RF TEST REPORT

Applicant	LongSung Technology (Shanghai) Co.,Ltd.
FCC ID	XHZA9500
Product	eMTC/NB-IoT/EGPRS Cellular Module
Brand	LongSung
Model	A9500
Report No.	RXA1708-0277RF01R2
Issue Date	September 14, 2017

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2017)/ FCC CFR 47 Part 22H (2017)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Jiangpeng Lan *Approved by: Kai Xu*

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

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Summary of measurement results

No.	Test Type	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Radiated Power	22.913(a)(2)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	2.1051 / 22.917(a)	PASS
5	Peak-to-Average Power Ratio	22.913(d)/ KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 22.355	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
8	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: August 16, 2017 ~ August 31, 2017			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard.			

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

1.2. Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

Client Information

Applicant	LongSung Technology (Shanghai) Co.,Ltd.
Applicant address	Room 606, Block B, Bldg. 1, No. 3000 Longdong Avenue., Zhangjiang Hi-Tech Park, Pudong District, Shanghai, P.R. China
Manufacturer	LongSung Technology (Shanghai) Co.,Ltd.
Manufacturer address	Room 606, Block B, Bldg. 1, No. 3000 Longdong Avenue., Zhangjiang Hi-Tech Park, Pudong District, Shanghai, P.R. China

General Information

EUT Description			
Model	A9500		
IMEI	866269035523103		
Hardware Version	QB1MX10A3		
Software Version	QB10001_2.0.001		
Power Supply	External power supply		
Antenna Type	The EUT don't have standard Antenna, The Antenna used for testing in this report is the after-market accessory (Dipole Antenna)		
Test Mode(s)	LTE Band 5		
Test Modulation	QPSK 16QAM		
LTE Category	M1		
Maximum E.R.P.	LTE Band 5:	21.02 dBm	
Rated Power Supply Voltage	3.8V		
Extreme Voltage	Minimum: 3.3V Maximum: 4.2V		
Extreme Temperature	Lowest: -10°C Highest: +55°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	LTE Band 5	824 ~ 849	869 ~ 894
Note: The information of the EUT is declared by the manufacturer.			

Accessory equipment
Evaluation Board
USB Cable
Antenna: Dipole Antenna

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR47 Part 2 (2017)

FCC CFR 47 Part 22H (2017)

ANSI/TIA-603-E-2016

KDB 971168 D01 Power Meas License Digital Systems v02r02

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (X, Y axis), lie-down position (Z axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions were investigated. Subsequently, only the worst case emissions are reported.
The following testing in LTE is set based on the maximum RF Output Power.
Test modes are chosen to be reported as the worst case configuration below:
Test modes are chosen as the worst case configuration below for LTE Band 5.

Test items	Bandwidth (MHz)				Modulation		RB			Test Channel		
	1.4	3	5	10	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	O	O	O	O	O	O	O	O	O	O	O	O
Effective Isotropic Radiated power	O	O	O	O	O	O	O	-	-	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	-	-	O	-	O	-
Band Edge Compliance	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	-	-	O	-	O	-
Frequency Stability	O	O	O	O	O	O	-	-	O	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	O	O	O	O	O	-	O	-	-	O	O	O
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.											

5. Test Case Results

5.1. RF Power Output

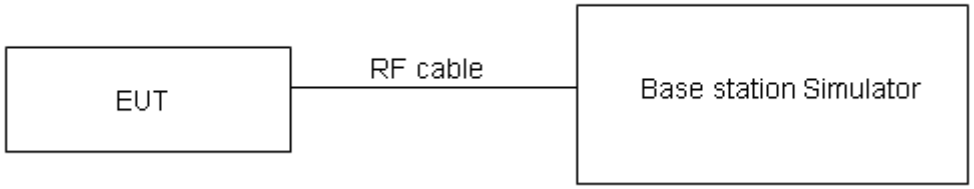
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

Limits

No specific RF power output requirements in part 2.1046.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

Mode	Bandwidth	Channel/ Frequency(MHz)	RB	Index	Conducted Power (dBm)	
					QPSK	16QAM
LTE Band 5	1.4MHz	20407/824.7	1#0	0	22.54	22.28
			6#0	0	20.91	20.88
		20525/836.5	1#0	0	22.53	22.16
			6#0	0	20.77	20.86
		20643/848.3	1#5	0	22.64	21.32
			6#0	0	20.72	21.12
	3MHz	20415/825.5	1#0	0	22.79	22.11
			6#0	0	21.03	20.84
		20525/836.5	1#0	0	22.86	21.32
			6#0	0	20.82	21.22
		20635/847.5	1#5	1	22.54	22.07
			6#0	1	20.72	20.98
	5MHz	20425/826.5	1#0	0	22.97	22.75
			6#0	0	22.12	21.16
		20525/836.5	1#0	0	22.74	22.81
			6#0	0	22.88	21.14
		20625/846.5	1#5	3	22.68	23.05
			6#0	3	21.86	21.08
	10MHz	20450/829	1#0	0	22.53	22.35
			4#0	0	22.91	22.89
		20525/836.5	1#0	0	22.34	22.64
			4#0	0	22.32	21.54
		20600/844	1#5	7	23.29	23.31
			4#2	7	23.37	23.38
Note: For RF power output test, follow the procedure of 3GPP36.521-1 section 6.2.2EA UE Maximum Output Power for UE category M1.						

5.2. Effective Radiated Power

Ambient condition

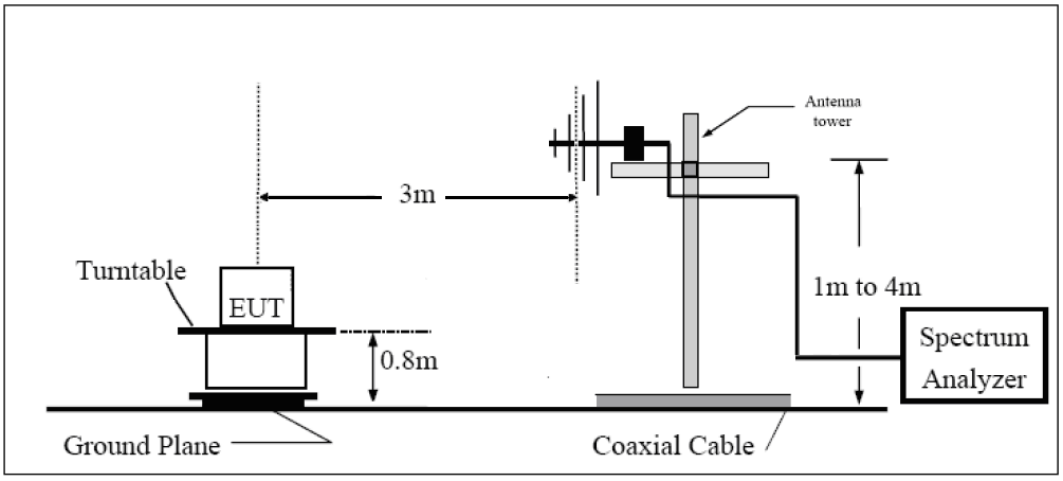
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

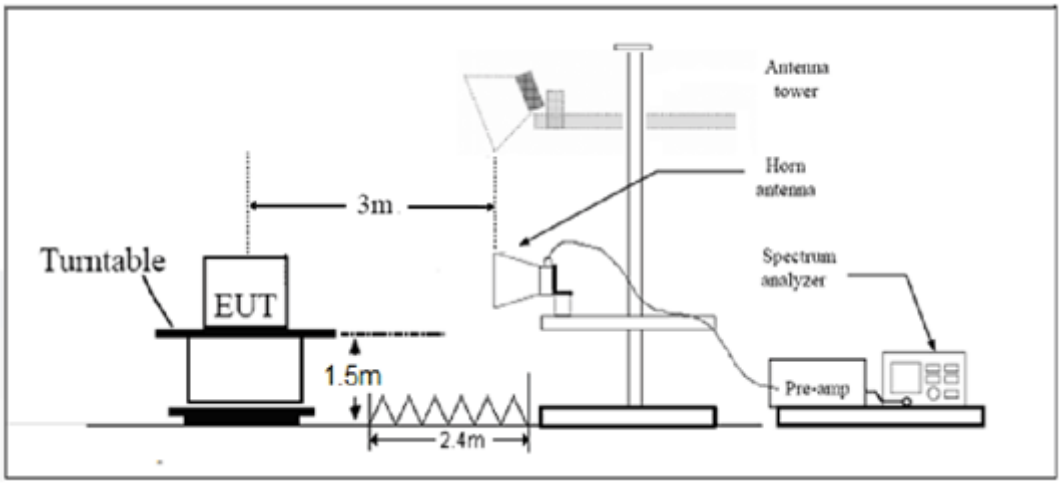
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI/TIA-603-E-2016.
2. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna beteen 1.0m and 4.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

Test configuration

Below 1GHz:



Above 1GHz:



Limits

Rule Part 22.913(a) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	≤ 7 W (38.45 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 1.19 dB

Test Results:

Mode	Bandwidth	Modulation	Channel/ Frequency (MHz)	RB	Index	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)
Band5 Standalone	1.4MHz	QPSK	20407/824.7	1#0	0	-24.15	-47.61	0.00	1.06	22.38
			20525/836.5	1#2	0	-24.43	-47.75	0.00	1.24	22.41
			20643/848.3	1#5	0	-24.89	-48.23	0.00	1.38	22.57
		16QAM	20407/824.7	1#0	0	-24.56	-47.61	0.00	1.06	21.96
			20525/836.5	1#2	0	-24.73	-47.75	0.00	1.24	22.11
			20643/848.3	1#5	0	-26.39	-48.23	0.00	1.38	21.07
	3MHz	QPSK	20415/825.5	1#0	0	-24.11	-47.59	0.00	1.06	22.40
			20525/836.5	1#5	0	-24.48	-47.75	0.00	1.24	22.36
			20635/847.5	1#5	1	-25.29	-48.18	0.00	1.38	22.12
		16QAM	20415/825.5	1#0	0	-24.43	-47.59	0.00	1.06	22.08
			20525/836.5	1#5	0	-25.80	-47.75	0.00	1.24	21.04
			20635/847.5	1#5	1	-25.41	-48.18	0.00	1.38	22.00
	5MHz	QPSK	20425/826.5	1#0	0	-23.89	-47.60	0.00	1.13	22.69
			20525/836.5	1#5	1	-24.29	-47.75	0.00	1.24	22.55
			20625/846.5	1#5	3	-24.84	-48.12	0.00	1.38	22.52
		16QAM	20425/826.5	1#0	0	-23.86	-47.60	0.00	1.13	22.71
			20525/836.5	1#5	1	-24.07	-47.75	0.00	1.24	22.77
			20625/846.5	1#5	3	-24.71	-48.12	0.00	1.38	22.64
	10MHz	QPSK	20450/829	4#0	0	-24.20	-47.61	0.00	1.13	22.38
			20525/836.5	4#2	3	-24.11	-47.75	0.00	1.24	22.73
			20600/844	4#2	7	-24.13	-48.01	0.00	1.33	23.05
		16QAM	20450/829	4#0	0	-24.55	-47.61	0.00	1.13	22.03
			20525/836.5	4#2	3	-24.36	-47.75	0.00	1.24	22.48
			20600/844	4#2	7	-24.28	-48.01	0.00	1.33	22.90

5.3. Occupied Bandwidth

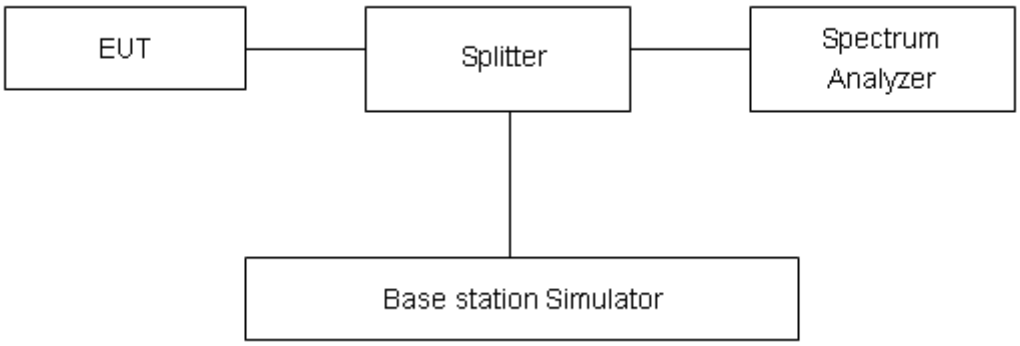
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 5,
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 624Hz.

