APPLICATION FOR ESCC 9030 QUALIFICATION APPROVAL

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Component Title: **Integrated Circuits, Silicon, Monolithic, 536KLUT Radiation-Hardened SoC FPGA (NG-Ultra)**

Appl. No. 395

Executive Member: CNES Date: 17/10/2025

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Components (including series and families) submitted for Qualification Approval

ESCC COMPONENT. NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
9304/012 Is. 1	01	Integrated Circuits, Silicon Monolithic, 536KLUT Radiation-Hardened SoC FPGA based on NanoXplore architecture	ST FDSOI 28nm ASIC platform technology	NX2H540ATSC in organic Flip-Chip BGA-1760 package 1st perimeter: Without High Speed Serial Link (HSSL)	

2 Component Manufacturer

STMicroelectronics

3 Location of Manufacturing Plant

NanoXplore (design)
ST Crolles (foundry)
ST Rennes (assembly)
ST Grenoble (test)
ST Grenoble + ST Rennes (space qualification)

4 ESCC Specification used for Qualification

Generic: ESCC 9030 issue 2
Issue

Detail/s: ESCC 9304/012 issue 1
Issue

5 Qualification Report Reference and date:

NG-FPGA_ULTRA_FCTEBGA_ESCC_Qualification_Results_V4

Date: 11/09/2025

6 **PID** used for manufacturing Qualification Lot

Ref No: ST012008 ESCC Generic PID (8097046-PID GENERIQUE SIGNE.pdf)
Issue: 42
Date: 04/07/2025

7 **PID** changes since start of qualification

None ☒
Minor* ☐
Major* ☐

Current **PID** Verified by CNES

8 Name of Executive Representative

Ref No: NX2H540ATSC PID

ST012008 ESCC Generic PID (8097046rev44-signed-CNES)

PID for ASIC C28FDSOI SPACE FC (DM00978658 Rev. 1.0 - PID for ASIC C28FDSOI Space FC_1_0.pdf)

NGFPGA ULTRA Dice Layout PID (DM00978698 Rev. 2.0 - PID for ASIC C28FDSOI Space FC Die Layout_2_0.pdf)

9 Current Manufacturing facilities surveyed by:

CNES (D. Dangla) 04/06/2025

(Name of Executive Responsible) (Date)

Report Reference - Last ESCC Audit: DTN QE EC-2025.xx CR-CNES-ESA ESCC visit @ST Rennes.pdf

Satisfactory: Yes ☒ No ☐ Explain

10 Quality and Reliability Data

Evaluation testing performed Yes ☒ No ☐

Report Ref. No.: NG-FPGA_ULTRA_FCTEBGA_ESCC_Qualification_Results_V4 Date: 11/09/2025

Equivalent Data: Single Phase Qualification applies

Certification:

Failure analysis, DPA, NCCS available Yes ☒ No ☐

Ref Nos. and purpose:
CNES Construction analysis of NanoXplore NG-Ultra FPGA.pdf

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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: 17/10/2025

L. FONTAINE

Signature numérique de Fontaine Lya Date : 2025.10.17 16:59:53 +02'00'

(Signature of the Executive Coordinator)

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

[5] NG-FPGA_ULTRA_FCTEBGA_ESCC_Qualification_Results_V4 (11-September-2025) and associated reports:
- DM00976274_NG-ULTRA ESCC 9030 Qualification plan_Rev3.pdf
- DM01159789_ESCC9030_ESCC2269030_Chart F4B_and_Grp2_Rev3.pdf
- SEL report - NG_ULTRA_SEL_Test_Report_V1.0.0.pdf
- SEE report - NG-Ultra_HI_Radiation_Test_Report_V2.0.0.pdf + NG-Ultra_PS_HI_Protons_Radiation_Test_Report_V1.0.pdf
- TID report - NG_ULTRA_TID_Test_Report_LotVQ292443_V1.0.0.pdf
- CNES Construction analysis of NanoXplore NG-Ultra FPGA.pdf

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Non compliance to ESCC requirements:

No.:	Specification	Paragraph	Non compliance

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

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Executive Manager Disposition

