



Specification

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Part/Spec No : **PC-1101-09**

Model No. : **PC-11**

Product Name : **TheStripe™ PCB Dual-band 2.4 / 5.2 GHz antenna**

Features : 66mm*16mm*0.8mm
100mm Length 1.13mm Diameter Co-axial cable
IPEX MHF connector (U.FL compatible)



Photo :

REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	Aug 8 th 2006	All	New format	TW Product Centre	Ronan Quinlan
02	Feb 19 th 2008	8	Radiation patterns added	Ireland	Dermot O'Shea
03	Feb 19 th 2008	16	Connector drawing added	Ireland	Dermot O'Shea



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1.0 System

This miniaturized low profile PCB antenna is based on smart TheStripe™ antenna technology. It consists of a PCB antenna and mini coaxial cable.

2.0 General

2.1 Environmental Conditions

2.1.1	Operation Temperature	-20°C to + 65°C
2.1.2	Storage Temperature	-30°C to + 75°C
2.1.3	Relative Humidity	40% to 95%

2.2 Cable & Connector

2.3.1	RF Cable	RF Coaxial Cable ϕ 1.13 ± 0.1mm L = 100 +/- 3 mm Grey
2.3.2	RF Connector	IPEX MHF

3.0 Antenna

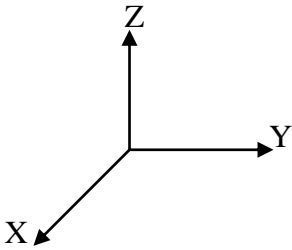
3.1	Frequency Range	2.45 GHz	5.25 GHz
3.2	VSWR*	1.195	1.325
3.3	Return Loss*	-21.21	-19.04
3.4	Impedance	50 Ohm	
3.5	Radiation Pattern	Omnidirectional	
3.6	Polarization	Horizontal	

*see plots below (5.1, 5.2)

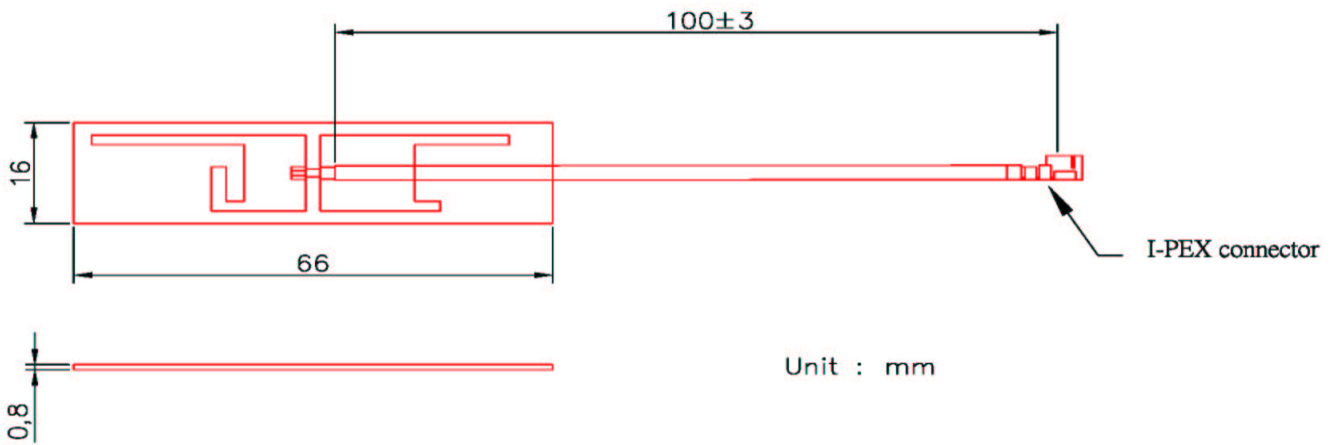


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4.0 Mechanical Dimensions



- Note :
- 1. The radiating face of the PCB is in the Z axis
 - 2. Connector positioning is in the Z axis

