

RF Test Report

Test in accordance with
Federal Communications Commission(FCC)
CFR TITLE 47, Parts 2, 22, 24,27
&
Industry Canada (IC), RSS-GEN, 130,132,133,139

Product Name : ELS61-US
Model No. : ELS61-US
FCC ID: QIPELS61-US
IC ID: 7830A-ELS61US

Applicant : Gemalto M2M GmbH
Address : Siemensdamm 50, 13629 Berlin, Germany

Date of Receipt : 11-02-2015
Test Date : 11-17-2015~11-28-2015
Issued Date : 01-21-2016
Report No. : UL05420151102FCC/IC042-2
Report Version : V1.0

Notes:

The test results only relate to these samples which have been tested.
Partly using this report will not be admitted unless been allowed by Unilab.
Unilab is only responsible for the complete report with the reported stamp of Unilab.

Test Report Certification

Issued Date : 01-21-2016
Report No. : UL05420151102FCC/IC042-2

Product Name : ELS61-US
Applicant : Gemalto M2M GmbH
Address : Siemensdamm 50, 13629 Berlin, Germany
Manufacturer : Gemalto M2M GmbH
Address : Siemensdamm 50, 13629 Berlin, Germany
Model No. : ELS61-US
EUT Voltage : MIN: 3.0V, NOR: 3.8V, MAX: 4.5V
Brand Name : GEMALTO
FCC ID: QIPELS61-US
IC ID: 7830A-ELS61US
Applicable Standard : ANSI/TIA-603-D-2010; FCC KDB 971168 D01 Power Meas License Digital Systems v02r02; FCC CFR Title 47 Part 2; FCC CFR Title 47 Part 22 Subpart H; FCC CFR Title 47 Part 24 Subpart E; FCC CFR Title 47 Part 27 Subpart C; RSS 130 Issue 1, RSS 132 Issue 3; RSS 133 Issue 6; RSS 139 Issue 3; RSS-GEN Issue 4; ANSI C63.4-2014
Test Result : Complied
Performed Location : Unilab (Shanghai) Co., Ltd.
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IC register number is 11025A-1
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SUMMARY OF TEST RESULT

Report Section	SPECIFICATION		Description	Limit	Result
	FCC CFR 47	IC			
3	part2.1046	RSS GEN 6.12	Conducted Output Power	N/A	PASS
3	part 22.913(a)(2) part 24.232(b)(c) part 27.50(d)(4) part 27.50(c)(10)	RSS-130, 4.4 RSS-132, 5.4 RSS-133, 6.4	Effective Radiated Power Equivalent Isotropic Radiated Power	<7 Watts <2 Watts <1 Watt <3 Watts	PASS
4	part 2.1046	RSS-130, 4.1 RSS-132, 5.2 RSS-133, 6.2 RSS-139, 6.2	Modulation Characteristic	N/A	PASS
4	part 2.1049 part 22.917(a) part 24.238(a) part 27.53 (g)(h)	RSS-GEN, 6.6	Occupied Bandwidth	N/A	PASS
5	part 2.1051 part 22.917(a) part 24.238(a) part 27.53(g)(h)	RSS-132, 5.5 RSS-133, 6.5 RSS-139, 6.5	Band Edge Measurement	<43+10lg(P[Watts])	PASS
6	part 2.1051 part 22.917(a) part 24.238(a) part 24.50(d) part 27.53 (g)(h)	RSS-GEN, 4.9 RSS-132, 5.5 RSS-133, 6.5 RSS-139, 6.5	Conducted Spurious Emission	<43+10lg(P[Watts])	PASS
6	part 2.1053 part 22.917(a) part 24.238(a) part 27.53(g)(h)	RSS-GEN, 4.9 RSS-130, 4.6 RSS-132, 5.5 RSS-133, 6.5 RSS-139, 6.5	Field Strength of Spurious Radiation	<43+10lg(P[Watts])	PASS
7	part 2.1055 part 22.355 part 24.235 part 27.54	RSS-130, 4.3 RSS-132, 5.3 RSS-133, 6.3 RSS-139, 6.3	Frequency Stability for Temperature & Voltage	<2.5 ppm	PASS
8	part 24.232(d) part 27.50(d)(5)	RSS 132,5.4 RSS-133,6.4	Peak-to-Average	<13dB	PASS
9	/	RSS-130,5.6 RSS-132,5.6 RSS-133,6.6	Receiver Spurious Emission	30~88MHz: 40 dBμV/m 88~216MHz: 43.5 dBμV/m 216~960MHz: 46 dBμV/m Above 960MHz: 54 dBμV/m	PASS

1.General Information

1.1. EUT Description

Product Name:	ELS61-US
Model Name:	ELS61-US
Hardware Version:	00.301
Software Version:	B2
RF Exposure Environment:	Uncontrolled
LTE	
Support Band:	LTE Band II
Tx Frequency Range:	LTE Band II:1850MHz ~1910MHz
Rx Frequency Range:	LTE Band II:1930MHz ~1990MHz
Type of modulation:	LTE: QPSK,16-QAM
Antenna Type:	Connector
Antenna Peak Gain:	LTE Band II: 2.15dBi
Support Band:	LTE Band IV
Tx Frequency Range:	LTE Band IV:1710MHz ~1755MHz
Rx Frequency Range:	LTE Band IV:2110MHz ~2155MHz
Type of modulation:	LTE: QPSK,16-QAM
Antenna Type:	Connector
Antenna Peak Gain:	LTE Band IV: 2.15dBi
Support Band:	LTE Band V
Tx Frequency Range:	LTE Band V: 824MHz ~849MHz
Rx Frequency Range:	LTE Band V: 869MHz ~894MHz
Type of modulation:	LTE: QPSK,16-QAM
Antenna Type:	Connector
Antenna Peak Gain:	LTE Band V: 2.15dBi
Support Band:	LTE Band XII
Tx Frequency Range:	LTE Band XII: 698MHz ~716MHz
Rx Frequency Range:	LTE Band XII: 728MHz ~746MHz
Type of modulation:	LTE: QPSK,16-QAM
Antenna Type:	Connector
Antenna Peak Gain:	LTE Band XII: 2.15dBi

1.2. Mode of Operation

Unilab has verified the construction and function in typical operation. EUT is in link mode with base station emulator at maximum power level. All the test modes were carried out with the EUT in normal operation, which was shown in this test report is the worst test mode and defined as:

Mode	Band Width (MHz)	QPSK		16-QAM	
		RB Size	RB Offset	RB Size	RB Offset
LTE Band 2	1.4	1	0	1	0
	3	1	0	1	0
	5	1	0	1	0
	10	1	0	1	0
	15	1	0	1	0
	20	1	0	1	0
LTE Band 4	1.4	1	0	1	0
	3	1	0	1	0
	5	1	0	1	0
	10	1	0	1	0
	15	1	0	1	0
	20	1	0	1	0
LTE Band 5	1.4	1	0	1	0
	3	1	0	1	0
	5	1	0	1	0
	10	1	0	1	0
LTE Band 12	1.4	1	0	1	0
	3	1	0	1	0
	5	8	17	1	0
	10	1	0	1	0

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst (Z axis) result on this report.
3. For conducted test, both two Modulations (QPSK and 16-QAM) are tested. For RSE, only the maximum RF output power level are chosen.

The conducted power table is as follows:

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 2	1.4 MHz	18607	1850.7	QPSK	1	0	21.35	0.14
					1	5	21.29	0.13
					5	1	21.24	0.13
					6	0	21.34	0.14
				16-QAM	1	0	20.47	0.11
					1	5	20.42	0.11
					5	1	20.28	0.11
					6	0	19.48	0.09
		18900	1880.0	QPSK	1	0	21.30	0.13
					1	5	21.23	0.13
					5	1	21.24	0.13
					6	0	21.20	0.13
				16-QAM	1	0	20.39	0.11
					1	5	20.31	0.11
					5	1	20.24	0.11
					6	0	19.39	0.09
		19193	1909.3	QPSK	1	0	21.02	0.13
					1	5	21.00	0.13
					5	1	20.94	0.12
					6	0	19.97	0.10
				16-QAM	1	0	20.15	0.10
					1	5	20.13	0.10
					5	1	20.00	0.10
					6	0	19.01	0.08
	3MHz	18615	1851.5	QPSK	1	0	21.22	0.13
					1	14	21.17	0.13
					6	9	20.20	0.10
					15	0	20.24	0.11
				16-QAM	1	0	20.46	0.11
					1	14	20.33	0.11
					6	9	19.40	0.09
					15	0	19.30	0.09
		18900	1880.0	QPSK	1	0	21.24	0.13
					1	14	21.19	0.13
					6	9	20.27	0.11
					15	0	20.22	0.11
				16-QAM	1	0	20.38	0.11
					1	14	20.24	0.11
					6	9	19.37	0.09
					15	0	19.33	0.09
		19185	1908.5	QPSK	1	0	20.98	0.13
					1	14	20.87	0.12

LTE Band 2	5MHz	19185	1908.5	QPSK	6	9	19.95	0.10
					15	0	19.97	0.10
				16-QAM	1	0	20.49	0.11
					1	14	20.30	0.11
					6	9	19.08	0.08
		18625	1852.5	QPSK	15	0	19.12	0.08
					1	0	21.26	0.13
					1	24	21.10	0.13
					8	17	21.20	0.13
					25	0	21.21	0.13
				16-QAM	1	0	20.35	0.11
					1	24	20.25	0.11
					8	17	20.38	0.11
					25	0	19.38	0.09
		18900	1880.0	QPSK	1	0	21.21	0.13
					1	24	21.09	0.13
					8	17	21.22	0.13
					25	0	20.20	0.10
				16-QAM	1	0	20.57	0.11
					1	24	20.51	0.11
					8	17	20.24	0.11
					25	0	19.24	0.08
		19175	1907.5	QPSK	1	0	21.05	0.13
					1	24	20.85	0.12
					8	17	20.93	0.12
					25	0	20.03	0.10
				16-QAM	1	0	20.19	0.10
					1	24	20.05	0.10
					8	17	20.07	0.10
					25	0	19.15	0.08
	10MHz	18650	1855.0	QPSK	1	0	21.44	0.14
					1	49	21.11	0.13
					16	34	20.20	0.10
					50	0	20.24	0.11
				16-QAM	1	0	20.65	0.12
					1	49	20.31	0.11
					16	34	19.32	0.09
					50	0	19.33	0.09
		18900	1880.0	QPSK	1	0	21.53	0.14
					1	49	21.18	0.13
					16	34	20.18	0.10
					50	0	20.22	0.11
				16-QAM	1	0	20.56	0.11
					1	49	20.27	0.11
					16	34	19.40	0.09
					50	0	19.39	0.09
		19150	1905.0	QPSK	1	0	21.35	0.14
					1	49	20.88	0.12

LTE Band 2				16-QAM	16	34	19.97	0.10				
					50	0	20.05	0.10				
					1	0	20.83	0.12				
					1	49	20.37	0.11				
					16	34	19.14	0.08				
					50	0	19.21	0.08				
	15MHz	18675	1857.5	QPSK	1	0	21.64	0.15				
					1	74	21.13	0.13				
					24	51	20.15	0.10				
					75	0	20.31	0.11				
					16-QAM	1	0	21.16	0.13			
						1	74	20.62	0.12			
				24		51	19.34	0.09				
				75		0	19.37	0.09				
				18900		1880.0	QPSK	1	0	21.62	0.15	
								1	74	21.24	0.13	
					24			51	20.30	0.11		
					75			0	20.34	0.11		
		16-QAM	1		0			20.85	0.12			
			1		74			20.65	0.12			
			24		51		19.36	0.09				
			75		0		19.40	0.09				
			19125		1902.5		QPSK	1	0	21.61	0.14	
								1	74	20.95	0.12	
		24						51	20.00	0.10		
		75						0	20.19	0.10		
		16-QAM		1		0		20.75	0.12			
				1		74		20.12	0.10			
				24		51	19.13	0.08				
				75		0	19.25	0.08				
				20MHz		18700	1860.0	QPSK	1	0	21.66	0.15
									1	99	20.95	0.12
		24							76	20.12	0.10	
		100							0	20.22	0.11	
		16-QAM	1		0				20.83	0.12		
			1		99				20.18	0.10		
			24		76			19.18	0.08			
			100		0			19.32	0.09			
			18900		1880.0			QPSK	1	0	21.49	0.14
									1	99	21.09	0.13
		24							76	20.24	0.11	
		100							0	20.28	0.11	
	16-QAM	1				0	20.85	0.12				
		1				99	20.26	0.11				
		24	76		19.26	0.08						
		100	0		19.42	0.09						
	19100	1900.0	QPSK		1	0	21.49	0.14				
					1	99	20.65	0.12				
				24	76	19.95	0.10					

LTE Band 2					100	0	20.22	0.11
				16-QAM	1	0	20.51	0.11
					1	99	19.71	0.09
					24	76	19.02	0.08
					100	0	19.32	0.09

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 4	1.4 MHz	19957	1710.7	QPSK	1	0	21.60	0.14
					1	5	21.54	0.14
					5	1	21.53	0.14
					6	0	21.55	0.14
				16-QAM	1	0	20.65	0.12
					1	5	20.59	0.11
					5	1	20.52	0.11
					6	0	19.54	0.09
		20175	1732.5	QPSK	1	0	21.40	0.14
					1	5	21.39	0.14
					5	1	21.36	0.14
					6	0	20.37	0.11
				16-QAM	1	0	20.57	0.11
					1	5	20.55	0.11
					5	1	20.47	0.11
					6	0	19.34	0.09
		20393	1754.3	QPSK	1	0	21.31	0.14
					1	5	21.34	0.14
					5	1	21.40	0.14
					6	0	20.37	0.11
				16-QAM	1	0	20.52	0.11
					1	5	20.56	0.11
					5	1	20.45	0.11
					6	0	19.43	0.09
	3MHz	19965	1711.5	QPSK	1	0	21.57	0.14
					1	14	21.52	0.14
					6	9	21.50	0.14
					15	0	21.55	0.14
				16-QAM	1	0	21.08	0.13
					1	14	20.95	0.12
					6	9	19.64	0.09
					15	0	19.70	0.09
		20175	1732.5	QPSK	1	0	21.47	0.14
					1	14	21.40	0.14
					6	9	20.43	0.11
					15	0	20.49	0.11
				16-QAM	1	0	20.68	0.12

LTE Band 4		20385	1753.5	QPSK	1	14	20.56	0.11
					6	9	19.57	0.09
					15	0	19.51	0.09
					1	0	21.50	0.14
					1	14	21.33	0.14
					6	9	20.48	0.11
					15	0	20.42	0.11
					1	0	20.53	0.11
					1	14	20.45	0.11
	5MHz	19975	1712.5	QPSK	6	9	19.51	0.09
					15	0	19.52	0.09
					1	0	21.58	0.14
					1	24	21.43	0.14
					8	17	21.51	0.14
					25	0	20.50	0.11
					1	0	20.96	0.12
					1	24	20.86	0.12
					8	17	20.60	0.11
		20175	1732.5	QPSK	25	0	19.58	0.09
					1	0	21.51	0.14
					1	24	21.38	0.14
					8	17	21.43	0.14
					25	0	20.45	0.11
					1	0	20.86	0.12
					1	24	20.70	0.12
					8	17	20.50	0.11
					25	0	19.44	0.09
		20375	1752.5	QPSK	1	0	21.43	0.14
					1	24	21.33	0.14
					8	17	21.42	0.14
					25	0	20.43	0.11
					1	0	20.52	0.11
					1	24	20.46	0.11
					8	17	20.49	0.11
					25	0	19.55	0.09
		20000	1715.0	QPSK	1	0	21.40	0.14
					1	49	21.12	0.13
					16	34	20.24	0.11
					50	0	20.33	0.11
					1	0	20.87	0.12
					1	49	20.61	0.12
					16	34	19.30	0.09
					50	0	19.34	0.09
	10MHz	20175	1732.5	QPSK	1	0	21.46	0.14
					1	49	21.19	0.13
					16	34	20.28	0.11
					50	0	20.30	0.11
					1	0	20.68	0.12
					1	49	20.42	0.11

LTE Band 4		20350	1750.0	QPSK	16	34	19.39	0.09
					50	0	19.42	0.09
					1	0	21.42	0.14
					1	49	21.19	0.13
					16	34	20.25	0.11
				16-QAM	50	0	20.34	0.11
					1	0	20.59	0.11
					1	49	20.34	0.11
					16	34	19.42	0.09
					50	0	19.38	0.09
	15MHz	20025	1717.5	QPSK	1	0	21.66	0.15
					1	74	21.17	0.13
					24	51	20.33	0.11
					75	0	20.34	0.11
				16-QAM	1	0	21.23	0.13
					1	74	20.78	0.12
					24	51	19.41	0.09
					75	0	19.51	0.09
		20175	1732.5	QPSK	1	0	21.70	0.15
					1	74	21.20	0.13
					24	51	20.48	0.11
					75	0	20.42	0.11
				16-QAM	1	0	21.24	0.13
					1	74	20.80	0.12
					24	51	19.40	0.09
					75	0	19.46	0.09
		20325	1747.5	QPSK	1	0	21.50	0.14
					1	74	21.21	0.13
					24	51	20.30	0.11
					75	0	20.32	0.11
				16-QAM	1	0	20.84	0.12
					1	74	20.46	0.11
					24	51	19.40	0.09
					75	0	19.39	0.09
	20MHz	20050	1720.0	QPSK	1	0	21.32	0.14
					1	99	20.71	0.12
					24	76	20.04	0.10
					100	0	20.24	0.11
				16-QAM	1	0	20.58	0.11
					1	99	20.00	0.10
					24	76	19.00	0.08
					100	0	19.23	0.08
		20175	1732.5	QPSK	1	0	21.63	0.15
					1	99	21.02	0.13
					24	76	20.20	0.10
					100	0	20.28	0.11
				16-QAM	1	0	20.88	0.12
					1	99	20.34	0.11
					24	76	19.32	0.09

LTE Band 4		20300	1745.0	QPSK	100	0	19.41	0.09
					1	0	21.54	0.14
					1	99	20.98	0.13
					24	76	20.33	0.11
				16-QAM	100	0	20.34	0.11
					1	0	21.07	0.13
					1	99	20.53	0.11
					24	76	19.20	0.08
					100	0	19.35	0.09

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 5	1.4 MHz	20407	824.7	QPSK	1	0	22.22	0.17
					1	5	22.18	0.17
					5	1	22.20	0.17
					6	0	21.17	0.13
				16-QAM	1	0	21.33	0.14
					1	5	21.28	0.13
					5	1	21.17	0.13
					6	0	20.32	0.11
		20525	836.5	QPSK	1	0	21.88	0.15
					1	5	21.86	0.15
					5	1	21.86	0.15
					6	0	20.92	0.12
				16-QAM	1	0	21.16	0.13
					1	5	21.14	0.13
					5	1	20.95	0.12
					6	0	20.07	0.10
		20643	848.3	QPSK	1	0	21.86	0.15
					1	5	21.87	0.15
					5	1	21.81	0.15
					6	0	20.80	0.12
				16-QAM	1	0	20.96	0.12
					1	5	20.98	0.13
					5	1	20.81	0.12
					6	0	20.02	0.10
	3MHz	20415	825.5	QPSK	1	0	22.10	0.16
					1	14	22.08	0.16
					6	9	21.14	0.13
					15	0	21.16	0.13
				16-QAM	1	0	21.30	0.13
					1	14	21.29	0.13
					6	9	20.30	0.11
					15	0	20.28	0.11
		20525	836.5	QPSK	1	0	21.93	0.16
					1	14	21.83	0.15

LTE Band 5				16-QAM	6	9	20.86	0.12
					15	0	20.89	0.12
					1	0	21.00	0.13
					1	14	20.95	0.12
					6	9	20.09	0.10
					15	0	20.05	0.10
		20635	847.5	QPSK	1	0	21.78	0.15
					1	14	21.76	0.15
					6	9	20.78	0.12
					15	0	20.82	0.12
				16-QAM	1	0	21.85	0.15
					1	14	21.78	0.15
					6	9	20.79	0.12
					15	0	20.02	0.10
	5MHz	20425	826.5	QPSK	1	0	22.09	0.16
					1	24	21.94	0.16
					8	17	22.11	0.16
					25	0	21.1	0.13
				16-QAM	1	0	21.54	0.14
					1	24	21.42	0.14
					8	17	21.08	0.13
					25	0	20.23	0.11
		20525	836.5	QPSK	1	0	21.91	0.16
					1	24	21.88	0.15
					8	17	21.87	0.15
					25	0	20.90	0.12
				16-QAM	1	0	21.16	0.13
					1	24	21.10	0.13
					8	17	20.95	0.12
					25	0	20.02	0.10
		20625	846.5	QPSK	1	0	21.69	0.15
					1	24	21.63	0.15
					8	17	21.78	0.15
					25	0	20.78	0.12
				16-QAM	1	0	20.85	0.12
					1	24	20.81	0.12
					8	17	20.90	0.12
					25	0	19.98	0.10
	10MHz	20450	829	QPSK	1	0	22.17	0.16
					1	49	21.85	0.15
					16	34	21.93	0.16
					50	0	21.10	0.13
				16-QAM	1	0	21.67	0.15
					1	49	21.34	0.14
					16	34	20.15	0.10
					50	0	20.20	0.10
		20525	836.5	QPSK	1	0	21.92	0.16
					1	49	21.60	0.14
					16	34	20.82	0.12

LTE Band 5					50	0	20.85	0.12
				16-QAM	1	0	21.14	0.13
					1	49	20.78	0.12
					16	34	19.92	0.10
					50	0	19.98	0.10
		20600	844	QPSK	1	0	21.77	0.15
					1	49	21.63	0.15
					16	34	20.75	0.12
					50	0	20.80	0.12
				16-QAM	1	0	20.90	0.12
					1	49	20.80	0.12
					16	34	19.95	0.10
					50	0	19.93	0.10

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 12	1.4 MHz	23017	699.7	QPSK	1	0	22.12	0.16
					1	5	21.99	0.16
					5	1	22.00	0.16
					6	0	21.03	0.13
				16-QAM	1	0	21.15	0.13
					1	5	21.13	0.13
					5	1	21.01	0.13
					6	0	20.11	0.10
		23095	707.5	QPSK	1	0	21.93	0.16
					1	5	21.97	0.16
					5	1	21.87	0.15
					6	0	20.88	0.12
				16-QAM	1	0	21.06	0.13
					1	5	21.10	0.13
					5	1	20.96	0.12
					6	0	19.88	0.10
		23173	715.3	QPSK	1	0	21.88	0.15
					1	5	21.88	0.15
					5	1	21.93	0.16
					6	0	20.56	0.11
				16-QAM	1	0	20.86	0.12
					1	5	20.80	0.12
					5	1	20.57	0.11
					6	0	19.73	0.09
	3MHz	23025	700.5	QPSK	1	0	21.79	0.15
					1	14	21.74	0.15
					6	9	20.66	0.12
					15	0	20.76	0.12

LTE Band 12				16-QAM	1	0	20.82	0.12	
					1	14	20.80	0.12	
					6	9	19.78	0.10	
					15	0	19.77	0.09	
		23095	707.5	QPSK	1	0	21.56	0.14	
					1	14	21.49	0.14	
					6	9	20.50	0.11	
					15	0	20.47	0.11	
				16-QAM	1	0	20.58	0.11	
					1	14	20.48	0.11	
					6	9	19.56	0.09	
					15	0	19.53	0.09	
		23165	714.5	QPSK	1	0	21.47	0.14	
					1	14	21.48	0.14	
					6	9	20.41	0.11	
					15	0	20.45	0.11	
				16-QAM	1	0	20.90	0.12	
					1	14	20.84	0.84	
	6				9	19.60	0.09		
	15				0	19.64	0.09		
	5MHz	23035	QPSK	1	0	21.69	0.15		
				1	24	21.60	0.14		
				8	17	21.66	0.15		
				25	0	20.63	0.12		
			16-QAM	1	0	20.82	0.12		
				1	24	20.63	0.12		
				8	17	20.75	0.12		
				25	0	19.72	0.09		
			23095	707.5	QPSK	1	0	21.80	0.15
						1	24	21.63	0.15
						8	17	21.44	0.14
						25	0	20.40	0.11
		16-QAM			1	0	21.26	0.13	
					1	24	21.05	0.13	
					8	17	20.83	0.12	
					25	0	19.88	0.10	
		23155	713.5	QPSK	1	0	21.81	0.15	
					1	24	21.79	0.15	
					8	17	21.85	0.15	
					25	0	20.71	0.12	
				16-QAM	1	0	20.98	0.13	
					1	24	21.04	0.13	
					8	17	20.82	0.12	
					25	0	19.79	0.10	
	10MHz	23060	QPSK	1	0	21.90	0.15		
				1	49	21.57	0.14		
				16	34	20.66	0.12		
				50	0	20.78	0.12		
			16-OAM	1	0	21.06	0.13		

LTE Band 12					1	49	20.80	0.12
					16	34	19.87	0.10
					50	0	19.82	0.10
		23095	707.5	QPSK	1	0	22.05	0.16
					1	49	21.72	0.15
					16	34	20.74	0.12
					50	0	20.85	0.12
					1	0	21.06	0.13
					1	49	20.91	0.12
					16	34	19.92	0.10
					50	0	19.95	0.10
		23130	711	QPSK	1	0	21.51	0.14
					1	49	21.40	0.14
					16	34	20.40	0.11
					50	0	20.43	0.11
				16-QAM	1	0	20.95	0.12
					1	49	20.80	0.12
					16	34	19.51	0.09
					50	0	19.54	0.09

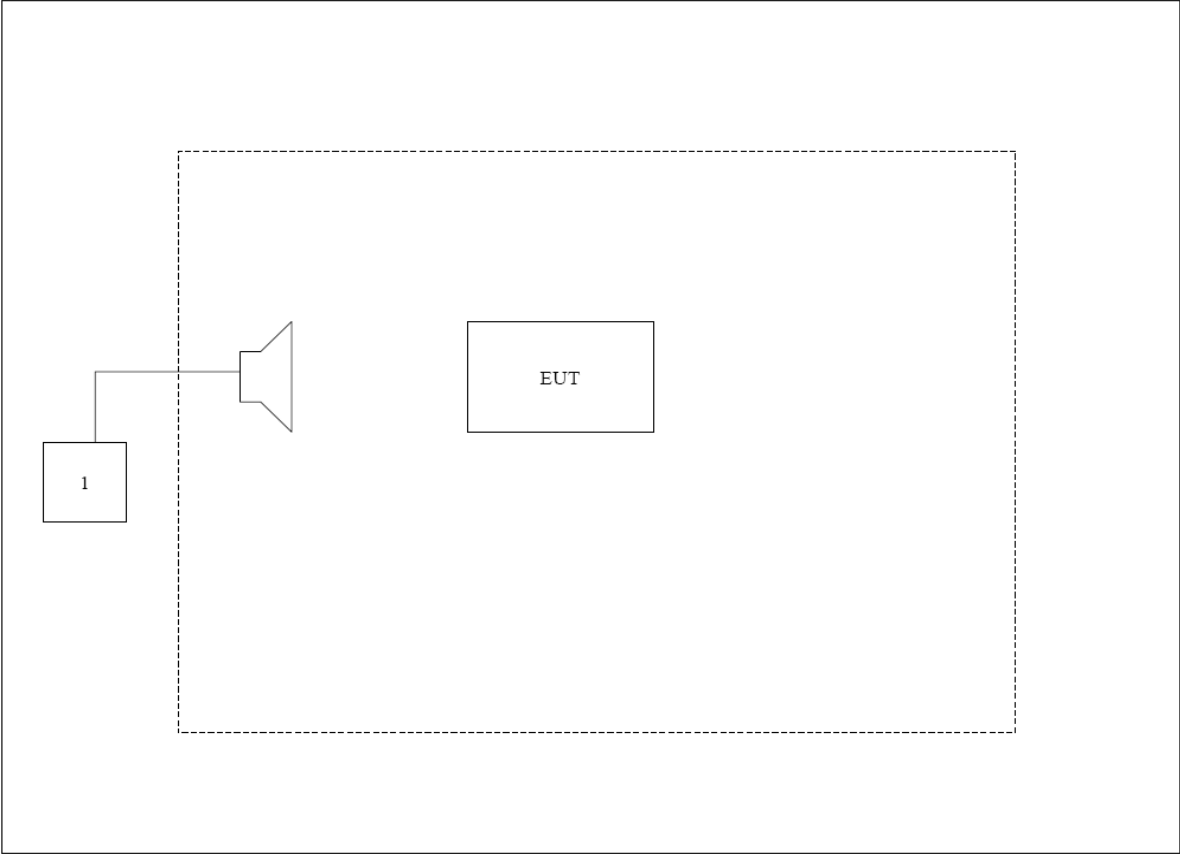
1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model	Serial No.	Power Cord
Radio Communication Tester	R&S	CMW500	147483	N/A

1.4. Configuration of Tested System

Connection Diagram



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT Communicate with CMW500, then select channel to test.

2. Technical Test

2.1. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	22
Humidity (%RH)	25-75	53
Barometric pressure (mbar)	860-1060	950-1000

3. Peak Output Power

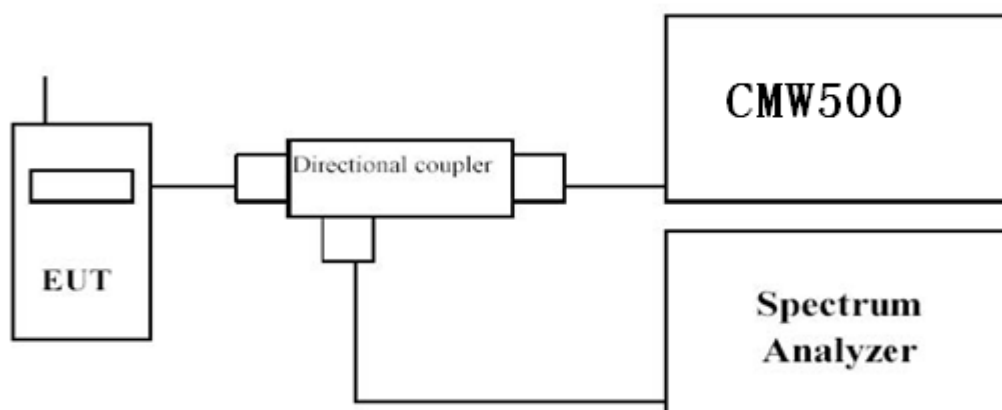
3.1. Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	11/05/2016
Radio Communication Tester	R&S	CMW500	147483	11/08/2016
Signal Generator	Agilent	N5183A	MY50140938	01/04/2016
Preamplifier	CEM	EM30180	3008A0245	02/27/2016
DC Power Supply	Agilent	6612C	MY43002989	03/02/2016
Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	09/19/2016
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	09/19/2016
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	09/19/2016
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	09/19/2016

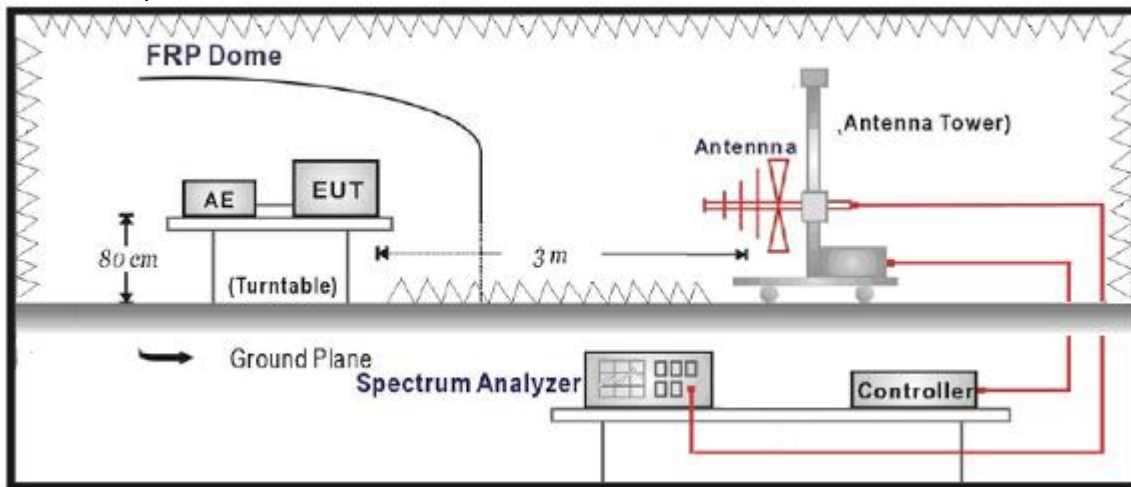
The measure equipment had been calibrated once a year.

3.2. Test Setup

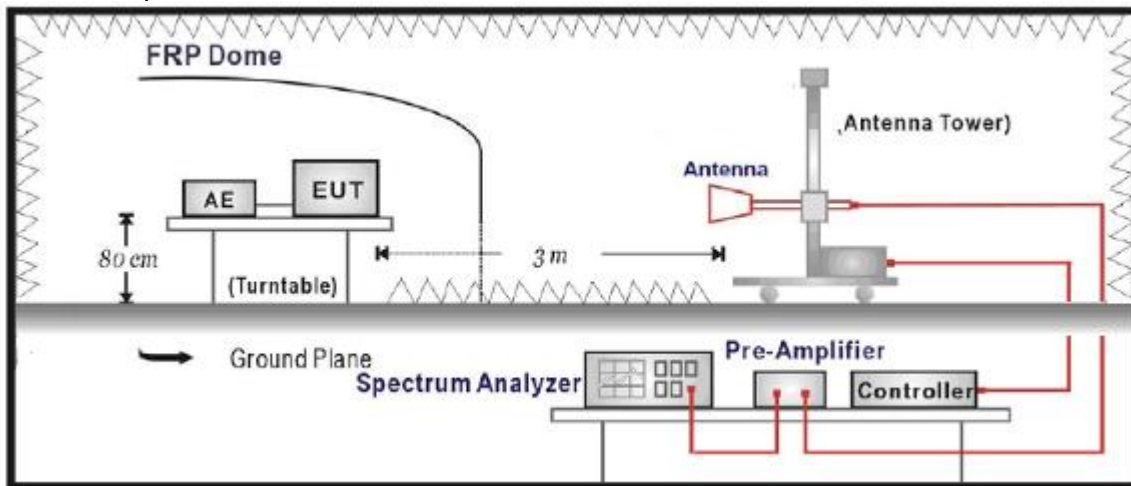
Conducted Power Measurement:



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



3.3. Limit

For FCC Part 22.913(a)(2):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(c):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

For FCC Part 27.50(d):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 1 Watt.

For FCC Part 27.50(c):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 3 Watts.

3.4. Test Procedure

Conducted Power Measurement:

- a. Place the EUT on a bench and set it in transmitting mode.
- b. Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- c. EUT Communicate with CMW500, then selects a channel for testing.
- d. Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- a. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c. The output of the test antenna shall be connected to the measuring receiver.
- d. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h. The maximum signal level detected by the measuring receiver shall be noted.
- i. The transmitter shall be replaced by a substitution antenna.
- j. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k. The substitution antenna shall be connected to a calibrated signal generator.
- l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- q. Test site anechoic chamber refer to ANSI C63.4: 2014.

3.5. Uncertainty

The measurement uncertainty is defined as for Conducted Power Measurement ± 1.1 dB,
for Radiated Power Measurement ± 3.1 dB

3.6. Test Result

The following table shows the conducted power measured:

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 2	1.4 MHz	18607	1850.7	QPSK	1	0	21.35	0.14
				16-QAM	1	0	20.47	0.11
		18900	1880.0	QPSK	1	0	21.30	0.13
				16-QAM	1	0	20.39	0.11
		19193	1909.3	QPSK	1	0	21.02	0.13
				16-QAM	1	0	20.15	0.10
	3MHz	18615	1851.5	QPSK	1	0	21.22	0.13
				16-QAM	1	0	20.46	0.11
		18900	1880.0	QPSK	1	0	21.24	0.13
				16-QAM	1	0	20.38	0.11
		19185	1908.5	QPSK	1	0	20.98	0.13
				16-QAM	1	0	20.49	0.11
				QPSK	1	0	21.26	0.13
				16-QAM	8	17	20.38	0.11
	5MHz	18625	1852.5	QPSK	8	17	21.22	0.13
				16-QAM	1	0	20.57	0.11
		18900	1880.0	QPSK	1	0	21.05	0.13
				16-QAM	1	0	20.19	0.10
		19175	1907.5	QPSK	1	0	21.44	0.14
				16-QAM	1	0	20.65	0.12
	10MHz	18650	1855.0	QPSK	1	0	21.53	0.14
				16-QAM	1	0	20.56	0.11
		18900	1880.0	QPSK	1	0	21.35	0.14
				16-QAM	1	0	20.83	0.12
		19150	1905.0	QPSK	1	0	21.64	0.15
				16-QAM	1	0	21.16	0.13
	15MHz	18675	1857.5	QPSK	1	0	21.62	0.15
				16-QAM	1	0	20.85	0.12
		18900	1880.0	QPSK	1	0	21.61	0.14
				16-QAM	1	0	20.75	0.12
		19125	1902.5	QPSK	1	0	21.66	0.15
				16-QAM	1	0	20.83	0.12
	20MHz	18700	1860.0	QPSK	1	0	21.49	0.14
				16-QAM	1	0	20.85	0.12
		18900	1880.0	QPSK	1	0	21.49	0.14
				16-QAM	1	0	20.51	0.11
		19100	1900.0	QPSK	1	0	21.49	0.14
				16-QAM	1	0	20.51	0.11

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 4	1.4 MHz	19957	1710.7	QPSK	1	0	21.60	0.14
				16-QAM	1	0	20.65	0.12
		20175	1732.5	QPSK	1	0	21.40	0.14
				16-QAM	1	0	20.57	0.11
		20393	1754.3	QPSK	5	1	21.40	0.14
				16-QAM	1	5	20.56	0.11
	3MHz	19965	1711.5	QPSK	1	0	21.57	0.14
				16-QAM	1	0	21.08	0.13
		20175	1732.5	QPSK	1	0	21.47	0.14
				16-QAM	1	0	20.68	0.12
		20385	1753.5	QPSK	1	0	21.50	0.14
				16-QAM	1	0	20.53	0.11
	5MHz	19975	1712.5	QPSK	1	0	21.58	0.14
				16-QAM	1	0	20.96	0.12
		20175	1732.5	QPSK	1	0	21.51	0.14
				16-QAM	1	0	20.86	0.12
		20375	1752.5	QPSK	1	0	21.43	0.14
				16-QAM	1	0	20.52	0.11
	10MHz	20000	1715.0	QPSK	1	0	21.40	0.14
				16-QAM	1	0	20.87	0.12
		20175	1732.5	QPSK	1	0	21.46	0.14
				16-QAM	1	0	20.68	0.12
		20350	1750.0	QPSK	1	0	21.42	0.14
				16-QAM	1	0	20.59	0.11
	15MHz	20025	1717.5	QPSK	1	0	21.66	0.15
				16-QAM	1	0	21.23	0.13
		20175	1732.5	QPSK	1	0	21.70	0.15
				16-QAM	1	0	21.24	0.13
		20325	1747.5	QPSK	1	0	21.50	0.14
				16-QAM	1	0	20.84	0.12
	20MHz	20050	1720.0	QPSK	1	0	21.32	0.14
				16-QAM	1	0	20.58	0.11
		20175	1732.5	QPSK	1	0	21.63	0.15
				16-QAM	1	0	20.88	0.12
		20300	1745.0	QPSK	1	0	21.54	0.14
				16-QAM	1	0	21.07	0.13

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 5	1.4 MHz	20407	824.7	QPSK	1	0	22.22	0.17
				16-QAM	1	0	21.33	0.14
		20525	836.5	QPSK	1	0	21.88	0.15
				16-QAM	1	0	21.16	0.13
		20643	848.3	QPSK	1	5	21.87	0.15
				16-QAM	1	5	20.98	0.13
	3MHz	20415	825.5	QPSK	1	0	22.10	0.16
				16-QAM	1	0	21.30	0.13
		20525	836.5	QPSK	1	0	21.93	0.16
				16-QAM	1	0	21.00	0.13
		20635	847.5	QPSK	1	0	21.78	0.15
				16-QAM	1	0	21.85	0.15
	5MHz	20425	826.5	QPSK	1	0	22.09	0.16
				16-QAM	1	0	21.54	0.14
		20525	836.5	QPSK	1	0	21.91	0.16
				16-QAM	1	0	21.16	0.13
		20625	846.5	QPSK	8	17	21.78	0.15
				16-QAM	8	17	20.90	0.12
	10MHz	20450	829	QPSK	1	0	22.17	0.16
				16-QAM	1	0	21.67	0.15
		20525	836.5	QPSK	1	0	21.92	0.16
				16-QAM	1	0	21.14	0.13
		20600	844	QPSK	1	0	21.77	0.15
				16-QAM	1	0	20.90	0.12

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 12	1.4 MHz	23017	699.7	QPSK	1	0	22.12	0.16
				16-QAM	1	0	21.15	0.13
		23095	707.5	QPSK	1	5	21.97	0.16
				16-QAM	1	5	21.10	0.13
		23173	715.3	QPSK	5	1	21.93	0.16
				16-QAM	1	0	20.86	0.12
	3MHz	23025	700.5	QPSK	1	0	21.79	0.15
				16-QAM	1	0	20.82	0.12
		23095	707.5	QPSK	1	0	21.56	0.14
				16-QAM	1	0	20.58	0.11
		23165	714.5	QPSK	1	14	21.48	0.14
				16-QAM	1	0	20.90	0.12
	5MHz	23035	701.5	QPSK	1	0	21.69	0.15

				16-QAM	1	0	20.82	0.12
		23095	707.5	QPSK	1	0	21.80	0.15
				16-QAM	1	0	21.26	0.13
		23155	713.5	QPSK	8	17	21.85	0.15
				16-QAM	1	24	21.04	0.13
	10MHz	23060	704	QPSK	1	0	21.90	0.15
				16-QAM	1	0	21.06	0.13
		23095	707.5	QPSK	1	0	22.05	0.16
				16-QAM	1	0	21.06	0.13
		23130	711	QPSK	1	0	21.51	0.14
				16-QAM	1	0	20.95	0.12

The following table shows the Radiated power measured :

LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18607(1850.7MHz)						
1850.7	H	18.81	6.26	10.40	22.95	0.20
1850.7	V	18.05	6.26	10.40	22.19	0.17
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.76	6.19	10.43	23.00	0.20
1880.0	V	17.81	6.19	10.43	22.05	0.16
High Channel 19193 (1909.3MHz)						
1909.3	H	18.66	6.15	10.44	22.95	0.20
1909.3	V	17.87	6.15	10.44	22.16	0.16

LTE Band 2 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18607(1850.7MHz)						
1850.7	H	18.02	6.26	10.40	22.16	0.16
1850.7	V	17.46	6.26	10.40	21.60	0.14
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.28	6.19	10.43	22.52	0.18
1880.0	V	17.95	6.19	10.43	22.19	0.17
High Channel 19193 (1909.3MHz)						
1909.3	H	18.18	6.15	10.44	22.47	0.18
1909.3	V	17.65	6.15	10.44	21.94	0.16

LTE Band 2 (QPSK, Band Width 3MHz ,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18615(1851.5MHz)						
1851.5	H	18.58	6.26	10.40	22.72	0.19
1851.5	V	17.93	6.26	10.40	22.07	0.16
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.86	6.19	10.43	23.10	0.20
1880.0	V	18.02	6.19	10.43	22.26	0.17
High Channel 19185 (1908.5MHz)						
1908.5	H	18.59	6.15	10.44	22.88	0.19
1908.5	V	17.65	6.15	10.44	21.94	0.16

LTE Band 2 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18615(1851.5MHz)						
1851.5	H	18.31	6.26	10.40	22.45	0.18
1851.5	V	17.56	6.26	10.40	21.70	0.15
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.17	6.19	10.43	22.41	0.17
1880.0	V	17.80	6.19	10.43	22.04	0.16
High Channel 19185 (1908.5MHz)						
1908.5	H	18.14	6.15	10.44	22.43	0.18
1908.5	V	17.61	6.15	10.44	21.90	0.15

