



Specification

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Part No. : **PC27.07.0100A**

Specification No : PC-2707-09

Product Name : **TheStripe™** 850/900/1800/1900MHz GSM PCB Antenna w/100mm IPEX 1.13mm diameter MHF II connector

Features : 34mm*7mm*0.8mm
Compatible with Hirose U.FL

Photo:



REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	Jan 02 nd 2006	All	New Product	TW Product Centre	Ronan Quinlan



Specification

1.0 Introduction

This miniaturized low profile PCB antenna is based on smart TheStripe™ antenna technology. It consists of a PCB antenna and 1.13mm mini coaxial cable with Ipex MHFII (Hirose U.FL) connector.

2.0 Typical Antenna Performance in free space

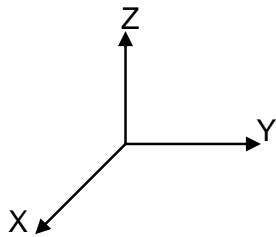
Communication System	AMPS	GSM	DCS	PCS
Frequency Band	850 MHz	900 MHz	1800 MHz	1900 MHz
VSWR	4.88	2.2	2.2	1.2
Return Loss	-1.39	-5.98	-4.88	-4.12
Impedance	50 Ohm			
Radiation Pattern	Omni-Directional			
Polarization	Horizontal			

Under reference housing				
	AMPS	GSM	PCS	DCS
Band	824-896	880-960	1850-1990	1710-1880
VSWR	4.76	2.2	2.28	1.89
Minimum Return Loss	-3.71	-8.49	-8.18	-10.17
Gain	Average 0 dBi			

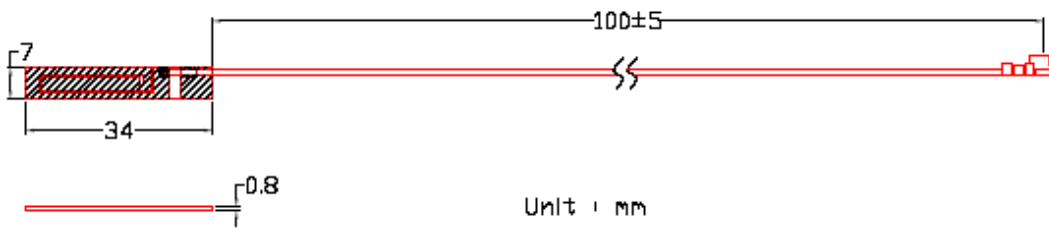


3.0 Mechanical Dimensions

3.1 Dimensions and Drawing



Note : 1. The upper face of the PCB is in the Z axis
 2. Connector positioning is towards the X direction

