Product / Process Change Notice

PCN No.: Q000-PCN-PA202011-01 Date: 2020-11-24.

Change Title: Add Greatek assembly and testing site at Tou-Fen factory

Change Classification: ☑ Major ☐ Minor

Change item: ☐ Design ☐ Raw Material ☐ Wafer FAB ☑ Package Assembly ☑ Testing ☐ Others: _____.

Affected Product(s) :

The affected part no. list, please refer to the Table 1 for more information.

Description of Change(s) :

Nuvoton's assembly and testing subcontractor, GREATEK Technology Inc., adds one new factory to expand manufacture capacity of assembly and testing. The new factory is qualified site by Nuvoton for assembly and testing process.

New site

Toufen factory (No.9 , ZhuongMin Road ,Toufen, Miaoli, Taiwan(R.O.C.)).

Reason for Change(s) :

To increase manufacturing capacity and flexibility and to have multiple manufacturing routes.

Impact of Change(s) : (positive & negative)

Form: No change.

Fit: No change.

Function: No change.

Reliability: No concern. (Passed qualification.)

Qualification Plan/ Results :

Passed the qualification of assembly packages and testing machines correlation, please refer to appendix A~B for the detailed report.

Implementation Plan :

1. This PCN is the formal announcement of the site change in process.
2. Nuvoton is ready to execute this PCN immediately after customer approval. Therefore, if customer approval is obtained prior to the implementation date, Nuvoton will make this PCN effective right afterwards.

☐ Date Code: _____ onward ☐ Lot No.: _____ onward ☐ Implemented date: Feb. 22, 2021 (scheduled)

Originator:	***H.Y. Lai / Q100***	***Approval:(QRA Director)***	***C.H. Shen/ Q000***
Contact for Questions & Concerns	Name: HYLai TEL: 886-3-5770066 (ext. 31226) FAX: 886-3-5792673. Address: No.4, Creation Rd. III Science-Based Industrial Park Hsinchu, Taiwan, R.O.C.. E-mail: hylai0@nuvoton.com.		

Customer Comments:

*Note: Please sign this notice, and return to **Nuvoton** contact window within **30** days. If no response is received within **30** days, this Change Request will be assumed to meet your approval.*

☐ Approval ☐ Disapproval ☐ Conditional Approval: _____.

Date: _____ Dept. name:_____ Person in charge:_____.

Follow-up and Tracing:

A. copies to

FAB : ☐ Integration _____☐_____☐_____☐_____☐_____.

Test / Product: ☐ _____☐_____☐_____☐_____☐_____.

Design/ Marketing: ☐ _____☐_____☐_____☐_____☐_____.

Production control/ Others: ☐ _____☐ _____☐_____☐_____☐_____.

B. Changes:

1. Document / Test program:

Document No/ test program	Document name/ test program name	version		responsibor	Completed date	Remark
		before	after			
NA	NA	NA	NA	NA	NA	NA

Verifed by: _____.

Table 1: Affected part lists

Part No.	Part No.	Part No.	Part No.	Part No.
AIQIM101	M0516ZDE	MINI54TDE	NAU8225YG	NCT7802Y
BT001	M058ZDN	MINI54ZDE	NAU8315YG	NM1120XC1AE
DST-V001	M2351ZIAAE	MINI57TDE	NAU85L40YG	NM1200TBAE
DTS2351ZIAAE	M251ZD2AE	MINI58TDE	NAU85L40YGB	NM1200ZBAE
ETQ7620	M252ZC2AE	MINI58ZDE	NAU8810YG	NM18101Y
HL004	M252ZD2AE	ML51TB9AE	NAU8814YG	NM18107Y
HL008	M263ZIAAE	ML51TC0AE	NAU88C22YG	NUC029TAE
I2115AYYI	M481ZGAAE	ML51XB9AE	NAU88L21YG	NUC029TAN
I2115AYYIR	M481ZGCAE	MS51TC0AE	NCT3532Y	NUC029ZAN
I2130YYI	M481ZIDAE	MS51XB9AE	NCT3532Y-L	NUC029ZPOE
I2130YYIR	M482ZGCAE	MS51XC0BE	NCT3953Y-D	NUC102ZD2AN
LC002	M482ZIDAE	N76E003AQ20	NCT5510Y-D	NUC121ZC2AE
LC002A	M485ZIDAE	NANO102ZB1AN	NCT5532Y-B	NUC122ZD2AN
M030TD2AE	MI48	NANO102ZC2AN	NCT5605Y	NUC122ZD2DN
M031TB0AE	MINI51TDE	NANO103ZD3AE	NCT5635Y	NUC125ZC2AE
M031TC1AE	MINI51ZDE	NANO112LB1AN	NCT5655Y	TZ0801
M031TD2AE	MINI52TBN	NAU82011YG	NCT5946Y	XFC40QA
M032TD2AE	MINI52ZDE	NAU8224YG	NCT7362Y	YM0232A-04T

Appendix A: Greatek management introduction report

超豐電子股份有限公司
GREATEK ELECTRONICS INC.

Greatek Management Introduction

Purpose :
Product Management & Engineering of Site3 unify with Site1/2

PROMISE
TECHNOLOGY
INTEGRATION

www.greatek.com.tw

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Content

	As Is (Gong-Yi, Site 1)	As Is (Gong-Yi, Site 2)	**To Be (Toufen, Site 3)**
1. GTK Certificate	o	o	o
2. Quality Management System	Management review : CIP review / KPI review / Yield and Cycle Time review Same E-system : SPC / Maintenance / Material / GP / Calibration / OPL		
3.Clean Room & ESD Control	Same control method		
4.Training Management System	Use Same Qualification Certificate System		
5. Production Management System	Same control rule, Recipe and material and tools are all controlled by barcode system.		
6. 4M Analysis Summary	o	o	o

