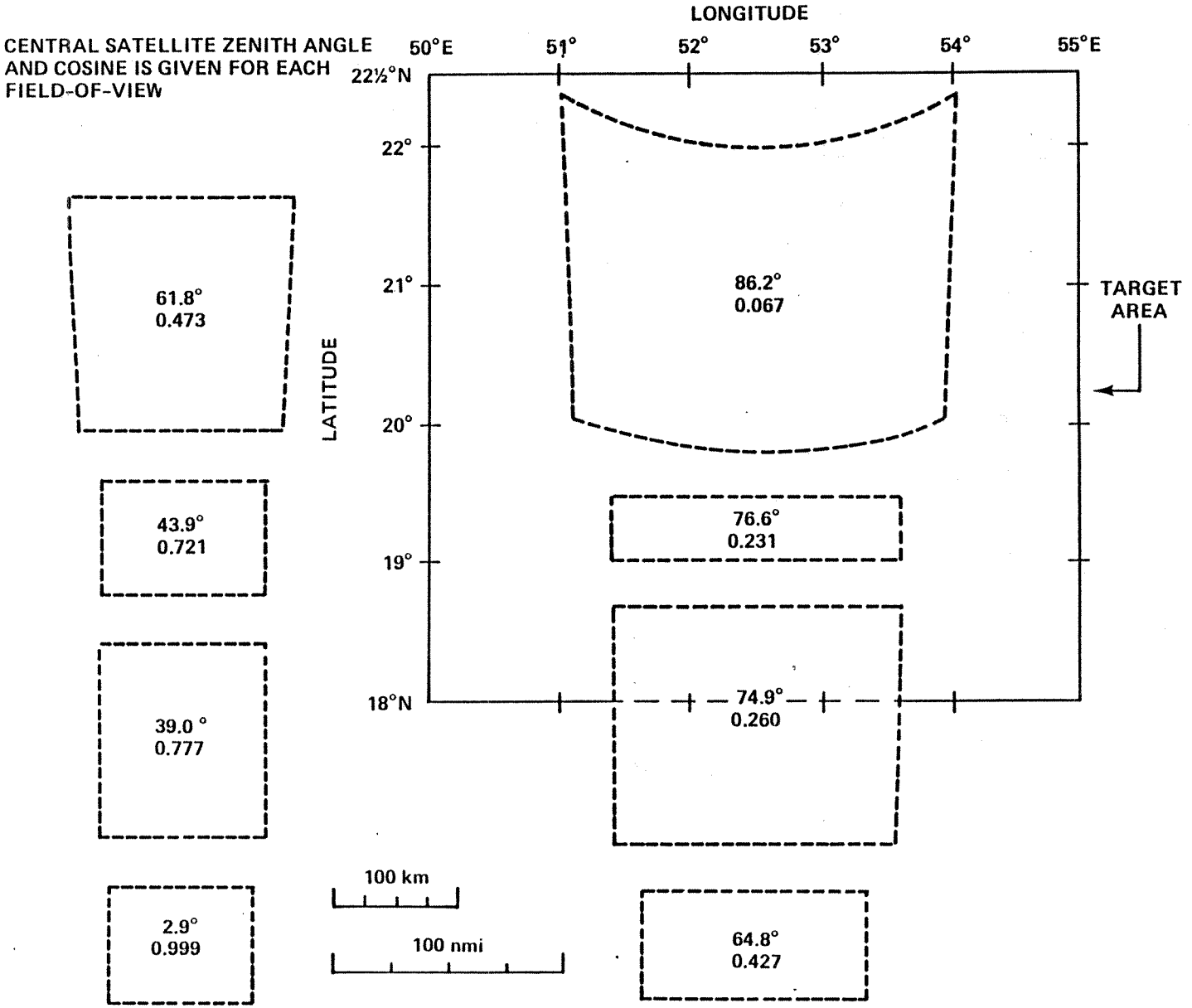
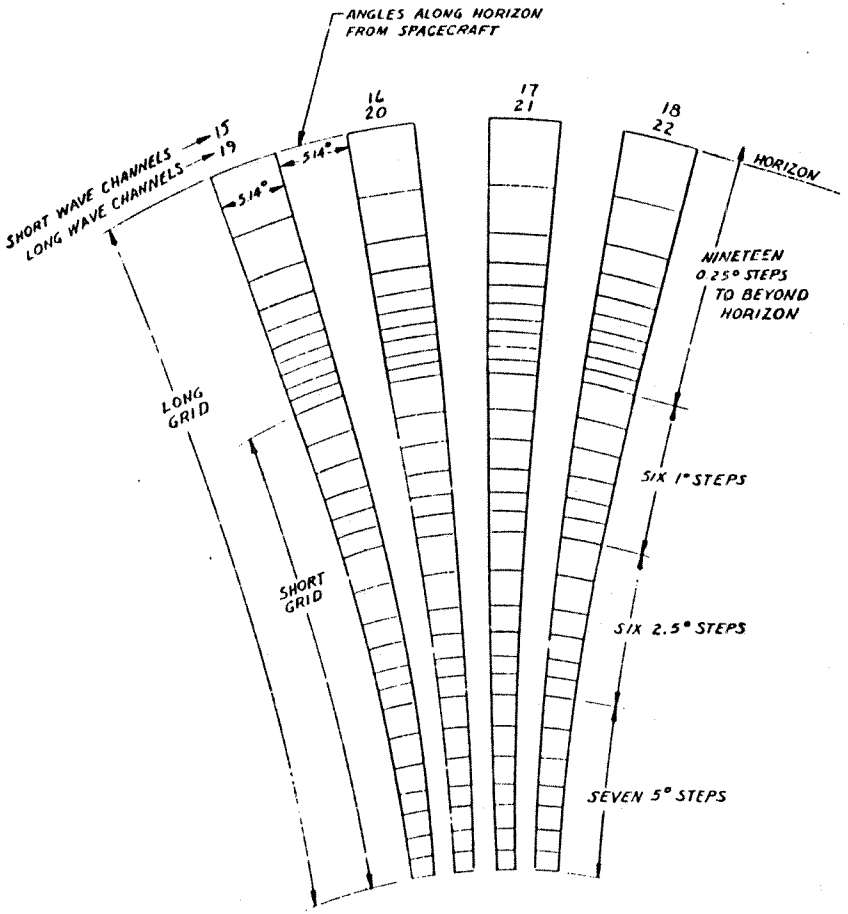
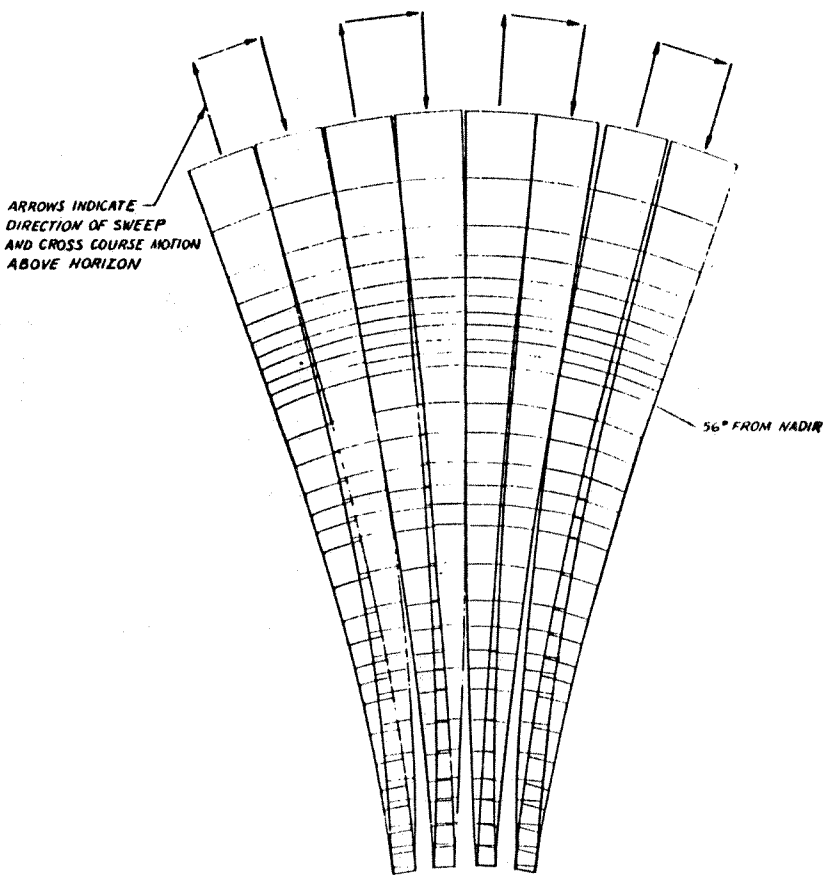


Figure 4A: Approximate Earth Coverage for ERB Fields-Of-View



SCAN PATTERN ON EARTH FOR SINGLE SCAN HEAD
SWEEP FROM NADIR TO HORIZON (SPACECRAFT MOTION NEGLECTED).
SHORT GRID LIMITED TO 56° NADIR ANGLE (1250 n mi FROM SSP).
LONG GRID EXTENDS BEYOND HORIZON.
SHORT WAVE AND LONG WAVE CHANNEL FIELDS OF VIEW ARE COINCIDENT.



PATTERN ON EARTH WITH NADIR TO HORIZON AND RETURN SWEEPS SUPERIMPOSED. GIMBAL IS TURNED 6° ABOUT S/C Z AXIS BETWEEN SWEEPS. LONG GRID SHOWN. GIMBAL IS TURNED AT END OF SAMPLE WITH 56° UPPER EDGE DURING SHORT GRID.

Figure 4B: ERB Scan Grid Earth Patterns

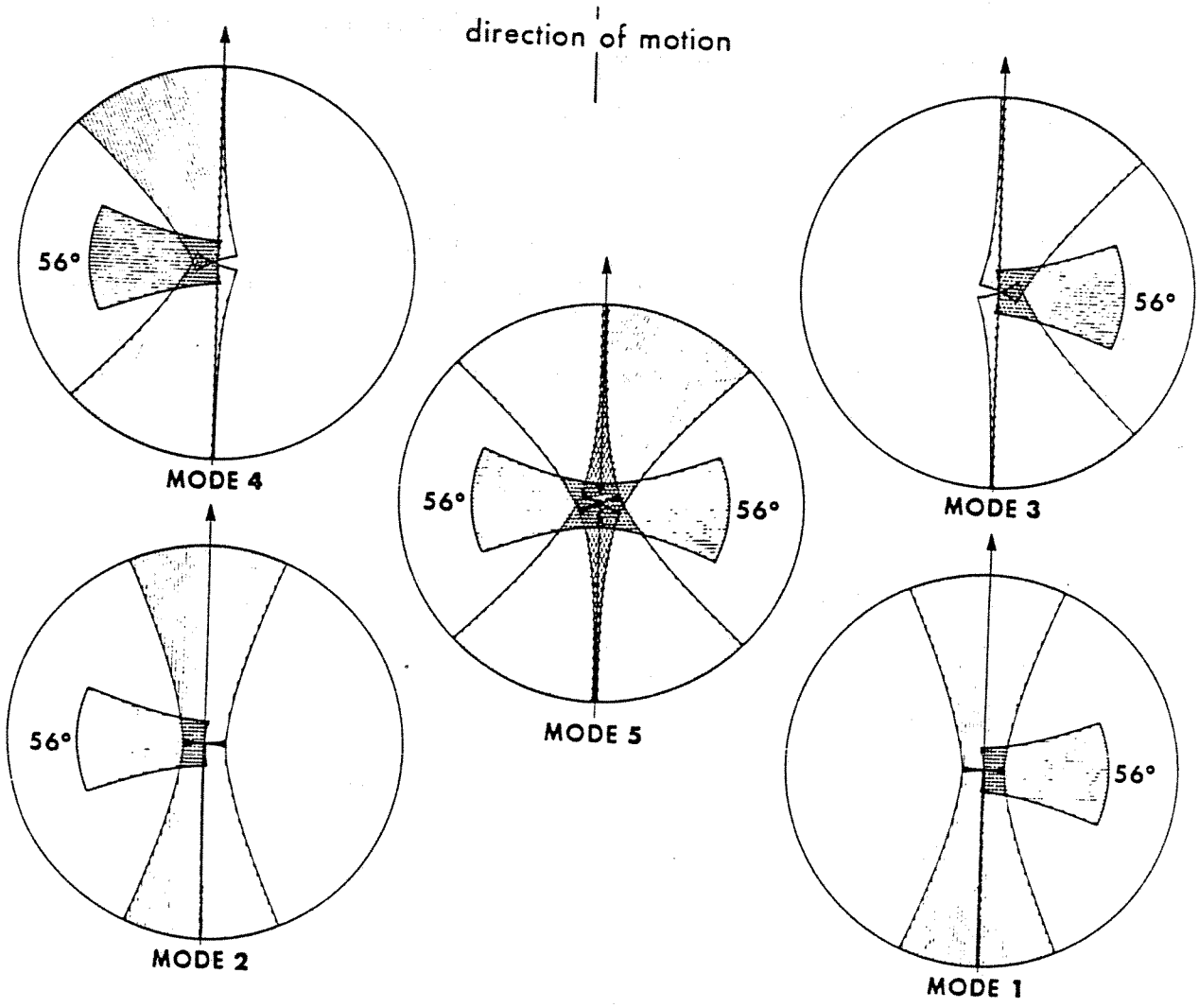


Figure 5 ERB Scan Modes.

direction and then concluded with a long grid in the aft direction. Scan pattern five is a composite of scan mode 3 followed immediately by mode 4. Scan modes 1-4 obtain a maximum number of angularly independent views of a given geographical area. When the instrument is in one of these four modes of operation, the scan pattern is repeated every 112 seconds (7 major frames) or every 700 km along the subpoint track. These four scan modes ensure the ability to obtain numerous observations in the principal plane of the sun, the plane in which the greatest angular variations in reflected sunlight occur. Scan mode 5, which was designed to be the normal mode of operation to obtain maximum earth coverage, is repeated every 224 seconds or every 1400 km along the subpoint track. Under normal operating conditions about 19 percent of the scanning data is lost due to space looks and gimbal motion of the scan head (see Section 3.3 on Data Quality Flags on the MAT).

2.5 Data Sampling

Radiance observations from the NFOV scanning channels 15-22 are taken every 0.5 seconds, and irradiance observations every 4 seconds for the WFOV channels 11-14. The solar channels 1-10 are sampled every second. The ERB data, together with data from several other instruments, are grouped by the onboard satellite Versatile Information Processor (VIP) into data blocks consisting of 80x80 word matrices called major frames (MF). Each MF contains 16 seconds of data. For each MF the ERB data consists of 32 measurements for each NFOV channel 15-22, 4 measurements for each WFOV channel 11-14 and 16 measurements for each solar channel 1-10 plus temperature and housekeeping data. The data from the other instruments is not contained on the MAT. The scan patterns 1-4 each require 7 MF (112 seconds) to complete and scan pattern 5 requires 14 MF (224 seconds) to complete.

3.0 CONTENTS OF THE MAT

The MAT contains calibrated radiance/irradiance data and raw digital counts for all 22 channels. Temperature monitoring data as well as orbital, attitude, scan encoder and Digital Solar Aspect Sensor (DSAS) data are also provided. The tape also contains information on the data quality of the radiance/irradiance measurements, temperature measurements, and DSAS data. These quality flags are discussed in more detail in Section 3.3. In addition, the locations on the earth of both the WFOV and NFOV data are also provided. These data are arranged such that 16 seconds, or one major frame (MF) of data is contained in a logical record.

The orbital and daily summary records contain summary statistics and information on the orbit and day. Each of these records is also contained in one logical record on the MAT.

A header record containing information on the MAT day, generation date, and algorithm version number is found at the beginning of the tape. This header record appears on the MAT two times and constitutes one file. The logical and physical records containing the MF data, orbital and daily summaries constitute a second file (there are two logical records in each physical record). A Calibration Adjustment Table (CAT) is contained in the third and last file on the tape. For more complete information on the specifications of the MAT it will be necessary to review the MAT Tape Specifications Document[9] prepared by the Nimbus Observation Processing System (NOPS).

3.1 Description of Radiance/Irradiance Data

The raw digital count values for all channels are provided for each MF of data on the MAT as follows:

- Solar channels 1-10: One observation for each channel per second, 16 observations times 10 channels per MF.

- o WFOV channels 11-14: One observation for each channel every 4 seconds, 4 observations times 4 channels per MF.
- o NFOV channels 15-22: One observation per channel every half second, 32 observations times 8 channels per MF.

The calibrated irradiance/radiance data for WFOV channels 11-14 and NFOV channels 15-22 are also provided on the MAT with the same observational frequency as the raw digital counts.

3.2 Description of Orbital and Daily Summary Data

The information contained in the orbital summary record is summarized as follows:

- o orbital track information, e.g. time of orbit, terminator crossings.
- o Instrument status summary
- o Average MF irradiance at the solar peak and at the other 4 solar time intervals for channels 1-10[1].
- o Average counts at solar peak for channels 1-10.
- o Statistics for the 80 temperature monitors (minimum, maximum, mean and standard deviation).
- o Channel 11 and 12 calibration and shutter statistics

The information contained in the daily summary record is summarized as follows:

- o Times and dates of first and last orbits of day
- o Calibration slopes and intercepts for channels 11-12
- o Orbit numbers contained on the MAT
- o Sensitivity factors for channels 1-10
- o Scan statistics
- o Statistics for normalized solar irradiances
- o Statistics for electronic gain ratios and go/no go net count ratios

---

[1] The solar peak, T_o is computed in MATGEN by locating the two maximum count values in the orbit for channel 2 and then finding the relative minimum count which occurs between these maximums. The other 4 solar time intervals are $T_o \pm 13$ minutes and $T_o \pm 26$ minutes.

3.3 Descriptions of Data Quality Flags

The data quality flags are turned on (bit = 1) when the data is taken in a "data quality loss interval" and set to zero (bit = 0) when the data is not taken in "data quality loss interval." The MAT contains "data quality loss flags" for the following data for each major frame:

- o WFOV channels 11-14 observations (16 flags)
- o NFOV channels 15-22 observations (256 flags)
- o Solar channels 1-10 observations (160 flags)
- o DSAS Alpha and Beta angle (32 flags, 16 flags)
- o Platinum Temperature Monitor (48 flags)
- o Thermistor Temperature Monitor (80 flags)

In the first year MAT data set, ephemeris errors originating on the Image Location Tape (ILT) resulted in the occurrence of undefined subsatellite point (SSP) locations for a small number of major frames on several MAT's. The "data quality loss interval" flags for all channels, the alpha and beta angles and the temperature monitors were all set to one for the affected major frames. The MAT QC Document contains additional details of this problem as well as the specific MAT's which are affected by this problem.

It is also important to note that MATGEN processing (generation of a MAT) does not reject any "bad" data from the MAT, it merely labels the data through these data quality flags.

Field-Of-View (FOV) locations on the earth for the ERB scanning channels contain fill values when the FOV is undefined. The latitudes and longitudes are set equal to 222.22 (22222 is the actual value on the MAT, scaled by 100) when the following conditions occur:

(1) FOV is over horizon (this typically occurs about 7 percent of the time for a day).

(2) Gimbal motion of scan head (this occurs for 26/224 scan head positions or about 11.6% of the time for a day).

(3) When the FOV on the earth is undefined due to ephemeris errors stemming from the ILT. In the first year MAT data set, this occurs on 5 MAT's and only for a small number of major frames of data on each tape.

This results in, nominally, 19 percent of the scan data (channels 15-22) for a day being unusable. The actual radiance data on the MAT is not set to fill values. The fill values for the latitudes and longitudes serve as a flag for screening this data.

The FOV locations on the earth for the WFOV channels 11-14 and for the SSP latitudes and longitudes for each major frame also contain fill values of 222.22 (22222 on the MAT, scaled by 100) when the FOV is undefined. For the WFOV irradiance data this occurs when there are mislocations due to ephemeris errors stemming from the ILT. (See MAT Quality Control Document for the specific days and orbits where this problem occurs).

3.4 Calibration Adjustment Table (CAT) on MAT

The CAT is provided in the third file on each MAT. The adjustments for each channel in the CAT are not applied to the irradiance/radiance data on the MAT. These adjustments are performed in the various level-2 products such as SEFDT and MATRIX for all channels except channel 13. In addition, a solar zenith angle and time-dependent CAT for channel 13 is applied to the MAT irradiances in the SEFDT and MATRIX processing. This varying channel 13 CAT does not appear on any of the first year MAT's[1]. The data contained in the CAT on the MAT is as follows:

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[1] The channel 13 CAT is available on the SEFDT or MATRIX tapes which are also available from the NSSDC. The basic data used as input for the generation of this CAT are provided in Table 4 (pg. 23).

Adjustments valid from: 11-6-78 to 11-21-79

CAT generated on: 08-11-80

Adjustments:	Slope	Intercept	Percent Uncertainty
Channel 1	1.0	0.	1.0
Channel 2	1.0	0.	1.0
Channel 3	1.0	0.	1.0
Channel 4	1.0	0.	1.0
Channel 5	1.0	0.	1.0
Channel 6	1.0	0.	2.0
Channel 7	1.0	0.	4.0
Channel 8	1.0	0.	6.0
Channel 9	1.0	0.	9.0
Channel 10c	1.0	0.	0.5
Channel 11	1.0	6.0	2.0
Channel 12	1.0	0.	2.0
Channel 12N	1.04	10.0	2.0
Channel 13[2]	1.05	-3.0	2.0
Channel 14	1.04	-3.0	2.0
Channel 15	0.91	0.	2.0
Channel 16	0.87	0.	2.0
Channel 17	0.92	0.	2.0
Channel 18	0.83	0.	2.0
Channel 19	1.0	0.	1.0
Channel 20	1.0	0.	1.0
Channel 21	1.0	0.	1.0
Channel 22	1.0	0.	1.0

3.5 Channel 13 Calibration Adjustments

A solar zenith angle and time-dependent calibration adjustment has been developed for the WFOV channel 13 by the ERB NET and is outlined in a report by Dwivedi (1982).[10] This data set was later used to generate a varying channel 13 CAT (CH13 CAT) which is applied in SEFDT and MATRIX processing. The data consists of a slope and intercept adjustment for 6 solar zenith angle ranges computed for 13 ERB cycles from the first year MAT data set. The adjustments provided in Table 4 are given for the 12 days which represent the mid-point of the ERB cycles used.

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[2] Original channel 13 adjustment; see footnote 1, p. 21.

[c] Cavity Radiometer

[N] When in its narrow FOV mode.

Table 4

CHANNEL 13 CALIBRATION ADJUSTMENTS[1]

SOLAR ZENITH ANGLE RANGES

DATE*	90°-60° SLOPE	90°-60° INT.	60°-30° SLOPE	60°-30° INT.	30°-0° SLOPE	30°-0° INT.	0°-30° SLOPE	0°-30° INT.	30°-60° SLOPE	30°-60° INT.	60°-90° SLOPE	60°-90° INT.
November 20, 1978	1.042	-5.2	1.027	0.4	1.032	-2.7	1.024	-2.4	1.041	-6.6	1.043	-5.8
December 2, 1978	1.048	-5.2	1.032	-0.6	1.026	-1.9	1.033	-3.9	1.046	-7.7	1.049	-7.4
December 14, 1978	1.052	-4.6	1.036	-0.6	1.060	-7.9	1.047	-4.4	1.060	-8.4	1.066	-8.4
January 1, 1979	1.055	-3.3	1.027	4.5	1.046	-2.6	1.021	0.7	1.042	-3.4	1.047	-5.7
February 3, 1979	1.069	-4.7	1.024	7.1	1.031	1.5	1.055	-3.8	1.043	-3.1	1.027	-1.9
March 18, 1979	1.076	-2.2	1.084	-4.0	1.045	1.9	1.041	0.5	1.047	-1.8	1.047	-2.2
April 22, 1979	1.086	-1.5	1.077	-0.2	1.050	2.1	1.034	3.0	1.058	-3.4	1.048	-1.7
May 31, 1979	1.118	-2.6	1.042	6.3	1.044	3.2	1.042	1.9	1.063	-3.6	1.059	-4.2
July 7, 1979	1.115	-0.3	1.052	8.1	1.056	3.2	1.057	0.5	1.069	-4.1	1.064	-3.8
August 17, 1979	1.110	-1.5	1.059	6.7	1.052	5.3	1.032	4.7	1.083	-6.5	1.074	-4.2
September 17, 1979	1.099	-4.5	1.076	1.6	1.051	4.2	1.047	2.2	1.064	-2.1	1.064	-3.8
October 17, 1979	1.078	-2.0	1.065	2.1	1.062	1.3	1.058	1.0	1.070	-3.6	1.068	-4.7
November 15, 1979	1.071	-0.1	1.059	2.1	1.044	4.0	1.037	3.6	1.056	-1.8	1.059	-4.9

*The date represents the center of the ERB cycle for which the corrections should apply

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[1] Dwivedi, P.H., 1982. ERB-7 Channel 13 Sensitivity Study: November 1978-October 1979. Prepared for GSFC by Research and Data Systems, Inc., under contract NAS 5-26123.