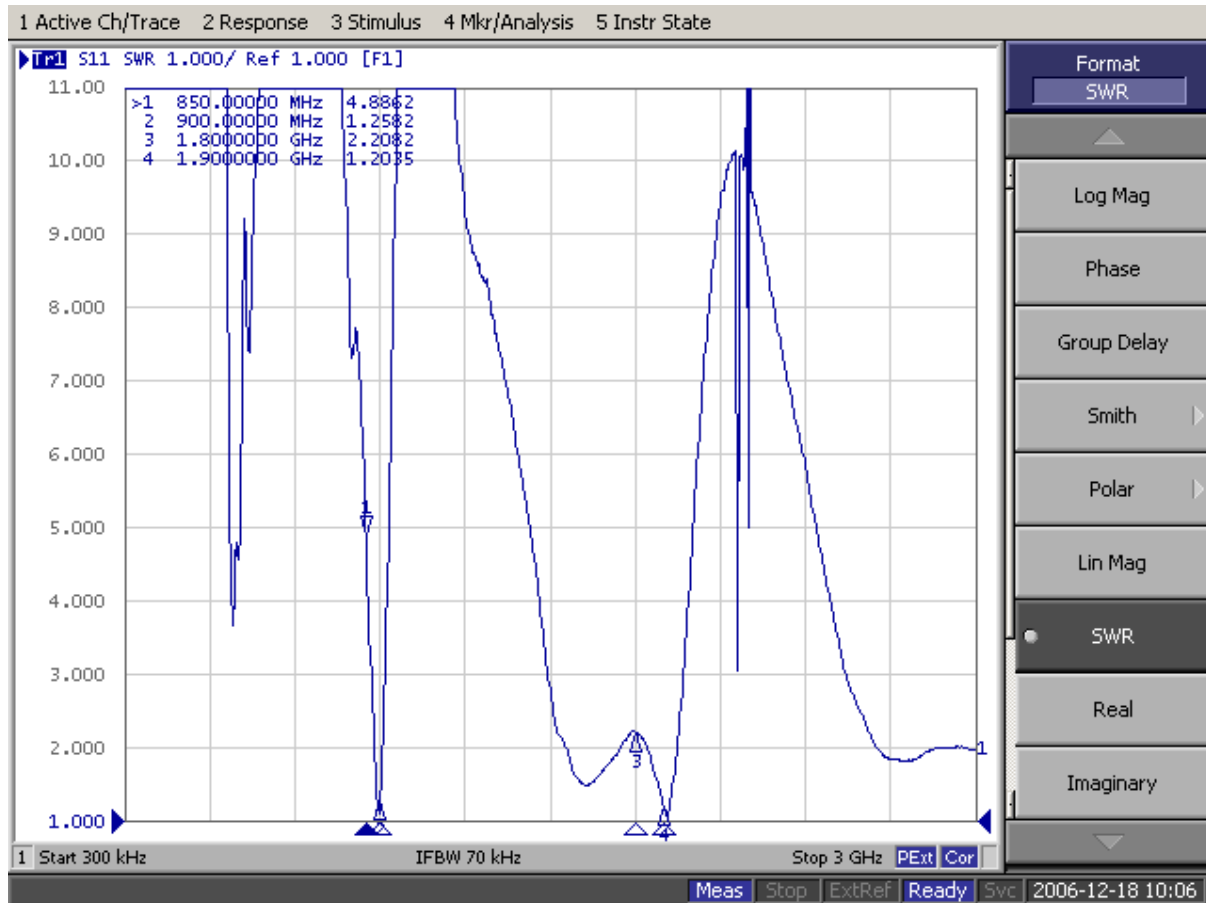


3.2 Cable & Connector

3.2.1	RF Cable	Ø1.13 Coaxial Cable L = 100 +/- 3 mm
3.2.2	RF Connector	IPEX MHF (U.FL compatible)

4.0 Antenna Electrical Characteristics

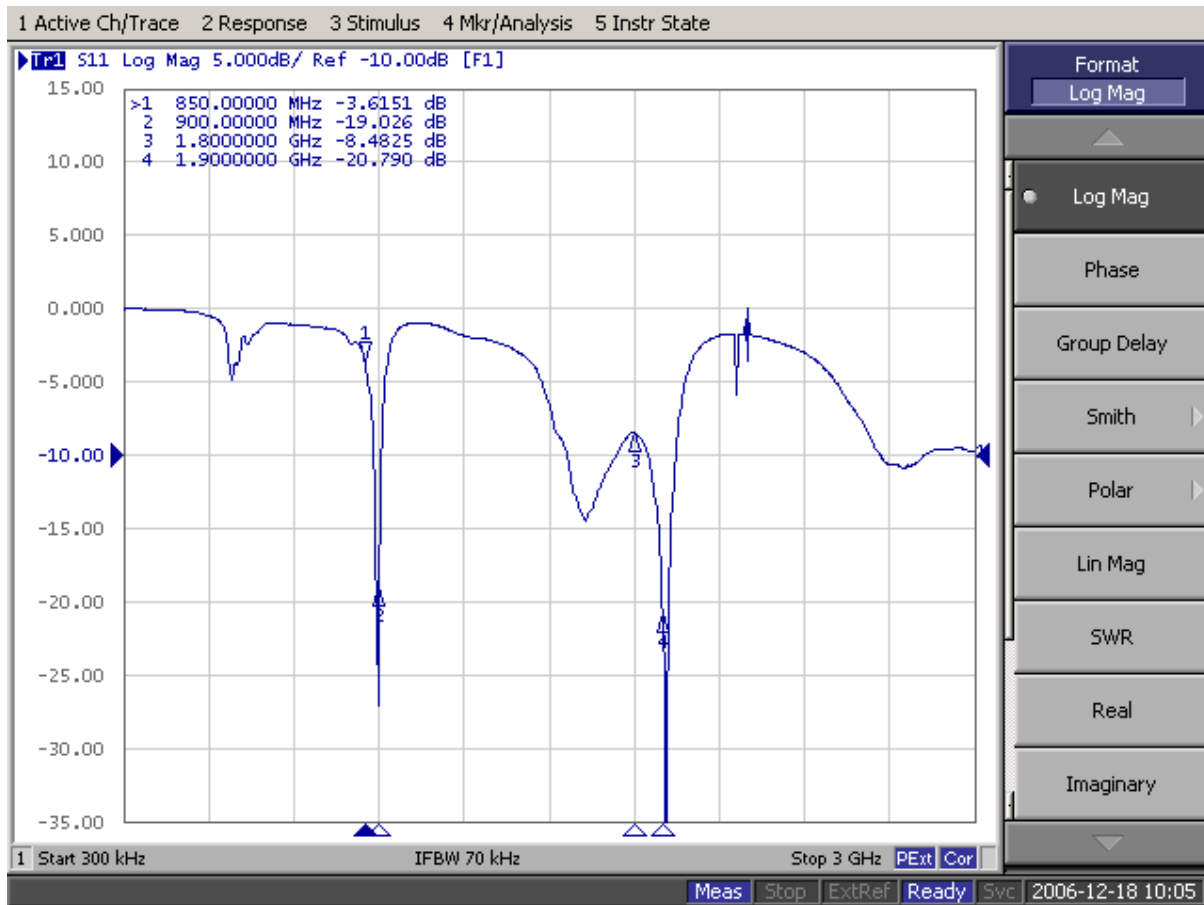
4.1 VSWR





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4.2 Return Loss





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5.0 Environmental Conditions and Reliability

5.1 Environmental Conditions

5.1.1	Operation Temperature	-40°C to + 85°C
