CARLO GAVAZZI SPACE SpA

0 CERN MIT L3 A&C/AMS

AMS02-PDS

NON CONFORMANCE REPORT

1 NCR ref: Doc.Nº: NCR-PDS-CGS-C-131 Rev.: 1 Date: 18/03/09 Page 1 of 2 attach: Annex A,B

2 NCR Title: PDS Input voltage telemetry

IDENTIFICATION

3 Supplier	4 Purchase Order Nº.	5 Model	6 Subsystem	7 Procedure/Work Item Nº
CGS	N.A.	PFM	N.A.	N.A.

8 NC ITEM Identification	9 Drawing Nº. Rev.	10 P.N. / C.I. Nº	11 Serial Nº
AMS02 Power Distribution System Assembly	10-AMS02PDS-000.00	10-AMS02PDS-000.00 / PDS18	FM01
12 Next Higher Unit Id.	**13 Drawing Nº. Rev.**	**14 P.N. / C.I. Nº**	**15 Serial Nº.**
NA	NA	NA	NA

DESCRIPTION

16 NON CONFORMANCE Detected During:

RECEIVING INSP. [ ] MANUFACT. [ ] ASSEMBLY/INTEGRATION [ ] FINAL INSPECTION [ ] TEST [X] OTHER..... [ ]

17 Initiator, Dept., Date, Signature: A. Albertin, Technical directorate, 18/3/09

18 Description of NON CONFORMANCE

During reduced thermal test foreseen by NCR-PDS-CGS-C-129, the input voltage telemetry, on the input Stage board, exceeds the maximum tolerance. See columns CAN BUS 30 Full scale error [%] Max 5% and CAN BUS 31 Full scale error [%] Max 5% of tables contained in Annex A.

19 Requirements violated

INTERNAL NRB DISPOSITIONS

20 INTERNAL NRB Dispositions:

See next page

21 Verifications

22 Suspected cause of NC: HANDLING [ ] TRANSPORTATION [ ] TEST EQUIPMENT [ ] TOOLS [ ] SW [ ] DESIGN [X] OPERATOR/PROCEDURE ERROR [ ] PART [ ] MATERIAL [ ] PROCESS [ ] TEST [ ] OTHER..... [ ]

23 Classification: MINOR [ ] MAJOR [X]

Corrective/Preventive Actions: NONE 24

25 REQUEST FOR WAIVER: YES [ ] NO [X] Nº

26 Analysis Required: YES [ ] NO [X] Nº

27 Other related documents: NONE

Department:	28 P.A.	29 Syst. Engineering	30 PM	30	31 C.C.
Name:	Francini E.	Alis S.	OLIVIER M.		Cinquepalmi C.
Signature:					
Date:	18/03/09	18-3-09	18/03/09		18-03-09

CUSTOMER/HIGHER LEVEL CONTRACTOR NRB DISPOSITIONS

32 CUSTOMER/HIGHER LEVEL CONTRACTOR NRB Dispositions (Class Major Only):

21 Verifications

33 Finally determined Cause of NC

34 Corrective/Preventive Actions:

35 Customer/HLContractor Approval:

Department:		AMS Collab.	ASI-IPC/QA	ASI-PM	CGS PA/QA	PA/QA Stamp
Name:		Michael Capell	Ernesto Mancini	E. RUSSO	E. FRANCINI	CQ 2 C.G.S.
Signature:						
Date:		21-Apr-09	20/04/09	20/04/09	20/04/09	

36 CLOSE OUT CERTIFICATION

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37 **CONTINUATION SHEET**

☐ SUSPECTED CAUSE OF NC ☒ INTERNAL NRB DISPOSITION ☐ DESCRIPTION OF NC

☐ FINALLY DETECTED CAUSE ☐ CUSTOMER NRB DISPOSITION ☐ CORRECT/PREVENT. ACTIONS

☐ REQUIREMENTS VIOLATED

21 **Verifications**

The correction of the telemetry values require to modify the circuit dismounting of both the input stage boards (serial number 1 and 2).
(These two boards are already finished (covered with ARATHANE (URALANE) 5750 A/B (LV) CLEAR) and closed, they have already passed the MIP and they are definitely mounted inside the unit.)
Further investigation of the problem with more electrical tests is also required.
These operations could have major impact on project schedule and there is risk of damage to the FM hardware.

