RF TEST REPORT

Applicant	TP-LINK TECHNOLOGIES CO., LTD.
FCC ID	TE7C5MAXV1
Brand	TP-LINK
Product	NEFFOS C5 MAX FDD-LTE SMART PHONE
Model	TP702C
Report No.	RXA1602-0019RF02R1
Issue Date	May 18, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2(2015)**/ **FCC CFR 47 Part 24H(2015)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Lingling Kang

Reviewed by: Lingling Kang/ Manager

Kai Xu

Approved by: Kai Xu/ Director

TA Technology (Shanghai) Co., Ltd.

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Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	24.232	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	24.238	PASS
5	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 24.235	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 24.238	PASS
8	Radiates Spurious Emission	2.1053 / 24.238	PASS
Date of Testing: February 15, 2016~ March 23, 2016			

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 CNAS or 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 (recognition number is 428261)

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-766)

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
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E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

Client Information

Applicant	TP-LINK TECHNOLOGIES CO., LTD.
Applicant address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China
Manufacturer	TP-LINK TECHNOLOGIES CO., LTD.
Manufacturer address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China

General information

Model:	TP702C		
Product IMEI:	SIM 1: 868983020043343 SIM 2: 868983020044358		
Hardware Version:	AL1520_MB_PCB_V2.0		
Software Version:	H10S100D03B20160128R1004		
Power Supply:	Battery/AC adapter		
Antenna Type:	Internal Antenna		
Test Mode(s):	GSM1900; WCDMA Band II; LTE Band 2;		
Test Modulation:	(GSM)GMSK,8PSK; (WCDMA)QPSK; (LTE)QPSK,16QAM		
GPRS/EGPRS Multislot Class:	12		
HSDPA UE Category:	14		
HSUPA UE Category:	6		
DC-HSDPA UE Category:	24		
Maximum E.I.R.P.	GSM 1900: 31.36dBm WCDMA Band II: 22.28dBm LTE Band 2: 22.85dBm		
Rated Power Supply Voltage:	3.8V		
Extreme Voltage:	Minimum: 3.6V Maximum: 4.35V		
Extreme Temperature:	Lowest: -10°C Highest: +55°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
EUT Accessory			
Battery	Manufacturer: DongGuan Amperex Technology Co., Ltd Model: NBL-44A3045 Power Rating: DC 3.8V, 3045mAh, Li-ion		
Note: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.			

3. Applied Standards

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

FCC CFR47 Part 2 (2015)

FCC CFR 47 Part 24H (2015)

ANSI/TIA-603-D (2010)

KDB 971168 D01 Power Meas License Digital Systems v02r02

4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test re spectively, and however, only the worst case (SIM 1) will be recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y 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 and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for GSM 1900 and WCDMA Band II:

	Test items	Modes/Modulation	
		GSM 1900	WCDMA Band V
Conducted Test cases	RF power output	GSM/ GPRS/ EGPRS	RMC/ HSDPA/ HSUPA/ DC-HSDPA
	Occupied Bandwidth	GSM/ GPRS/ EGPRS	RMC
	Band Edge Compliance	GSM/ GPRS/ EGPRS	RMC
	Peak-to-Average Power Ratio	GSM/ GPRS/ EGPRS	RMC
	Frequency Stability	GSM/ GPRS/ EGPRS	RMC
	Spurious Emissions at Antenna Terminals	GSM	RMC
Radiated Test cases	Effective Isotropic Radiated power	GSM/ GPRS/ EGPRS	RMC
	Radiates Spurious Emission	GSM	RMC

Test modes are chosen to be reported as the worst case configuration below for LTE Band 2:

Test items	Bandwidth (MHz)						Modulation		RB			Test Channel		
	1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	O	O	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	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	O	-	-	O	-	O	-
Conducted Spurious Emissions	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	O	O	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

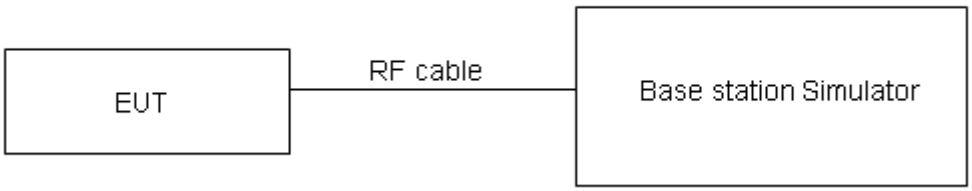
Ambient condition

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

GSM 1900		Conducted Power(dBm)		
		Channel 512	Channel 661	Channel 810
		1850.2(MHz)	1880(MHz)	1909.8(MHz)
GSM	Results	**29.01**	**28.92**	**29.28**
GPRS (GMSK)	1TXslot	**29.01**	**28.91**	**29.27**
	2TXslots	28.28	28.18	28.63
	3TXslots	26.55	26.43	26.95
	4TXslots	25.47	25.34	25.88
EGPRS (8PSK)	1TXslot	**25.05**	**25.00**	**25.02**
	2TXslots	23.90	23.95	23.89
	3TXslots	22.06	22.41	21.83
	4TXslots	20.12	20.84	20.96
Note: 1) The maximum RF Output Power numbers are marks in bold. 2) The following testing in GPRS/EGPRS is set to 1TXslot based on the maximum RF Output Power.				

WCDMA Band II		Conducted Power(dBm)		
		Channel 9262	Channel 9400	Channel 9538
		1852.4(MHz)	1880(MHz)	1907.6(MHz)
RMC		**22.41**	**22.78**	**23.01**
HSDPA	Sub - Test 1	22.33	22.70	22.93
	Sub - Test 2	22.32	22.69	22.92
	Sub - Test 3	21.81	22.18	22.41
	Sub - Test 4	21.80	22.17	22.40
HSUPA	Sub - Test 1	22.29	22.66	22.89
	Sub - Test 2	20.28	20.65	20.88
	Sub - Test 3	21.26	21.64	21.87
	Sub - Test 4	20.25	20.63	20.86
	Sub - Test 5	22.24	22.62	22.85
DC-HSDPA	Sub - Test 1	22.25	22.64	22.85
	Sub - Test 2	22.24	22.63	22.84
	Sub - Test 3	21.82	22.12	22.35
	Sub - Test 4	21.81	22.11	22.34
Note:1) The maximum RF Output Power numbers are marks in bold. 2) The following testing in RMC based on the maximum RF Output Power.				

LTE FDD Band 2				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18607/1850.7	18900/1880	19193/1909.3
1.4MHz	QPSK	1	0	22.93	23.26	23.54
		1	2	23.09	23.48	23.57
		1	5	23.21	23.50	23.51
		3	0	22.54	22.84	23.12
		3	2	22.44	22.87	23.06
		3	3	22.66	22.95	23.03
		6	0	22.07	22.35	22.52
	16QAM	1	0	21.88	22.41	22.57
		1	2	22.08	22.49	22.52
		1	5	22.21	22.56	22.43
		3	0	21.98	21.38	22.51
		3	2	21.98	22.35	22.45
		3	3	22.06	22.29	22.42
		6	0	21.98	22.23	22.32
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18615/1851.5	18900/1880	19185/1908.5
3MHz	QPSK	1	0	22.86	23.19	23.47
		1	7	23.02	23.41	23.50
		1	14	23.14	23.43	23.44
		8	0	21.93	22.23	22.51
		8	4	21.83	22.26	22.45
		8	7	22.05	22.34	22.42
		15	0	22.00	22.28	22.45
	16QAM	1	0	21.81	22.34	22.50
		1	7	22.01	22.42	22.45
		1	14	22.14	22.49	22.36
		8	0	21.86	21.26	22.39
		8	4	21.91	22.23	22.41
		8	7	21.94	22.17	22.35
		15	0	21.91	22.16	22.25
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18625/1852.5	18900/1880	19175/1907.5
5MHz	QPSK	1	0	22.88	23.21	23.49
		1	13	23.04	23.43	23.51
		1	24	23.16	23.45	23.46
		12	0	21.95	22.25	22.53

		12	6	21.85	22.28	22.47
		12	13	22.07	22.36	22.43
		25	0	22.02	22.29	22.46
	16QAM	1	0	21.82	22.35	22.51
		1	13	22.03	22.43	22.47
		1	24	22.16	22.51	22.37
		12	0	21.88	21.28	22.40
		12	6	21.93	22.25	22.43
		12	13	21.96	22.19	22.37
		25	0	21.92	22.18	22.26
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18650/1855	18900/1880	19150/1905
10MHz	QPSK	1	0	22.89	23.22	23.50
		1	25	23.05	23.44	23.52
		1	49	23.17	23.46	23.47
		25	0	21.96	22.26	22.54
		25	13	21.86	22.29	22.48
		25	25	22.08	22.37	22.44
		50	0	22.03	22.30	22.48
	16QAM	1	0	21.84	22.36	22.53
		1	25	22.04	22.45	22.48
		1	49	22.17	22.52	22.39
		25	0	21.89	21.29	22.41
		25	13	21.94	22.26	22.44
		25	25	21.97	22.20	22.38
		50	0	21.94	22.19	22.28
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18675/1857.5	18900/1880	19125/1902.5
15MHz	QPSK	1	0	22.90	23.23	23.51
		1	38	23.06	23.45	23.54
		1	74	23.18	23.47	23.49
		36	0	21.97	22.27	22.55
		36	18	21.88	22.31	22.50
		36	39	22.10	22.38	22.46
		75	0	22.04	22.32	22.49
	16QAM	1	0	21.85	22.38	22.54
		1	38	22.05	22.46	22.49
		1	74	22.18	22.54	22.40
		36	0	21.90	21.30	22.43
		36	18	21.95	22.27	22.45

		36	39	21.99	22.21	22.39
		75	0	21.95	22.20	22.29
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18700/1860	18900/1880	19100/1900
20MHz	QPSK	1	0	22.92	23.25	23.53
		1	50	23.08	23.47	23.55
		1	99	23.20	23.49	23.50
		50	0	21.99	22.29	22.57
		50	25	21.89	22.32	22.51
		50	50	22.11	22.40	22.47
		100	0	22.06	22.33	22.50
	16QAM	1	0	21.86	22.39	22.55
		1	50	22.07	22.47	22.51
		1	99	22.20	22.55	22.41
		50	0	21.92	21.32	22.44
		50	25	21.97	22.29	22.47
		50	50	22.00	22.23	22.41
		100	0	21.96	22.22	22.30

Note:

1) The following testing in worst case based on the maximum RF Output Power.

5.2. Effective Isotropic Radiated Power

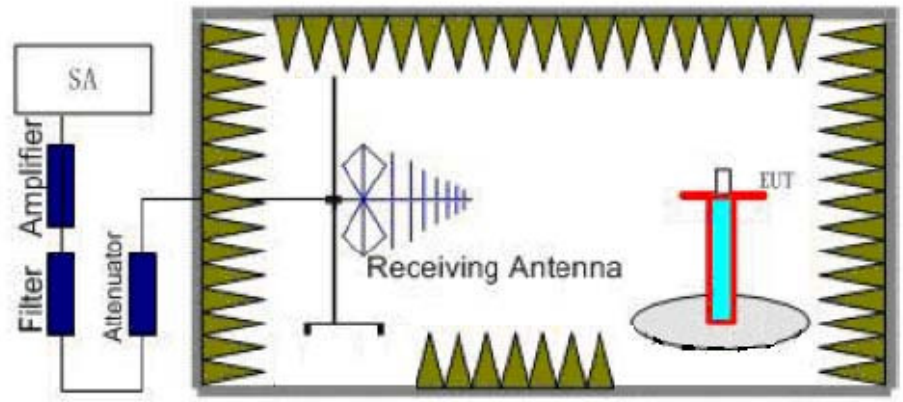
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

The measurement procedures in TIA- 603-D are used.
1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs
Ps (dBm)：Input power to substitution antenna.
Gs (dBi or dBd)：Substitution antenna Gain.
Et = Rt + AF
Es = Rs + AF
AF (dB/m)：Receive antenna factor
Rt：The highest received signal in spectrum analyzer for EUT.
Rs：The highest received signal in spectrum analyzer for substitution antenna.

Test Setup



Limits

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts EIRP. Peak power" and Rule Part 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage".

Limit (EIRP)	≤ 2 W (33 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	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
GSM 1900	H	1850.2	-32.31	-55.38	0	1.92	24.99	33	Pass
	H	1880	-31.98	-55.84	0	1.94	25.80	33	Pass
	H	1909.8	-31.67	-55.78	0	1.90	26.01	33	Pass
	V	1850.2	-30.25	-56.18	0	1.92	27.85	33	Pass
	V	1880	-29.40	-56.61	0	1.94	29.15	33	Pass
	V	1909.8	-28.52	-56.64	0	1.90	30.02	33	Pass
GPRS 1900	H	1850.2	-31.42	-55.38	0	1.92	25.88	33	Pass
	H	1880	-31.37	-55.84	0	1.94	26.41	33	Pass
	H	1909.8	-29.43	-55.78	0	1.90	28.25	33	Pass
	V	1850.2	-29.79	-56.18	0	1.92	28.31	33	Pass
	V	1880	-29.18	-56.61	0	1.94	29.37	33	Pass
	V	1909.8	-27.18	-56.64	0	1.90	31.36	33	Pass
EGPRS 1900	H	1850.2	-35.65	-55.38	0	1.92	21.65	33	Pass
	H	1880	-35.21	-55.84	0	1.94	22.57	33	Pass
	H	1909.8	-34.96	-55.78	0	1.90	22.72	33	Pass
	V	1850.2	-33.70	-56.18	0	1.92	24.40	33	Pass
	V	1880	-34.20	-56.61	0	1.94	24.35	33	Pass
	V	1909.8	-33.94	-56.64	0	1.90	24.60	33	Pass
WCDMA Band II	H	1852.4	-39.03	-55.22	0	1.91	18.10	33	Pass
	H	1880	-39.47	-55.84	0	1.94	18.31	33	Pass
	H	1907.6	-38.82	-55.78	0	1.92	18.88	33	Pass
	V	1852.4	-37.12	-56.19	0	1.91	20.98	33	Pass
	V	1880	-40.24	-56.61	0	1.94	21.64	33	Pass
	V	1907.6	-37.05	-56.77	0	1.92	22.28	33	Pass

LTE Band 2									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
1.4 MHz (QPSK)	H	1850.7	-36.47	-54.89	0.00	1.90	20.32	33	Pass
	H	1880	-40.18	-56.66	0.00	1.92	18.40	33	Pass
	H	1909.3	-41.72	-58.09	0.00	1.91	18.28	33	Pass
	V	1850.7	-34.49	-55.05	0.00	1.90	22.46	33	Pass
	V	1880	-36.54	-56.41	0.00	1.92	21.79	33	Pass
	V	1909.3	-37.05	-57.85	0.00	1.91	22.71	33	Pass
1.4 MHz (16QAM)	H	1850.7	-37.48	-54.89	0.00	1.90	19.31	33	Pass
	H	1880	-41.30	-56.66	0.00	1.92	17.28	33	Pass
	H	1909.3	-42.83	-58.09	0.00	1.91	17.17	33	Pass
	V	1850.7	-35.48	-55.05	0.00	1.90	21.47	33	Pass
	V	1880	-37.56	-56.41	0.00	1.92	20.77	33	Pass
	V	1909.3	-38.13	-57.85	0.00	1.91	21.63	33	Pass
3 MHz (QPSK)	H	1851.5	-38.14	-54.93	0.00	1.91	18.70	33	Pass
	H	1880	-40.08	-56.66	0.00	1.94	18.52	33	Pass
	H	1908.5	-41.55	-58.08	0.00	1.91	18.44	33	Pass
	V	1851.5	-36.38	-55.04	0.00	1.91	20.57	33	Pass
	V	1880	-36.65	-56.41	0.00	1.94	21.70	33	Pass
	V	1908.5	-36.95	-57.86	0.00	1.91	22.82	33	Pass
3 MHz (16QAM)	H	1851.5	-38.99	-54.93	0.00	1.91	17.85	33	Pass
	H	1880	-41.03	-56.66	0.00	1.94	17.57	33	Pass
	H	1908.5	-42.43	-58.08	0.00	1.91	17.56	33	Pass
	V	1851.5	-37.40	-55.04	0.00	1.91	19.55	33	Pass
	V	1880	-37.77	-56.41	0.00	1.94	20.58	33	Pass
	V	1908.5	-38.03	-57.86	0.00	1.91	21.74	33	Pass
5 MHz (QPSK)	H	1852.5	-38.81	-54.98	0.00	1.92	18.09	33	Pass
	H	1880	-40.36	-56.66	0.00	1.94	18.24	33	Pass
	H	1907.5	-40.88	-58.05	0.00	1.90	19.07	33	Pass
	V	1852.5	-36.88	-55.14	0.00	1.92	20.18	33	Pass
	V	1880	-38.26	-56.41	0.00	1.94	20.09	33	Pass
	V	1907.5	-37.02	-57.97	0.00	1.90	22.85	33	Pass
5 MHz (16QAM)	H	1852.5	-39.66	-54.98	0.00	1.92	17.24	33	Pass
	H	1880	-41.11	-56.66	0.00	1.94	17.49	33	Pass
	H	1907.5	-41.69	-58.05	0.00	1.90	18.26	33	Pass
	V	1852.5	-37.80	-55.14	0.00	1.92	19.26	33	Pass
	V	1880	-39.27	-56.41	0.00	1.94	19.08	33	Pass
	V	1907.5	-38.07	-57.97	0.00	1.90	21.80	33	Pass
10 MHz (QPSK)	H	1855	-38.14	-55.09	0.00	1.91	18.86	33	Pass
	H	1880	-40.47	-56.66	0.00	1.94	18.13	33	Pass
	H	1905	-41.46	-58.01	0.00	1.92	18.47	33	Pass

LTE Band 2									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
	V	1855	-36.25	-55.08	0.00	1.91	20.74	33	Pass
	V	1880	-37.08	-56.41	0.00	1.94	21.27	33	Pass
	V	1905	-37.28	-57.81	0.00	1.92	22.45	33	Pass
	H	1855	-38.96	-55.09	0.00	1.91	18.04	33	Pass
	H	1880	-41.43	-56.66	0.00	1.94	17.17	33	Pass
10 MHz	H	1905	-42.23	-58.01	0.00	1.92	17.70	33	Pass
(16QAM)	V	1855	-37.36	-55.08	0.00	1.91	19.63	33	Pass
	V	1880	-38.08	-56.41	0.00	1.94	20.27	33	Pass
	V	1905	-38.35	-57.81	0.00	1.92	21.38	33	Pass
	H	1857.5	-37.80	-55.23	0.00	1.93	19.36	33	Pass
	H	1880	-40.40	-56.66	0.00	1.94	18.20	33	Pass
15 MHz	H	1902.5	-40.66	-57.95	0.00	1.92	19.21	33	Pass
(QPSK)	V	1857.5	-35.66	-55.24	0.00	1.93	21.51	33	Pass
	V	1880	-37.14	-56.41	0.00	1.94	21.21	33	Pass
	V	1902.5	-37.37	-57.69	0.00	1.92	22.24	33	Pass
	H	1857.5	-38.65	-55.23	0.00	1.93	18.51	33	Pass
	H	1880	-41.42	-56.66	0.00	1.94	17.18	33	Pass
15 MHz	H	1902.5	-41.77	-57.95	0.00	1.92	18.10	33	Pass
(16QAM)	V	1857.5	-36.75	-55.24	0.00	1.93	20.42	33	Pass
	V	1880	-38.02	-56.41	0.00	1.94	20.33	33	Pass
	V	1902.5	-38.32	-57.69	0.00	1.92	21.29	33	Pass
	H	1860	-38.17	-55.35	0.00	1.93	19.11	33	Pass
	H	1880	-38.99	-56.66	0.00	1.94	19.61	33	Pass
20 MHz	H	1900	-40.68	-57.86	0.00	1.92	19.10	33	Pass
(QPSK)	V	1860	-36.05	-55.31	0.00	1.93	21.19	33	Pass
	V	1880	-36.38	-56.41	0.00	1.94	21.97	33	Pass
	V	1900	-37.82	-57.66	0.00	1.92	21.76	33	Pass
	H	1860	-38.82	-55.35	0.00	1.93	18.46	33	Pass
	H	1880	-39.84	-56.66	0.00	1.94	18.76	33	Pass
20 MHz	H	1900	-41.42	-57.86	0.00	1.92	18.36	33	Pass
(16QAM)	V	1860	-36.86	-55.31	0.00	1.93	20.38	33	Pass
	V	1880	-37.14	-56.41	0.00	1.94	21.21	33	Pass
	V	1900	-38.80	-57.66	0.00	1.92	20.78	33	Pass

