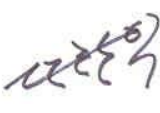

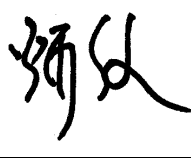


Approval Sheet

Products	Dielectric Chip Antenna		
Customer	Pantech & Curitel		
Customer CODE			
Supplier	PARTRON		
Supplier CODE	ACS2450GBAOV		
Pantech & Curitel	By designed	By checked	By approved
PARTRON	By designed	By checked	By approved
			
	Research, 2P	Quality Assurance	Laboratory
	Chan-Ik.Jeon	Kwang-Gyu.Lee	Byoung-Jun.Yim
	11/23	11/23	11/23

2006 . 11. 23

P A R T R O N

**33, BANWOL-DONG, HWASEONG-SI,
KYOUNGKI-DO, 445-330, KOREA
Tel) 82-31-201-7700**



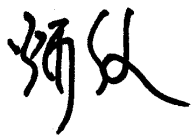
SPECIFICATION

MODEL : ACS2450GBAOV

DIELECTRIC CHIP ANTENNA

P A R T R O N

33,Banwol-Ri,Taeon-Eup,Hwaseong-Si,
Gyeonggi-Do,Korea,445-973

By designed	By checked	By approved
		
Research, 2P	Quality Assurance	Laboratory
Chan-Ik.Jeon	Kwang-Gyu.Lee	Byoung-Jun.Yim
11/23	11/23	11/23

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2. Electrical Characteristics

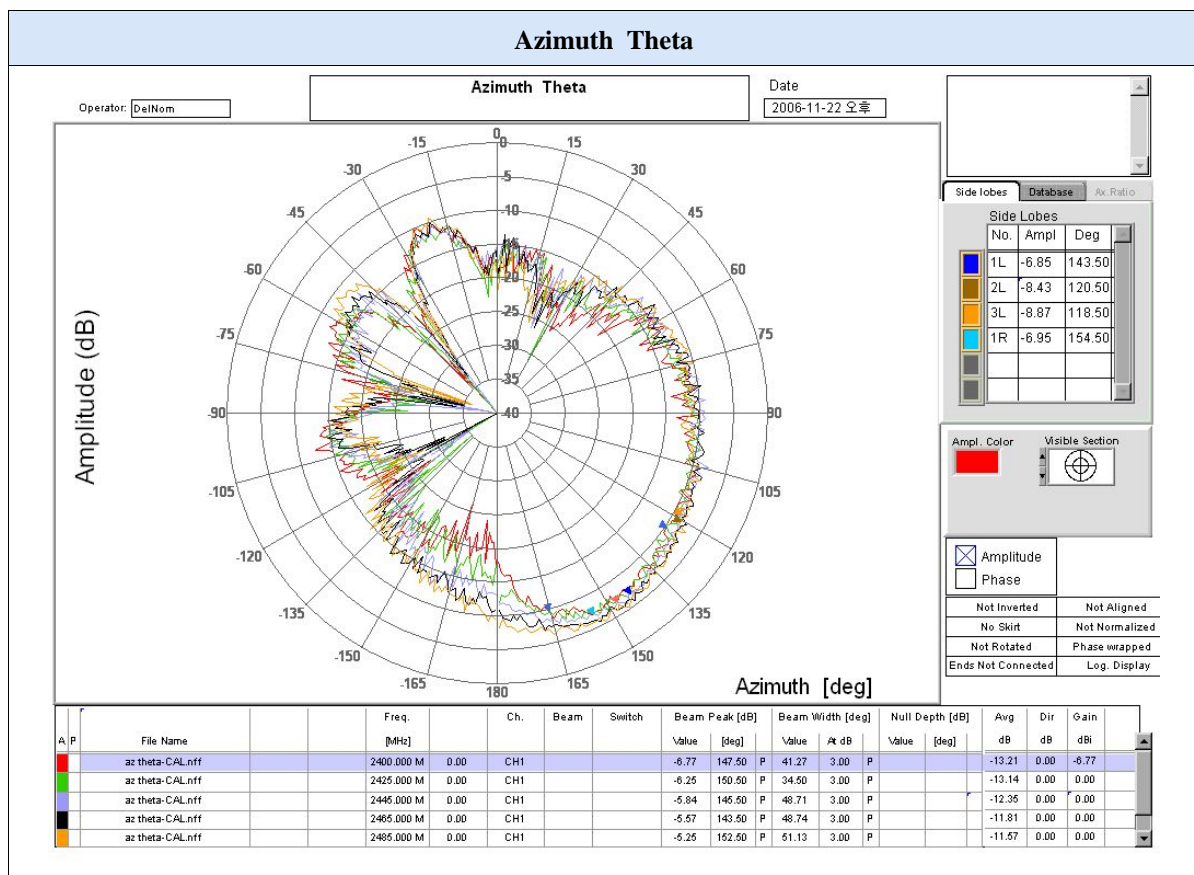
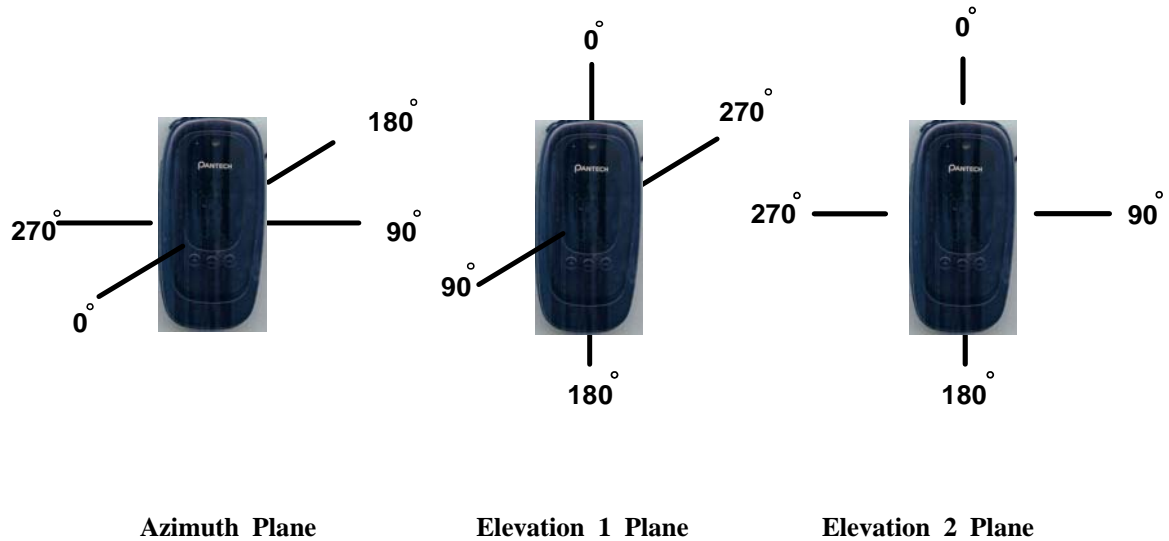
2.1 Set Condition