Since an input voltage telemetry of the PDS which never exceeds the tolerance limits (5% of 150V full scale) is present on the ESEM1-A boards (see column CAN BUS 30 ESEM1-A [V] and CAN BUS 31 ESEM1-A [V] of Annex A), CGS propose to discus on a NRB feasibility of a waiver to avoid any hardware modification and substitute the IS voltage telemetry by the one of the ESEM1-A.
As shown on annex A table 4 the maximum error introduced in this telemetry is 5,5V which is less than 4% of telemetry full scale value (6V).

Nevertheless the measurements on the INPUT STAGE voltage tlm will be repeated during the PDS TVT at (at least) 3 temperature points in order to provide to AMS collaboration the correlation between error and temperature.

1) Perform teleconf NRB CGS with ASI on 26/03/2009.

1) SEE ANNEX B

Conclusion: the waiver is not required due to the presence of an alternative voltage telemetry measurement (ESEM 1-A board) inside specify limits.
Collaboration declares that there are not impacts at system level, see Annex B.
Use as is.

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For both the sections the input stage voltage telemetry exceeds the specified tolerance (±5% full scale value). See next tables.

V test (A)	Vmeas (V) J300 test box	CAN BUS 30 telemetry (V)	CAN BUS 31 telemetry (V)	CAN BUS 30 ESEM1-A (V)	CAN BUS 31 ESEM1-A (V)	CAN BUS 30 Full scale error (%) Max 5%	CAN BUS 31 Full scale error (%) Max 5%
90	90,3	105,1	131,5	89,03	90,3	7,79	21,68
100	100,4	115,1	137,2	99,5	99,3	7,74	19,37
110	110,4	125,4	143,1	109,5	109,2	7,89	17,21
120	120,5	136,0	148,8	119,4	120,1	8,16	14,89
130	130,5	146,6	154,6	129,8	129,2	8,47	12,68
140	140,6	157,4	160,1	141,4	138,6	8,84	10,26
150	150,7	165,2	165,2	150,2	148,0	7,63	7,63

Tab. 1: Section A TRP=53°C input stage voltage telemetry

V test (A)	Vmeas (V) J300 test box	CAN BUS 30 telemetry (V)	CAN BUS 31 telemetry (V)	CAN BUS 30 ESEM1-A (V)	CAN BUS 31 ESEM1-A (V)	CAN BUS 30 Full scale error (%) Max 5%	CAN BUS 31 Full scale error (%) Max 5%
90	90,4	99,2	107,8	91,5	88,6	4,63	9,16
100	100,4	109,2	117,3	100,8	98,9	4,63	8,89
110	110,5	119,7	127,2	111,4	109,2	4,84	8,79
120	120,6	130,1	136,9	121,3	119,6	5,00	8,58
130	131,3	141,2	146,7	132,1	130,2	5,21	8,11
140	140,7	151,9	155,2	143,6	142,0	5,89	7,63
150	149,8	162,3	163,7	149,9	150,4	6,58	7,32