Test Result

Mode	Bandwidth	Modulation	Channel/ Frequency (MHz)	RB	Index	Bandwidth(MHz)	
						99% Power	-26dBc
Band5	1.4MHz	QPSK	20525/836.5	6#0	0	1.1068	1.331
		16QAM	20525/836.5	6#0	0	0.96144	1.249
	3MHz	QPSK	20525/836.5	6#0	0	1.2111	2.086
		16QAM	20525/836.5	6#0	0	1.0001	1.528
	5MHz	QPSK	20525/836.5	6#0	0	1.147	1.781
		16QAM	20525/836.5	6#0	0	1.0747	1.645
	10MHz	QPSK	20525/836.5	6#0	0	1.2344	2.08
		16QAM	20525/836.5	6#0	0	1.0751	1.677
Note: For occupied bandwidth test, follow the procedure of 3GPP36.521-1 section 6.6.1EA Occupied bandwidth for UE category M1.							

LTE Band 5 QPSK 1.4MHz CH-Middle

LTE Band 5 16QAM 1.4MHz CH-Middle

LTE Band 5 QPSK 3MHz CH-Middle

LTE Band 5 16QAM 3MHz CH-Middle

LTE Band 5 QPSK 5MHz CH-Middle

LTE Band 5 16QAM 5MHz CH-Middle

LTE Band 5 QPSK 10MHz CH-Middle	LTE Band 5 16QAM 10MHz CH-Middle
	

5.4. Band Edge Compliance

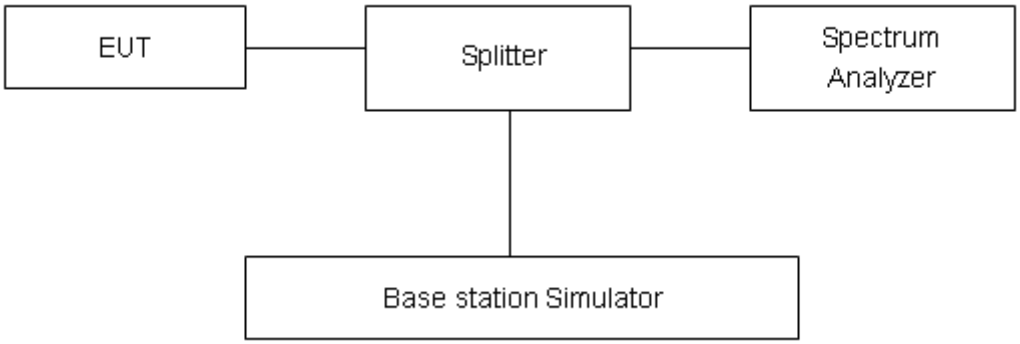
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used.
RBW is set to 15 kHz, VBW is set to 51 kHz for LTE Band 5.
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.”

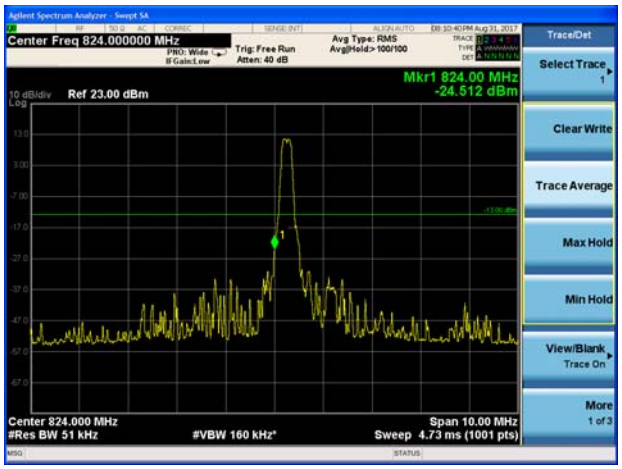
Limit	-13 dBm

Measurement Uncertainty

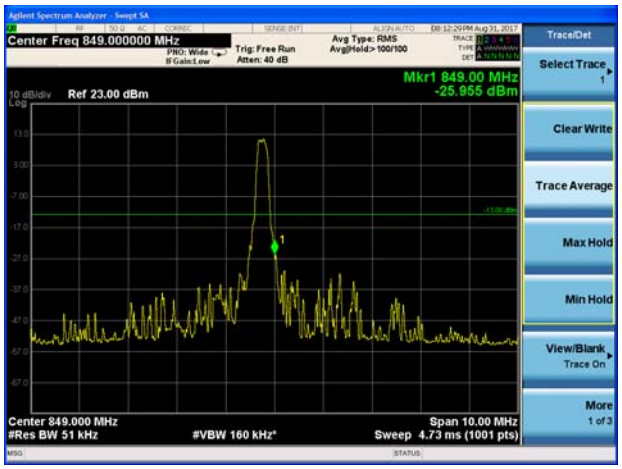
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Result:

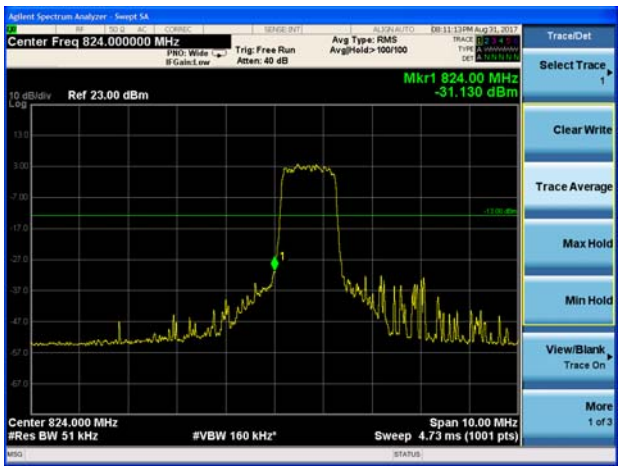
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



