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Shenzhen Branch

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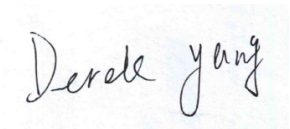
FCC REPORT

Application No:	SZEM1710011103RG
Applicant:	Saygus
Manufacturer:	Saygus
Factory:	Smart Gadgets (Shenzhen), LTD
Product Name:	Saygus smartphone V-Squared
Model No.(EUT):	SG02
Trade Mark:	Saygus
FCC ID:	2ANBZ-F10104216
Standards:	47 CFR Part 2(2017) 47 CFR Part 22 subpart H(2017) 47 CFR Part 24 subpart E(2017) 47 CFR Part 27 subpart C(2017)
Test Method:	FCC KDB 971168 D01 Power Meas License Digital Systems v03 TIA-603-E 2016
Date of Receipt:	2017-12-08
Date of Test:	2017-12-09 to 2017-12-29
Date of Issue:	2018-01-04
Test Result:	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

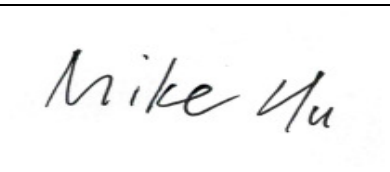


Derek Yang
Wireless Laboratory Manager

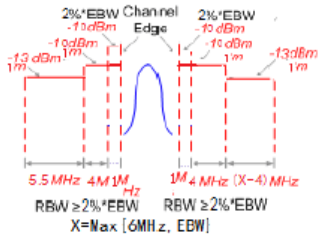
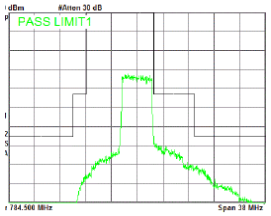
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2018-01-04		Original

Authorized for issue by:				
Tested By		 **(Mike Hu) /Project Engineer**		2017-12-29 **Date**
Checked By		 **(Jim Huang) /Reviewer**		2018-01-04 **Date**

3 Test Summary

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913, §24.232 §27.50	ERP≤7W (GSM850, CDMA BC0, WCDMA band 5,LTE BAND 5) ERP≤3W (LTE BAND 12, 13,17) EIRP ≤ 1 W. (WCDMA band 4, LTE BAND4,) EIRP ≤ 2 W. (GSM1900, CDMA BC1, WCDMA band2, LTE BAND2, 7,25,38,41)	Section 1 of Appendix B	PASS
Peak-Average Ratio	§24.232 §27.50	≤13dB	Section 2 of Appendix B	PASS
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	PASS
Bandwidth	§2.1049(h), §22.917, §24.238 §27.53	OBW:No limit EBW: No limit	Section 4 of Appendix B	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238 §27.53	1, LTE band 7,38,41  2, LTE band13  3,≤ -13dBm(other band)	Section 5 of Appendix B	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238 §27.53	1,≤ -25dBm(LTE band 7,38,41) 2,≤ -13dBm{other band, (LTEband13 , ≤-40dBm in the band1559M-1610M)}.	Section 6 of Appendix B	PASS

Field strength of spurious radiation	§2.1051, §22.917, §24.238 §27.53	1,≤ -25dBm(LTE band 7,38,41) 2,≤ -13dBm{other band, (LTEband13 , ≤-40dBm in the band1559M-1610M)}.	Section 7 of Appendix B	PASS
Frequency stability	§2.1055, §22.355, §24.235 §27.54	≤ ±2.5ppm.	Section 8 of Appendix B	PASS

Original report SZEM170400351901

According to the declaration from the applicant. This device has added LTE band 5,7,13,17,25,38,41 , WCDMA band 5, 2.4Gwifi and NFC by software. New function is full tested. For original bands, worse case mode of Field Strength of Spurious Radiation on new sample are retested.

Content

4 General Information

4.1 Client Information

Applicant:	Saygus
Address of Applicant:	10421 South Jordan Gateway, Suite 500, South Jordan, UT 84095
Manufacturer:	Saygus
Address of Manufacturer:	10421 South Jordan Gateway, Suite 500, South Jordan, UT 84095
Factory:	Smart Gadgets (Shenzhen) , LTD
Address of Factory:	912 Building 1 A, Hezheng-Huiyi Cheng, Xinhu Road, Xixiang Baoan District, Shenzhen, China

4.2 General Description of EUT

Product Name:	Saygus smartphone V-Squared
Model No.:	SG02
Trade Mark:	Saygus
Sample Type:	Portable production
Antenna Type:	Intergral
Antenna Gain:	GSM850: -1.0dBi; GSM1900: -0.8dBi CDMA BC0: -1.0dBi; CDMA BC1: -0.8dBi WCDMA B2: -0.8dB; WCDMA B4: -1.0dB; WCDMA B5: -1.0dB LTE B2: -1.0dBi; LTE B4: -0.8dBi; LTE B5: -1.0dBi; LTE B7-0.8dBi; LTE B12: -1.0dBi; LTE B13:-1.0dBi; LTE B17 -1.0dBi; LTE B25: -0.8dBi; LTE B38:-0.8dBi; LTE B41: -0.8dBi;

