Chapter 6 - Data Playback

Contents

Introduction to Chapter 6

Data Playback

The Gaspra data were recorded on tape during the Gaspra Encounter and played back during the Earth 2 Encounter at a high data rate. Thus, all of the NIMS data that were recorded during the Gaspra Encounter were returned.

The NIMS data are stored in EDRs (Experiment Data Records) produced by JPL-MIPS (Multi-mission Image Processing System). The NIMS EDR is described in the NIMS Experiment Data Record SIS (Software Interface Specification) Number 232-08. This document is part of the Galileo Project document GLL-625-610. The NIMS EDR file name is determined by the start time (SCLK) of the data. It begins with the letter "N", which is followed by the partition number, RIM and MOD91 counts; the file extension is a number which represents the version number of duplicate files. For example, if the clock is in its second cycle and the first record's SCLK is equal to 12345678.90.7, and this is the first such EDR, then the file will be named: "N21234567890.1".

The MIPS-generated EDRs have a Vicar label, followed by a PDS/ISIS label, binary header records and the data records. For archiving on CD-ROM, the Vicar labels are detached (but kept separately on the CD) and the file is renamed so as to conform to the 8.3 DOS file-naming convention as follows: The initial "N" becomes an "E", the partition number is preserved, the RIM count is split between the name and the extension, and a final character (A,B,...) is added to the extension to distinguish any EDRs that start in the same RIM. For example, the MIPS EDR N21234567890.1 becomes E2123456.78A.

Along with this NIMS Guide, other files are distributed on the NIMS EDR CD to help describe the NIMS data. Among these files are the OBSCAT, OBSPLN and RIMCAT. The OBSCAT is very similar to the OBSTAB described below in this chapter and as well as in its PDS label on the CD. The OBSPLN, the planned OBSTAB, is a table similar to the planned Obstab found in Chapter 4 of this NIMS Guide. It is also described in its PDS label on the CD. The RIMCAT is a table which describes the NIMS EDR data on a RIM by RIM basis. It contains one entry (row) for each RIM of each NIMS EDR. The RIMCAT may be used to track instument mode and state changes, etc. It too is described in its PDS label on the CD.

The table on the following two pages, the NIMS Obstab (Observation Table), is a time-ordered listing of the NIMS observation parameters for the data returned from the Gaspra Encounter. It will be used for systematic processing of the EDR data into cubes and tubes. The NIMS Obstab found in Chapter 4 of this NIMS Guide is the Planned Obstab - the Observation Table for the NIMS data that was sent to the spacecraft's tape recorder. Since all of the NIMS observations were returned, these two tables are nearly identical.

The table on the following three pages gives a brief summary of the NIMS data returned for the Gaspra Encounter. Since Gaspra's

position and velocity were not well known during the planning stages of the Gaspra observations, a large amount of empty space was scanned in each mosaic to ensure that Gaspra would be observed. For each NIMS EDR the SCLK range is given along with the OAPEL names of the NIMS observations that take place during that time period. For each observation the time ranges in which data were taken along with the time ranges and mirror positions in which NIMS actually observed Gaspra are listed. Of all of the NIMS Gaspra observations, only the first observation failed to see Gaspra. The last four NIMS EDRs in this table contain NIMS PCT and RCT calibration data.

```
                   NIMS Obstab (Data Returned)
 Heading           Columns     Comments
------------------------------------------------------------------------------
  OAPEL              1 -  12     .Oapel Name from SEF
  EXT               14 -  14     .Extension (allow for split OAPELs)
  PSID              16 -  17     .2 Letter ID for the OAPEL
  SCLK1             19 -  29     .Start time of OBS in SCLK
  SCLK2             31 -  41     .STOP time of OBS in SCLK
  MODE              43 -  44     .NIMS Instrument MODE
  GAIN              46 -  47     .Gain State (true value)
  CHOP              49 -  50     .Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
  GRAT_OFF          52 -  53     .Grating Offset
  PTAB_A(6)         55 -  71     .First PTAB  (repeat count,mirror op,autobias...
  PTAB_B(6)         73 -  89     .Second PTAB (...grating start, grating delta...
                                 .            (...number of grating postions)
  ECAL              92 -  92     .Electronics Calibration Active (1=yes)
  OPCAL             94 -  94     .Optics Calibration active (1=yes)
  UTC1              96 - 112     .Start time of OBS in UTC (from SEF - ISO STANDARD)
  REAL_TIME        115 - 115     .NIMS in Real-Time Telemetry (1=yes)
  RECORD           117 - 117     .NIMS in Record Telemetry(1=yes)
  TARGET           120 - 127     .Primary Target of OBS
                                  GASPRA      - P - Gaspra
                                  CALIBRATION - N - Non-Science
  (the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name) ).
 INPUT SEF FILE: EE11_921118.SEF
```

