



RF TEST REPORT

Applicant MeiG Smart Technology Co., Ltd
FCC ID 2APJ4-SLM750V
Product SLM750
Brand MEIGLink
Model SLM750
Report No. R1908A0527-R3V1
Issue Date November 6, 2019

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2018)/ FCC CFR47 Part 27C (2018)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	27.50(d)(4) /27.50(b)(10) /27.50(c)(10)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	27.53(h) /27.53(g) /27.53(f) /27.53(c) /27.53(m)	PASS
5	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 27.54	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 /27.53(h) /27.53(g) /27.53(f) /27.53(c) /27.53(m)	PASS
8	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(g) /27.53(m) /27.53(f) /27.53(c)	PASS
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard.			
Date of Testing: September 3, 2019 ~ September 24, 2019			



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.

1.2 Test facility

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

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

IC (recognition number is 8510A)

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

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

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

A2LA (Certificate Number: 3857.01)

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



1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
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2 General Description of Equipment under Test

Client Information

Applicant	MeiG Smart Technology Co., Ltd
Applicant address	3F, No.88, Qinjiang Road, Xuhui District, Shanghai, China
Manufacturer	MeiG Smart Technology Co., Ltd
Manufacturer address	3F, No.88, Qinjiang Road, Xuhui District, Shanghai, China

General information

EUT Description			
Model	SLM750		
IMEI	863879041726491		
Hardware Version	SLM750-V_MB_V1.00		
Software Version	SLM750-V_2.0.2D_EQ100		
Power Supply	External Power Supply		
Antenna Type	PCB Antenna		
Antenna Gain	WCDMA IV :2.5dBi LTE Band 4:2.5dBi LTE Band 12:1.8dBi LTE Band 13:1.8dBi LTE Band 17:1.8dBi LTE Band 41:3.9dBi		
Test Mode(s)	WCDMA Band IV; LTE Band 4/12/13/17/41		
Test Modulation	(WCDMA) BPSK, QPSK, (LTE)QPSK 16QAM;		
HSDPA UE Category	12		
HSUPA UE Category	8		
LTE Category	4		
Maximum E.I.R.P./ E.R.P.	WCDMA Band IV:	25.47dBm	
	LTE Band 4:	25.20dBm	
	LTE Band 12:	23.34dBm	
	LTE Band 13:	22.96dBm	
	LTE Band 17	23.13dBm	
	LTE Band 41:	26.62dBm	
Rated Power Supply Voltage:	3.8V		
Extreme Voltage	Minimum: 3.3V Maximum: 4.2V		
Extreme Temperature	Lowest: -40°C Highest: +85°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155



	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 13	777 ~ 787	746 ~ 756
	LTE Band 17	704 ~ 716	734 ~ 746
	LTE Band 41	2496 ~ 2690	2496 ~ 2690

Note: 1. The information of the EUT is declared by the manufacturer.



3 Applied Standards

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

Test standards

FCC CFR47 Part 2 (2018)

FCC CFR47 Part 27C (2018)

ANSI C63.26 (2015)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4 Test Configuration

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 (X 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 WCDMA/LTE is set based on the maximum RF Output Power.

The following testing in different Bandwidth is set to detail in the following table:

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

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



Test modes are chosen to be reported as the worst case configuration below for LTE Band 4/12/13/17/41:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	LTE 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Effective Isotropic Radiated power	LTE 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Occupied Bandwidth	LTE 4	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	-	-	0	0	0	0
Band Edge Compliance	LTE 4	0	0	0	0	0	0	0	0	0	-	0	0	-	0
	LTE 12	0	0	0	0	-	-	0	0	0	-	0	0	-	0
	LTE 13	-	-	0	0	-	-	0	0	0	-	0	0	-	0
	LTE 17	-	-	0	0	-	-	0	0	0	-	0	0	-	0
	LTE 41	-	-	0	0	0	0	0	0	0	-	0	0	-	0
Peak-to-Average Power Ratio	LTE 4	0	0	0	0	0	0	0	0	-	-	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	-	-	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	-	-	0	0	0	0
Frequency Stability	LTE 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	LTE 12	0	0	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 13	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 17	-	-	0	0	-	-	0	0	0	0	0	0	0	0
	LTE 41	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Spurious Emissions at Antenna Terminals	LTE 4	0	0	0	0	0	0	0	-	0	-	-	0	0	0
	LTE 12	0	0	0	0	-	-	0	-	0	-	-	0	0	0
	LTE 13	-	-	0	0	-	-	0	-	0	-	-	0	0	0
	LTE 17	-	-	0	0	-	-	0	-	0	-	-	0	0	0
	LTE 41	-	-	0	0	0	0	0	-	0	-	-	0	0	0



	LTE 41	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 4	O	-	O	-	-	O	O	-	O	-	-	O	O	O
	LTE 12	O	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 13	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 17	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 41	-	-	O	O	-	O	O	-	O	-	-	-	O	-
Note	<p>1. The mark "O" means that this configuration is chosen for testing.</p> <p>2. The mark "-" means that this configuration is not testing.</p>														

5 Test Case Results

5.1 RF Power Output

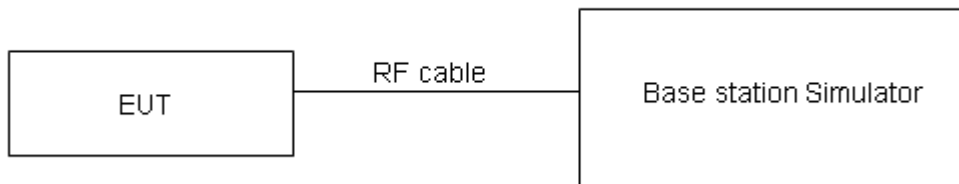
Ambient condition

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

WCDMA Band IV		AV Conducted Power(dBm)		
		Channel 1312	Channel 1413	Channel 1513
		1712.4 (MHz)	1732.6 (MHz)	1752.6(MHz)
RMC		22.97	22.94	22.87
HSDPA	Sub - Test 1	22.43	22.36	22.31
	Sub - Test 2	22.42	22.38	22.28
	Sub - Test 3	21.89	21.88	21.80
	Sub - Test 4	21.90	21.89	21.78
HSUPA	Sub - Test 1	22.39	22.35	22.26
	Sub - Test 2	21.38	21.33	21.25
	Sub - Test 3	21.85	21.81	21.74
	Sub - Test 4	21.31	21.30	21.22
	Sub - Test 5	22.32	22.28	22.20
DC-HSDPA	Sub - Test 1	22.31	22.30	22.21
	Sub - Test 2	22.30	22.29	22.20
	Sub - Test 3	21.88	21.78	21.71
	Sub - Test 4	21.87	21.77	21.70



LTE Band 4				AV Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19957/1710.7	20175/1732.5	20393/1754.3
1.4MHz	QPSK	1	0	22.13	22.38	22.63
		1	2	22.34	22.20	22.65
		1	5	22.29	22.25	22.55
		3	0	21.01	21.15	21.41
		3	2	21.06	21.19	21.35
		3	3	21.18	21.22	21.29
		6	0	21.14	21.25	21.36
	16QAM	1	0	21.10	21.96	21.94
		1	2	21.09	22.12	21.90
		1	5	20.99	22.00	21.63
		3	0	20.12	20.05	20.26
		3	2	20.11	20.04	20.23
		3	3	20.17	20.04	20.09
		6	0	20.31	20.36	20.21
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19965/1711.5	20175/1732.5	20385/1753.5
3MHz	QPSK	1	0	22.15	22.42	22.66
		1	7	22.37	22.25	22.69
		1	14	22.32	22.30	22.59
		8	0	21.09	21.25	21.52
		8	4	21.16	21.27	21.45
		8	7	21.26	21.31	21.37
		15	0	21.17	21.29	21.39
	16QAM	1	0	21.13	21.98	21.97
		1	7	21.12	22.17	21.94
		1	14	21.01	22.04	21.66
		8	0	20.21	20.16	20.36
		8	4	20.20	20.15	20.33
		8	7	20.25	20.14	20.20
		15	0	20.34	20.40	20.24
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				19975/1712.5	20175/1732.5	20375/1752.5
5MHz	QPSK	1	0	22.12	22.40	22.62
		1	13	22.35	22.21	22.66
		1	24	22.29	22.25	22.55
		12	0	21.06	21.20	21.48
		12	6	21.14	21.23	21.40
		12	13	21.24	21.29	21.33
		25	0	21.15	21.28	21.37



	16QAM	1	0	21.10	21.94	21.94
		1	13	21.09	22.15	21.91
		1	24	20.98	22.02	21.62
		12	0	20.19	20.12	20.33
		12	6	20.17	20.10	20.29
		12	13	20.22	20.09	20.16
		25	0	20.32	20.36	20.19
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20000/1715	20175/1732.5	20350/1750
10MHz	QPSK	1	0	22.14	22.41	22.65
		1	25	22.38	22.26	22.70
		1	49	22.31	22.29	22.58
		25	0	21.09	21.25	21.52
		25	13	21.17	21.28	21.44
		25	25	21.26	21.33	21.38
		50	0	21.23	21.30	21.41
	16QAM	1	0	21.12	21.97	21.96
		1	25	21.12	22.19	21.94
		1	49	21.01	22.04	21.65
		25	0	20.22	20.17	20.37
		25	13	20.19	20.14	20.32
		25	25	20.25	20.14	20.20
		50	0	20.35	20.41	20.23
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20025/1717.5	20175/1732.5	20325/1747.5
15MHz	QPSK	1	0	22.13	22.37	22.63
		1	38	22.36	22.25	22.67
		1	74	22.28	22.24	22.54
		36	0	21.07	21.21	21.49
		36	18	21.14	21.23	21.40
		36	39	21.23	21.30	21.34
		75	0	21.21	21.26	21.36
	16QAM	1	0	21.07	21.95	21.94
		1	38	21.10	22.16	21.92
		1	74	20.98	22.00	21.62
		36	0	20.19	20.15	20.34
		36	18	20.16	20.09	20.28
		36	39	20.23	20.10	20.17
		75	0	20.32	20.36	20.19
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				20050/1720	20175/1732.5	20300/1745
20MHz	QPSK	1	0	22.10	22.33	22.60
		1	50	22.35	22.21	22.65



		1	99	22.26	22.23	22.51
		50	0	21.04	21.16	21.45
		50	25	21.12	21.19	21.37
		50	50	21.20	21.25	21.30
		100	0	21.18	21.21	21.32
	16QAM	1	0	21.05	21.91	21.89
		1	50	21.06	22.14	21.88
		1	99	20.96	21.97	21.60
		50	0	20.16	20.11	20.31
		50	25	20.13	20.07	20.25
		50	50	20.20	20.05	20.13
		100	0	20.30	20.32	20.16

LTE Band 12				AV Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23017/699.7	23095/707.5	23173/715.3
1.4MHz	QPSK	1	0	23.37	23.27	23.06
		1	2	23.24	23.22	23.65
		1	5	23.35	23.35	23.07
		3	0	22.39	22.19	22.32
		3	2	22.35	22.25	22.28
		3	3	22.24	22.40	22.27
		6	0	22.31	22.37	22.38
	16QAM	1	0	22.53	22.86	21.76
		1	2	22.84	22.21	22.42
		1	5	22.40	22.92	21.84
		3	0	21.47	21.46	21.56
		3	2	21.40	21.44	21.52
		3	3	21.31	21.41	21.49
		6	0	21.41	22.33	21.35
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23025/700.5	23095/707.5	23165/714.5
3MHz	QPSK	1	0	23.39	23.28	23.09
		1	7	23.27	23.27	23.69
		1	14	23.37	23.39	23.10
		8	0	22.42	22.24	22.36
		8	4	22.38	22.30	22.32
		8	7	22.26	22.44	22.32
		15	0	22.39	22.39	22.42
	16QAM	1	0	22.55	22.89	21.78
		1	7	22.87	22.25	22.45



Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23035/701.5	23095/707.5	23155/713.5
		1	14	22.43	22.94	21.87
		8	0	21.50	21.51	21.60
		8	4	21.42	21.48	21.55
		8	7	21.34	21.46	21.53
		15	0	21.44	22.38	21.39
5MHz	QPSK	1	0	23.38	23.24	23.07
		1	13	23.25	23.26	23.66
1		24	23.34	23.34	23.06	
12		0	22.40	22.20	22.33	
12		6	22.35	22.25	22.28	
12		13	22.23	22.41	22.28	
25		0	22.37	22.35	22.37	
5MHz	16QAM	1	0	22.50	22.87	21.76
		1	13	22.85	22.22	22.43
1		24	22.40	22.90	21.84	
12		0	21.47	21.49	21.57	
12		6	21.39	21.43	21.51	
12		13	21.32	21.42	21.50	
25		0	21.41	22.33	21.35	
10MHz	QPSK	1	0	23.35	23.20	23.04
		1	25	23.24	23.22	23.64
1		49	23.32	23.33	23.03	
25		0	22.37	22.15	22.29	
25		13	22.33	22.21	22.25	
25		25	22.20	22.36	22.24	
50		0	22.34	22.30	22.33	
10MHz	16QAM	1	0	22.48	22.83	21.71
		1	25	22.81	22.20	22.39
1		49	22.38	22.87	21.82	
25		0	21.44	21.45	21.54	
25		13	21.36	21.41	21.48	
25		25	21.29	21.37	21.46	
50		0	21.39	22.29	21.32	

LTE Band 13				AV Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23205/779.5	23230/782	23255/784.5
5MHz	QPSK	1	0	22.95	23.13	23.22
		1	13	23.01	23.11	23.11



		1	24	23.18	23.21	23.31
		12	0	22.15	22.11	22.29
		12	6	22.06	22.17	22.25
		12	13	22.07	22.31	22.29
		25	0	21.89	22.20	22.28
	16QAM	1	0	22.35	21.57	21.81
		1	13	22.28	21.72	22.16
		1	24	22.49	21.61	21.66
		12	0	21.11	21.14	21.19
		12	6	21.03	21.24	21.21
		12	13	20.92	21.31	21.28
	25	0	21.18	21.28	21.26	
	Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)	
				/	23230/782	/
10MHz	QPSK	1	0	/	23.17	/
		1	25	/	23.31	/
		1	49	/	23.11	/
		25	0	/	22.08	/
		25	13	/	22.05	/
		25	25	/	22.04	/
		50	0	/	22.23	/
	16QAM	1	0	/	21.62	/
		1	25	/	21.69	/
		1	49	/	21.70	/
		25	0	/	21.17	/
		25	13	/	21.23	/
		25	25	/	21.32	/
		50	0	/	21.16	/

LTE Band 17				AV Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23755/706.5	23790/710	23825/713.5
5MHz	QPSK	1	0	23.38	23.40	23.29
		1	13	23.46	23.31	23.48
		1	24	23.36	23.21	23.28
		12	0	22.44	22.39	22.36
		12	6	22.38	22.41	22.36
		12	13	22.29	22.52	22.50
		25	0	22.45	22.34	22.49
	16QAM	1	0	22.29	22.65	22.90
		1	13	22.17	23.14	22.95
		1	24	22.04	22.41	23.12
		12	0	21.58	21.52	21.37



Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				23780/709	23790/710	23800/711
10MHz	QPSK	12	6	21.30	21.45	21.40
		12	13	21.58	21.58	21.46
		25	0	21.45	21.59	21.50
		1	0	23.35	23.36	23.26
		1	25	23.45	23.27	23.46
		1	49	23.34	23.20	23.25
		25	0	22.41	22.34	22.32
	16QAM	25	13	22.36	22.37	22.33
		25	25	22.26	22.47	22.46
		50	0	22.42	22.29	22.45
		1	0	22.27	22.61	22.85
		1	25	22.13	23.12	22.91
		1	49	22.02	22.38	23.10
		25	0	21.55	21.48	21.34
25	13	21.27	21.43	21.37		
25	25	21.55	21.53	21.42		
50	0	21.43	21.55	21.47		

LTE Band 41				AV Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				39675/2498.5	40620/2593	41565/2687.5
5MHz	QPSK	1	0	22.36	22.44	21.73
		1	13	22.69	22.43	22.19
		1	24	22.23	22.28	21.98
		12	0	21.37	21.23	21.16
		12	6	21.35	21.26	21.19
		12	13	21.36	21.35	21.24
		25	0	21.33	21.29	21.34
	16QAM	1	0	21.05	21.65	21.59
		1	13	21.19	21.93	21.98
		1	24	20.74	21.54	21.52
		12	0	20.53	20.12	20.33
		12	6	20.52	20.11	20.30
		12	13	20.46	20.17	20.25
		25	0	20.47	20.29	20.27
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				39700/2501	40620/2593	41540/2685
10MHz	QPSK	1	0	22.38	22.45	21.76