4.3 Test Mode

Test Mode	Test Modes Description
GSM/TM1	GSM system, GSM/GPRS/EGPRS, GMSK modulation
GSM/TM2	GSM system, EGPRS, 8PSK modulation
CDMA/TM1	CDMA system, 1xRTT GMSK modulation
UMTS/TM1	UMTS system, WCDMA, QPSK modulation
LTE/TM1	LTE system, QPSK modulation
LTE/TM2	LTE system, 16QAM modulation

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

4.4 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature	TN	25 ℃
Voltage :	VL	3.2V
	VN	3.8V
	VH	4.8V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.5 Test Frequency

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM1900	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
CDMA BC0	TX	Channel 1013	Channel 384	Channel 777
		824.7MHz	836.52 MHz	848.31 MHz
	RX	Channel 1013	Channel 384	Channel 777
		869.7 MHz	881.52 MHz	893.31 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
CDMA BC1	TX	Channel 25	Channel 600	Channel 1175
		1851.25MHz	1880.0 MHz	1908.75 MHz
	RX	Channel 25	Channel 600	Channel 1175
		1931.25 MHz	1960.0 MHz	1988.75 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA 850	TX	Channel 4132	Channel 4182	Channel 4233
		826.4 MHz	836.4 MHz	846.6 MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4 MHz	881.4 MHz	891.6 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA1700	TX	Channel 1312	Channel 1413	Channel 1513
		1712.4MHz	1732.6 MHz	1752.6 MHz
	RX	Channel 1537	Channel 1638	Channel 1738
		2112.4 MHz	2132.6 MHz	2152.6 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA1900	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz

	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 1.4MHz	TX	Channel 18607	Channel 18900	Channel 19193
		1850.7 MHz	1880 MHz	1909.3 MHz
	RX	Channel 607	Channel 900	Channel 1193
		1930.7 MHz	1960 MHz	1989.3 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 3MHz	TX	Channel 18615	Channel 18900	Channel 19185
		1851.5 MHz	1880 MHz	1908.5 MHz
	RX	Channel 615	Channel 900	Channel 1185
		1931.5 MHz	1960 MHz	1988.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 5MHz	TX	Channel 18625	Channel 18900	Channel 19175
		1852.5 MHz	1880 MHz	1907.5 MHz
	RX	Channel 625	Channel 900	Channel1175
		1932.5 MHz	1960 MHz	1987.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 10MHz	TX	Channel 18650	Channel 18900	Channel 19150
		1855 MHz	1880 MHz	1905 MHz
	RX	Channel 650	Channel 900	Channel 1150
		1935 MHz	1960 MHz	1985 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 15MHz	TX	Channel 18675	Channel 18900	Channel 19125
		1857.5 MHz	1880 MHz	1902.5 MHz
	RX	Channel 675	Channel 900	Channel 1125
		1937.5 MHz	1960 MHz	1982.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 2 20MHz	TX	Channel 18700	Channel 18900	Channel 19100
		1860 MHz	1880 MHz	1900 MHz
	RX	Channel 700	Channel 900	Channel 1100
		1940 MHz	1960 MHz	1980 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 1.4MHz	TX	Channel 19957	Channel 20175	Channel 20393
		1710.7 MHz	1732.5 MHz	1754.3 MHz

	RX	Channel 1957	Channel 2175	Channel 2393
		2110.7 MHz	2132.5 MHz	2154.3 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 3MHz	TX	Channel 19965	Channel 20175	Channel 20385
		1711.5 MHz	1732.5 MHz	1753.5 MHz
	RX	Channel 1965	Channel 2175	Channel 2385
		2111.5 MHz	2132.5 MHz	2153.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 5MHz	TX	Channel 19975	Channel 20175	Channel 20375
		1712.5 MHz	1732.5 MHz	1752.5 MHz
	RX	Channel 1975	Channel 2175	Channel 2375
		2112.5 MHz	2132.5 MHz	2152.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 10MHz	TX	Channel 20000	Channel 20175	Channel 20350
		1715 MHz	1732.5 MHz	1750 MHz
	RX	Channel 2000	Channel 2175	Channel 2350
		2115 MHz	2132.5 MHz	2150 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 15MHz	TX	Channel 20025	Channel 20175	Channel 20325
		1717.5 MHz	1732.5 MHz	1747.5 MHz
	RX	Channel 2025	Channel 2175	Channel 2325
		2117.5 MHz	2132.5 MHz	2147.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 4 20MHz	TX	Channel 20050	Channel 20175	Channel 20300
		1720 MHz	1732.5 MHz	1745 MHz
	RX	Channel 2050	Channel 2175	Channel 2300
		2120 MHz	2132.5 MHz	2145 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 5 1.4MHz	TX	Channel 20407	Channel 20525	Channel 20643
		824.7 MHz	836.5 MHz	848.3 MHz
	RX	Channel 2047	Channel 2525	Channel 2643
		869.7MHz	881.5 MHz	893.3MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 5 3MHz	TX	Channel 20145	Channel 20525	Channel 20635
		825.5 MHz	836.5 MHz	847.5MHz