ITEM				SPEC
Frequency Range [MHz]				2400 ~ 2485
VSWR [Max]				3 : 1
Bandwidth [Mhz]				85
Polarization				Linear
Gain[dBi]	Azimuth	Theta	Peak	-5.25
			Average	-11.57
		Phi	Peak	-4.30
			Average	-10.86
	Elevation 1	Theta	Peak	-3.06
			Average	-8.18
		Phi	Peak	-2.05
			Average	-9.60
	Elevation 2	Theta	Peak	-8.69
			Average	-16.11
		Phi	Peak	-0.50
			Average	-6.57

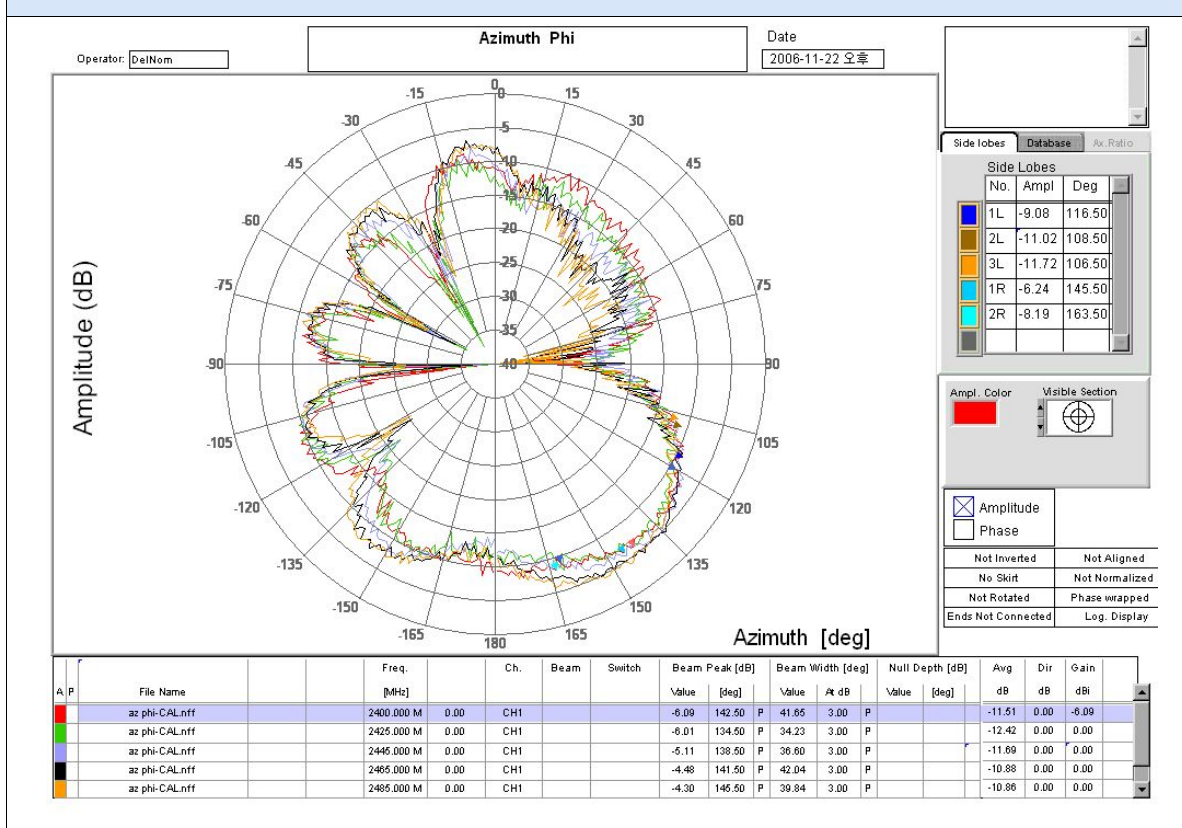
2.2 Test Fixture Condition

ITEM		SPEC
Frequency Range [MHz]		2030 ~ 2110
SWR [Max]		3 : 1
Bandwidth [MHz]		80