The actual channel 13 CAT was generated by performing a bi-linear interpolation on the daily values of the slope and intercepts for each of the 6 solar zenith angle ranges provided. The result is a first year channel 13 CAT containing 201 slopes and intercepts (-100° to +100°, in one degree increments) for each day. For those angles exceeding +100 degrees, the value at the extremes is used. The adjustment factors are also assumed constant within a day.

The channel 13 CAT for the first year is contained on the SEFDT and MATRIX tapes and can be made available from the NSSDC when ordering a MAT. The specifications of the format of the channel 13 CAT contained on the SEFDT tape can be found in the SEFDT Data User's Guide.[11]

3.6 Extraction of Data From the MAT and Application of Calibration Adjustments

Parameters can be extracted from the MAT in the following manner[1]:

1. Position MAT to first file and read in header record consisting of 630 -8 bit words.

2. Position to file two and read in a physical record consisting of 6732 - 16 bit words. Within each physical record there are 2 logical records. Each logical record consists of 3364 - 16 bit words, with the last 4-16 bit words spares. A logical record can either contain a major frame of data, an orbital or a daily summary. If a physical record from the MAT is read into a 16 bit array of length 6732 (MATPR) then each array position corresponds to a word in the record. In general, each word corresponds to a parameter in the record (there are some exceptions, e.g. satellite altitude is given in two words or 32 bits).

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[1] The methodology described here has proven to work efficiently on the IBM 360/91 and 3081 at GSFC. It is recognized that various other methods are available depending on the computer system used.

3. Assign a pointer to identify the logical record within the physical record. The first position in the array MATPR (0+1) corresponds to word one, logical record one. The array position MATPR (3364+1) corresponds to word one, logical record two. Similarly:

MATPR (0+2) MATPR (3364+2)
MATPR (0+3) MATPR (3364+3)

MATPR (0+3364) MATPR (3364+3364)

4. Determine the logical record type (i.e. major frame, orbital or daily summary) by examining the second 16-bit word in the array (MATPR(0+2), MATPR(3364+2)). The logical record identification is contained in bits 9-14 (from the right) of the word. By using a bit manipulation routine these 6 bits can be isolated and the type of logical record identified.

5. After identifying the record type, refer to the appropriate record format in the MAT Tape Specifications Document to locate various parameters of interest. Some examples are the following:

   a. Channel 13 irradiance for a major frame, 4 observations (N=0, 3364 and denotes the logical record number within the physical record):
      - MATPR (N+2455 to 2458).
   b. Subsatellite point latitude and longitude, 4 each for the major frame:
      - latitude: MATPR (N+59 to 62)
      - longitude: MATPR (N+63 to 66)
   c. Channel 16 radiances for a major frame, 32 observations:
      - MATPR (N+2503 to 2534)
   d. The average counts at the time of the solar peak, T_O, for the solar channels 1-10 from the orbital summary:
      - MATPR (N+45 to 54)

Application of Calibration Adjustments

1. The calibration adjustments for all channels 1-22 consist of a slope (A_1) and an intercept (A_2) which are related to the irradiance/radiance (I) on the MAT by the following equation (I* is the calibrated or corrected irradiance/radiance):

$$I^* = A_1 I + A_2$$

2. For example, the corrected radiance (I*) for a channel 16 observation (I_{16}) is as follows:

$$I_{16}^* = 0.87 I_{16} + 0$$

where $A_2 = 0$ in this case.

The values for A_1, A_2 are found in Section 3.4 of this document or in the third file on each MAT.

3. The corrected irradiance for channel 13 requires identifying the solar zenith angle for the major frame, and the day corresponding to the data. With this information the values for A_1, A_2 can be found in the channel 13 CAT by utilizing a look-up table method.

4.0 CALIBRATION

The information contained in this section is summarized from references 12 and 13. The constants and equations given here represent data from many sources. For more specific references to the various equations and constants it will be necessary to refer to these two documents.

4.1 Pre-Launch Calibration

4.1.1 Solar Channels

The pre-launch calibration for the solar channels consists of a number of absolute comparisons and transfer operations. The reference for the absolute calibrations is the new World Radiometric Reference (WRR) scale which is embodied in a number of self-calibrating cavity radiometers. Channel 10c of the Nimbus-7 ERB is itself such a device. This new scale can be referenced to previous scales such as the International Pyrheliometric Scale (IPS 1956).

The four major solar channels (1,2,3 and 10c) have been directly compared with self-calibrating cavity instruments of both the JPL-PACRAD and Eppley model H-F types. The PACRAD employed in this program has been an Eppley manufactured version (serial number 11402). This unit has been involved in a number of comparisons, including International Pyrheliometric Comparison IV (IPCIV).

For transfer operations usually employing a solar simulator as source, Normal Incidence Pyrheliometers (NIP) of the ERB reference set are employed. The two devices used for the solar channel comparisons bear serial numbers 12016E6 and 12018E6. Both of these are also traceable to the WRR.

When calibrating the solar filtered channels (4,5,6,7,8 and 9), the NIP was fitted with a filter wheel containing filters matching the flight set. The incident irradiance is calculated using the measured irradiance and the appropriate filter factor for the particular filter.

The ERB Reference Sensor Model (RSM), which is a duplicate of the flight instruments relative to the solar channels, has been employed as a transfer and checking device throughout the Nimbus-6 and -7 calibration programs. This device is being maintained in order to trace calibrations as required. All vacuum calibrations of the Nimbus-6 and -7 ERB solar channels can be referenced through the RSM as well as many of the calibrations performed at atmospheric pressure.

It should be noted that the solar channels are not calibrated during thermal vacuum testing of the spacecraft. Their calibrations are checked during an ambient test after the thermal vacuum testing. Final calibration values for the solar channels are expressed in units of Counts/Watt/meter^2 (C/Wm^{-2}), relating the on-sun signal output to the incident extraterrestrial solar irradiance in the pertinent spectral band of the channel.

4.1.2 WFOV Channels 11-14

There are longwave and shortwave calibrations of channels 11 and 12. The longwave calibrations are performed during thermal vacuum testing with a special blackbody source referred to as the Total Earth-flux Channel Blackbody (TECB). The source is a double cavity blackbody unit designed for calibrating channels 11 and 12 after they are mounted on the ERB radiometer unit. It operates over a temperature range of 180 ^{o}K to 390 ^{o}K with an apparent emissivity under test conditions in a vacuum of 0.995 or greater. Temperatures are measured and controlled to an accuracy of 0.1^{o}C during these calibrations. These calibrations are performed during both instrument and spacecraft level testing. The entire FOV of the channels is filled by the TECB including the annular ring which normally views space in the angular element between the unencumbered and maximum FOV's. Channel 12 was also calibrated for shortwave response by normal incident irradiation by the solar simulator while the instrument was in vacuum. The reference NIP was employed as the transfer standard during this calibration.

Channels 13 and 14 are calibrated for response within their respective spectral bands only. These tests were performed in the same manner as the shortwave calibration of channel 12. For channel 14 the reference NIP is fitted with a matching RG695 filter (as for channel 5) in order to isolate the radiation to its proper spectral band.

An angular response scan is performed on each wide FOV channel in order to relate the normal incidence calibrations described above to the overall angular response of the channels.

4.1.3 Shortwave NFOV Channels 15-18

These channels are calibrated for radiance response by viewing a diffuse target. Three methods have been employed. These are: (1) the viewing of a smoked magnesium oxide (or Barium sulphate) plate which is irradiated by the solar simulator; (2) exposure in a diffuse hemisphere illuminated internally by tungsten lamps, and (3) viewing a diffusing sphere from outside. The last method employs the "Hovis Sphere" as the source. For methods (1) and (3) the reference instrument is a high sensitivity NIP calibrated in terms of radiance. The second method employs a pyranometer as a reference instrument. Differences in the results obtained by the various methods are still under investigation. The sensitivity values selected for use are an average of methods (1) and (3). Unfortunately these tests can only be performed at atmospheric pressure while the scan channel performance is superior in vacuum.

Another calibration of these channels is the in-flight check target. With the channels in the shortwave check position (viewing the scan target) the instrument is irradiated by the solar simulator beam. This test is performed at normal incidence when the instrument is in a vacuum with one of the NIP's as a reference. In air the instrument is similarly calibrated at a number of angles both in elevation and azimuth to obtain the angular characteristics necessary for the reduction of in-flight shortwave check operations.

4.1.4 Longwave NFOV Channels 19-22

These channels are calibrated in vacuum at both the instrument and spacecraft level thermal vacuum tests. The sensors view a special blackbody source called the longwave scanning channel blackbody (LWSCB) which has a separate cavity source for each channel. The procedure is straightforward and covers a range of temperatures covering the complete range of in-flight measurement possibilities.

4.2 In-Flight Calibration

In-flight calibration of the main solar channels utilizes channel 10c, a self-calibration channel using the cavity heater activated by the GO/NO GO heater command. In addition the degradation of channel 2 is checked by an occasional comparison with channel 1. Channels with filters do not have a direct method of optically checking their calibration and therefore must rely on whatever correlations are made with the main channels.

All the thermopile channels are equipped with a GO/NO GO heater which is used to check for response during pre-launch activities to assure that the channels are functioning. The heater can be used in flight as a rough check for all channels except 10c. Also, channels 1 through 14 are equipped with an electrical calibration which inserts a precision voltage at the input to the entire signal conditioning stream. While the electronic calibration cannot be used to infer sensor or optics changes, it ensures against mis-interpretation of an electronic problem.

Channel 12 relies on the stability of the normally shuttered matching channel 11. Channels 13 and 14 have no inherent in-flight calibration capability and they rely on occasional looks at the sun during the spacecraft transitions to aid in assessment of drift or degradation. For this mission, a spacecraft pitch maneuver is required.

Channels 15 through 18 are checked using the shortwave scan channel check target as previously described. They also view space as a "zero radiation" reference to evaluate offset. The longwave scan channels can view space or the on-board reference blackbody. They share the only true in-flight calibration capability with channel 10c.

4.3 Post-Processing Data Checks

Additional calibration checks have been performed on the ERB-7 data after it has been processed into located radiance data. These checks include the following:

(1) Comparison between the WFOV and NFOV data to determine an adjustment to the original calibrations based on the in-flight calibration of channels 19-22.

(2) Estimation of the channel 13 irradiance by subtracting channel 12 night values from channel 12 day values when they are observed over a uniformly emitting surface (e.g. Pacific Ocean)[10].

(3) Comparison of channel 11 and 12 when both are not shuttered.

(4) Analysis of data taken during spacecraft pitch-up maneuvers that allow the WFOV channels to view the sun directly.

(5) As part of the ERB-6 reprocessing, ERB-6 WFOV data were compared with the ERB-7 WFOV data ("truth") for orbits that are approximately co-located[14].

4.4 Equations for Converting Counts to Radiance/Irradiance

For all ERB channels the slope and intercept values of the equations used to convert counts to radiances were obtained from regressions based on either operational or laboratory measured data. These data were taken in a vacuum chamber with the complete sensor system viewing a temperature controlled blackbody radiation emitting target.

For the infrared scanning channels (19 through 22) a completely different radiation detection technique was used. In these cases internal blackbody radiation and earth radiation were alternately viewed producing an alternate pattern of radiation flux on the detector. Thus the detector responded in AC fashion to the difference between the blackbody radiation and the earth radiation. This relationship was linear for a large range of radiances and is given in equation (9).

The radiation produced by the earth/atmosphere as a function of wavelength is different from that produced by a blackbody. Thus, detectors having a physical filter in the radiation path or having a response which varies as a function of wavelength will have a different response to earth/atmosphere radiation than they had in blackbody radiation measurements. This difference must be theoretically determined and used in the data processing stream.

A theoretical convolution of both the blackbody and earth radiances through the long wavelength filter produced the coefficients given in equation (13). Using this equation the measured earth irradiance was determined. The effects of the large change in sensor detectivity as a function of wavelength on this theoretical analysis are still being investigated.

A characteristic of all past satellite sensors which has not been included in these algorithms is the effect of contamination on the optical transmittance of the sensors. Its filtering effect on the sensor system becomes increasingly important as the wavelength decreases in the visible spectral region.

Because of various problems, some of which are discussed above, the pre-launch calibration algorithms did not prove adequate in providing accurate in-flight radiances and irradiances from the earth viewing channels (11-22). Post-launch algorithms had to be developed. These include filtered to unfiltered radiance corrections for channels 19-22, correction of the channel 12 geometric view factor, channel 13-18 adjustments and a bias shift of channels 11 and 12.

Only the channel 19-22 corrections and the channel 12 geometric view factor correction were made in MATGEN. The other post-launch calibration adjustments are found in the various level-2 products such as SEFDT and MATRIX. The following equations were those used in the processing algorithms for the ERB-7 sensor channels. Further details of the calibration of the ERB-7 sensor can be found in references 12, 13 and 15.

ERB-7 Equations

Solar Channels 1-10

For channels 1 to 9 the following is used:

$$H = (V - V_o)/(S_V \cdot f(T_B)) \quad (1)$$

$$f(T_B) = 1.0 + 0.01A\,(T_B - 25.0^oC) \quad (2)$$

where

H = Solar irradiance (watts/m^2)

V = Average on-sun counts

V_o = Average off-sun counts

S_V = Channel sensitivity at 25°C (counts/watt m^{-2})

A = Temperature correction coefficient (% per °C deviation from 25°C)

T_B = Thermopile base temperature (°C)

The equations used to convert counts to irradiance for channel 10c, a self-calibrating cavity thermopile, are:

$$H_{10c} = E_m\, c_f/S_p(T) \quad (3)$$

$$E_m = E_{os} - \frac{E(-13) + E(+13)}{2} \quad (4)$$

$$S_p(T) = S_0 + ST_H \quad (5)$$

where

H_{10c} = channel 10c irradiance (watts/m^2)

c_f = channel 10c correction factor for aperture area and nonequivalence (m^{-2})

E_{os} = Average channel 10c on-sun counts

$E(\pm 13)$ = Average channel 10c counts at ± 13 minutes from on-sun time.

S_0 = Power sensitivity zero level (counts/watt)

S = Power sensitivity slope (counts/watt ^oC)

T_H = Channel 10c heat sink temperature (^oC)

WFOV Channel 11-14

For channels 11 and 12 the following equation is used:

$$H_T \cdot F_T = [\Delta W - \varepsilon_s F_s \sigma T_s^4 + \varepsilon_D F_D \sigma(T_D + k \cdot V)^4] \quad (6)$$

where

$H_T \cdot F_T$ = Combined Target irradiance (Watts/m^2) and target configuration factor (see 3 below)

ΔW = Effective irradiance received by Thermopile (Watts/m^2)

ε_s = Emissivity of the FOV stop

F_s = Configuration factor of FOV stop

σ = The Stefan-Boltzman constant = 5.6697 x 10^{-8} Watts/m^2K

T_s = Temperature of the FOV stop (K) (Thermister value)

ε_D = Emissivity of the thermopile

F_D = Configuration factor of the thermopile

T_D = Temperature of the thermopile (K) (Thermister value)

k = Correction factor for the the thermopile surface (K/count)

V = Thermopile output (counts)

The equation developed for ΔW for ERB-7 is:

$$\Delta W = \frac{V - [V_o + b(T - 25^oC)]}{s + a(T - 25^oC)}$$

where

V_o = Zero offset in counts at 25^oC

b = Zero offset temperature coefficient (counts/^oC)

T = Module temperature (^oC)

s = Channel sensitivity at 25°C (counts/watts m^{-2})

a = Sensitivity temperature coefficient (counts/watts m^{-2}/°C)

For channels 13 and 14 the following equation is used:

$$H_T = (V - V_o)/s' \quad (7)$$

$$s' = s \; 1.0 + (0.01)(A)(T_B - 25^oC) \quad (8)$$

where

H_T = Target irradiance (Watts/m^2)

V = Channel output (counts)

V_o = Channel offset (counts determined at a 25°C sensor temperature)

s' = Corrected channel sensitivity (counts/Watts m^{-2})

s = Channel sensitivity in vacuum at 25°C

A = Channel sensitivity correction factor (% per °C deviation from 25°C)

T_B = Channel thermopile base temperature (°C)

NFOV Channels 15-22

For scanning channels 15 through 18 the ERB-7 equations for converting counts to radiances are the same as those given above for fixed earth flux channels 13 and 14, except that the units for s' are (counts/Watts m^{-2} sr^{-1}).

For scanning channels 19-22 the following equations are used:

$$N_T = N_m + a_o + a_1 \cdot V \quad (9)$$

where

N_m = module computed filtered radiance (W m^{-2} $ster^{-1}$)

a_o = channel intercept (W·m^{-2} $ster^{-1}$)

a_1 = channel slope (W·m^{-2} $ster^{-1}$/count)

V = channel output (counts)

Coefficients a_o and a_1 were determined from early in-flight calibrations using pre-flight thermal-vacuum calibrations as a guide.

The module radiance is computed by the solution of:

$$N_m = \exp \quad (A_o + A_1 \ \ln(T) + A_2 \ \ln(T)^{\ 2} + A_3 \ \ln(T)^{\ 3} + A_4 \ \ln(T)^{\ 4}) \qquad (10)$$

Here the coefficients A_i, i=0, 1,....4 are determined prior to launch for the temperature ranges 50K-200K, 200K-298K and 298K-400K and are given in the ERB-7 MATGEN.

If the filtered radiance reading from the channel is less than or equal to 30.0 W/m^2sr the unfiltered radiance (R) is computed using the Stefan-Boltzmann law as follows:

$$R = \frac{\sigma T^4}{\pi} \qquad (11)$$

$$\ln R = \ln\left(\frac{\sigma}{\pi}\right) + 4\ln T = \ln\left(\frac{\sigma}{\pi}\right) + 4 \sum_{n=o}^{4} A_n (\ln R_f)^n \qquad (12)$$

where

R_f = filtered radiance (Watts/m^2 sr)(in MATGEN $R_f = N_T$)
R = unfiltered radiance (Watts/m^2 sr)
T = equivalent blackbody temperature (K) (see Attachment B)
σ = Stefan-Boltzmann constant
A_n = regression coefficients determined as indicated in ref. 12

Thus, knowing the filtered radiance and the regression coefficients, the unfiltered radiance can be computed.

Different sets of regression coefficients are used depending on the filtered radiance value. The regression coefficients for equation (12) for the two ranges of filtered radiance values (R_f) is given by:

for a range of $0.005 \leq R_f \leq 17.5$ $Wm^{-2}sr^{-1}$

$A_o = 4.68705$
$A_1 = 2.03572 \times 10^{-1}$
$A_2 = 4.14465 \times 10^{-3}$
$A_3 = -3.24279 \times 10^{-4}$
$A_4 = -5.80911 \times 10^{-5}$

for a range of $17.5 \leq R_f \leq 30.0$ $Wm^{-2}sr^{-1}$

$A_o = 4.68888$
$A_1 = 2.00549 \times 10^{-1}$
$A_2 = 5.78289 \times 10^{-3}$
$A_3 = -1.18646 \times 10^{-3}$
$A_4 = 1.63483 \times 10^{-4}$

Several special cases apply to filtered radiances less than 30.00 W/m^2 sr).

If $R_f \leq 0$, $|R_f|$ is used in the conversion formula and the resulting unfiltered radiance is multiplied by -1.0.

If $R_f < -3.0$ $Wm^{-2}sr^{-1}$ the unfiltered radiance is set "out of range".

If $0.0 \leq |R_f| \leq 0.005$ the unfiltered radiance is set equal to the filtered radiance.

For telescope readings of the filtered earth irradiance (R_f) greater than 30.0 $Wm^{-2}sr^{-1}$ the unfiltered radiance is computed using the formula:

$$R = b_o + b_1 R_f$$

where:

$b_o = 8.8584$ $Wm^{-2}sr^{-1}$
$b_1 = 1.2291$
In MATGEN $R_f = N_T$

If the filtered radiance is greater than 300.0 $Wm^{-2}sr^{-1}$ the unfiltered radiance value is set "out of range".

ERB-7 Coefficients

The ERB-7 values for S_V and A used in equations (1) and (2) for channels 1 through 9 are:

CHANNEL	S_V	A
1	1.299	+0.07
2	1.275	+0.08
3	1.214	+0.08
4	1.719	+0.07
5	2.424	+0.06
6	6.931	+0.07
7	9.588	+0.03
8	12.715	-0.04
9	30.170	-0.11

For solar channel 9 a correction term of 84 counts is added to V_o.

The constants used for the ERB-7 channel 10c equations (3) and (5) calibration are:

CONSTANT	VALUE
c_f	19.9970
S_o	25.6020
S	0.01834

The constants for the ERB-7 channels 11 and 12 for equation (6) are:

CONSTANT	VALUE
s	0.965
D	0.977
K	0.0031

CONSTANT	CH 11	CH 12 (W)	CH 12 (N)
s	1.49166	1.60700	1.60700
a	0.00115	0.00109	0.00168
V_o	-12.13000	-23.10000	-22.34000
b	- 0.46200	- 0.63800	- 0.65000
F_D	0.80461	0.86280	0.86280
F_S	- - - - -	- - - - -	0.24710
F_T	1.00000	1.00000	1.00000

NOTE: For channel 11 and 12(W), F_S is equal to 0 and $F_T = F_O$.

The constants for ERB-7 channels 13 and 14 for equations (7) and (8) are:

CONSTANT	CH 13	CH 14
V_o	-43.000	-44.000
s	1.939	4.179
A	0.040	0.030

The constants for channels 15 through 18 used in equations (7) and (8) for ERB-7 are:

CHANNEL	V_o	s	A
15	5	3.617	0.0
16	11	4.236	0.0
17	-2	4.550	0.0
18	-1	3.616	0.0

The constants for channels 19-22 for ERB-7 equation (9) are:

CHANNEL	a_o	a_1
19	1.29	0.17728
20	0.90	0.20014
21	0.86	0.17952
22	0.49	0.19331

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Appendix B

SUMMARY OF DATA PECULIARITIES FOR ERB-7 MAT's

B1. Contamination of the Channel 18 Signal:

When the channel 18 sensor was in scanning mode the signal became noisy during late December 1978. The number of "out-of-limits" (-10, 370 W/m^2sr) radiance observations increased from much less than one percent of the total radiance observations for a day (approximately 160,000) to about 2 percent of the total data beginning on December 27, 1978 and to 5 percent on December 28, 1978. The abrupt increase in the number of "out-of-limits" observations occurred in orbit 888 on the 27th. The "out-of-limits" observations increased abruptly a second time to about 16 percent after March 5, 1979. The majority of the "out-of-limits" observations were below -10 W/m^2 sr. More details of this analysis are provided in the MAT QC Document (Appendix D) and in reference 16.

In another study, data from the ERB NFOV channels were compared with co-located narrow-band (channel 5) data from the CZCS instrument to perform a cross-check on the inferred ERB calibration adjustments[5]. A correlation analysis of the channel 18 nadir (non-scanning) data and the CZCS data for a limited number of orbits from 12 March to 9 May 1979 reveals that channel 18 nadir radiances were quite useable over this period. The authors did point out that although the ERB and CZCS regression coefficients were reasonably stable there was an increase in the standard deviation of the residuals. This is probably an indication of deterioration in the channel 18 signal during the non-scanning mode; however, more analysis is required to completely evaluate the data. It appears that much of the channel 18 nadir (non-scanning) data for the first year may be useable.

B2. Radiometric Implications of the ERB Duty Cycle

Due to limitations in Spacecraft (S/C) power, a predominately three day on one day off duty cycle was imposed on the Earth Radiation Budget (ERB) experiment for the first year of Nimbus-7 operations. A finite warm-up time of the ERB experiment exists after the ERB electronics are turned on within each duty cycle.

