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LFI DPC Development Team

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1 INTRODUCTION

This document contains the release note for the LFI AVM database version 1.3.0 based on the official release (LFI AVM 1.2.2) with the following NCRs applied:

- **NCR 14328: Temperatures and currents validity.**
Temperature sensors and current consumptions should be related to the status of the condition of the instrument; therefore Cryogenic sensors mounted on the FPU and FEM current consumptions are requested to be valid only if the LFI is in Cryogenic condition. A synthetic parameter to set the cryogenic condition is needed to validate their values (NCR LFI-0010). Moreover, since the association between DC/DC converters and power groups is misleading, the description of the parameters LM421332, LM422332, LM423332, LM424332 has been changed referring directly to the corresponding power group.
- **NCR 11635: not possible to add monitoring on telemetry event 5.1, 5.2, 5.4.**
In the LFI MIB, the TM(5,x) are coded in the DB as different packets (and not as instances of the same “template”). Some packets have a dedicated parameter (different from packet to packet) that decommutates the event sequence counter. For other packets this parameter is not defined. In order to solve this problem it would be necessary to use the same parameter (one for each subtype of the TM(5,x)) for the event sequence counter. To overcome a limitation induced by HPSDB objects, an intermediate solution has been accepted: to create a unique parameter per subtype and HPSDB object instead of a unique parameter per subtype (NCR LFI-0012).
- **NCR LFI-0006: CDF_INTER for uncalibrated values.**
The CDF_INTER value for telecommand LC086320, at offset 32, is set to E, meaning that the value is expressed using an engineering value, but the corresponding parameter is not associated to a calibration curve. The CDF_INTER value must be set to R (raw value).
- **NCR LFI-0009: Unreferenced parameters.**
Parameters LM600340 and LM601340 are not associated to any packet in the plf.dat or vpd.dat tables. In their description, they should have been used for TM(8,6) packets (Function status report) but these packets are not defined in the LFI MIB. The two parameters will be removed.
- **NCR LFI-0014: Redundant parameters in display LA009350**
The alphanumeric display LA009350 lists the N average values. Only the first 11 parameters (from LM401350 to LM411350) are needed.



2 DATABASE VERSION

The Database version delivered is the one obtained by applying the changes specified in the NCRs 14328, 11635 and NCRs LFI-0006, LFI-0009 and LFI-0014 to the LFI AVM database version 1.2.2.

The upgraded version is tagged with: AVM_1.3.0



3 CHANGES TO THE PREVIOUS VERSION

The changes with respect to the LFI AVM 1.2.2 are here reported:

3.1 NCR 14328

Tables affected: pcf.dat, dpc.dat

3.1.1 CRYOGENIC CONDITION OF LFI FOR TEMPERATURES AND CURRENTS VALIDATION

The following synthetic parameters have been added to the pcf.dat table:

PCF_NAME	PCF_DESCR	PCF_PTC	PCF_PFC	PCF_CATEG	PCF_NATUR	PCF_USCON	PCF_DECIM	PCF_VALPAR
LD102332	VALIDITY TM	1	0	N	D	N	0	1
LD103332	VALIDITY TM	1	0	N	D	N	0	1
LD104332	VALIDITY TM	1	0	N	D	N	0	1
LD105332	VALIDITY TM	1	0	N	D	N	0	1
LD106332	VALIDITY TM	1	0	N	D	N	0	1

The synthetic parameter **LD102332** is a flag specifying if LFI is in cryogenic condition (1) or not (0). At present, it is defined (in the SCOS OL language) as:

```
1;
```

since it should be modified by the Alcatel team and the LFI Instrument Team when LFI is not in cryogenic condition. It's purpose is to validate the cryogenic sensors mounted on the FPU and the FEM current consumptions.

The synthetic parameters from LD103332 to LD106332 verify if the DC/DC converters, and consequently the Power Groups, are switched on or off. In particular:

- The synthetic parameter **LD103332** is defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 3 ON  
LD101322 land (LM42332 == 1);
```

i.e. it is true (value = 1) when the Power Group 3 is switched on.

- The synthetic parameter **LD104332** is defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 4 ON  
LD101322 land (LM424332 == 1);
```



i.e. it is true (value = 1) when the Power Group 4 is switched on.

- The synthetic parameter **LD105332** is defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 2 ON  
LD101322 land (LM421332 == 1);
```

i.e. it is true (value = 1) when the Power Group 2 is switched on. Notice that the DC/DC converter 1 is associated to the Power Group 2.

- The synthetic parameter **LD106332** is defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 1 ON  
LD101322 land (LM422332 == 1);
```

i.e. it is true (value = 1) when the Power Group 1 is switched on. Notice that the DC/DC converter 2 is associated to the Power Group 1.