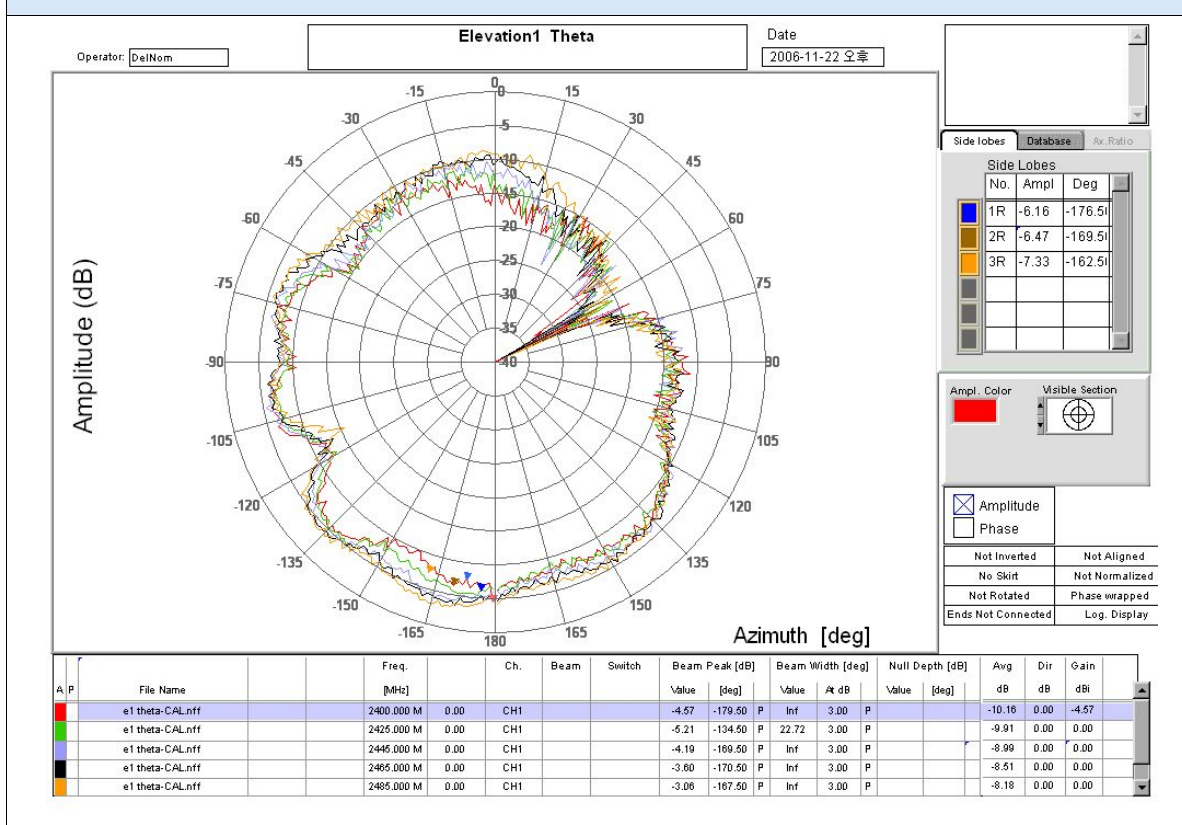
2.5 Radiation Pattern



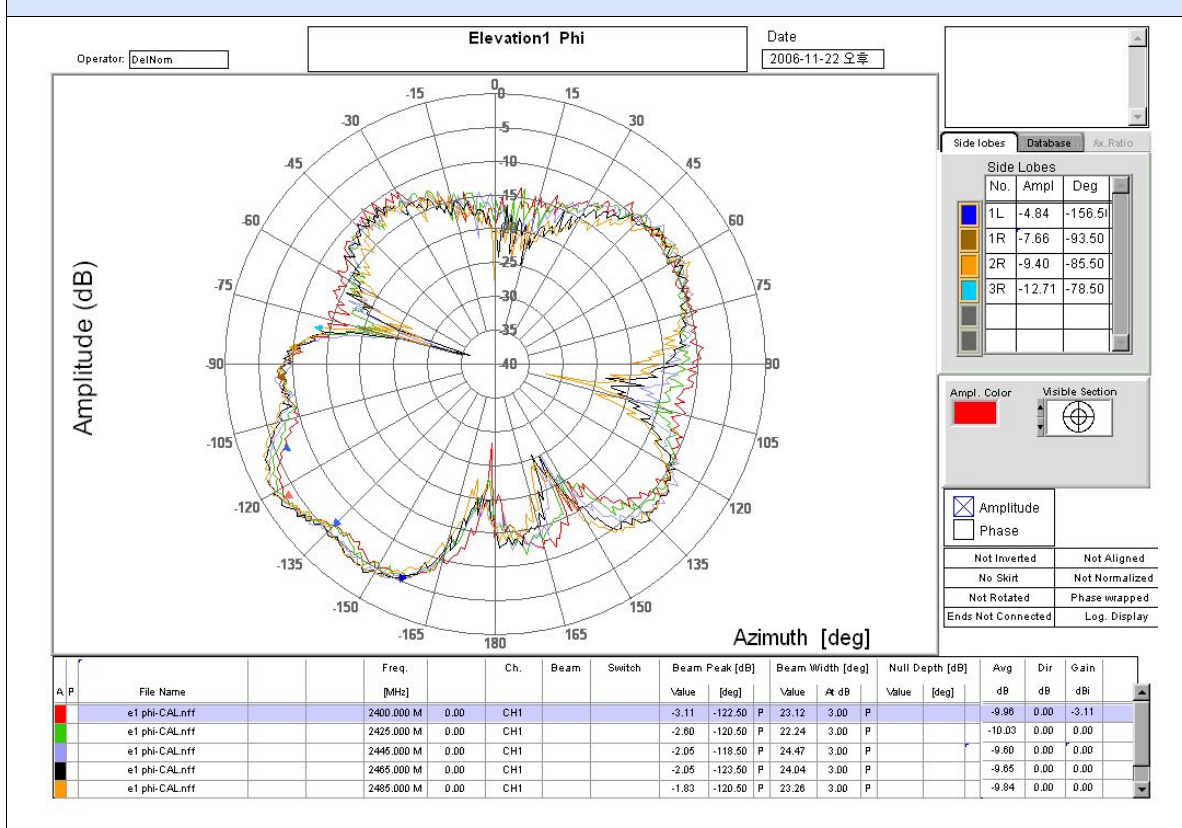
Azimuth Phi



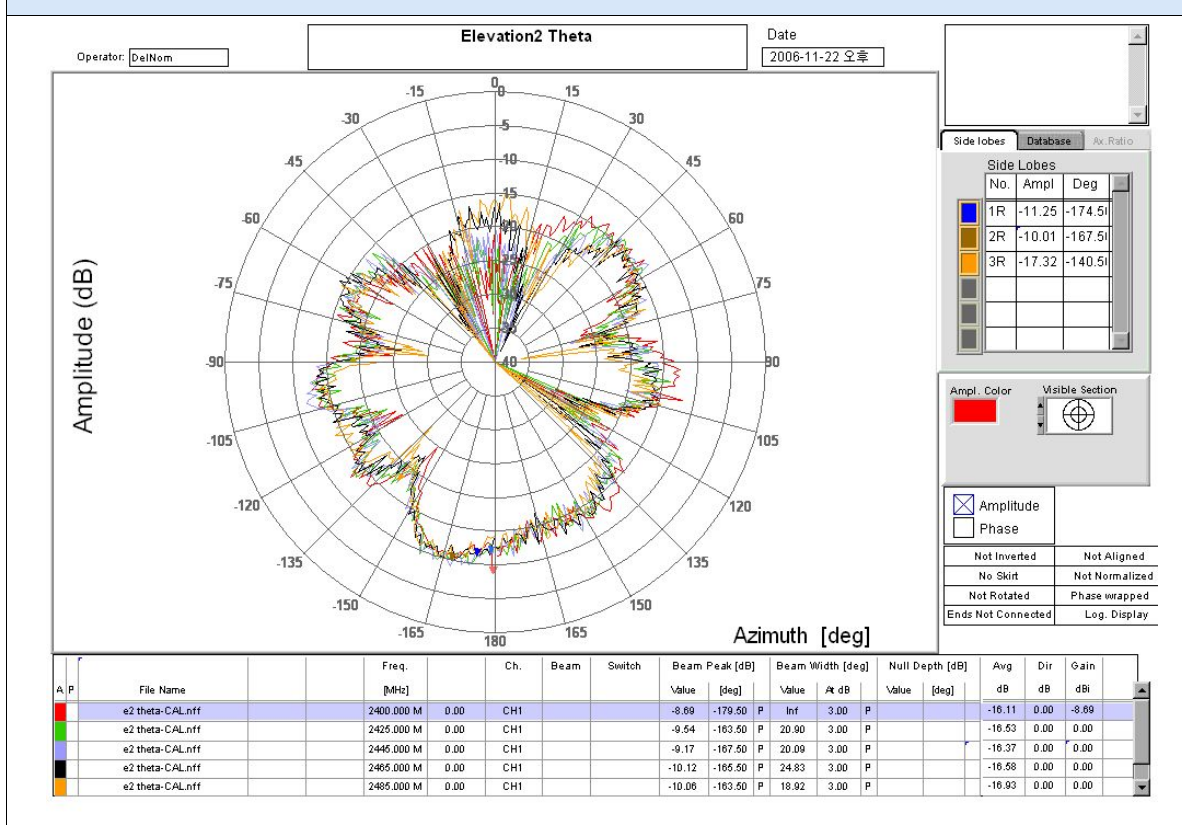
Elevation1 Theta

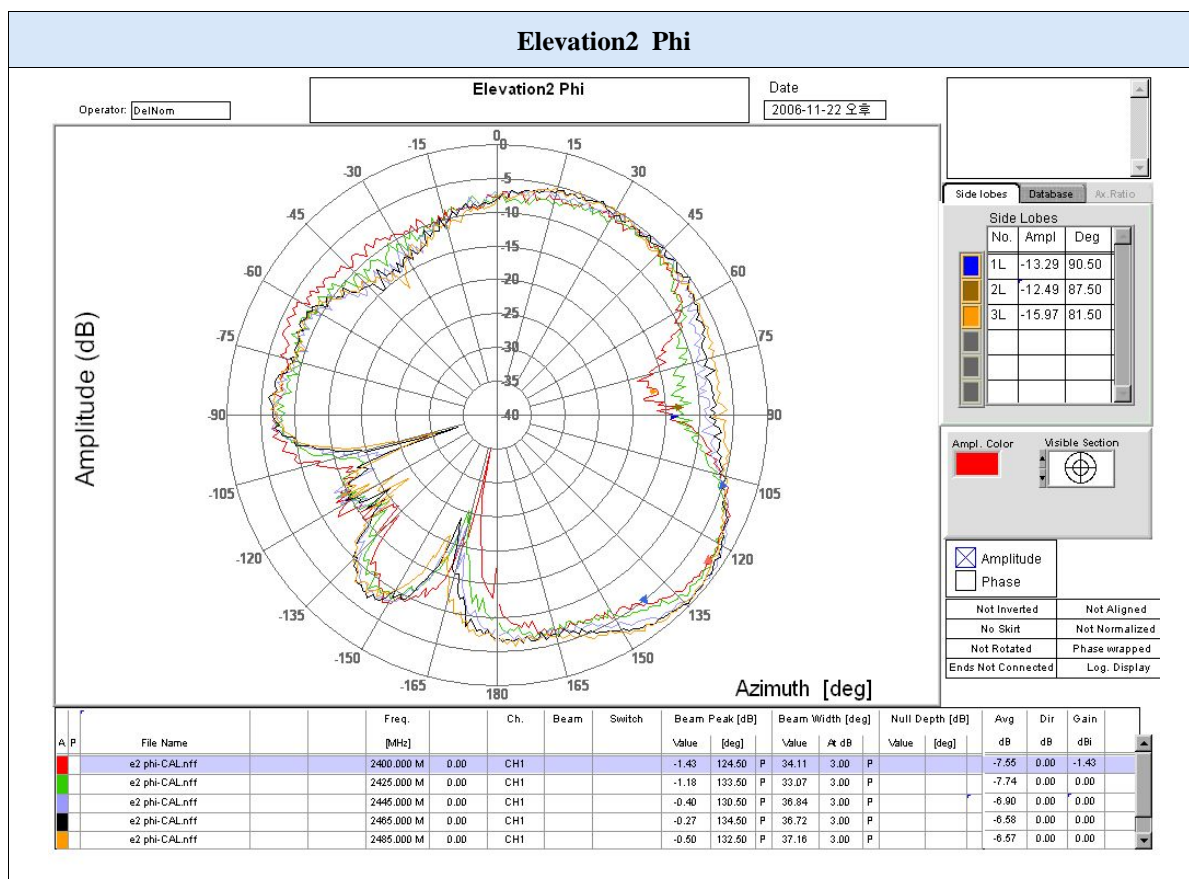


Elevation1 Phi



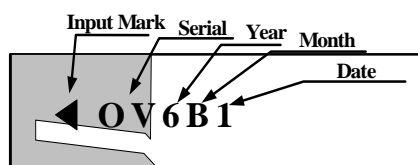
Elevation2 Theta



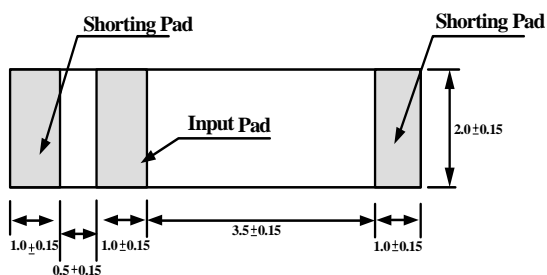
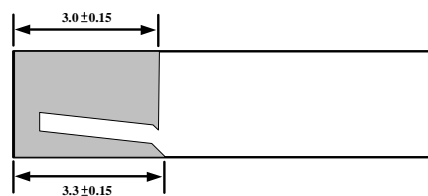


3. Mechanical Characteristics

