

Specification For Approval

Date: 2016 / 12 / 13

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Version: 1.0

Customer: 联豪

Customer P/N: _____

INVAX P/N: SM-H003-01CN

Description : Antenna

Cortec Checked By:

Customer Approved By:

Invax 

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1. Revision History

Revision	Date	Change Notification	Description
1.0			

2. Specification

Sample Photo



A. Electrical Characteristics

Frequency	2400~2500 MHz
S.W.R.	≤ 2.0 @ 2400 ~ 2500 MHz (For Machine)
Antenna Efficiency(%)	40 ~ 46% @ 2400 ~ 2500 MHz
Polarization	Linear
Impedance	50 Ohm

B. Material & Mechanical Characteristics

Material of Radiator	C7521
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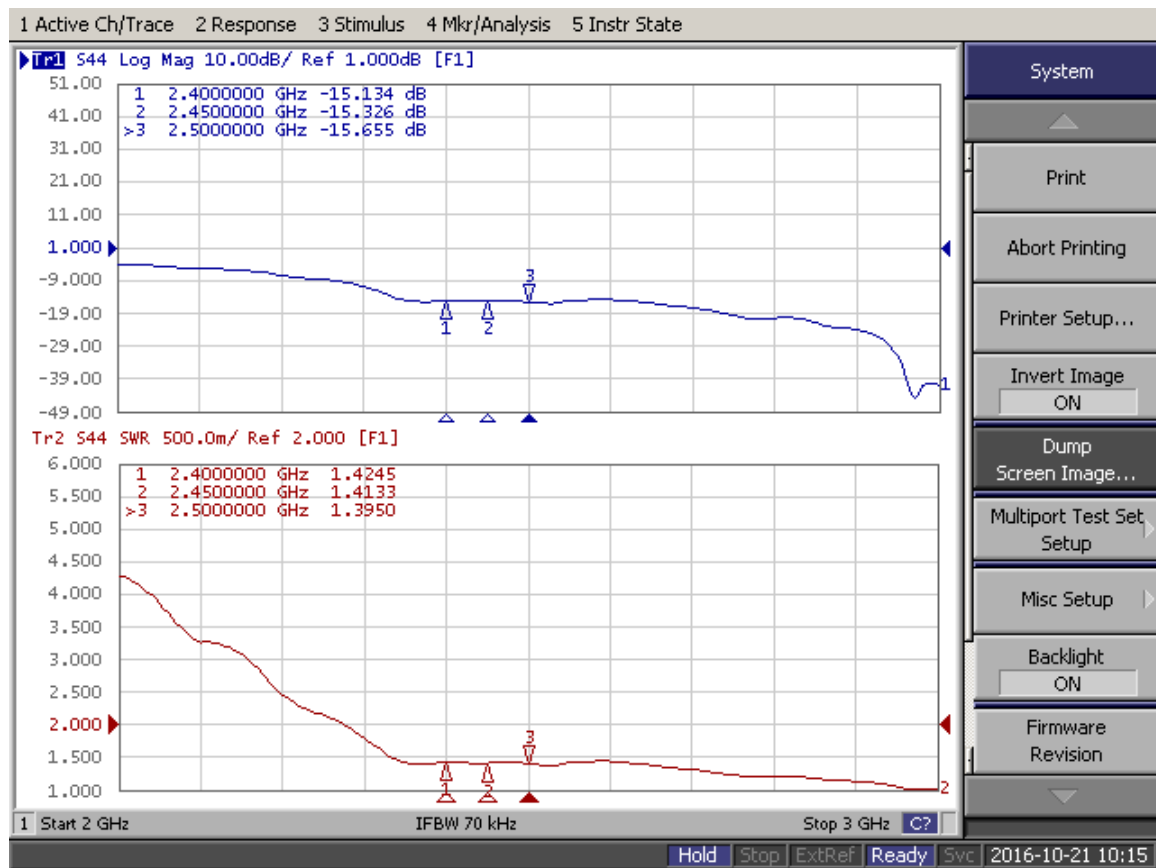
C. Environmental

Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

3. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	GB / T2423 . 48-1997 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	GB / T2423.8-1995 Height: 0.76 Meter/1Kg; 6 faces, 8 corners, 12 edges; 2 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M4	Terminal-Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	GB / T 2423 . 17- 93 Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	GB / T 2423 . 4 - 93 Temp: 70°C / 24 H; -20°C / 24H RH: >= 95%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	GB / T 2423 . 22 - 87 1 Cycle: - 20°C (30 minutes) to + 70°C (30 minutes) Cycles: 72H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	GB /T 2423 . 2 - 89 Temp: 70°C; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2011/65/EU
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC

4. Antenna - S Parameter and Radiation Pattern Test Data



Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

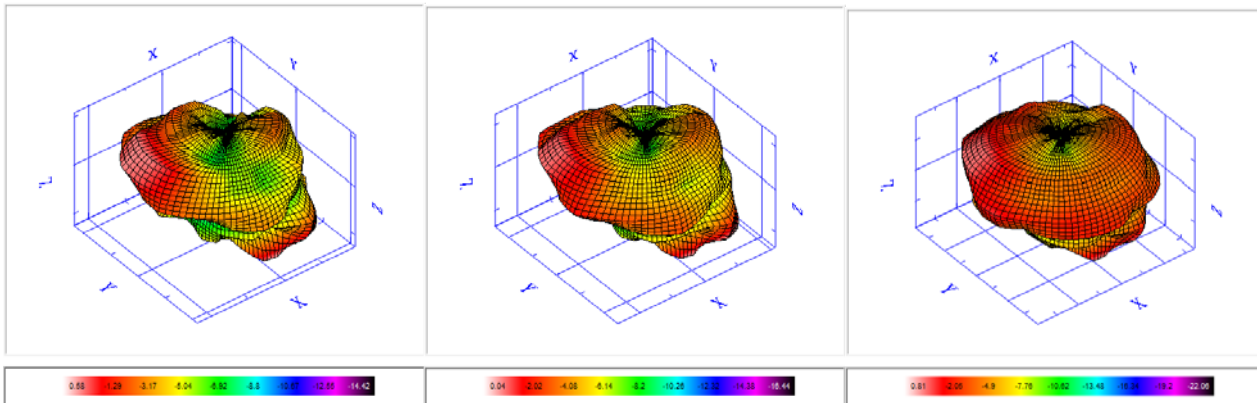
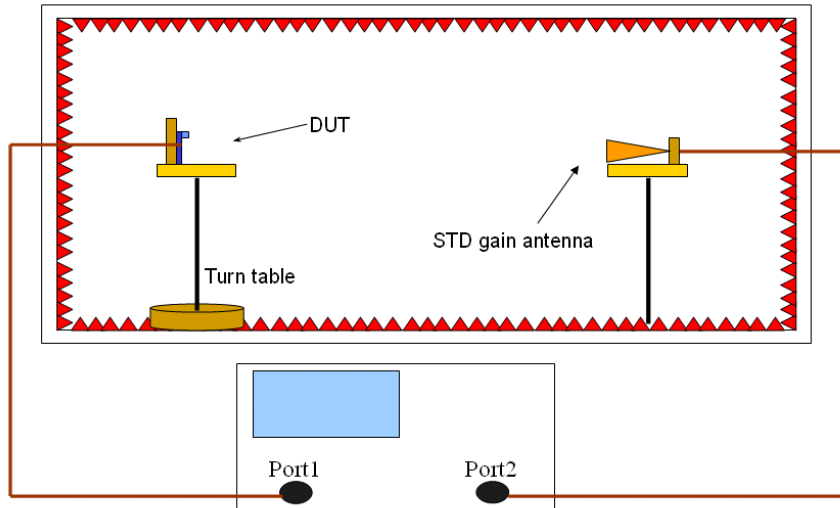
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



Frequency	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
TRP (dBm)	-3.31	-3.51	-3.47	-3.51	-3.87	-3.82	-3.93	-3.95	-3.75	-3.97	-3.94
Peak EIRP (dBm)	1.38	1.24	1.32	1.31	1.28	1.36	1.49	1.41	1.8	1.74	1.39
NHPRP +/- 45 (degree)	-4.14	-4.35	-4.3	-4.35	-4.69	-4.63	-4.74	-4.78	-4.6	-4.83	-4.77
NHPRP +/- 30 (degree)	-5.36	-5.5	-5.38	-5.41	-5.7	-5.63	-5.71	-5.72	-5.53	-5.75	-5.68
E-Theta Peak Gain (dBi)	-2.17	-2.28	-2.34	-2.46	-3.13	-2.77	-3.06	-2.99	-2.18	-2.33	-1.89
E-Phi Peak Gain (dBi)	0.97	1.08	1.07	1.12	0.6	0.38	0.1	-0.01	0.32	0.26	-0.06
E-Total Peak Gain (dBi)	1.38	1.24	1.32	1.31	1.28	1.36	1.49	1.41	1.8	1.74	1.39
Directivity (dBi)	4.69	4.75	4.79	4.81	5.15	5.18	5.41	5.36	5.55	5.71	5.33
Efficiency (%)	46.66	44.6	45.01	44.61	41.02	41.5	40.5	40.31	42.2	40.11	40.34
Average Gain (dB)	-3.31	-3.51	-3.47	-3.51	-3.87	-3.82	-3.93	-3.95	-3.75	-3.97	-3.94