A "warm-up" period is defined by a channel 2 thermopile base temperature of less than 17°C for the major frame . Major frames in this category are excluded from further processing by the MATRIX program. Typically, this criteria is satisfied after the first few orbits from within the first "ERB-ON" day following each "ERB-OFF" day.

Even after the channel 2 thermopile base temperatuare exceeds 17°C this phenomona can introduce a cyclic variability in radiometric quantities derived from WFOV irradiances on the MAT. For example, 30 degree zonally averaged irradiances for channels 12-14 for a number of days were analyzed[17]. When the average for various zones were composited according to the day within the ERB Duty Cycle (one, two or three days after an "ERB-OFF" day) and averaged over all 3 day cycles in a typical month, a variability between composite days occurs. This variation was observed to be as much as a 5-10 W/m^2 for channel 13 irradiances. The implication of this is that a time dependent offset exists which is a function of time since the ERB instrument was turned on. This variability has implications to a wide range of products derived from the MAT[18,19].

B3. Contamination of WFOV Data by Sun

The 4 wide field-of-view (WFOV) channels 11-14 are contaminated by direct sunlight at satellite sunrise and sunset. This occurs at a solar zenith angle range of 99°-123° at sunrise and 102°-123° at sunset. Because the maximum field-of-view of the WFOV channels is larger than the solid angle subtended by the earth-disc, there are two periods (spacecraft sunrise and sunset) when solar radiation, shining over the earth horizon, impinges directly on the detectors. The detector output is in this case the net result of two effects: direct-sun and earth reflected/emitted irradiances. Regions where the two signals are mixed are, therefore, physically unrealistic from an earth-flux point of view. These periods are characterized by a large spike in the irradiance time-series and are referred to as "sun-blips".

Though removed through data screening from later processing into gridded data, this contaimination does exist on the MAT. The contamination is contained primarily within subsatellite solar zenith angles of 99° and 123° in the southern hemisphere (sunrise) and 102° and 123° in the northern hemisphere (sunset).

The effect exists longer on channels 13 and 14 than on channel 12 due to the presence of filter domes which: (a) are warmed and re-radiate heat into the detectors and (b) act in a "greenhouse" sense to trap longwave emissions exiting from the detector, which has been warmed by the direct solar radiation.

B4. Calibration of Solar Channels

Solar channel counts used in computing the pre-peak and post-peak offsets required to yield solar observations for all ten channels are subjected to a limit checking process. If the raw counts exceed the specified tolerance limits, default, or "nominal", offsets are applied. The tolerance limits imposed in MATGEN appear, however, to be representative of the pre-peak offset values alone. As a consequence, solar channels 6, 7 and 8 routinely fail the limit checking process for the post-peak offsets. As the default offsets are again representative of pre-peak values, a bias from the "nominal" calibration is introduced. The resultant offset applied to the calibration for these 3 solar channels is thus representative of the pre-peak only, rather than a mean offset.

B5. DSAS Alpha and Beta Angles Equal on MAT

The Digital Solar Aspect Sensor (DSAS) alpha and beta angles on the MAT are occasionally equal to each other near the time of minimum solar elevation angle. The alpha and beta angles have the same non-zero value and are equal to the azimuth angle (beta). The problem occurs in various orbits throughout the first year MAT data set.

B6. DSAS Errors Due to ILT

It was determined that the following MAT's contain "erroneous" DSAS data due to errors on the Image Location Tape (ILT):

January 1, 3, 4, 5, 7, 8, 9, 11, 12, 13
September 9, 10, 12, 13, 14

B7. Channel 11 Shutter Status

The instrument status word on the MAT will occasionally indicate that the channel 11 shutter is open for very short periods of time (e.g., 10 major frames in a day). When these channel 11 irradiances are compared with those for channel 12 the channel 11 data shows very poor agreement. Thus, the instrument status word may be in error in reporting that the channel 11 shutter is actually open.

B8. ERB/Scanner Duty Cycle

The normal duty cycle for the ERB instrument and for the scanner has been 3 days on/1 day off. However, due to interference from the LIMS instrument and power constraints this duty cycle had to be curtailed from December 1978 to May 1979. The ERB and scanner duty cycles for the first data year are, summarized in Table 5. The reduction in the operation of the ERB scanner in January-February 1979 resulted in a sampling problem of descending node data in the Northern Hemisphere.

B9. Scan-head Alpha and Beta angles

In current Nimbus-7 MATGEN codes, the unpacked input values of the scan head alpha angles are written on the MAT. The beta angles written are, in contrast, "ideal" beta values obtained by checking the input beta values against default values and replacing any which differ by more than a tolerance factor with the default values. This comparison and filling of the "ideal" beta angle array is performed in subroutine BETVFY* which is called by PROSCN*. PROSCN is called only for VIP frames when a scan is being performed. Thus, the array of "ideal" beta values is only defined when the scanner is on but is written to the MAT in all cases. The array written on the MAT could contain uninitialized values or the values left from the last scanning VIP. The beta values could be used in subsequent location of the scan channel while the scanner is in nadir position. All internal location routines give correct results since they only use the ideal values if these values are defined. This results in beta encoder values written to the MAT which are unreliable in all modes except the 5 scan modes (e.g., Nadir, LW check, SW check, etc).

*These are MATGEN subroutines.

Table 5

ERB INSTRUMENT/SCANNER DUTY CYCLE

DATE	ERB INSTRUMENT*	SCANNER*	COMMENT
November 16-December 8, 1978	3/1	3/1	
December 10, 1978-January 21, 1979	3/1	2/1	12/30/78-1/21/79 Scanner "ON" for about 70% of data in day.
January 23-February 6, 1979	1/1	1/1	Scanner "OFF" for scattered periods.
February 8-22 1979	3/1	2/1	Scanner on for about 70% of data in day.
February 24,26, 1979	1/1	"OFF"	Scanner "OFF" for two days.
February 28-March 30, 1979	3/1	2/1	Scanner "OFF" for scattered periods.
April 1-13, 1979	1/1	"OFF"	Scanner "OFF" during entire period.
April 14-29, 1979	3/1	3/1	ERB and scanner "ON" for extended periods 4/14-4/19, 4/26-4/29.
May 1, 1979	1/1	1/1	Scanner "OFF:
May 3-5, 1979	3/1	3/1	Scanner "ON" all days.
May 7-9, 1979	3/1	1/1	Scanner "ON" for May 8 only.
May 11, 1979	1/1	1/1	Scanner "ON"
May 13-15, 1979	3/1	3/1	Scanner "ON" all days
May 17, 1979	1/1	1/1	Scanner "ON"
May 19-October 31, 1979	3/1	3/1	Scanner "ON"

* Number of days "ON/OFF".

B10. Dome and Instrument Heating of Channels 13 and 14

The presence of the filter dome sets on the shortwave channel 13 and near-infrared channel 14 wide field-of-view radiometers introduces additional terms into the irradiance calibration equation. These are (1) a correction for incident longwave flux upon the detector after inward emission from the innermost filter dome and (2) a correction for a thermal wave within the module after absorption of a portion of the incident scene reflected and/or direct solar shortwave radiation.

Because this term is modeled as a constant offset in the MATGEN level calibration, variablility in the temperature of the inner dome (and therefore the longwave radiation incident upon the detector) causes a bias in the calibrated irradiance output from the respective channels. Warmer, or colder than nominal domes produce calibrated shortwave irradiance values indicative of a greater, or lesser, amount of shortwave incident radiation respectively. Channel 14 also experiences additional thermal forcing induced by the shortwave absorption from the middle near-infrared filter dome.

In practice, a post-calibration adjustment table derived from comparisons with scanning channel integrals is used to correct for this and other imperfect sensor characteristics.

B11. Platinum Temperature Monitor (PTM) Coefficient Error

Due to the erroneous use of engineering coefficients in the calibration equations for the platinum temperature monitors (PTM's), some error has been introduced into the terrestrial radiance and irradiance observations of the ERB-7. The channels affected are the wide field of view (WFOV) total channels 11-12 and the narrow field of view (NFOV) longwave channels 19-22.

Through application of the NOAA Calibration Adjustment Table (CAT), derived with this contamination in all longwave radiation estimates, all earth-flux data is affected (channels 11-22). The error magnitude appears to be in the 0.25% range for channels 11 and 12 and in the 1.5% range for channels 13-22.[20,21]

Appendix C

LIST OF ACRONYMS

CAT	Calibration Adjustment Table
CZCS	Coastal Zone Color Scanner
ERB	Earth Radiation Budget
FOV	Field of View
GMT	Greenwich Mean Time
GSFC	Goddard Space Flight Center
IFOV	Instantaneous Field-of-View
ILT	Image Location Tape
IPCIV	International Pyrheliometric Comparison IV
IPD	Information Processing Division
IPS	International Pyheliometric Scale
LIMS	Limb Infrared Monitor of the Stratosphere
MAT	Map Archival Tape
MATRIX	Mapped Data Matrix
MetOCC	Meteorological Operations Control Center
MF	Major Frame
NASA	National Aeronautics and Space Administration
NIP	Normal Incidence Pyrheliometers
NET	Nimbus Experiment Team(s)
NFOV	Narrow Field of View
NOAA	National Oceanic and Atmospheric Administration
NOPS	Nimbus Observation Processing System
NSSDC	National Space Science Data Center
RSM	Reference Sensor Models
SACC	Science and Applications Computer Center
SAM II	Stratospheric and Aerosol Measurement II
SAMS	Stratospheric and Mesospheric Sounder
SBUV/TOMS	Solar Backscattered Ultraviolet/Total Ozone Mapping Spectrometer
S/C	Spacecraft
SMMR	Scanning Multichannel Microwave Radiometer
SSP	Sub Satellite Point
TECB	Total Earth-flux Channel Blackbody

THIR	Temperature-Humidity Infrared Radiometer
VIP	Versatile Information Processor
WFOV	Wide Field of View
WM^{-2}	Watts per square meter
WRR	World Radiometric Reference

Appendix D

NIMBUS-7 EARTH RADIATION BUDGET MASTER ARCHIVAL TAPE QUALITY CONTROL DOCUMENT YEAR 1:

NOVEMBER 16, 1978 - OCTOBER 31, 1979

RDS TR-82-08-04

PREFACE

This document will provide specific details regarding the scientific validity and quality of ERB-7 Master Archival Tape (MAT) data to the scientific user. The MAT data analyzed in this report covers the period from November 16, 1978 to October 31, 1979. This data set is referred to as Year 1 MAT data. The information given in this document was compiled from various sources but primarily through the results of checking each MAT with the ERB-7 Data Validation (MATQC) and the Narrow Field-of-View Quality Control (NFOVQC) programs. This report identifies problems with specific MAT's as well as provides an overview of the data in general. If additional information is necessary for using the MAT data, a more detailed analysis of each MAT has been compiled in twelve separate monthly Data Validation Reports available through Dr. H. Lee Kyle, Special Projects Office, National Aeronautics and Space Administration, Greenbelt, Maryland, 20771.

Appendix D

Table of Contents

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FIRST YEAR MAT DATA QUALITY TABLES

1.0 INTRODUCTION

1.1 Objective of Quality Control

The objective of the quality control (QC) was to examine each Nimbus-7 Earth Radiation Budget (ERB-7) Master Archival Tape (MAT) for Year 1 and check each logical (major frame), orbital summary and daily summary record for scientific validity and overall consistency of the data. The ERB-7 MAT Data Validation Programs (MATQC and NFOVQC) were developed to analyze MAT data and compile various QC parameters for each orbit and day. This included the extraction of the orbital and daily summaries from each MAT and then the writing of this data to a separate output tape. In addition, numerous data from each record on the MAT is printed out for further manual inspection. These output tapes were used to examine the QC parameters on an orbital, daily and monthly basis. The analysis of this data has provided the basis for the MAT data validation process.

1.2 Overview of MAT Data for Year One: November 16, 1978-October 31, 1979

The MAT's for the first ERB data year have been processed by the Nimbus Observation Processing System (NOPS) at the Goddard Space Flight Center (GSFC). The MAT's are then sent for archiving at the National Space Science Data Center (NSSDC) where the tapes are made available to the scientific community. During the first data year the ERB instrument operated on a predominantly 3 day on/1 day off duty cycle. This duty cycle resulted in the processing of 255 tapes (one data day per tape) for the year.

Each MAT generally consists of at least 13 or 14 orbits of data, except in cases where complete orbits were not available for processing. The beginning of a data day on a MAT is defined by the first orbit that starts[1] after Greenwich midnight on the data day. Therefore, if an orbit begins just before midnight, the orbit would appear on the MAT for the day on which the orbit began although the majority of

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[1] Each orbit is nominally centered about its ascending node and starts and stops at the surrounding two descending nodes.

the data contained in the orbit may be for the next day. The orbit numbers found on each of the MAT's along with the sequence number and version number of the algorithm that created the MAT are found in the summary table of the ERB Experiment/Instrument in Section 3.0. The scientific user should be sure that the sequence/version number of the MAT agrees with the number listed in Section 3.0 since a previous sequence or version numbered MAT may contain different data from the final MAT.

1.2.1 Summary of Quality Checks

The overall consistency of the format of the first year of MAT's is excellent, although there are several anomalies about which the user should be aware. These problems should not present any constraints towards the use of the data tapes. The format/data anomalies for the first year MAT data set are summarized below.

The Julian start date given in each orbital summary has been found to contain incorrect dates in many orbital summaries on year one MAT's. These start dates will give the Julian date as one greater than the actual date. This date problem has occurred on 65 MAT's in the first year (see Sections 2.2.1 and 3.0 for a list of the affected MAT's and orbits). In all of these cases the Julian date given in the first major frame record on the MAT in the affected orbits is the correct date.

As a result of the duplication process of the MAT's by the NASA/GSFC Information Processing Division (IPD) the number of physical data records on the "user copy" MAT is not always the same number as on the original. This problem is identified by counting the number of logical records in an orbit and comparing this with the number of major frames listed in the corresponding orbital summary. If the number of logical records on a MAT is less than the number of major frames listed in the orbital summary then a "physical record" was lost in the copy process of the MAT. This record "drop-out" problem has occurred on approximately 20 first year MAT's received from GSFC/IPD. These missing records have all occurred randomly and have all contained major-frame records. It is suggested that the user check each MAT received to identify missing physical records as this will result in discrepancies in the orbital summary major frame counter. If the missing record

contains an orbital or daily summary the user should notify GSFC and request a different copy of the MAT.

There are five MAT's which originally contained subsatellite point (SSP) location errors. The affected major frames on the appropriate MAT's were "filled". These MAT's are listed in the ERB Summary Table in Section 3.0 on page 72. There are also numerous missing orbits which have also been identified in the Summary Table.

1.2.2 Summary of Data Checks

The wide field-of-view (WFOV) digital count and irradiance data for channels 12-14 and the narrow field-of-view (NFOV) radiance data for channels 15-22 (with the exception of channel 18 after December 27, 1978) were all found to be within physically acceptable limits. The count and irradiance observations for channels 12-14 for the first year of MAT data have each been screened against representative threshold values and the number of observations "out-of-limits" for each orbit have been tabulated. The majority of these "out-of-limits" observations can be accounted for by the behavior of the ERB instrument. On an average daily basis the number of channel 12-14 irradiance observations "out-of-limits" is about one percent of the data. For the NFOV radiance data each observation was also checked against representative threshold values on a channel by channel basis. This procedure was used to randomly screen NFOV data for approximately one-third of the first year MAT data set. The results of this data checking have shown that the number of channel 15-22 observations "out-of-limits" is less than one percent of the total data on an average for a day. For channel 18 radiance data the "out-of-limits" observations increased to about 2 percent on December 27, 1978, 7 percent on December 28, 1978 and to 16 percent after March 5, 1979. The user is therefore cautioned against using channel 18 scanning data after December 27, 1978.

The irradiances from the MAT's were also used to compute 10^{o} and 30^{o} zonal averages for each "ERB-ON" day in the first year. The irradiance data was screened for "out-of-limits" observations and for "abnormal" instrument behavior

(e.g. channel 12 shutter closed, GO/NO GO heater test etc.). Examination of the 30° zonal average irradiances for year one data reveals a systematic bias, for channel 13 and 14 irradiance data, induced by the 3 day on/1 day off ERB duty cycle. This phenomona is a function of the time rate of change of the module temperatures and results in as much as a 5 to 10 W/m^2 (channel 13) and a 1-3 W/m^2 (channel 14) difference between latitude averaged irradiances when comparing data for the first day and third day after the ERB instrument is turned on.

2.0 SUMMARY OF QUALITY CONTROL PARAMETERS

2.1 Description of Parameters The ERB-7 MAT Data Validation (MATQC) and the NFOV Validation (NFOVQC) Programs were developed for NASA/GSFC to scientifically evaluate the MAT data set. The MATQC program checks the overall format of each MAT, the WFOV digital count and irradiance data and also performs various other ancillary data checks. The NFOVQC program provides a check of the NFOV radiance data, location checks and examines the associated "data quality bit flags" for approximately one-third of the first year MAT's. The various parameters which are compiled along with the orbital and daily summaries from the MAT's (MATQC) are written to separate output tapes to facilitate the analysis of the quality control (QC) data over time periods longer than one day.

The parameters which are compiled by the MATQC program are listed in Table 1 (page 59). These parameters are written to an output tape for each orbit and day (one MAT) along with the orbital and daily summaries from the respective MAT's analyzed. The parameters compiled by the NFOVQC program, listed in Table 2 (page 60), are also written on an orbital and daily basis to a separate output tape.

The MATQC program provides various other checks on each MAT and also prints-out numerous ancillary data which is examined manually. The information compiled by the program is summarized below.

2.1.1 Summary of MATQC Elements

- Format checks
- "Out-of-Limits" digital count/irradiance checks
- Instrument status checks
- Computation of 10° and 30° zonal average irradiances along with the number of major frame samples and the standard deviation of the irradiances in each 10° and 30° band.
- The major frame subsatellite point latitudes and longitudes are located on a 4.5° by 4.5° grid for each MAT. The number of major frames located in each grid square are plotted and then manually checked for gross mislocations.

Table 1

LIST OF QC PARAMETERS COMPILED BY ERB-7 MAT DATA VALIDATION PROGRAM (MATQC)

Orbit Number/Julian Day
LR Date Check
Daily Summary Check
Orbital Summary Check
Number of Orbits Check
Number LR/MF Check
Number Data Gaps in Orbit/Day
Number of Missing MF in Orbit/Day
Digital Counts observations "out-of-limits" for Channels 12-14
Major frames with irradiances "out-of-limits" for Channels 12-14
Major frames with solar zenith angle between 99°-123° (sunrise) or 102°-123° (sunset)
Major frames with the Earth Flux Channels (11-14) Flag not equal to zero
Number of LR out-of-time-sequence in Orbit/Day
Data gap between the orbit and the previous orbit
Number of orbits with data gaps between the orbit and the previous orbit
Number of missing major frames between the orbit and the previous orbit
Number of missing major frames from between orbits in the day
Number of major frames in each of the five ERB scan modes for the Orbit/Day
Irradiance observations "out-of-limits" in solar blip for channels 12-14
Total Irradiance observations "out-of-limits" for channels 12-14
Irradiance observations within 10% of lower limit, 10% of the upper limit for channels 12-14
Digital counts observations within 10% of lower limit, 10% of upper limit for channels 12-14
Irradiance observations in solar blip within 10% of the upper limit for channels 12-14
Irradiance observations greater than 10% above the upper limit for channels 12-14
Number of major frames in orbit/day with:
- Channel 12 FOV narrow
- Channel 11 shutter open
- Channel 12 shutter closed
- Go/No Go heater on (includes 40 major frames after heater is turned on for the last time)
- Electronic calibration on
- ERB "Warm-up" period
- Rejected for any of the WFOV data screens
- Number of major frames in day which are used in the 30° zonal average irradiance computation for channels 12, 13, 14

Missing Orbit Numbers

Table 2

LIST OF QC PARAMETERS COMPILED BY NFOV DATA VALIDATION PROGRAM (NFOVQC)

Number of radiance observations "out-of-limits" (ch. 15-22)
Number of radiance observations within 10% of lower and upper "out-of-limits" thresholds (ch. 15-22)
Number of radiance observations exceeding 10% of the lower and upper "out-of-limits" thresholds (ch. 15-22)
Number of occurrences of "out-of-limits" observations and the corresponding Data Quality Loss Interval (DQLI) bit flag (ch. 15-22)
Number of "out-of-limits" observations with no DQLI bit flag set (ch. 15-22)
Number of occurrences of DQLI flag with no "out-of-limits" observation (ch. 15-22)
Number of "valid" radiance observations (ch. 15-22)
Number of total radiance observations (ch. 15-22)
Number of times/major frames platinum temperature DQLI flags are set (ch. 19-22)
Number of times the FOV latitude, longitude is undefined (equal to 222.22 on MAT) for SW/LW pairs ch. 15/19, 16/20, 17/21, 18/22
Number of major frames on MAT
Number of major frames with scanner on
Number of times alpha encoder values are more than one count off the nominal and also greater than 266.
Number of major frames when there is "bad" alpha encoder data for three consecutive major frames.

- o Solar data for each orbit is manually checked. The average counts at the time of the solar peak found in each orbital summary for channels 1-10 are printed-out from each MAT. Orbits which do not contain any solar data are identified.
- o The following major frame data is printed-out for manual inspection: (1) Greenwich mean time, (2) geodetic latitude, longitude, (3) average irradiance of the 4 observations in the major frame for channels 12-14, (4) solar zenith angle, (5) DSAS elevation (alpha) and azimuth (beta) angles, (6) channel 2 thermopile base temperature, (7) Greenwich hour angle, (8) instrument status word.

2.2 Summary of Results

2.2.1 Format

The overall consistency of the format of the first year MAT data set is excellent. There were several anomalies that were identified through the validation process. These items are summarized below.

2.2.1.1 Orbital Summary Start Dates

The Julian date of the first major frame was compared to the start date in the orbital summary record for each orbit on the MAT's. This check revealed that the orbital summary dates were incorrect for at least one orbit on 65 MAT's. The affected orbits contained a start date which was one day greater than the actual date. The affected MAT's are summarized below and the specific orbits are listed in the table in Section 3.0.

November 16
December 10, 11, 19
January 8, 11, 13, 15, 17, 20, 23
February 12, 17
March 2, 5, 29
April 21, 29
May 8, 13, 14, 17, 19 23, 24, 27 29

June 2, 4, 5, 6, 9, 10, 16, 21, 26
July 19, 20, 23, 24, 30
August 4, 9, 16, 20, 21, 24, 27
September 6, 9, 12, 17, 18, 20, 22, 28, 29
October 2, 3, 4, 10, 15, 26, 27, 31

2.2.1.2 Missing Physical Records

The quality control of the first year MAT's has identified several MAT's with missing physical record(s) from the original tapes. The missing records are identified by a 2 major frame data gap and by the fact that the physical record number of those major frames that are lost will be omitted from the tape. The user should be aware of the possibility of a missing record. About 8 percent of the first year MAT's had one or more physical records missing.

2.2.1.3 Header Error

There were five MAT's which originally contained several major frame location errors of the subsatellite point (SSP) latitude and longitude. These location problems stemmed from errors in the position vector of the spacecraft on the Image Location Tape (ILT). The major frames on these five MAT's which are affected by this problem where denoted by filling the SSP latitudes and longitudes with a value of "22222" (see MAT User's Guide, Tape Specifications Document for further details of filled data). The "filled" records were also denoted in the header record of each MAT. The "MF" (major frame) number of the filled records from the beginning of the MAT is given in the header. The MF label is incorrect and the record numbers actually refer to the "LR" (logical record) number from the beginning of the MAT. This LR number counts orbital summary records in the value given. The "filled" records should be ignored and the data contained in these records omitted from scientific studies. The dates and sequence numbers of the affected MAT's are listed below:

April 7, 1979	AC90971B3 V9
April 26, 1979	AC91161B3 V7
June 5, 1979	AC91561A3 V9
August 8, 1979	AC92201A3 V9
October 22, 1979	AC92951B3 V9

2.2.1.4 Missing Data

The MAT's were each checked to identify existing data gaps. An attempt was made to recover additional data and regenerate a MAT if the gap was approximately two orbits or more in length. In many instances the missing data could not be recovered. The number of major frames of data that are missing from within or between orbits on the MAT's has been tabulated by the MATQC program (See Table D-5 on page 98). On an average basis for each MAT the percentage of missing data for the first data year was only several percent. There were several scattered MAT's which were missing greater than 20% of the expected data. In addition, several MAT's are missing a complete orbit(s) of data. The orbits found on each of the MAT's and the orbits which are missing are all listed in the table in Section 3.0. The following are dates of the MAT's missing one or more orbits.