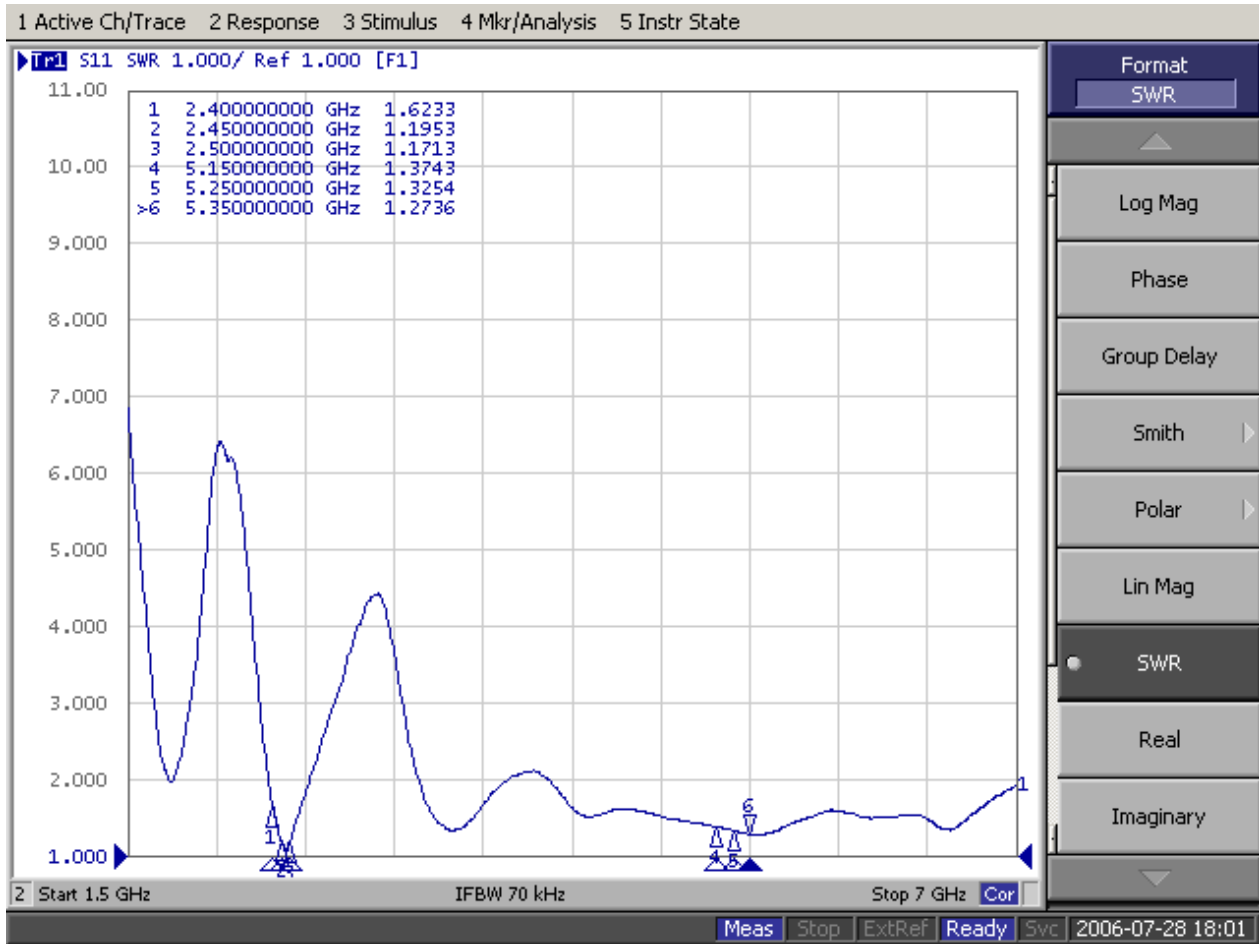




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5.0 Antenna Electrical Characteristics