Application Approval: Yes ☒ No ☐

Action / Remarks:

Date: 30 November 2025

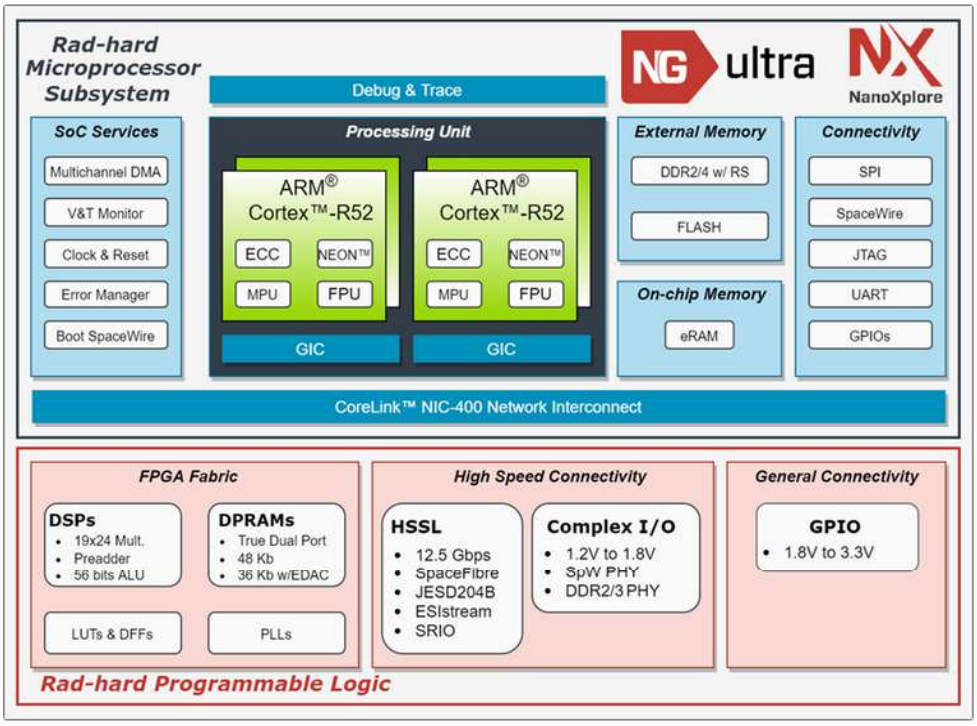
A. Zadeh: Head of the Avionics and EEE Division