December 4, 28, 31
January 15, 27, 31
February 6, 18, 22, 26, 28
March 18, 30
April 25, 26
May 20, 25, 28
June 1, 8, 13, 20, 24
July 14, 15, 22
August 25
September 1, 9, 17, 26
October 3, 6, 7, 11, 14, 20, 22

2.2.2 Ancillary Data

There were various parameters on the first year MAT's that were checked for scientific validity. In general, all data was found to be within physically acceptable limits. There are a few anomalies identified for various parameters which are summarized below.

2.2.2.1 Solar Zenith Angle

The solar zenith angle (SZA) of each major frame is checked to identify and "screen-out" the "solar blip" which contaminates the WFOV data. The SZA range is 99°-123° for satellite sunrise and 102°-123° for sunset. The number of major frames in each orbit and on each MAT in this SZA range are tabulated by the MATQC program. The results for each day are summarized in Table D-2, on page 91. The nominal value of major frames in this SZA range for a day is between 600-700. The lower than nominal values result from missing data at the time of the "solar blip".

The SZA on the MAT's was also found to be "out-of-limits" for a group of orbits in January and September 1979[1]. The SZA for the affected orbits was found to be within a degree of the SZA threshold (+180°) and occurred mostly for SZA's near 180°. The affected orbits are listed in Table D-2 and the dates of the MAT's are listed below.

January 3, 4, 5, 7 8
September 24, 26, 28

In the processing of the MAT's (MATGEN) a +4/10 degree bias was introduced in the solar zenith angle placed on the MAT's. This bias results from a "round-up" error to the tenths place of the SZA when it is stored on the MAT. This anomaly may also have caused the SZA to be slightly "out-of-limits" on the days noted above. This bias should not result in any constraints towards the scientific utility of this data.

2.2.2.2 Solar Azimuth Angle

The solar azimuth angle (SAA) on the MAT's was found to be "out-of-limits" (±180°) on several groups of orbits for January and September 1979[1]. —The SAA's were also found to be within a degree of the threshold. The affected orbits are also listed in Table D-3 on page 92 and the dates of the MAT's are listed below.

January 1, 3, 4, 5, 7 8
September 24, 25, 26, 28, 29

2.2.2.3 DSAS Alpha and Beta Angles

The DSAS alpha and beta angles on the first year MAT's were found to be "out-of-limits" for only several days in the first year. The affected MAT's are found during the periods January 1-13 and September 9-12. In addition, occasionally when the DSAS alpha angle passes through 0° the alpha and beta angles may be equal and non-zero. The user should be aware of this anomaly if the DSAS data is used for further scientific studies.

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[1] Solar Earth Flux Data Tape (SEFDT), Nimbus Observation Processing System (NOPS) Quality Control Report, Prepared by Systems and Applied Sciences Corp, July 1982.

2.2.2.4 Solar Data

The average counts at the time of the solar peak for each orbit (given in the orbital summary) are examined for solar channels 1-10. The data is checked to determine consistency within each channel over the orbits in a day and to identify "fill" data when the peak could not be found. In nearly all cases, when an orbital summary contained a "fill" value for a particular channel the major frame data around the time of the solar observation was missing from the MAT. An explanation for missing solar data when the major frame data is present on the MAT has not been determined. The average counts at the time of the solar peak for year 1 MAT data were all found to be within physically acceptable limits. The following is a list of the dates of the MAT's which contain at least one orbit with no solar data. The specific orbits are listed in Table D-1 on page 88.

November 16, 20, 21

December 2, 3, 11

January 11, 15, 19 23
February 12, 13, 17, 26, 28
March 2, 4, 9 10, 14, 20, 22, 25, 26, 29
April 1, 3, 15, 16, 21, 27, 28, 29

May 1, 3, 8, 9, 13, 14, 17, 19, 21, 23, 24, 25, 28
June 2, 4, 8, 9, 10, 12, 13, 16, 20, 24, 25, 26, 28, 29, 30

July 2, 3, 4, 6, 7, 16, 20, 22, 23, 24
August 4, 5, 7, 8, 15, 17, 20, 21, 24, 27, 31
September 6, 8, 9, 10, 14, 16, 17, 18, 22, 25, 26, 28
October 2, 4, 6, 7, 14, 20, 27, 31

2.2.3 WFOV/NFOV Data

The WFOV digital count and irradiance data for channels 12-14 and NFOV radiance data for channels 15-22 were checked for data "out-of-limits". The WFOV data was checked for each MAT in the first year and the NFOV data was analyzed for approximately one-third of the total data set. The digital count and irradiance thresholds that were used to screen "out-of-limits" observations for WFOV data is as follows:

WFOV "Out-of-Limits" Thresholds[1]

	LL, UL (W/m^2)	LL, UL (counts)
Channel 12	100,550	-450,300
Channel 13	-10,400	-65,735
Channel 14	-10,240	-85,1000

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[1] LL Lower limit, UL Upper limit, Note: Lower limit (-10%) thresholds for channels 13, 14 and 15-22 were decreased to give more meaningful results.

	10% Thresholds LL, UL (W/m^2)	LL, UL (counts)
Channel 12	90,600	-500,330
Channel 13	-20,440	-85,840
Channel 14	-20,265	-130,1100

The number of observations "out-of-limits", within 10% of the lower and upper thresholds, and exceeding the upper 10% threshold are tabulated by the MATQC program for each channel 12-14 for each orbit and day. The NFOV radiance "out-of-limits" thresholds are as follows:

NFOV "Out-of-Limits Thresholds[1]

	LL, UL (W/m^2 ster)
Channels 15-18	-10,370
Channels 19-22	-10,180

10% Thresholds

	LL, UL (W/m^2 ster)
Channels 15-18	-20,400
Channels 19-22	-20,200

The number of observations "out-of-limits", within 10% of the lower and upper thresholds and exceeding the 10% lower and upper thresholds for channels 15-22 are tabulated by the NFOVQC program for each orbit and day.

The results of the WFOV/NFOV data checking are summarized in Tables D-4, D-5 and D-8 on pages 93, 98 and 111 respectively. These tables contain the number of irradiance observations "out-of-limits" for each day and the number of radiance observations "out-of-limits" for about one-third of the MAT days in year one.

2.2.3.1 WFOV Data "Out-of-Limits"

The WFOV channel 12-14 irradiance and digital count data for the first year of MAT data are all within physically acceptable limits and are of high quality. The number of irradiance observations "out-of-limits" for the WFOV channels 12-14 is less than 2 percent on an average daily basis. A large percentage of the irradiance

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[1] LL Lower limit, UL Upper limit, Note: Lower limit (-10%) thresholds for channels 13, 14 and 15-22 were decreased to give more meaningful results.

data "out-of-limits" is within 10% of the upper and/or lower thresholds particularly for channels 12 and 13. The percentage of data "out-of-limits" for channel 14 is much less than one percent on an average daily basis.

The majority of the channel 12 observations within 10% of the lower threshold (90-100 W/m^2) are the result of the channel 12 Field-of-View (FOV) in its narrow mode. The majority of the channel 12 and 13 observations within 10% of the upper threshold occur primarily in the ascending half of the orbit at varying latitudes and appear to be valid data. The majority of the channel 13 observations within 10% of the lower threshold occur primarily in the decending half of the orbit and result from the night-time shift in the zero-level offset of the detector. In general, a large percentage the of detector "out-of-limits" observations result from the various instrument tests, i.e. GO/NO GO heater and electronic calibrations, and are therefore accounted for by the behavior of the instrument.

The digital count data was also checked against appropriate thresholds and was also found to be within physically acceptable limits. Comparison of the number of digital count observations "out-of-limits" with the number of irradiance observations "out-of-limits" reveals some minor discrepancies. The number of digital count and irradiance observations "out-of-limits" for channel 14 agree very well. The digital count values, in general, underestimate the irradiance values for channel 12 and 13. For channel 12 this is due to a much stronger temperature dependence between the digital counts and the irradiances. This results in a substantial difference between the irradiance values which correspond to the digital count thresholds which are used for checking. For channel 13, the digital count values will underestimate the irradiance values when there are a large number of "out-of-limits" observations near the lower threshold of -10 W/m^2. This is because an irradiance of -10 W/m^2 corresponds to a digital count of about 61.5 and the lower count threshold is -65. The user should be aware of these discrepancies when trying to compare the results of the count and irradiance data checking.

The largest number of irradiance observations "out-of-limits" occurs on April 13 and 21 when 5-6% of the channel 13 and 14 irradiance observations were below the 10% threshold (-20 W/m^2). These low irradiance observations result from the

GO/NO GO heater test on for 615 and 583 major frames during each day respectively. In summary, the irradiance observations "out-of-limits" on the first year MAT's can all be explained by the characteristics of the ERB instrument. **The WFOV digital count and irradiance data for channels 12-14 is therefore acceptable for further scientific study.**

2.2.3.2 NFOV Data "Out-of-Limits"

The NFOVQC program was used to analyze 89 first year MAT's or about one-third of the entire MAT data set. The number of NFOV (channel 15-22) radiance observations "out-of-limits" represents approximately 0.1%(except channel 18) of the total data for an average day (See Table D-5 on page 98). The shortwave channels (15-18) had a somewhat larger number of "out-of-limits" observations than for the longwave channels (19-22).

There are no days analyzed where the "out-of-limits" observations exceeded 1% of the total data except for channel 18. A considerable portion of the "out-of-limits" observations occur near the thresholds for the shortwave channels only. The majority of the shortwave "out-of-limits" data exceeds the upper radiance threshold while the longwave "out-of-limits" data exceed the lower threshold. **All NFOV (Channel 15-22) radiance data (except for channel 18 after December 27, 1978) is therefore acceptable for further scientific analyses.**

2.2.3.3 Channel 18 Signal Contamination

The number of radiance observations "out-of-limits" for channel 18 abruptly increases on December 27, 1978 (day 361) to about 2 percent of the total data (approximately 3500 observations) and to about 7 percent on December 28, 1978 (day 362). The "out-of-limits" observations remain stable (about 8-10%) from late December 1978 to just after March 5 1979 (day 64) when they steadily increase to between 25-28,000 observations per day representing between 16-18% of the total data. The "out-of-limits" observations are nearly all below the lower threshold of -10 W/m^2 ster.

Figure 1 is an illustration of the orbit by orbit change of the number of channel 18 "out-of-limits" observations for December 26-28, 1978 (days 360, 361 and 362). The increase in "out-of-limits" observations begins near orbit 889 on December 27 (day 361). Figure 2 is a plot by day of the number of negative channel 18 "out-of-limits" observations from February to April 1979. After day 64 the number of "out-of-limits" observations increases suddenly and then remains high through the remainder of the year. It is therefore suggested that channel 18 scanning data not be used for scientific analysis after December 27, 1978.

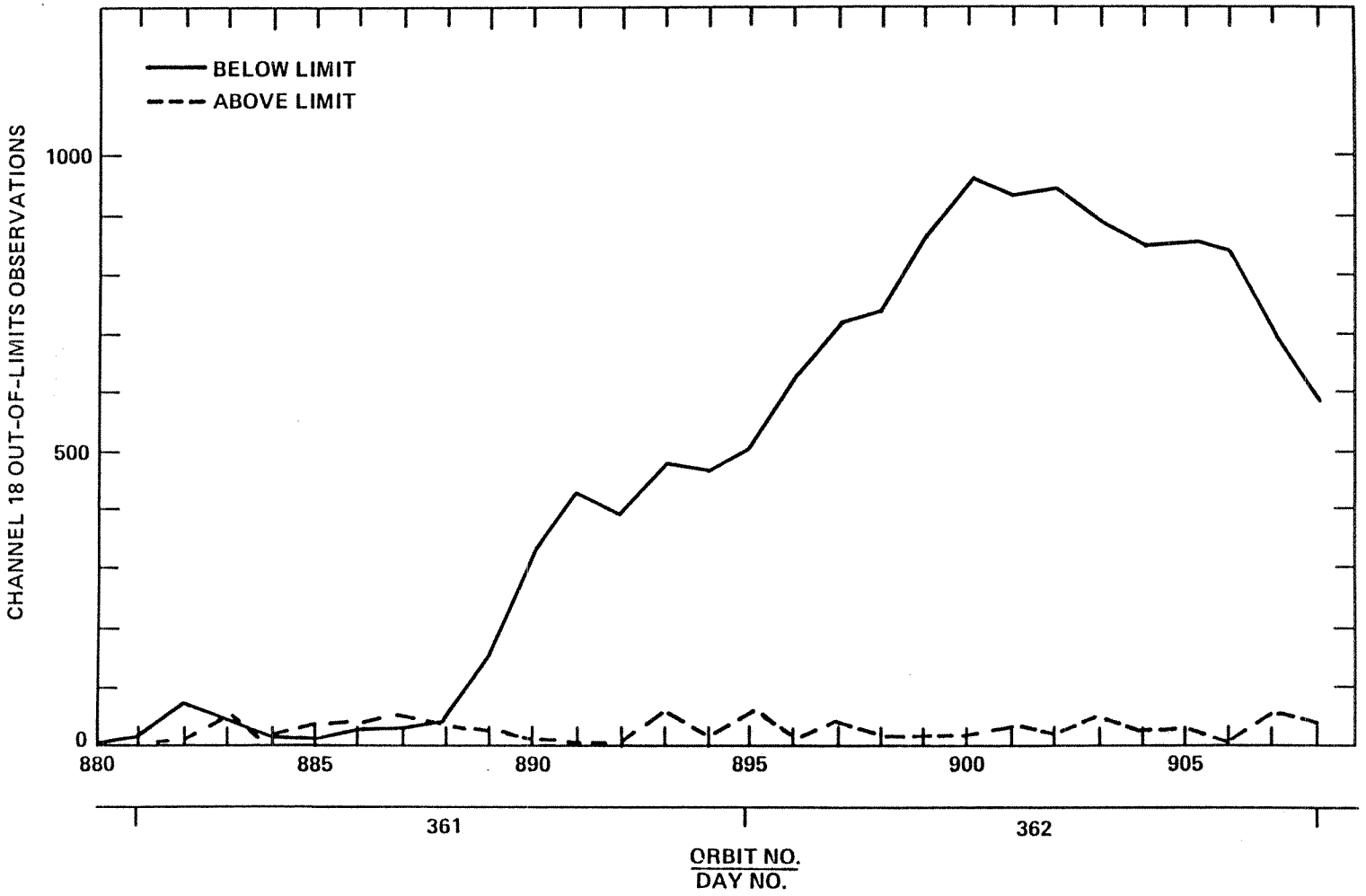

Figure 1 Number of Channel 18 "Out-of-Limits" Observations for December 26-28, 1978, (Ref. Fromm and Dwivedi, 1982).

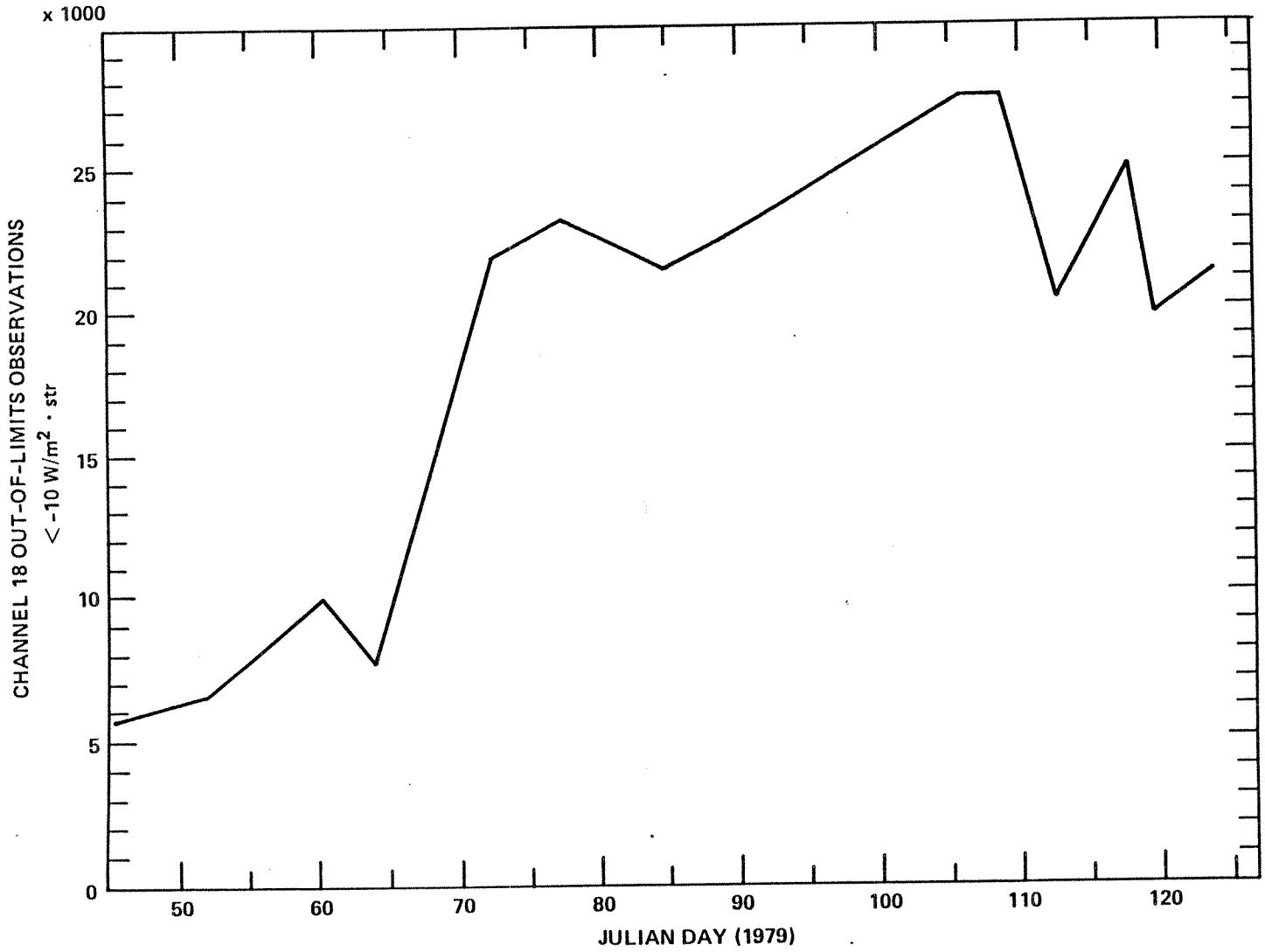

Figure 2 Number of Channel 18 "Out-of-Limits" Observations for February-May 1979, (Ref. Fromm and Dwivedi, 1982).

3.0 SUMMARY TABLE OF ERB EXPERIMENT/INSTRUMENT CHARACTERISTICS FOR YEAR ONE MAT DATA

The following pages contain monthly summaries of the available ERB-7 MAT's for the first year of data (November 1978 - October 1979). The Julian and calendar dates of the MAT's, along with the sequence and version number of the scientific algorithm that created the tape (MATGEN Version Number) are provided in this table[1]. The dates that do not have a MAT available due to the ERB instrument being "OFF" are also indicated on the summary table. In addition, a notation of any special characteristics or anomalies of the experiment (e.g., calibration of WFOV channels 11,12), the particular MAT (e.g., missing orbits, incorrect orbital summary start dates) and/or data peculiarities (e.g., large number of radiances/irradiances "out-of-limits") are summarized for each MAT day.

3.1 Legend For ERB Experiment/Instrument Characteristics Table

ACRONYM	DESCRIPTION
11P	Channel 11 Shutter Open (> 20 Major Frames)
12C	Channel 12 Shutter Closed (> 20 Major Frames)
12N	Channel 12 FOV Narrow (> 20 Major Frames)
WU	ERB "Warm-Up" Period
EC	Electronic Calibrations (> 10 Major Frames)
G/N	GO/NO GO Heater Testing (> 40 Major Frames)
OSD(#)	Orbital Summary start date is incorrect (Orbit Number)
CAL12	Channel 11, 12 Calibration
PUP	Spacecraft Pitch-Up Maneuver
G/N (#MFS)	GO/NO GO Heater Test Performed (Duration of test period in major frames)
EC (#MFS)	Electronic Calibrations Performed (duration of calibration period in major frames)
MO (##)	Missing Orbit(s) from the MAT
DSAS	Indicates problems with DSAS Alpha/Beta angles on MAT
HD	Several Subsatellite Point Latitudes, Longitudes are filled with a value of "22222". The Header Record label "MF" (Major Frame) should be "LR" (Logical Record) indicating the Logical Record number(s) of the "Filled" data. The data contained in these filled records should be ignored.

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[1] Any MAT's with sequence numbers different from those published in this Table (as contained in the header record) must be considered invalid by the user.

ACRONYM	DESCRIPTION
SZA	Solar Zenith Angles "Out-of-Limits" ($\pm$180°)
SAA	Solar Azimuth Angles "Out-of-Limits" ($\pm$180°)
*	1% Occurrence

The percentage of major frames in each ERB scan mode was obtained by dividing the total number of major frames in each mode by the total number of major frames on each MAT. The percentages are rounded-off to the nearest whole percent. The sum of the percentages for the 5 scan modes will yield the percentage of time that the scanner was on for the day (subtraction of the "ON" time from 100% will yield the percentage of time with scanner off for the day).

3.2 Monthly ERB Summary Tables

The tables on pages 74 through 85 summarize on a monthly basis the available ERB-7 MAT's for the first year of data.

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

NOVEMBER 1978

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16	320	AC83201-3	9	315-328	*	0	0	0	47	12N, 11P, 12C, G/N, WU	5153	G/N (222), CAL12	OSD (320,321, 328)
17	321	AC83211-3	4	329-341	15	8	10	18	32	12N	4796		
18	322	AC83221-3	4	342-355	0	0	46	52	0	12N, 11P, G/N, EC	5316	EC (26), CAL12, PUP	
19	323	ERB-OFF											
20	324	AC83241-3	4	369-383	*	0	41	52	6	G/N, WU	5394		
21	325	AC83251-3	4	384-397	0	0	76	24	0		5422		
22	326	AC83261-3	4	398-411	*	0	62	37	0		5333		
23	327	ERB-OFF											
24	328	AC83281-3	4	425-438	*	*	47	52	0	WU	5428		
25	329	AC83291A3	10	439-452	0	0	44	48	0	G/N	5379		
26	330	AC83301-3	4	453-466	0	0	48	51	0		5197		
27	331	ERB-OFF											
28	332	AC83321-3	4	481-494	0	*	51	48	0	11P, WU	5293		
29	333	AC83331-3	4	495-507	0	0	62	38	0	G/N	5001		
30	334	AC83341-3	4	508-521	0	0	38	47	0		5360		

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

DECEMBER 1978

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	335	ERB-OFF											
2	336	AC83361A3	10	536-549	10	*	29	52	0	WU	5379		
3	337	AC83371-3	9	550-563	*	0	24	54	18		5175		
4	338	AC83381-3	4	564-576	7	0	49	43	0		4869		MO (577)
5	339	ERB-OFF											
6	340	AC83401-3	4	591-604	0	0	47	47	0	WU	5420		
7	341	AC83411-3	4	605-618	0	7	47	45	0		5369		
8	342	AC83421-3	4	619-632	0	0	33	43	17	12N, 11P, 12C, G/N, EC	5265	G/N (115), CAL12	
9	343	ERB-OFF											
10	344	AC83441-3	4	647-660	0	0	0	0	0	WU	5343		OSD (660)
11	345	AC83451A3	10	661-673	0	0	71	28	0	G/N	4303		OSD (670)
12	346	AC83461-3	4	674-687	0	0	39	61	0		5358		
13	347	ERB-OFF											
14	348	AC83481-3	9	702-715	0	0	*	0	0	WU	5351		
15	349	AC83491-3	4	716-729	*	*	53	44	0		5408		
16	350	AC83501-3	4	730-743	0	0	43	55	*	G/N, EC	5326	EC (26)	
17	351	ERB-OFF											
18	352	AC83521-3	4	757-770	0	0	0	0	0	WU	5417		
19	353	AC83531-3	4	771-784	0	0	51	46	0		5432		OSD (771)
20	354	AC83541-3	4	785-798	*	*	35	32	29	11P	5252	PUP	
21	355	ERB-OFF											
22	356	AC83561-3	5	813-826	0	0	7	1	0	12N, 12C, WU	5346	CL12	
23	357	AC83571-3	4	827-839	0	0	45	54	*	12N, 12C	5044	CL12	
24	358	AC83581-3	4	840-853	0	0	50	49	0	12N, 12C	5347	CL12	
25	359	ERB-OFF											
26	360	AC83601-3	4	868-881	0	0	*	0	0	WU	5384		
27	361	AC83611-3	4	882-895	0	0	49	50	*		5391		CH18
28	362	AC83621-3	4	896-908	0	0	55	43	0		4993		MO (909)
29	363	ERB-OFF											
30	364	AC83641A3	9	924-936	0	0	*	0	0	WU	5055		
31	365	AC83651-3	4	937-39,941-49	0	0	29	42	*	12N, 11P, 12C, G/N	4502	G/N (113), CAL12	MO (940), DSAS

CH18: Channel 18 signal becomes noisy, in orbit 888. Approximately 5% of the radiance observations are "out-of-limits"

CL12: Channel 12 shutter was closed and the FOV in narrow mode for nearly the entire day.

