

[APPROVAL SHEET]



품명 : NKC-7 (2.4G & 5G Dual Chip ANT)

Nice Korea Components

[APPROVAL SHEET]

Product	NKC-7	
Model		
Designed by	Checked by	Approved by
		
/	/	/

2023. 11. 28

Nice Korea Components

1. Revision History

product	NKC-7	Model	
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[illegible]

3. Electrical Specifications

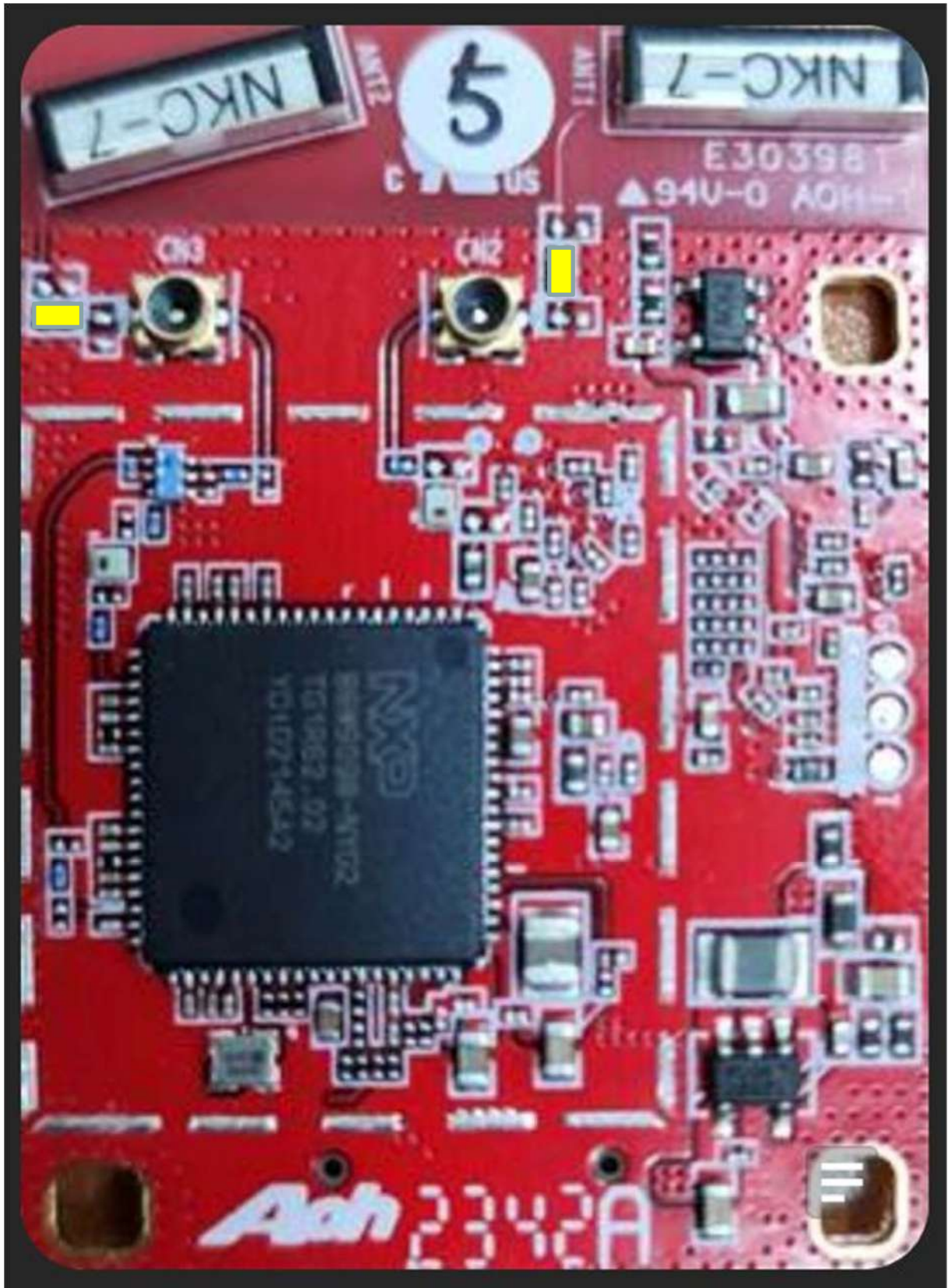
3-1.

- * All item are measured in room temperature (24~25 'C).
- * All item are measured at customer set condition.