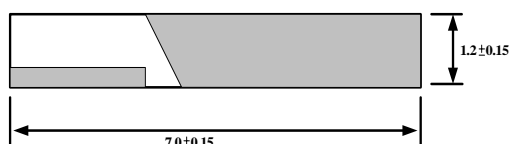
3.1 Dimension



Top



Bottom



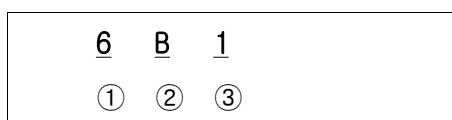
Side

Items	Contents
Dimension[mm]	W = 2.0 ± 0.15
	L = 7.0 ± 0.15
	T = 1.2 ± 0.15
Material	Dielectric (MMS-08)
Temperature [°C]	-40 ~ +80
Humidity[%]	at normal temperature, RH 100

Unit ; mm

Unless specified tolerances are ± 0.15

3.2 LOT Notation

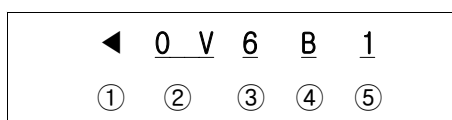


① Year ; 1 - 2001, 2 - 2002, 6 - 2006

② Month ; 1 - January, 2 - February 9 - September, A - October, B - November ..

③ Date ; 1 - 1st day, 2 - 2nd day A - 10th Day, B - 11th Day,

3.3 Marking



① Input Signal

② Serial

③ Year ; 1 - 2001, 2 - 2002, 6 - 2006

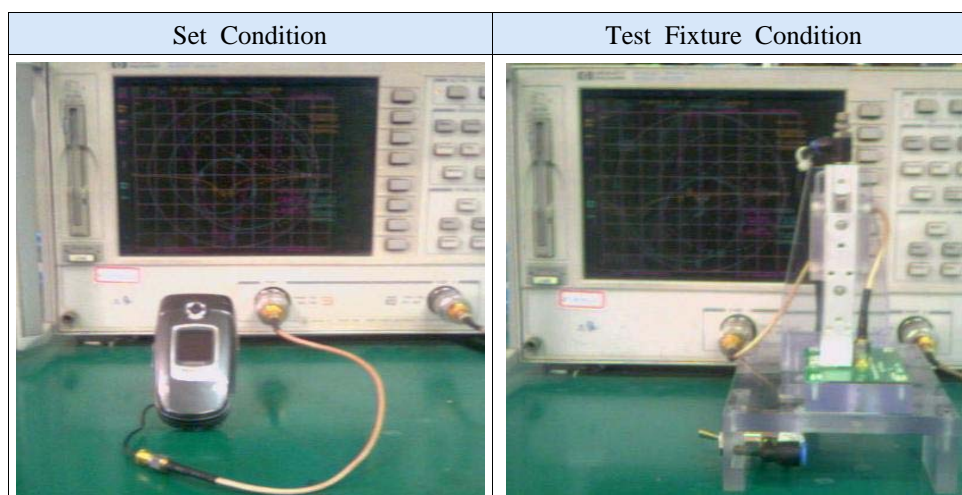
④ Month ; 1 - January, 2 - February 9 - September, A - October, B - November