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GTK Certificate Milestones

1998
ISO 9002:1994

2000
QS 9000:1998

2001
ISO 14001:1996

2003
ISO 9001:2000
SONY GP

2007
TS 16949:2002
Canon Green

2009
ISO 9001:2008
TS 16949:2009

2013
QC 080000:2012

2017
ISO 26262:2011

2020
ISO 9001 :2015
IATF 16949 :2016
ISO 14001:2015
QC 080000:2017
SONY GP
ESD S20.20:2014
ISO 45001 :2018

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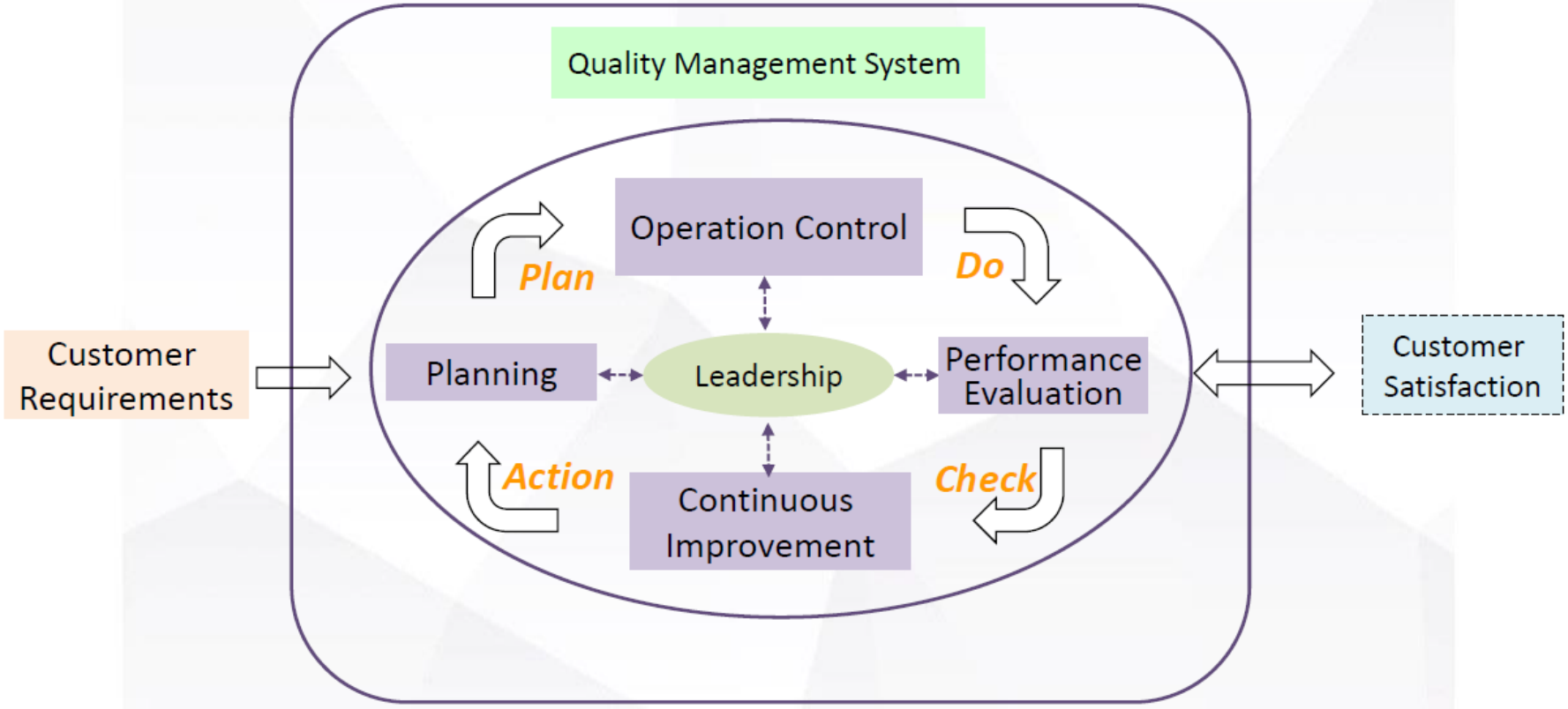
Quality Management System

❑ ISO 9001 / IATF 16949



Management review : Bi-annually
CIP review :Quarterly
KPI review : Monthly
Yield and Cycle Time review : Weekly

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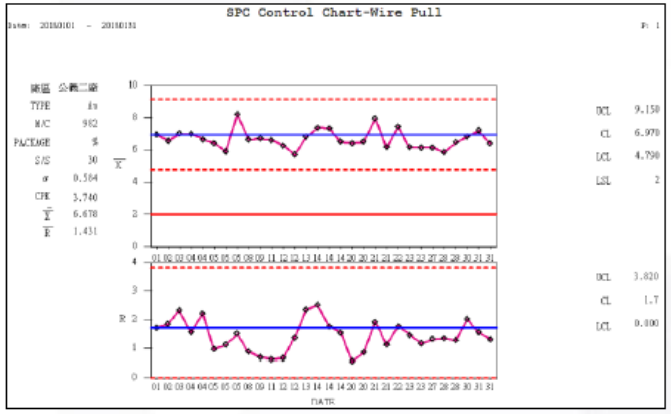
Quality Management System

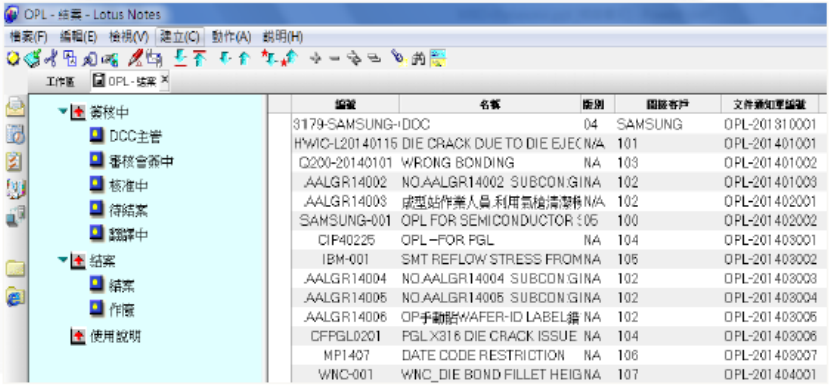
1. SPC System



2.Machine Preventive Maintenance System

3. Calibration Control System

4.OPL system



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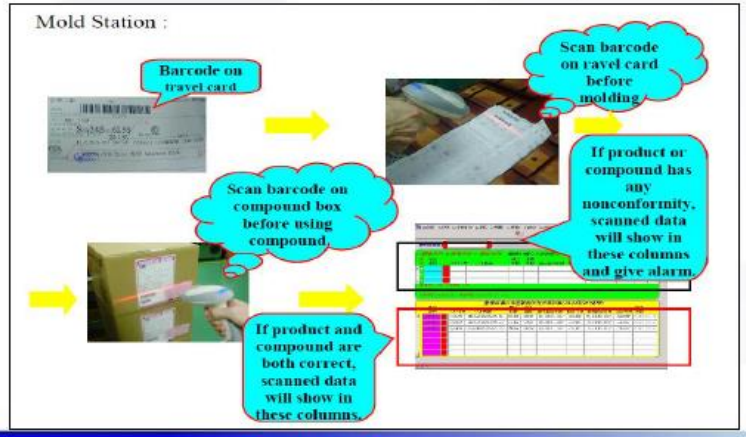
Quality Management System

5.Material FIFO Management System

6. GP System (Control ICP & MSDS Report)

種類	供應商	品名	呎寸	到期	DCC狀態	MSDS到期
原材						
	Ablestik(Henkel)	Epoxy	45	2015/07/08	V0401	2015/10/16
	ASM	Lead Frame	7	2015/12/24	V0115	2015/10/25
	Haesung(Samsung NDS)	Lead Frame	8	2015/12/04	V0111	2015/07/10
	HENKEL	絕緣膠	15	2015/09/12	V0402	2016/09/17
	HERAEUS	Ou wire	2	2015/07/07	V0310	2016/08/14
	Hitachi	保護膠	2	2015/10/13	V0210	2015/10/05
	M.K(Korea)	Bonding wire	8	2015/10/22	V0305	2015/11/05
	NIPPON	Ou wire	2	2016/01/05	V0311	2016/09/03
	NITTO	Film	11	2015/08/28	V0208	2016/01/14

7.Material Control by Barcode System



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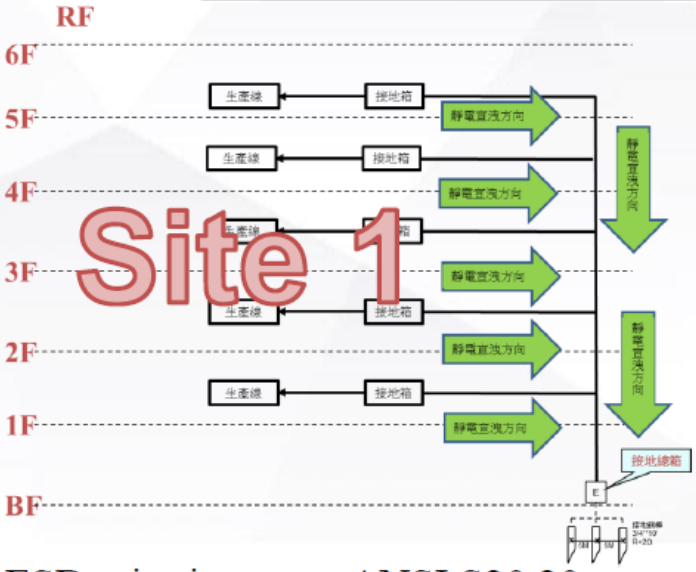
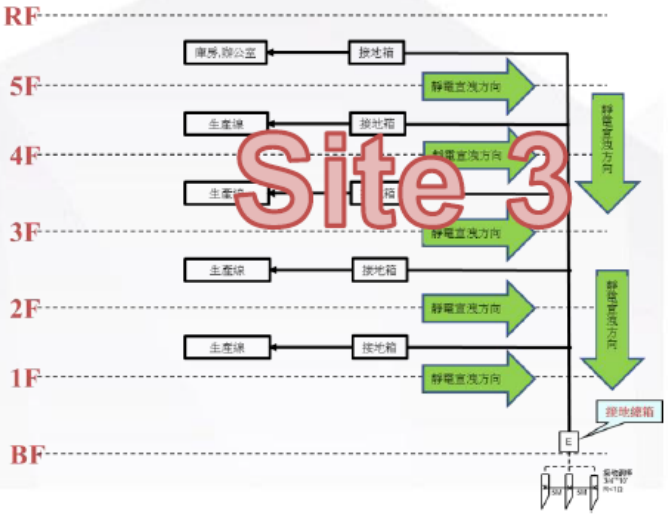
Clean Room & ESD Control--All With Same Criteria