5.3. Occupied Bandwidth

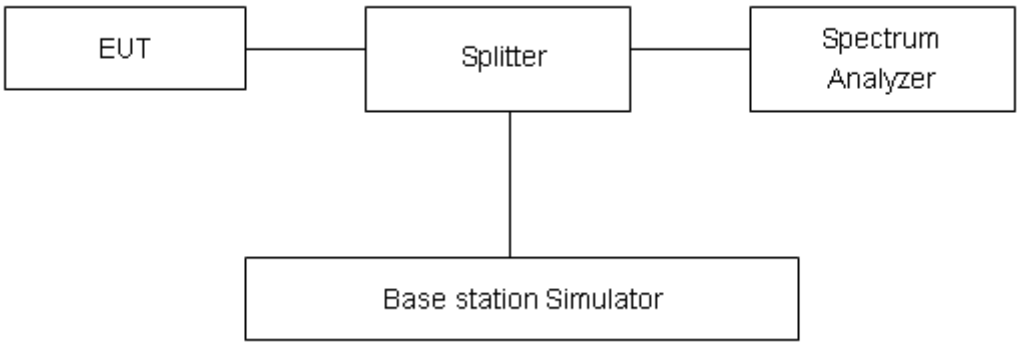
Ambient condition

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 3kHz, VBW is set to 10kHz for GSM 1900,
RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II,
RBW is set to 51kHz, VBW is set to 160kHz for LTE Band 2 (1.4MHz),
RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2 (3MHz/5MHz),
RBW is set to 300kHz,VBW is set to 1MHz for LTE Band 2 (10MHz/15MHz/20MHz).
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	Channel	Frequency (MHz)	99% Power Bandwidth (kHz)	-26dBc Bandwidth(kHz)
GSM 1900 (GSM)	512	1850.2	245.48	313.0
	661	1880.0	248.27	311.5
	810	1909.8	243.87	307.9
GPRS 1900 (GMSK)	512	1850.2	248.75	316.8
	661	1880.0	348.44	310.3
	810	1909.8	245.81	313.7
EGPRS 1900 (8-PSK)	512	1850.2	247.84	319.8
	661	1880.0	246.78	309.5
	810	1909.8	248.53	317.4

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
WCDMA Band II (RMC)	9262	1852.4	4.1967	4.834
	9400	1880	4.2152	4.885
	9538	1907.6	4.2237	4.854

LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.1296	1.315
		18900	1880.0	1.1265	1.309
		19193	1909.3	1.1289	1.317
	3	18615	1851.5	2.7406	3.021
		18900	1880	2.7508	3.054
		19185	1908.5	2.7397	3.044
	5	18625	1852.5	4.5332	5.067
		18900	1880	4.5448	5.076
		19175	1907.5	4.5112	5.068
	10	18650	1855	9.0471	10.13

		18900	1880	9.0956	10.18
		19150	1905	9.0419	10.12
	15	18675	1857.5	13.487	14.83
		18900	1880	13.563	14.94
		19125	1902.5	13.467	14.90
	20	18700	1860	17.915	19.30
		18900	1880	17.995	19.50
		19100	1900	17.904	19.53
16QAM	1.4	18607	1850.7	1.1302	1.303
		18900	1880.0	1.1193	1.305
		19193	1909.3	1.1231	1.312
	3	18615	1851.5	2.7311	3.036
		18900	1880	2.7612	3.026
		19185	1908.5	2.7298	3.053
	5	18625	1852.5	4.5272	5.079
		18900	1880	4.5306	5.067
		19175	1907.5	4.5352	5.047
	10	18650	1855	9.0593	10.08
		18900	1880	9.0913	10.12
		19150	1905	9.0372	10.10
	15	18675	1857.5	13.529	14.87
		18900	1880	13.502	14.75
		19125	1902.5	13.463	14.78
	20	18700	1860	17.931	19.64
		18900	1880	17.972	19.53
		19100	1900	17.899	19.37

GSM1900 GSM CH-Low

GSM1900 GPRS CH-Low

GSM 1900 GSM CH-Middle

GSM 1900 GPRS CH-Middle

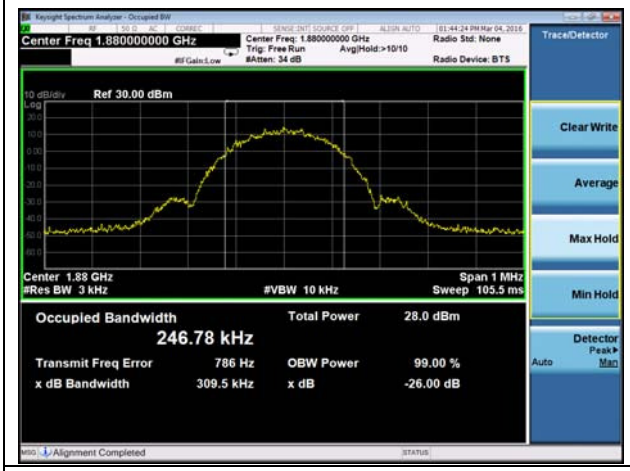
GSM 1900 GSM CH-High

GSM 1900 GPRS CH-High

GSM1900 EGPRS CH-Low

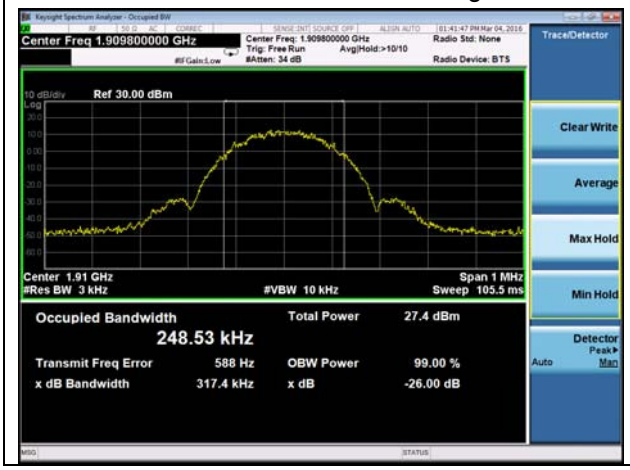
WCDMA Band II RMC CH-LOW

GSM 1900 EGPRS CH-Middle

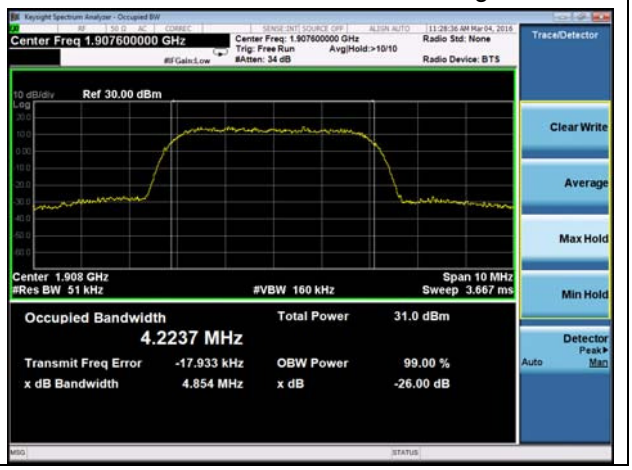


WCDMA Band II RMC CH-Middle

GSM 1900 EGPRS CH-High



WCDMA Band II RMC CH-High



LTE Band 2 1.4MHz QPSK CH-Low

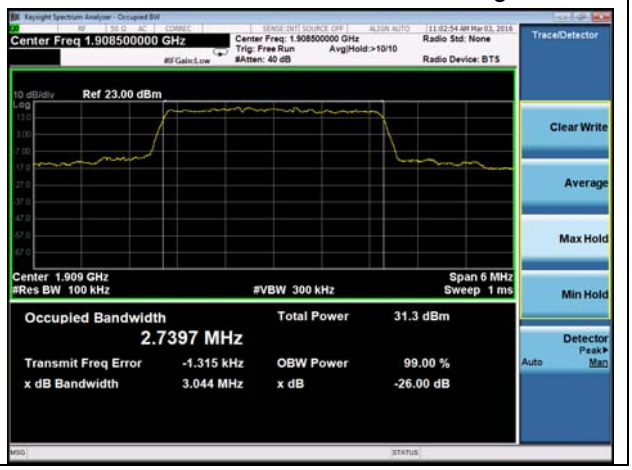
LTE Band 2 3MHz QPSK CH-Low

LTE Band 2 1.4MHz QPSK CH-Middle

LTE Band 2 3MHz QPSK CH-Middle

LTE Band 2 1.4MHz QPSK CH-High

LTE Band 2 3MHz QPSK CH-High



LTE Band 2 5MHz QPSK CH-Low

LTE Band 2 10MHz QPSK CH-Low

LTE Band 2 5MHz QPSK CH-Middle

LTE Band 2 10MHz QPSK CH-Middle

LTE Band 2 5MHz QPSK CH-High

LTE Band 2 10MHz QPSK CH-High

LTE Band 2 15MHz QPSK CH-Low

LTE Band 2 20MHz QPSK CH-Low

LTE Band 2 15MHz QPSK CH-Middle

LTE Band 2 20MHz QPSK CH-Middle

LTE Band 2 15MHz QPSK CH-High

LTE Band 2 20MHz QPSK CH-High

LTE Band 2 1.4MHz 16QAM CH-Low

LTE Band 2 3MHz 16QAM CH-Low

LTE Band 2 1.4MHz 16QAM CH-Middle

LTE Band 2 3MHz 16QAM CH-Middle

LTE Band 2 1.4MHz 16QAM CH-High

LTE Band 2 3MHz 16QAM CH-High

LTE Band 2 5MHz 16QAM CH-Low

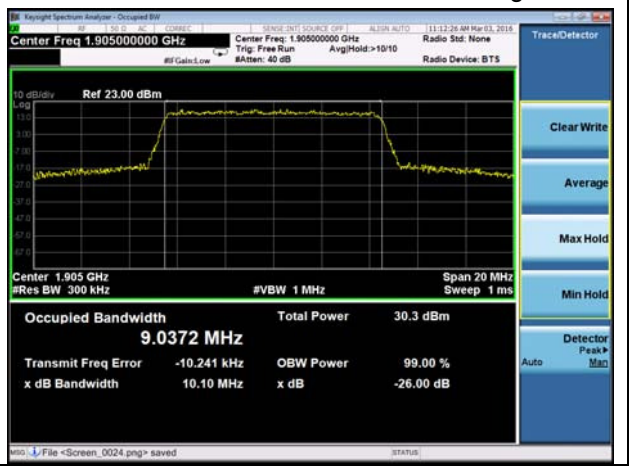
LTE Band 2 10MHz 16QAM CH-Low

LTE Band 2 5MHz 16QAM CH-Middle

LTE Band 2 10MHz 16QAM CH-Middle

LTE Band 2 5MHz 16QAM CH-High

LTE Band 2 10MHz 16QAM CH-High



LTE Band 2 15MHz 16QAM CH-Low

LTE Band 2 20MHz 16QAM CH-Low

LTE Band 2 15MHz 16QAM CH-Middle

LTE Band 2 20MHz 16QAM CH-Middle

LTE Band 2 15MHz 16QAM CH-High

LTE Band 2 20MHz 16QAM CH-High

5.4. Band Edge Compliance

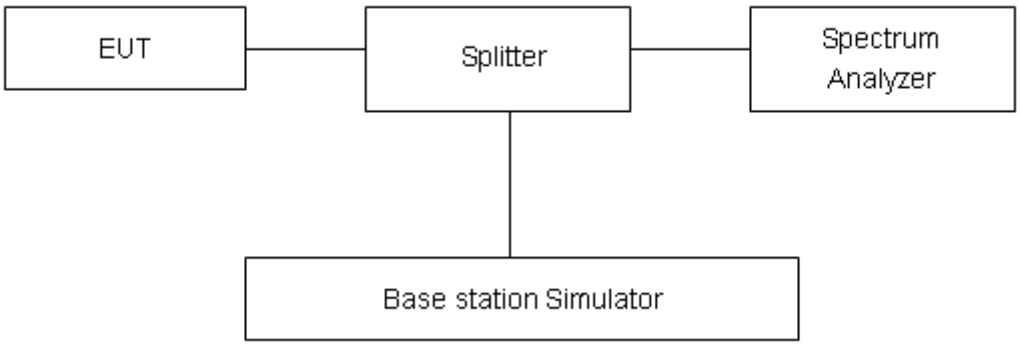
Ambient condition

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 and
RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900,
RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II,
RBW is set to 15kHz, VBW is set to 51kHz for LTE Band 2 (1.4MHz),
RBW is set to 30kHz,VBW is set to 100kHz for LTE Band 2 (3MHz),
RBW is set to 51kHz,VBW is set to 160kHz for LTE Band 2 (5MHz),
RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2 (10MHz),
RBW is set to 150kHz,VBW is set to 510kHz for LTE Band 2 (15MHz),
RBW is set to 200kHz,VBW is set to 620kHz for LTE Band 2 (20MHz).
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 24.238(a) specifies that “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 log10 (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.

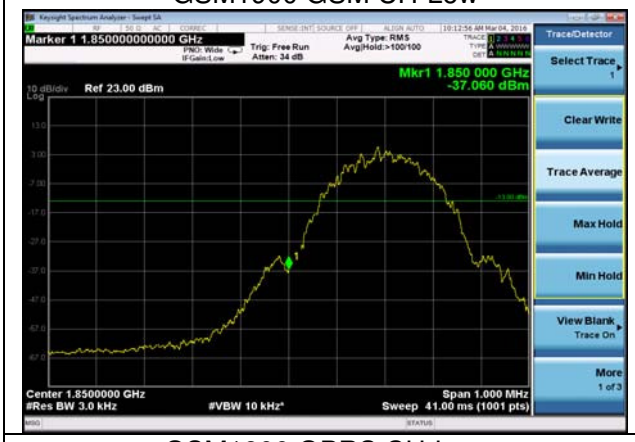
Test Result:

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
GSM 1900 (GSM)	1850.0	-37.060	-13	PASS
	1910.0	-33.632	-13	PASS
GPRS 1900 (GMSK)	1850.0	-33.105	-13	PASS
	1910.0	-29.508	-13	PASS
EGPRS 1900 (8-PSK)	1850.0	-42.192	-13	PASS
	1910.0	-41.669	-13	PASS
WCDMA Band II RMC	1850	-18.643	-13	PASS
	1910	-18.526	-13	PASS

LTE Band 2						
Modulation	Bandwidth	Channel	RB	Reference value (dBm)	Limit (dBm)	Conclusion
QPSK	1.4MHz	18607	1	-24.101	-13	PASS
			100%	-29.651	-13	PASS
		19193	1	-23.425	-13	PASS
			100%	-26.704	-13	PASS
	3MHz	18615	1	-17.047	-13	PASS
			100%	-27.178	-13	PASS
		19185	1	-15.004	-13	PASS
			100%	-27.244	-13	PASS
	5MHz	18625	1	-16.622	-13	PASS
			100%	-26.872	-13	PASS
		19175	1	-16.353	-13	PASS
			100%	-27.119	-13	PASS
	10MHz	18650	1	-20.541	-13	PASS
			100%	-31.704	-13	PASS
		19150	1	-18.480	-13	PASS
			100%	-30.285	-13	PASS
	15MHz	18675	1	-20.387	-13	PASS
			100%	-32.421	-13	PASS
		19125	1	-19.350	-13	PASS
			100%	-30.817	-13	PASS
	20MHz	18700	1	-24.241	-13	PASS
			100%	-33.696	-13	PASS

		19100	1	-19.909	-13	PASS
			100%	-29.831	-13	PASS
16QAM	1.4MHz	18607	1	-26.114	-13	PASS
			100%	-30.856	-13	PASS
		19193	1	-24.761	-13	PASS
			100%	-28.740	-13	PASS
	3MHz	18615	1	-18.379	-13	PASS
			100%	-28.480	-13	PASS
		19185	1	-17.206	-13	PASS
			100%	-27.898	-13	PASS
	5MHz	18625	1	-16.840	-13	PASS
			100%	-28.505	-13	PASS
		19175	1	-14.546	-13	PASS
			100%	-27.617	-13	PASS
	10MHz	18650	1	-21.213	-13	PASS
			100%	-32.060	-13	PASS
		19150	1	-19.039	-13	PASS
			100%	-31.359	-13	PASS
	15MHz	18675	1	-32.645	-13	PASS
			100%	-20.973	-13	PASS
		19125	1	-21.344	-13	PASS
			100%	-31.598	-13	PASS
	20MHz	18700	1	-22.469	-13	PASS
			100%	-34.539	-13	PASS
		19100	1	-20.499	-13	PASS
			100%	-31.710	-13	PASS

