

Product Number: ST-ANGSM-5RSA
Product Name: Antenna

Specification For Approval

Date: 2019-04-29

File No.: 190429003

Version: 1.0

Customer : _____

Customer P/N : _____

P/N : **ST-ANGSM-5RSA** _____

Description : Antenna

Checked By:

Customer Approved By:

Product Number: ST-ANGSM-5RSA
Product Name: Antenna

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1. Revision History

Revision	Date	Change Notification	Description
1.0	2019-04-29		

Product Number: ST-ANGSM-5RSA

Product Name: Antenna

2. Specification

Sample Photo	
A. Electrical Characteristics	
Frequency	824 ~ 960 MHz 1710 ~ 2170 MHz
S.W.R.	<= 6.0 @ 824 ~ 960 MHz <= 4.0 @ 1710 ~ 2170 MHz Tested at 290mm Square Ground Plane
Antenna Average Gain	- 12 ~ - 9 dBi @ 824 ~ 960 MHz - 7 ~ -5 dBi @ 1710 ~ 2170 MHz Tested at 290mm Square Ground Plane
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	Cu
Material of Plastic	Body: TPEE
Cable Type	RG-178
Connector Type	SMA Male Reverse
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C
Antenna Color Storage life	< 2 year

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3. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements	Result
C1	V.S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification	PASS
C2	Insertion Loss	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification	N/A
C3	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification	PASS
C4	Voltage Breakdown	Test voltage should be applied between insulated portions, or between ground as specified.	Max Voltage \geq 500 V or directive material specification	N/A
C5	Insulation Resistance	Set Voltage: 500 \pm 50V; between the insulated portions, or between ground as specified.	Resistance \geq 500 M ohm or directive material specification	N/A
C6	Contact Resistance	Air Temp: 26°C; measured with test equipment	Directive material specification	N/A
M1	Vibration	GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 \ to 20 Hz 3 directions; 2 hours for each direction 1.5mm ; 20~80~20Hz ;	1. No Visual Damage 2. Frequency Tol. \leq 5%	PASS
M2	Random Drop	GB / T2423.8-1995 Single : Height: 1.0 Meter; 3 directions; 1 time for each direction 1m	1. No parts separated · fracture 2. Frequency Tol. \leq 5%	PASS
		Packing : Height: 0.76 Meter; 1 corner, 3 edges, 6 surface		PASS
		Antenna+Machine:Height: 0.76 Meter; 1 corner, 3 edges, 6 surface.		N/A
M3	Solderability	GB / T2423.28-2005	Tin evenly on full	N/A

