



Specification

## PC-1402-09 Wi-Fi (2.4 / 5.2 GHz) PCB Antenna



The PC-1402-09 is a high performance wireless antenna for internal use in Wi-Fi or WLAN equipment worldwide. Omni-directional gain across both bands ensures constant reception and transmission. Its compact size and high performance make it ideal for integration into today's devices.

The antenna is available with a variety of cables and connectors if necessary.

**Features**

- Dual band Wi-Fi                      Worldwide use
- Miniaturized                              Diameter 42mm

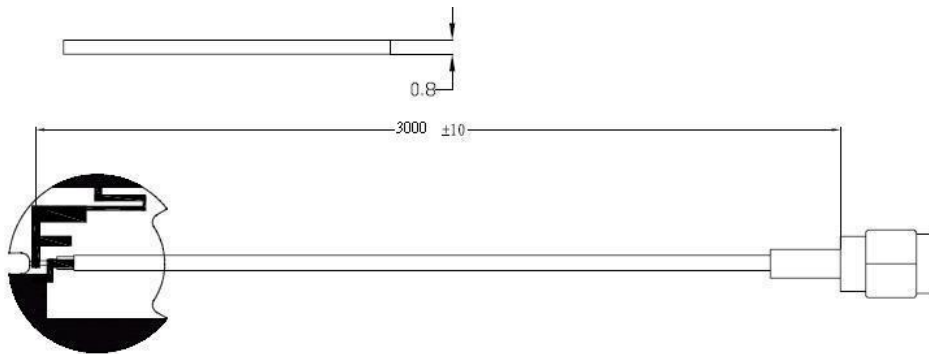
<b>Specifications</b>						
<b>Communication System</b>	<b>WLAN</b>					
<b>Frequency range (GHz)</b>	<b>2.4</b>	<b>2.45</b>	<b>2.5</b>	<b>5.15</b>	<b>5.25</b>	<b>5.35</b>
<b>VSWR</b>	<b>1.46</b>	<b>1.66</b>	<b>1.60</b>	<b>1.76</b>	<b>1.41</b>	<b>1.48</b>
<b>Return Loss</b>	<b>-14.53</b>	<b>-12.10</b>	<b>-12.66</b>	<b>-11.14</b>	<b>-15.25</b>	<b>-14.18</b>
<b>Impedance</b>	<b>50 ohm</b>					
<b>Radiation</b>	<b>Omni</b>					
<b>Polarization</b>	<b>Horizontal</b>					

**\*note: specifications may be subject to change**



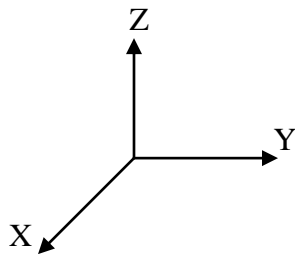
Specification

Outline Drawing



NOTE:

- 1. Unit:mm
- 2. RG-178 PVC Cable Black
- 3. PCB thickness 0.8mm
- 4. 6G Connector (RSMA Plug)