	RX	Channel 2415	Channel 2525	Channel 2635
		870.5MHz	881.5 MHz	892.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 5 5MHz	TX	Channel 20425	Channel 20525	Channel 20625
		826.5 MHz	836.5 MHz	846.5 MHz
	RX	Channel 2425	Channel 2525	Channel 2625
		871.5 MHz	881.5 MHz	891.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 5 10MHz	TX	Channel 20450	Channel 20525	Channel 20600
		829 MHz	836.5 MHz	844 MHz
	RX	Channel 2450	Channel 2525	Channel 2600
		874 MHz	881.5 MHz	889 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 5MHz	TX	Channel 20775	Channel 21100	Channel 21425
		2502.5 MHz	2535 MHz	2567.5 MHz
	RX	Channel 1957	Channel 3100	Channel 5173
		2110.7 MHz	2655 MHz	745.3 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 10MHz	TX	Channel 20800	Channel 21100	Channel 21400
		2505 MHz	2535 MHz	2565 MHz
	RX	Channel 2800	Channel 3100	Channel 3400
		2625.5 MHz	2655 MHz	2685 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 15MHz	TX	Channel 20825	Channel 21100	Channel 21375
		2507.5 MHz	2535 MHz	2562.5 MHz
	RX	Channel 2825	Channel 3100	Channel 3375
		2627.5 MHz	2655 MHz	2682.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 20MHz	TX	Channel 20850	Channel 21100	Channel 21350
		2510 MHz	2535 MHz	2560 MHz
	RX	Channel 2850	Channel 3100	Channel 3350
		2630 MHz	2655 MHz	2680MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND12 1.4MHz	TX	Channel 23017	Channel 23095	Channel 23173
		699.7 MHz	707.5 MHz	715.3 MHz

	RX	Channel 5017	Channel 5095	Channel 5173
		729.7 MHz	737.5 MHz	745.3 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 12 3MHz	TX	Channel 23025	Channel 23095	Channel 23165
		700.5 MHz	707.5 MHz	714.5 MHz
	RX	Channel 5025	Channel 5095	Channel 5165
		730.5 MHz	737.5 MHz	744.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 12 5MHz	TX	Channel 23035	Channel 23095	Channel 23155
		701.5 MHz	707.5 MHz	713.5 MHz
	RX	Channel 5035	Channel 5095	Channel 5155
		731.5 MHz	737.5 MHz	743.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 12 10MHz	TX	Channel 23060	Channel 23095	Channel 23130
		704 MHz	707.5 MHz	711 MHz
	RX	Channel 5060	Channel 5095	Channel 5130
		734 MHz	737.5 MHz	741 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 13 5MHz	TX	Channel 23205	Channel 23230	Channel 23255
		779.5 MHz	782 MHz	784.5 MHz
	RX	Channel 5205	Channel 5230	Channel 5255
		748.5 MHz	751 MHz	753.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 13 10MHz	TX	Channel 23230	Channel 23230	Channel 23230
		782 MHz	782 MHz	782 MHz
	RX	Channel 5230	Channel 5230	Channel 5230
		751 MHz	751 MHz	751 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 17 5MHz	TX	Channel 23755	Channel 23790	Channel 23825
		706.5 MHz	710 MHz	713.5 MHz
	RX	Channel 5755	Channel 5790	Channel 5825
		736.5 MHz	740 MHz	743.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 17 10MHz	TX	Channel 23780	Channel 23790	Channel 23800
		709 MHz	710 MHz	711 MHz

	RX	Channel 5780	Channel 5790	Channel 5800
		739 MHz	740 MHz	741 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 1.4MHz	TX	Channel 26047	Channel 26365	Channel 26683
		1850.7 MHz	1882.5 MHz	1914.3 MHz
	RX	Channel 8047	Channel 8365	Channel 8683
		1930.7 MHz	1962.5 MHz	1994.3 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 3MHz	TX	Channel 26055	Channel 26365	Channel 26675
		1851.5 MHz	1882.5 MHz	1913.5 MHz
	RX	Channel 8055	Channel 8365	Channel 8675
		1931.5 MHz	1962.5 MHz	1993.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 5MHz	TX	Channel 26065	Channel 26365	Channel 26665
		1852.5 MHz	1882.5 MHz	1912.5 MHz
	RX	Channel 8065	Channel 8365	Channel 8665
		1932.5 MHz	1962.5 MHz	1992.5MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 10MHz	TX	Channel 26090	Channel 26365	Channel 26640
		1855 MHz	1882.5 MHz	1910 MHz
	RX	Channel 8090	Channel 8365	Channel 8640
		1935 MHz	1962.5 MHz	1990MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 15MHz	TX	Channel 26115	Channel 26365	Channel 26615
		1857.5 MHz	1882.5 MHz	1857.5 MHz
	RX	Channel 8115	Channel 8365	Channel 8615
		1937.5 MHz	1962.5 MHz	1987.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 25 20MHz	TX	Channel 26140	Channel 26365	Channel 16590
		1860 MHz	1882.5 MHz	1905 MHz
	RX	Channel 8140	Channel 8365	Channel 8590
		1940 MHz	1962.5 MHz	1985 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 38 5MHz	TX	Channel 37775	Channel 38000	Channel 38225
		2572.5 MHz	2595 MHz	2617.5 MHz