No.	Items	Typical Data
1	Frequency (MHz)	2400 ~2500
2	VSWR	6 : 1
3	Total Gain [dBi]	0.01 / -6.65
4	Impedance	50 ohm
5	Polarization	Linear

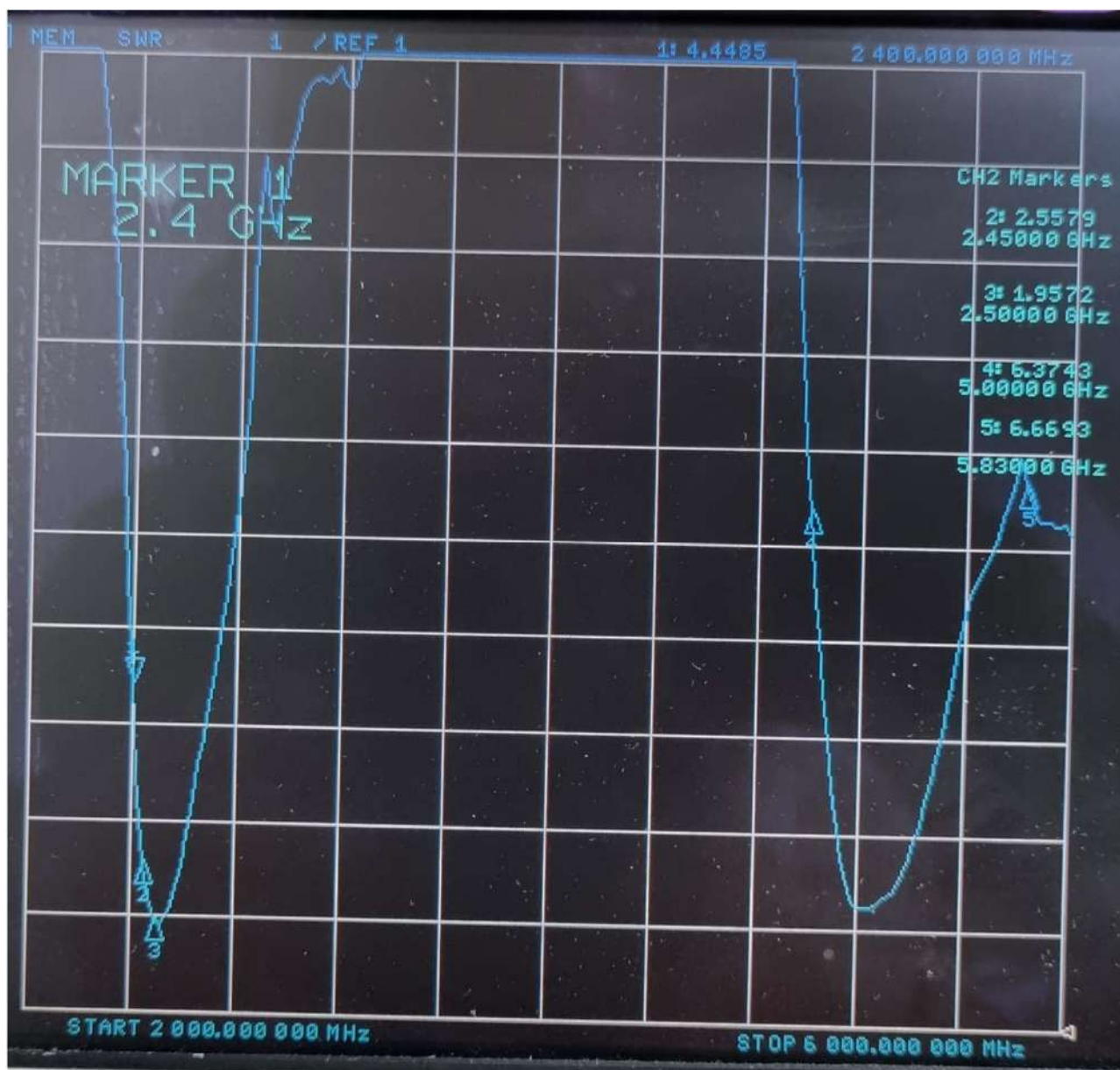
No.	Items	Typical Data
1	Frequency (MHz)	5000 ~5830
2	VSWR	8 : 1
3	Total Gain [dBi]	-2.18 / -6.94
4	Impedance	50 ohm
5	Polarization	Linear