LTE Band 2 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18625(1852.5MHz)						
1852.5	H	18.61	6.26	10.40	22.75	0.19
1852.5	V	18.08	6.26	10.40	22.22	0.17
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.83	6.19	10.43	23.07	0.20
1880.0	V	17.75	6.19	10.43	21.99	0.16
High Channel 19175 (1907.5MHz)						
1907.5	H	18.62	6.15	10.44	22.91	0.20
1907.5	V	17.65	6.15	10.44	21.94	0.16

LTE Band 2 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18625(1852.5MHz)						
1852.5	H	18.02	6.26	10.40	22.16	0.16
1852.5	V	17.39	6.26	10.40	21.53	0.14
Middle Channel 18900 (1880.0MHz)						
1880.0	H	17.95	6.19	10.43	22.19	0.17
1880.0	V	17.63	6.19	10.43	21.87	0.15
High Channel 19175 (1907.5MHz)						
1907.5	H	18.10	6.15	10.44	22.39	0.17
1907.5	V	17.50	6.15	10.44	21.79	0.15

LTE Band 2 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18650(1855.0MHz)						
1855.0	H	18.54	6.26	10.40	22.68	0.19
1855.0	V	17.99	6.26	10.40	22.13	0.16
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.85	6.19	10.43	23.09	0.20
1880.0	V	18.03	6.19	10.43	22.27	0.17
High Channel 19150 (1905.0MHz)						
1905.0	H	18.49	6.15	10.44	22.78	0.19
1905.0	V	17.76	6.15	10.44	22.05	0.16

LTE Band 2 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18650(1855.0MHz)						
1855.0	H	18.23	6.26	10.40	22.37	0.17
1855.0	V	17.54	6.26	10.40	21.68	0.15
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.02	6.19	10.43	22.26	0.17
1880.0	V	17.76	6.19	10.43	22.00	0.16
High Channel 19150 (1905.0MHz)						
1905.0	H	18.38	6.15	10.44	22.67	0.18
1905.0	V	17.62	6.15	10.44	21.91	0.16

LTE Band 2 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18675(1857.5MHz)						
1857.5	H	18.80	6.26	10.40	22.94	0.20
1857.5	V	17.86	6.26	10.40	22.00	0.16
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.76	6.19	10.43	23.00	0.20
1880.0	V	18.08	6.19	10.43	22.32	0.17
High Channel 19125 (1902.5MHz)						
1902.5	H	18.46	6.15	10.44	22.75	0.19
1902.5	V	17.70	6.15	10.44	21.99	0.16

LTE Band 2 (16-QAM, Band Width 15MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18675(1857.5MHz)						
1857.5	H	18.25	6.26	10.40	22.39	0.17
1857.5	V	17.35	6.26	10.40	21.49	0.14
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.15	6.19	10.43	22.39	0.17
1880.0	V	17.71	6.19	10.43	21.95	0.16
High Channel 19125 (1902.5MHz)						
1902.5	H	18.39	6.15	10.44	22.68	0.19
1902.5	V	17.62	6.15	10.44	21.91	0.16

LTE Band 2 (QPSK, Band Width 20MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18700(1860.0MHz)						
1860.0	H	18.83	6.26	10.40	22.97	0.20
1860.0	V	17.99	6.26	10.40	22.13	0.16
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.75	6.19	10.43	22.99	0.20
1880.0	V	17.69	6.19	10.43	21.93	0.16
High Channel 19100 (1900.0MHz)						
1900.0	H	18.53	6.15	10.44	22.82	0.19
1900.0	V	17.72	6.15	10.44	22.01	0.16

LTE Band 2 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 18700(1860.0MHz)						
1860.0	H	18.27	6.26	10.40	22.41	0.17
1860.0	V	17.52	6.26	10.40	21.66	0.15
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.28	6.19	10.43	22.52	0.18
1880.0	V	17.68	6.19	10.43	21.92	0.16
High Channel 19100 (1900.0MHz)						
1900.0	H	18.31	6.15	10.44	22.60	0.18
1900.0	V	17.56	6.15	10.44	21.85	0.15

LTE Band 4 (QPSK, Band Width 1.4MHz, RB Size 1, RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19957(1710.7MHz)						
1710.7	H	19.28	6.15	9.42	22.55	0.18
1710.7	V	18.58	6.15	9.42	21.85	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.68	6.19	9.44	22.93	0.20
1732.5	V	18.34	6.19	9.44	21.59	0.14
High Channel 20393 (1754.3MHz)						
1754.3	H	19.29	6.2	9.47	22.56	0.18
1754.3	V	18.38	6.2	9.47	21.65	0.15

LTE Band 4 (16-QAM, Band Width 1.4MHz, RB Size 1, RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19957(1710.7MHz)						
1710.7	H	19.13	6.15	9.42	22.40	0.17
1710.7	V	18.36	6.15	9.42	21.63	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	18.96	6.19	9.44	22.21	0.17
1732.5	V	18.03	6.19	9.44	21.28	0.13
High Channel 20393 (1754.3MHz)						
1754.3	H	19.21	6.2	9.47	22.48	0.18
1754.3	V	18.31	6.2	9.47	21.58	0.14

LTE Band 4 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19965(1711.5MHz)						
1711.5	H	19.60	6.15	9.42	22.87	0.19
1711.5	V	18.40	6.15	9.42	21.67	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.70	6.19	9.44	22.95	0.20
1732.5	V	18.33	6.19	9.44	21.58	0.14
High Channel 20385 (1753.5MHz)						
1753.5	H	19.80	6.2	9.47	23.07	0.20
1753.5	V	18.59	6.2	9.47	21.86	0.15

LTE Band 4 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19965(1711.5MHz)						
1711.5	H	18.99	6.15	9.42	22.26	0.17
1711.5	V	18.40	6.15	9.42	21.67	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.26	6.19	9.44	22.51	0.18
1732.5	V	18.09	6.19	9.44	21.34	0.14
High Channel 20385 (1753.5MHz)						
1753.5	H	18.95	6.2	9.47	22.22	0.17
1753.5	V	18.33	6.2	9.47	21.60	0.14

LTE Band 4 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19975(1712.5MHz)						
1712.5	H	19.51	6.15	9.42	22.78	0.19
1712.5	V	18.62	6.15	9.42	21.89	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.75	6.19	9.44	23.00	0.20
1732.5	V	18.38	6.19	9.44	21.63	0.15
High Channel 20375 (1752.5MHz)						
1752.5	H	19.56	6.2	9.47	22.83	0.19
1752.5	V	18.28	6.2	9.47	21.55	0.14

LTE Band 4 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 19975(1712.5MHz)						
1712.5	H	19.09	6.15	9.42	22.36	0.17
1712.5	V	18.09	6.15	9.42	21.36	0.14
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.07	6.19	9.44	22.32	0.17
1732.5	V	18.33	6.19	9.44	21.58	0.14
High Channel 20375 (1752.5MHz)						
1752.5	H	19.24	6.2	9.47	22.51	0.18
1752.5	V	18.05	6.2	9.47	21.32	0.14

LTE Band 4 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20000(1715.0MHz)						
1715.0	H	19.68	6.15	9.42	22.95	0.20
1715.0	V	18.41	6.15	9.42	21.68	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.59	6.19	9.44	22.84	0.19
1732.5	V	18.48	6.19	9.44	21.73	0.15
High Channel 20350 (1750.0MHz)						
1750.0	H	19.62	6.2	9.47	22.89	0.19
1750.0	V	18.48	6.2	9.47	21.75	0.15

LTE Band 4 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20000(1715.0MHz)						
1715.0	H	19.17	6.15	9.42	22.44	0.18
1715.0	V	18.27	6.15	9.42	21.54	0.14
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.17	6.19	9.44	22.42	0.17
1732.5	V	18.35	6.19	9.44	21.60	0.14
High Channel 20350 (1750.0MHz)						
1750.0	H	19.06	6.2	9.47	22.33	0.17
1750.0	V	18.14	6.2	9.47	21.41	0.14

LTE Band 4 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20025(1717.5MHz)						
1717.5	H	19.84	6.15	9.42	23.11	0.20
1717.5	V	18.28	6.15	9.42	21.55	0.14
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.77	6.19	9.44	23.02	0.20
1732.5	V	18.61	6.19	9.44	21.86	0.15
High Channel 20325 (1747.5MHz)						
1747.5	H	19.84	6.2	9.47	23.11	0.20
1747.5	V	18.61	6.2	9.47	21.88	0.15

LTE Band 4 (16-QAM, Band Width 15MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20025(1717.5MHz)						
1717.5	H	18.98	6.15	9.42	22.25	0.17
1717.5	V	18.02	6.15	9.42	21.29	0.13
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.14	6.19	9.44	22.39	0.17
1732.5	V	18.07	6.19	9.44	21.32	0.14
High Channel 20325 (1747.5MHz)						
1747.5	H	18.98	6.2	9.47	22.25	0.17
1747.5	V	18.19	6.2	9.47	21.46	0.14

LTE Band 4 (QPSK, Band Width 20MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20050(1720.0MHz)						
1720.0	H	19.74	6.15	9.42	23.01	0.20
1720.0	V	18.50	6.15	9.42	21.77	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.35	6.19	9.44	22.60	0.18
1732.5	V	18.38	6.19	9.44	21.63	0.15
High Channel 20300 (1745.0MHz)						
1745.0	H	19.37	6.2	9.47	22.64	0.18
1745.0	V	18.55	6.2	9.47	21.82	0.15

LTE Band 4 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	EIRP (W)
Low Channel 20050(1720.0MHz)						
1720.0	H	19.19	6.15	9.42	22.46	0.18
1720.0	V	18.09	6.15	9.42	21.36	0.14
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.07	6.19	9.44	22.32	0.17
1732.5	V	18.09	6.19	9.44	21.34	0.14
High Channel 20300 (1745.0MHz)						
1745.0	H	18.97	6.2	9.47	22.24	0.17
1745.0	V	18.18	6.2	9.47	21.45	0.14

LTE Band 5 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20407(824.7MHz)						
824.7	H	29.76	3.83	-2.99	22.94	0.20
824.7	V	29.14	3.83	-2.99	22.32	0.17
Middle Channel 20525 (836.5MHz)						
836.5	H	30.03	3.96	-3.04	23.03	0.20
836.5	V	29.18	3.96	-3.04	22.18	0.17
High Channel 20643 (848.3MHz)						
848.3	H	30.05	3.97	-3.1	22.98	0.20
848.3	V	29.09	3.97	-3.1	22.02	0.16

LTE Band 5 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20407(824.7MHz)						
824.7	H	29.28	3.83	-2.99	22.46	0.18
824.7	V	29.03	3.83	-2.99	22.21	0.17
Middle Channel 20525 (836.5MHz)						
836.5	H	29.43	3.96	-3.04	22.43	0.17
836.5	V	28.92	3.96	-3.04	21.92	0.16
High Channel 20643 (848.3MHz)						
848.3	H	29.33	3.97	-3.1	22.26	0.17
848.3	V	28.63	3.97	-3.1	21.56	0.14

LTE Band 5 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20415(825.5MHz)						
825.5	H	29.86	3.83	-2.99	23.04	0.20
825.5	V	29.07	3.83	-2.99	22.25	0.17
Middle Channel 20525 (836.5MHz)						
836.5	H	29.73	3.96	-3.04	22.73	0.19
836.5	V	29.26	3.96	-3.04	22.26	0.17
High Channel 20635 (847.5MHz)						
847.5	H	29.75	3.97	-3.1	22.68	0.19
847.5	V	29.32	3.97	-3.1	22.25	0.17

LTE Band 5 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20415(825.5MHz)						
825.5	H	29.38	3.83	-2.99	22.56	0.18
825.5	V	28.81	3.83	-2.99	21.99	0.16
Middle Channel 20525 (836.5MHz)						
836.5	H	29.49	3.96	-3.04	22.49	0.18
836.5	V	28.84	3.96	-3.04	21.84	0.15
High Channel 20635 (847.5MHz)						
847.5	H	29.22	3.97	-3.1	22.15	0.16
847.5	V	28.55	3.97	-3.1	21.48	0.14

LTE Band 5 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20425(826.5MHz)						
826.5	H	29.94	3.83	-2.99	23.12	0.20
826.5	V	29.24	3.83	-2.99	22.42	0.17
Middle Channel 20525 (836.5MHz)						
836.5	H	29.92	3.96	-3.04	22.92	0.20
836.5	V	29.54	3.96	-3.04	22.54	0.18
High Channel 20625 (846.5MHz)						
846.5	H	30.00	3.97	-3.1	22.93	0.20
846.5	V	29.20	3.97	-3.1	22.13	0.16

LTE Band 5 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20425(826.5MHz)						
826.5	H	29.61	3.83	-2.99	22.79	0.19
826.5	V	28.93	3.83	-2.99	22.11	0.16
Middle Channel 20525 (836.5MHz)						
836.5	H	29.49	3.96	-3.04	22.49	0.18
836.5	V	28.71	3.96	-3.04	21.71	0.15
High Channel 20625 (846.5MHz)						
846.5	H	29.24	3.97	-3.1	22.17	0.16
846.5	V	28.65	3.97	-3.1	21.58	0.14

LTE Band 5 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20450(829.0MHz)						
829.0	H	29.80	3.83	-2.99	22.98	0.20
829.0	V	29.11	3.83	-2.99	22.29	0.17
Middle Channel 20525 (836.5MHz)						
836.5	H	29.84	3.96	-3.04	22.84	0.19
836.5	V	29.50	3.96	-3.04	22.50	0.18
High Channel 20600 (844.0MHz)						
844.0	H	29.88	3.97	-3.1	22.81	0.19
844.0	V	29.19	3.97	-3.1	22.12	0.16

LTE Band 5 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 20450(829.0MHz)						
829.0	H	29.41	3.83	-2.99	22.59	0.18
829.0	V	28.71	3.83	-2.99	21.89	0.15
Middle Channel 20525 (836.5MHz)						
836.5	H	29.52	3.96	-3.04	22.52	0.18
836.5	V	28.81	3.96	-3.04	21.81	0.15
High Channel 20600 (844.0MHz)						
844.0	H	29.43	3.97	-3.1	22.36	0.17
844.0	V	28.55	3.97	-3.1	21.48	0.14

LTE Band 12 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23017(699.7MHz)						
699.7	H	29.30	3.53	-2.67	23.10	0.20
699.7	V	28.77	3.53	-2.67	22.57	0.18
Middle Channel 23095 (707.5MHz)						
707.5	H	29.18	3.54	-2.64	23.00	0.20
707.5	V	28.96	3.54	-2.64	22.78	0.19
High Channel 23137 (715.3MHz)						
715.3	H	29.19	3.55	-2.63	23.01	0.20
715.3	V	28.76	3.55	-2.63	22.58	0.18

LTE Band 12 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23017(699.7MHz)						
699.7	H	29.06	3.53	-2.67	22.86	0.19
699.7	V	28.38	3.53	-2.67	22.18	0.17
Middle Channel 23095 (707.5MHz)						
707.5	H	28.88	3.54	-2.64	22.70	0.19
707.5	V	28.63	3.54	-2.64	22.45	0.18
High Channel 23137 (715.3MHz)						
715.3	H	29.00	3.55	-2.63	22.82	0.19
715.3	V	28.38	3.55	-2.63	22.20	0.17

LTE Band 12 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23025(700.5MHz)						
700.5	H	29.47	3.53	-2.67	23.27	0.21
700.5	V	28.89	3.53	-2.67	22.69	0.19
Middle Channel 23095 (707.5MHz)						
707.5	H	29.10	3.54	-2.64	22.92	0.20
707.5	V	28.85	3.54	-2.64	22.67	0.19
High Channel 23165 (714.5MHz)						
714.5	H	29.25	3.55	-2.63	23.07	0.20
714.5	V	28.85	3.55	-2.63	22.67	0.18

LTE Band 12 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23025(700.5MHz)						
700.5	H	28.99	3.53	-2.67	22.79	0.19
700.5	V	28.28	3.53	-2.67	22.08	0.16
Middle Channel 23095 (707.5MHz)						
707.5	H	28.70	3.54	-2.64	22.52	0.18
707.5	V	28.56	3.54	-2.64	22.38	0.17
High Channel 23165 (714.5MHz)						
714.5	H	28.79	3.55	-2.63	22.61	0.18
714.5	V	28.44	3.55	-2.63	22.26	0.17

LTE Band 12 (QPSK, Band Width 5MHz,RB Size 8,RB Offset 17)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23035(701.5MHz)						
701.5	H	29.34	3.53	-2.67	23.14	0.21
701.5	V	28.65	3.53	-2.67	22.45	0.18
Middle Channel 23095 (707.5MHz)						
707.5	H	29.16	3.54	-2.64	22.98	0.20
707.5	V	28.86	3.54	-2.64	22.68	0.19
High Channel 23155 (713.5MHz)						
713.5	H	29.44	3.55	-2.63	23.26	0.21
713.5	V	28.76	3.55	-2.63	22.58	0.18

LTE Band 12 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23035(701.5MHz)						
701.5	H	29.09	3.53	-2.67	22.89	0.19
701.5	V	28.41	3.53	-2.67	22.21	0.17
Middle Channel 23095 (707.5MHz)						
707.5	H	28.95	3.54	-2.64	22.77	0.19
707.5	V	28.48	3.54	-2.64	22.30	0.17
High Channel 23155 (713.5MHz)						
713.5	H	29.01	3.55	-2.63	22.83	0.19
713.5	V	28.37	3.55	-2.63	22.19	0.17

LTE Band 12 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23060(704MHz)						
704	H	29.27	3.53	-2.67	23.07	0.20
704	V	28.85	3.53	-2.67	22.65	0.18
Middle Channel 23095 (707.5MHz)						
707.5	H	29.13	3.54	-2.64	22.95	0.20
707.5	V	28.71	3.54	-2.64	22.53	0.18
High Channel 23130 (711MHz)						
711	H	29.25	3.55	-2.63	23.07	0.20
711	V	28.94	3.55	-2.63	22.76	0.19

LTE Band 12 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23060(704MHz)						
704	H	28.72	3.53	-2.67	22.52	0.18
704	V	28.34	3.53	-2.67	22.14	0.16
Middle Channel 23095 (707.5MHz)						
707.5	H	28.77	3.54	-2.64	22.59	0.18
707.5	V	28.47	3.54	-2.64	22.29	0.17
High Channel 23130 (711MHz)						
711	H	28.87	3.55	-2.63	22.69	0.19
711	V	28.68	3.55	-2.63	22.50	0.18

4. Occupied Bandwidth

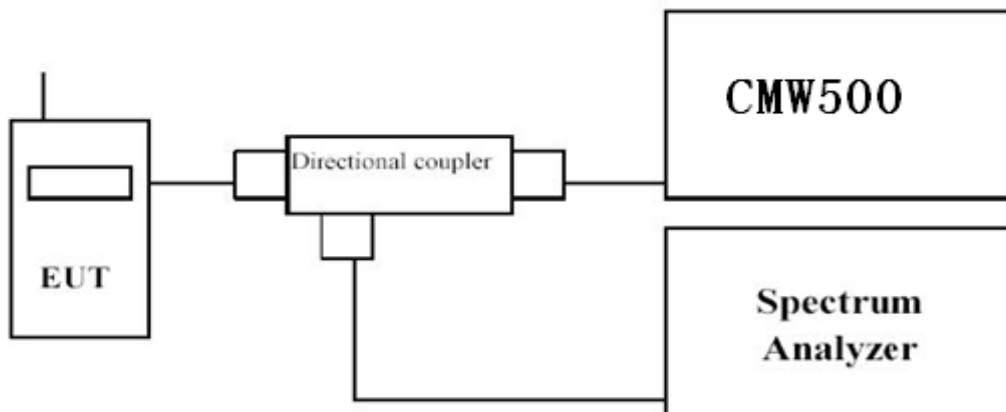
4.1. Test Equipment

Occupied Bandwidth

Instrument	Manufacturer	Model	Serial No	Cal. Date
Radio Communication Tester	R&S	CMW500	147483	11/08/2016
Spectrum Analyzer	Agilent	N9038A	MY51210142	11/05/2016
DC Power Supply	Agilent	6612C	MY43002989	03/02/2016

The measure equipment had been calibrated once a year.

4.2. Test Setup



4.3. Limit

N/A

4.4. Test Procedure

1. The testing follows FCC KDB 971168 v02v02 Section 4.2;
2. Using Occupied Bandwidth measurement function of spectrum analyzer. In the Occupied Bandwidth measurement a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

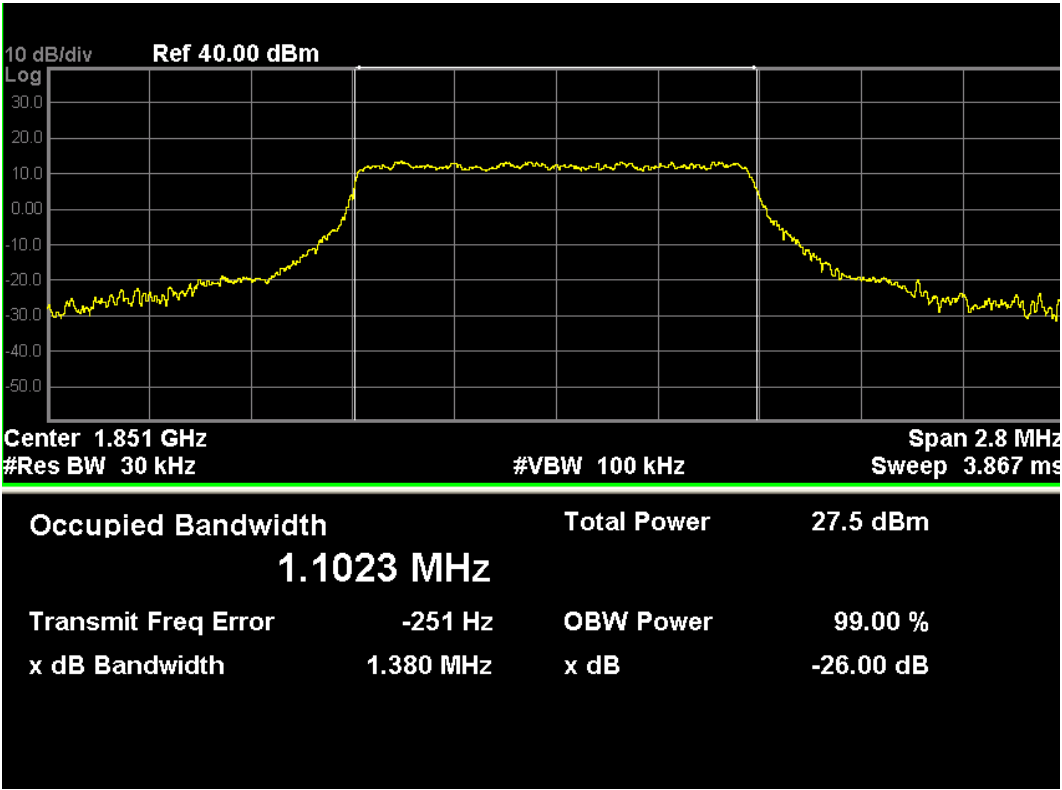
4.5. Uncertainty

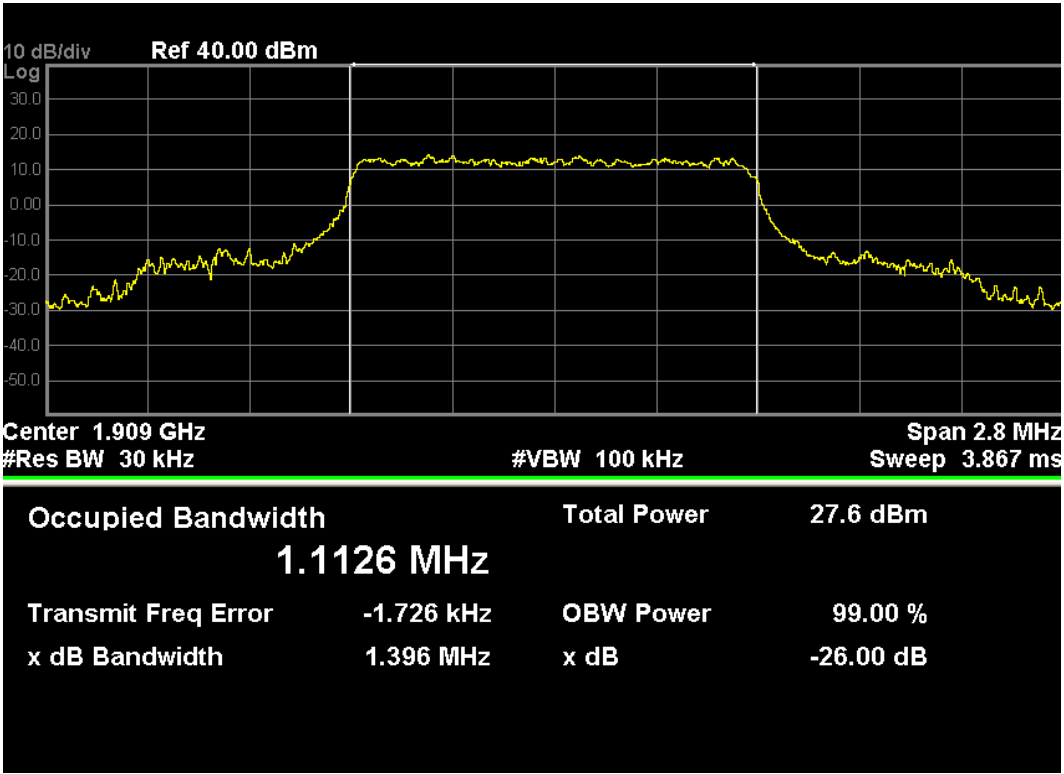
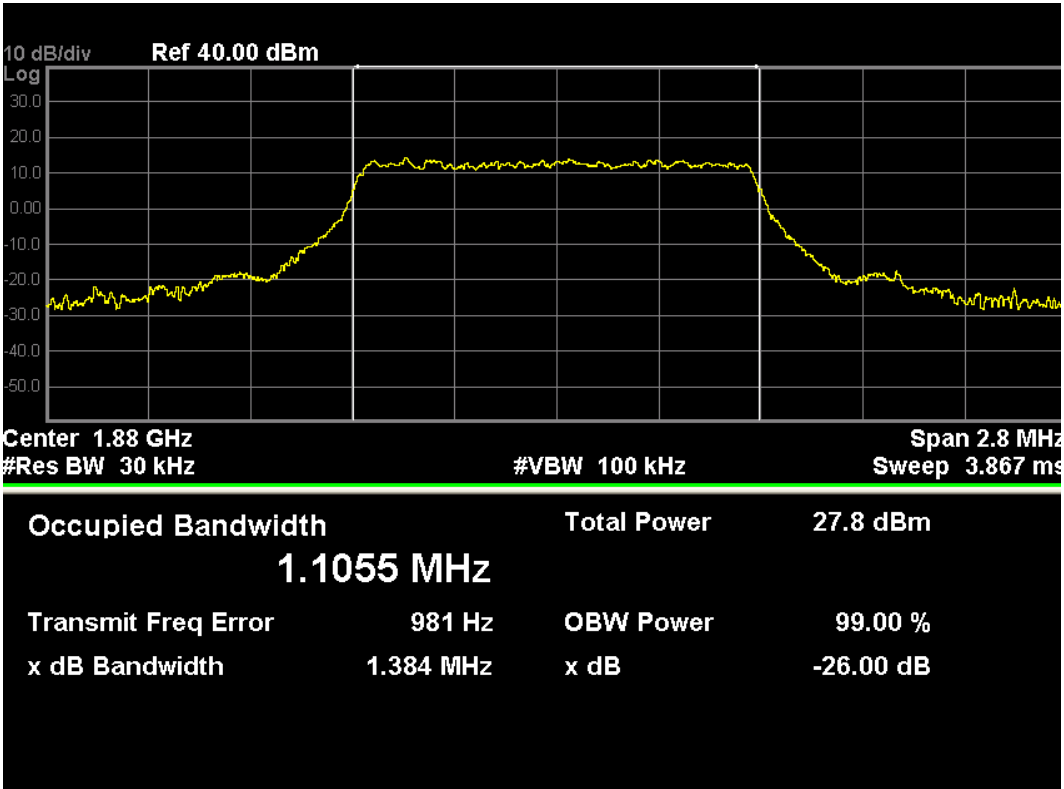
The measurement uncertainty is defined as ± 10 Hz

4.6. Test Result

LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)

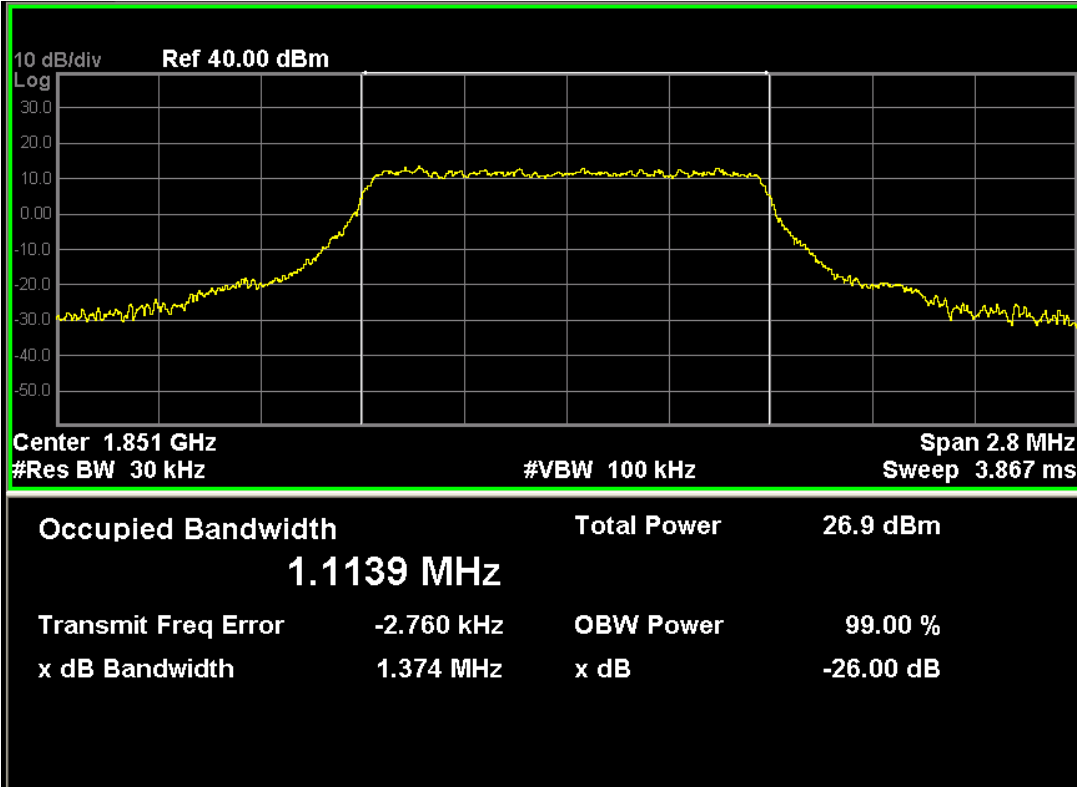
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18607	1850.7	1.380	1.1023
18900	1880.0	1.384	1.1055
19193	1909.3	1.396	1.1126

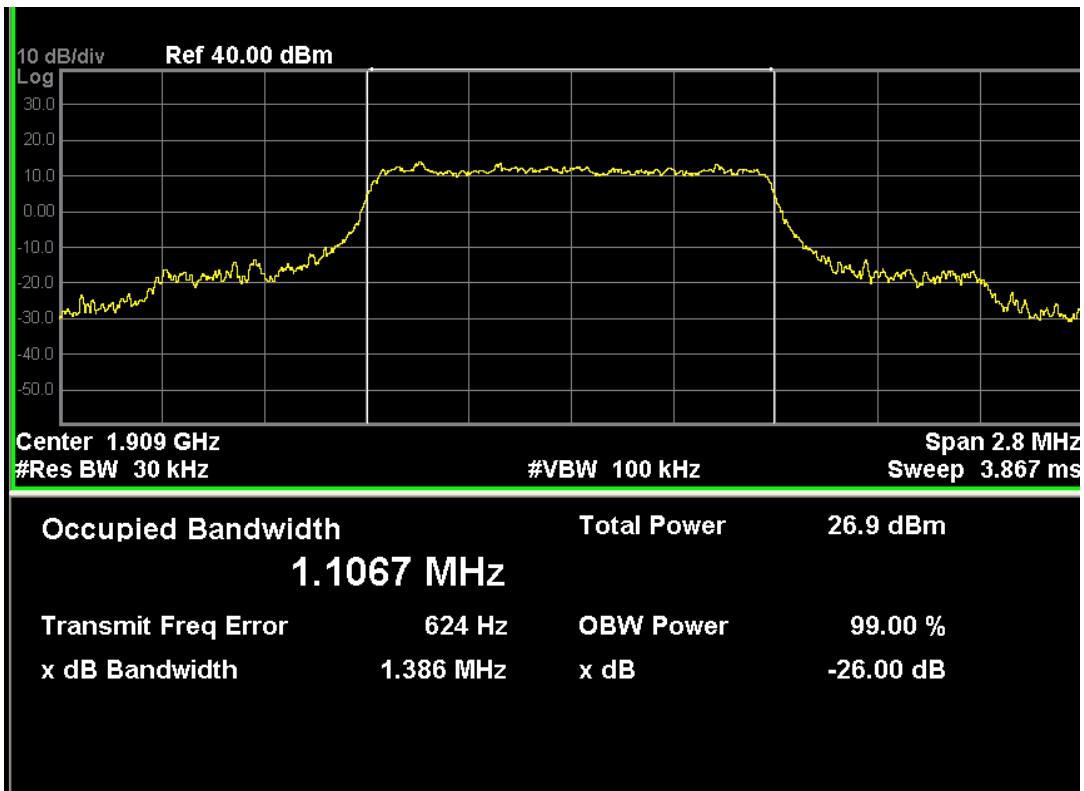
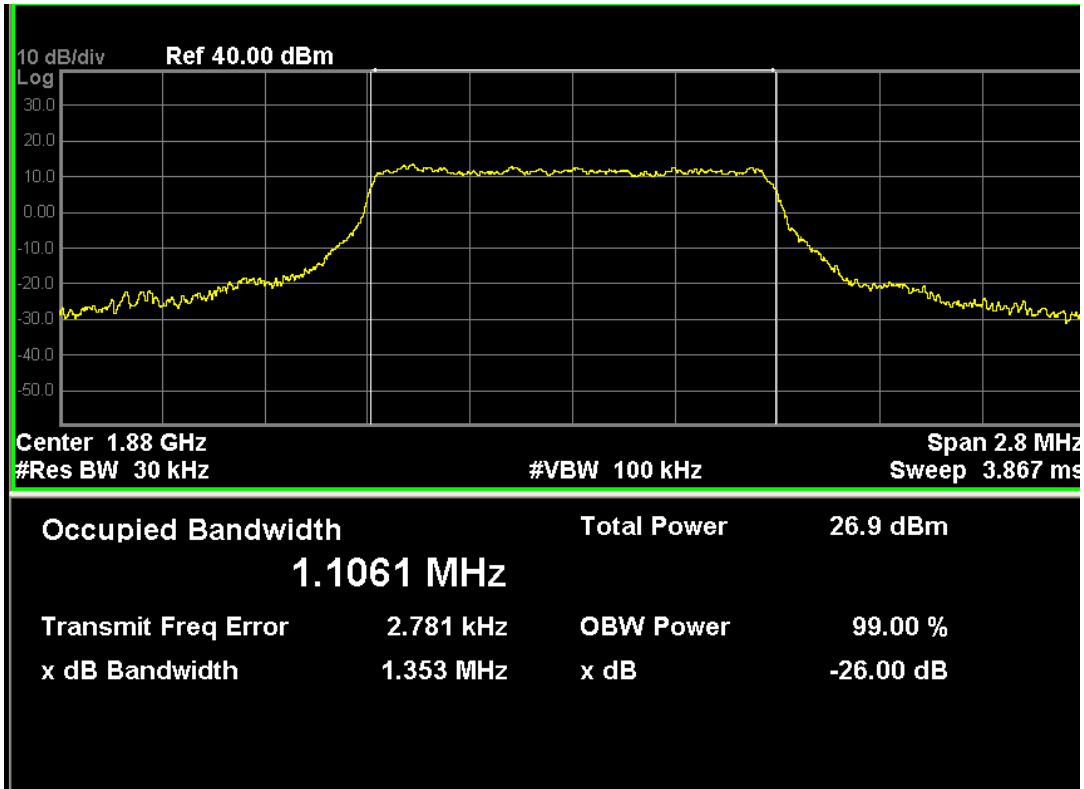




LTE Band 2 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)

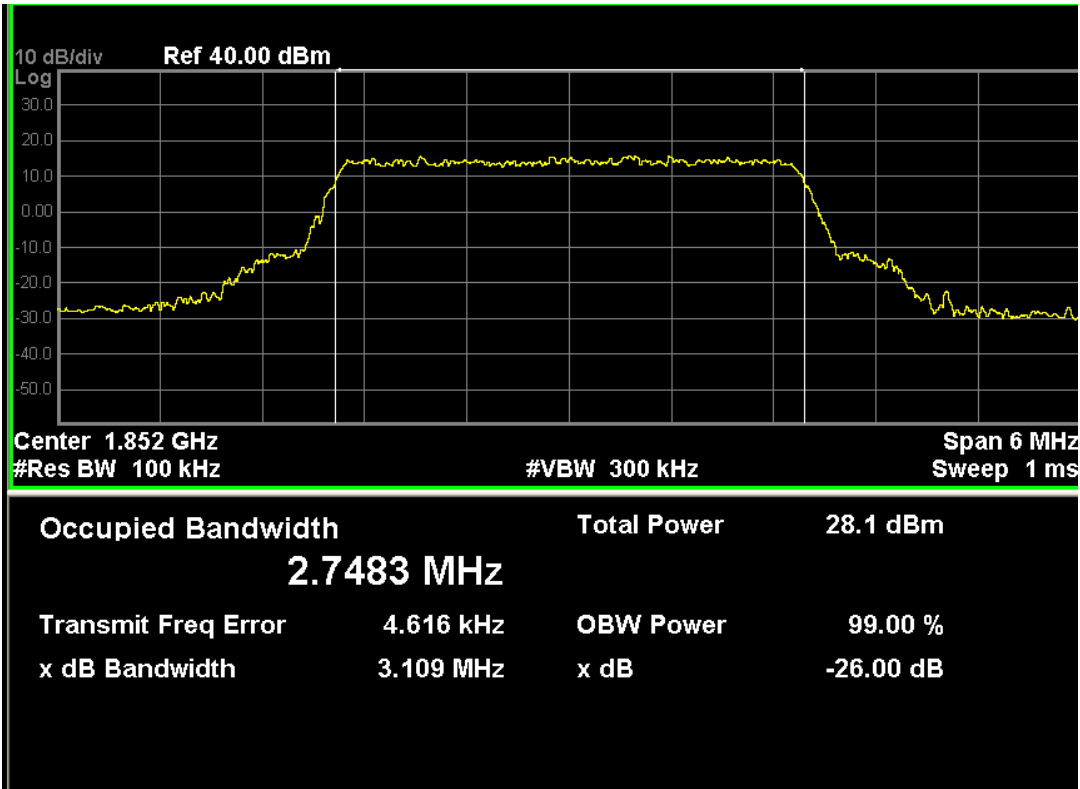
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18607	1850.7	1.374	1.1139
18900	1880.0	1.353	1.1061
19193	1909.3	1.386	1.1067

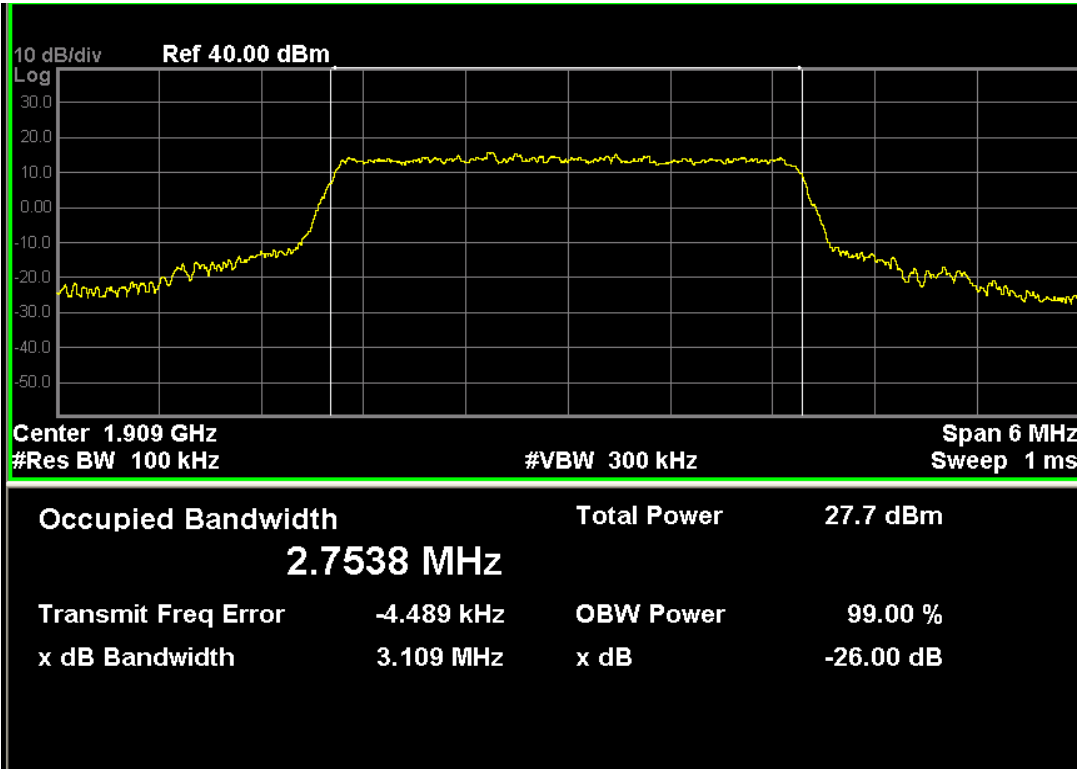
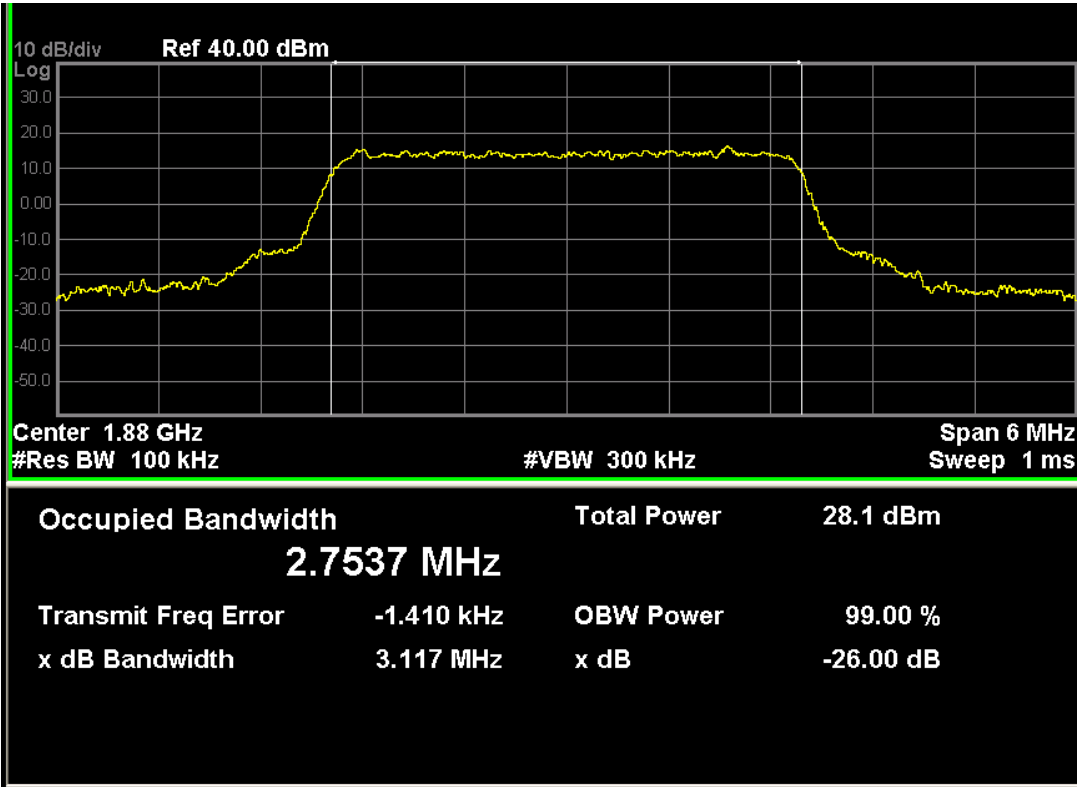