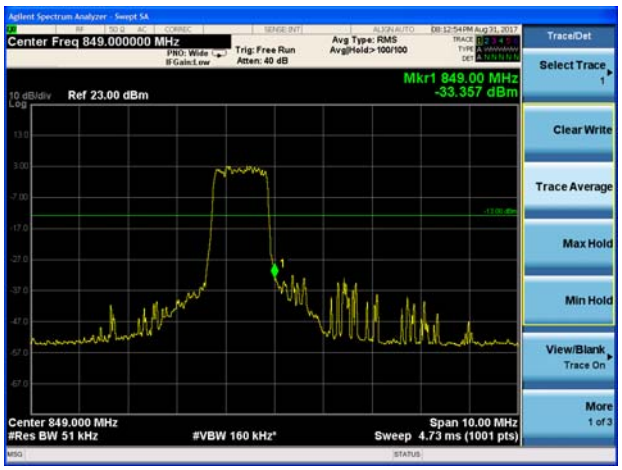
LTE Band 5 QPSK 1.4MHz CH-High 1RB



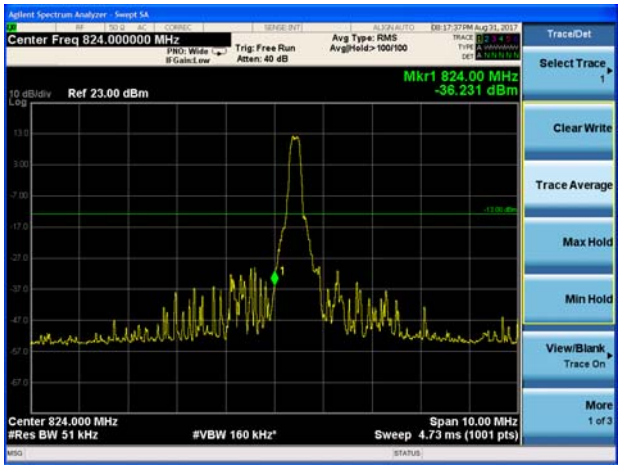
LTE Band 5 QPSK 1.4MHz CH-Low 6RB



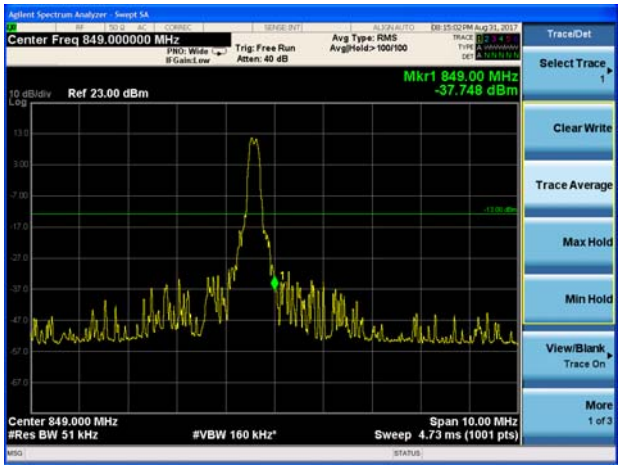
LTE Band 5 QPSK 1.4MHz CH-High 6RB



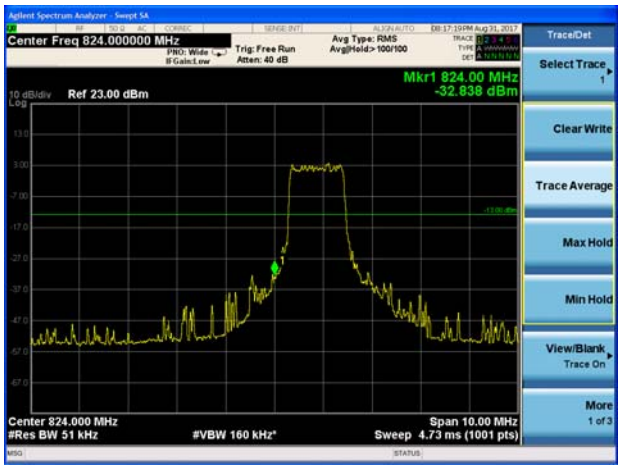
LTE Band 5 QPSK 3MHz CH-Low 1RB



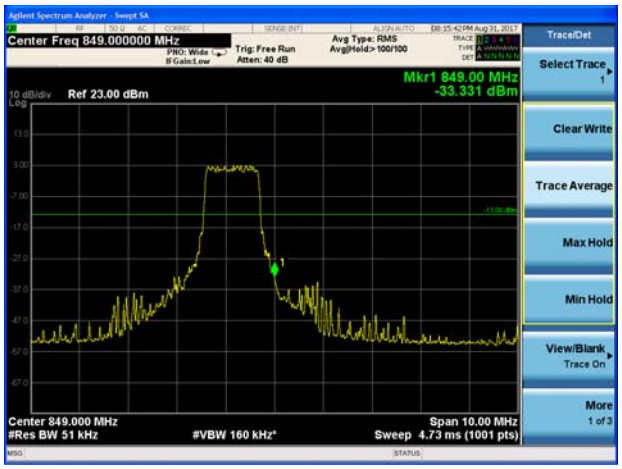
LTE Band 5 QPSK 3MHz CH-High 1RB



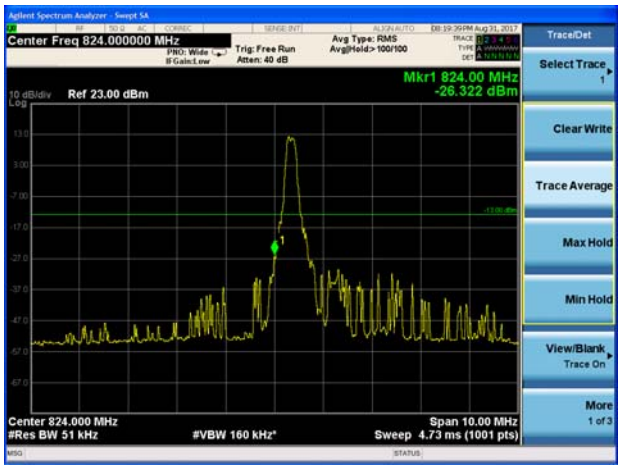
LTE Band 5 QPSK 3MHz CH-Low 6RB



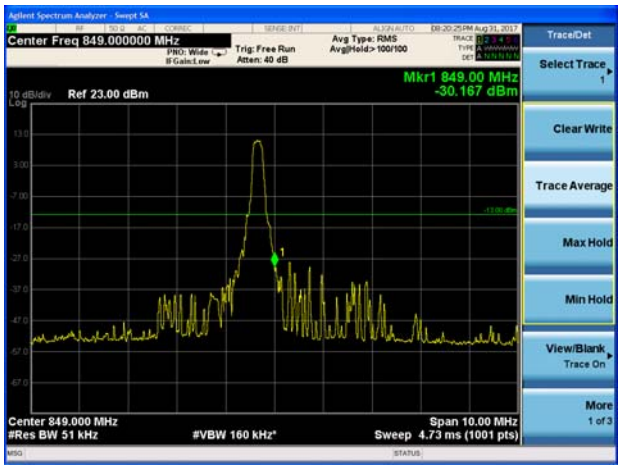
LTE Band 5 QPSK 3MHz CH-High 6RB



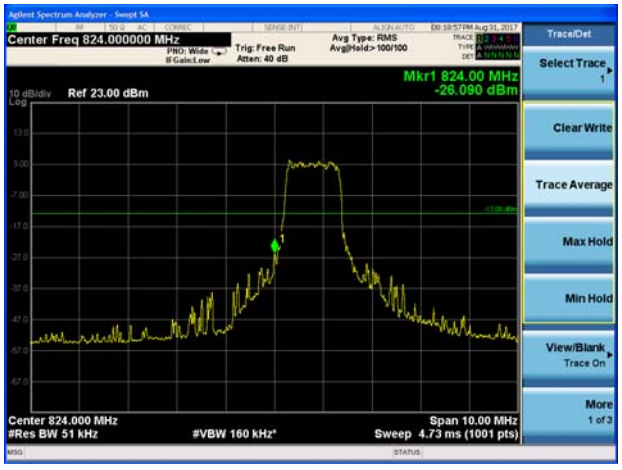
LTE Band 5 QPSK 5MHz CH-Low 1RB



LTE Band 5 QPSK 5MHz CH-High 1RB

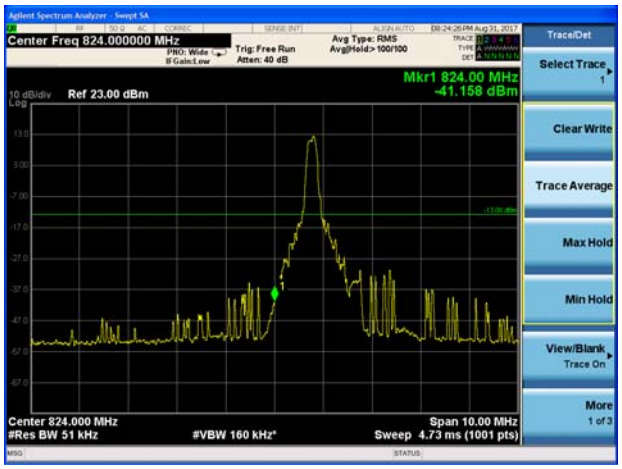


LTE Band 5 QPSK 5MHz CH-Low 6RB



LTE Band 5 QPSK 5MHz CH-High 6RB

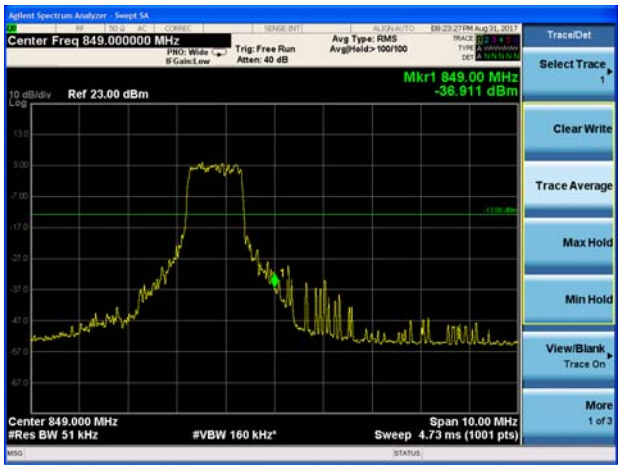
LTE Band 5 QPSK 10MHz CH-Low 1RB



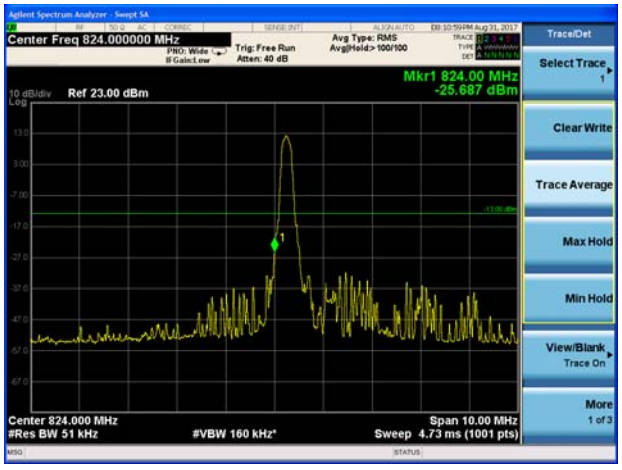
LTE Band 5 QPSK 10MHz CH-High 1RB

LTE Band 5 QPSK 10MHz CH-Low 6RB

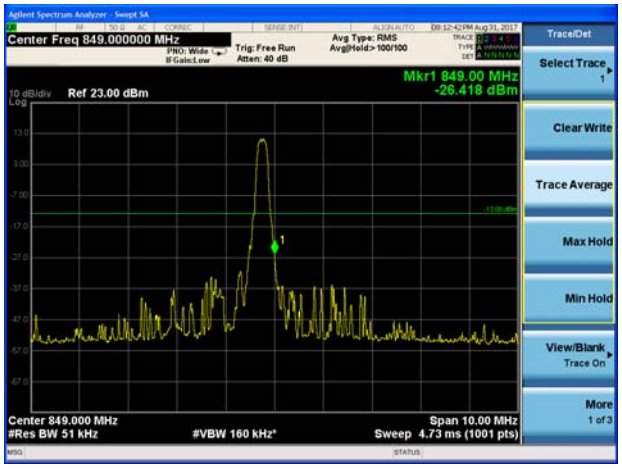
LTE Band 5 QPSK 10MHz CH-High 6RB



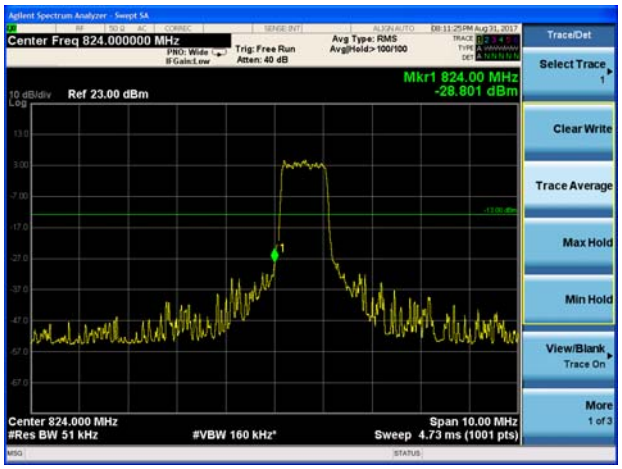
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