	RX	Channel 37775	Channel 38000	Channel 38225
		2572.5 MHz	2595 MHz	2617.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 38 10MHz	TX	Channel 37800	Channel 38000	Channel 38200
		2575 MHz	2595 MHz	2615 MHz
	RX	Channel 37800	Channel 38000	Channel 38200
		2575 MHz	2595 MHz	2615 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 38 15MHz	TX	Channel 37825	Channel 38000	Channel 38175
		2577.5 MHz	2595 MHz	2612.5 MHz
	RX	Channel 37825	Channel 38000	Channel 38175
		2577.5 MHz	2595 MHz	2612.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 38 20MHz	TX	Channel 37850	Channel 38000	Channel 38150
		2580 MHz	2595 MHz	2610 MHz
	RX	Channel 37850	Channel 38000	Channel 38150
		2580 MHz	2595 MHz	2610 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 41 5MHz	TX	Channel 39675	Channel 40620	Channel 41565
		2498.5 MHz	2593 MHz	2687.5 MHz
	RX	Channel 39675	Channel 40620	Channel 41565
		2498.5 MHz	2593 MHz	2687.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 41 10MHz	TX	Channel 39700	Channel 40620	Channel 41540
		2501 MHz	2593 MHz	2685 MHz
	RX	Channel 39700	Channel 40620	Channel 41540
		2501 MHz	2593 MHz	2685 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 41 15MHz	TX	Channel 39725	Channel 40620	Channel 41515
		2503.5 MHz	2593 MHz	2682.5 MHz
	RX	Channel 39725	Channel 40620	Channel 41515
		2503.5 MHz	2593 MHz	2682.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 41 20MHz	TX	Channel 39750	Channel 40620	Channel 41490
		2506 MHz	2593 MHz	2680 MHz

	RX	Channel 39750	Channel 40620	Channel 41490
		2506 MHz	2593 MHz	2680 MHz

4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10Other Information Requested by the Customer

None.

4.11 Technical Specification

Characteristics	Description	
Radio System Type	☒ GSM	
	☒ CDMA	
	☒ UMTS	
	☒ LTE	
Supported Frequency Range	GSM850	Transmission (TX): 824 to 849 MHz
		Receiving (RX): 869 to 894 MHz
	GSM1900	Transmission (TX): 1850 to 1910 MHz
		Receiving (RX): 1930 to 1990 MHz
	CDMA BC0	Transmission (TX): 824 to 849 MHz
		Receiving (RX): 869 to 894 MHz
	CDMA BC1	Transmission (TX): 1850 to 1910 MHz
		Receiving (RX): 1930 to 1990 MHz
	UMTS band 2	Transmission (TX): 1850 to 1910 MHz
		Receiving (RX): 1930 to 1990 MHz
	UMTS band 4	Transmission (TX): 1710 to 1755 MHz
		Receiving (RX): 2110 to 2155 MHz
	UMTS band 5	Transmission (TX): 824 to 849 MHz
		Receiving (RX): 869 to 894 MHz
	LTE band 2	Transmission (TX): 1850 to 1910 MHz
		Receiving (RX): 1930 to 1990 MHz
	LTE band 4	Transmission (TX): 1710 to 1755 MHz
		Receiving (RX): 2110 to 2155 MHz
	LTE band 5	Transmission (TX): 824 to 849 MHz
		Receiving (RX): 869 to 894 MHz
	LTE band 7	Transmission (TX): 2500 to 2570 MHz
		Receiving (RX): 2620 to 2690 MHz
	LTE band 12	Transmission (TX): 699 to 716 MHz
		Receiving (RX): 729 to 746 MHz
	LTE band 13	Transmission (TX): 777 to 787 MHz
		Receiving (RX): 746 to 756 MHz
	LTE band 17	Transmission (TX): 704 to 716 MHz
		Receiving (RX): 734 to 746 MHz
	LTE band 25	Transmission (TX): 1850 to 1915 MHz
		Receiving (RX): 1930 to 1995 MHz
	LTE band 38	Transmission (TX): 2570 to 2620 MHz
		Receiving (RX): 2570 to 2620 MHz
	LTE band 41	Transmission (TX): 2496 to 2690 MHz