3-2. ANT condition & matching

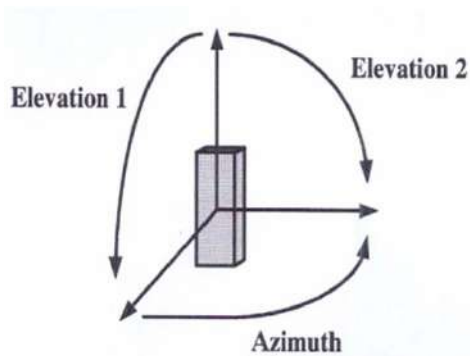


 직렬 : 0 (ohm)

3-3. VSWR (S₁₁)



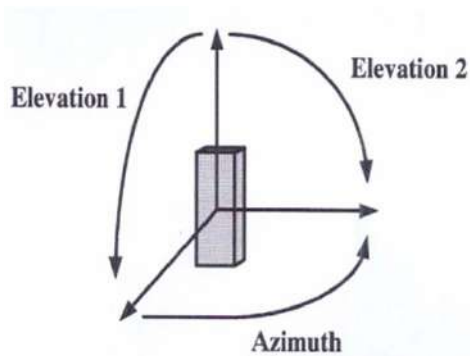
3-4. Radiation Patterns (BT



Theta	Vertical Field of measured plane
Phi	Horizontal Field of measured plane

gain[dBi] (Co-Pola)	Azimuth	Phi	Peak	-1.95
			Avg	-9.22
	Elevation	Theta	Peak	0.01
			Avg	-6.65

3-5. Radiation Patterns (Wi-Fi)



Theta	Vertical Field of measured plane
Phi	Horizontal Field of measured plane

gain[dBi] (Co-Pola)	Azimuth	Phi	Peak	-2.18
			Avg	-6.94
	Elevation	Theta	Peak	-3.47
			Avg	-10.33

(BT -2400MHz~2500MHz)

(V)				(H)			
Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]
-8.17	-1.33	100.00	60.52	-11.14	-4.46	-180.00	999.00
-7.52	-0.64	105.00	50.76	-10.53	-3.18	-180.00	999.00
-6.65	0.01	105.00	52.67	-9.22	-1.95	-180.00	999.00

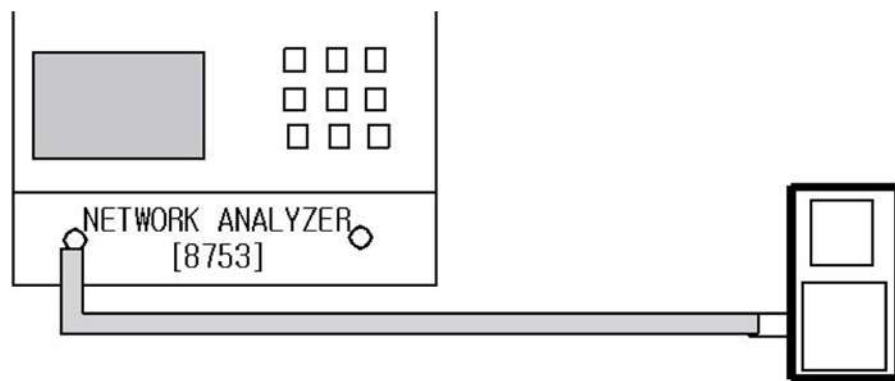
(Wi-Fi -5000MHz~5830MHz)

(V)				(H)			
Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]
-12.29	-6.24	0.00	27.12	-6.94	-2.18	85.00	55.58
-10.81	-3.50	145.00	13.17	-7.76	-3.96	-90.00	20.83
-10.33	-3.47	-180.00	999.00	-8.52	-3.02	140.00	18.48

4. Measurements Method & Conditions

The measurement of antenna performance is measurement of gain, radiation pattern using ORBIT/FR apparatus in Anechoic chamber and measurement of VSWR using Network analyzer.