LTE Band 2 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)

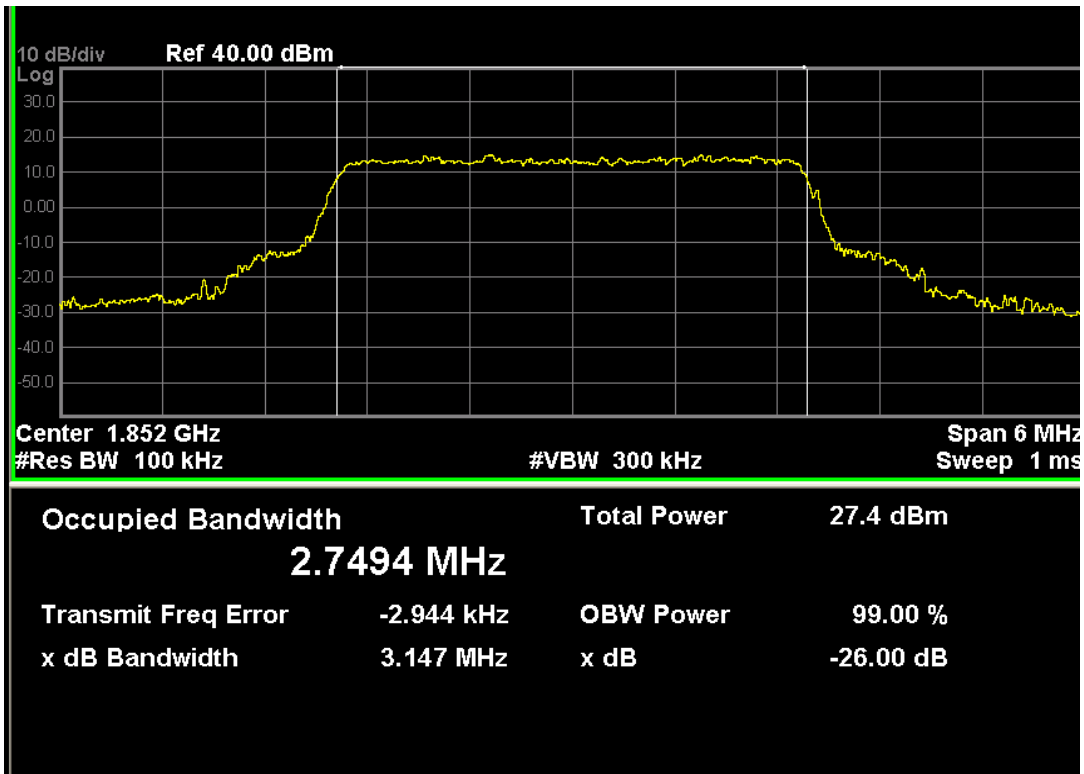
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18615	1851.5	3.109	2.7483
18900	1880.0	3.117	2.7537
19185	1908.5	3.109	2.7538

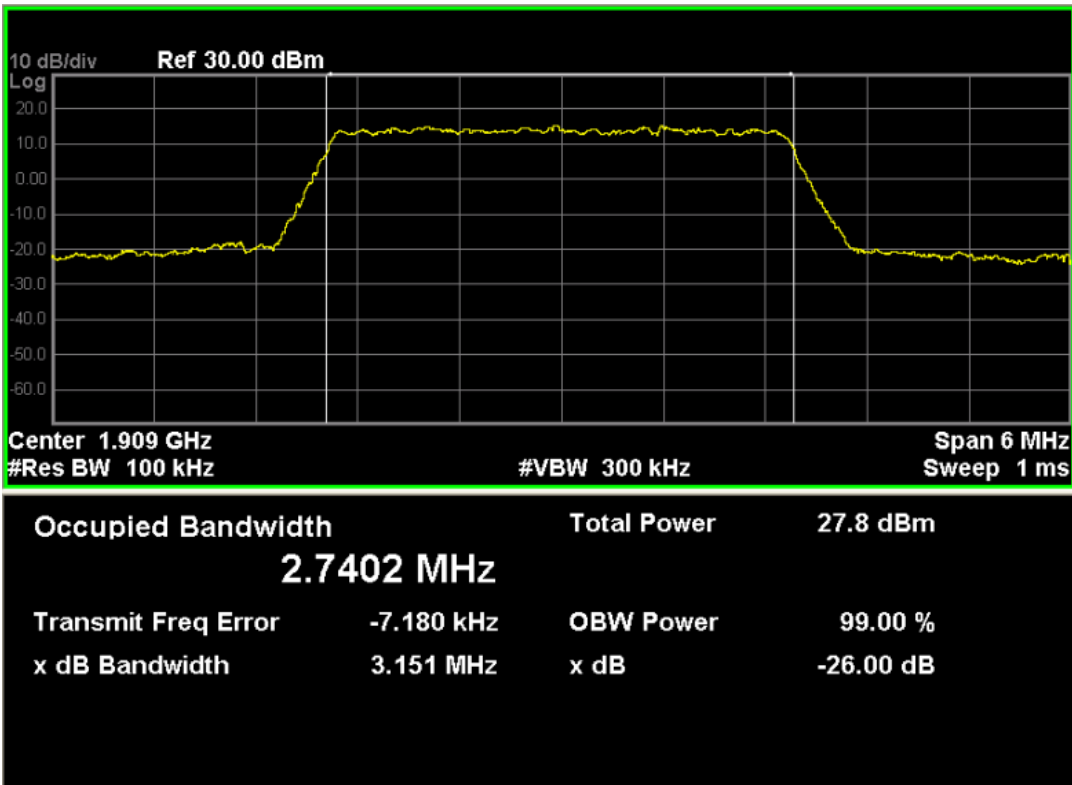
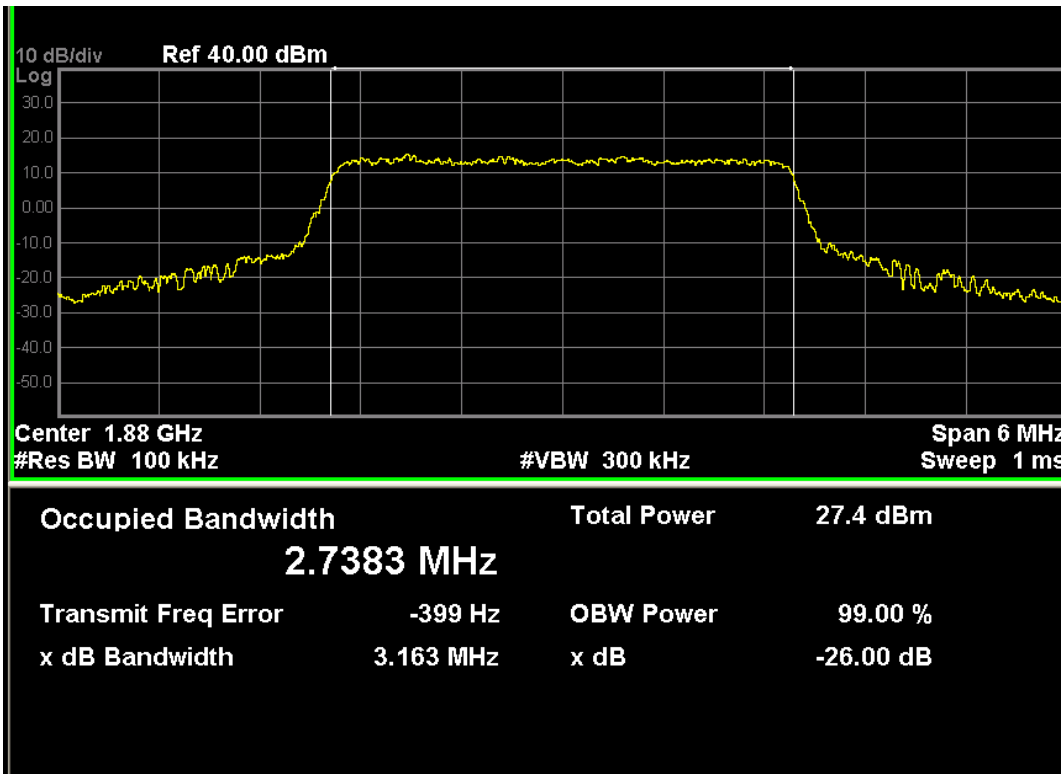




LTE Band 2 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)

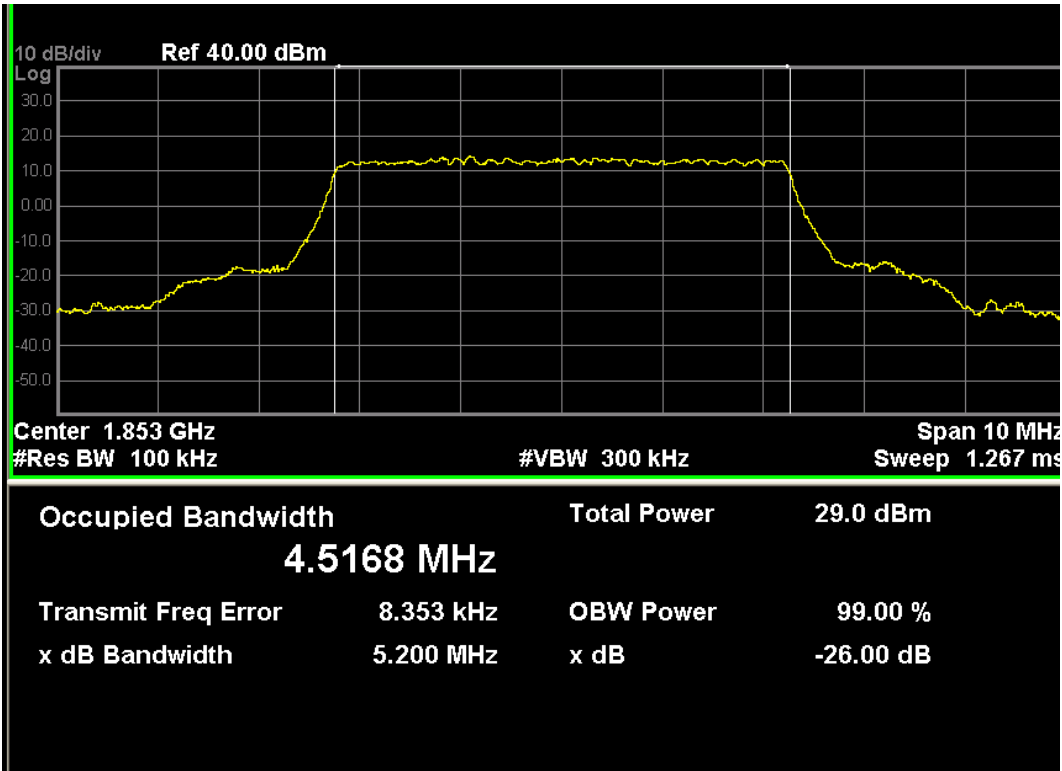
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18615	1851.5	3.147	2.7494
18900	1880.0	3.163	2.7383
19185	1908.5	3.151	2.7402

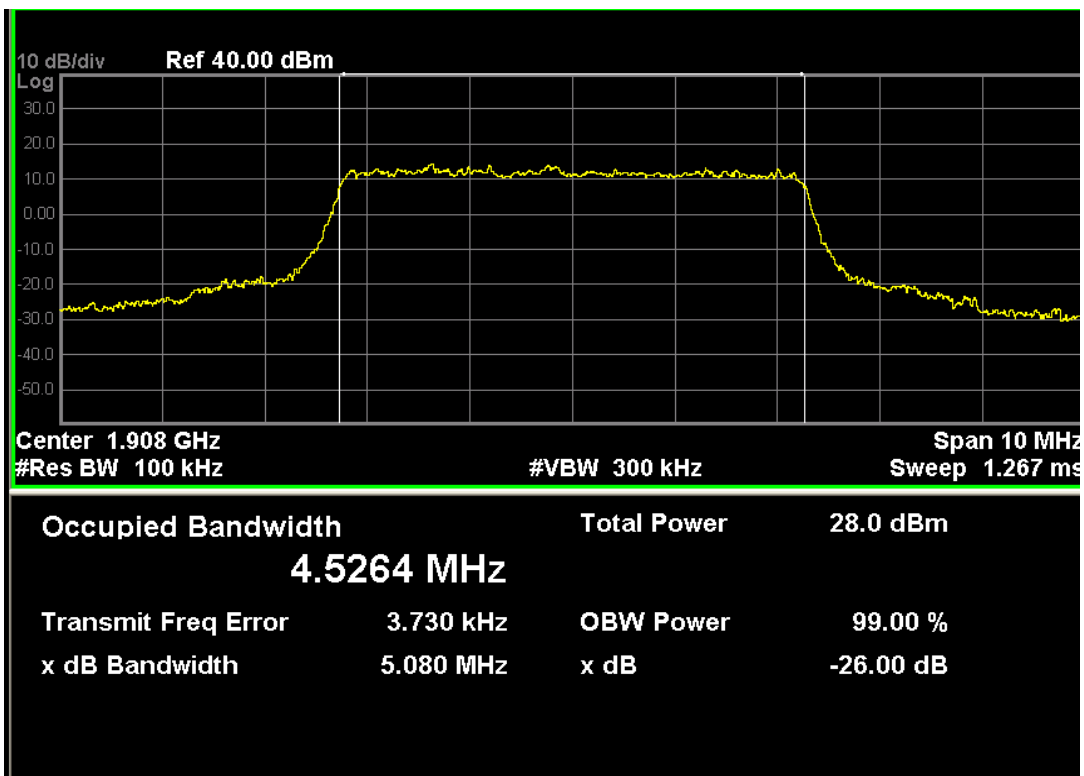
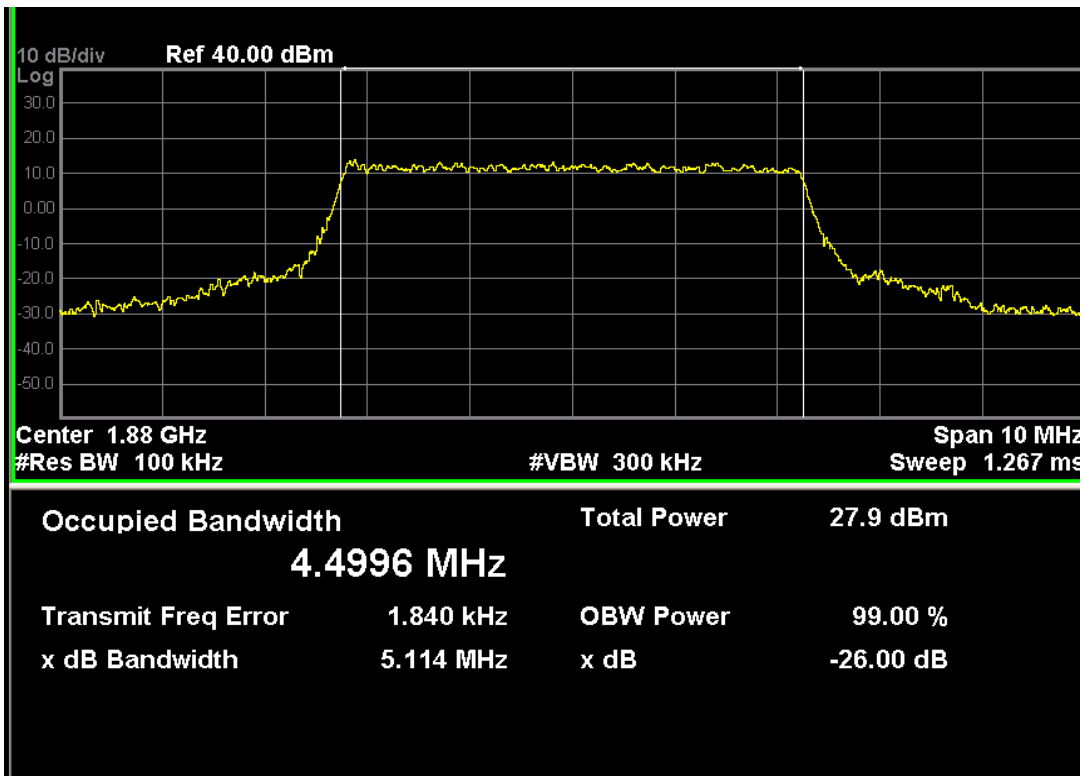




LTE Band 2 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)

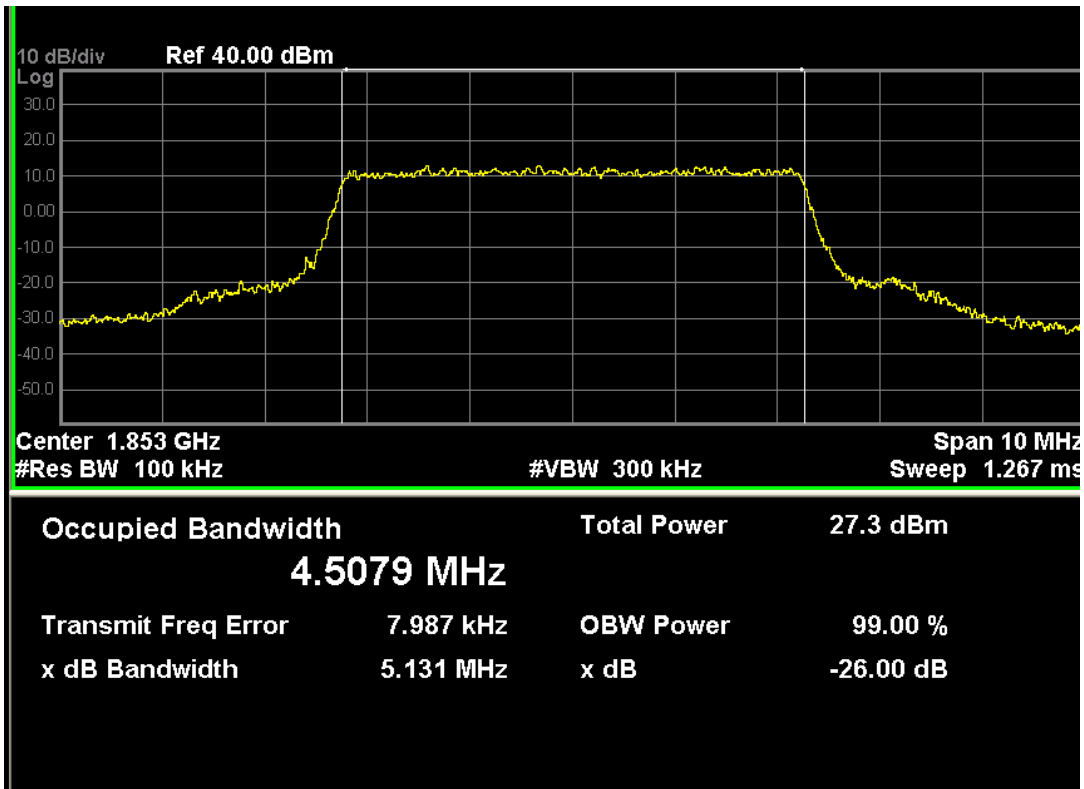
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18625	1852.5	5.200	4.5168
18900	1880.0	5.114	4.4996
19175	1907.5	5.080	4.5264

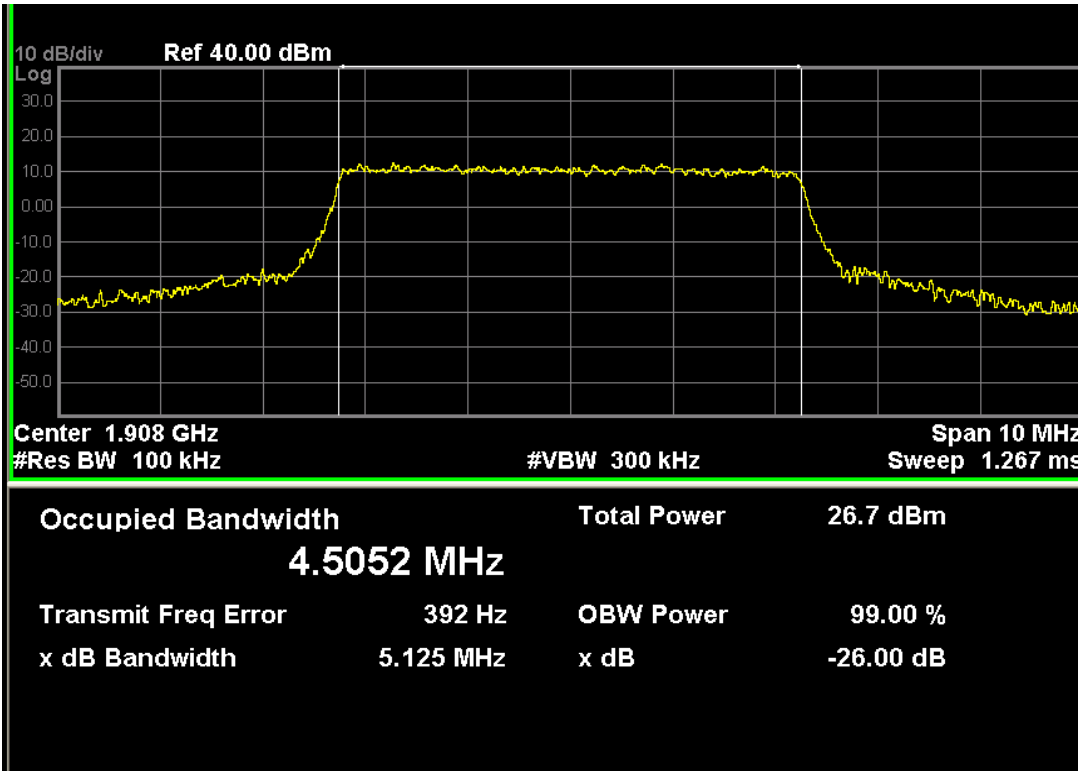
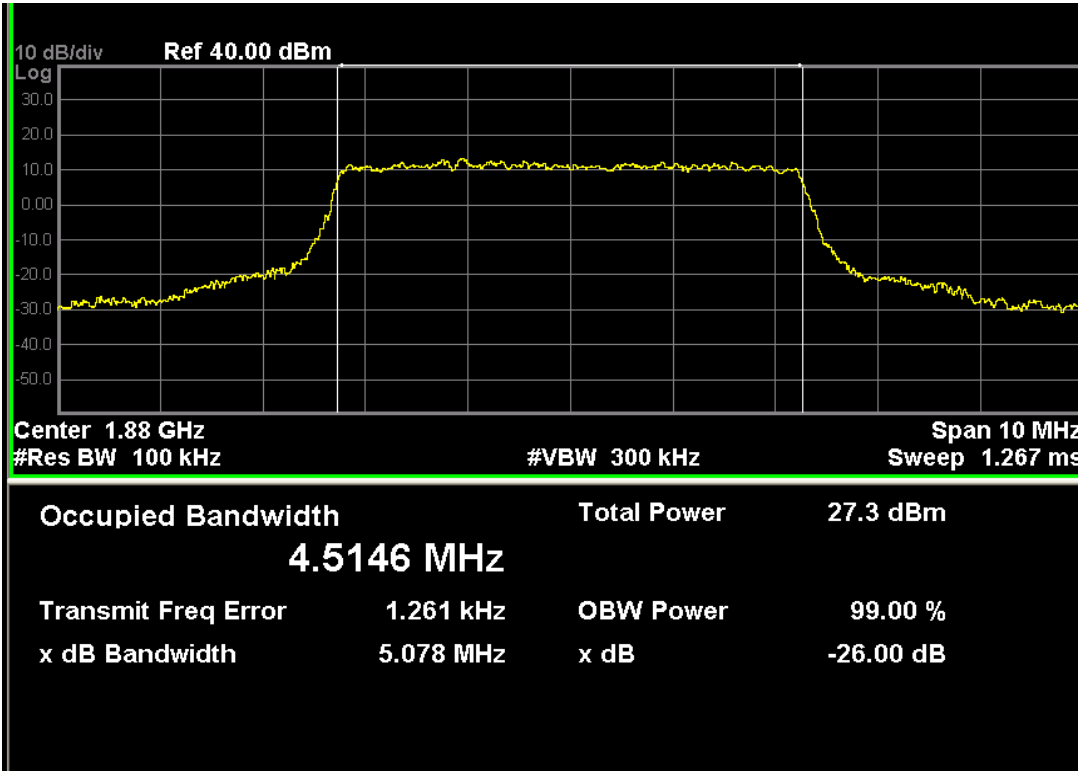




LTE Band 2 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)

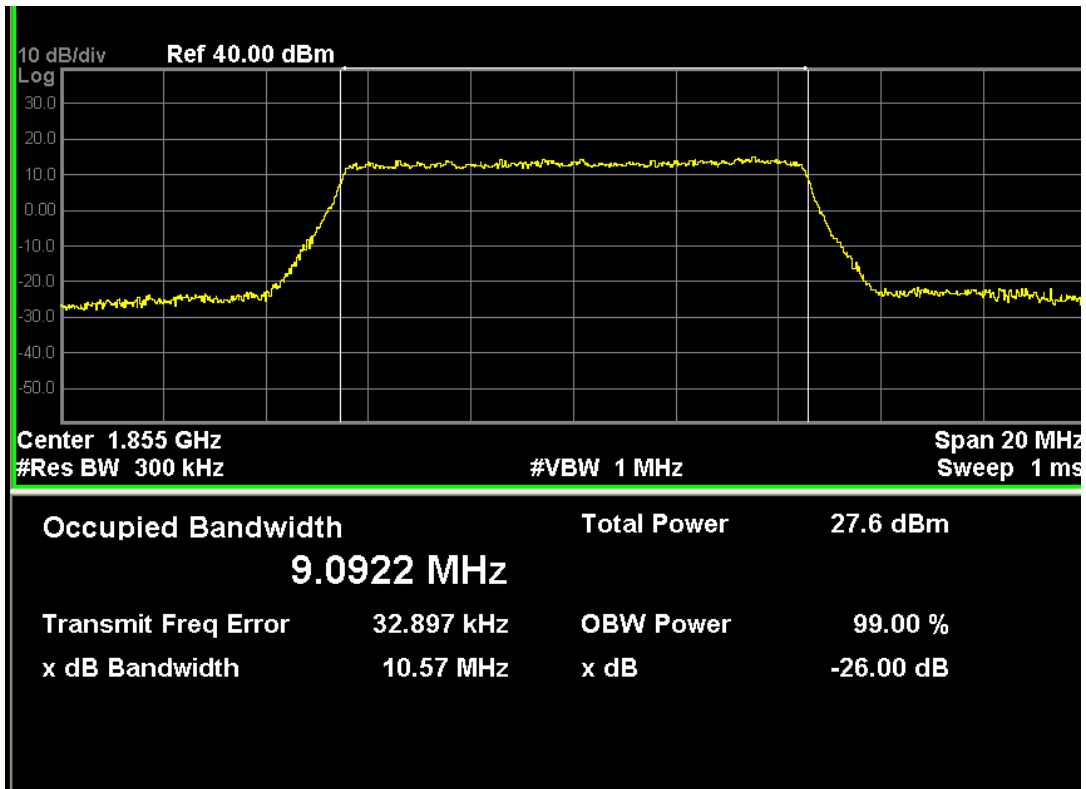
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18625	1852.5	5.131	4.5079
18900	1880.0	5.078	4.5146
19175	1907.5	5.125	4.5052

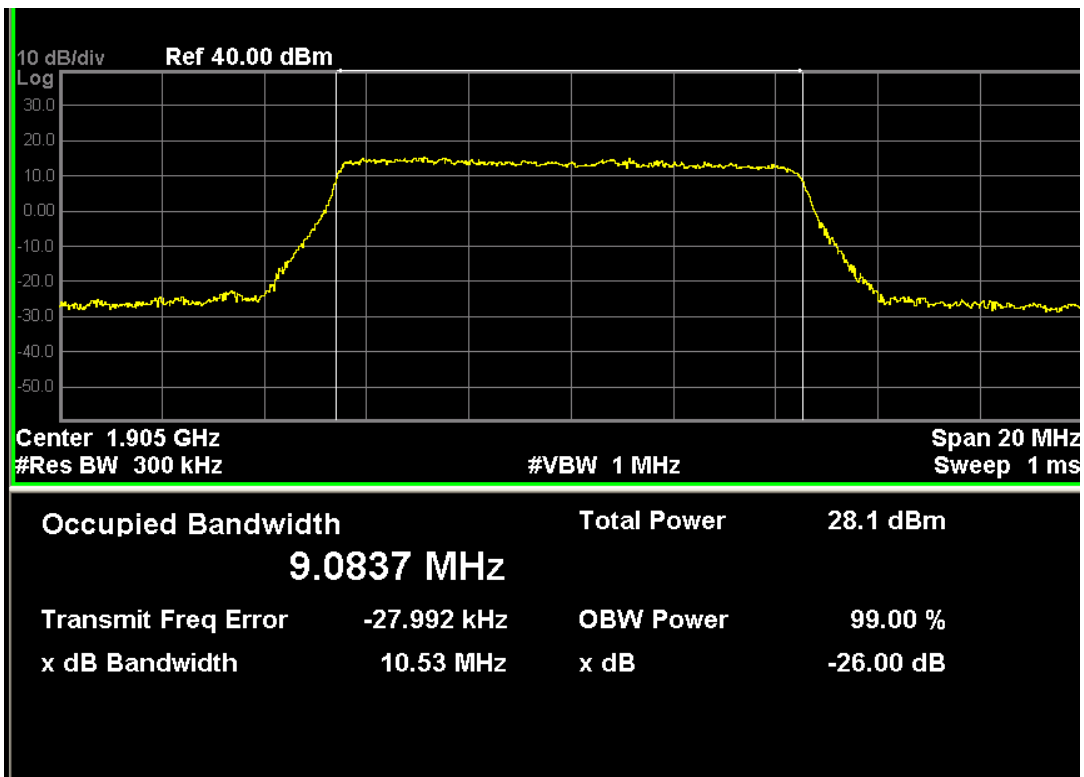
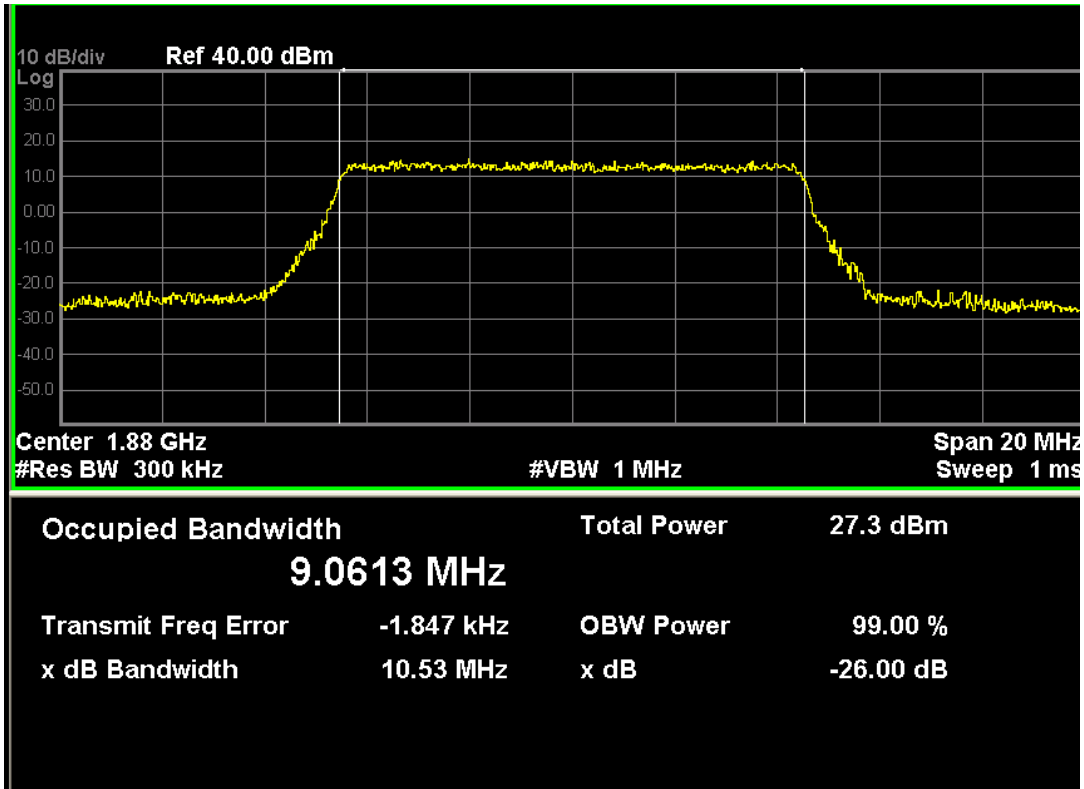




LTE Band 2 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)

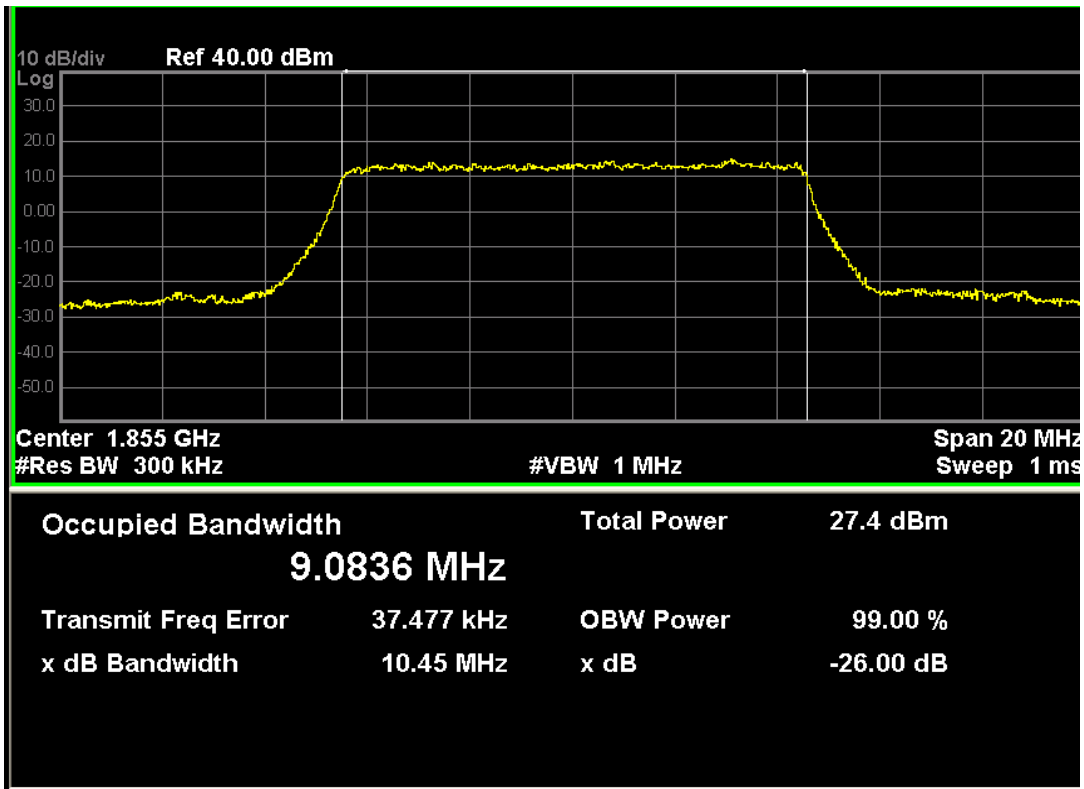
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18650	1855.0	10.57	9.0922
18900	1880.0	10.53	9.0613
19150	1905.0	10.53	9.0837

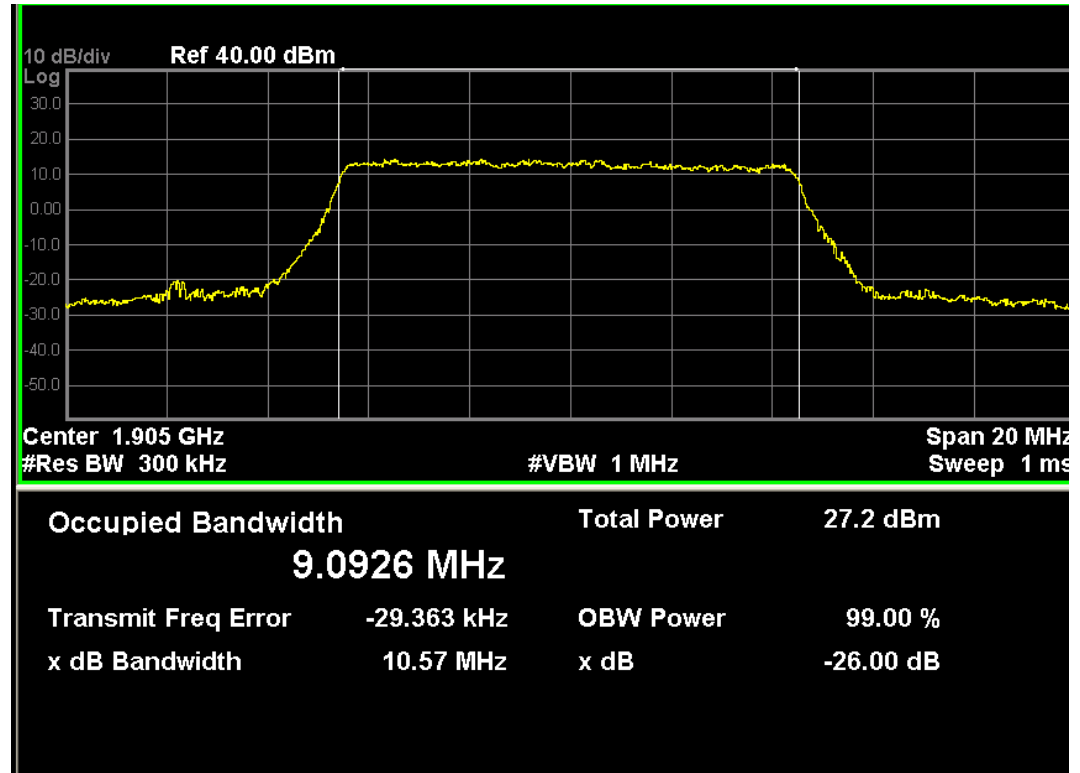
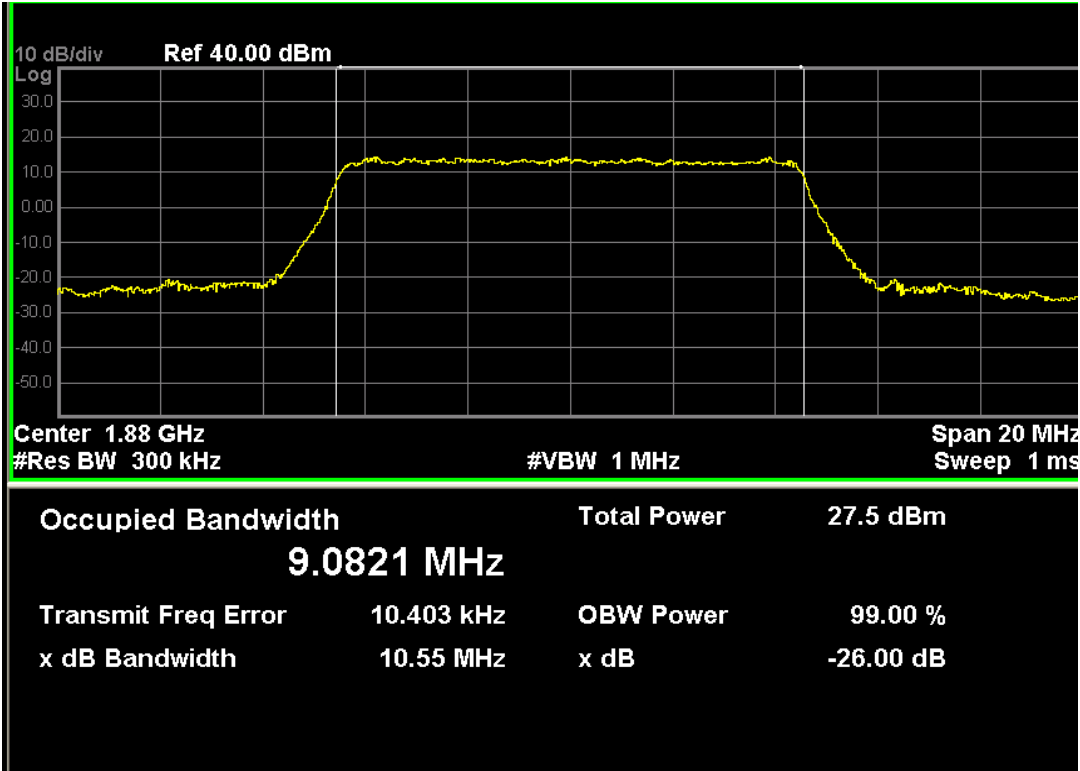




LTE Band 2 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)

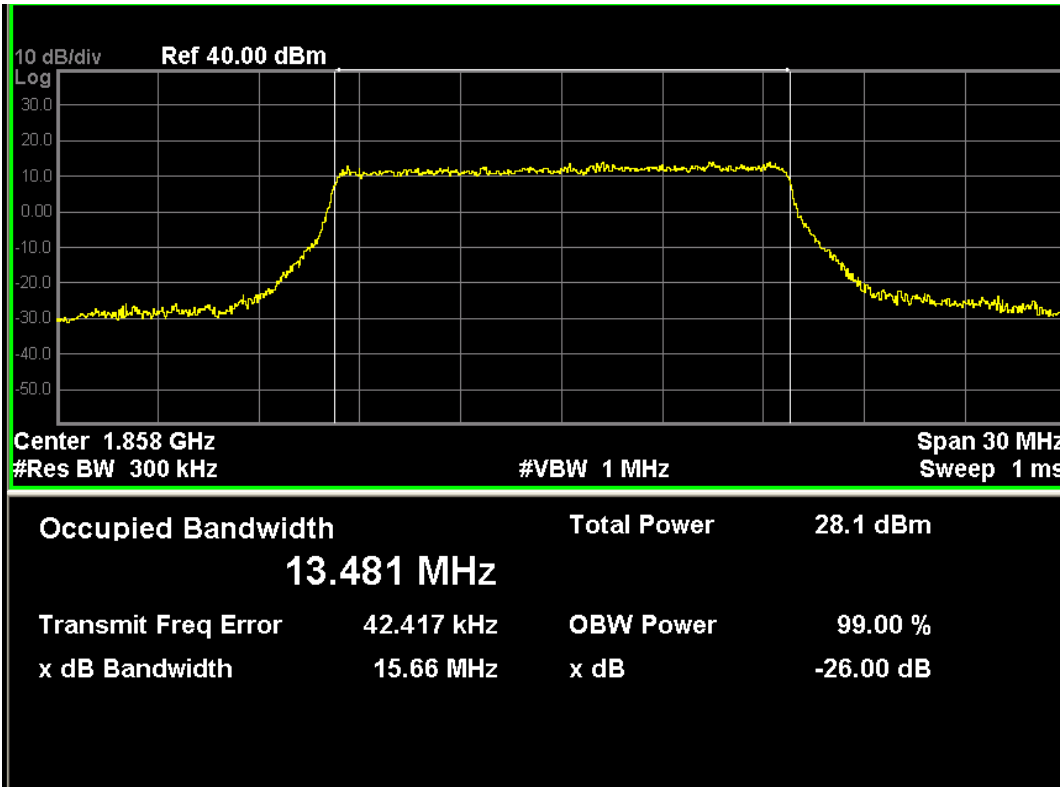
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18650	1855.0	10.45	9.0836
18900	1880.0	10.55	9.0821
19150	1905.0	10.57	9.0926