		Receiving (RX): 2496 to 2690 MHz
Target TX Output Power	GSM850:32 dBm GSM1900: 31dBm CDMA BC0:22 dBm CDMA BC1:22 dBm UMTS band 2: 23.5dBm UMTS band 4: 23.5dBm UMTS band 5: 22.5dBm LTE band 2: 22.5dBm LTE band 4: 22dBm LTE band 5: 21.5dBm LTE band 7: 22dBm LTE band 12: 21.5dBm LTE band 13: 21.5dBm LTE band 17: 21.5dBm LTE band 25: 22.5dBm LTE band 38: 22.5dBm LTE band 41: 22.5dBm	
Supported Channel Bandwidth	GSM system:	☒0.2 MHz
	CDMA system:	☒1.23 MHz
	UMTS system:	☒5 MHz
	LTE band2	☒1.4 MHz;☒3 MHz; ☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz
	LTE band4	☒1.4 MHz;☒3 MHz; ☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz
	LTE band5	☒1.4 MHz;☒3 MHz; ☒5 MHz; ☒10 MHz
	LTE band7	☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz
	LTE band12	☒1.4 MHz;☒3 MHz; ☒5 MHz; ☒10 MHz
	LTE band13	☒5 MHz; ☒10 MHz
	LTE band17	☒5 MHz; ☒10 MHz
	LTE band25	☒1.4 MHz;☒3 MHz; ☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz
	LTE band38	☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz
	LTE band41	☒5 MHz; ☒10 MHz; ☒15 MHz, ☒20 MHz

Characteristics	Description	
Designation of Emissions (Note: the necessary bandwidth of which is the worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)	GSM850	245KGXW; 242KG7W
	GSM1900	244KGXW; 243KG7W
	CDMA BC0	1M28G7D
	CDMA BC1	1M29G7D
	UMTS band 2	4M17F9W;
	UMTS band 4	4M19F9W;

	UMTS band 5	4M16F9W;
	LTE band2	1M11G7D;1M11W7D; 2M70G7D;2M69W7D; 4M50G7D;4M50W7D; 8M97G7D;8M97W7D; 13M6G7D;13M6W7D; 18M1G7D;18M1W7D;
	LTE band4	1M11G7D;1M11W7D; 2M70G7D;2M70W7D; 4M50G7D;4M50W7D; 8M97G7D;8M99W7D; 13M6G7D;13M6W7D; 18M0G7D;18M0W7D;
	LTE band5	1M10G7D;1M10W7D; 2M70G7D;2M73W7D; 4M51G7D;4M67W7D; 8M97G7D;8M95W7D;
	LTE band7	4M48G7D;4M48W7D; 8M93G7D;8M95W7D; 13M4G7D;13M4W7D; 17M9G7D;17M9W7D;
	LTE band12	1M12G7D;1M12W7D; 2M70G7D;2M69W7D; 4M51G7D;4M50W7D; 9M01G7D;9M01W7D;
	LTE band13	4M49G7D;4M49W7D; 8M93G7D;8M93W7D;
	LTE band17	4M49G7D;4M50W7D; 8M95G7D;8M93W7D;
	LTE band25	1M10G7D;1M10W7D; 2M69G7D;2M69W7D; 4M50G7D;4M47W7D; 8M93G7D;8M93W7D; 13M4G7D;13M4W7D; 17M9G7D;17M9W7D;
	LTE band38	4M49G7D;4M48W7D; 8M95G7D;8M93W7D; 13M4G7D;13M4W7D; 17M9G7D;17M9W7D;
	LTE band41	4M49G7D;4M48W7D; 8M95G7D;8M95W7D; 13M4G7D;13M4W7D; 17M9G7D;17M9W7D;

5 Description of Tests

5.1 Conducted Output Power

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Note: Reference test setup 1

5.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 0.8m high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8). Calculate power in dBm by the following formula:

ERP (dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pg is the generator output power into the substitution antenna.

Above 1GHz test procedure as below:

1). Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

2). Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

3). Test the EUT in the lowest channel, the middle channel the Highest channel

4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

5). Repeat above procedures until all frequencies measured was complete.

Note: Reference test setup 2

5.3 Occupied Bandwidth

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel).The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Note: Reference test setup 1

5.4 Band Edge at Antenna Terminals

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

Note: Reference test setup 1

5.5 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Note: Reference test setup 1

5.6 Peak-Average Ratio

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Note: Reference test setup 1

5.7 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 Power Meas License Digital Systems v03

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log10(Power [Watts]).