OAPEL, EXT, PSID, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPSLTCRVC01	A	IG	01072716:00	01072716:13	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:33:45	0	1	GASPRA
GAPNGASPEC01	A	JA	01072720:00	01072723:22	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:37:48	0	1	GASPRA
GAPNGASPER01	A	JB	01072734:05	01072734:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T14:52:01	0	1	GASPRA
GAPNGASCUR01	A	EA	01072751:04	01072751:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:12	0	1	GASPRA
GAPNGASCUR01	B	EA	01072751:57	01072752:28	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:47	0	1	GASPRA
GAPNGASPER02	A	JC	01072769:05	01072769:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T15:27:24	0	1	GASPRA
GAPNGASCUR02	A	EB	01072786:04	01072786:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:44:35	0	1	GASPRA
GAPNGASCUR02	B	EB	01072786:57	01072787:35	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:45:10	0	1	GASPRA
GAPNGASPER03	A	JD	01072804:05	01072804:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:02:48	0	1	GASPRA
GAPSLTCRVC02	A	IF	01072821:00	01072821:13	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:19:55	0	1	GASPRA
GAPNGASPEC02	A	JE	01072825:05	01072828:46	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:24:02	0	1	GASPRA
GAPNGASPER04	A	JF	01072839:05	01072839:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:38:11	0	1	GASPRA
GAPNGASCUR03	A	EC	01072856:04	01072856:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:22	0	1	GASPRA
GAPNGASCUR03	B	EC	01072856:57	01072857:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:57	0	1	GASPRA

