



中国认可
国际互认
检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant	ZTE CORPORATION
FCC ID	SRQ-ZTU31
Product	LTE/WCDMA/GSM (GPRS) Multi-Mode Digital Mobile Phone
Brand	ZTE
Model	ZTU31/ZTE Blade V770/Blade V770
Report No.	RXC1611-0258RF01
Issue Date	January 18, 2017

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2016)/ FCC CFR 47 Part 22H (2016)**. 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

No.	Test Type	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Radiated Power	22.913(a)(2)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	2.1051 / 22.917(a)	PASS
5	Frequency Stability	2.1055 / 22.355	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
7	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: November 18, 2016 ~ December 5, 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.
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2. General Description of Equipment under Test

Client Information

Applicant	ZTE CORPORATION
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China
Manufacturer	ZTE CORPORATION
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China

General Information

EUT Description			
Model Number:	ZTU31/ZTE Blade V770/Blade V770		
IMEI:	863682030001706		
Hardware Version:	uu9A		
Software Version:	KDDI_JP_BV770_V1.0		
Power Supply:	Battery/AC adapter		
Antenna Type:	Internal Antenna		
Test Mode(s):	GSM 850; WCDMA Band V; LTE Band 5/26;		
Test Modulation:	(GSM)GMSK, 8PSK; (WCDMA)QPSK; (LTE)QPSK 16QAM;		
GPRS/ EGPRS Multislot Class:	B		
HSDPA UE Category:	24		
HSUPA UE Category:	6		
Maximum E.R.P.	GSM 850: 32.60 dBm WCDMA Band V: 22.44 dBm LTE Band 5: 23.44 dBm LTE Band 26: 24.14 dBm		
Rated Power Supply Voltage:	3.7 V		
Extreme Voltage:	Minimum: 3.5 V Maximum: 4.20 V		
Extreme Temperature:	Lowest: -10°C Highest: +55°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 ~ 849	869 ~ 894
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 26	824 ~ 849	869 ~ 894
EUT Accessory			
Battery	Manufacturer: SCUD (Fujian) Electronics Co., Ltd Model: Li3925T44P8h786035		
USB cable	100cm Cable, Shielded		
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 (2016)

FCC CFR 47 Part 22H (2016)

ANSI/TIA-603-D (2010)

KDB 971168 D01 Power Meas License Digital Systems v02r02

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (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 were investigated.

The following testing in GSMWCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below:

	Test items	Modes/Modulation	
		GSM 850	WCDMA Band V
Conducted Test cases	RF power output	GSM/GPRS/EGPRS	RMC HSDPA/HSUPA DC-HSDPA/HSPA+
	Occupied Bandwidth	GSM/GPRS/EGPRS	RMC
	Band Edge Compliance	GSM/GPRS/EGPRS	RMC
	Frequency Stability	GSM/GPRS/EGPRS	RMC
	Spurious Emissions at Antenna Terminals	GSM	RMC
Radiated Test cases	Effective Radiated Power	GSM	RMC
	Radiates Spurious Emission	GSM	RMC



Test modes are chosen as the worst case configuration below for LTE Band 5/26

Test items	Modes	Bandwidth (MHz)					Modulation		RB			Test Channel		
		1.4	3	5	10	15	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	LTE 5	O	O	O	O	-	O	O	O	O	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	O	O	O	O	O	O
Effective Isotropic Radiated power	LTE 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Occupied Bandwidth	LTE 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 5	O	O	O	O	-	O	O	O	-	O	O	-	O
	LTE 26	O	O	O	O	O	O	O	O	-	O	O	-	O
Frequency Stability	LTE 5	O	O	O	O	-	O	O	-	-	O	-	O	-
	LTE 26	O	O	O	O	O	O	O	-	-	O	-	O	-
Spurious Emissions at Antenna Terminals	LTE 5	O	O	O	O	-	O	-	O	-	-	O	O	O
	LTE 26	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 5	O	O	O	O	-	O	-	O	-	-	O	O	O
	LTE 26	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

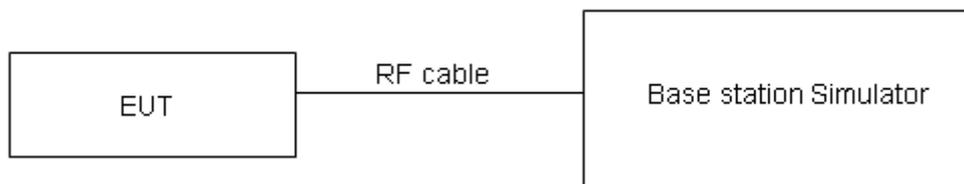
Ambient condition

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

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 850		Conducted Power(dBm)		
		Channel 128	Channel 190	Channel 251
		824.2 (MHz)	836.6 (MHz)	848.8 (MHz)
GSM	CS	32.44	32.48	32.60
GPRS (GMSK)	1TXslot	32.21	32.15	32.43
	2TXslots	29.44	29.54	29.63
	3TXslots	27.40	27.26	27.34
	4TXslots	26.13	26.21	26.42
EGPRS (GMSK)	1TXslot	32.20	32.41	32.49
	2TXslots	29.41	29.52	29.54
	3TXslots	27.46	27.23	27.39
	4TXslots	26.31	26.36	26.45
EGPRS (8PSK)	1 Tx Slot	26.34	26.37	26.41
	2 Tx Slots	23.29	23.30	23.34
	3 Tx Slots	21.43	21.54	21.75
	4 Tx Slots	20.23	20.39	20.48

Note: 1) The maximum RF Output Power numbers are marks in bold.
2) The following testing in GSM based on the maximum RF Output Power.



WCDMA Band V		Conducted Power(dBm)		
		Channel 4132	Channel 4183	Channel 4233
		826.4(MHz)	836.6(MHz)	846.6(MHz)
RMC	12.2k	22.36	22.44	22.42
	64k	22.29	22.30	22.36
	144k	22.28	22.29	22.26
	384k	22.27	22.28	22.25
HSDPA	Sub - Test 1	22.26	22.27	22.26
	Sub - Test 2	22.20	22.28	22.25
	Sub - Test 3	21.69	21.88	21.83
	Sub - Test 4	21.70	21.87	21.85
HSUPA	Sub - Test 1	22.19	22.36	22.34
	Sub - Test 2	21.44	21.52	21.50
	Sub - Test 3	21.26	21.34	21.32
	Sub - Test 4	20.45	20.53	20.51
	Sub - Test 5	22.24	22.32	22.30
DC-HSDPA	Sub - Test 1	22.23	22.31	22.29
	Sub - Test 2	22.32	22.29	22.28
	Sub - Test 3	21.81	21.78	21.77
	Sub - Test 4	21.80	21.77	21.76

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 5				Conducted Power(dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20407/824.7	20525/836.5	20643/848.3
1.4MHz	QPSK	1	0	23.21	23.09	23.38
		1	2	23.27	23.14	23.32
		1	5	23.25	23.25	23.40
		3	0	23.14	23.19	23.21
		3	2	23.05	23.21	23.19
		3	3	23.13	23.21	23.12
		6	0	22.16	22.29	22.29
	16QAM	1	0	21.76	22.51	22.85
		1	2	21.87	22.53	22.70
		1	5	21.67	22.30	22.48
		3	0	22.27	22.29	22.32
		3	2	22.25	22.17	22.28
		3	3	22.27	22.18	22.09
		6	0	21.19	21.32	21.24
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20415/825.5	20525/836.5	20635/847.5
3MHz	QPSK	1	0	23.23	23.13	23.41
		1	7	23.30	23.19	23.36
		1	14	23.28	23.30	23.44
		8	0	22.24	22.31	22.34
		8	4	22.17	22.31	22.31
		8	7	22.23	22.32	22.22
		15	0	22.19	22.33	22.32
	16QAM	1	0	21.79	22.53	22.88
		1	7	21.90	22.58	22.74
		1	14	21.69	22.34	22.51
		8	0	21.38	21.42	21.44
		8	4	21.36	21.30	21.40
		8	7	21.37	21.30	21.22
		15	0	21.22	21.36	21.27
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20425/826.5	20525/836.5	20625/846.5
5MHz	QPSK	1	0	23.20	23.11	23.37



		1	13	23.28	23.15	23.33
		1	24	23.25	23.25	23.40
		12	0	22.21	22.26	22.30
		12	6	22.15	22.27	22.26
		12	13	22.21	22.30	22.18
		25	0	22.17	22.32	22.30
	16QAM	1	0	21.76	22.49	22.85
		1	13	21.87	22.56	22.71
		1	24	21.66	22.32	22.47
		12	0	21.36	21.38	21.41
		12	6	21.33	21.25	21.36
		12	13	21.34	21.25	21.18
		25	0	21.20	21.32	21.22
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20450/829	20525/836.5	20600/844
10MHz	QPSK	1	0	23.18	23.04	23.35
		1	25	23.28	23.15	23.32
		1	49	23.22	23.23	23.36
		25	0	22.19	22.22	22.27
		25	13	22.13	22.23	22.23
		25	25	22.17	22.26	22.15
		50	0	22.20	22.25	22.25
	16QAM	1	0	22.21	22.46	22.80
		1	25	22.34	22.55	22.68
		1	49	22.14	22.27	22.45
		25	0	21.33	21.37	21.39
		25	13	21.29	21.22	21.32
		25	25	21.32	21.21	21.15
		50	0	21.18	21.28	21.19

LTE FDD Band 26				Conducted Power(dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				26797/824.7	26915/836.5	27033/848.3
1.4MHz	QPSK	1	0	23.80	23.89	23.71
		1	2	23.86	23.69	24.09
		1	5	23.69	23.59	23.65
		3	0	23.37	23.33	23.63
		3	2	23.28	23.21	23.73
		3	3	23.38	23.26	23.70
		6	0	22.67	22.68	22.71
	16QAM	1	0	22.66	22.39	23.39
		1	2	22.58	22.42	23.09
		1	5	22.79	22.35	23.36
		3	0	22.48	22.25	22.50
		3	2	22.40	22.24	22.60
		3	3	22.33	22.21	22.45
		6	0	21.70	21.70	21.77
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				26805/825.5	26915/836.5	27025/847.5
3MHz	QPSK	1	0	23.71	23.81	23.74
		1	7	23.77	23.60	24.13
		1	14	23.61	23.50	23.69
		8	0	22.67	22.64	22.76
		8	4	22.59	22.51	22.85
		8	7	22.59	22.57	22.80
		15	0	22.58	22.59	22.74
	16QAM	1	0	22.57	22.30	23.42
		1	7	22.49	22.33	23.13
		1	14	22.71	22.26	23.39
		8	0	21.77	21.54	21.62
		8	4	21.69	21.52	21.72
		8	7	21.61	21.50	21.58
		15	0	21.61	21.61	21.80
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				26815/826.5	26915/836.5	27015/846.5
5MHz	QPSK	1	0	23.75	23.84	23.70



		1	13	23.80	23.63	24.10
		1	24	23.64	23.53	23.65
		12	0	22.71	22.67	22.72
		12	6	22.62	22.55	22.80
		12	13	22.62	22.60	22.76
		25	0	22.62	22.62	22.72
	16QAM	1	0	22.60	22.33	23.39
		1	13	22.52	22.36	23.10
		1	24	22.74	22.29	23.35
		12	0	21.80	21.57	21.59
		12	6	21.72	21.56	21.68
		12	13	21.65	21.53	21.54
		25	0	21.64	21.64	21.75
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				26840/829	26915/836.5	26990/844
10MHz	QPSK	1	0	24.01	24.02	23.73
		1	25	23.80	23.85	24.14
		1	49	23.64	23.68	23.68
		25	0	22.73	22.78	22.76
		25	13	22.73	22.78	22.84
		25	25	22.73	22.77	22.81
		50	0	22.66	22.68	22.76
	16QAM	1	0	23.02	23.05	23.41
		1	25	22.98	23.02	23.13
		1	49	22.95	22.97	23.38
		25	0	21.64	21.69	21.63
		25	13	21.70	21.74	21.71
		25	25	21.68	21.73	21.58
		50	0	21.67	21.72	21.79
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				26865/831.5	26915/836.5	26965/841.5
15MHz	QPSK	1	0	23.99	24.03	23.68
		1	38	23.79	23.84	24.09
		1	74	23.64	23.69	23.61
		36	0	23.66	22.78	22.69
		36	18	23.67	22.77	22.77



		36	39	23.64	22.75	22.73
		75	0	22.63	22.67	22.67
	16QAM	1	0	23.04	23.06	23.34
		1	38	22.95	23.00	23.07
		1	74	22.93	22.97	23.33
		36	0	22.55	21.68	21.57
		36	18	22.62	21.75	21.64
		36	39	22.61	21.73	21.51
		75	0	21.67	21.71	21.72

5.2. Effective Radiated Power

Ambient condition

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

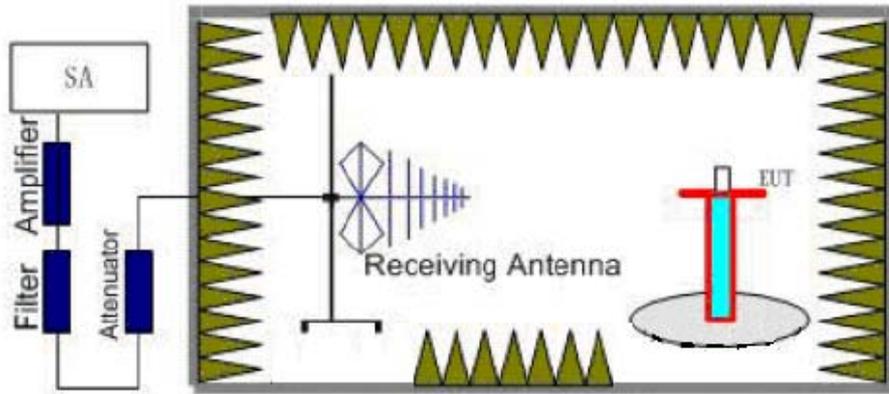
Methods of Measurement

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. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$
 P_s (dBm) : Input power to substitution antenna.
 G_s (dBi or dBd) : Substitution antenna Gain.
 $E_t = R_t + AF$
 $E_s = R_s + AF$
 AF (dB/m) : Receive antenna factor
 R_t : The highest received signal in spectrum analyzer for EUT.
 R_s : The highest received signal in spectrum analyzer for substitution antenna.

$$EIRP = E.R.P + 2.15$$

Test Setup



Limits

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

Limit	$\leq 7 \text{ W}$ (38.45 dBm)
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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:

Mode	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	Limit (dBm)	Conclusion
GSM 850	H	824.2	-14.07	-45.53	0	1.06	28.22	38.45	Pass
	H	836.6	-13.83	-45.38	0	1.24	28.49	38.45	Pass
	H	848.8	-13.41	-45.37	0	1.38	29.04	38.45	Pass
	V	824.2	-14.60	-45.65	0	1.06	27.81	38.45	Pass
	V	836.6	-14.89	-45.46	0	1.24	27.51	38.45	Pass
	V	848.8	-14.78	-45.49	0	1.38	27.79	38.45	Pass
GPRS 850	H	824.2	-22.91	-45.79	0	1.54	20.12	38.45	Pass
	H	836.6	-23.07	-46.07	0	1.60	20.30	38.45	Pass
	H	848.8	-23.01	-46.58	0	1.56	20.83	38.45	Pass
	V	824.2	-33.19	-45.70	0	1.54	9.75	38.45	Pass
	V	836.6	-32.93	-46.03	0	1.60	10.40	38.45	Pass
	V	848.8	-32.65	-46.61	0	1.56	11.22	38.45	Pass
EGPRS 850	H	824.2	-28.93	-45.79	0	1.54	14.10	38.45	Pass
	H	836.6	-28.84	-46.07	0	1.60	14.53	38.45	Pass
	H	848.8	-29.01	-46.58	0	1.56	14.83	38.45	Pass
	V	824.2	-40.92	-45.70	0	1.54	2.02	38.45	Pass
	V	836.6	-40.14	-46.03	0	1.60	3.19	38.45	Pass
	V	848.8	-41.25	-46.61	0	1.56	2.62	38.45	Pass
WCDMA Band V	H	826.4	-24.04	-45.44	0	1.13	18.23	38.45	Pass
	H	836.6	-24.01	-45.38	0	1.24	18.31	38.45	Pass
	H	846.6	-23.99	-45.38	0	1.35	18.44	38.45	Pass
	V	826.4	-35.32	-45.54	0	1.13	7.05	38.45	Pass
	V	836.6	-35.19	-45.46	0	1.24	7.21	38.45	Pass
	V	846.6	-35.10	-45.49	0	1.35	7.44	38.45	Pass