GSM1900 GSM CH-Low

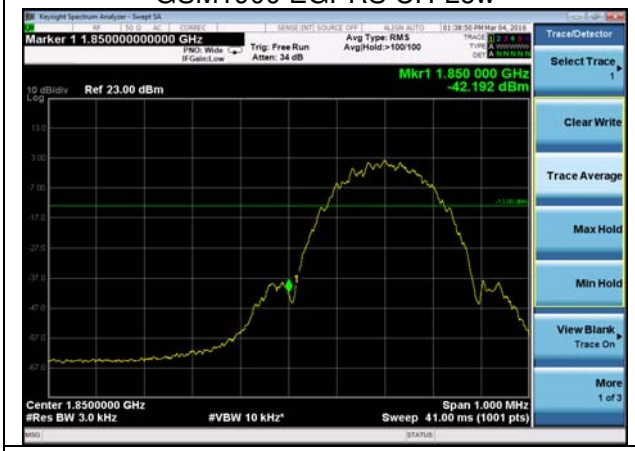


GSM 1900 GSM CH-High

GSM1900 GPRS CH-Low

GSM 1900 GPRS CH-High

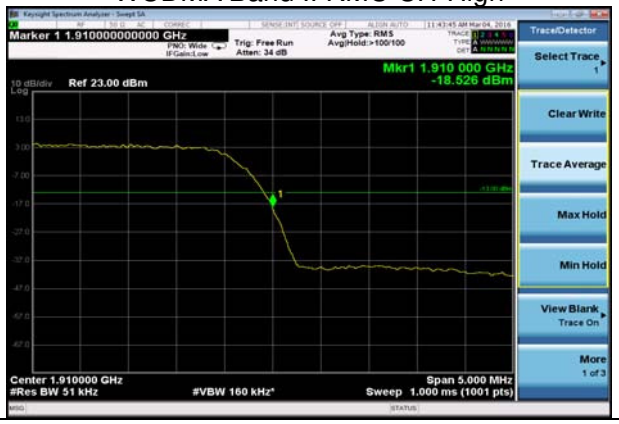
GSM1900 EGPRS CH-Low



GSM 1900 EGPRS CH-High

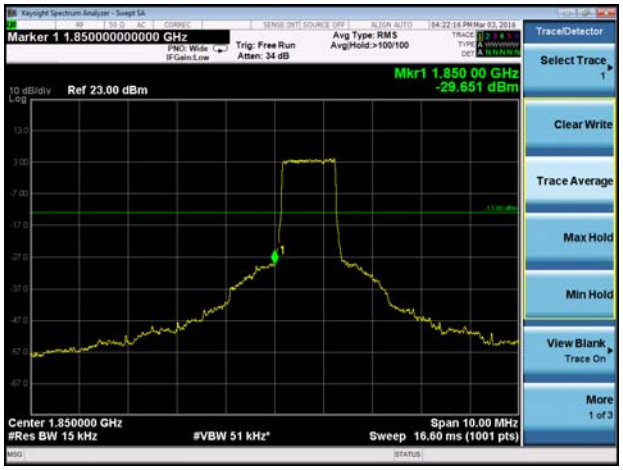
WCDMA Band II RMC CH-Low

WCDMA Band II RMC CH-High

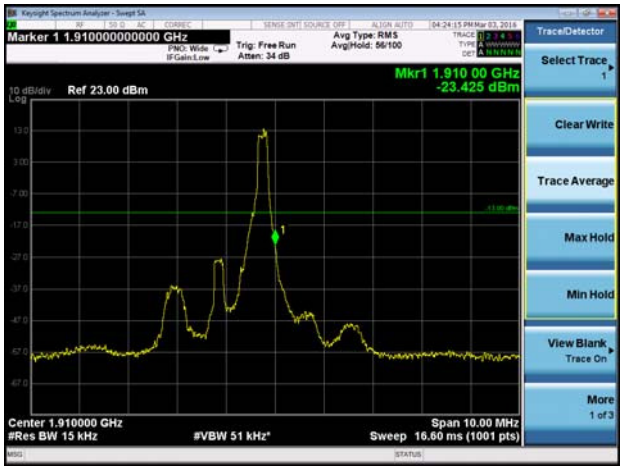


LTE Band 2 1.4MHz QPSK 1RB CH-Low

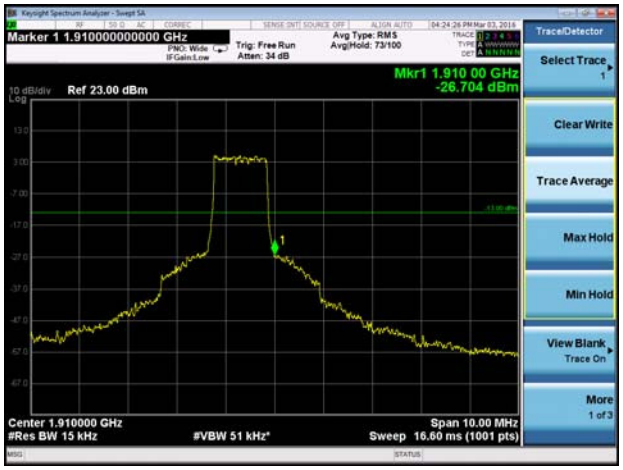
LTE Band 2 1.4MHz QPSK 100%RB CH-Low



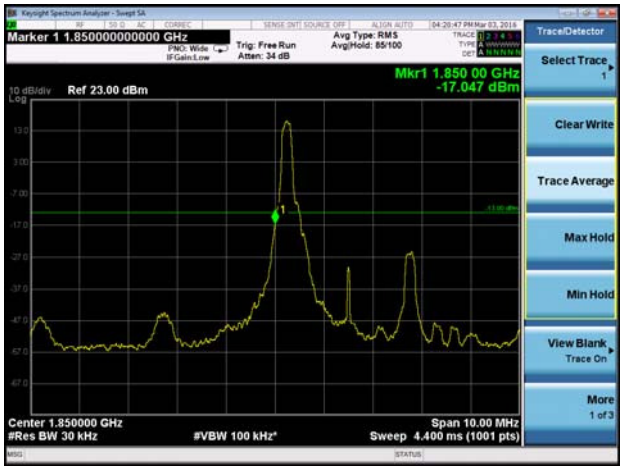
LTE Band 2 1.4MHz QPSK 1RB CH-High



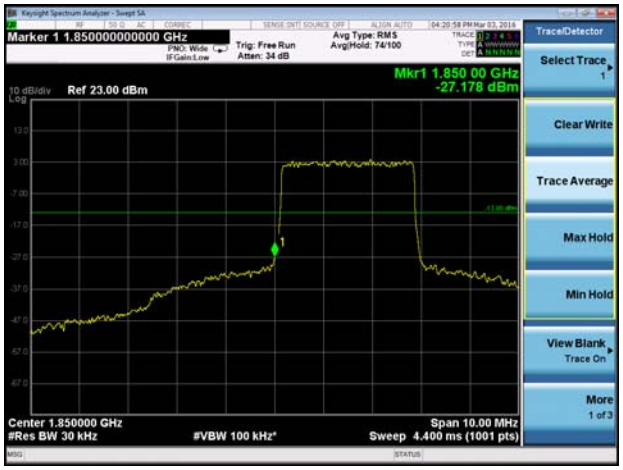
LTE Band 2 1.4MHz QPSK 100%RB CH-High



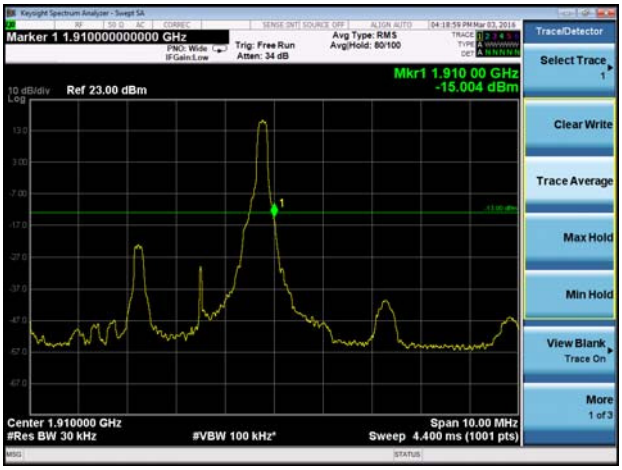
LTE Band 2 3MHz QPSK 1RB CH-Low



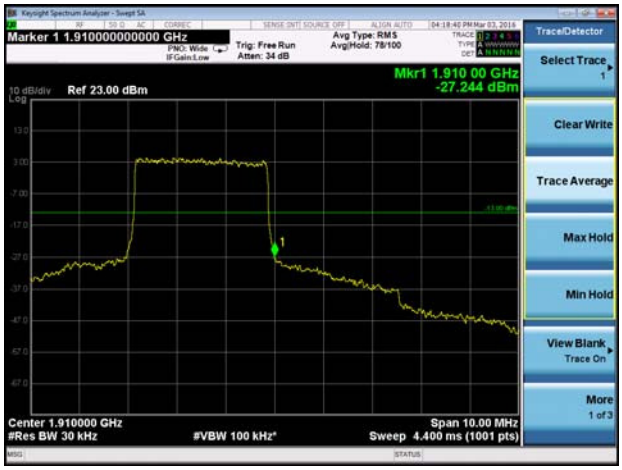
LTE Band 2 3MHz QPSK 100%RB CH-Low



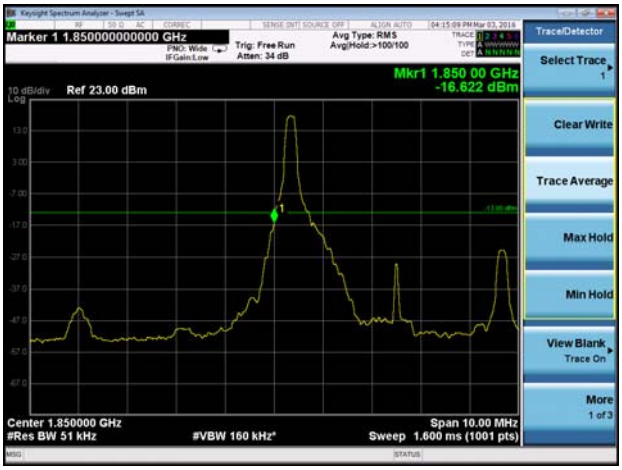
LTE Band 2 3MHz QPSK 1RB CH-High



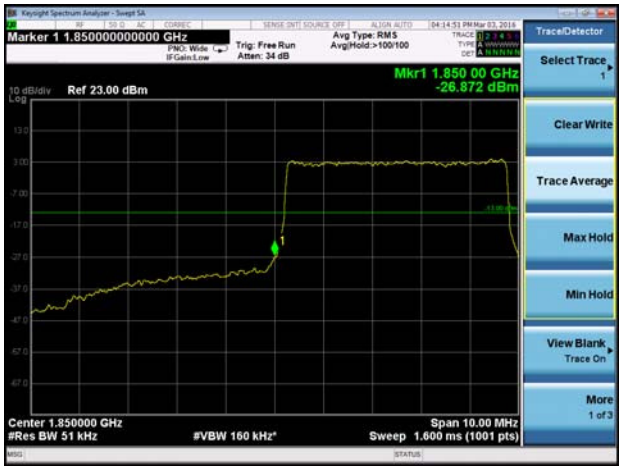
LTE Band 2 3MHz QPSK 100%RB CH-High



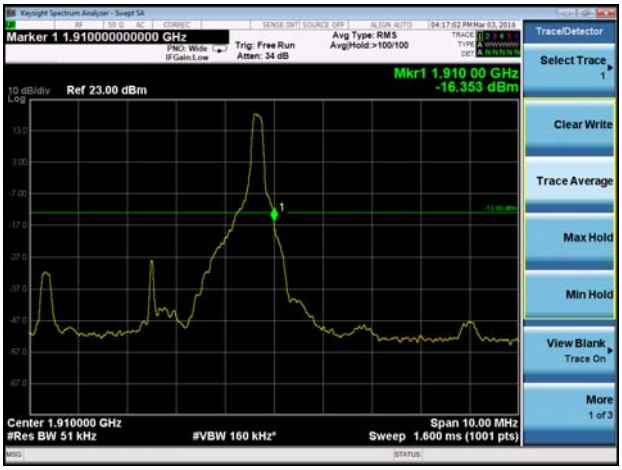
LTE Band 2 5MHz QPSK 1RB CH-Low



LTE Band 2 5MHz QPSK 100%RB CH-Low

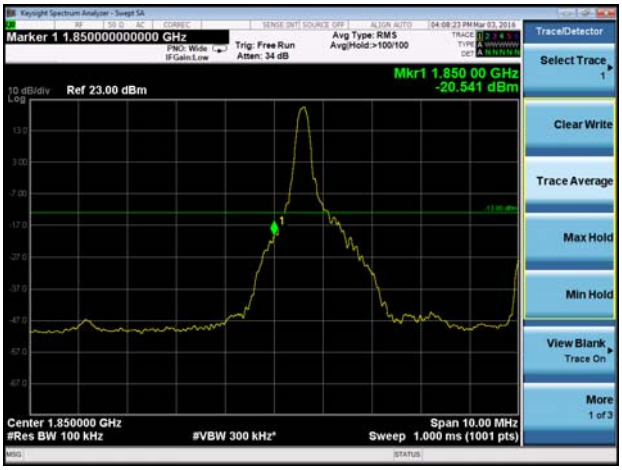


LTE Band 2 5MHz QPSK 1RB CH-High

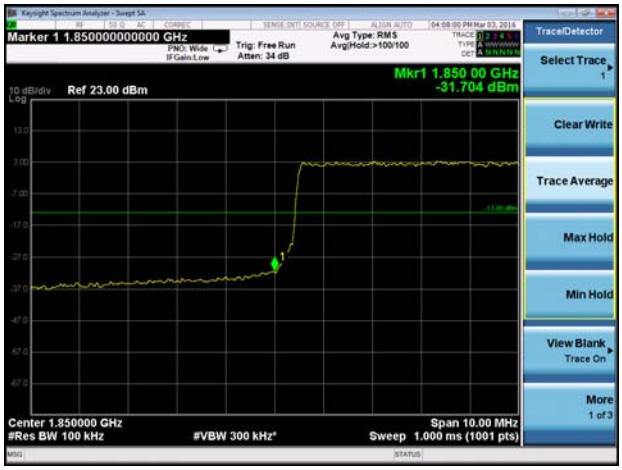


LTE Band 2 5MHz QPSK 100%RB CH-High

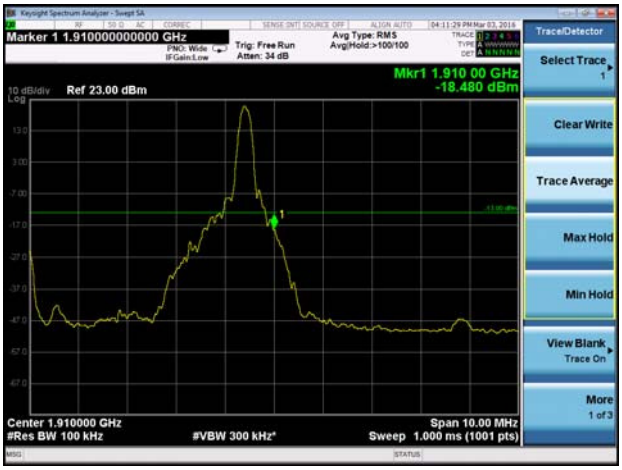
LTE Band 2 10MHz QPSK 1RB CH-Low



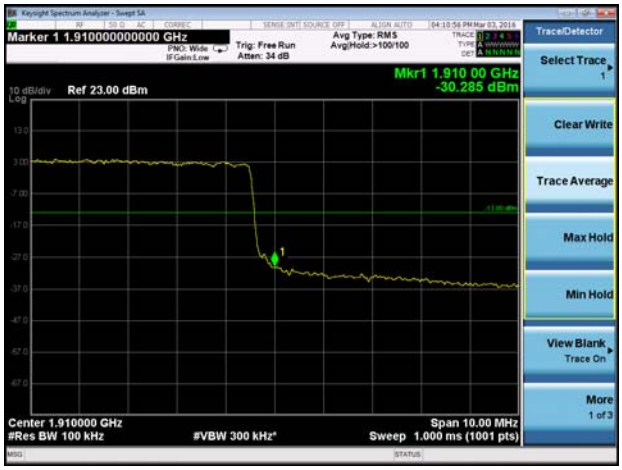
LTE Band 2 10MHz QPSK 100%RB CH-Low



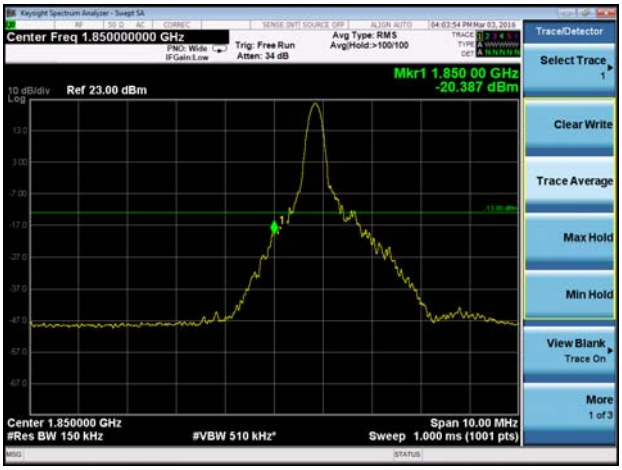
LTE Band 2 10MHz QPSK 1RB CH-High



LTE Band 2 10MHz QPSK 100%RB CH-High

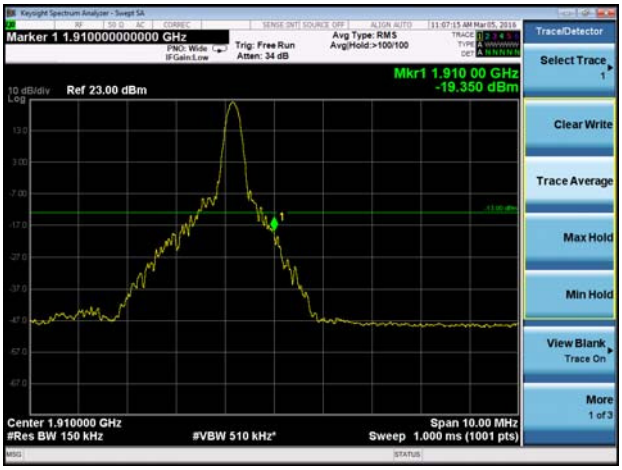


LTE Band 2 15MHz QPSK 1RB CH-Low



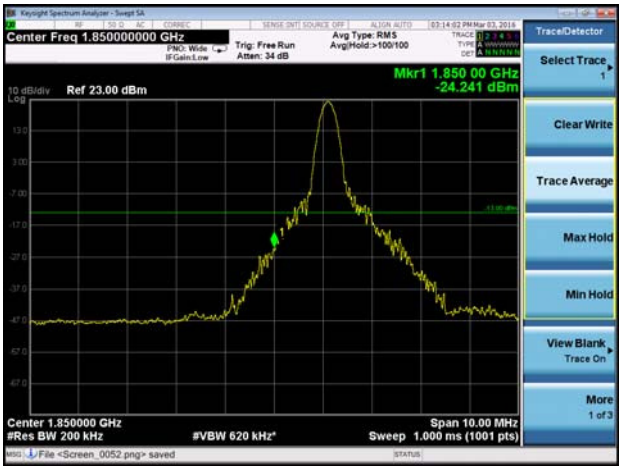
LTE Band 2 15MHz QPSK 100%RB CH-Low

LTE Band 2 15MHz QPSK 1RB CH-High

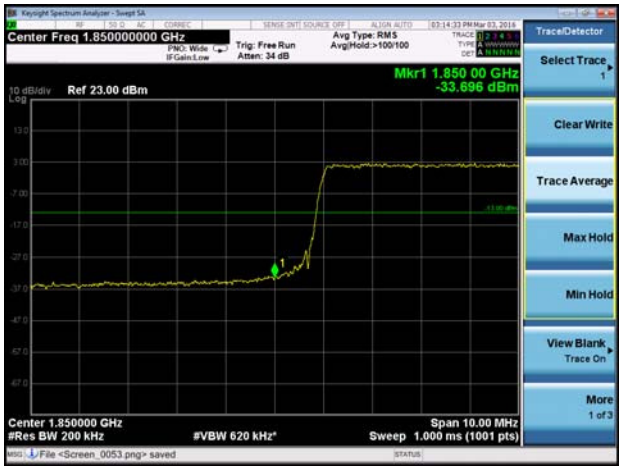


LTE Band 2 15MHz QPSK 100%RB CH-High

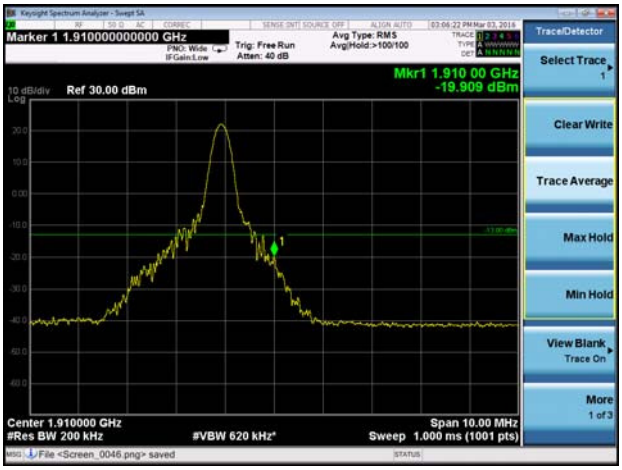
LTE Band 2 20MHz QPSK 1RB CH-Low



LTE Band 2 20MHz QPSK 100%RB CH-Low

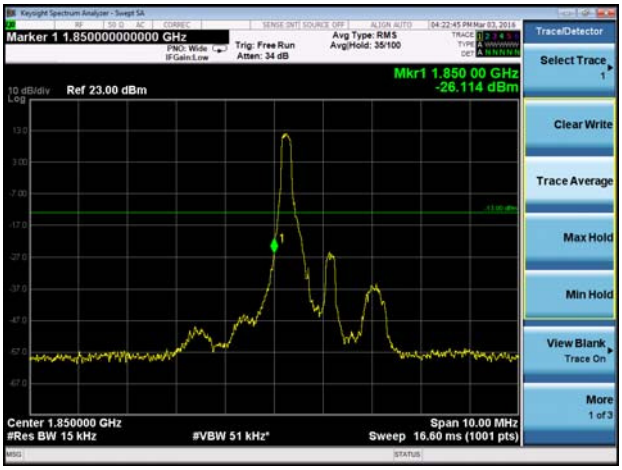


LTE Band 2 20MHz QPSK 1RB CH-High

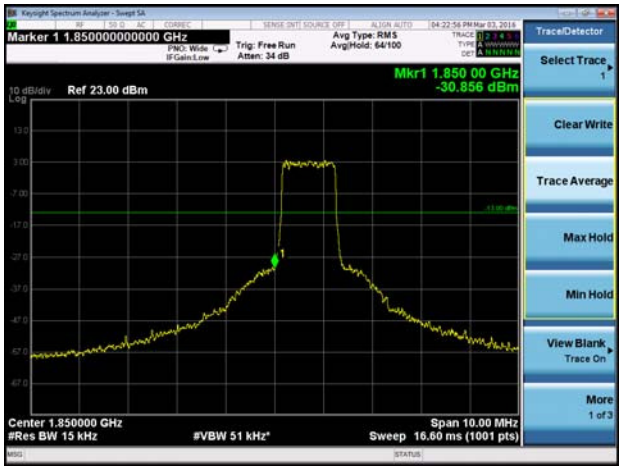


LTE Band 2 20MHz QPSK 100%RB CH-High

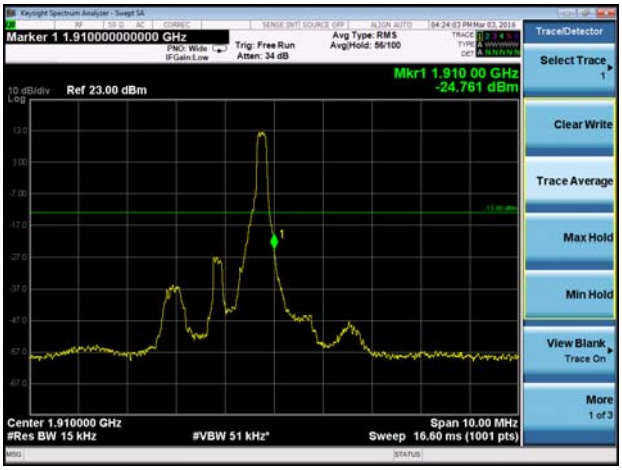
LTE Band 2 1.4MHz 16QAM 1RB CH-Low



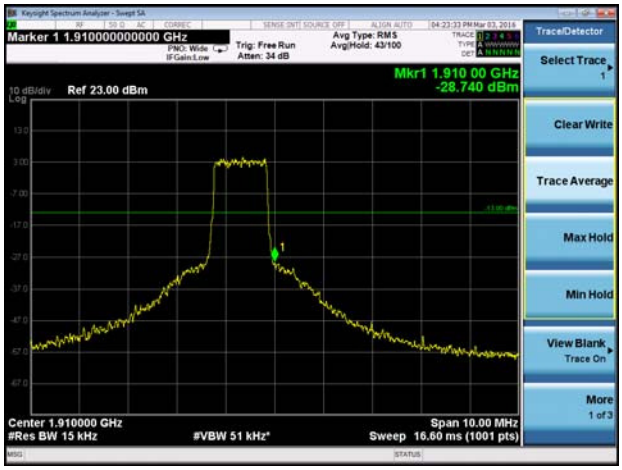
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low



