
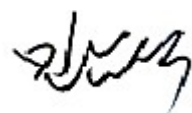
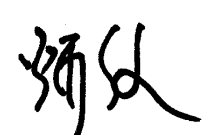


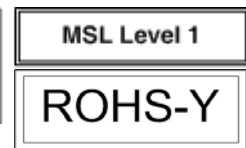
Approval Sheet

Products	Dielectric Chip Antenna		
Customer	CALCOMP		
Model	A300		
Customer CODE	SZCC2500P08		
Supplier	PARTRON		
Supplier CODE	KU250		
CALCOMP	By designed	By checked	By approved
PARTRON	By designed	By checked	By approved
			
	Research 5P	Quality Assurance	Laboratory
	Chanik.Jeon	Nam-Sik. Min	Byoung-Jun.Yim
	06/26	06/26	06/26

2009 . 06. 26






22-6, Seokwoo-dong, Hwaseong-si, Gyeonggi-do, 445-170, KOREA
 Tel : 82-31-201-7870~6
 Fax : 82-31-201-7800
www.partron.co.kr



SPECIFICATION

MODEL : KU250

DIELECTRIC CHIP ANTENNA

By designed	By checked	By approved
		
Research 5P	Quality Assurance	Laboratory
Chanik.Jeon	Nam-Sik. Min	Byoung-Jun.Yim
06/26	06/26	06/26

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2. Electrical Characteristics

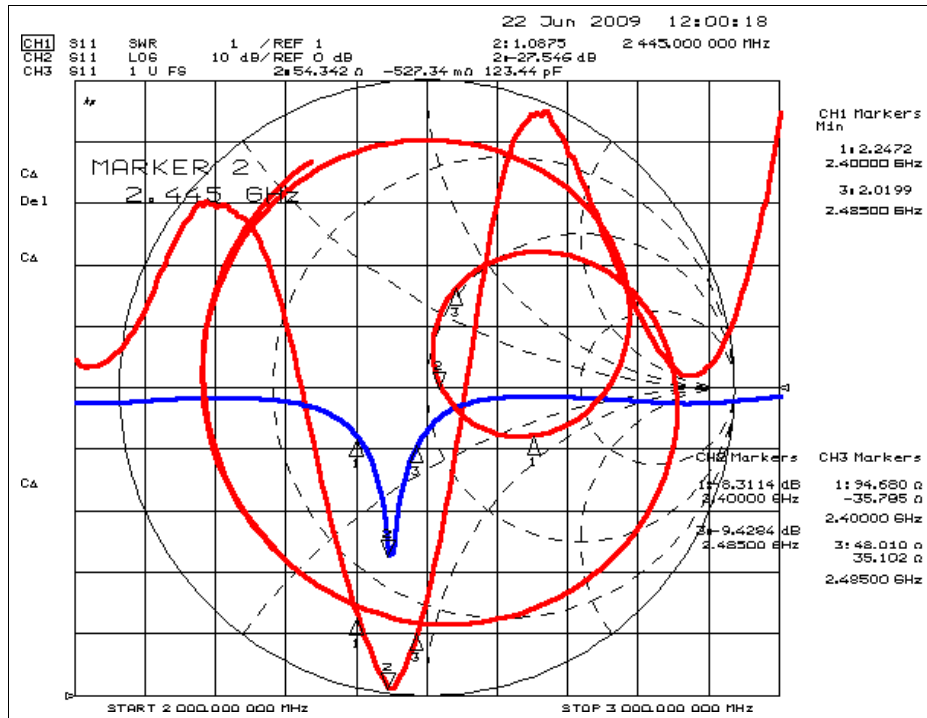
2.1 Set Condition

ITEM		SPEC	
Frequency Range [MHz]		2400 ~ 2485	
VSWR [Max]		3 : 1	
Bandwidth [MHz]		85	
Polarization		Linear	
Matching Value of ANT Matching Circuit (Direction, from Antenna to Module)		Series	1.0nH
		Shunt1	NC
		Shunt2	1.0pF
Gain[dBi]	Azimuth Plane	Peak	3.15
		Average	0.81
	Elevation1 Plane	Peak	0.81
		Average	-3.04
	Elevation2 Plane	Peak	3.10
		Average	-3.03
	3D	Peak	3.15
		Average	-2.22