LTE Band 5									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Limit (dBm)	Conclusion
1.4 MHz (QPSK)	H	824.7	-29.74	-47.61	0.00	1.06	18.93	38.45	Pass
	H	836.5	-30.31	-47.75	0.00	1.24	18.68	38.45	Pass
	H	848.3	-30.64	-48.23	0.00	1.38	18.97	38.45	Pass
	V	824.7	-40.37	-47.29	0.00	1.06	7.99	38.45	Pass
	V	836.5	-40.56	-47.15	0.00	1.24	7.83	38.45	Pass
	V	848.3	-40.76	-47.48	0.00	1.38	8.10	38.45	Pass
1.4 MHz (16QAM)	H	824.7	-30.66	-47.61	0.00	1.06	18.01	38.45	Pass
	H	836.5	-30.82	-47.75	0.00	1.24	18.17	38.45	Pass
	H	848.3	-31.19	-48.23	0.00	1.38	18.42	38.45	Pass
	V	824.7	-40.98	-47.29	0.00	1.06	7.38	38.45	Pass
	V	836.5	-41.23	-47.15	0.00	1.24	7.16	38.45	Pass
	V	848.3	-41.20	-47.48	0.00	1.38	7.66	38.45	Pass
3 MHz (QPSK)	H	825.5	-30.06	-47.59	0.00	1.06	18.60	38.45	Pass
	H	836.5	-30.16	-47.75	0.00	1.24	18.83	38.45	Pass
	H	847.5	-30.93	-48.18	0.00	1.38	18.63	38.45	Pass
	V	825.5	-40.69	-47.26	0.00	1.06	7.64	38.45	Pass
	V	836.5	-40.58	-47.15	0.00	1.24	7.81	38.45	Pass
	V	847.5	-41.07	-47.44	0.00	1.38	7.76	38.45	Pass
3 MHz (16QAM)	H	825.5	-30.68	-47.59	0.00	1.06	17.98	38.45	Pass
	H	836.5	-30.91	-47.75	0.00	1.24	18.08	38.45	Pass
	H	847.5	-31.40	-48.18	0.00	1.38	18.16	38.45	Pass
	V	825.5	-41.23	-47.26	0.00	1.06	7.10	38.45	Pass
	V	836.5	-41.18	-47.15	0.00	1.24	7.21	38.45	Pass
	V	847.5	-41.53	-47.44	0.00	1.38	7.30	38.45	Pass
5 MHz (QPSK)	H	826.5	-29.89	-47.60	0.00	1.13	18.84	38.45	Pass
	H	836.5	-30.51	-47.75	0.00	1.24	18.48	38.45	Pass
	H	846.5	-30.84	-48.12	0.00	1.38	18.67	38.45	Pass
	V	826.5	-40.52	-47.24	0.00	1.13	7.85	38.45	Pass
	V	836.5	-40.59	-47.15	0.00	1.24	7.80	38.45	Pass
	V	846.5	-40.72	-47.40	0.00	1.38	8.06	38.45	Pass
5 MHz (16QAM)	H	826.5	-30.43	-47.60	0.00	1.13	18.30	38.45	Pass
	H	836.5	-31.07	-47.75	0.00	1.24	17.92	38.45	Pass
	H	846.5	-31.30	-48.12	0.00	1.38	18.21	38.45	Pass
	V	826.5	-41.09	-47.24	0.00	1.13	7.28	38.45	Pass
	V	836.5	-41.27	-47.15	0.00	1.24	7.12	38.45	Pass
	V	846.5	-41.04	-47.40	0.00	1.38	7.74	38.45	Pass
10 MHz (QPSK)	H	829	-29.87	-47.61	0.00	1.13	18.87	38.45	Pass
	H	836.5	-30.43	-47.75	0.00	1.24	18.56	38.45	Pass
	H	844	-30.42	-48.01	0.00	1.33	18.91	38.45	Pass



LTE Band 5									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Limit (dBm)	Conclusion
	V	829	-40.47	-47.19	0.00	1.13	7.85	38.45	Pass
	V	836.5	-40.59	-47.15	0.00	1.24	7.80	38.45	Pass
	V	844	-40.37	-47.29	0.00	1.33	8.24	38.45	Pass
10 MHz (16QAM)	H	829	-30.35	-47.61	0.00	1.13	18.39	38.45	Pass
	H	836.5	-30.95	-47.75	0.00	1.24	18.04	38.45	Pass
	H	844	-30.87	-48.01	0.00	1.33	18.46	38.45	Pass
	V	829	-40.98	-47.19	0.00	1.13	7.34	38.45	Pass
	V	836.5	-41.11	-47.15	0.00	1.24	7.28	38.45	Pass
	V	844	-40.91	-47.29	0.00	1.33	7.70	38.45	Pass

LTE Band 26									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Limit (dBm)	Conclusion
1.4 MHz (QPSK)	H	824.7	-29.91	-47.61	0.00	1.06	18.76	38.45	Pass
	H	836.5	-29.99	-47.75	0.00	1.24	19.00	38.45	Pass
	H	848.3	-30.47	-48.23	0.00	1.38	19.14	38.45	Pass
	V	824.7	-40.29	-47.29	0.00	1.06	8.07	38.45	Pass
	V	836.5	-40.96	-47.75	0.00	1.24	8.03	38.45	Pass
	V	848.3	-40.4	-47.48	0.00	1.38	8.46	38.45	Pass
1.4 MHz (16QAM)	H	824.7	-30.4	-47.61	0.00	1.06	18.27	38.45	Pass
	H	836.5	-30.61	-47.75	0.00	1.24	18.38	38.45	Pass
	H	848.3	-31.15	-48.23	0.00	1.38	18.46	38.45	Pass
	V	824.7	-40.74	-47.29	0.00	1.06	7.62	38.45	Pass
	V	836.5	-41.53	-47.75	0.00	1.24	7.46	38.45	Pass
	V	848.3	-41.36	-47.48	0.00	1.38	7.50	38.45	Pass
3 MHz (QPSK)	H	825.5	-29.8	-47.59	0.00	1.06	18.86	38.45	Pass
	H	836.5	-29.88	-47.75	0.00	1.24	19.11	38.45	Pass
	H	847.5	-30.13	-48.18	0.00	1.38	19.43	38.45	Pass
	V	825.5	-40.15	-47.26	0.00	1.06	8.18	38.45	Pass
	V	836.5	-40.65	-47.75	0.00	1.24	8.34	38.45	Pass
	V	847.5	-40.11	-47.44	0.00	1.38	8.72	38.45	Pass
3 MHz (16QAM)	H	825.5	-30.35	-47.59	0.00	1.06	18.31	38.45	Pass
	H	836.5	-30.63	-47.75	0.00	1.24	18.36	38.45	Pass
	H	847.5	-31.08	-48.18	0.00	1.38	18.48	38.45	Pass
	V	825.5	-40.67	-47.26	0.00	1.06	7.66	38.45	Pass
	V	836.5	-41.22	-47.75	0.00	1.24	7.77	38.45	Pass
	V	847.5	-40.77	-47.44	0.00	1.38	8.06	38.45	Pass
5 MHz (QPSK)	H	826.5	-30.12	-47.60	0.00	1.13	18.61	38.45	Pass
	H	836.5	-30.21	-47.75	0.00	1.24	18.78	38.45	Pass



LTE Band 26									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Limit (dBm)	Conclusion
	H	846.5	-30.35	-48.12	0.00	1.38	19.16	38.45	Pass
	V	826.5	-40.54	-47.24	0.00	1.13	7.83	38.45	Pass
	V	836.5	-40.97	-47.75	0.00	1.24	8.02	38.45	Pass
	V	846.5	-40.32	-47.40	0.00	1.38	8.46	38.45	Pass
5 MHz (16QAM)	H	826.5	-30.85	-47.60	0.00	1.13	17.88	38.45	Pass
	H	836.5	-30.98	-47.75	0.00	1.24	18.01	38.45	Pass
	H	846.5	-30.94	-48.12	0.00	1.38	18.57	38.45	Pass
	V	826.5	-41.17	-47.24	0.00	1.13	7.20	38.45	Pass
	V	836.5	-41.55	-47.75	0.00	1.24	7.44	38.45	Pass
	V	846.5	-40.96	-47.40	0.00	1.38	7.82	38.45	Pass
10 MHz (QPSK)	H	829	-29.66	-47.61	0.00	1.13	19.08	38.45	Pass
	H	836.5	-30.14	-47.75	0.00	1.24	18.85	38.45	Pass
	H	844	-30.02	-48.01	0.00	1.33	19.31	38.45	Pass
	V	829	-40.04	-47.19	0.00	1.13	8.28	38.45	Pass
	V	836.5	-41.05	-47.75	0.00	1.24	7.94	38.45	Pass
	V	844	-39.98	-47.29	0.00	1.33	8.63	38.45	Pass
10 MHz (16QAM)	H	829	-30.45	-47.61	0.00	1.13	18.29	38.45	Pass
	H	836.5	-30.29	-47.75	0.00	1.24	18.70	38.45	Pass
	H	844	-30.54	-48.01	0.00	1.33	18.79	38.45	Pass
	V	829	-40.53	-47.19	0.00	1.13	7.79	38.45	Pass
	V	836.5	-41.63	-47.75	0.00	1.24	7.36	38.45	Pass
	V	844	-40.53	-47.29	0.00	1.33	8.08	38.45	Pass
15 MHz (QPSK)	H	831.5	-29.81	-47.64	0.00	1.18	19.01	38.45	Pass
	H	836.5	-30.21	-47.75	0.00	1.24	18.78	38.45	Pass
	H	841.5	-30.00	-47.93	0.00	1.28	19.22	38.45	Pass
	V	831.5	-40.12	-47.15	0.00	1.18	8.21	38.45	Pass
	V	836.5	-41.01	-47.75	0.00	1.24	7.98	38.45	Pass
	V	841.5	-40.08	-47.23	0.00	1.28	8.44	38.45	Pass
15 MHz (16QAM)	H	831.5	-30.44	-47.64	0.00	1.18	18.38	38.45	Pass
	H	836.5	-30.71	-47.75	0.00	1.24	18.28	38.45	Pass
	H	841.5	-30.52	-47.93	0.00	1.28	18.70	38.45	Pass
	V	831.5	-40.64	-47.15	0.00	1.18	7.69	38.45	Pass
	V	836.5	-41.49	-47.75	0.00	1.24	7.50	38.45	Pass
	V	841.5	-40.70	-47.23	0.00	1.28	7.82	38.45	Pass

5.3. Occupied Bandwidth

Ambient condition

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

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 3 kHz, VBW is set to 10kHz for GSM 850,

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

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 5/26 (1.4MHz),

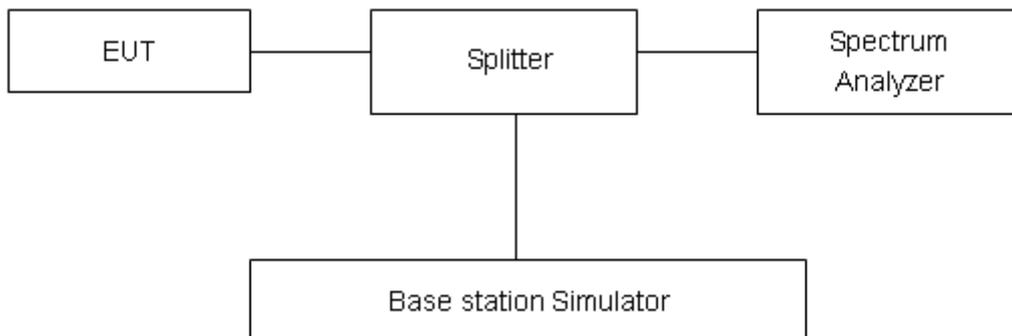
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 5/26 (3MHz/5MHz),

RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 5 (10MHz)

RBW is set to 300 kHz, VBW is set to 1 MHz for LTE Band 26 (10MHz/15MHz).

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

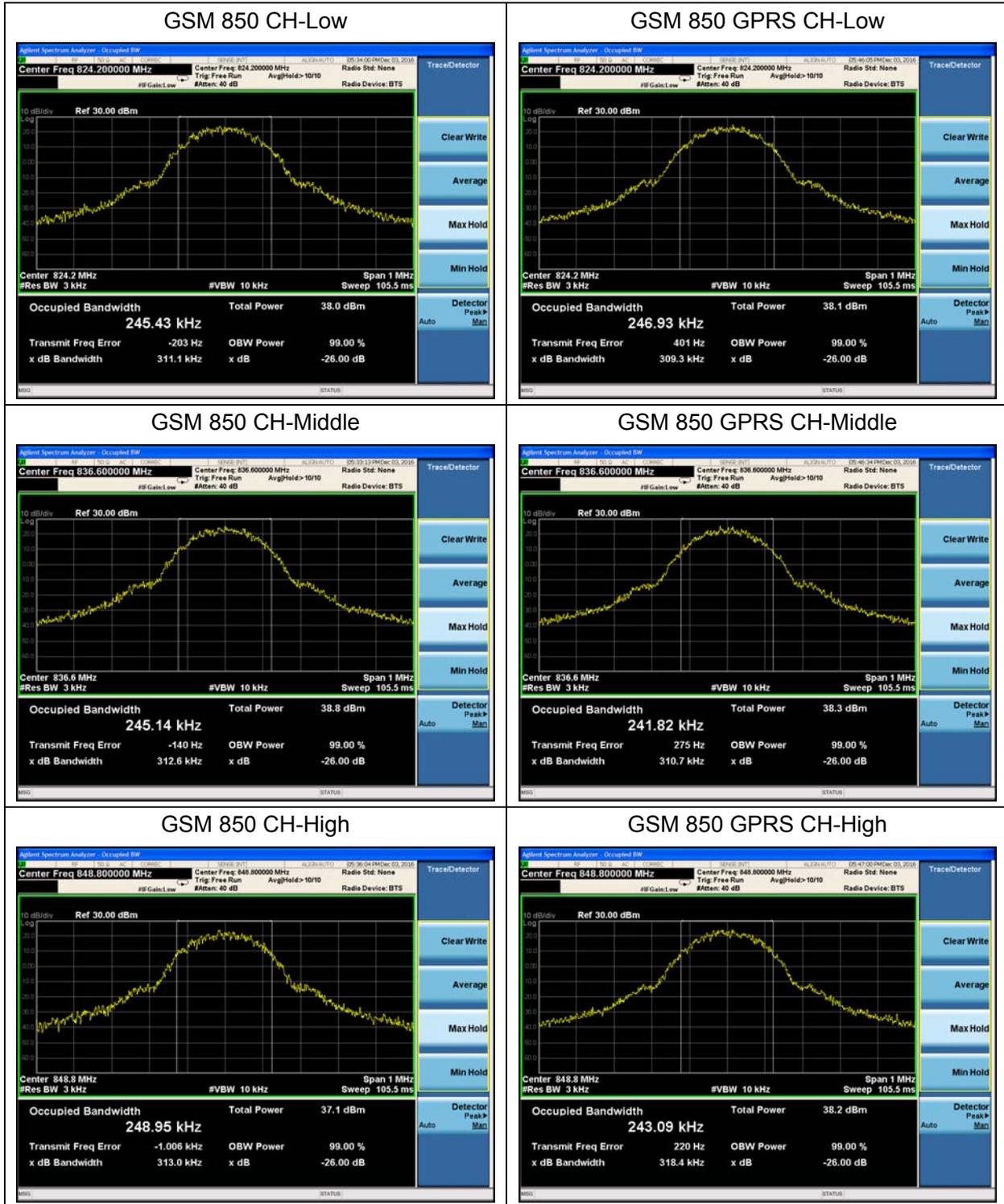
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.