⑤ Date ; 1 - 1st day, 2 - 2nd day A - 10th Day, B - 11th Day,

4. Measurement Process

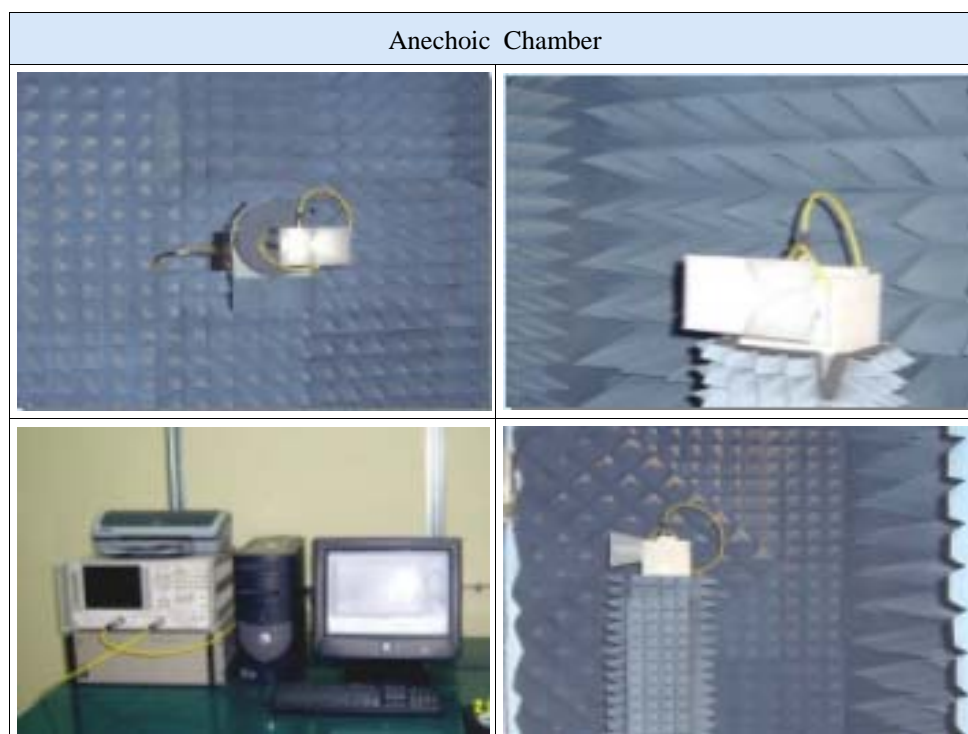
4.1 SWR/Returnloss

The SWR/Returnloss is measured by Network Analyzer



4.2 Gain

The Antenna Gain is measured using the set at Anechoic Chamber



5. Reliability Condition

5.1 ENVIRONMENT TEST

ITEM	TEST CONDITION	LIMIT
High Temperature Resistance	$+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 120hr \pm 2hr	*After the test, specimen would be kept at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 1 hours *specimen sheet meet the electrical specification
Low Temperature Resistance	$-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$, 120hr \pm 2hr	
Humidity Resistance	$+60 \pm 3^{\circ}\text{C}$, RH90~95%, 120hr \pm 2hr	

5.2 Thermal Shock Test , Reflow Test

ITEM	TEST CONDITION	LIMIT
Thermal Shock	$-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ (2Hr) \leftrightarrow $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ (2Hr) cycle : 15cycle recovery time : with in 5min	SAME as 5-1
Reflow	Pre Heating : $140 \pm 10^{\circ}\text{C}$, 60~120 sec peak Heating : 240°C , 10sec Max	

5.3 Mechanical Test

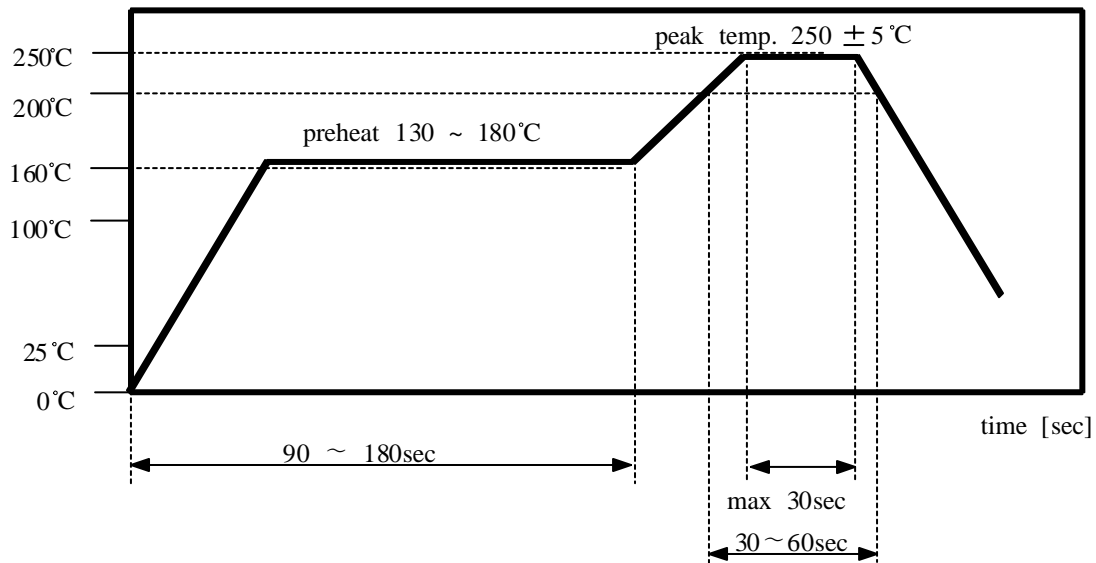
ITEM	TEST CONDITION	LIMIT
Random Vibration	Frequency 10~500Hz - $10 \times 9.8\text{m/s}^2$ (G) Sweep time 15min, X.Y.Z each 5 times	*After the test, specimen sheet meet the electrical specification
Drop	Height 120cm, 12 times Height 152cm, 19 times	