The following synthetic parameters have been modified:

- The synthetic parameter **LD103322** is now defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 3 ON,  
# and LFI is in cryogenic condition  
LD103332 land LD102332;
```

i.e. it is true (value = 1) when the Power Group 3 is switched on and LFI is in cryogenic condition.

- The synthetic parameter **LD104322** is now defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 4 ON  
# and LFI is in cryogenic condition  
LD104332 land LD102332;
```

i.e. it is true (value = 1) when the Power Group 4 is switched on and LFI is in cryogenic condition.

- The synthetic parameter **LD105322** is now defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 2 ON  
# and LFI is in cryogenic condition  
LD105332 land LD102332;
```



i.e. it is true (value = 1) when the Power Group 2 is switched on and LFI is in cryogenic condition.

- The synthetic parameter **LD106322** is now defined as:

```
# REBA ON, DAE HK acquisition ON, DAE sequencer ON, Power Group 1 ON  
# and LFI is in cryogenic condition  
LD106332 land LD102332;
```

i.e. it is true (value = 1) when the Power Group 1 is switched on and LFI is in cryogenic condition.

In the previous database version, the check on the DC/DC converter 1 status was wrongly used to verify if the Power Group 1 was ON and analogously the DC/DC converter 2 was used to verify if the Power Group 2 was ON. This error has been corrected in the definition of the synthetic parameters, as pointed out above.

In the pcf.dat table, the following changes have been applied to disambiguate the parameters used to check the power groups switching status and to check the validity of temperature sensors and the current consumptions read from each power group:

PCF_NAME	PCF_DESCR	PCF_PTC	PCF_PFC	PCF_VALID	PCF_CATEG	PCF_NATUR	PCF_VALPAR
LM421332	PowerGroup 2nd	2	16	LD101332	N	R	1
LM422332	PowerGroup 1st	2	16	LD101332	N	R	1
LM423332	PowerGroup 3rd	2	16	LD101332	N	R	1
LM424332	PowerGroup 4th	2	16	LD101332	N	R	1
LM104332	Science1 Curr	3	12	LD105332	N	R	1
LM106332	Science1 Vout	3	12	LD105332	N	R	1
LM109332	Science2 Vout	3	12	LD106332	N	R	1
LM110332	Science3 Curr	3	12	LD103332	N	R	1
LM112332	Science 4 Vout	3	12	LD104332	N	R	1
LM113332	Science2 Curr	3	12	LD106332	N	R	1
LM115332	Science3 Vout	3	12	LD103332	N	R	1
LM116332	Science4 Curr	3	12	LD104332	N	R	1
LM201332	TS1L SX Side	3	12	LD102332	N	R	1
LM202332	TS2L CP In SX	3	12	LD102332	N	R	1
LM203332	TS3L CP In DX	3	12	LD102332	N	R	1
LM204332	TS4L SX Bottom	3	12	LD102332	N	R	1
LM205332	TS5L CP Far SX	3	12	LD102332	N	R	1
LM206332	TS6L Cone SX	3	12	LD102332	N	R	1
LM301332	TS1R DX Bottom	3	12	LD102332	N	R	1
LM302332	TS2R Cone Right	3	12	LD102332	N	R	1
LM303332	TS3R Right Side	3	12	LD102332	N	R	1
LM304332	TS4R CP Far DX	3	12	LD102332	N	R	1
LM305332	TS5R FH28 Flang	3	12	LD102332	N	R	1
LM306332	TS6R DX Bottom	3	12	LD102332	N	R	1



3.2 NCR 11635: MONITORING OF TM(5,1), TM(5,2) AND TM(5,4)

Tables affected: pcf.dat, plf.dat, dpc.dat

The following parameters have been added to the pcf.dat table:

PCF_NAME	PCF_DESCR	PCF_PTC	PCF_PFC	PCF_CATEG	PCF_NATUR	PCF_VALPAR
LM006340	DPU-DAE Event ID	2	16	N	R	1
LM007340	DPU-DAE SID	2	16	N	R	1
LM008340	EvtSeqCount5_2	3	12	N	R	1
LM009340	SPU-CPU Event ID	2	16	N	R	1
LM010340	SPU-CPU SID	2	16	N	R	1
LM011340	EvtSeqCount5_4_2	3	12	N	R	1
LM012340	FP Temp Event ID	2	16	N	R	1
LM013340	FP Temp SID	2	16	N	R	1
LM030369	EvtSeqCount5_4_1	3	12	N	R	1

The parameters modified in the pcf.dat table are:

PCF_NAME	PCF_DESCR	PCF_PTC	PCF_PFC	PCF_CATEG	PCF_NATUR	PCF_VALPAR