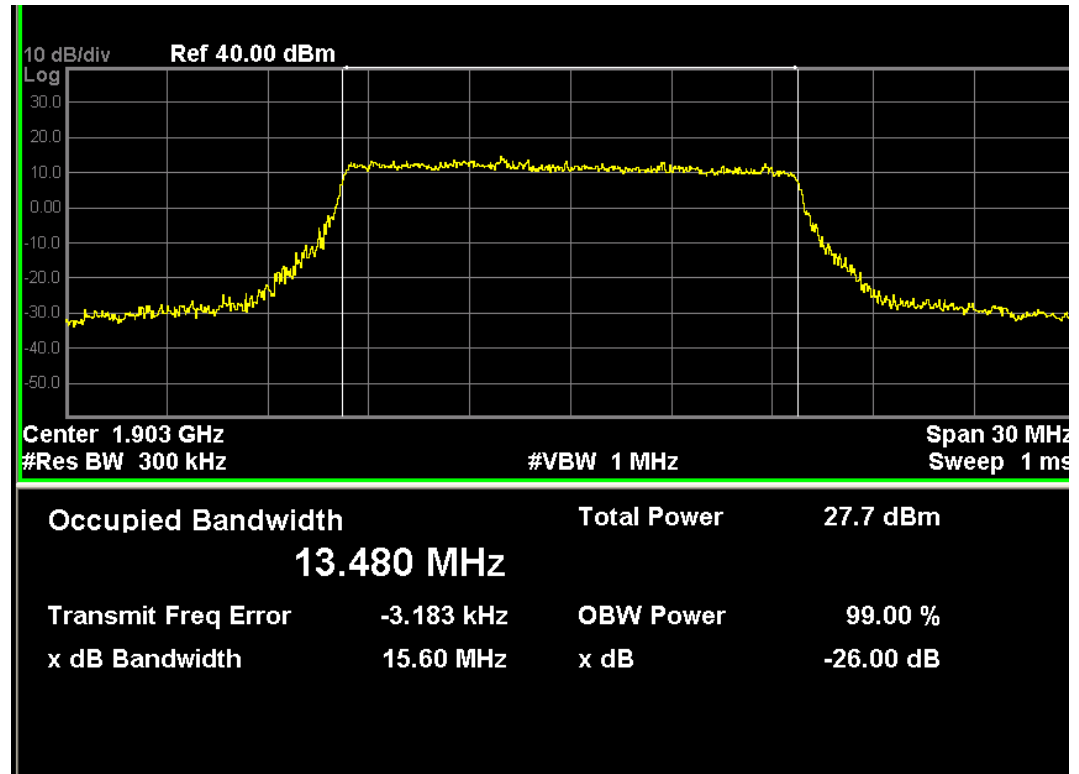
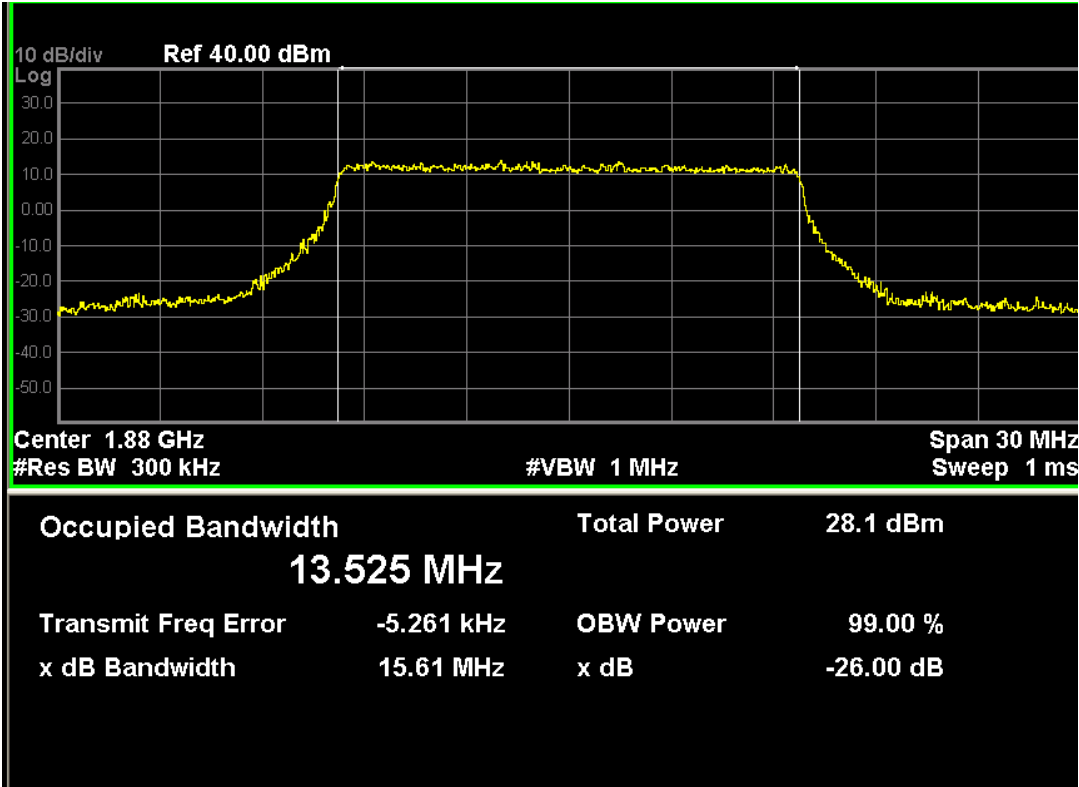




LTE Band 2 (QPSK, Band Width 15MHz,RB Size 75,RB Offset 0)

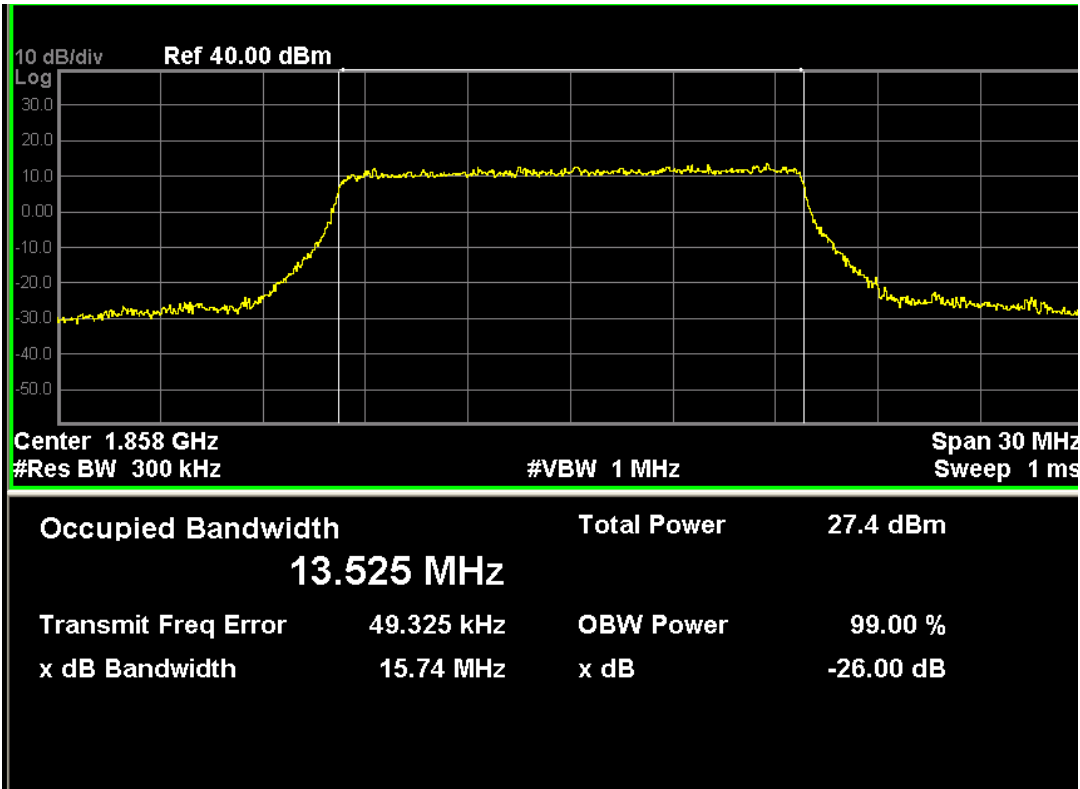
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18675	1857.5	15.66	13.481
18900	1880.0	15.61	13.525
19125	1902.5	15.60	13.480

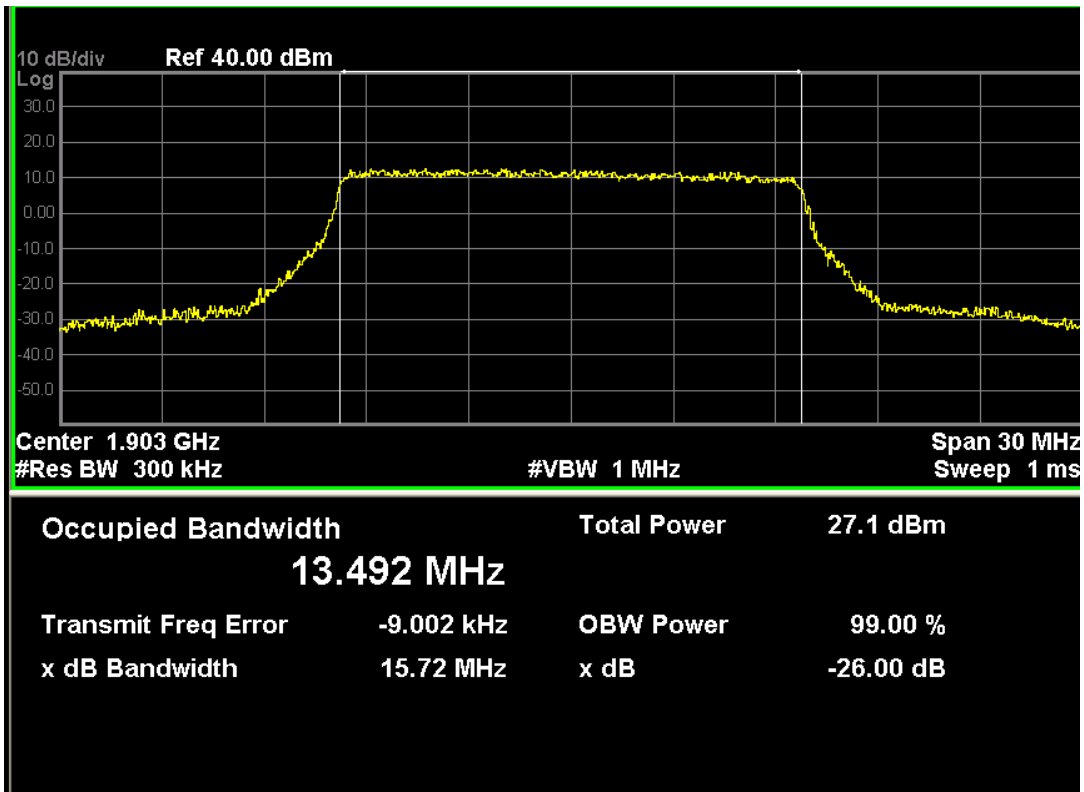
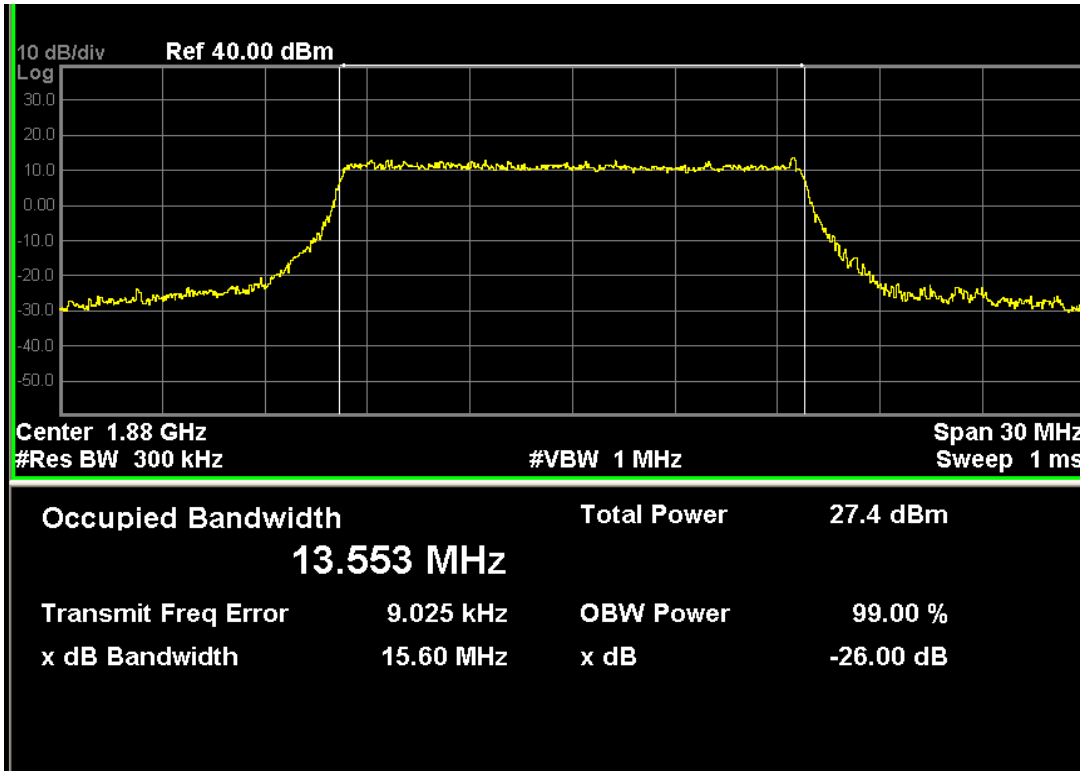




LTE Band 2 (16-QAM, Band Width 15MHz,RB Size 75,RB Offset 0)

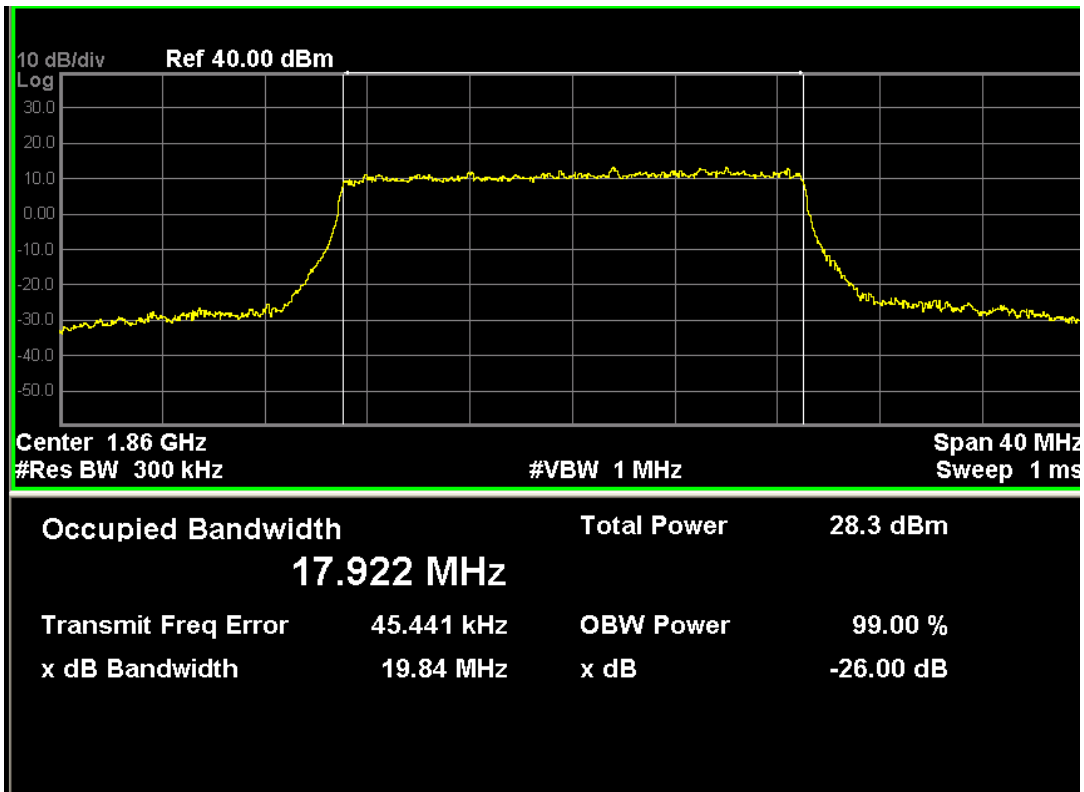
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18675	1857.5	15.74	13.525
18900	1880.0	15.60	13.553
19125	1902.5	15.72	13.192

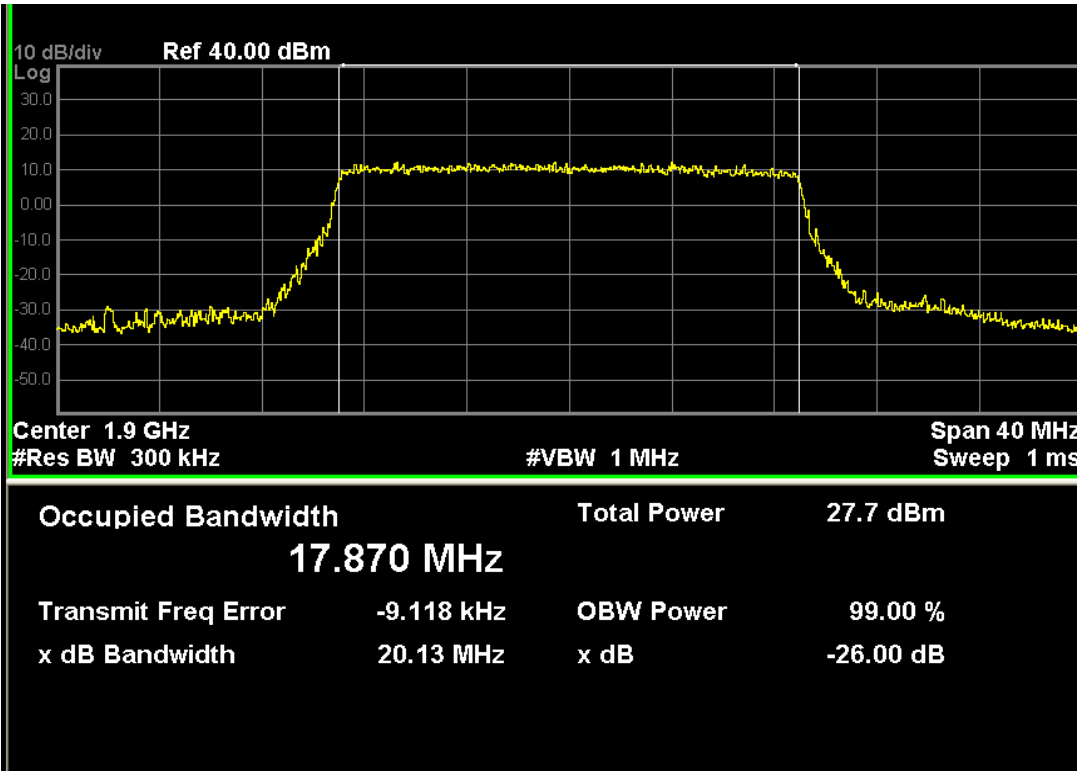
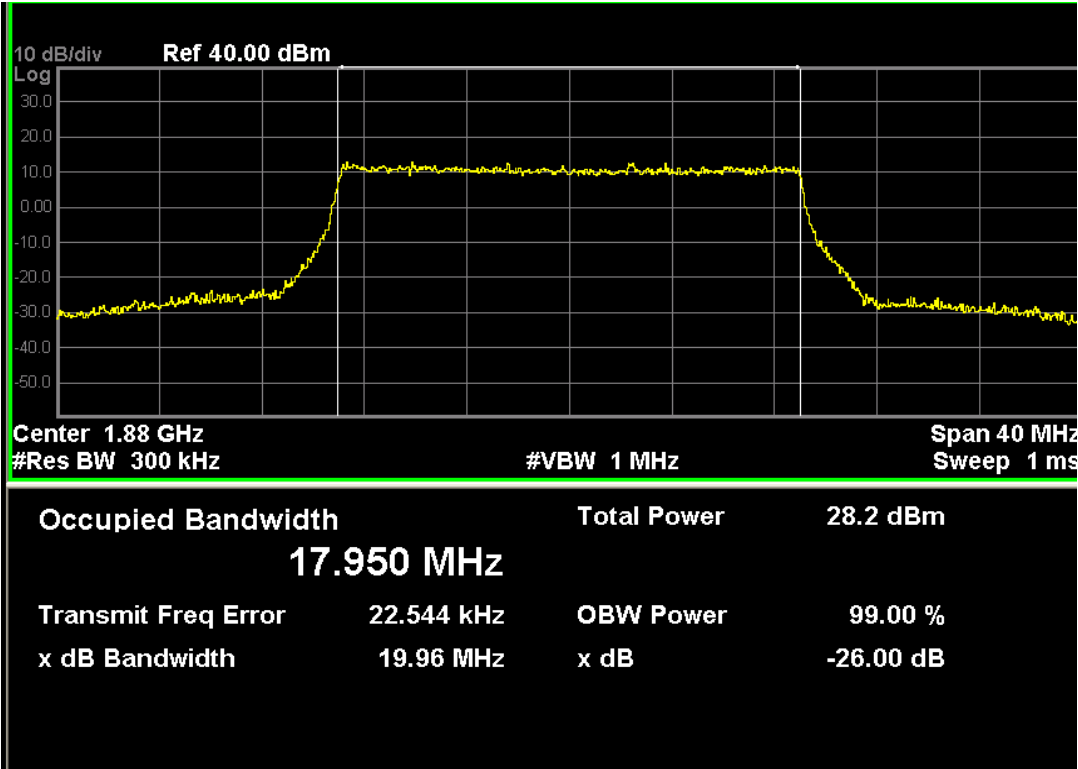




LTE Band 2 (QPSK, Band Width 20MHz,RB Size 100,RB Offset 0)

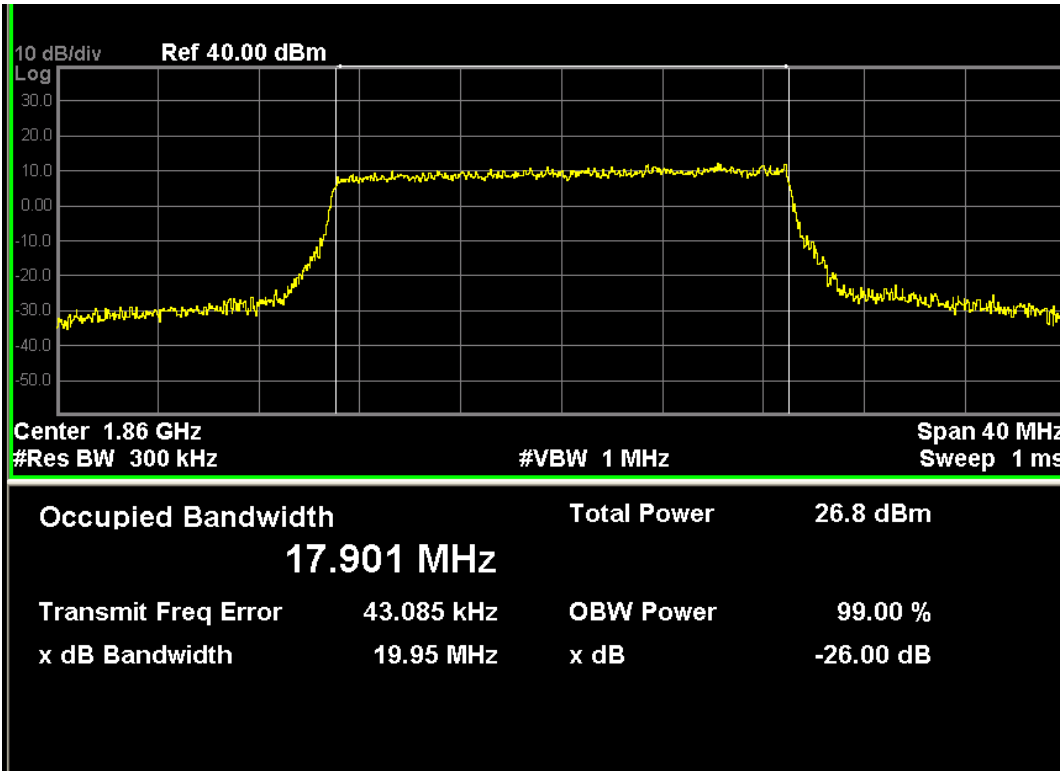
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18700	1860.0	19.84	17.922
18900	1880.0	19.96	17.950
19100	1900.0	20.13	17.870

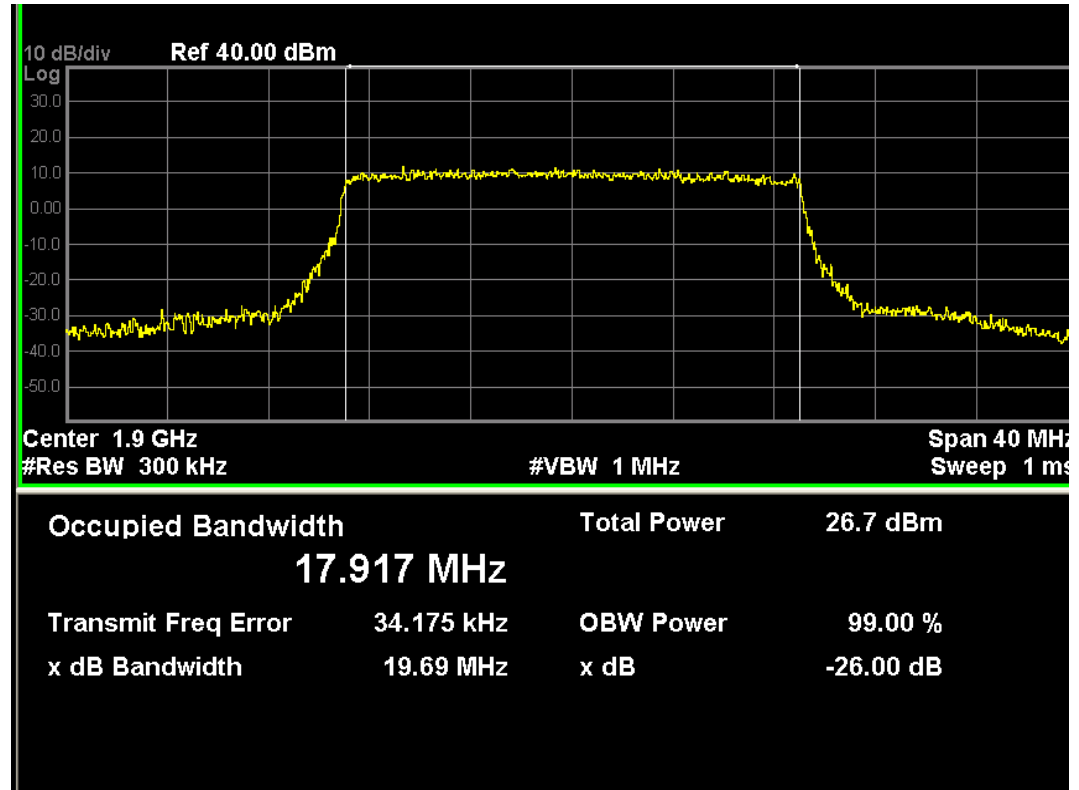
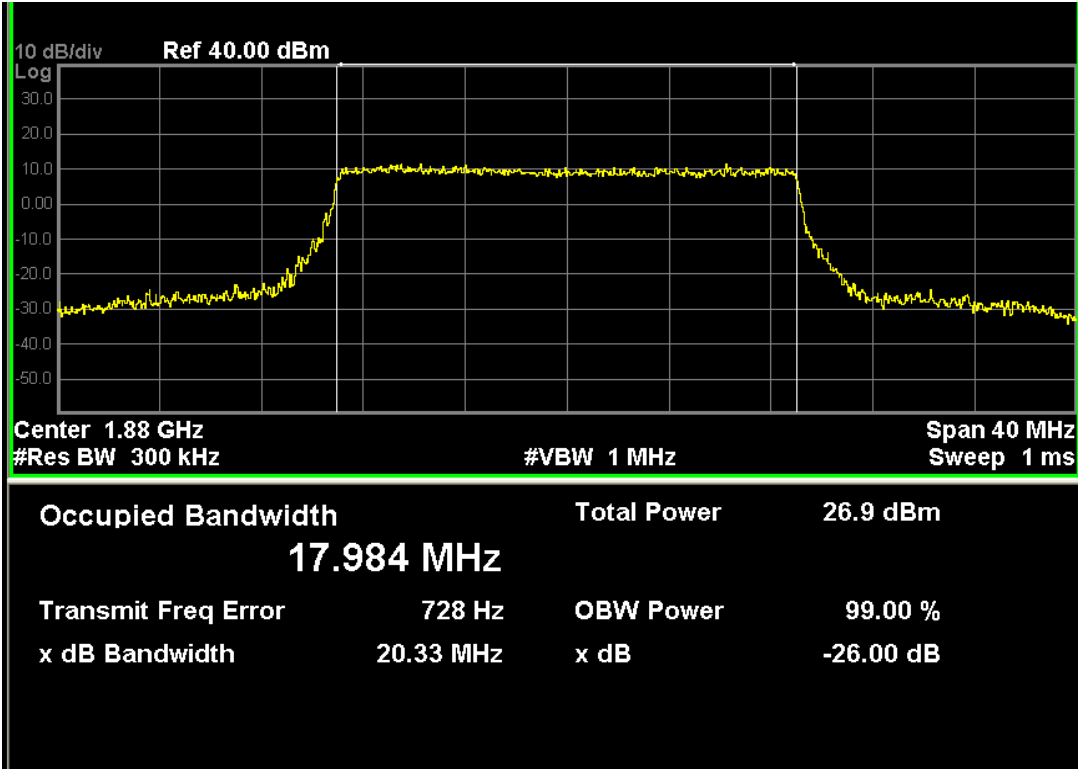




LTE Band 2 (16-QAM, Band Width 20MHz,RB Size 100,RB Offset 0)

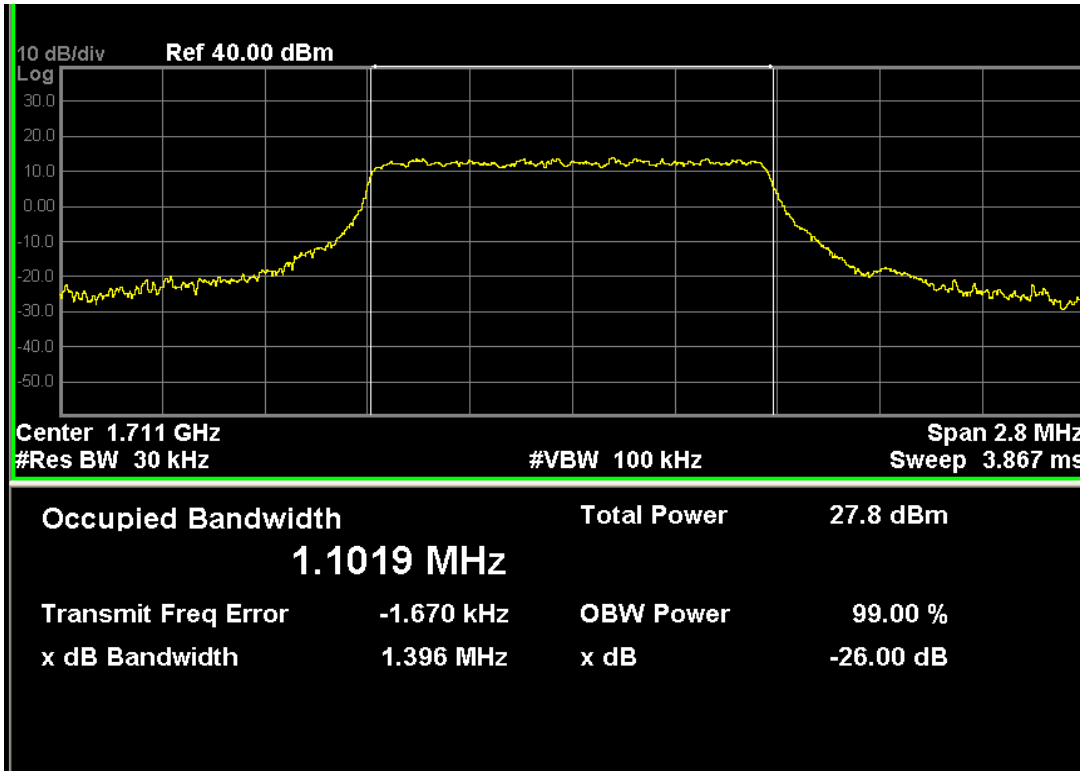
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
18700	1860.0	19.95	17.901
18900	1880.0	20.33	17.984
19100	1900.0	19.69	17.917

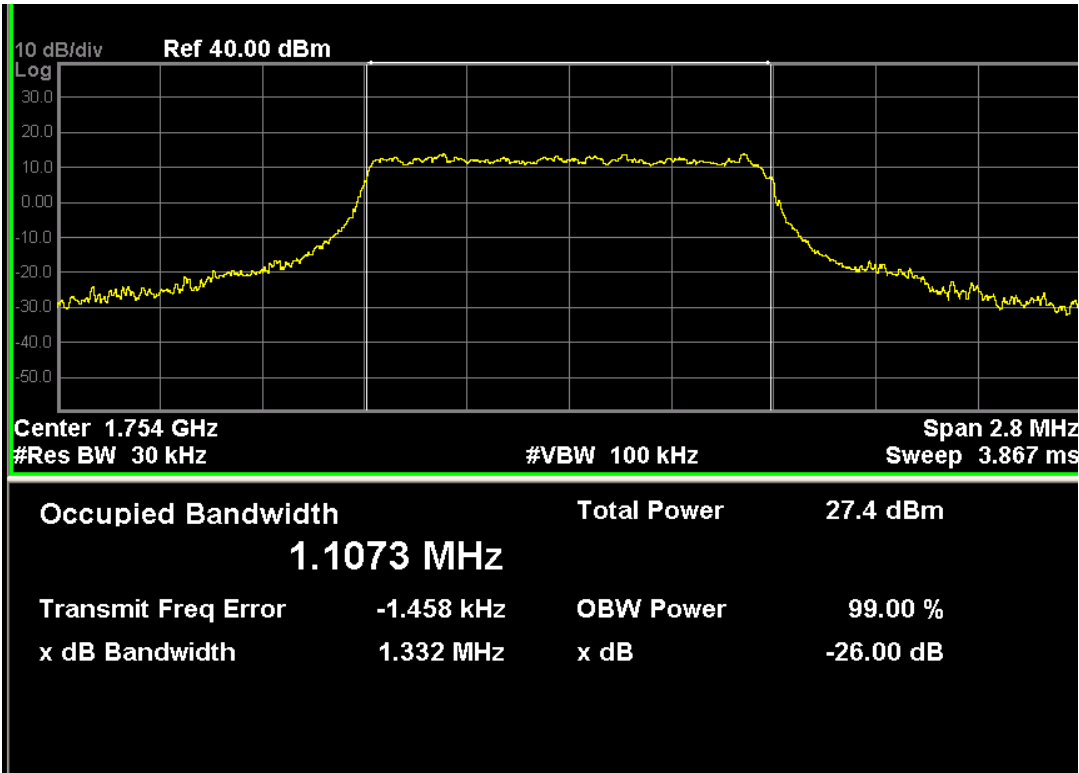
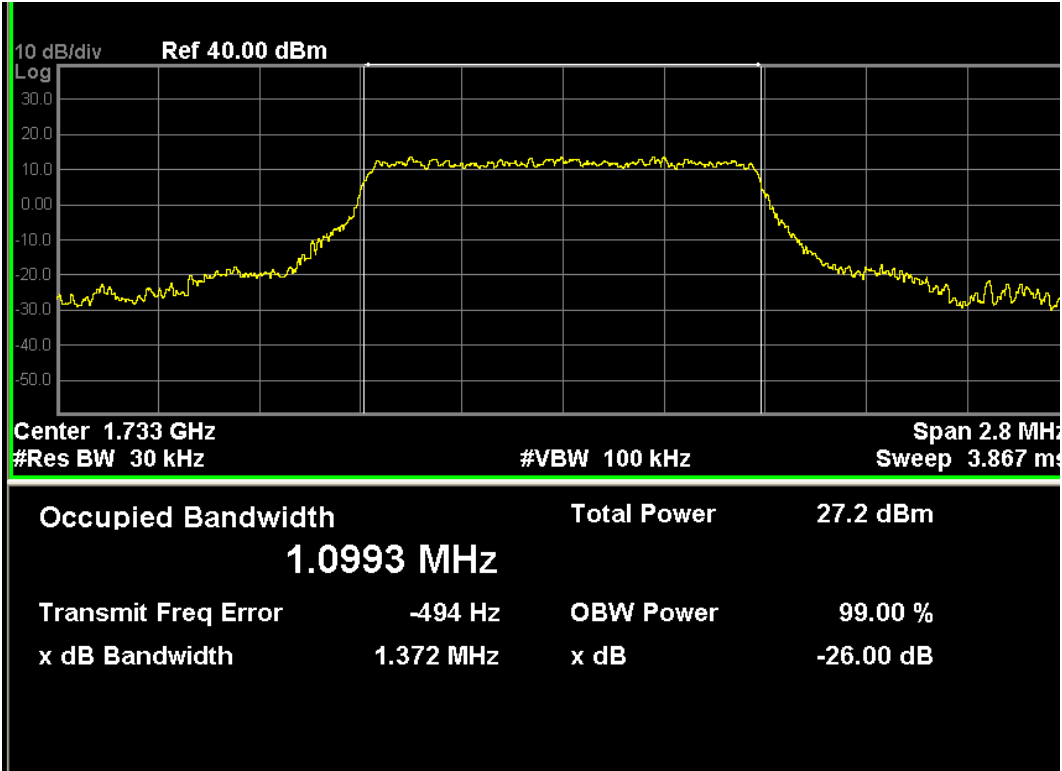




LTE Band 4 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)

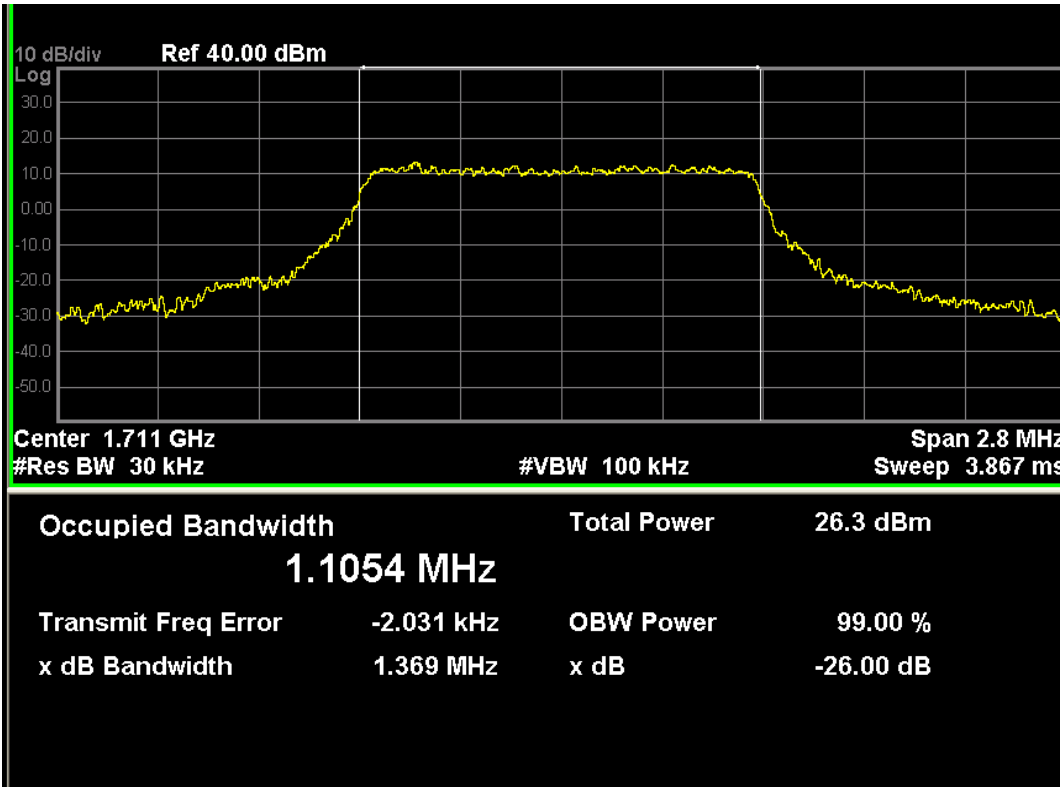
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19957	1710.7	1.396	1.1019
20175	1732.5	1.372	1.0993
20393	1754.3	1.332	1.1073

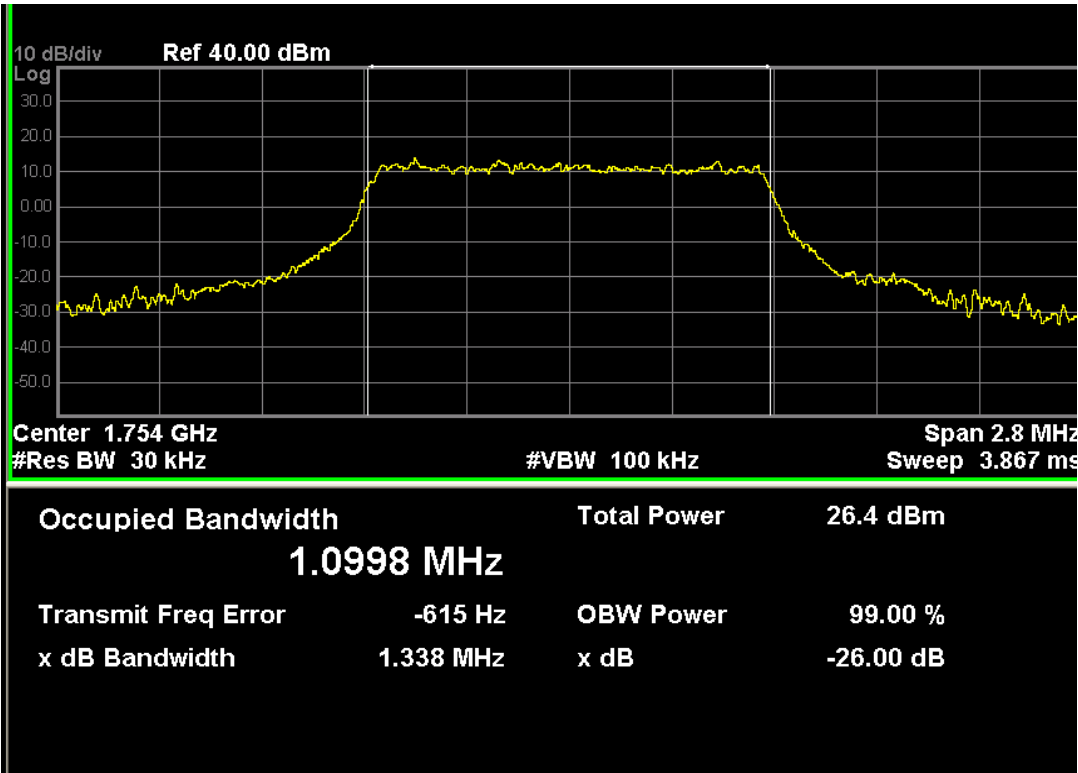
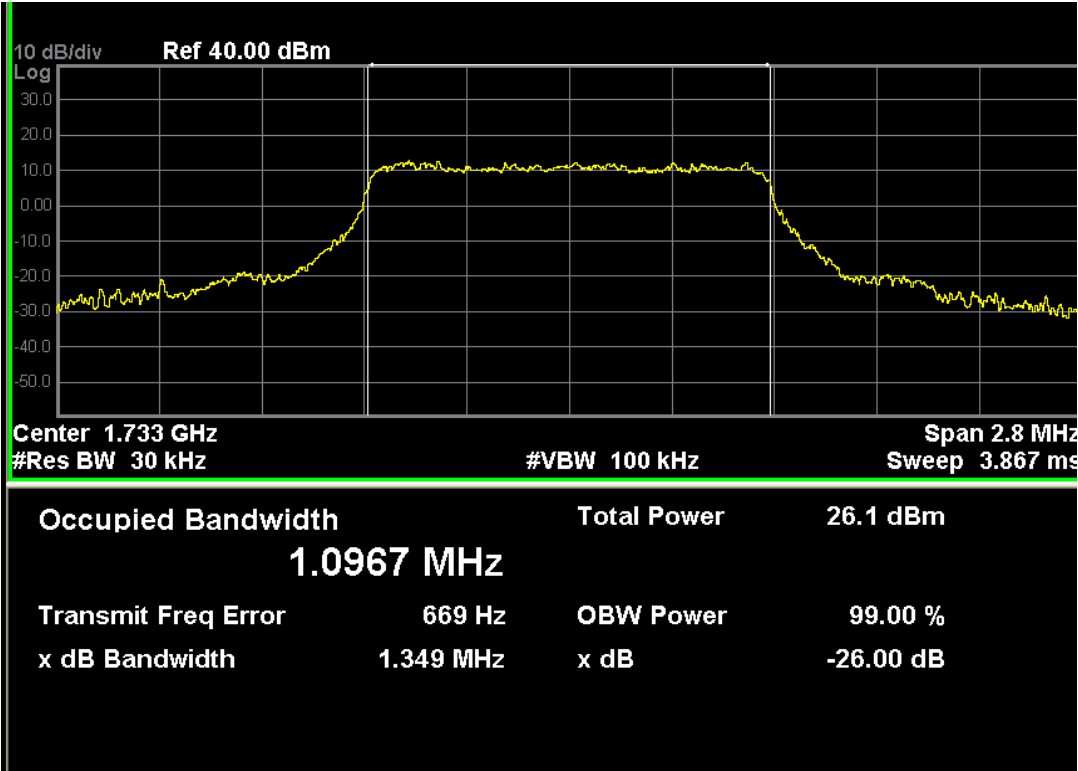




