


**PRODUCT / PROCESS CHANGE INFORMATION**

**1. PCI basic data**

<b>1.1 Company</b>		STMicroelectronics International N.V
<b>1.2 PCI No.</b>	AMS/21/13085	
<b>1.3 Title of PCI</b>	Change of EWS test platform from C600 to DOT 100 (on V654).	
<b>1.4 Product Category</b>	See Products List	
<b>1.5 Issue date</b>	2021-10-27	

**2. PCI Team**

<b>2.1 Contact supplier</b>	
<b>2.1.1 Name</b>	NEMETH KRISZTINA
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<b>2.2 Change responsibility</b>	
<b>2.2.1 Product Manager</b>	Andrea Mario ONETTI
<b>2.1.2 Marketing Manager</b>	Simone FERRI
<b>2.1.3 Quality Manager</b>	Michele CALDERONI

**3. Change**

<b>3.1 Category</b>	<b>3.2 Type of change</b>	<b>3.3 Manufacturing Location</b>
Equipment (EWS-FT)	New tester, or prober option or major HW changes (ex: computer), brand or model (Unknown type)	ST CATANIA

**4. Description of change**

	<b>Old</b>	<b>New</b>
<b>4.1 Description</b>	Tester Platform: SPEA C600.	Tester Platform: SPEA DOT 100.
<b>4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?</b>	No Impact	

**5. Reason / motivation for change**

<b>5.1 Motivation</b>	The C600 is an old model, no longer well supported by the vendor. Additionally, the DOT 100 will significantly increase the EWS throughput capability.
<b>5.2 Customer Benefit</b>	SERVICE CONTINUITY

**6. Marking of parts / traceability of change**

<b>6.1 Description</b>	Trace Code (internal Traceability)
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**7. Timing / schedule**

<b>7.1 Date of qualification results</b>	2021-10-21
<b>7.2 Intended start of delivery</b>	2021-12-01
<b>7.3 Qualification sample available?</b>	Upon Request

**8. Qualification / Validation**

<b>8.1 Description</b>	13085 VA654AC5_porting_C600_DOT_report_comp_vr6.pdf		
<b>8.2 Qualification report and qualification results</b>	Available (see attachment)	<b>Issue Date</b>	2021-10-27

**9. Attachments (additional documentations)**

13085 Public product.pdf  
13085 VA654AC5\_porting\_C600\_DOT\_report\_comp\_vr6.pdf

10. Affected parts		
10.1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	A3G4250DTR	

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## Public Products List

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**PCI Title** : Change of EWS test platform from C600 to DOT 100 (on V654).

**PCI Reference** : AMS/21/13085

**Subject** : Public Products List

Dear Customer,

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

I3G4250DTR	A3G4250DTR	
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**A3G4250D / I3G4250D / A1G4250D**

**ASIC EWS porting summary report  
from SPEA C600 to SPEA DOT100**

D. Lombardo

M. Morezzi

Oct 2021

ST Restricted

# Reason of the change

- SPEA C600 are old testers
- Due to equipment obsolescence, ST is moving the ASIC used in the products A3G4250D / I3G4250D / A1G4250D (internal line code VB654) from the EWS\* test platform based on SPEA C600 to the new one based on SPEA DOT100.
- The tester DOT100 has been in production at ST for several years
- With the new equipment there is an important increase of capacity
- Traceability of the change will be done with QA number of the first shipment
  
- **The following slides show that the electrical results using the two tester models are equivalent**

\*EWS: Electrical Wafer Sorting

# 5M/1E change analysis

Change	Element	Control	Remarks
EWS ASIC testing platform change	<b>Machine</b>	Old tester : C600 from SPEA	New tester: DOT100 from SPEA
	<b>Man</b>	EWS plant and operators: ST Catania	No change
	<b>Material</b>	Bill of material (BOM)	No change
	<b>Measurement</b>	The testing program is simply transferred from the old to the new tester	No change
	<b>Method</b>	The testing flow is unchanged: EWS1 @ambient + EWS2 @ambient + EWS3 @cold	No change
	<b>Environment</b>	ST plant in Catania is fully qualified for automotive production	No change