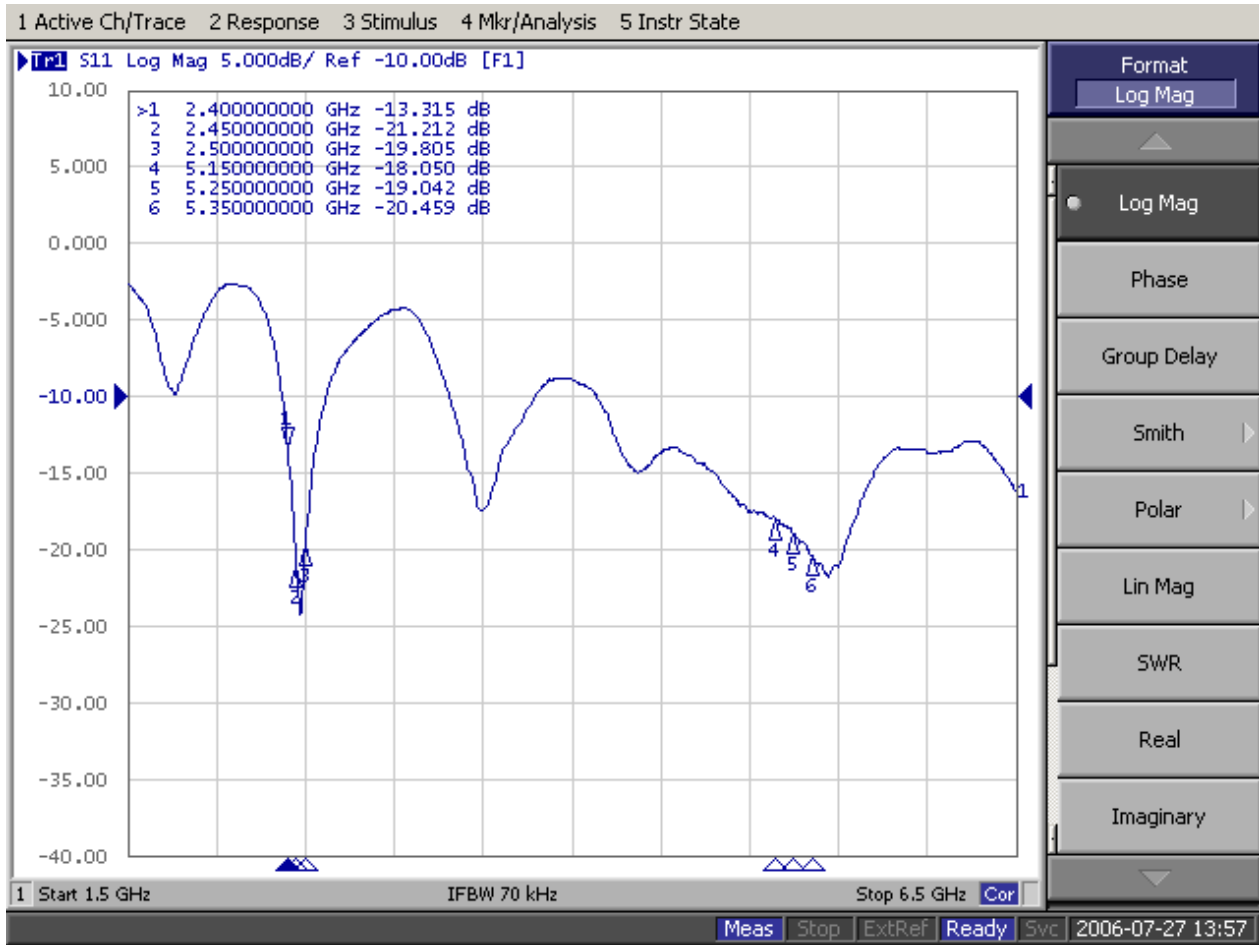
5.1 VSWR





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5.2 Return Loss





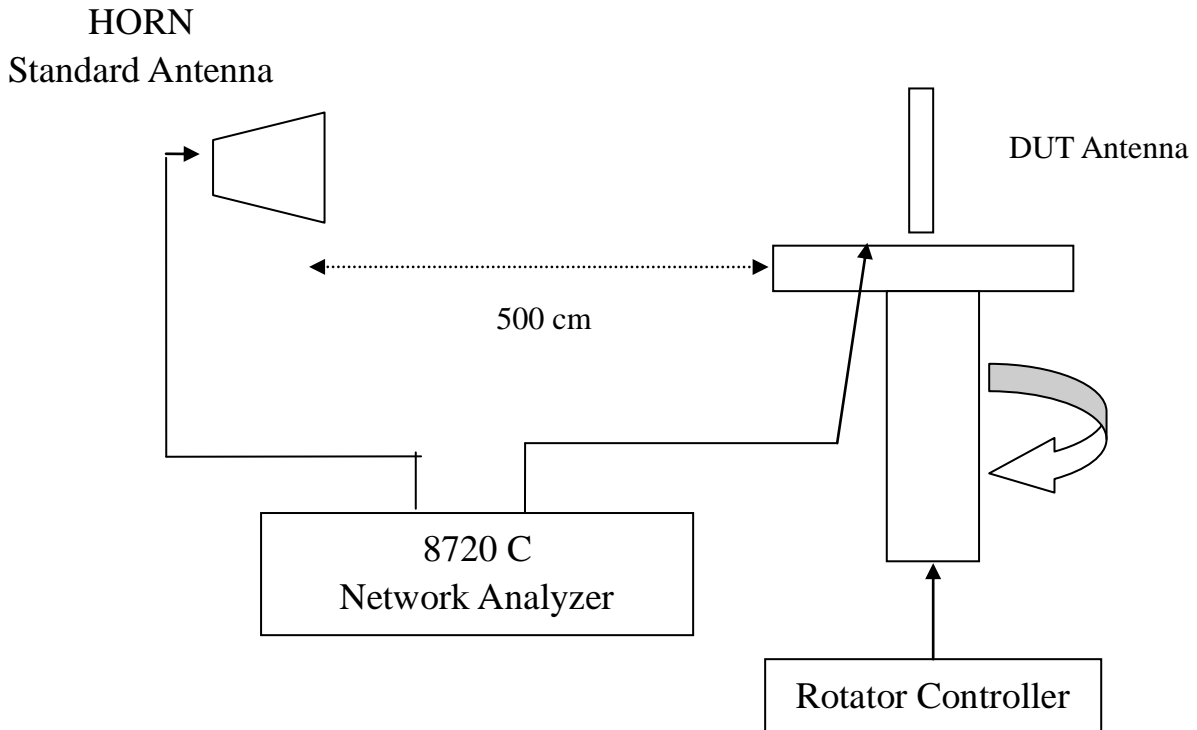
6.0 Environmental Characteristics

Test Items	Procedure	Requirement
Thermal Shock	Starting at -40 for 30minutes and then cycled to +85 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"> The value of return loss must be within product specifications after this test. No physical deformation should be evident.
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"> The value of return loss must be within product specifications after this test. No physical deformation should be evident.
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"> The value of return loss must be within product specifications after this test. No physical deformation should be evident.
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"> The value of return loss must met specification during test/after test no mechanical defects after test.
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"> The value of return loss must met specification during test/after test no mechanical defects after test.