LTE Band 4 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)

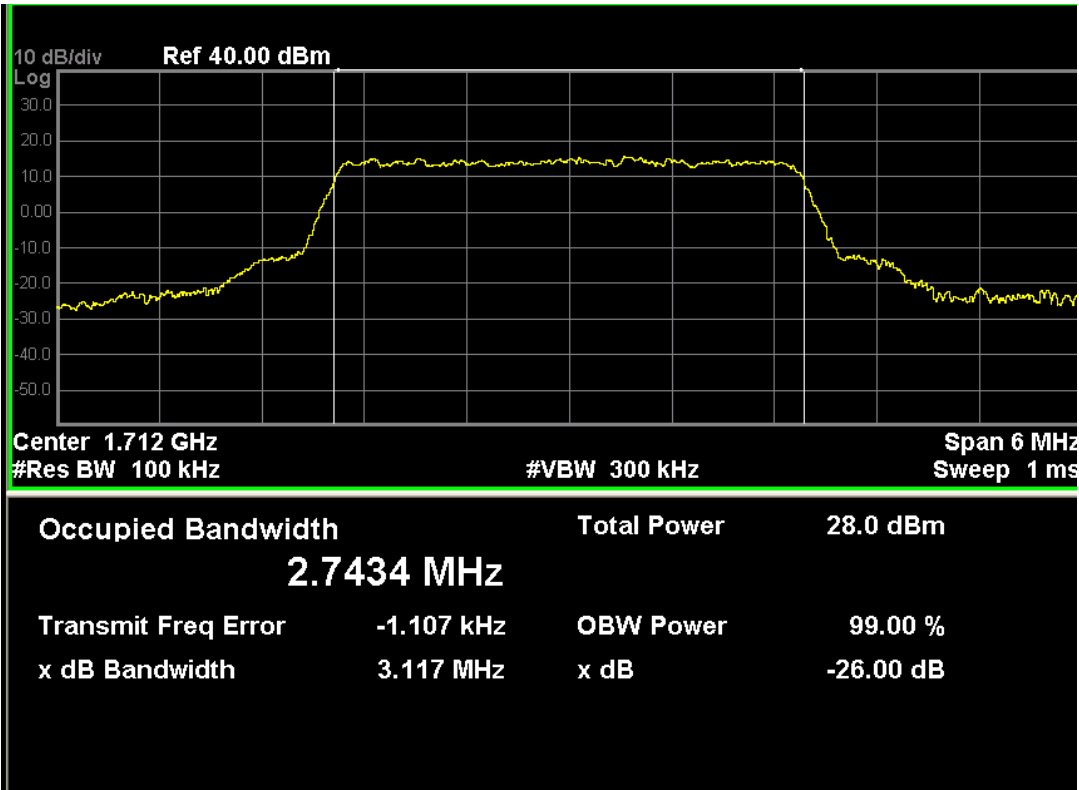
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19957	1710.7	1.369	1.1054
20175	1732.5	1.349	1.0967
20393	1754.3	1.338	1.0998

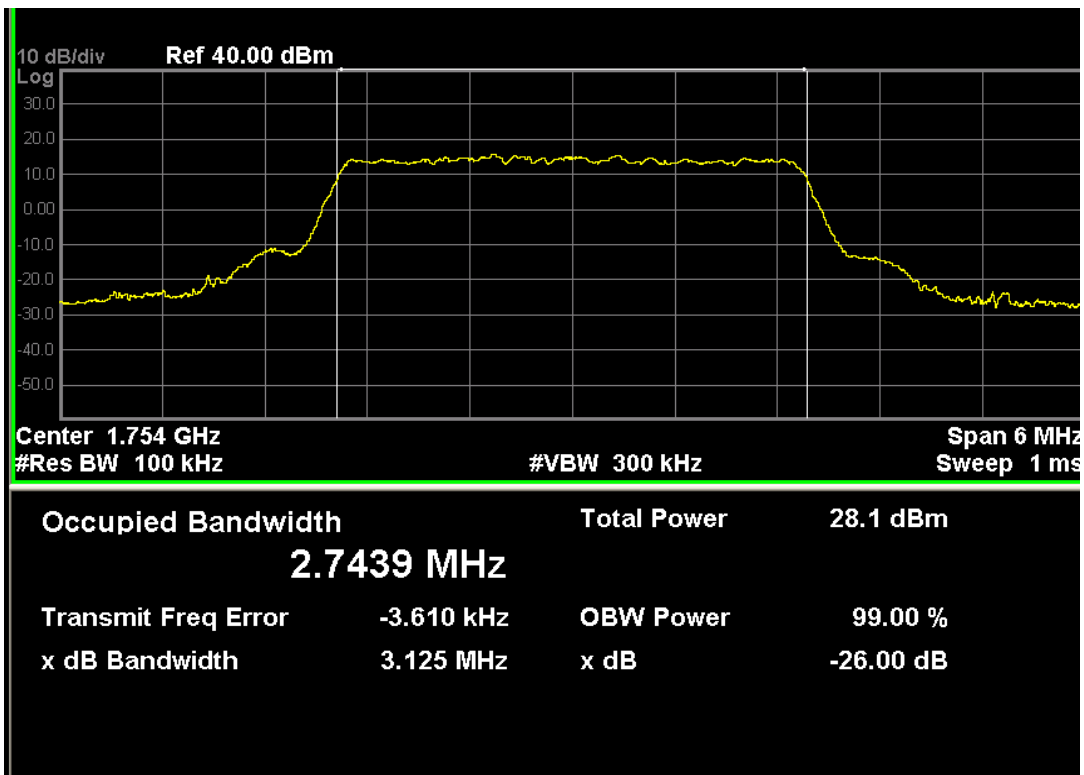
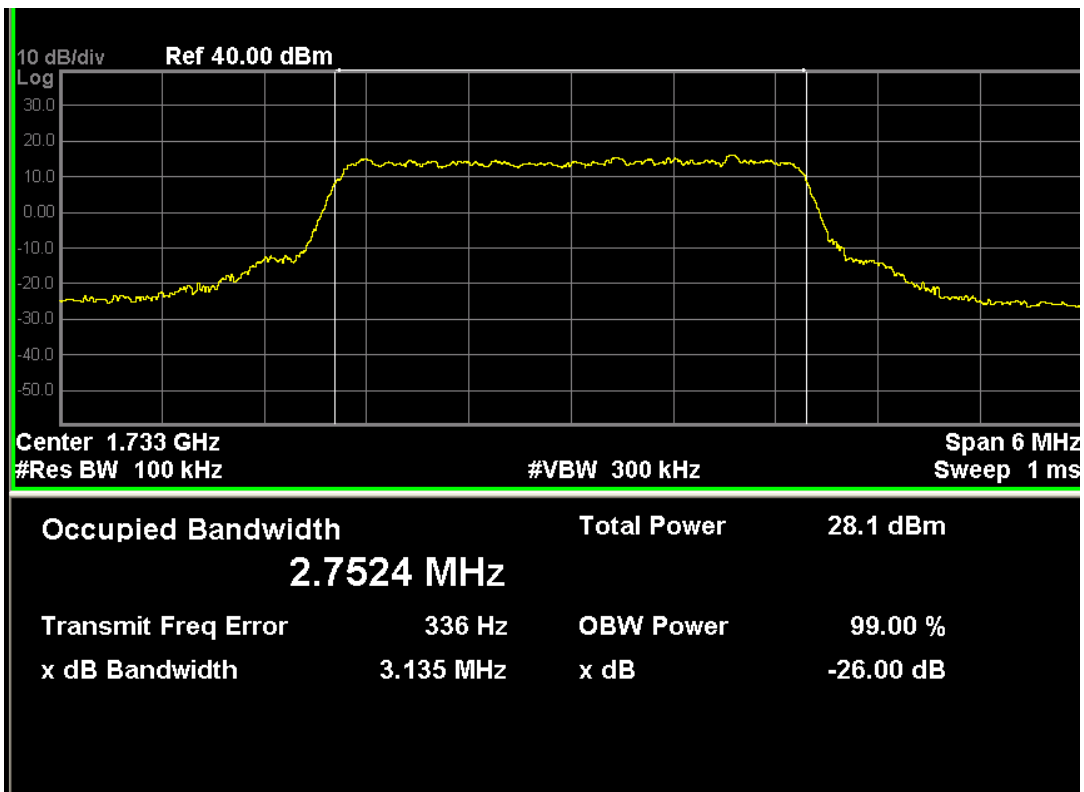




LTE Band 4 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)

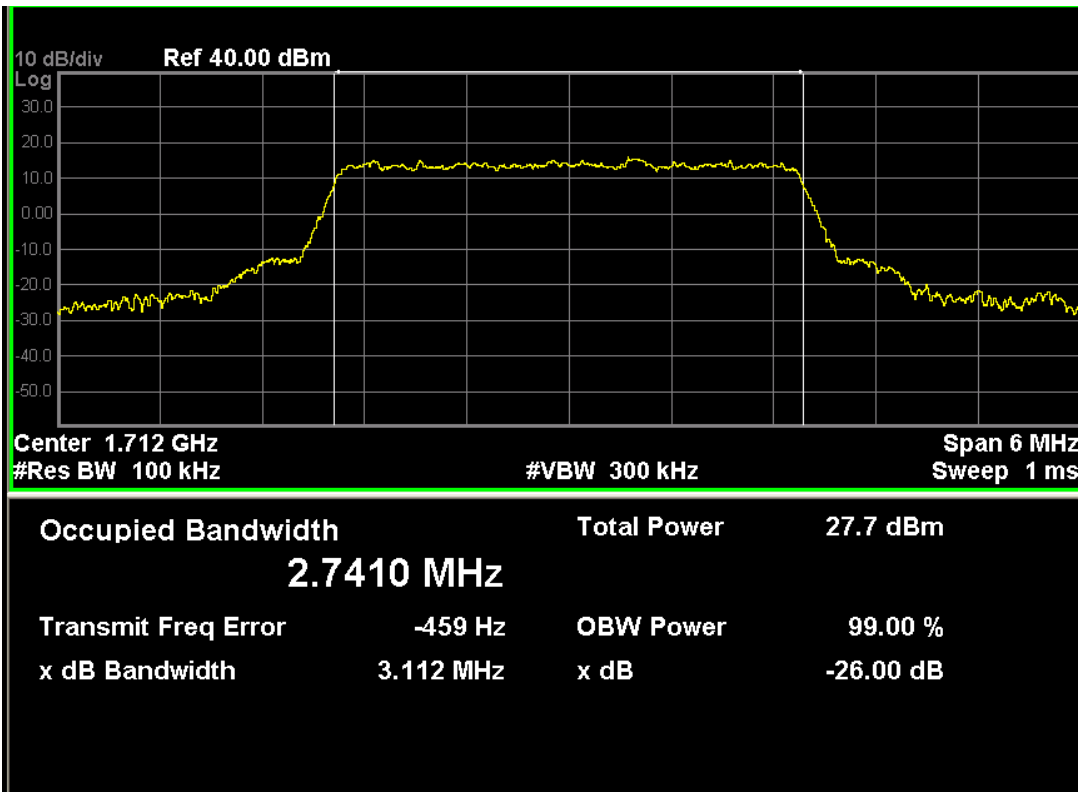
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19965	1711.5	3.117	2.7434
20175	1732.5	3.135	2.7524
20385	1753.5	3.125	2.7439

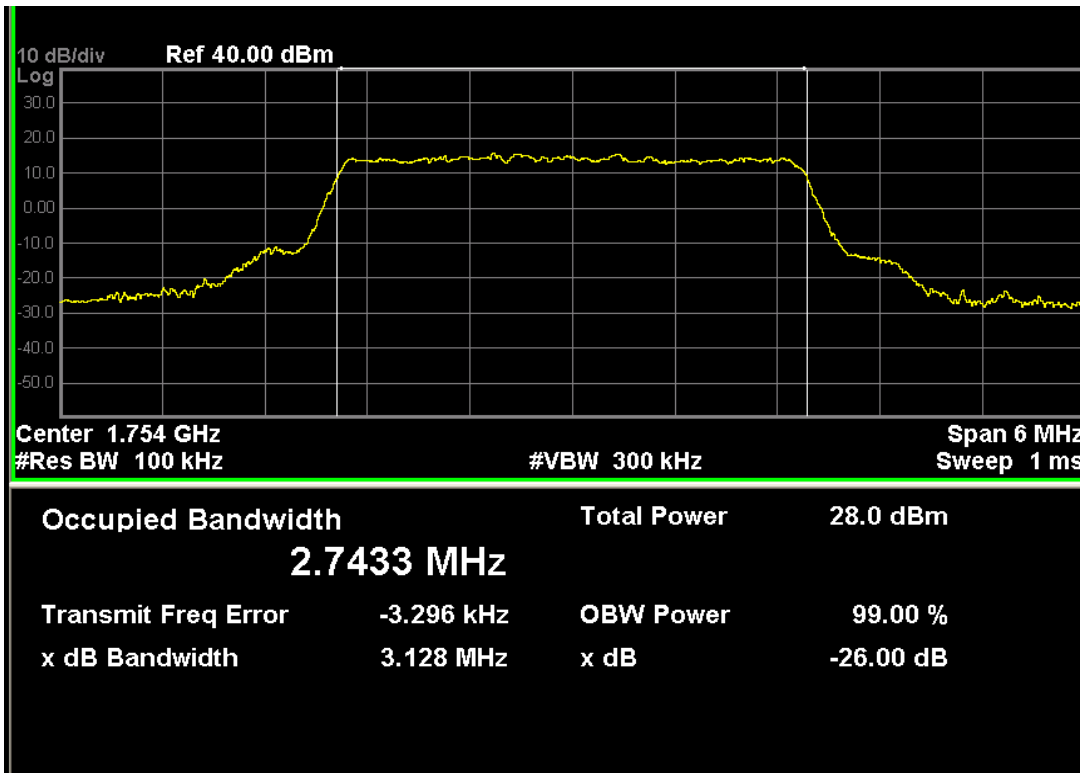
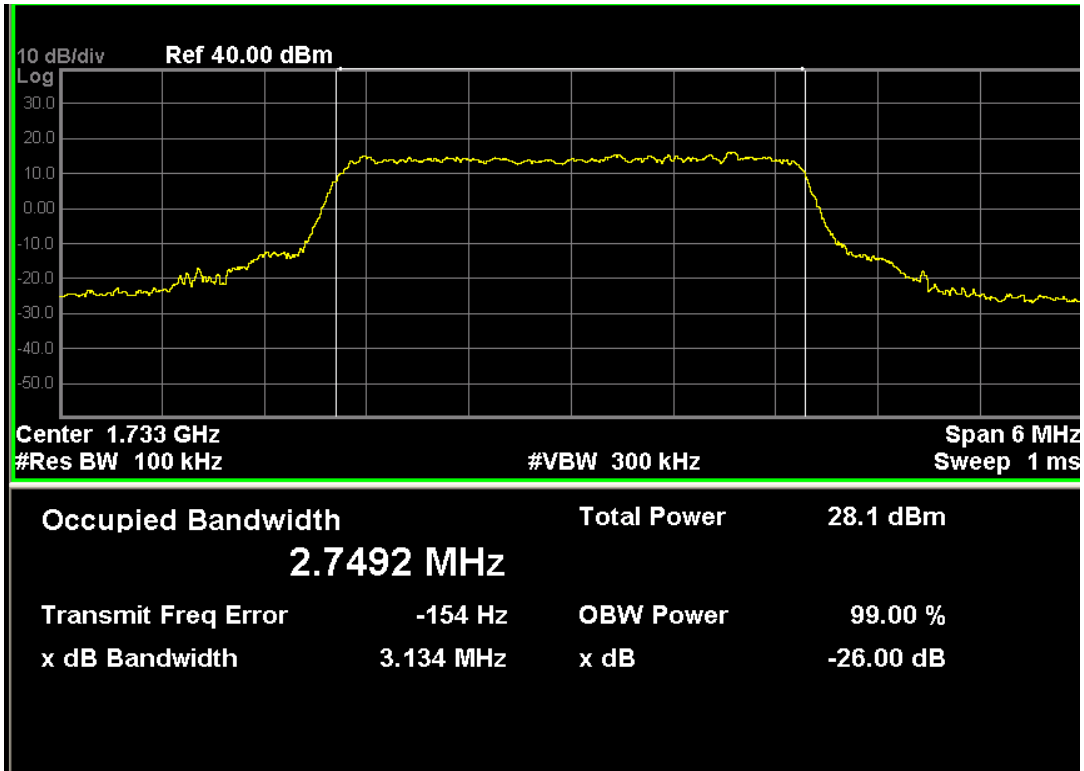




LTE Band 4 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)

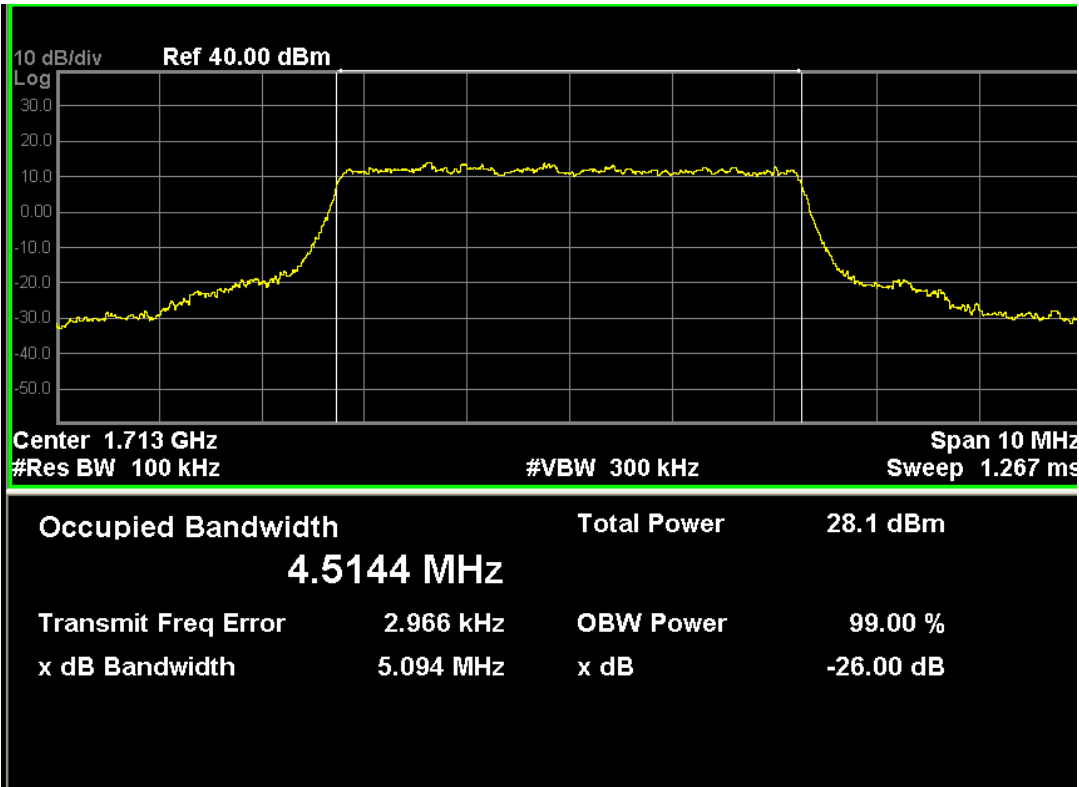
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19965	1711.5	3.112	2.7410
20175	1732.5	3.134	2.7492
20385	1753.5	3.128	2.7433

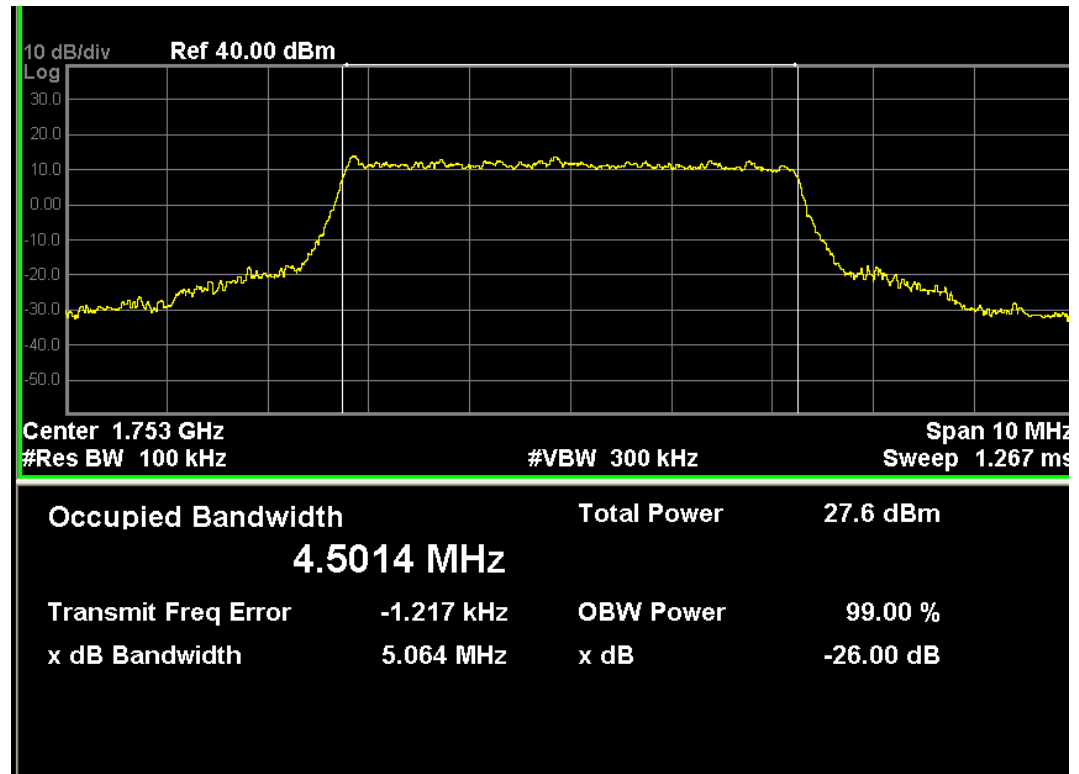
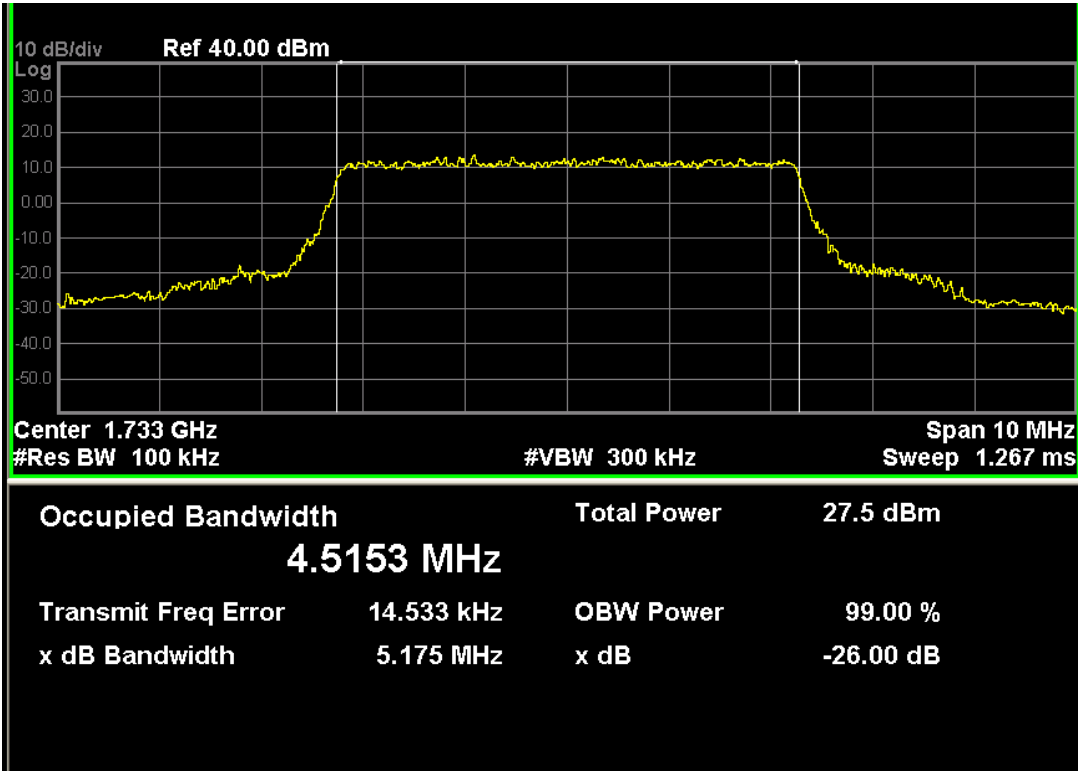




LTE Band 4 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)

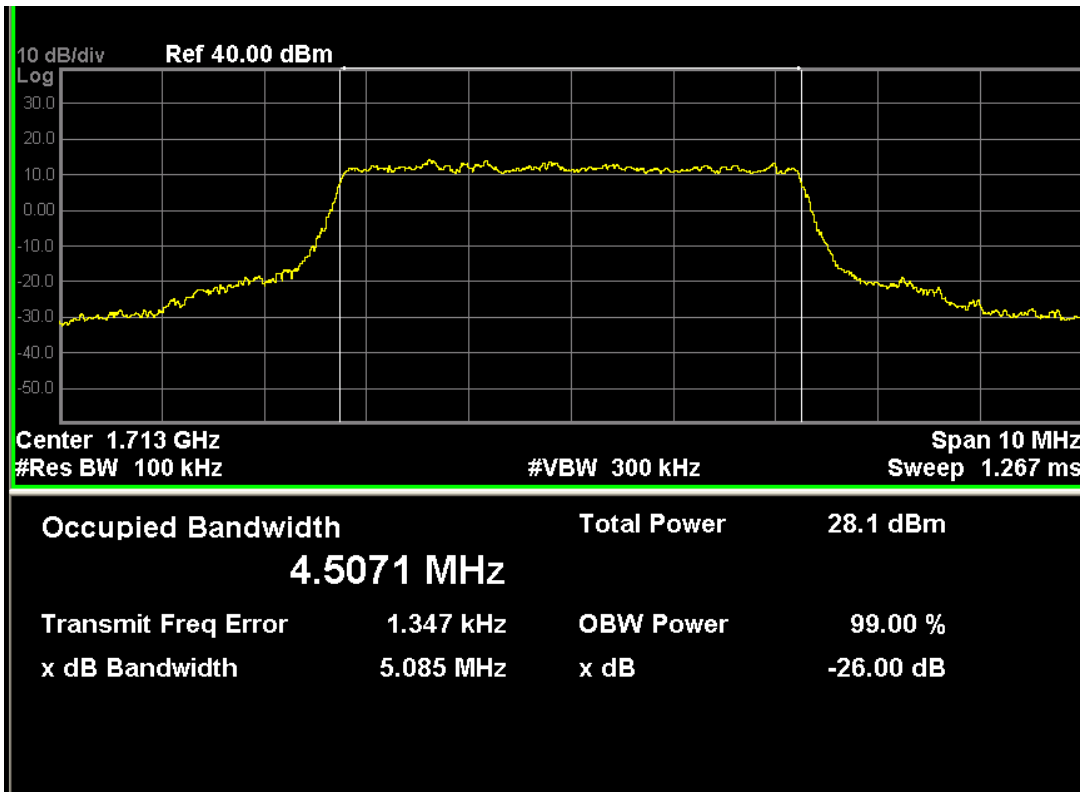
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19975	1712.5	5.094	4.5144
20175	1732.5	5.175	4.5153
20375	1752.5	5.064	4.5014

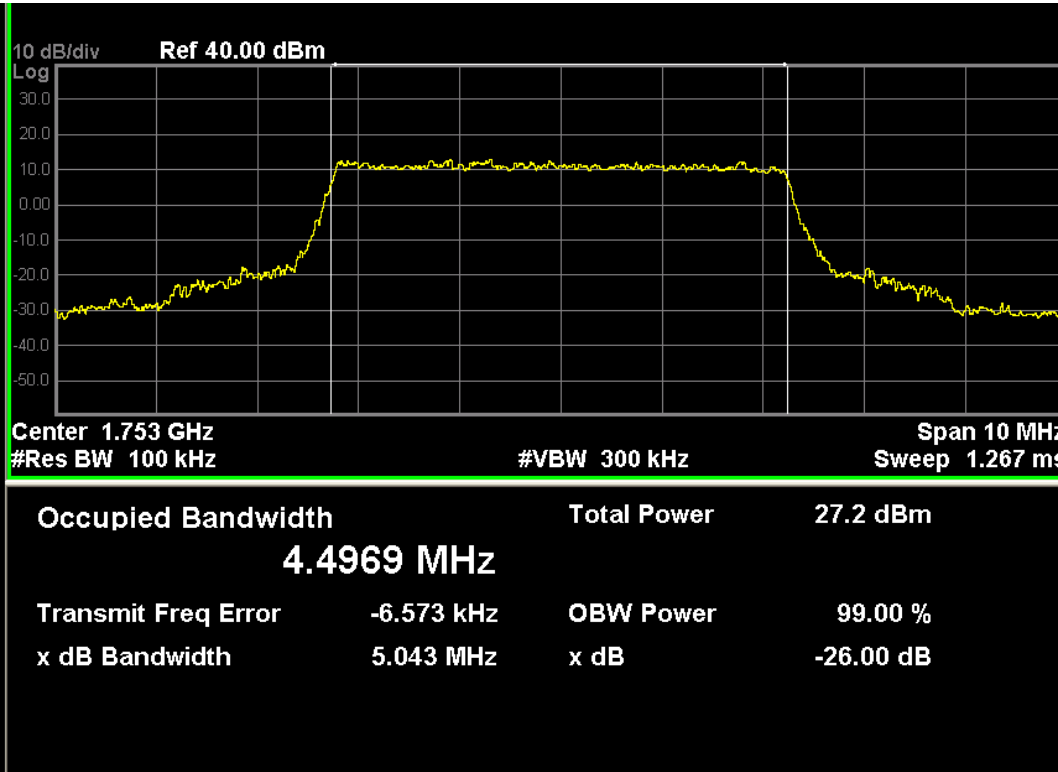
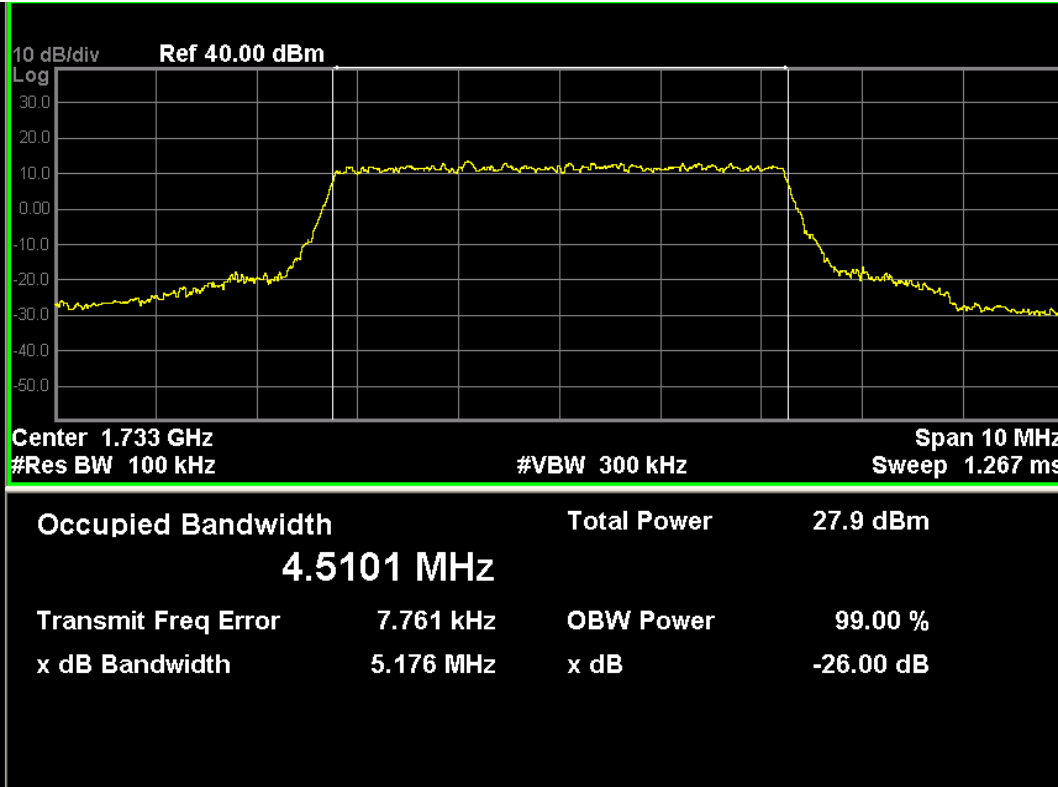




LTE Band 4 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)

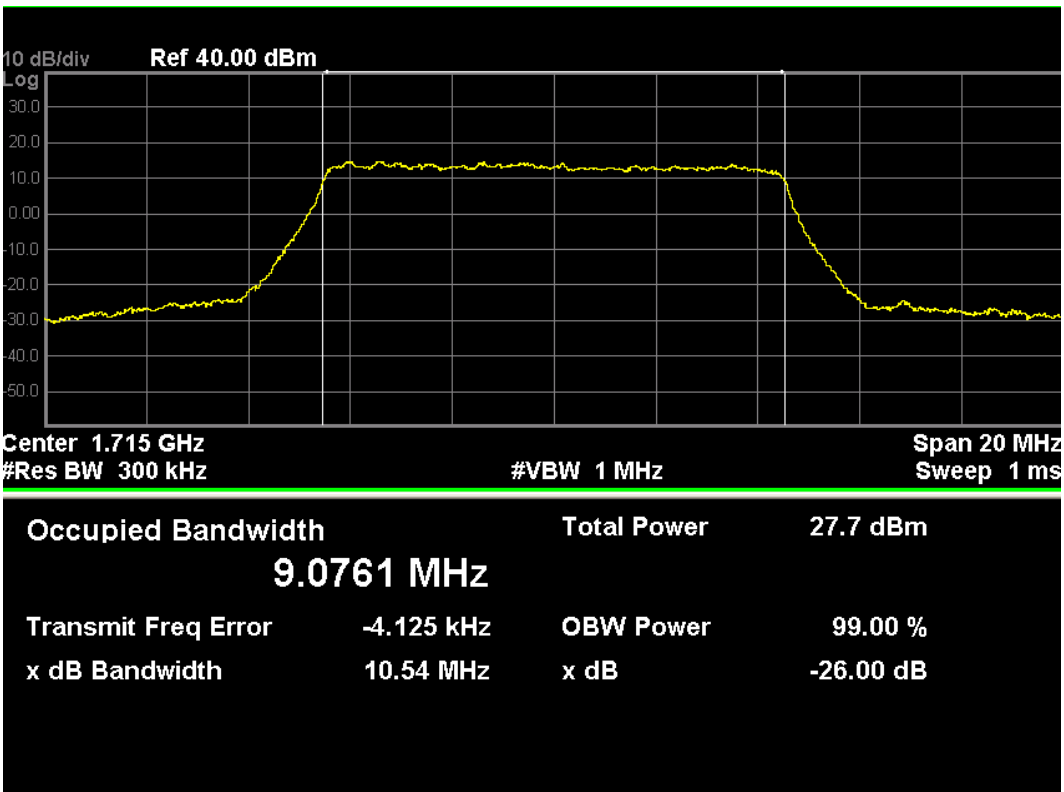
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
19975	1712.5	5.085	4.5071
20175	1732.5	5.176	4.5101
20375	1752.5	5.043	4.4969

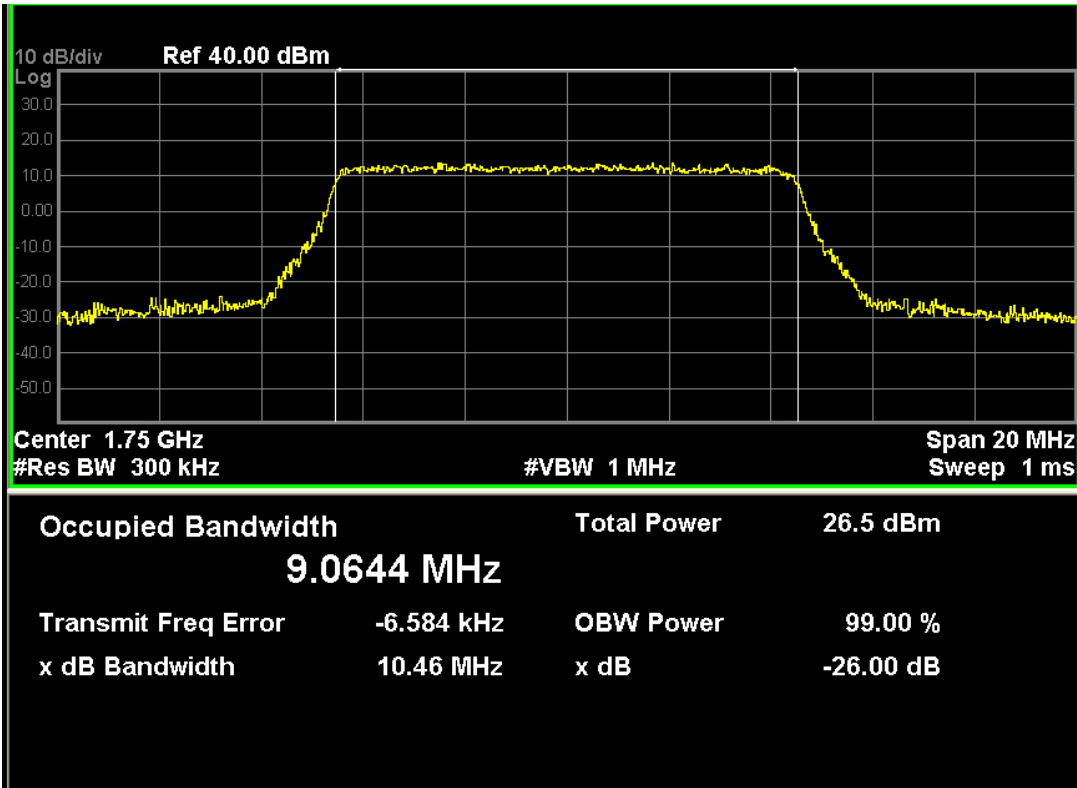
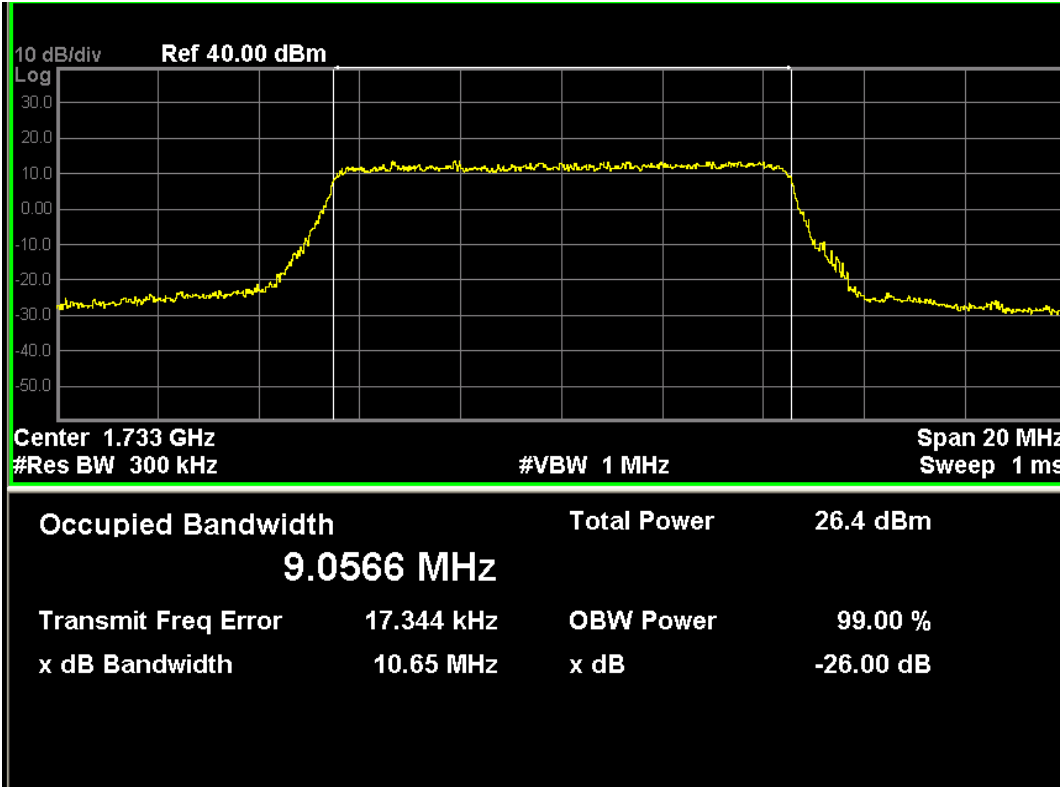




LTE Band 4 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)