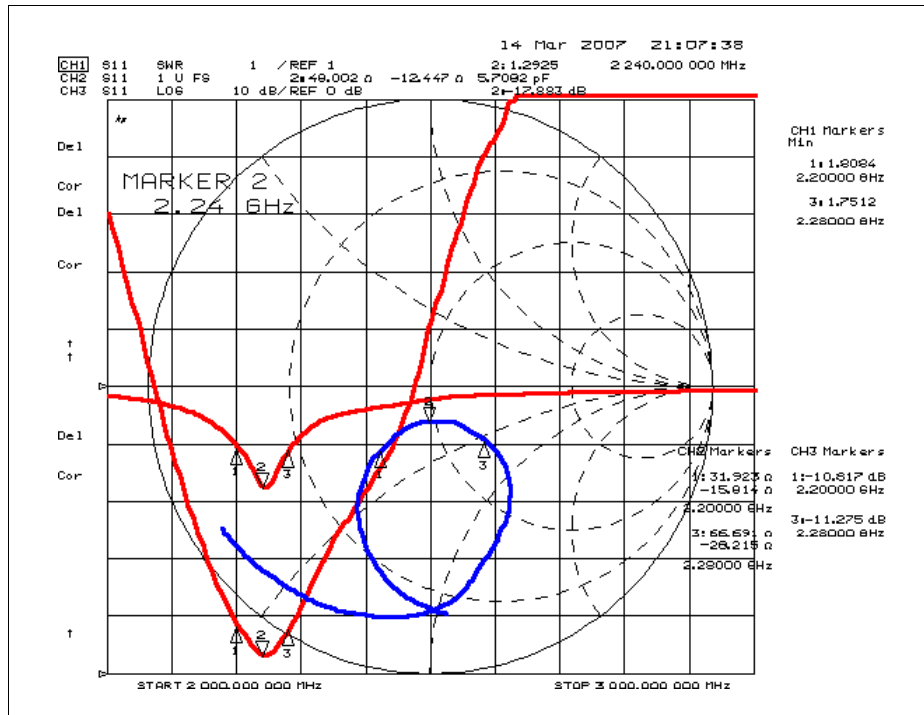
2.2 Test Fixture Condition

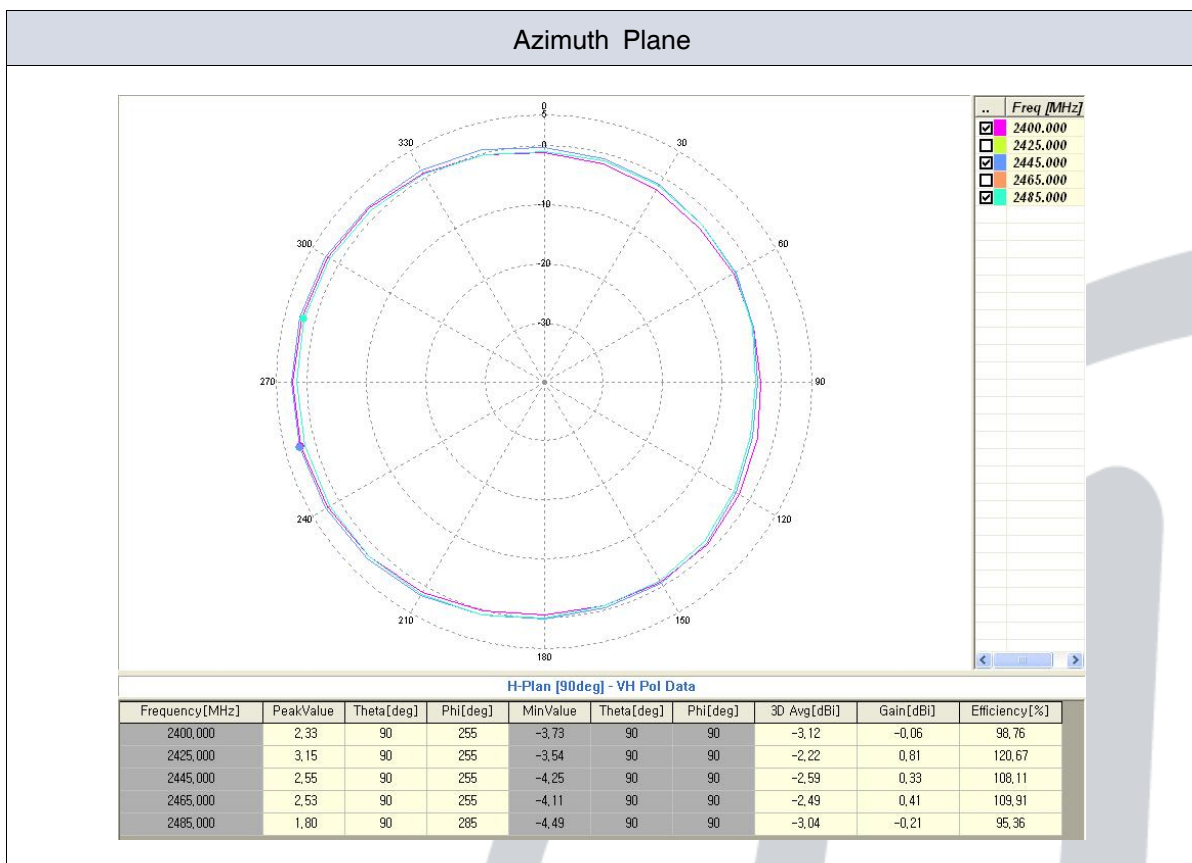
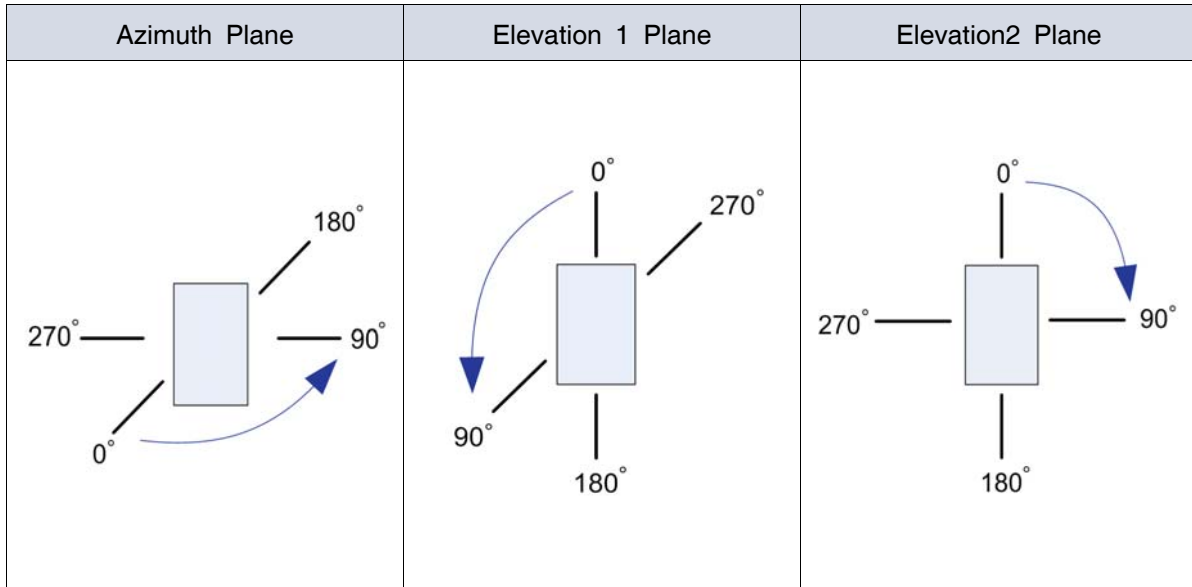
ITEM		SPEC	
Frequency Range [MHz]		2200 ~ 2280	
SWR [Max]		3 : 1	
Bandwidth [MHz]		80	