5. Mechanical Drawing

See attached files

6. Material Description and RoHS Test Report

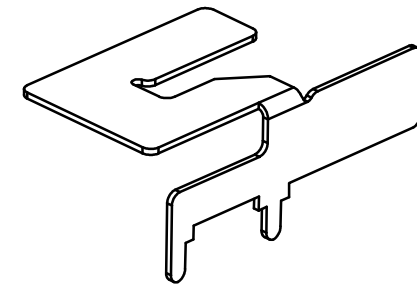
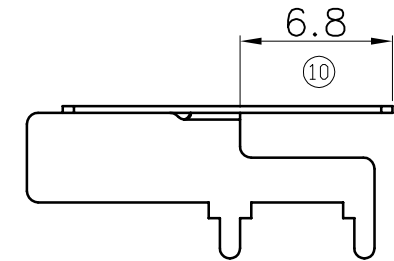
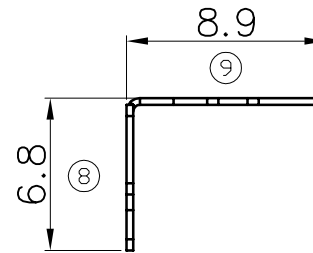
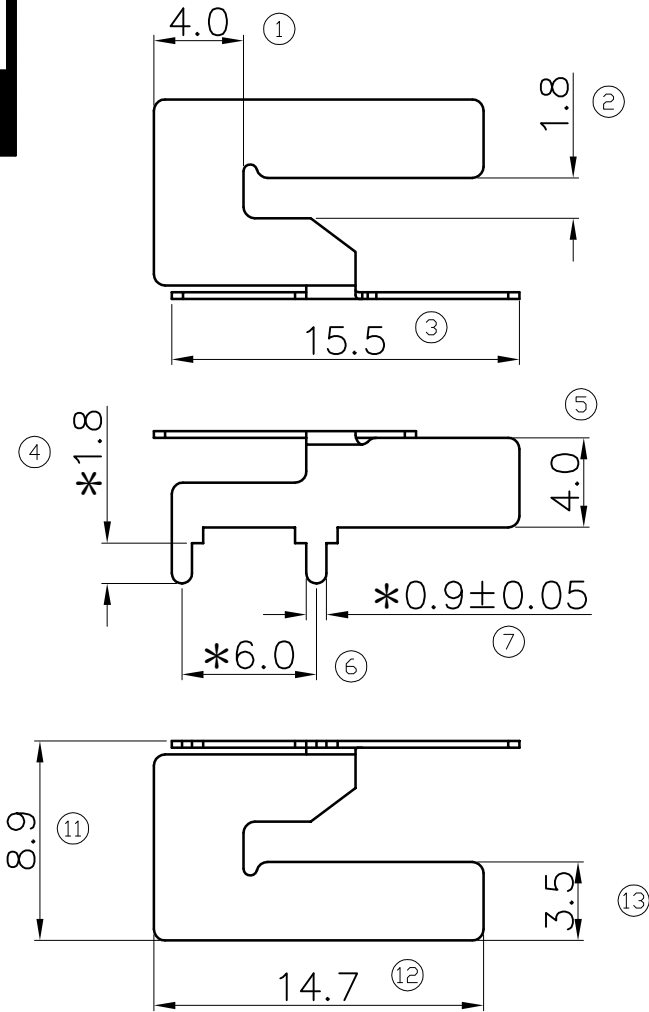
See attached files

RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



备注:

- 1.材质: C7521 T=0.3mm
- 2.表面处理: 鍍銀120U"
- 3.尺寸: 带*为重点尺寸;带Cpk尺寸需做制程能力管控(≥ 1.33)
- 4.公差: 未标注公差请参照标准公差.
- 5.毛边一致向内.
- 6.粗糙度: 表面未注粗糙度按 $1.6/\sqrt{\quad}$; 切面 $12.5/\sqrt{\quad}$
- 7.孔及相关配合尺寸以实配为准.
- 8.环境等检验请参照《天线检验标准》及《承认书》.

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TITLE: 金属片2.4GHz					
PART NO.: SM-H003-01CN			CUSTOMER P/N: /		
APP BY	CHK BY	RF BY	DES BY		Tolerance
Grant	Jack	WCX	Kenny	UNITS: mm	X.X ±0.2
2016/10/24	2016/10/24	2016/10/24	2016/10/24	SCALE: 3/1	X.XX ±0.1
				REVISION: A	X° ±1