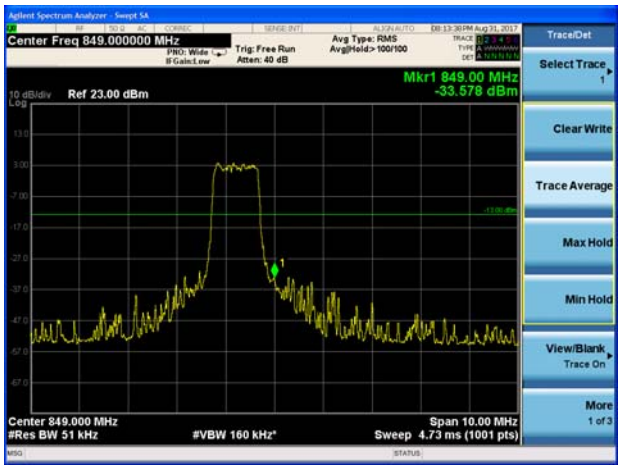
LTE Band 5 16QAM 1.4MHz CH-High 1RB



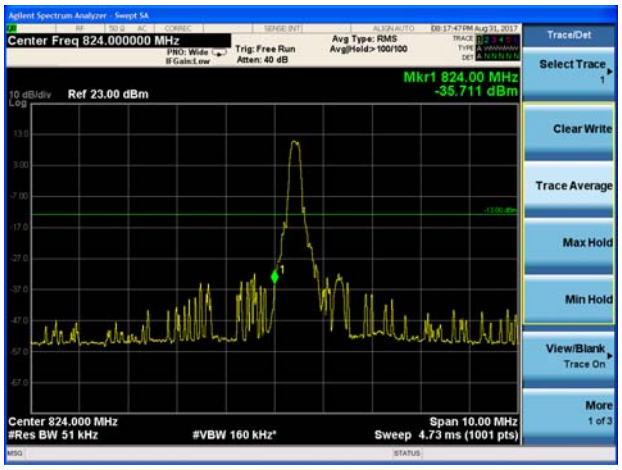
LTE Band 5 16QAM 1.4MHz CH-Low 6RB



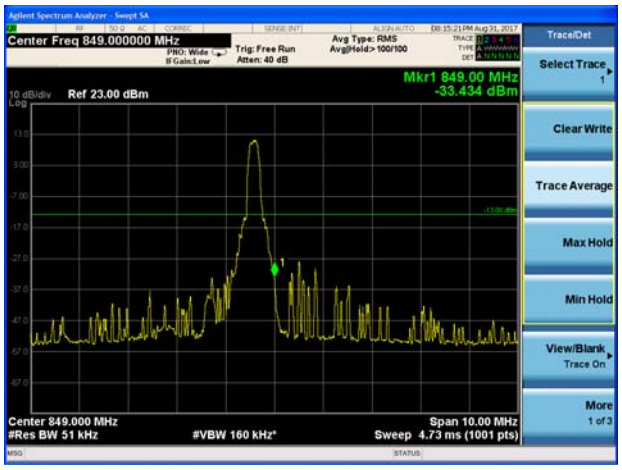
LTE Band 5 16QAM 1.4MHz CH-High 6RB



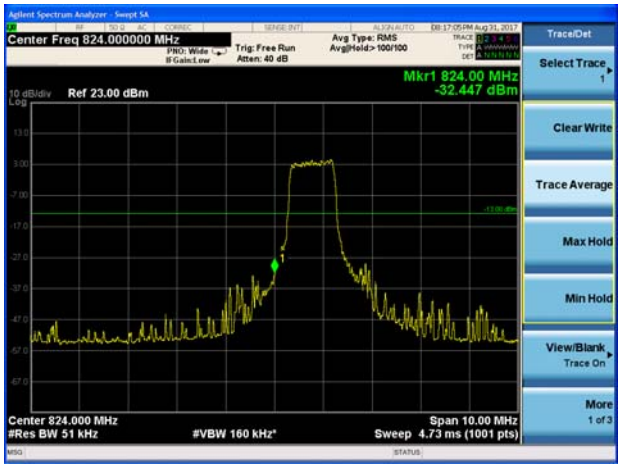
LTE Band 5 16QAM 3MHz CH-Low 1RB



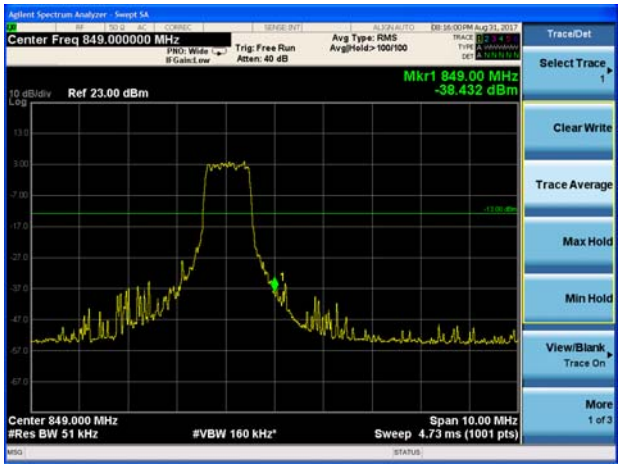
LTE Band 5 16QAM 3MHz CH-High 1RB

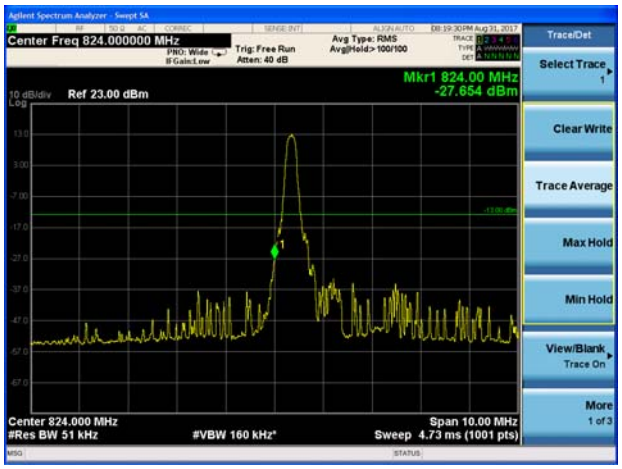
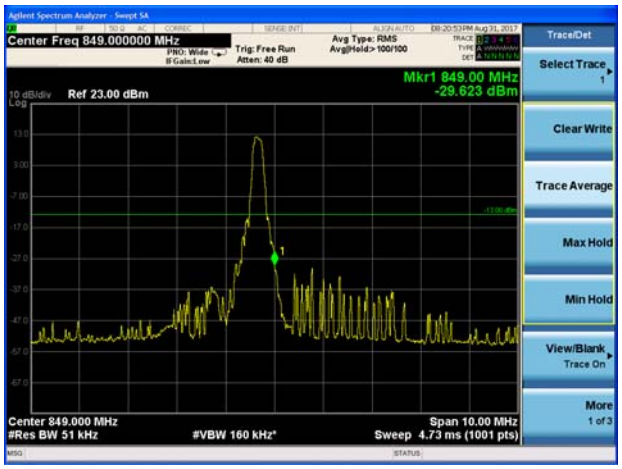
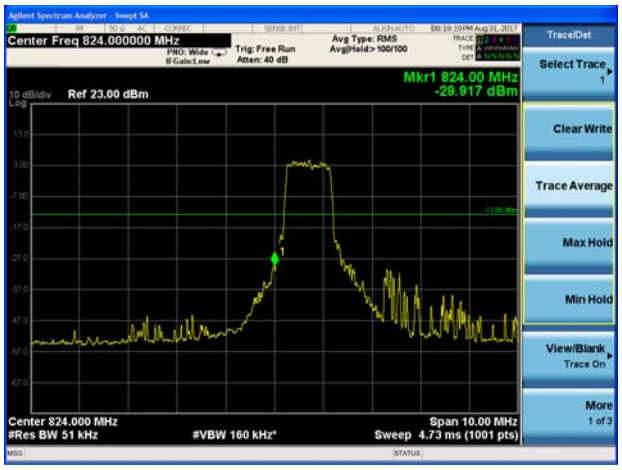
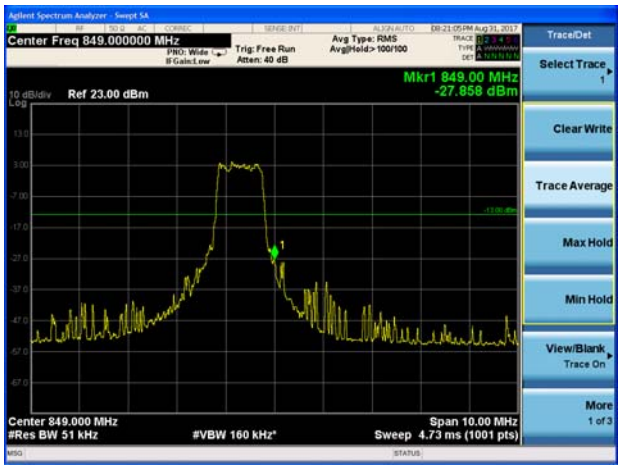


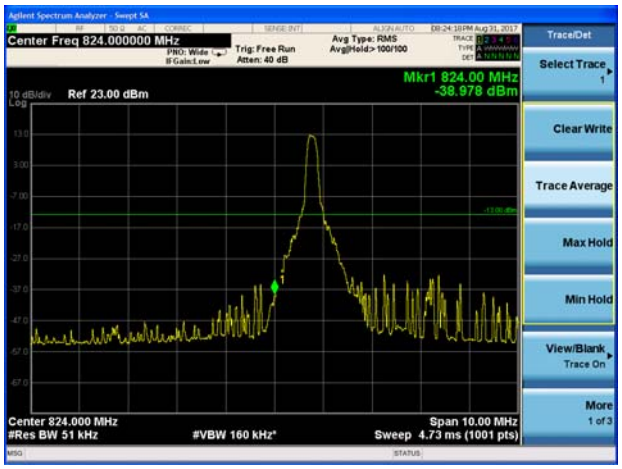
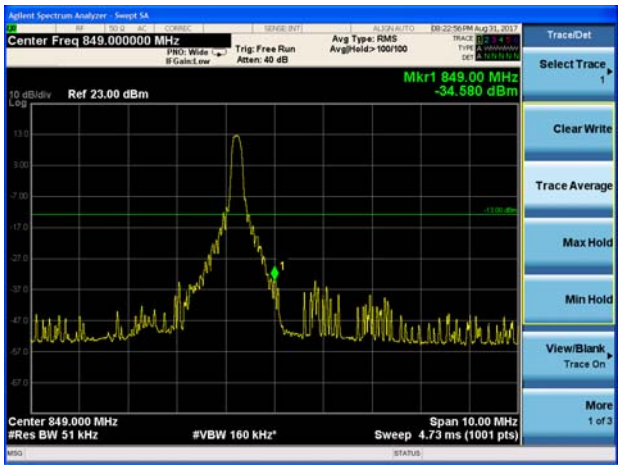
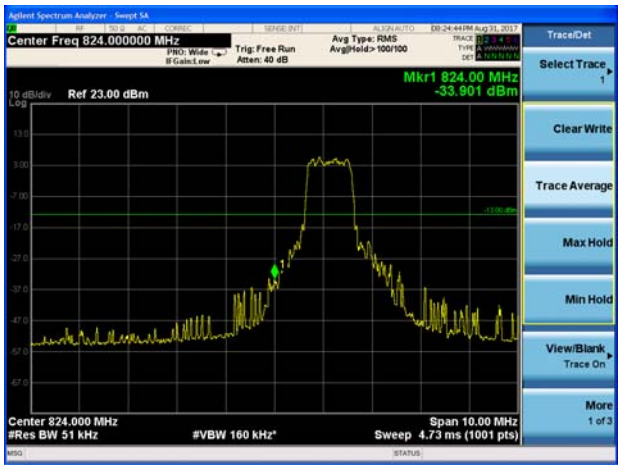
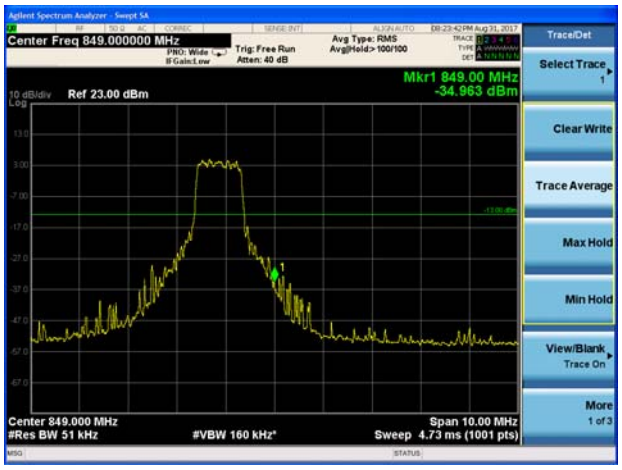
LTE Band 5 16QAM 3MHz CH-Low 6RB



LTE Band 5 16QAM 3MHz CH-High 6RB



LTE Band 5 16QAM 5MHz CH-Low 1RB	LTE Band 5 16QAM 5MHz CH-High 1RB
	
LTE Band 5 16QAM 5MHz CH-Low 6RB	LTE Band 5 16QAM 5MHz CH-High 6RB
	

LTE Band 5 16QAM 10MHz CH-Low 1RB	LTE Band 5 16QAM 10MHz CH-High 1RB
	
LTE Band 5 16QAM 10MHz CH-Low 6RB	LTE Band 5 16QAM 10MHz CH-High 6RB
	

5.5. Peak-to-Average Power Ratio (PAPR)

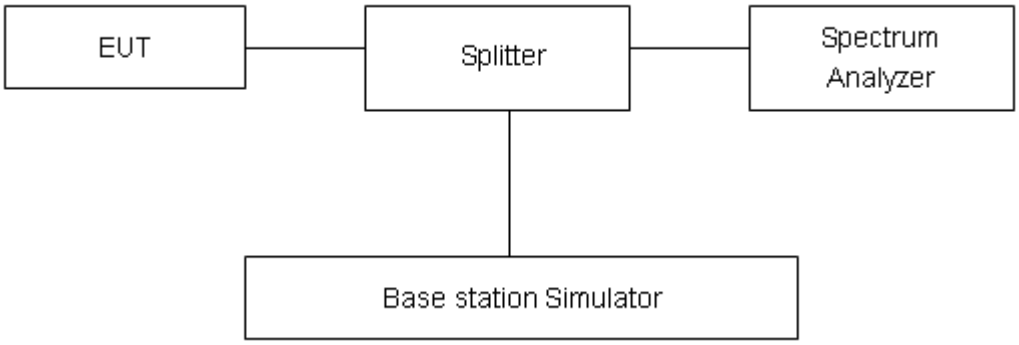
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as P_{Pk}. And measure the total average power and record as P_{Avg}. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).

Test Setup



Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

Mode	Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)		
				Peak(dBm)	Avg(dBm)	PAPR(dB)
Band5	1.4MHz	QPSK	20525/836.5	32.35	22.53	9.82
		16QAM	20525/836.5	32.47	22.16	10.31
	3MHz	QPSK	20525/836.5	32.23	22.86	9.37
		16QAM	20525/836.5	31.96	21.32	10.64
	5MHz	QPSK	20525/836.5	32.34	22.74	9.60
		16QAM	20525/836.5	33.19	22.81	10.38
	10MHz	QPSK	20525/836.5	31.77	22.34	9.43
		16QAM	20525/836.5	32.88	22.64	10.24

5.6. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +55°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +55°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

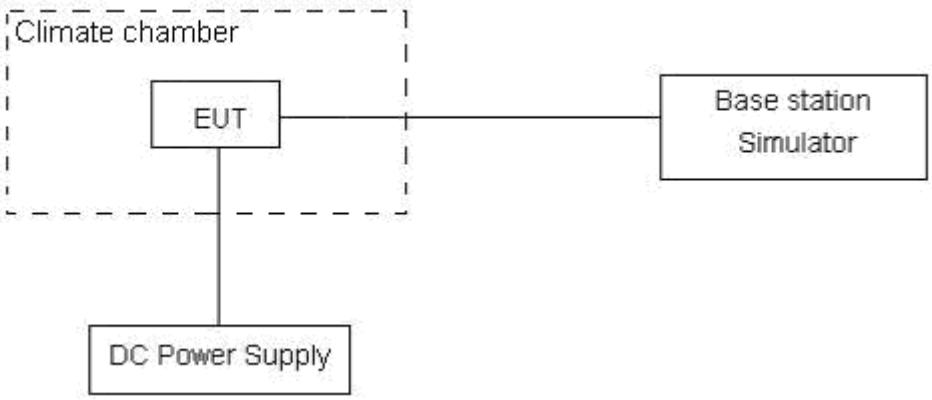
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.3 V and 4.2 V, with a nominal voltage of 3.8V.