		1	25	22.72	22.48	22.23
		1	49	22.25	22.32	22.01
		25	0	21.40	21.28	21.20
		25	13	21.38	21.31	21.23
		25	25	21.38	21.39	21.29
		50	0	21.41	21.31	21.38
	16QAM	1	0	21.07	21.68	21.61
		1	25	21.22	21.97	22.01
		1	49	20.77	21.56	21.55
		25	0	20.56	20.17	20.37
		25	13	20.54	20.15	20.33
		25	25	20.49	20.22	20.29
		50	0	20.50	20.34	20.31
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				39725/2503.5	40620/2593	41515/2682.5
15MHz	QPSK	1	0	22.37	22.41	21.74
		1	38	22.70	22.47	22.20
		1	74	22.22	22.27	21.97
		36	0	21.38	21.24	21.17
		36	18	21.35	21.26	21.19
		36	39	21.35	21.36	21.25
		75	0	21.39	21.27	21.33
	16QAM	1	0	21.02	21.66	21.59
		1	38	21.20	21.94	21.99
		1	74	20.74	21.52	21.52
		36	0	20.53	20.15	20.34
		36	18	20.51	20.10	20.29
		36	39	20.47	20.18	20.26
		75	0	20.47	20.29	20.27
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				39750/2506	40620/2593	41490/2680
20MHz	QPSK	1	0	22.34	22.37	21.71
		1	50	22.69	22.43	22.18
		1	99	22.20	22.26	21.94
		50	0	21.35	21.19	21.13
		50	25	21.33	21.22	21.16
		50	50	21.32	21.31	21.21
		100	0	21.36	21.22	21.29
	16QAM	1	0	21.00	21.62	21.54
		1	50	21.16	21.92	21.95



		1	99	20.72	21.49	21.50
		50	0	20.50	20.11	20.31
		50	25	20.48	20.08	20.26
		50	50	20.44	20.13	20.22
		100	0	20.45	20.25	20.24

5.2 Effective Isotropic Radiated Power

Ambient condition

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

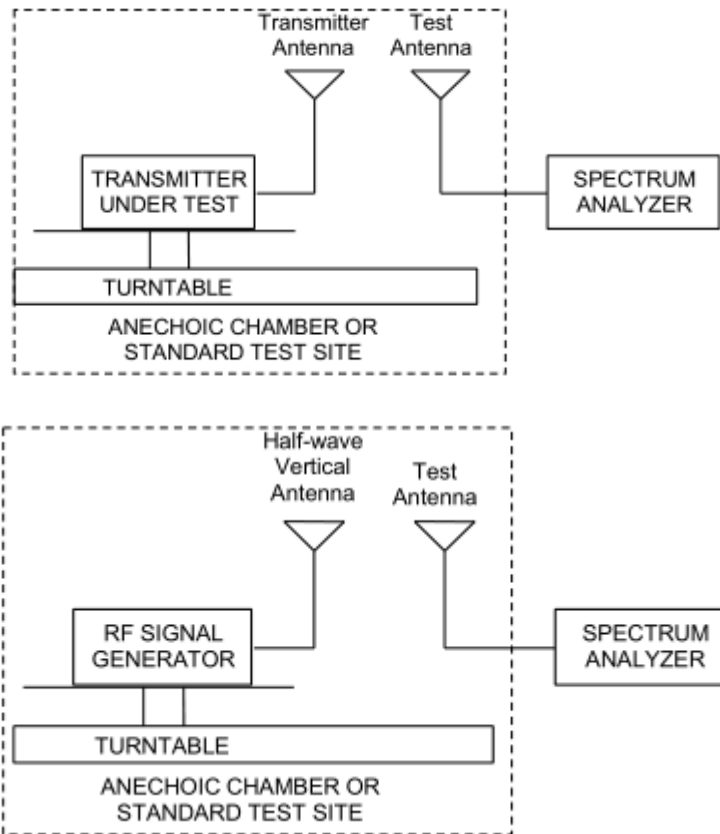
Methods of Measurement

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).

- a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.
- b) Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).
- c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.
- d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading. $LOSS = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$
- e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation: $ERP \text{ (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$
- f) The maximum ERP is the maximum value determined in the preceding step.
- g) When calculating ERP, in addition to knowing the antenna radiation and matching characteristics, it is necessary to know the loss values of all elements (e.g. transmission line attenuation, mismatches, filters, combiners) interposed between the point where transmitter output power is measured, and the point where power is applied to the antenna. ERP can then be calculated as follows:
 $EIRP \text{ (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$
where: dBd refers to gain relative to an ideal dipole.
 $EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB.)}$

The RB allocation refers to section 5.1, using the maximum output power configuration.

Test setup



Note: Area side:2.4mX3.6m

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

**Limits**

Rule Part 27.50(b) (10) specifies that “Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP”

Rule Part 27.50(c) (10) specifies that “Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP”

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.”

Part 27.50(b)(10)	$\leq 3 \text{ W}$ (34.77 dBm)
Part 27.50(c)(10)	$\leq 3 \text{ W}$ (34.77 dBm)
Part 27.50(d)(4)	$\leq 1 \text{ W}$ (30 dBm)
Part 27.50(h)(2)	$\leq 2 \text{ W}$ (33 dBm)

Measurement Uncertainty

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

**Test Results**

The measurement is performed for both of horizontal and vertical antenna Polarization, and only the data of worst mode is recorded in this report.

WCDMA Band IV		EIRP(dBm)			Limit (dBm)
		Channel 1312	Channel 1413	Channel 1513	
		1712.4 (MHz)	1732.6 (MHz)	1752.6(MHz)	
RMC		25.47	25.44	25.37	30
HSDPA	Sub - Test 1	24.93	24.86	24.81	30
	Sub - Test 2	24.92	24.88	24.78	30
	Sub - Test 3	24.39	24.38	24.30	30
	Sub - Test 4	24.40	24.39	24.28	30
HSUPA	Sub - Test 1	24.89	24.85	24.76	30
	Sub - Test 2	23.88	23.83	23.75	30
	Sub - Test 3	24.35	24.31	24.24	30
	Sub - Test 4	23.81	23.80	23.72	30
	Sub - Test 5	24.82	24.78	24.70	30
DC-HSDPA	Sub - Test 1	24.81	24.80	24.71	30
	Sub - Test 2	24.80	24.79	24.70	30
	Sub - Test 3	24.38	24.28	24.21	30
	Sub - Test 4	24.37	24.27	24.20	30



LTE Band 4				EIRP(dBm)			Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	24.63	24.88	25.13	30
		1	2	24.84	24.70	25.15	30
		1	5	24.79	24.75	25.05	30
		3	0	23.51	23.65	23.91	30
		3	2	23.56	23.69	23.85	30
		3	3	23.68	23.72	23.79	30
		6	0	23.64	23.75	23.86	30
	16QAM	1	0	23.60	24.46	24.44	30
		1	2	23.59	24.62	24.40	30
		1	5	23.49	24.50	24.13	30
		3	0	22.62	22.55	22.76	30
		3	2	22.61	22.54	22.73	30
		3	3	22.67	22.54	22.59	30
		6	0	22.81	22.86	22.71	30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	24.65	24.92	25.16	30
		1	7	24.87	24.75	25.19	30
		1	14	24.82	24.80	25.09	30
		8	0	23.59	23.75	24.02	30
		8	4	23.66	23.77	23.95	30
		8	7	23.76	23.81	23.87	30
		15	0	23.67	23.79	23.89	30
	16QAM	1	0	23.63	24.48	24.47	30
		1	7	23.62	24.67	24.44	30
		1	14	23.51	24.54	24.16	30
		8	0	22.71	22.66	22.86	30
		8	4	22.70	22.65	22.83	30
		8	7	22.75	22.64	22.70	30
		15	0	22.84	22.90	22.74	30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	24.62	24.90	25.12	30
		1	13	24.85	24.71	25.16	30
		1	24	24.79	24.75	25.05	30
		12	0	23.56	23.70	23.98	30
		12	6	23.64	23.73	23.90	30
		12	13	23.74	23.79	23.83	30
		25	0	23.65	23.78	23.87	30



Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				20000/1715	20175/1732.5	20350/1750	
	16QAM	1	0	23.60	24.44	24.44	30
		1	13	23.59	24.65	24.41	30
		1	24	23.48	24.52	24.12	30
		12	0	22.69	22.62	22.83	30
		12	6	22.67	22.60	22.79	30
		12	13	22.72	22.59	22.66	30
		25	0	22.82	22.86	22.69	30
10MHz	QPSK	1	0	24.64	24.91	25.15	30
		1	25	24.88	24.76	25.20	30
		1	49	24.81	24.79	25.08	30
		25	0	23.59	23.75	24.02	30
		25	13	23.67	23.78	23.94	30
		25	25	23.76	23.83	23.88	30
		50	0	23.73	23.80	23.91	30
	16QAM	1	0	23.62	24.47	24.46	30
		1	25	23.62	24.69	24.44	30
		1	49	23.51	24.54	24.15	30
		25	0	22.72	22.67	22.87	30
		25	13	22.69	22.64	22.82	30
		25	25	22.75	22.64	22.70	30
		50	0	22.85	22.91	22.73	30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	24.63	24.87	25.13	30
		1	38	24.86	24.75	25.17	30
		1	74	24.78	24.74	25.04	30
		36	0	23.57	23.71	23.99	30
		36	18	23.64	23.73	23.90	30
		36	39	23.73	23.80	23.84	30
		75	0	23.71	23.76	23.86	30
	16QAM	1	0	23.57	24.45	24.44	30
		1	38	23.60	24.66	24.42	30
		1	74	23.48	24.50	24.12	30
		36	0	22.69	22.65	22.84	30
		36	18	22.66	22.59	22.78	30
		36	39	22.73	22.60	22.67	30
		75	0	22.82	22.86	22.69	30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	24.60	24.83	25.10	30
		1	50	24.85	24.71	25.15	30



		1	99	24.76	24.73	25.01	30
		50	0	23.54	23.66	23.95	30
		50	25	23.62	23.69	23.87	30
		50	50	23.70	23.75	23.8	30
		100	0	23.68	23.71	23.82	30
	16QAM	1	0	23.55	24.41	24.39	30
		1	50	23.56	24.64	24.38	30
		1	99	23.46	24.47	24.1	30
		50	0	22.66	22.61	22.81	30
		50	25	22.63	22.57	22.75	30
		50	50	22.70	22.55	22.63	30
		100	0	22.80	22.82	22.66	30

LTE Band 12			ERP(dBm)				Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23017/699.7	23095/707.5	23173/715.3	
1.4MHz	QPSK	1	0	23.02	22.92	22.71	34.77
		1	2	22.89	22.87	23.30	34.77
		1	5	23.00	23.00	22.72	34.77
		3	0	22.04	21.84	21.97	34.77
		3	2	22.00	21.90	21.93	34.77
		3	3	21.89	22.05	21.92	34.77
		6	0	21.96	22.02	22.03	34.77
	16QAM	1	0	22.18	22.51	21.41	34.77
		1	2	22.49	21.86	22.07	34.77
		1	5	22.05	22.57	21.49	34.77
		3	0	21.12	21.11	21.21	34.77
		3	2	21.05	21.09	21.17	34.77
		3	3	20.96	21.06	21.14	34.77
		6	0	21.06	21.98	21.00	34.77
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	23.04	22.93	22.74	34.77
		1	7	22.92	22.92	23.34	34.77
		1	14	23.02	23.04	22.75	34.77
		8	0	22.07	21.89	22.01	34.77
		8	4	22.03	21.95	21.97	34.77
		8	7	21.91	22.09	21.97	34.77
		15	0	22.04	22.04	22.07	34.77
	16QAM	1	0	22.20	22.54	21.43	34.77
		1	7	22.52	21.90	22.10	34.77



Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				23035/701.5	23095/707.5	23155/713.5	
		1	14	22.08	22.59	21.52	34.77
		8	0	21.15	21.16	21.25	34.77
		8	4	21.07	21.13	21.20	34.77
		8	7	20.99	21.11	21.18	34.77
		15	0	21.09	22.03	21.04	34.77
5MHz	QPSK	1	0	23.03	22.89	22.72	34.77
		1	13	22.90	22.91	23.31	34.77
1		24	22.99	22.99	22.71	34.77	
12		0	22.05	21.85	21.98	34.77	
12		6	22.00	21.90	21.93	34.77	
12		13	21.88	22.06	21.93	34.77	
25		0	22.02	22.00	22.02	34.77	
16QAM		1	0	22.15	22.52	21.41	34.77
		1	13	22.50	21.87	22.08	34.77
		1	24	22.05	22.55	21.49	34.77
		12	0	21.12	21.14	21.22	34.77
		12	6	21.04	21.08	21.16	34.77
		12	13	20.97	21.07	21.15	34.77
	25	0	21.06	21.98	21.00	34.77	
10MHz	QPSK	1	0	23.00	22.85	22.69	34.77
		1	25	22.89	22.87	23.29	34.77
1		49	22.97	22.98	22.68	34.77	
25		0	22.02	21.80	21.94	34.77	
25		13	21.98	21.86	21.90	34.77	
25		25	21.85	22.01	21.89	34.77	
50		0	21.99	21.95	21.98	34.77	
16QAM		1	0	22.13	22.48	21.36	34.77
		1	25	22.46	21.85	22.04	34.77
		1	49	22.03	22.52	21.47	34.77
		25	0	21.09	21.10	21.19	34.77
		25	13	21.01	21.06	21.13	34.77
		25	25	20.94	21.02	21.11	34.77
	50	0	21.04	21.94	20.97	34.77	
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				23060/704	23095/707.5	23130/711	



LTE Band 13				ERP(dBm)			Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23205/779.5	23230/782	23255/784.5	
5MHz	QPSK	1	0	22.60	22.78	22.87	34.77
		1	13	22.66	22.76	22.76	34.77
		1	24	22.83	22.86	22.96	34.77
		12	0	21.80	21.76	21.94	34.77
		12	6	21.71	21.82	21.90	34.77
		12	13	21.72	21.96	21.94	34.77
		25	0	21.54	21.85	21.93	34.77
	16QAM	1	0	22.00	21.22	21.46	34.77
		1	13	21.93	21.37	21.81	34.77
		1	24	22.14	21.26	21.31	34.77
		12	0	20.76	20.79	20.84	34.77
		12	6	20.68	20.89	20.86	34.77
		12	13	20.57	20.96	20.93	34.77
		25	0	20.83	20.93	20.91	34.77
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
10MHz	QPSK	1	0	/	22.82	/	34.77
		1	25	/	22.96	/	34.77
		1	49	/	22.76	/	34.77
		25	0	/	21.73	/	34.77
		25	13	/	21.70	/	34.77
		25	25	/	21.69	/	34.77
		50	0	/	21.88	/	34.77
	16QAM	1	0	/	21.27	/	34.77
		1	25	/	21.34	/	34.77
		1	49	/	21.35	/	34.77
		25	0	/	20.82	/	34.77
		25	13	/	20.88	/	34.77
		25	25	/	20.97	/	34.77
		50	0	/	20.81	/	34.77



LTE Band 17				ERP(dBm)			Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23755/706.5	23790/710	23825/713.5	
5MHz	QPSK	1	0	23.03	23.05	22.94	34.77
		1	13	23.11	22.96	23.13	34.77
		1	24	23.01	22.86	22.93	34.77
		12	0	22.09	22.04	22.01	34.77
		12	6	22.03	22.06	22.01	34.77
		12	13	21.94	22.17	22.15	34.77
		25	0	22.10	21.99	22.14	34.77
	16QAM	1	0	21.94	22.30	22.55	34.77
		1	13	21.82	22.79	22.60	34.77
		1	24	21.69	22.06	22.77	34.77
		12	0	21.23	21.17	21.02	34.77
		12	6	20.95	21.10	21.05	34.77
		12	13	21.23	21.23	21.11	34.77
		25	0	21.10	21.24	21.15	34.77
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				23780/709	23790/710	23800/711	
10MHz	QPSK	1	0	23.00	23.01	22.91	34.77
		1	25	23.10	22.92	23.11	34.77
		1	49	22.99	22.85	22.9	34.77
		25	0	22.06	21.99	21.97	34.77
		25	13	22.01	22.02	21.98	34.77
		25	25	21.91	22.12	22.11	34.77
		50	0	22.07	21.94	22.10	34.77
	16QAM	1	0	21.92	22.26	22.50	34.77
		1	25	21.78	22.77	22.56	34.77
		1	49	21.67	22.03	22.75	34.77
		25	0	21.20	21.13	20.99	34.77
		25	13	20.92	21.08	21.02	34.77
		25	25	21.20	21.18	21.07	34.77
		50	0	21.08	21.20	21.12	34.77

LTE Band 41				EIRP(dBm)			Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				39675/2498.5	40620/2593	41565/2687.5	
5MHz	QPSK	1	0	26.26	26.34	25.63	33
		1	13	26.59	26.33	26.09	33



		1	24	26.13	26.18	25.88	33	
		12	0	25.27	25.13	25.06	33	
		12	6	25.25	25.16	25.09	33	
		12	13	25.26	25.25	25.14	33	
		25	0	25.23	25.19	25.24	33	
	16QAM	1	0	24.95	25.55	25.49	33	
		1	13	25.09	25.83	25.88	33	
		1	24	24.64	25.44	25.42	33	
		12	0	24.43	24.02	24.23	33	
		12	6	24.42	24.01	24.20	33	
		12	13	24.36	24.07	24.15	33	
		25	0	24.37	24.19	24.17	33	
	Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
					39700/2501	40620/2593	41540/2685	
10MHz	QPSK	1	0	26.28	26.35	25.66	33	
		1	25	26.62	26.38	26.13	33	
		1	49	26.15	26.22	25.91	33	
		25	0	25.30	25.18	25.10	33	
		25	13	25.28	25.21	25.13	33	
		25	25	25.28	25.29	25.19	33	
		50	0	25.31	25.21	25.28	33	
	16QAM	1	0	24.97	25.58	25.51	33	
		1	25	25.12	25.87	25.91	33	
		1	49	24.67	25.46	25.45	33	
		25	0	24.46	24.07	24.27	33	
		25	13	24.44	24.05	24.23	33	
		25	25	24.39	24.12	24.19	33	
		50	0	24.40	24.24	24.21	33	
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)	
				39725/2503.5	40620/2593	41515/2682.5		
15MHz	QPSK	1	0	26.27	26.31	25.64	33	
		1	38	26.60	26.37	26.10	33	
		1	74	26.12	26.17	25.87	33	
		36	0	25.28	25.14	25.07	33	
		36	18	25.25	25.16	25.09	33	
		36	39	25.25	25.26	25.15	33	
		75	0	25.29	25.17	25.23	33	
	16QAM	1	0	24.92	25.56	25.49	33	
		1	38	25.10	25.84	25.89	33	



		1	74	24.64	25.42	25.42	33
		36	0	24.43	24.05	24.24	33
		36	18	24.41	24.00	24.19	33
		36	39	24.37	24.08	24.16	33
		75	0	24.37	24.19	24.17	33
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Limit (dBm)
				39750/2506	40620/2593	41490/2680	
20MHz	QPSK	1	0	26.24	26.27	25.61	33
		1	50	26.59	26.33	26.08	33
		1	99	26.10	26.16	25.84	33
		50	0	25.25	25.09	25.03	33
		50	25	25.23	25.12	25.06	33
		50	50	25.22	25.21	25.11	33
		100	0	25.26	25.12	25.19	33
	16QAM	1	0	24.90	25.52	25.44	33
		1	50	25.06	25.82	25.85	33
		1	99	24.62	25.39	25.40	33
		50	0	24.40	24.01	24.21	33
		50	25	24.38	23.98	24.16	33
		50	50	24.34	24.03	24.12	33
		100	0	24.35	24.15	24.14	33

5.3 Occupied Bandwidth

Ambient condition

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

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4/12 (1.4MHz).

RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4/12 (3MHz).

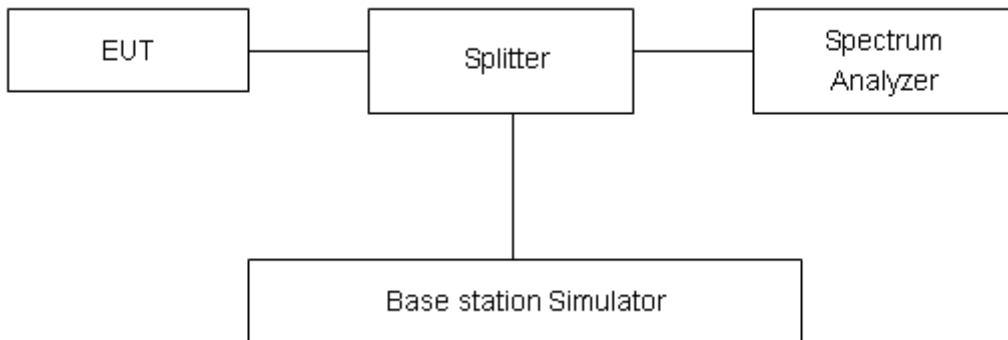
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4/12/13/41 (5MHz).

RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 4/12/13/41 (10MHz).

RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 4/41 (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 $k = 2$, $U=624\text{Hz}$.



Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
WCDMA Band IV (RMC)	1312	1712.4	4.1161	4.676
	1413	1732.6	4.1231	4.688
	1513	1752.6	4.1251	4.668

LTE Band 4						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	19957	1710.7	1.1217	1.350
			20175	1732.5	1.1224	1.350
			20393	1754.3	1.1218	1.330
		3	19965	1711.5	2.7431	3.078
			20175	1732.5	2.7522	3.071
			20385	1753.5	2.7369	3.069
		5	19975	1712.5	4.5377	5.034
			20175	1732.5	4.5192	5.013
			20375	1752.5	4.5084	4.999
		10	20000	1715	9.0159	10.020
			20175	1732.5	9.014	9.962
			20350	1750	9.0374	9.990
		15	20025	1717.5	13.465	14.840
			20175	1732.5	13.405	14.610
			20325	1747.5	13.405	14.660
		20	20050	1720	17.88	19.280
			20175	1732.5	17.824	19.090
			20300	1745	17.862	19.250
	16QAM	1.4	19957	1710.7	1.124	1.335
			20175	1732.5	1.1231	1.318
			20393	1754.3	1.1184	1.342
		3	19965	1711.5	2.7471	3.061
			20175	1732.5	2.7359	3.055
			20385	1753.5	2.7337	3.038
5		19975	1712.5	4.5201	4.976	
		20175	1732.5	4.5258	5.003	
		20375	1752.5	4.5315	4.971	
10		20000	1715	9.0049	9.973	
	20175	1732.5	9.0265	10.020		



		20350	1750	8.9865	9.899
	15	20025	1717.5	13.467	14.640
		20175	1732.5	13.417	13.700
		20325	1747.5	13.456	14.620
	20	20050	1720	17.846	19.230
		20175	1732.5	17.877	19.260
		20300	1745	17.863	19.200

LTE Band 12						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	23017	699.7	1.0977	1.321
			23095	707.5	1.1205	1.302
			23173	715.3	1.1097	1.326
		3	23025	700.5	2.7417	3.068
			23095	707.5	2.7441	3.052
			23165	714.5	2.743	3.056
		5	23035	701.5	4.5229	4.987
			23095	707.5	4.509	4.959
			23155	713.5	4.5031	4.978
		10	23060	704	9.0312	10.07
			23095	707.5	9.021	10.01
			23130	711	9.0044	9.88
	16QAM	1.4	23017	699.7	1.115	1.328
			23095	707.5	1.1173	1.327
			23173	715.3	1.1236	1.327
		3	23025	700.5	2.7363	3.019
			23095	707.5	2.7362	3.044
			23165	714.5	2.7442	3.05
		5	23035	701.5	4.5056	4.905
			23095	707.5	4.5276	5.009
			23155	713.5	4.5064	5.019
		10	23060	704	8.9843	9.974
			23095	707.5	9.0323	9.916
			23130	711	8.9865	9.939

LTE Band 13						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	23205	779.5	4.5146	5.013

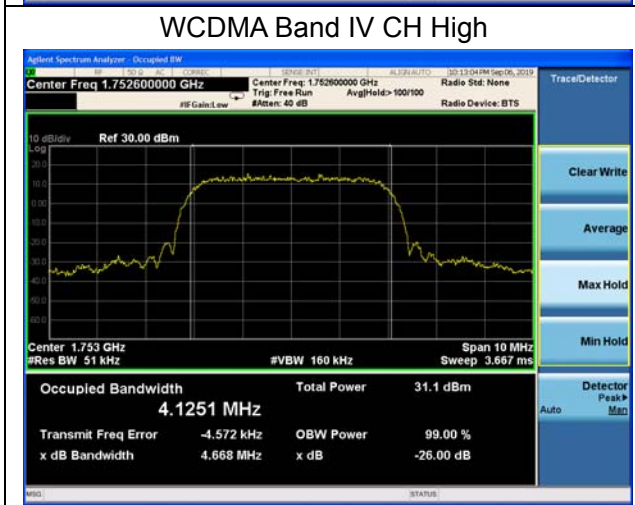
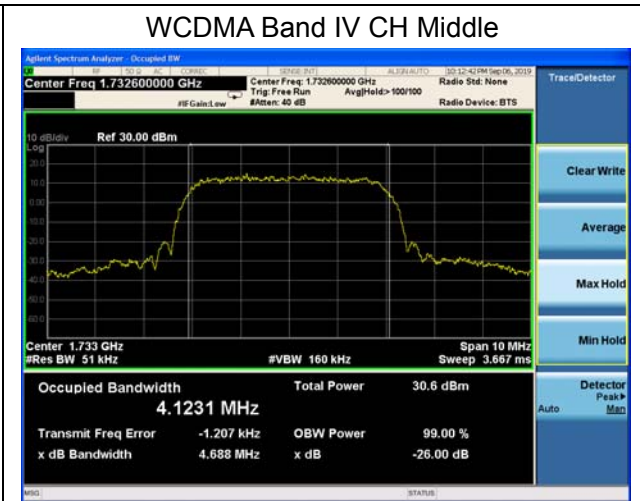
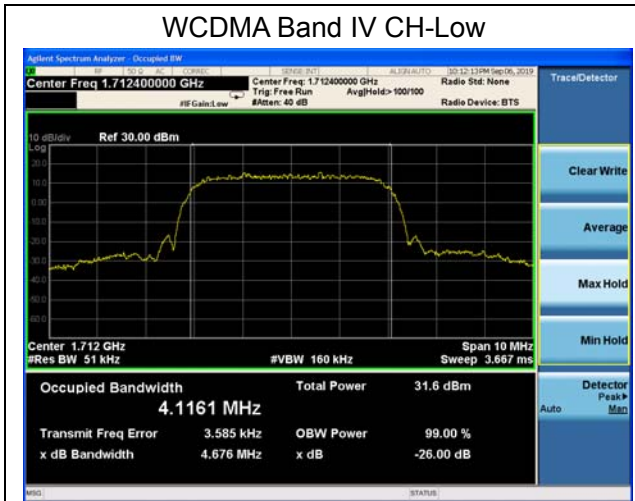


			23230	782	4.5118	4.968
			23255	784.5	4.5097	5.019
		10	23230	782	9.028	10.09
		16QAM	5	23205	779.5	4.5292
	23230			782	4.5272	5.058
	23255			784.5	4.5001	4.955
	10		23230	782	9.0337	9.946

LTE Band 17						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	23755	706.5	4.507	5.017
			23790	710	4.5013	4.979
			23825	713.5	4.5253	4.975
		10	23780	709	9.0302	10.08
			23790	710	9.0221	9.964
			23800	711	8.9966	10.06
	16QAM	5	23755	706.5	4.5251	4.996
			23790	710	4.5319	5.036
			23825	713.5	4.4966	5.015
		10	23780	709	9.0464	10.01
			23790	710	9.0162	10.04
			23800	711	9.0052	10.00

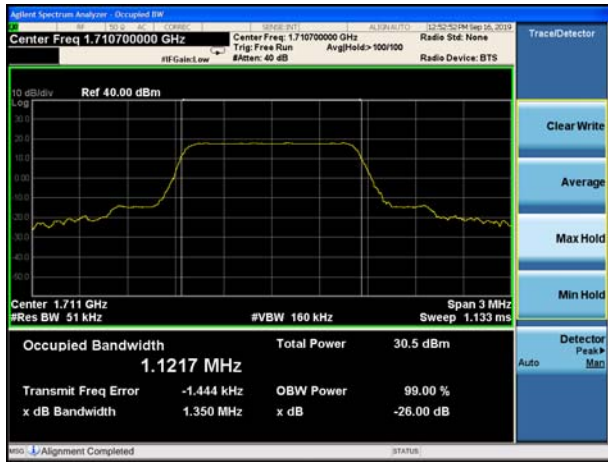


LTE Band 41						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	39675	2498.5	4.5114	4.95
			40620	2593	4.4991	4.909
			41565	2687.5	4.5071	4.978
		10	39700	2501	9.0199	10.03
			40620	2593	9.0304	9.914
			41540	2685	9.0344	10
		15	39725	2503.5	13.431	14.56
			40620	2593	13.444	15.05
			41515	2682.5	13.415	14.55
		20	39750	2506	17.867	19.03
			40620	2593	17.869	19.08
			41490	2680	17.836	19.1
	16QAM	5	39675	2498.5	4.5031	5.004
			40620	2593	4.495	5.005
			41565	2687.5	4.5047	4.968
		10	39700	2501	8.9819	9.938
			40620	2593	9.0224	9.88
			41540	2685	9.0292	9.929
		15	39725	2503.5	13.452	14.84
			40620	2593	13.417	14.54
			41515	2682.5	13.459	14.62
		20	39750	2506	17.881	19.16
			40620	2593	17.853	19.82
			41490	2680	17.821	19.24





