



# PRODUCT/PROCESS CHANGE NOTIFICATION

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PCN MMS-MMY/14/8745  
Dated 21 Oct 2014

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**RX95HF, Design improvement for die version rationalization**

**Table 1. Change Implementation Schedule**

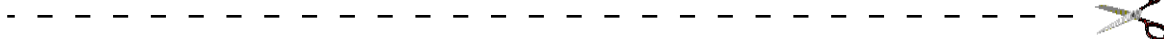
Forecasted implementation date for change	14-Oct-2014
Forecasted availability date of samples for customer	14-Oct-2014
Forecasted date for <b>STMicroelectronics</b> change Qualification Plan results availability	14-Oct-2014
Estimated date of changed product first shipment	20-Jan-2015

**Table 2. Change Identification**

Product Identification (Product Family/Commercial Product)	RX95HF-VMD5T
Type of change	Product design change
Reason for change	Die version rationalization
Description of the change	Design improvement inducing IDN response change from FS2JAST3 to FS2JAST4
Change Product Identification	Marking changed to RX95HFV5 LE
Manufacturing Location(s)	

**Table 3. List of Attachments**

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt		PCN MMS-MMY/14/8745					
Please sign and return to STMicroelectronics Sales Office		Dated 21 Oct 2014					
<input type="checkbox"/> Qualification Plan Denied <input type="checkbox"/> Qualification Plan Approved  <input type="checkbox"/> Change Denied <input type="checkbox"/> Change Approved	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Name:</td></tr> <tr><td style="padding: 2px;">Title:</td></tr> <tr><td style="padding: 2px;">Company:</td></tr> <tr><td style="padding: 2px;">Date:</td></tr> <tr><td style="padding: 2px;">Signature:</td></tr> </table>		Name:	Title:	Company:	Date:	Signature:
Name:							
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Company:							
Date:							
Signature:							
Remark ..... ..... ..... ..... ..... ..... ..... ..... ..... .....							

## DOCUMENT APPROVAL

Name	Function
Fidelis, Sylvain	Marketing Manager
Rodrigues, Benoit	Product Manager
Pavano, Rita	Q.A. Manager

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**RX95HF,  
Design improvement for die version rationalization**

**What is the change?**

The **RX95HF**, NFC Receiver IC, assembled in VFQFPN32 and processed with the CMOSF9 process technology at ST Rousset (France) 8" wafer diffusion plant, has undergone a **design improvement for die version rationalization**.

Following parameter will be updated in revised datasheet rev. 10, October 2014:

- Customer information
  - o Response to IDN command (ASCII): **FS2JAST4** (ROM code Rev 4)  
(was **FS2JAST3** for ROM code Rev 3)

**Why?**

The strategy of STMicroelectronics Memory Division is to support our customers on a long-term basis. In line with this commitment, the qualification of the RX95HF with the new design will improve the production capacity throughput and consequently improve the service to our customers.

**When?**

The production of the new version of the RX95HF will ramp up from October 2014 and shipments can start from January 2015 onward (or earlier upon customer approval).

**How will the change be qualified?**

The new RX95HF will be qualified using the standard ST Microelectronics Corporate Procedures for Quality & Reliability.

The **Qualification Report QRMMY1231 rev. 2** is available and included inside this document.

**What is the impact of the change?**

- **Form:** Marking change (see **Device marking** paragraph)
- **Fit:** No change
- **Function:**
  - IDN command response changed

## How can the change be seen?

### - BOX LABEL MARKING

The difference is visible inside the **Finished Good Part Number** where the mask revision identifier is “E” for the **new design**, this identifier being “A” for the current version.

**STMicroelectronics**

Manufactured under patents or patents pending  
Country Of Origin: XXXX  
Pb-free 2<sup>nd</sup> Level Interconnect  
MSL: 1 NOT MOISTURE SENSITIVE

PBT: 260 °C Category: e4 ECOPACK2/ROHS

TYPE: **RX95HF-VMD5T**  
**RX95HF-VMD5T L B E**

Total Qty: **3000**


Process Technology  
Assembly and Test & Finishing plants

**Mask revision:**  
“E” for new design  
“A” for previous version

Trace Codes PPYWLLLL WX TF

Marking **RX95HFV5**

Bulk ID **X0X00XXX0000**



Please provide the bulk ID for any inquiry

**How can the change be seen?**  
**- DEVICE MARKING**

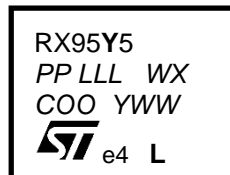
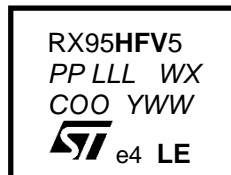
The difference is visible inside the **product name**:

- **New design** is **RX95HFV5**, current design being RX95Y5

Also, the **additional marking** is “**LE**” for **new design**, current one being “**L**”

**New design**

Current



**Appendix A- Product Change Information**

<b>Product family / Commercial products:</b>	RX95HF-VMD5T
<b>Customer(s):</b>	All
<b>Type of change:</b>	Design change
<b>Reason for the change:</b>	Die version rationalization
<b>Description of the change:</b>	Design improvement inducing IDN response change from <b>FS2JAST3 to FS2JAST4</b>
<b>Forecast date of the change: (Notification to customer)</b>	Week 42 / 2014
<b>Forecast date of <u>Qualification samples</u> availability for customer(s):</b>	Available
<b>Forecast date for the internal STMicroelectronics change, <u>Qualification Report</u> availability:</b>	The <b>Qualification Report QRMMY1231 rev. 2</b> is available and included inside this document.
<b>Marking to identify the changed product:</b>	RX95HFV5 LE
<b>Description of the qualification program:</b>	Standard ST Microelectronics Corporate Procedures for Quality and Reliability
<b>Product Line(s) and/or Part Number(s):</b>	RX95HF-VMD5T
<b>Manufacturing location:</b>	Rousset 8 inch wafer fab
<b>Estimated date of first shipment:</b>	Week 03 / 2015



**Appendix B: Qualification Report:**

**See following pages**

New product / RX95HF  
using the CMOSF9 technology in the Rousset 8" Fab

**Table 1. Product information**

General information	
Commercial product	RX95HF-VMD5T
Product description	Near field communication transceiver for tag emulation
Product group	MMS
Product division	MMY - Memory
Silicon process technology	CMOSF9
Wafer fabrication location	RS8F - ST Rousset 8 inch, France
Electrical Wafer Sort test plant location	ST Rousset, France

**Table 2. Package description**

Package description	Qualified assembly plant location	Qualified final test plant location
32-lead VFQFPN (5 x 5 mm)	Subcontractor Amkor, Philippines	Subcontractor Amkor, Philippines

**Reliability / Qualification assessment: PASS**

# 1 Reliability evaluation overview

## 1.1 Objectives

This qualification report summarizes the results of the reliability trials that were performed to qualify the new product RX95HF using the CMOSF9 silicon process technology in the ST Rousset 8" diffusion fab.

The voltage and temperature range covered by this document are:

- 2.7 to 5.5V at -25°C to +85°C

The CMOSF9 silicon process technology is already qualified in the ST Rousset 8" diffusion fab and in production for MMS products.

This document serves for the qualification of the named product, using the named silicon process technology in the named diffusion fab.

## 1.2 Conclusion

The new product RX95HF using the CMOSF9 silicon process technology in the ST Rousset 8" diffusion fab has passed the reliability requirements and the product described in [Table 1](#) is qualified.

Refer to [Section 3: Reliability test results](#) for details on the reliability test results.

## 2 Device characteristics

The RX95HF is an integrated transceiver IC for contactless applications.

The RX95HF embeds an Analog Front End to provide the 13.56 MHz Air Interface.

The RX95HF supports ISO/IEC 14443 Type A communication in Tag Emulation mode.

Refer to the product datasheet for more details.

### 3 Reliability test results

This section contains a general description of the reliability evaluation strategy.

The named products are qualified using the standard STMicroelectronics corporate procedures for quality and reliability.

The product vehicle used for the qualification is presented in [Table 3](#).

**Table 3. Product vehicle used for qualification**

Product	Silicon process technology	Wafer fabrication location	Package description	Assembly plant location
RX95HF	CMOSF9	ST Rousset 8"	32-lead VFQFPN (5 x 5 mm)	Subcon Amkor

### 3.1 Reliability test plan and result summary

The reliability test plan and the result summary is presented in [Table 4](#).