ANNEX 1: LIST OF TESTS DONE TO SUPPORT QUALIFICATION

Tests conducted in compliance with: ESCC 9030

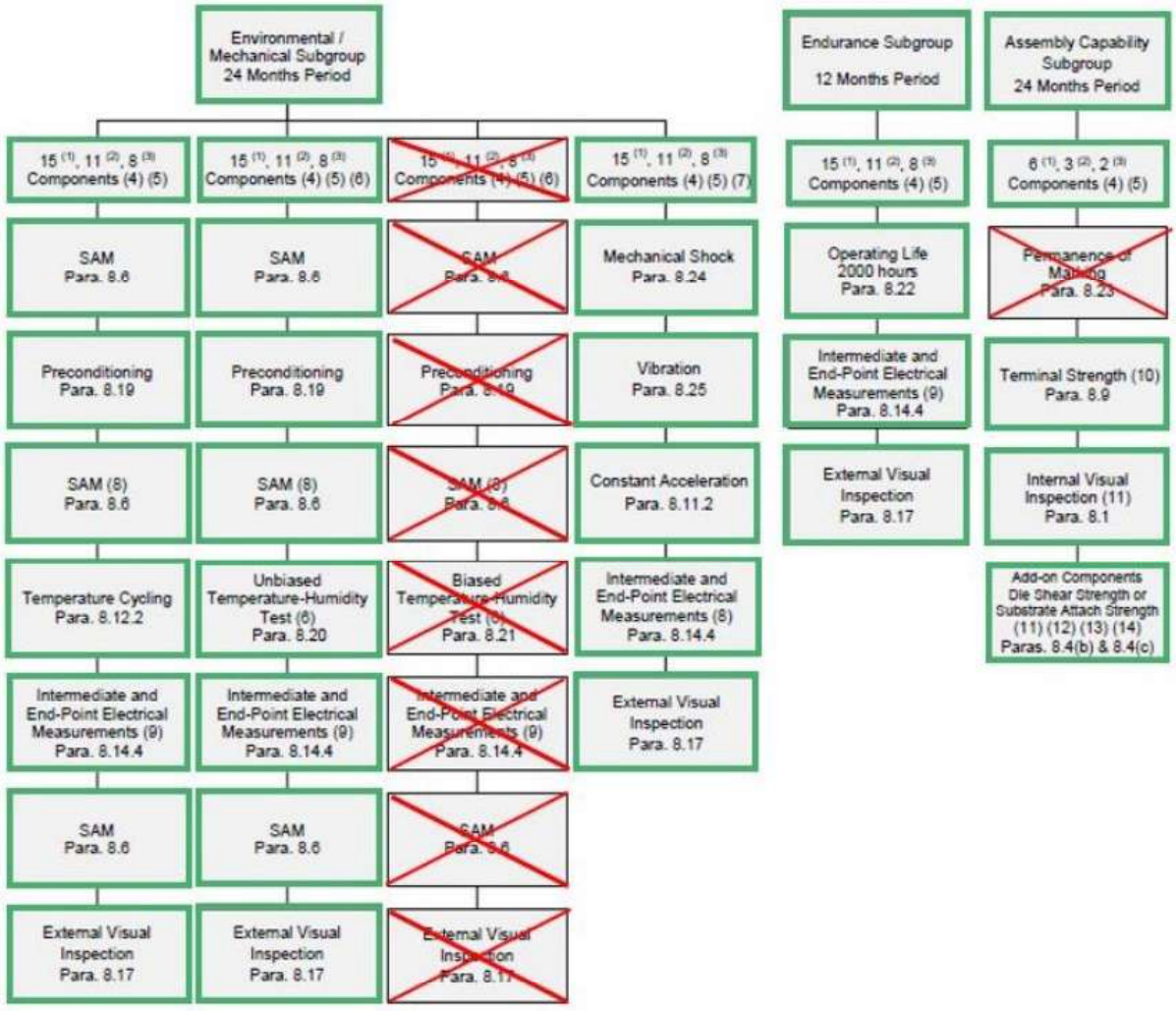
- ESCC 9030 generic specification; Chart F4B (for Flip-Chip Integrated Circuit ESCC/QPL parts);
- Or PID-TFD [redacted] (for ESCC/QML parts)

Tests vehicle identification/description:

NX2H540ATSC Flip-Chip BGA-1760 package 1st perimeter : Without High Speed Serial Link (HSSL)	NX2H540ATSC has been designed in compliance with ST C28FDSOI libraries and design rules for custom cells. The NG-ULTRA NX2H540TSC is the world's first Radiation Hardened By Design (RHBD) SoC FPGA in 28nm with quadcore ARM R52 running at 600MHz each, based on 28nm FD-SOI Technology Platform from STMicroelectronics. It has a logic capacity of 550k LUTs. The hardening techniques used in the NG-ULTRA alongside the FD-SOI technology offers very strong hardening performance. As shown in Figure above, NG-ULTRA NX2H540TSC contains two parts: programmable logic matrix and Microprocessor subsystem. First part is quite similar with previous device. It is composed of a central fabric embedding the programmable logic, RAM and DSP blocks. The fabric takes benefit from the high-speed connectivity such as High-Speed Serial Links (HSSLs) and DDR2/3 interfaces. It is covered with a grid of high-level functional blocks interleaved with interconnect structures providing routing resources to realize the connections within the fabric and to the peripheral I/Os. The programmable logic resources are arranged in a hierarchical structure called a TILE with a specific local interconnect network. I/Os are arranged into multiple banks. Each bank has its own I/O buffer supply voltage. Second part is the microprocessor subsystem which is based on a complete System on Chip. • 536 kLUTs / 505k DFFs • 32Mb RAM • 1344 DSP • 32x HSSL 12G • Quad-Core ARM-R52 (DAHLIA SoC)  NG-ULTRA NX2H540TSC The qualification has been performed with flight models from 3 diffusion lots: Q202447, Q242943 and Q246526.