LM005369	EvtSeqCount5_1_1	3	12	N	R	1
LM005350	EvtSeqCount5_1_2	3	12	N	R	1
LM005340	EvtSeqCount5_1_3	3	12	N	R	1

Hence, the event sequence counter for TM(5,1) event packets is mapped to three parameters in pcf.dat table, one for each “position” used (i.e. one for each HPSDB object type). The event sequence counter for TM(5,4) is mapped to two parameters in the pcf.dat table.

Consequently, the following rows have been added in the plf.dat table:

PLF_NAME	PLF_SPID	PLF_OFFBY	PLF_OFFBI
LM006340	125105340	16	0
LM007340	125105340	18	0
LM008340	125105340	28	0
LM009340	125102340	16	0
LM010340	125102340	18	0
LM011340	125102340	28	0
LM012340	125103340	16	0
LM013340	125103340	18	0
LM011340	125103340	28	0
LM030369	125003369	28	0
LM030369	125531369	28	0

and the following rows have been modified in the plf.dat table:

PLF_NAME	PLF_SPID	PLF_OFFBY	PLF_OFFBI
LM005369	125002369	28	0
LM005369	125031369	28	0
LM005369	125200369	28	0
LM005369	125203369	28	0
LM005369	125204369	28	0
LM005369	125205369	28	0
LM005350	125106350	28	0



LM005350	125201350	28	0
LM005350	125202350	28	0
LM005350	125206350	28	0
LM005350	125211350	28	0

The following parameters have been removed from the pcf.dat table:

LM013369
LM024369
LM014350
LM025350
LM034350
LM042350
LM051350
LM060350
LM066350
LM075350
LM081350

since these parameters have been substituted by the two common parameters LM005369 and LM005350 to decommutate the event sequence counter.

Consequently, also the alphanumeric displays for the TM(5,1) have been modified in the dpc.dat table:

DPC_NUMBE	DPC_NAME	DPC_FLDN	DPC_COMM	DPC_MODE	DPC_FORM
LA115369	LM005369	6	1	N	N
LA123369	LM005369	6	1	N	N
LA125369	LM005369	7	1	N	N
LA130369	LM005369	7	1	N	N
LA135369	LM005369	6	1	N	N
LA140369	LM005369	5	1	N	N
LA015350	LM005350	5	1	N	N
LA020350	LM005350	5	1	N	N
LA025350	LM005350	6	1	N	N
LA030350	LM005350	6	1	N	N
LA035350	LM005350	5	1	N	N

3.3 NCR LFI-0006: CDF_INTER FOR UNCALIBRATED VALUES

Tables affected: cdf.dat

The following row has been modified in the cdf.dat table:

CDF_CNAME	CDF_ELTYPE	CDF_DESCR	CDF_ELLEN	CDF_BIT	CDF_GRPsize	CDF_PNAME	CDF_INTER
LC086320	E	TM Rate Tau	16	32	0	LP175320	R



After the last update of the HPSDB (18th September 2007), a problem in the HPSDB software prevents the application of this NCR. An NCR will be raised to Thales Alenia Space to apply the NCR LFI-0006.

3.4 NCR LFI-0009: UNREFERENCED PARAMETERS

Tables affected: pcf.dat

Parameters **LM600340** and **LM601340** have been **removed** from the pcf.dat table.

For the current release of this document, the removal of parameters LM600340 and LM601340 was not permitted by the HPSDB. An NCR will be raised to Thales Alenia Space to perform this operation.

3.5 NCR LFI-0014: REDUNDANT MONITORING PARAMETERS IN ALPHANUMERIC DISPLAY LA009350

Tables affected: dpc.dat

The following monitoring parameters have been removed from the alphanumeric display LA009350 in the dpc.dat table:

DPC_NUMBE	DPC_NAME	DPC_FLDN
LA009350	LM0412350	12
LA009350	LM0413350	13
LA009350	LM0414350	14
LA009350	LM0415350	15
LA009350	LM0416350	16
LA009350	LM0417350	17
LA009350	LM0418350	18
LA009350	LM0419350	19
LA009350	LM0420350	20
LA009350	LM0421350	21
LA009350	LM0422350	22



4 VALIDATION OF THE CHANGES TO PREVIOUS VERSION

The LFI AVM Database version 1.3.0 was validated, before the release, internally at the LFI DPC.



5 DIFFERENCES BETWEEN HPSDB AND CCS DATABASE

None in the LFI AVM DB up to now.



6 DIFFERENCES BETWEEN STAND ALONE TESTING AND CCS DATABASE

None up to now.