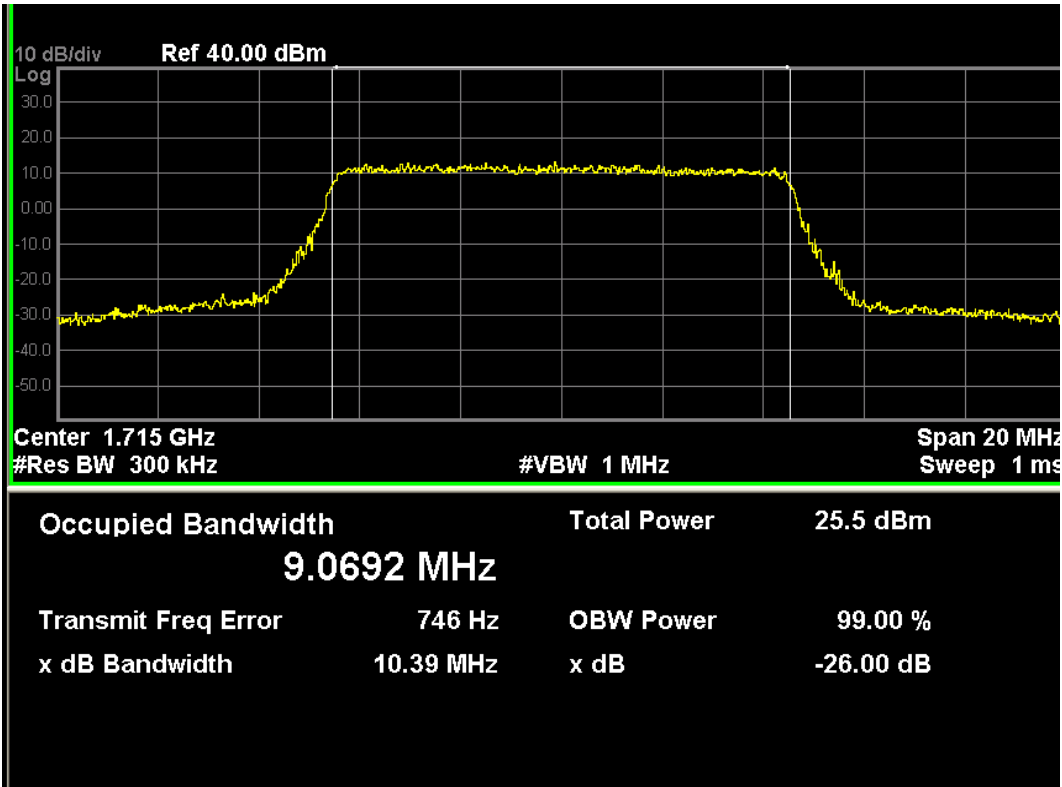
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20000	1715.0	10.54	9.0761
20175	1732.5	10.65	9.0566
20350	1750.0	10.46	9.0644

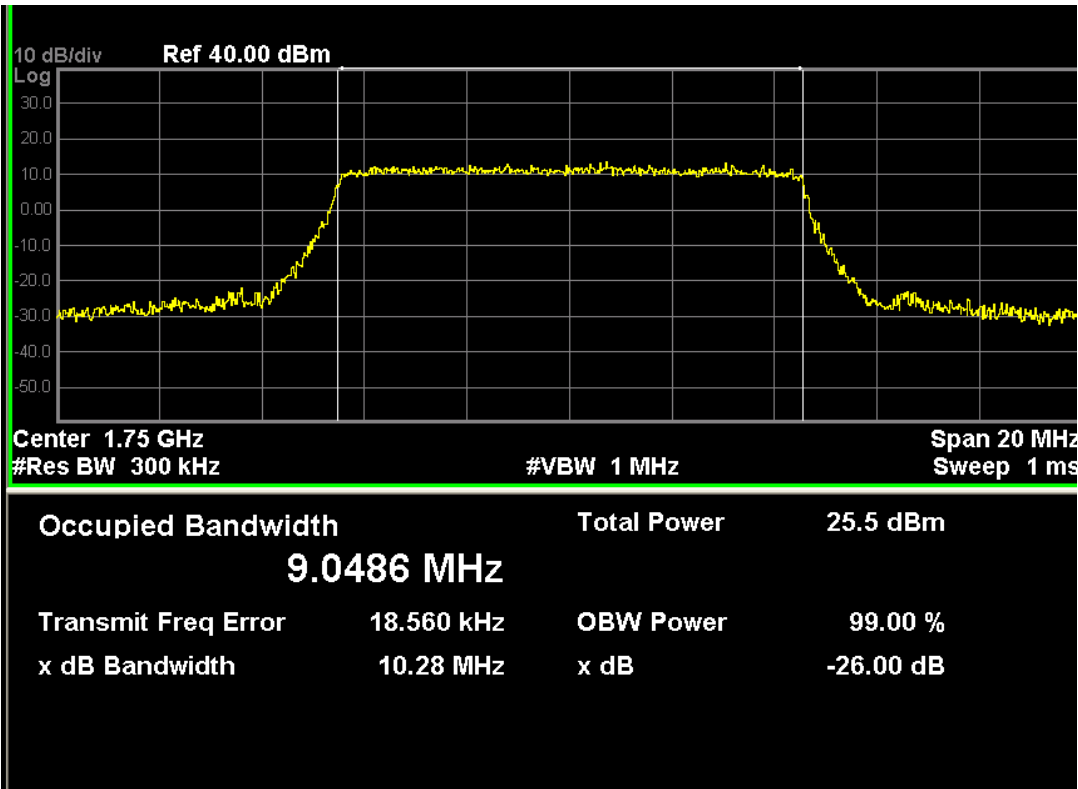
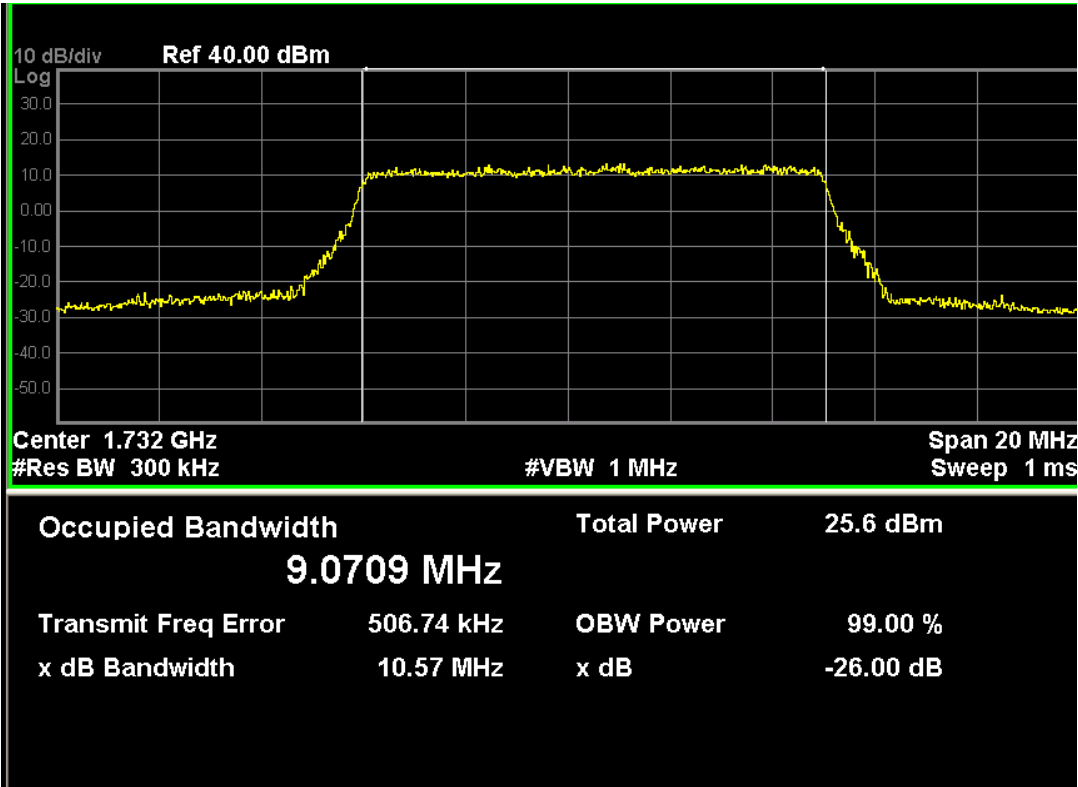




LTE Band 4 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)

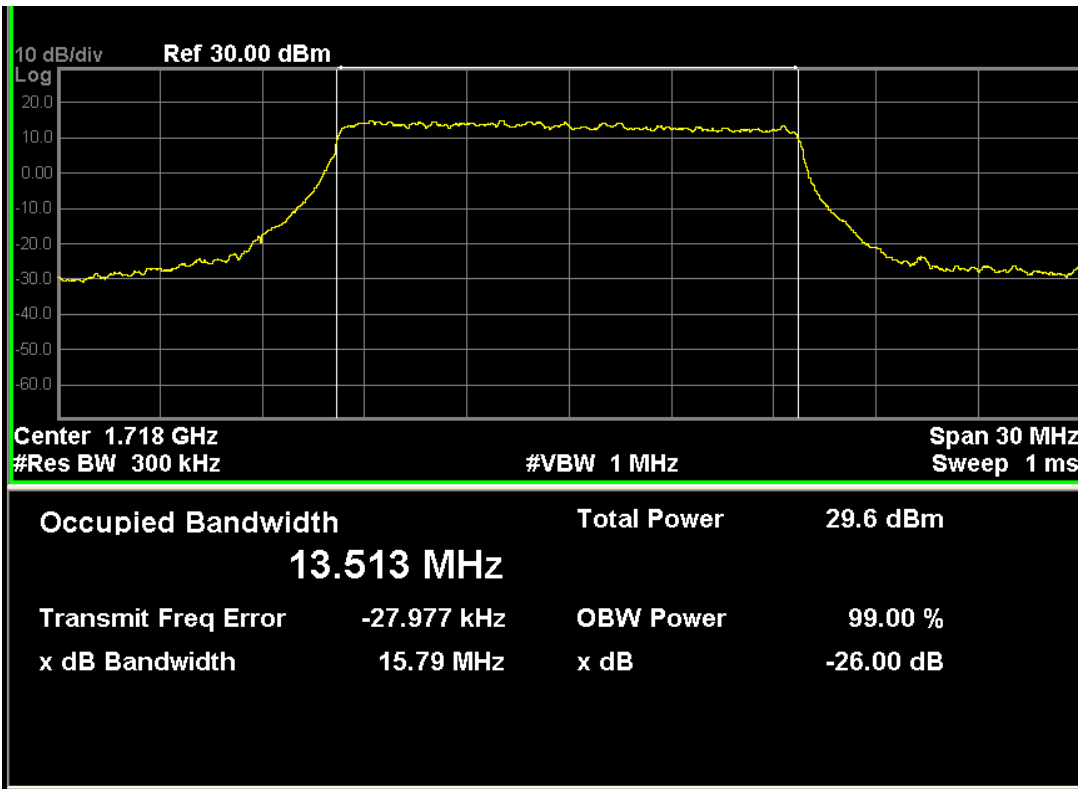
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20000	1715.0	10.39	9.0692
20175	1732.5	10.57	9.0709
20350	1750.0	10.28	9.0486

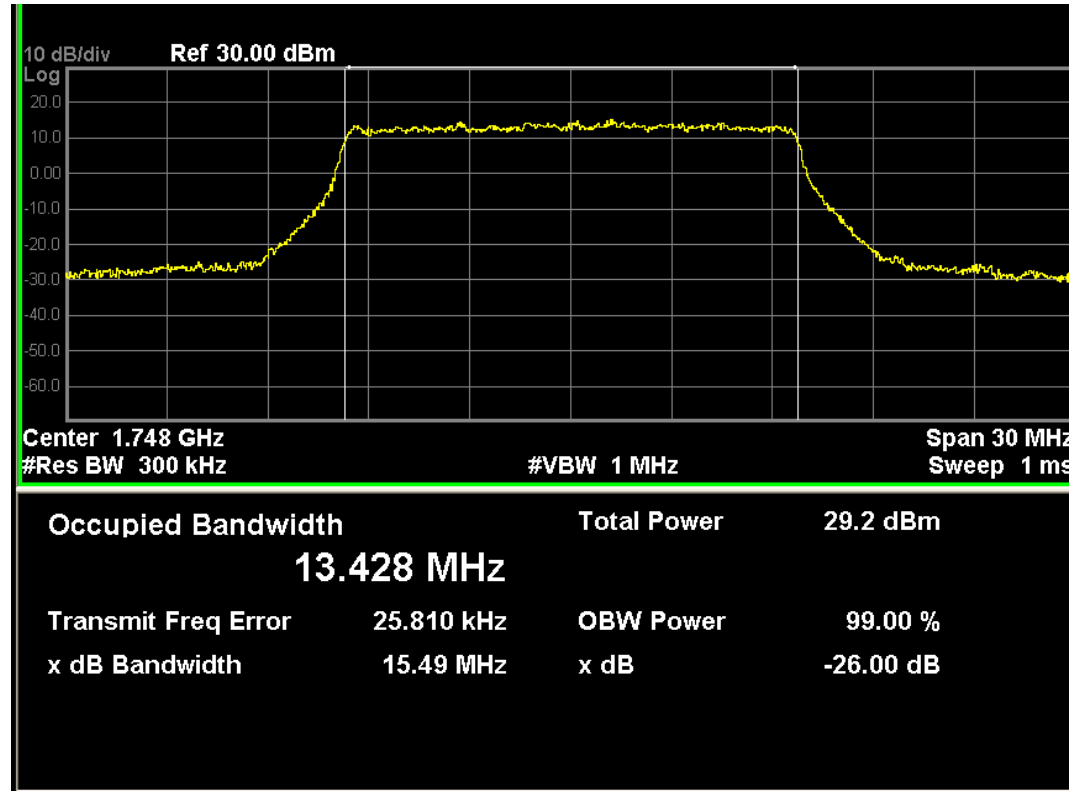
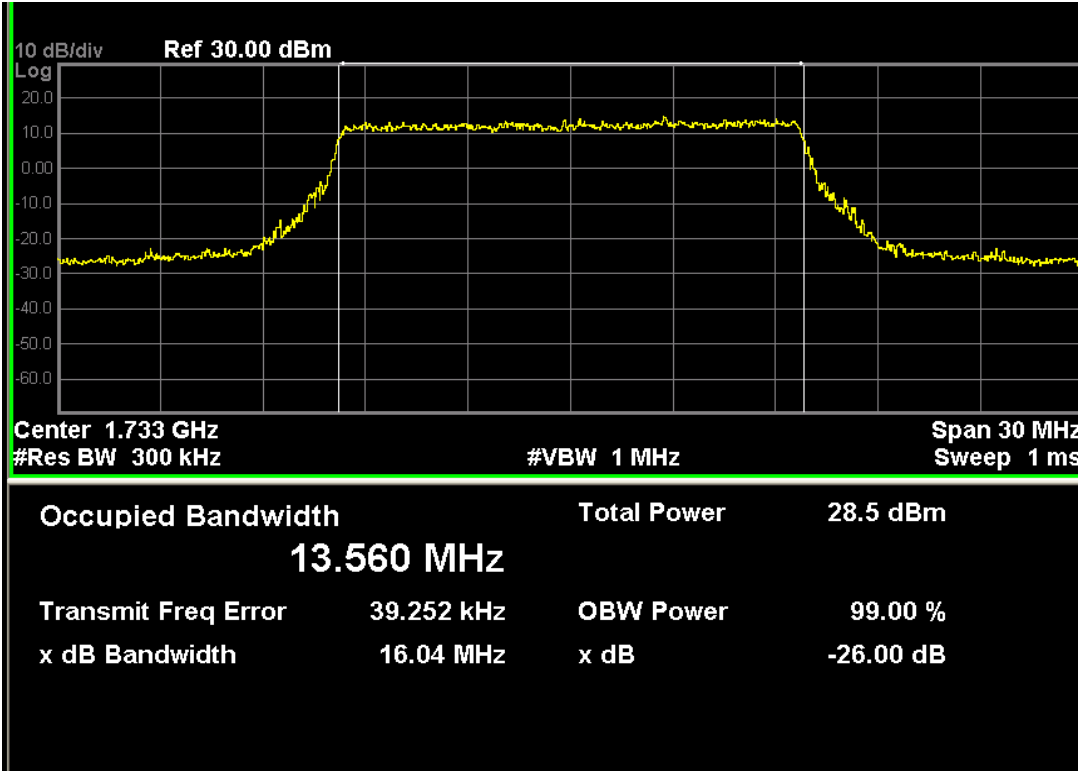




LTE Band 4 (QPSK, Band Width 15MHz,RB Size 75,RB Offset 0)

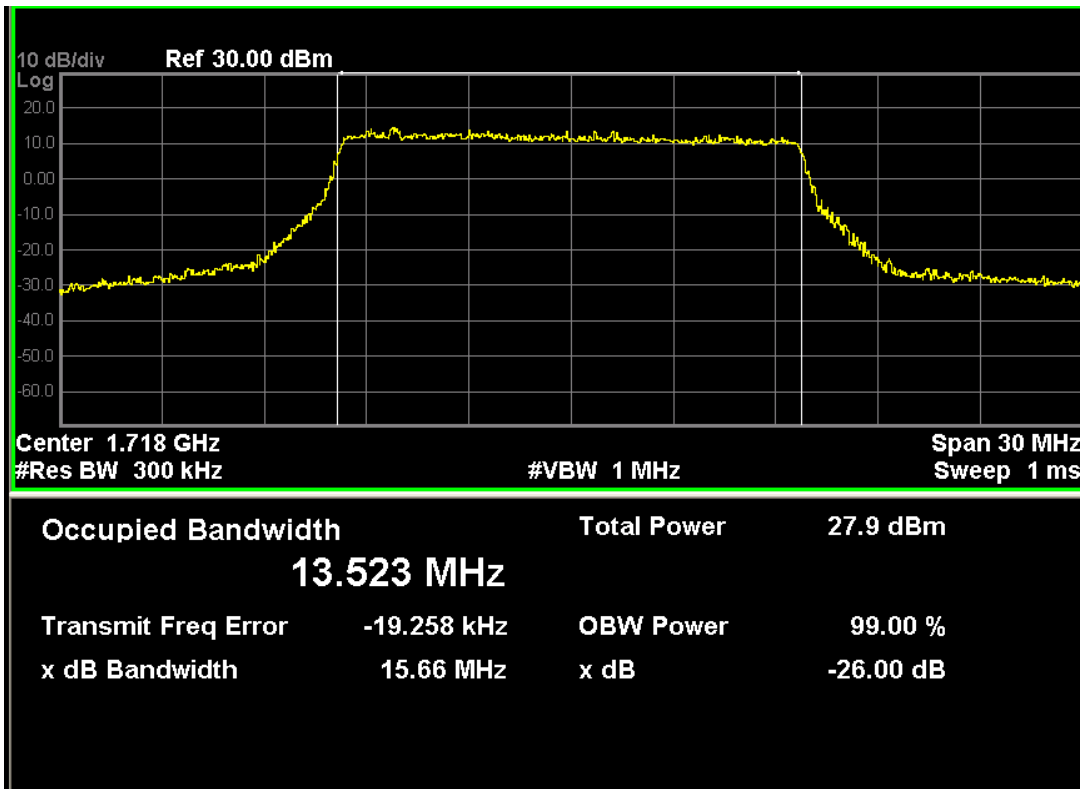
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20025	1717.5	15.79	13.513
20175	1732.5	16.04	13.560
20325	1747.5	15.49	13.428

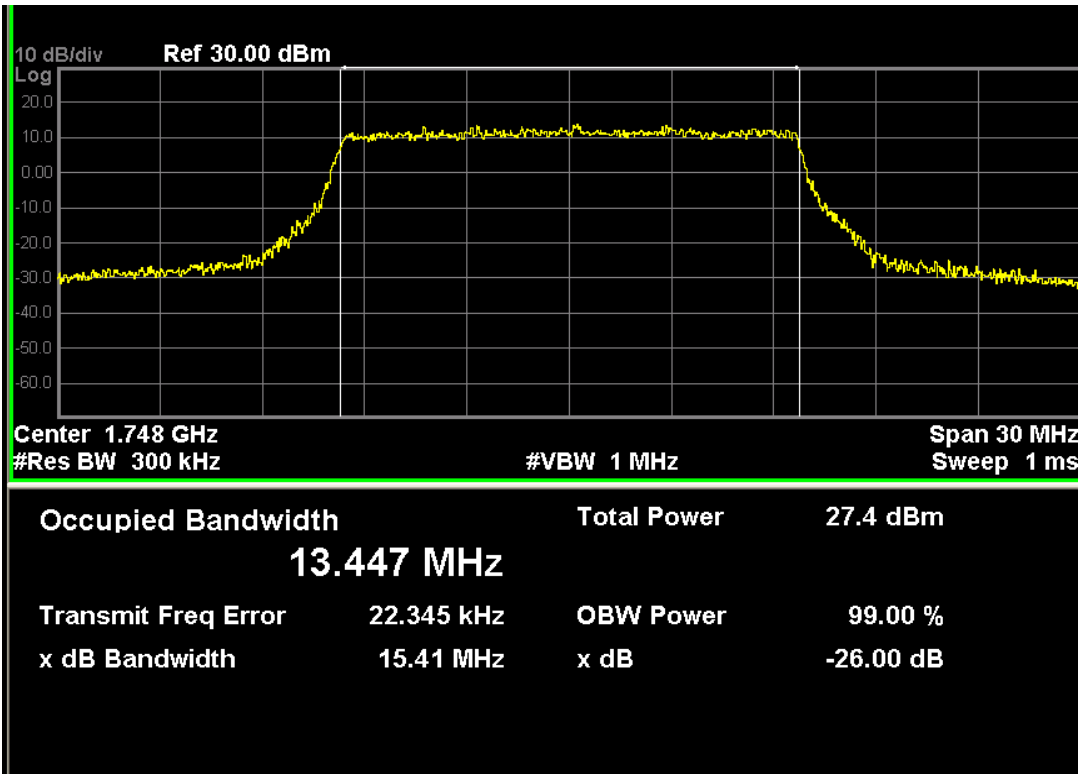
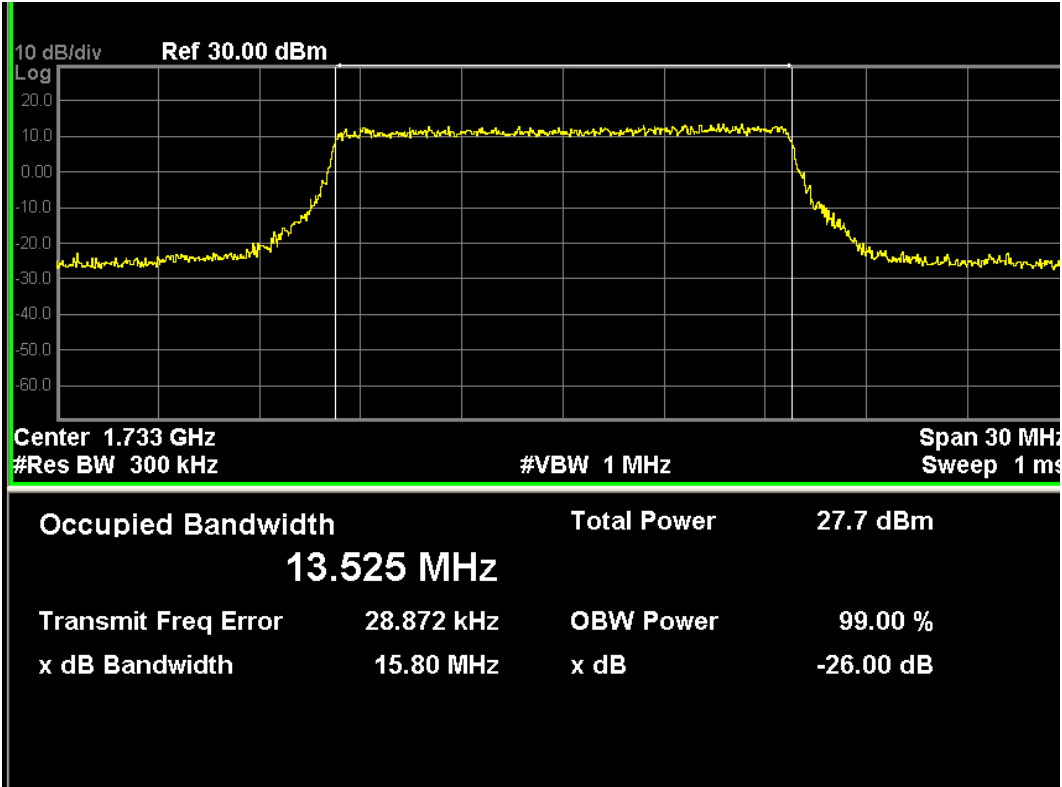




LTE Band 4 (16-QAM, Band Width 15MHz,RB Size 75,RB Offset 0)

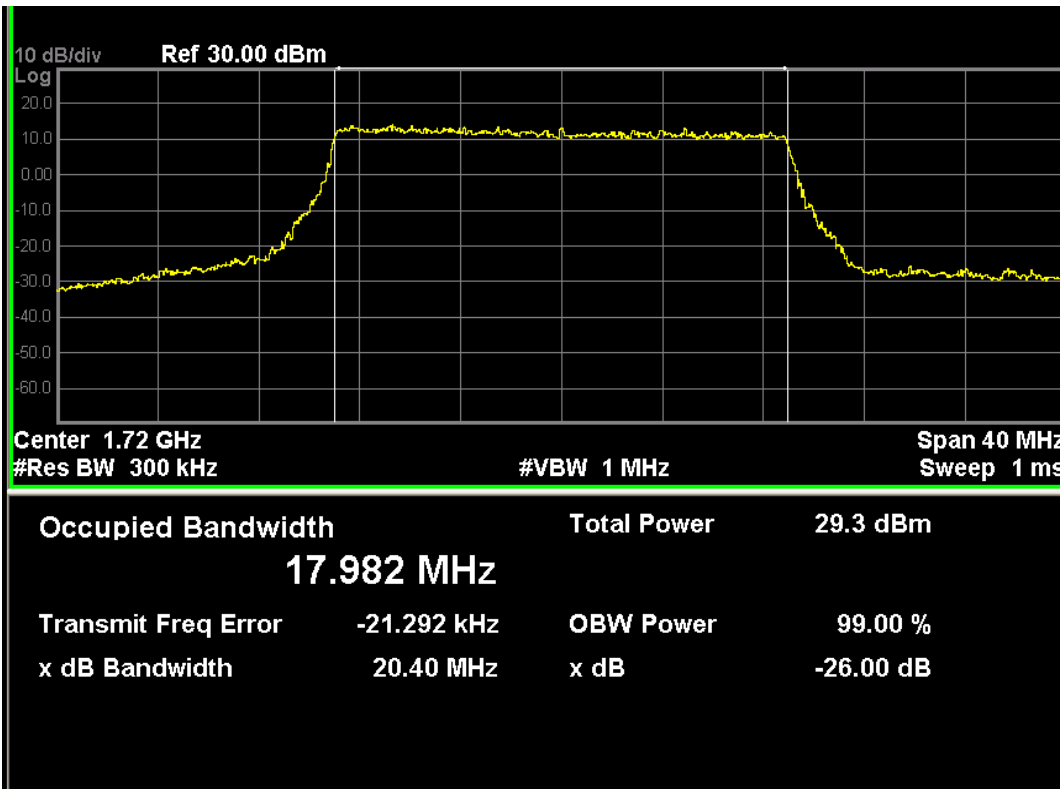
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20025	1717.5	15.66	13.523
20175	1732.5	15.80	13.525
20325	1747.5	15.41	13.447

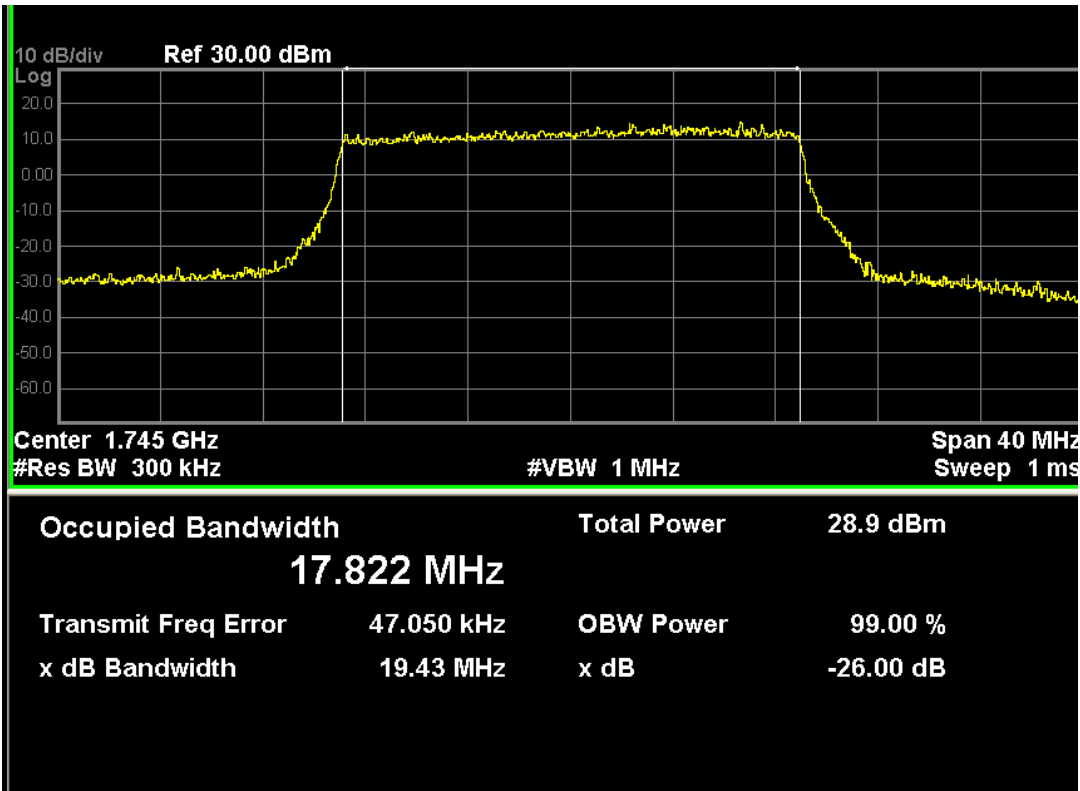
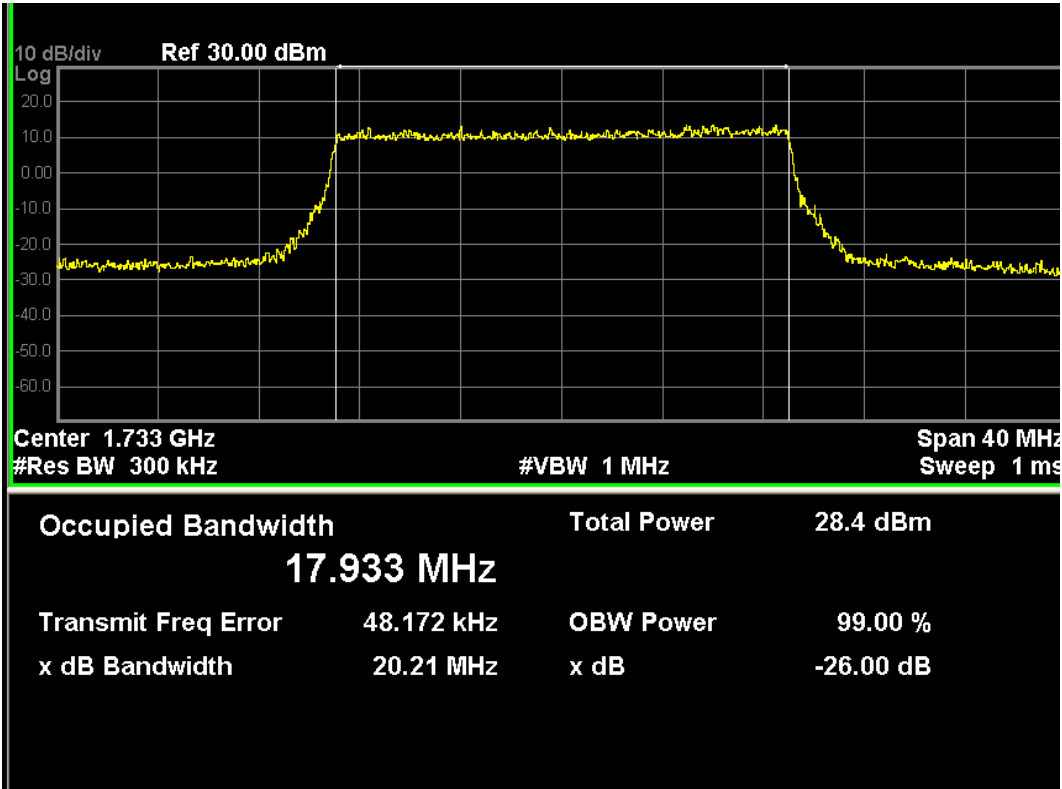




LTE Band 4 (QPSK, Band Width 20MHz,RB Size 100,RB Offset 0)

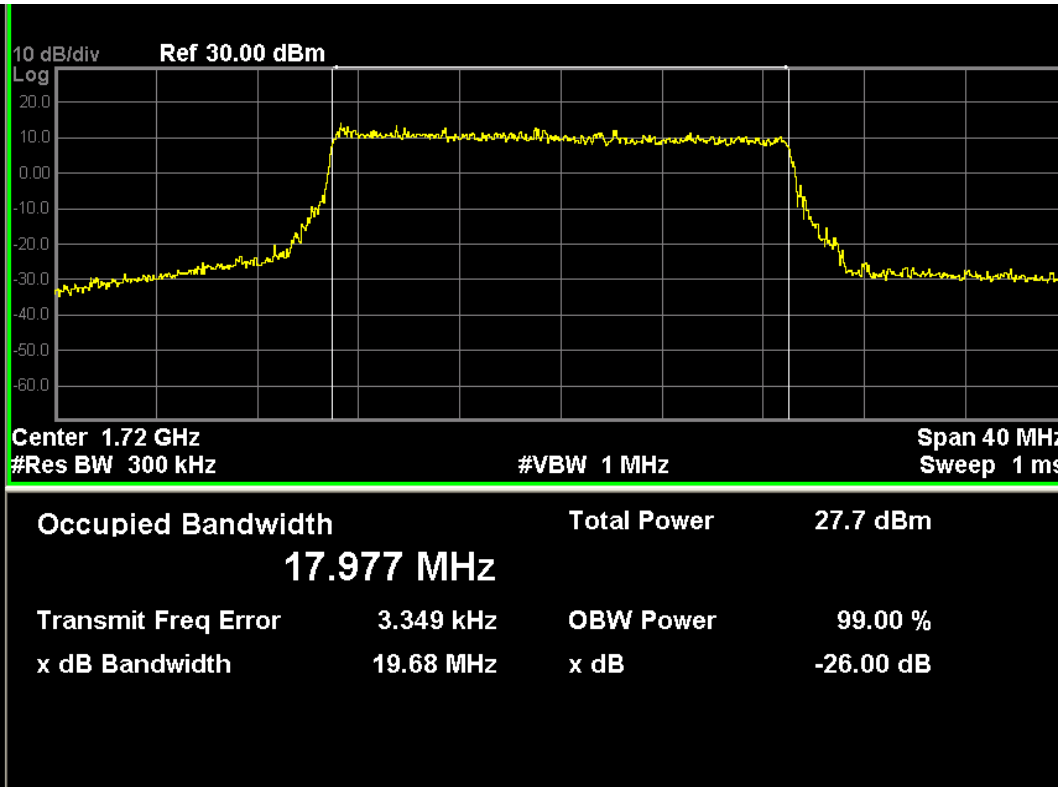
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20050	1720.0	20.40	17.982
20175	1732.5	20.21	17.933
20300	1745.0	19.43	17.822

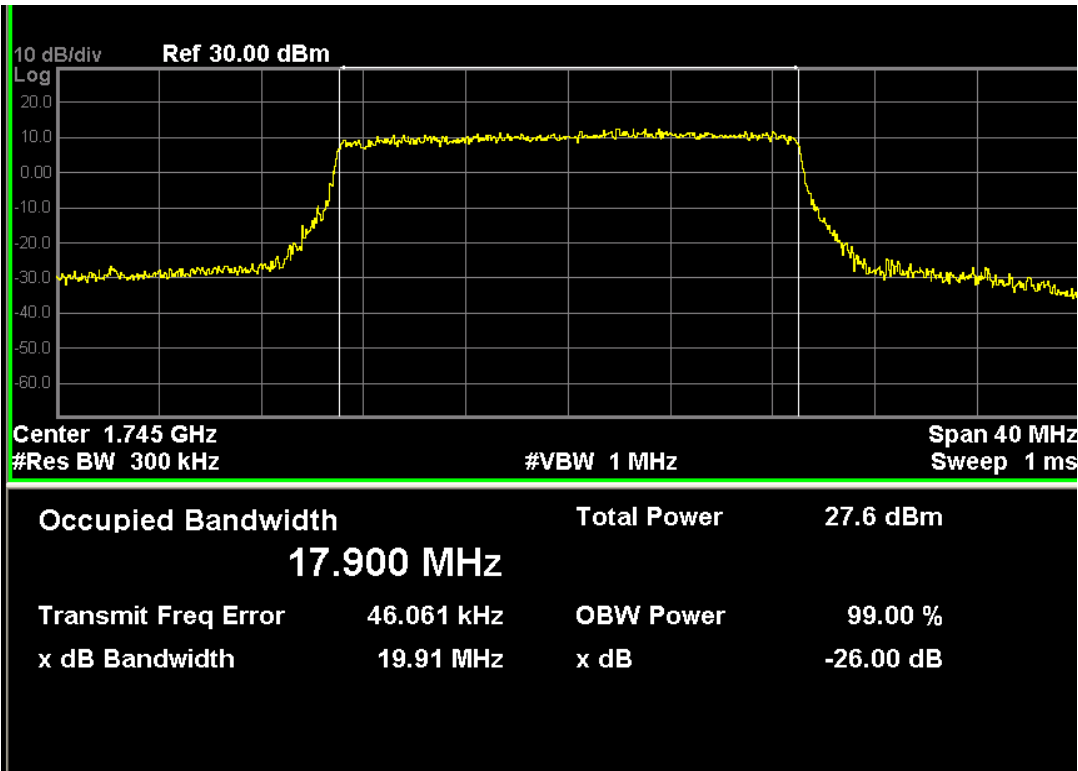
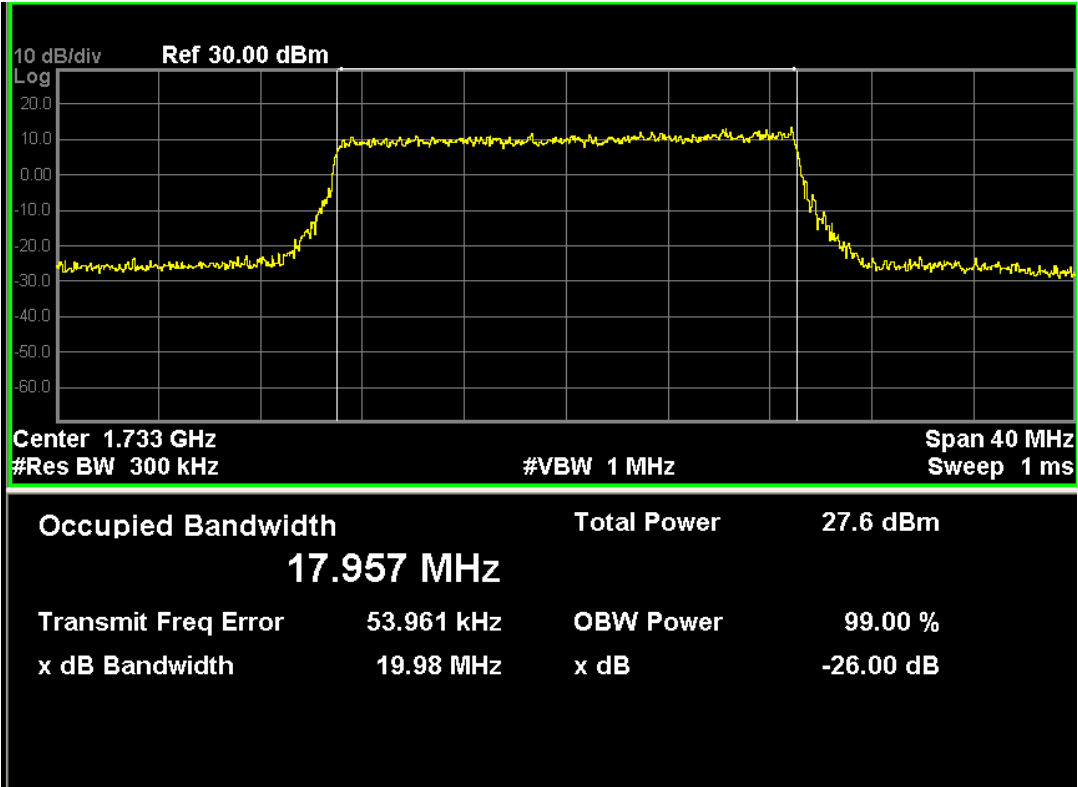




LTE Band 4 (16-QAM, Band Width 20MHz,RB Size 100,RB Offset 0)

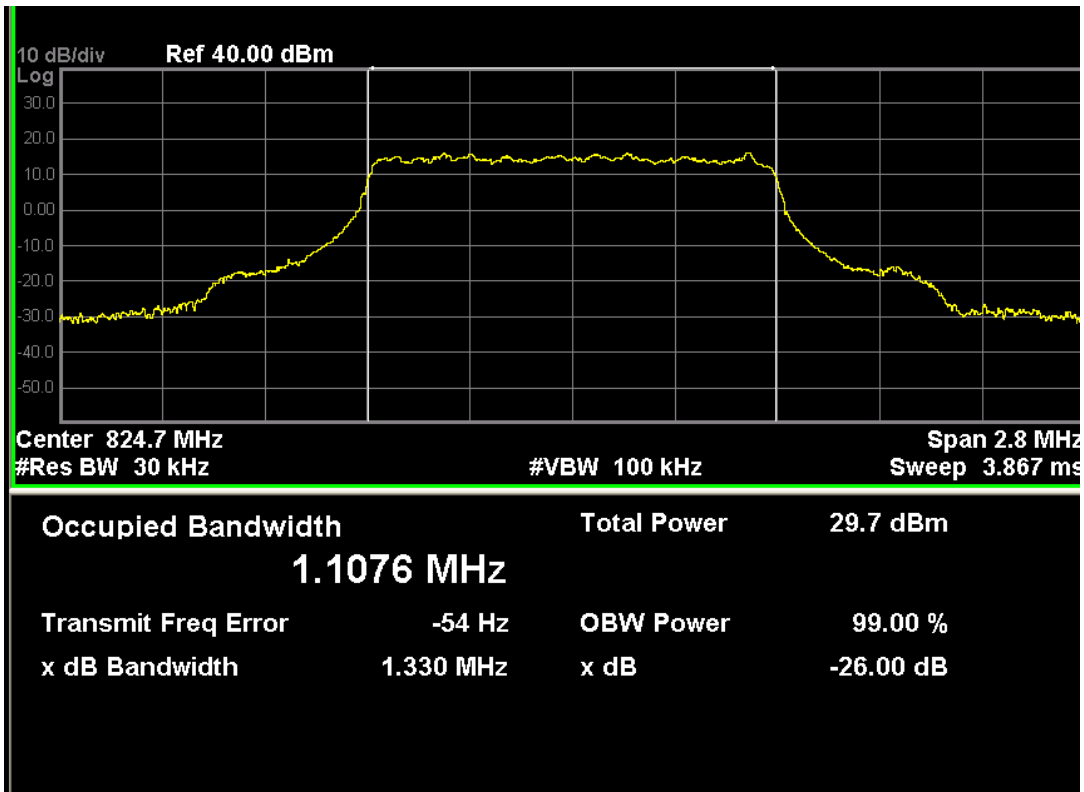
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20050	1720.0	19.68	17.977
20175	1732.5	19.98	17.957
20300	1745.0	19.91	17.900

