APPLICATION FOR ESCC QUALIFICATION APPROVAL

Page 1

Component Title: **Integrated Circuits, Silicon, Monolithic, 35KLUT Radiation-Hardened FPGA (NG-Medium)**

Appl. No. 382

Executive Member: CNES Date: 08/07/2022

1 Components (including series and families) submitted for Qualification Approval

ESCC COMPONENT. NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
9304/010 issue 1	01	Integrated Circuits, Silicon Monolithic, 35KLUT Radiation-Hardened FPGA	ST C65SPACE ASIC platform technology	NX1H35AS in CQFP-352 & CLGA-625 packages	

2 Component Manufacturer

NanoXplore

3 Location of Manufacturing Plant

NanoXplore (design)
ST Crolles (foundry)
Chipbond Taïwan (OPM (Over Pad Metallization))
ST Rennes (assembly)
ST Grenoble (test)
ST Grenoble + ST Rennes (space qualification)

4 ESCC Specification used for Qualification

Generic: ESCC 9000 issue 11
Issue
Detail/s: ESCC 9202/086 issue 1
Issue

5 Qualification Report Reference and date:

DM00812907_CQFP352 with Ceramic Tie Bar Gold Wire-Bonded NG-FPGA Medium Metal Fix QML-V and Delta ESCC Qualification Results (12-Aug-2021)
DM00883794_CLGA625 Gold Wire Bonded NG FPGA Medium Metal Fix QML-V Qualification and Delta ESCC Evaluation Results (7-Jun-2022)
Date: 07/06/2022

6 **PID** used for manufacturing Qualification Lot

Ref No: Generic PID 8097046
Issue:
Date: 04/04/2022

PID changes since start of qualification

None ☒
Minor* ☐
Major* ☐

7 Current **PID** Verified by F. Malou, CNES

Name of Executive Representative

8 Ref No: NX1H35AS PID

ST Crolles PID DM00408351
Chipbond Wafer Specification DM00593640
ST Rennes PID – 04/04/2022
Product PID DM00508779
Die Layout PID DM00508782

9 Current Manufacturing facilities surveyed by:

CNES (D. Dangla, F. Malou) — 27/08/2020 (STM) and 13/01/2020 (NanoXplore)

(Name of Executive Responsible) — (Date)

Reports Reference:
Last ESCC Audit STM: CNES DSO/AQ/EC 2020-0033606 (ST ref. AUD_20_028141)
Minutes visit NanoXplore: NG-Medium qualification (VEGAS project) (ref 20200113 VEGAS)

Satisfactory: Yes ☒ No ☐ Explain

10 Quality and Reliability Data

Evaluation testing performed: Yes ☒ No ☐

Report Ref. No.: DM00812907_CQFP352 with Ceramic Tie Bar Gold Wire-Bonded NG-FPGA Medium Metal Fix QML-V and Delta ESCC Qualification Results (12-Aug-2021)
DM00883794_CLGA625 Gold Wire Bonded NG FPGA Medium Metal Fix QML-V Qualification and Delta ESCC Evaluation Results (7-Jun-2022)
Date: 24/05/2022

Equivalent Data: Single Phase Qualification applies

Certification:

Failure analysis, DPA, NCCS available: Yes ☒ No ☐

(supply data)

NCCS 2CSTM203 (fine leak) has been closed out.

Ref Nos. and purpose:
Construction analysis report DSO/AQ/LE-2019.0017189 on CQFP-352 (Cut1.1) & DTN/QE/LE-2022.0008875 on CLGA625 (Cut1.2)

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The undersigned hereby certifies on behalf of the ESCC Executive, that the above information is correct; that the appropriate documentation has been evaluated; that full compliance to all ESCC requirements is evidence except as stated in box 13; that the reports and data are available at the ESCC Executive and therefore applies for ESCC qualification status to be given to the component(s) listed herein.