6. Reliability Test Result

※ Appendix #1

7. Soldering Condon

7.1 Reflow Soldering



7.2 Manual Soldering

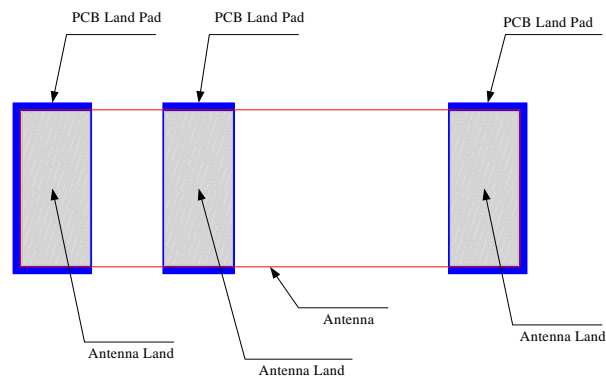
Pre-heating Temperature : 120°C , 60 ~ 300 sec.

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

7.3 PCB Pattern Design

The soldering pad of PCB is about 0.1 mm larger than land pattern of antenna.

This figure shows the shape of PCB pad

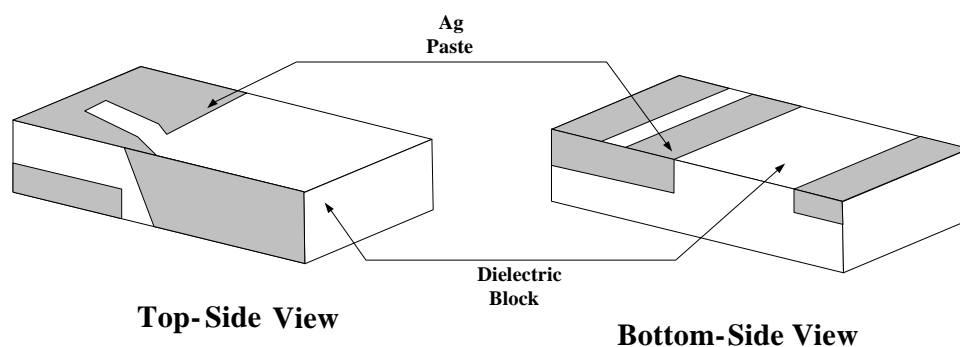


8. Structure and Material

8.1 Materialization

The structure is materialized printing Ag paste at the dielectric block

8.2 Structure



8.3 Material

Items	Material	The manufacturer
Dielectric Block	POWDER	Fuji
PATTERN	Ag Paste	METECH

9. Attention

9.1 Temperature Condition

	Range of Temperature	unit
Application	-40 ~ +85	℃
Keeping	-40 ~ +85	℃

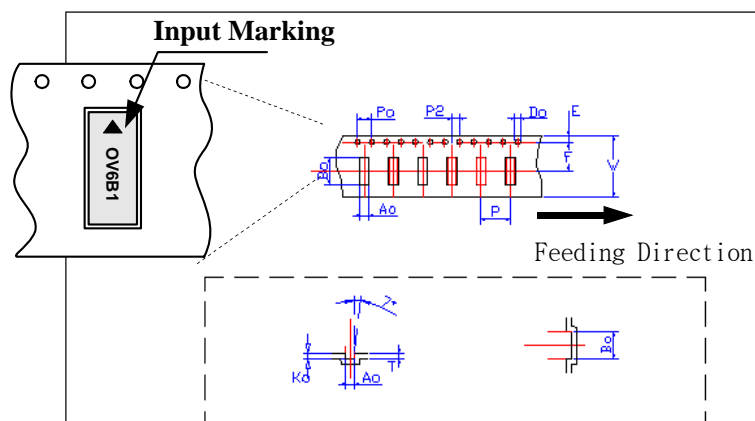
9.2 MSL LEVEL 1 (JEDEC J-STD-020C)

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

10. Packing

10.1 Carrier/Reel

Material	Surface Resistance	Method
A-PET	Typical $10^8 \Omega$	Heat Press



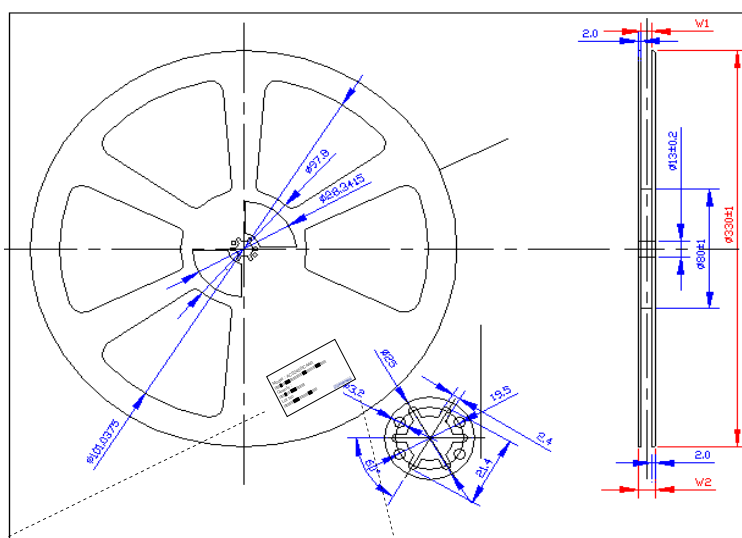
1. 10 sprocket hole pitch cumulative tolerance ± 0.2
2. Camber not to exceed 1mm in 100mm.
3. A_0 and D_0 measured on a plane 0.1mm above the bottom of the pocket
4. K_0 measured from a plane on the inside bottom of the pocket to the top surface of the carrier.