LTE Band 4 QPSK 1.4MHz CH-Low



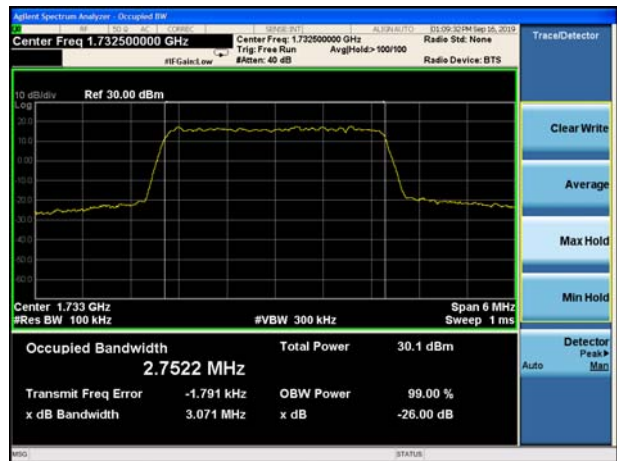
LTE Band 4 QPSK 3MHz CH-Low



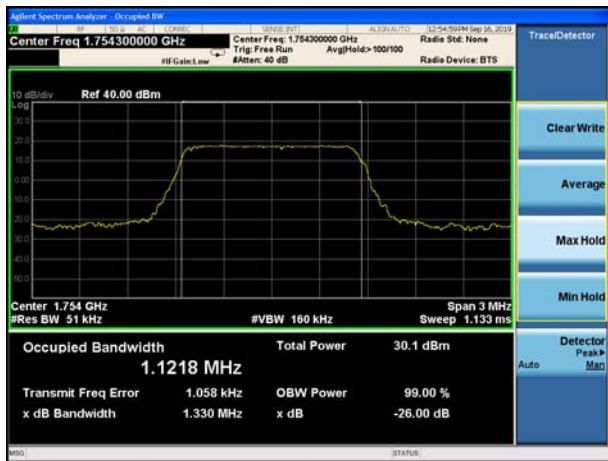
LTE Band 4 QPSK 1.4MHz CH-Middle



LTE Band 4 QPSK 3MHz CH-Middle



LTE Band 4 QPSK 1.4MHz CH-High



LTE Band 4 QPSK 3MHz CH-High





LTE Band 4 QPSK 5MHz CH-Low



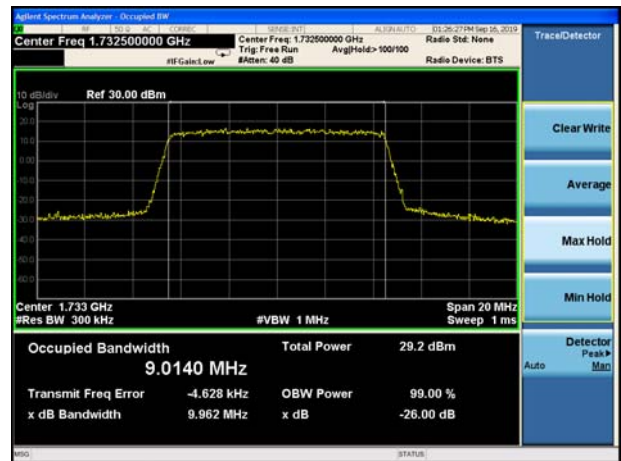
LTE Band 4 QPSK 10MHz CH-Low



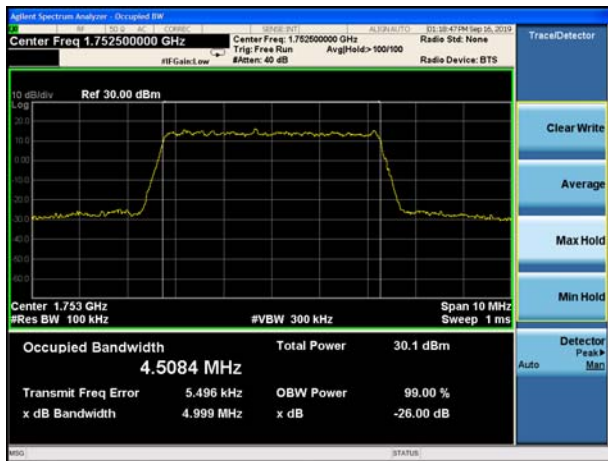
LTE Band 4 QPSK 5MHz CH-Middle



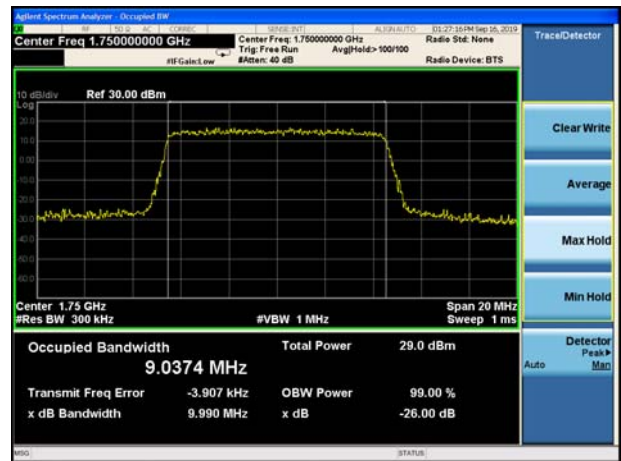
LTE Band 4 QPSK 10MHz CH-Middle



LTE Band 4 QPSK 5MHz CH-High

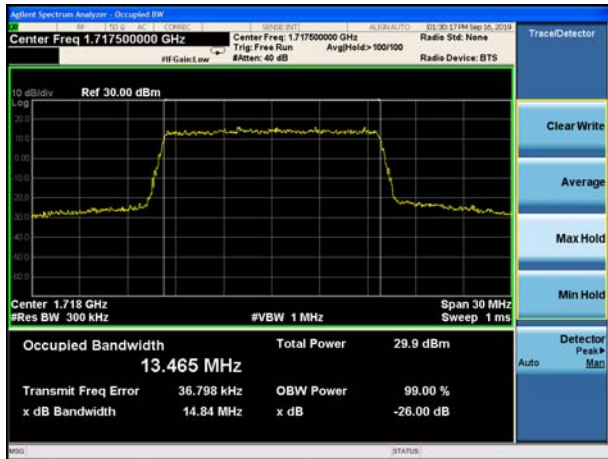


LTE Band 4 QPSK 10MHz CH-High





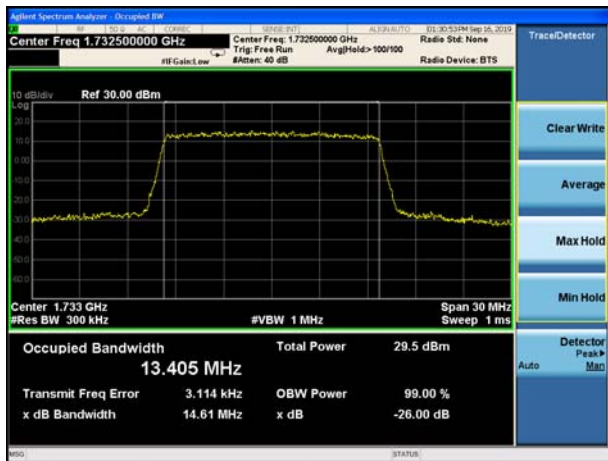
LTE Band 4 QPSK 15MHz CH-Low



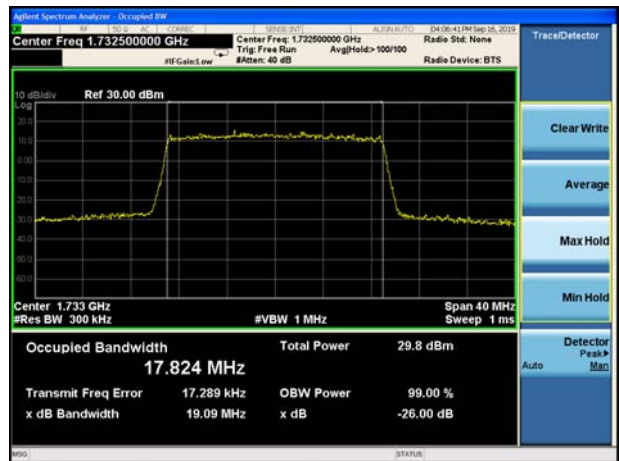
LTE Band 4 QPSK 20MHz CH-Low



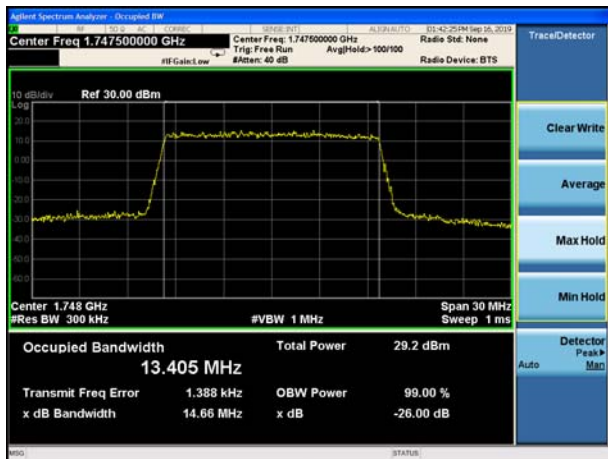
LTE Band 4 QPSK 15MHz CH-Middle



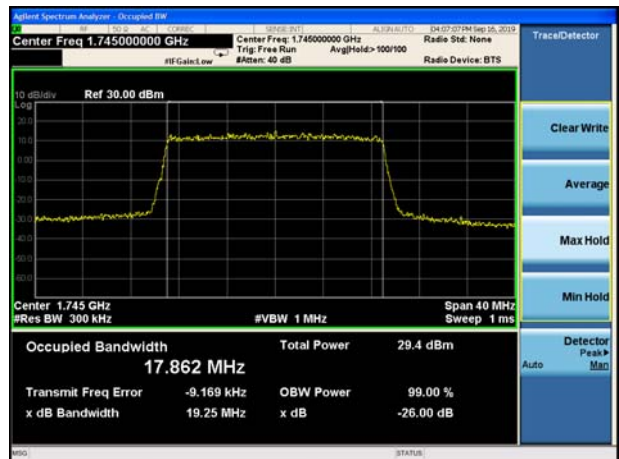
LTE Band 4 QPSK 20MHz CH-Middle



LTE Band 4 QPSK 15MHz CH-High



LTE Band 4 QPSK 20MHz CH-High





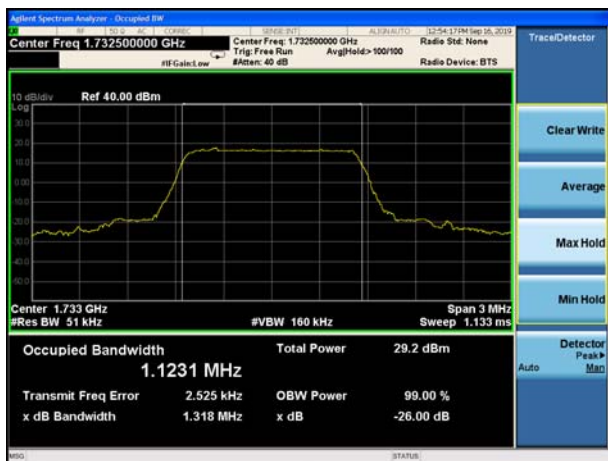
LTE Band 4 16QAM 1.4MHz CH-Low



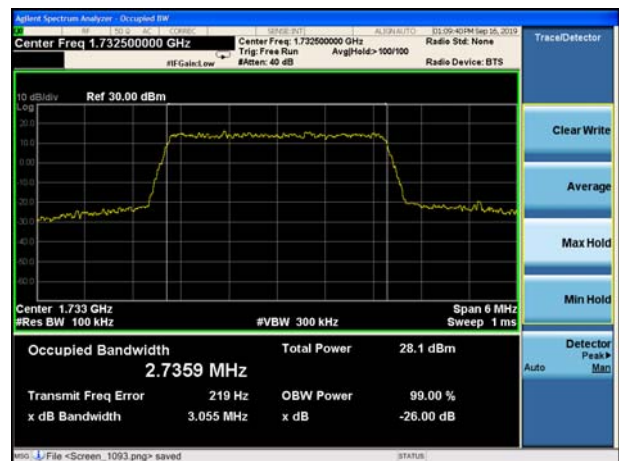
LTE Band 4 16QAM 3MHz CH-Low



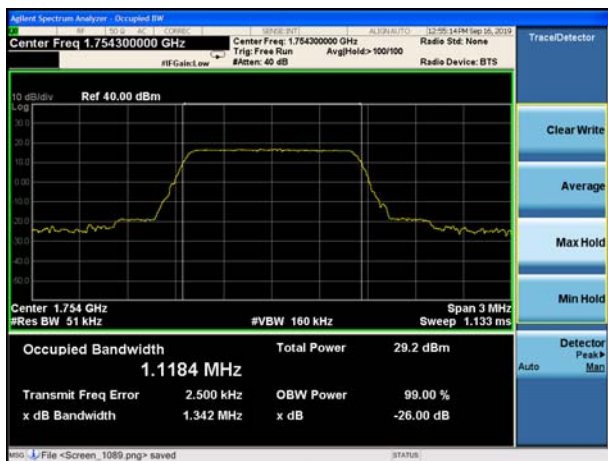
LTE Band 4 16QAM 1.4MHz CH-Middle



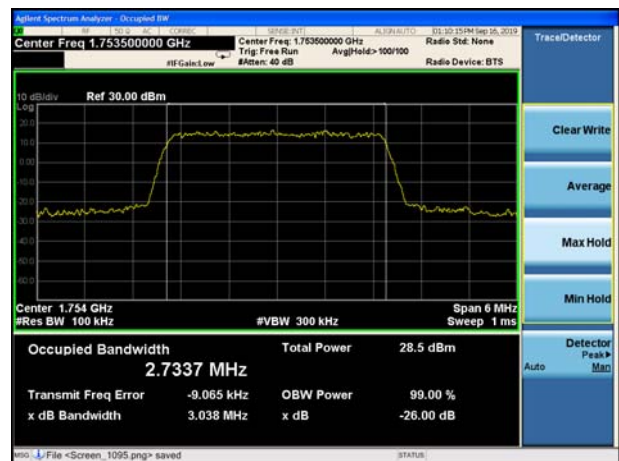
LTE Band 4 16QAM 3MHz CH-Middle



LTE Band 4 16QAM 1.4MHz CH-High



LTE Band 4 16QAM 3MHz CH-High





LTE Band 4 16QAM 5MHz CH-Low



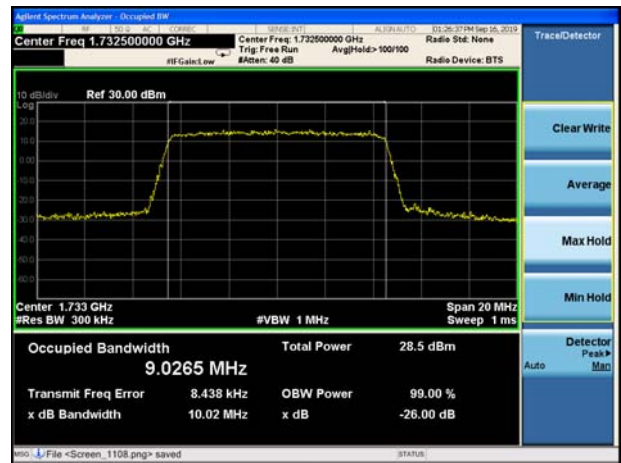
LTE Band 4 16QAM 10MHz CH-Low



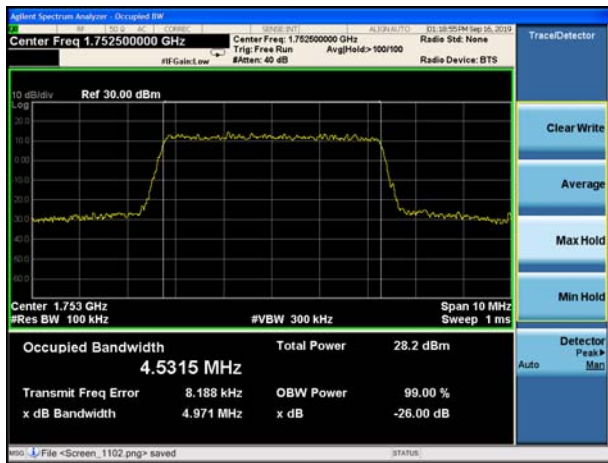
LTE Band 4 16QAM 5MHz CH-Middle



LTE Band 4 16QAM 10MHz CH-Middle



LTE Band 4 16QAM 5MHz CH-High

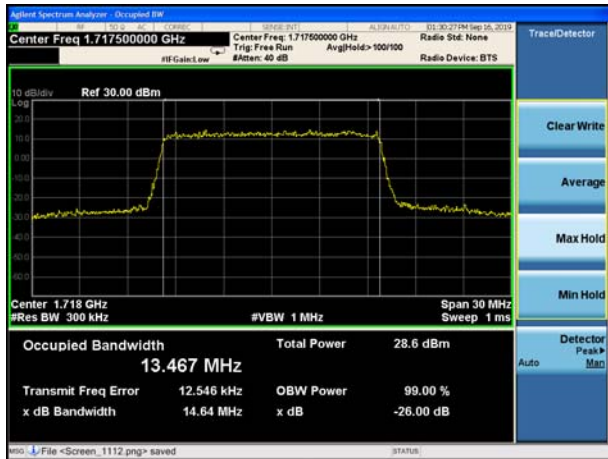


LTE Band 4 16QAM 10MHz CH-High

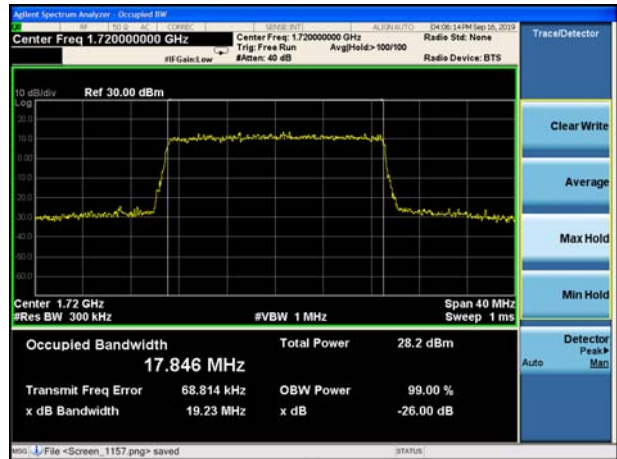




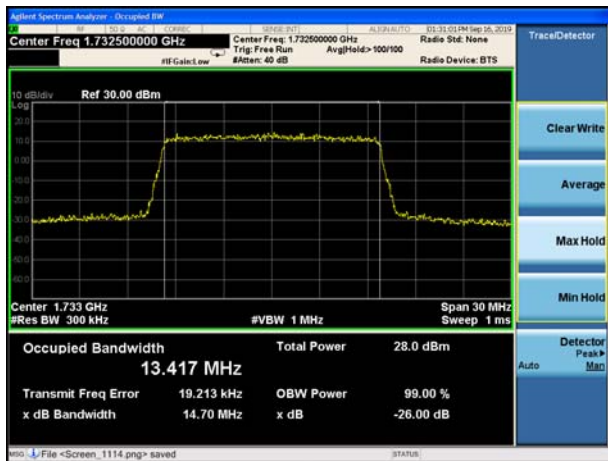
LTE Band 4 16QAM 15MHz CH-Low



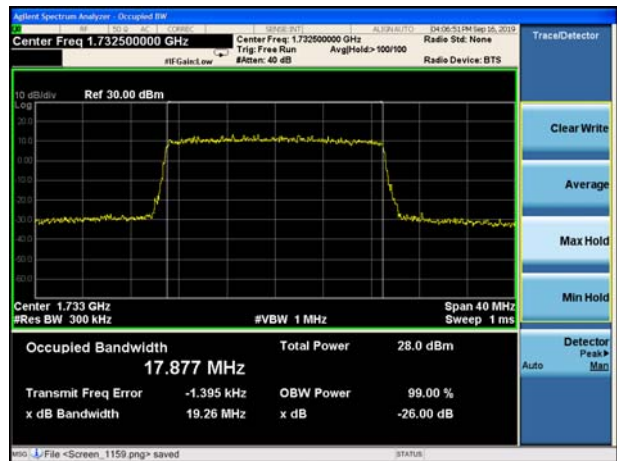
LTE Band 4 16QAM 20MHz CH-Low



LTE Band 4 16QAM 15MHz CH-Middle



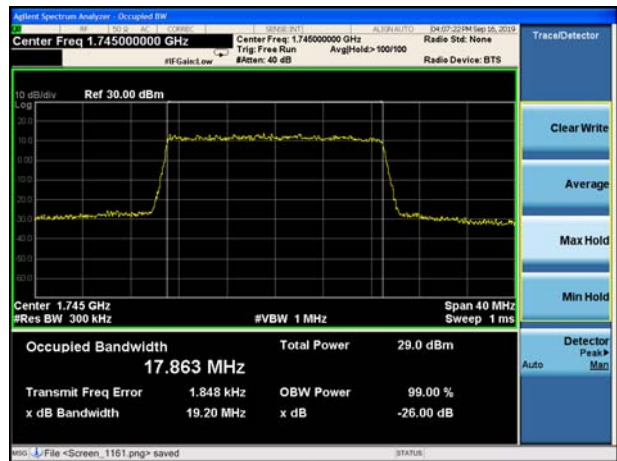
LTE Band 4 16QAM 20MHz CH-Middle



LTE Band 4 16QAM 15MHz CH-High



LTE Band 4 16QAM 20MHz CH-High