Date: 25/08/2022

G.QUADRI

(Signature of the Executive Coordinator)

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Continuation of Boxes above: (Only non-confidential comments)

[5] DM00812907_CQFP352 with Ceramic Tie Bar Gold Wire-Bonded NG-FPGA Medium Metal Fix QML-V and Delta ESCC Qualification Results (12-Aug-2021) and associated reports:

- QMLV_&_ESCC_Delta_Evaluation_NG-FPGA_VEGAS_CQFP352_Rev 2.3_JNL_11202017 - NG-FPGA Medium – CQFP 352 "VEGAS" QML-V Qualification & ESCC Delta Evaluation proposal (Technology Platform: ST RH C65nm) (20/11/2017)
- DM00708696 qualification plan
- NX1H35AS-CQFP352V Electrical data:
  - Reliability_Evaluation_NGmedium Screening T0 to Dyn BI datapack - Qualification Lot VQ830323 -3392200401-Screening report (T0 to Dynamic Burn in)
  - Reliability_Evaluation_NGmedium Screening Dyn to Static BI datapack - Qualification Lot VQ830323 – 3392200401-Screening report (Dynamic to Static Burn in)
- DM00608969_1_0 - NG-Medium cut1.1 Life test 4000H results
- Reliability_Evaluation_NGMEDIUM cut1.2 GROUP C & D datapack - Qualification Lot VQ830323 -3392200401- Group C & Group D Reports
- 3392200401 Precap Report (23/10/2019)
- TID_Qualification_NG_Medium_V1.01 (22/10/2021)
- DSO/AQ/LE-2019.0017189FM - NG FPGA MEDIUM CQFP Construction Analysis Report (Cut1.1, Aug 2019)

[5] DM00883794_CLGA625 Gold Wire Bonded NG FPGA Medium Metal Fix QML-V Qualification and Delta ESCC Evaluation Results (7-Jun-2022) and associated reports:

- QMLV_&_ESCC_Delta_Evaluation_NG-FPGA_Medium_CCGA625_Rev 1.0_JNL_11202017 - NG-FPGA Medium – CCGA 625 QML-V Qualification & ESCC Delta Evaluation proposal (Technology Platform: ST RH C65nm) (20/11/2017)
- DM00677603 qualification plan
- NX1H35AS-CQFP352V Electrical data:
  - Qualification lot VQ830323 – 3394500601 – Screening report
  - Drift Analysis Report 3394500601
- Reliability_Evaluation_NGMEDIUM cut1.2 GROUP D datapack - Qualification Lot 3394500601 - Group D Reports
- 3394500601-DM00869815 - CLGA625 Gross Leak Test Fail NG-Medium Failure Analysis
- 3394500601 Precap Report (14/02/2020)
- Radiative Test NG_medium _client_v3.3.1 - RADIATIVE TEST Brave-FPGA (13/02/2020)
- NanoXplore_NG-MEDIUM_SPACE_NX1H35AS_Datasheet_v1.0.3 (May 2022)
- DTN/QE/LE-2022.0008875 - NG FPGA MEDIUM CLGA Construction Analysis Report (Cut1.2, June 2022)
- ESD Reports from SERMA 16-5125-100 & 17-3214-100, July 2017 (cut 1.1) + additionnal STMicroelectronics report "220718 ESD REPORT NG-MEDIUM V1.0", July 2022 (cut 1.2)

Non compliance to ESCC requirements: 13

No.:	Specification	Paragraph	Non compliance

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance: 14

Executive Manager Disposition 15

Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

B. Schade: Head of the Product Assurance and Safety Department

ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION

Tests conducted in compliance with: ESCC 9000

- ESCC 9000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD [redacted] (for ESCC/QML parts)

Tests vehicle identification/description:

NX1H35AS CQFP-352 with Ceramic Tie Bar Gold Wire-Bonded	NX1H35AS has been designed in compliance with ST C65Space libraries and design rules for custom cells. The qualification has been performed with flight models from 1 diffusion lot. See CQFP352 with Ceramic Tie Bar Gold Wire-Bonded NG-FPGA Medium Metal Fix QML-V and Delta ESCC Qualification Results (12-Aug-2021).
NX1H35AS CLGA-625 with Ceramic Tie Bar Gold Wire-Bonded	NX1H35AS has been designed in compliance with ST C65Space libraries and design rules for custom cells. The qualification has been performed with flight models from 1 diffusion lot. See CLGA625 Gold Wire Bonded NG FPGA Medium Metal Fix QML-V Qualification and Delta ESCC Evaluation Results (24-May-2022).