**Table 4. Reliability test plan and result summary (32-lead VFQFPN 5 x 5 mm / Amkor)<sup>(1)</sup>**

Test	Test short description								
	Method	Conditions	Sample size / lots	No. of lots	Duration	Results fail / sample size			
						RX95HF			
						Lot 1	Lot 2	Lot 3	Lot 4 (2)
PC	Preconditioning: moisture sensitivity level 1								
	JESD22-A113 J-STD-020D	MSL1, peak temperature at 260 °C, 3 IReflow	231	1	N/A	0/231	-	-	-
HTSL (3)	High temperature storage life								
	JESD22-A103	Retention bake at 150 °C	77	1	1008 hrs	0/77	-	-	-
TC (3)	Temperature cycling								
	JESD22-A104	-65 °C / +150 °C	77	1	1000 cycles	0/77	-	-	-
AC (3)	Autoclave (pressure pot)								
	JESD22-A102	121 °C, 100% RH at 2 ATM	77	1	96 hrs	0/77	-	-	-
HTOL (4)	High temperature operating life								
	JESD22-A108	HTOL 140 °C, 5V	77	3	1008 hrs	0/77	0/77	0/77	-
ESD HBM (4)	Electrostatic discharge (human body model)								
	JESD22-A114	C = 100 pF, R= 1500 Ω	27	3	N/A	Pass 2000V	Pass 2000V	Pass 2000V	Pass 2000V
ESD MM (4)	Electrostatic discharge (machine model)								
	JESD22-A115	C = 200 pF, R = 0 Ω	15	3	N/A	Pass 200V	Pass 200V	Pass 200V	Pass 200V
ESD CDM	Electrostatic discharge (charge device model)								
	JESD22-C101	Field induced charging method	12	1	N/A	Pass 1000V	-	-	-
LU (4)	Latch-up (current injection and overvoltage stress)								
	JESD78A	At maximum operating temperature (85 °C)	6	3	N/A	Class II Level A	Class II Level A	Class II Level A	Class II Level A

1. See [Table 5: List of terms](#) for a definition of abbreviations.
2. Reliability results on lot 4 obtained on improved design (PCN MMS-MMY/14/8745).
3. HTSL-, TC-, AC- dedicated parts are first subject to preconditioning flow.
4. Performed on engineering ceramic package CDIP24.

## 4 Applicable and reference documents

- AEC-Q100: Stress test qualification for integrated circuits
- SOP 2.6.10: General product qualification procedure
- SOP 2.6.11: Program management fro product qualification
- SOP 2.6.12: Design criteria for product qualification
- SOP 2.6.14: Reliability requirements for product qualification
- SOP 2.6.19: Process maturity level
- SOP 2.6.2: Process qualification and transfer management
- SOP 2.6.20: New process / New product qualification
- SOP 2.6.7: Product maturity level
- SOP 2.6.9: Package and process maturity management in Back End
- SOP 2.7.5: Automotive products definition and status
- JESD22-A101: Steady state temperature humidity bias life test
- JESD22-A102: Accelerated moisture resistance - unbiased autoclave
- JESD22-A103: High temperature storage life
- JESD22-A104: Temperature cycling
- JESD22-A108: Temperature, bias, and operating life
- JESD22-A113: Preconditioning of nonhermetic surface mount devices prior to reliability testing
- JESD22-A114: Electrostatic discharge (ESD) sensitivity testing human body model (HBM)
- JESD22-A115: Electrostatic discharge (ESD) sensitivity testing machine model (MM)
- JESD22-C101: Field-Induced Charged-Device Model Test Method for Electrostatic-Discharge-Withstand Thresholds of Microelectronic Components
- JESD78A: IC Latch-up test
- J-STD-020D: Moisture/reflow sensitivity classification for nonhermetic solid state surface mount devices

## 5 Glossary

**Table 5. List of terms**

<b>Terms</b>	<b>Description</b>
HTOL	High temperature operating life
ESD HBM	Electrostatic discharge (human body model)
ESD MM	Electrostatic discharge (machine model)
LU	Latch-up
PC	Preconditioning (solder simulation)
THB	Temperature humidity bias
TC	Temperature cycling
AC	Autoclave (pressure pot)
HTSL	High temperature storage life
ESD CDM	Electrostatic discharge (charge device model)



## 6 Revision history

**Table 6. Document revision history**

Date	Revision	Changes
30-Sep-2013	1	Initial release.
09-Oct-2014	2	<a href="#">Table 4</a> updated with reliability results obtained on improved design (PCN MMS-MMY/14/8745).

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