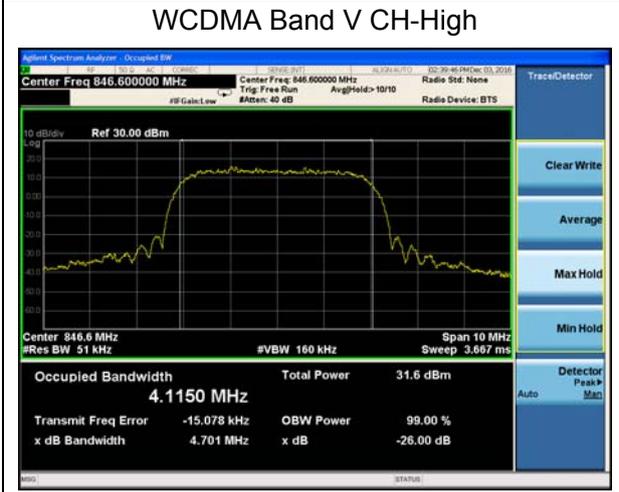
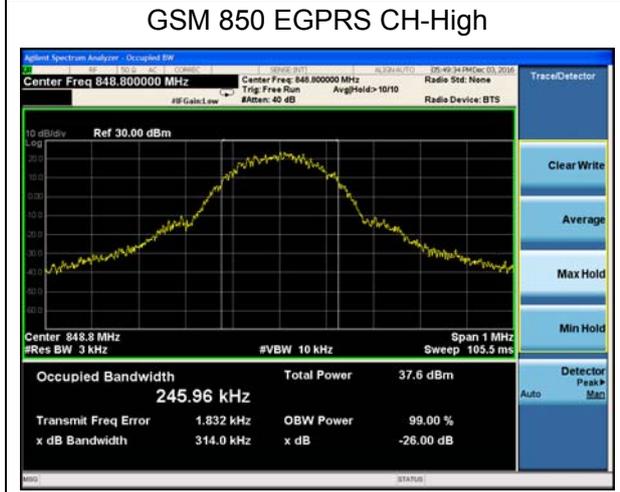
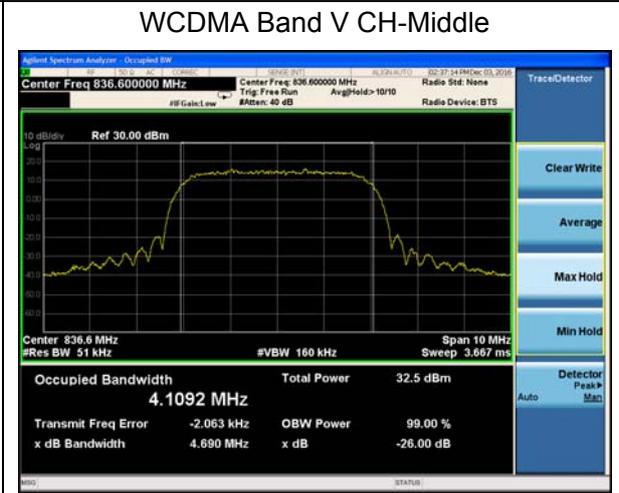
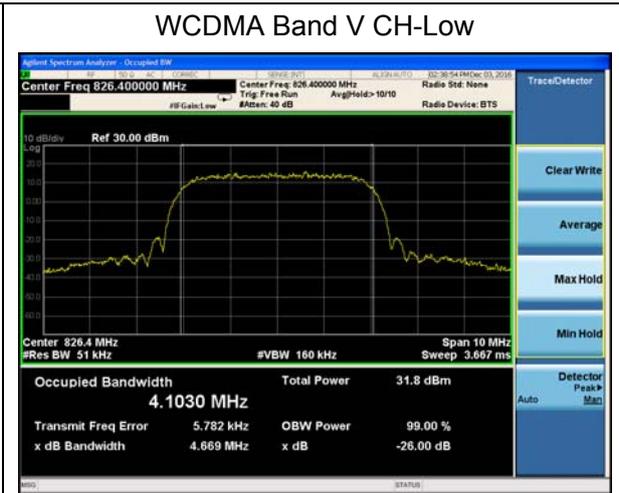
Test Result

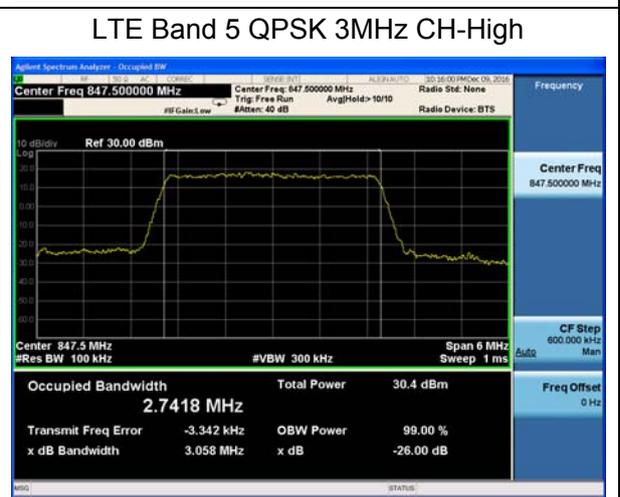
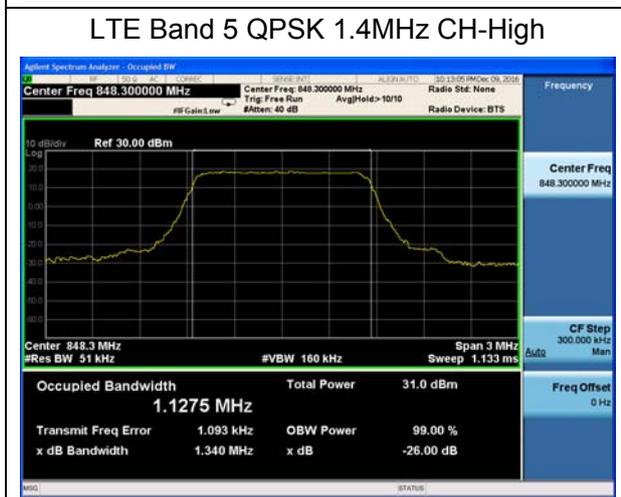
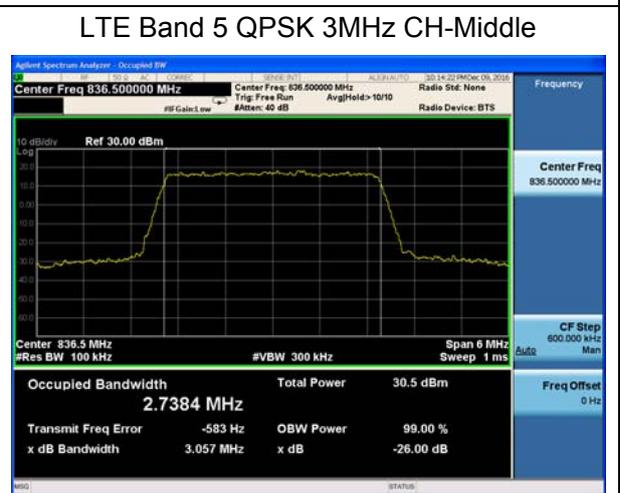
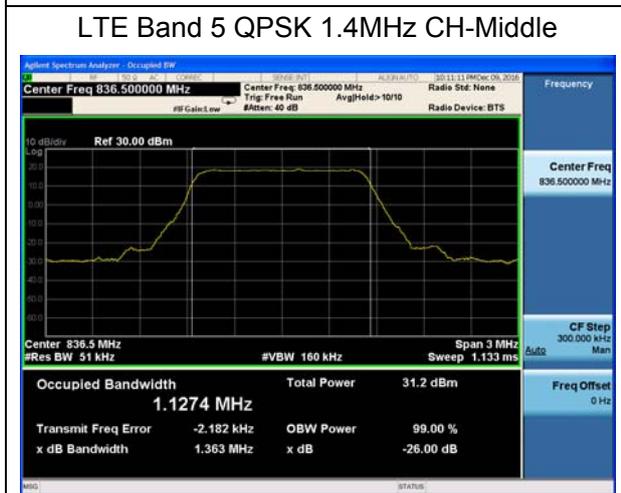
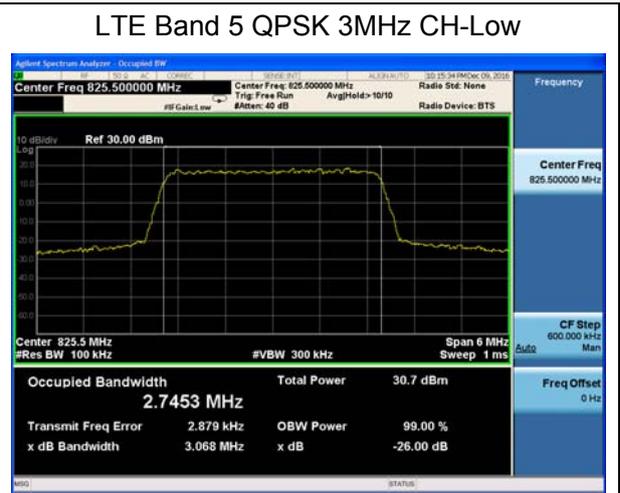
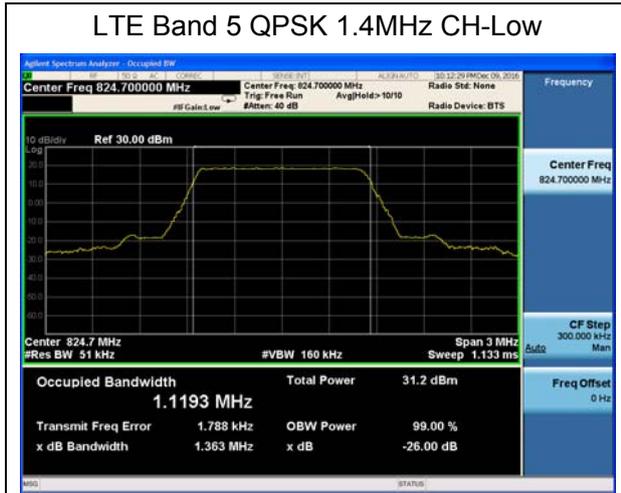
Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 850 (GSM)	128	824.2	0.24543	0.3111
	190	836.6	0.24514	0.3126
	251	848.8	0.24895	0.3130
GPRS 850 (GMSK)	128	824.2	0.24693	0.3093
	190	836.6	0.24182	0.3107
	251	848.8	0.24309	0.3184
EGPRS 850 (8-PSK)	128	824.2	0.24594	0.3112
	190	836.6	0.24665	0.3181
	251	848.8	0.24596	0.3140
WCDMA Band V (RMC)	4132	826.4	4.10300	4.6690
	4183	836.6	4.10920	4.6900
	4233	846.6	4.11500	4.7010

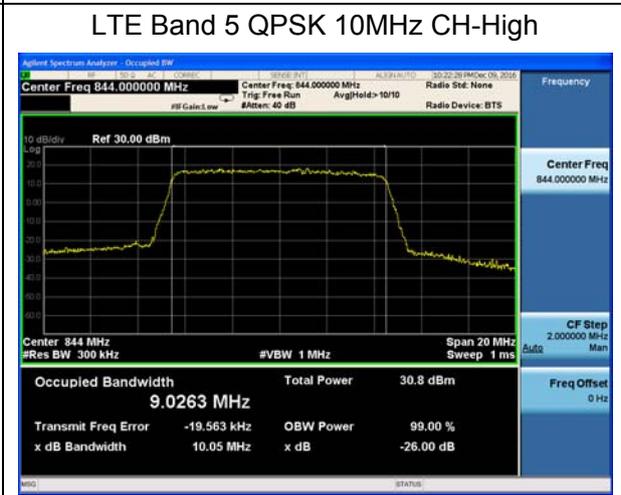
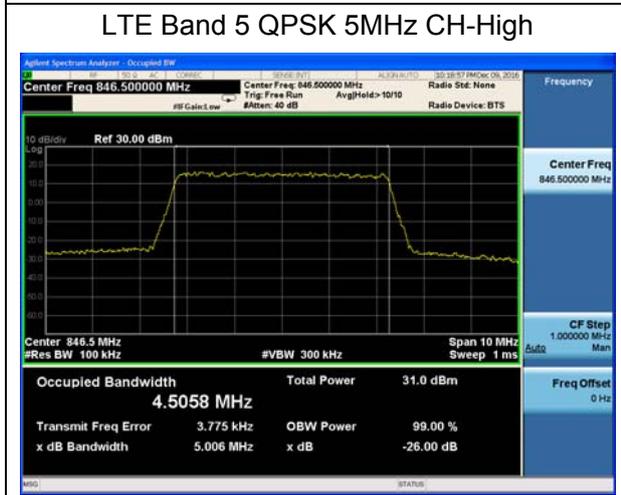
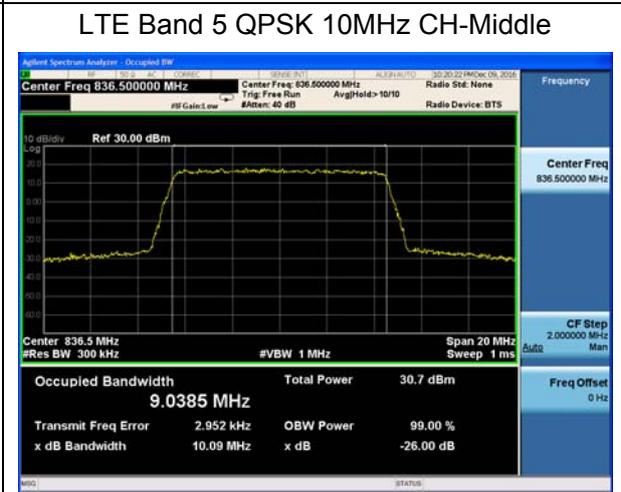
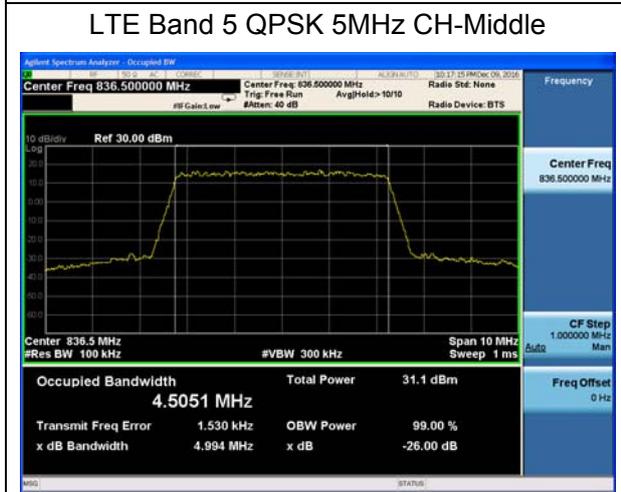
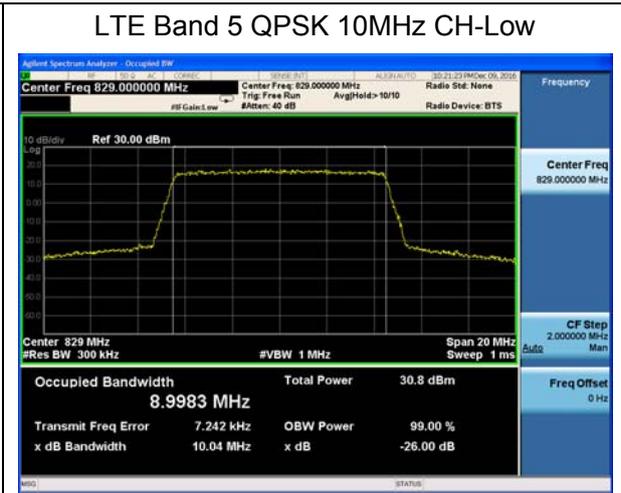
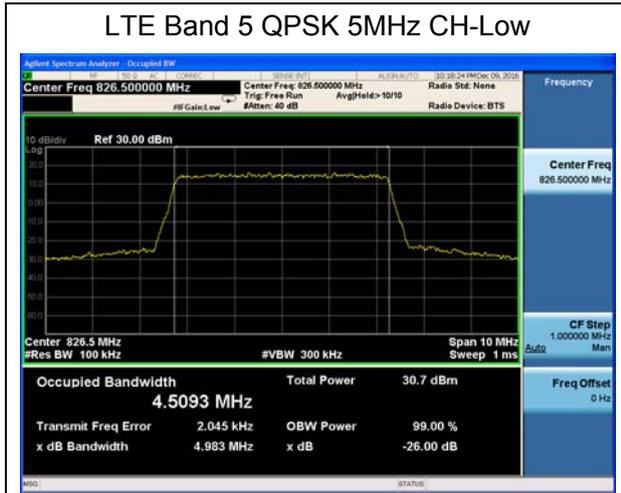
LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.1193	1.363
			20525	836.5	1.1274	1.363
			20643	848.3	1.1275	1.340
		3	20415	825.5	2.7453	3.068
			20525	836.5	2.7384	3.057
			20635	847.5	2.7418	3.058
		5	20425	826.5	4.5093	4.983
			20525	836.5	4.5051	4.994
			20625	846.5	4.5058	5.006
		10	20450	829	8.9983	10.040
			20525	836.5	9.0385	10.090
			20600	844	9.0263	10.050
	16QAM	1.4	20407	824.7	1.1242	1.334
			20525	836.5	1.1228	1.329
			20643	848.3	1.1201	1.361
		3	20415	825.5	2.7346	3.069
			20525	836.5	2.7500	3.068
			20635	847.5	2.7344	3.069
		5	20425	826.5	4.5148	5.028
			20525	836.5	4.5027	4.997
			20625	846.5	4.5200	5.031
10		20450	829	9.0211	9.916	
		20525	836.5	9.0230	9.994	
		20600	844	9.0004	10.050	