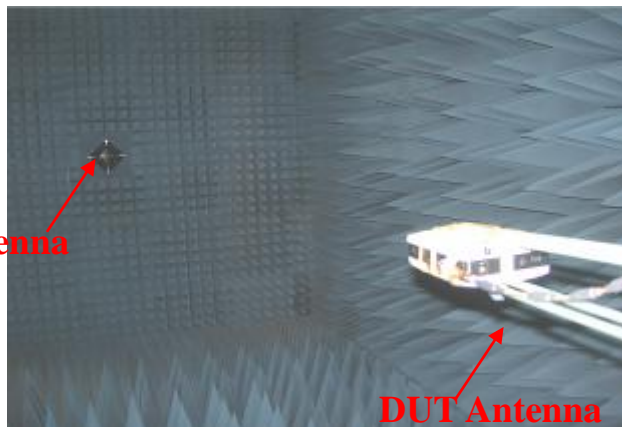


7.0 Antenna Test Conditions

Radiation Pattern Testing - Anechoic Chamber



Horn Standard Antenna

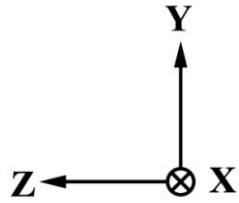


DUT Antenna

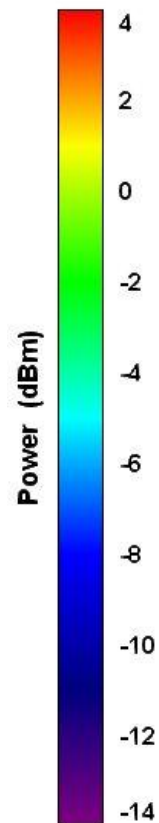
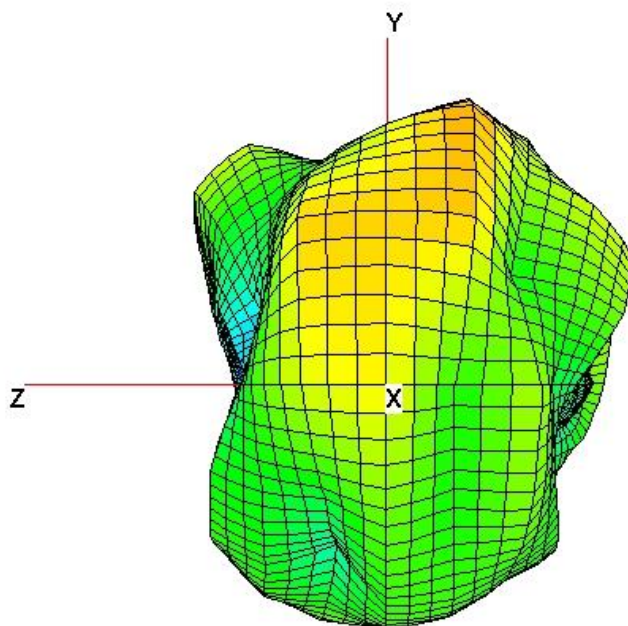


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8.0 Radiation patterns



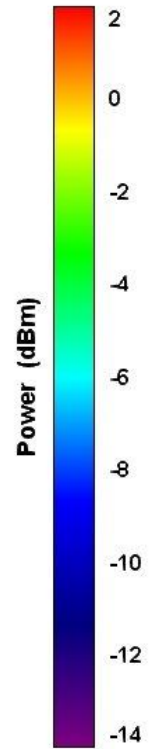
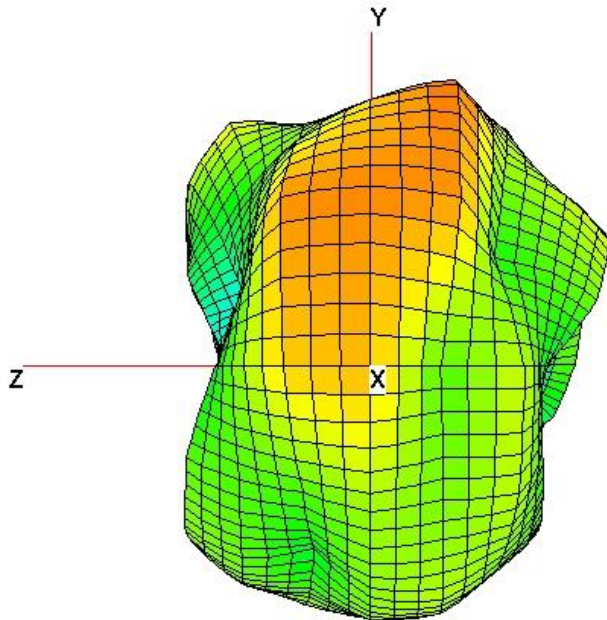
2.4GHz



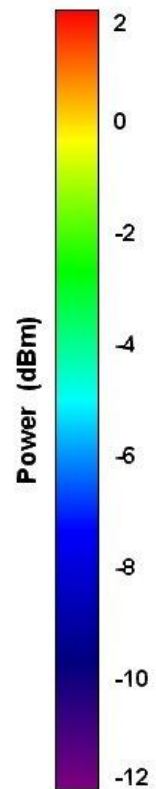
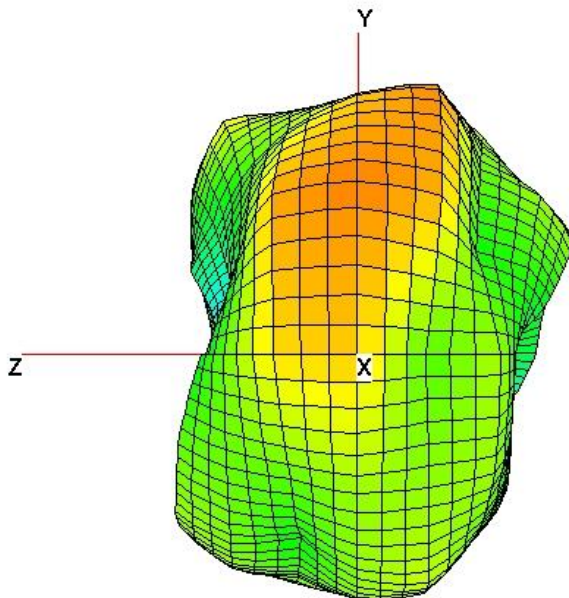