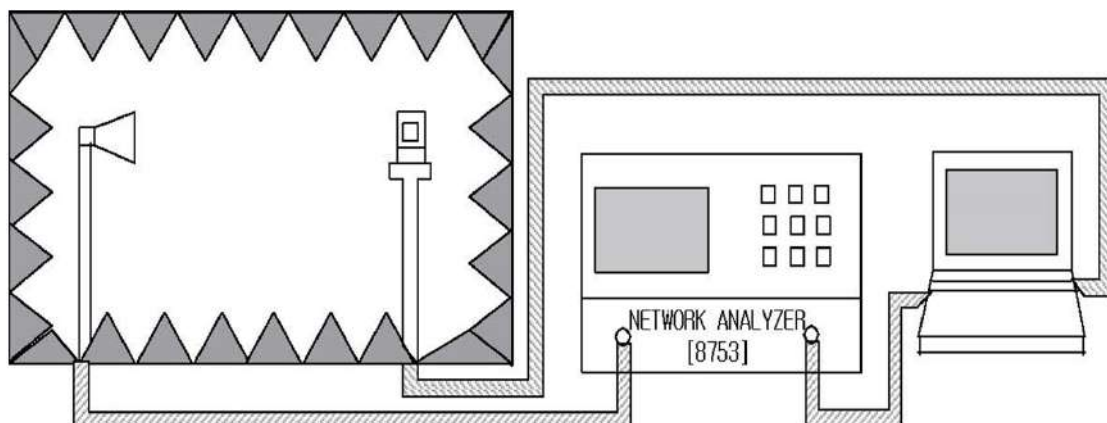
4-1. The measurement of Frequency and VSWR



[Measurement Method]

1. As seen the above, network analyzer is set up for S11 measurement.
2. The measurement frequency range is to set up from 2 GHz to 3 GHz.
3. Perform S11 one port full calibration.
4. Measure the VSWR of three points of Bluetooth frequency range such as 2.4 GHz, 2.45 GHz, and 2.5 GHz.

4-2. The measurement of Gain & Radiation Patterns

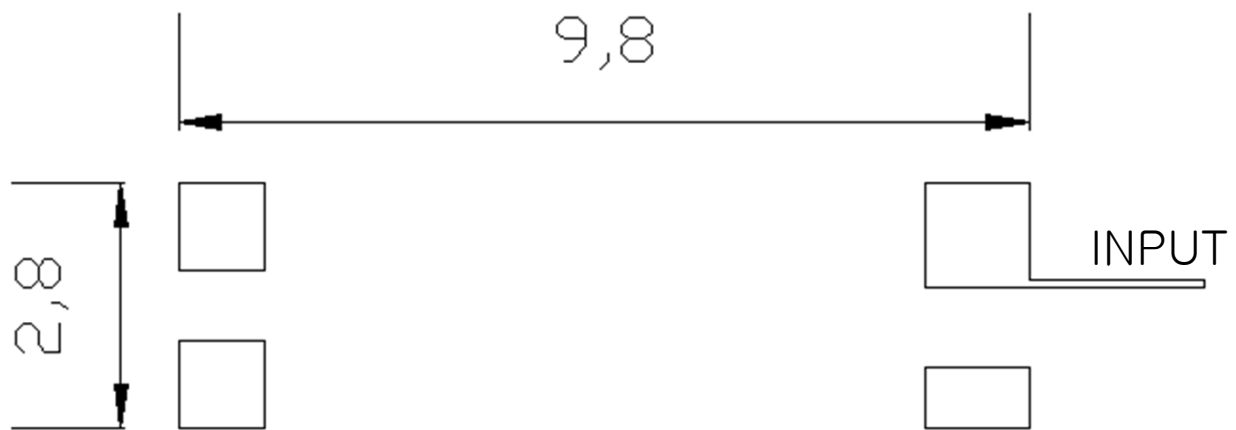


[Measurement Method]

1. As seen the above, network analyzer is to set up in Anechoic chamber.
2. As seen beneath, for the measurement planes as Azimuth, Elevation 1, and Elevation 2, measure Gain data of vertical polarization and horizontal polarization for each plane.

5. PCB Layout & Solder Pad

5-1. Top Layout



Solder Pad (Size 20 page)

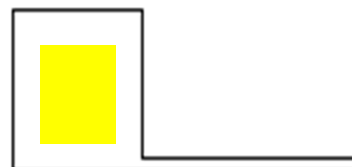
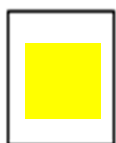
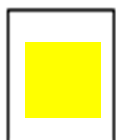