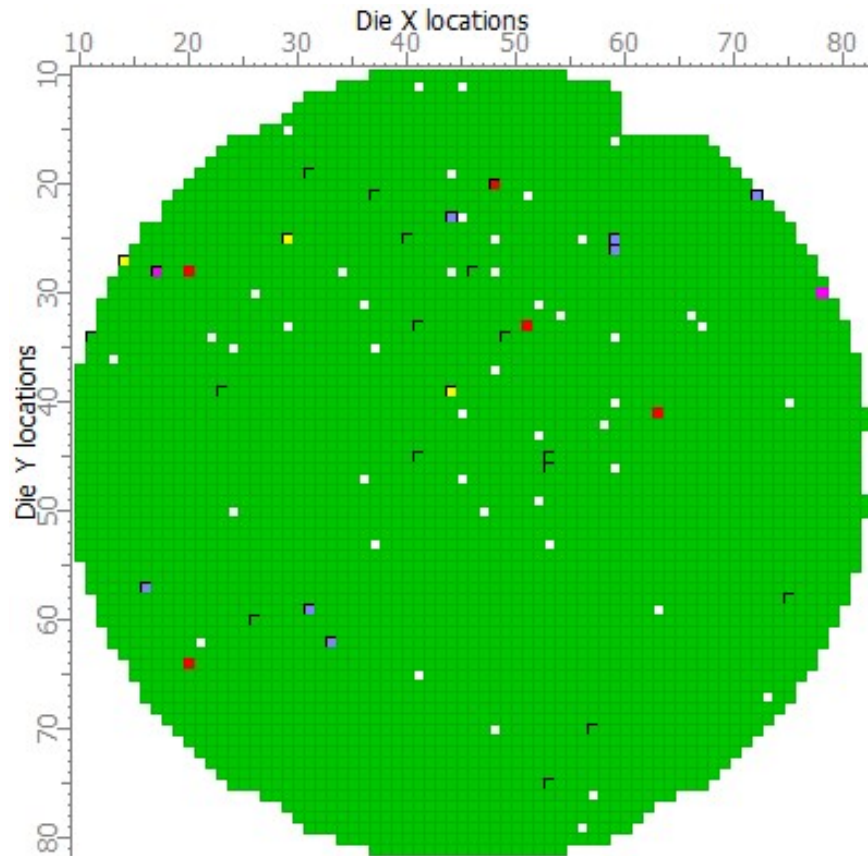


# Introduction

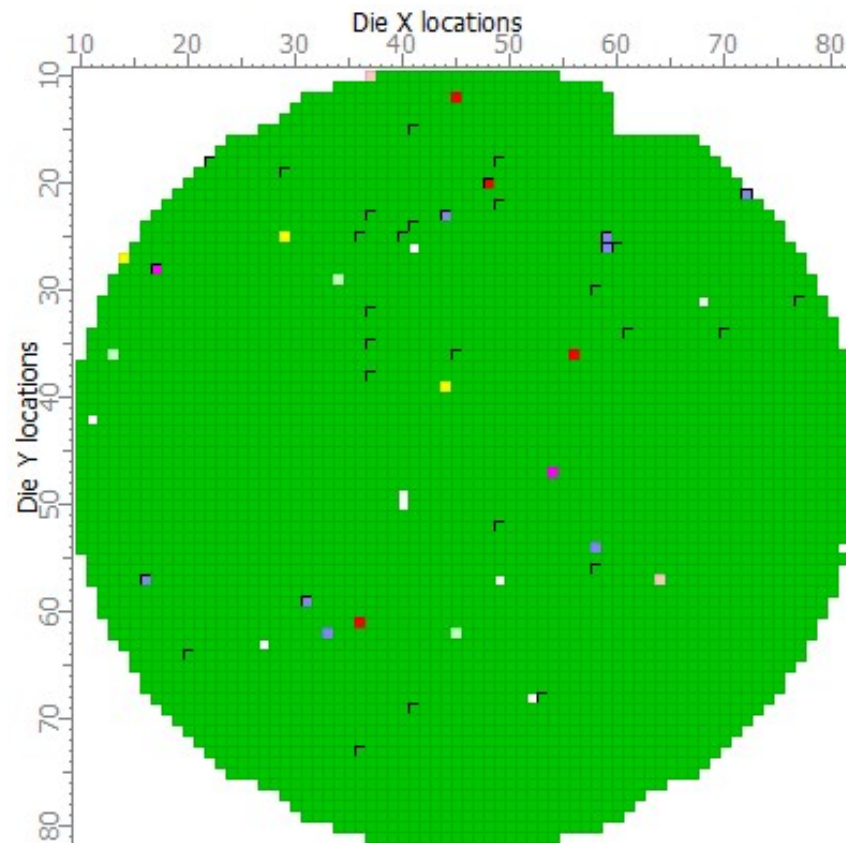
- **Purpose:**
  - To compare the ASIC (V654) EWS results when moving from C600 to DOT100
- **Wafer tested:**
  - Lot G126562, wafer #10
  - Gross number of dice on wafer: 4174
- **Testing flow:**
  - EWS1 ( $T_{amb}$ ) → EWS2 ( $T_{amb}$ ) → EWS3 ( $T_{cold}$  @-40°C)
- **Main setting parameters:**
  - $V_{ddMin} = 1.71V$
  - $V_{ddCal} = 2.5V$
  - $V_{ddMax} = 3.6V$
- C600 tests list is 100% covered by the new test program on DOT100