Control Item		Criteria	Monitor Frequency	Measurement Instrument
Work surface		$1*10^4$~$1*10^9\Omega$	Quarterly	Height resistivity meter
ESD Footwear		$1*10^4$~$1*10^9\Omega$	Enter Clean Room	Height resistivity meter
Wrist Strap		$1*10^4$~$1*10^9\Omega$	Enter working area	Height resistivity meter
Conductive Floor		$1*10^4$~$1*10^9\Omega$	Quarterly	Height resistivity meter
Work Chair		$<1*10^9\Omega$	Quarterly	Height resistivity meter
Ion Fan	Decay time	±1000 to ±100 ,<5 sec	Monthly	Charge Plate Monitor
	Balance Voltage	< ±30V,>60secs		
Product (Material) Shelf		$1*10^4$~$1*10^9\Omega$	Quarterly	Height resistivity meter
Trolley		$1*10^4$~$1*10^9\Omega$	Quarterly	Height resistivity meter
Equipment Grounding		$<1\Omega$	Monthly	Multi-meter
Under-floor ESD Network		$<1\Omega$	Annually	Grounded resistivity meter





ESD criteria meets ANSI S20.20.

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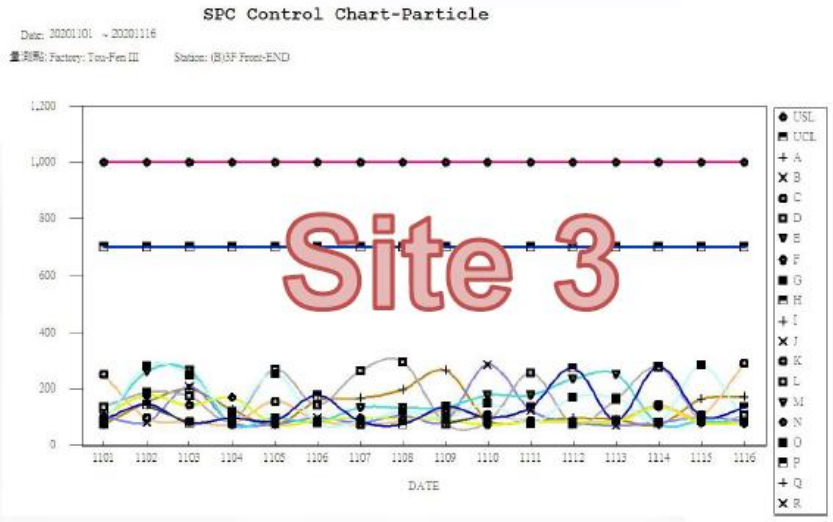
Clean Room & ESD Control

Station	Factor	Spec. Limit	Alarm Limit
Clean Room	Particle Volume	<1000 *1	> 700 *1

*1:particle q'ty ,size above over 0.5 µm



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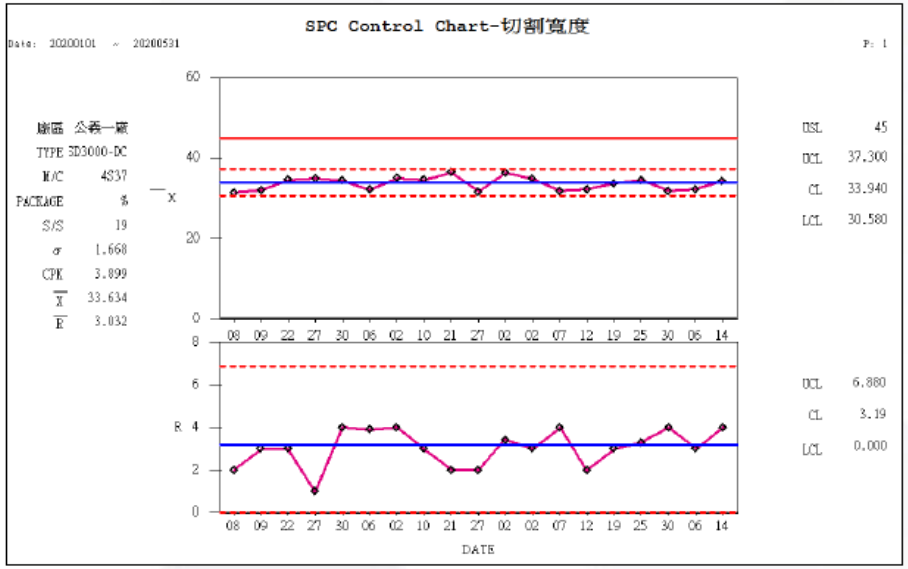
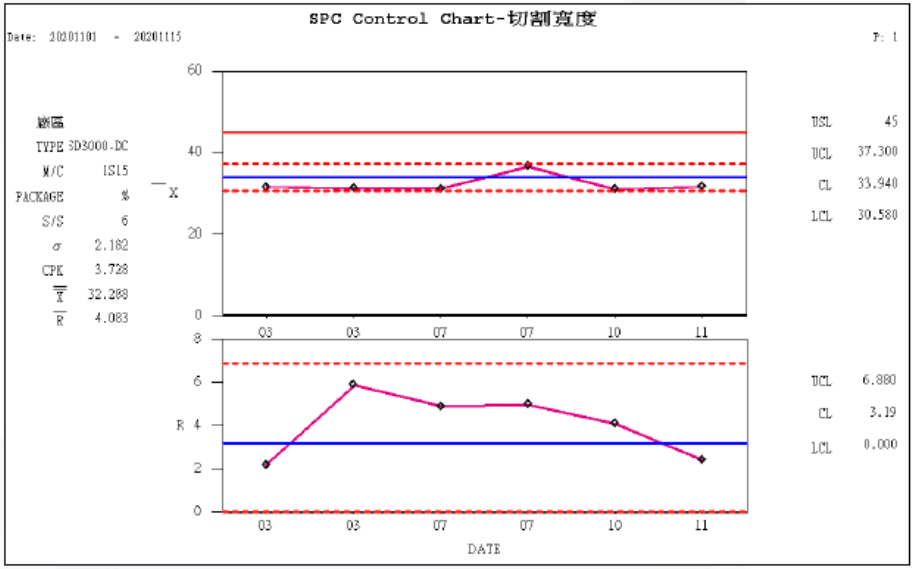
SPC