NX1H35AS in CQFP-352 package :

- Environmental/Mechanical Subgroup from Group D QML-V Qualification tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	☒	MIL-STD-883, Test Method 2002B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352 QML-V Group D SG#4	15	0	5 pulses
	Vibration	☒	MIL-STD-883, Test Method 2007A		15	0	12 sweeps
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001D		15	0	20000 Y1
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		15	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		15	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		15	0	
	Thermal Shock	☒	MIL-STD-883. Test Method 1011B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352 QML-V Group D SG#3	15	0	15 cycles
	Temperature Cycling	☒	MIL-STD-883. Test Method 1010C		15	0	100 cycles
	Moisture Resistance	☒	MIL-STD-883, Test Method 1004B1		15	0	3 devices submitted to preconditioning as required for fine pitch packages (≤ 25mil pitch) using a non conductive tie bar but not subjected to endpoint electrical measurement
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		12	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 1010		15	0	
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		15	0	

- Environmental/Mechanical Subgroup ESCC9000 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	☒	MIL-STD-883, Test Method 2002B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352 Samples from QML-V Group D SG#4	10	0	45 pulses
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Vibration	☒	MIL-STD-883, Test Method 2007A		10	0	108 sweeps
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001D		10	0	20000g Y1
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Temperature Cycling	☒	MIL-STD-883. Test Method 1010C	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352 Samples from QML-V Group D SG#3	10	0	400 cycles
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Thermal Shock	☒	MIL-STD-883. Test Method 1011B		10	0	85 cycles
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 1010		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	

NX1H35AS in CLGA-625 package :

- Environmental/Mechanical Subgroup from Group D QML-V Qualification tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	☒	MIL-STD-883, Test Method 2002B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625 QML-V Group D SG#4	15	0	5 pulses
	Vibration	☒	MIL-STD-883, Test Method 2007A		15	0	12 sweeps
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001D		15	0	20000 Y1
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		15	1	SN#52 FAIL @Gross leak test. Dedicated Technical Report available under Ref. DM00869815. To guaranty the reliability of the lid/substrate interface, a SAM inspection + Baking is added to the screening flow on 100% lot, 100% parts. This main corrective action allows to secure the ESCC production. Closed with NCCS 2CSTM201 (June 17th 2022)
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		15	1	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		15	0	
	Thermal Shock	☒	MIL-STD-883. Test Method 1011B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625 QML-V Group D SG#3	15	0	15 cycles
	Temperature Cycling	☒	MIL-STD-883. Test Method 1010C		15	0	100 cycles
	Moisture Resistance	☒	MIL-STD-883, Test Method 1004B1		15	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		15	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 1010		15	0	
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		15	0	

- Environmental/Mechanical Subgroup ESCC9000 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	☒	MIL-STD-883, Test Method 2002B	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625 Samples from QML-V Group D SG#4	10	0	45 pulses
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Vibration	☒	MIL-STD-883, Test Method 2007A		10	0	108 sweeps
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001D		10	0	20000g Y1
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Temperature Cycling	☒	MIL-STD-883. Test Method 1010C	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625 Samples from QML-V Group D SG#3	10	0	400 cycles
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2007		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	
	Thermal Shock	☒	MIL-STD-883. Test Method 1011B		10	0	85 cycles
	Seal Test (Fine & Gross)	☒	MIL-STD-883, Test Method 1014		10	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 1010		10	0	
	+25°C Temperature Electrical Test	☒	+25°C Temperature Electrical Test		10	0	