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPNGASPER05	A	JG	01072874:05	01072874:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:13:34	0	1	GASPRA
GAPNGASCUR04	A	ED	01072891:04	01072891:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:30:45	0	1	GASPRA
GAPNGASCUR04	B	ED	01072891:57	01072892:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:31:20	0	1	GASPRA
GAPNGASPER06	A	JH	01072909:05	01072909:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:48:58	0	1	GASPRA
GAPSLTCRVC03	A	IE	01072926:04	01072927:90	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:06:08	0	1	GASPRA
GAPNGASPEC03	A	JI	01072930:05	01072934:10	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T18:10:12	0	1	GASPRA
GAPNGASPER07	A	JJ	01072944:05	01072944:25	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:24:21	0	1	GASPRA
GAPNGASCUR05	A	EE	01072961:04	01072961:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:41:32	0	1	GASPRA
GAPNGASCUR05	B	EE	01072961:57	01072962:31	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:42:07	0	1	GASPRA
GAPNGASPER08	A	JK	01072979:05	01072979:25	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:59:44	0	1	GASPRA
GAPNGASCUR06	A	EF	01072996:04	01072996:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:16:55	0	1	GASPRA
GAPNGASCUR06	B	EF	01072996:57	01072997:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:17:30	0	1	GASPRA
GAPSLTCRVC04	A	ID	01073031:04	01073032:90	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:52:18	0	1	GASPRA
GAPNGASPEC04	A	JM	01073035:05	01073039:25	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T19:56:22	0	1	GASPRA
GAPNGASPER10	A	JN	01073049:05	01073049:29	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:10:31	0	1	GASPRA
GAPNGASCUR07	A	EG	01073066:04	01073066:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:27:42	0	1	GASPRA
GAPNGASCUR07	B	EG	01073066:57	01073067:62	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:28:17	0	1	GASPRA
GAPNGASPER11	A	JO	01073083:90	01073084:29	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:45:50	0	1	GASPRA
GAPNGASCUR08	A	EH	01073101:04	01073101:45	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:05	0	1	GASPRA
GAPNGASCUR08	B	EH	01073101:57	01073102:82	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:40	0	1	GASPRA
GAPNGASPER12	A	JP	01073113:05	01073113:31	7	3	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:15:14	0	1	GASPRA
GAPNGASPEC05	A	JQ	01073129:05	01073133:88	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:31:24	0	1	GASPRA
GAPNGASVIS01	A	IA	01073135:40	01073138:77	12	1	2	4	6	1	0	6	0	12	3	1	0	0	1	24	0	0	1991-302T21:37:52	0	1	GASPRA
GAPNGASPEC06	A	JR	01073141:61	01073144:46	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:44:10	0	1	GASPRA
GAPNGASPEC06	B	JR	01073144:55	01073148:48	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:46:37	0	1	GASPRA
GAPNGASVIS02	A	IB	01073149:01	01073150:90	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:51:35	0	1	GASPRA
GAPNGSCHEM02	A	JS	01073151:00	01073151:12	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:53:30	0	1	GASPRA
GAPNGSCHEM02	B	JS	01073151:79	01073157:70	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:54:28	0	1	GASPRA
GAPNGASNAP01	A	IC	01073158:40	01073163:51	13	1	2	4	2	1	0	0	1	24	4	1	0	6	0	12	0	0	1991-302T22:01:07	0	1	GASPRA
GAPNGSCHEM04	A	JT	01073164:41	01073172:70	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T22:07:12	0	1	GASPRA
GAPNGASMAP01	A	JU	01073173:59	01073177:35	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:16:30	0	1	GASPRA
GAPNGASMAP01	A	EI	01073178:01	01073178:43	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:20:55	0	1	GASPRA
GAPNGASMAP01	B	EI	01073178:52	01073185:25	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:21:26	0	1	GASPRA
GANNPCTCAL01	A	JV	01073398:90	01073399:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:04:20	0	1	PCT
GANNPCTCAL01	B	JV	01073401:90	01073402:89	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:07:22	0	1	PCT
GANNRCTCAL01	A	JW	01073792:90	01073793:89	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:42:43	0	1	RCT
GANNRCTCAL01	B	JW	01073796:00	01073796:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:45:45	0	1	RCT

NIMS GASPRA DATA

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NIMS_EDR    NIMS EDR filename.
SCLK1       NIMS EDR Start SCLK (RIM.MF).
SCLK2       NIMS EDR End   SCLK (RIM.MF).
NR          Number of Data Records   (MFs).
NF          Number of 0-Fill Records (MFs).
OAPEL       Observation Name.
GAS         GASPRA Seen in Data:  X = Yes, 0 = No
MODE        NIMS Mode.
DATA_RANGE  SCLK Range (RIM:MF - RIM:MF) of Data Segment.
GAS_RANGE   SCLK Range (RIM:MF - RIM:MF) Where GASPRA Is Seen By NIMS Within the Data Segment.
COMMENTS    Mirror Position where Gaspra seen in NIMS FOV. (Chopper Mode for Calibrations)

NOTES:      1) Any NIMS EDR may contain data from multiple Observations (OAPELs).