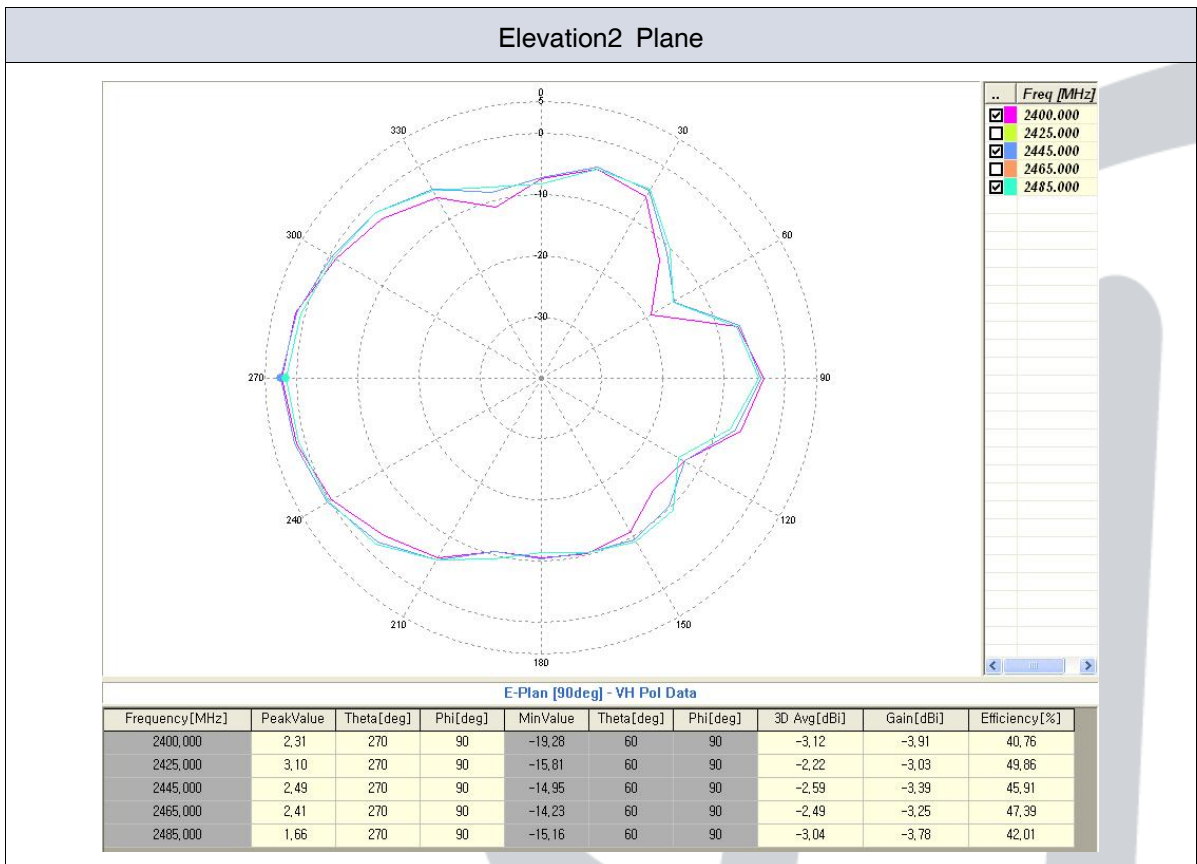
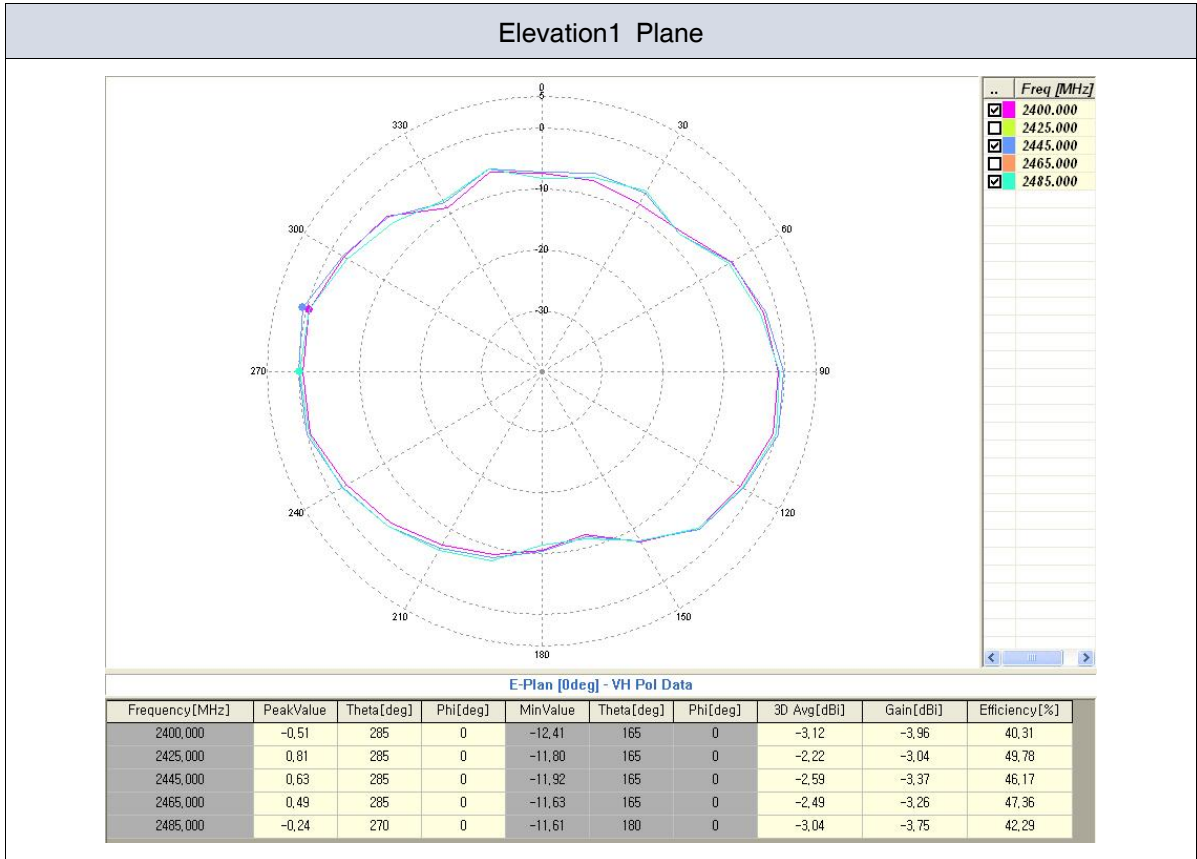
2.3 Graph of Set Condition