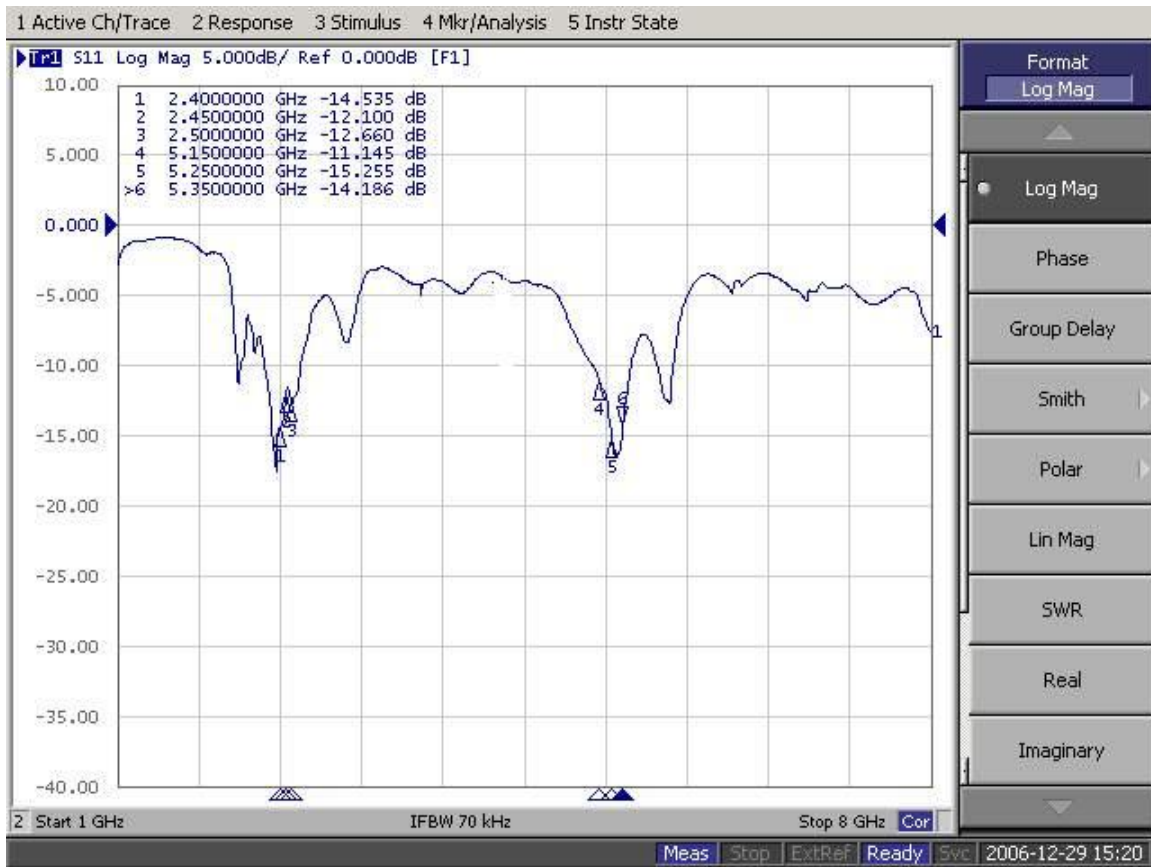


- Note : 1. The upper of the PCB is X direction.  
2. Connector is toward Z direction.



Specification

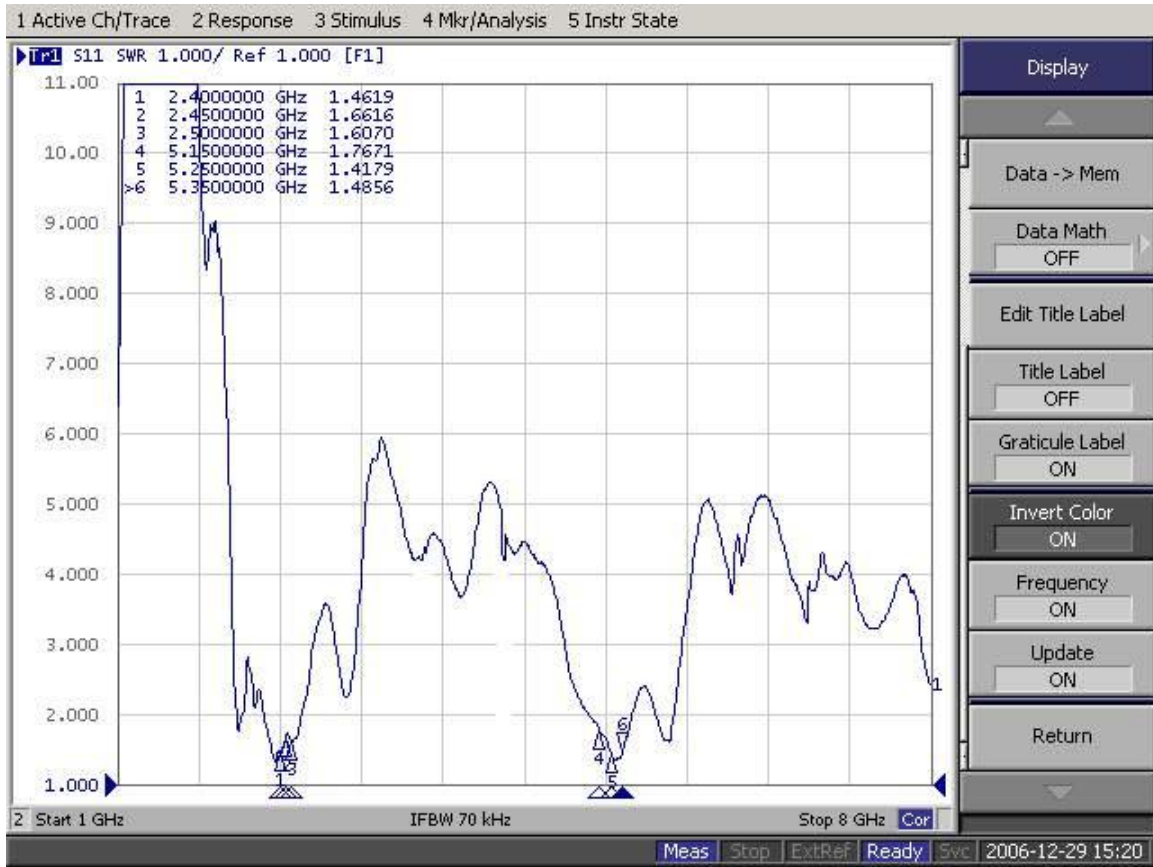
### S11 Magnitude (Return Loss)