ESCC 9030 Chart F4B - Qualification for Packaged Components

According to the Qualification test plan DM00976274, the following tests have been executed:



- ESCC 9030 Chart F4B: Parts allocation per subgroup

Subgroup	Sampling	Assembly Lot	SN
Temperature cycling	15	AL1.1	4, 6, 15, 17, 24, 25, 30, 31, 32, 35, 37, 40, 42, 45, 47
Unbiased Temperature-Humidity	15	AL1.2	2, 6, 9, 15, 20, 21, 26, 27, 28, 30, 38, 40, 44, 45, 56
Mechanical Shocks	9 +6	AL1.2 +AL2.1	76, 78, 79, 80, 81, 83, 88, 93, 99 49, 74, 162, 164, 167, 168
Endurance (Life test)	24	AL2.2	2, 3, 6, 7, 10, 22, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 55, 58, 106, 123, 124
Assembly Capability	6	AL1.2	5, 8, 31, 66, 71, 73

- Environmental/Mechanical Subgroup ESCC 9030 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	SAM	☒	ESCC Basic Specification No. 25200	AL1.1 Diffusion Lot: Q202447 Assembly Lot: 33310F6201 Date code: 2316A	15	0	
	Preconditioning	☒	JEDEC JESD22-A113, Moisture Sensitivity Level 4		15	0	
	SAM	☒	ESCC Basic Specification No. 25200		15	0	
	Temperature Cycling	☒	MIL-STD-883, Test Method 1010B		15	0	500 cycles
	Intermediate and End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature Intermediate at 100 cycles		15	1 (*)	Electrical Test @ ambient temperature (+25°C) PASS, Ref : DM01159789 (*) 1 reject (sn 4) @Ambiant 500 cycles, ESD event not related to package issue
	SAM	☒	ESCC Basic Specification No. 25200		14	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2009 and JESD22-B101		14	0	No Major defects detected
	SAM	☒	ESCC Basic Specification No. 25200	AL1.2 Diffusion Lot: Q202447 Assembly Lot: 33310F62ZZ Date code: 2313A	15	0	
	Preconditioning	☒	As per JESD22-A113, Moisture Sensitivity Level 4		15	0	
	SAM	☒	ESCC Basic Specification No. 25200		15	0	
	uHAST	☒	JEDEC JESD22-A118 UHAST, conditions 96h/130°C/88%RH/230kPa		15	0	
	End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature No Intermediate measurement		15	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200		15	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2009 and JESD22-B101		15	0	
	Mechanical Shock	☒	ESCC 9030 Paragraph 8.24, package > 1290mm²: MIL-STD-883, Test Method 2002, Test Condition B, except the peak level shall be 1000g	AL1.2 (9 parts) Diffusion Lot: Q202447 Assembly Lot: 33310F62ZZ Date code: 2313A + AL2.1 (6 parts) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	15	0	Ref : AL1.2-33347FD701-02 CHART F4.pdf AL2.1-33331FA501-02 CHART F4.pdf
	Vibration	☒	ESCC 9030 Paragraph 8.25, MIL-STD-883, Test Method 2007, Test Condition A		15	0	Ref : AL1.2-33347FD701-02 CHART F4.pdf AL2.1-33331FA501-02 CHART F4.pdf
	Constant Acceleration	☒	MIL-STD-883, Test Method 2001, Test Condition D (package>5g)		15	0	
	End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature No Intermediate measurement		15	0	
	External Visual Inspection	☒	MIL-STD-883, Test Method 2009 and JESD22-B101		15	0	No Major defects detected

- Endurance Subgroup ESCC 9030 Qualification tests:

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	☒	JEDEC JESD 22A108 2000 hours Tjunction @ 125°C, Vcore = 1.23V	AL2.2 Diffusion Lot: Q242943 Assembly Lot: 33338FB701 Date code: 2324B	24	0	Ref : DM01159789
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification at 500h and 1000h		24	3 (*)	Ref : DM01159789 (*) 3 rejects (sn 6, 28, 33) @1000h related to ESD
	External Visual Inspection	☒	MIL-STD-883, Test Method 2009 and JESD22-B101		21	0	No Major defects detected

- Assembly Capability Subgroup ESCC 9030 Qualification tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Assembly Capability Subgroup	Permanence of Marking	☒	NA	AL1.2 Diffusion Lot: Q202447 Assembly Lot: 33310F62ZZ Date code: 2313A	NA	NA	Not applicable for laser marking
	Terminal Strength	☒	JESD22-B117; 45 balls from 2 devices minimum		2	0	Performed on CQFP352 Not performed on CLGA625 Package but performed on similar product in CCGA625
	Internal Visual Inspection	☒	Flip-Chip: MIL-STD-883, Test Method 2010, Condition A. (or MIL-STD-883, Test Method 2013 and 2014) Add-on Components: MIL-STD-883, Test Method 2032 Class H, and MIL-STD-883, Test Method 2017 Class H. (or MIL-STD-883, Test Method 2013 and 2014)		6	0	
	Add-on Components, Die Shear Strength	☒	Die shear: inline data, please refer to item #2 of F2 chart Add-on: 10 capacitors from all 6 devices, MIL-STD-883, Test Method 2019		6	0	

ESCC 2269030 - Evaluation Tests:
The Delta ESCC evaluation test plan has been conducted in compliance with the ESCC Basic Specification N°2269030 issue 1 and described in qualification plan (DM00976274), some ChartF4B parts have been reused with complementary stress to be compliant with ESCC 2269030.

- ESCC 2269030: Parts allocation per subgroup

Subgroup	Sampling	Assembly Lot	SN
Subgroup 2B - Radiation Tests	11	AL2.2	19, 45, 63, 64, 101, 116, 147, 148, 150, 158, 165
Subgroup 2C - Construction Analysis	3	AL2.1	21, 22, 25
Subgroup 2D (i) - Thermal Tests	4	AL1.1	6, 15, 37, 47 (reuse from Chart F4B)
Subgroup 2D (ii-a, ii-b) - Mechanical Tests	4	AL2.1	162, 164, 167, 168 (reuse from Chart F4B)
Subgroup 2D (iv) - High Temperature Storage	4	AL2.1	26, 27, 28, 29
Subgroup 2E - ESD (HBM) +/- 2KV	2 +11	AL1.2 +AL2.1	22, 36 +9, 11, 12, 13, 14, 16, 17, 18, 19, 20, 35
Subgroup 2E - ESD (HBM) +/- 1KV	3	AL2.1	23, 24, 121
Subgroup 2E - ESD (HBM) +/- 500V	3	AL2.1	34, 165, 166

- Radiation Tests Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2B - Radiation Tests	Radiation Tests	☒	TID ESA/SCC 22900 MIL-STD-883 Test Method 1019			0	Radiation Tests have been managed by NanoXplore Tested up to 75 krad(Si) and OK (5 biased + 5 unbiased + 1 reference)
	Radiation Tests	☒	Heavy Ions Single Event Latch-Up Single Event Effect ESA/SCC 25100			0	Radiation Tests have been managed by NanoXplore SEL: No SEL events have been observed up to a LET of 65 MeV.cm²/mg @Vccmax @T° junction > 105°C SEE: See report

- Construction Analysis Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2C - Construction Analysis	Construction Analysis	☒	ESCC 2269030 §8.3.4	AL2.1 Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	3	0	Ref : CNES Construction analysis of NanoXplore NG-Ultra FPGA.pdf

- Package Tests - Thermal Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2D (i) - Thermal Tests	Temperature Cycling	☒	MIL-STD-883, Test Method 1010, Test Condition B, 1500 cycles	AL1.1 Diffusion Lot: Q202447 Assembly Lot: 33310F6201 Date code: 2316A	4	0	Ref : DM01159789
	Intermediate and End-Point Electrical Measurements	☒	In accordance with detail specification Room, Low and High temperatures Intermediate at 1000 cycles		4	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200		4	0	