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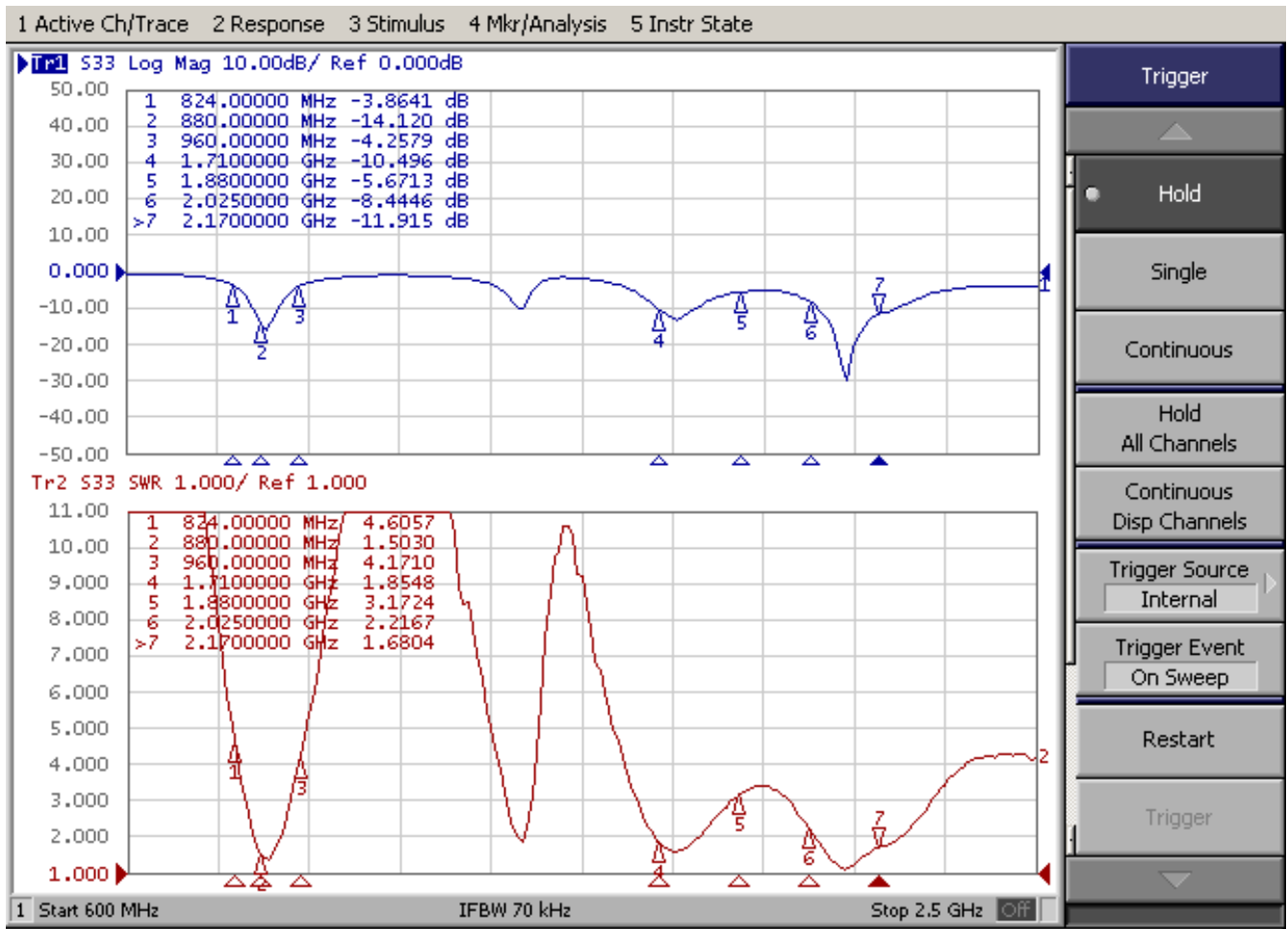
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		Temp: 260±5° C;Duration: 5 seconds 260± 5° C		
M4	Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.≤5%	PASS
M5	Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.≤ 5%	PASS
M6	Dimension	Inspection of dimension, color, material, package, surface process.检查尺	Directive DUT specification	PASS
E1	Waterproof	With Reference to IEC 60529 // IP Code Definition 参考 IEC29 IP	Directive DUT specification	N/A
E2	Salt Spray	GB / T 2423.17-2008 Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H	1. No Visual Damage 2. Frequency Tol.≤5%	PASS
E3	Temperature and Humidity Chamber	GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90%; Time: 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5% 2H	PASS
E4	Thermal Shock	GB / T 2423.22 - 2008 - 40°C (30 minutes) to + 80°C (30 minutes) ; - Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5%	PASS
E5	Aging test	GB / T 2423.2 - 2008 Temp: 80°C; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5%	PASS
E6	High Temp.	Temp. 270±10°C ; Times : 120 seconds	No Visual Damage	N/A
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2011/65/EU	PASS
R2	PFOS	With Reference to USA EPA 3550C:1996 by LC/MS	Directive RoHS 2006/122/EC	PASS