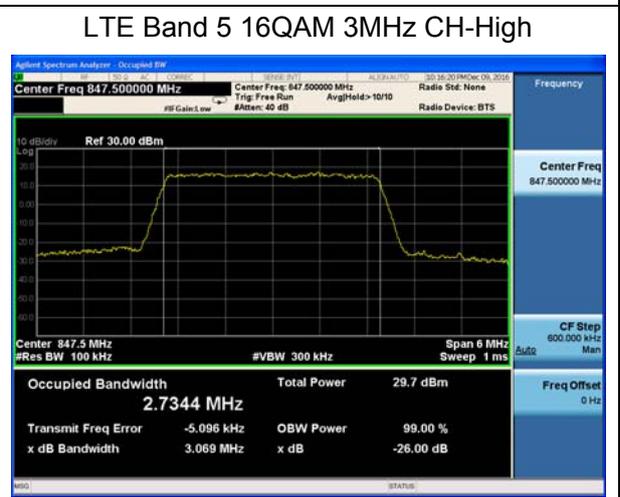
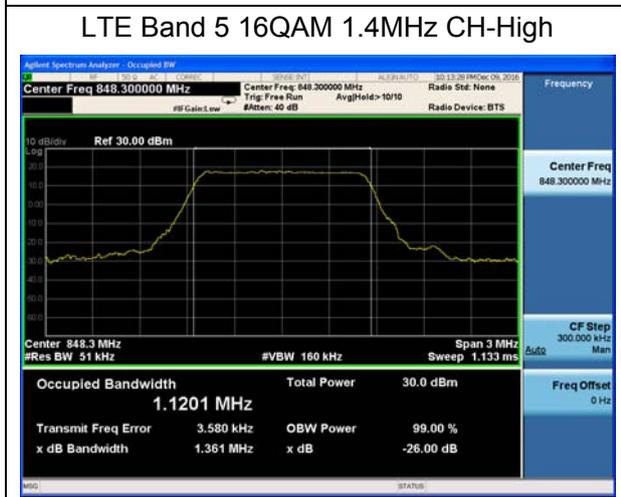
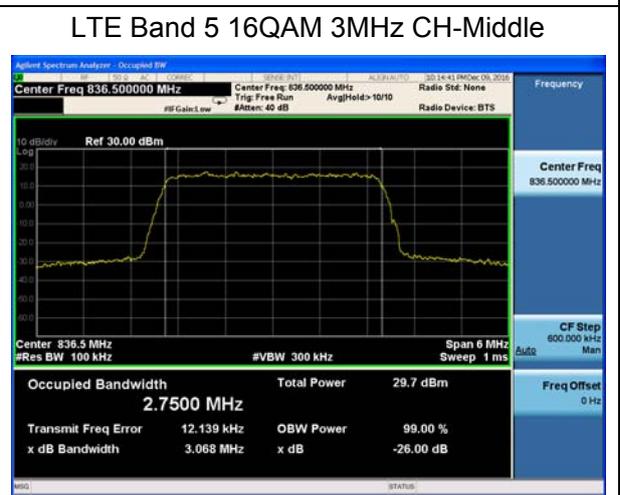
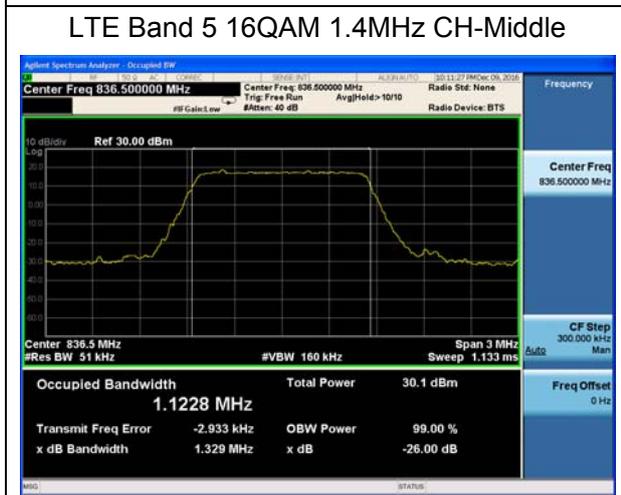
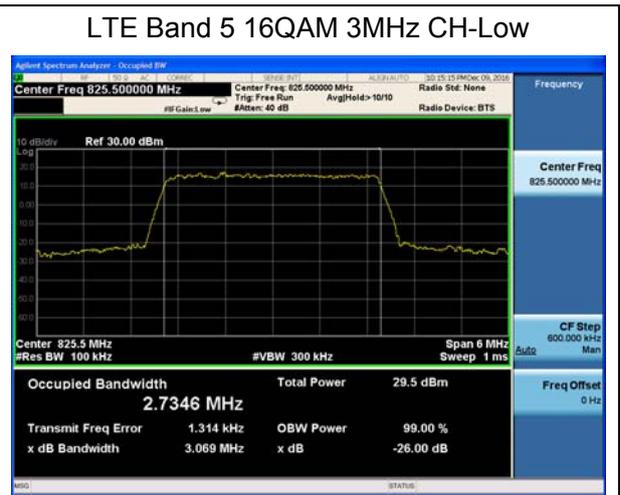
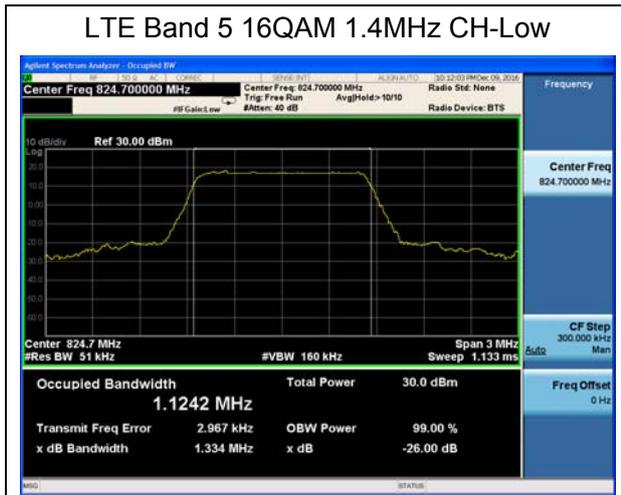
LTE Band 26						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	26797	824.7	1.1250	1.376
			26915	836.5	1.1274	1.356
			27033	848.3	1.1282	1.332
		3	26805	825.5	2.7518	3.045
			26915	836.5	2.7414	3.084
			27025	847.5	2.7409	3.056
		5	26815	826.5	4.5057	5.008
			26915	836.5	4.5253	5.016
			27015	846.5	4.4943	4.994
		10	26840	829	8.9967	10.060
			26915	836.5	9.0419	10.090
			26990	844	9.0144	9.994
	15	26865	831.5	13.403	14.560	
		26915	836.5	13.460	14.740	
		26965	841.5	13.404	14.610	
	16QAM	1.4	26797	824.7	1.1155	1.325
			26915	836.5	1.1303	1.343
			27033	848.3	1.1198	1.369
		3	26805	825.5	2.7348	3.047
			26915	836.5	2.7507	3.080
			27025	847.5	2.7375	3.075
		5	26815	826.5	4.5251	5.023
			26915	836.5	4.4958	4.979
			27015	846.5	4.5147	5.010
10		26840	829	9.0220	10.060	
		26915	836.5	9.0488	10.020	
		26990	844	9.0021	10.020	
15	26865	831.5	13.417	14.620		
	26915	836.5	13.437	14.620		
	26965	841.5	13.423	14.600		

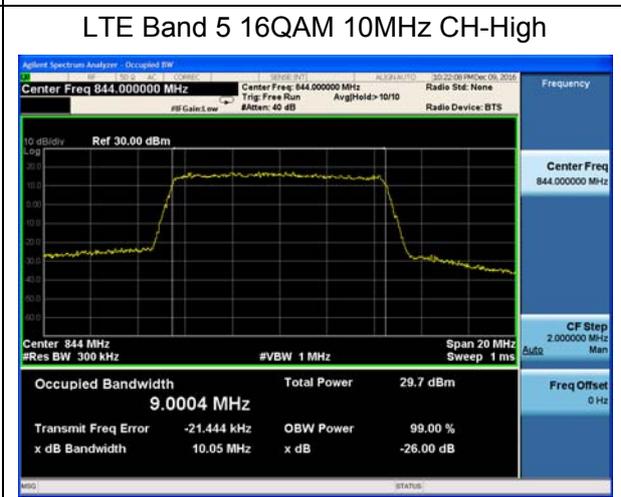
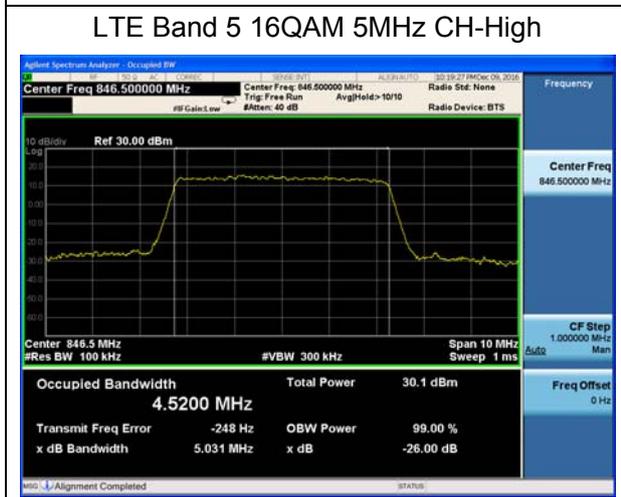
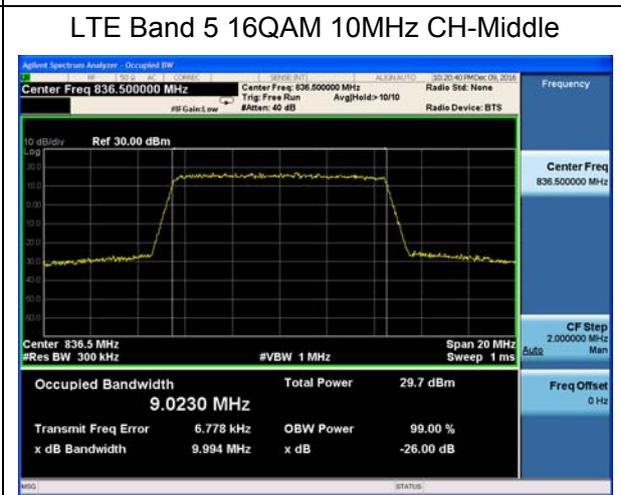
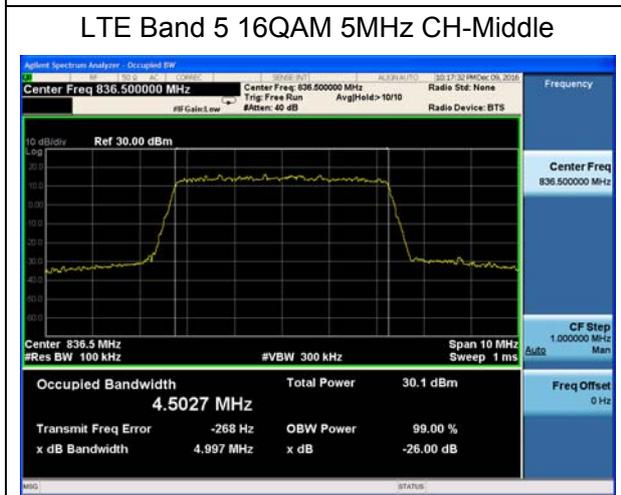
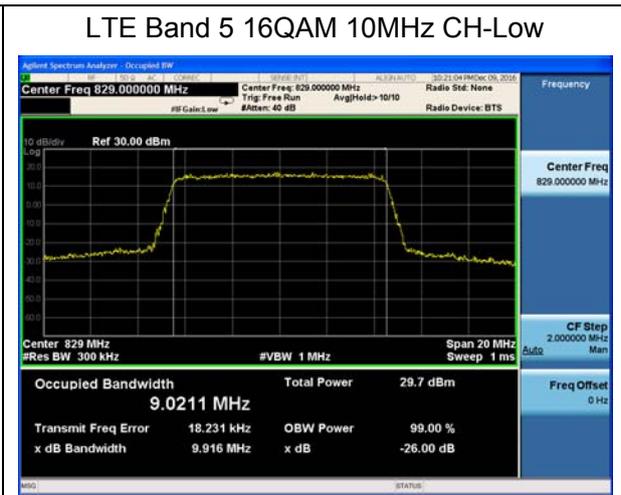
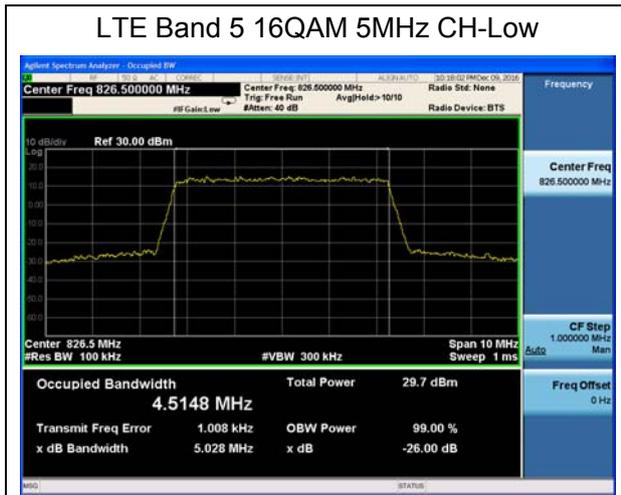


