

Samsung Process Change Notification

**To add Test Process Site
for DDR3/DDR4/Graphic Products
[Cheon-an in Korea]**

March 2020

Memory Quality Assurance
Samsung Electronics Co., Ltd

PCM200317001

THE NEXT CREATION STARTS HERE

PCN Summary and Schedule

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■ Purpose

- Samsung would like to add the memory component test site for consumer, module and graphic products in order to improve volume support in Cheon-an.
- The material and process and machine are exactly same like the previous line at On-yang. Therefore there would no impact on product quality and characteristic.

■ Affected Products and Change Item

Products		Change Item	AS-IS	TO-BE
DDR3	K4B%	Test Process	On-yang (Korea) SESS (China) SSPC (Philippines)	Onyang (Korea) SESS (China) SSPC (Philippines) + Cheon-an (Korea)
DDR4	K4A%			
SGDDR6	K4Z%			

※ Except for Industrial, Automotive Product

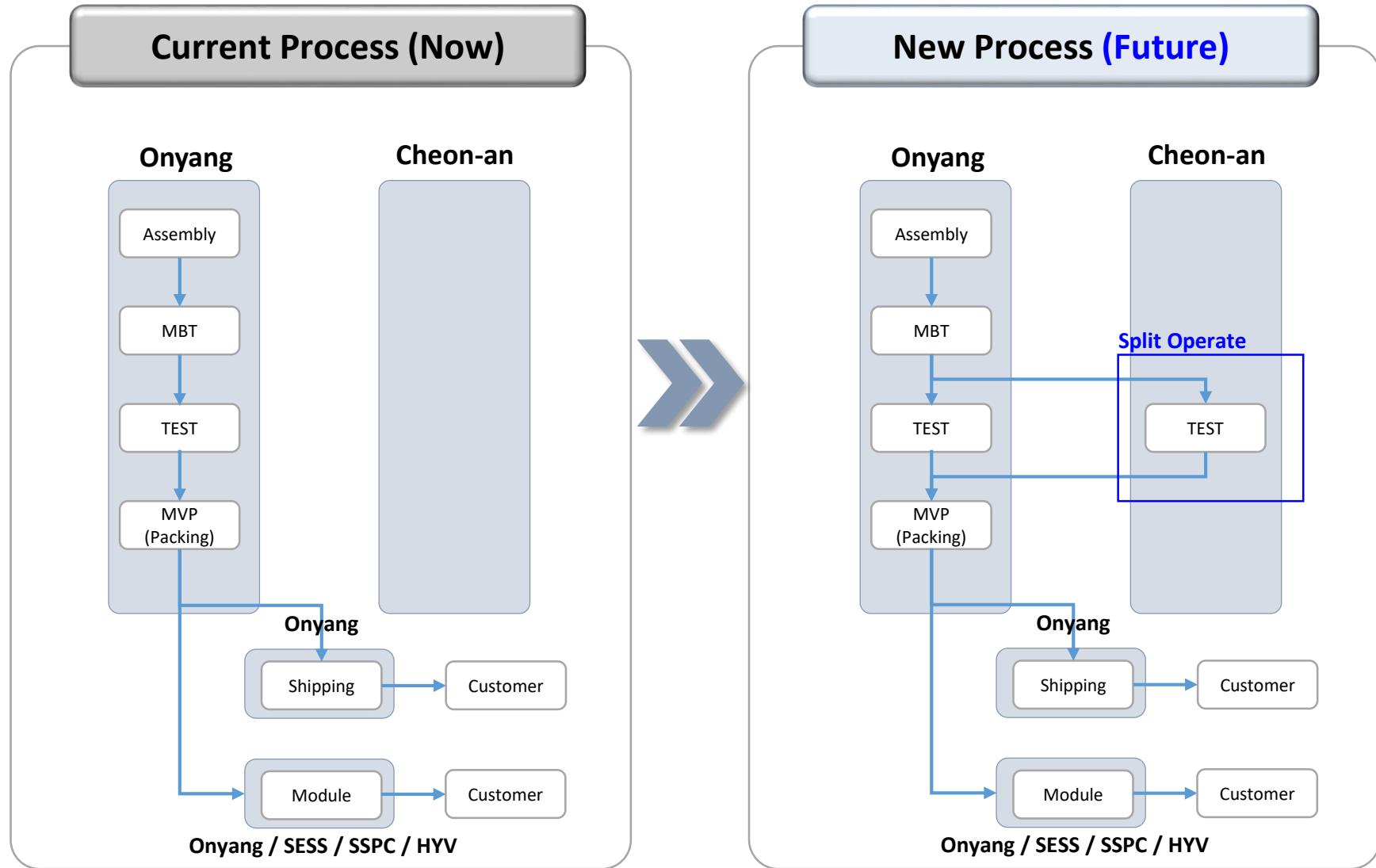
※ Once this PCN is approved officially, then this test site would be used not only for the above listed products but expanded to the others.