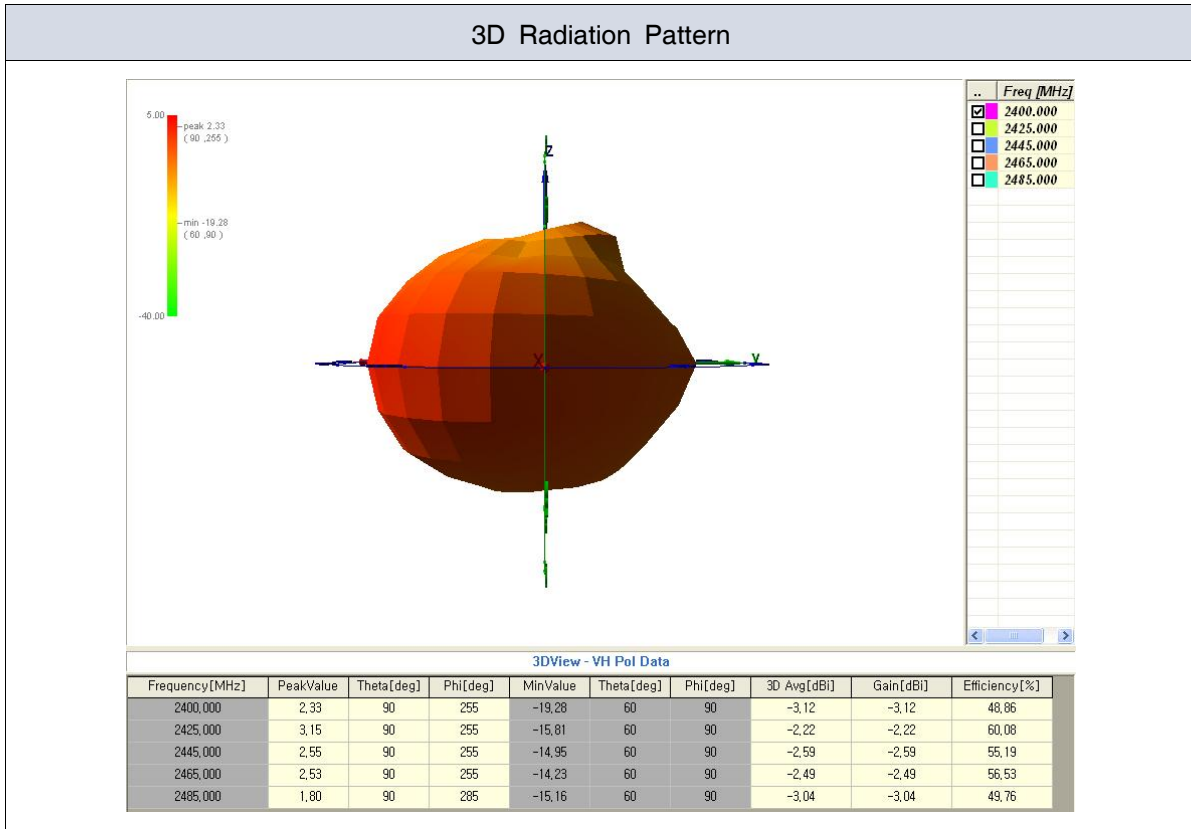
2.4 Graph of Test Fixture Condition



2.5 Radiation Pattern




2.6 3D Radiation Pattern



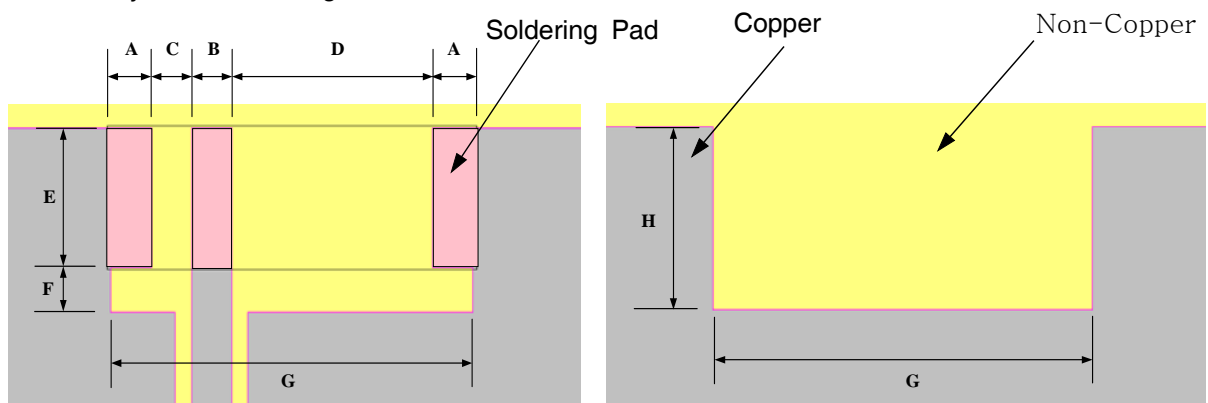
3. Mechanical Characteristics

- The structure is materialized printing Ag paste at the dielectric block

3.1 Structure and Material

Material	Dielectric Block (MMS-08)	3D Structure	
	Ag Paste (Metech)		
Size [mm]	W = 2.0±0.1		
	L = 8.0±0.1		
	T = 1.2±0.1		
Temperature [°C]	- 40 ~ +80		
Humidity [%]	At the normal temperature, RH 100		