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY: JANUARY 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	1	AC90011A3	4	951-964	*	0	43	37	20		5304		DSAS,SAA
2	2	ERB-OFF											
3	3	AC90031-3	9	979-991	0	0	1	0	0	EC,WU	4904		DSAS,SZA,SAA
4	4	AC90041-3	4	992-1005	0	0	31	32	0	G/N,EC	5424		DSAS,SZA,SAA
5	5	AC90051-3	4	1006-1019	0	0	33	33	*		5276		DSAS,SZA,SAA
6	6	ERB-OFF											
7	7	AC90071-3	4	1034-1047	0	0	*	0	0	WU	5413		DSAS,SZA,SAA
8	8	AC90081-3	4	1048-1061	0	0	32	27	0		5430		OSD(1048),DSAS,SZA,SAA
9	9	AC90091-3	4	1062-1074	0	0	32	37	0		4904		DSAS,SZA,SAA
10	10	ERB-OFF											
11	11	AC90111-3	4	1089-1102	0	0	1	0	0	WU	5443		OSD(1089-1102),DSAS,NS
12	12	AC90121-3	4	1103-1116	0	0	26	30	13	12N,11P,12C,G/N,EC	5325	G/N(232),EC(31),CAL12,PUP	DSAS
13	13	AC90131-3	5	1117-1130	0	0	34	33	0		5390		OSD(1117),DSAS
14	14	ERB-OFF											
15	15	AC90151-3	9	1145-1157	0	0	0	0	0	WU	4261		OSD(1152,57)MO(1158)
16	16	AC90161-3	9	1159-1171	0	0	31	35	0		4983		
17	17	AC90171A3	10	1172-1185	0	0	43	23	0	G/N	4811		OSD(1184)
18	18	ERB-OFF											
19	19	AC90191-3	9	1200-1213	0	0	0	0	0	WU	4921		
20	20	AC90201-3	9	1214-1227	0	0	30	29	0		5400		OSD(1227)
21	21	AC90211-3	4	1228-1240	0	0	21	27	0	G/N	4995		
22	22	ERB-OFF											
23	23	AC90231-3	4	1255-1268	0	0	0	0	0	WU	5041		OSD(1255,56)
24	24	ERB-OFF											
25	25	AC90251-3	9	1283-1296	0	0	37	31	0	WU	5391		
26	26	ERB-OFF											
27	27	AC90271A3	4	1311-1323	0	0	22	36	0	WU	4873		MO(1310)
28	28	ERB-OFF											
29	29	AC90291A3	10	1338-1351	0	0	29	28	*	G/N,EC,WU	5291		
30	30	ERB-OFF											
31	31	AC90311A3	4	1366-1378	0	0	25	24	0	WU	4946		MO(1379)

NS: This MAT does not contain solar data for channels 1-10 in any of the orbital summaries.

There exists a sampling deficiency for scanner observations in the descending node, northern hemisphere for many days in the month.

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

FEBRUARY 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	32	ERB-OFF											
2	33	AC90331-3	9	1394-1406	0	0	9	31	0	WU	4969		
3	34	ERB-OFF											
4	35	AC90351-3	4	1421-1434	0	0	0	0	0	WU	5393		
5	36	ERB-OFF											
6	37	AC90371-3	4	1449-1461	0	0	0	*	19	WU	5002		MO(1462)
7	38	ERB-OFF											
8	39	AC90391-3	4	1476-1489	0	0	0	0	0	WU	5395		
9	40	AC90401-3	5	1490-1503	0	0	0	0	68		5267		
10	41	AC90411-3	5	1504-1517	0	*	0	0	67		5264		
11	42	ERB-OFF											
12	43	AC90431-3	4	1531-1545	0	0	0	0	5	G/N, WU	4958		OSD(1545)
13	44	AC90441-3	5	1546-1558	0	0	0	0	65	12N.11P.12C.G/N	4205	CAL12.PUP	
14	45	AC90451-3	5	1559-1572	0	0	0	0	68		5387		
15	46	ERB-OFF											
16	47	AC90471-3	5	1587-1600	0	0	0	0	0	WU	5390		
17	48	AC90481-3	9	1601-1614	0	0	0	*	78	12N.12C.G/N.EC	5371		OSD(1614)
18	49	AC90491-3	4	1615-1627	*	0	0	*	74		4622		MO(1628)
19	50	ERB-OFF											
20	51	AC90511-3	9	1642-1655	0	0	0	0	0	WU	5427		
21	52	AC90521-3	5	1656-1669	0	0	0	0	68		5317		
22	53	AC90531A3	5	1671-1683	0	0	0	0	68		4966		MO(1670)
23	54	ERB-OFF											
24	55	AC90551A3	5	1698-1710	0	0	0	0	0	WU	4691		
25	56	ERB-OFF											
26	57	AC90571A3	5	1725-1737	0	0	0	0	0	WU	4203		MO(1738)
27	58	ERB-OFF											
28	59	AC90591-3	9	1758-1766	0	0	*	0	0	WU	3202		MO(1753-57)

There exists a sampling deficiency for scanner observations in the descending node, northern hemisphere for many days in the month.

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

MARCH 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	60	AC90601A3	5	1767-1780	0	0	0	*	66	12N,11P,12C,G/N	5381	CAL12,PUP	
2	61	AC90611B3	10	1781-1793	0	0	0	0	68		4952		OSD(1789)
3	62	ERB-OFF											
4	63	AC90631-3	5	1808-1821	0	0	0	0	0	G/N,WU	4720		
5	64	AC90641A3	5	1822-1835	0	0	0	0	63		5367		OSD(1822)
6	65	AC90651A3	5	1836-1849	0	0	0	0	68		5356		CH 18
7	66	ERB-OFF											
8	67	AC90671A3	5	1864-1876	0	0	0	0	0	WU	5011		
9	68	AC90681A3	5	1877-1890	22	*	0	*	10		5081		
10	69	AC90691A3	5	1891-1904	100	0	0	*	6		4707		
11	70	ERB-OFF											
12	71	AC90711A3	5	1919-1932	0	1	0	0	0	WU	5413		
13	72	AC90721A3	5	1933-1946	0	98	0	*	0	12N, 12C, G/N	5426		
14	73	AC90731A3	5	1947-1959	0	100	0	0	0		4589		
15	74	ERB-OFF											
16	75	AC90751A3	5	1974-1987	*	0	0	0	0	WU	5452		
17	76	AC90761A3	5	1988-2001	100	0	0	0	0		5399		
18	77	AC90771-3	5	2002-2014	100	0	0	0	0	G/N	4978		MO(2015)
19	78	ERB-OFF											
20	79	AC90791A3	9	2029-2042	0	*	0	0	0	WU	4864		
21	80	AC90801-3	9	2043-2056	0	100	0	0	0		5431		
22	81	AC90811A3	5	2057-2070	0	100	0	*	0		4908		
23	82	ERB-OFF											
24	83	AC90831A3	5	2085-2098	0	0	0	0	0	G/N, WU	5400		
25	84	AC90841A3	5	2099-2111	95	0	0	*	0	12N,11P,12C, G/N	4975	CAL12, PUP	
26	85	AC90851A3	9	2112-2125	100	0	0	*	0		4941		
27	86	ERB-OFF											
28	87	AC90871A3	9	2140-2153	0	0	0	0	0	WU	5334		
29	88	AC90881A3	9	2154-2167	0	77	0	0	0	11P	5052		OSD(2167)
30	89	AC90891A3	9	2168-2180	0	95	0	*	0		5045		MO(2181)
31	90	ERB-OFF											

CH18: Channel 18 signal noise increases. Approximately 16% of the radiance observations are now "out-of-limits".

There exists a sampling deficiency for scanner observations in the descending node, northern hemisphere for many days in the month.

APRIL 1979

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes 1	2	3	4	5	Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
1	91	AC90911-3	9	2195-2208	0	0	0	0	0		4814		
2	92	ERB-OFF											
3	93	AC90931A3	9	2223-2236	0	0	0	0	0	WU	5083		
4	94	ERB-OFF											
5	95	AC90951A3	9	2251-2263	0	0	0	0	0	WU	4979		
6	96	ERB-OFF											
7	97	AC90971B3	9	2278-2291	0	0	0	0	0	12N,12C,WU	5015		HD
8	98	ERB-OFF											
9	99	AC90991A3	5	2306-2319	0	0	0	0	0	12N,12C,WU	5420		
10	100	ERB-OFF											
11	101	AC91011A3	5	2334-2346	0	0	0	0	0	12N,WU	4952		
12	102	ERB-OFF											
13	103	AC91031A3	5	2361-2374	*	0	0	0	0	G/N,WU	5180	G/N(615)	OLD
14	104	AC91041A3	5	2375-2388	100	0	0	*	0		5432		
15	105	AC91051-3	5	2389-2402	100	0	0	0	0		5097		
16	106	AC91061A3	5	2403-2416	98	0	0	0	0	12N,11P,12C,G/N	5379	CAL12,PUP	
17	107	AC91071A3	5	2417-2429	100	0	0	0	0		5053		
18	108	AC91081A3	5	2430-2443	98	0	0	0	*	12N,12C,G/N	5464		
19	109	AC91091A3	5	2444-2457	98	0	0	*	0		5374		
20	110	ERB-OFF											
21	111	AC91111-3	9	2472-2485	0	9	0	0	0	G/N, WU	4773	G/N(583)	OSD(2485),OLD
22	112	AC91121-3	9	2486-2498	0	100	0	0	0		5058		
23	113	AC91131A3	9	2499-2512	0	97	0	*	0		5343		
24	114	ERB-OFF											
25	115	AC91151A3	7	2527-31, 33-40	*	0	0	0	0	WU	4998		MO(2532)
26	116	AC91161B3	7	2541-43, 45-54	100	0	0	0	0	G/N	4984	G/N(127)	MO(2544),HD
27	117	AC91171A3	5	2555-2568	100	0	0	*	0	11P	5124	CAL12	
28	118	AC91181A3	6	2569-2581	97	0	0	*	0	12N,11P,12C,G/N	4725	CAL12	
29	119	AC91191-3	9	2582-2595	93	0	0	0	0		5004		OSD(2593)
30	120	ERB-OFF											

OLD: Large Number of "Out-of-Limits" observations (>1000) for WFOV channels 13, 14 resulting from extensive CO/NO Go heater testing

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

MAY 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	121	AC91211-3	9	2610-2623	0	0	0	0	0	WU	4856		
2	122	ERB-OFF											
3	123	AC91231-3	9	2638-2650	0	0	0	*	97	WU	4701		
4	124	AC91241-3	9	2651-2664	0	0	0	*	100		5338		
5	125	AC91251-3	9	2665-2678	0	*	0	*	60	G/N	5190		
6	126	ERB-OFF											
7	127	AC91271-3	5	2693-2706	0	0	0	0	0	WU	5349		
8	128	AC91281-3	9	2707-2720	0	0	0	*	91		4684		OSD(2720)
9	129	AC91291-3	5	2721-2733	0	0	0	0	0		4322		
10	130	ERB-OFF											
11	131	AC91311-3	5	2748-2761	0	0	0	37	60	WU	5365		
12	132	ERB-OFF											
13	133	AC91331-3	9	2776-2789	0	0	0	0	98	12N,12C,G/N,WU	4826		OSD(2789
14	134	AC91341-3	9	2790-2803	0	0	0	*	100	12N	5068		OSD(2800,03)
15	135	AC91351-3	9	2804-2816	0	0	0	0	100		4985		
16	136	ERB-OFF											
17	137	AC91371-3	9	2831-2844	0	0	0	9	79	11P,WU	3925		OSD(2841),MD
18	138	ERB-OFF											
19	139	AC91391-3	9	2859-2872	0	0	0	*	100	G/N, WU	5157		OSD(2872)
20	140	AC91401-3	5	2873-2884	0	0	0	0	100		4481		MO(2885)
21	141	AC91411-3	10	2886-2899	0	0	0	0	100	G/N	4832		
22	142	ERB-OFF											
23	143	AC91431-3	9	2914-2917	0	0	0	*	99	WU	5051		OSD(2926)
24	144	AC91441-3	9	2928-2941	0	0	0	*	98	12N,11P,12C,G/N	4989	CAL12,PUP	OSD(2940,41)
25	145	AC91451-3	9	2942-2954	0	0	0	*	100	G/N	4742		MO (2955)
26	146	ERB-OFF											
27	147	AC91471-3	5	2969-2982	0	0	0	*	100	WU	5442		OSD (2969)
28	148	AC91481-3	5	2983-84,87-96	0	0	*	*	100		4126		MO(2985,86)
29	149	AC91491-3	5	2997-3010	0	0	0	*	66		5352		OSD(3010)
30	150	ERB-OFF											
31	151	AC91511-3	5	3025-3037	0	0	0	0	100	WU	5038		

MD: This MAT is missing approximately 27% of the total amount of Data expected on a MAT.

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

JUNE 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	152	AC91521-3	9	3038-3049	0	0	0	0	100		4532		MO(3050,51)
2	153	AC91531-3	9	3052-3065	0	0	0	0	94		4620		OSD(3063)
3	154	ERB-OFF											
4	155	AC91551-3	9	3080-3093	0	0	0	*	100	WU	4467		OSD(3093)
5	156	AC91561A3	9	3094-3107	0	0	0	0	98	12N,12C,G/N	5106		OSD(3107),HD
6	157	AC91571-3	9	3108-3120	0	0	0	*	99		4607		OSD(3117)
7	158	ERB-OFF											
8	159	AC91591-3	9	3136-3148	0	0	0	*	100	G/N	4501		MO(3135)
9	160	AC91601-3	9	3149-3162	0	0	*	*	100	G/N	4060		OSD(3156,58,6061)
10	161	AC91611-3	9	3163-3175	0	0	0	0	100	G/N	4537		OSD(3175),MO(3176)
11	162	ERB-OFF											
12	163	AC91631-3	9	3190-3203	0	0	0	0	95	WU	4301		
13	164	AC91641-3	9	3206-3217	0	0	0	*	100		3863		MO(3204,05)
14	165	AC91651-3	9	3218-3231	0	0	0	0	100		4930		
15	166	ERB-OFF											
16	167	AC91671-3	9	3246-3259	0	0	0	*	100	11P,WU	4734	CAL12,PUP	OSD(3255,59)
17	168	AC91681-3	9	3260-3272	0	0	*	0	97	12N,11P,12C,G/N	4670	CAL12	
18	169	AC91691-3	9	3273-3286	0	0	0	*	95		5006		
19	170	ERB-OFF											
20	171	AC91711-3	9	3301-10,13-14	0	0	0	0	100	G/N, WU	4275		MO(3311,12)
21	172	AC91721-3	9	3315-3328	*	0	0	*	100		5373		OSD(3328)
22	173	AC91731-3	9	3329-3341	0	0	0	*	100		4975		
23	174	ERB-OFF											
24	175	AC91751-3	9	3356-60,62-69	0	0	0	0	100	WU	4177		MO(3361)
25	176	AC91761-3	9	3370-3383	0	0	0	*	88	G/N	4755		
26	177	AC91771-3	9	3384-3397	0	0	0	*	100	G/N	4824		OSD(3397)
27	178	ERB-OFF											
28	179	AC91791-3	9	3412-3424	0	0	0	*	38	WU	4738		
29	180	AC91801-3	9	3425-3438	0	0	0	0	98	12N,12C,G/N	5021		
30	181	AC91811-3	9	3439-3452	0	0	0	*	97		4686		

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

JULY 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	182	ERB-OFF											
2	183	AC91831-3	9	3467-3480	0	0	0	*	97	WU	5050		
3	184	AC91841-3	9	3481-3493	0	0	0	*	100		4324		
4	185	AC91851-3	9	3494-3507	0	0	0	*	100	G/N	4965		
5	186	ERB-OFF											
6	187	AC91871-3	9	3522-3535	0	0	0	*	100	G/N,WU	5030		
7	188	AC91881-3	9	3536-3549	0	0	0	*	100	EC	5104		
8	189	AC91891-3	9	3550-3563	0	0	0	*	100	G/N	5304		
9	190	ERB-OFF											
10	191	AC91911-3	9	3577-3590	0	0	0	*	85	G/N,WU	5245		
11	192	AC91921-3	9	3591-3604	0	0	0	*	92	12N,11P,12C,G/N,EC	5254	CAL12,PUP	
12	193	AC91931-3	9	3605-3618	*	0	0	*	91	G/N	5300		
13	194	ERB-OFF											
14	195	AC91951-3	9	3633-37,40-45	0	0	0	*	100	EC,WU	4076		MO(3638,39)
15	196	AC91961A3	10	3646-3659	0	0	0	*	100				
16	197	AC91971-3	9	3660-3673	0	0	0	*	99	G/N	4891		
17	198	ERB-OFF											
18	199	AC91991-3	9	3668-3701	0	0	0	*	100	12C,G/N, WU	5400		
19	200	AC92001-3	9	3702-3715	0	0	0	*	97		5322		OSD(3715)
20	201	AC92011-3	9	3716-3728	0	0	0	*	100		4686		OSD(3725)
21	202	ERB-OFF											
22	203	AC92031-3	9	3743-3754	0	0	0	*	100	WU	3935		MO(3755,56)
23	204	AC92041-3	9	3757-3770	0	0	0	0	97	12N,12C,G/N,EC	4780		OSD(3760)
24	205	AC92051-3	9	3771-3784	*	0	0	*	98	G/N, EC	5160	G/N(133)	OSD(3777,84)
25	206	ERB-OFF											
26	207	AC92071A3	10	3798-3811	0	0	0	*	100	WU	5297		
27	208	AC92081-3	9	3812-3825	0	0	0	*	100	G/N	5359		
28	209	AC92091-3	9	3826-3839	*	0	0	*	95	EC	5225		
29	210	ERB-OFF											
30	211	AC92111-3	9	3854-3867	0	0	0	0	94	WU	5357		OSD(3867)
31	212	AC92121-3	9	3868-3880	0	0	0	0	100		4939		

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

AUGUST 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	213	AC92131-3	9	3881-3894	0	0	0	*	100	G/N	5351		
2	214	ERB-OFF											
3	215	AC92151-3	9	3909-3922	0	0	0	*	100	WU	5424		
4	216	AC92161-3	9	3923-3936	0	0	0	*	75	12N,11P,12C,G/N,WU	5187	G/N(437),CAL12, PUP	OSD(3936)
5	217	AC92171-3	9	3937-3949	0	0	0	0	100		4715		
6	218	ERB-OFF											
7	219	AC92191A3	10	3964-3977	0	0	0	*	100	G/N	4533		
8	220	AC92201B3	9	3978-3991	0	0	0	*	95	G/N	5042		HD
9	221	AC92211-3	9	3992-4005	0	0	0	0	100	G/N	5298		OSD(4005)
10	222	ERB-OFF											
11	223	AC92231-3	9	4020-4032	0	0	0	*	99	WU	5011		
12	224	AC92241-3	7	4033-4046	0	0	0	*	100	G/N	5435		
13	225	AC92251-3	9	4047-4060	*	*	0	*	100		5385		
14	226	ERB-OFF											
15	227	AC92271-3	7	4075-4088	0	0	*	0	99	WU	5189		
16	228	AC92281-3	9	4089-4102	0	0	0	*	98	12N	5330		OSD(4102)
17	229	AC92291-3	7	4103-4115	0	0	0	*	89		4254		
18	230	ERB-OFF											
19	231	AC92311-3	9	4130-4143	0	0	0	*	90	WU	5436		
20	232	AC92321-3	9	4144-4157	0	0	0	*	94		5137		OSD(4154)
21	233	AC92331-3	7	4158-4171	0	0	0	*	82		4554		OSD(4166)
22	234	ERB-OFF											
23	235	AC92351-3	9	4185-4198	0	0	0	*	90	WU	5416		
24	236	AC92361-3	9	4199-4212	0	0	0	*	97		4860		OSD(4209)
25	237	AC92371-3	7	4213-4225	0	0	0	0	96	G/N	4950		MO(4226)
26	238	ERB-OFF											
27	239	AC92391-3	9	4241-4254	0	0	0	*	100	11P,WU	4701	CAL12, PUP	OSD(4254)
28	240	AC92401-3	9	4255-4267	0	0	0	*	94	12N,11P,12C,G/N	4834	CAL12,PUP	
29	241	AC92411-3	9	4268-4281	0	0	0	0	100	G/N	5283		
30	242	ERB-OFF											
31	243	AC92431-3	7	4296-4309	0	0	0	0	97	G/N,WU	5117		

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

SEPTEMBER 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	244	AC92441-3	7	4310-4316	0	0	0	*	100		2630		MO(4317-23)
2	245	AC92451-3	9	4324-4336	0	0	0	*	96	WU	5023		
3	246	ERB-OFF											
4	247	AC92471-3	9	4351-4364	0	0	0	*	99	G/N,EC,WU	5389	EC(19)	
5	248	AC92481-3	9	4365-4378	0	0	0	*	100		5432		
6	249	AC92491A3	9	4379-4392	0	0	*	*	92	G/N	5132		OSD(4392)
7	250	ERB-OFF											
8	251	AC92511A3	10	4407-4419	0	0	0	100	*	G/N,WU	5023		
9	252	AC92521C3	10	4420-28,4430-33	0	0	0	74	23	12N,12C,G/N	4291		OSD(4430),MO(4429),DSAS
10	253	AC92531A3	10	4434-4447	0	0	0	99	0		4878		DSAS
11	254	ERB-OFF											
12	255	AC92551-3	8	4462-4475	100	0	*	*	*	WU	5428		OSD(4462),DSAS
13	256	AC92561-3	9	4476-4488	100	*	0	*	0		4878		DSAS
14	257	AC92571-3	8	4489-4502	99	0	0	*	0	12N,12C	4799		DSAS
15	258	ERB-OFF											
16	259	AC92591A3	10	4517-4530	0	0	0	100	0	WU,EC	3811		
17	260	AC92601A3	10	4532-4544	0	0	0	100	0	EC			OSD(4544),MO(4531)
18	261	AC92611-3	9	4545-4558	*	0	0	100	0		4805		OSD(4558)
19	262	ERB-OFF											
20	263	AC92631-3	8	4572-4585	0	0			0	WU	5430		OSD(4572)
21	264	AC92641B3	10	4586-4599	0	0	58	*	0	12N,11P,12C,G/N,EC	5345	CAL12,PUP	
22	265	AC92651-3	9	4600-4613	0	0	99	*	0	G/N	5004		OSD(4613)
23	266	ERB-OFF											
24	267	AC92671-3	9	4628-4640	0	0	60	40	0	G/N,EC,WU	4993		SZA,SAA
25	268	AC92681-3	9	4641-4654	0	0	0	100	0		4365		SAA
26	269	AC92691-3	9	4655-57,59-68	0	0	*	100	0		4707		MO(4658),SZA,SAA
27	270	ERB-OFF											
28	271	AC92711-3	9	4683-4696	0	0	92	0	0	G/N,WU	4761		OSD(4692,96),SZA,SAA
29	272	AC92721-3	9	4697-4710	0	0	7	0	0		5436		OSD(4710),SAA
30	273	AC92731-3	8	4711-4723	0	0	99	0	0		4967		

MASTER ARCHIVAL TAPE (MAT) DATA SUMMARY:

OCTOBER 1979

Date	Julian Day	Sequence #	Ver. #	Orbits on MAT	Scan Modes					Special Status of Instrument	# MF on MAT	Calibration Operations/ Testing	Data Peculiarities
					1	2	3	4	5				
1	274	ERB-OFF											
2	275	AC92751-3	8	4738-4751	0	0	0	98	*	WU	4797		OSD(4738,40)
3	276	AC92761-3	8	4752-58,60-65	0	0	0	1	0		4778		OSD(4752),MO(4759)
4	277	AC92771-3	8	4766-4778	0	0	0	99	0	12N	4257		OSD(4766,67)
5	278	ERB-OFF											
6	279	AC92791-3	9	4793-4805	*	0	100	*	0	WU	4148		MO(4806)
7	280	AC92801-3	9	4807-4819	*	0	100	*	0		4827		MO(4920)
8	281	AC92811-3	9	4821-4834	0	0	100	*	0		5344		
9	282	ERB-OFF											
10	283	AC92831-3	9	4849-4862	0	0	0	100	0	G/N	5395		OSD(4862)
11	284	AC92841-3	9	4863-68,70-75	0	0	0	100	0	G/N	4642		MO(4869)
12	285	AC92851-3	9	4876-4889	0	0	0	100	0		5392		
13	286	ERB-OFF											
14	287	AC92871-3	9	4905-4917	0	0	100	0	0	WU	4726		MO(4904)
15	288	AC92881-3	9	4918-4931	0	0	98	*	0	12N,12C,G/N	5386		OSD(4918,31)
16	289	AC92891-3	9	4932-4944	0	0	100	*	0	G/N	4874		
17	290	ERB-OFF											
18	291	AC92911A3	10	4959-4972	0	0	0	100	0	12N,WU	3872	CH12	
19	292	AC92921-3	9	4973-4986	0	0	0	100	0	12N	5421	CH12	
20	293	AC92931-3	9	4987-90,4993-99	0	0	0	100	0	12N	3960	CH12	MO(4991-92,5000)
21	294	ERB-OFF											
22	295	AC92951B3	9	5015-21,25-27	0	0	100	0	0	G/N,WU	3782		MO(5022-24),HD
23	296	AC92961-3	9	5028-5041	*	0	100	*	0		5387		
24	297	AC92971-3	9	5042-5055	0	*	99	*	0	12N,12C	5218		
25	298	ERB-OFF											
26	299	AC92991-3	9	5070-5083	0	0	0	99	0	WU	5404		OSD(5083)
27	300	AC93001-3	9	5084-5096	0	0	0	1	0		4682		OSD(5093)
28	301	AC93011-3	9	5097-5110	0	0	0	97	0	12N,11P,12C,G/N	5394	CAL 12, PUP	
29	302	ERB-OFF											
30	303	AC93031-3	9	5125-5138	0	0	100	*	0	WU	5394		
31	304	AC93041-3	9	5139-5152	0	0	1	0	0	11P,G/N	5087	CAL12	OSD(5152)

CH12: Channel 12 FOV in narrow mode for nearly entire day.