Test setup



Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 3, U= 0.01ppm.

Test Result

Bandwidth	Test status	LTE Band 5 Middle Channel Test Results (ppm)			
		QPSK	16QAM	Limit (ppm)	Conclusion
1.4MHz	-30°C/Normal Voltage	-0.00130	0.00151	2.5	PASS
	-20°C/Normal Voltage	-0.00171	-0.00402	2.5	PASS
	-10°C/Normal Voltage	-0.00212	0.00111	2.5	PASS
	0°C/Normal Voltage	-0.00322	-0.00206	2.5	PASS
	10°C/Normal Voltage	-0.00135	-0.00170	2.5	PASS
	20°C/Normal Voltage	0.00024	-0.00049	2.5	PASS
	30°C/Normal Voltage	-0.00271	-0.00172	2.5	PASS
	40°C/Normal Voltage	-0.00287	-0.00163	2.5	PASS
	50°C/Normal Voltage	-0.00374	0.00191	2.5	PASS
	55°C/Normal Voltage	-0.00257	0.00386	2.5	PASS
	20°C/Minimum Voltage	-0.00277	-0.00149	2.5	PASS
	20°C/Maximum Voltage	-0.00158	-0.00332	2.5	PASS
3MHz	-30°C/Normal Voltage	-0.00160	-0.00194	2.5	PASS
	-20°C/Normal Voltage	-0.00300	0.00104	2.5	PASS
	-10°C/Normal Voltage	-0.00104	0.00074	2.5	PASS
	0°C/Normal Voltage	0.00027	-0.00389	2.5	PASS
	10°C/Normal Voltage	-0.00159	-0.00128	2.5	PASS
	20°C/Normal Voltage	-0.00100	-0.00091	2.5	PASS
	30°C/Normal Voltage	0.00047	0.00160	2.5	PASS
	40°C/Normal Voltage	-0.00184	-0.00098	2.5	PASS
	50°C/Normal Voltage	0.00146	0.00027	2.5	PASS
	55°C/Normal Voltage	0.00182	0.00117	2.5	PASS
	20°C/Minimum Voltage	-0.00001	-0.00024	2.5	PASS
	20°C/Maximum Voltage	-0.00151	0.00151	2.5	PASS
5MHz	-30°C/Normal Voltage	0.00167	-0.01519	2.5	PASS
	-20°C/Normal Voltage	-0.00020	0.00862	2.5	PASS
	-10°C/Normal Voltage	-0.00175	0.00915	2.5	PASS
	0°C/Normal Voltage	0.00406	0.00758	2.5	PASS
	10°C/Normal Voltage	-0.00098	-0.01505	2.5	PASS
	20°C/Normal Voltage	-0.00118	-0.01431	2.5	PASS
	30°C/Normal Voltage	-0.00120	-0.01714	2.5	PASS
	40°C/Normal Voltage	0.00424	0.00958	2.5	PASS
	50°C/Normal Voltage	-0.00031	0.00827	2.5	PASS
	55°C/Normal Voltage	-0.00256	-0.00126	2.5	PASS
	20°C/Minimum Voltage	-0.00055	-0.01484	2.5	PASS

	20°C/Maximum Voltage	0.00253	0.00697	2.5	PASS
10MHz	-30°C/Normal Voltage	-0.00512	-0.01262	2.5	PASS
	-20°C/Normal Voltage	-0.00332	0.00516	2.5	PASS
	-10°C/Normal Voltage	-0.00200	-0.01215	2.5	PASS
	0°C/Normal Voltage	-0.00326	-0.01399	2.5	PASS
	10°C/Normal Voltage	-0.00059	0.00931	2.5	PASS
	20°C/Normal Voltage	-0.00096	0.00793	2.5	PASS
	30°C/Normal Voltage	-0.00287	-0.01511	2.5	PASS
	40°C/Normal Voltage	-0.00230	-0.01577	2.5	PASS
	50°C/Normal Voltage	-0.00384	0.00886	2.5	PASS
	55°C/Normal Voltage	-0.00306	-0.00253	2.5	PASS
	20°C/Minimum Voltage	-0.00164	-0.01140	2.5	PASS
	20°C/Maximum Voltage	-0.00710	0.00567	2.5	PASS

5.7. Spurious Emissions at Antenna Terminals

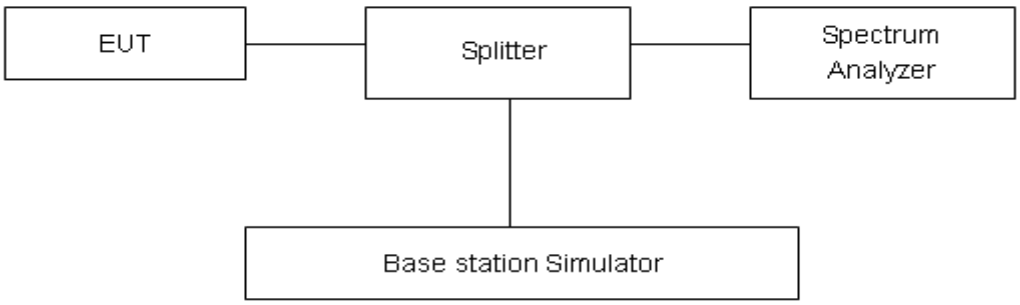
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

Test setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.”

Limit	-13 dBm

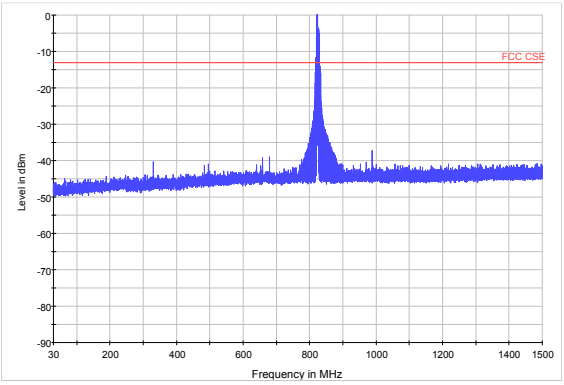
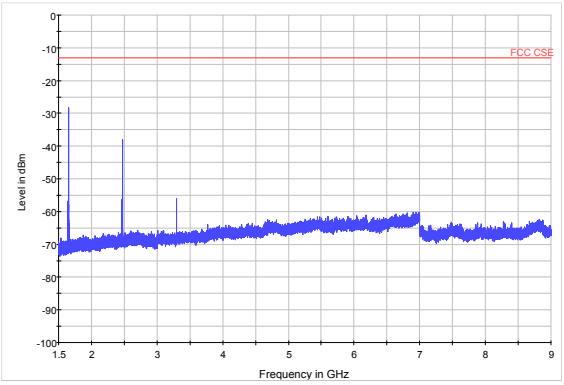
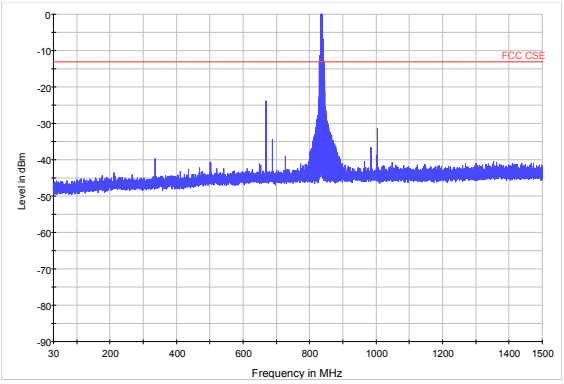
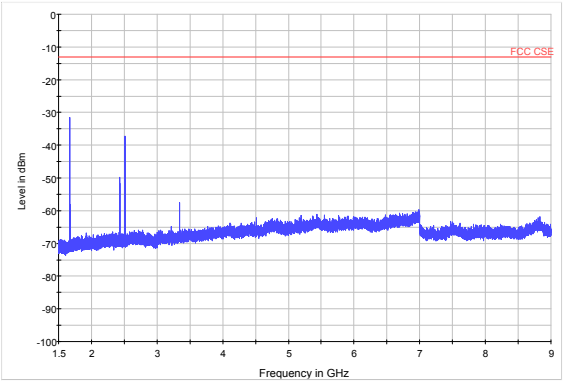
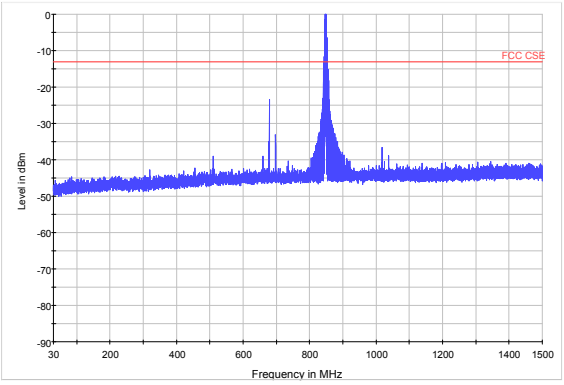
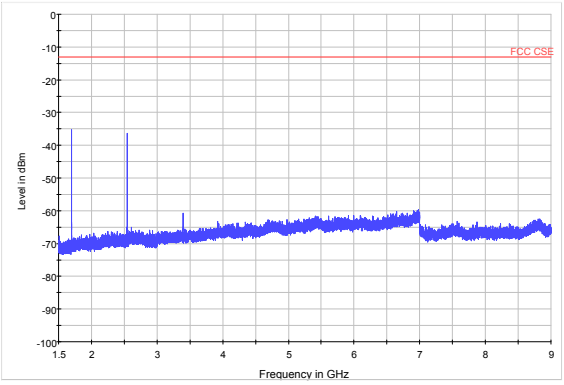
Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 1.96.