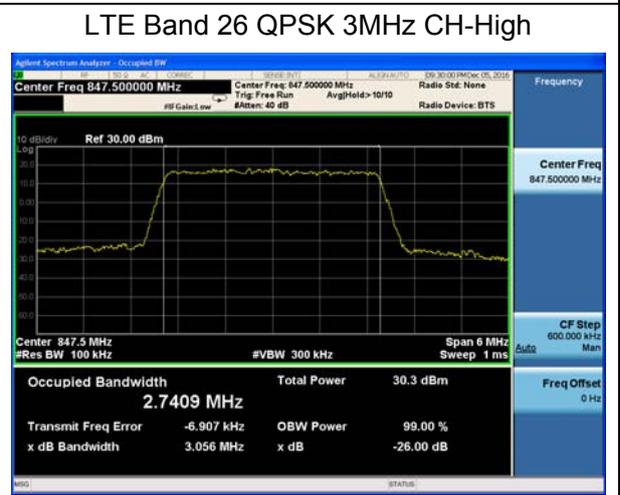
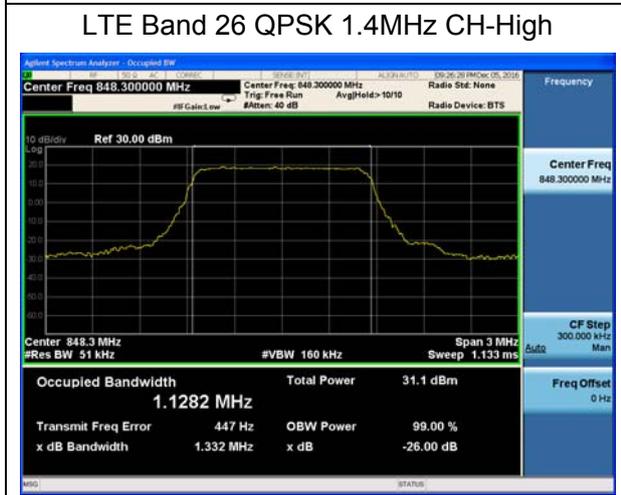
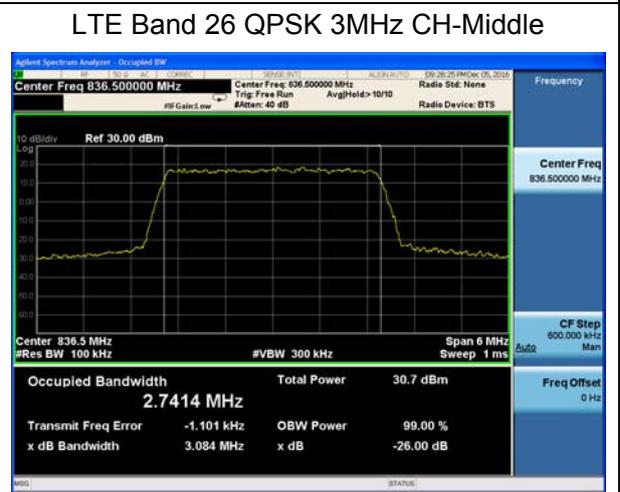
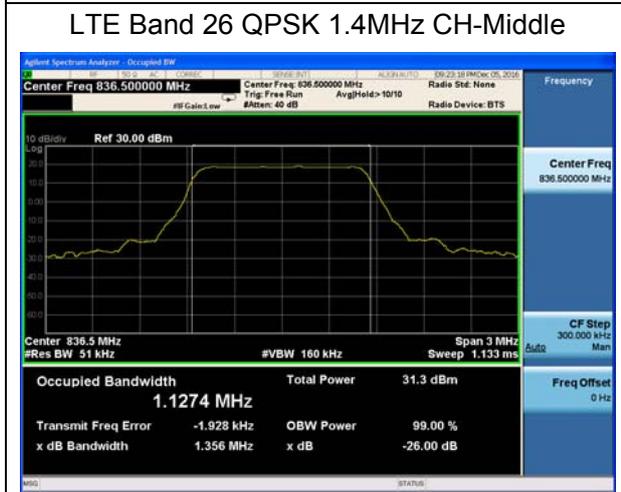
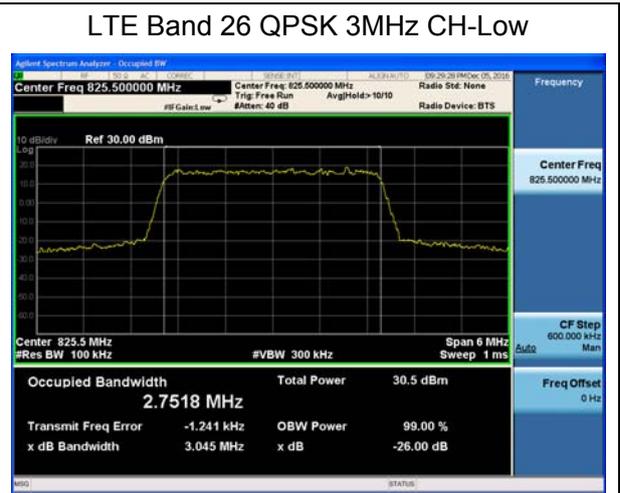
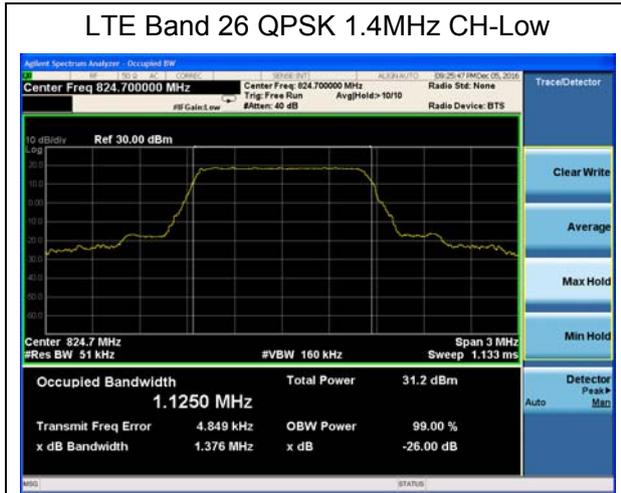


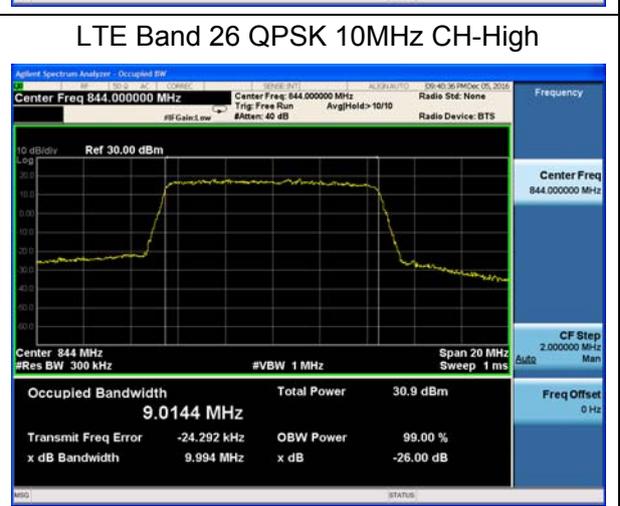
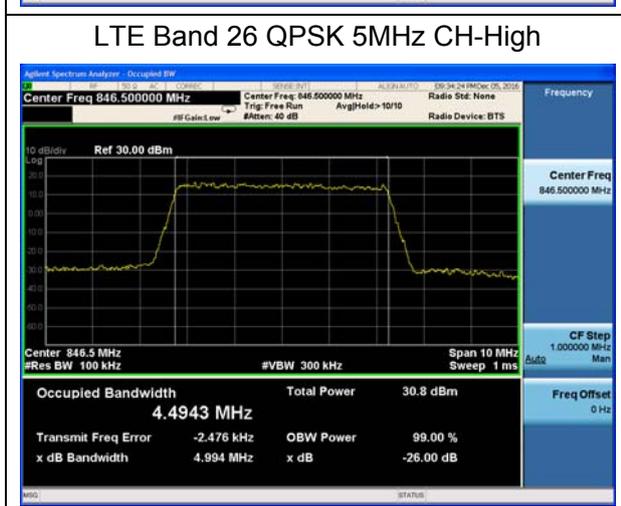
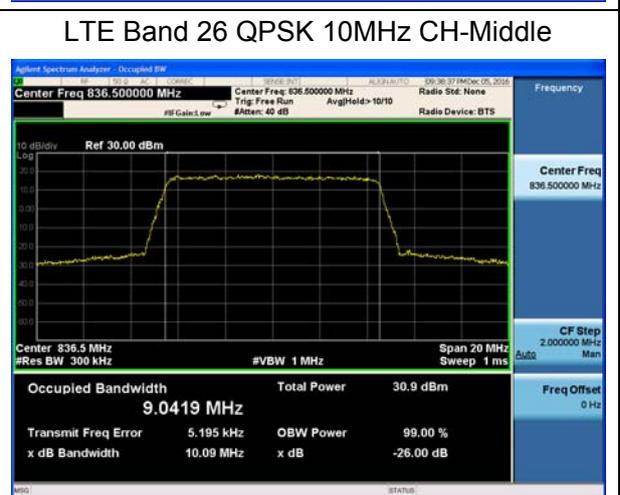
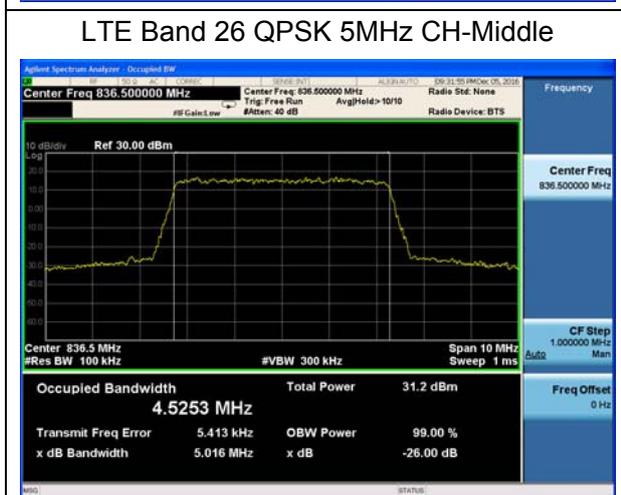
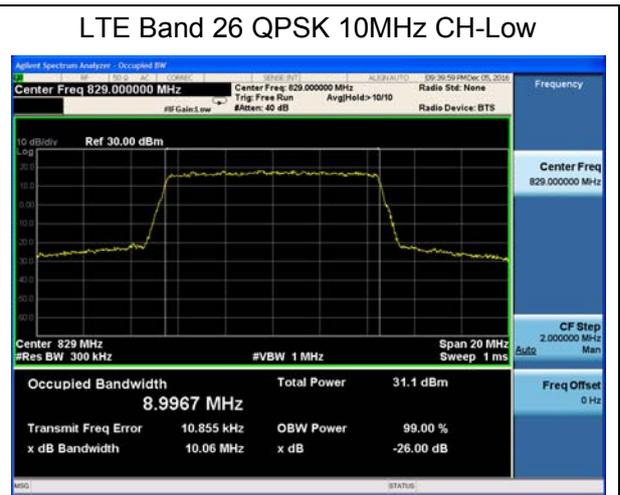
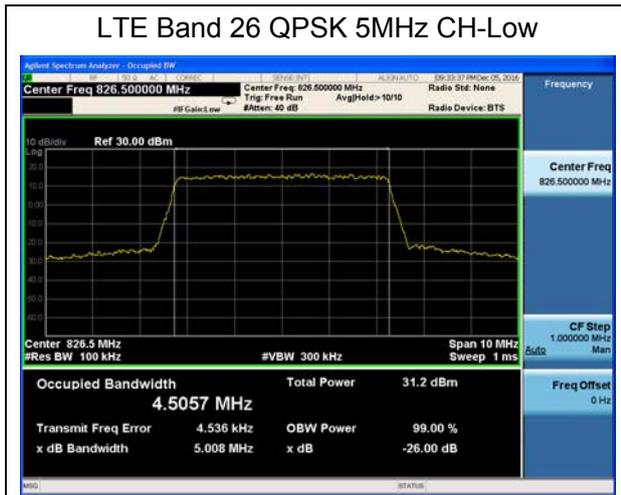






