

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.		MDG/21/12992
1.3 Title of PCN		ST MUAR – Qualification of ARTEAC Flow for Selected STM8A Products
1.4 Product Category		STM8AF52xx STM8AF62xx STM8AF63xx
1.5 Issue date		2021-12-13

2. PCN Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Ricardo Antonio DE SA EARP
2.2.2 Marketing Manager	Veronique BARLATIER
2.2.3 Quality Manager	Pascal NARCHE

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
General (Test Program)	Different sequence of tests within the test program : test sequence is not defined by Customer spec or Customer application requirements	ST MUAR (Malaysia)

4. Description of change

	Old	New
4.1 Description	Test Program without ARTEAC flow for Automotive product performs Quality Control (QC) after Final Test (FT).	Adding ARTEAC flow capability. Depending on test platform, test program for automotive products performs : - Either standard quality control (QC) after final test (FT) - Or new ARTEAC (automated real time electrical and audit control) test flow
4.2 Anticipated Impact on form, fit, function, quality, reliability or processability?	No impact	

5. Reason / motivation for change

5.1 Motivation	QC ARTEAC implementation for MDG Automotive product to improve productivity & capacity
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change

6.1 Description	Traceability ensured by ST internal tools
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7. Timing / schedule

7.1 Date of qualification results	2021-10-15
7.2 Intended start of delivery	2022-05-20
7.3 Qualification sample available?	Not Applicable

8. Qualification / Validation

8.1 Description	12992 ST MUAR Qualification of ARTEAC Flow for Selected STM8A Products.pdf
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8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2021-12-13
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9. Attachments (additional documentations)

12992 Public product.pdf
12992 ST MUAR Qualification of ARTEAC Flow for Selected STM8A Products.pdf

10. Affected parts

10.1 Current		
10.1.1 Customer Part No		
10.1.2 Supplier Part No	10.1.2 Supplier Part No	10.2 New (if applicable)
	STM8AF5268TAY	
	STM8AF5268TCY	
	STM8AF5268TDY	
	STM8AF5269TAY	
	STM8AF5286UAY	
	STM8AF5286UCY	
	STM8AF5286UDY	
	STM8AF5288TAY	
	STM8AF5288TCX	
	STM8AF5288TCY	
	STM8AF5288TDY	
	STM8AF5289TAY	
	STM8AF5289TCX	
	STM8AF5289TCY	
	STM8AF528ATAY	
	STM8AF528ATCY	
	STM8AF52A6UCY	
	STM8AF52A8TAY	
	STM8AF52A8TCX	
	STM8AF52A8TDY	
	STM8AF52A9TAY	
	STM8AF52A9TCX	
	STM8AF52A9TCY	
	STM8AF52A9TDY	
	STM8AF52AATAY	
	STM8AF52AATCY	
	STM8AF52AATDY	
	STM8AF6226TCSSSY	
	STM8AF6246TASSSY	
	STM8AF6246TCSSSX	
	STM8AF6246TCSSSY	
	STM8AF6246TDSSSX	
	STM8AF6246TDSSSY	
	STM8AF6246UAY	
	STM8AF6246UCX	
	STM8AF6246UCY	
	STM8AF6246UDY	
	STM8AF6248TAY	
	STM8AF6248TCY	
	STM8AF6248TDY	
	STM8AF6266ITCX	
	STM8AF6266ITCY	

	STM8AF6266TAX	
	STM8AF6266TAY	
	STM8AF6266TCX	
	STM8AF6266TCY	
	STM8AF6266TDX	
	STM8AF6266TDY	
	STM8AF6266UCX	
	STM8AF6266UCY	
	STM8AF6268TAY	
	STM8AF6268TCX	
	STM8AF6268TCY	
	STM8AF6268TDY	
	STM8AF6269TAY	
	STM8AF6269TCY	
	STM8AF6286TAY	
	STM8AF6286TCY	
	STM8AF6288TCX	
	STM8AF6288TDY	
	STM8AF6289TAY	
	STM8AF6289TCY	
	STM8AF628ATCX	
	STM8AF628ATCY	
	STM8AF62A6UCY	
	STM8AF62A8TCY	
	STM8AF62A8TDY	
	STM8AF62A9TDY	
	STM8AF6366TCY	
	STM8AF6388TCY	