- Package Tests - Mechanical Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2D (ii-a) - Mechanical Tests	Mechanical Shocks	☒	50 pulses (per orientation), MIL-STD-883, Test Method 2002, Condition B	AL2.1 Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	4	0	Ref : DM01159789 Reuse of samples already stressed in Chart F4B
	End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature		4	0	
	Vibration	☒	Vibration 120 sweeps MIL-STD-883, Test Method 2007, Test Condition A		4	0	Reuse of samples already stressed in Chart F4B
	End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature		4	0	
	Constant Acceleration	☒	Weight > 5g, MIL-STD-883, Test Method 2001, Test Condition D		4	0	
	End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature		4	0	

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2D (ii-b) - Mechanical Tests	Solderability	☒	MIL-STD-883, Test Method 2003 or JEDEC JESD22-B102	AL2.1 Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	4	0	Reuse of samples already stressed in Chart F4B
	Lid attach strength	☒	MIL-STD-883, Test Method 2027 (Pull test) or 2019 (Shear test)		4	0	
	Terminal strength	☒	JEDEC JESD22-B117		4	0	Reuse of samples already stressed in Chart F4B

- Package Tests - High Temperature Storage Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2D (iv) - High Temperature Storage	SAM	☒	ESCC Basic Specification No. 25200	AL2.1 Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	4	0	
	HTSL	☒	JEDEC JESD22-A103 HTSL, 2000 hours 150°C		4	0	Ref : DM01159789
	End-Point Electrical Measurements	☒	In accordance with detail specification Intermediate measurement at 500 hours and 1000 hours		4	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200		4	0	

- Electrical Subgroup ESCC 2269030 Evaluation tests:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Subgroup 2E - ESD Tests	HBM +/- 2KV	☒	JEDEC JS-001-2017	AL1.2 (8 parts)	2 +11	0	AL 1.2 - Ref : DM01159789 AL2.1 - Ref : DM01159789
	HBM +/- 1KV	☒	JEDEC JS-001-2017	Diffusion Lot: Q202447 Assembly Lot: 33310F62ZZ Date code: 2313A	3	0	AL2.1 - Ref : DM01159789
	HBM +/- 500V	☒	JEDEC JS-001-2017	+ AL2.1 (11 parts) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	3	0	AL2.1 - Ref : DM01159789

- Endurance Subgroup ESCC 2269030 Evaluation tests:

Subgroup 3D - Extended Life Test

The 28FDSOI is in production serving different application domain like automotive, space and Defense.
It means that multiple life test have been executed, first during the technology node qualification and qualification of the GEO perimeter, and for product qualifications.
All HTOL trail are defined to cover the targeted mission profile.
4000 hours of life test is not considered as bringing added value for the reliability assessment assuming that Voltage stress and Temperature stress are defined properly based on ST technology model using Ea (Energy activation) and β (Voltage acceleration constant).
That's why that there is no plan at ST to run life test at 4000h

Extended Qualification Tests performed by ST:

- Parts allocation per subgroup

Subgroup	Sampling	Assembly Lot	SN
Endurance (Life test)	22	AL3.1	3, 23, 27, 34, 55, 59, 60, 63, 67, 77, 78, 79, 80, 81, 82, 83, 85, 86, 89, 90, 94, 95
CDM +/- 250V	2 1	AL1.2 AL2.1	11, 82 123
Latch Up	13 3 2	AL2.2 AL2.3 AL2.1	23, 37, 46, 57, 68, 78, 95, 108, 111, 141, 144, 154, 164 18, 19, 20 59, 81
Temperature Cycling	15 15	AL2.1 AL3.2	37, 39, 40, 41, 42, 43, 44, 46, 47, 48, 50, 51, 52, 53, 54 6, 7, 8, 9, 10, 12, 19, 20, 21, 22, 23, 25, 26, 27, 30
UHAST	15 16	AL2.1 AL2.3	63, 64, 65, 66, 67, 71, 73, 75, 77, 78, 82, 85, 86, 87, 89 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17
High Temperature Storage	41	AL2.1	30, 31, 32, 33, 36, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 122, 124, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 141, 142, 143, 144, 158, 159, 160, 161
Construction Analysis	30	AL2.1	55, 56, 57, 58, 60, 62, 90, 91, 92, 93, 94, 95, 96, 98, 101,102, 103, 105, 106, 107, 108, 145, 146, 147, 148, 149, 150, 151, 152, 154