Specification

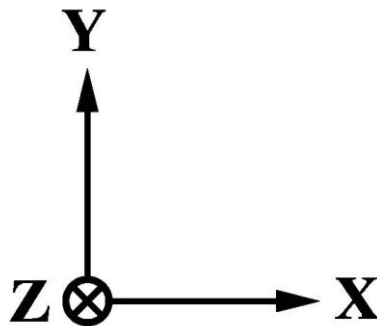
VSWR



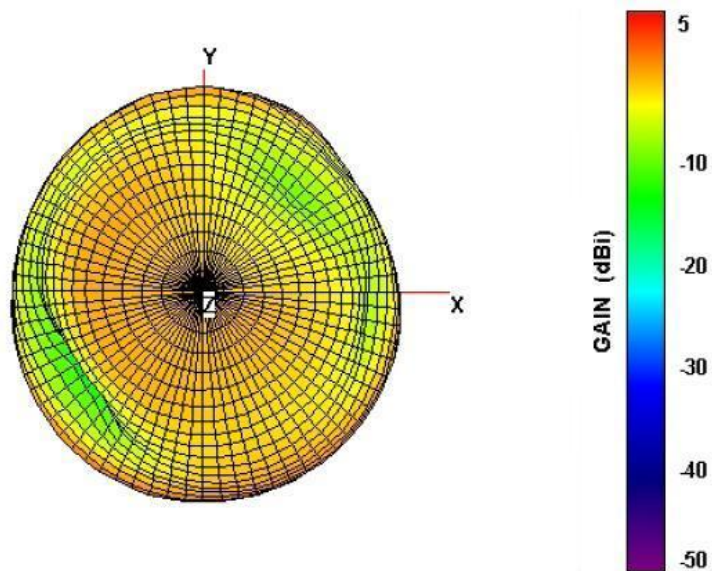


Specification

3D Radiation Pattern



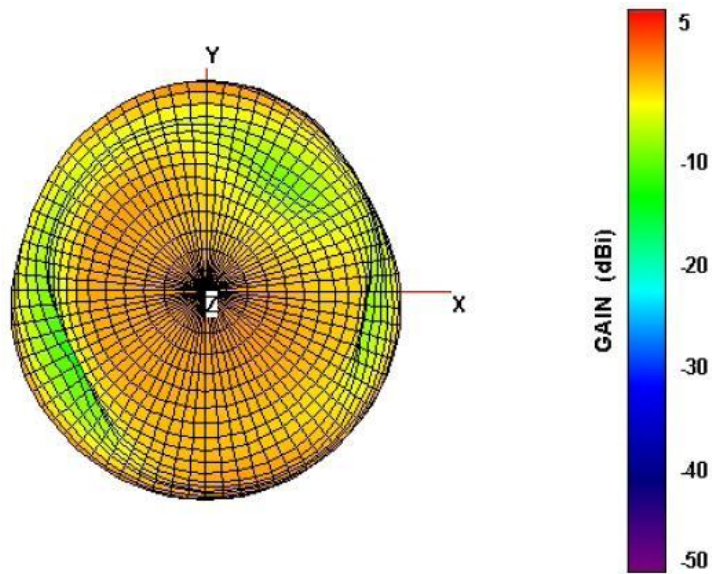
2.4GHz



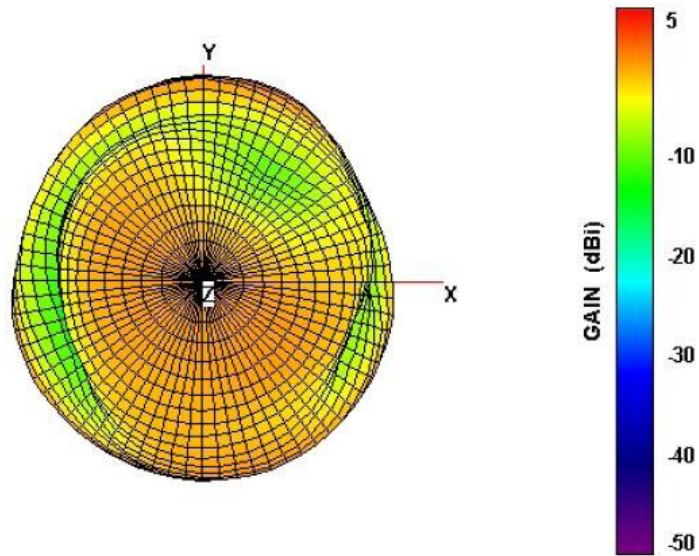


Specification

2.45GHz



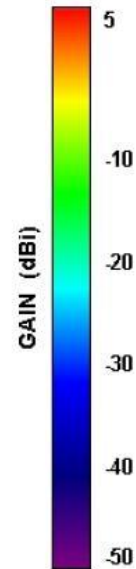
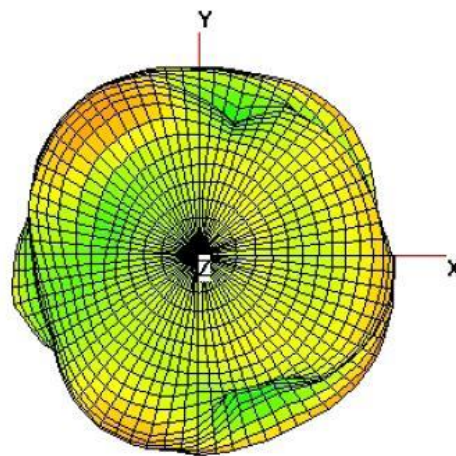
2.5GHz



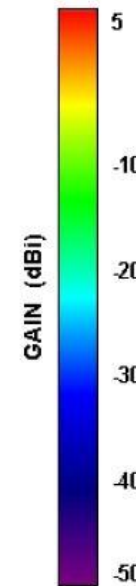
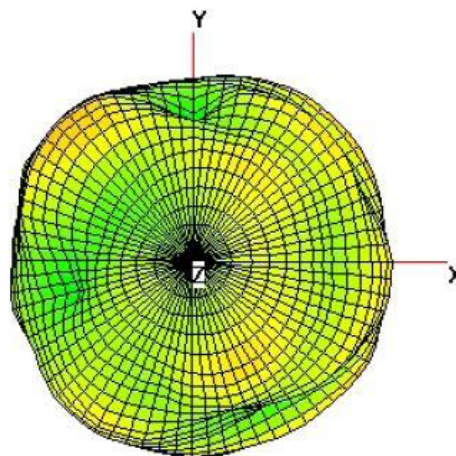