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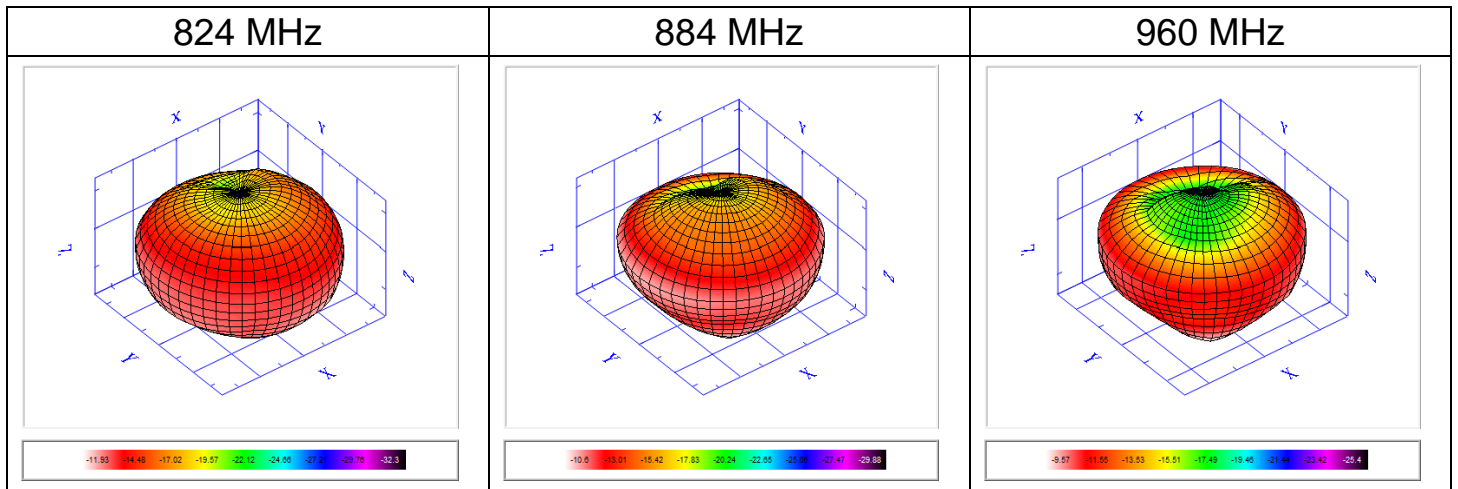
4. Antenna - S Parameter Test Data



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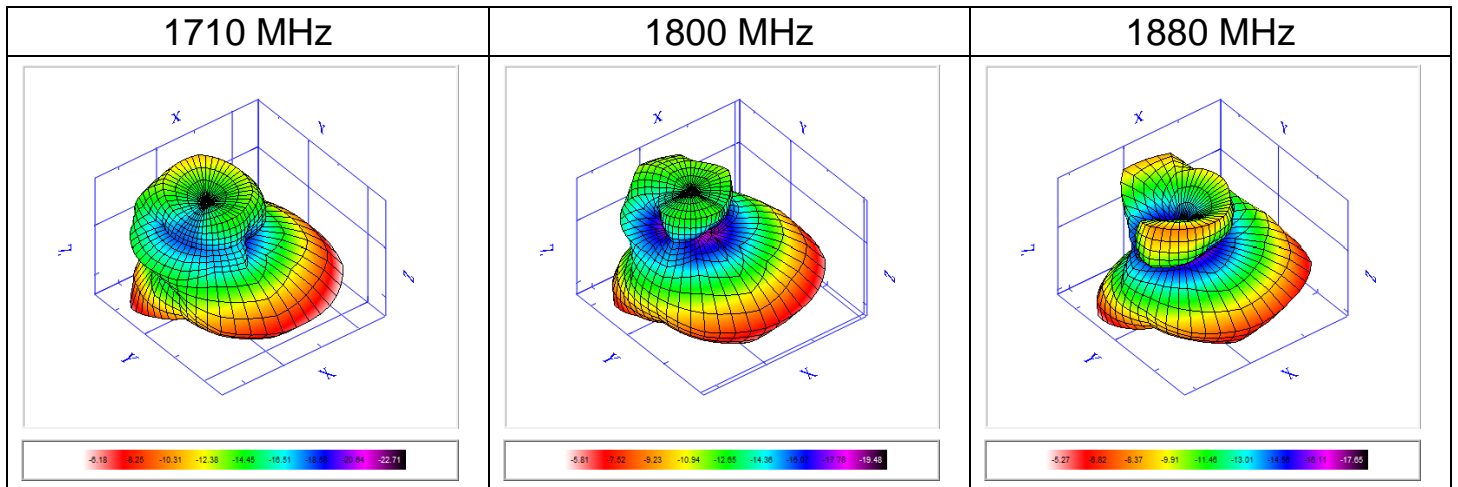
5. Antenna - Radiation Pattern Test Data