LTE Band 12 QPSK 1.4MHz CH-Low



LTE Band 12 QPSK 3MHz CH-Low



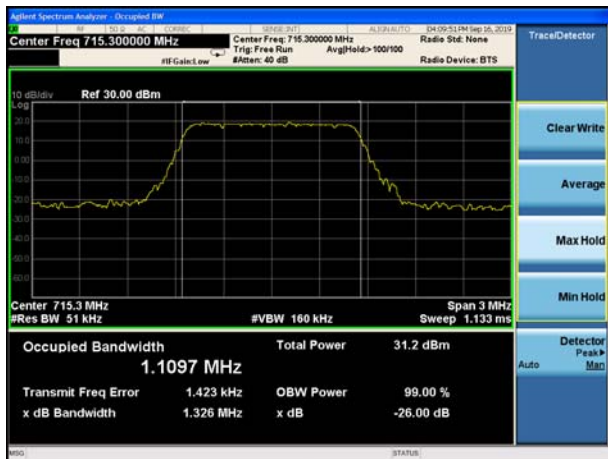
LTE Band 12 QPSK 1.4MHz CH-Middle



LTE Band 12 QPSK 3MHz CH-Middle



LTE Band 12 QPSK 1.4MHz CH-High



LTE Band 12 QPSK 3MHz CH-High





LTE Band 12 QPSK 5MHz CH-Low



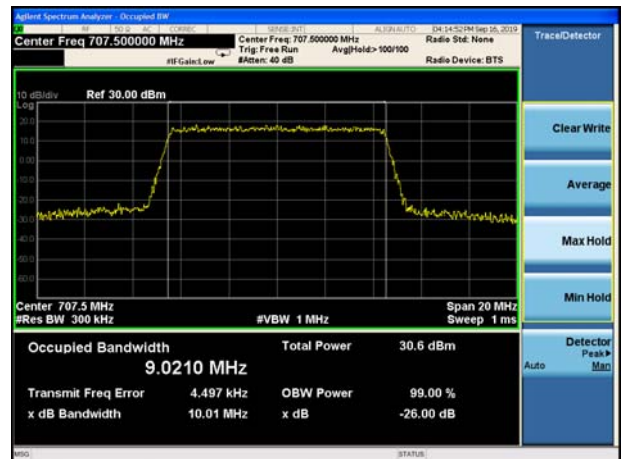
LTE Band 12 QPSK 10MHz CH-Low



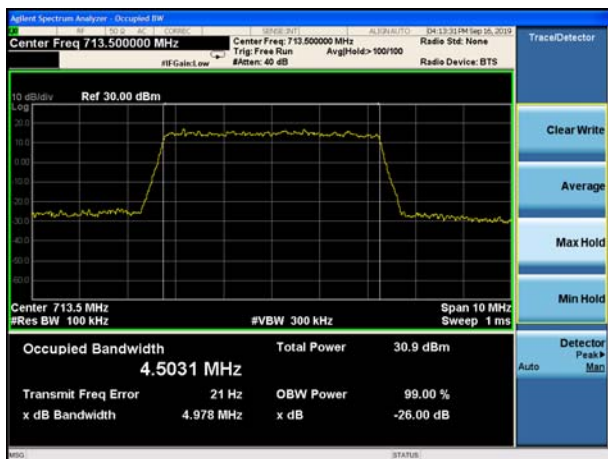
LTE Band 12 QPSK 5MHz CH-Middle



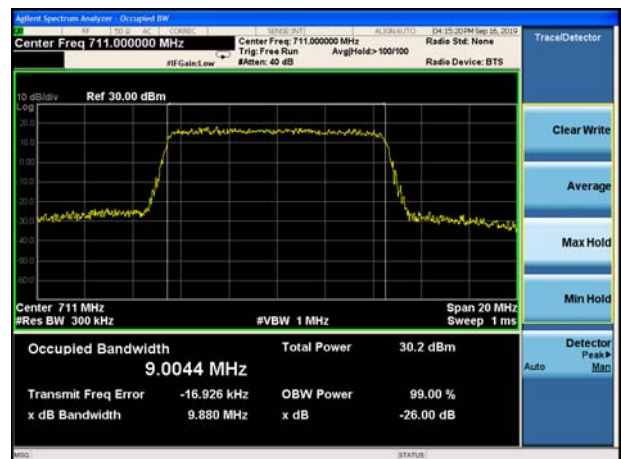
LTE Band 12 QPSK 10MHz CH-Middle



LTE Band 12 QPSK 5MHz CH-High



LTE Band 12 QPSK 10MHz CH-High





LTE Band 12 16QAM 1.4MHz CH-Low



LTE Band 12 16QAM 3MHz CH-Low



LTE Band 12 16QAM 1.4MHz CH-Middle



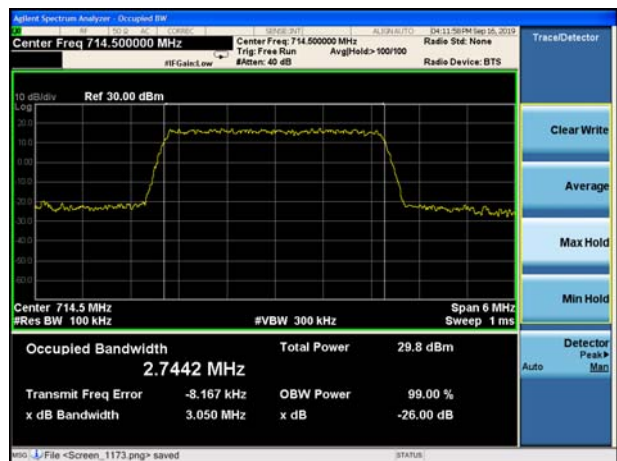
LTE Band 12 16QAM 3MHz CH-Middle



LTE Band 12 16QAM 1.4MHz CH-High



LTE Band 12 16QAM 3MHz CH-High





LTE Band 12 16QAM 5MHz CH-Low



LTE Band 12 16QAM 10MHz CH-Low



LTE Band 12 16QAM 5MHz CH-Middle



LTE Band 12 16QAM 10MHz CH-Middle



LTE Band 12 16QAM 5MHz CH-High

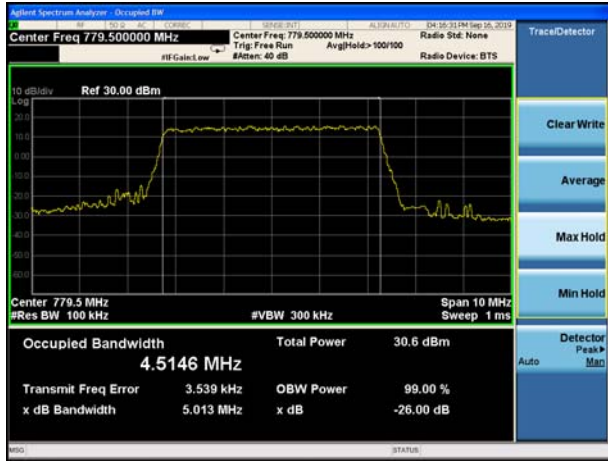


LTE Band 12 16QAM 10MHz CH-High





LTE Band 13 QPSK 5MHz CH-Low



LTE Band 13 QPSK 10MHz CH-Middle



LTE Band 13 QPSK 5MHz CH-Middle

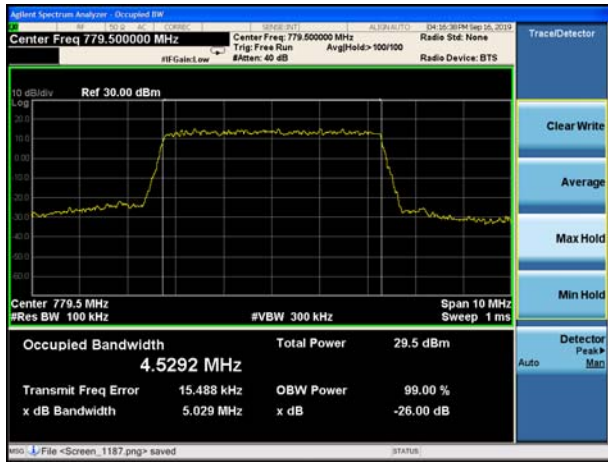


LTE Band 13 QPSK 5MHz CH-High





LTE Band 13 16QAM 5MHz CH-Low



LTE Band 13 16QAM 10MHz CH-Middle



LTE Band 13 16QAM 5MHz CH-Middle



LTE Band 13 16QAM 5MHz CH-High





LTE Band 17 QPSK 5MHz CH-Low



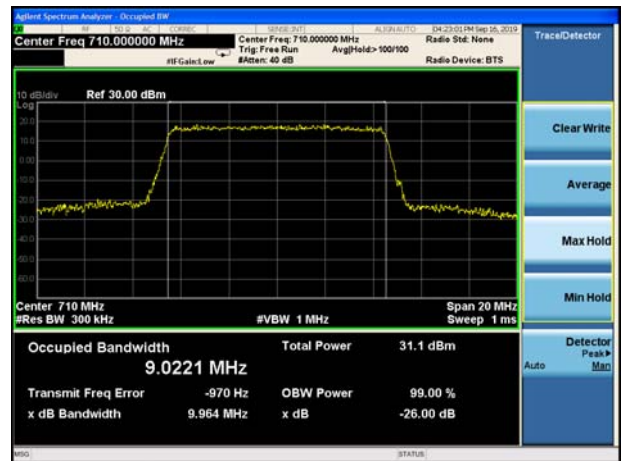
LTE Band 17 QPSK 10MHz CH-Low



LTE Band 17 QPSK 5MHz CH-Middle



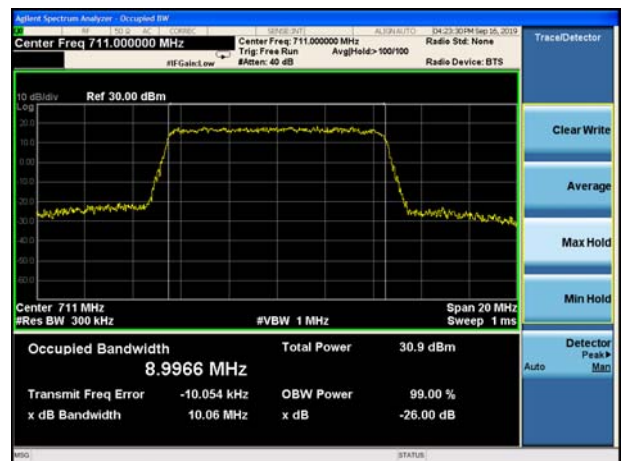
LTE Band 17 QPSK 10MHz CH-Middle



LTE Band 17 QPSK 5MHz CH-High



LTE Band 17 QPSK 10MHz CH-High





LTE Band 17 16QAM 5MHz CH-Low



LTE Band 17 16QAM 10MHz CH-Low



LTE Band 17 16QAM 5MHz CH-Middle



LTE Band 17 16QAM 10MHz CH-Middle

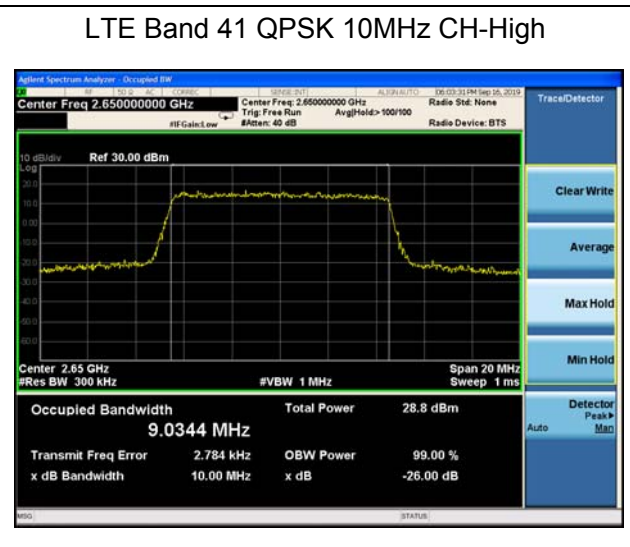
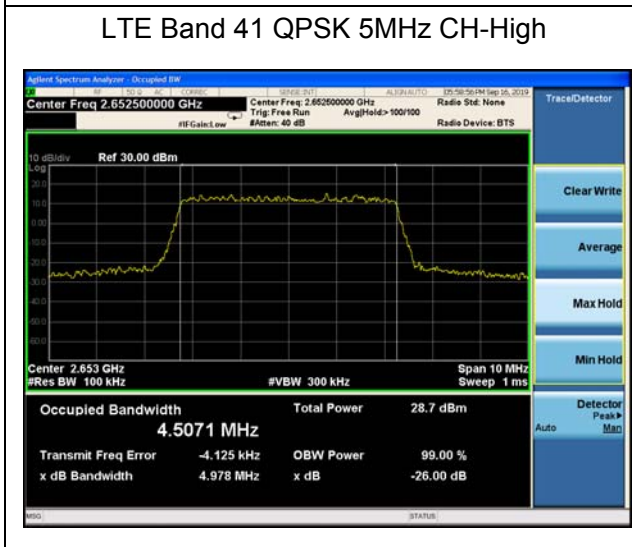
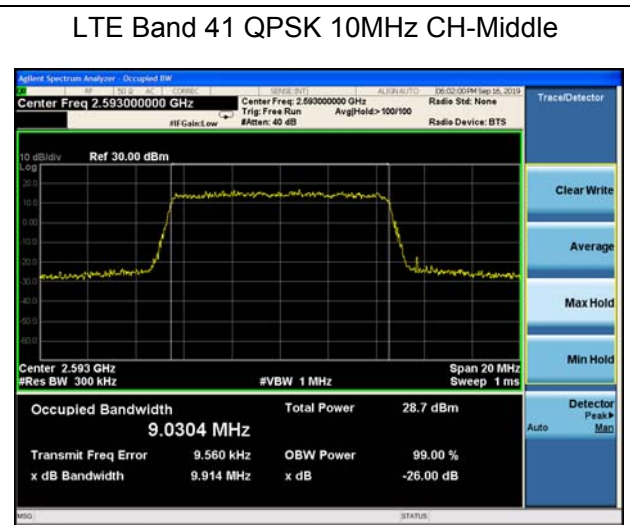
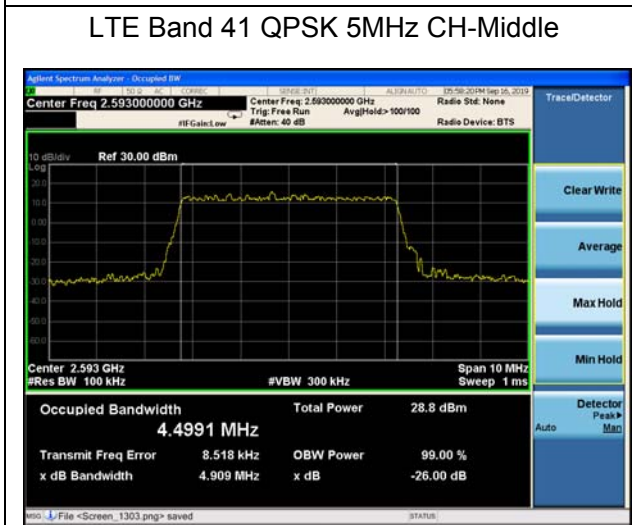
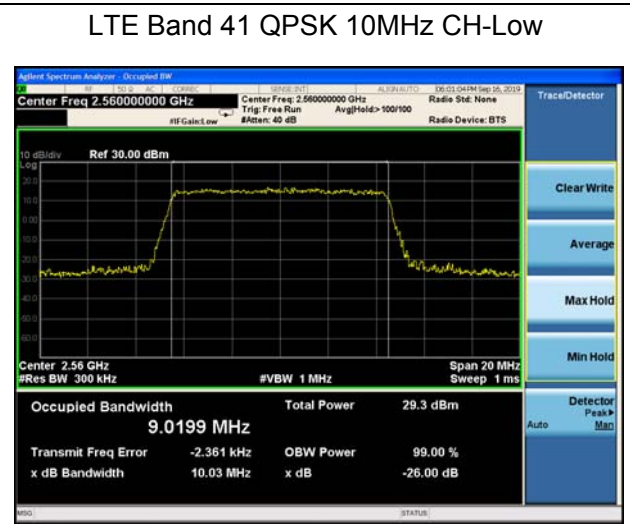
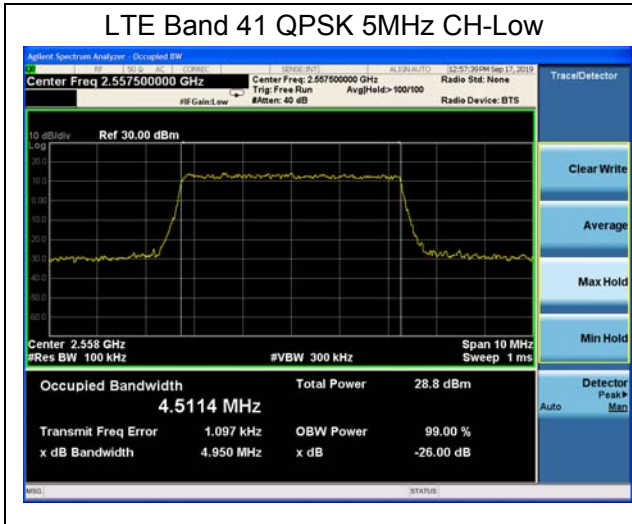