5.1.2	Storage Temperature	-40°C to + 85°C
5.1.3	Relative Humidity	40% to 95%

5.2 Reliability

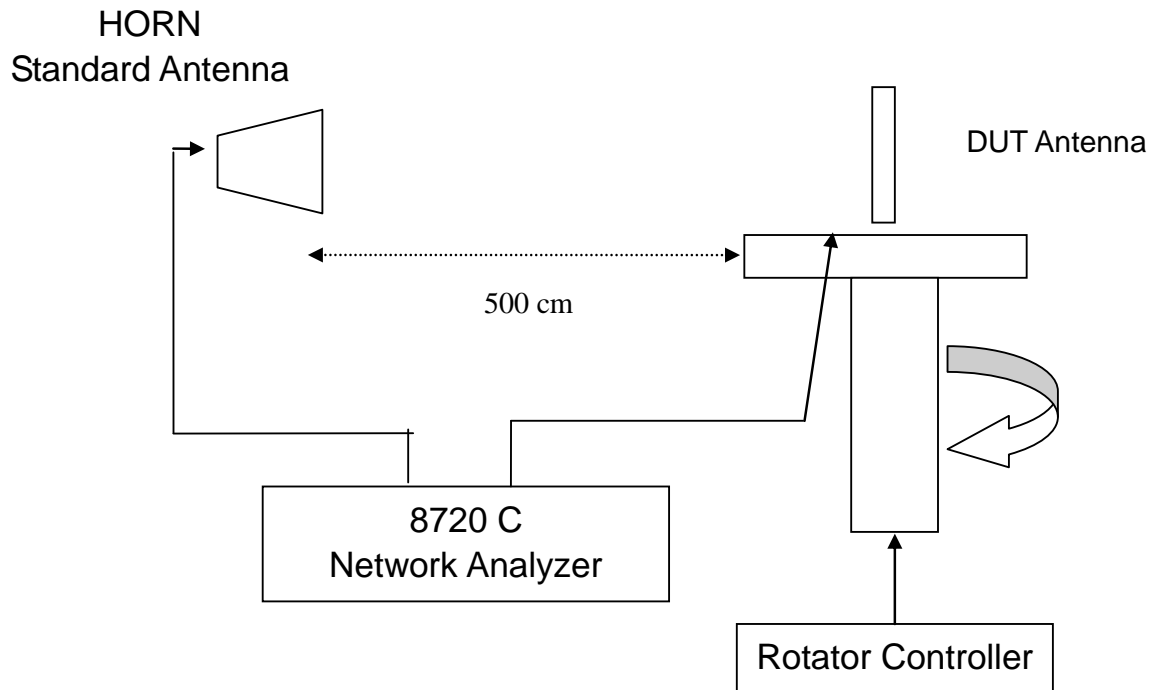
Test Items	Procedure	Requirement
Thermal Shock	Starting at -40 for 30minutes and then cycled to +85 to remain 30minutes (a complete cycle). To repeat 5 complete cycles. (Refer to IEC 68-2-14 Method Na)	<ol style="list-style-type: none"> The value of return loss must be within product specifications after 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.