Above 1GHz test procedure as below:

1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
2) Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

3. Test the EUT in the lowest channel, the middle channel the Highest channel
4. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
5. Repeat above procedures until all frequencies measured was complete

Note: Reference test setup 3

5.8 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of FCC KDB 971168 D01 Power Meas License Digital Systems v03

. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30℃ to +50℃ in 10℃ increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20℃ to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the

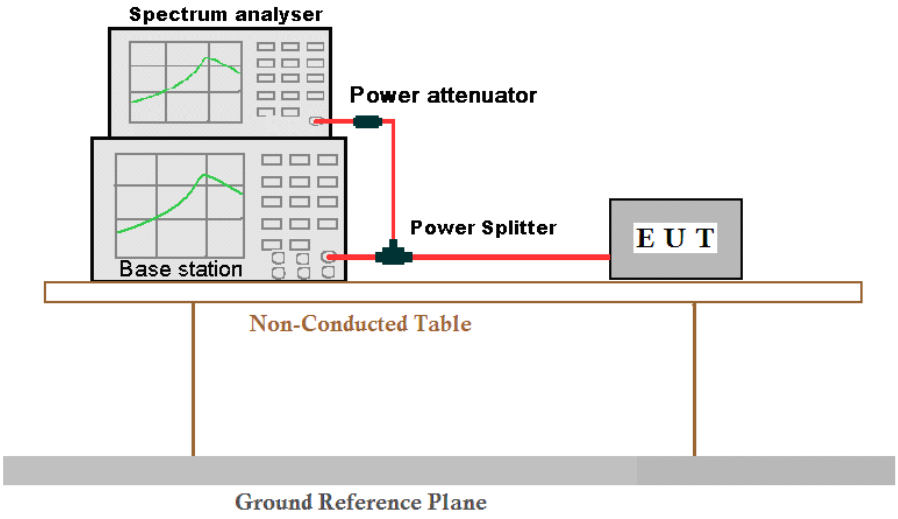
transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10℃ intervals ranging from -30℃ to +50℃. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Note: Reference test setup 4