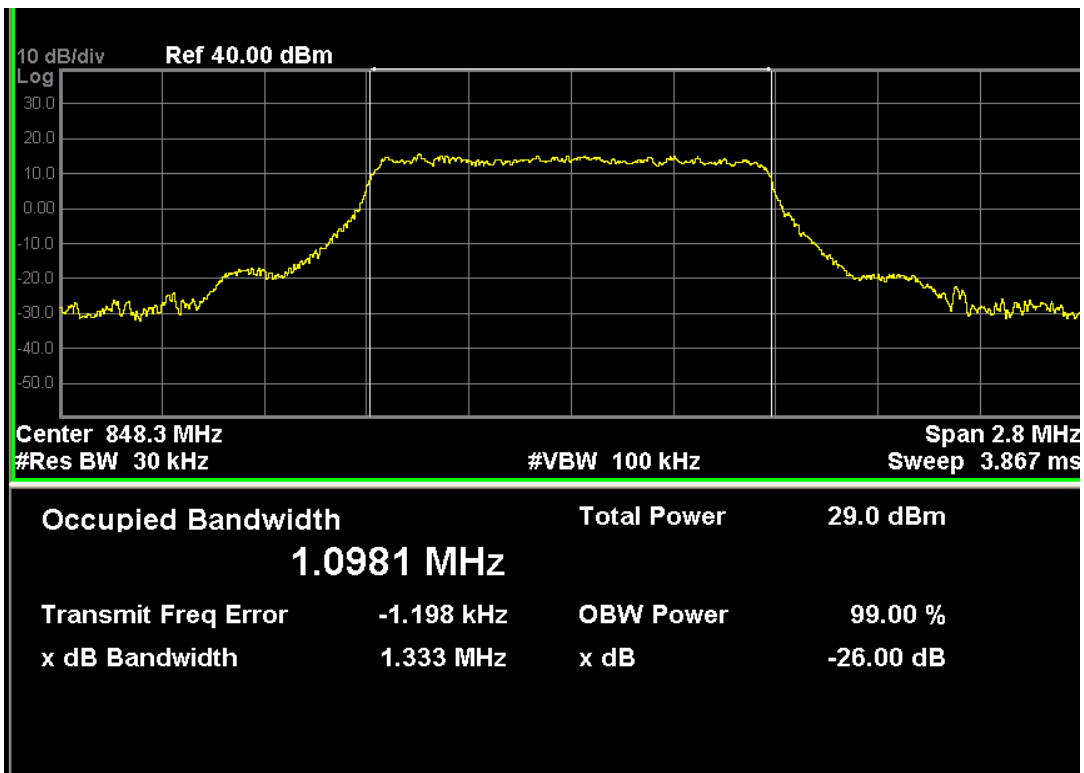
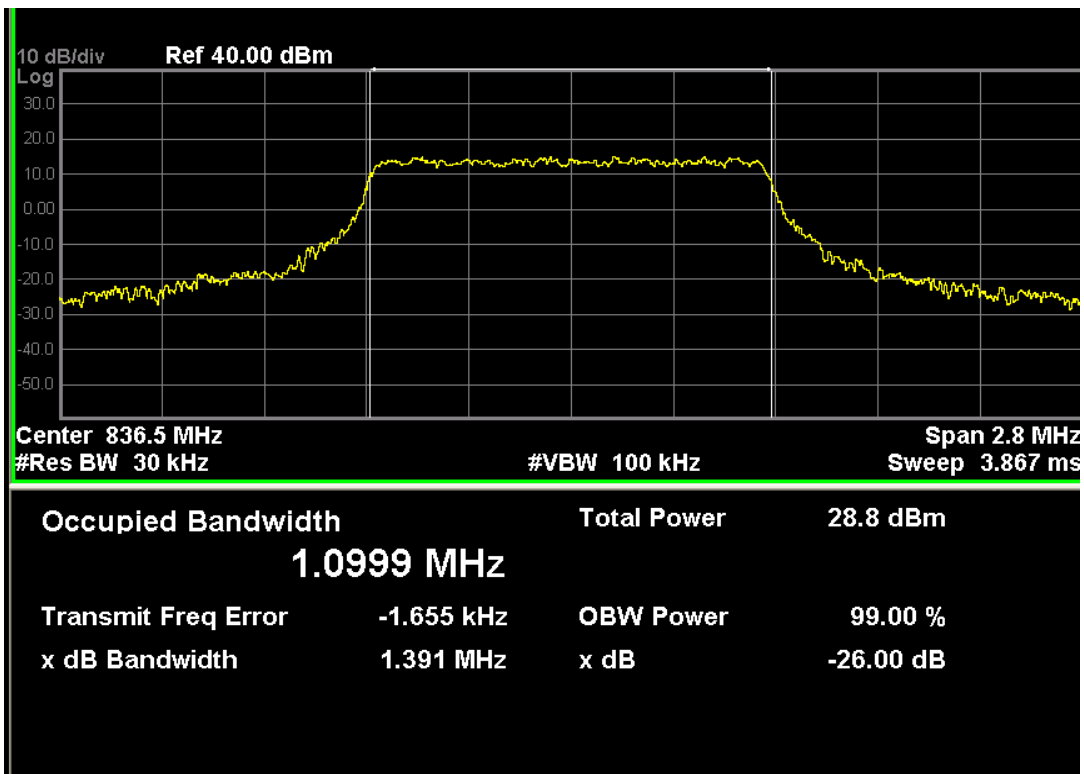




LTE Band 5 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)

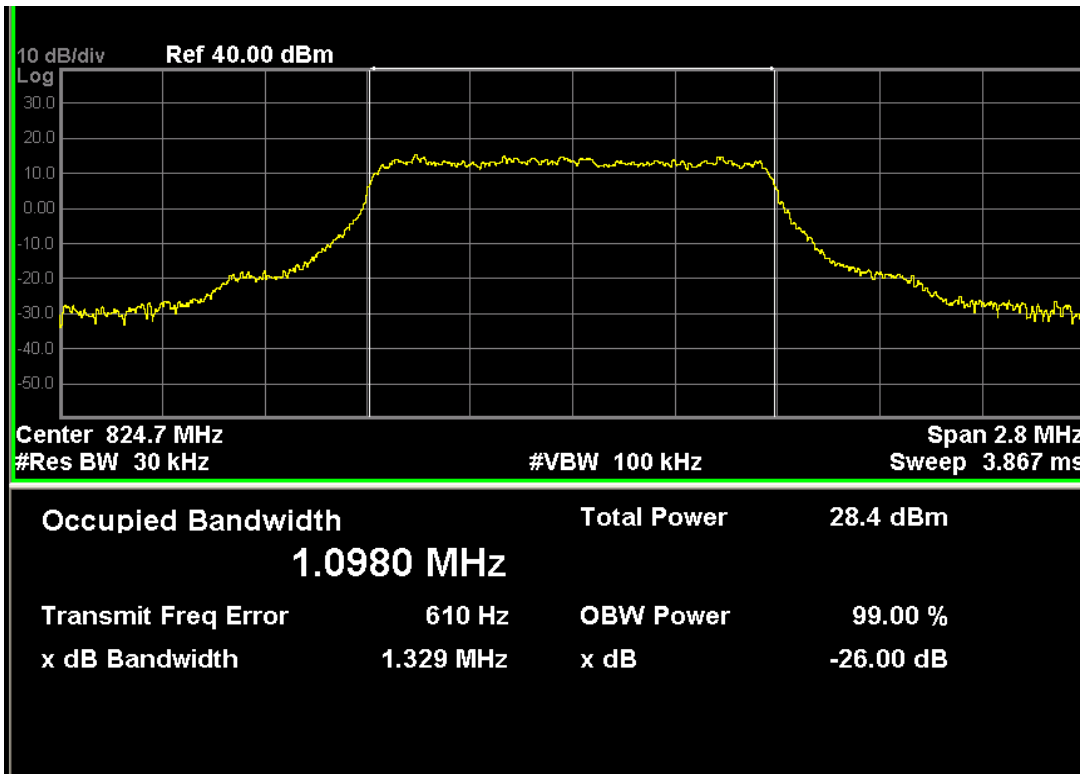
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20407	824.7	1.330	1.1076
20525	836.5	1.391	1.0999
20643	848.3	1.333	1.0981

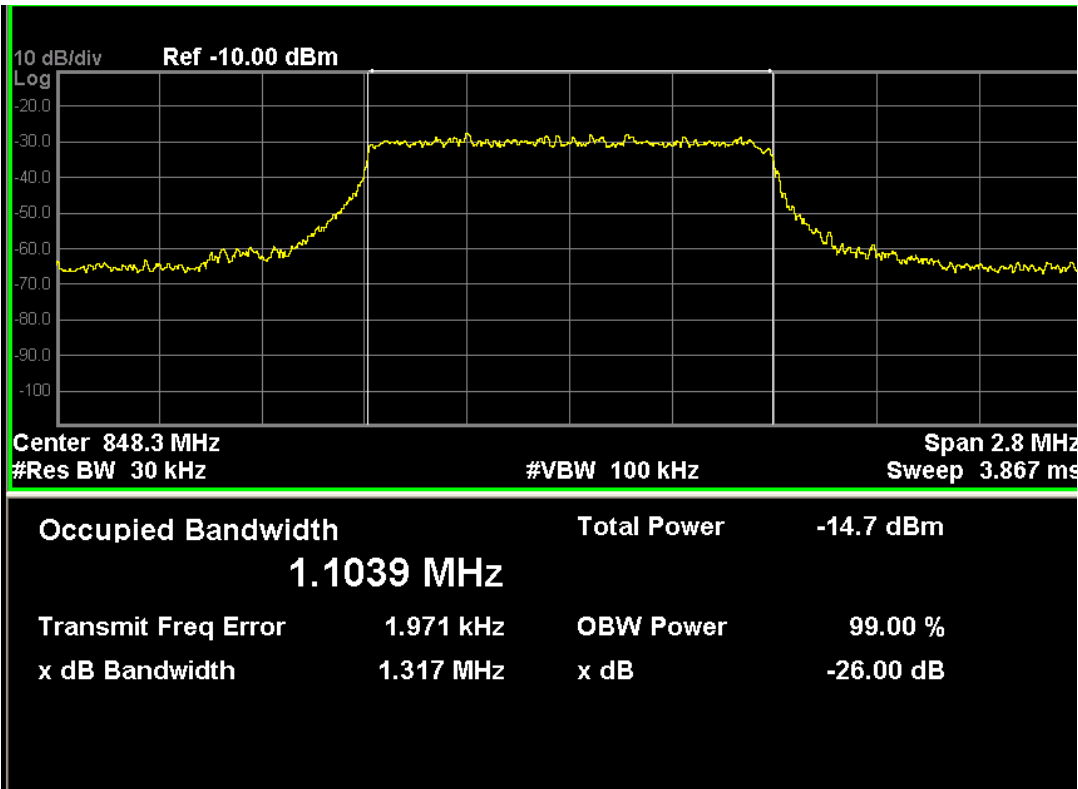
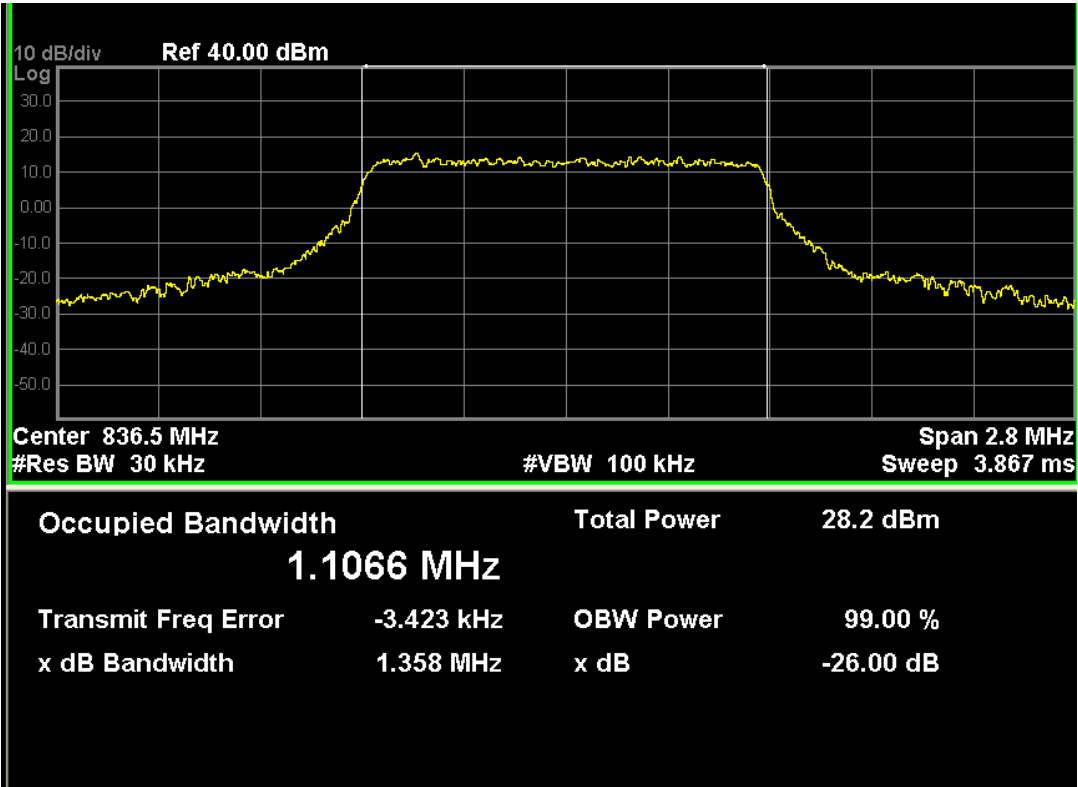




LTE Band 5 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)

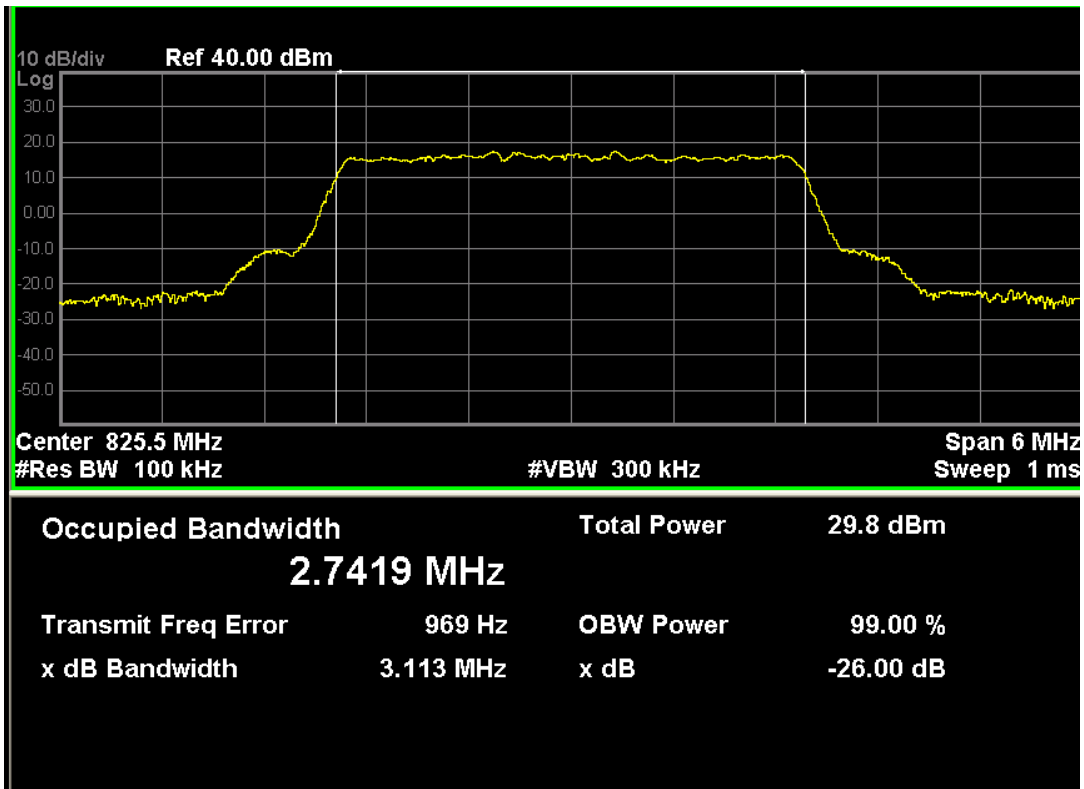
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20407	824.7	1.329	1.0980
20525	836.5	1.358	1.1066
20643	848.3	1.317	1.1039

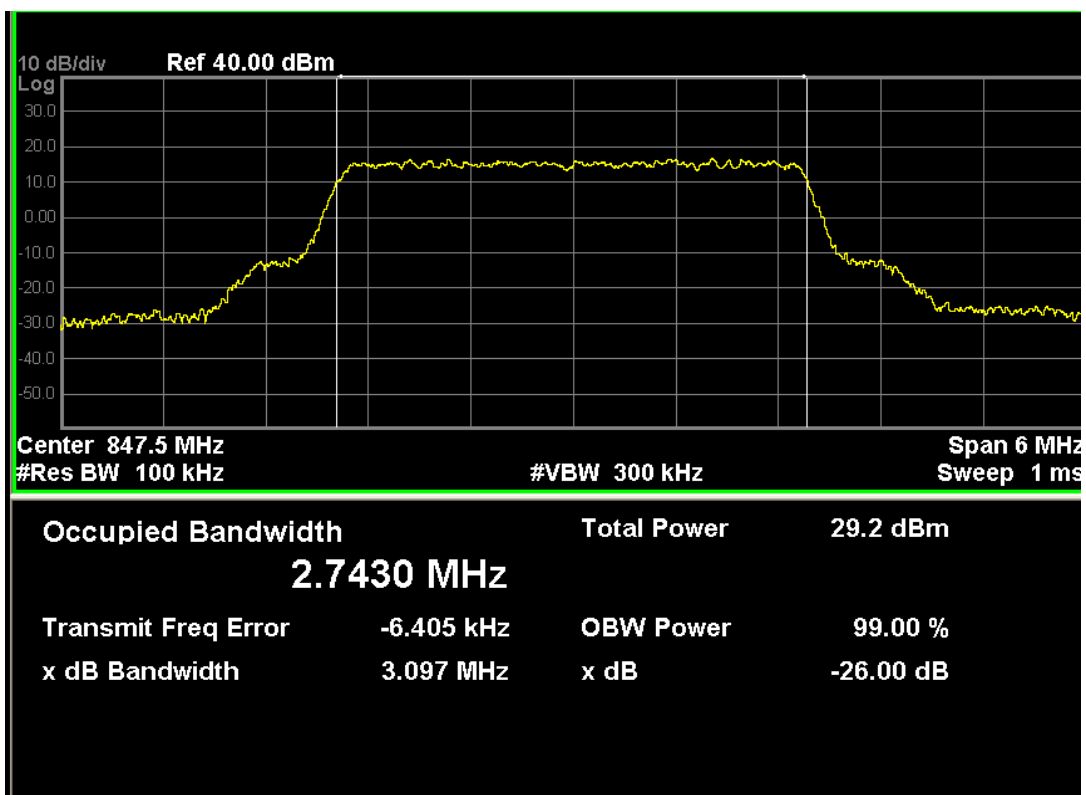
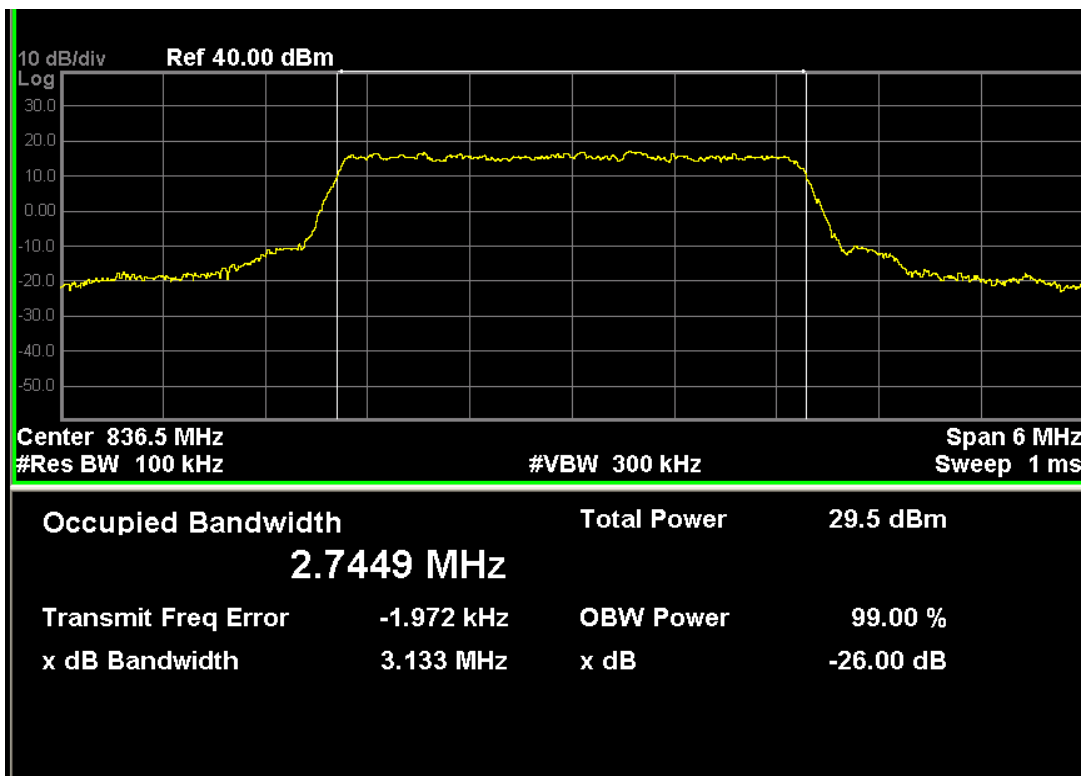




LTE Band 5 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)

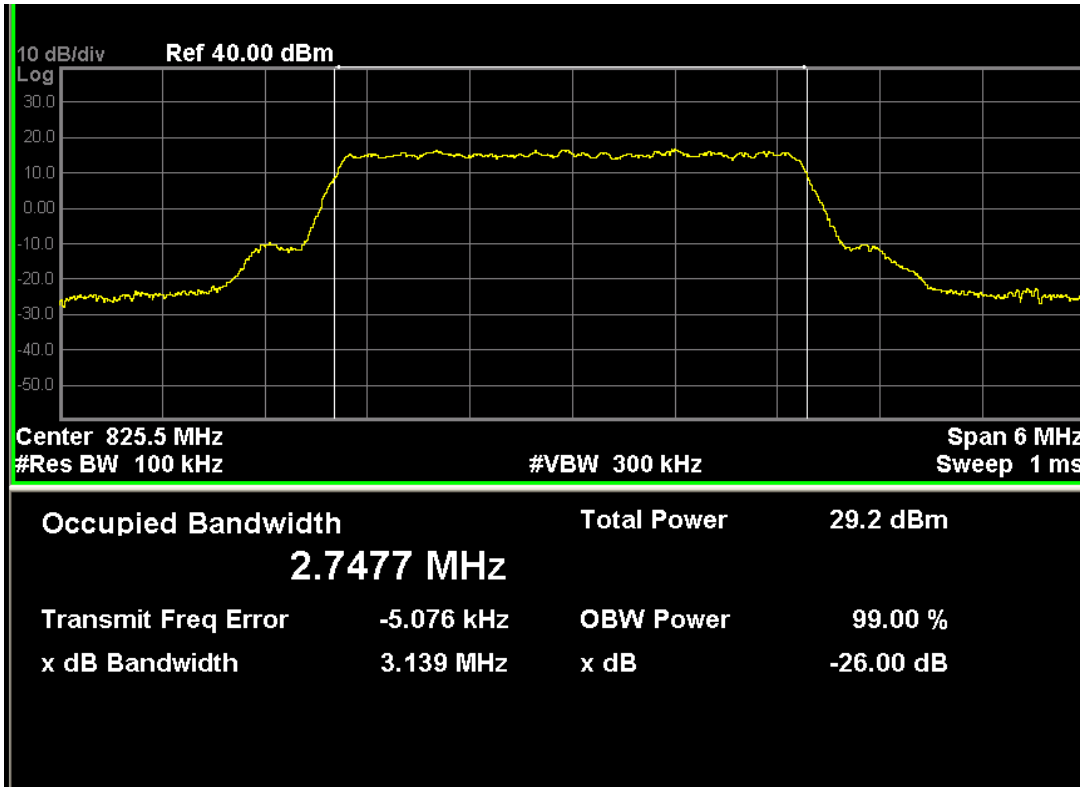
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20415	825.5	3.113	2.7419
20525	836.5	3.133	2.7449
20635	847.5	3.097	2.7430

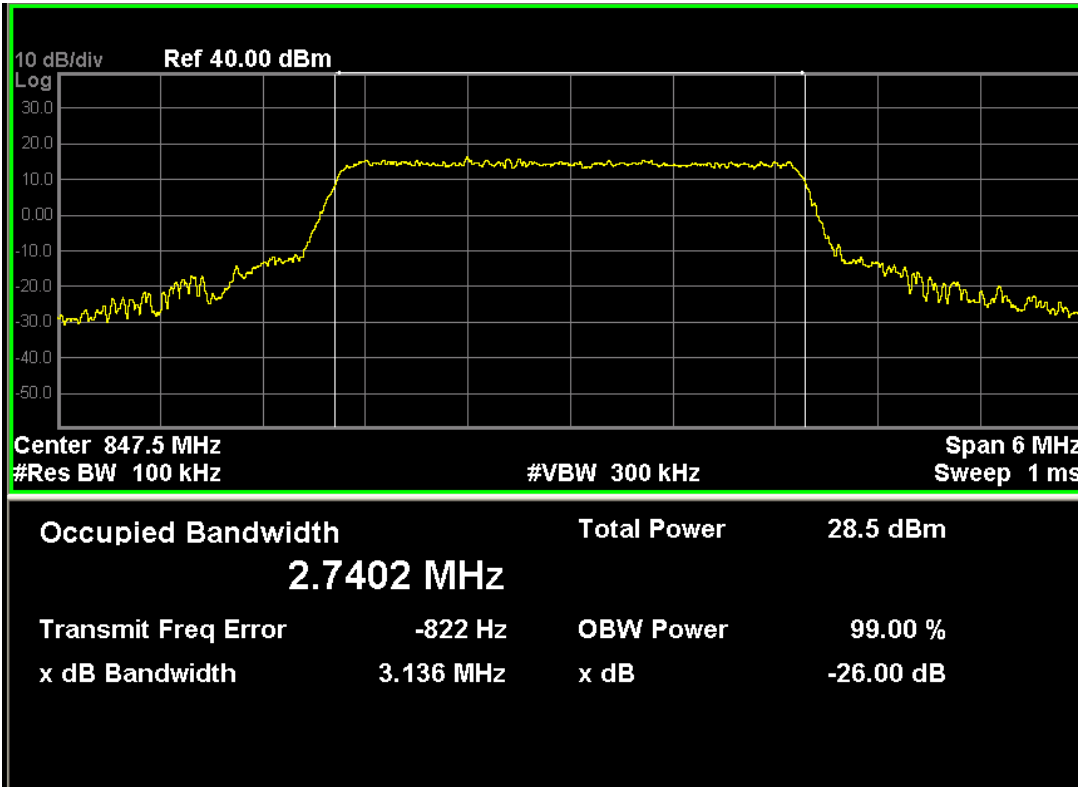
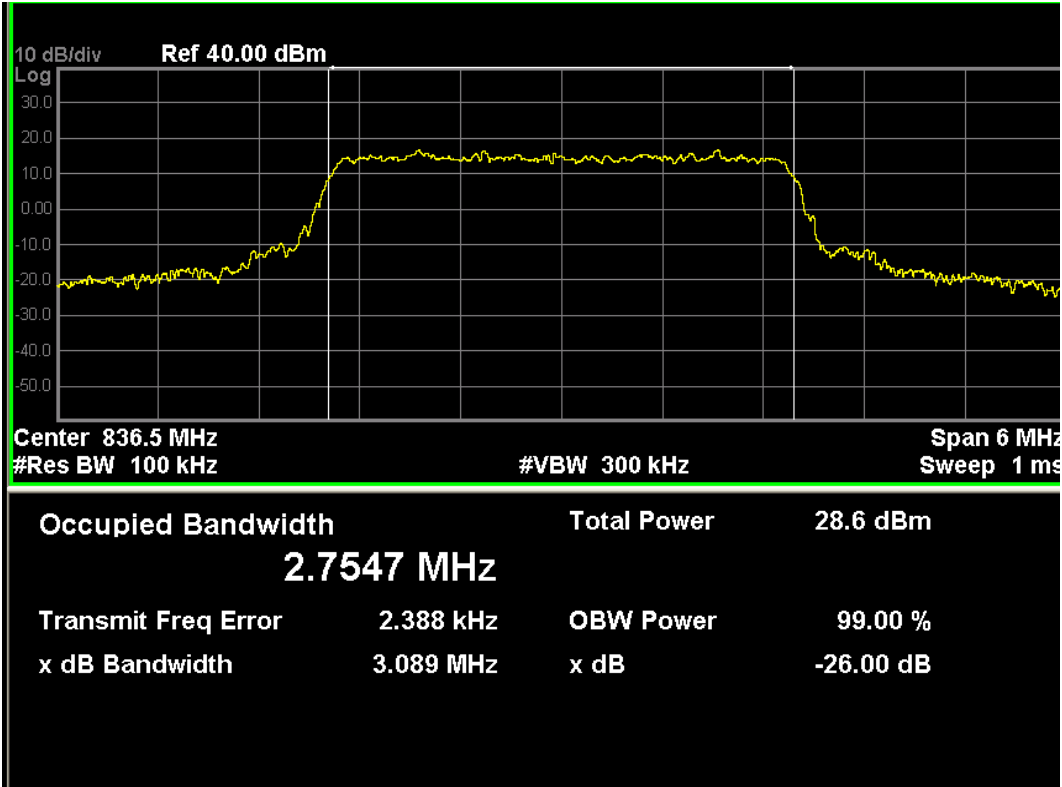




LTE Band 5 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)

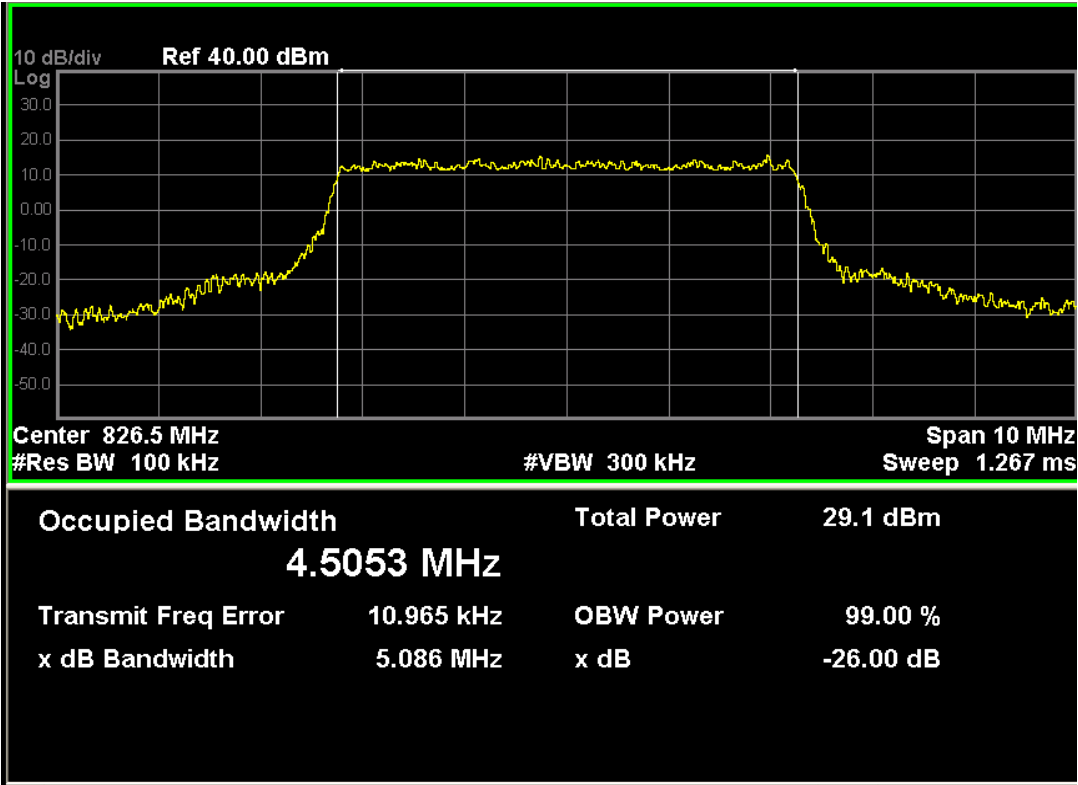
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20415	825.5	3.139	2.7477
20525	836.5	3.089	2.7547
20635	847.5	3.136	2.7402

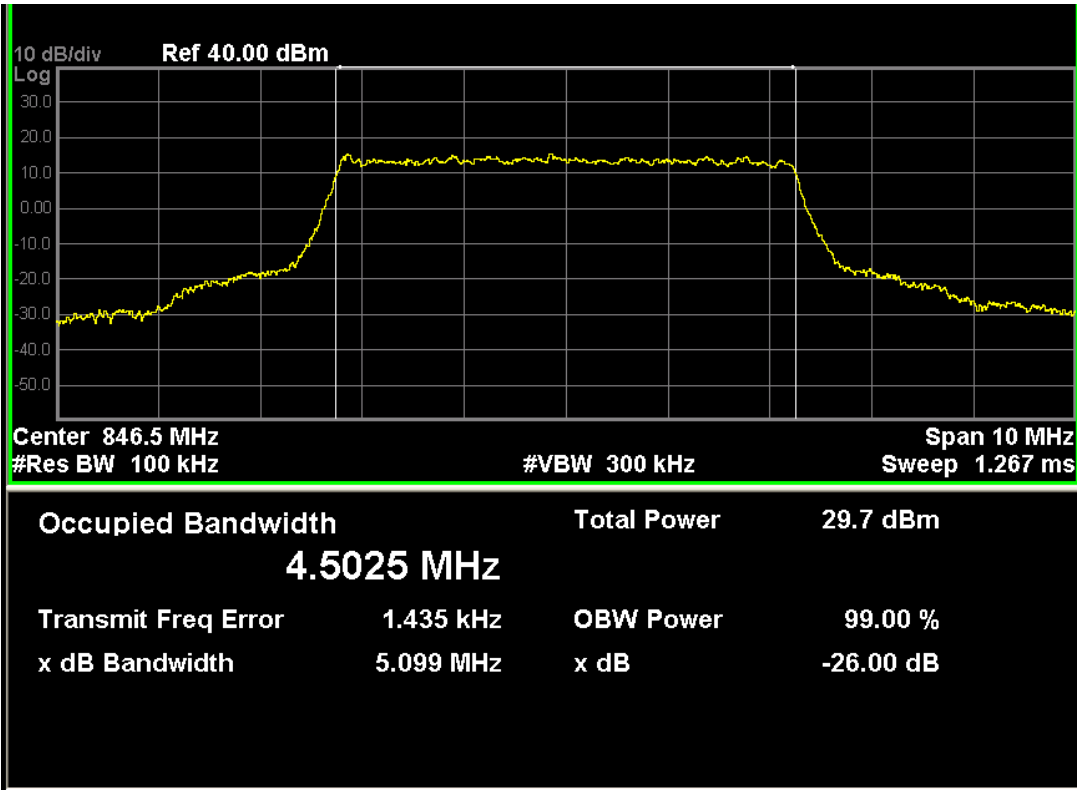
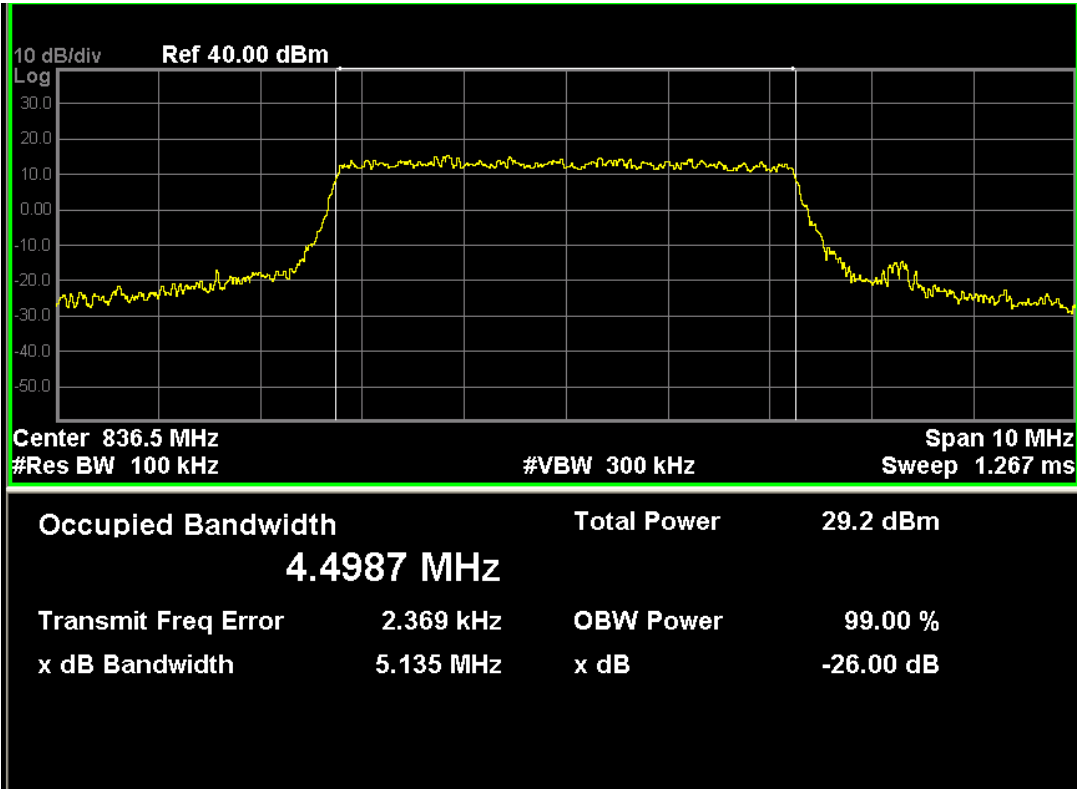




LTE Band 5 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)

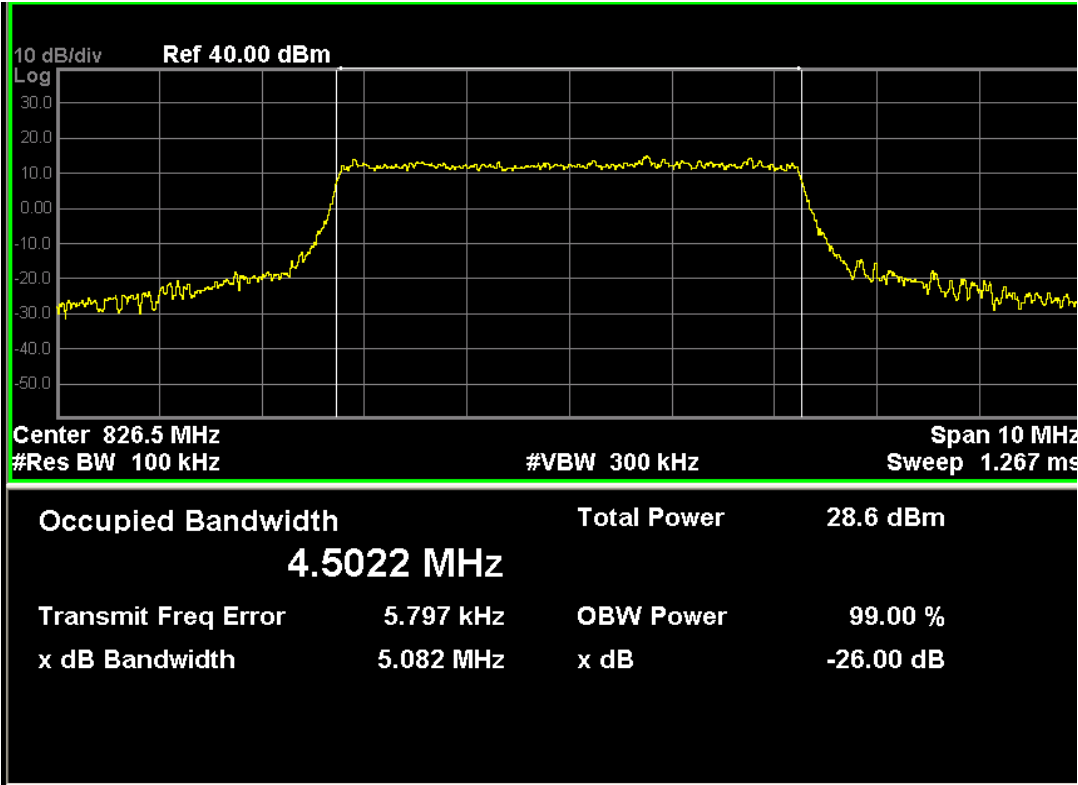
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20425	826.5	5.086	4.5053
20525	836.5	5.135	4.4987
20625	846.5	5.099	4.5025

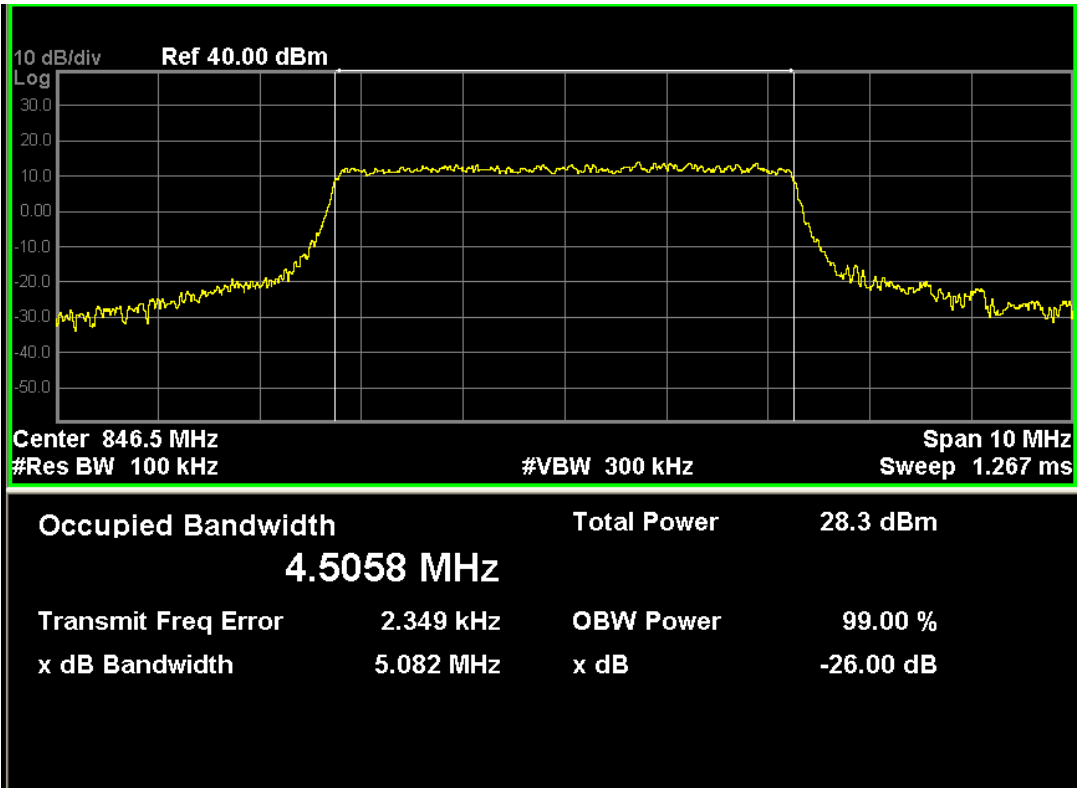
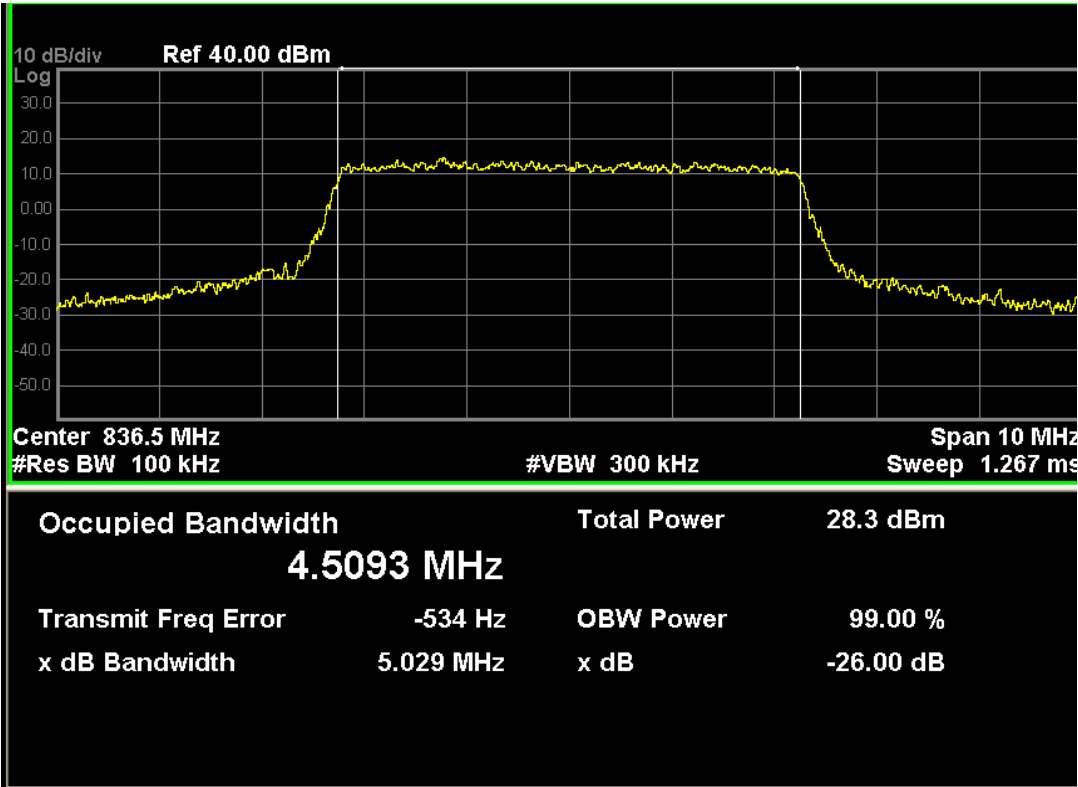