       FEL 21jul95
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  NIMS_EDR         SCLK 1      SCLK2      (  NR,  NF)  OAPEL         GAS  MODE   DATA_RANGE        GAS_RANGE      COMMENTS
-------------------------------------------------------------------------------------------------------------------------
N10107271600.2   1072716.00  1072716.13   (  14,   0)  GAPSLTCRVC01   0    FM (16.00 - 16.13)

N10107272000.2   1072720.00  1072723.22   ( 296,   0)  GAPNGASPEC01   X    FM (20.00 - 23.22)  (21.45 - 21.66)  MP 9

N10107273405.2   1072734.05  1072734.21   (  17,   0)  GAPNGASPER01   X    XM (34.05 - 34.21)  (34.15 - 34.16)  MP 9

N10107275104.2   1072751.04  1072752.28   ( 116,  11)  GAPNGASCUR01   X    SM (51.04 - 52.28)  (51.81 - 51.85)  MP 9,10

N10107276905.2   1072769.05  1072769.21   (  17,   0)  GAPNGASPER02   X    XM (69.05 - 69.21)  (69.15 - 69.15)  MP 9

N10107278604.2   1072786.04  1072787.35   ( 123,  11)  GAPNGASCUR02   X    SM (86.04 - 87.35)  (86.84 - 86.89)  MP 9,10

N10107280405.2   1072804.05  1072804.21   (  17,   0)  GAPNGASPER03   X    XM (04.05 - 04.21)  (04.15 - 04.15)  MP 9,10

N10107282100.2   1072821.00  1072821.13   (  14,   0)  GAPSLTCRVC02   X    FM (21.00 - 21.13)  (21.05 - 21.06)  MP 9

N10107282505.2   1072825.05  1072828.46   ( 315,   0)  GAPNGASPEC02   X    FM (25.05 - 28.46)  (26.78 - 27.09)  MP 9,10

N10107283905.2   1072839.05  1072839.23   (  19,   0)  GAPNGASPER04   X    XM (39.05 - 39.23)  (39.16 - 39.16)  MP 9,10

N10107285604.2   1072856.04  1072857.34   ( 122,  11)  GAPNGASCUR03   X    SM (56.04 - 57.34)  (56.86 - 57.01)  MP 9,10
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NIMS GASPRA DATA

NIMS_EDR	SCLK 1	SCLK2	(NR, NF)	OAPEL	GAS	MODE	DATA_RANGE	GAS_RANGE	COMMENTS
N10107287405.2	1072874.05	1072874.23	(19, 0)	GAPNGASPER05	X	XM	(74.05 - 74.23)	(74.16 - 74.16)	MP 9,10
N10107289104.2	1072891.04	1072892.34	(122, 11)	GAPNGASCUR04	X	SM	(91.04 - 92.34)	(91.84 - 92.00)	MP 9,10
N10107290905.2	1072909.05	1072909.23	(19, 0)	GAPNGASPER06	X	XM	(09.05 - 09.23)	(09.16 - 09.17)	MP 9,10
N10107292604.2	1072926.04	1072927.90	(178, 0)	GAPSLTCRVC03	X	XM	(26.04 - 27.90)	(27.48 - 27.55)	MP 9,10
N10107293005.2	1072930.05	1072934.10	(370, 0)	GAPNGASPEC03	X	FM	(30.05 - 34.10)	(32.06 - 32.30)	MP 9,10
N10107294405.2	1072944.05	1072944.25	(21, 0)	GAPNGASPER07	X	XM	(44.05 - 44.25)	(44.17 - 44.17)	MP 9,10
N10107296104.2	1072961.04	1072962.31	(119, 11)	GAPNGASCUR05	X	SM	(61.04 - 62.31)	(61.79 - 61.85)	MP 9,10
N10107297905.2	1072979.05	1072979.25	(21, 0)	GAPNGASPER08	X	XM	(79.05 - 79.25)	(79.16 - 79.16)	MP 9,10
N10107299604.2	1072996.04	1072997.34	(122, 11)	GAPNGASCUR06	X	SM	(96.04 - 97.34)	(96.09 - 96.09)	MP 9
					X	SM	(96.04 - 97.34)	(96.84 - 97.00)	MP 9,10
N10107303104.2	1073031.04	1073032.90	(178, 0)	GAPSLTCRVC04	X	SM	(31.04 - 32.90)	(31.28 - 32.90)	MP 9,10
N10107303505.2	1073035.05	1073039.25	(385, 0)	GAPNGASPEC04	X	FM	(35.05 - 39.25)	(37.02 - 37.41)	MP 9,10
N10107304905.2	1073049.05	1073049.29	(25, 0)	GAPNGASPER10	X	XM	(49.05 - 49.29)	(49.17 - 49.18)	MP 9,10
N10107306604.2	1073066.04	1073067.62	(150, 11)	GAPNGASCUR07	X	SM	(66.04 - 67.62)	(67.03 - 67.11)	MP 9,10
N10107308390.2	1073083.90	1073084.29	(31, 0)	GAPNGASPER11	X	XM	(83.90 - 84.29)	(84.19 - 84.19)	MP 9,10
N10107310104.2	1073101.04	1073102.82	(170, 11)	GAPNGASCUR08	X	SM	(01.04 - 02.82)	(01.08 - 01.09)	MP 9,10
					X	SM	(01.04 - 02.82)	(02.10 - 02.20)	MP 9,10
N10107311305.2	1073113.05	1073113.31	(27, 0)	GAPNGASPER12	X	XM	(13.05 - 13.31)	(13.19 - 13.20)	MP 9,10
N10107312905.2	1073129.05	1073138.77	(892, 133)	GAPNGASPEC05	X	FM	(29.05 - 33.88)	(31.19 - 31.46)	MP 4-6
				GAPNGASVIS01	X	XM	(35.40 - 38.77)	(36.22 - 36.23)	MP 2-4
				GAPNGASVIS01	X	XM	(35.40 - 38.77)	(37.87 - 37.87)	MP 2-4