6.0 Antenna Test Setup and Results

6.1 Equipment

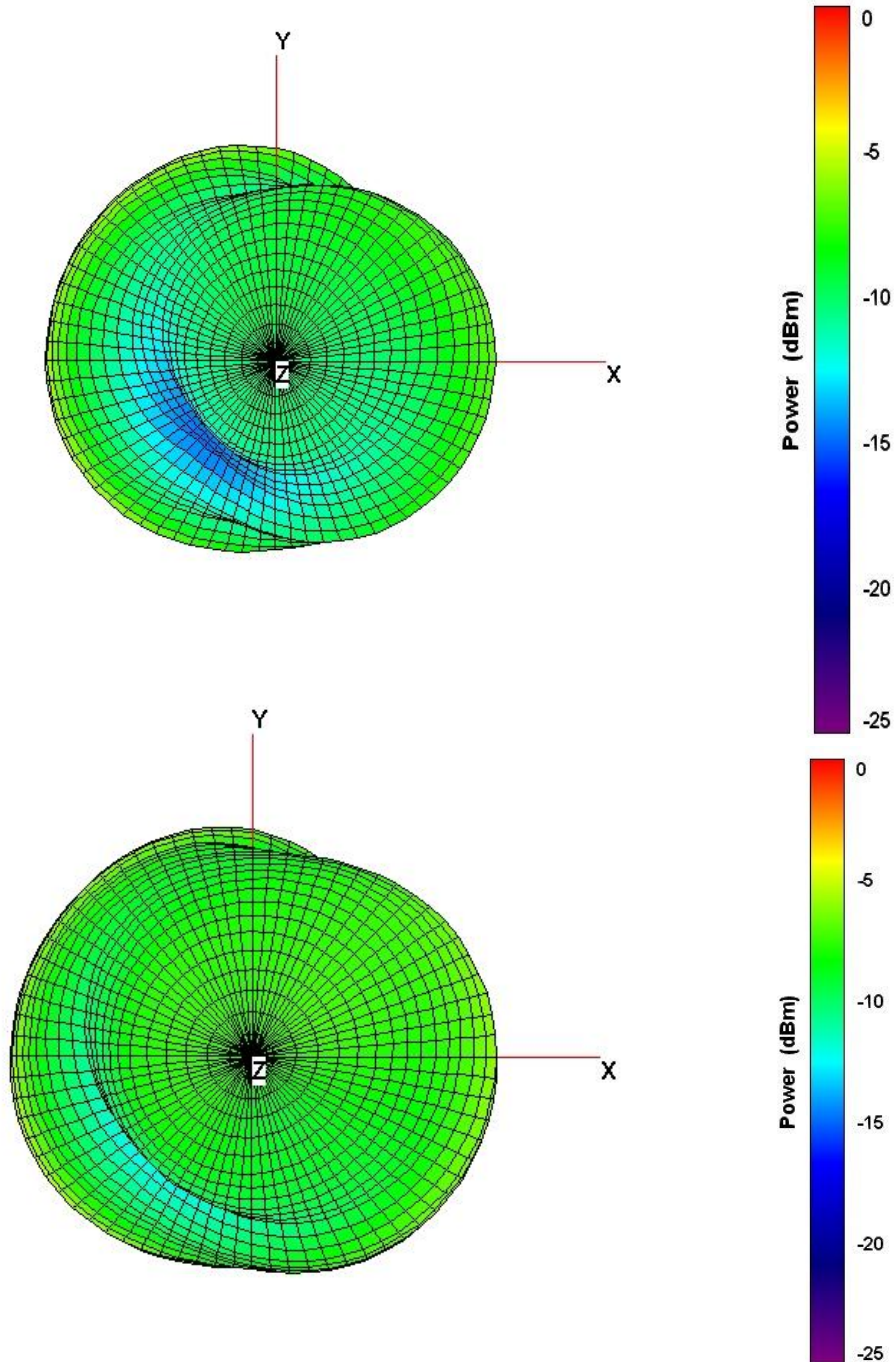
Radiation Pattern Testing - Anechoic Chamber