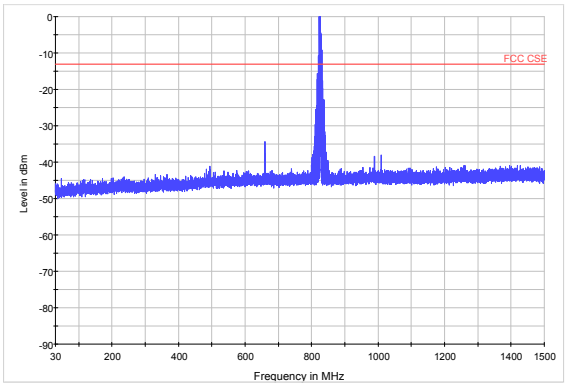
Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

Test Result

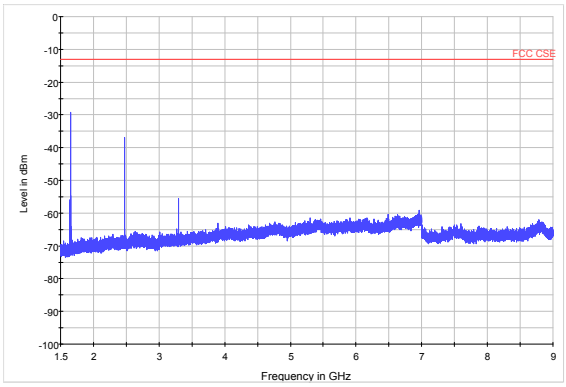
Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

LTE Band 5 1.4MHz CH-Low 30MHz-1.5GHz	LTE Band 5 1.4MHz CH-Low 1.5GHz-9GHz
	
LTE Band 5 1.4MHz CH-Middle 30MHz-1.5GHz	LTE Band 5 1.4MHz CH-Middle 1.5GHz-9GHz
	
LTE Band 5 1.4MHz CH-High 30MHz-1.5GHz	LTE Band 5 1.4MHz CH-High 1.5GHz-9GHz z
	

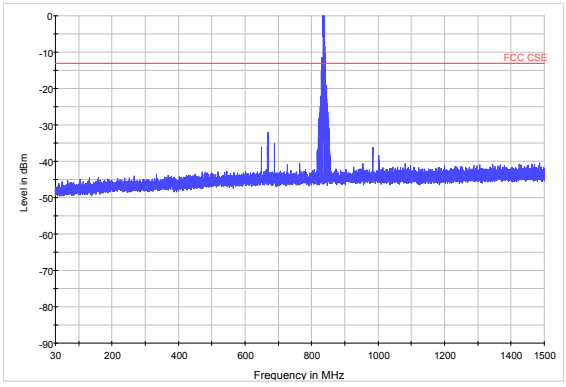
LTE Band 5 3MHz CH-Low 30MHz-1.5GHz



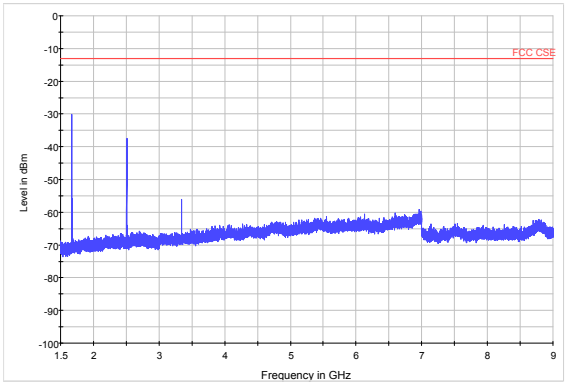
LTE Band 5 3MHz CH-Low 1.5GHz-9GHz z



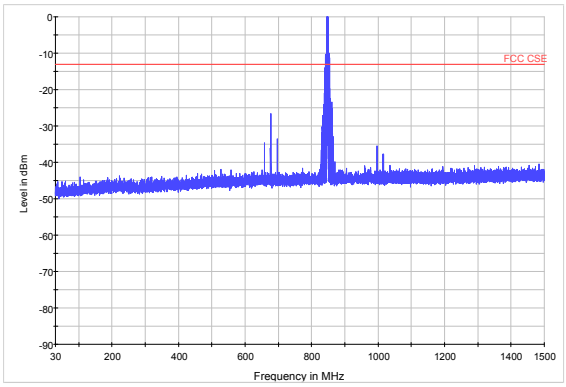
LTE Band 5 3MHz CH-Middle 30MHz-1.5GHz



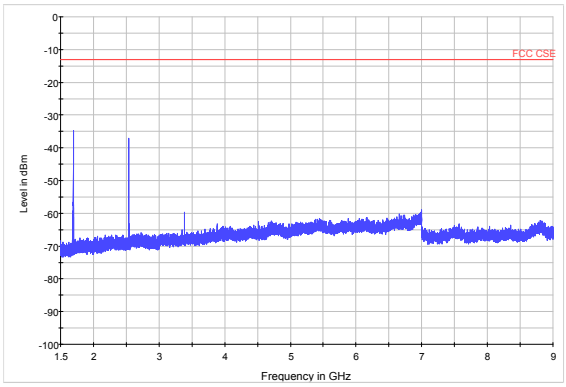
LTE Band 5 3MHz CH-Middle 1.5GHz-9GHz



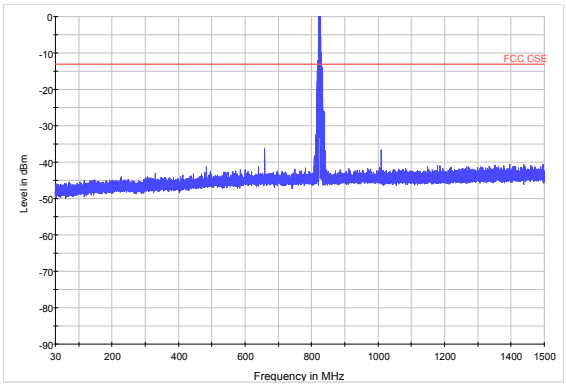
LTE Band 5 3MHz CH-High 30MHz-1.5GHz



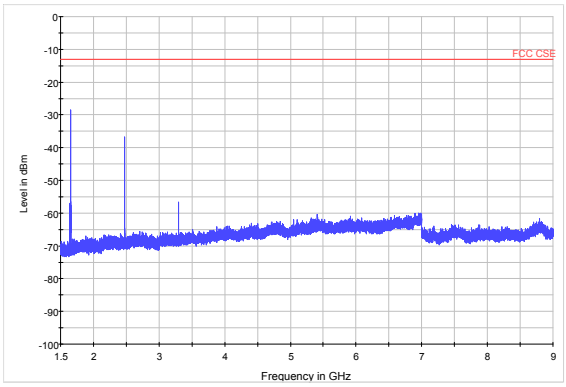
LTE Band 5 3MHz CH-High 1.5GHz-9GHz



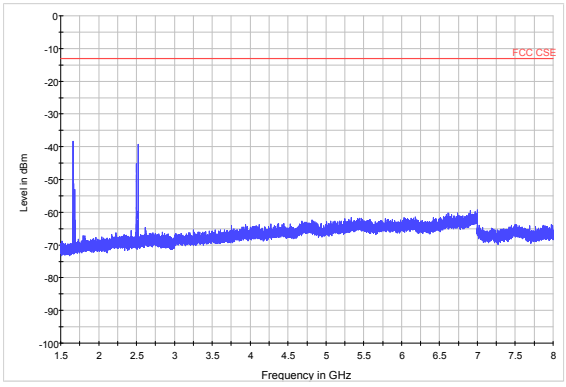
LTE Band 5 5MHz CH-Low 30MHz-1.5GHz



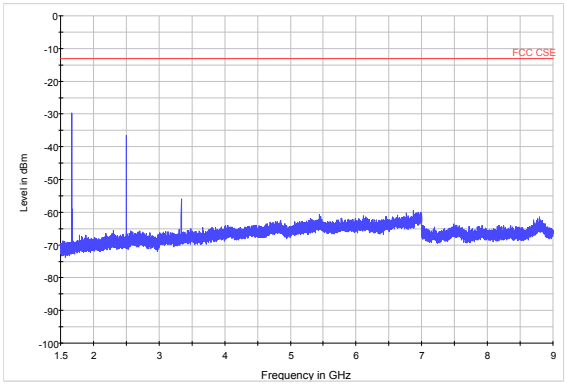
LTE Band 5 5MHz CH-Low 1.5GHz-9GHz



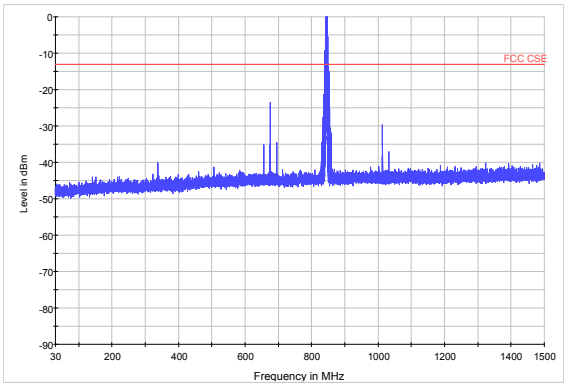
LTE Band 5 5MHz CH-Middle 30MHz-1.5GHz



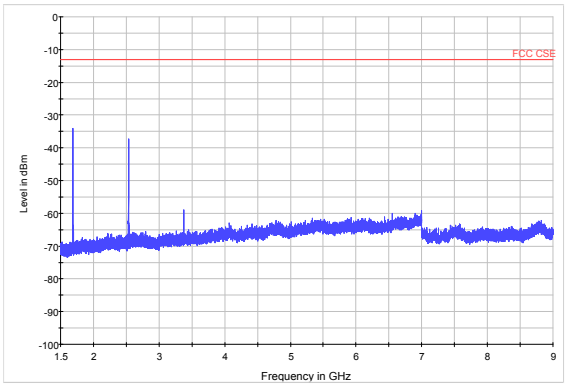
LTE Band 5 5MHz CH-Middle 1.5GHz-9GHz



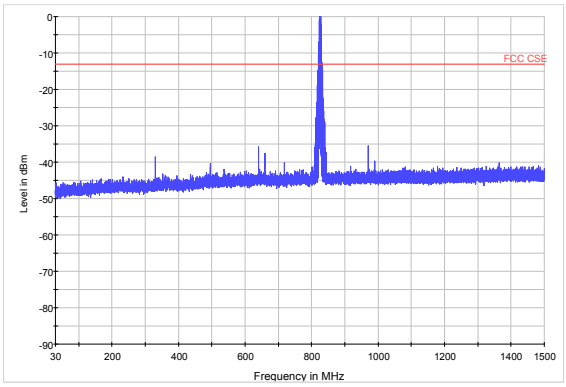
LTE Band 5 5MHz CH-High 30MHz-1.5GHz



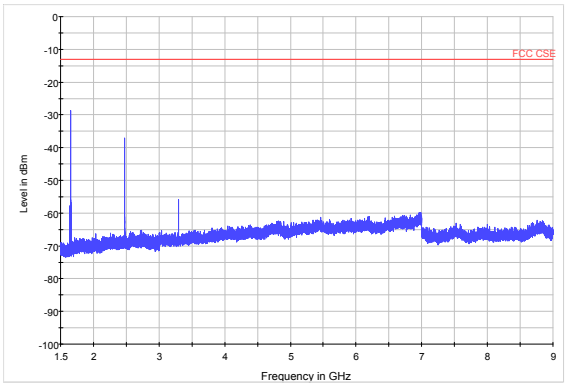
LTE Band 5 5MHz CH-High 1.5GHz-9GHz



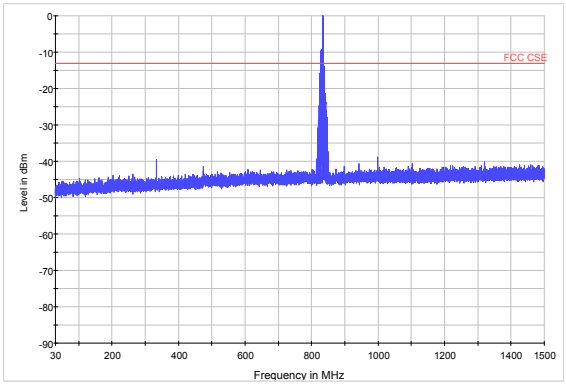
LTE Band 5 10MHz CH-Low 30MHz-1.5GHz



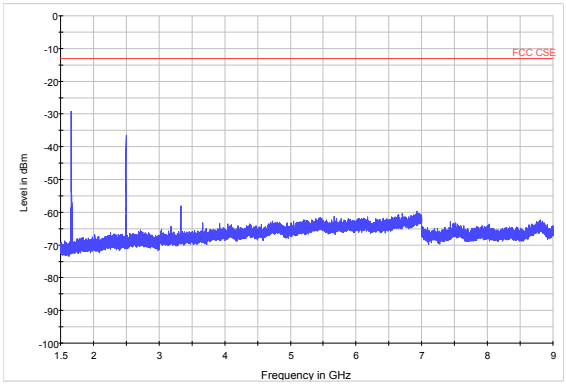
LTE Band 5 10MHz CH-Low 1.5GHz-9GHz



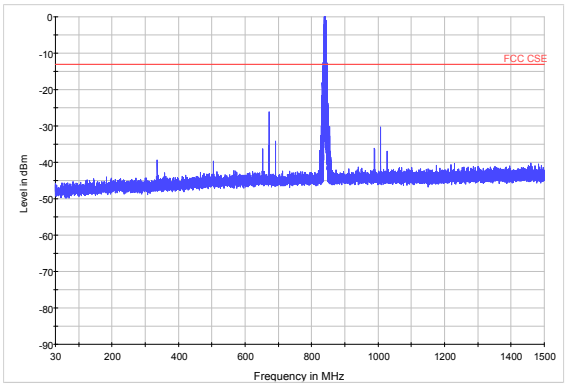
LTE Band 5 10MHz CH-Middle 30MHz-1.5GHz



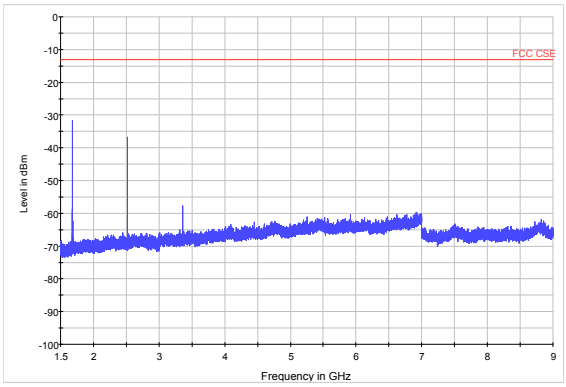
LTE Band 5 10MHz CH-Middle 1.5GHz-9GHz



LTE Band 5 10MHz CH-High 30MHz-1.5GHz



LTE Band 5 10MHz CH-High 1.5GHz-9GHz



If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.
The signal beyond the limit is carrier.