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance Subgroup	Operating Life	☒	MIL-STD-883, Test Method 1005	Cut1.1 Diffusion Lot: Q620100 Assembly Lot: 3373600301 Date code: 1748A CQFP-352 4000h, @Ta = +25°C @Tj Max = +125°C @Tc = -55°C Vccmax	48	0	End-point electrical parameters @500h @1000h = 0 FAIL
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification		48	2	End-point electrical parameters @2000h = 2 FAIL
					46	2	End-point electrical parameters @3000h = 2 FAIL
					44	4	End-point electrical parameters @4000h = 4 FAIL Failure Analysis has highlighted that this failure was a real failure due to a NanoXplore design issue, well described, understood and fixed with a new metal fix → Cut 1.2 Technically, the root cause analysis showed a biasing condition issue limited to a couple of transistor. No other issue has to be reported and the part being still functional after 4000h with no significant drift too. The results showed that the silicon process technology C065Space is robust as the failure observed during life test trial is not coming from silicon process technology itself but from an inadequate biasing condition of a couple of transistors. All others IPs are passing successfully the life test 4000h. That's why STMicroelectronics proposed a new qualification plan for Cut1.2 under reference DM00708696 and conducted accordingly to complete the qualification (with the design metal fix) by adding a new life test limited to 2000h (readout after 500h and 1000h) as per agreement of DLA June 11th, 2019. Closed with NCCS 2CSTM202 (June 17th 2022)
	Operating Life	☒	MIL-STD-883, Test Method 1005	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352 2000h, @Ta = +25°C @Tj Max = +125°C @Tc = -55°C Vccmax	22	0	End-point electrical parameters @500h @1000h @2000h
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification				

Assembly Capability Subgroup	Permanence of Marking	☐	ESCC Basic Specification No. 24800	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3392200401 Date code: 1946A CQFP-352	NA	NA	Laser Marking used for both packages CQFP352 and CLGA625
	Terminal Strength	☒	MIL-STD-883, Test Method 2004		3	3	Performed on CQFP352 Not performed on CLGA625 Package but performed on similar product in CCGA625
	Internal Visual Inspection	☒	MIL-STD-883 TM2010, Condition A		86	6(*)	Delegated to ST by Centre National d'Etudes Spatiales (France) * High Magnitude: 6 parts have been rejected during precap inspection: 1 part for foreign material on die, 1 part for foreign material under ball bonding, 1 part for foreign material under stitch, 1 part for scratch on bump >25% of bump to the surface area, 1 part for foreign material on the surface of the die that is large to bridge the narrowest spacing between 2 bumps and 1 part damaged during handling 4 among this 6 parts have continued the flow for Group B. These parts have been segregated at each process step with serialization for tracability
	Solderability (CQFP-352 Surface Mount Simulation)	☒	MIL-STD-883 Test Method 2003		3	0	
	Ball Bond Strength	☒	MIL-STD-883 Test Method 2011D		4	0	
	Wire Bond Ball Shear	☒	MIL-STD-883 Test Method 2011B (22 balls on the 4 devices)		4	0	
	Die Shear	☒	MIL-STD-883 Test Method 2019		3	0	
	Internal Visual Inspection	☒	MIL-STD-883 TM2010, Condition A	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625	102	21(*)(**)	Delegated to ST by Centre National d'Etudes Spatiales (France) * Low Magnitude: 12 parts have been rejected during precap inspection: 2 parts for bump damaged, 2 parts for foreign material under ball, 3 parts for foreign material on die, 4 parts for scratch on die, 1 part for one bond without ball. ** High Magnitude: 9 parts have been rejected : 4 parts for wires damaged, 1 part for stitch broken, 1 part for stain under stitch, 2 parts for foreign material under stitch and 1 part for gold excess>50% between 2 leads. After internal analysis, ST took 4 parts among this 21 parts to continue the flow used for Group B and 7 parts among this 21 parts to continue the flow used for Group E. These parts have been segregated at each process step until serialization for tracability.
	Solderability (CLGA-625 Surface Mount Simulation)	☒	MIL-STD-883 Test Method 2003		3	0	
	Ball Bond Strength	☒	MIL-STD-883 Test Method 2011D		4	0	
	Wire Bond Ball Shear	☒	MIL-STD-883 Test Method 2011B (22 balls on the 4 devices)		4	0	
	Die Shear	☒	MIL-STD-883 Test Method 2019		3	0	
Additional Tests	ESD (HBM & CDM)	☒	MIL-STD-883 Test Method 3015 CDM JS-002-2014 HBM JS-001-2017	Cut1.1 Date code: 1718 CLGA-625 Cut1.2 Date code: 2008A CLGA-625	3	0	CDM Signals and powers: +/-500V HBM Signals and powers : +/-1kV CDM results: +/-250V HBM results: +/-1000V for all power and GND signals. +/-1000V for all IOs except IOs from bank 1 with HBM +/- 750V.
	Construction Analysis	☒		Cut1.1 Diffusion Lot: Q620100 Assembly Lot:	5	0	Done by CNES (Aug-2019) SN: 50, 52, 62, 51 & 55