LTE Band 17 16QAM 5MHz CH-High



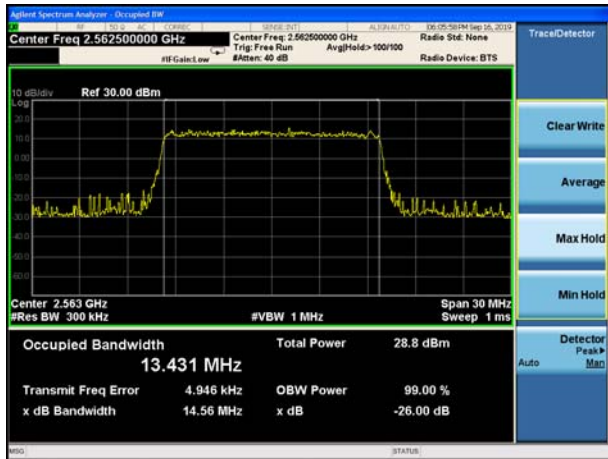
LTE Band 17 16QAM 10MHz CH-High



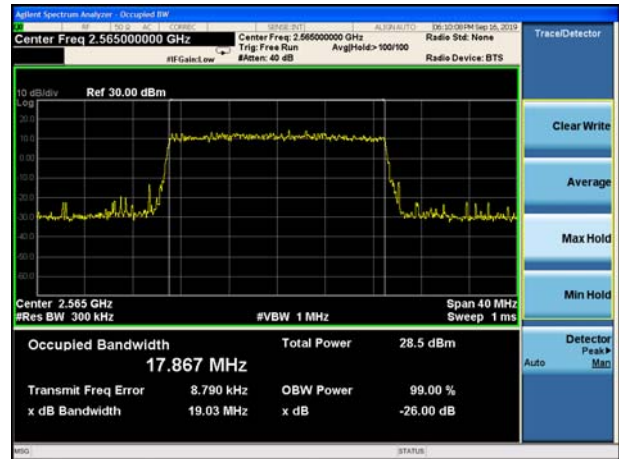




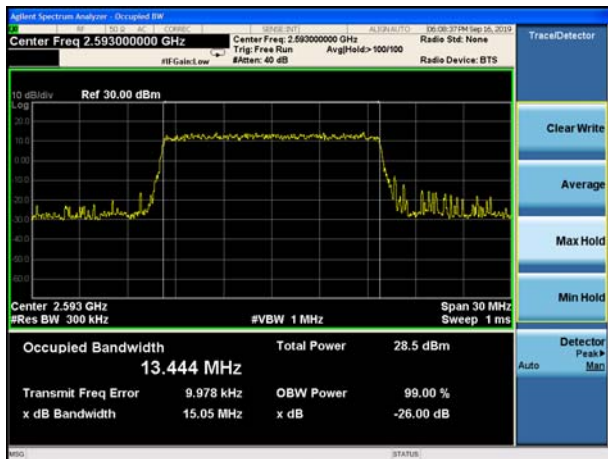
LTE Band 41 QPSK 15MHz CH-Low



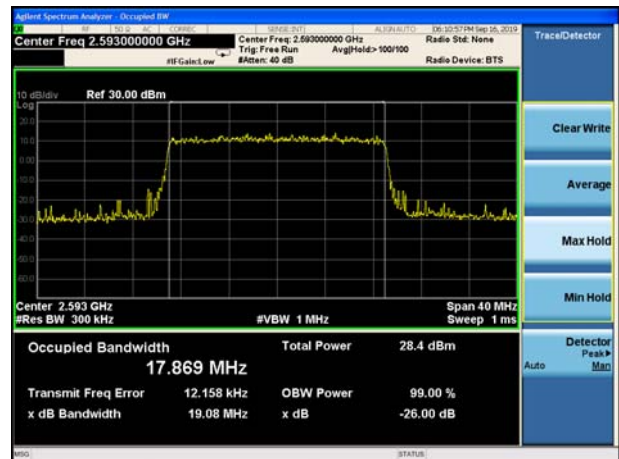
LTE Band 41 QPSK 20MHz CH-Low



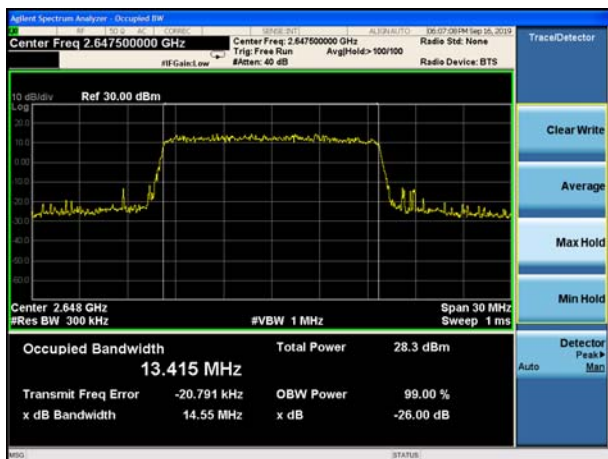
LTE Band 41 QPSK 15MHz CH-Middle



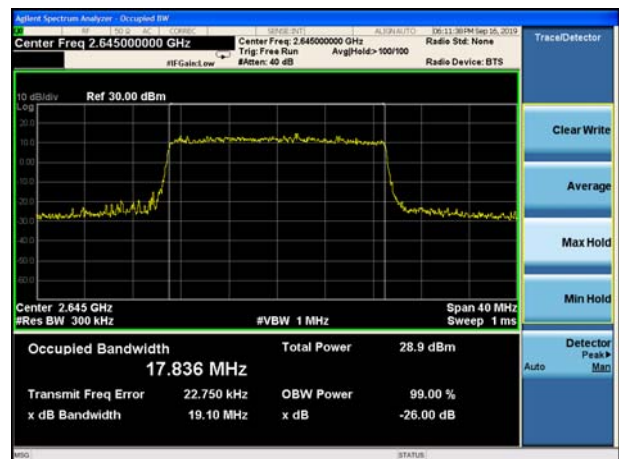
LTE Band 41 QPSK 20MHz CH-Middle



LTE Band 41 QPSK 15MHz CH-High



LTE Band 41 QPSK 20MHz CH-High





LTE Band 41 16QAM 5MHz CH-Low



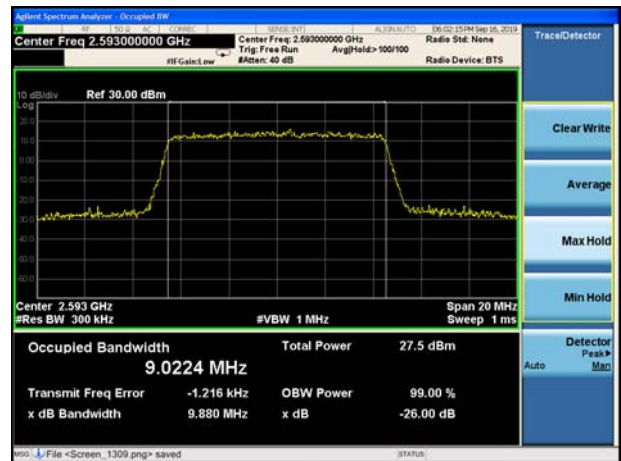
LTE Band 41 16QAM 10MHz CH-Low



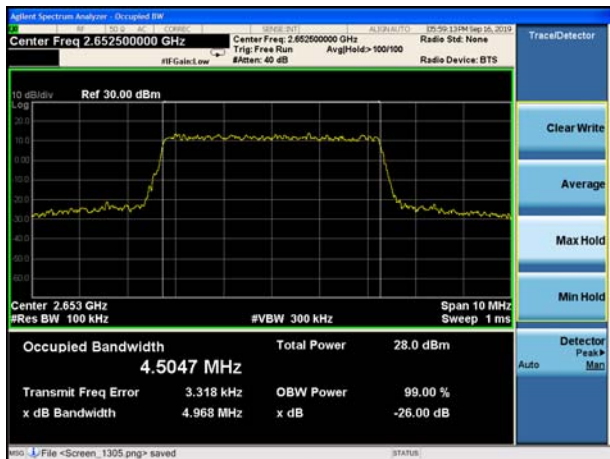
LTE Band 41 16QAM 5MHz CH-Middle



LTE Band 41 16QAM 10MHz CH-Middle



LTE Band 41 16QAM 5MHz CH-High

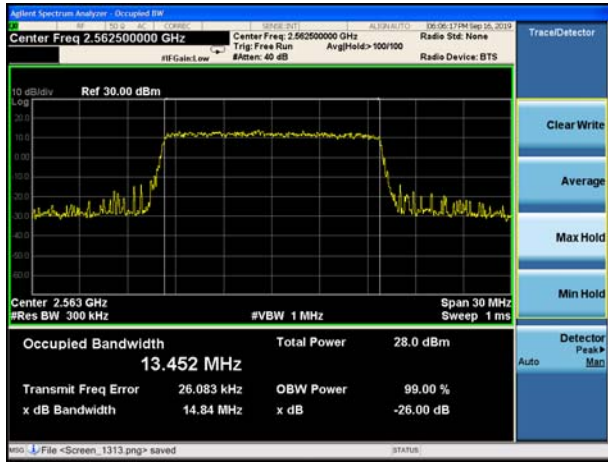


LTE Band 41 16QAM 10MHz CH-High

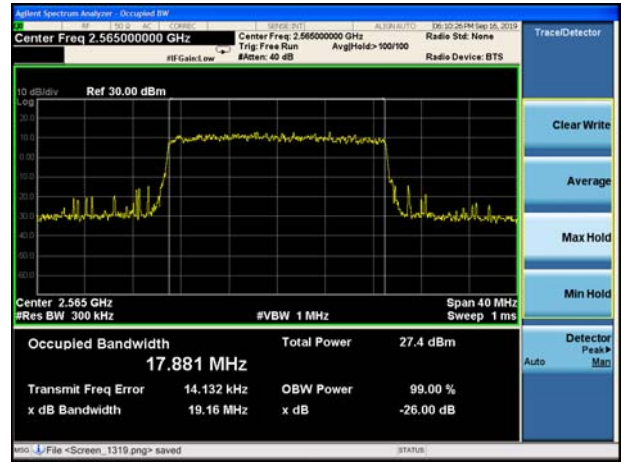




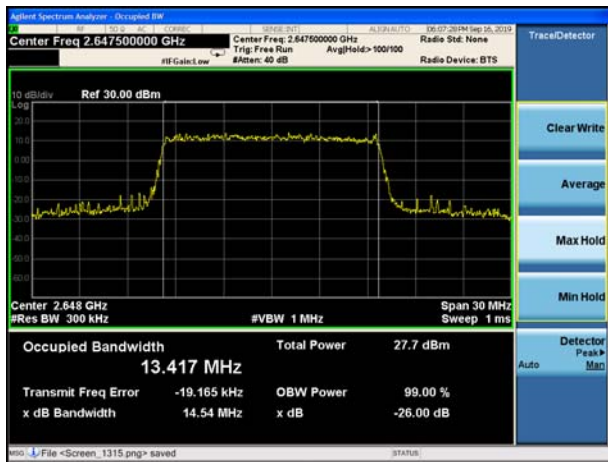
LTE Band 41 16QAM 15MHz CH-Low



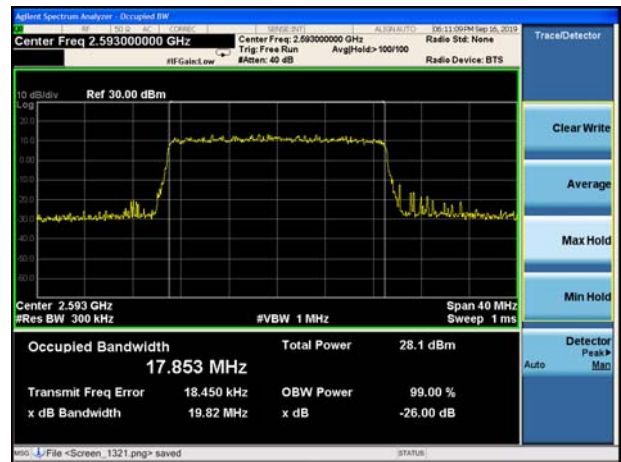
LTE Band 41 16QAM 20MHz CH-Low



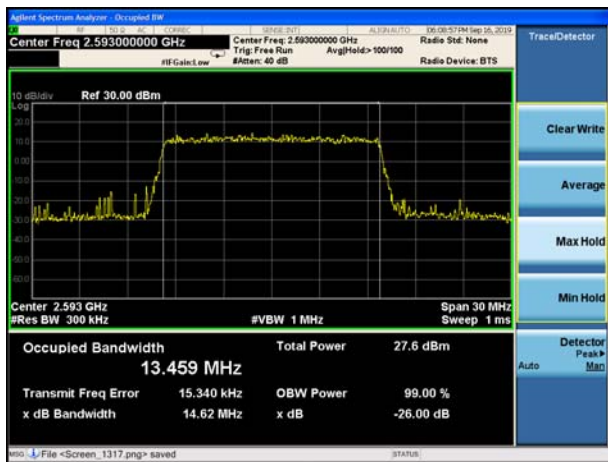
LTE Band 41 16QAM 15MHz CH-Middle



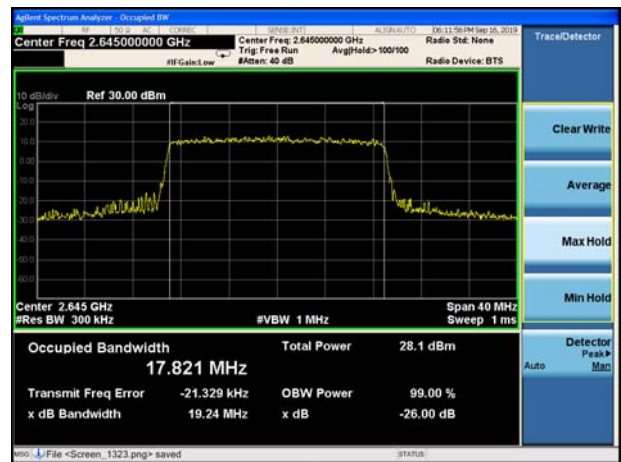
LTE Band 41 16QAM 20MHz CH-Middle



LTE Band 41 16QAM 15MHz CH-High



LTE Band 41 16QAM 20MHz 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 testing follows KDB 971168 D01 v03r01 Section 6.0

The EUT was connected to spectrum analyzer and system simulator via a power divider.

The band edges of low and high channels for the highest RF powers were measured.

For LTE Band 41 Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.

RBW is set to 15 kHz, VBW is set to 51 kHz for LTE Band 4/12(1.4MHz).

RBW is set to 30 kHz, VBW is set to 100 kHz for LTE Band 4/12(3MHz).

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4/12/13/17 (5MHz).

RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 4/12/13/17(10MHz).

RBW is set to 150 kHz, VBW is set to 510 kHz for LTE Band 4 (15MHz).

RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 4 (20MHz)

RBW is set to 50 kHz, VBW is set to 200 kHz for LTE Band 41 (5MHz)

RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 41 (10MHz)

RBW is set to 200 kHz, VBW is set to 1MHz for LTE Band 41(15MHz/20MHz)

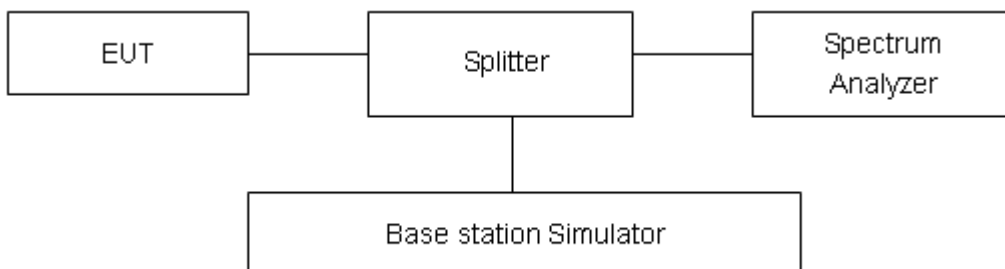
on spectrum analyzer.

Set spectrum analyzer with RMS detector.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Checked that all the results comply with the emission limit line.

Test Setup





Limits

Rule Part 27.53(i) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz.

Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB”

Rule Part 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Rule Part 27.53(m) (4) specifies that “for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Example:

The limit line is derived from $43 + 10 \log (P)$ dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log (P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Rule Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated



- outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

Measurement Uncertainty

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



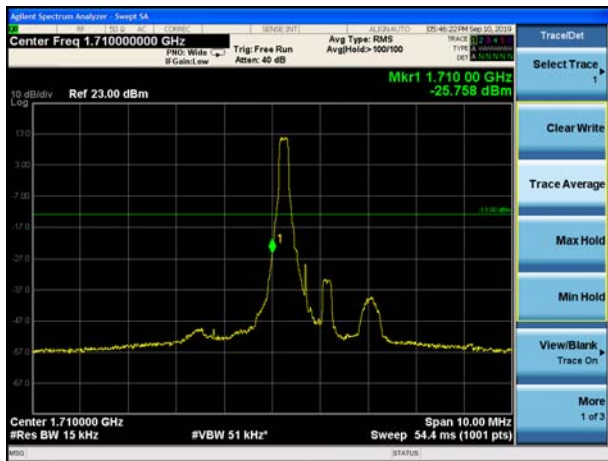
Test Result

All the test traces in the plots shows the test results clearly.