Specification

5.15GHz



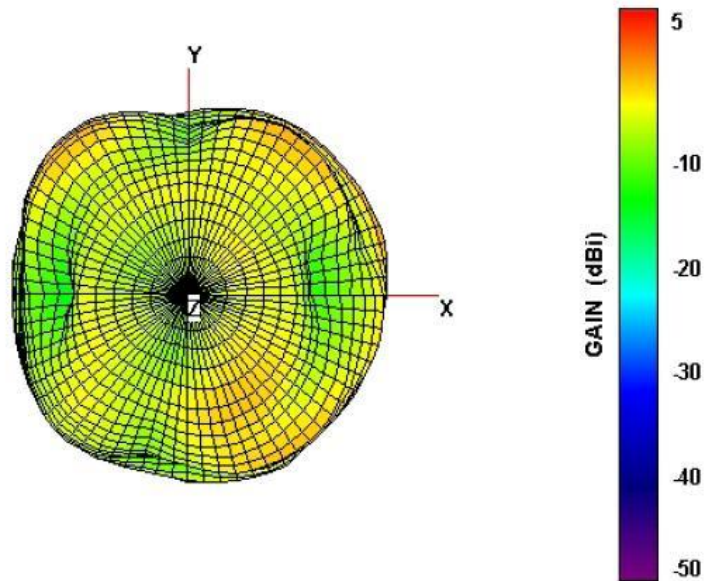
5.25GHz





Specification

5.35GHz





Specification

Result Summary

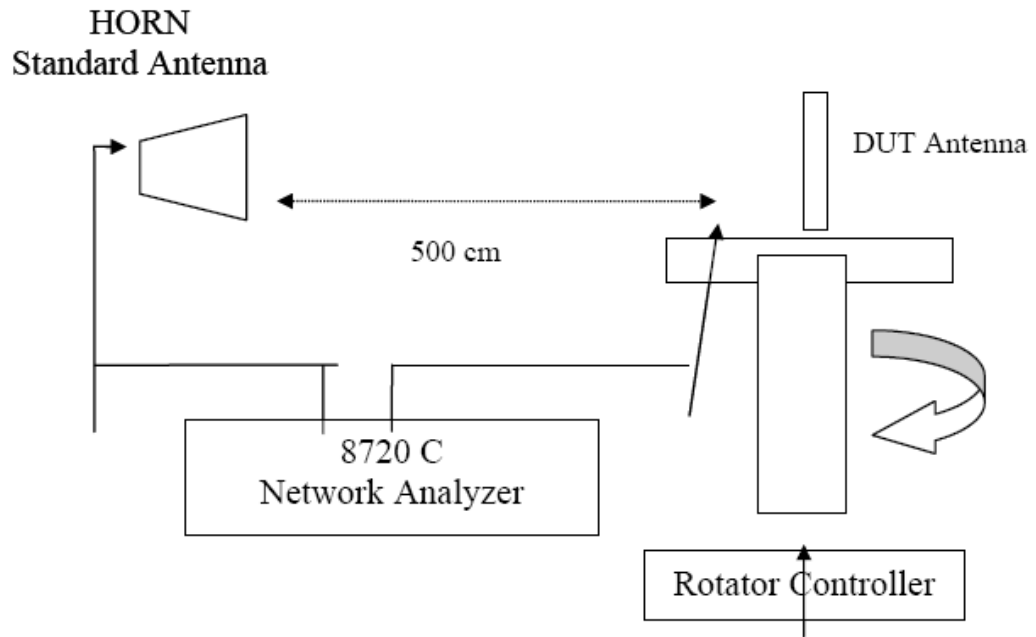
Channel	2400	2450	2500	5150	5250	5350
<b>Note</b>						
Ant. Port Input Pwr. (dBm)	0	0	0	0	0	0
Tot. Rad. Pwr. (dBm)	-1.98761	-1.61782	-1.77651	-3.01447	-3.8051	-3.23583
Peak EIRP (dBm)	3.0513	4.05447	4.1152	4.7407	4.37813	4.71773
Directivity (dBi)	5.03891	5.67229	5.89171	7.75517	8.18322	7.95356
Efficiency (dB)	-1.98761	-1.61782	-1.77651	-3.01447	-3.8051	-3.23583
Efficiency (%)	63.276	68.8997	66.4276	49.952	41.638	47.4698
Gain (dBi)	3.0513	4.05447	4.1152	4.7407	4.37813	4.71773
NHPRP ±Pi/4 (dBm)	-3.25016	-2.86259	-3.02232	-4.67614	-5.69757	-5.29538
NHPRP ±Pi/6 (dBm)	-4.39266	-4.02363	-4.19465	-6.60698	-7.70604	-7.19484
NHPRP ±Pi/8 (dBm)	-5.32364	-5.01353	-5.19258	-7.87659	-8.98205	-8.37507
Upper Hem. PRP (dBm)	-6.08301	-5.80993	-5.86805	-7.71601	-8.71586	-8.08409
Lower Hem. PRP (dBm)	-4.13045	-3.70008	-3.92182	-4.81064	-5.49788	-4.95872
NHPRP4 / TRP Ratio (dB)	-1.26255	-1.24477	-1.2458	-1.66167	-1.89247	-2.05955
NHPRP4 / TRP Ratio (%)	74.773	75.0798	75.062	68.2076	64.6774	62.2365
NHPRP6 / TRP Ratio (dB)	-2.40505	-2.4058	-2.41814	-3.59251	-3.90094	-3.95901
NHPRP6 / TRP Ratio (%)	57.4771	57.4672	57.3041	43.7269	40.7292	40.1882
NHPRP8 / TRP Ratio (dB)	-3.33604	-3.39571	-3.41607	-4.86212	-5.17695	-5.13924