# EWS1 map

DOT100

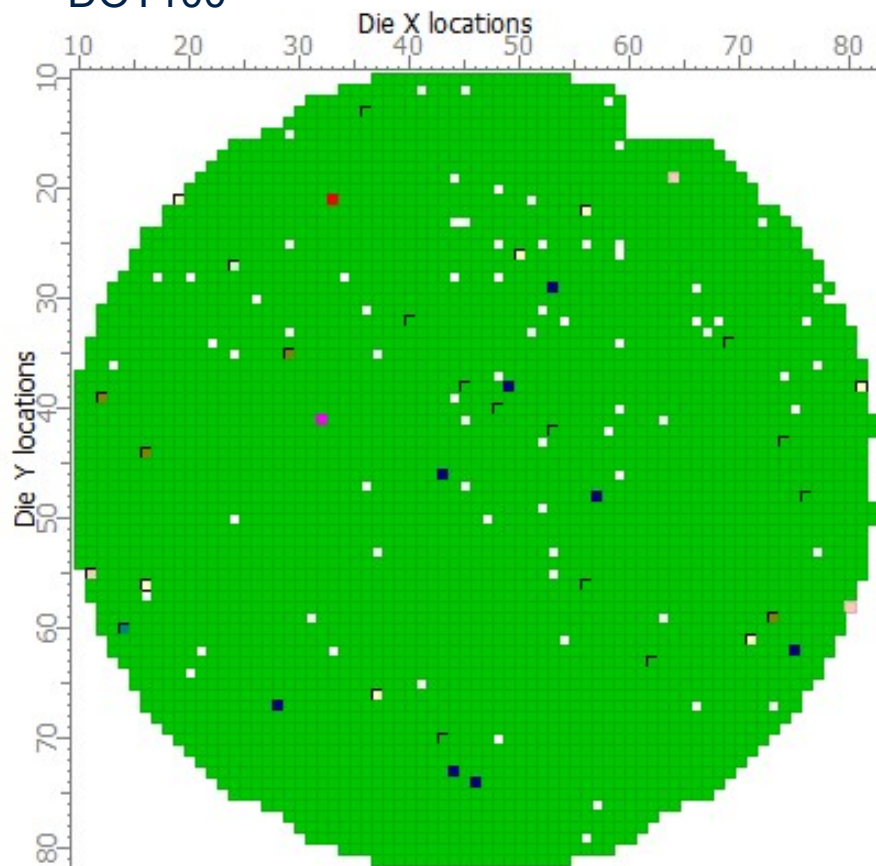


C600

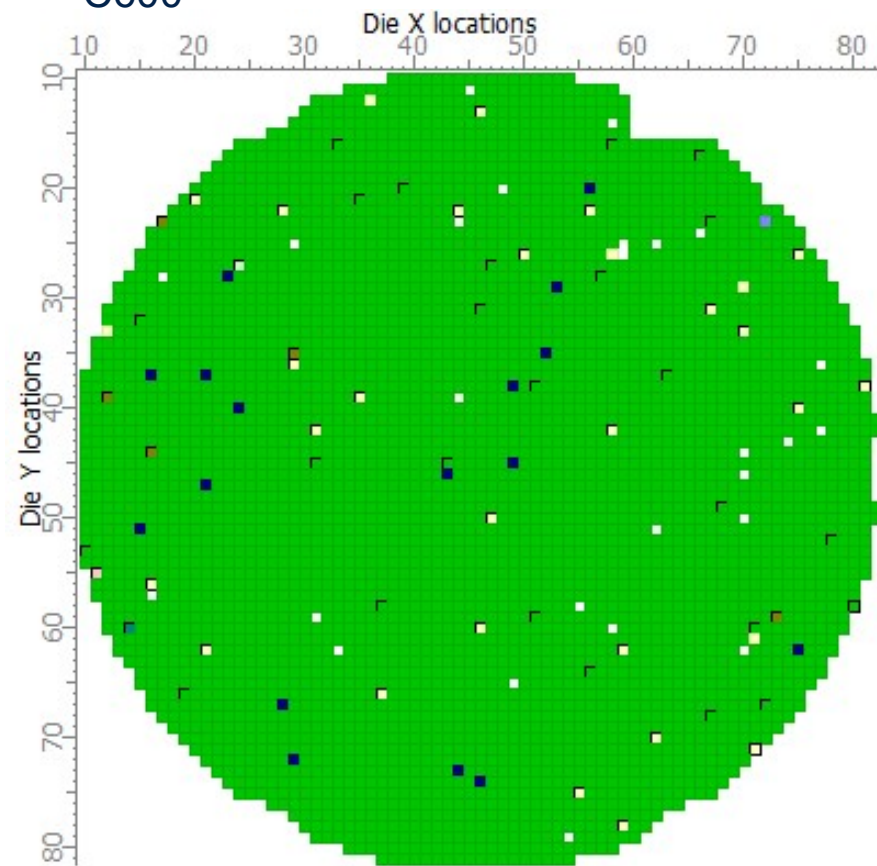


# EWS2 map

DOT100

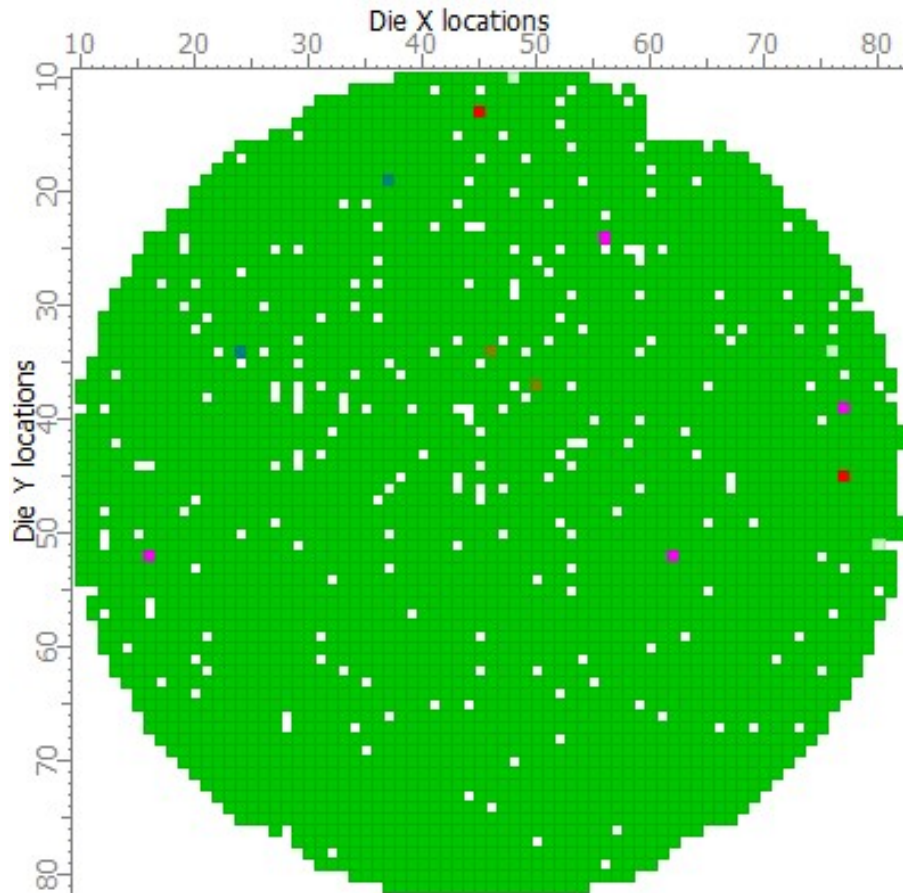


C600

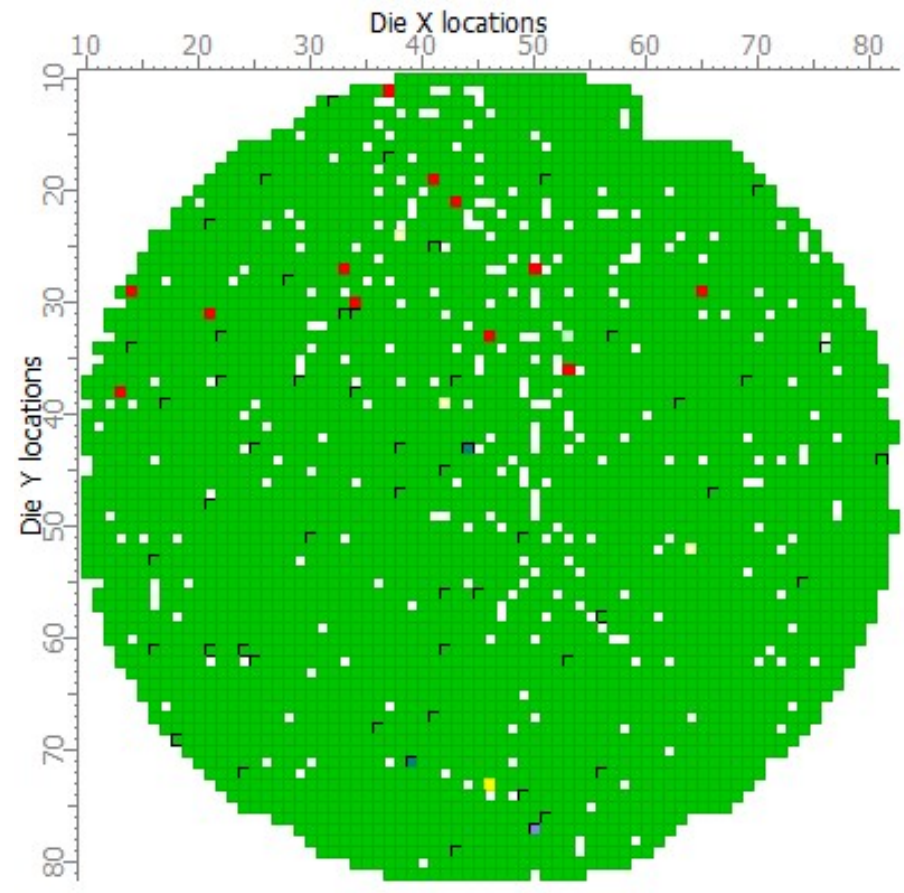


# EWS3 map

DOT100



C600



# FAIL to PASS

- EWS1

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	23	1	0.02%
1	9	1	0.02%
1	7	2	0.05%
1	12	2	0.05%
1	3	3	0.07%
Total	-	9	0.22%

SB	Bin name
1	Good
3	I2C-SPI_Functional
6	Short
7	Inp/Out Resistance
9	Erase Flash
12	Thr Verify
23	Supply Current

- EWS2

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	30	2	0.05%
1	21	10	0.24%
1	23	18	0.44%
Total	-	30	0.73%

SB	Bin name
1	Good
9	Erase
13	Current_trim
14	4.1KFrequency_Trim
17	VGA_trim
18	Volt_ref
19	Ews_gk11
20	Ews_gk10
21	Temp_Sens_Trim