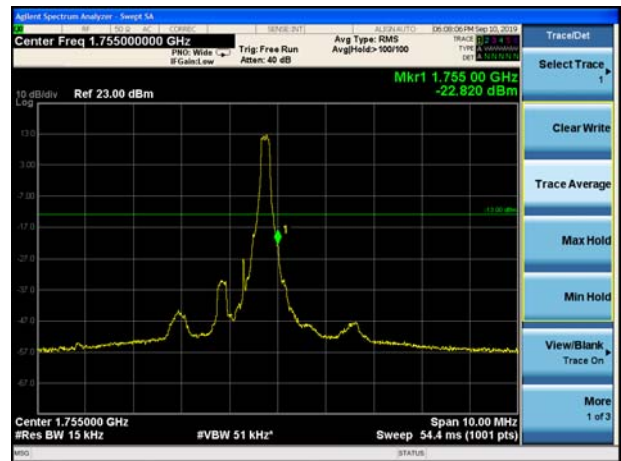




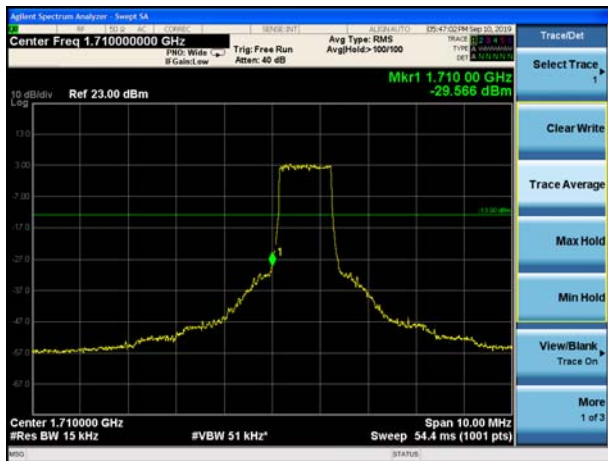
LTE Band 4 QPSK 1.4MHz CH-Low, 1 RB



LTE Band 4 QPSK 1.4MHz CH-High, 1 RB



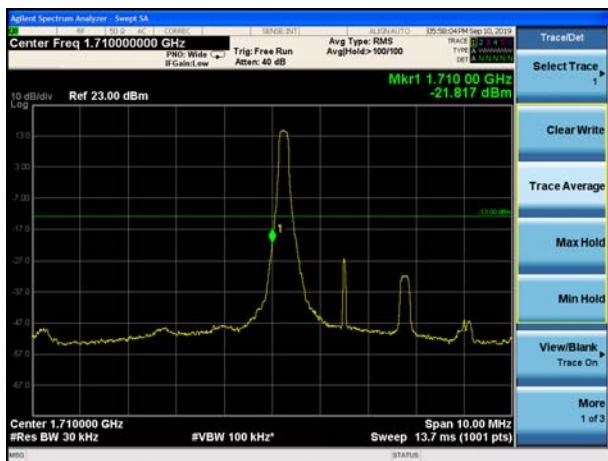
LTE Band 4 QPSK 1.4MHz CH-Low, 100%RB



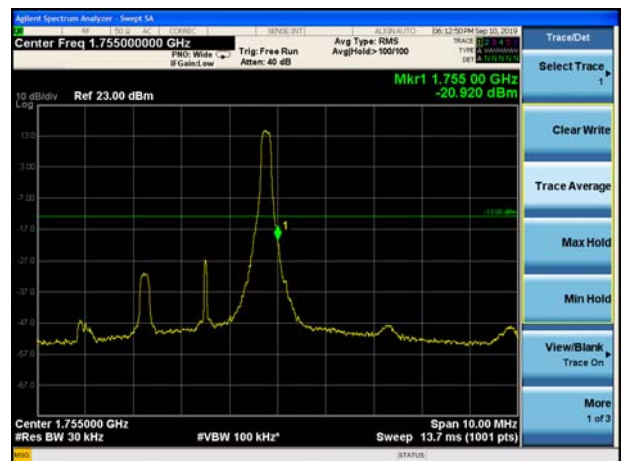
LTE Band 4 QPSK 1.4MHz CH-High, 100%RB



LTE Band 4 QPSK 3MHz CH-Low, 1 RB



LTE Band 4 QPSK 3MHz CH-High, 1 RB





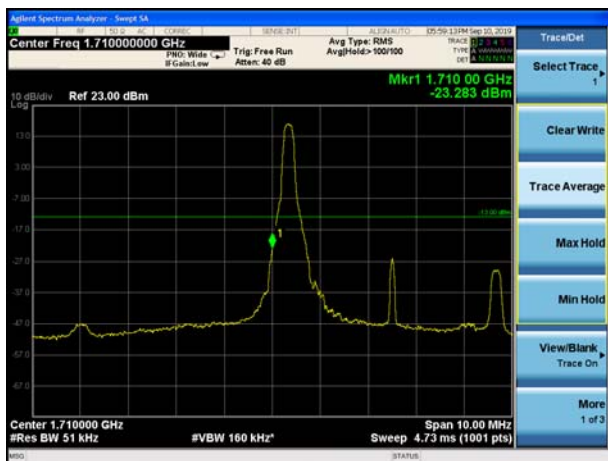
LTE Band 4 QPSK 3MHz CH-Low, 100%RB



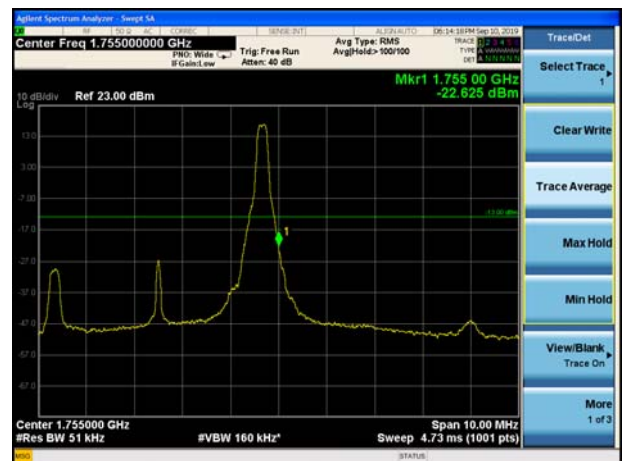
LTE Band 4 QPSK 3MHz CH-High, 100%RB



LTE Band 4 QPSK 5MHz CH-Low, 1 RB



LTE Band 4 QPSK 5MHz CH-High, 1 RB



LTE Band 4 QPSK 5MHz CH-Low, 100%RB

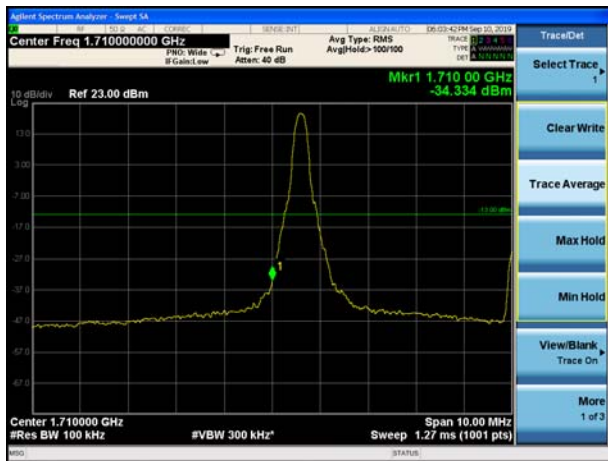


LTE Band 4 QPSK 5MHz CH-High, 100%RB

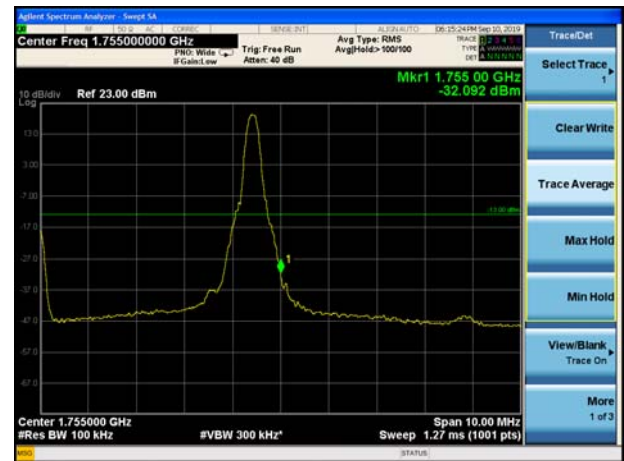




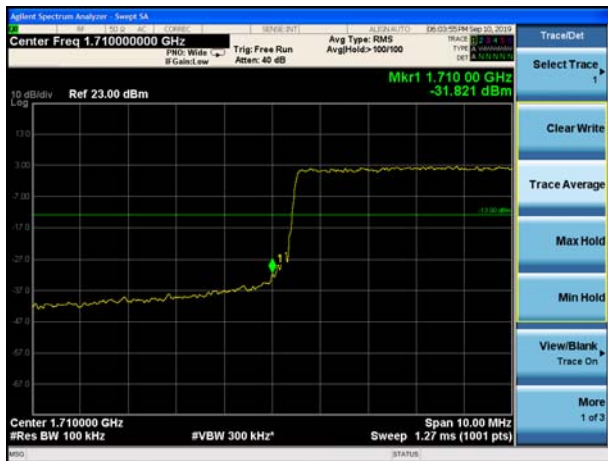
LTE Band 4 QPSK 10MHz CH-Low, 1 RB



LTE Band 4 QPSK 10MHz CH-High, 1 RB



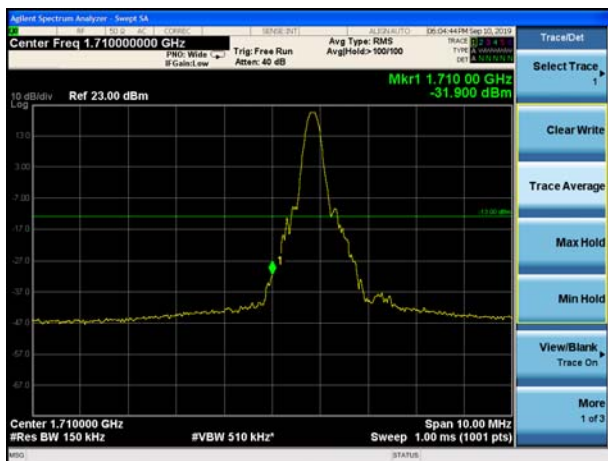
LTE Band 4 QPSK 10MHz CH-Low, 100%RB



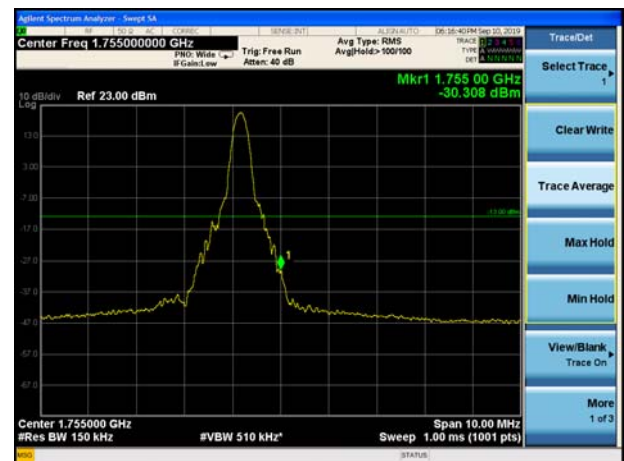
LTE Band 4 QPSK 10MHz CH-High, 100%RB



LTE Band 4 QPSK 15MHz CH-Low, 1 RB



LTE Band 4 QPSK 15MHz CH-High, 1 RB





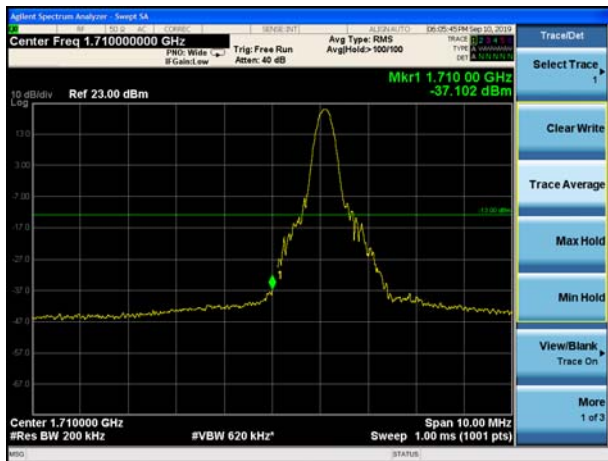
LTE Band 4 QPSK 15MHz CH-Low, 100%RB



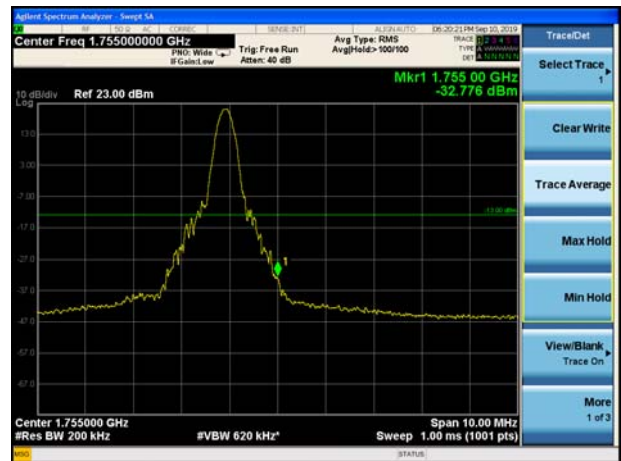
LTE Band 4 QPSK 15MHz CH-High, 100%RB



LTE Band 4 QPSK 20MHz CH-Low, 1 RB



LTE Band 4 QPSK 20MHz CH-High, 1 RB



LTE Band 4 QPSK 20MHz CH-Low, 100%RB

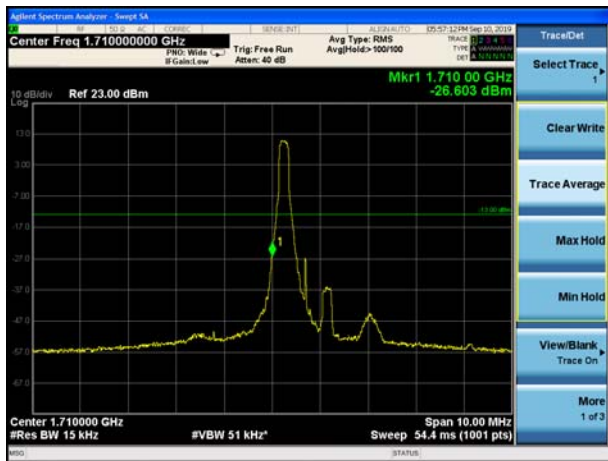


LTE Band 4 QPSK 20MHz CH-High, 100%RB

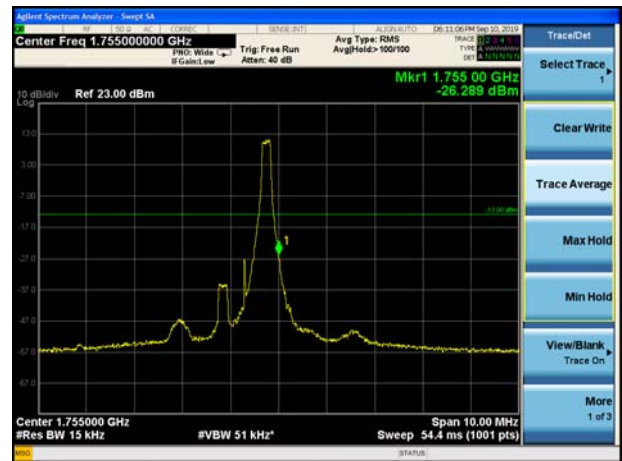




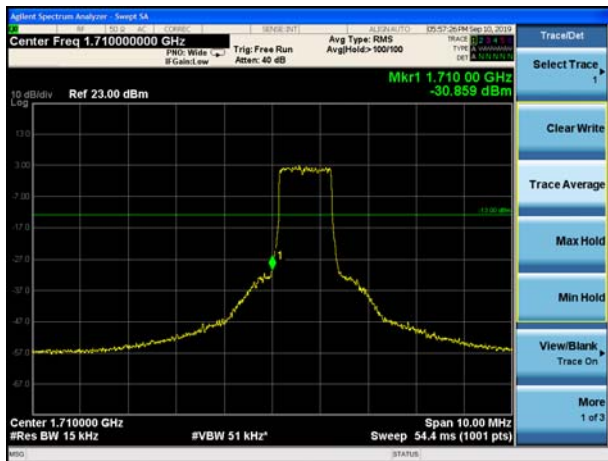
LTE Band 4 16QAM 1.4MHz CH-Low, 1 RB



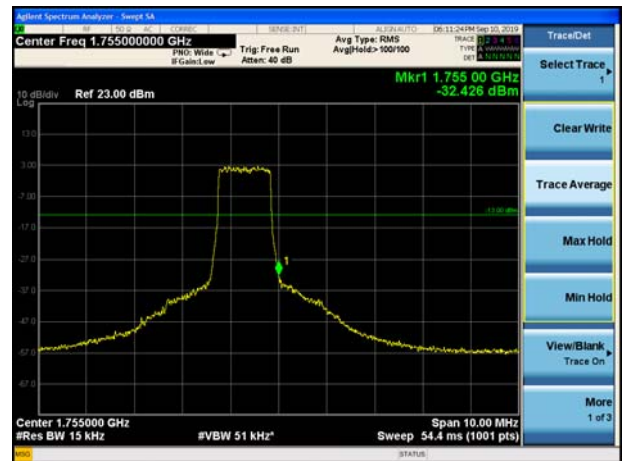
LTE Band 4 16QAM 1.4MHz CH-High, 1 RB



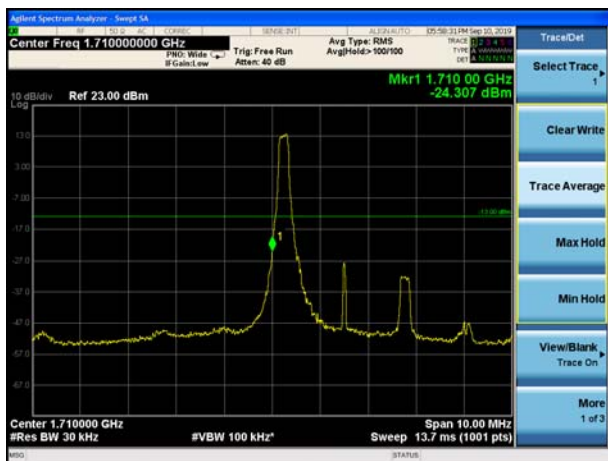
LTE Band 4 16QAM 1.4MHz CH-Low, 100%RB