NHPRP8 / TRP Ratio (%)	46.387	45.754	45.54	32.6428	30.3602	30.625
UHPRP / TRP Ratio (dB)	-4.0954	-4.19211	-4.09154	-4.70155	-4.91076	-4.84826
UHPRP / TRP Ratio (%)	38.9457	38.0881	38.9804	33.8723	32.2793	32.7472
LHPRP / TRP Ratio (dB)	-2.14284	-2.08226	-2.1453	-1.79617	-1.69279	-1.7229
LHPRP / TRP Ratio (%)	61.0543	61.9119	61.0196	66.1277	67.7207	67.2528
Front/Back Ratio (dB)	3.42725	3.56765	3.94055	10.1253	13.1799	10.9587
Phi BW (°)	112	96	86	42	40	42
+ Phi BW (°)	66	58	52	17	19	24
- Phi BW (°)	46	38	34	25	21	18
Theta BW (°)	49	35	35	36	34	32
+ Th. BW (°)	25	20	24	23	23	12
- Th. BW (°)	24	15	11	13	11	20
Boresight Phi (°)	270	270	270	75	75	60
Boresight Th. (°)	105	105	105	135	135	150
Maximum Power (dBm)	3.0513	4.05447	4.1152	4.7407	4.37813	4.71773
Minimum Power (dBm)	-15.0552	-14.2956	-14.3893	-15.5291	-16.4014	-15.3489
Average Power (dBm)	-2.26887	-1.84221	-2.02397	-3.4037	-4.13521	-3.4448
Max/Min Ratio (dB)	18.1065	18.3501	18.5045	20.2699	20.7795	20.0666
Max/Avg Ratio (dB)	5.32018	5.89668	6.13917	8.14441	8.51333	8.16253
Min/Avg Ratio (dB)	-12.7863	-12.4534	-12.3653	-12.1254	-12.2662	-11.9041
Average Gain (dB)	-1.98761	-1.61782	-1.77651	-3.01447	-3.8051	-3.23583
E-Plane BW (°)	45	33	34	32	31	35
+ E-Plane BW (°)	20	18	22	19	20	12
- E-Plane BW (°)	25	15	12	13	11	23
H-Plane BW (°)	115	105	93	51	45	39
+ H-Plane BW (°)	69	70	65	16	16	20
- H-Plane BW (°)	46	35	28	35	29	19