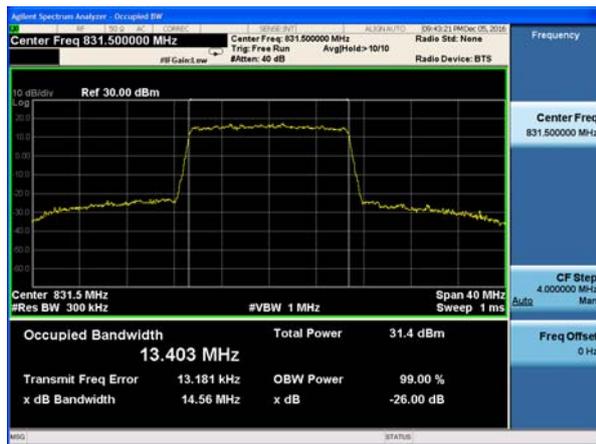




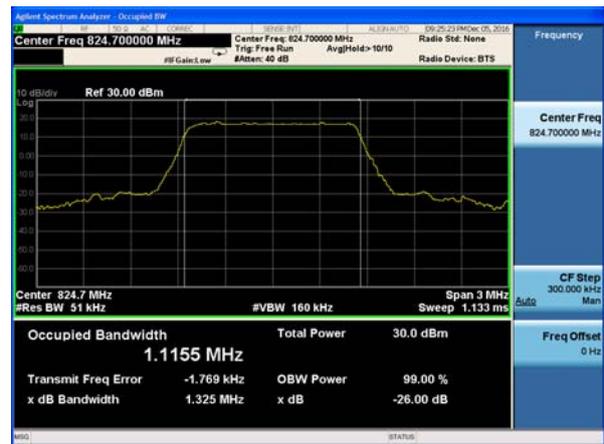




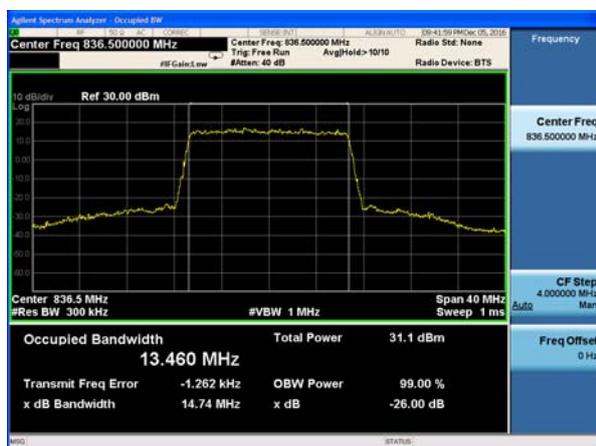
LTE Band 26 QPSK 15MHz CH-Low



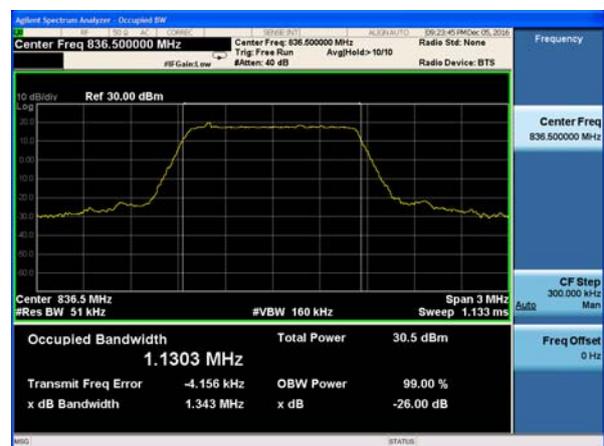
LTE Band 26 16QAM 1.4MHz CH-Low



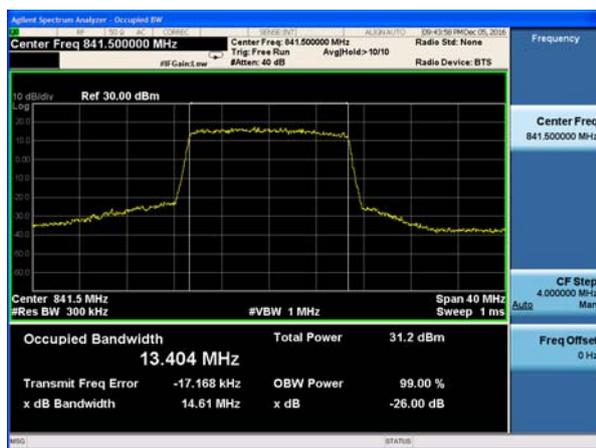
LTE Band 26 QPSK 15MHz CH-Middle



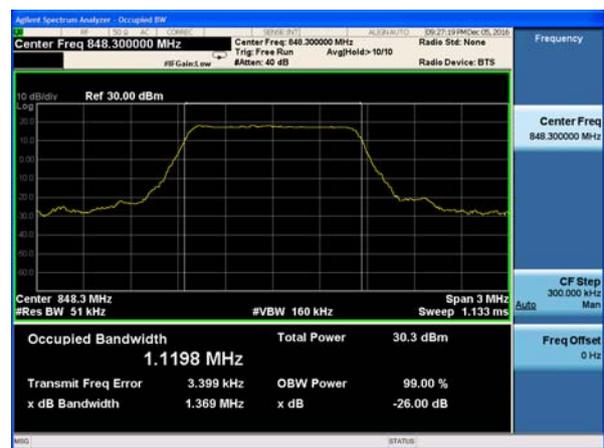
LTE Band 26 16QAM 1.4MHz CH-Middle



LTE Band 26 QPSK 15MHz CH-High

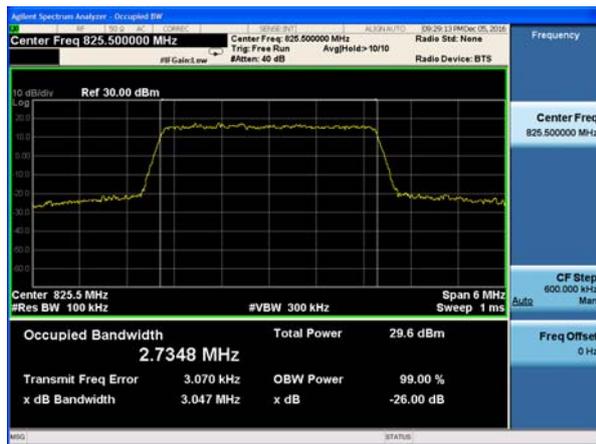


LTE Band 26 16QAM 1.4MHz CH-High





LTE Band 26 16QAM 3MHz CH-Low



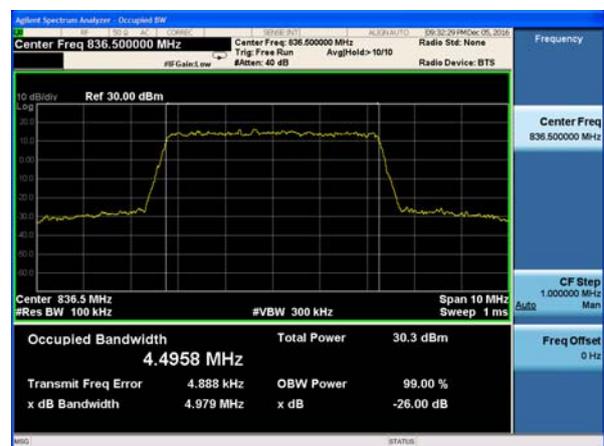
LTE Band 26 16QAM 5MHz CH-Low



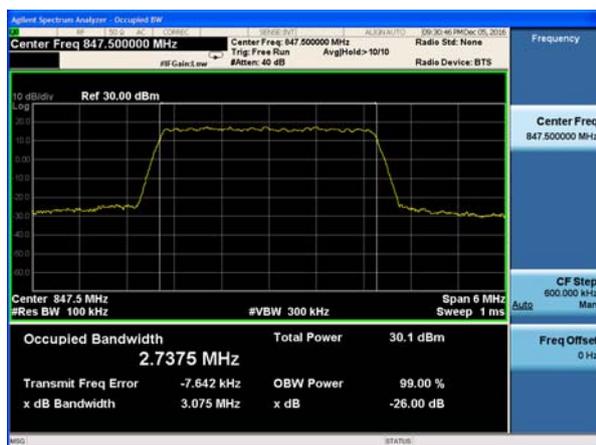
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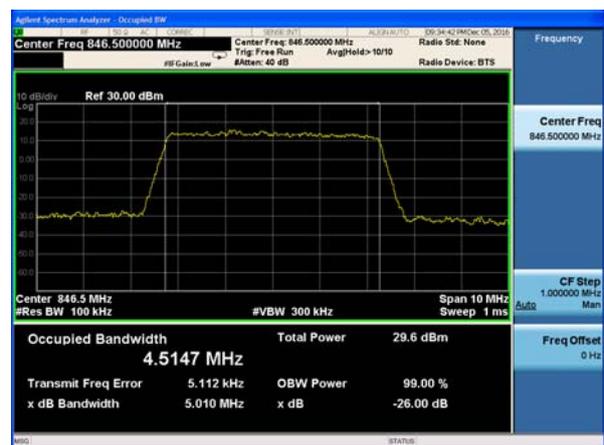
LTE Band 26 16QAM 5MHz CH-Middle



LTE Band 26 16QAM 3MHz CH-High

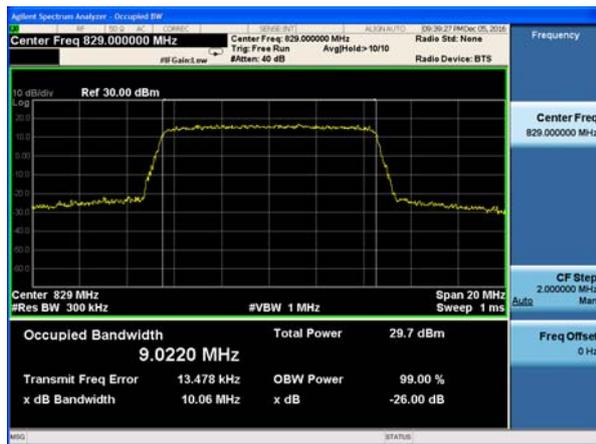


LTE Band 26 16QAM 5MHz CH-High

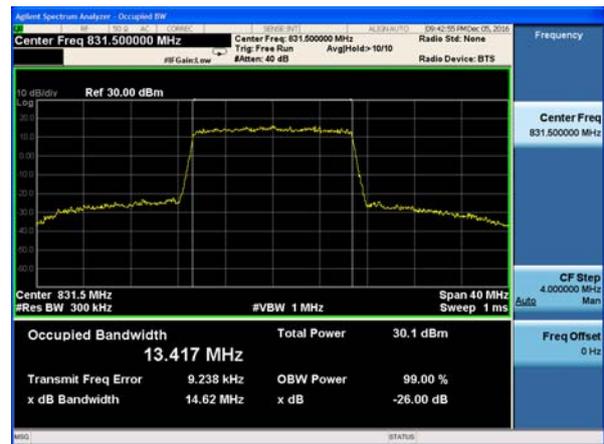




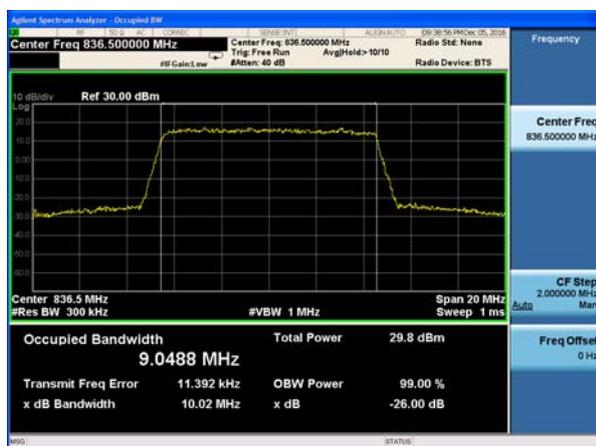
LTE Band 26 16QAM 10MHz CH-Low



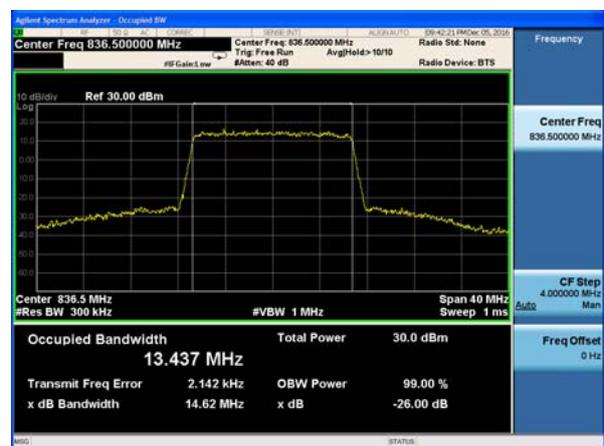
LTE Band 26 16QAM 15MHz CH-Low



LTE Band 26 16QAM 10MHz CH-Middle



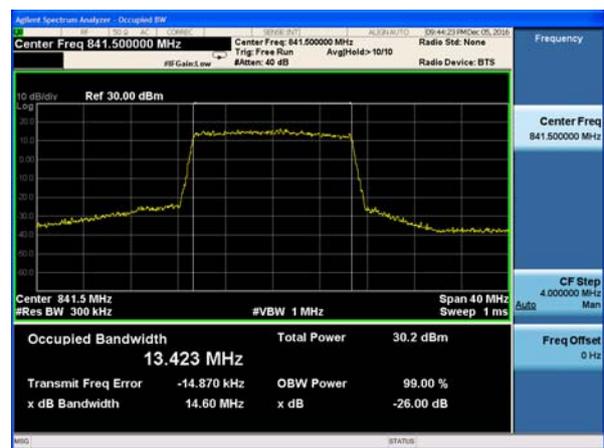
LTE Band 26 16QAM 15MHz CH-Middle



LTE Band 26 16QAM 10MHz CH-High



LTE Band 26 16QAM 15MHz CH-High



5.4. Band Edge Compliance

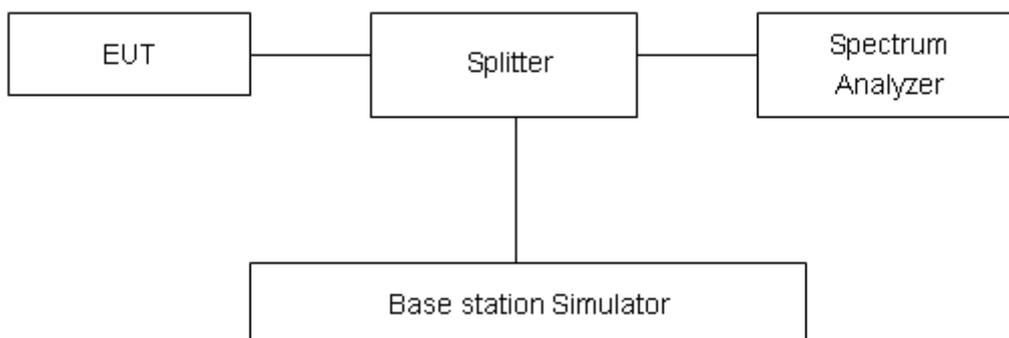
Ambient condition

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

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 hannels were measured. The average detector is used. RBW is set to 3kHz, BW is set to 10kHz for GSM 850, RBW is set to 51 Hz, BW is set to 160kHz for WCDMA Band V, RBW is set to 15 kHz, BW is set to 51 kHz for LTE Band 5/26 (1.4MHz), RBW is set to 30 kHz, BW is set to 100 kHz for LTE Band 5/26 (3MHz), RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 5/26 (5MHz), RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 5/26 (10MHz), RBW is set to 150 kHz, BW is set to 510kHz for LTE Band 26 (15MHz). Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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

Test Result:

GSM 850 CH-Low



GSM 850 CH-High



GSM 850 GPRS CH-Low



GSM 850 GPRS CH-High



GSM 850 EGPRS CH-Low



GSM 850 EGPRS CH-High





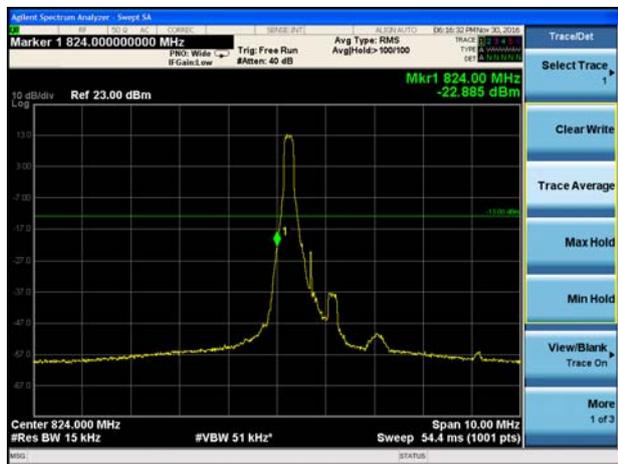
WCDMA Band V CH-Low



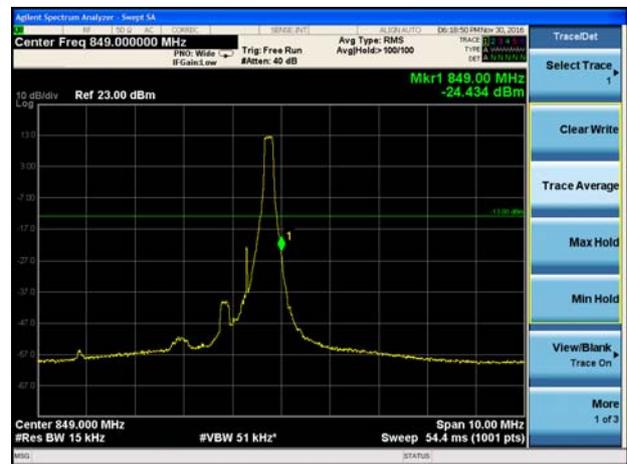
WCDMA Band V CH-High



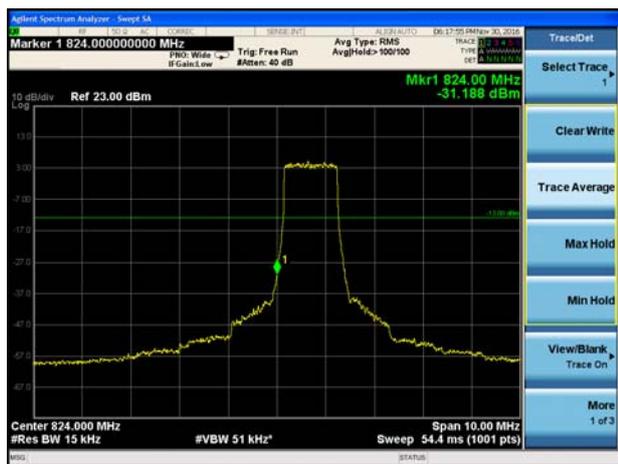
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



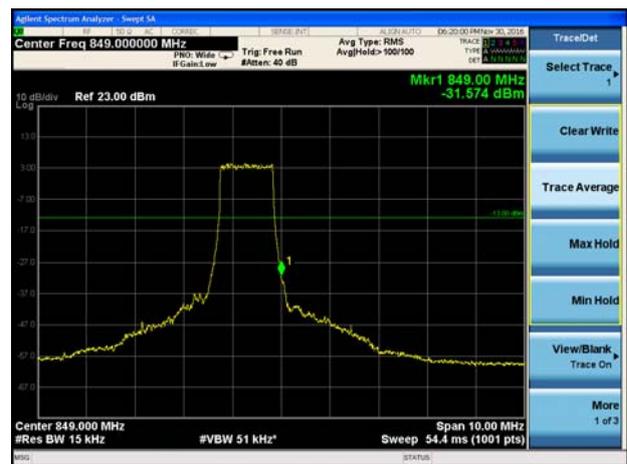
LTE Band 5 QPSK 1.4MHz CH-High 1RB



LTE Band 5 QPSK 1.4MHz CH-Low 100%RB

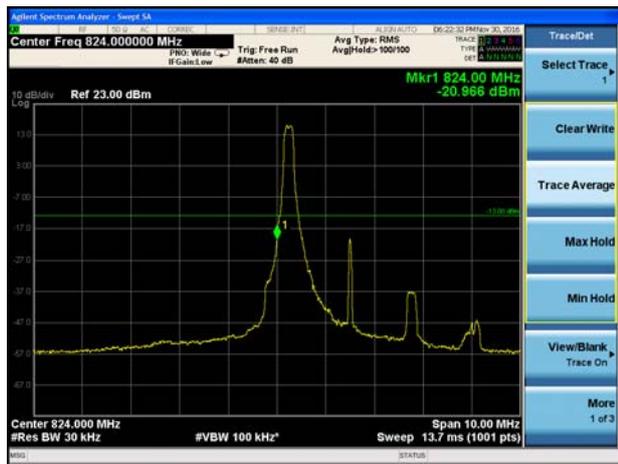


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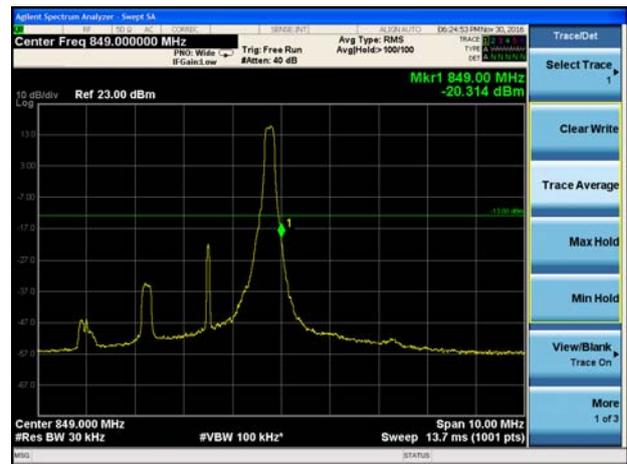




LTE Band 5 QPSK 3MHz CH-Low 1RB



LTE Band 5 QPSK 3MHz CH-High 1RB



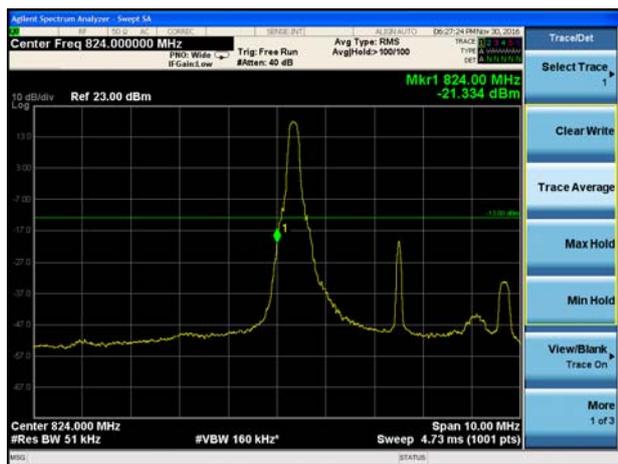
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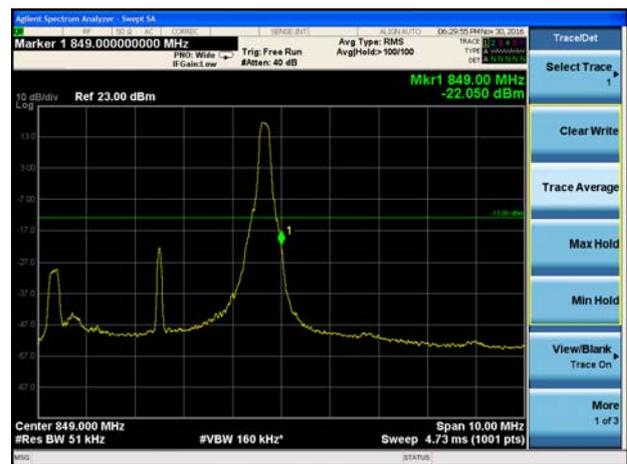
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LTE Band 5 QPSK 5MHz CH-Low 1RB