Test Data File Name	Frequency (MHz)	Peak (dBm)	Limit (dBm)	Margin (dBm)
CSE_ 1#_LTE B5_5M_CHMID_RB1_1.5-9GHz	1668.6	-29.80	-13.00	16.80
CSE_1#_LTE B5_5M_CHMID_RB6_1.5-9GHz	1669.8	-33.80	-13.00	20.80
CSE_1#_LTE B5_1.4M_CHLOW_RB1_1.5-9GHz	1648.3	-28.40	-13.00	15.40
CSE_1#_LTE B5_1.4M_CHMID_RB1_1.5-9GHz	1672.1	-31.52	-13.00	18.52
CSE_1#_LTE B5_3M_CHLOW_RB1_1.5-9GHz	1648.9	-29.24	-13.00	16.24
CSE_1#_LTE B5_3M_CHMID_RB1_1.5-9GHz	1670.6	-30.03	-13.00	17.03
CSE_1#_LTE B5_5M_CHLOW_RB1_1.5-9GHz	1648.7	-28.50	-13.00	15.50
CSE_1#_LTE B5_5M_CHMID_RB1_1.5-9GHz	1668.6	-29.80	-13.00	16.80
CSE_1#_LTE B5_5M_CHHIGH_RB1_1.5-9GHz	1688.6	-33.90	-13.00	20.90
CSE_1#_LTE B5_10M_CHLOW_RB1_1.5-9GHz	1649.3	-29.77	-13.00	16.77
CSE_1#_LTE B5_10M_CHMID_RB1_1.5-9GHz	1664.4	-29.24	-13.00	16.24
CSE_1#_LTE B5_10M_CHHIGH_RB1_1.5-9GHz	1679.4	-31.74	-13.00	18.74

5.8. Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

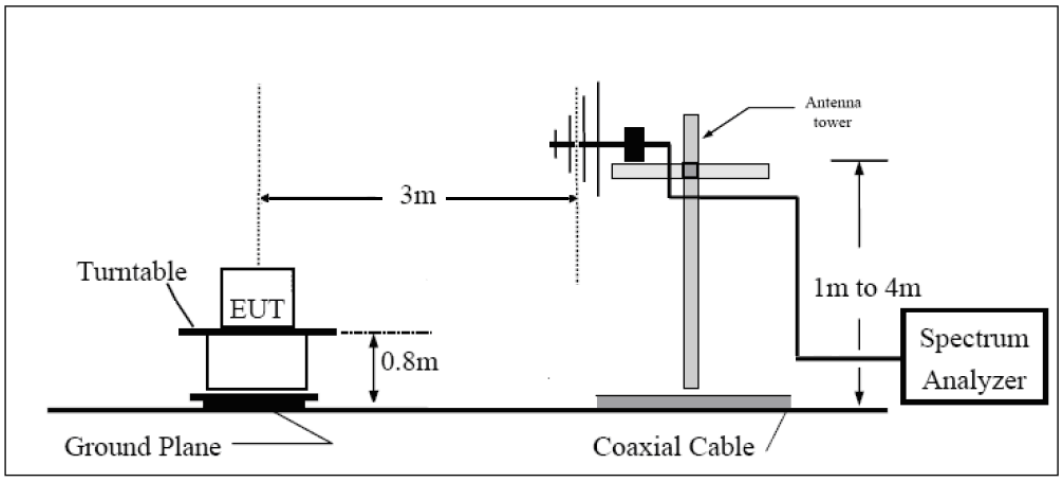
Method of Measurement

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI/TIA-603-E-2016.
2. Above 30MHz：The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

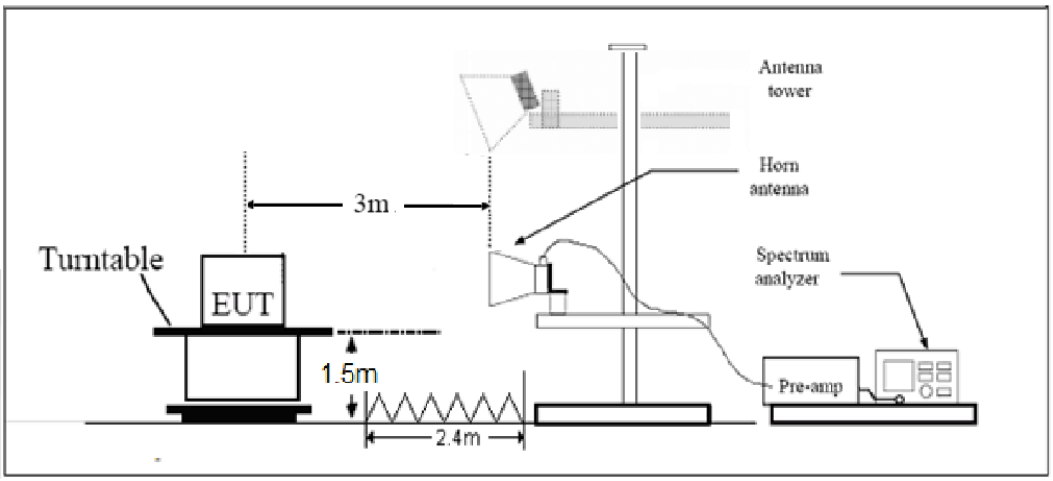
and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT lie-down position (Z axis), stand-up position (X, Y axis). The worst emission was found in lie-down position (Z axis) and the worst case was recorded.

Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor k = 1.96, U= 3.55 dB.