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Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

PCN Title : ST MUAR – Qualification of ARTEAC Flow for Selected STM8A Products

PCN Reference : MDG/21/12992

Subject : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

STM8AF6266ITCX	STM8AF5269TAY	STM8AF6268TAX
STM8AF6288TAY	STM8AF52A9TDY	STM8AF62AATAY
STM8AF6268TCY	STM8AF6266TCX	STM8AF5286UDY
STM8AF62A6UCX	STM8AF6388TCY	STM8AF6388TDX
STM8AF528ATCX	STM8AF6248TCX	STM8AF62A9TCX
STM8AF62A8TDX	STM8AF6289TCX	STM8AF6226TASSSX
STM8AF6246UDY	STM8AF6286TCX	STM8AF62A9TCY
STM8AF6246TCSSY	STM8AF6268TAY	STM8AF5269TAX
STM8AF6266TAY	STM8AF6288TDX	STM8AF5268TDY
STM8AF6266TDY	STM8AF6266UCX	STM8AF628ATCY
STM8AF5288TAX	STM8AF6266TDX	STM8AF528ATCY
STM8AF6288TAX	STM8AF52A8TDY	STM8AF62A8TDY
STM8AF6246UDX	STM8AF6248TCY	STM8AF52AATAX
STM8AF62A8TCY	STM8AF52A8TCY	STM8AF6246TCSSX
STM8AF5286UAY	STM8AF52A6UCY	STM8AF6266ITCY
STM8AF62A6UCY	STM8AF5288TDY	STM8AF52A8TCX
STM8AF6289TCY	STM8AF62A8TCX	STM8AF6288TDY
STM8AF6268TDX	STM8AF6269TCX	STM8AF6286TAY
STM8AF5289TCY	STM8AF5288TAY	STM8AF6246TDSSY
STM8AF6246TASSY	STM8AF5286UCX	STM8AF52AATAY
STM8AF6246ITDY	STM8AF6286UDY	STM8AF5268TAX
STM8AF52A8TAY	STM8AF5268TCY	STM8AF6246UAX
STM8AF6246UCY	STM8AF62A6UDY	STM8AF6288TCX
STM8AF5286UCY	STM8AF6266TCY	STM8AF5286UAX
STM8AF6246ITDX	STM8AF6266TAX	STM8AF6269TAY
STM8AF52A8TDX	STM8AF52A9TCX	STM8AF628ATCX
STM8AF6286TAX	STM8AF6248TDX	STM8AF5289TCX
STM8AF6268TDY	STM8AF6286TCY	STM8AF52AATDY
STM8AF52A9TCY	STM8AF5268TAY	STM8AF6388TCX
STM8AF6269TCY	STM8AF5288TDX	STM8AF6226TASSY
STM8AF5288TCY	STM8AF6286UDX	STM8AF5286UDX
STM8AF6288TCY	STM8AF52A8TAX	STM8AF6289TAY
STM8AF62AATCY	STM8AF6246ITCY	STM8AF52AATCY
STM8AF6246UAY	STM8AF5289TAY	STM8AF6366TCY
STM8AF5268TCX	STM8AF6268TCX	STM8AF6366TCX
STM8AF62AATCX	STM8AF6246TASSSX	STM8AF6246TDSSX



Public Products List

STM8AF528ATAY	STM8AF6248TDY	STM8AF62A9TDY
STM8AF6246ITCX	STM8AF52AATCX	STM8AF6248TAY
STM8AF62A6UDX	STM8AF6246UCX	STM8AF52A9TAY
STM8AF5288TCX		