5.9 Test Setups

5.9.1 Test Setup 1



5.9.2 Test Setup 2

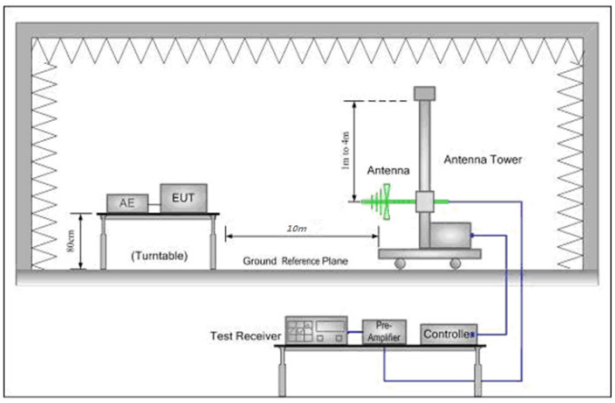


Figure 1. 30MHz to 1GHz

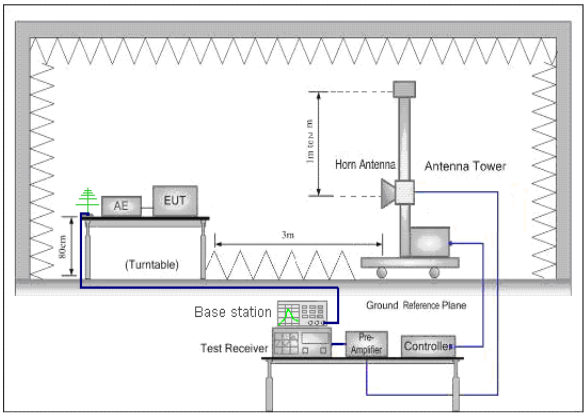


Figure 2. above 1GHz

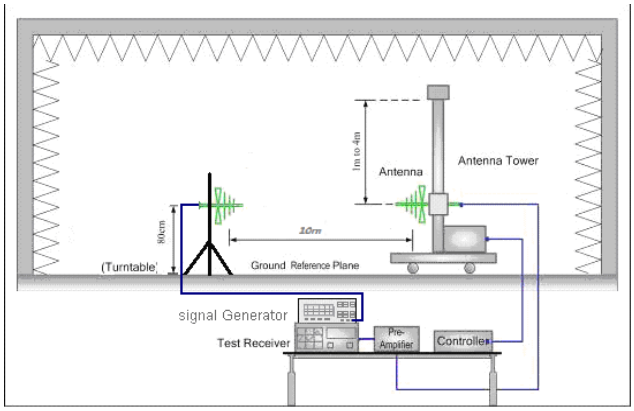


Figure 1. 30MHz to 1GHz

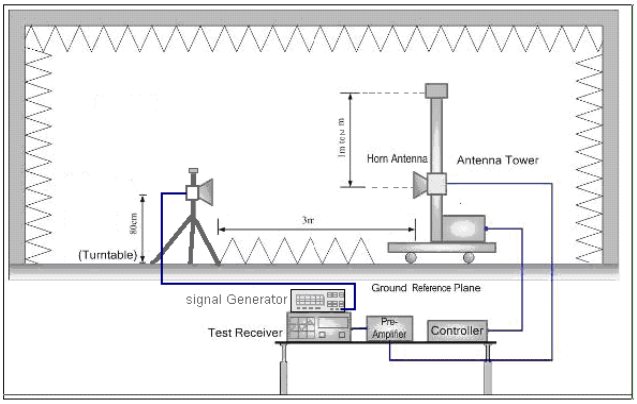


Figure 2. above 1GHz

5.9.3 Test Setup 3

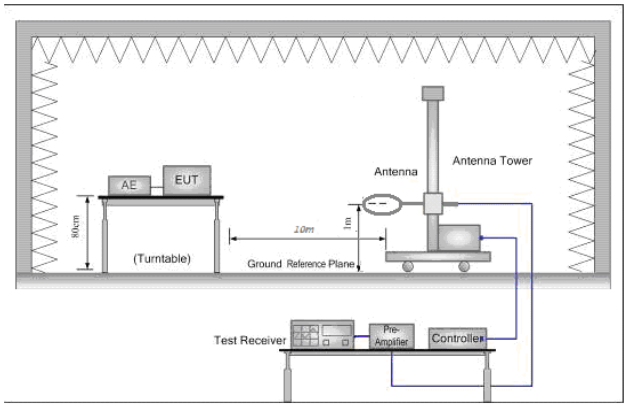


Figure 1. Below 30MHz

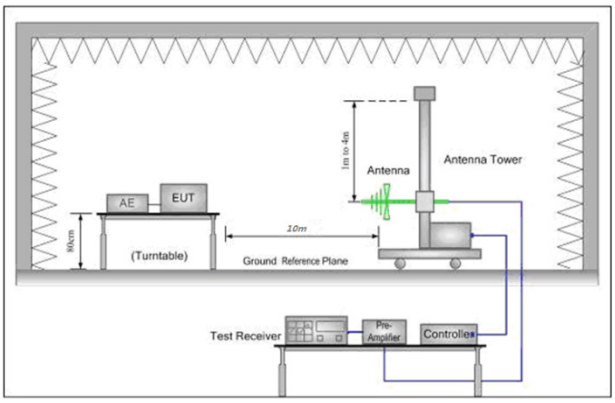


Figure 2. 30MHz to 1GHz

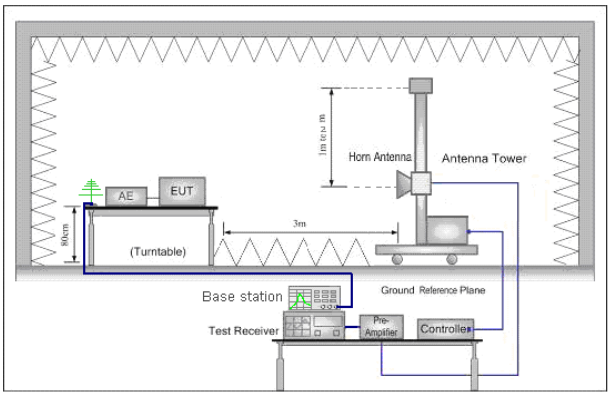


Figure 3. above 1GHz

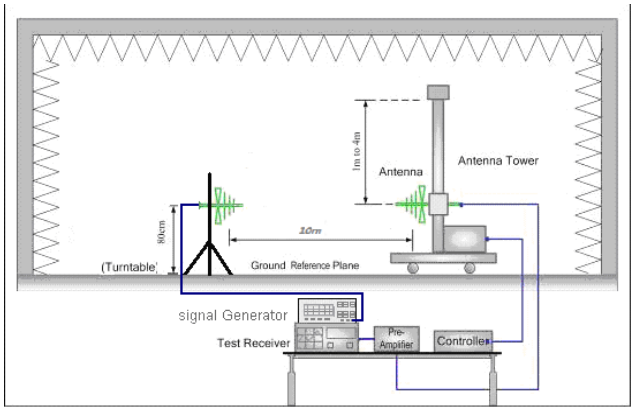


Figure 2. 30MHz to 1GHz

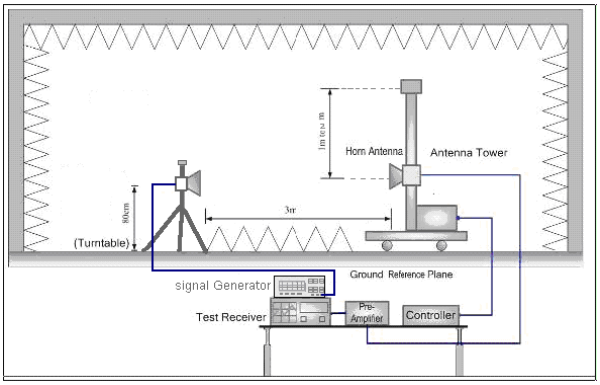
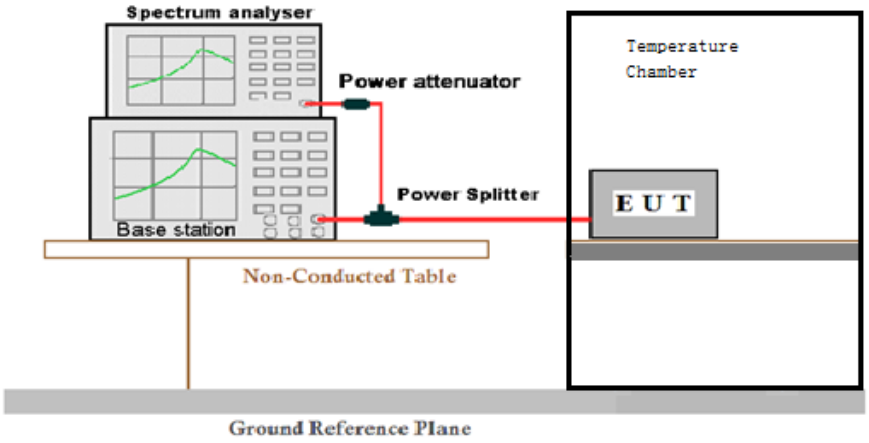