				3373600301 Date code: 1748A CQFP-352			
				Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625	3	0*	Done by CNES (June-2022) SN: 11, 25, 37 *NCCS 2CSTM203 has been closed out.(Gross leak OK, but some fine leak measurements out of specfications. Technical meeting done with ST on June 16th 2022 + additional X-Ray and SAM measurements done by ST on SN#25 and SN#37 → Good sealing demonstrated.)
	Radiation Tests	☒	TID ESA/SCC 22900 MIL-STD-883 Test Method 1019	Cut1.2 Diffusion Lot: Q830323 Assembly Lot: 3394500601 Date code: 2008A CLGA-625	11	0	Tested up to 300 krad(Si) and OK (5 biased + 5 unbiased + 1 reference)
	Radiation Tests	☒	Heavy Ions Single Event Latch-Up Single Event Effect ESA/SCC 25100 EIA/JESD57	Cut1.1 & Cut1.2 CLGA-625	4	0	Heavy Ion and Protons tests SEL: No SEL events have been observed up to a LET of 62.5 MeV.cm²/mg @Vccmax @125°C. SEE: See report

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION APPROVAL

ENTRIES

Form Heading	shall indicate:— the title of the component as given in its detail specification or the name of the series or family; — the entering date; — the serial number and the suffix of the form.
Box 1	shall provide details given in table; in particular there shall be listed - the variants or range of variants; the range of components by using the ESCC code for values tolerances, etc.; the designation given in detail specification as 'based on'; ---under Test Vehicle enter either a cross or the specific characteristic capable to identify the component tested; — under component similar enter a cross.
Box 2 and 3	Manufacturer's name and location of plant where the components were manufactured and tested.
Box 4	Generic and detail specifications used during qualification program.
Box 5	Reference to test report(s) submitted in support of application.
Box 6	Enter details to identify the PID that was applicable at the time the qualification lot was manufactured.
Box 7	If the PID was evolved after qualification lot manufacture, adequate details of such evolution shall be provided together with reasons for changes. Major changes shall be clearly marked.
Box 8	The box serves to identify the current PID and the Executive Representative that has verified it together with the date of this occurrence.
Box 9	This box can be completed only after a physical visit to the plant to confirm that the practices, procedures, materials, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 10	Details entered shall be sufficient to evidence that an evaluation program according to ESCC Basic Specification No. 22600 has been performed and that the results thereof are summarized in the survey and test reports. If the evaluation program has not been carried out according to established ESCC documents, the applicant Executive Representative shall provide alternative data and declare its assessed degree of satisfactory compliance with the ESCC basic requirements. Reference shall be made to the reports on Destructive Physical Analysis (DPA), Failure Analysis and Non conformance (NCCS) issued during the Evaluation and/or Qualification Phase.
Box 11	Enter the name of the Executive Coordinator and the signature.
Box 12	To be used when there is a need to expand any of the boxes from 1 through 10. Identify box affected and reference the Box 12 in the relevant Box. Box 12 can be broken into 12a, 12b, etc. if several Boxes have to be expanded.
Box 13	Fill table as requested.
Box 14	Fill in any additional tasks required to achieve full compliance.
Box 15	All Executive recommendations on the application itself, special conditions or restrictions, modifications of the QPL or ESCC QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 15, signed by the ESA Representative.
Box 16	Fill in Table as requested.
Box 17	Confidential details of PID changes shall be provided.
Box 18	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 18 each nonconformance shall be sequentially numbered. If relevant state 'None'
Box 19	Any additional action deemed necessary by the Executive Representative to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the nonconformance.
Box 20	Additional Comments