LTE Band 5 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)

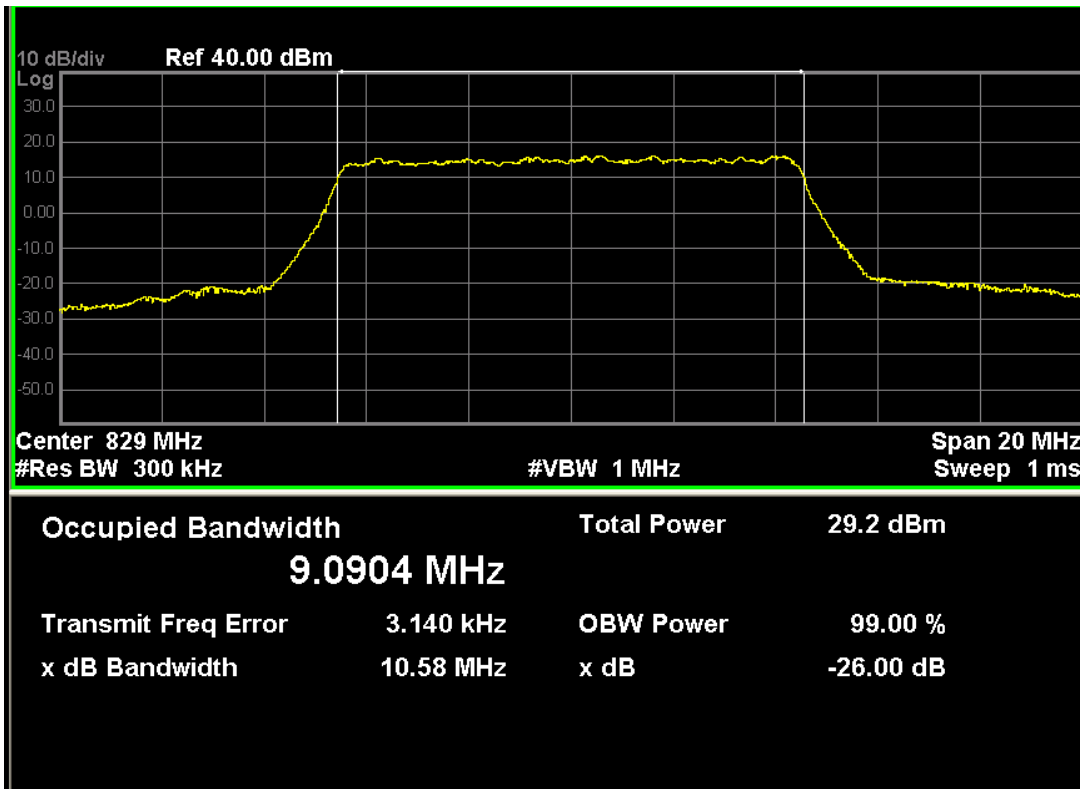
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20425	826.5	5.082	4.5022
20525	836.5	5.029	4.5093
20625	846.5	5.082	4.5058

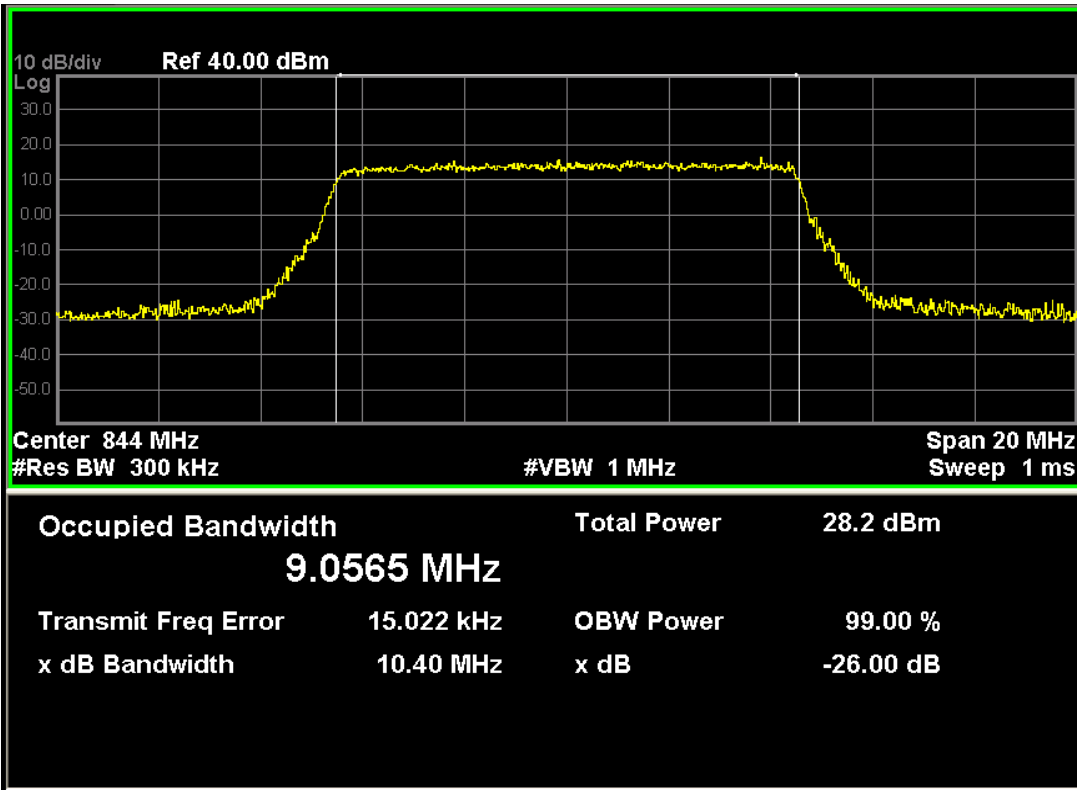
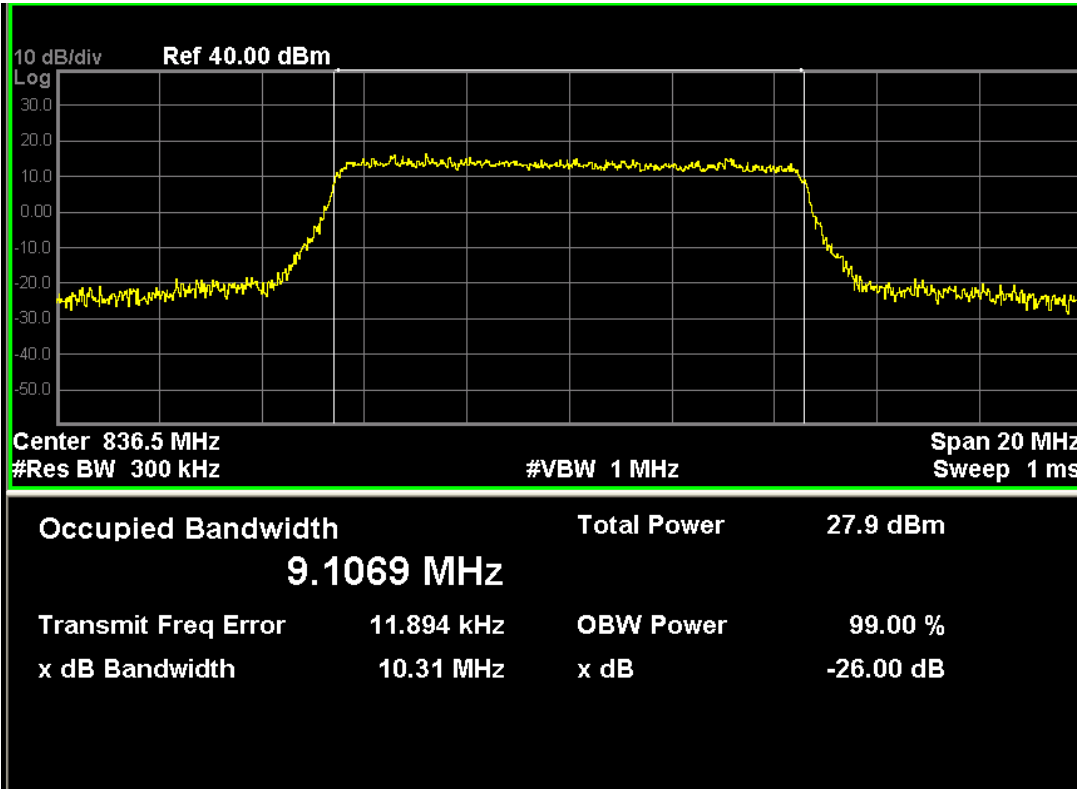




LTE Band 5 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)

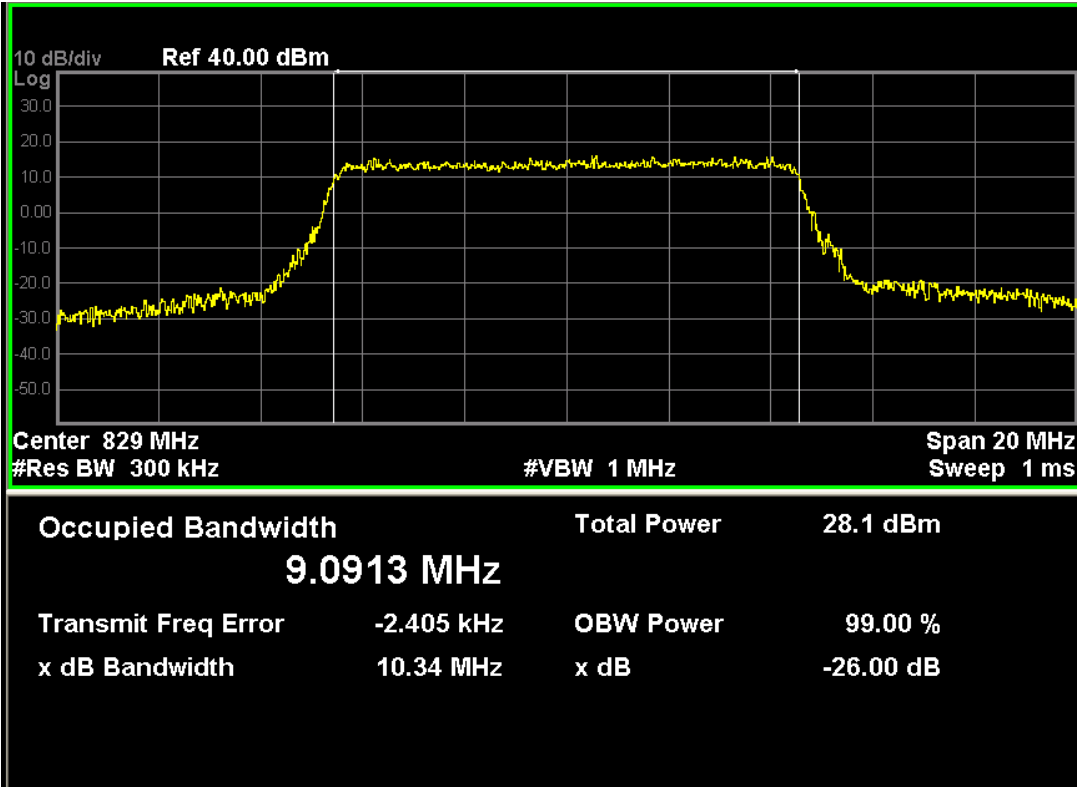
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20450	829.0	10.58	9.0904
20525	836.5	10.31	9.1069
20600	844.0	10.40	9.0565

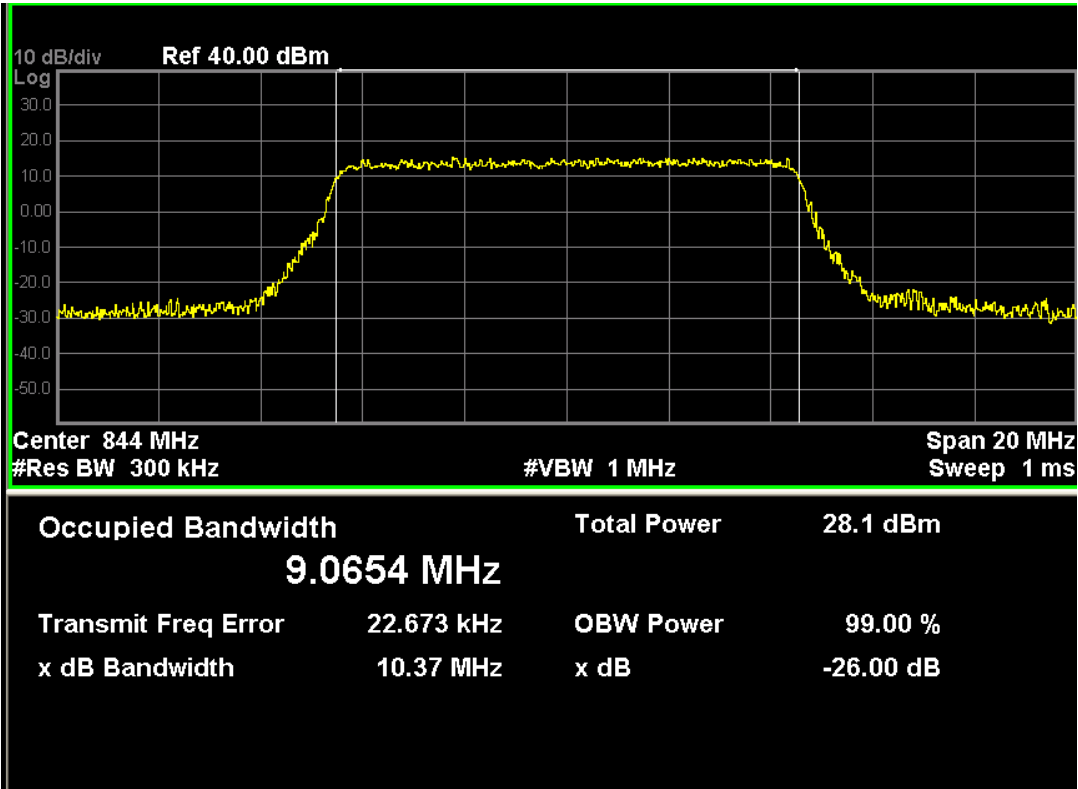
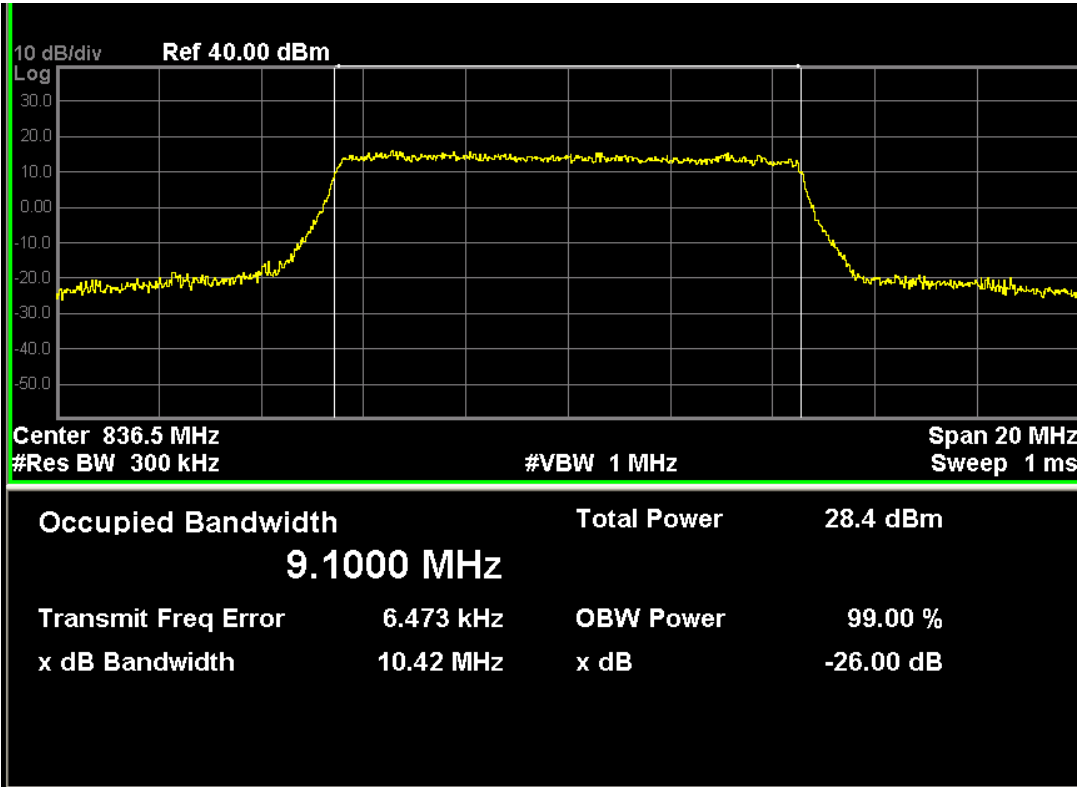




LTE Band 5 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)

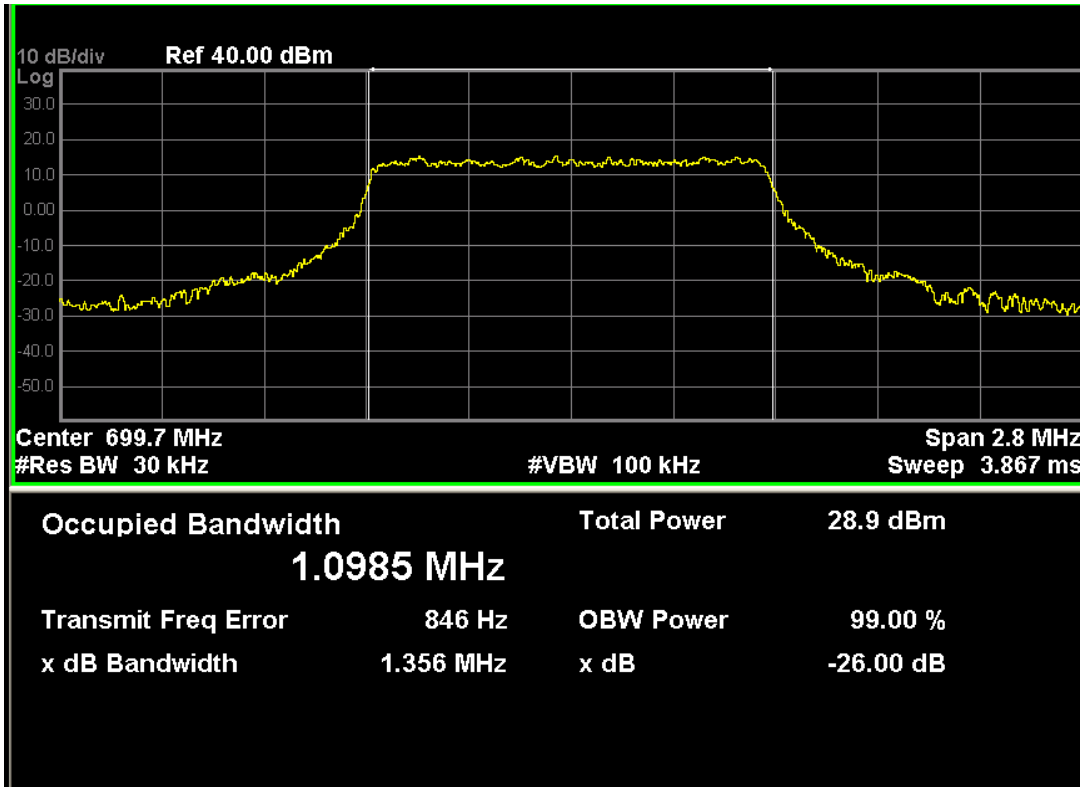
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
20450	829.0	10.34	9.0913
20525	836.5	10.42	9.1000
20600	844.0	10.37	9.0654

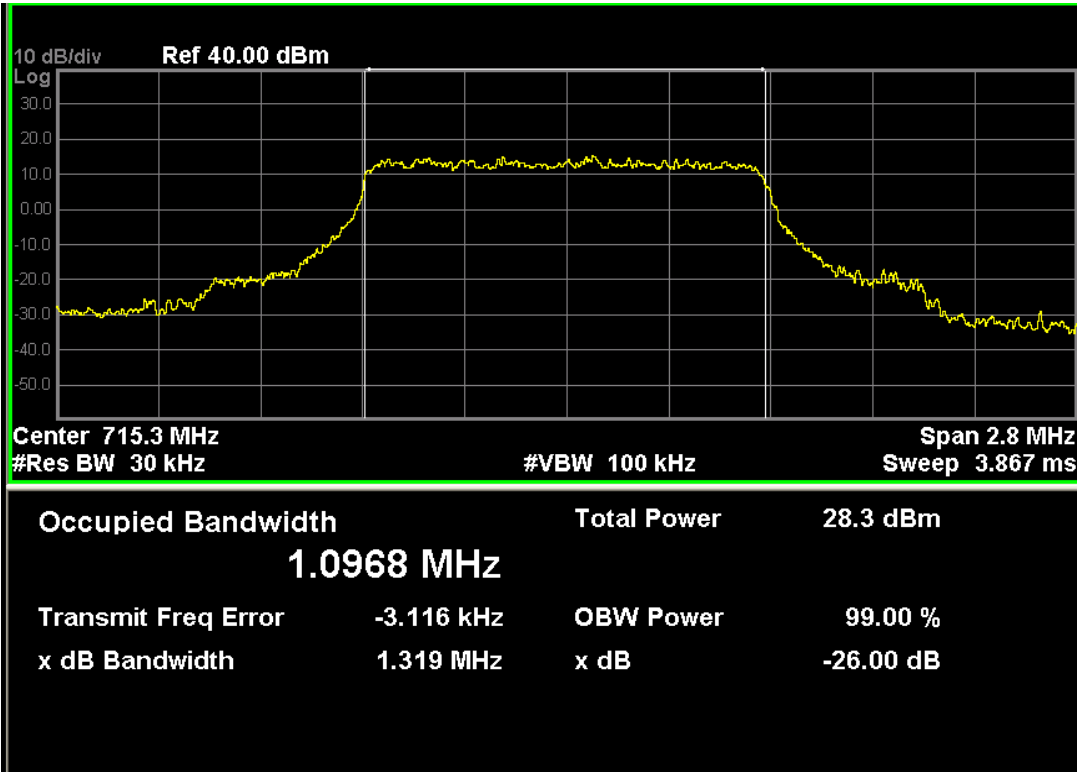
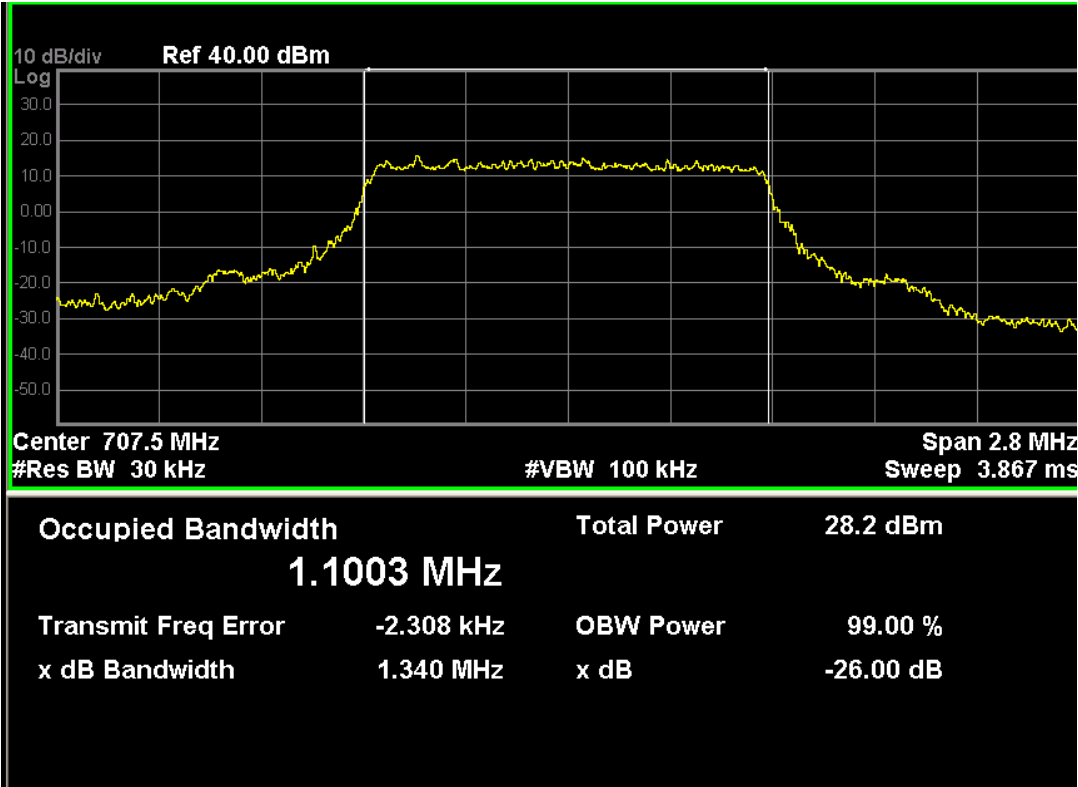




LTE Band 12 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)

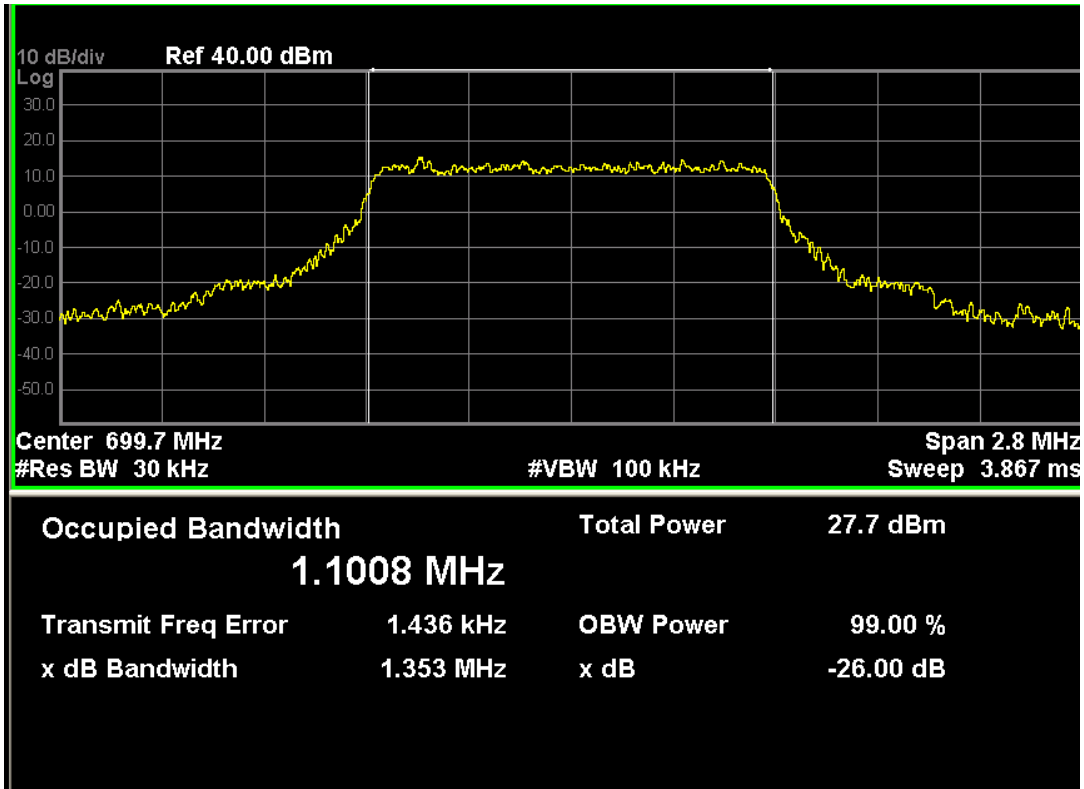
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23017	699.7	1.356	1.0985
23095	707.5	1.340	1.1003
23173	715.3	1.319	1.0968

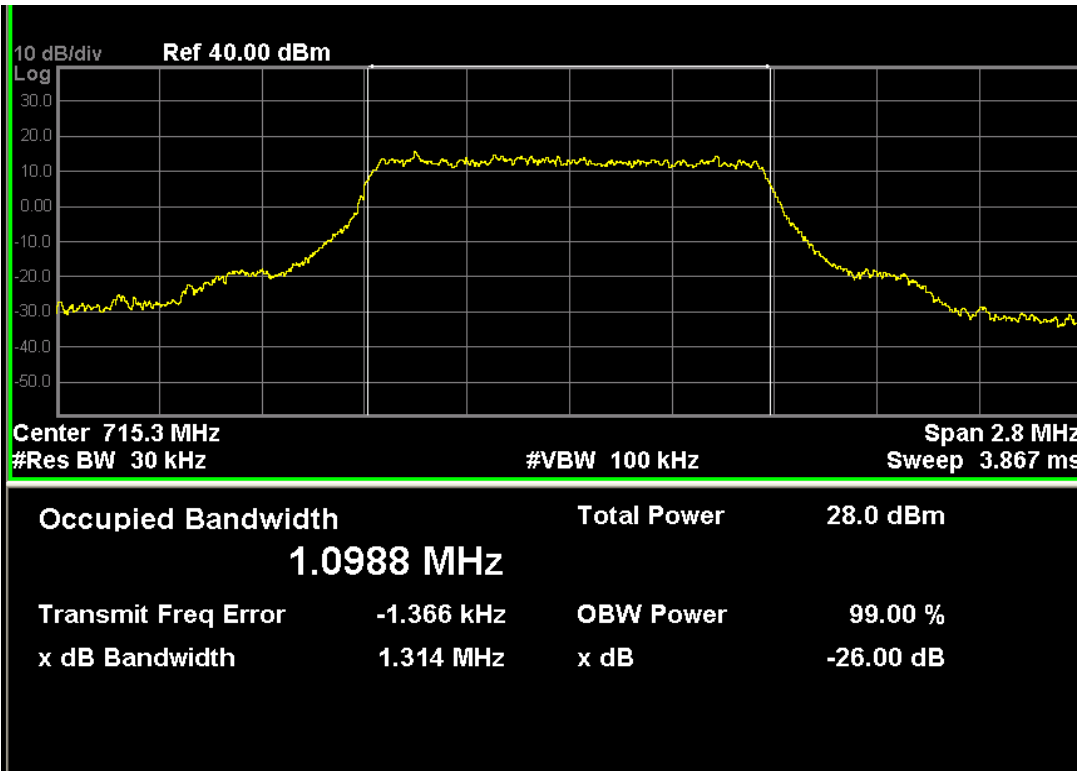
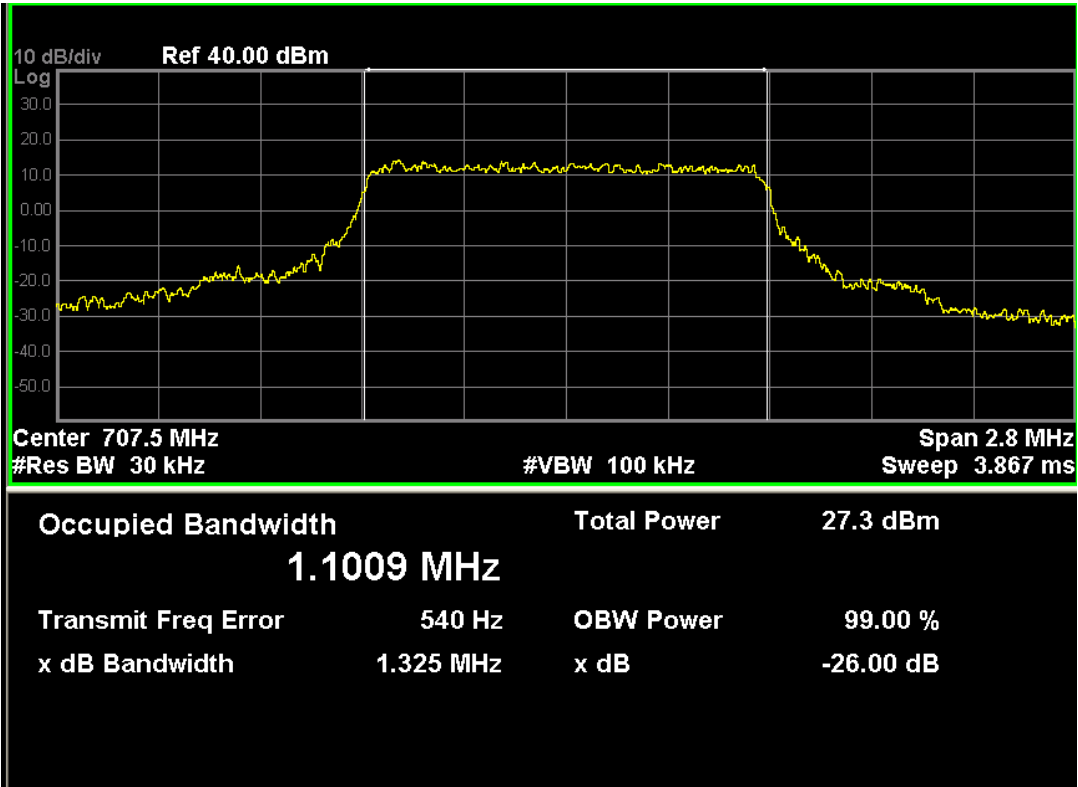




LTE Band 12 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)

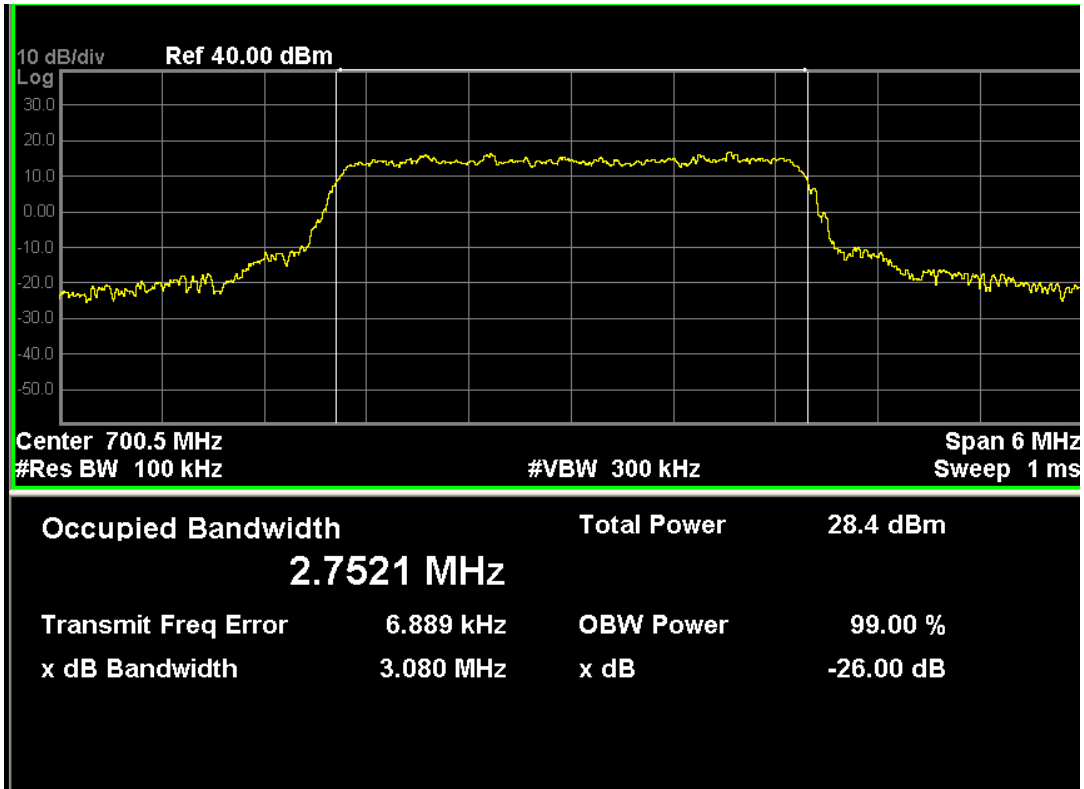
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23017	699.7	1.353	1.1008
23095	707.5	1.325	1.1009
23173	715.3	1.314	1.0998

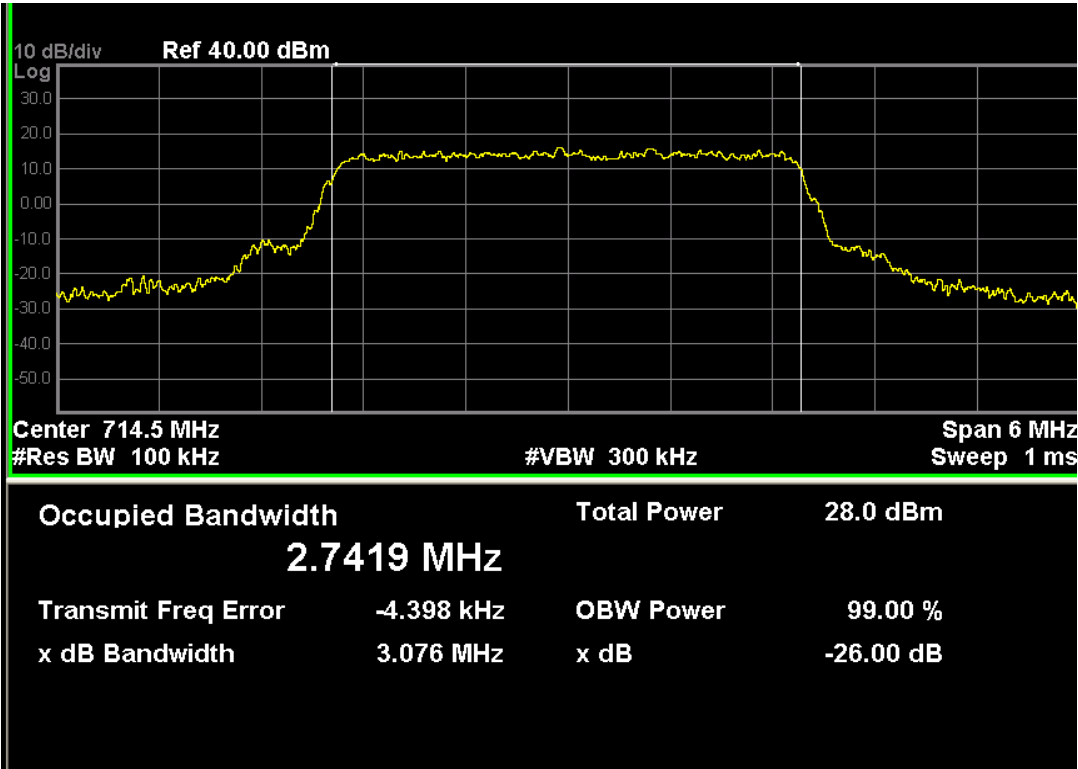
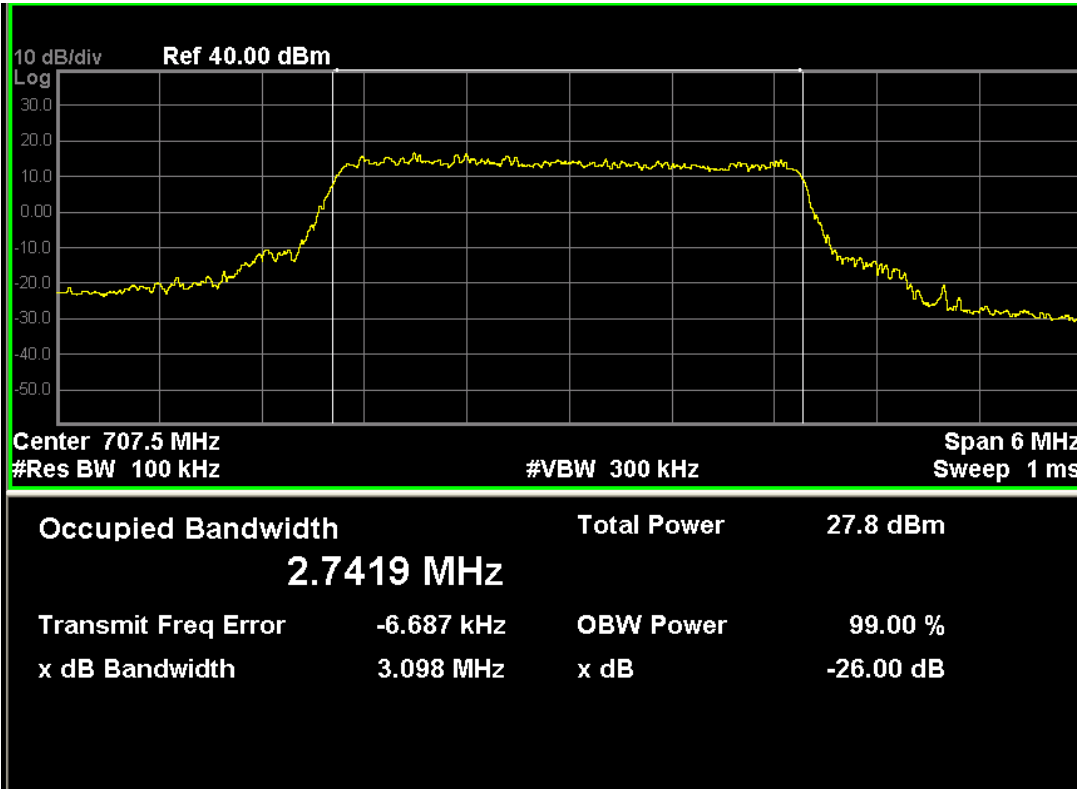




LTE Band 12 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23025	700.5	3.080	2.7521
23095	707.5	3.098	2.7419
23165	714.5	3.076	2.7419





LTE Band 12 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23025	700.5	3.145	2.7439
23095	707.5	3.387	2.7440
23165	714.5	3.091	2.7403