Figure 3. above 1GHz

5.9.4 Test Setup 4



5.10 Test Conditions

Test Case		Test Conditions	
Transmit Output Power Data	Average Power, Total	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
	Average Power, Spectral Density (if required)	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
Peak-to-Average Ratio (if required)		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
Modulation Characteristics		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	M (M= middle channe)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
Bandwidth	Occupied Bandwidth	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
	Emission Bandwidth (if required)	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
Band Edges Compliance		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1

	RF Channels (TX)	L, H (L= low channel, H= high channel)
	Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2
Spurious Emission at Antenna Terminals	Test Environment	Ambient Climate & Rated Voltage
	Test Setup	Test Setup 1
	RF Channels (TX)	L,M, H (L= low channel, M= middle channel, H= high channel)
	Test Mode	GSM/TM1; CDMA/TM1;UMTS/TM1;LTE/TM1
Field Strength of Spurious Radiation	Test Environment	Ambient Climate & Rated Voltage
	Test Setup	Test Setup 2
	Test Mode	GSM/TM1;CDMA/TM1;UMTS/TM1;LTE/TM1; NOTE: If applicable, the EUT conf. that has maximum power density (based on the equivalent power level) is selected.
	RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Frequency Stability	Test Env.	(1) -30 ℃ to +50 ℃ with step 10 ℃ at Rated Voltage; (2) VL, VN and VH of Rated Voltage at Ambient Climate.
	Test Setup	Test Setup 4
	RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
	Test Mode	GSM/TM1;GSM/TM2;CDMA/TM1; UMTS/TM1;LTE/TM1;LTE/TM2

6 Main Test Instruments

RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2017-10-09	2018-10-09
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	201711-15	2020-11-15
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2017-11-24	2020-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-14
7	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-10	2017-10-17	2018-10-17
8	Band filter	Amindeon	82346	SEM023-01	N/A	N/A
9	Universal radio communication tester	Rohde & Schwarz	CMU200	SEM010-01	2017-10-09	2018-10-09
10	Universal radio communication tester	Rohde & Schwarz	CMW500	SEM010-03	2017-10-23	2018-10-23
11	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-10-09	2018-10-09
12	BiConiLog Antenna (30MHz-3GHz)	Schwarzbeck	VULB9163	SEM003-05	2015-10-17	2018-10-17
13	Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-06	2015-06-14	2018-06-14

RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No**	**Cal. Date (yyyy-mm-dd)**	**Cal. Due date (yyyy-mm-dd)**
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-10
2	EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2017-04-14	2018-04-14
3	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-29
4	Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2017-07-06	2018-07-06
5	.Loop Antenna	ETS-Lindgren	6502	SEM003-08	2015-08-14	2018-08-14

RF connected test						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	Humi/ Temp Indicator	MingGao	TH101B	W006-09	2017-03-09	2018-03-09
2	Signal Analyzer	Rohde Schwarz	FSV	W005-02	2017-03-06	2018-03-06
3	Barometer	ChangChun	DYM3	SEL0088	2017-05-24	2018-05-24
4	Dual Output Mobile Communication DC Source	Agilent Technologies Inc	66319D	W009-02	2017-07-23	2018-07-23
5	Digital Multimeter	Fluke	15B+	W055-01	2017-03-09	2018-03-09
6	Wireless Communications Test Set	Rohde & Schwarz	CMW500	W025-05	2017-03-06	2018-03-06
7	Universal Radio Communication Tester	R&S	CMU200	W005-01	2017-06-21	2018-06-21

7 Measurement Uncertainty

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Test Item	Extended Uncertainty	Data
Transmit Output Power Data	Power [dBm]	U = 0.37 dB
Bandwidth	Magnitude [%]	U = 0.2%
Band Edge Compliance	Disturbance Power [dBm]	U = 2.0 dB
Spurious Emissions, Conducted	Disturbance Power [dBm]	U = 2.0 dB
Field Strength of Spurious Radiation	ERP [dBm]	For 3 m Chamber: U = 4.5 dB (30 MHz to 1GHz) U = 3.3 dB (above 1 GHz) For 10 m Chamber: U = 4.5 dB (30 MHz to 1GHz) U = 3.2 dB (above 1 GHz)
Frequency Stability	Frequency Accuracy [ppm]	U = 0.24 ppm

8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1710011103RG.

The End