**Specification**

Test Items	Procedure	Requirement
Thermal Shock	Starting at -40°C for 30minutes and then cycled to +85°C to remain 30minutes (a complete cycle). To repeat 5 complete cycles. (Refer to IEC 68-2-14 Method Na)	<ol style="list-style-type: none"> <li>1. The value of return loss must be within product specifications after this test.</li> <li>2. No physical deformation should be evident.</li> </ol>
Storage Temperature (Cold)	Samples must be put into -30°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Aa)	<ol style="list-style-type: none"> <li>1. The value of return loss must be within product specifications after this test.</li> <li>2. No physical deformation should be evident.</li> </ol>
Storage Temperature (Dry Heat)	Samples must be put into +75°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Ba)	<ol style="list-style-type: none"> <li>1. The value of return loss must be within product specifications after this test.</li> <li>2. No physical deformation should be evident.</li> </ol>
Operating Temperature (Cold)	Samples must be put into -20°C chamber for 2 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Aa)	<ol style="list-style-type: none"> <li>1. The value of return loss must met specification during test/after test</li> <li>2. No mechanical defects after test.</li> </ol>
Operating Temperature (Dry Heat)	Samples must be put into +65°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Ba)	<ol style="list-style-type: none"> <li>1. The value of return loss must met specification during test/after test</li> <li>2. no mechanical defects after test.</li> </ol>