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FIRST YEAR MAT DATA QUALITY TABLES

Table D-1 MAT'S With Missing Solar Data

The following MAT's contain at least one orbit with no solar data. This is primarily due to missing major frame data at the time of the solar observation. The data was compiled by checking for "fill" values for the average counts at the time of the solar peak in the orbital summaries. The affected days and orbits are as follows:

Date	Orbit(s)
November 16, 1978	315-321
November 20, 1978	369
November 21, 1978	389
December 2, 1978	535
December 3, 1978	553
December 11, 1978	661, 670
January 11, 1979	1089-1102
January 15, 1979	1152, 1157
January 19, 1979	1201
January 23, 1979	1255, 1256
February 12, 1979	1531, 1532
February 13, 1979	1552, 1553, 1558
February 17, 1979	1601-1614
February 26, 1979	1733, 1734
February 28, 1979	1758
March 2, 1979	1789
March 4, 1979	1810, 1815
March 9, 1979	1887
March 10, 1979	1897
March 14, 1979	1953
March 20, 1979	2030, 2033
March 22, 1979	2059
March 25, 1979	2105
March 26, 1979	2120, 2121
March 29, 1979	2160
April 1, 1979	2195, 2196
April 3, 1979	2230
April 13,1979	2364
April 15,1979	2391
April 16, 1979	2411
April 21, 1979	2475, 2480
April 27, 1979	2558, 2568

Table D-1 MAT's with Missing Solar Data (cont'd)

Date	Orbit(s)
April 28, 1979	2581
April 29, 1979	2593
May 1, 1979	2610, 2611
May 3, 1979	2645
May 8, 1979	2708, 2709
May 9, 1979	2730, 2732
May 13, 1979	2776, 2886
May 14, 1979	2800
May 17, 1979	2834, 2835, 2841, 2844
May 19, 1979	2867
May 21, 1979	2891
May 23, 1979	2926
May 24, 1979	2928, 2940
May 25, 1979	2951
May 28, 1979	2987
June 2, 1979	3053, 3063
June 4, 1979	3081, 3085
June 8, 1979	3136, 3139
June 9, 1979	3156, 3158, 3160, 3161
June 10, 1979	3175
June 12, 1979	3190, 3196
June 13, 1979	3206
June 16, 1979	3255, 3259
June 20, 1979	3313
June 24, 1979	3362
June 25, 1979	3373
June 26, 1979	3390
June 28, 1979	3414
June 29, 1979	3433
June 30, 1979	3442, 3449
July 2, 1979	3470
July 3, 1979	3484, 3492
July 4, 1979	3501
July 6, 1979	3530
July 7, 1979	3544
July 16, 1979	3672
July 20, 1979	3725
July 22, 1979	3748, 3751
July 23, 1979	3757, 3760
July 24, 1979	3771, 3777
August 4, 1979	3923
August 5, 1979	3948
August 7, 1979	3964, 3965
August 8, 1979	3981
August 15, 1979	4078
August 17, 1979	4103, 4115
August 20, 1979	4154

Table D-1 MAT's with Missing Solar Data (cont'd)

Date	Orbit(s)
August 21, 1979	4162, 4166
August 24, 1979	4209
August 27, 1979	4250
August 31, 1979	4296, 4304
September 6, 1979	4385
September 8, 1979	4411
September 9, 1979	4430
September 10, 1979	4439
September 14, 1979	4498
September 16, 1979	4519, 4526
September 17, 1979	4534, 4543
September 18, 1979	4553, 4558
September 22, 1979	4613
September 25, 1979	4642, 4649, 4652
September 26, 1979	4659
September 28, 1979	4685, 4692
October 2, 1979	4740
October 4, 1979	4766, 4767
October 6, 1979	4796, 4797
October 7, 1979	4811
October 14, 1979	4906
October 20, 1979	4993
October 27, 1979	5093
October 31, 1979	5147

Table D-2 Solar Zenith Angle "Out-of-Limits on MAT's

The following MAT's contain solar zenith angles (SZA) "out-of-limits" ($\pm$180°). The SZA's were in most cases found to within a degree of the upper or lower limits. These errors do not affect the solar irradiances.[1] The affected days and orbits are as follows:

Date	Orbit(s)
January 3, 1979	988
January 4, 1979	992, 994, 996, 998, 1000, 1002, 1004
January 5, 1979	1006, 1008, 1010, 1012, 1014, 1016
January 7, 1979	1035-1047
January 8, 1979	1048-1051, 1053-1061
January 9, 1979	1067, 1069, 1071, 1073
September 24, 1979	4628, 4629, 4631-4633, 4635-4640
September 26, 1979	4656, 4659-4662, 4664-4667
September 28, 1979	4683

D-3 Solar Azimuth Angle "Out-of-Limits" on MAT'S

The following MAT's contain solar azimuth angles (SAA) "out-of-limits" ($\pm$180°). The SAA's were in most cases within a degree of the upper or lower limit. These errors do not affect the solar irradiances on the MAT's[2]. The affected days and orbits are as follows:

Date	Orbit(s)
January 1, 1979	963
January 3, 1979	980, 989-991
January 4, 1979	992, 994, 995, 1002, 1004
January 5, 1979	1009, 1010, 1012, 1015
January 7, 1979	1038, 1040, 1043
January 8, 1979	1053
September 24, 1979	4631
September 25, 1979	4642, 4646, 4648, 4650, 4651
September 26, 1979	4657, 4660-4665
September 28, 1979	4684, 4695
September 29, 1979	4697, 4710

[1]Solar Earth Flux Data Tape (SEFDT), Nimbus Observation Processing System (NOPS) Quality Control Report, Systems and Applied Sciences Corporation, July 1982.

[2]Solar Earth Flux Data Tape (SEFDT), Nimbus Observation Processing System (NOPS) Quality Control Report, Systems and Applied Sciences Corporation, July, 1982.

TABLE D-4

Number of WFOV Channel 12-14 Irradiance Observations "Out-of-Limits"

JULDAY	IRRAD OBS OUT-OF-LIMITS CH12	CH13	CH14	IRRAD OBS 10% BELOW, 10% ABOVE LIMITS 90-100	550-600	-20- -10	400-440	(IN WATTS/SQ M) -20- -10	240-265
320.	124.	385.	358.	8.	0.	41.	23.	44.	0.
321.	462.	13.	4.	441.	11.	0.	11.	0.	0.
322.	803.	94.	55.	680.	11.	0.	38.	0.	1.
324.	242.	171.	3.	0.	233.	0.	168.	0.	0.
325.	184.	129.	17.	0.	160.	1.	108.	0.	0.
326.	257.	132.	7.	0.	248.	0.	124.	0.	0.
328.	54.	36.	1.	0.	54.	0.	36.	0.	0.
329.	79.	33.	13.	0.	69.	0.	21.	0.	0.
330.	293.	174.	6.	0.	275.	0.	165.	0.	0.
332.	356.	197.	6.	3.	345.	0.	163.	0.	0.
333.	290.	133.	4.	0.	289.	0.	131.	0.	0.
334.	348.	218.	9.	0.	336.	0.	210.	0.	0.
336.	297.	206.	4.	0.	292.	0.	202.	0.	0.
337.	272.	114.	1.	0.	271.	0.	113.	0.	0.
338.	460.	260.	4.	0.	453.	0.	256.	0.	0.
340.	302.	156.	2.	0.	301.	0.	155.	0.	0.
341.	336.	152.	10.	0.	327.	0.	145.	0.	0.
342.	526.	425.	228.	127.	336.	26.	186.	23.	0.
344.	338.	153.	2.	0.	338.	0.	152.	0.	0.
345.	280.	173.	3.	0.	275.	0.	168.	0.	0.
346.	221.	81.	1.	0.	218.	0.	77.	0.	0.
348.	317.	172.	6.	0.	311.	0.	167.	0.	0.
349.	297.	83.	3.	0.	295.	0.	81.	0.	0.
350.	236.	110.	37.	3.	190.	0.	70.	0.	0.
352.	398.	167.	1.	0.	398.	0.	167.	0.	0.
353.	444.	165.	2.	0.	443.	0.	163.	0.	0.
354.	371.	179.	16.	0.	357.	0.	172.	0.	0.
356.	10.	197.	11.	0.	0.	0.	188.	0.	0.
357.	4.	115.	5.	0.	0.	0.	110.	0.	0.
358.	14.	131.	9.	0.	0.	0.	120.	0.	0.
360.	341.	213.	1.	0.	340.	0.	212.	0.	0.
361.	353.	130.	2.	0.	353.	0.	129.	0.	0.
362.	288.	94.	4.	21.	263.	0.	91.	0.	0.
364.	251.	86.	1.	0.	247.	0.	84.	0.	0.
365.	369.	303.	206.	17.	209.	28.	84.	24.	1.
1.	340.	170.	8.	1.	323.	0.	158.	0.	0.
3.	309.	140.	4.	11.	276.	0.	130.	0.	0.
4.	350.	180.	28.	49.	278.	1.	154.	0.	0.
5.	237.	68.	7.	60.	164.	0.	61.	0.	0.
7.	303.	105.	0.	66.	235.	0.	90.	0.	0.
8.	224.	45.	6.	37.	180.	0.	40.	0.	0.
9.	172.	32.	2.	0.	164.	0.	29.	0.	0.
11.	133.	36.	5.	0.	131.	0.	30.	0.	0.
12.	477.	374.	257.	59.	270.	33.	93.	25.	0.
13.	179.	21.	2.	1.	171.	0.	17.	0.	0.
15.	68.	29.	2.	0.	67.	0.	29.	0.	0.
16.	105.	1.	2.	0.	104.	0.	0.	0.	0.
17.	82.	18.	4.	0.	78.	0.	12.	0.	0.
19.	96.	53.	8.	4.	59.	1.	30.	0.	0.
20.	47.	22.	1.	0.	47.	0.	22.	0.	0.
21.	67.	8.	12.	0.	49.	0.	0.	0.	0.
23.	64.	3.	2.	0.	59.	0.	0.	0.	0.
25.	7.	2.	4.	0.	0.	0.	0.	0.	0.
27.	50.	37.	2.	4.	41.	0.	34.	0.	0.

TABLE D-4 (Cont'd)

Number of WFOV Channel 12-14 Irradiance Observations "Out-of-Limits"

JULDAY	IRRAD OBS OUT-OF-LIMITS CH12	CH13	CH14	IRRAD OBS 10% BELOW, 10% ABOVE LIMITS 90-100	550-600	-20- -10	400-440	(IN WATTS/SQ M) -20- -10	240-265
29.	60.	37.	17.	0.	39.	0.	19.	0.	0.
31.	37.	3.	1.	0.	31.	0.	0.	0.	0.
33.	3.	0.	0.	1.	0.	0.	0.	0.	0.
35.	59.	20.	2.	0.	53.	0.	18.	0.	0.
37.	33.	5.	2.	0.	25.	0.	0.	0.	0.
39.	0.	0.	3.	0.	0.	0.	0.	0.	0.
40.	14.	10.	14.	0.	0.	0.	0.	2.	0.
41.	17.	11.	13.	1.	0.	0.	0.	0.	0.
43.	89.	5.	4.	0.	84.	0.	0.	0.	1.
44.	183.	137.	106.	62.	0.	38.	0.	23.	0.
45.	2.	4.	4.	0.	0.	0.	0.	0.	0.
47.	47.	26.	1.	2.	43.	0.	25.	0.	0.
48.	169.	143.	114.	77.	0.	34.	0.	22.	0.
49.	20.	3.	4.	0.	13.	0.	0.	0.	0.
51.	23.	1.	1.	0.	22.	0.	0.	0.	0.
52.	23.	9.	4.	0.	21.	0.	5.	0.	0.
53.	6.	3.	3.	0.	0.	0.	0.	0.	0.
55.	3.	2.	2.	1.	0.	0.	0.	0.	0.
57.	2.	3.	5.	0.	0.	0.	0.	0.	0.
59.	5.	0.	1.	0.	0.	0.	0.	0.	0.
60.	269.	174.	106.	164.	77.	44.	29.	22.	0.
61.	60.	9.	6.	0.	38.	0.	0.	1.	0.
63.	6.	6.	8.	0.	0.	0.	0.	0.	0.
64.	5.	3.	1.	0.	0.	0.	0.	0.	0.
65.	6.	2.	3.	2.	0.	0.	0.	0.	0.
67.	62.	45.	2.	0.	61.	0.	45.	0.	0.
68.	5.	3.	0.	0.	0.	0.	0.	0.	0.
69.	9.	8.	5.	0.	0.	0.	0.	0.	0.
71.	21.	2.	3.	0.	20.	0.	0.	0.	0.
72.	219.	142.	108.	125.	54.	40.	0.	22.	0.
73.	31.	28.	7.	0.	15.	0.	20.	0.	0.
75.	13.	2.	1.	0.	0.	0.	0.	0.	0.
76.	7.	2.	2.	0.	0.	0.	0.	0.	0.
77.	10.	1.	2.	0.	6.	0.	0.	0.	0.
79.	13.	16.	11.	0.	0.	0.	0.	0.	0.
80.	3.	4.	6.	0.	0.	0.	0.	0.	0.
81.	9.	9.	7.	0.	0.	0.	0.	0.	0.
83.	5.	7.	9.	0.	0.	0.	0.	0.	0.
84.	90.	140.	114.	21.	0.	36.	0.	22.	0.
85.	36.	8.	11.	7.	17.	0.	0.	0.	0.
87.	16.	11.	13.	0.	0.	0.	0.	0.	0.
88.	2.	6.	8.	0.	0.	0.	0.	0.	0.
89.	44.	35.	15.	0.	29.	0.	24.	0.	0.
91.	3.	1.	0.	0.	2.	0.	0.	0.	0.
93.	0.	0.	2.	0.	0.	0.	0.	0.	0.
95.	101.	38.	3.	0.	78.	0.	35.	0.	0.
97.	84.	55.	3.	0.	75.	0.	40.	0.	0.
99.	45.	6.	4.	0.	36.	0.	0.	0.	0.
101.	23.	4.	3.	7.	13.	0.	0.	0.	0.
103.	246.	1268.	1123.	98.	40.	257.	23.	222.	0.
104.	9.	14.	8.	0.	0.	0.	0.	0.	0.
105.	1.	2.	5.	0.	0.	0.	0.	0.	0.
106.	87.	133.	106.	45.	21.	35.	0.	21.	0.
107.	5.	6.	4.	3.	0.	0.	0.	0.	0.
108.	140.	145.	112.	65.	0.	45.	0.	22.	0.

TABLE D-4 (Cont'd)

Number of WFOV Channel 12-14 Irradiance Observations "Out-of Limits"

JULDAY	IRRAD OBS OUT-OF-LIMITS CH12	CH13	CH14	IRRAD OBS 10% BELOW, 10% ABOVE LIMITS 90-100	550-600	-20- -10	400-440	IN WATTS/SQ MI -20- -10	240-265
109.	2.	4.	6.	0.	0.	0.	0.	0.	0.
111.	207.	1125.	1021.	80.	0.	229.	0.	206.	0.
112.	0.	1.	3.	0.	0.	0.	0.	0.	0.
113.	14.	5.	4.	0.	9.	0.	0.	0.	0.
115.	30.	13.	12.	0.	10.	0.	0.	0.	0.
116.	16.	12.	12.	0.	1.	2.	0.	0.	0.
117.	68.	34.	3.	0.	65.	0.	31.	0.	0.
118.	182.	154.	107.	76.	0.	51.	0.	22.	0.
119.	0.	2.	1.	0.	0.	1.	0.	0.	0.
121.	19.	1.	2.	0.	14.	0.	0.	0.	0.
123.	69.	26.	0.	0.	66.	0.	24.	0.	0.
124.	14.	9.	8.	3.	0.	0.	0.	0.	0.
125.	74.	24.	13.	3.	50.	10.	0.	0.	1.
127.	7.	9.	6.	0.	0.	0.	0.	0.	0.
128.	99.	8.	12.	12.	78.	0.	0.	0.	0.
129.	68.	7.	6.	8.	52.	0.	0.	0.	0.
131.	40.	4.	8.	23.	13.	0.	0.	0.	0.
133.	131.	129.	95.	44.	34.	24.	25.	20.	0.
134.	162.	66.	9.	34.	64.	0.	34.	0.	0.
135.	100.	62.	8.	6.	79.	0.	54.	0.	0.
137.	105.	37.	6.	44.	56.	0.	35.	0.	0.
139.	53.	8.	8.	42.	2.	0.	0.	0.	0.
140.	58.	2.	1.	56.	1.	0.	0.	0.	0.
141.	66.	14.	4.	56.	0.	10.	0.	0.	0.
143.	88.	25.	4.	50.	35.	0.	21.	0.	0.
144.	287.	131.	108.	147.	0.	30.	0.	21.	0.
145.	72.	19.	3.	68.	0.	14.	0.	0.	0.
147.	143.	4.	1.	89.	36.	0.	0.	0.	0.
148.	120.	9.	7.	90.	1.	3.	0.	0.	0.
149.	130.	32.	10.	93.	0.	23.	0.	0.	0.
151.	85.	1.	1.	45.	38.	0.	0.	0.	0.
152.	153.	26.	4.	80.	0.	24.	0.	0.	0.
153.	143.	16.	1.	83.	0.	16.	0.	0.	0.
155.	190.	40.	38.	103.	25.	2.	0.	2.	0.
156.	401.	276.	74.	211.	31.	216.	0.	18.	0.
157.	122.	90.	4.	97.	0.	85.	0.	0.	0.
159.	166.	10.	10.	98.	4.	0.	0.	0.	0.
160.	95.	34.	2.	53.	28.	29.	0.	0.	0.
161.	212.	76.	5.	102.	57.	62.	5.	0.	0.
163.	186.	0.	1.	112.	0.	0.	0.	0.	0.
164.	198.	117.	2.	123.	0.	116.	0.	0.	0.
165.	168.	94.	0.	104.	21.	94.	0.	0.	0.
167.	159.	6.	4.	100.	0.	0.	0.	0.	0.
168.	412.	231.	107.	207.	0.	96.	37.	20.	0.
169.	215.	171.	3.	107.	23.	169.	0.	0.	0.
171.	112.	6.	7.	81.	0.	0.	0.	0.	0.
172.	169.	51.	9.	126.	0.	44.	0.	0.	0.
173.	191.	24.	6.	127.	0.	19.	0.	0.	0.
175.	248.	35.	1.	105.	65.	0.	33.	0.	0.
176.	232.	158.	6.	121.	13.	146.	0.	0.	0.
177.	202.	101.	9.	107.	0.	89.	0.	0.	0.
179.	227.	9.	7.	131.	18.	0.	0.	0.	0.
180.	405.	170.	111.	177.	36.	71.	0.	20.	0.

TABLE D-4 (Cont'd)

Number of WFOV Channel 12-14 Irradiance Observations "Out-of-Limits"

JULDAY	IRRAD OBS OUT-OF-LIMITS CH12	CH13	CH14	IRRAD OBS 10% BELOW, 10% ABOVE LIMITS (IN WATTS/SQ M) 90-100	550-600	-20--10	400-440	-20--10	240-265
181.	322.	174.	14.	171.	54.	88.	75.	0.	0.
183.	302.	19.	22.	141.	55.	0.	0.	0.	0.
184.	246.	130.	8.	116.	68.	123.	1.	0.	0.
185.	260.	220.	20.	114.	48.	200.	0.	0.	0.
187.	162.	9.	13.	113.	2.	0.	0.	0.	0.
188.	172.	252.	16.	104.	4.	240.	0.	0.	0.
189.	245.	255.	16.	194.	0.	238.	0.	0.	1.
191.	251.	13.	16.	146.	3.	0.	0.	0.	0.
192.	487.	322.	118.	236.	3.	217.	0.	21.	0.
193.	190.	104.	10.	123.	0.	91.	0.	0.	0.
195.	189.	9.	10.	85.	36.	0.	0.	0.	0.
196.	222.	229.	11.	115.	37.	208.	7.	0.	1.
197.	172.	209.	17.	94.	0.	194.	0.	0.	0.
199.	117.	15.	13.	70.	0.	0.	0.	0.	0.
200.	187.	90.	15.	114.	3.	79.	0.	0.	0.
201.	159.	120.	6.	98.	0.	111.	0.	0.	0.
203.	109.	10.	8.	71.	0.	0.	0.	0.	0.
204.	349.	214.	114.	163.	0.	114.	0.	21.	0.
205.	190.	62.	21.	112.	0.	40.	0.	0.	0.
207.	175.	13.	13.	84.	36.	0.	0.	0.	0.
208.	127.	320.	14.	85.	2.	307.	0.	0.	0.
209.	174.	176.	17.	94.	2.	153.	0.	1.	0.
211.	101.	9.	6.	87.	0.	0.	0.	0.	0.
212.	137.	163.	14.	73.	48.	150.	0.	0.	0.
213.	119.	77.	2.	70.	35.	71.	0.	0.	0.
215.	75.	5.	7.	71.	0.	0.	0.	0.	0.
216.	609.	325.	181.	161.	66.	155.	2.	21.	0.
217.	103.	73.	11.	78.	0.	63.	0.	0.	0.
219.	76.	20.	15.	27.	28.	0.	0.	0.	0.
220.	29.	266.	4.	3.	21.	256.	7.	0.	0.
221.	17.	147.	17.	0.	4.	133.	0.	0.	0.
223.	14.	11.	10.	8.	0.	0.	1.	0.	0.
224.	23.	135.	6.	15.	0.	129.	0.	0.	0.
225.	14.	96.	8.	3.	0.	82.	0.	0.	0.
227.	27.	63.	65.	15.	0.	2.	0.	3.	0.
228.	196.	112.	28.	137.	0.	92.	0.	18.	0.
229.	3.	115.	1.	2.	0.	110.	0.	0.	0.
231.	64.	37.	4.	13.	46.	0.	31.	0.	0.
232.	40.	79.	6.	23.	10.	69.	0.	0.	0.
233.	15.	40.	6.	5.	0.	33.	0.	0.	0.
235.	46.	10.	12.	32.	0.	0.	0.	0.	0.
236.	75.	5.	8.	43.	23.	0.	0.	0.	0.
237.	78.	24.	18.	45.	23.	7.	0.	0.	1.
239.	30.	5.	4.	19.	0.	0.	0.	0.	0.
240.	221.	135.	104.	101.	0.	36.	0.	21.	0.
241.	47.	60.	11.	37.	0.	50.	0.	0.	0.
243.	12.	8.	9.	6.	0.	0.	0.	0.	0.
244.	1.	6.	3.	0.	0.	0.	0.	0.	0.
245.	13.	10.	11.	0.	0.	0.	0.	0.	0.
247.	81.	42.	42.	3.	32.	0.	1.	0.	0.
248.	18.	7.	9.	0.	11.	0.	0.	0.	0.
249.	9.	17.	15.	0.	0.	5.	0.	0.	0.
251.	15.	10.	15.	0.	1.	0.	0.	0.	0.