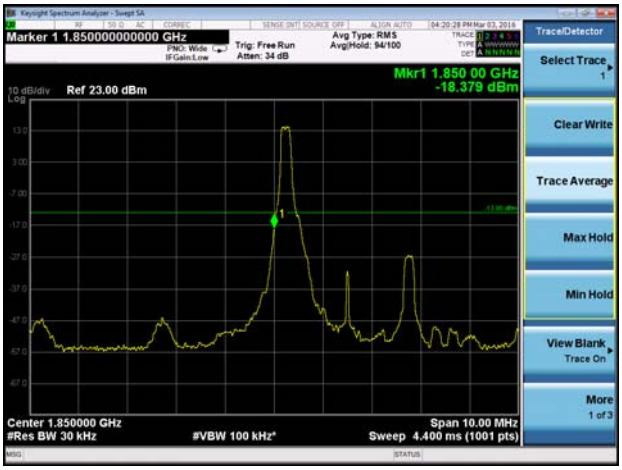
LTE Band 2 1.4MHz 16QAM 1RB CH-High



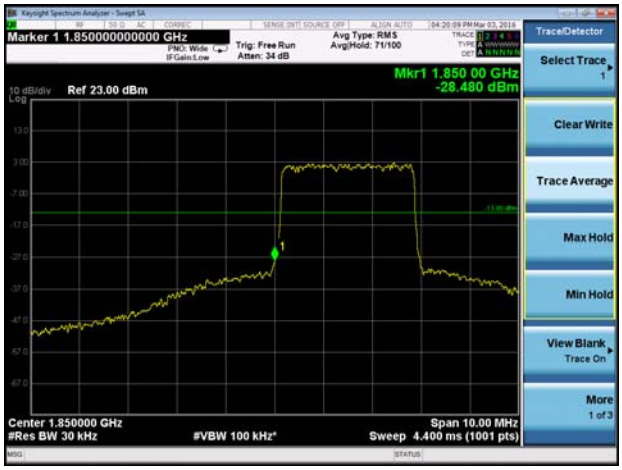
LTE Band 2 1.4MHz 16QAM 100%RB CH-High



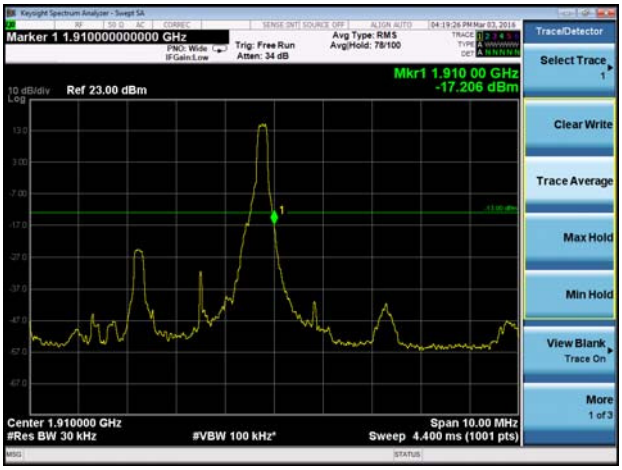
LTE Band 2 3MHz QPSK 1RB CH-Low



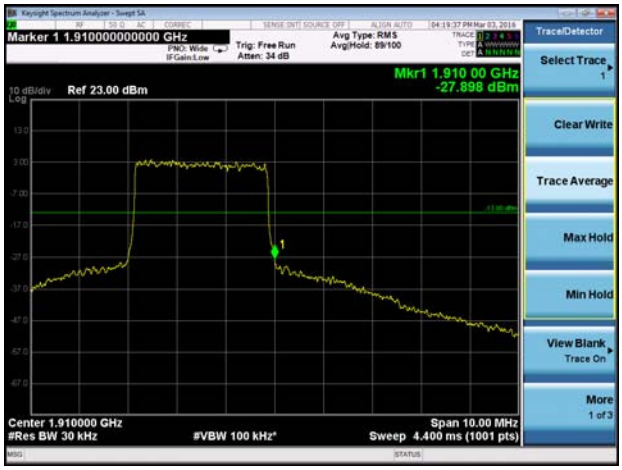
LTE Band 2 3MHz QPSK 100%RB CH-Low



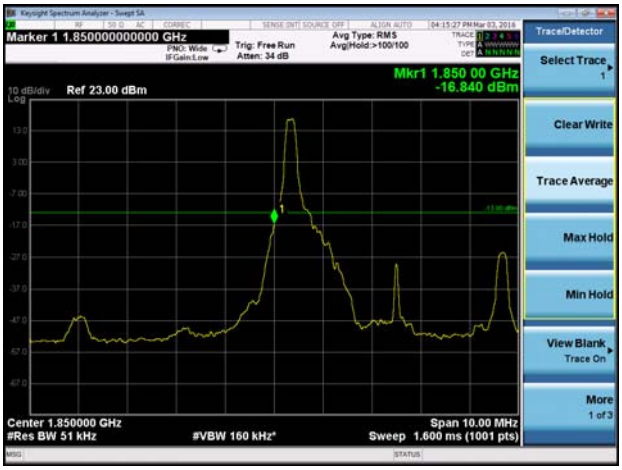
LTE Band 2 3MHz QPSK 1RB CH-High



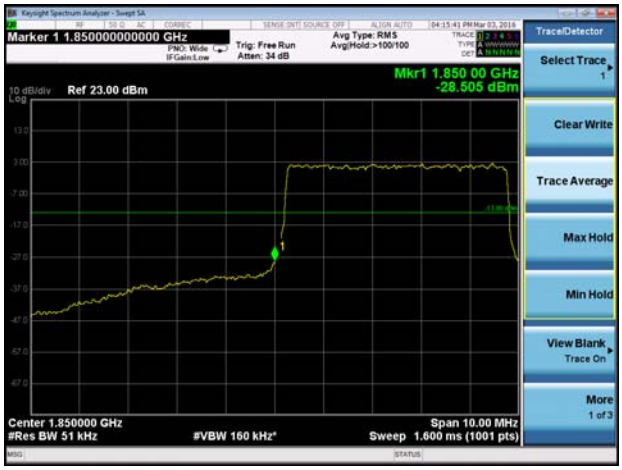
LTE Band 2 3MHz QPSK 100%RB CH-High



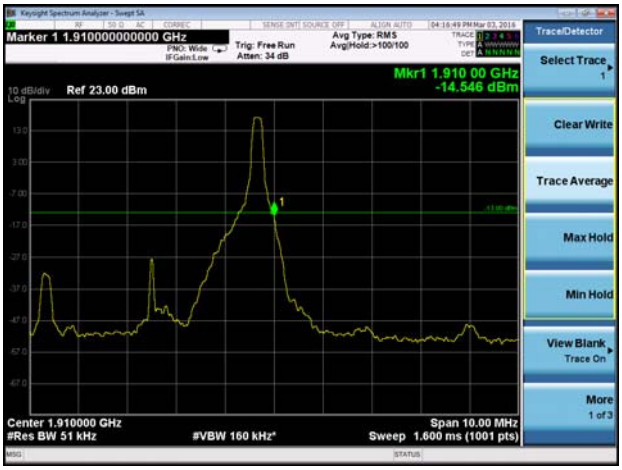
LTE Band 2 5MHz 16QAM 1RB CH-Low



LTE Band 2 5MHz 16QAM 100%RB CH-Low

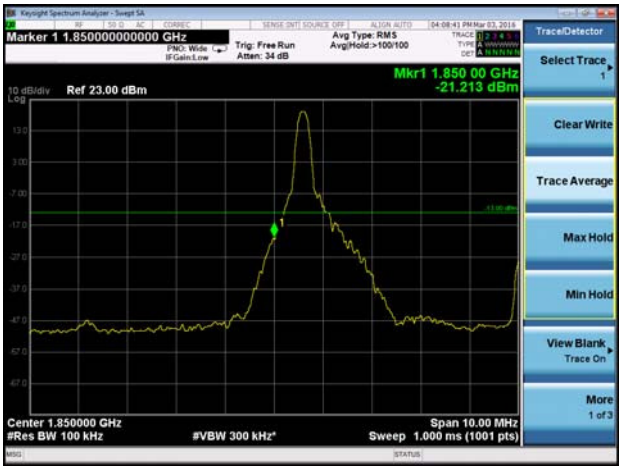


LTE Band 2 5MHz 16QAM 1RB CH-High

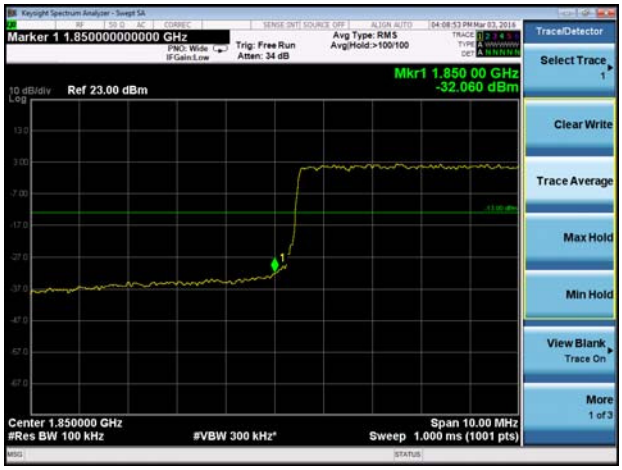


LTE Band 2 5MHz 16QAM 100%RB CH-High

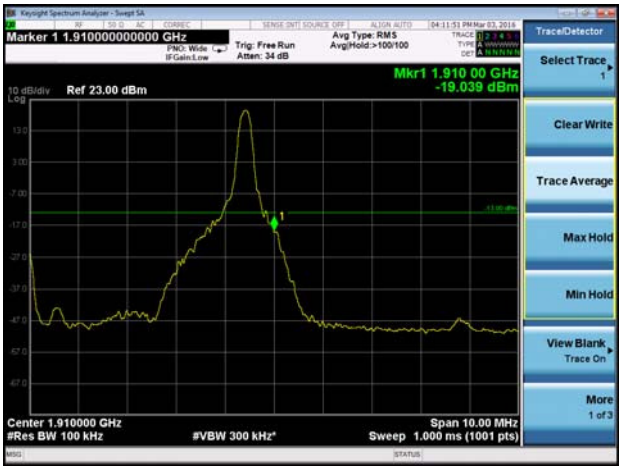
LTE Band 2 10MHz 16QAM 1RB CH-Low



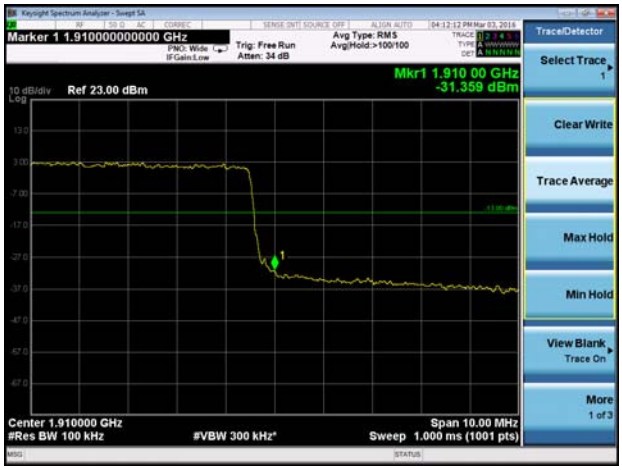
LTE Band 2 10MHz 16QAM 100%RB CH-Low



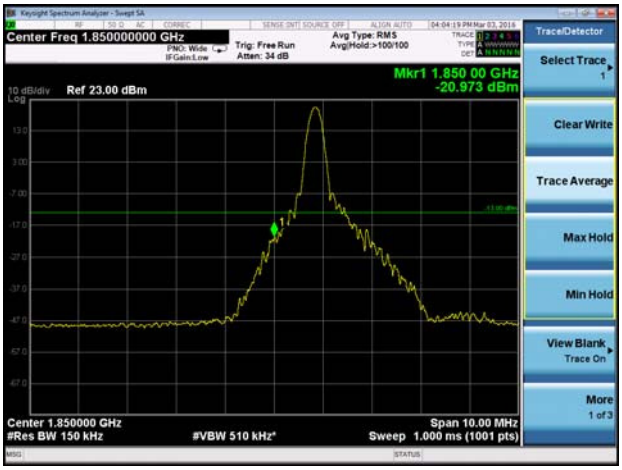
LTE Band 2 10MHz 16QAM 1RB CH-High



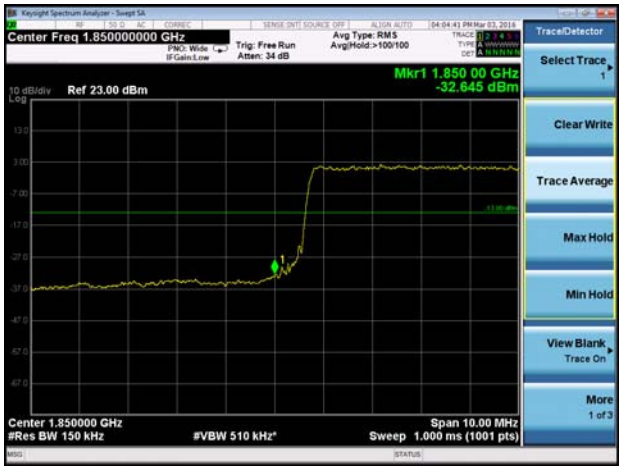
LTE Band 2 10MHz 16QAM 100%RB CH-High



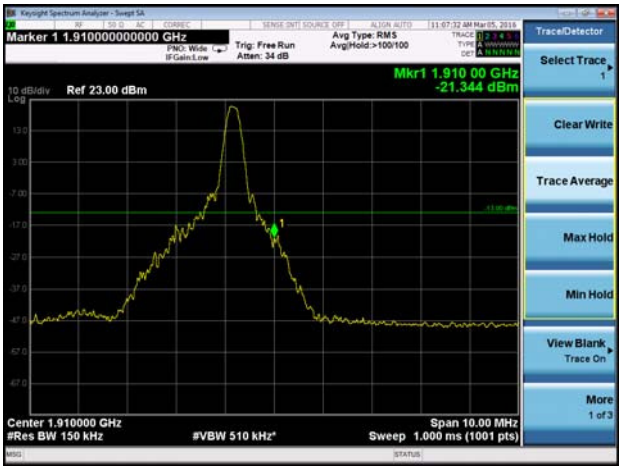
LTE Band 2 15MHz 16QAM 1RB CH-Low



LTE Band 2 15MHz 16QAM 100%RB CH-Low

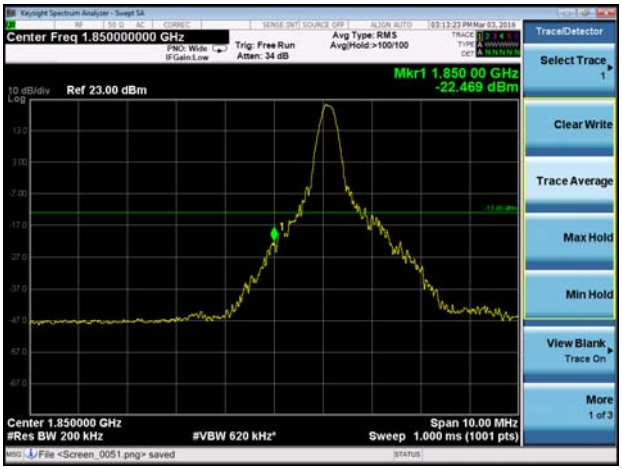


LTE Band 2 15MHz 16QAM 1RB CH-High



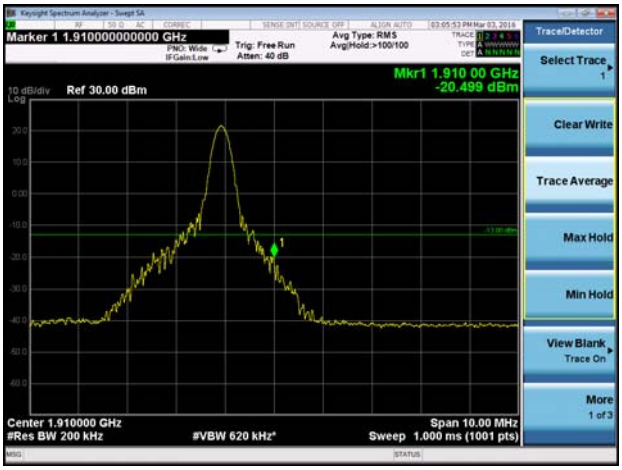
LTE Band 2 15MHz 16QAM 100%RB CH-High

LTE Band 2 20MHz 16QAM 1RB CH-Low

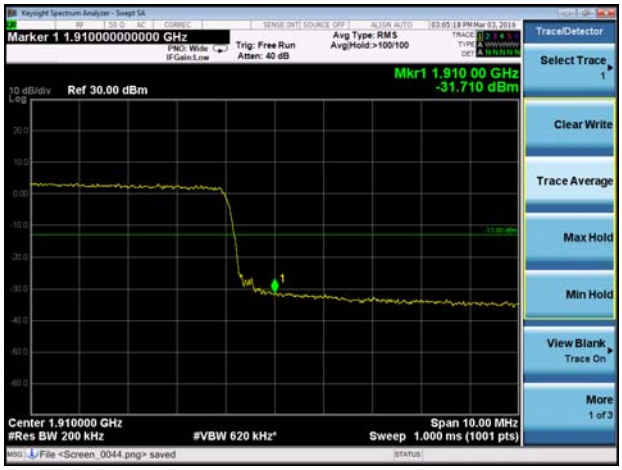


LTE Band 2 20MHz 16QAM 100%RB CH-Low

LTE Band 2 20MHz 16QAM 1RB CH-High



LTE Band 2 20MHz 16QAM 100%RB CH-High



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

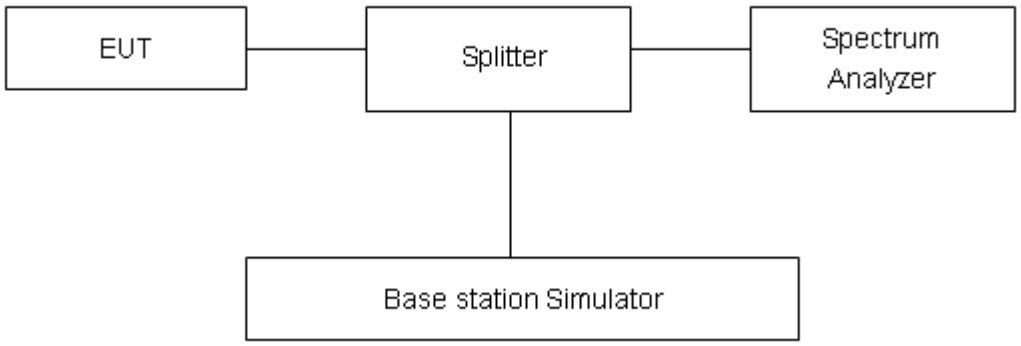
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

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

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

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	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GSM)	512	1850.2	29.13	29.01	0.120	13	PASS
	661	1880	28.95	28.92	0.030	13	PASS
	810	1909.8	29.30	29.28	0.019	13	PASS
GPRS 1900 (GMSK)	512	1850.2	25.48	25.47	0.010	13	PASS
	661	1880	25.37	25.34	0.029	13	PASS
	810	1909.8	25.89	25.88	0.010	13	PASS
EGPRS 1900 (8-PSK)	512	1850.2	20.15	20.12	0.029	13	PASS
	661	1880	20.91	20.84	0.070	13	PASS
	810	1909.8	20.97	20.96	0.009	13	PASS
WCDMA Band II (RMC)	9262	1852.4	25.24	22.41	2.830	13	PASS
	9400	1880	26.45	22.78	3.67	13	PASS
	9538	1907.6	25.7	23.01	2.69	13	PASS

LTE Band 2		Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit(dB)	Conclusion
Modulation	Bandwidth							
1.4MHz	QPSK	18607	1850.7	22.90	22.07	0.83	13	PASS
		18900	1880.0	23.19	22.35	0.84	13	PASS
		19193	1909.3	23.64	22.52	1.12	13	PASS
	16QAM	18607	1850.7	22.78	21.98	0.8	13	PASS
		18900	1880.0	23.11	22.23	0.88	13	PASS
		19193	1909.3	23.16	22.32	0.84	13	PASS
3MHz	QPSK	18615	1851.5	22.71	22.00	0.71	13	PASS
		18900	1880	22.96	22.28	0.68	13	PASS
		19185	1908.5	23.16	22.45	0.71	13	PASS
	16QAM	18615	1851.5	22.71	21.91	0.8	13	PASS
		18900	1880	23.05	22.16	0.89	13	PASS
		19185	1908.5	23.07	22.25	0.82	13	PASS
5MHz	QPSK	18625	1852.5	22.89	22.02	0.87	13	PASS
		18900	1880	23.32	22.29	1.03	13	PASS
		19175	1907.5	23.31	22.46	0.85	13	PASS
	16QAM	18625	1852.5	22.69	21.92	0.77	13	PASS
		18900	1880	23.31	22.18	1.13	13	PASS
		19175	1907.5	22.93	22.26	0.67	13	PASS
10MHz	QPSK	18650	1855	23.22	22.03	1.19	13	PASS
		18900	1880	23.64	22.30	1.34	13	PASS
		19150	1905	23.65	22.48	1.17	13	PASS
	16QAM	18650	1855	23.08	21.94	1.14	13	PASS
		18900	1880	23.33	22.19	1.14	13	PASS
		19150	1905	23.45	22.28	1.17	13	PASS
15MHz	QPSK	18675	1857.5	23.39	22.04	1.35	13	PASS
		18900	1880	23.53	22.32	1.21	13	PASS
		19125	1902.5	23.78	22.49	1.29	13	PASS
	16QAM	18675	1857.5	23.30	21.95	1.35	13	PASS
		18900	1880	23.45	22.20	1.25	13	PASS
		19125	1902.5	23.53	22.29	1.24	13	PASS
20MHz	QPSK	18700	1860	23.29	22.06	1.23	13	PASS
		18900	1880	23.60	22.33	1.27	13	PASS
		19100	1900	23.67	22.50	1.17	13	PASS
	16QAM	18700	1860	23.13	21.96	1.17	13	PASS
		18900	1880	23.57	22.22	1.35	13	PASS
		19100	1900	23.52	22.30	1.22	13	PASS

5.6. Frequency Stability

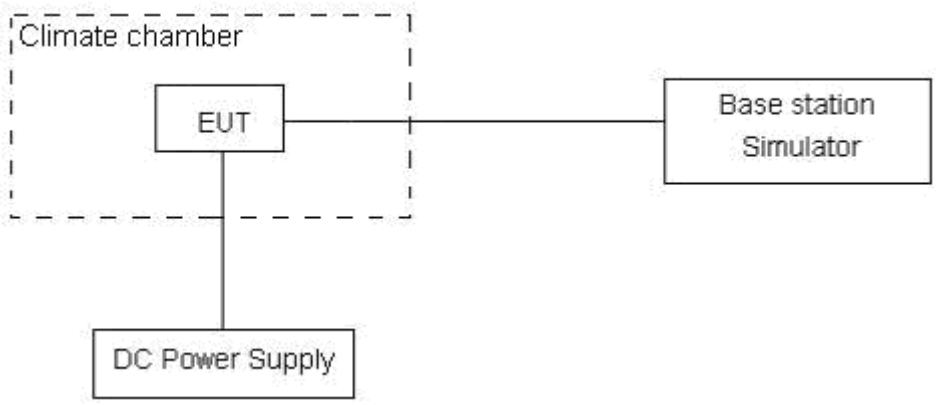
Ambient condition

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 -10°C to +50°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 -10°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.
2. 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 3.6 V and 4.35 V, with a nominal voltage of 3.8V.