3.2 PCB Layout & Soldering Pad Dimension

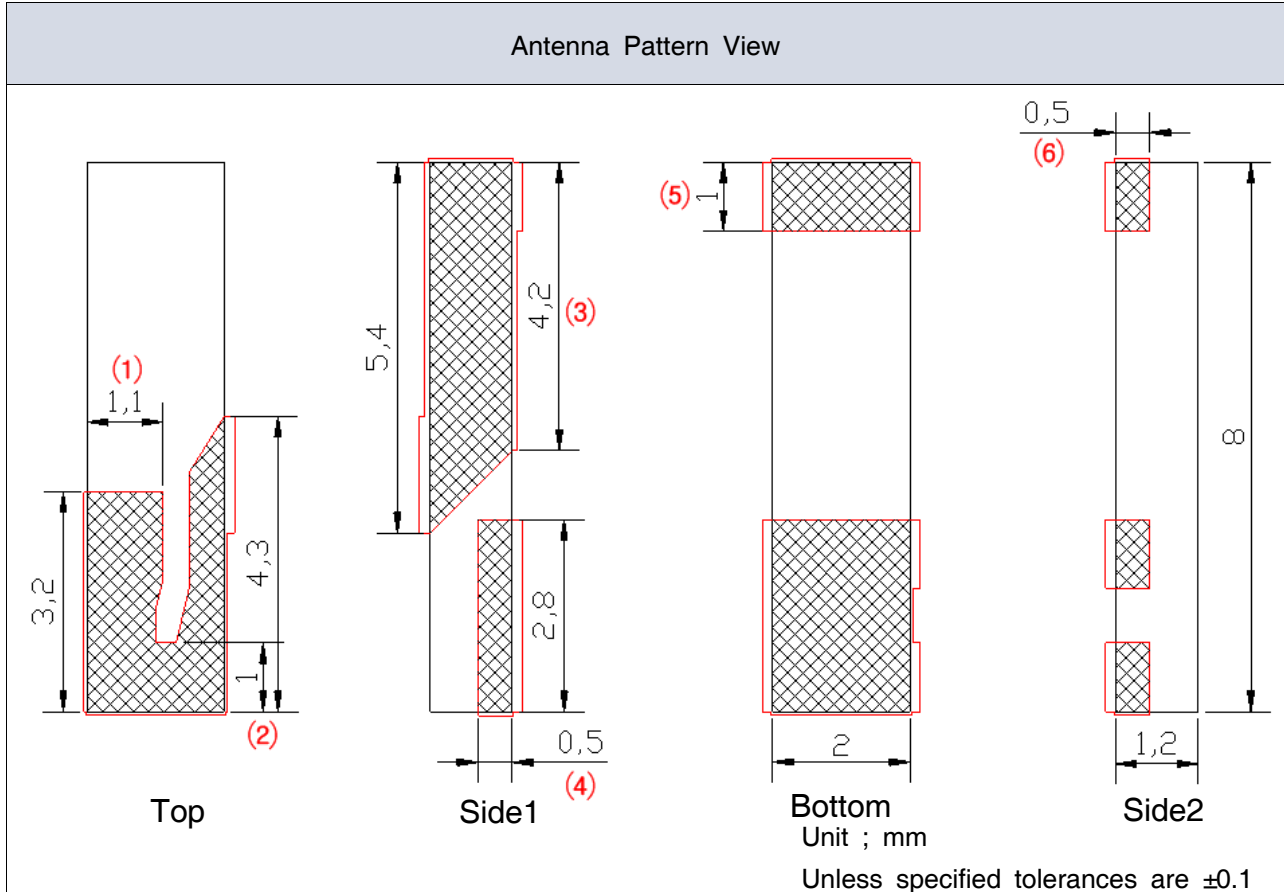

Top Layout
Bottom Pattern

Parameter	A	B	C	D	E	F	G	H
Value[mm]	1.1	1.0	0.8	4.2	2.2	1.0	8.0	3.2

Unit ; mm

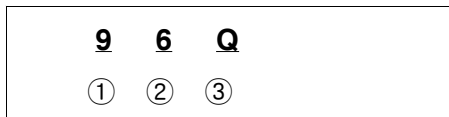
 Unless specified tolerances are ± 0.1

3.3 Antenna Pattern Dimension

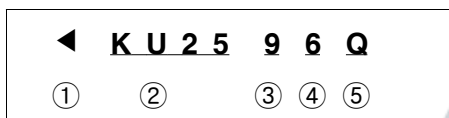
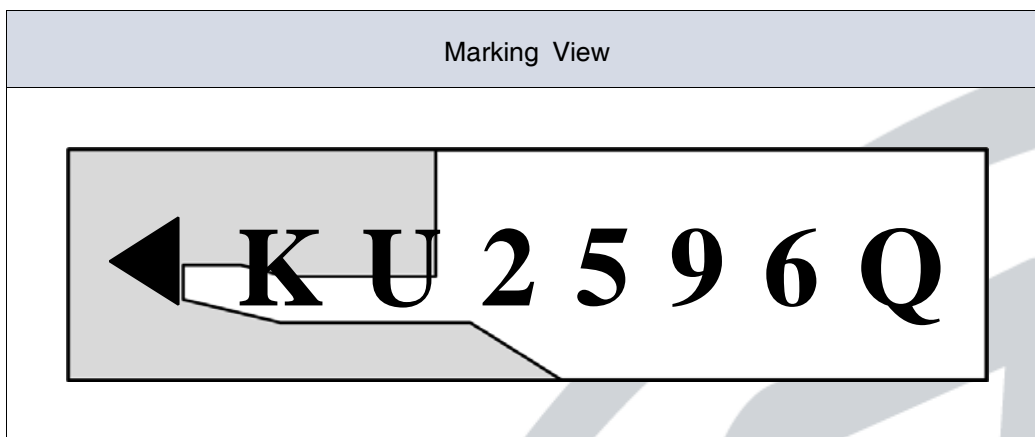


3.3.1 Real Measurement Value

	(1)	(2)	(3)	(4)	(5)	(6)
Drawing Dimension [mm]	1.1±0.1	1.0±0.1	4.2±0.1	0.5±0.1	1.0±0.1	0.5±0.1
1	1.122	0.937	4.161	0.547	1.037	0.522
2	1.073	0.953	4.170	0.530	0.998	0.496
3	1.116	0.945	4.244	0.474	1.042	0.480
4	1.068	0.977	4.223	0.446	1.040	0.449
5	1.081	0.993	4.289	0.432	1.039	0.515
Min [mm]	1.068	0.937	4.161	0.432	0.998	0.449
Max [mm]	1.122	0.993	4.289	0.547	1.042	0.522
Average [mm]	1.092	0.961	4.217	0.486	1.031	0.492

3.4 LOT Notation


- ① Year ; 1 - 2001, 2 - 2002, 9 - 2009
- ② Month ; 1 - January, 2 - February, 6 - June, 12 - December
- ③ Date ; 1 - 1st, 2 - 2nd, 3 - 3rd, 4 - 4nd, 7 - 7th, , Q - 26th,



3.5 Marking


- ① Input Signal
- ② Serial
- ③ Year ; 1 - 2001, 2 - 2002, 9 - 2009
- ④ Month ; 1 - January, 2 - February, 6 - June, 12 - December
- ⑤ Date ; 1 - 1st, 2 - 2nd, 3 - 3rd, 4 - 4nd, 7 - 7th, , Q - 26th,