Kerf width

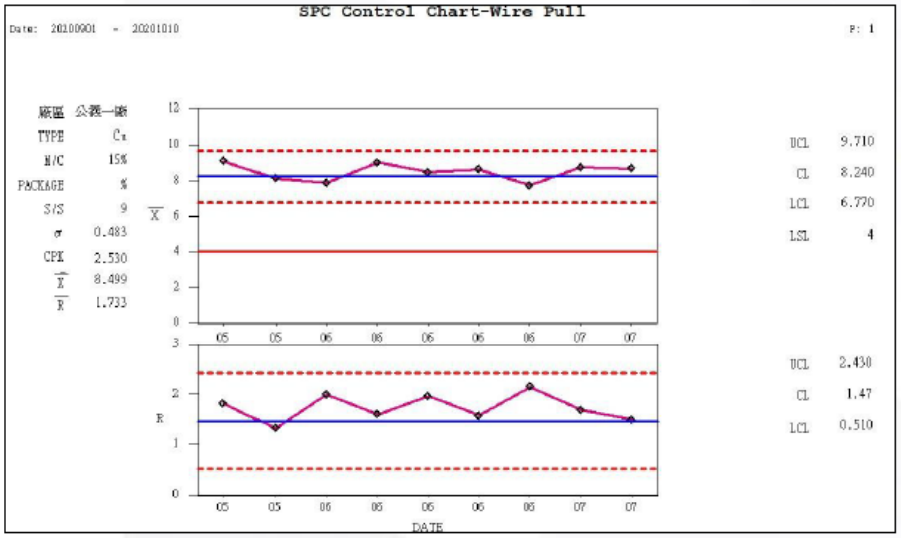




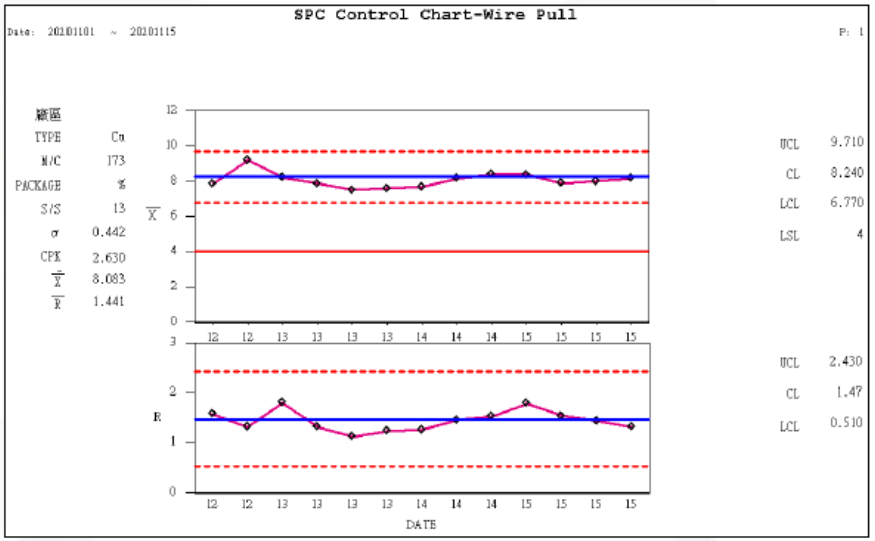
Site 1

Site 3

Wire pull

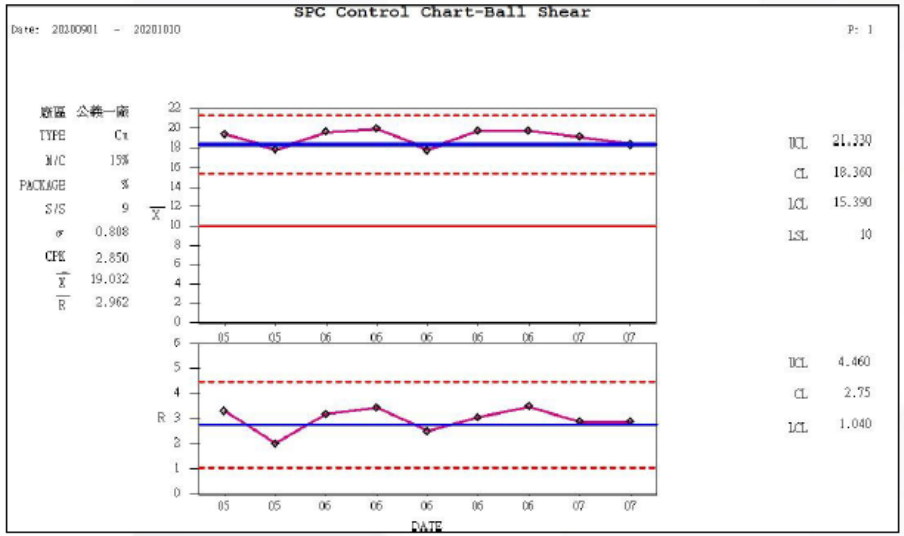


Site 1

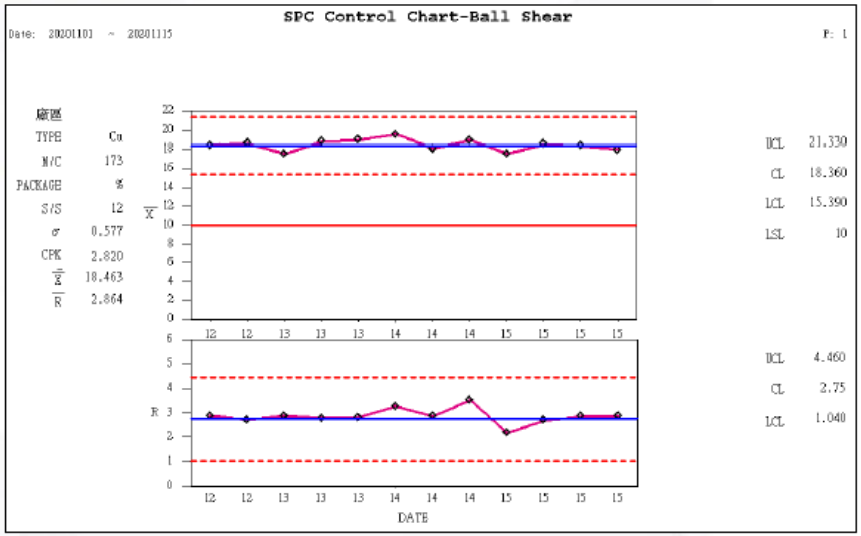


Site 3

Ball shear

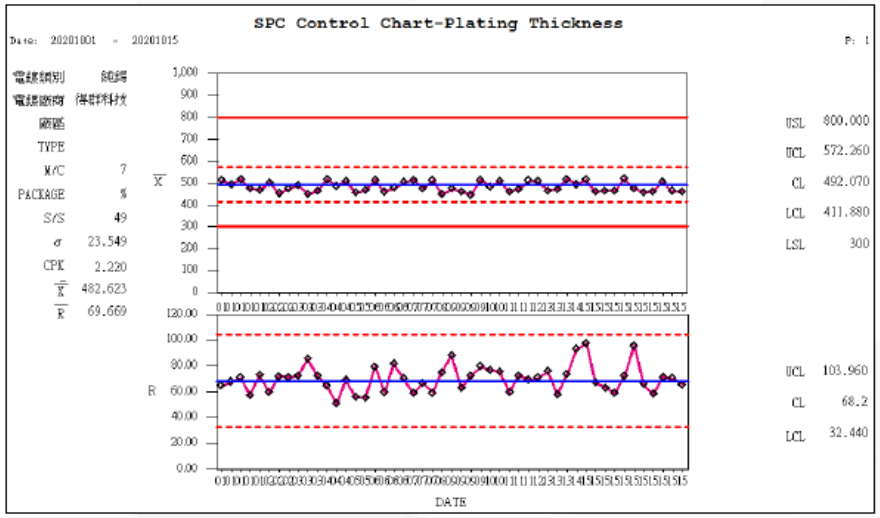


Site 1

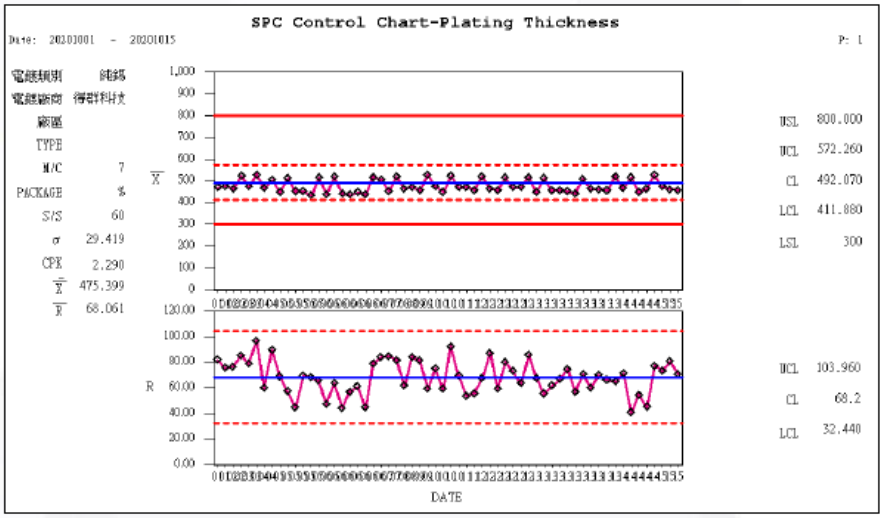


Site 3

Plating thickness



Site 1



Site 3

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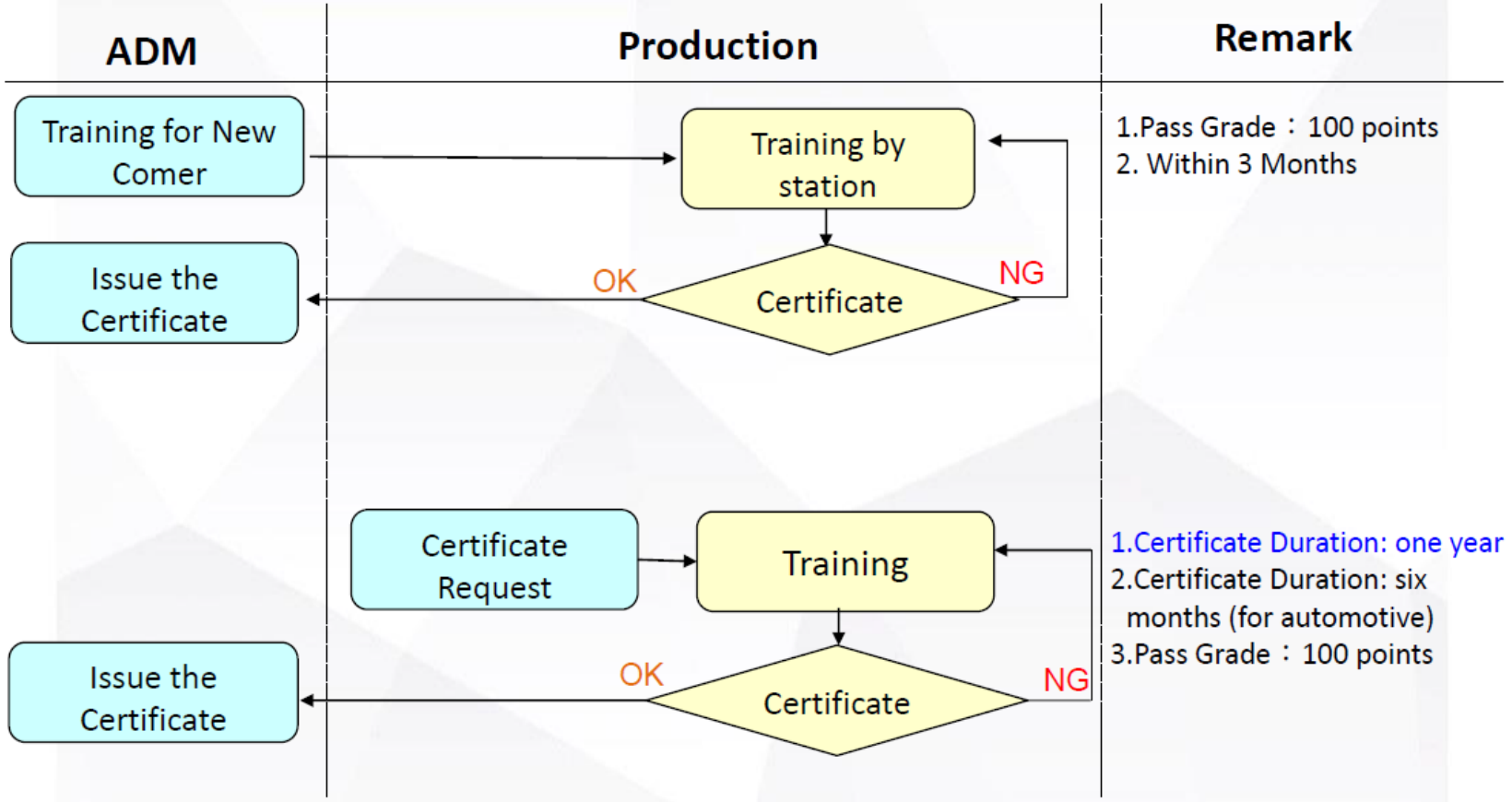
Training Management - Certificate Flow



Qualification Certificate System