Test Result

LTE Band 5 1.4MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.4	-47.20	2.00	10.75	vertical	-40.60	-13.00	27.60	225
3	2474.1	-51.45	2.51	11.05	vertical	-45.06	-13.00	32.06	45
4	3298.8	-51.44	4.20	11.15	vertical	-46.64	-13.00	33.64	180
5	4123.5	-57.78	5.20	11.15	vertical	-53.98	-13.00	40.98	270
6	4948.2	-58.20	5.50	11.95	vertical	-53.90	-13.00	40.90	135
7	5772.9	-59.34	5.70	13.55	vertical	-53.64	-13.00	40.64	180
8	6597.6	-57.47	6.30	13.75	vertical	-52.17	-13.00	39.17	225
9	7422.3	-57.82	6.80	13.85	vertical	-52.92	-13.00	39.92	45
10	8247.0	-57.52	6.90	14.25	vertical	-52.32	-13.00	39.32	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-52.47	2.00	10.75	vertical	-45.87	-13.00	32.87	180
3	2509.5	-48.27	2.51	11.05	vertical	-41.88	-13.00	28.88	135
4	3346.0	-52.80	4.20	11.15	vertical	-48.00	-13.00	35.00	225
5	4182.5	-57.94	5.20	11.15	vertical	-54.14	-13.00	41.14	45
6	5019.0	-58.51	5.50	11.95	vertical	-54.21	-13.00	41.21	90
7	5855.5	-59.51	5.70	13.55	vertical	-53.81	-13.00	40.81	180
8	6692.0	-57.20	6.30	13.75	vertical	-51.90	-13.00	38.90	270
9	7528.5	-56.57	6.80	13.85	vertical	-51.67	-13.00	38.67	180
10	8365.0	-56.78	6.90	14.25	vertical	-51.58	-13.00	38.58	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 1.4MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1696.6	-57.75	2.00	10.75	vertical	-51.15	-13.00	38.15	90
3	2544.9	-49.19	2.51	11.05	vertical	-42.80	-13.00	29.80	270
4	3393.2	-56.97	4.20	11.15	vertical	-52.17	-13.00	39.17	45
5	4241.5	-57.29	5.20	11.15	vertical	-53.49	-13.00	40.49	90
6	5089.8	-57.75	5.50	11.95	vertical	-53.45	-13.00	40.45	225
7	5938.1	-58.88	5.70	13.55	vertical	-53.18	-13.00	40.18	90
8	6786.4	-57.74	6.30	13.75	vertical	-52.44	-13.00	39.44	180
9	7634.7	-55.90	6.80	13.85	vertical	-51.00	-13.00	38.00	270
10	8483.0	-56.73	6.90	14.25	vertical	-51.53	-13.00	38.53	180
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 3MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1648.3	-47.12	2.00	10.75	vertical	-40.52	-13.00	27.52	180
3	2476.5	-55.55	2.51	11.05	vertical	-49.16	-13.00	36.16	270
4	3302.0	-53.21	4.20	11.15	vertical	-48.41	-13.00	35.41	180
5	4127.5	-57.55	5.20	11.15	vertical	-53.75	-13.00	40.75	45
6	4953.0	-57.42	5.50	11.95	vertical	-53.12	-13.00	40.12	270
7	5778.5	-59.39	5.70	13.55	vertical	-53.69	-13.00	40.69	180
8	6604.0	-56.68	6.30	13.75	vertical	-51.38	-13.00	38.38	90
9	7429.5	-55.25	6.80	13.85	vertical	-50.35	-13.00	37.35	135
10	8255.0	-57.76	6.90	14.25	vertical	-52.56	-13.00	39.56	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 3MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1670.3	-53.40	2.00	10.75	vertical	-46.80	-13.00	33.80	225
3	2509.5	-53.28	2.51	11.05	vertical	-46.89	-13.00	33.89	135
4	3346.0	-58.45	4.20	11.15	vertical	-53.65	-13.00	40.65	270
5	4182.5	-59.64	5.20	11.15	vertical	-55.84	-13.00	42.84	90
6	5019.0	-58.53	5.50	11.95	vertical	-54.23	-13.00	41.23	45
7	5855.5	-58.10	5.70	13.55	vertical	-52.40	-13.00	39.40	180
8	6692.0	-57.82	6.30	13.75	vertical	-52.52	-13.00	39.52	270
9	7528.5	-55.14	6.80	13.85	vertical	-50.24	-13.00	37.24	225
10	8365.0	-57.56	6.90	14.25	vertical	-52.36	-13.00	39.36	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 3MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1692.5	-57.19	2.00	10.75	vertical	-50.59	-13.00	37.59	180
3	2542.5	-49.17	2.51	11.05	vertical	-42.78	-13.00	29.78	225
4	3390.0	-56.79	4.20	11.15	vertical	-51.99	-13.00	38.99	45
5	4237.5	-57.55	5.20	11.15	vertical	-53.75	-13.00	40.75	225
6	5085.0	-57.55	5.50	11.95	vertical	-53.25	-13.00	40.25	315
7	5932.5	-58.95	5.70	13.55	vertical	-53.25	-13.00	40.25	180
8	6780.0	-57.81	6.30	13.75	vertical	-52.51	-13.00	39.51	270
9	7627.5	-56.67	6.80	13.85	vertical	-51.77	-13.00	38.77	315
10	8475.0	-57.14	6.90	14.25	vertical	-51.94	-13.00	38.94	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 5MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.6	-47.60	2.00	10.75	vertical	-41.00	-13.00	28.00	225
3	2479.5	-51.91	2.51	11.05	vertical	-45.52	-13.00	32.52	180
4	3306.0	-52.43	4.20	11.15	vertical	-47.63	-13.00	34.63	225
5	4132.5	-57.07	5.20	11.15	vertical	-53.27	-13.00	40.27	270
6	4959.0	-57.50	5.50	11.95	vertical	-53.20	-13.00	40.20	45
7	5785.5	-58.85	5.70	13.55	vertical	-53.15	-13.00	40.15	225
8	6612.0	-57.84	6.30	13.75	vertical	-52.54	-13.00	39.54	180
9	7438.5	-57.64	6.80	13.85	vertical	-52.74	-13.00	39.74	90
10	8265.0	-57.11	6.90	14.25	vertical	-51.91	-13.00	38.91	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-50.28	2.00	10.75	vertical	-43.68	-13.00	30.68	45
3	2509.5	-50.29	2.51	11.05	vertical	-43.90	-13.00	30.90	135
4	3346.0	-52.44	4.20	11.15	vertical	-47.64	-13.00	34.64	270
5	4182.5	-57.12	5.20	11.15	vertical	-53.32	-13.00	40.32	90
6	5019.0	-57.26	5.50	11.95	vertical	-52.96	-13.00	39.96	225
7	5855.5	-58.61	5.70	13.55	vertical	-52.91	-13.00	39.91	45
8	6692.0	-57.87	6.30	13.75	vertical	-52.57	-13.00	39.57	180
9	7528.5	-56.81	6.80	13.85	vertical	-51.91	-13.00	38.91	270
10	8365.0	-57.59	6.90	14.25	vertical	-52.39	-13.00	39.39	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 5MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1693.0	-57.24	2.00	10.75	vertical	-50.64	-13.00	37.64	180
3	2539.5	-47.32	2.51	11.05	vertical	-40.93	-13.00	27.93	315
4	3386.0	-57.96	4.20	11.15	vertical	-53.16	-13.00	40.16	180
5	4232.5	-57.11	5.20	11.15	vertical	-53.31	-13.00	40.31	225
6	5079.0	-58.79	5.50	11.95	vertical	-54.49	-13.00	41.49	270
7	5925.5	-58.87	5.70	13.55	vertical	-53.17	-13.00	40.17	135
8	6772.0	-57.44	6.30	13.75	vertical	-52.14	-13.00	39.14	180
9	7618.5	-56.67	6.80	13.85	vertical	-51.77	-13.00	38.77	315
10	8465.0	-55.43	6.90	14.25	vertical	-50.23	-13.00	37.23	45
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 10MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.0	-48.59	2.00	10.75	vertical	-41.99	-13.00	28.99	90
3	2487.0	-52.65	2.51	11.05	vertical	-46.26	-13.00	33.26	135
4	3316.0	-51.66	4.20	11.15	vertical	-46.86	-13.00	33.86	225
5	4145.0	-58.33	5.20	11.15	vertical	-54.53	-13.00	41.53	45
6	4974.0	-59.11	5.50	11.95	vertical	-54.81	-13.00	41.81	270
7	5803.0	-59.75	5.70	13.55	vertical	-54.05	-13.00	41.05	180
8	6632.0	-57.35	6.30	13.75	vertical	-52.05	-13.00	39.05	90
9	7461.0	-56.72	6.80	13.85	vertical	-51.82	-13.00	38.82	135
10	8290.0	-57.08	6.90	14.25	vertical	-51.88	-13.00	38.88	180
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-49.87	2.00	10.75	vertical	-43.27	-13.00	30.27	135
3	2509.5	-53.09	2.51	11.05	vertical	-46.70	-13.00	33.70	45
4	3346.0	-51.80	4.20	11.15	vertical	-47.00	-13.00	34.00	90
5	4182.5	-56.97	5.20	11.15	vertical	-53.17	-13.00	40.17	45
6	5019.0	-58.74	5.50	11.95	vertical	-54.44	-13.00	41.44	180
7	5855.5	-57.36	5.70	13.55	vertical	-51.66	-13.00	38.66	270
8	6692.0	-57.23	6.30	13.75	vertical	-51.93	-13.00	38.93	45
9	7528.5	-56.51	6.80	13.85	vertical	-51.61	-13.00	38.61	180
10	8365.0	-56.14	6.90	14.25	vertical	-50.94	-13.00	37.94	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

LTE Band 5 10MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1688.0	-55.16	2.00	10.75	vertical	-48.56	-13.00	35.56	90
3	2532.0	-47.37	2.51	11.05	vertical	-40.98	-13.00	27.98	90
4	3376.0	-54.15	4.20	11.15	vertical	-49.35	-13.00	36.35	45
5	4220.0	-56.96	5.20	11.15	vertical	-53.16	-13.00	40.16	90
6	5064.0	-56.73	5.50	11.95	vertical	-52.43	-13.00	39.43	180
7	5908.0	-57.02	5.70	13.55	vertical	-51.32	-13.00	38.32	270
8	6752.0	-54.41	6.30	13.75	vertical	-49.11	-13.00	36.11	135
9	7596.0	-54.22	6.80	13.85	vertical	-49.32	-13.00	36.32	180
10	8440.0	-55.01	6.90	14.25	vertical	-49.81	-13.00	36.81	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is vertical position.									

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	R&S	CMW500	150415	2017-05-14	2018-05-13
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	2017-05-14	2018-05-13
Spectrum Analyzer	Agilent	N9010A	MY47191109	2017-05-20	2018-05-19
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2017-05-20	2018-05-19
Signal Analyzer	R&S	FSV30	100815	2016-12-16	2017-12-15
EMI Test Receiver	R&S	ESCI	100948	2017-05-20	2018-05-19
Signal generator	R&S	SMB 100A	102594	2017-05-14	2018-05-13
Signal generator	R&S	SMR27	100365	2017-05-14	2018-05-13
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2014-12-06	2017-12-05
Horn Antenna	R&S	HF907	100126	2014-12-06	2017-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102644	2015-01-30	2018-01-29
Climatic Chamber	Re Ce	PT-30B	20101891	2015-07-18	2018-07-17
RF Cable	Agilent	SMA 15cm	0001	2017-08-04	2018-02-03
Preampflier	R&S	SCU18	102327	2017-06-18	2018-06-17

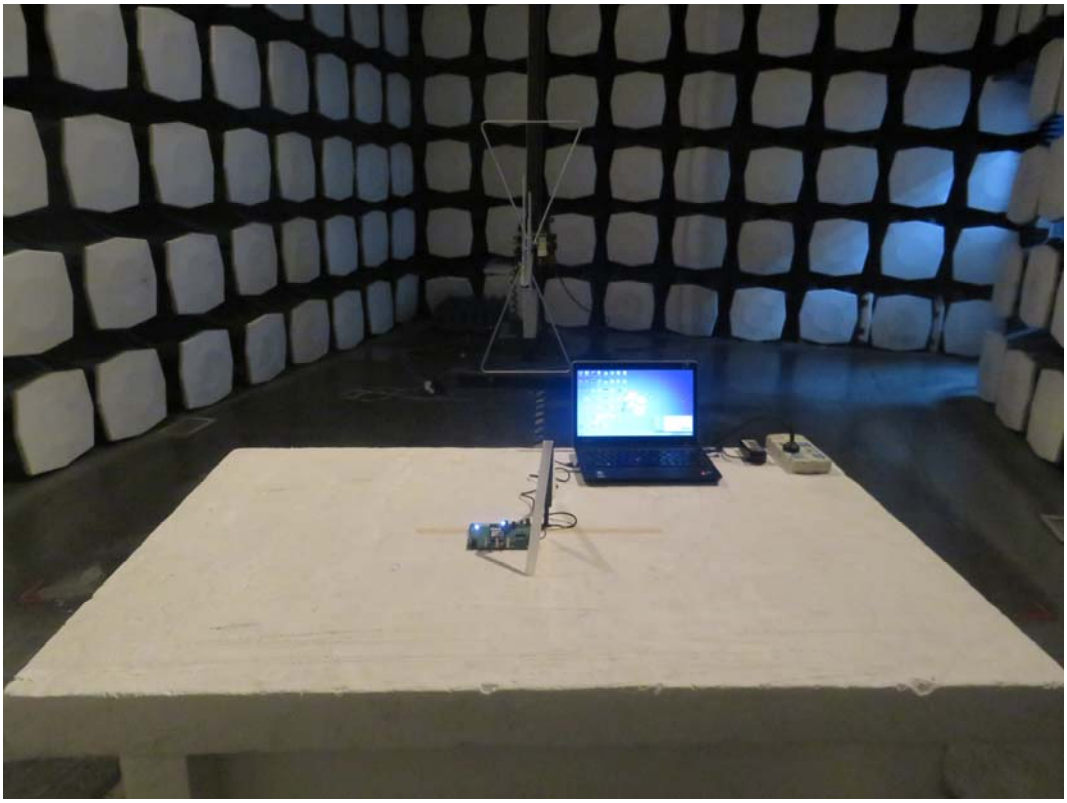
*******END OF REPORT *******

ANNEX A: EUT Appearance and Test Setup

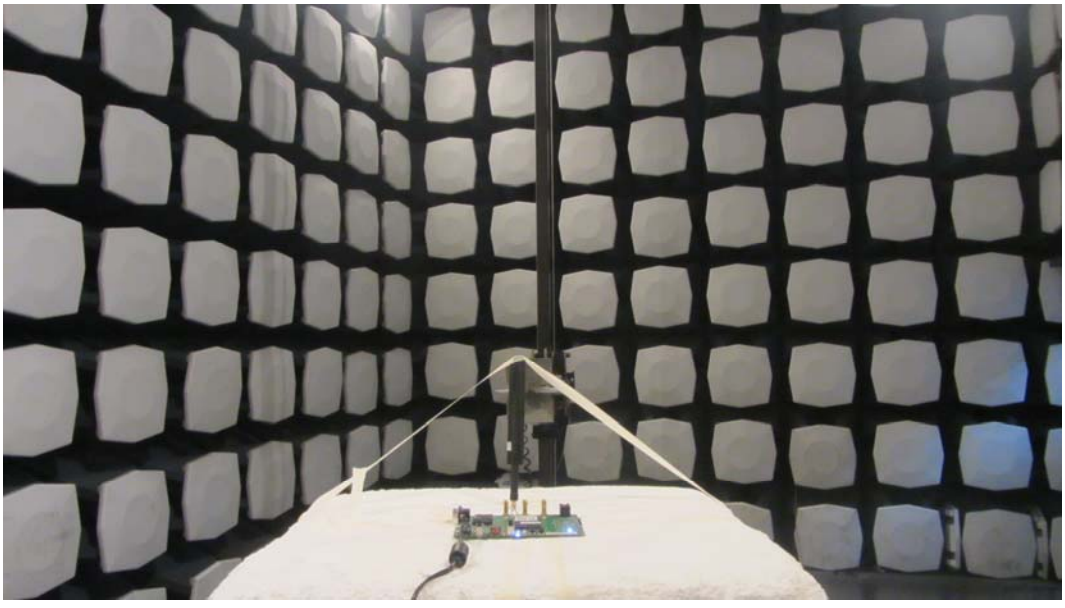
A.1 EUT Appearance

a: EUT

A.2 Test Setup



30MHz ~ 1GHz



Above 1GHz

Picture 2: Radiated Spurious Emissions Test setup