Test setup



Limits

No specific frequency stability requirements in part 24.235

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

Mode	Test status	Test Results (ppm)			Conclusion
		GSM(GMSK)	GPRS(GMSK)	EGPRS(8PSK)	
GSM 1900 Channel 661	-30°C/3.8 V	0.0089	0.0047	0.0062	PASS
	-20°C/3.8 V	0.0106	0.0083	0.0067	PASS
	-10°C/3.8 V	0.0093	0.0076	0.0054	PASS
	0°C/3.8 V	0.0100	0.0090	0.0047	PASS
	10°C/3.8 V	0.0106	0.0101	0.0065	PASS
	20°C/3.8 V	0.0091	0.0091	0.0069	PASS
	30°C/3.8 V	0.0097	0.0071	0.0057	PASS
	40°C/3.8 V	0.0062	0.0054	0.0091	PASS
	50°C/3.8 V	0.0160	0.0103	0.0059	PASS
	20°C/4.35 V	0.0092	0.0152	0.0027	PASS
	20°C/3.6 V	0.0080	0.0201	-0.0005	PASS
/	/	RMC			/
WCDMA Band II Channel 9400	-30°C/3.8 V	-0.001966			PASS
	-20°C/3.8 V	-0.001669			PASS
	-10°C/3.8 V	-0.002166			PASS
	0°C/3.8 V	-0.001674			PASS
	10°C/3.8 V	-0.002482			PASS
	20°C/3.8 V	-0.002224			PASS
	30°C/3.8 V	-0.002382			PASS
	40°C/3.8 V	-0.002236			PASS
	50°C/3.8 V	-0.00209			PASS
	20°C/4.35 V	-0.001944			PASS
	20°C/3.6 V	-0.001798			PASS

Bandwith	Test status	LTE Band 2 Channel 18900 Test Results (ppm)		Conclusion
		QPSK	16QAM	
1.4MHz	-30°C/3.8 V	0.00369	-0.00129	PASS
	-20°C/3.8 V	0.00321	-0.00199	PASS
	-10°C/3.8 V	0.00401	-0.00118	PASS
	0°C/3.8 V	0.00412	-0.00085	PASS
	10°C/3.8 V	0.00358	-0.00165	PASS
	20°C/3.8 V	0.00145	-0.00161	PASS
	30°C/3.8 V	0.0032	-0.00129	PASS
	40°C/3.8 V	0.00336	-0.00152	PASS
	50°C/3.8 V	0.00255	-0.00162	PASS
	20°C/4.35 V	0.00613	-0.00157	PASS
	20°C/3.6 V	0.00334	-0.00164	PASS
3MHz	-30°C/3.8 V	0.00296	-0.00191	PASS
	-20°C/3.8 V	0.00247	-0.00326	PASS
	-10°C/3.8 V	0.00383	-0.00256	PASS
	0°C/3.8 V	0.00091	-0.00249	PASS
	10°C/3.8 V	0.00366	-0.00238	PASS
	20°C/3.8 V	-0.00009	-0.00265	PASS
	30°C/3.8 V	0.00674	-0.0023	PASS
	40°C/3.8 V	0.00404	-0.00245	PASS
	50°C/3.8 V	0.00188	-0.0024	PASS
	20°C/4.35 V	-0.0021	-0.0026	PASS
	20°C/3.6 V	-0.00213	-0.00209	PASS
5MHz	-30°C/3.8 V	-0.00219	-0.00211	PASS
	-20°C/3.8 V	-0.00207	-0.00236	PASS
	-10°C/3.8 V	-0.00182	-0.00218	PASS
	0°C/3.8 V	-0.00214	-0.00179	PASS
	10°C/3.8 V	-0.00174	-0.00173	PASS
	20°C/3.8 V	-0.00254	-0.00154	PASS
	30°C/3.8 V	-0.00248	-0.00215	PASS
	40°C/3.8 V	-0.00223	-0.00221	PASS
	50°C/3.8 V	-0.00205	-0.00156	PASS
	20°C/4.35 V	-0.00199	-0.002	PASS
	20°C/3.6 V	-0.00178	-0.00235	PASS
10MHz	-30°C/3.8 V	-0.00218	-0.0022	PASS
	-20°C/3.8 V	-0.00206	-0.00141	PASS
	-10°C/3.8 V	-0.00214	-0.00156	PASS

	0°C/3.8 V	-0.00165	-0.00186	PASS
	10°C/3.8 V	-0.002	-0.00231	PASS
	20°C/3.8 V	-0.00164	-0.00191	PASS
	30°C/3.8 V	-0.0023	-0.00225	PASS
	40°C/3.8 V	-0.00171	-0.00198	PASS
	50°C/3.8 V	-0.00164	-0.00177	PASS
	20°C/4.35 V	-0.00194	-0.00243	PASS
	20°C/3.6 V	-0.00164	-0.00202	PASS
15MHz	-30°C/3.8 V	-0.00203	-0.00216	PASS
	-20°C/3.8 V	-0.00224	-0.00241	PASS
	-10°C/3.8 V	-0.00185	-0.00193	PASS
	0°C/3.8 V	-0.00251	-0.00173	PASS
	10°C/3.8 V	-0.00218	-0.00176	PASS
	20°C/3.8 V	-0.00228	-0.00169	PASS
	30°C/3.8 V	-0.00207	-0.00166	PASS
	40°C/3.8 V	-0.00177	-0.00203	PASS
	50°C/3.8 V	-0.00219	-0.00182	PASS
	20°C/4.35 V	-0.0024	-0.00212	PASS
	20°C/3.6 V	-0.00219	-0.00198	PASS
20MHz	-30°C/3.8 V	-0.00193	-0.00214	PASS
	-20°C/3.8 V	-0.00159	-0.00153	PASS
	-10°C/3.8 V	-0.00189	-0.00214	PASS
	0°C/3.8 V	-0.00195	-0.00194	PASS
	10°C/3.8 V	-0.00152	-0.00189	PASS
	20°C/3.8 V	-0.00189	-0.00175	PASS
	30°C/3.8 V	-0.00198	-0.00165	PASS
	40°C/3.8 V	-0.00169	-0.00177	PASS
	50°C/3.8 V	-0.00211	-0.00234	PASS
	20°C/4.35 V	-0.00208	-0.00209	PASS
	20°C/3.6 V	-0.00182	-0.00204	PASS

5.7. Spurious Emissions at Antenna Terminals

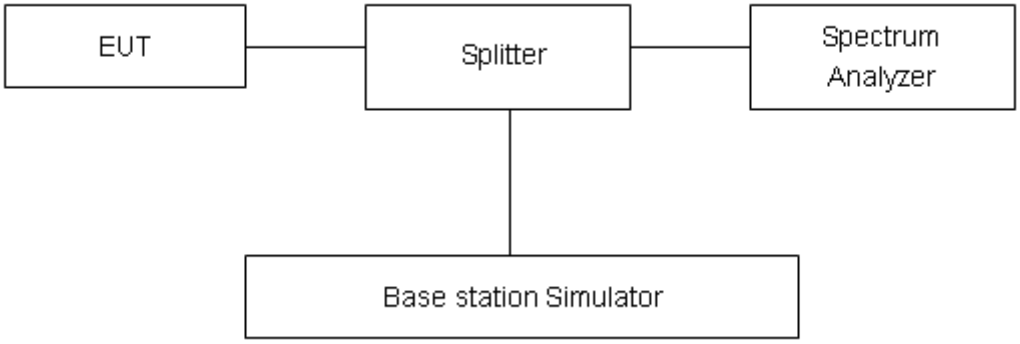
Ambient condition

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 30MHz to the 10th harmonic of the carrier. The peak detector is used.RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz (other frequency), Sweep is set to ATUO.

Test setup



Limits

Rule Part 24.238(a) specifies that “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 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

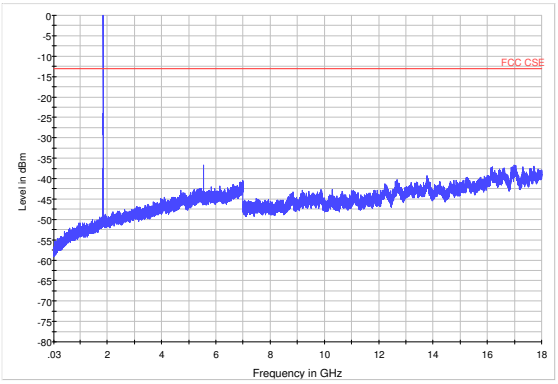
The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-18GHz	1.407 dB

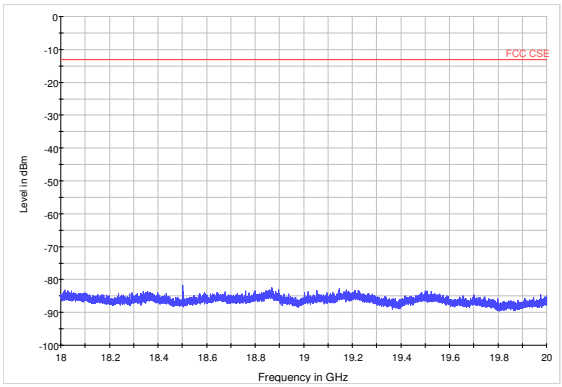
Test Result

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.