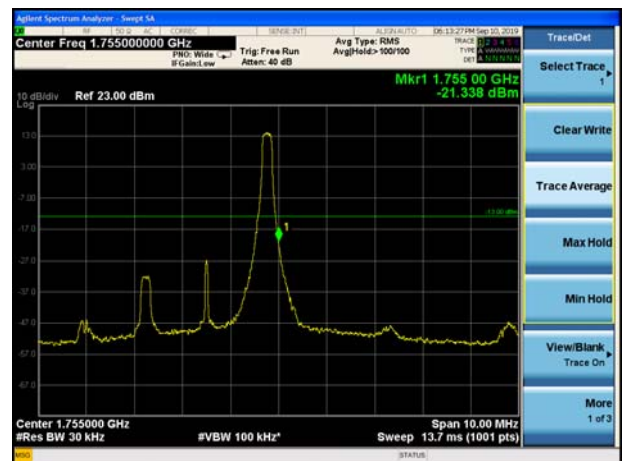
LTE Band 4 16QAM 1.4MHz CH-High, 100%RB



LTE Band 4 16QAM 3MHz CH-Low, 1 RB



LTE Band 4 16QAM 3MHz CH-High, 1 RB





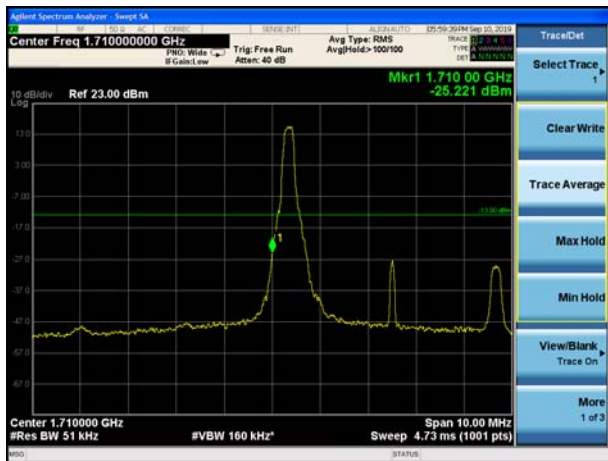
LTE Band 4 16QAM 3MHz CH-Low, 100%RB



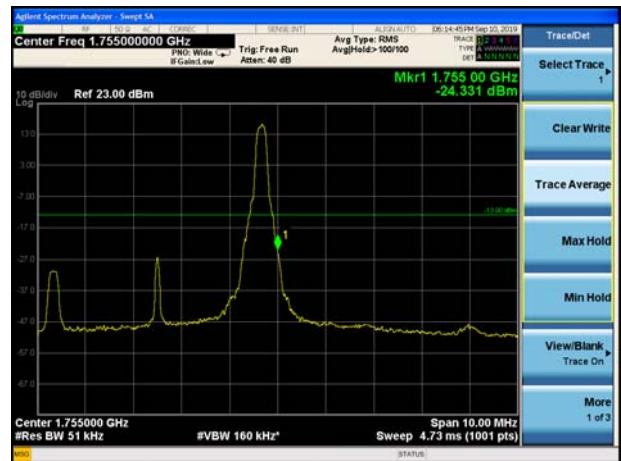
LTE Band 4 16QAM 3MHz CH-High, 100%RB



LTE Band 4 16QAM 5MHz CH-Low, 1 RB



LTE Band 4 16QAM 5MHz CH-High, 1 RB



LTE Band 4 16QAM 5MHz CH-Low, 100%RB

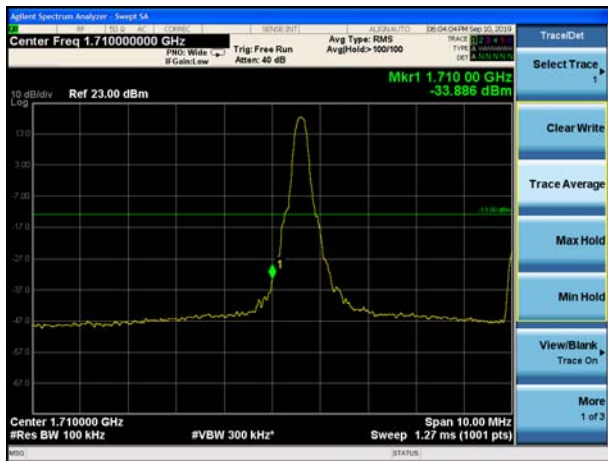


LTE Band 4 16QAM 5MHz CH-High, 100%RB

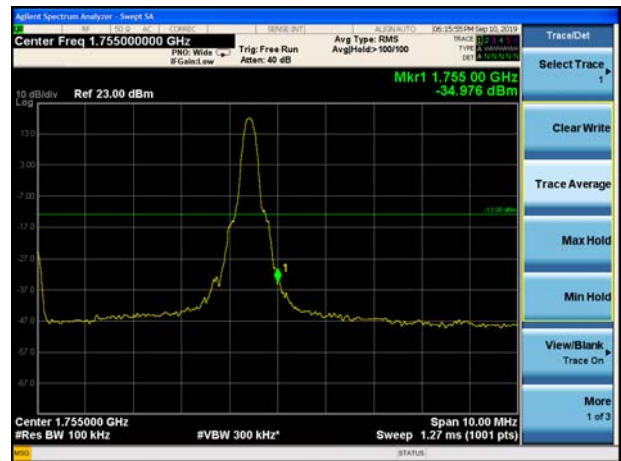




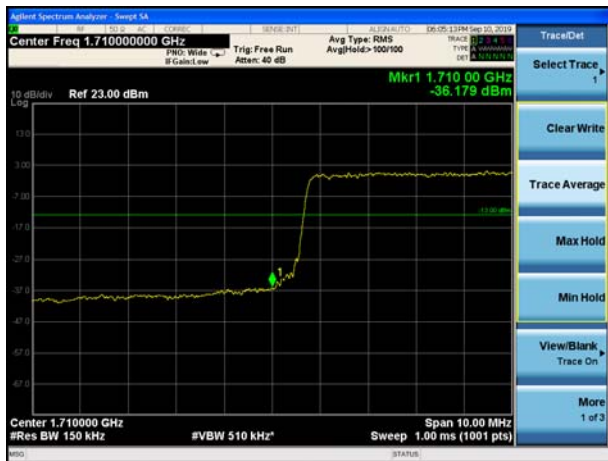
LTE Band 4 16QAM 10MHz CH-Low, 1 RB



LTE Band 4 16QAM 10MHz CH-High, 1 RB



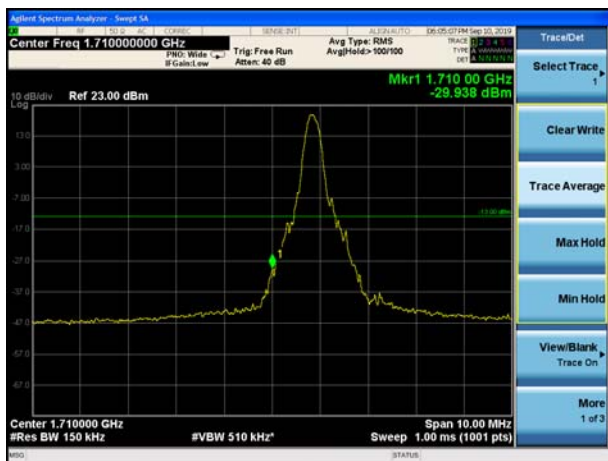
LTE Band 4 16QAM 10MHz CH-Low, 100%RB



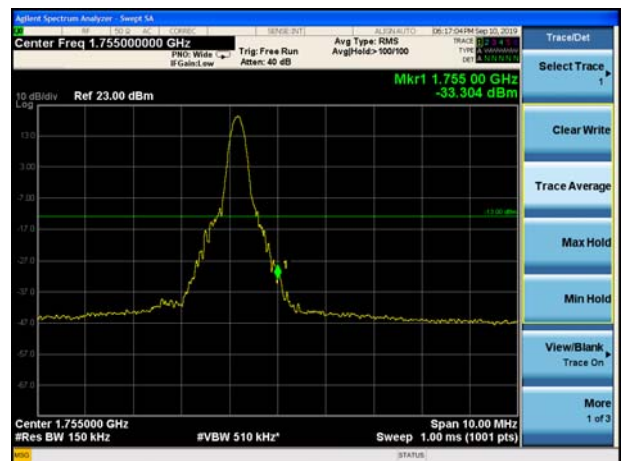
LTE Band 4 16QAM 10MHz CH-High, 100%RB



LTE Band 4 16QAM 15MHz CH-Low, 1 RB

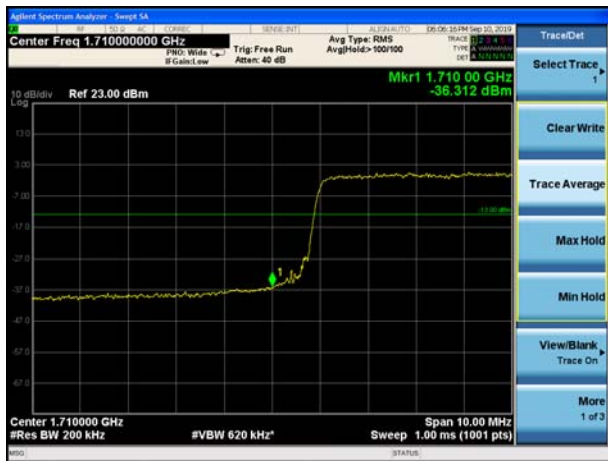


LTE Band 4 16QAM 15MHz CH-High, 1 RB





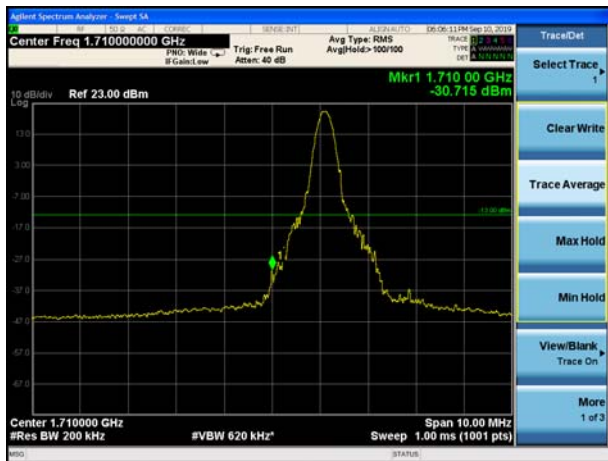
LTE Band 4 16QAM 15MHz CH-Low, 100%RB



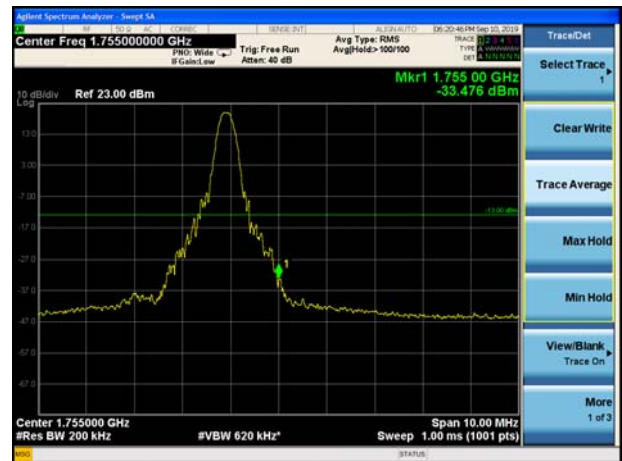
LTE Band 4 16QAM 15MHz CH-High, 100%RB



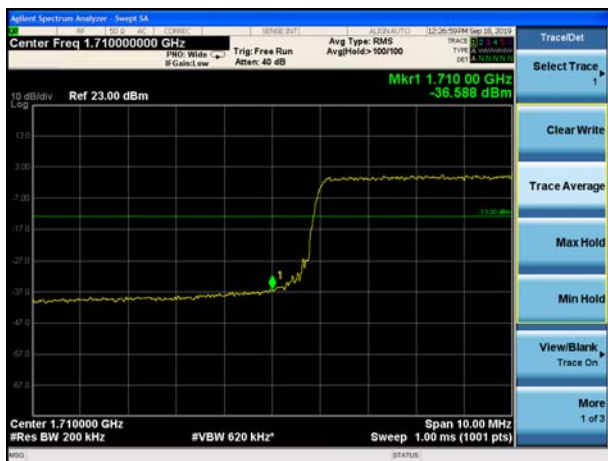
LTE Band 4 16QAM 20MHz CH-Low, 1 RB



LTE Band 4 16QAM 20MHz CH-High, 1 RB



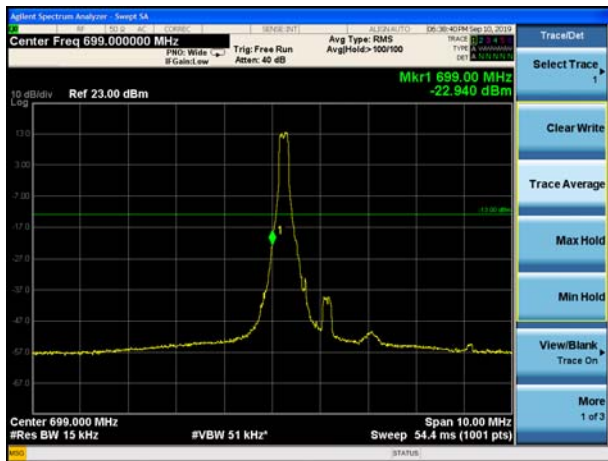
LTE Band 4 16QAM 20MHz CH-Low, 100%RB



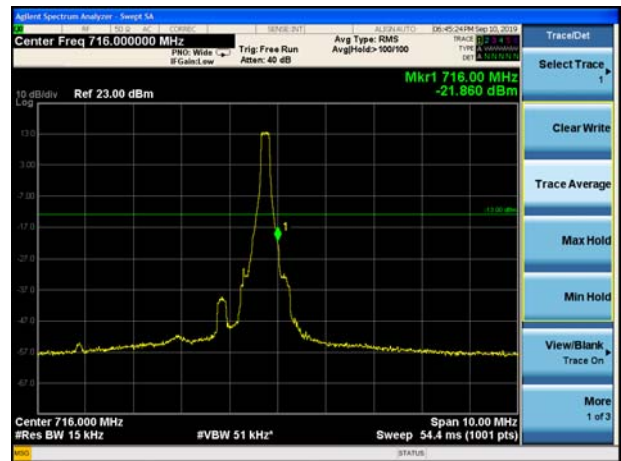
LTE Band 4 16QAM 20MHz CH-High, 100%RB



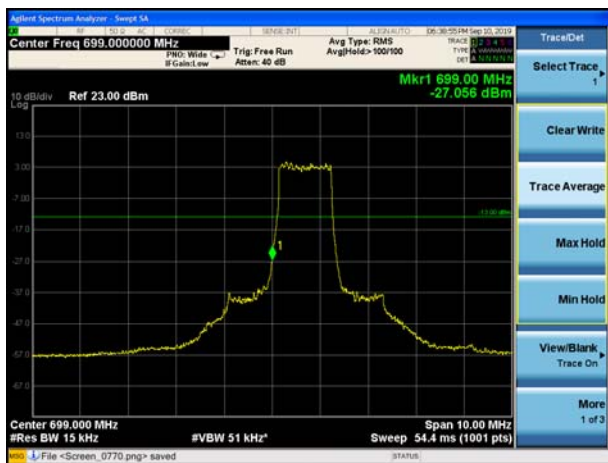
LTE Band 12 QPSK 1.4MHz CH-Low, 1 RB



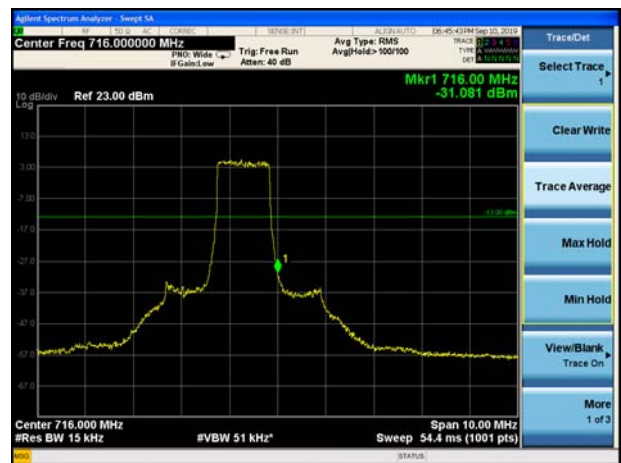
LTE Band 12 QPSK 1.4MHz CH-High, 1 RB



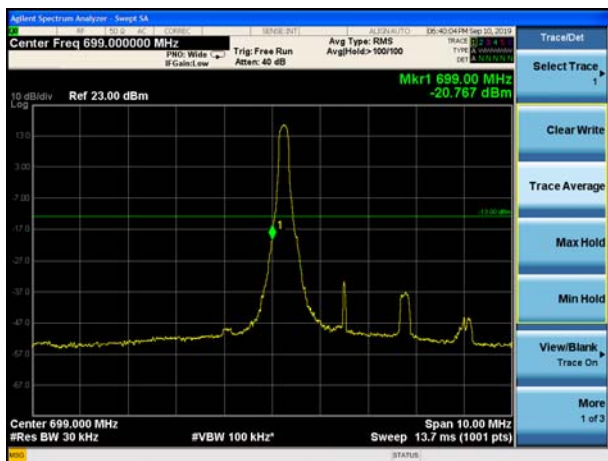
LTE Band 12 QPSK 1.4MHz CH-Low, 100%RB



LTE Band 12 QPSK 1.4MHz CH-High, 100%RB



LTE Band 12 QPSK 3MHz CH-Low, 1 RB



LTE Band 12 QPSK 3MHz CH-High, 1 RB