■ Effective Date

- Expected implementation date : Early of July 2020

Information of Process Change – DDR3/4, GDDR6, MODULE

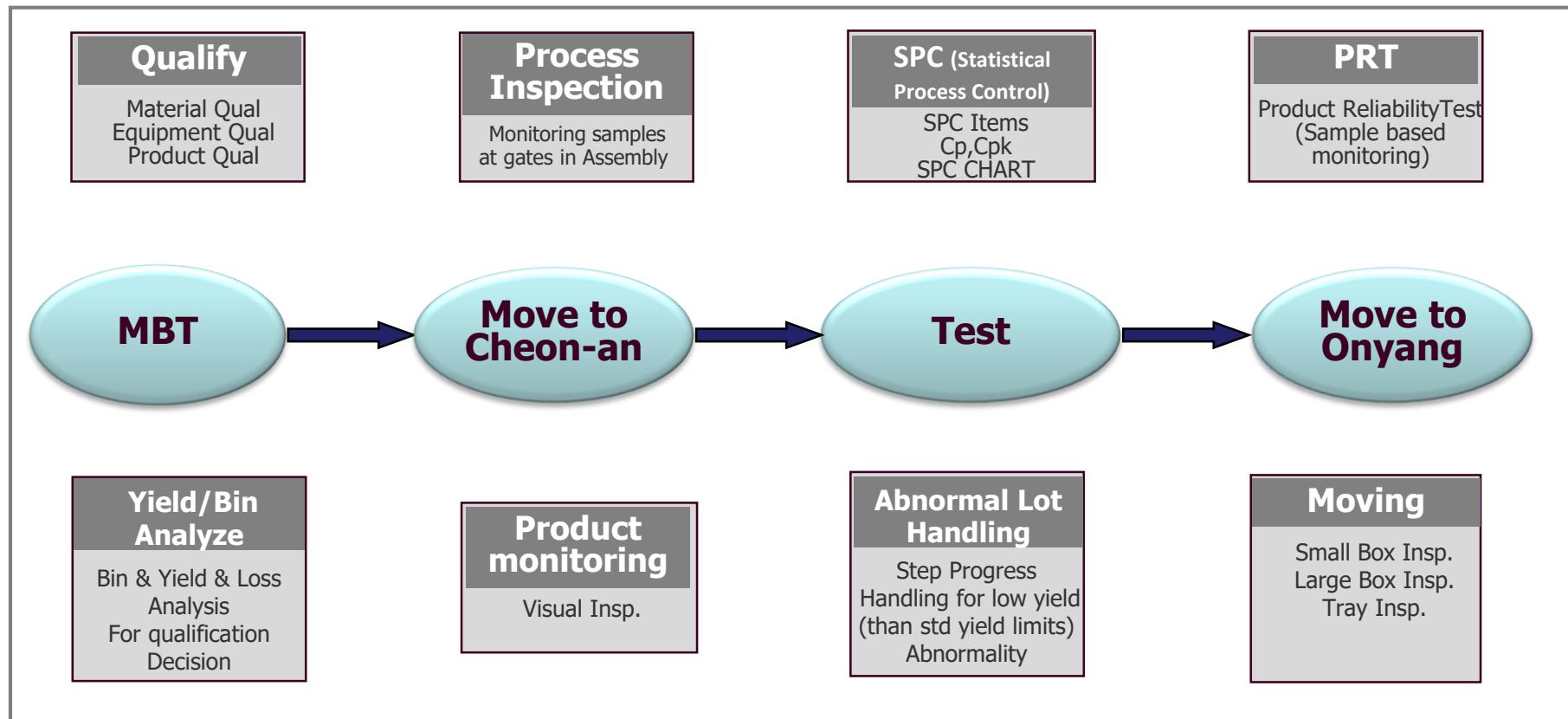
■ Product Process Split to Cheon-an (Target : Jul. '20)