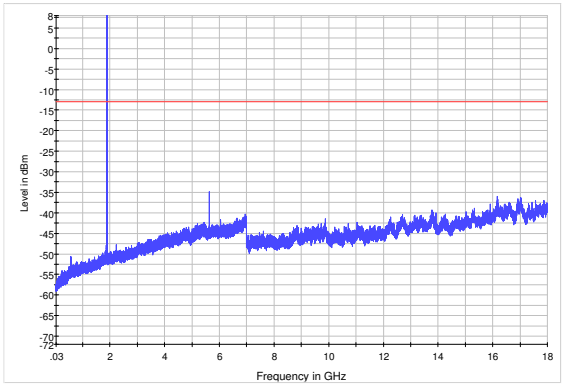
GSM 1900 CH-Low 30MHz~18GHz



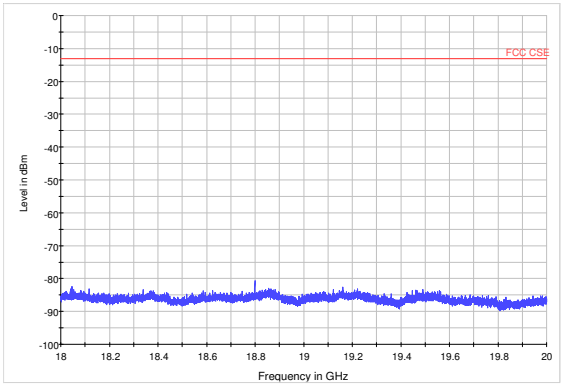
GSM 1900 CH-Low 18GHz~20GHz



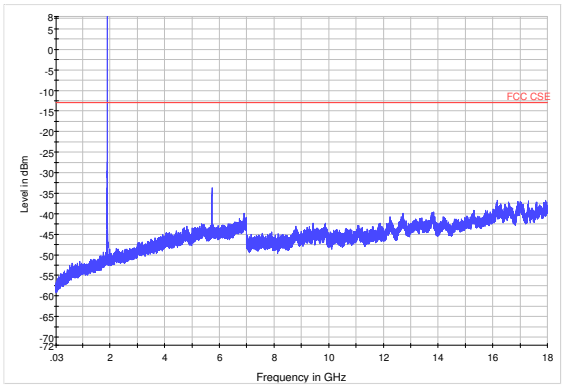
GSM 1900 CH-Middle 30MHz~18GHz



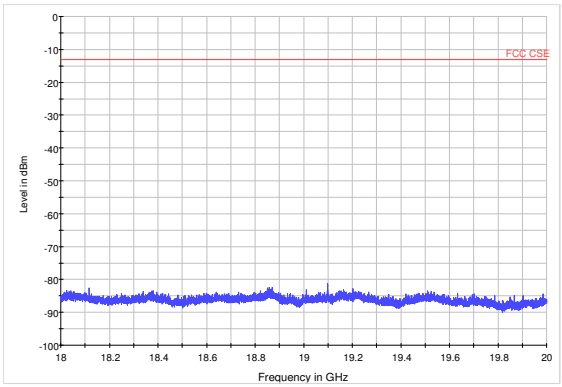
GSM 1900 CH-Middle 18GHz~20GHz



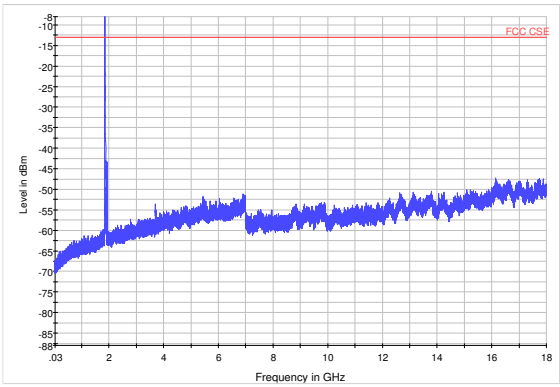
GSM 1900 CH-High 30MHz~18GHz



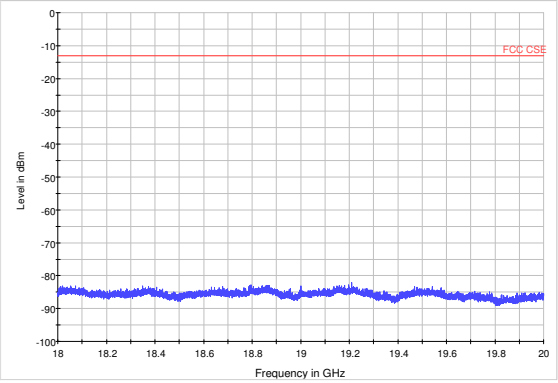
GSM 1900 CH-High 18GHz~20GHz



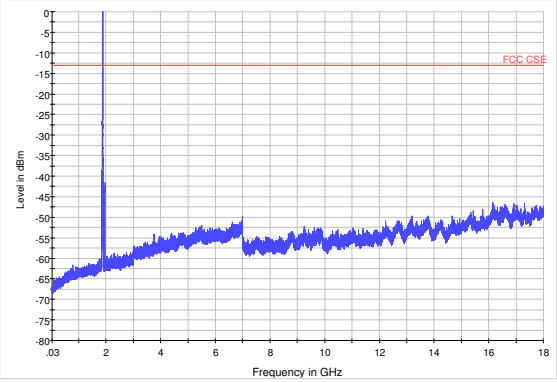
WCDMA Band II CH-Low 30MHz~18GHz



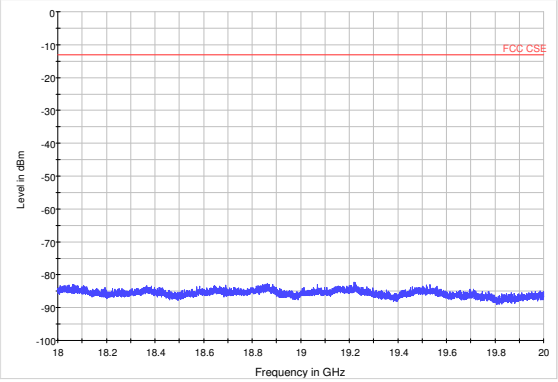
WCDMA Band II CH-Low 18GHz~20GHz



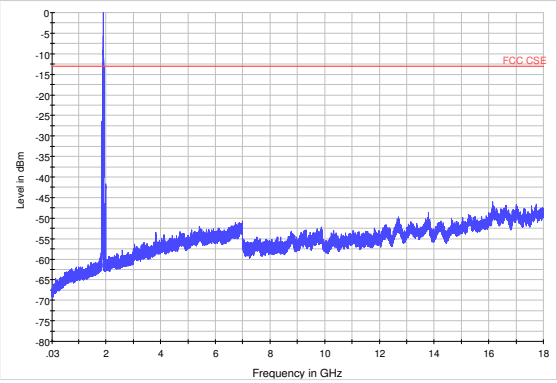
WCDMA Band II CH-Middle 30MHz~18GHz



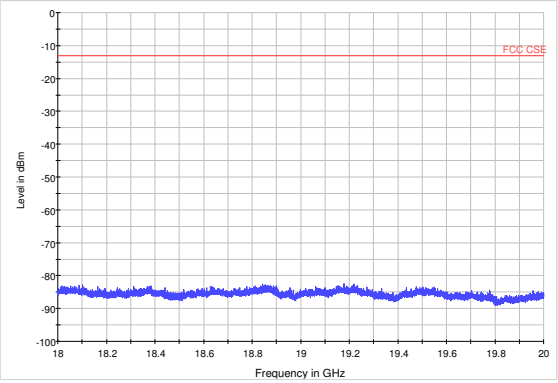
WCDMA Band II CH-Middle 18GHz~20GHz



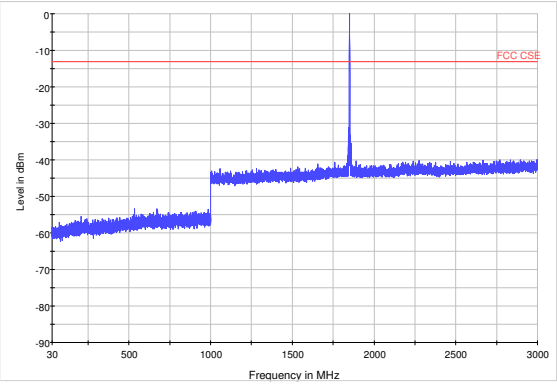
WCDMA Band II CH-High 30MHz~18GHz



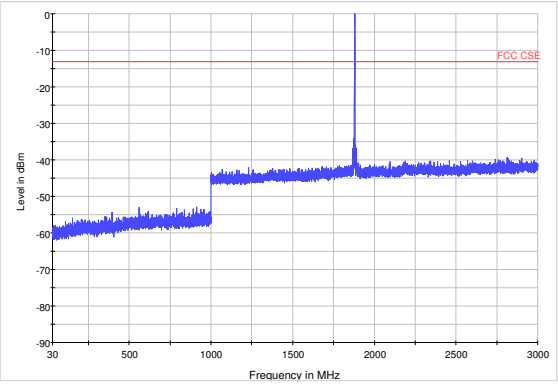
WCDMA Band II CH-High 18GHz~20GHz



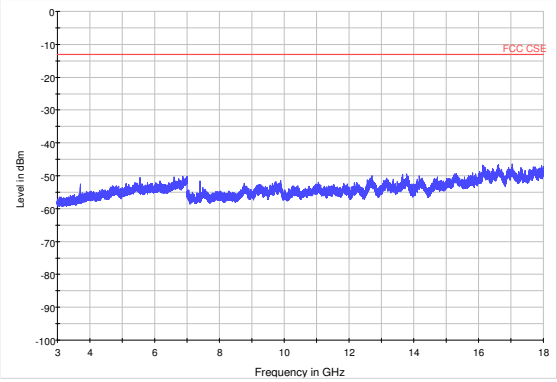
LTE Band 2 1.4MHz CH-Low 30MHz~3GHz



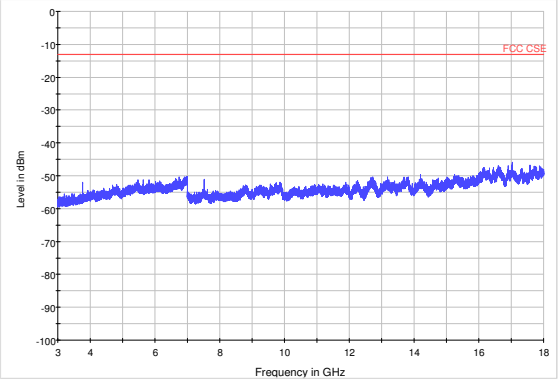
LTE Band 2 1.4MHz CH-Middle 30MHz~3GHz



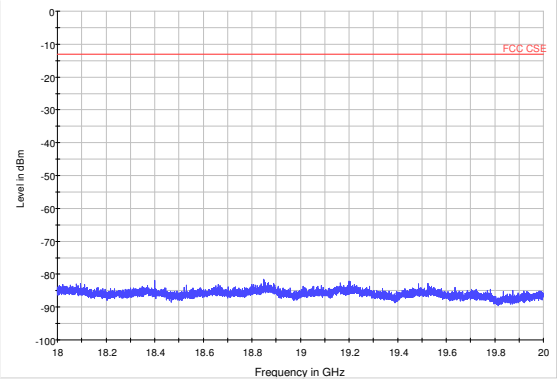
LTE Band 2 1.4MHz CH-Low 3GHz~18GHz



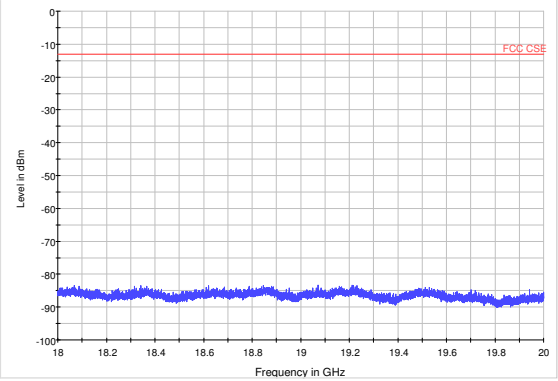
LTE Band 2 1.4MHz CH-Middle 3GHz~18GHz



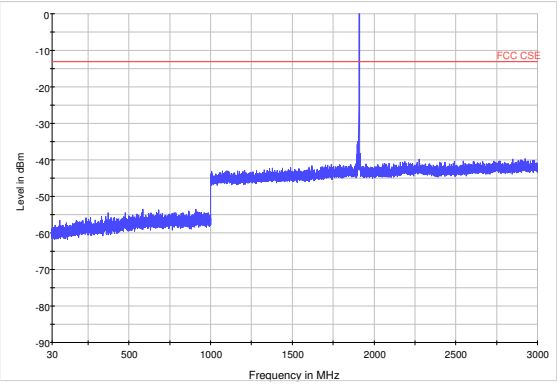
LTE Band 2 1.4MHz CH-Low 18GHz~20GHz



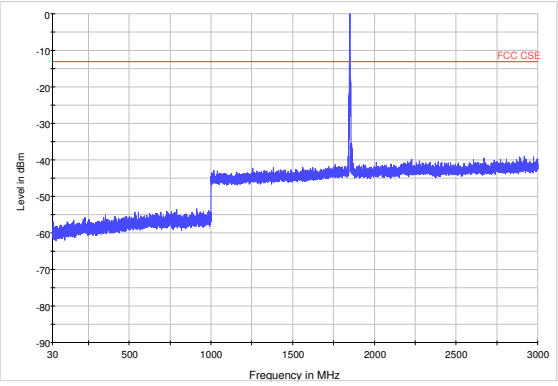
LTE Band 2 1.4MHz CH-Middle 18GHz~20GHz



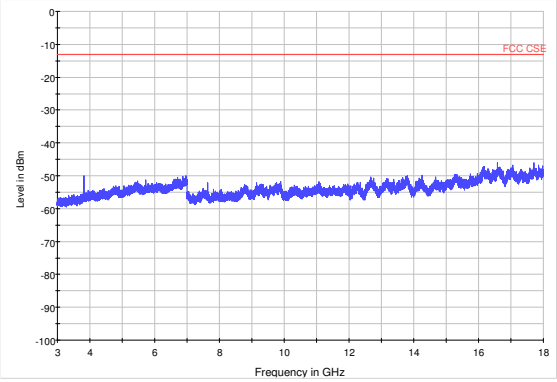
LTE Band 2 1.4MHz CH-High 30MHz~3GHz



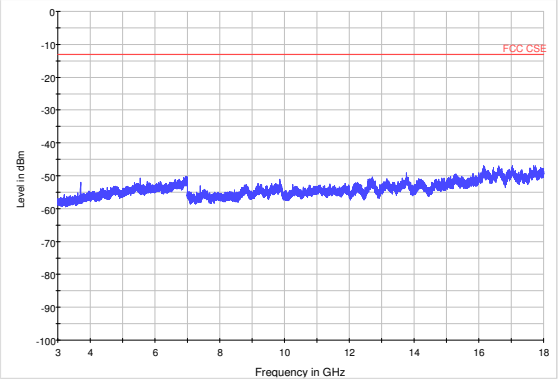
LTE Band 2 3MHz CH-Low 30MHz~3GHz



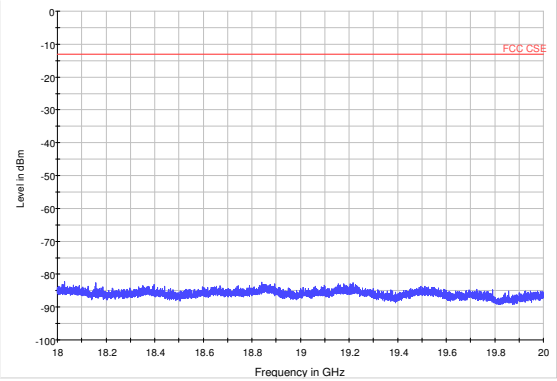
LTE Band 2 1.4MHz CH-High 3GHz~18GHz



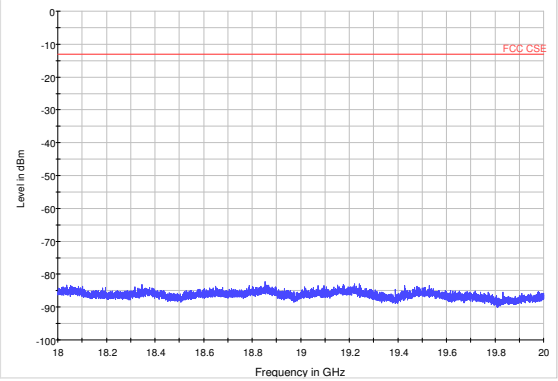
LTE Band 2 3MHz CH-Low 3GHz~18GHz



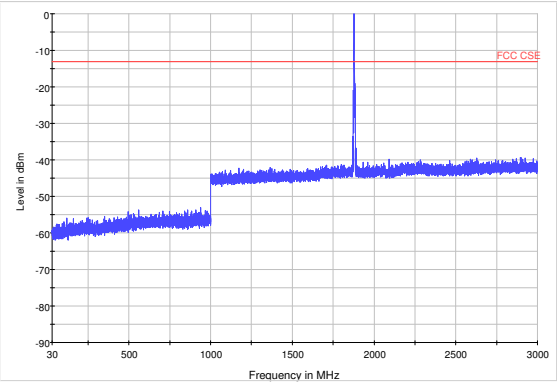
LTE Band 2 1.4MHz CH-High 18GHz~20GHz



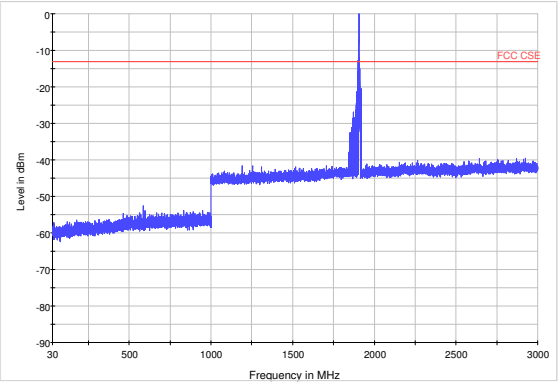
LTE Band 2 3MHz CH-Low 18GHz~20GHz



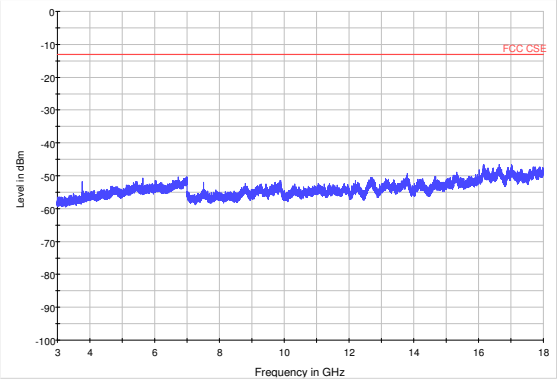
LTE Band 2 3MHz CH-Middle 30MHz~3GHz



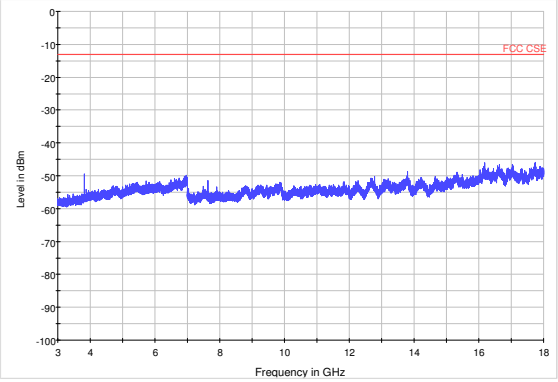
LTE Band 2 3MHz CH-High 30MHz~3GHz



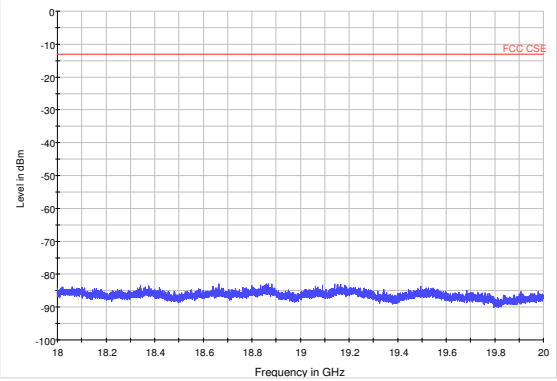
LTE Band 2 3MHz CH-Middle 3GHz~18GHz



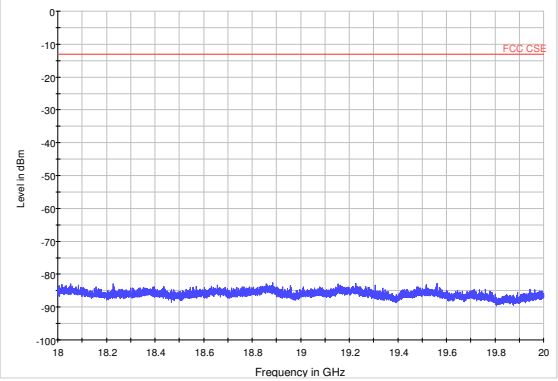
LTE Band 2 3MHz CH-High 3GHz~18GHz



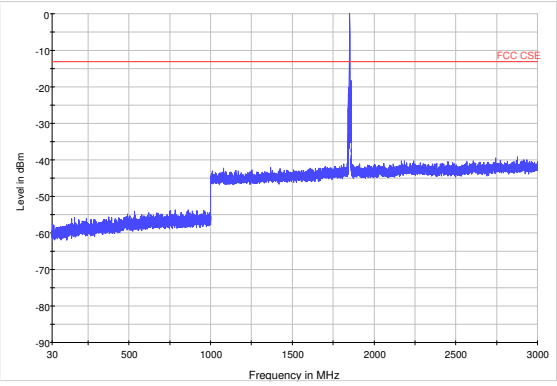
LTE Band 2 3MHz CH-Middle 18GHz~20GHz



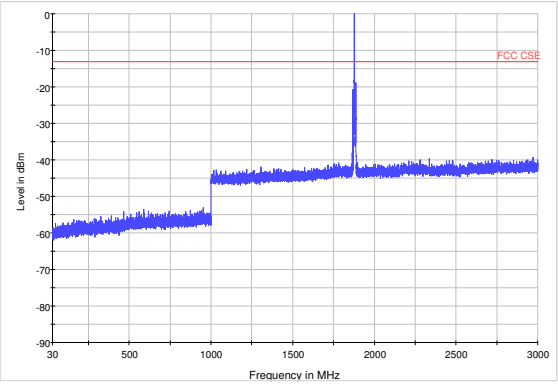
LTE Band 2 3MHz CH-High 18GHz~20GHz



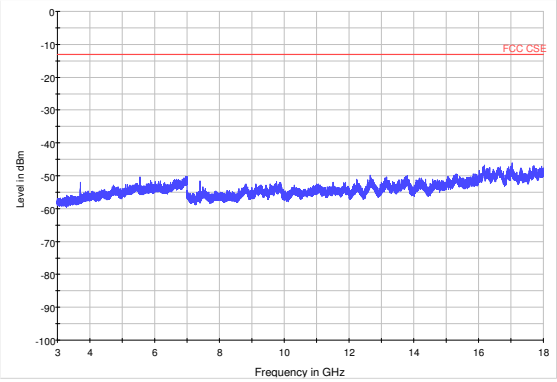
LTE Band 2 5MHz CH-Low 30MHz~3GHz



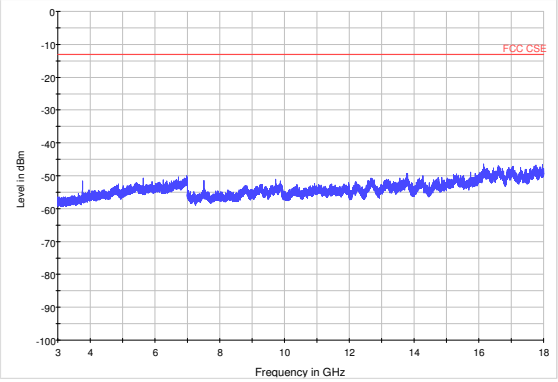
LTE Band 2 5MHz CH-Middle 30MHz~3GHz



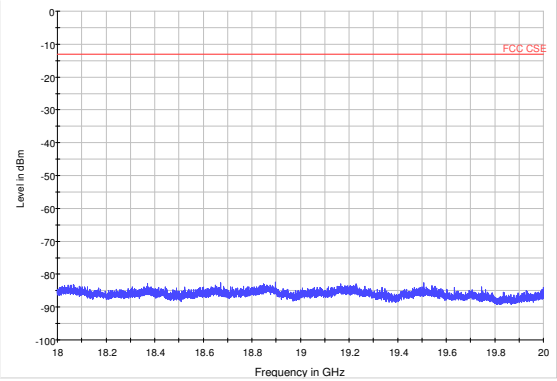
LTE Band 2 5MHz CH-Low 3GHz~18GHz



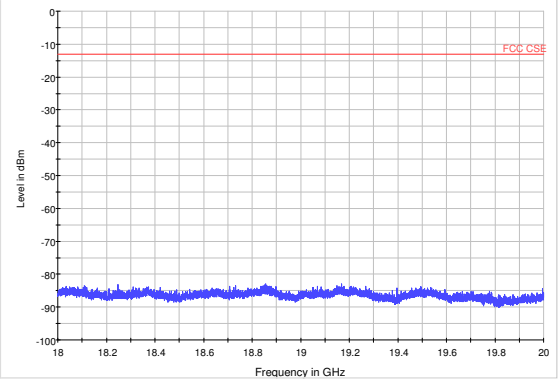
LTE Band 2 5MHz CH-Middle 3GHz~18GHz



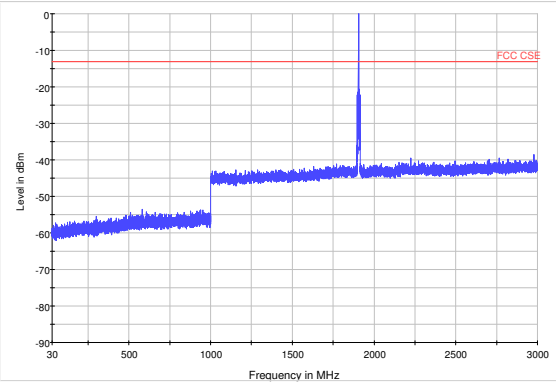
LTE Band 2 5MHz CH-Low 18GHz~20GHz



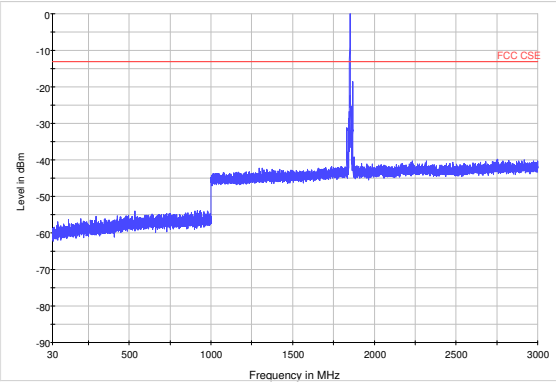
LTE Band 2 5MHz CH-Middle 18GHz~20GHz



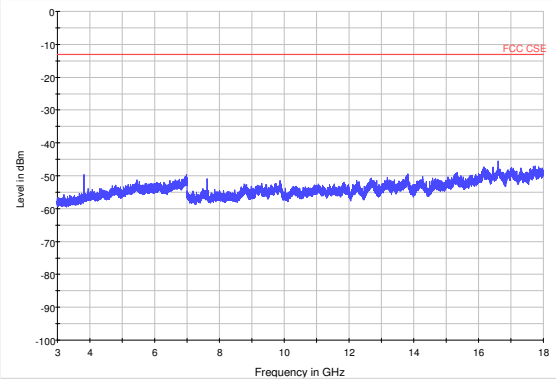
LTE Band 2 5MHz CH-High 30MHz~3GHz



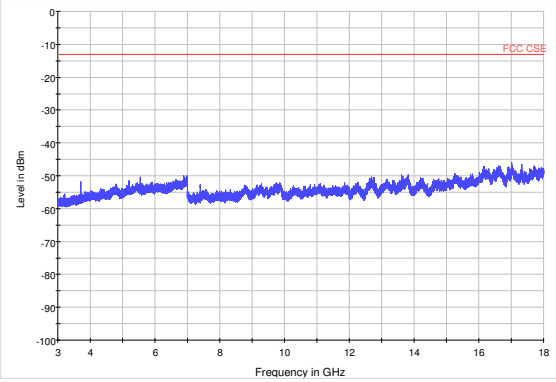
LTE Band 2 10MHz CH-Low 30MHz~3GHz



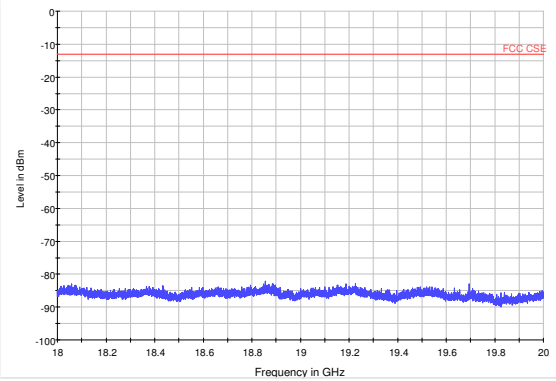
LTE Band 2 5MHz CH-High 3GHz~18GHz



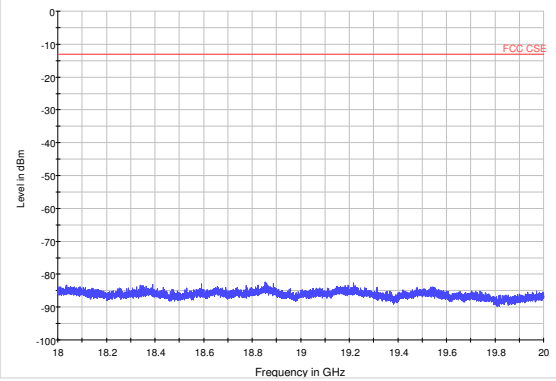
LTE Band 2 10MHz CH-Low 3GHz~18GHz



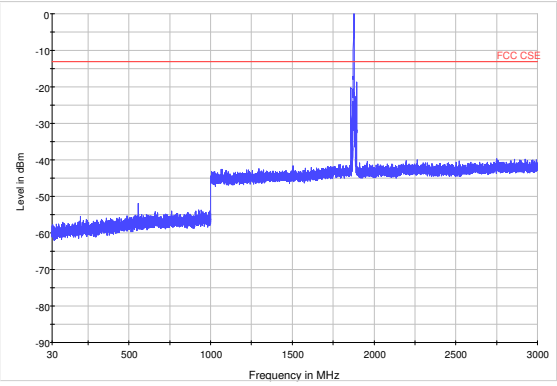
LTE Band 2 5MHz CH-High 18GHz~20GHz



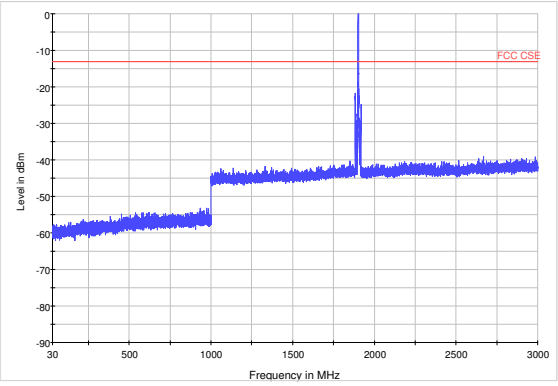
LTE Band 2 10MHz CH-Low 18GHz~20GHz



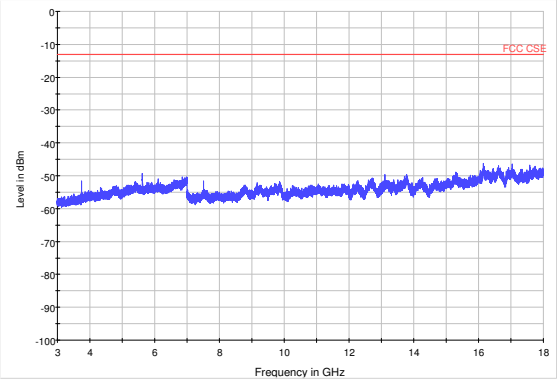
LTE Band 2 10MHz CH-Middle 30MHz~3GHz



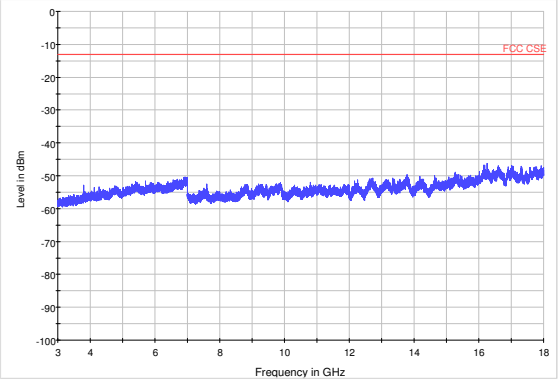
LTE Band 2 10MHz CH-High 30MHz~3GHz



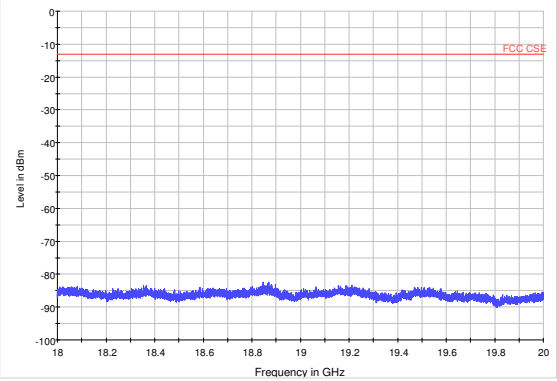
LTE Band 2 10MHz CH-Middle 3GHz~18GHz



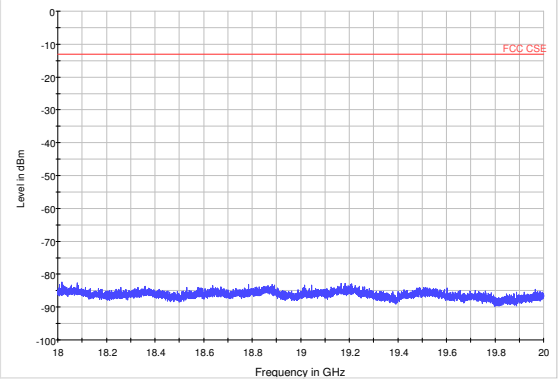
LTE Band 2 10MHz CH-High 3GHz~18GHz



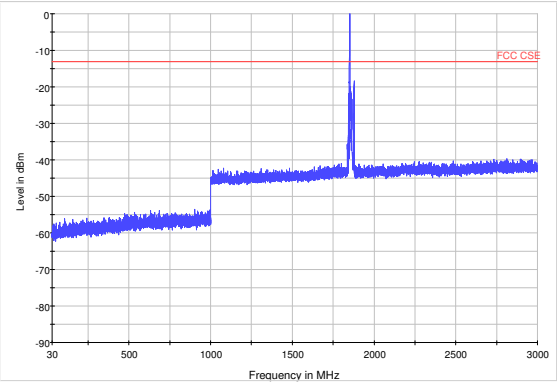
LTE Band 2 10MHz CH-Middle 18GHz~20GHz



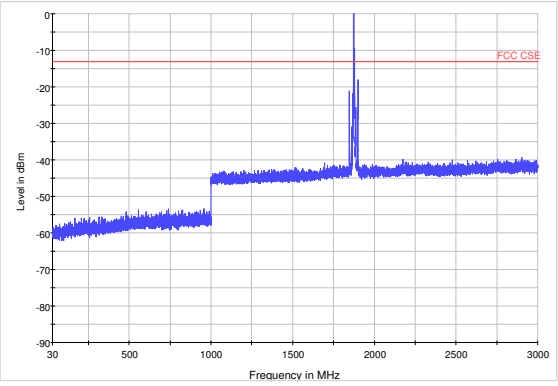
LTE Band 2 10MHz CH-High 18GHz~20GHz



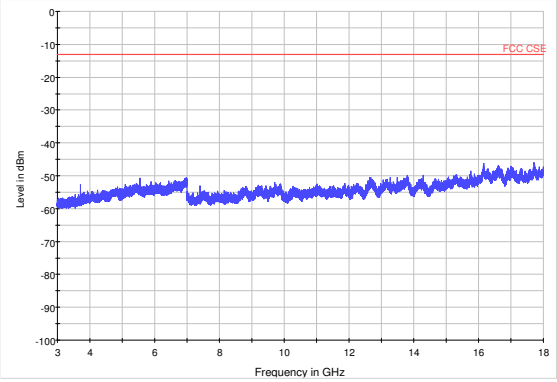
LTE Band 2 15MHz CH-Low 30MHz~3GHz



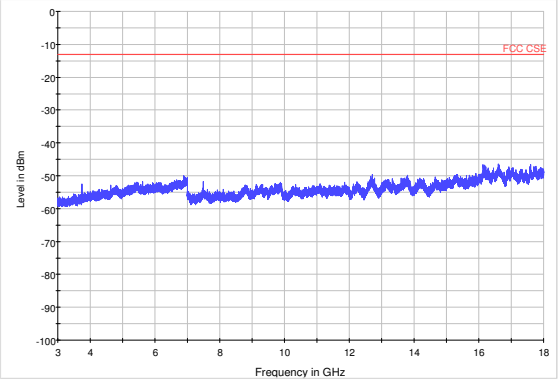
LTE Band 2 15MHz CH-Middle 30MHz~3GHz



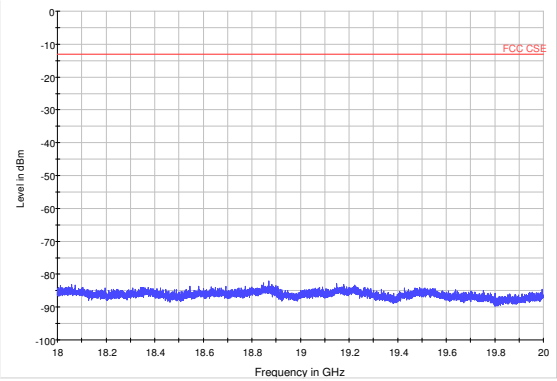
LTE Band 2 15MHz CH-Low 3GHz~18GHz