Frequency	824	839	854	869	884	899	914	929	944	959	960
TRP (dBm)	-14.84	-14.67	-14.38	-13.69	-13.5	-13.57	-13.63	-13.46	-13.5	-12.92	-12.88
Peak EIRP (dBm)	-11.93	-12.05	-11.77	-10.86	-10.6	-10.81	-10.72	-10.51	-10.42	-9.62	-9.57
NHPRP +/- 45 (degree)	-14.9	-14.72	-14.42	-13.73	-13.52	-13.58	-13.63	-13.44	-13.45	-12.82	-12.78
NHPRP +/- 30 (degree)	-15.6	-15.45	-15.19	-14.52	-14.33	-14.4	-14.44	-14.27	-14.33	-13.75	-13.71
E-Theta Peak Gain (dBi)	-17.35	-17.01	-16.55	-16.35	-16.35	-16.53	-16.01	-15.34	-15.35	-14.65	-14.6
E-Phi Peak Gain (dBi)	-12.55	-12.23	-11.9	-11.05	-10.79	-10.99	-11.25	-10.91	-10.68	-9.88	-9.83
E-Total Peak Gain (dBi)	-11.93	-12.05	-11.77	-10.86	-10.6	-10.81	-10.72	-10.51	-10.42	-9.62	-9.57
Directivity (dBi)	2.91	2.62	2.61	2.83	2.9	2.76	2.92	2.95	3.08	3.29	3.3
Efficiency (%)	3.28	3.41	3.65	4.28	4.47	4.4	4.33	4.5	4.47	5.11	5.16

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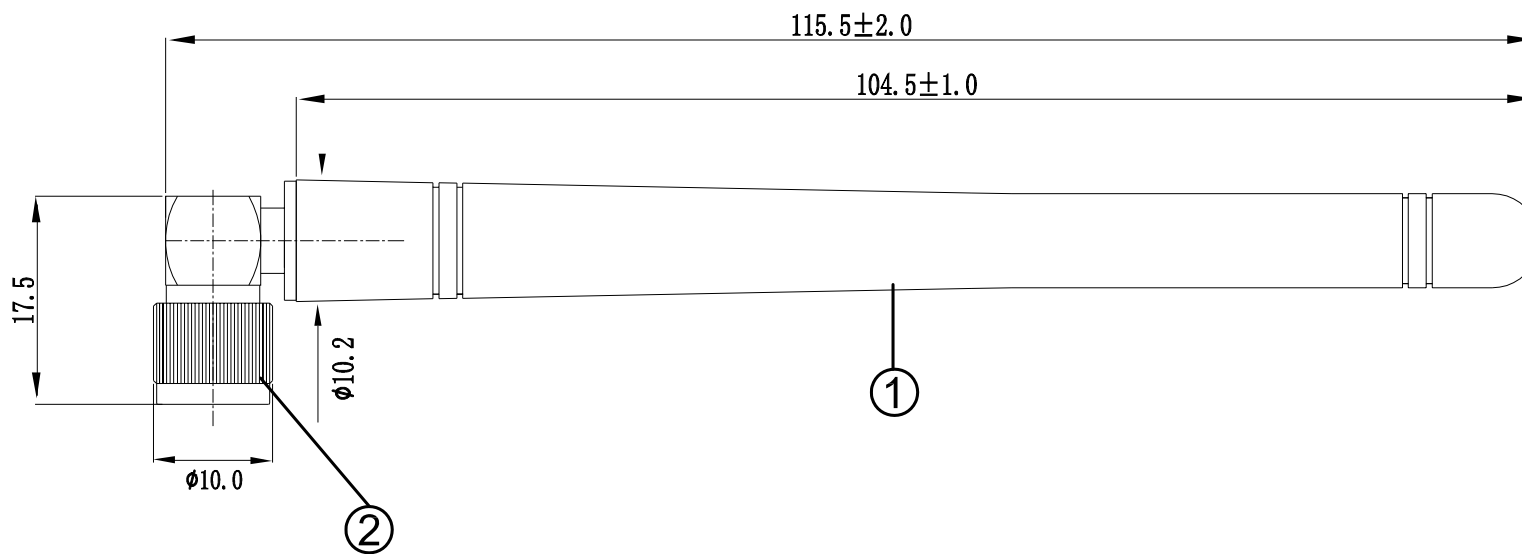
Frequency	1710	1760	1800	1850	1880
TRP (dBm)	-12.14	-11.51	-11.56	-11.52	-10.59
Peak EIRP (dBm)	-6.18	-6.15	-5.81	-6.32	-5.27
NHPRP +/- 45 (degree)	-11.89	-11.25	-11.38	-11.49	-10.69
NHPRP +/- 30 (degree)	-14.46	-13.79	-13.88	-13.76	-12.96
E-Theta Peak Gain (dBi)	-13.8	-13.49	-13.7	-14.31	-14.32
E-Phi Peak Gain (dBi)	-6.6	-6.31	-5.83	-6.45	-5.36
E-Total Peak Gain (dBi)	-6.18	-6.15	-5.81	-6.32	-5.27
Directivity (dBi)	5.96	5.36	5.75	5.2	5.32
Efficiency (%)	6.1	7.06	6.98	7.04	8.73

RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



Note:

- 1.Take " * "is the important dimension.
- 2.Tolerance:Unmarked tolerance refer to the standard tolerance please.

2	SMA805-CBT5A56-E	SMA Male Reverse	CU	镀镍	1
1	BODY-AN57-01B	Body1	TPEE	黑色	1
No.	Part Number	Name	Material	Finish	Q'ty

TITLE: Antenna GSM					
PART NO.: ST-ANGSM-5RSA			CUSTOMER P/N: /		
APP BY	CHK BY	RF BY	DES BY		Tolerance
LQ			DJC	UNITS: mm SCALE: 1/1 REVISION: A	X.X ±0.5
2018/10/20			2018/10/20		X.XX ±0.2
					X° ±1



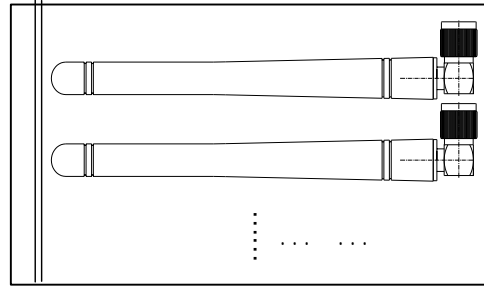
PACKING CRITERION

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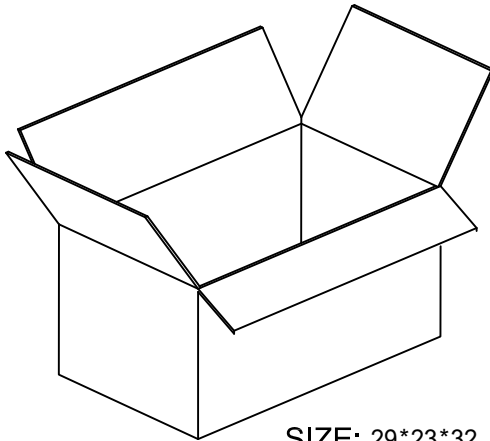
Part Number : ST-ANGSM-5RSA	Revision : A
Name: Antenna	Customer : ALL

1.



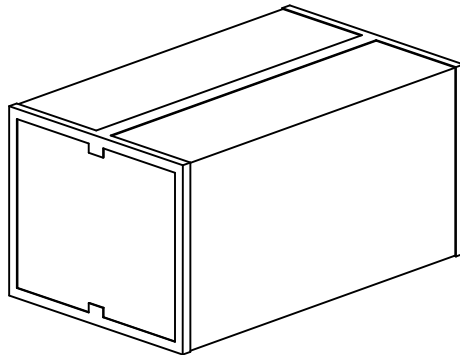
R-PE-BAG-220150006 50PCS/BAG

2.



SIZE: 29*23*32.5CM
1200 PCS/BOX

3.



APPROVED BY : LQ

CHECKED BY : DJC

DESIGNED BY :