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Issue Notice by E-mail

Recording on system

一般作業人員認證

登錄帳號：ga/Greatek　　評鑑日：2017/07/28

部門	H530製一部二廠	班別	C A(E,G,常日班),B(F,H班) C(I,K班),D(J,L班)

認證人員:

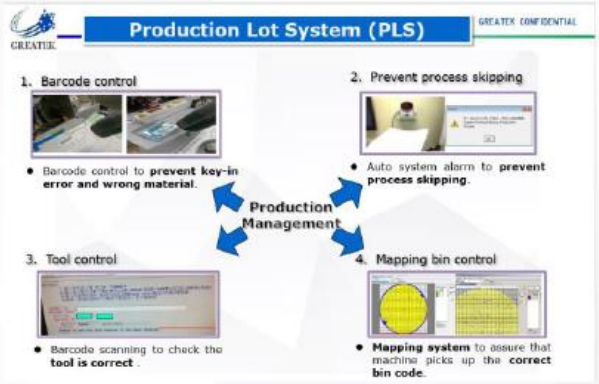
通過	工號	姓名	職稱	班別	站別碼	說明	上次認證日/吊銷日	筆試成績	實作成績	認證類別
通過	85034	賴碧貞	領	C	230-1	ESEC機台	2016/08/05	100	100	重
通過	950479	風春梅	技	C	230-3	三目視	2016/08/05	100	100	重
通過	950572	李憶華	技	C	230-1	ESEC機台	2016/08/05	100	100	重

To issue the Qualified Work Badge

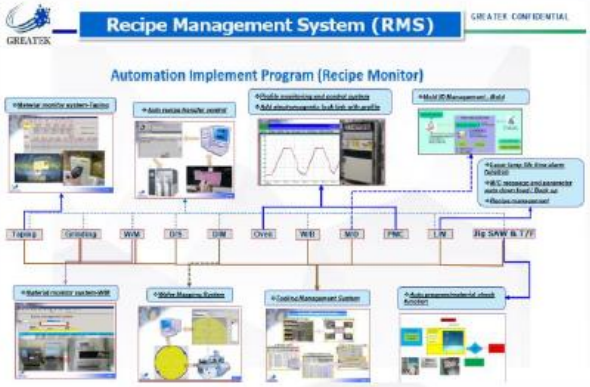
No allow production if no certification (by system control)