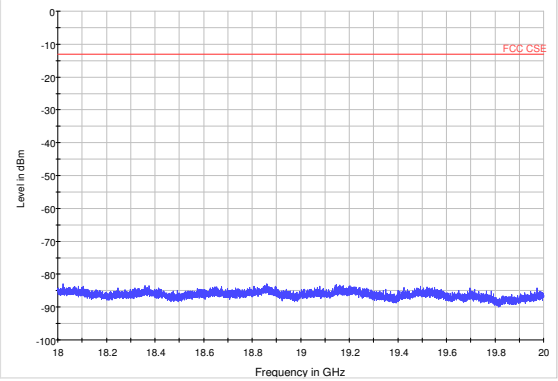
LTE Band 2 15MHz CH-Middle 3GHz~18GHz



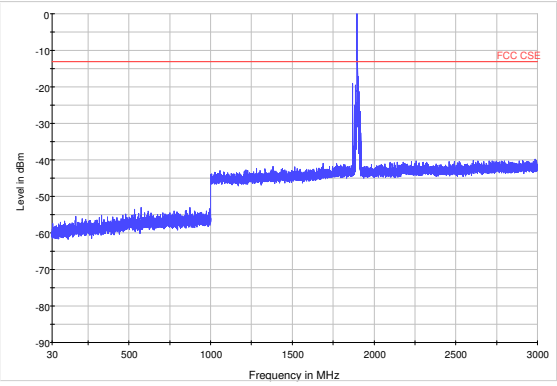
LTE Band 2 15MHz CH-Low 18GHz~20GHz



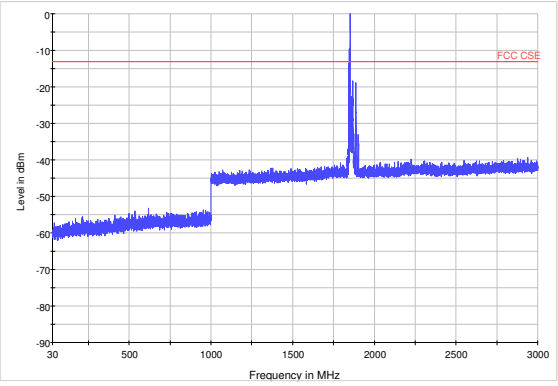
LTE Band 2 15MHz CH-Middle 18GHz~20GHz



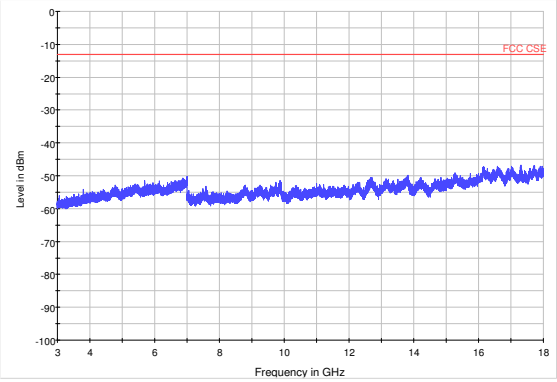
LTE Band 2 15MHz CH-High 30MHz~3GHz



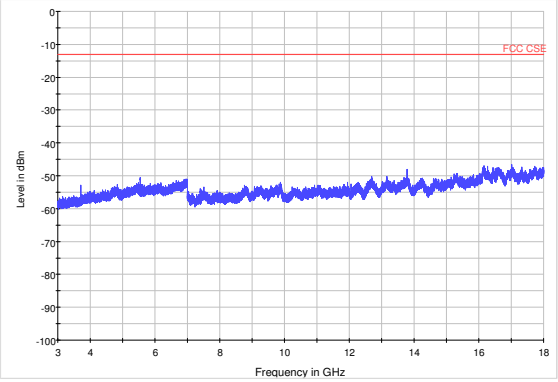
LTE Band 2 20MHz CH-Low 30MHz~3GHz



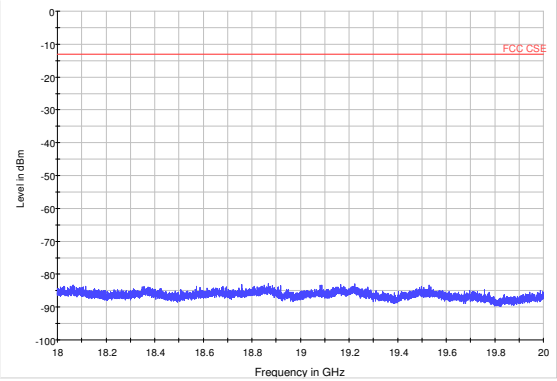
LTE Band 2 15MHz CH-High 3GHz~18GHz



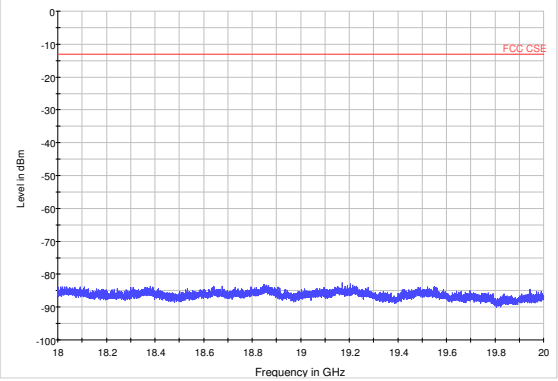
LTE Band 2 20MHz CH-Low 3GHz~18GHz



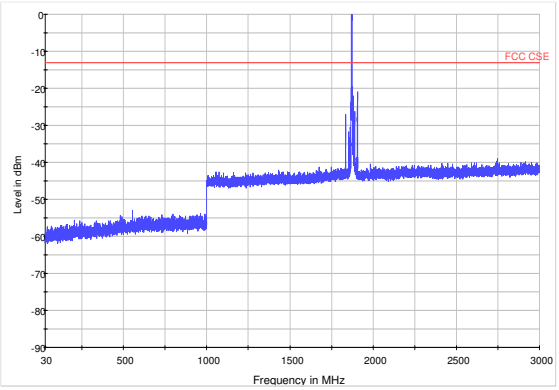
LTE Band 2 15MHz CH-High 18GHz~20GHz



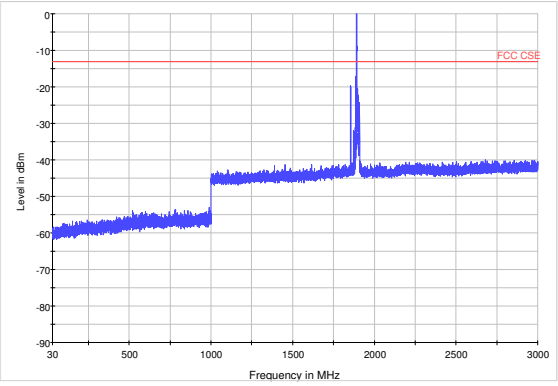
LTE Band 2 20MHz CH-Low 18GHz~20GHz



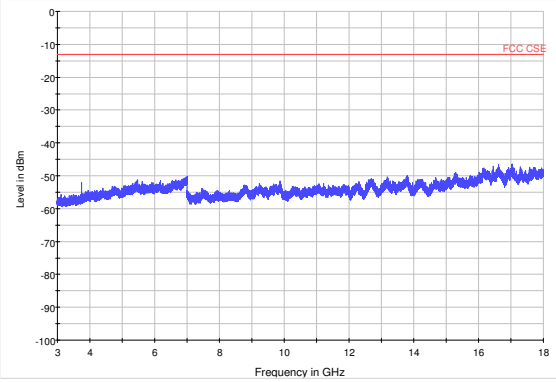
LTE Band 2 20MHz CH-Middle 30MHz~3GHz



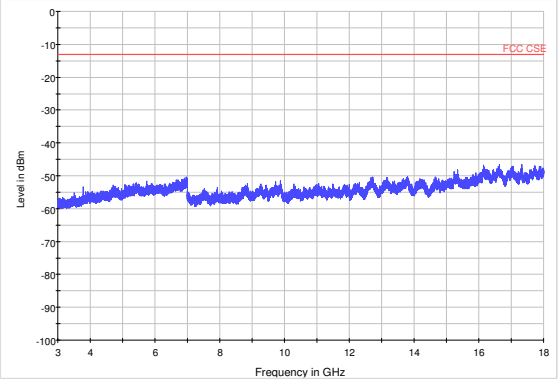
LTE Band 2 20MHz CH-High 30MHz~3GHz



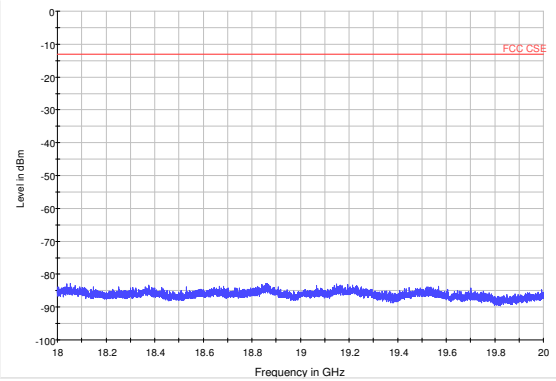
LTE Band 2 20MHz CH-Middle 3GHz~18GHz



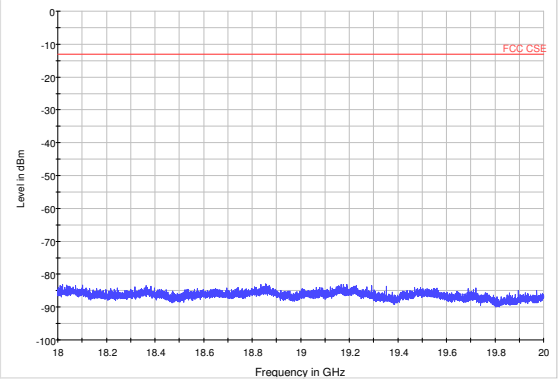
LTE Band 2 20MHz CH-High 3GHz~18GHz



LTE Band 2 20MHz CH-Middle 18GHz~20GHz



LTE Band 2 20MHz CH-High 18GHz~20GHz



5.8. Radiates Spurious Emission

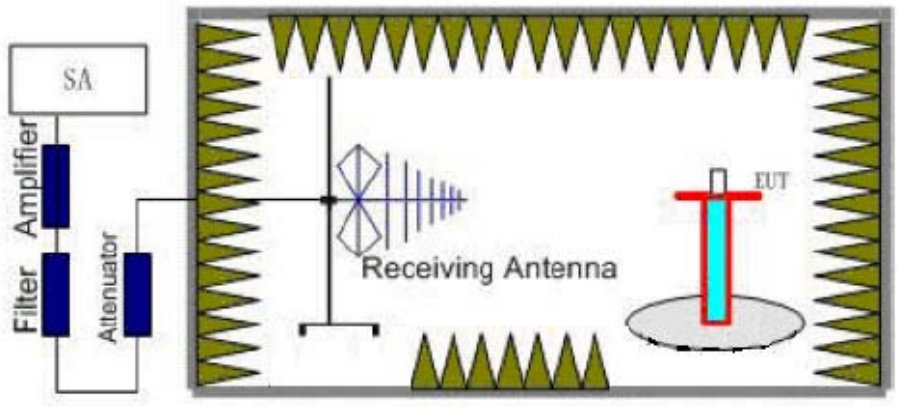
Ambient condition

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

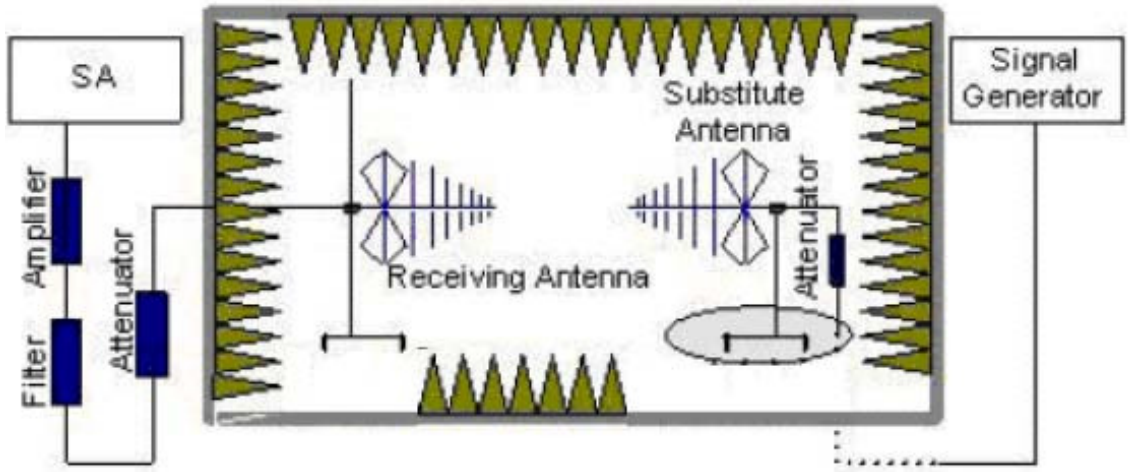
Method of Measurement

The measurements procedures in TIA -603-D are used.
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.
The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:
Step 1:
The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:
A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL).Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



E.R.P（peak power）=S.G. - Tx Cable loss + Substitution antenna gain – 2.15.
EIRP= E.R.P+2.15

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization(horizontal and vertical), The worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

Limits

Rule Part 24.238(a) specifies that “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 log10 (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

GSM 1900 CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3700.4	-63.45	5.1	11.05	vertical	-57.50	-13.00	44.50	45
3	5550.6	-57.95	5.42	12.65	vertical	-50.72	-13.00	37.72	90
4	7400.8	-60.35	6.7	13.85	vertical	-53.20	-13.00	40.20	225
5	9251.0	-59.24	7.01	14.75	vertical	-51.50	-13.00	38.50	270
6	11101.2	-59.67	7.48	15.95	vertical	-51.20	-13.00	38.20	135
7	12951.4	-61.64	7.51	16.55	vertical	-52.60	-13.00	39.60	270
8	14801.6	-56.91	8.24	15.35	vertical	-49.80	-13.00	36.80	270
9	16651.8	-52.74	8.41	14.95	vertical	-46.20	-13.00	33.20	0
10	18502.0	-88.11	8.54	15.45	vertical	-81.20	-13.00	68.20	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.

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-64.05	5.1	11.05	vertical	-58.10	-13.00	45.10	180
3	5640.0	-56.74	5.42	12.65	vertical	-49.51	-13.00	36.51	225
4	7520.0	-61.05	6.7	13.85	vertical	-53.90	-13.00	40.90	45
5	9400.0	-59.94	7.01	14.75	vertical	-52.20	-13.00	39.20	45
6	11280.0	-59.87	7.48	15.95	vertical	-51.40	-13.00	38.40	90
7	13160.0	-62.24	7.51	16.55	vertical	-53.20	-13.00	40.20	270
8	15040.0	-57.91	8.24	15.35	vertical	-50.80	-13.00	37.80	135
9	16920.0	-53.54	8.41	14.95	vertical	-47.00	-13.00	34.00	270
10	18800.0	-88.91	8.54	15.45	vertical	-82.00	-13.00	69.00	270

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.

GSM 1900 CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3819.6	-64.65	5.1	11.05	vertical	-58.70	-13.00	45.70	0
3	5729.4	-51.02	5.42	12.65	vertical	-43.79	-13.00	30.79	45
4	7639.2	-55.62	6.7	13.85	vertical	-48.47	-13.00	35.47	180
5	9549.0	-59.44	7.01	14.75	vertical	-51.70	-13.00	38.70	225
6	11458.8	-60.97	7.48	15.95	vertical	-52.50	-13.00	39.50	45
7	13368.6	-62.24	7.51	16.55	vertical	-53.20	-13.00	40.20	45
8	15278.4	-57.51	8.24	15.35	vertical	-50.40	-13.00	37.40	90
9	17188.2	-53.34	8.41	14.95	vertical	-46.80	-13.00	33.80	270
10	19098.0	-88.81	8.54	15.45	vertical	-81.90	-13.00	68.90	135

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.