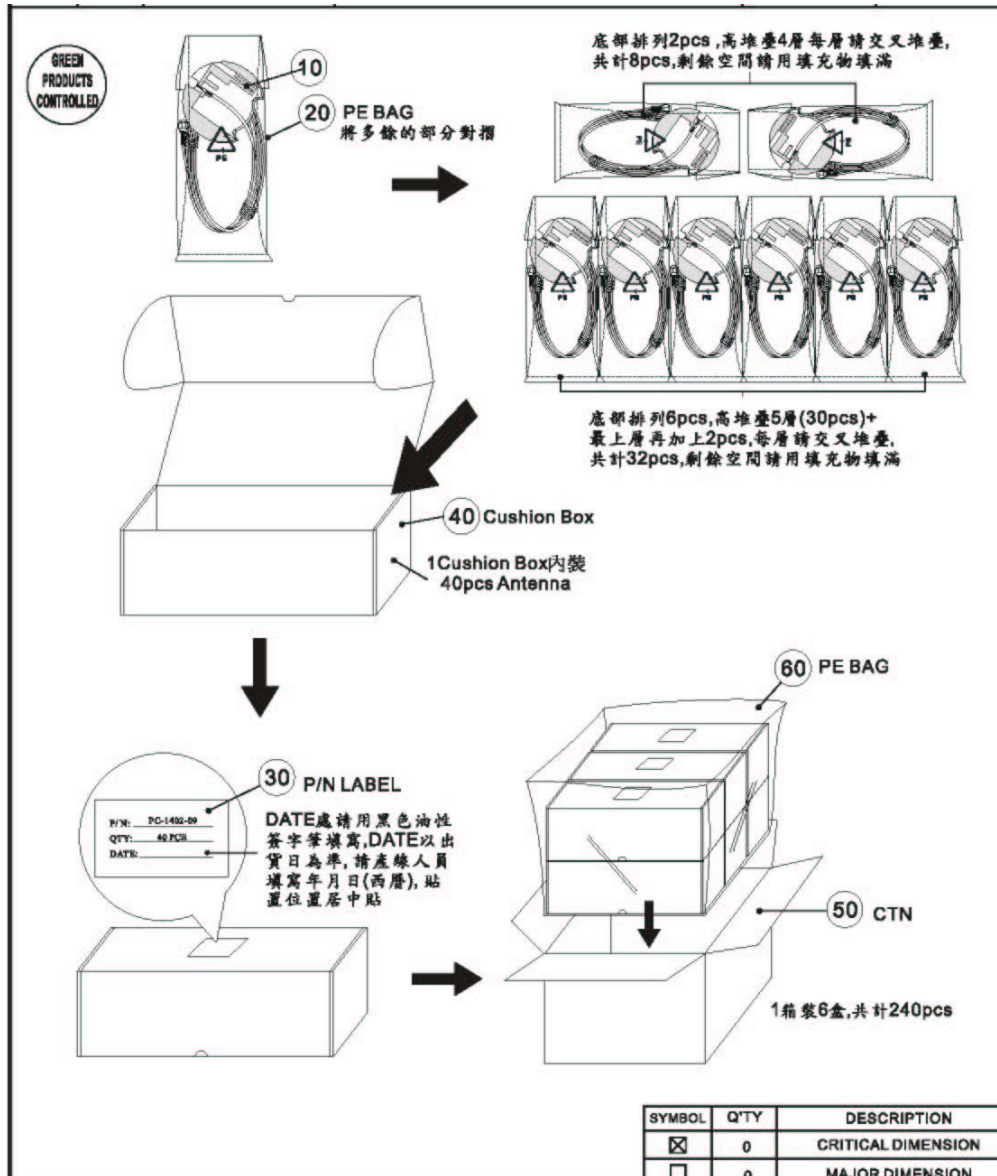
## Radiation Pattern Testing - Anechoic Chamber





Specification

Packaging



DRAW		<b>GOLDEN BRIDGE ELECTECH INC.</b>	DRAWING NO.		
ENGINEER			REVISION	0	
CHECKED			UNIT	mm	
APPROVED			SCALE	NONE	
SAMPLE NO.	AS51-06120010	DSEC:	成品圖	PAGE NO.	1 OF 3
CUSTOMER: Taoglas		SPEC:	Qundband Antenna 包裝	DATE	2007.01.05
P/N:	PC-1402-09			FILES:	