4. Measurement Process

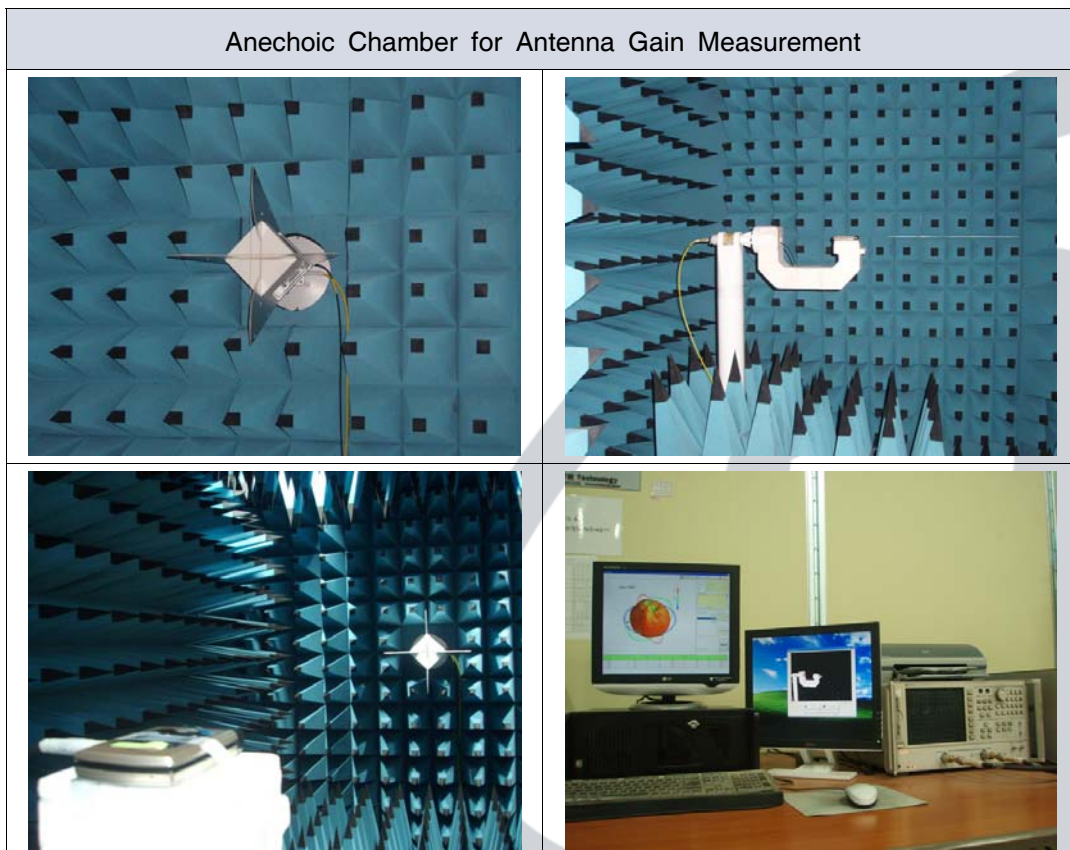
4.1 SWR/Returnloss

-The SWR/Returnloss is measured by Network Analyzer


	Set Condition	Test Fixture Condition
Network Analyzer	Agilent HP8753D	Agilent HP8753D or Advantest R3765CH
Cable	RF cable(300mm)	RF cable(300mm)
Test condition		

4.2 Gain

-The Antenna Gain is measured using the set at Anechoic Chamber



5. Primary Inspection List

Item	Electrical Characteristic [MHz]		Mechanical Dimension [mm]		
	VSWR Max		W=2.0±0.1	L=8.0±0.1	T=1.2±0.1 
	MHz	MHz			
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
X					
σ					
Cpk					
Decision					

6. Reliability Condition

6.1 ENVIRONMENT TEST

ITEM	TEST CONDITION	LIMIT
High Temperature Resistance	+85℃±3℃, 120hr±2hr	*After the test, specimen would be kept at 25℃±5℃ for 1 hours *specimen sheet meet the electrical specification
Low Temperature Resistance	-40℃±3℃, 120hr±2hr	
Humidity Resistance	+60±3℃, RH90~95% ,120hr±2hr	

6.2 Thermal Shock Test , Reflow Test

ITEM	TEST CONDITION	LIMIT
Thermal Shock	-40℃±3℃/30min ↔ +85℃±3℃/30min cycle : 15 cycle recovery time : with in 5min	SAME as 6-1
Reflow	Pre Heating 200±5℃ , 30~60 sec Peak Heating 260℃±5℃ , 30sec Max	

6.3 Mechanical Test

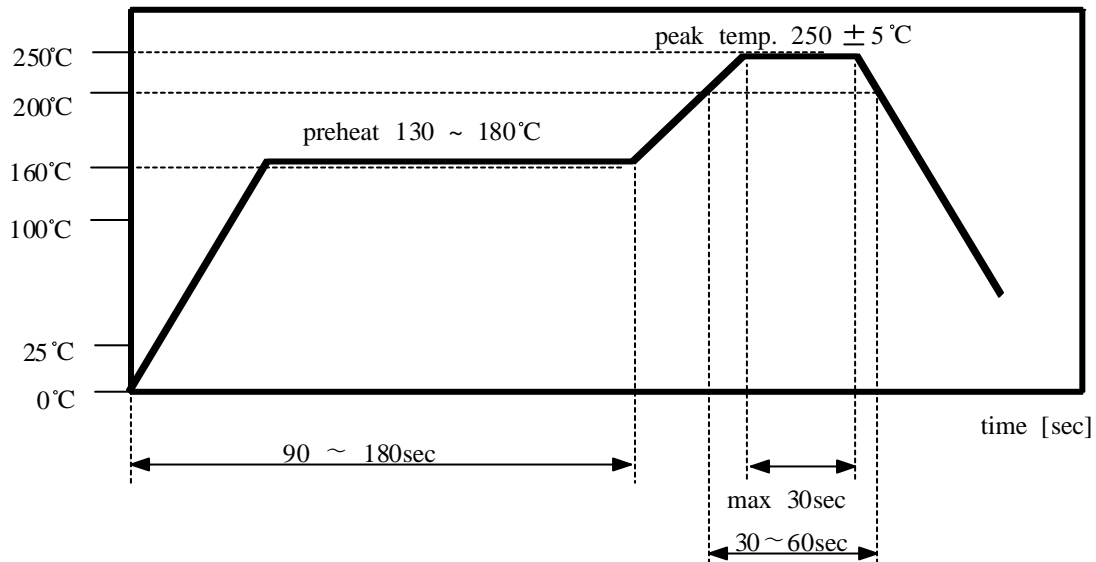
ITEM	TEST CONDITION	LIMIT
Random Vibration	Frequency 10~500Hz - 10 ×9.8m/s ² (G) Sweep time 15min , X.Y.Z each 5 times	*After the test, specimen sheet meet the electrical specification
Drop	Height 152 ^{cm} , 5 times (Each Surface)	

6.4 Reliability Test Result

※ Appendix

7. Soldering Condiion

7.1 Reflow Soldering



7.2 Manual Soldering

Pre-heating Temperature : 120°C , 60 ~ 300 sec.

Soldering Temperature : 340°C±5°C , 5sec max per each terminal

8. Attention

8.1 Temperature Condition

	Range of Temperature	unit
Application	-40 ~ +85	°C
Keeping	-40 ~ +85	°C

8.2 MSL LEVEL 1 (JEDEC J-STD-020C)

	Floor Life		Soak Requirements	
	Time	Conditions	Time	Conditions
1	Unlimited	= < 30°C/85%RH	168+5/-0	= < 85°C/85%RH