6.2 3D Radiation Pattern Testing

850 MHz



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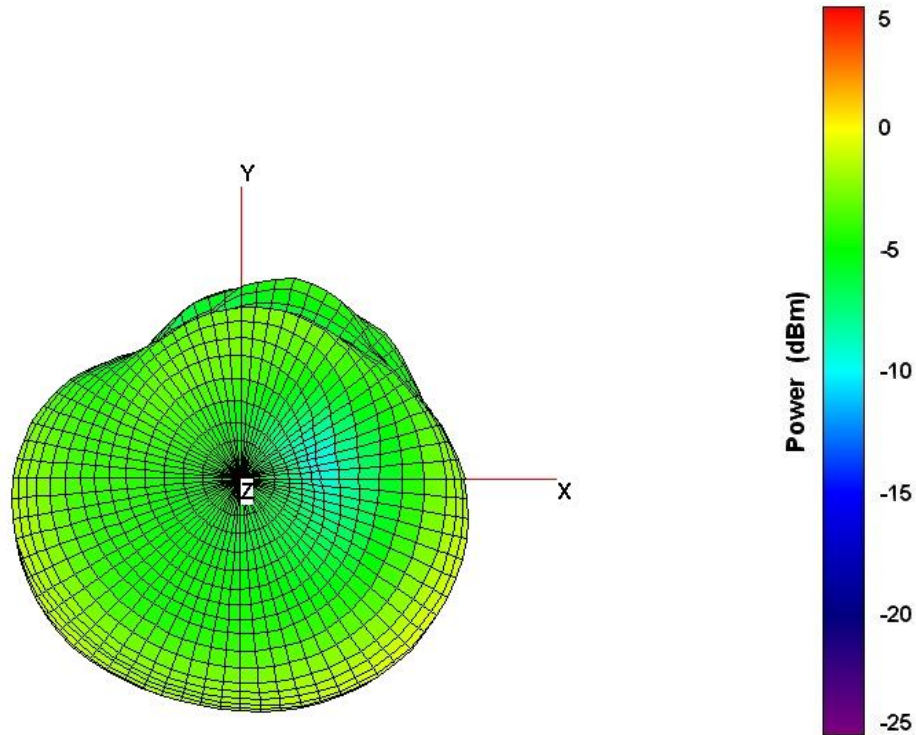
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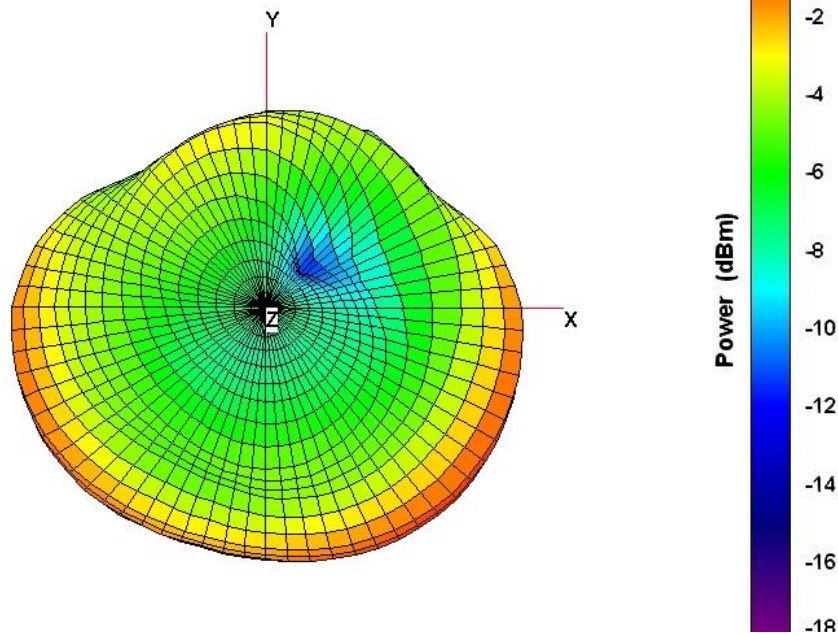