Specification

RG-178 cable assembly data

<p><b>LOW TOXICITY CONTROLLED</b></p> <p>CONDUCTOR</p> <p>INSULATION</p> <p>BRAID</p> <p>JACKET</p>	<h3>CONSTRUCTION</h3> <ol style="list-style-type: none"><li>1.CONDUCTOR: 30AWG(7/0.10)x1C,SILVER PLATED COPPER WIRE.</li><li>2.INSULATION: PFA,OD=0.84±0.02mm, SELF-COLOR.</li><li>3.SHIELD: BRAID(16/3/0.1) TINNED PLATED COPPER WIRE, COVERAGE 80% MIN.</li><li>4.JACKET:PVC,BLACK MATTE SURFACE,GB COLOR: 000, #1.8±0.1mm,WITHOUT MARKING.</li></ol>
<h3>ELECTRICAL CHARACTERISITCS</h3> <ol style="list-style-type: none"><li>1.OPERATION TEMPERATURE: -40°C~+105°C.</li><li>2.INSULATION RESISTANCE: DC/300V 10MΩ.m MIN.</li><li>3.WITHSTAND VOLTAGE: AC/300V 2mA FOR ONE MINUTE.</li><li>4.THE CABLE ELECTRIC MEET RG-178U.</li><li>5.IMPEDANCE: 50±5Ω ● TDR.</li><li>6.ATTENUATION: 16.0dB/100ft ● 100Mhz( MAX.) 33.0dB/100ft ● 400Mhz ( MAX.) 52.0dB/100ft ● 1000Mhz ( MAX.)</li><li>7.TOXICITY MEET SONY-SS-00259.</li><li>8.VENDOR: GOLDEN BRIDGE ELECTECH OR EQUIVALENT.</li></ol>	



Specification

RG-178 Cable loss Data – Specification

<b>Impedance</b>	<b>50 ohm @TDR (nominal)</b>	
<b>VSWR</b>	<b>1-6GHz &lt; 1.4</b>	
<b>Attenuation</b>	<b>1.0GHz</b>	<b>1.75dB</b>
	<b>2GHz</b>	<b>2.5dB</b>
	<b>3GHz</b>	<b>3.4dB</b>
	<b>4GHz</b>	<b>3.7dB</b>
	<b>5GHz</b>	<b>4.2dB</b>
	<b>6GHz</b>	<b>4.8dB</b>

RP-SMA connector

**NOTES: TYPICAL SPECIFICATIONS**

- 1.0. ELECTRICAL DATA
  - 1.1. FREQUENCY RANGE ---- DC ... 6 GHz
  - 1.2. IMPEDANC ---- 50 Ohms
  - 1.3. VSWR ---- < 1.25
  - 1.4. DIELECTRIC WITHSTANDING VOLTAGE ---- 500 Vrms
  - 1.5. WORKING VOLTAGE ---- 170 Vrms max.
  - 1.6. INSULATION RESISTANCE ---- 5000 Mega-Ohms
  - 1.7. CENTER CONTACT RESISTANCE ---- 4.0 mini-Ohms
  - 1.8. OUTER CONTACT RESISTANCE ---- 2.5 mini-Ohms
- 2.0. MECHANICAL DATA
  - 2.1. COUPLING METHOD ---- THREADED
  - 2.2. DURABILITY (MATING/UNMATING) ---- 500 Cycles
  - 2.3. ROTATE TORQUE ---- 200-400 gf-cm (ANTENNA USED)
  - 2.4. COUPLING NUT RETENTION ---- 60 lbs
  - 2.5. MATING TORQUE ---- 10 in-lbs max.
- 3.0. ENVIRONMENTAL DATA
  - 3.1. TEMPERATURE RANGE ---- -65° to 165°
  - 3.2. VIBRATION ---- MIL-STD-202,METHOD 204,TEST CONDITION D
  - 3.3. THERMAL SHOCK ---- MIL-STD-202,METHOD 107,TEST CONDITION B
  - 3.4. SALT SPRAY ---- MIL-STD-202,METHOD 101,TEST CONDITION B
  - 3.5. MECHANICAL SHOCK ---- MIL-STD-202,METHOD 213,TEST CONDITION I
  - 3.6. MOISTURE RESISTANCE ---- MIL-STD-202,METHOD 106
- 4.0. OTHERS
  - 4.1. PACKAGE REFER: TRAY
  - 4.2. REMOVED ALL BURRS & BREAK ALL SHARP EDGES
  - 4.3. ALL CORNERS TO BE R0.1 max.

**BOM**

**Recommended Cable Strip**

ITEM	ITEM NAME	MATERIAL	FINISH	QTY/EA	PART NUMBER
4	MALE CONDUCTOR	PHOSPHOR BR	GOLD 10u"	1	
3	MALE INSULATOR	TEFLON		1	
2	MALE BODY	BRASS	GOLD	1	
1	SHELL	BRASS	GOLD	1	