9. Packing
9.1 Carrier/Reel

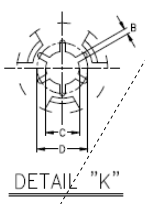
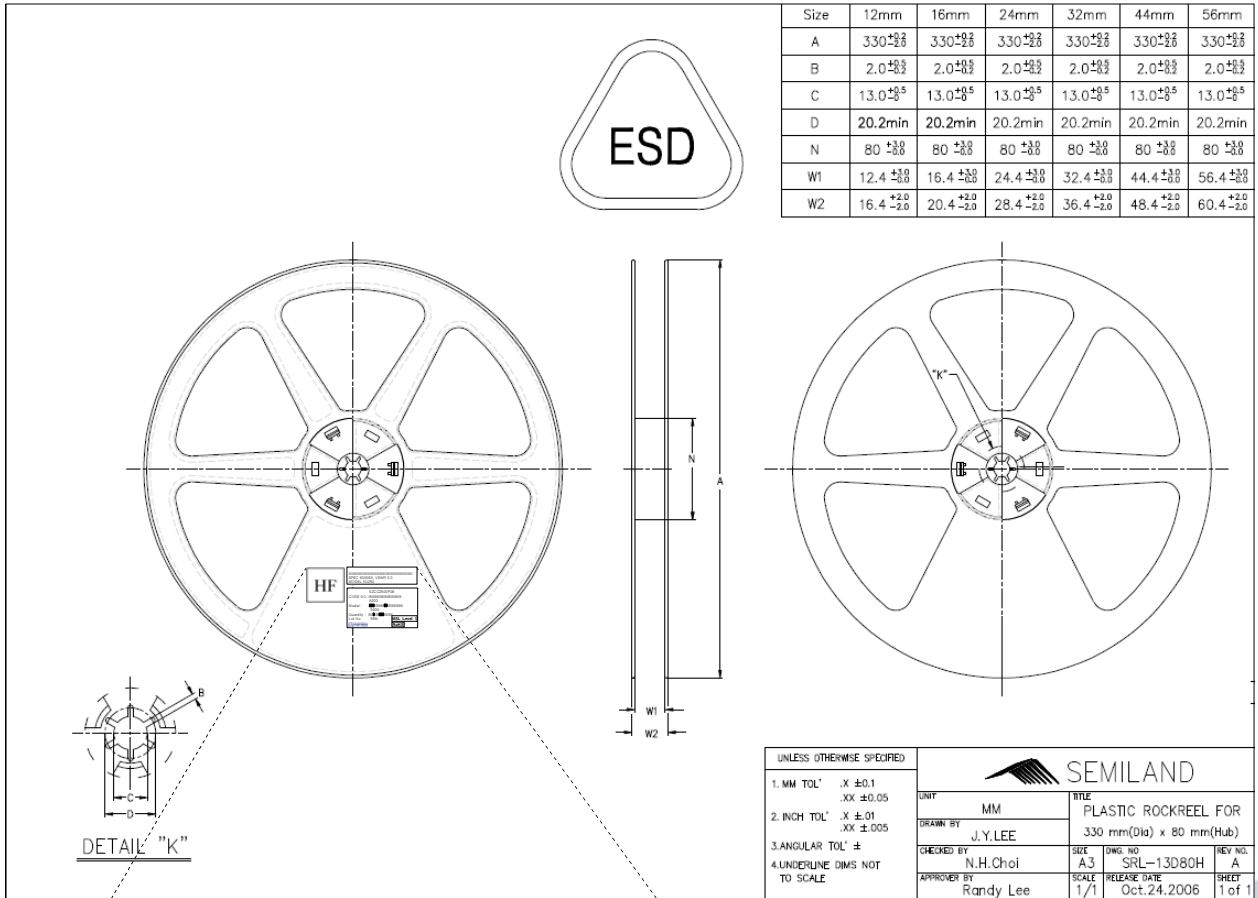
ITEM	Material	Surface Resistance	Packing Method
Carrier	A-PET	Typical $10^8\Omega$	Heat press
Reel	A-PET		Air press (Using S-460G)

NO. S16W180

PACKING QUANTITY
5,000 PCS / REEL

AO	2.35±0.10	E	1.75±0.10
BO	8.40±0.10	F	7.50±0.10
KO	1.50±0.10	t	0.30±0.05
DO	1.55±0.05	w	16.00±0.30

Scale	N/S	Unit	m/m	Customer & Title
Date	2008			2.0*8.0*1.2
Designed by	Checked by	Approved by	(주)에스엠에스티	

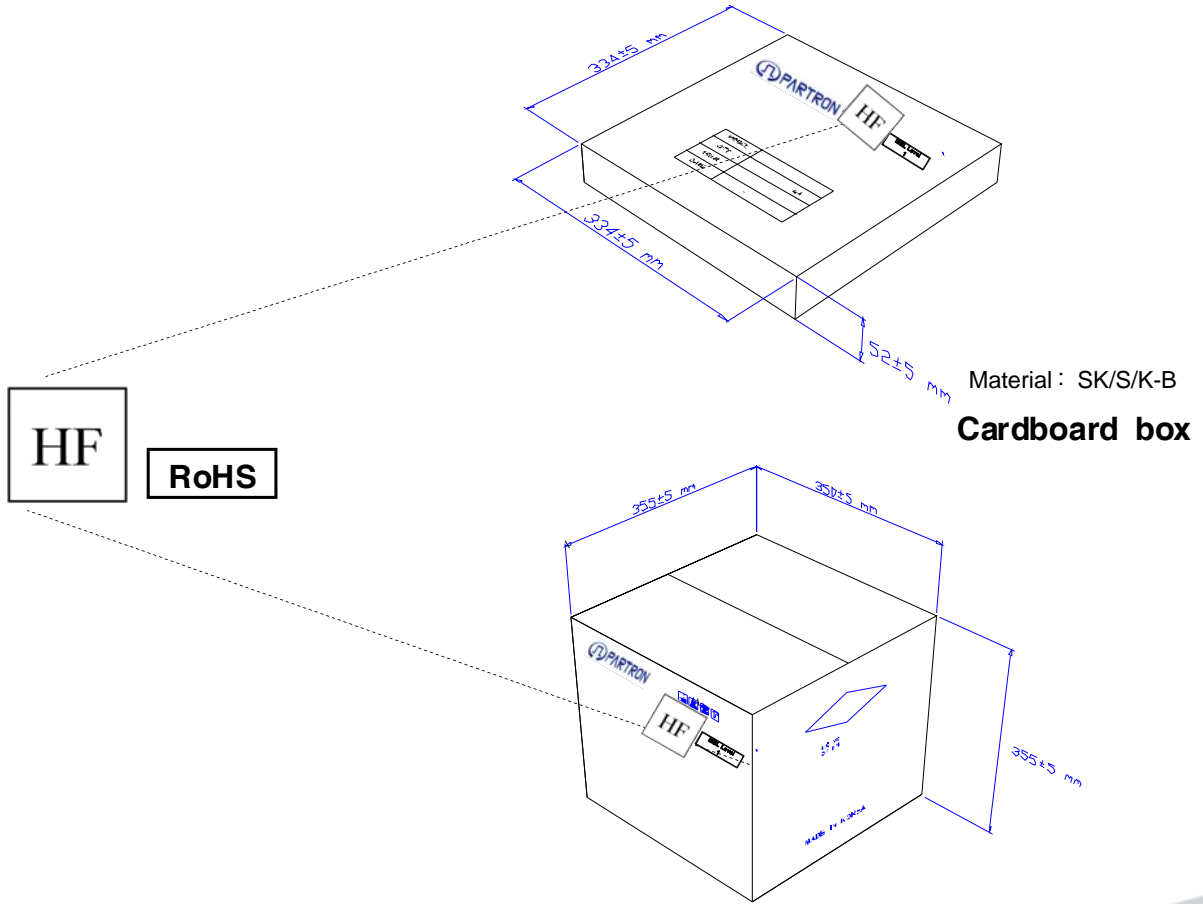


UNLESS OTHERWISE SPECIFIED		SEMILAND	
1. MM TOL' .X ±0.1 .XX ±0.05	UNIT MM	TITLE PLASTIC ROCKREEL FOR 330 mm(Dia) x 80 mm(Hub)	
2. INCH TOL' .X ±.01 .XX ±.005	DRAWN BY J. Y. LEE	SIZE A3	DWG. NO. SRL-13D80H
3. ANGULAR TOL' ±	CHECKED BY N.H. Choi	SCALE 1/1	KEY NO. A
4. UNDERLINE DIMS NOT TO SCALE	APPROVED BY Randy Lee	RELEASE DATE Oct.24.2006	SHEET 1 of 1