rn201, dkc Bldg.
366-340 shindong2-dong,
Jung-gu, seoul.100-452, korea

<http://www.dkcworld.com>

DKC DVG. No.	D-1608-028
DIMENSIONAL UNIT	MM
UNTOLERANCED DIMENSION	± 0.1
CAD FILE NAME	050617
DESIGNED BY	K. M. J
SCALE	1/1
TITLE	
	2.0 * 7.0 * 1.4P
PART.	CARRIER TAPE
MATERIAL	A-PET
LENGTH	48.4M
COUNT	6,050P
NAME	SPEC.
W	16.0± 0.2
E	1.75 ± 0.1
F	7.5 ± 0.1
D_0	1.5 ± 0.1
P	8.0± 0.1
P_0	4.0 ± 0.1
P_2	2.0 ± 0.1
A_0	2.3± 0.1
D_0	7.3± 0.1
K_0	1.4± 0.1
T	0.3± 0.05



DKC DVG. No.		D-REEL
DIMENSIONAL UNIT		MM
CAD FILE NAME		050114
DESIGNED BY		K. M. J
TITLE		
CARRIER TAPE REEL		
Color		8~44MM Blue,Black 56MM White
MATERIAL		PS
SPEC.		13 Inch
CARRIER	W1	W2
8mm	9.5	13.5
12mm	13.5	17.5
16mm	17.5	21.5
24mm	25.5	29.5
32mm	33.5	37.5
44mm	45.5	49.5
56mm	57.5	61.5

Model : ACS2450GBAOV

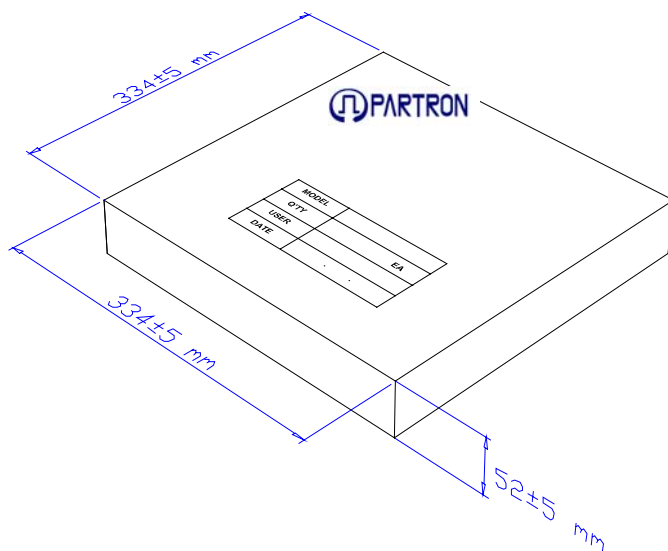
Quantity ;

Lot No

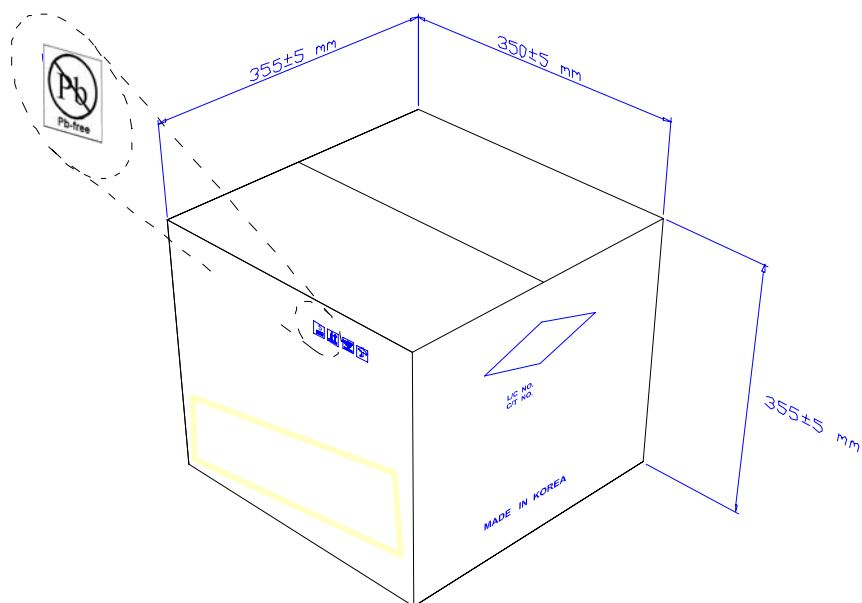
Lot No










10.2 Box Specification









Material : SK/S/K-B
Cardboard box



11. Process Control

Product			Issued/Revision		Process Control					Record	By designed	By checked	By approved	
CHIP ANTENNA			Issued Revised	04.04.06 05.04.03						PRCP-C001				
Input Materials	FLOW CHART		Process name	Management of Factors					Management of quality					
	prepar ation	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/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

Product		Issued/Revision		Process Control					Record	By designed	By checked	By approved		
CHIP ANTENNA		Issued	04.04.06						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 CTQ	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

Product		Issued/Revision		Process Control					Record	By designed	By checked	By approved		
CHIP ANTENNA		Issued Revised	04.04.06 05.04.03						PRCP-C001					
Input Materials	FLOW CHART		Process name	Management of Factors					Management of quality					
	prepar ation	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	Paramete r	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	Paramete r 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