Specification

2.45GHz



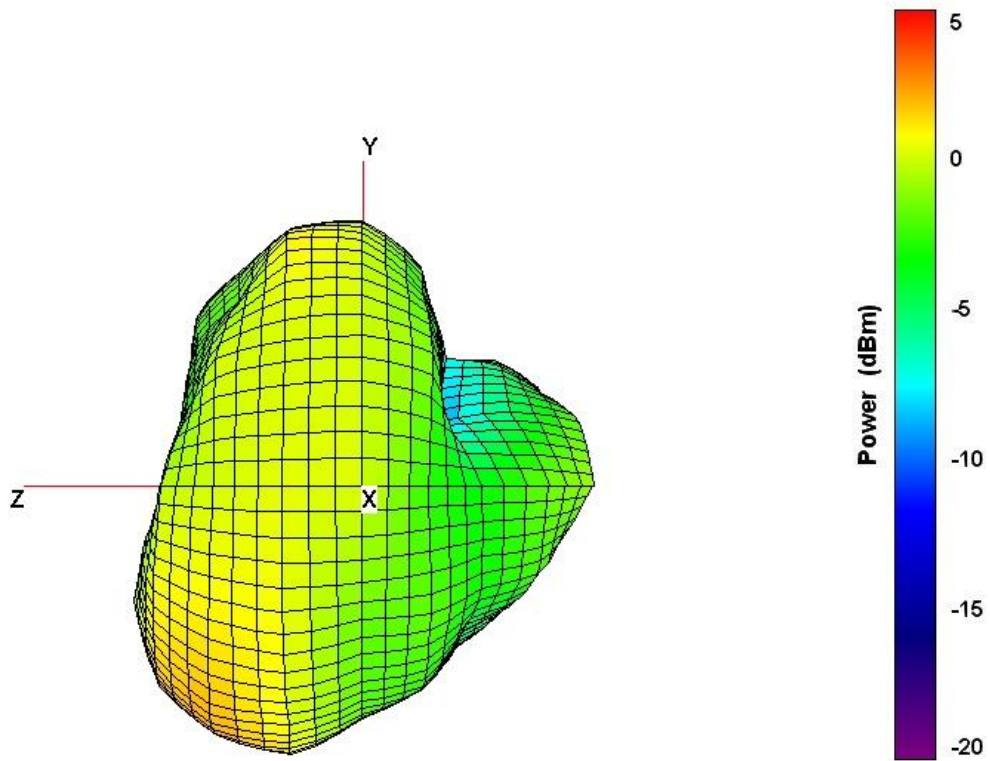
2.5GHz



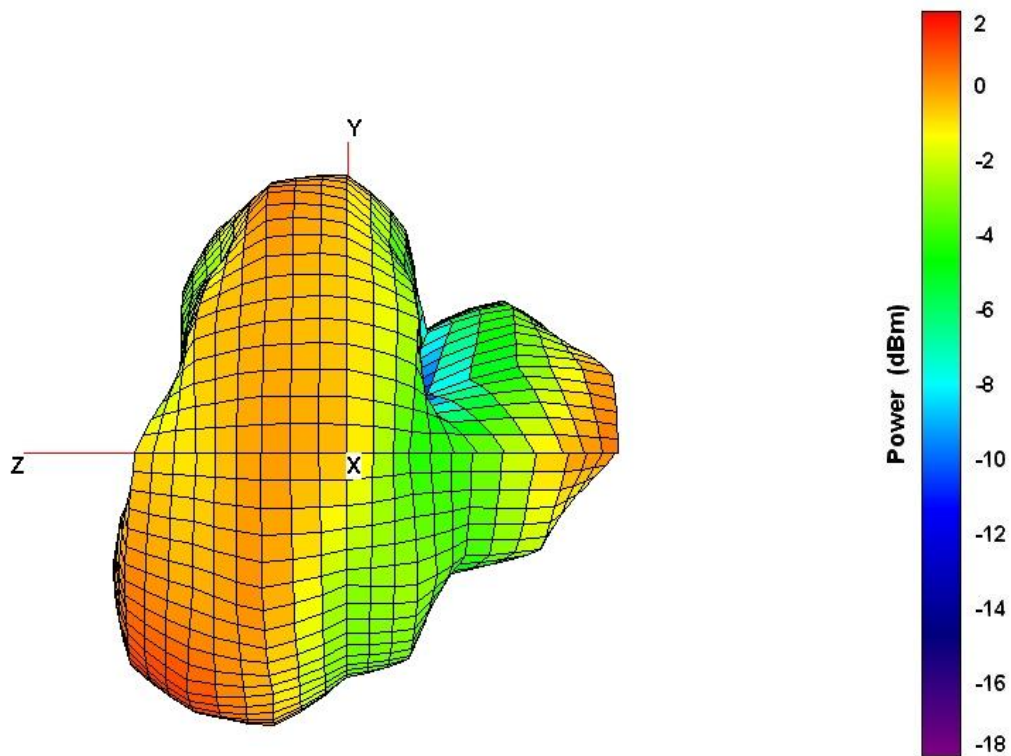


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5.15GHz



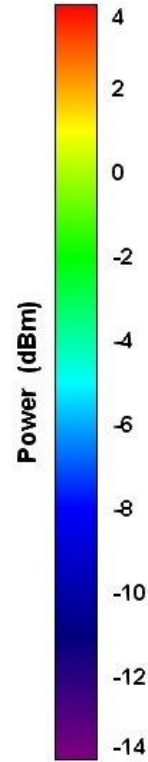