Production Management System

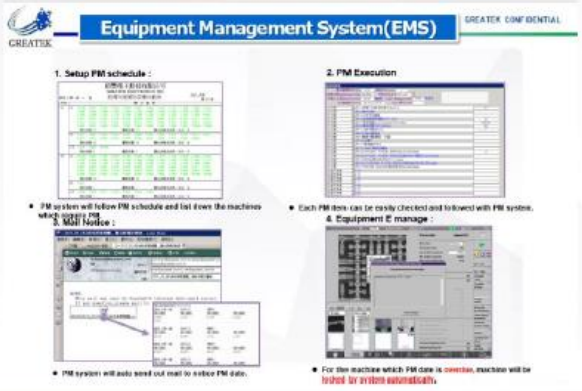
1.Production Lot System



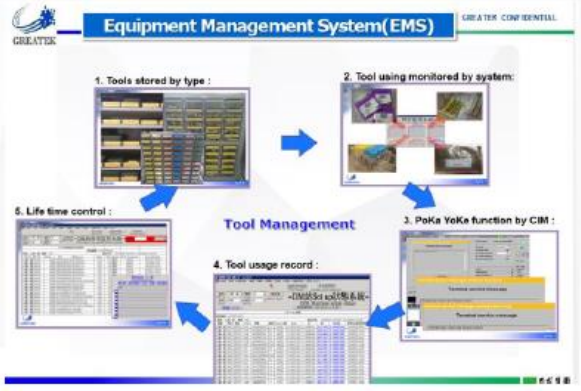
2.Recipe Management System



3.Equipment Management System



4. Tool & Material Management System



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4M Analysis (QFN for P1 & P3)

Front End

Process Name		Gung-Yi Plant I	Toufen Plant
Wafer IQC	Man	Qualification by Spec. QI-00-001	Qualification by Spec. QI-00-001
	Machine	High Power Microscope	High Power Microscope
	Material	-	-
	Method	Follow Spec. QI-00-001	Follow Spec. QI-00-001
Wafer Grinding	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	8540 / 8560 / 8761	8560 / 8761
	Material	-	-
	Method	Follow Spec. OI-00-190	Follow Spec. OI-00-190
Laser Grooving	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	DFL7161	DFL7161
	Material	Diso Hogomax003	Diso Hogomax003
	Method	Follow Spec. OI-00-240	Follow Spec. OI-00-240
Wafer Saw	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	DFD6361 / DFD6560	DFD6560
	Material	-	-
	Method	Follow Spec. OI-00-210	Follow Spec. OI-00-210
Die Mounting	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	Besi 2100	Besi 2100
	Material	Follow BOM (Lead Frame / Epoxy / Film)	Follow BOM (Lead Frame / Epoxy / Film)
	Method	Follow Spec. OI-00-220	Follow Spec. OI-00-220
Wire Bond	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	KNS Procu-LA	KNS Procu-LA
	Material	Follow BOM (Cap / Wire)	Follow BOM (Cap / Wire)
	Method	Follow Spec. OI-00-230	Follow Spec. OI-00-230

Back End

Process Name		Gung-Yi Plant I	Toufen Plant
Molding	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	TOWA	TOWA
	Material	Compound	Compound
	Method	Follow Spec. OI-00-310	Follow Spec. OI-00-310
Marking	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	EO-SY2002	EO-SY2002
	Material	-	-
	Method	Follow Spec. OI-00-325	Follow Spec. OI-00-325
Singulation	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	FMS3040	FMS3040
	Material	Leadframe	Leadframe
	Method	Follow OI-00-537	Follow OI-00-537
T/R L/S	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	Micro Vision 996M series ISMECA series	ICOS T740 ISMECA series
	Material	-	-
	Method	Follow OI-00-726	Follow OI-00-726
Packing (tray)	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	JF-325	JF-325
	Material	-	-
	Method	Follow OI-00-720	Follow OI-00-720

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4M Analysis (L/F Base for P1 & P2)

Front End

Process Name		Gung-Yi Plant I	Gung-Yi Plant II
Wafer IQC	Man	Qualification by Spec. QI-00-001	Qualification by Spec. QI-00-001
	Machine	High Power Microscope	High Power Microscope
	Material	-	-
	Method	Follow Spec. QI-00-001	Follow Spec. QI-00-001
Wafer Grinding	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	850 / 8540 / 8560 / 8761	841 / 850 / 8560
	Material	-	-
	Method	Follow Spec. OI-00-190	Follow Spec. OI-00-190
Laser Grooving	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	DFL7161	DFL7161
	Material	Disco Hogomax003	Disco Hogomax003
	Method	Follow Spec. OI-00-240	Follow Spec. OI-00-240
Wafer Saw	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	DFD641 / DFD651 / DFD6340 / DFD6361 / DFD6560	DFD640 / DFD641 / DFD651 / DFD6361 / DFD6560
	Material	-	-
	Method	Follow Spec. OI-00-210	Follow Spec. OI-00-210
Die Mounting	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	Besi 2007 / 2008 / 2100	Besi 2007 / 2008 / 2100
	Material	Follow BOM (Lead Frame / Epoxy / Film)	Follow BOM (Lead Frame / Epoxy / Film)
	Method	Follow Spec. OI-00-220	Follow Spec. OI-00-220
Wire Bond	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	ESEC 3100 / 3200 KNS Procu / ProCu-LA	ESEC 3100 / 3200 KNS Procu
	Material	Follow BOM (Cap / Wire)	Follow BOM (Cap / Wire)
	Method	Follow Spec. OI-00-230	Follow Spec. OI-00-230

Back End

		Gung-Yi Plant I	Gung-Yi Plant II
Molding	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	TOWA Y series	TOWA Y series
	Material	Compound	Compound
	Method	Follow Spec. OI-00-310	Follow Spec. OI-00-310
Marking	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	EO-SY2002	EO-SY2002
	Material	-	-
	Method	Follow Spec. OI-00-325	Follow Spec. OI-00-325
T/F	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	GMM CP150 / SU51	GMM CP150 / SU51
	Material	Leadframe	Leadframe
	Method	Follow OI-00-520	Follow OI-00-520
T/R L/S	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	Microvision 996 series	Microvision 996 series
	Material	-	-
	Method	Follow OI-00-726	Follow OI-00-726
Packing (tray)	Man	Qualification by Spec. AD-00-104	Qualification by Spec. AD-00-104
	Machine	JF-325	JF-325
	Material	-	-
	Method	Follow OI-00-720	Follow OI-00-720

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GRR Data for New Site(Tester)

Trials	D_4	UCL_R represents the limit of individual R's. Circle those that are beyond this limit. Identify the cause
2	3.27	and correct. Repeat these readings using the same appraiser and unit as originally used or discard
3	2.58	values and re-average and recompute R bar and the lomiting value from the remaining observations

UCL_R = 0.8944

Reproducibility - Equipment Variation (EV)	Trials	K_1	%EV = 100 [EV/TV]
EV = R bar * K_1	2	0.8862	= 5.12%
= 0.2048	3	0.5908	

Reproducibility - Appraisers (AV)			%AV = 100 [AV/TV]
AV = Square Root {(X bar diff * K_2) square - EV square/(nr)}			= 1.37%
= 0.0547			

	Appraisers	2	3
n = parts r = trials	K_2	0.7071	0.5231

Repeatability & Reproducibility (GRR)			%GRR = 100 [GRR/TV]
GRR = Square Root (EV square + AV square)	Parts	$K3$	= 5.30%
= 0.2120	2	0.7071	

Part Variation (PV)	3	0.5231	%PV = 100 [PV/TV]
PV = R_P * K_3	4	0.4467	= 14.59%
= 0.5838	5	0.403	

Total Variation (TV)	6	0.3742	
TV = SQUARE ROOT(R&R SQUARE + PV SQUARE)	7	0.3534	
TV = STANDARD DEVIATION	8	0.3375	V PASS
TV = PART'S TOLERANCE	9	0.3249	IMPROVE
TV = 0.6211	10	0.3146	REJECT

CODE:22-31-830-002/01/A

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GRR Data for New Site(Tester)