Pattern Pad

Unit : mm

tolerances : ± 0.05

5-2. SOLDERING CREAM AREA



Unit: mm



Soldering Cream



Solder Pad

6. Ag pattern



TOP



SIDE 1



BOT



SIDE 2

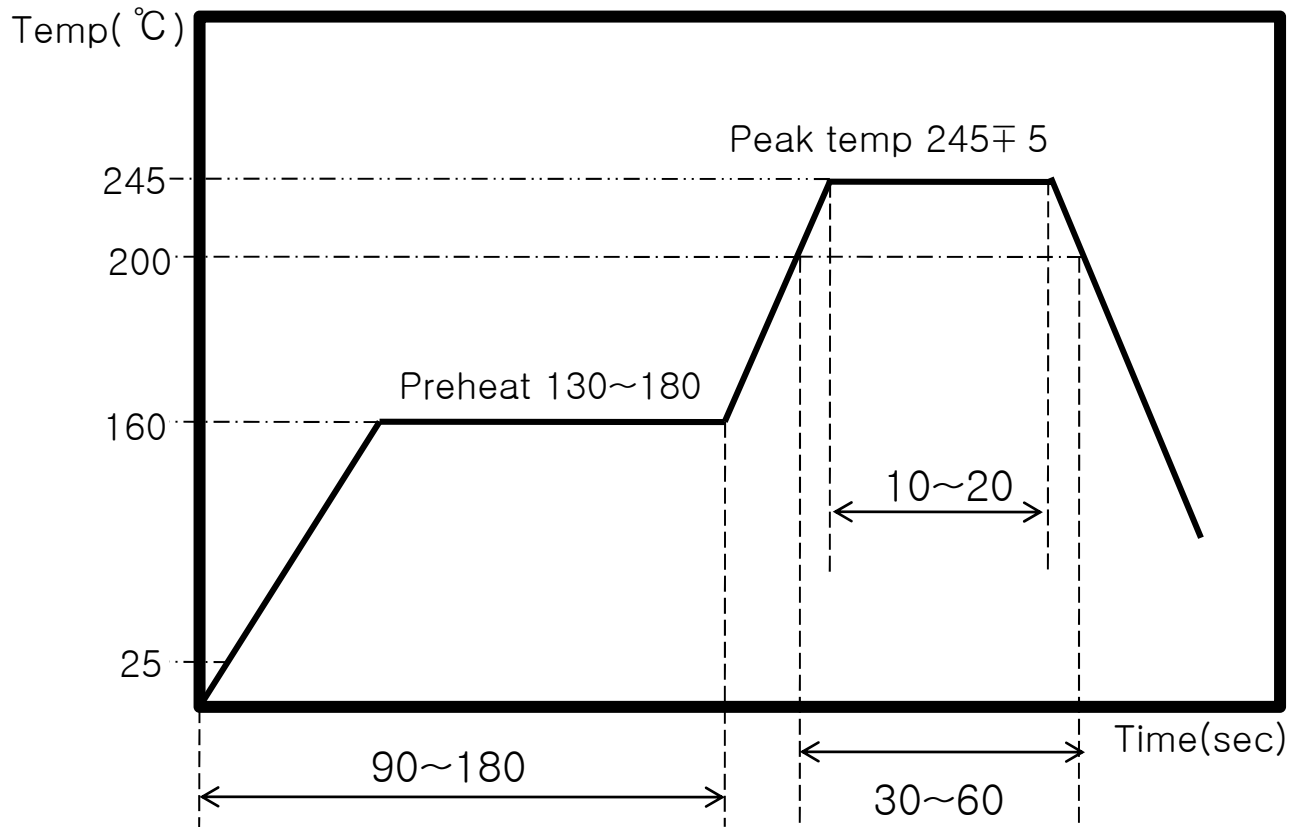
7. Marking View



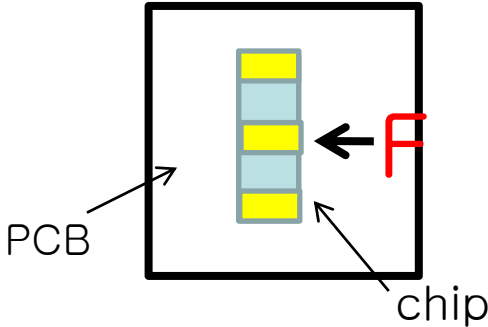
Only TOP part

8. Reflow Profile

8-1. Standard reflow condition(Pb-free)