- Endurance (Life Test):

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance (Life test)	Operating Life	☒	JEDEC JESD 22A108 2000 hours Tjunction @ 125°C, Vcore = 1.23V	AL3.1 Diffusion Lot: Q246526 Assembly Lot: 33404FEL01 Date code: 2408A	22	0	Ref : DM01159789
	Intermediate and End-Point Electrical Measurements	☒	Intermediate and End-Point Electrical Measurements in the Detail Specification at 500h and 1000h		22	0	Ref : DM01159789
	External Visual Inspection	☒	MIL-STD-883, Test Method 2009 and JESD22-B101		22	0	No Major defects detected

- ESD Test:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
ESD Tests	CDM +/- 250V	☒	JEDEC JS-002-2014	AL1.2 (2 parts) Diffusion Lot: Q202447 Assembly Lot: 33310F62ZZ Date code: 2313A	2	0	AL1.2 - Ref : DM01159789
				+ AL2.1 (1 part) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	1	0	AL2.1 - Ref : DM01159789

	Latch Up	☒	JEDEC JESD78	AL2.2 (13 parts) Diffusion Lot: Q242943 Assembly Lot: 33338FB701 Date code: 2324B AL2.3 (3 parts) Diffusion Lot: Q242943 Assembly Lot: 33338FB7ZZ Date code: 2424A AL2.1 (2 parts) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	13 3 2	0 0 0	AL2.2 - Ref : DM01159789 AL2.3 - Ref : DM01159789 AL2.1 - Ref : DM01159789

- Temperature Cycling:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Temperature Cycling	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts	AL2.1 (15 parts) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A AL3.2 (15 parts) Diffusion Lot: Q246526 Assembly Lot: 33419FGL01 Date code: 2423A	4	0	
	Preconditioning	☒	JEDEC JESD22-A113, Moisture Sensitivity Level 4		30	0	
	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts		4	0	
	Temperature Cycling	☒	MIL-STD-883, Test Method 1010, Test Condition B, 500 cycles		30	0	Ref : DM01159789
	Intermediate and End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature Intermediate at 100 cycles		30	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts		4	0	

- uHAST Test:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
uHAST	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts	AL2.1 (15 parts) Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A AL2.3 (16 parts) Diffusion Lot: Q242943 Assembly Lot: 33338FB7ZZ Date code: 2424A	4 /	0 /	AL2.1 : PASS AL2.3 : Not Done
	Preconditioning	☒	JEDEC JESD22-A113, Moisture Sensitivity Level 4		31	0	PASS
	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts		4 /	0 /	AL2.1 : PASS AL2.3 : Not Done
	uHAST	☒	JEDEC JESD22-A118 UHAST, conditions 96h/130°C/88%RH/230kPa		31	0	Ref : DM01159789
	Intermediate and End-Point Electrical Measurements	☒	In accordance with detail specification Room temperature No Intermediate measurement		31	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts		4 16	0 0	AL2.1 : PASS AL2.3 : PASS

- High Temperature Storage Test:

Subgroup	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
High Temperature Storage	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts	AL2.1 Diffusion Lot: Q242943 Assembly Lot: 33331FA501 Date code: 2334A	/	/	Not Done
	HTSL	☒	JEDEC JESD22-A103 HTSL, 2000 hours 150°C		41	0	Ref : DM01159789
	End-Point Electrical Measurements	☒	In accordance with detail specification Intermediate measurement at 500 hours and 1000 hours		41	0	Ref : DM01159789
	SAM	☒	ESCC Basic Specification No. 25200 Only on 4 parts		4	0	PASS

- Construction Analysis:

Construction Analysis has been performed as per ST specification on 30 parts (AL2.1), all results are reported in controlled document DMS DM01143147 (ST internal).

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