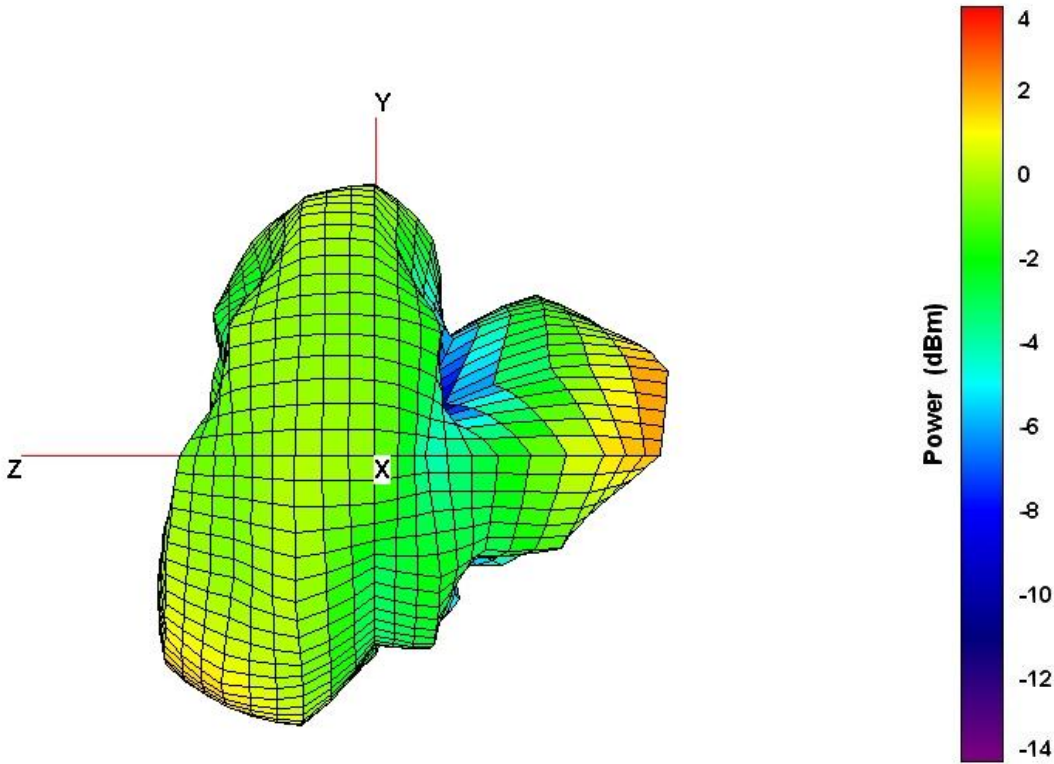
5.25GHz





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5.35GHz





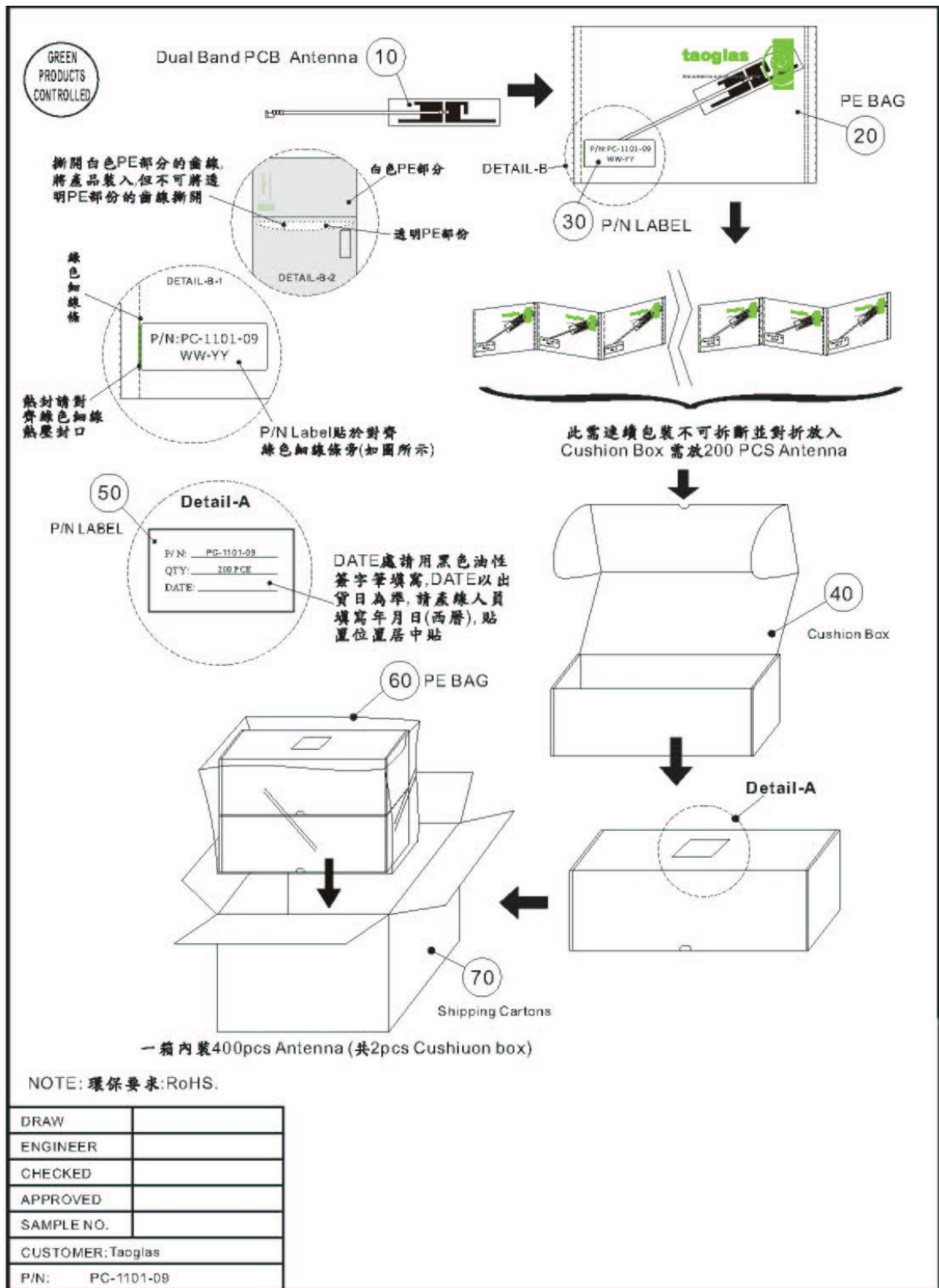
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Results Summary – listed in table below