- Samsung has preserved the Single Quality Policy for all test sites in terms of device characteristics and quality level.
- The Single Quality Policy considered the following 6 items (5M+1E)
 - Regular Internal Audit will be performed by Samsung Auditors.

Section		Items	System Infra
①	Man	* Qualifying Operators and Inspectors (All Personnel Working in Production Line)	
②	Machine	* Qualification * Verification (Repetition) * Statistical Method (SPC, DOE, Internal system etc)	
③	Measurement	* Calibration for the Measuring Equipment * Preventive Maintenance	Onyang and Cheon-an have the same intranet
④	Material	* Approval of the Material and Supplier * Incoming Inspection & Supplier Control	
⑤	Method	* Documentation of all Operating and Inspecting methods * Education and Evaluation * Statistical Method (SPC, DOE, Internal system etc)	E-SPEC PCCB
⑥	Environment	* Temperature and Humidity in all lines and storage * Particle, ESD etc	Central Control Room Equipment Engineering System

■ Samsung will maintain the test process for Cheon-an site under Samsung's Quality Control System Management like below figure.



■ Schedule of Mass Production

- The Test Process in Cheon-an site will be started from July 2020.

Product	Site	1Q. 2020	2Q.2020			3Q.2020			4Q.2020		
		Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
DDR3/4 GDDR6	Cheon-an										

INFRA Preparation (Mar. to May)

Internal Qualification (May to Jun.)

Sample and Qual. Report Distribution (Jun. to Jul.)

Mass Production (Jul. to Aug.)

- Cheon-an Campus is belonged in TSP which have operated Onyang campus.
- TSP have controlled 3 campuses Onyang, Cheon-an and SESS
- Cheon-an is located 55km far from Gi-heung & Hwasung and has been producing number of products.



'90.09	Onyang campus construction
'91.06	Onyang campus Mass Production starts
'96.07	SESS (Oversea Assembly Plant – China)
'01.06	Monthly 100 Million DRAM Production
'13.12	TSV set-up
'14.09	TSV Production starts
'16.04	HBM Production starts

Certification of International Standard

Confidential

‘93.06	ISO 9002	BSI-UK
‘96.07	ISO 14001	BVQI
‘99.12	OSHAS 18001	BVQI
‘01.10	ISO 9001:2000	BSI-KOREA
‘02.03	QS 9000 (3 rd Edition)	BSI-KOREA
‘02.12	BS 7799/ISO 17799	BSI-KOREA
‘03.11	ISO 17025 (Calibration)	KOLAS
‘04.09	ISO/TS 16949	BSI-KOREA
‘18.08	IATF 16949	BSI-KOREA
‘19.01	ISO45001	DQS



- *QS* : *Quality System* for Automotive Industry
- *TS* : *Technical Specification* for Automotive Industry
- *OSHAS* : *Occupational Safety & Health Administration System*
- *KOLAS* : *Korea Laboratory Accreditation Scheme*

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