NIMS GASPRA DATA

NIMS_EDR	SCLK 1	SCLK2	(NR, NF)	OAPEL	GAS	MODE	DATA_RANGE	GAS_RANGE	COMMENTS
N10107314161.2	1073141.61	1073185.25	(3969, 400)	GAPNGASPEC06	X	FM	(41.61 - 48.48)	(43.70 - 44.05)	MP 17-19
				GAPNGASPEC06	X	FM	(41.61 - 48.48)	(45.41 - 45.66)	MP 17-19
				GAPNGASVIS02	X	XM	(49.01 - 51.12)	(49.71 - 49.73)	MP 3-5
				GAPNGASVIS02	X	XM	(49.01 - 51.12)	(50.37 - 50.38)	MP 16-17
				GAPNGSCHEM02	X	SM	(51.78 - 57.70)	(53.02 - 53.17)	MP 1-3
				GAPNGSCHEM02	X	SM	(51.78 - 57.70)	(56.07 - 56.22)	MP 19
				GAPNGASNAP01	X	XM	(58.41 - 63.52)	(60.65 - 60.77)	MP 8-11
				GAPNGASNAP01	X	LM	(58.41 - 63.52)	(60.78 - 61.12)	MP 8-11
				GAPNGASNAP01	X	XM	(58.41 - 63.52)	(61.13 - 61.18)	MP 8-11
				GAPNGSCHEM04	X	SM	(64.42 - 72.71)	(66.15 - 66.36)	MP 2-5
				GAPNGSCHEM04	X	SM	(64.42 - 72.71)	(70.30 - 70.51)	MP 16-19
				GAPNGASMAP01	X	XM	(73.60 - 77.36)	(74.88 - 75.01)	MP 3-8
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(81.13 - 81.15)	MP 0,1
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(83.19 - 83.25)	MP 7-13
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(84.71 - 84.77)	MP 16-19
N10107339890.2	1073398.90	1073399.89	(91, 0)	GANNPCTCAL01	PCT	LM	(98.90 - 99.89)		Chopper 63 Hz
N10107340190.2	1073401.90	1073402.89	(91, 0)	GANNPCTCAL01	PCT	LM	(01.90 - 02.89)		Chopper Ref
N10107379290.2	1073792.90	1073793.89	(91, 0)	GANNRCTCAL01	RCT	LM	(92.90 - 93.89)		Chopper Ref
N10107379600.2	1073796.00	1073796.89	(90, 0)	GANNRCTCAL01	RCT	LM	(96.00 - 96.89)		Chopper 63 Hz