Frequency	2400	2450	2500	5150	5250	5350
Note	PC-1101-09					
Ant. Port Input Pwr. (dBm)	0	0	0	0	0	0
Tot. Rad. Pwr. (dBm)	-1.20229	-2.09071	-1.83302	-1.43079	-2.08029	-1.4328
Peak EIRP (dBm)	2.16001	0.954762	0.869995	2.54501	1.85702	2.84116
Directivity (dBi)	3.36229	3.04547	2.70301	3.9758	3.93732	4.27396
Efficiency (dB)	-1.20229	-2.09071	-1.83302	-1.43079	-2.08029	-1.4328
Efficiency (%)	75.8179	61.7915	65.569	71.9318	61.9399	71.8986
Gain (dBi)	2.16001	0.954762	0.869995	2.54501	1.85702	2.84116
NHPRP Pi/4 (dBm)	-2.17401	-2.98712	-2.67483	-2.40322	-3.1833	-2.61218
NHPRP Pi/6 (dBm)	-3.47246	-4.22076	-3.87354	-3.733	-4.5744	-4.02263
NHPRP Pi/8 (dBm)	-4.55967	-5.27332	-4.90015	-4.78067	-5.63416	-5.09799
Upper Hem. PRP (dBm)	-4.46483	-5.13152	-4.67347	-2.97791	-3.74648	-3.28627
Lower Hem. PRP (dBm)	-3.97419	-5.07072	-5.02007	-6.66402	-7.0474	-6.0246
NHPRP4 / TRP Ratio (dB)	-0.97172	-0.89641	-0.84181	-0.97243	-1.10301	-1.17938
NHPRP4 / TRP Ratio (%)	79.9517	81.3503	82.3795	79.9387	77.571	76.2187
NHPRP6 / TRP Ratio (dB)	-2.27018	-2.13005	-2.04053	-2.30221	-2.4941	-2.58983
NHPRP6 / TRP Ratio (%)	59.2901	61.2343	62.5097	58.8544	56.3105	55.0829
NHPRP8 / TRP Ratio (dB)	-3.35738	-3.18261	-3.06713	-3.34988	-3.55386	-3.66519
NHPRP8 / TRP Ratio (%)	46.1596	48.055	49.3499	46.2394	44.1178	43.0012
UHPRP / TRP Ratio (dB)	-3.26255	-3.04081	-2.84046	-1.54712	-1.66618	-1.85347
UHPRP / TRP Ratio (%)	47.1786	49.65	51.9941	70.0307	68.1368	65.2608
LHPRP / TRP Ratio (dB)	-2.7719	-2.98001	-3.18706	-5.23323	-4.9671	-4.5918
LHPRP / TRP Ratio (%)	52.8214	50.35	48.0059	29.9693	31.8632	34.7392
Front/Back Ratio (dB)	0.664898	0.552434	0.185652	10.015	6.31661	4.15694
Phi BW (°)	140	156	315	164	180	50
+ Phi BW (°)	48	52	73	76	71	18
- Phi BW (°)	92	104	242	88	109	32
Theta BW (°)	80	85	58	64	59	24
+ Th. BW (°)	52	51	29	34	20	12
- Th. BW (°)	28	34	29	30	39	12
Boresight Phi (°)	60	60	30	240	180	30
Boresight Th. (°)	105	105	90	60	75	150
Maximum Power (dBm)	2.16001	0.954762	0.869995	2.54501	1.85702	2.84116
Minimum Power (dBm)	-12.7163	-12.3651	-11.6138	-17.72	-16.0766	-13.804
Average Power (dBm)	-2.11136	-3.13642	-2.98002	-2.38707	-2.84424	-2.04956
Max/Min Ratio (dB)	14.8763	13.3199	12.4838	20.265	17.9337	16.6452
Max/Avg Ratio (dB)	4.27137	4.09118	3.85002	4.93208	4.70126	4.89073
Min/Avg Ratio (dB)	-10.6049	-9.2287	-8.63374	-15.3329	-13.2324	-11.7544
Average Gain (dB)	-1.20229	-2.09071	-1.83302	-1.43079	-2.08029	-1.4328
E-Plane BW (°)	43	52	360	194	170	24
+ E-Plane BW(°)	21	24	360	115	145	11
- E-Plane BW (°)	22	28	0	79	25	13
H-Plane BW (°)	100	90	60	63	63	42
+ H-Plane BW (°)	42	38	30	30	43	16
- H-Plane BW (°)	58	52	30	33	20	26



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9.0

Antenna packaging detailed above



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Cable Assembly Data

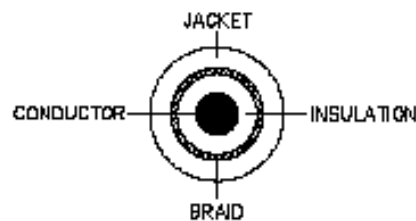
- 1 **UL 1954 80°C 30V COAXIAL CABLE**
 1.CONDUCTOR: 32AWGx1C,SILVER PLATED COPPER WIRE.
 2.INSULATION:FEP,ø0.70±0.03mm,SELF-COLOR.
 3.SHIELD: BRAID (16/4/0.05) SILVER PLATED COPPER WIRE,COVERAGE 90% NOM
 4.JACKET:FEP,ø1.13+0.08/-0.05mm,COLOR: BLACK,GB COLOR: 006,NO MARKING.