Tab. 2: Section B TRP=53°C input stage voltage telemetry

V test (A)	Vmeas (V) J300 test box	CAN BUS 30 telemetry (V)	CAN BUS 31 telemetry (V)	CAN BUS 30 ESEM1-A (V)	CAN BUS 31 ESEM1-A (V)	CAN BUS 30 Full scale error (%) Max 5%	CAN BUS 31 Full scale error (%) Max 5%
90	90,3	101,5	90,7	90,6	91,7	5,89	0,21
100	100,4	112,8	101,1	101,7	103,0	6,53	0,37
110	110,4	124,9	112,8	113,3	113,1	7,63	1,26
120	120,5	136,0	123,8	123,6	123,2	8,16	1,74
130	130,5	148,6	136,9	134,4	133,1	9,53	3,37
140	140,6	162,0	152,2	145,2	143,9	11,26	6,11
150	148,4	169,1	158,7	152,0	150,5	10,89	5,42

Tab. 3: Section A TRP=-25°C input stage voltage telemetry

V test (A)	Vmeas (V) J300 test box	CAN BUS 30 telemetry (V)	CAN BUS 31 telemetry (V)	CAN BUS 30 ESEM1-A (V)	CAN BUS 31 ESEM1-A (V)	CAN BUS 30 Full scale error (%) Max 5%	CAN BUS 31 Full scale error (%) Max 5%
90	90,4	98,5	97,0	88,9	85,9	4,26	3,47
100	100,5	110,2	107,9	99,4	96,2	5,11	3,89
110	110,4	120,9	118,5	107,2	107,3	5,53	4,26
120	120,6	132,5	129,9	116,8	116,2	6,26	4,89
130	130,7	144,1	140,5	126,7	125,2	7,05	5,16
140	140,7	155,9	153,0	135,8	135,2	8,00	6,47
150	147,7	163,9	160,6	142,5	142,6	8,53	6,79

Tab. 4: Section B TRP=-25°C input stage voltage telemetry

ANNEX B TO NCR-PDS-CGS-C-131

Da: Mike Capell [mailto:Michael.Capell@cern.ch]
Inviato: venerdì 27 marzo 2009 15.54
A: molivier@cgspace.it; Marchetti Ernesto; salia@cgspace.it; efrancini@cgspace.it
Cc: rgrossi@cgspace.it; plorenzi@cgspace.it; mmolina@cgspace.it; r.battiston@tiscali.it; Russo Enrico
Oggetto: RE: PDS NRB for NCR-PDS-CGS-C-128(M)-129(M)-131(M)-133(M) MINUTE WITH ACTIONS

Max,

For NCR-120, -128, -129, OK, I am ready to sign.
For NCR-131, -133, I confirm: No impact at system level. I am also ready to sign these NCRs.

-Mike.

Mike Capell +41 22 767 4706

From: Massimiliano Olivier [mailto:molivier@cgspace.it]
Sent: Friday, 27 March 2009 10:53
To: molivier@cgspace.it; Mike Capell; 'Marchetti Ernesto'; salia@cgspace.it; efrancini@cgspace.it
Cc: rgrossi@cgspace.it; plorenzi@cgspace.it; mmolina@cgspace.it; r.battiston@tiscali.it; 'Russo Enrico'
Subject: PDS NRB for NCR-PDS-CGS-C-128(M)-129(M)-131(M)-133(M) MINUTE WITH ACTIONS

Dear All,

In the following the decision and actions are proposed by CGS and ASI during the NRB:

NCR-120: Ncr needs only formal closure. CGS to collect signatures from AMS and ASI
NCR-128: Ncr needs only formal closure. CGS to collect signatures from AMS and ASI
NCR-129: Ncr needs only formal closure. CGS to collect signatures from AMS and ASI

NCR-131: AMS to confirm that the proposed NCR closure do not impact the AMS functionality at system level.
Upon positive AMS confirmation the NCR shall be closed without a waiver .

NCR-133:AMS to confirm that the proposed NCR closure do not impact the AMS functionality at system level.
Upon positive AMS confirmation
A DCN shall be issued to modify the requirement values in the PDS specification and the NCR shall be closed without a waiver .

We kindly ask Mr. Capell, that could not attend the telecom due to a last minute urgency, to review and reply to the proposal so that we can proceed with actions on our side.

Best Regards

Massimiliano