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1800 MHz



1900 MHz





Specification

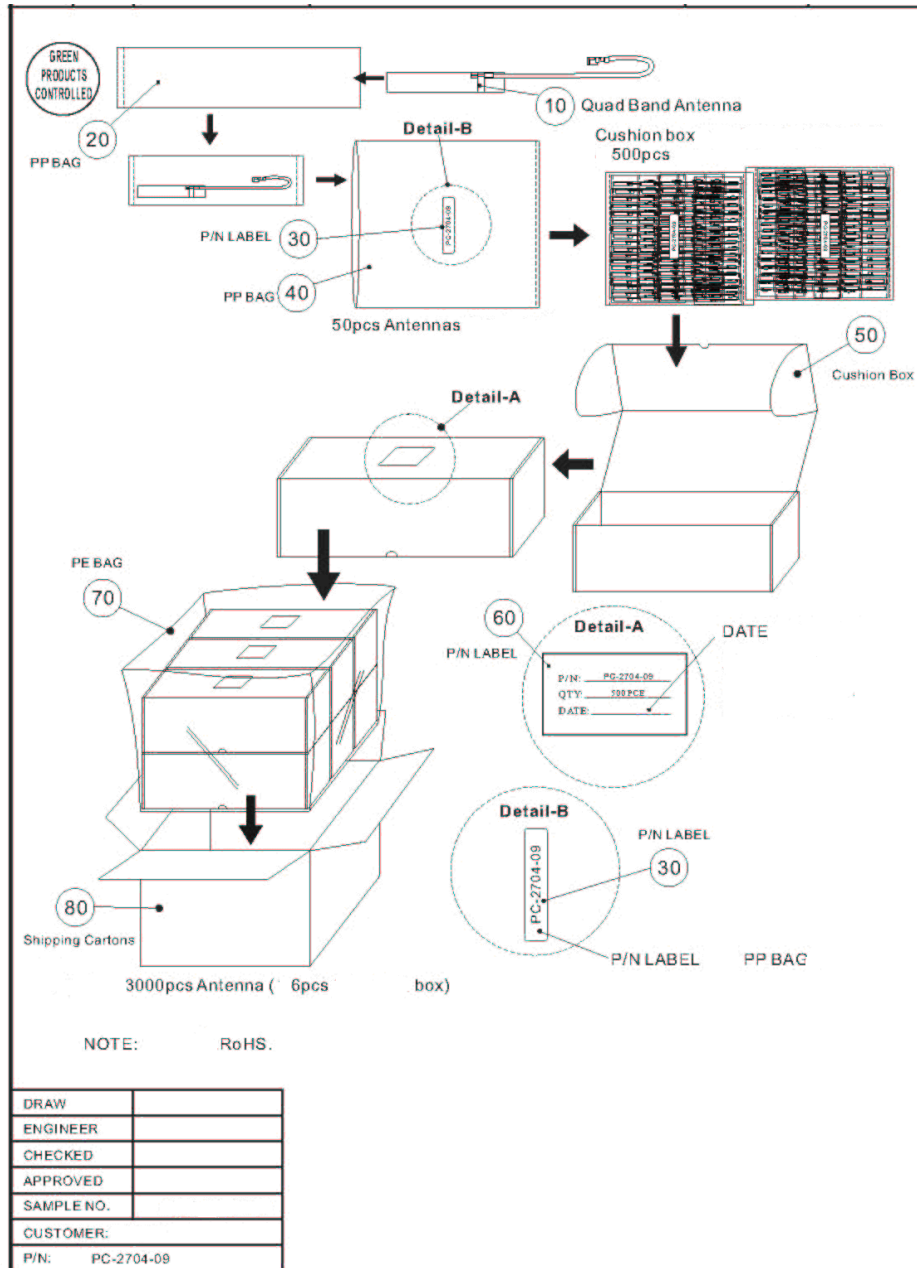
6.3 Chamber Testing - Tabular Results

Frequency	850	900	1800	1900
Note	I-PEX MHF III			
Ant. Port Input Pwr. (dBm)	0	0	0	0
Tot. Rad. Pwr. (dBm)	-8.365	-7.11379	-3.45427	-4.10541
Peak EIRP (dBm)	-3.86101	-2.72721	0.10908	-0.0698
Directivity (dBi)	4.50399	4.38659	3.56335	4.03561
Efficiency (dB)	-8.365	-7.11379	-3.45427	-4.10541
Efficiency (%)	14.5713	19.4366	45.1412	38.8561
Gain (dBi)	-3.86101	-2.72721	0.10908	-0.0698
NHPRP ±Pi/4 (dBm)	-9.54437	-8.52741	-4.68673	-5.17853
NHPRP ±Pi/6 (dBm)	-10.9572	-10.0636	-6.16553	-6.50846
NHPRP ±Pi/8 (dBm)	-12.2065	-11.3226	-7.28912	-7.4868
Upper Hem. PRP (dBm)	-12.7827	-11.339	-6.45143	-7.10284
Lower Hem. PRP (dBm)	-10.3141	-9.17584	-6.47775	-7.12862
NHPRP4 / TRP Ratio (dB)	-1.17936	-1.41362	-1.23246	-1.07312
NHPRP4 / TRP Ratio (%)	76.2191	72.2168	75.2928	78.1066
NHPRP6 / TRP Ratio (dB)	-2.59221	-2.94982	-2.71126	-2.40305
NHPRP6 / TRP Ratio (%)	55.0527	50.7012	53.5641	57.5036
NHPRP8 / TRP Ratio (dB)	-3.84146	-4.20878	-3.83485	-3.38139
NHPRP8 / TRP Ratio (%)	41.2909	37.9421	41.3538	45.9051