9. Environmental Tests

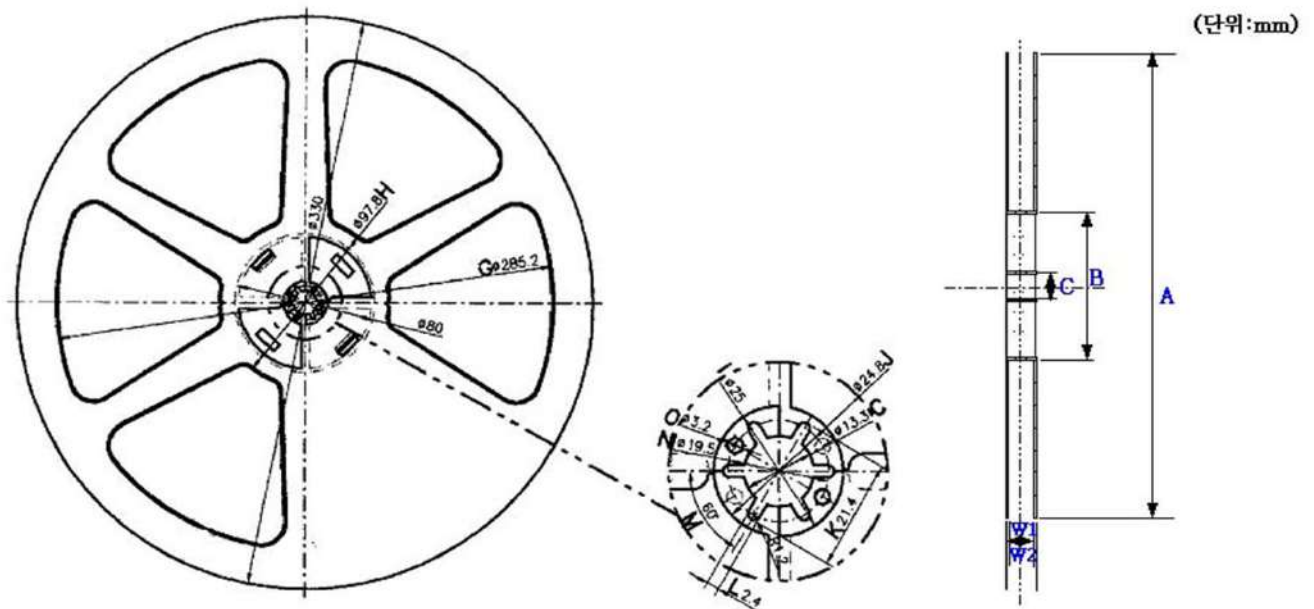
No.	ITEM	TEST COND	TEST REQU
1	High Temperature Resistance	1. Temp: $+125\pm 5^{\circ}\text{C}$ 2. Time: $1000\pm 24\text{hrs}$ 3. Measure Fc after left for 24hrs min. at room temp	1. Within electric spec(VSWR) 2. No visual damage
2	Low Temperature Resistance	1. Temp: $-40\pm 5^{\circ}\text{C}$ 2. Time: $1000\pm 24\text{hrs}$ 3. Measure Fc after left for 48hrs min. at room temp	1. Within electric spec(VSWR) 2. No visual damage
3	Thermal Shock	1. 1cycle/step1: $-40\pm 3^{\circ}\text{C}$,30min step2: $+125\pm 3^{\circ}\text{C}$,30min 2. Number of cycle:30 3. Measure after left for 48hrs min. at room temp	1. Within electric spec(VSWR) 2. No visual damage
4	Humidity	1. Humidity:85%RH 2. Temp: $+85\pm 3^{\circ}\text{C}$ 3. Time: $1000\pm 24\text{hrs}$ 4. Measure Fc after left for 48hrs min. at room temp	1. Within electric spec(VSWR) 2. No visual damage
5	Adhesive strength of termination	1. Applied force on SMD chip till detached point from PCB. 	1. No mechanical damage by forces applied on the right 2. Strength(F)>3kgf

10. Packaging

10-1. Reel Taping Quantity

4000 pcs / 1 reel

10-2. Carrier Tape & Reel Dimensions



항 목	A	B	C
SPEC	330±1	80±1	13±0.2

EIAJ - RRM Ø330							
RRM08D -56D							
품명	08D	12D	16D	24D	32D	44D	56D
규격	08	12	16	24	32	44	56
W1	9.5	13.5	17.5	25.5	33.5	45.5	57.5
W2	13.5	17.5	21.5	29.5	37.5	49.5	61.5

11. Usage and Cautions

Safe-keeping conditions : 1 month in 20+/-15'C & less than 60%