23	Supply Current
30	Write_reg_flash

- EWS3

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
1	20	1	0.03%
1	4	1	0.03%
1	18	2	0.05%
1	13	3	0.08%
1	3	9	0.24%
Total	-	16	0.43%

SB	Bin name
1	Good
3	I2C-SPI
4	Leakages
8	Scan
13	Current_trim
18	Volt_ref
20	EWS_GK10
23	Supply

**All dies failed on C600, but passed on DOT, have been retested on the C600 after a contact checking with an **ALL PASS** result confirming a poor contact performance of the equipment / setup based on **C600****

# PASS TO FAIL

- EWS1

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
9	1	1	0.02%
3	1	4	0.10%
<b>Total</b>	-	5	0.12%

- EWS2

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
13	1	1	0.02%
9	1	1	0.02%
23	1	1	0.02%
21	1	1	0.02%
18	1	2	0.05%
<b>Total</b>	-	6	0.15%

- EWS3

DOT - Wafer: G126562-10H2	C600 - Wafer: G126562-10H2	Frequency (#)	Frequency (% of common dies)
23	1	2	0.05%
18	1	2	0.05%
20	1	2	0.05%
3	1	2	0.05%
8	1	4	0.11%
<b>Total</b>	-	12	0.32%

# Conclusions

- The EWS results of a complete wafer of V654 (ASIC die code used in A3G4250D, I3G4250D, and A1G4250D) were compared after testing on current and new equipment
- The wafer maps, after contact verification and re-probing on the old C600, proved to be perfectly correlated
- Overall, the wafer testing solution implemented on the new DOT100, besides offering a better contact stability, is also providing a higher throughput capability
- The wafer testing program is confirmed to be validated and qualified on the new DOT100 platform

# Thank you

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