TABLE D-4 (Cont'd)

Number of WFOV Channel 12-14 Irradiance Observations "Out-of-Limits"

JULDAY	IRRAD OBS CH12	OUT-OF-LIMITS CH13	OUT-OF-LIMITS CH14	IRRAD OBS 90-100	10% BELOW, 550-600	10% ABOVE LIMITS -20- -10	400-440	IN WATTS/SQ MI -20- -10	240-265
252.	201.	122.	113.	158.	0.	25.	0.	21.	0.
253.	12.	6.	4.	3.	0.	0.	0.	0.	0.
255.	22.	14.	29.	0.	1.	0.	0.	0.	0.
256.	23.	9.	18.	1.	8.	0.	0.	0.	0.
257.	14.	10.	16.	0.	0.	0.	0.	0.	0.
259.	5.	3.	5.	0.	0.	0.	0.	0.	0.
260.	2.	2.	2.	0.	0.	0.	0.	0.	0.
261.	64.	37.	14.	0.	52.	15.	11.	0.	0.
263.	14.	9.	17.	0.	0.	0.	0.	0.	0.
264.	135.	145.	126.	79.	0.	28.	0.	21.	0.
265.	16.	22.	36.	0.	0.	0.	0.	0.	0.
267.	34.	22.	32.	0.	13.	0.	0.	0.	0.
268.	8.	5.	2.	0.	1.	0.	0.	0.	0.
269.	4.	7.	8.	0.	0.	0.	0.	0.	0.
271.	3.	1.	20.	0.	0.	0.	0.	0.	0.
272.	61.	10.	15.	0.	49.	0.	0.	0.	0.
273.	49.	8.	26.	0.	35.	0.	0.	0.	0.
275.	29.	1.	2.	0.	20.	0.	0.	0.	0.
276.	39.	41.	6.	0.	31.	0.	35.	0.	0.
277.	40.	19.	16.	23.	0.	0.	0.	0.	0.
279.	6.	3.	11.	0.	0.	0.	0.	0.	0.
280.	14.	4.	21.	0.	9.	0.	0.	0.	0.
281.	3.	4.	16.	0.	1.	0.	0.	0.	0.
283.	12.	15.	15.	0.	0.	0.	0.	0.	0.
284.	3.	5.	8.	0.	0.	0.	0.	0.	0.
285.	12.	1.	1.	1.	0.	0.	0.	0.	0.
287.	107.	63.	19.	0.	73.	0.	59.	0.	0.
288.	63.	122.	126.	8.	41.	26.	0.	21.	0.
289.	76.	50.	7.	0.	39.	0.	48.	0.	0.
291.	166.	2.	4.	163.	0.	0.	0.	0.	0.
292.	252.	16.	13.	238.	0.	7.	0.	0.	0.
293.	198.	5.	3.	195.	0.	0.	0.	0.	0.
295.	5.	5.	9.	0.	0.	0.	0.	0.	0.
296.	17.	17.	10.	0.	0.	0.	0.	0.	0.
297.	17.	14.	19.	0.	0.	0.	0.	0.	0.
299.	7.	3.	5.	0.	0.	0.	0.	0.	0.
300.	15.	5.	2.	0.	9.	0.	0.	0.	0.
301.	67.	157.	111.	25.	0.	46.	0.	21.	0.
303.	8.	8.	14.	0.	0.	0.	0.	0.	0.
304.	20.	20.	16.	0.	2.	0.	0.	0.	0.

TABLE D-5

MAT Data Gaps; Number of Digital Count Observations, "Out-of-Limits".

JULDAY	DATA GAPS	MISSING AE EPCH	FLAG>0	COUNTS OBS OUT-OF-LIMITS CH12	CH13	CH14
320.	19.	82.	6.	106.	372.	358.
321.	10.	99.	9.	2.	6.	4.
322.	22.	83.	116.	83.	90.	54.
324.	10.	18.	5.	184.	165.	3.
325.	15.	40.	32.	58.	122.	17.
326.	16.	88.	8.	195.	85.	7.
328.	18.	35.	3.	88.	24.	1.
329.	20.	84.	26.	10.	19.	13.
330.	19.	121.	9.	220.	131.	6.
332.	21.	170.	14.	381.	155.	6.
333.	27.	70.	8.	136.	125.	4.
334.	19.	70.	18.	259.	202.	9.
336.	9.	25.	5.	343.	177.	4.
337.	16.	45.	3.	128.	111.	1.
338.	26.	160.	3.	350.	240.	4.
340.	24.	48.	7.	331.	142.	2.
341.	24.	88.	15.	128.	142.	10.
342.	22.	142.	43.	260.	404.	228.
344.	16.	35.	3.	448.	135.	2.
345.	40.	207.	15.	146.	154.	3.
346.	30.	62.	3.	105.	74.	1.
348.	32.	112.	7.	448.	147.	6.
349.	20.	56.	5.	88.	82.	3.
350.	22.	58.	66.	128.	108.	37.
352.	20.	44.	1.	413.	137.	1.
353.	20.	39.	8.	205.	153.	2.
354.	35.	116.	26.	283.	160.	16.
356.	28.	126.	22.	10.	174.	11.
357.	10.	27.	5.	4.	102.	5.
358.	38.	90.	25.	11.	121.	9.
360.	34.	78.	5.	382.	185.	1.
361.	24.	76.	7.	146.	119.	2.
362.	19.	51.	8.	192.	87.	4.
364.	14.	21.	2.	325.	74.	1.
365.	53.	169.	24.	139.	287.	205.
1.	27.	103.	14.	265.	159.	8.
3.	19.	164.	20.	358.	131.	4.
4.	18.	39.	54.	196.	176.	28.
5.	11.	139.	14.	84.	62.	7.
7.	15.	47.	3.	315.	93.	0.
8.	17.	38.	11.	61.	37.	6.
9.	25.	88.	7.	101.	20.	2.
11.	12.	28.	11.	141.	28.	5.
12.	16.	135.	105.	193.	358.	257.
13.	9.	23.	3.	39.	16.	2.
15.	14.	55.	4.	103.	29.	2.
16.	24.	95.	4.	1.	1.	2.
17.	19.	168.	19.	52.	10.	4.
19.	16.	43.	9.	93.	53.	8.
20.	14.	48.	3.	29.	21.	1.
21.	16.	70.	28.	42.	8.	12.
23.	12.	47.	3.	55.	3.	2.
25.	16.	31.	11.	3.	2.	4.
27.	15.	150.	4.	34.	36.	2.

TABLE D-5 (Cont'd)
MAT Data Gaps; Number of Digital Count Observations, "Out-of-Limits"

JULDAY	DATA GAPS	MISSING SF EPOCH FLAG>0	COUNTS OBS OUT-OF-LIMITS CH12	CH13	CH14
29.	18.	77.	24.	39.	35.	17.
31.	14.	93.	3.	29.	3.	1.
33.	14.	48.	3.	15.	0.	0.
35.	14.	30.	2.	44.	16.	2.
37.	9.	19.	9.	13.	5.	2.
39.	17.	68.	5.	0.	0.	3.
40.	20.	193.	11.	12.	10.	14.
41.	28.	156.	34.	9.	11.	13.
43.	26.	58.	2.	79.	5.	3.
44.	24.	75.	5.	37.	128.	106.
45.	13.	49.	11.	2.	4.	4.
47.	23.	71.	7.	2.	25.	1.
48.	19.	40.	15.	37.	134.	114.
49.	11.	29.	10.	3.	3.	4.
51.	15.	35.	5.	33.	1.	1.
52.	38.	94.	10.	16.	6.	4.
53.	23.	56.	5.	4.	3.	3.
55.	22.	237.	5.	0.	2.	2.
57.	27.	87.	3.	2.	3.	5.
59.	12.	19.	3.	2.	0.	1.
60.	15.	80.	4.	41.	162.	106.
61.	24.	85.	21.	15.	9.	6.
63.	8.	17.	8.	6.	6.	8.
64.	16.	94.	5.	5.	3.	1.
65.	47.	65.	6.	2.	2.	3.
67.	31.	60.	4.	55.	42.	2.
68.	24.	42.	6.	2.	3.	0.
69.	15.	148.	9.	5.	8.	5.
71.	29.	58.	5.	25.	2.	3.
72.	20.	34.	6.	40.	131.	108.
73.	25.	104.	9.	7.	27.	7.
75.	12.	19.	4.	1.	2.	1.
76.	15.	63.	5.	4.	2.	2.
77.	11.	50.	3.	0.	1.	2.
79.	10.	25.	27.	10.	16.	11.
80.	16.	29.	3.	3.	4.	6.
81.	12.	21.	13.	9.	9.	7.
83.	15.	62.	15.	5.	7.	9.
84.	14.	103.	14.	13.	130.	114.
85.	18.	73.	15.	9.	8.	11.
87.	18.	136.	25.	13.	11.	13.
88.	7.	7.	12.	2.	6.	8.
89.	11.	26.	21.	13.	33.	15.
91.	20.	72.	1.	1.	1.	0.
93.	17.	43.	3.	15.	0.	2.
95.	11.	42.	7.	95.	38.	3.
97.	12.	15.	7.	86.	52.	3.
99.	19.	50.	7.	37.	6.	4.
101.	14.	49.	6.	3.	4.	3.
103.	17.	27.	10.	44.	1215.	1123.
104.	25.	32.	20.	9.	14.	8.
105.	13.	359.	10.	1.	2.	5.
106.	19.	82.	4.	16.	125.	106.
107.	15.	24.	13.	2.	6.	4.
108.	10.	16.	9.	39.	132.	112.

TABLE D-5 (Cont'd)

MAT Data Gaps; Number of Digital Count Observations, "Out-of-Limits"

JULDAY	DATA GAPS	MISSING OF EPOCH FLAG>0		COUNTS OBS OUT-OF-LIMITS CH12	CH13	CH14
109.	20.	31.	11.	2.	4.	6.
111.	10.	64.	19.	14.	1080.	1021.
112.	16.	28.	4.	0.	1.	3.
113.	17.	118.	11.	5.	5.	4.
115.	17.	75.	23.	17.	13.	12.
116.	34.	61.	25.	14.	10.	12.
117.	12.	83.	8.	48.	33.	3.
118.	11.	18.	2.	42.	135.	107.
119.	13.	29.	2.	0.	1.	1.
121.	26.	55.	5.	24.	1.	2.
123.	13.	33.	8.	64.	21.	0.
124.	21.	42.	7.	9.	9.	8.
125.	24.	125.	37.	18.	14.	13.
127.	23.	49.	16.	7.	9.	6.
128.	17.	352.	19.	9.	8.	12.
129.	11.	26.	9.	39.	7.	6.
131.	19.	49.	18.	4.	4.	8.
133.	14.	44.	6.	58.	123.	95.
134.	32.	67.	20.	81.	65.	9.
135.	17.	44.	7.	68.	60.	8.
137.	17.	84.	4.	85.	35.	6.
139.	30.	305.	19.	8.	8.	8.
140.	25.	64.	2.	2.	2.	1.
141.	16.	138.	6.	1.	4.	4.
143.	15.	30.	8.	23.	25.	4.
144.	11.	83.	8.	45.	124.	108.
145.	18.	27.	11.	2.	5.	3.
147.	20.	29.	5.	18.	4.	1.
148.	15.	29.	17.	6.	6.	7.
149.	19.	61.	8.	9.	9.	10.
151.	21.	40.	1.	1.	1.	1.
152.	10.	15.	8.	34.	2.	4.
153.	12.	26.	13.	0.	0.	1.
155.	16.	256.	7.	9.	40.	38.
156.	22.	363.	25.	46.	80.	74.
157.	21.	202.	14.	4.	5.	4.
159.	15.	55.	45.	8.	10.	10.
160.	16.	357.	11.	4.	5.	2.
161.	17.	73.	11.	26.	14.	5.
163.	18.	701.	4.	1.	0.	1.
164.	14.	469.	4.	39.	1.	2.
165.	34.	540.	2.	2.	0.	0.
167.	20.	420.	12.	6.	6.	4.
168.	24.	406.	9.	96.	156.	107.
169.	23.	401.	7.	3.	10.	3.
171.	9.	48.	14.	6.	6.	7.
172.	19.	88.	28.	13.	7.	9.
173.	19.	54.	14.	8.	5.	6.
175.	18.	449.	6.	62.	35.	1.
176.	19.	505.	15.	57.	12.	6.
177.	28.	118.	23.	8.	12.	9.
179.	16.	131.	13.	12.	9.	7.
180.	20.	63.	12.	15.	110.	111.

TABLE D-5 (Cont'd)

MAT Data Gaps; Number of Digital Count Observations, "Out-of-Limits"

JULDAY	DATA GAPS	MISSING AT EPOCH FLAG>0		COUNTS OBS OUT-OF-LIMITS CH12	CH13	CH14
181.	17.	78.	21.	31.	86.	14.
183.	23.	76.	25.	57.	19.	22.
184.	16.	81.	10.	50.	7.	8.
185.	28.	89.	47.	39.	40.	20.
187.	23.	121.	21.	13.	9.	13.
188.	25.	97.	25.	34.	25.	16.
189.	29.	122.	19.	11.	32.	15.
191.	26.	224.	22.	14.	13.	16.
192.	29.	217.	15.	59.	132.	118.
193.	27.	96.	24.	11.	20.	10.
195.	22.	75.	19.	40.	9.	10.
196.	20.	82.	15.	58.	30.	10.
197.	41.	221.	29.	18.	33.	17.
199.	24.	70.	25.	8.	15.	13.
200.	38.	149.	24.	24.	12.	15.
201.	34.	329.	12.	7.	9.	6.
203.	23.	103.	10.	9.	10.	8.
204.	33.	355.	16.	18.	121.	114.
205.	27.	96.	22.	23.	22.	21.
207.	23.	174.	32.	40.	13.	13.
208.	27.	109.	19.	22.	24.	14.
209.	35.	204.	30.	25.	30.	17.
211.	22.	113.	18.	4.	9.	6.
212.	32.	140.	15.	47.	13.	14.
213.	14.	111.	14.	6.	6.	2.
215.	20.	47.	16.	4.	5.	7.
216.	16.	211.	19.	207.	193.	181.
217.	11.	95.	18.	6.	10.	11.
219.	16.	150.	27.	41.	20.	15.
220.	14.	36.	18.	5.	7.	4.
221.	14.	131.	40.	8.	14.	17.
223.	18.	60.	23.	6.	11.	10.
224.	11.	35.	15.	6.	6.	6.
225.	12.	29.	22.	11.	14.	8.
227.	13.	32.	12.	11.	63.	65.
228.	17.	77.	13.	8.	37.	28.
229.	10.	19.	10.	1.	21.	1.
231.	20.	33.	16.	50.	35.	4.
232.	17.	62.	19.	8.	10.	6.
233.	7.	89.	10.	10.	7.	6.
235.	13.	53.	16.	23.	10.	12.
236.	10.	17.	19.	6.	5.	8.
237.	17.	81.	25.	10.	17.	18.
239.	12.	159.	16.	8.	5.	4.
240.	13.	243.	15.	47.	120.	104.
241.	12.	111.	22.	7.	10.	11.
243.	15.	131.	9.	6.	8.	9.
244.	7.	16.	12.	1.	6.	3.
245.	17.	55.	16.	13.	10.	11.
247.	19.	81.	56.	77.	42.	42.
248.	16.	39.	27.	4.	7.	9.
249.	15.	98.	50.	9.	12.	15.
251.	17.	54.	42.	11.	10.	15.
252.	9.	30.	35.	14.	117.	113.
253.	21.	48.	27.	4.	6.	4.

TABLE D-5 (Cont'd)

MAT Data Gaps; Number of Digital Count Observations, "Out-of-Limits"

JULDAY	DATA GAPS	MISSING AT EPOCH FLAG>0		COUNTS OBS OUT-OF-LIMITS Ch12	Ch13	Ch14
255.	11.	25.	146.	22.	14.	29.
256.	13.	146.	110.	12.	9.	18.
257.	14.	254.	131.	12.	10.	16.
259.	19.	65.	181.	5.	3.	5.
260.	9.	38.	26.	2.	2.	2.
261.	11.	117.	43.	60.	18.	14.
263.	15.	38.	123.	12.	9.	17.
264.	20.	124.	78.	42.	138.	126.
265.	21.	104.	111.	16.	22.	36.
267.	22.	85.	79.	37.	22.	32.
268.	7.	18.	13.	8.	5.	2.
269.	10.	51.	33.	4.	7.	8.
271.	30.	44.	117.	3.	1.	20.
272.	17.	32.	53.	43.	10.	15.
273.	11.	102.	125.	32.	8.	26.
275.	12.	26.	21.	6.	1.	2.
276.	12.	82.	24.	34.	40.	6.
277.	11.	76.	36.	15.	19.	16.
279.	13.	213.	60.	6.	3.	11.
280.	10.	24.	115.	5.	4.	21.
281.	20.	39.	95.	3.	4.	16.
283.	21.	73.	71.	8.	15.	15.
284.	14.	43.	49.	3.	5.	8.
285.	9.	20.	40.	6.	1.	1.
287.	12.	37.	136.	100.	63.	19.
288.	16.	62.	120.	33.	116.	126.
289.	21.	157.	84.	71.	50.	7.
291.	15.	38.	12.	36.	2.	4.
292.	19.	50.	26.	14.	11.	13.
293.	11.	19.	15.	3.	3.	3.
295.	14.	127.	64.	5.	5.	9.
296.	23.	81.	23.	13.	17.	10.
297.	15.	97.	101.	15.	14.	19.
299.	16.	66.	26.	3.	3.	5.
300.	17.	30.	12.	6.	5.	2.
301.	15.	22.	16.	30.	145.	111.
303.	24.	67.	22.	8.	8.	14.
304.	19.	35.	22.	15.	20.	16.

TABLE D-6
Instrument Status Summary

JULDAY	# MFS IN EACH DAY WITH: CH12 FOV NARROW	CH11 SHUT. OPEN	CH12 SHUT. CLOSED	GO/NO GO HEATER ON	ELECTRONIC CALIB. ON	EMB WARM-UP	TOTAL # MFS REJECTED FOR DAY
320.	2613.	791.	2609.	222.	4.	889.	2352.
321.	3339.	0.	1.	0.	0.	0.	2954.
322.	3595.	88.	16.	71.	26.	2.	3210.
324.	5.	2.	3.	63.	1.	617.	556.
325.	7.	0.	2.	0.	9.	0.	10.
326.	2.	0.	1.	0.	3.	0.	4.
328.	2.	0.	1.	0.	0.	753.	648.
329.	3.	0.	0.	41.	4.	0.	46.
330.	9.	2.	5.	2.	6.	0.	13.
332.	3.	131.	1.	0.	4.	545.	462.
333.	0.	0.	3.	41.	0.	0.	44.
334.	5.	8.	10.	6.	2.	0.	19.
336.	1.	0.	0.	0.	2.	599.	500.
337.	0.	0.	1.	0.	0.	0.	0.
338.	5.	0.	3.	0.	2.	0.	6.
340.	3.	1.	0.	0.	3.	545.	456.
341.	0.	0.	3.	0.	5.	0.	5.
342.	449.	783.	64.	115.	18.	0.	453.
344.	0.	0.	1.	0.	0.	665.	565.
345.	0.	0.	1.	82.	3.	0.	81.
346.	4.	0.	3.	0.	0.	0.	4.
348.	2.	0.	1.	0.	2.	628.	533.
349.	1.	0.	0.	0.	3.	0.	1.
350.	19.	1.	9.	73.	26.	0.	99.
352.	0.	0.	0.	0.	0.	592.	490.
353.	0.	0.	2.	0.	2.	0.	2.
354.	8.	263.	8.	6.	4.	1.	19.
356.	5344.	0.	5339.	0.	8.	731.	4664.
357.	5044.	0.	5043.	0.	1.	0.	4407.
358.	5342.	0.	5338.	0.	7.	0.	4685.
360.	0.	0.	1.	0.	1.	595.	494.
361.	0.	1.	0.	0.	0.	0.	0.
362.	6.	6.	4.	6.	1.	0.	13.
364.	1.	0.	0.	0.	2.	637.	535.
365.	421.	756.	57.	113.	9.	1.	417.
1.	7.	2.	5.	0.	4.	0.	10.
3.	5.	0.	1.	0.	10.	501.	436.
4.	2.	0.	6.	82.	11.	0.	93.
5.	6.	0.	5.	0.	2.	0.	8.
7.	0.	0.	0.	0.	0.	502.	429.
8.	1.	0.	1.	0.	4.	0.	5.
9.	6.	3.	5.	3.	0.	0.	10.
11.	2.	0.	0.	0.	4.	493.	422.
12.	462.	1036.	73.	232.	31.	0.	560.
13.	6.	3.	5.	3.	4.	0.	13.
15.	0.	0.	1.	0.	0.	104.	78.
16.	0.	0.	0.	0.	0.	0.	0.
17.	5.	3.	5.	44.	0.	0.	50.
19.	2.	1.	2.	0.	4.	315.	270.
20.	0.	0.	0.	0.	0.	0.	0.
21.	3.	1.	3.	41.	7.	0.	46.
23.	6.	5.	3.	5.	2.	176.	165.
25.	8.	3.	6.	3.	2.	492.	428.
27.	5.	0.	4.	0.	2.	106.	87.

TABLE D-6 (Cont'd)

Instrument Status Summary

JULDAY	# HFS IN EACH DAY WITH: CH12 FOV NARROW	CH11 SHUT. OPEN	CH12 SHUT. CLOSED	GO/NO GO HEATER ON	ELECTRONIC ENB CALIB. ON	WARM-UP	TOTAL # HFS &EJECTED FOR DAY
29.	7.	2.	7.	43.	12.	460.	419.
31.	7.	3.	3.	3.	2.	495.	430.
33.	5.	11.	3.	11.	0.	76.	66.
35.	6.	5.	4.	4.	1.	493.	427.
37.	5.	2.	4.	0.	2.	503.	435.
39.	0.	0.	0.	0.	0.	472.	398.
40.	2.	0.	1.	0.	5.	0.	6.
41.	9.	2.	6.	1.	9.	1.	19.
43.	4.	1.	1.	41.	1.	113.	89.
44.	522.	1099.	23.	51.	6.	0.	465.
45.	6.	0.	4.	0.	2.	0.	7.
47.	1.	0.	0.	0.	2.	493.	419.
48.	528.	0.	24.	52.	11.	0.	476.
49.	6.	1.	4.	0.	2.	0.	6.
51.	0.	1.	2.	0.	2.	489.	416.
52.	1.	0.	1.	0.	4.	0.	4.
53.	6.	3.	5.	3.	3.	0.	10.
55.	6.	4.	3.	4.	1.	97.	79.
57.	0.	0.	3.	0.	2.	485.	414.
59.	3.	0.	1.	0.	1.	584.	494.
60.	528.	1124.	22.	51.	5.	0.	472.
61.	9.	4.	5.	4.	9.	0.	17.
63.	2.	0.	1.	41.	3.	497.	441.
64.	2.	0.	0.	0.	3.	0.	3.
65.	6.	3.	5.	2.	2.	0.	10.
67.	0.	0.	0.	0.	0.	114.	87.
68.	1.	0.	0.	0.	1.	0.	1.
69.	8.	3.	5.	3.	2.	0.	12.
71.	0.	0.	2.	0.	0.	503.	430.
72.	527.	1.	24.	52.	5.	0.	470.
73.	7.	1.	4.	0.	6.	0.	9.
75.	16.	0.	2.	0.	1.	376.	327.
76.	2.	0.	0.	0.	4.	0.	4.
77.	6.	2.	4.	43.	1.	0.	26.
79.	4.	0.	3.	0.	6.	332.	291.
80.	2.	0.	1.	0.	2.	0.	3.
81.	6.	6.	6.	6.	4.	0.	15.
83.	0.	1.	2.	41.	2.	509.	475.
84.	526.	1117.	24.	52.	8.	0.	512.
85.	8.	0.	5.	0.	7.	0.	9.
87.	7.	0.	2.	0.	9.	529.	460.
88.	1.	2.	1.	0.	2.	0.	3.
89.	19.	28.	17.	4.	6.	0.	28.
91.	13.	0.	10.	0.	1.	1.	10.
93.	6.	4.	4.	4.	0.	524.	454.
95.	9.	4.	8.	3.	2.	139.	125.
97.	29.	1.	25.	1.	2.	542.	480.
99.	29.	0.	27.	0.	3.	528.	484.
101.	221.	5.	15.	4.	2.	145.	192.
103.	2.	0.	1.	615.	3.	527.	1017.
104.	1.	2.	4.	0.	5.	0.	8.
105.	1.	0.	2.	0.	1.	0.	3.
106.	527.	1118.	23.	51.	4.	0.	471.
107.	1.	0.	1.	0.	1.	0.	1.
108.	522.	0.	24.	51.	5.	0.	466.