Trials	D_4	UCL_R represents the limit of individual R's. Circle those that are beyond this limit. Identify the cause
2	3.27	and correct. Repeat these readings using the same appraiser and unit as originally used or discard
3	2.58	values and re-average and recompute R bar and the lomiting value from the remaining observations

UCL_R = 0.8944

Reproducibility - Equipment Variation (EV)	Trials	K_1	%EV = 100 [EV/TV]
EV = R bar * K_1	2	0.8862	= 5.12%
= 0.2048	3	0.5908	

Reproducibility - Appraisers (AV)			%AV = 100 [AV/TV]
AV = Square Root {(X bar diff * K_2) square - EV square/(nr)}			= 1.37%
= 0.0547			

	Appraisers	2	3
n = parts r = trials	K_2	0.7071	0.5231

Repeatability & Reproducibility (GRR)			%GRR = 100 [GRR/TV]
GRR = Square Root (EV square + AV square)	Parts	$K3$	= 5.30%
= 0.2120	2	0.7071	

Part Variation (PV)	3	0.5231	%PV = 100 [PV/TV]
PV = R_P * K_3	4	0.4467	= 14.59%
= 0.5838	5	0.403	

Total Variation (TV)	6	0.3742	
TV = SQUARE ROOT(R&R SQUARE + PV SQUARE)	7	0.3534	
TV = STANDARD DEVIATION	8	0.3375	V PASS
TV = PART'S TOLERANCE	9	0.3249	IMPROVE
TV = 0.6211	10	0.3146	REJECT

CODE:22-31-830-002/01/A

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Appendix B: Greatek reliability test report

GREATEK ELECTRONICS INC.
No.136, Gong-Yi Rd., Zhunan Township, Miaoli County 350, Taiwan R.O.C.
Tel : (037)638-568 Fax : (037)628-323

Reliability Test Report

Customer : Greatek

Purpose : Reliability Test.

Package Type : QFN 32L (5x5x0.75mm)

Report No : Q710-RELI-C19082025

Report Date : 23-SEP-2019

Conclusion : The test results were all passed.

Approved By : J.Y. Huang **Prepared By :** Claud

Date : 23-SEP-2019 **Date :** 23-SEP-2019

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1. Sample Background

1.1 Sample Background:

Package Type :	**QFN 32L (5x5x0.75mm)**	L/F Material :	**C7025**
Device :	**CS*****	Lead Frame:	**134*134 mil**
Lot No:	**PG9A121B6**	Epoxy:	**1076DJ-G**
Mo No:	***	Wire:	**Cu wire 0.8mil**
Date code :	***	Compound	**G700H**
Exposed pad :	**NO**	Lead Finish	**Pure Tin**
Apply Date:	**09-AUG-2019**	Sample Size:	**135EA**
Complete Date:	**20-SEP-2019**	Report No:	**Q710-RELI-C19082025**

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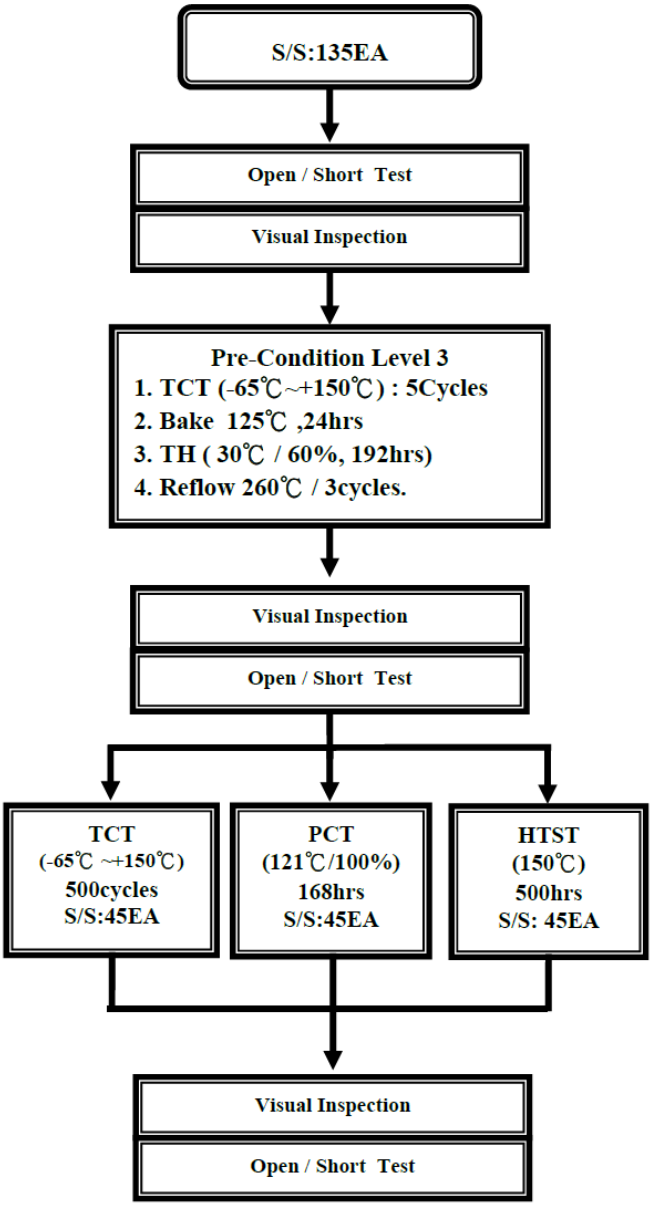
2. Test Flow Chart

2.1 Precondition:



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3. Inspection method

3.1 Visual Inspection:

Purpose: In order to check whether the samples have package crack or not before/after reliability test.

Apparatus: Power Scope (7~40x)

3.2 SAT Inspection:

Purpose: Inspecting the delamination of concerned layer.

Apparatus: SONIX ECHO-VS

4. Environment Stress / Mechanical Test

4.1 Precondition:

This test method establishes an industry standard preconditioning flow for plastic SMDs (surface mount device) that is representative of a typical industry multiple solder reflow operation.

Test procedure is as following:

Stept1: TCT (-65℃~+150℃) : 5Cycles

Stept2: Bake 125℃ ,24hrs

Stept3: Moisture Soak (30℃ / 60% / 192hrs)

Stept4: Reflow 260℃ / 3cycles

4.2 Pressure Cooker Test :

The "Accelerated Moisture Resistance Test" is performed for the purpose of evaluating the moisture resistance of nonhermetic packaged solid state devices. It employs severe conditions of pressure, humidity and temperature that accelerate the penetration of moisture through the external protective material (encapsulant or seal) or along the interface between the external protective material and the metallic conductors that pass through it. This test is destructive; it may* be used for qualification, lot acceptance and as a product monitor.

Test condition: 121℃/100%, 2atm, 168hrs.

4.3 Temperature Cycle Test :

This test is conducted to determine the resistance of a part to extremes of high- and low-temperatures, and to the effect of alternate exposures to these extremes.

Test condition: -65℃ ~ +150℃, 500cycles.

4.4 High Temperature Storage Life:

The purpose of this test is to determine the effect on solid state electronic devices of storage at elevated temperature without electrical stress applied. This test is considered destructive and, therefore, is applicable for device qualification.

Test condition: 150℃, 500hrs

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5. Reliability Test Results

5.1 Summary of test results：

Test Procedure	Sample Size	Visual Insp. Rej/s.s	Open / Short Test rej/s.s	SAT insp Rej/s.s	Judgment
Before Pre-condition	135EA	0/135	0/135	0/45	PASS
After Pre-condition	135EA	0/135	0/135	0/45	PASS
PCT 168hrs	45EA	0/45	0/45	N/A	PASS
TCT 500cycles	45EA	0/45	0/45	N/A	PASS
HTST 500hrs	45EA	0/45	0/45	N/A	PASS

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5.2 Detail Informations of SAT Inspection：

5.2-1 Before Precondition :

Focus	Die Surface		Lead Surface (Top side)			Die Pad (Top side)	
SPEC	0% acc	>0% rej	0% acc	Partial length on lead acc	Entire length on lead rej	0% acc	>0% rej
S/S	45	0	45	0	0	45	0

5.2-2 After Precondition :

Focus	Die Surface		Lead Surface (Top side)			Die Pad (Top side)	
SPEC	0% acc	>0% rej	0% acc	Partial length on lead acc	Entire length on lead rej	0% acc	>0% rej
S/S	45	0	45	0	0	45	0

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6. Conclusion

The test results were all passed.