NOTE:

- 2 1.OPERATION TEMPERATURE: 80°C
 2.ELECTRICAL PROPERTIES:
 2-1.INSULATION RESISTANCE: DC/250V 1000Mohm.m MIN..
 2-2.VOLTAGE RATING : 30V.
 2-3.WITHSTAND VOLTAGE: AC/500V RMS FOR ONE MINUTE.
 2-4.CONDUCTOR RESISTANCE: LESS THAN 520ohm/KM(at 20°C)
 2-5.CAPACITANCE: 97pF/M(NOMINAL)
 2-6.IMPEDANCE: 50 ohm @ TDR.(NOMINAL)

2-7.

NOM. ATTENUATION(dB/M)	
1.0GHz	2.06
2.0GHz	2.97
2.4GHz	3.27
2.45GHz	3.31
2.5GHz	3.35
3.0GHz	3.69
4.0GHz	4.31
5.0GHz	4.87
5.15GHz	4.95
5.25GHz	5.00
5.35GHz	5.05
6.0GHz	5.38



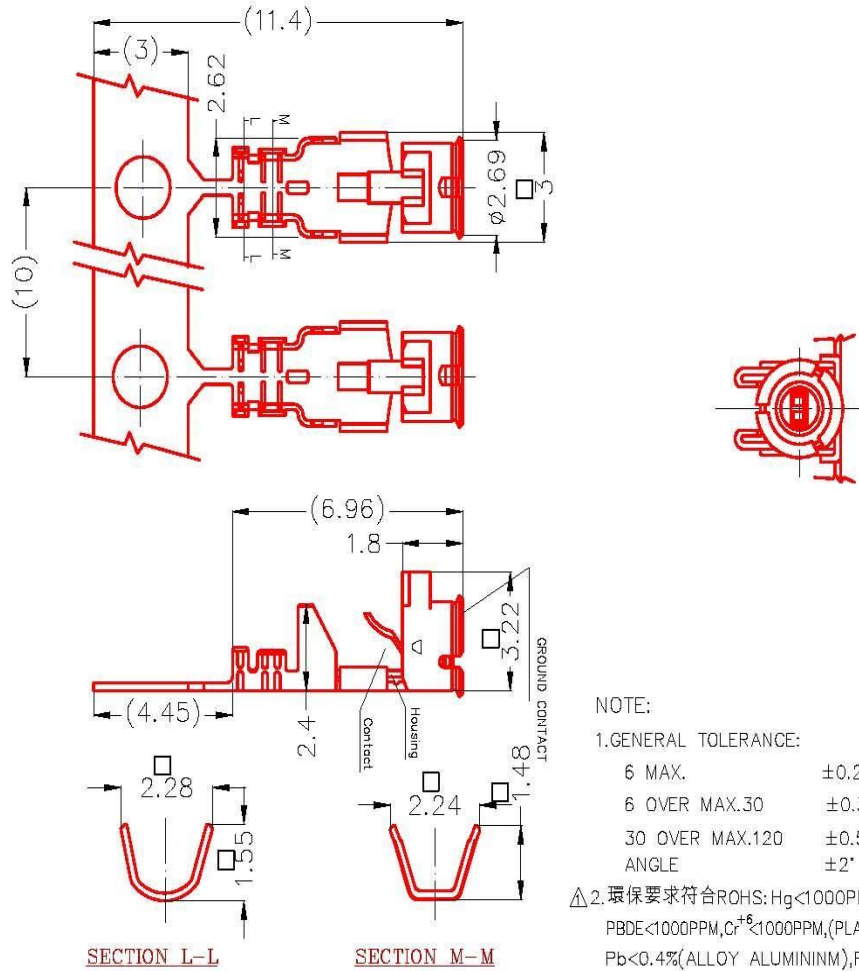
3.VENDOR: GOLDEN BRIDGE ELECTECH OR EQUIVALENT.

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IPEX Connector drawing



NOTE:

1. GENERAL TOLERANCE:

6 MAX.	± 0.2
6 OVER MAX.30	± 0.3
30 OVER MAX.120	± 0.5
ANGLE	$\pm 2'$

△ 2. 環保要求符合ROHS: Hg<1000PPM, Cd<100PPM, PBB<1000PPM, PBDE<1000PPM, Cr⁶⁺<1000PPM, (PLASTIL MATERIAL) Pb<0.35%(ALLOY STEEL), Pb<0.4%(ALLOY ALUMININM), Pb<4%(ALLOY COPPER).

3. VENDER: I-PEX(P/N: 20278-111R-13)
OR EQUIVALENT.

CRIMP STRENGTH:

A. TESTING: PULL THE CABLE AS SHOWN IN FIG.5 AT A SPEED 25±3mm/MINUTES BY TENSILE STRENGTH MACHINE.

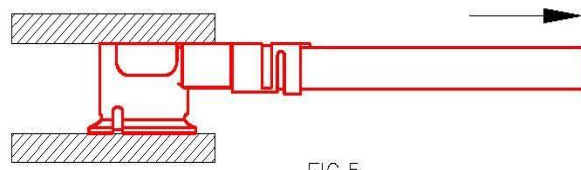


FIG.5

B. REQUIREMENTS: 10N MIN.