SPEC 5000EA, VSWR 3.0
 MODEL : KU250
 SZCC2500P08
 CODE NO :
 A300
 Model :
 5000
 Quantity :
 Lot No 96Q **MSL Level 1**
RoHS

9.2 Box Specification



10. Process Control

Product		Issued/Revision		Process Control					Record	By designed	By checked	By approved		
CHIP ANTENNA		Issued	04.04.06						Revised	05.04.03	PRCP-C001			
Input Materials	FLOW CHART		Process name	Management of Factors					Management of quality					
	preparation	Main Process		Equipment Name	Checked	Condition	Cycle of management	Record	Checked Item	Margin	Method of Inspection	Cycle of management	Record	Action
Ceramic POWDER			Import Inspection						shrinking rate permittivity	refer to Guide Sheet	Micrometer Network	10ea/LOT	C/sheet	Return
POWDER lubricant			powder	Mixer					mixing	POWDER lubricant	Scale	PER MIXING	-	Exhaust
			Shaping	Press	pressure Mold Condition	refer to Guide Sheet	Per LOT 1/day	parameter C/SHEET	dimension weight density aspect	refer to Guide Sheet	Micrometer scale Calculated Visual	5/100EA 10ea/lot	LOT CARD	Exhaust
			Plasticity	Plasticity Hole	SETTER Outside Temperature PROFILE	refer to Guide Sheet	all 2/day 1/month	C/sheet						
			Block						wide length shape	refer to Guide Sheet	Micrometer Calipers Visual Inspection	20ea/LOT 20ea/LOT all	C/sheet	Exhaust
AG PASTE			SIDE1 PAD Printing	Printer screen	Squeeze velocity/pressure SNAP	refer to Guide Sheet	1/day	-	PATTERN Dimension aspect	refer to Guide Sheet	Microscope	10ea/3Jig	c/sheet	Rework
			Dry	Dryer Dry Jig	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter	Dry Condition Printed condition breakage	refer to Guide Sheet	Visual Inspection	all	Lot card	Rework

Product		Issued/Revision		Process Control					Record	By designed	By checked	By approved		
CHIP ANTENNA		Issued	04.04.06						Record					
		Revised	05.04.03	PRCP-C001										
Input Materials	FLOW CHART		Process name	Management of Factors					Management of quality					
	preparation	Main Process		Equipment Name	Checked	Condition	Cycle of management	Record	Checked Item	Margin	Method of Inspection	Cycle of management	Record	Action
AG PASTE			SIDE 2 PAD Printing	Printer screen	Squeeze velocity/presure SNAP	refer to Guide Sheet	1/day	-	PATTERN Dimension aspect	refer to Guide Sheet	Microscope	10ea/3Jig	c/sheet	Rework
			Dry	Dryer Dry Jig	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter	Dry Condition Printed condition breakage	refer to Guide Sheet	Visual Inspection	all	Lot card	Rework
			Baking	Baking Hole mesh net	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter C/Sheet	Breakage Pollution	refer to Guide Sheet	Visual Inspection	all	Lot card	Exhaust Rework
AG PASTE			TOP printing	Printer screen	Squeeze velocity/presure SNAP	refer to Guide Sheet	1/day	-	PATTERN dimension	refer to Guide Sheet	measure	10ea/3Jig	c/sheet	Rework
			Dry	Dryer Dry Jig	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter	Dry Condition Printed condition breakage	refer to Guide Sheet	Visual Inspection	all	Lot card	Rework
AG PASTE			BOTTOM PAD Printing	printer screen	Squeeze velocity/presure SNAP	refer to Guide Sheet	1/day	-	PATTERN dimension aspect	refer to Guide Sheet	measure Microscope	10ea/3Jig	c/sheet	Rework
			CTQ											

Product		Issued/Revision		Process Control					Record	By designed	By checked	By approved		
CHIP ANTENNA		Issued	04.04.06						Record					
		Revised	05.04.03	PRCP-C001										
Input Materials	FLOW CHART		Process name	Management of Factors					Management of quality					
	preparation	Main Process		Equipment Name	Checked	Condition	Cycle of management	Record	Checked Item	Margin	Method of Inspection	Cycle of management	Record	Action
			Dry	Dryer Dry Jig	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter	Dry Condition Printed condition breakage	refer to Guide Sheet	Visual Inspection	all	Lot card	Rework
			Baking	Baking Hole mesh net	Temperature Belt speed	refer to Guide Sheet	1/week	Parameter C/Sheet	Breakage Pollution	refer to Guide Sheet	Visual Inspection	all	Lot card	Exhaust Rework
			aspect inspection						aspect	Reference SPL refer to Guide Sheet	Visual Inspection microscope	all	Lot card production diary	Exhaust repair
			MARKING	Marking Machine					marking	Reference SPL	Visual Inspection	all	Lot card production diary	Rework Exhaust
			Electrical Characteristic	NETWORK Inspection Jig	proofreading Condition	refer to Guide Sheet	1/2hour	C/sheet	Electrical Characteristic	refer to Guide Sheet	Network	all	Lot card production diary	Exhaust repair
			aspect inspection						aspect dimension	Reference SPL refer to Guide Sheet	Visual Inspection microscope	all	Lot card production diary	Exhaust repair
Carrier cover reel			Taping						Quantity Direction aspect	refer to Guide Sheet	Manual	all	Lot card production diary	Rework
			shipper inspection	NETWORK Inspection Jig	proofreading Condition	refer to Guide Sheet	1/person	C/sheet	Electrical Characteristic aspect packing	refer to Guide Sheet	Network microscope Visual Inspection	refer to Guide Sheet	Result Paper	return Exhaust
packing box label			packing	bar code printer					packing P/N Quantity	refer to Guide Sheet	Visual Inspection	all	-	Rework
			packing inspection						packing P/N Quantity	refer to Guide Sheet	Visual Inspection	all	-	return