UHPRP / TRP Ratio (dB)	-4.41766	-4.22517	-2.99716	-2.99743
UHPRP / TRP Ratio (%)	36.1605	37.7993	50.1515	50.1484
LHPRP / TRP Ratio (dB)	-1.94911	-2.06204	-3.02348	-3.02321
LHPRP / TRP Ratio (%)	63.8395	62.2007	49.8485	49.8516
Front/Back Ratio (dB)	3.42338	4.33044	6.49108	8.84039
Phi BW (°)	131	119	40	185
+ Phi BW (°)	45	44	20	49
- Phi BW (°)	86	75	20	136
Theta BW (°)	55	60	35	41
+ Th. BW (°)	29	38	22	14
- Th. BW (°)	26	22	13	27
Boresight Phi (°)	210	210	255	315
Boresight Th. (°)	120	120	165	90
Maximum Power (dBm)	-3.86101	-2.72721	0.10908	-0.0698
Minimum Power (dBm)	-24.0584	-22.8066	-22.4834	-17.406
Average Power (dBm)	-8.70588	-7.08042	-3.51233	-4.35835
Max/Min Ratio (dB)	20.1974	20.0794	22.5925	17.3362
Max/Avg Ratio (dB)	4.84487	4.35322	3.62141	4.28855
Min/Avg Ratio (dB)	-15.3526	-15.7262	-18.9711	-13.0477
Average Gain (dB)	-8.365	-7.11379	-3.45427	-4.10541
E-Plane BW (°)	99	94	39	72
+ E-Plane BW (°)	52	58	25	45
- E-Plane BW (°)	47	36	14	27
H-Plane BW (°)	51	52	36	47
+ H-Plane BW (°)	25	22	16	15
- H-Plane BW (°)	26	30	20	32



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7.0 Antenna Packaging



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