7. Reference

✸ **JESD22-A113** Preconditioning of Plastic Surface Mount Devices Prior to Reliability Testing

✸**IPC/JEDEC J-STD-020E** Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices.

✸ **JESD22-A101** Temperature/Humidity Chamber Operation Instruction

✸ **JESD22-A102** Pressure Cooker Test

✸ **JESD22-A103** High Temperature Storage Life Test

✸ **JESD22-A104** Temperature cycling

✸**Greatek Spec #QA-00-402** SAT Operation Instruction

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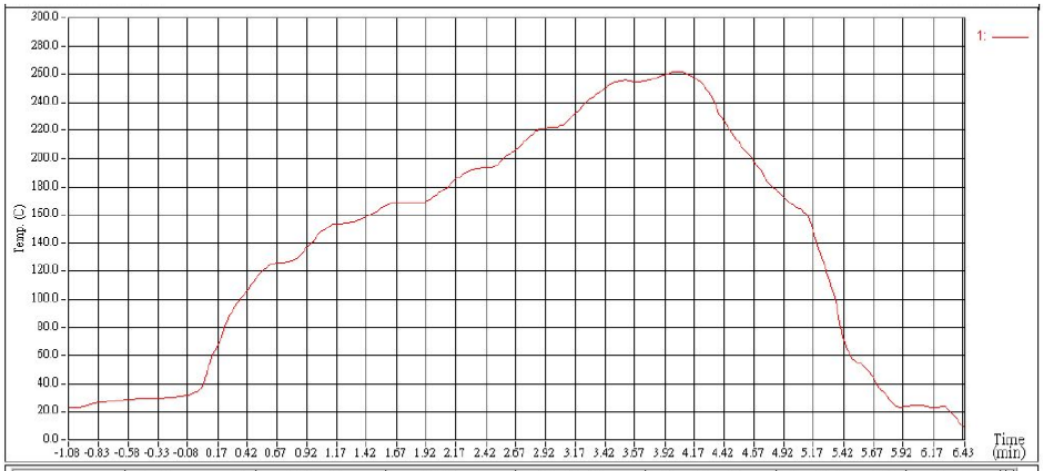
8. Attachments:

PROFILE for SMD.



	Ave Ramp up rate(T)	Holding Time	Peak Temp.	Liquidus Temp.	Time Above Temp.	Ave Cooling rate(T)	Result
Boundary	217.00-260.00 C	150.00-200.00 C	-------	217.00 C	255.00 C	260.00-217.00 C	
Range	0.00-3.00 (C/sec)	60.00-120.00 (sec)	260.00-265.00 (C)	60.00-150.00 (sec)	30.00-40.00 (sec)	6.00-0.00 (C/sec)	
sensor1	0.63	90.00	261.90	101.00	33.00	1.87	OK

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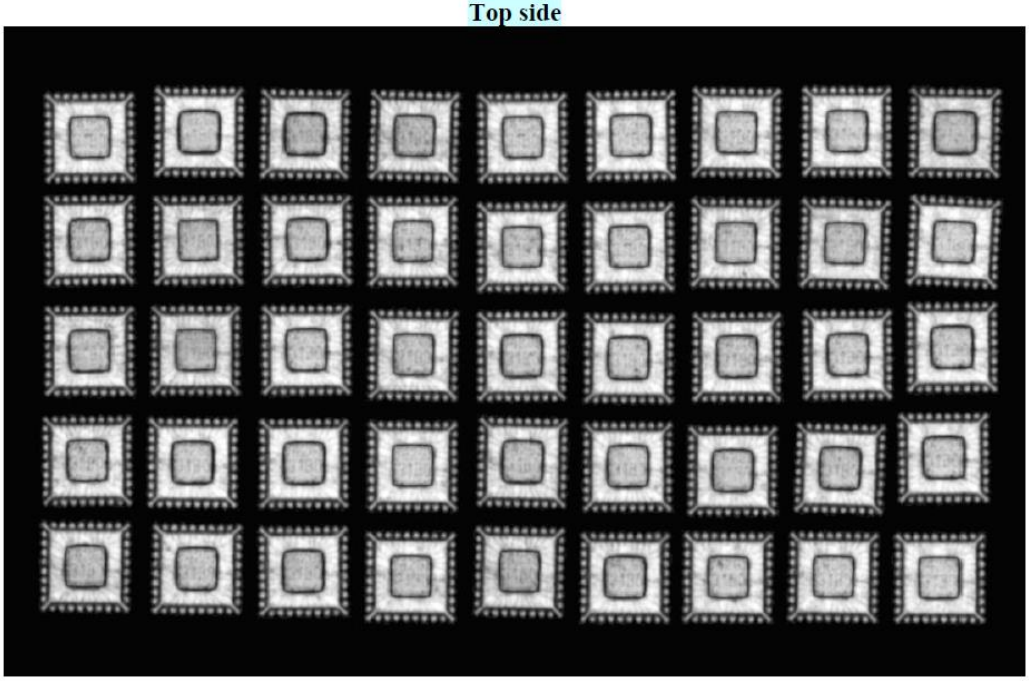
9. SAT Photo：

Before Precondition：

Top side



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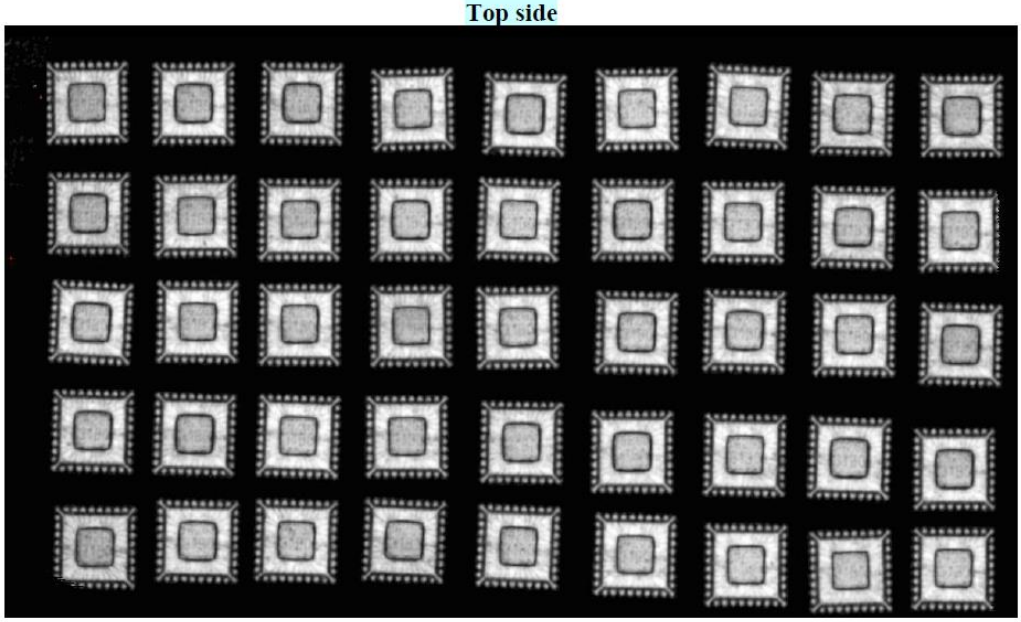
After Precondition ：

Top side



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