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PCN12992

ST MUAR – Qualification of ARTEAC Flow for Selected STM8A Products

Qualification Plan

05-Oct-2021

MCD Operations & Quality

Introduction

Description of Changes / Context

- Scope: selected automotive commercial products STM8A (see the full list of impacted products in PCN document)
- The proposed change is linked to production steps of final test (FT) and quality acceptance test (QA test - sometimes also called quality control or QC test) within the test and finishing flow.
- As of today, automotive products are, after assembly, subjected first to FT tests and after that to QC test
 - Most of the sales types have one FT at HOT and one FT at COLD. Some sales types have FT at AMBIENT as an additional final test step.
 - Quality acceptance test QC is performed once, typically at the end of test flow.
- The basic idea of the change is to replace QC test by so called ARTEAC test (Automated Real Time Electrical and Audit Control) keeping the same test coverage and same lot quality acceptance criteria.
- ARTEAC flow contains at least the same test instances as the existing QC flow (same or larger test coverage compared to QC).
- ARTEAC execution: During the lot final test there is a real time sampling (regular intervals following an algorithm) and the selected units – after passing the FT test - will be subjected to ARTEAC flow, without any disconnection.
- Advantage is that the ARTEAC sampled unit should not be twice contacted (ARTEAC flow executed immediately after the unit passed FT flow) and no loading of QC test is required after FT test, thus reducing quality risk induced by QC handling.
- There is no loss of test coverage or other product quality concern because ARTEAC is simultaneously done at the very last FT step within the test flow.

ARTEAC Flow – Initial Verifications

- Initial verifications check correct behaviour of ARTEAC test solution prior full qualification
- The ARTEAC test solution in ST_MUAR is already used in mass production of non-automotive STM8 and other ST automotive products
- The verifications are to be done using a limited number of the impacted automotive finished goods (based on dice 79A and 79B) and using the T2000 test programs of interest (ST79A_T2KFT, ST79B_T2KFT)

Verification	Criteria	Comment
Verification of test Automation vs. ARTEAC	Correct generation of XML file including ARTEAC status, Quantity In, ARTEAC sampling size	Check of ARTEAC test solution
Site test result verification tester vs. handler	Matching of test result – site to site – between tester and handler, including ARTEAC FAIL/PASS units	
Verification of binning and sorting of ARTEAC units	Correct binning and physical sorting of ARTEAC_GOOD and ARTEAC_FAIL units to intended tray	ARTEAC_GOOD units should fall into bin HB1, ARTEAC_FAIL units should fall into bin HB2

ARTEAC Flow Qualification

- At least 500 FT rejects per test temperature will be collected and prepared for this trial.
- The units are tested first with QC and after that with ARTEAC flow.
- Criteria: All QC fails must be detected as ARTEAC fails too.

Test Program Quality Validation with FT_HOT Rejects

Order / Test Stage	Criteria
1. QC Test Program	All QC fails must be detected as ARTEAC fails
2. ARTEAC Flow	

Test Program Quality Validation with FT_COLD Rejects

Order / Test Stage	Criteria
1. QC Test Program	All QC fails must be detected as ARTEAC fails
2. ARTEAC Flow	

Test Program Quality Validation with FT_AMBIENT Rejects

Order / Test Stage	Criteria
1. QC Test Program	All QC fails must be detected as ARTEAC fails
2. ARTEAC Flow	

ARTEAC Flow Qualification Using Production Lot

- One production lot of at least 2000 units are used for this trial.
- The selected sales type should have 3 FT stages (HOT, COLD, AMBIENT) in its test and finishing flow.
- The BIN1 units that passed FT or FT+ARTEAC flow should also come out as BIN1 on the next corresponding 100% QC step (normal QC production test program). It is valid for all 3 possible FT temperatures: HOT, COLD, AMBIENT.
- Remark: In production ARTEAC is simultaneously done only at the very last FT step within the test flow.

Order / Test Stage	Criteria	Comment
1. FT_HOT + ARTEAC	No ARTEAC fail	
2. 100% QC_HOT	No fail	All BIN1 (PASS) units from previous step 1 used
3. Bake 48 h		Standard production step
4. FT_COLD + ARTEAC	No ARTEAC fail	
5. 100% QC_COLD	No fail	All BIN1 (PASS) units from previous step 4 used
6. FT_AMB + ARTEAC	No ARTEAC fail	
7. 100% QC_AMB	No fail	All BIN1 (PASS) units from previous step 6 used

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