TABLE D-6 (Cont'd)
Instrument Status Summary

JULDAY	# MFS IN EACH DAY WITH: CH12 FOV NARROW	CH11 SHUT. OPEN	CH12 SHUT. CLOSED	GO/NO GO HEATER ON	ELECTRONIC CALIB. ON	EMB WARM-UP	TOTAL # MFS REJECTED FOR DAY
109.	9.	0.	9.	0.	0.	0.	1.
111.	3.	0.	0.	583.	3.	520.	977.
112.	0.	0.	2.	0.	0.	0.	2.
113.	6.	0.	3.	0.	3.	0.	6.
115.	2.	0.	1.	0.	6.	540.	468.
116.	3.	0.	2.	127.	4.	0.	117.
117.	0.	255.	1.	0.	0.	0.	1.
118.	522.	848.	23.	52.	4.	0.	469.
119.	9.	13.	7.	13.	0.	0.	6.
121.	7.	8.	5.	8.	3.	36.	38.
123.	0.	0.	0.	0.	0.	497.	426.
124.	5.	0.	3.	0.	6.	0.	6.
125.	9.	4.	11.	45.	5.	0.	50.
127.	1.	0.	1.	0.	3.	531.	456.
128.	4.	0.	4.	0.	7.	0.	9.
129.	8.	3.	5.	2.	3.	0.	11.
131.	6.	1.	4.	1.	1.	534.	459.
133.	385.	0.	22.	50.	5.	317.	623.
134.	139.	0.	4.	0.	2.	0.	117.
135.	9.	6.	6.	5.	5.	0.	5.
137.	16.	20.	18.	2.	1.	538.	472.
139.	3.	2.	2.	66.	5.	140.	177.
140.	0.	0.	2.	0.	0.	0.	2.
141.	7.	12.	6.	53.	1.	0.	43.
143.	2.	0.	0.	0.	3.	544.	471.
144.	529.	1117.	23.	52.	7.	0.	474.
145.	7.	7.	5.	47.	3.	0.	45.
147.	0.	0.	0.	0.	1.	532.	457.
148.	3.	1.	0.	0.	5.	0.	5.
149.	10.	3.	11.	3.	4.	0.	4.
151.	1.	0.	0.	0.	1.	146.	120.
152.	1.	0.	0.	0.	1.	0.	1.
153.	5.	0.	5.	0.	0.	0.	1.
155.	0.	0.	1.	8.	4.	133.	119.
156.	467.	0.	24.	42.	7.	1.	414.
157.	15.	3.	17.	3.	5.	0.	20.
159.	12.	1.	8.	41.	4.	0.	55.
160.	2.	0.	0.	41.	2.	0.	32.
161.	9.	5.	5.	88.	3.	0.	63.
163.	1.	0.	1.	0.	1.	214.	188.
164.	0.	0.	0.	0.	1.	0.	1.
165.	1.	0.	0.	0.	1.	0.	1.
167.	1.	265.	0.	0.	2.	146.	121.
168.	528.	849.	22.	51.	7.	0.	472.
169.	9.	5.	5.	5.	3.	0.	4.
171.	3.	0.	0.	41.	4.	522.	481.
172.	4.	2.	1.	0.	6.	1.	7.
173.	8.	0.	9.	0.	3.	0.	6.
175.	0.	0.	2.	0.	1.	483.	408.
176.	3.	0.	1.	41.	5.	0.	47.
177.	10.	3.	6.	44.	7.	0.	32.
179.	3.	0.	2.	0.	7.	123.	104.
180.	524.	0.	22.	52.	6.	0.	510.

TABLE D-6 (Cont'd)

Instrument Status Summary

JULDAY	# HFS IN EACH DAY WITH: CH12 FOV NARROW	CH11 SHUT. OPEN	CH12 SHUT. CLOSED	GO/NO GO HEATER ON	ELECTRONIC CALIB. ON	EMB WARM-UP	TOTAL # HFS REJECTED FOR DAY
181.	12.	6.	5.	6.	6.	0.	11.
183.	7.	1.	4.	0.	11.	521.	455.
184.	0.	0.	0.	0.	3.	0.	3.
185.	12.	0.	6.	41.	9.	0.	58.
187.	2.	0.	2.	41.	6.	483.	447.
188.	8.	1.	5.	0.	12.	0.	12.
189.	5.	1.	5.	41.	3.	0.	35.
191.	7.	0.	1.	41.	8.	523.	481.
192.	507.	1098.	28.	52.	10.	0.	467.
193.	3.	0.	2.	41.	4.	0.	38.
195.	10.	0.	1.	0.	12.	521.	454.
196.	4.	0.	0.	0.	6.	0.	4.
197.	9.	2.	8.	43.	8.	0.	43.
199.	2.	1.	2994.	41.	7.	524.	2633.
200.	2.	0.	5.	0.	7.	0.	5.
201.	10.	0.	6.	0.	4.	0.	3.
203.	2.	0.	0.	0.	5.	512.	447.
204.	529.	0.	24.	51.	15.	0.	478.
205.	10.	13.	7.	133.	10.	0.	117.
207.	5.	0.	1.	0.	8.	529.	460.
208.	4.	0.	1.	41.	7.	0.	36.
209.	12.	4.	5.	3.	12.	0.	18.
211.	4.	0.	3.	0.	7.	528.	458.
212.	1.	0.	3.	0.	7.	0.	8.
213.	7.	1.	7.	41.	3.	0.	51.
215.	1.	0.	2.	0.	2.	527.	454.
216.	758.	1233.	193.	437.	8.	305.	758.
217.	9.	4.	10.	4.	4.	0.	12.
219.	7.	1.	1.	41.	9.	0.	38.
220.	0.	3.	5.	43.	2.	0.	29.
221.	11.	1.	9.	42.	6.	0.	60.
223.	2.	0.	3.	0.	5.	127.	107.
224.	3.	0.	0.	41.	5.	0.	23.
225.	11.	7.	4.	7.	9.	0.	7.
227.	2.	0.	1.	15.	7.	518.	468.
228.	523.	0.	19.	0.	5.	0.	448.
229.	10.	5.	8.	5.	3.	0.	16.
231.	2.	0.	1.	0.	4.	520.	453.
232.	2.	0.	3.	0.	6.	0.	8.
233.	6.	3.	4.	2.	4.	0.	4.
235.	3.	2.	2.	0.	9.	551.	483.
236.	4.	0.	2.	0.	6.	0.	6.
237.	11.	4.	10.	85.	7.	0.	91.
239.	3.	261.	1.	0.	3.	149.	127.
240.	483.	812.	22.	51.	7.	0.	441.
241.	4.	0.	1.	82.	5.	0.	65.
243.	4.	1.	4.	41.	2.	536.	464.
244.	4.	0.	6.	0.	0.	0.	6.
245.	1.	0.	1.	0.	5.	527.	457.
247.	9.	1.	5.	41.	19.	534.	521.
248.	4.	0.	1.	0.	5.	0.	3.
249.	8.	0.	8.	41.	4.	1.	53.
251.	2.	0.	4.	41.	6.	154.	161.
252.	527.	0.	25.	92.	7.	0.	494.

TABLE D-6 (Cont'd)
Instrument Status Summary

JULDAY	# HFS IN EACH DAY WITH: CH12 FOV NARROW	CH11 SHUT. OPEN	CH12 SHUT. CLOSED	GO/NO GO HEATER ON	ELECTRONIC CALIB. ON	EMB WARM-UP	TOTAL # HFS REJECTED FOR DAY
253.	10.	13.	7.	13.	2.	0.	25.
255.	3.	0.	5.	0.	6.	509.	444.
256.	2.	0.	2.	0.	4.	0.	10.
257.	25.	6.	21.	5.	4.	0.	33.
259.	0.	0.	1.	0.	2.	0.	3.
260.	0.	0.	0.	0.	2.	0.	2.
261.	1.	0.	1.	0.	3.	1.	4.
263.	2.	0.	1.	0.	6.	537.	466.
264.	532.	1123.	24.	51.	11.	0.	478.
265.	12.	2.	12.	82.	9.	0.	82.
267.	4.	1.	4.	41.	10.	204.	209.
268.	1.	1.	1.	0.	4.	0.	5.
269.	1.	0.	4.	0.	2.	0.	4.
271.	1.	0.	1.	41.	1.	530.	497.
272.	2.	0.	3.	0.	6.	0.	322.
273.	14.	5.	14.	5.	3.	0.	25.
275.	2.	0.	2.	0.	5.	488.	414.
276.	2.	0.	0.	0.	4.	0.	4.
277.	187.	6.	10.	6.	5.	0.	173.
279.	0.	0.	0.	0.	3.	485.	412.
280.	1.	1.	0.	0.	1.	0.	1.
281.	0.	0.	0.	0.	1.	0.	1.
283.	5.	1.	5.	41.	8.	134.	153.
284.	0.	1.	6.	41.	2.	0.	48.
285.	4.	0.	2.	0.	4.	0.	7.
287.	1.	0.	0.	0.	1.	128.	102.
288.	527.	0.	22.	92.	5.	0.	511.
289.	9.	0.	10.	41.	1.	0.	52.
291.	3872.	0.	0.	0.	2.	541.	3382.
292.	5421.	0.	3.	0.	4.	0.	4757.
293.	3959.	0.	1.	0.	2.	0.	3444.
295.	2.	0.	0.	41.	3.	159.	141.
296.	4.	0.	0.	0.	8.	0.	7.
297.	35.	0.	33.	0.	9.	0.	42.
299.	1.	1.	0.	0.	1.	484.	409.
300.	1.	0.	2.	0.	3.	0.	6.
301.	533.	1173.	29.	59.	9.	0.	486.
303.	0.	0.	4.	0.	2.	497.	426.
304.	6.	356.	3.	41.	7.	0.	51.

TABLE D-7
Data Quality Loss Interval Flags for Undefined FOV Locations

JULIAN DATE	A	B**	C	D	E	F
320	77,728	14758/18.99	1/.0003	3/.0040	1/.0016	0/0
321	126,496	24131/19.08	16/.0032	17/.0136	0/0	0/0
322	167,136	31855/19.06	244/.0365	264/.1576	433/.5184	8/.0048
324	171,168	32388/18.92	11/.0016	17/.0096	2/.0008	0/0
326	169,760	32400/19.09	11/.0016	11/.0064	2/.0008	2/.0008
328	172,160	32714/19.00	9/.0052	7/.0040	0/0	0/0
330	164,896	31411/19.05	21/.0032	23/.0136	33/.0200	0/0
333	159,200	30352/19.06	18/.0028	21/.0128	2/.0016	1/.0008
336	145,760	27677/18.99	7/.0012	6/.0040	27/.0184	0/0
338	154,656	29577/19.12	0/0	0/0	33/.0424	4/.0024
340	161,760	30788/19.03	9/.0014	10/.0064	48/.0296	54/.0336
346	170,624	32431/19.01	16/.0023	14/.0080	7/.0040	2/.0008
349	168,800	32226/19.09	0/0	0/0	30/.0176	0/0
354	161,824	31006/19.16	45/.0083	67/.0416	90/.0560	4/.0024
357	159,552	30455/19.09	11/.0017	16/.0104	32/.0200	0/0
360	1,344	242/18.01	0/0	0/0	0/0	0/0
361	171,328	33355/19.47	14/.0020	13/.0072	13290/7.7568	1224/.7144
362	157,664	30177/19.14	14/.0022	21/.0136	87/.0128	1/.0008
364	1,536	279/18.16	0/0	0/0	0/0	0/0
365	104,224	19980/19.17	50/.0012	64/.0616	69/.0664	0/0
1	168,832	32288/19.12	46/.0068	44/.0264	4/.0024	2/.0008
4	110,368	21453/19.44	59/.0134	60/.0544	38/.0344	51/.0048
5	111,680	21758/19.48	45/.0101	37/.0328	0/0	0/0
12	117,984	22611/19.16	29/.0061	20/.0108	31/.0264	1/.0008
20	102,368	19716/19.26	0/0	0/0	0/0	0/0
27	90,816	17423/19.18	0/0	5/.0056	0/0	0/0
33	63,008	11939/18.95	0/0	0/0	0/0	0/0

Cumulative and relative (expressed as a percent right of slash mark) frequency of occurrence of selected parameters for each day checked. Column A is the number of observations for which the scanner was on. Column B is the occurrence of undefined latitude FOV locations for channels 15 and 19. Column C is the Platinum Temperture Monitor Flag for the four longwave channels. Columns D, E, and F are occurrences of the Alpha Encoder quality flag turned on, Alpha angle more than one count from nominal, and Alpha angle greater than 266, respectively.

* Fromm, M.D. and P.H. Dwivedi, 1982. Validation of First Year ERB-7 NFOV Data. Research and Data Systems, Inc. Prepared for GSFC under contract NAS 5-26123.

** The undefined FOV locations which range from 18-20% per day result from the FOV over the horizon and gimbal motion of the scan head. For more details please see page 21 of the MAT User's Guide Document.

TABLE D-7 (cont'd)

Data Quality Loss Interval Flags for Undefined FOV Locations

JULIAN DATE	A	B	C	D	E	F
40	114,464	21965/19.19	0/0	0/0	0/0	0/0
45	117,728	22498/19.11	2/.0004	2/.0016	0/0	0/0
52	116,000	22322/19.24	0/0	8/.0072	1/.0008	0/0
60	113,984	21977/19.28	13/.0029	0/0	1/.0008	0/0
64	107,616	20809/19.34	1/.0002	2/.0016	77/.0712	54/.0504
65	116,896	22533/19.28	8/.0017	9/.0080	31/.0264	0/0
72	169,824	32792/19.31	22/.0032	25/.0144	26/.0152	0/0
77	159,072	30721/19.31	7/.0011	6/.0040	0/0	0/0
84	150,784	29107/19.30	25/.0041	24/.0160	32/.0216	1/.0008
89	153,760	29696/19.31	44/.0072	39/.0256	4/.0024	2/.0016
105	162,976	31586/19.38	8/.0012	19/.0120	529/.3248	0/0
108	170,976	33110/19.36	19/.0028	19/.0112	552/.3232	0/0
111	14,080	2712/19.26	6/.0107	4/.0288	89/.6320	0/0
112	161,824	31360/19.38	1/.002	10/.0064	133/.0824	0/0
117	463,968	31733/19.35	39/.0059	34/.0208	8875/5.4128	0/0
119	116,896	22734/19.45	1/.0002	7/.0056	20403/174536	0/0
123	146,528	28448/19.42	30/.0051	25/.0168	7315/.4.9920	0/0
128	136,256	26350/19.34	22/.0040	32/.0232	29/.0216	5/.0040
134	12,416	2421/19.50	0/0	0/0	0/0	0/0
140	143,328	27910/19.47	0/0	4/.0024	11/.0080	0/0
144	155,776	30197/19.38	33/.0053	23/.0144	0/0	0/0
148	131,680	25642/19.47	40/.0076	35/.0264	74/.0560	4/.0032
152	144,960	28185/19.44	17/.0029	15/.0104	27/.0184	0/0
156	159,872	31085/19.44	17/.0015	15/.0096	96/.0600	3/.0016
160	129,728	25185/19.41	43/.0083	27/.0218	18/.0136	13/.0104
164	123,520	24065/19.48	8/.0016	4/.0032	0/0	0/0
168	145,472	28264/19.40	4/.0007	11/.0072	0/0	0/0
172	17,648	33396/19.46	48/.0070	49/.0288	60/.0352	1/.0008
176	133,440	26041/19.52	57/.0107	64/.0480	32/.0240	2/.0016
180	156,672	30523/19.48	27/.0043	23/.0144	58/.0368	0/0
183	156,224	30389/19.45	37/.0059	46/.0296	85/.0544	0/0
187	160,640	31267/19.46	53/.0082	59/.0368	135/.0840	0/0
191	142,080	27688/19.49	40/.0070	32/.0224	38/.0264	0/0
195	129,888	25316/19.49	18/.0035	20/.0152	54/.0416	0/0

TABLE D-7 (Cont'd)

Data Quality Loss Interval Flags for Undefined Fov Locations

JULIAN DATE	A	B	C	D	E	F
200	165,888	32364/19.51	170/.0256	151/.0912	112/.0672	1/.0008
204	148,704	28958/19.47	17/.0029	23/.0112	61/.0408	0/0
208	171,136	33317/19.47	44/.0064	35/.0208	60/.0352	0/0
212	157,792	30737/19.48	50/.0079	43/.0272	60/.0380	0/0
213	170,848	33260/19.47	19/.0028	23/.0136	30/.0176	0/0
217	150,432	29279/19.46	25/.0042	46/.0304	151/.1004	0/0
221	168,928	32937/19.50	58/.0086	79/.0464	202/.1192	0/0
225	171,648	33458/19.49	56/.0082	49/.0288	85/.0496	0/0
228	166,592	32465/19.48	31/.0047	27/.0160	29/.0176	0/0
237	151,648	29508/19.46	26/.0043	43/.0280	34/.0224	1/.0008
240	144,960	28212/19.46	34/.0059	35/.0240	32/.0224	0/0
244	83,958	16417/19.55	27/.0080	35/.0416	27/.0320	1/.0008
248	173,504	33772/19.46	72/.0104	51/.0296	31/.0016	1/.0008
252	133,056	25760/19.36	75/.0141	59/.0520	29/.0216	0/0
256	155,872	30431/19.52	496/.0796	284/.1824	32/.0208	1/.0008
261	153,536	29618/19.29	135/.0220	89/.0576	113/.0736	4/.0024
265	159,040	31301/19.68	475/.0747	308/.0240	202/.1272	7/.0048
268	139,456	26919/19.30	29/.0052	20/.0144	5/.0040	4/.0032
272	11,872	2345/19.75	11/.0232	14/.2368	52/.4384	0/0
276	1,600	314/19.62	0/0	0/0	0/0	0/0
279	132,576	26057/19.65	236/.0445	1381/.1040	140/.1056	1/.0008
283	172,064	33314/19.36	180/.0262	152/.0880	130/.0752	5/.0032
287	151/072	29759/19.60	600/.0993	3361/.2224	100/.0664	7/.0048
291	123,776	23956/19.35	37/.0075	28/.0224	80/.0648	0/0
295	120,768	23787/19.70	235/.0486	136/.1128	71/.0584	1/.0008
299	160,288	31098/19.41	29/.0045	41/.0512	83/.0520	0/0
303	172,320	33961/19.71	59/.0086	69/.0400	70/.0408	1/.0008

TABLE D-8

NFOV Channels 15-22, "Out-of-Limits" Observations.

JUL. DATE	CH15	CH16	CH17	CH18	CH19	CH20	CH21	CH22
320	111	27	21	148	3	6	4	2
321	162	172	125	227	15	16	17	21
322	461	324	324	633	280	266	239	262
324	104	72	77	364	20	17	16	25
326	168	65	60	293	14	10	10	11
328	270	105	53	397	10	3	11	12
330	325	71	59	436	31	26	22	32
333	213	67	56	356	19	17	24	21
336	160	173	93	353	15	12	11	13
338	171	96	50	331	9	9	6	14
340	207	72	63	361	16	8	14	18
344	0	0	0	0	0	0	0	0
346	263	80	50	424	23	13	16	23
349	176	72	43	305	7	1	2	9
352	0	0	0	0	0	0	0	0
354	343	164	106	489	69	64	69	66
357	271	75	61	450	21	15	13	17
360	0	1	0	22	0	0	0	0
361	307	106	65	3500	17	287	16	28
362	194	85	59	10763	25	16	26	27
364	0	1	0	291	0	0	0	0
365	237	102	88	7863	54	50	56	60
1	371	97	90	9089	56	37	27	37
4	257	134	122	1961	78	61	61	63
5	219	98	68	2058	44	28	35	37
12	297	108	83	10354	32	16	19	27
20	247	65	44	4614	9	3	5	0
27	184	93	49	3298	16	3	5	5
33	75	32	23	2725	4	0	3	1
40	153	73	45	6888	1	2	3	2
45	292	143	57	6044	18	3	7	2
52	185	87	49	6897	151	4	10	4
60	134	109	40	10179	12	6	9	5
64	178	60	21	7790	1	7	2	2
65	177	84	34	9810	22	9	9	10
72	41	451	471	22170	46	38	46	24
77	35	478	454	23431	364	23	21	7
84	51	453	425	21611	229	36	30	17
89	80	559	517	22966	90	59	61	43
105	153	447	467	27095	169	29	32	16
108	119	546	509	27618	139	39	36	20
111	9	37	33	2377	4	5	6	4
112	18	418	430	20595	10	23	30	10
117	144	483	508	25200	67	48	46	31
119	60	264	305	19806	54	17	21	5
123	215	56	57	26555	22	20	26	25
126	171	79	41	20540	39	33	33	34
134	220	92	79	23696	53	44	53	47
140	154	70	55	20426	6	7	16	15
144	139	115	82	20992	25	24	25	23
148	217	123	70	20203	30	28	27	44

* Fromm, M.D., and P.H. Dwivedi, 1982. Validation of First Year ERB-7 NFOV Data. Research and Data Systems, Inc., prepared for GSFC under contract NAS 5-26123.

TABLE D-8 (Cont'd)
NFOV Channels 15-22, "Out-of-Limits" Observations

JUL. DATE	CH15	CH16	CH17	CH18	CH19	CH20	CH21	CH22
152	189	112	59	20120	22	16	19	21
156	161	114	71	24011	25	17	18	20
160	139	76	61	21943	45	34	32	28
164	136	68	46	21942	13	6	8	6
168	166	96	61	25986	19	12	16	20
172	193	131	73	33288	41	31	29	34
176	167	99	83	23799	37	29	26	29
180	183	92	82	28261	29	21	19	28
183	229	164	124	26237	56	46	45	50
187	200	156	114	27929	66	63	53	53
191	173	102	76	29054	33	31	35	34
195	134	86	68	21593	29	22	21	25
200	260	179	150	23459	106	109	89	103
204	144	116	75	23584	25	20	21	24
208	280	192	102	23957	42	37	39	40
212	247	168	110	21464	47	40	42	44
213	233	176	108	22377	27	20	27	26
217	262	166	120	19013	48	48	42	40
221	274	194	139	30394	76	67	67	73
225	328	223	156	27022	45	38	51	47
228	266	144	112	22032	28	22	28	26
237	230	151	90	23723	38	38	37	40
240	225	130	86	17501	31	30	36	35
244	148	98	71	8351	31	27	28	29
248	325	138	146	20416	40	26	31	40
252	132	71	73	12306	32	32	34	36
256	139	850	576	19181	101	103	99	88
261	223	104	162	18268	64	35	41	48
265	648	341	240	19095	135	129	124	132
268	179	47	68	17627	22	16	17	21
272	38	23	12	1624	10	8	9	10
276	0	0	0	436	0	0	0	0
279	340	184	128	15805	47	51	50	42
283	331	181	250	13477	91	81	79	92
287	269	211	115	22989	85	84	81	82
291	238	79	51	17631	35	30	29	35
295	186	148	107	16433	54	45	38	36
299	345	105	103	24208	41	30	27	41
303	206	154	134	23229	48	48	59	56