WCDMA Band II CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3704.8	-64.15	5.1	11.05	vertical	-58.20	-13.00	45.20	270
3	5557.2	-60.93	5.42	12.65	vertical	-53.70	-13.00	40.70	270
4	7409.6	-61.25	6.7	13.85	vertical	-54.10	-13.00	41.10	0
5	9262.0	-61.64	7.01	14.75	vertical	-53.90	-13.00	40.90	45
6	11114.4	-60.67	7.48	15.95	vertical	-52.20	-13.00	39.20	180
7	12966.8	-60.84	7.51	16.55	vertical	-51.80	-13.00	38.80	225
8	14819.2	-53.81	8.24	15.35	vertical	-46.70	-13.00	33.70	45
9	16671.6	-54.04	8.41	14.95	vertical	-47.50	-13.00	34.50	45
10	18524.0	-88.11	8.54	15.45	vertical	-81.20	-13.00	68.20	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.

WCDMA Band II CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-64.25	5.1	11.05	vertical	-58.30	-13.00	45.30	270
3	5640.0	-61.13	5.42	12.65	vertical	-53.90	-13.00	40.90	135
4	7520.0	-61.45	6.7	13.85	vertical	-54.30	-13.00	41.30	270
5	9400.0	-62.44	7.01	14.75	vertical	-54.70	-13.00	41.70	270
6	11280.0	-61.67	7.48	15.95	vertical	-53.20	-13.00	40.20	0
7	13160.0	-61.84	7.51	16.55	vertical	-52.80	-13.00	39.80	45
8	15040.0	-54.81	8.24	15.35	vertical	-47.70	-13.00	34.70	180
9	16920.0	-54.84	8.41	14.95	vertical	-48.30	-13.00	35.30	225
10	18800.0	-88.61	8.54	15.45	vertical	-81.70	-13.00	68.70	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.

WCDMA Band II CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3815.2	-65.05	5.1	11.05	vertical	-59.10	-13.00	46.10	45
3	5722.8	-61.83	5.42	12.65	vertical	-54.60	-13.00	41.60	90
4	7630.4	-61.75	6.7	13.85	vertical	-54.60	-13.00	41.60	270
5	9538.0	-62.74	7.01	14.75	vertical	-55.00	-13.00	42.00	135
6	11445.6	-61.97	7.48	15.95	vertical	-53.50	-13.00	40.50	270
7	13353.2	-61.94	7.51	16.55	vertical	-52.90	-13.00	39.90	270
8	15260.8	-55.41	8.24	15.35	vertical	-48.30	-13.00	35.30	0
9	17168.4	-55.34	8.41	14.95	vertical	-48.80	-13.00	35.80	45
10	19076.0	-89.11	8.54	15.45	vertical	-82.20	-13.00	69.20	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 2 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	3701.4	-68.25	5.1	11.05	vertical	-62.30	-13.00	49.30	45
3	5552.1	-62.73	5.42	12.65	vertical	-55.50	-13.00	42.50	45
4	7402.8	-61.25	6.7	13.85	vertical	-54.10	-13.00	41.10	45
5	9253.5	-58.94	7.01	14.75	vertical	-51.20	-13.00	38.20	90
6	11104.2	-58.67	7.48	15.95	vertical	-50.20	-13.00	37.20	90
7	12954.9	-58.54	7.51	16.55	vertical	-49.50	-13.00	36.50	135
8	14805.6	-57.61	8.24	15.35	vertical	-50.50	-13.00	37.50	90
9	16656.3	-54.14	8.41	14.95	vertical	-47.60	-13.00	34.60	45
10	18507.0	-79.21	8.54	15.45	vertical	-72.30	-13.00	59.30	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 2 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	3760.0	-68.55	5.10	11.05	vertical	-62.60	-13.00	49.60	45
3	5640.0	-63.33	5.42	12.65	vertical	-56.10	-13.00	43.10	180
4	7520.0	-62.15	6.70	13.85	vertical	-55.00	-13.00	42.00	45
5	9400.0	-59.14	7.01	14.75	vertical	-51.40	-13.00	38.40	270
6	11280.0	-58.87	7.48	15.95	vertical	-50.40	-13.00	37.40	90
7	13160.0	-58.74	7.51	16.55	vertical	-49.70	-13.00	36.70	135
8	15040.0	-58.41	8.24	15.35	vertical	-51.30	-13.00	38.30	90
9	16920.0	-54.24	8.41	14.95	vertical	-47.70	-13.00	34.70	45
10	18800.0	-80.11	8.54	15.45	vertical	-73.20	-13.00	60.20	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 2 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	3818.6	-69.65	5.10	11.05	vertical	-63.70	-13.00	50.70	90
3	5727.9	-63.23	5.42	12.65	vertical	-56.00	-13.00	43.00	45
4	7637.2	-61.65	6.70	13.85	vertical	-54.50	-13.00	41.50	135
5	9546.5	-60.04	7.01	14.75	vertical	-52.30	-13.00	39.30	90
6	11455.8	-59.97	7.48	15.95	vertical	-51.50	-13.00	38.50	90
7	13365.1	-59.64	7.51	16.55	vertical	-50.60	-13.00	37.60	135
8	15274.4	-58.91	8.24	15.35	vertical	-51.80	-13.00	38.80	90
9	17183.7	-55.34	8.41	14.95	vertical	-48.80	-13.00	35.80	45
10	19093.0	-80.51	8.54	15.45	vertical	-73.60	-13.00	60.60	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 2 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	3703.0	-70.65	5.10	11.05	vertical	-64.70	-13.00	51.70	45
3	5554.5	-63.93	5.42	12.65	vertical	-56.70	-13.00	43.70	90
4	7406.0	-62.25	6.70	13.85	vertical	-55.10	-13.00	42.10	45
5	9257.5	-60.44	7.01	14.75	vertical	-52.70	-13.00	39.70	270
6	11109.0	-60.27	7.48	15.95	vertical	-51.80	-13.00	38.80	90
7	12960.5	-59.84	7.51	16.55	vertical	-50.80	-13.00	37.80	135
8	14812.0	-58.91	8.24	15.35	vertical	-51.80	-13.00	38.80	90
9	16663.5	-55.64	8.41	14.95	vertical	-49.10	-13.00	36.10	45
10	18515.0	-81.21	8.54	15.45	vertical	-74.30	-13.00	61.30	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 2 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	3760.0	-69.35	5.10	11.05	vertical	-63.40	-13.00	50.40	225
3	5640.0	-65.73	5.42	12.65	vertical	-58.50	-13.00	45.50	45
4	7520.0	-64.05	6.70	13.85	vertical	-56.90	-13.00	43.90	135
5	9400.0	-61.44	7.01	14.75	vertical	-53.70	-13.00	40.70	90
6	11280.0	-60.67	7.48	15.95	vertical	-52.20	-13.00	39.20	90
7	13160.0	-61.04	7.51	16.55	vertical	-52.00	-13.00	39.00	135
8	15040.0	-59.61	8.24	15.35	vertical	-52.50	-13.00	39.50	90
9	16920.0	-56.24	8.41	14.95	vertical	-49.70	-13.00	36.70	45
10	18800.0	-80.61	8.54	15.45	vertical	-73.70	-13.00	60.70	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 2 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	3817.0	-70.15	5.10	11.05	vertical	-64.20	-13.00	51.20	90
3	5725.5	-64.83	5.42	12.65	vertical	-57.60	-13.00	44.60	45
4	7634.0	-64.55	6.70	13.85	vertical	-57.40	-13.00	44.40	315
5	9542.5	-61.84	7.01	14.75	vertical	-54.10	-13.00	41.10	90
6	11451.0	-61.67	7.48	15.95	vertical	-53.20	-13.00	40.20	90
7	13359.5	-60.24	7.51	16.55	vertical	-51.20	-13.00	38.20	135
8	15268.0	-60.91	8.24	15.35	vertical	-53.80	-13.00	40.80	90
9	17176.5	-55.64	8.41	14.95	vertical	-49.10	-13.00	36.10	45
10	19085.0	-81.71	8.54	15.45	vertical	-74.80	-13.00	61.80	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 2 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	3705.0	-69.65	5.10	11.05	vertical	-63.70	-13.00	50.70	180
3	5557.5	-66.53	5.42	12.65	vertical	-59.30	-13.00	46.30	45
4	7410.0	-63.35	6.70	13.85	vertical	-56.20	-13.00	43.20	90
5	9262.5	-61.74	7.01	14.75	vertical	-54.00	-13.00	41.00	225
6	11115.0	-61.37	7.48	15.95	vertical	-52.90	-13.00	39.90	90
7	12967.5	-61.64	7.51	16.55	vertical	-52.60	-13.00	39.60	135
8	14820.0	-60.31	8.24	15.35	vertical	-53.20	-13.00	40.20	90
9	16672.5	-56.34	8.41	14.95	vertical	-49.80	-13.00	36.80	45
10	18525.0	-81.01	8.54	15.45	vertical	-74.10	-13.00	61.10	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 2 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	3760.0	-72.25	5.10	11.05	vertical	-66.30	-13.00	53.30	45
3	5640.0	-64.83	5.42	12.65	vertical	-57.60	-13.00	44.60	270
4	7520.0	-64.75	6.70	13.85	vertical	-57.60	-13.00	44.60	45
5	9400.0	-62.34	7.01	14.75	vertical	-54.60	-13.00	41.60	90
6	11280.0	-63.47	7.48	15.95	vertical	-55.00	-13.00	42.00	90
7	13160.0	-61.64	7.51	16.55	vertical	-52.60	-13.00	39.60	135
8	15040.0	-59.61	8.24	15.35	vertical	-52.50	-13.00	39.50	90
9	16920.0	-56.44	8.41	14.95	vertical	-49.90	-13.00	36.90	45
10	18800.0	-83.01	8.54	15.45	vertical	-76.10	-13.00	63.10	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 2 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	1907.5	-72.25	5.10	11.05	vertical	-66.30	-13.00	53.30	45
3	3815.0	-65.53	5.42	12.65	vertical	-58.30	-13.00	45.30	180
4	5722.5	-64.45	6.70	13.85	vertical	-57.30	-13.00	44.30	45
5	7630.0	-62.24	7.01	14.75	vertical	-54.50	-13.00	41.50	90
6	9537.5	-61.57	7.48	15.95	vertical	-53.10	-13.00	40.10	90
7	11445.0	-61.94	7.51	16.55	vertical	-52.90	-13.00	39.90	135
8	13352.5	-60.91	8.24	15.35	vertical	-53.80	-13.00	40.80	90
9	15260.0	-56.94	8.41	14.95	vertical	-50.40	-13.00	37.40	45
10	17167.5	-81.51	8.54	15.45	vertical	-74.60	-13.00	61.60	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 2 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	3710.0	-72.85	5.10	11.05	vertical	-66.90	-13.00	53.90	45
3	5565.0	-66.73	5.42	12.65	vertical	-59.50	-13.00	46.50	225
4	7420.0	-65.45	6.70	13.85	vertical	-58.30	-13.00	45.30	315
5	9275.0	-61.74	7.01	14.75	vertical	-54.00	-13.00	41.00	90
6	11130.0	-62.37	7.48	15.95	vertical	-53.90	-13.00	40.90	90
7	12985.0	-63.24	7.51	16.55	vertical	-54.20	-13.00	41.20	135
8	14840.0	-62.11	8.24	15.35	vertical	-55.00	-13.00	42.00	90
9	16695.0	-58.04	8.41	14.95	vertical	-51.50	-13.00	38.50	45
10	18550.0	-82.61	8.54	15.45	vertical	-75.70	-13.00	62.70	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 2 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	3760.0	-73.15	5.10	11.05	vertical	-67.20	-13.00	54.20	90
3	5640.0	-66.73	5.42	12.65	vertical	-59.50	-13.00	46.50	45
4	7520.0	-66.75	6.70	13.85	vertical	-59.60	-13.00	46.60	270
5	9400.0	-63.74	7.01	14.75	vertical	-56.00	-13.00	43.00	90
6	11280.0	-62.87	7.48	15.95	vertical	-54.40	-13.00	41.40	90
7	13160.0	-62.74	7.51	16.55	vertical	-53.70	-13.00	40.70	135
8	15040.0	-60.51	8.24	15.35	vertical	-53.40	-13.00	40.40	90
9	16920.0	-60.64	8.41	14.95	vertical	-54.10	-13.00	41.10	45
10	18800.0	-82.81	8.54	15.45	vertical	-75.90	-13.00	62.90	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 2 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	3810.0	-73.05	5.10	11.05	vertical	-67.10	-13.00	54.10	45
3	5715.0	-68.13	5.42	12.65	vertical	-60.90	-13.00	47.90	90
4	7620.0	-68.25	6.70	13.85	vertical	-61.10	-13.00	48.10	315
5	9525.0	-62.94	7.01	14.75	vertical	-55.20	-13.00	42.20	90
6	11430.0	-62.27	7.48	15.95	vertical	-53.80	-13.00	40.80	90
7	13335.0	-63.44	7.51	16.55	vertical	-54.40	-13.00	41.40	135
8	15240.0	-61.81	8.24	15.35	vertical	-54.70	-13.00	41.70	90
9	17145.0	-58.14	8.41	14.95	vertical	-51.60	-13.00	38.60	45
10	19050.0	-85.51	8.54	15.45	vertical	-78.60	-13.00	65.60	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 2 15MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3715.0	-67.55	5.10	11.05	vertical	-61.60	-13.00	48.60	90
3	5572.5	-63.93	5.42	12.65	vertical	-56.70	-13.00	43.70	45
4	7430.0	-63.25	6.70	13.85	vertical	-56.10	-13.00	43.10	90
5	9287.5	-60.14	7.01	14.75	vertical	-52.40	-13.00	39.40	90
6	11145.0	-59.37	7.48	15.95	vertical	-50.90	-13.00	37.90	180
7	13002.5	-58.04	7.51	16.55	vertical	-49.00	-13.00	36.00	135
8	14860.0	-58.91	8.24	15.35	vertical	-51.80	-13.00	38.80	90
9	16717.5	-53.74	8.41	14.95	vertical	-47.20	-13.00	34.20	45
10	18575.0	-80.11	8.54	15.45	vertical	-73.20	-13.00	60.20	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 2 15MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-69.15	5.10	11.05	vertical	-63.20	-13.00	50.20	45
3	5640.0	-65.03	5.42	12.65	vertical	-57.80	-13.00	44.80	180
4	7520.0	-64.45	6.70	13.85	vertical	-57.30	-13.00	44.30	45
5	9400.0	-61.34	7.01	14.75	vertical	-53.60	-13.00	40.60	315
6	11280.0	-60.77	7.48	15.95	vertical	-52.30	-13.00	39.30	90
7	13160.0	-60.94	7.51	16.55	vertical	-51.90	-13.00	38.90	135
8	15040.0	-59.21	8.24	15.35	vertical	-52.10	-13.00	39.10	90
9	16920.0	-56.04	8.41	14.95	vertical	-49.50	-13.00	36.50	45
10	18800.0	-80.11	8.54	15.45	vertical	-73.20	-13.00	60.20	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 2 15MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3805.0	-70.05	5.10	11.05	vertical	-64.10	-13.00	51.10	45
3	5707.5	-64.43	5.42	12.65	vertical	-57.20	-13.00	44.20	90
4	7610.0	-64.65	6.70	13.85	vertical	-57.50	-13.00	44.50	45
5	9512.5	-61.84	7.01	14.75	vertical	-54.10	-13.00	41.10	90
6	11415.0	-60.17	7.48	15.95	vertical	-51.70	-13.00	38.70	225
7	13317.5	-59.94	7.51	16.55	vertical	-50.90	-13.00	37.90	135
8	15220.0	-58.31	8.24	15.35	vertical	-51.20	-13.00	38.20	90
9	17122.5	-55.24	8.41	14.95	vertical	-48.70	-13.00	35.70	45
10	19025.0	-79.21	8.54	15.45	vertical	-72.30	-13.00	59.30	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 2 20MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3720.0	-71.05	5.10	11.05	vertical	-65.10	-13.00	52.10	45
3	5580.0	-64.03	5.42	12.65	vertical	-56.80	-13.00	43.80	225
4	7440.0	-64.25	6.70	13.85	vertical	-57.10	-13.00	44.10	45
5	9300.0	-62.24	7.01	14.75	vertical	-54.50	-13.00	41.50	90
6	11160.0	-60.57	7.48	15.95	vertical	-52.10	-13.00	39.10	270
7	13020.0	-58.84	7.51	16.55	vertical	-49.80	-13.00	36.80	135
8	14880.0	-56.31	8.24	15.35	vertical	-49.20	-13.00	36.20	90
9	16740.0	-53.64	8.41	14.95	vertical	-47.10	-13.00	34.10	45
10	18600.0	-80.71	8.54	15.45	vertical	-73.80	-13.00	60.80	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 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-68.25	5.10	11.05	vertical	-62.30	-13.00	49.30	90
3	5640.0	-62.93	5.42	12.65	vertical	-55.70	-13.00	42.70	45
4	7520.0	-63.45	6.70	13.85	vertical	-56.30	-13.00	43.30	270
5	9400.0	-61.04	7.01	14.75	vertical	-53.30	-13.00	40.30	90
6	11280.0	-60.27	7.48	15.95	vertical	-51.80	-13.00	38.80	90
7	13160.0	-57.74	7.51	16.55	vertical	-48.70	-13.00	35.70	135
8	15040.0	-55.31	8.24	15.35	vertical	-48.20	-13.00	35.20	90
9	16920.0	-52.94	8.41	14.95	vertical	-46.40	-13.00	33.40	45
10	18800.0	-78.51	8.54	15.45	vertical	-71.60	-13.00	58.60	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 2 20MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	37600.0	-70.05	5.10	11.05	vertical	-64.10	-13.00	51.10	45
3	56400.0	-64.43	5.42	12.65	vertical	-57.20	-13.00	44.20	180
4	75200.0	-62.55	6.70	13.85	vertical	-55.40	-13.00	42.40	45
5	94000.0	-60.04	7.01	14.75	vertical	-52.30	-13.00	39.30	90
6	112800.0	-61.97	7.48	15.95	vertical	-53.50	-13.00	40.50	225
7	131600.0	-57.54	7.51	16.55	vertical	-48.50	-13.00	35.50	135
8	150400.0	-55.31	8.24	15.35	vertical	-48.20	-13.00	35.20	90
9	169200.0	-51.74	8.41	14.95	vertical	-45.20	-13.00	32.20	45
10	188000.0	-79.81	8.54	15.45	vertical	-72.90	-13.00	59.90	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.

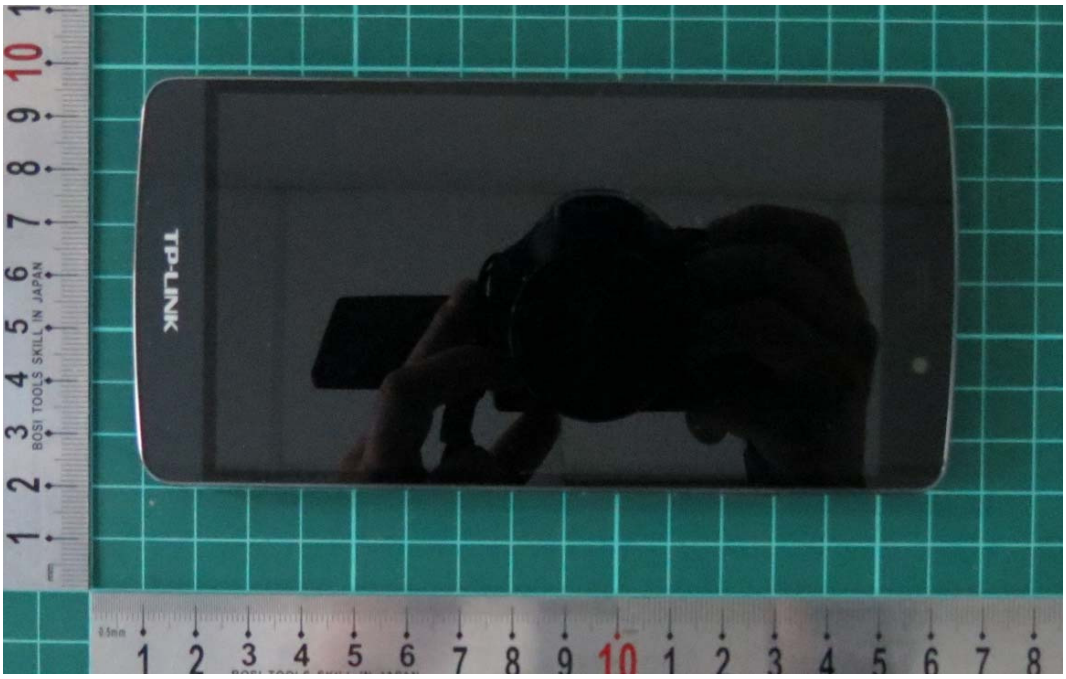
6. Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	CMU200	R&S	118133	2015-05-22	2016-05-21
Power Splitter	SHX-GF2 -2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	E4445A	Agilent	MY46181146	2015-05-22	2016-05-21
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2015-05-22	2016-05-21
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Signal generator	SMB 100A	R&S	102594	2015-05-22	2016-05-21
Signal generator	SMR27	R&S	100365	2015-05-22	2016-05-21
EMI Test Receiver	ESCI	R&S	100948	2015-05-22	2016-05-21
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2014-12-06	2017-12-05
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-391	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100125	2014-12-06	2017-12-05
Climatic Chamber	PT-30B	Re Ce	20101891	2015-07-18	2018-07-17
Horn Antenna	3160-09	ETS-Lindgren	00102643	2014-12-06	2017-12-05
Horn Antenna	3160-09	ETS-Lindgren	00102644	2014-12-06	2017-12-05
RF Cable	SMA 15cm	Agilent	0001	2016-02-08	2016-04-07

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

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance



Front Side

Back Side

a: EUT

Picture 1 EUT and Auxiliary

A.2 Test Setup

Picture 2: Radiated Spurious Emissions Test setup