LTE Band 5 QPSK 5MHz CH-High 1RB





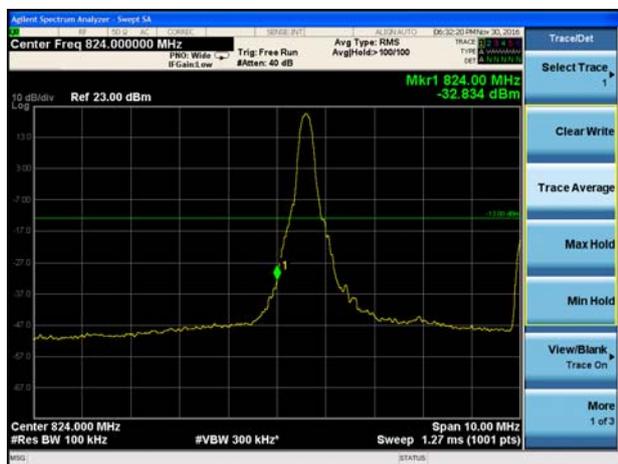
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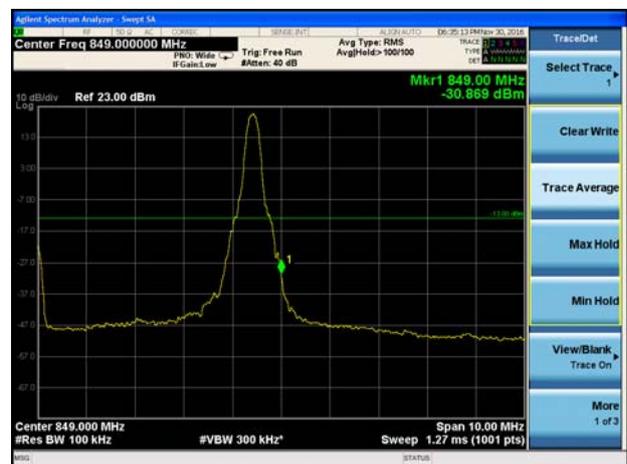
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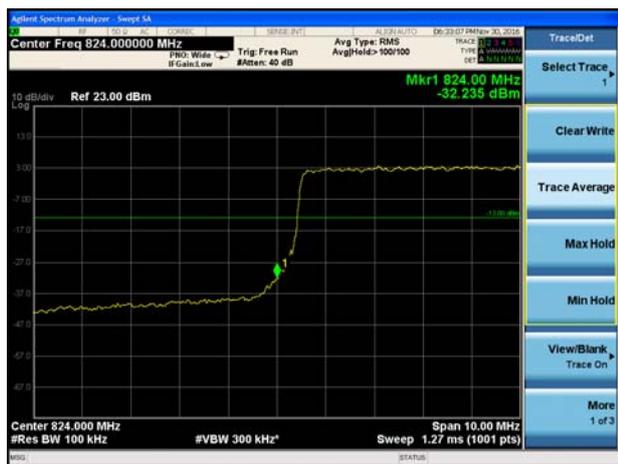
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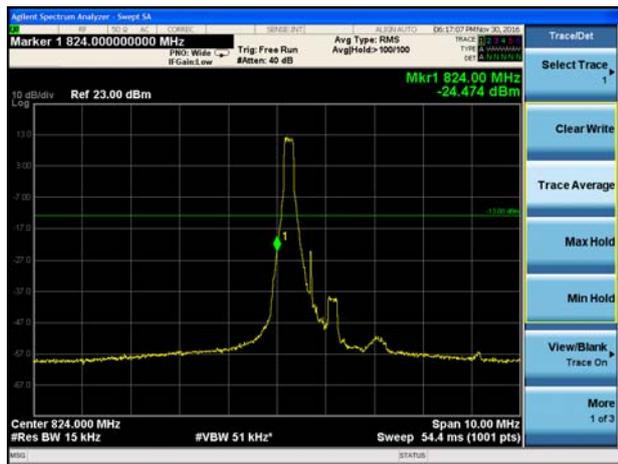
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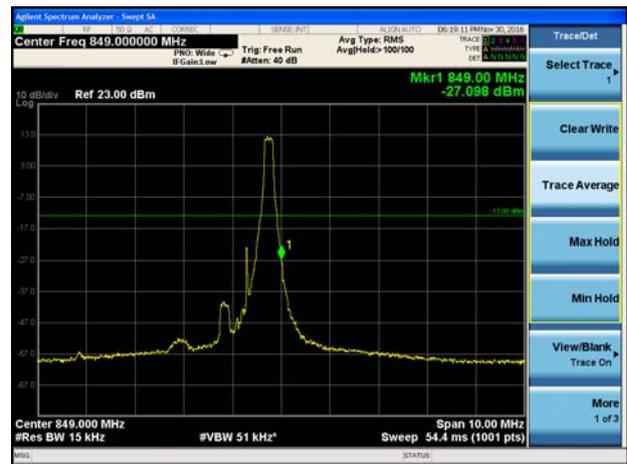
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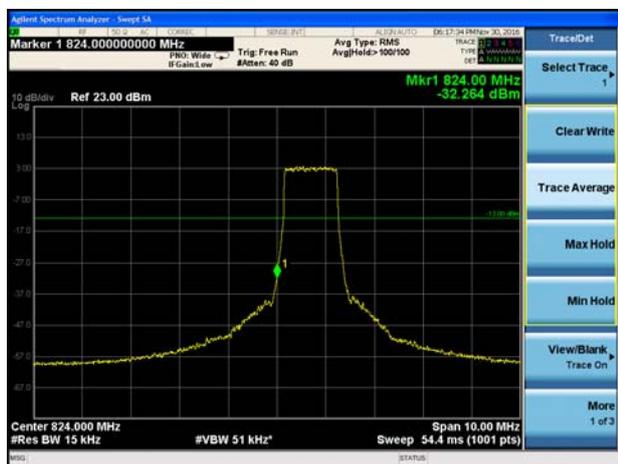
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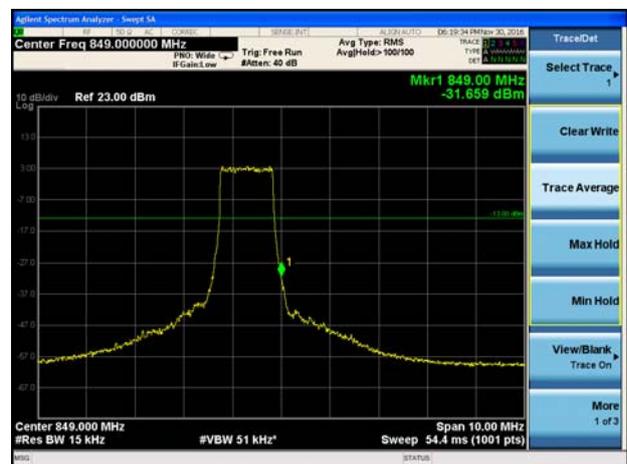
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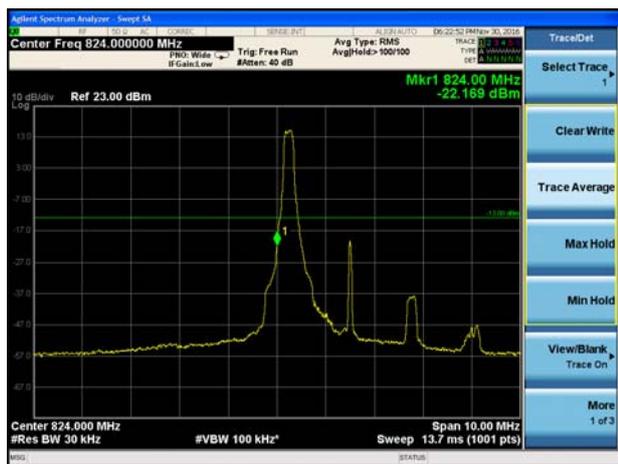
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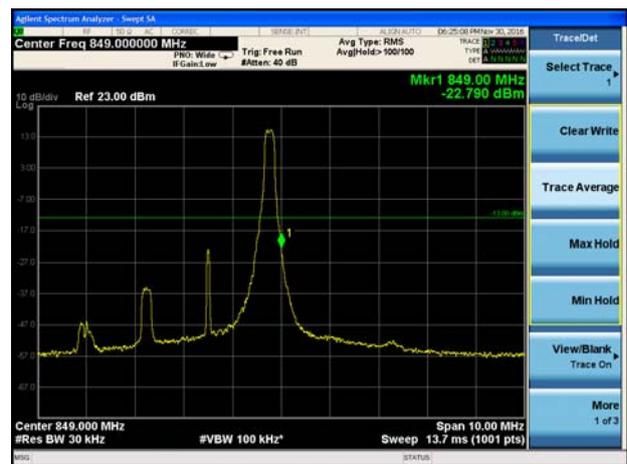
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LTE Band 5 16QAM 3MHz CH-Low 1RB



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





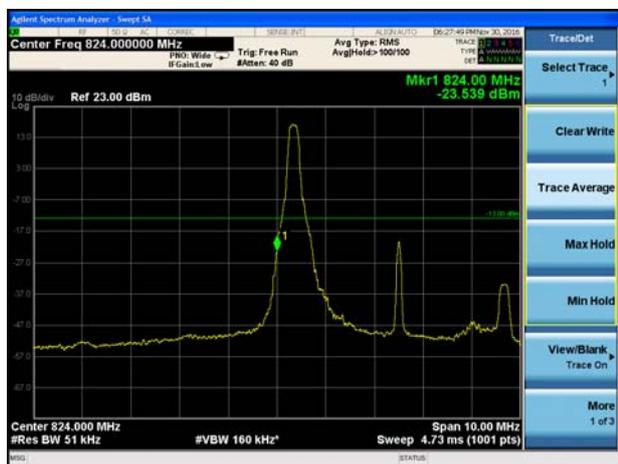
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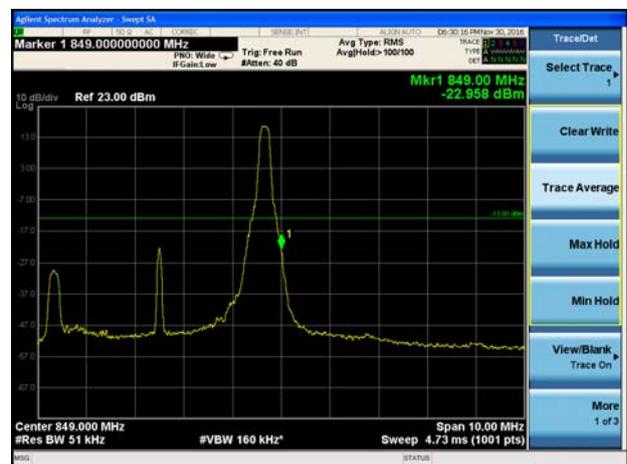
LTE Band 5 16QAM 3MHz CH-High 100%RB



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



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



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

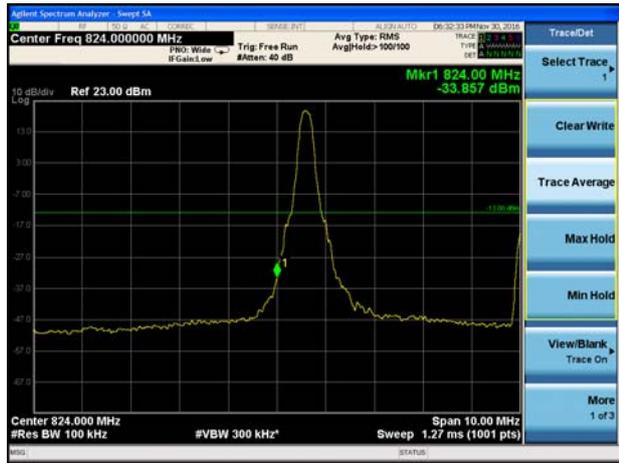


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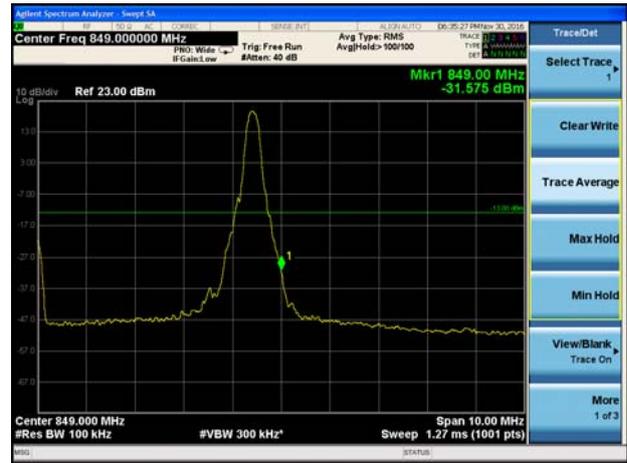




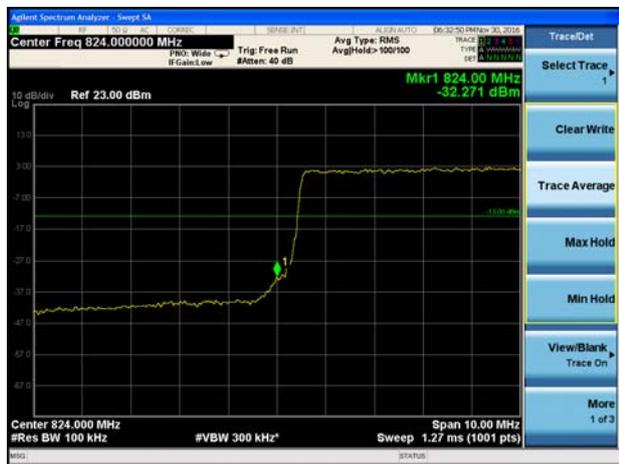
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LTE Band 5 16QAM 10MHz CH-High 1RB



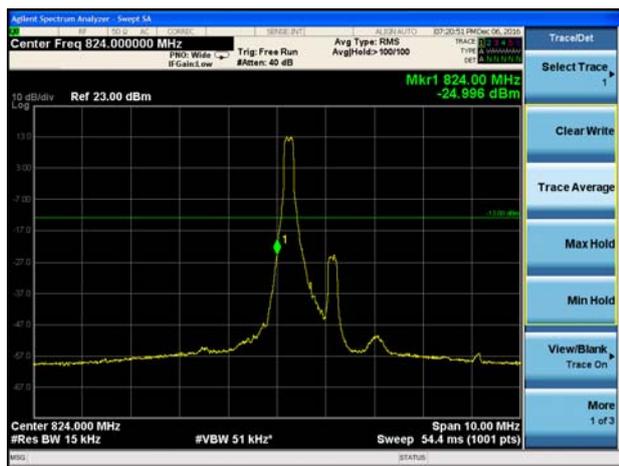
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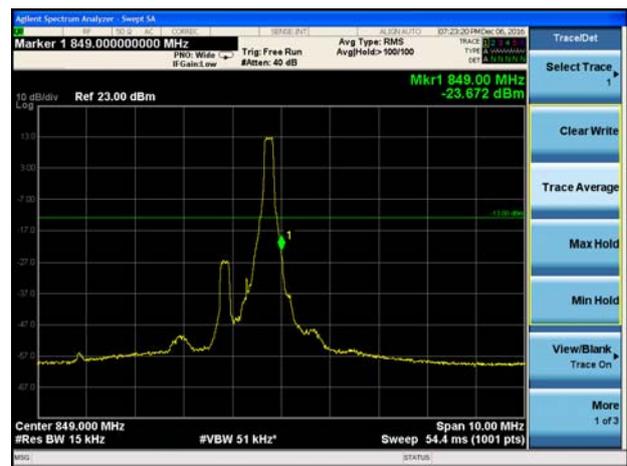
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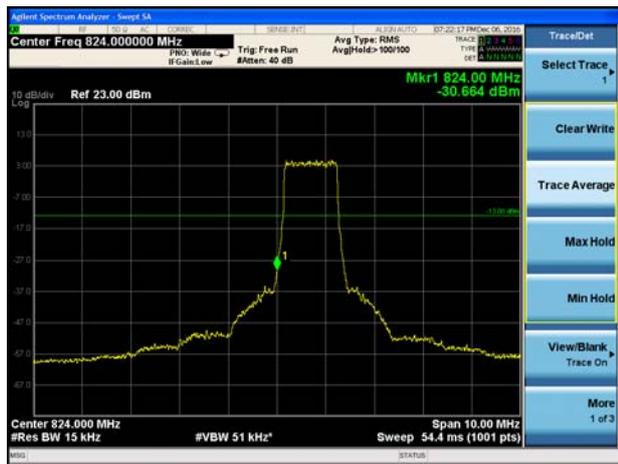
LTE Band 26 QPSK 1.4MHz CH-Low 1RB



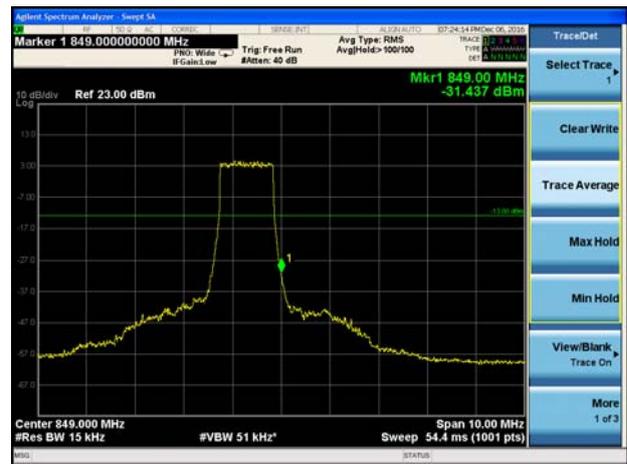
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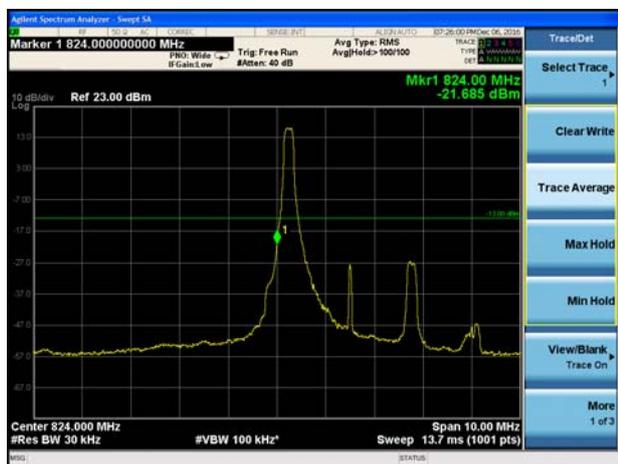
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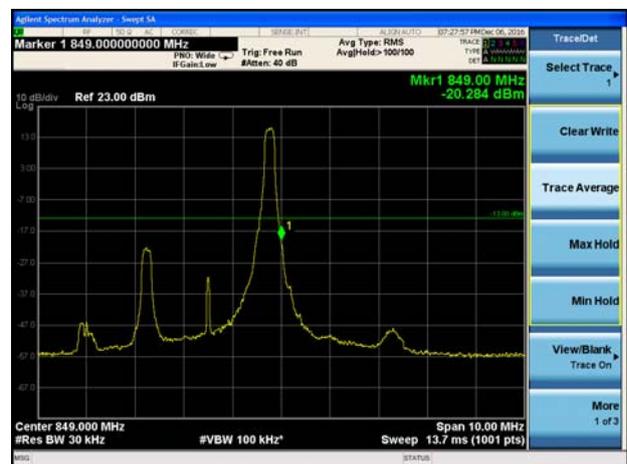
LTE Band 26 QPSK 1.4MHz CH-High 100%RB



LTE Band 26 QPSK 3MHz CH-Low 1RB



LTE Band 26 QPSK 3MHz CH-High 1RB



LTE Band 26 QPSK 3MHz CH-Low 100%RB

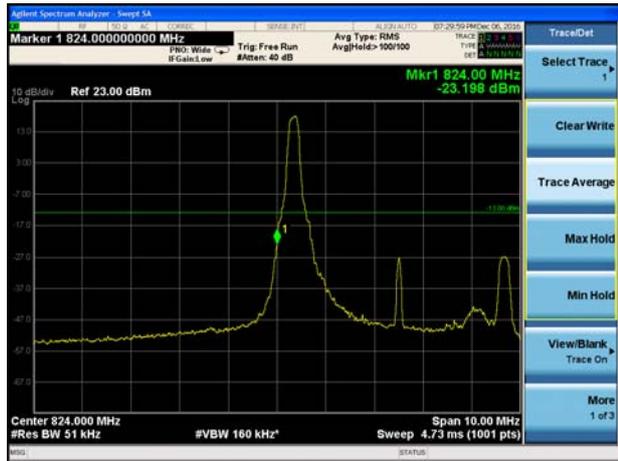


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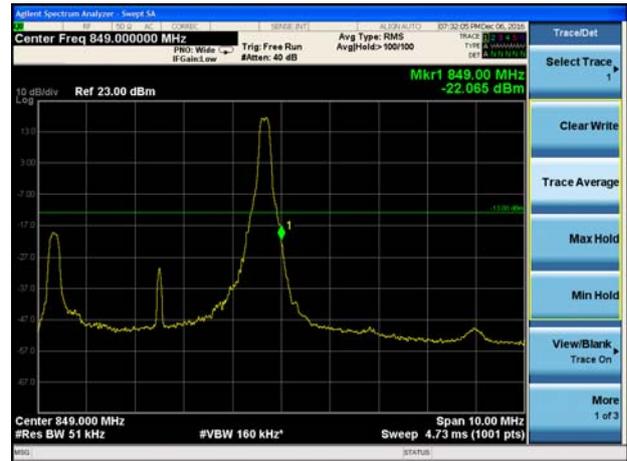




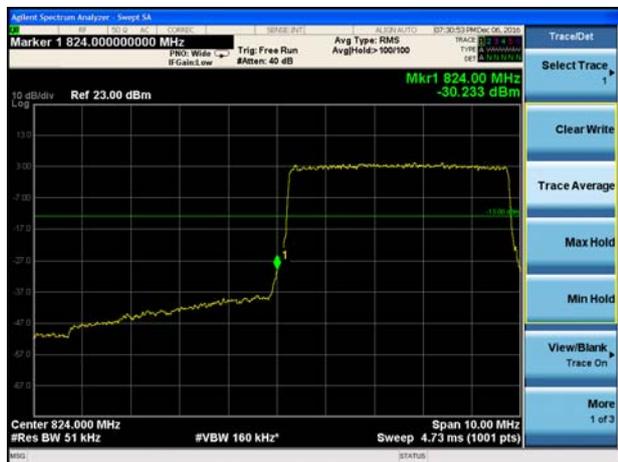
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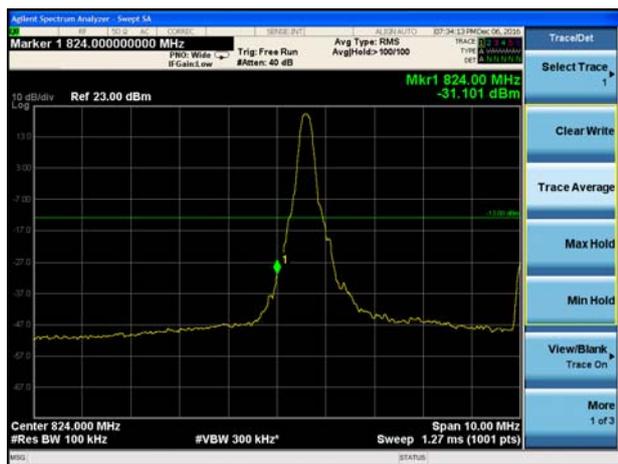
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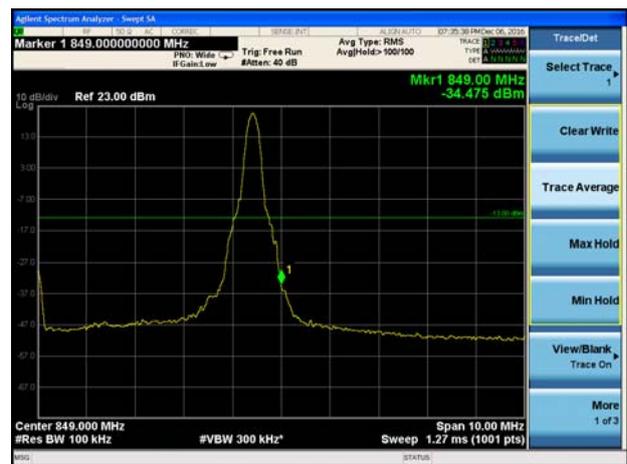
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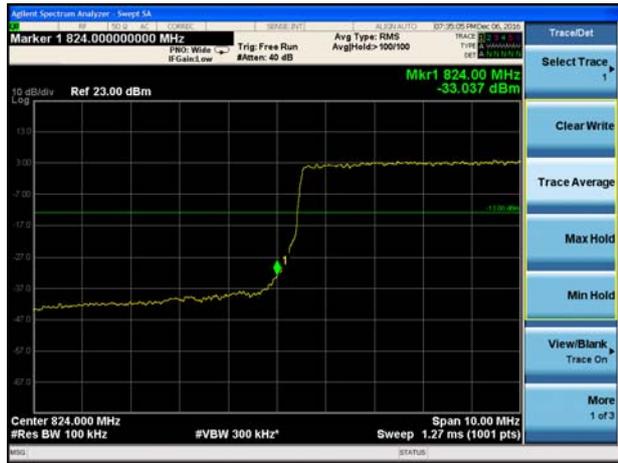


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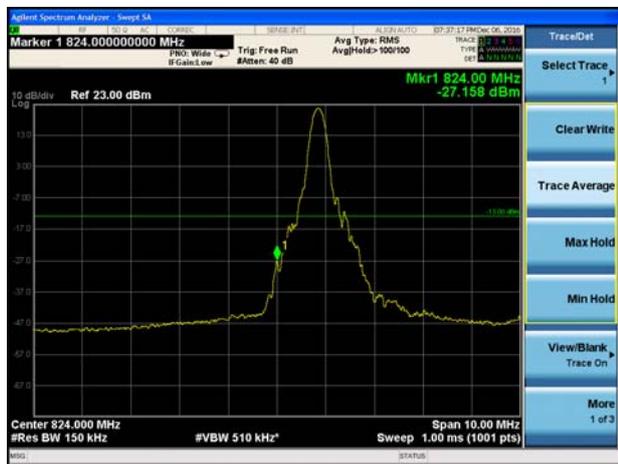
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LTE Band 26 QPSK 10MHz CH-High 100%RB



LTE Band 26 QPSK 15MHz CH-Low 1RB



LTE Band 26 QPSK 15MHz CH-High 1RB



LTE Band 26 QPSK 15MHz CH-Low 100%RB

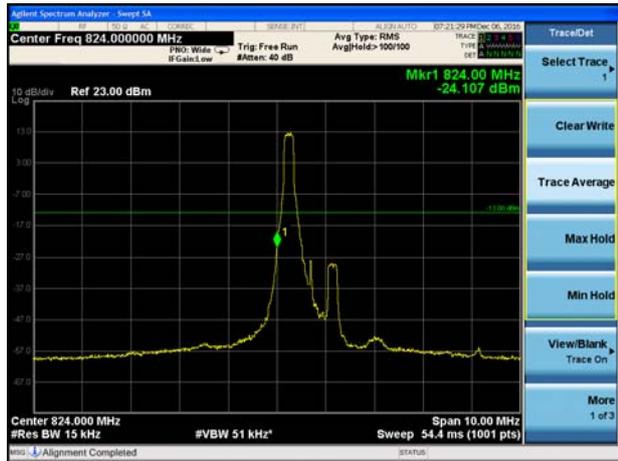


LTE Band 26 QPSK 15MHz CH-High 100%RB

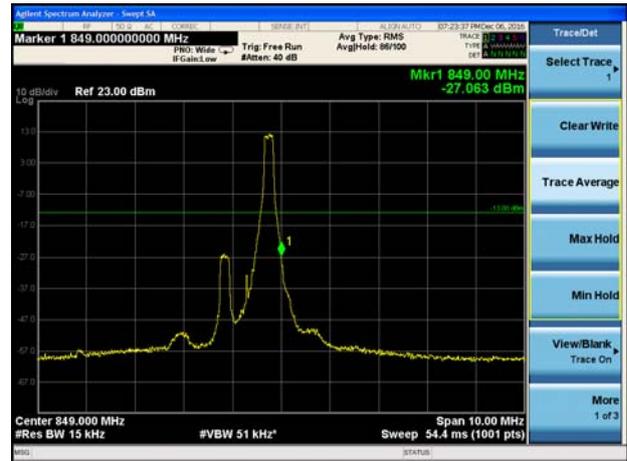




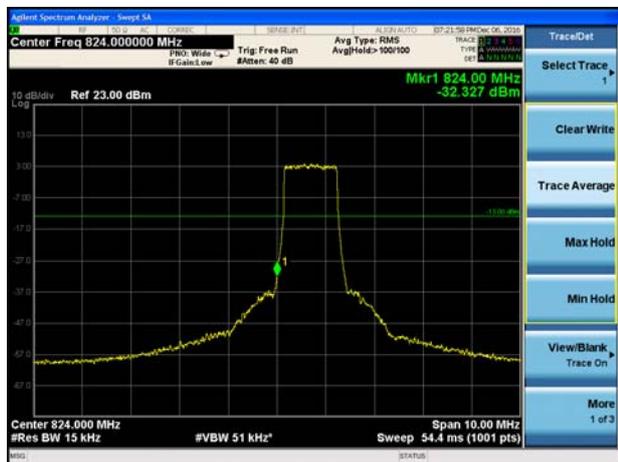
LTE Band 26 16QAM 1.4MHz CH-Low 1RB



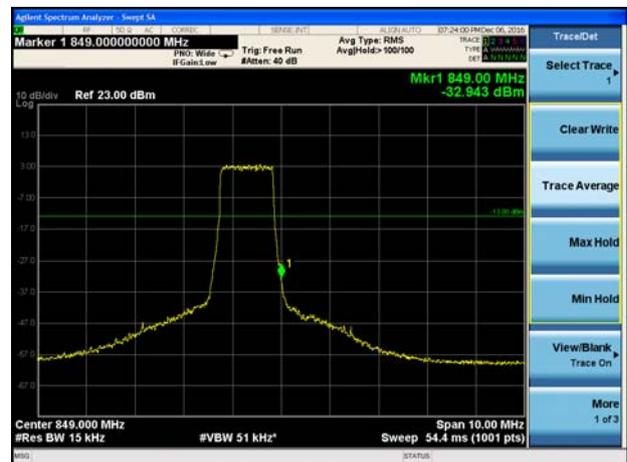
LTE Band 26 16QAM 1.4MHz CH-High 1RB



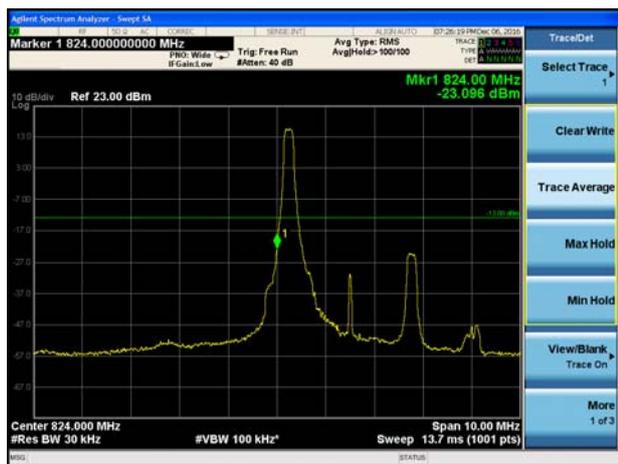
LTE Band 26 16QAM 1.4MHz CH-Low 100%RB



LTE Band 26 16QAM 1.4MHz CH-High 100%RB



LTE Band 26 16QAM 3MHz CH-Low 1RB



LTE Band 26 16QAM 3MHz CH-High 1RB

