RF Test Report

Test in accordance with
Federal Communications Commission(FCC)
CFR TITLE 47, Parts 2, 22, 24,27

Product Name : LTE/WCDMA Module

Model No. : SIM7100A

FCC ID : UDV-SIM7100A

Applicant : Shanghai Simcom Ltd.
Address : Building A, SIM Technology Building No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335

Date of Receipt : 11-17-2014

Test Date : 11-17-2014~12-16-2014

Issued Date : 12-16-2014

Report No. : UL15820141117FCC036-2

Report Version : V1.0

Test Report Certification

Issued Date : 12-26-2014
Report No. : UL15820141117FCC036-2

Product Name :	LTE/WCDMA Module
Applicant :	Shanghai Simcom Ltd.
Address :	Building A, SIM Technology Building No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335
Manufacturer :	Shanghai Simcom Ltd.
Address :	Building A, SIM Technology Building No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335
Model No. :	SIM7100A
EUT Voltage :	MIN: 3.4V, NOR: 3.8V, MAX: 4.2V
Brand Name :	SIMCom
FCC ID:	UDV-SIM7100A
Applicable Standard :	ANSI/TIA-603-C-2004; 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 Part24 Subpart E; FCC CFR Title 47 Part27 Subpart C;
Test Result :	Complied
Performed Location :	Unilab (Shanghai) Co., Ltd. FCC 2.948 register number is 714465 No. 1350, Lianxi Rd. Pudong New District, Shanghai, China TEL: +86-21-50275125 FAX: +86-21-50277862

Documented By : Andy Wei
(Technical Engineer: Andy Wei)

Reviewed By : Forest cao
(Senior Engineer: Forest Cao)

Approved By : Eva wang
(Supervisor: Eva Wang)

TABLE OF CONTENTS

SUMMARY OF TEST RESULT

Report Section	SPECIFICATION FCC CFR 47	Description	Limit	Result
3	part2.1046	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)	Effective Radiated Power Equivalent Isotropic Radiated Power	<7 Watts <2 Watts <1 Watt <3 Watts	PASS
4	part 2.1046	Modulation Characteristic	N/A	PASS
4	part 2.1049 part 22.917(a) part 24.238(a) part 27.53 (g)(h)	Occupied Bandwidth	N/A	PASS
5	part 2.1051 part 22.917(a) part 24.238(a) part 27.53(g)(h)	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)	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)	Field Strength of Supurious Radiation	<43+10lg(P[Watts])	PASS
7	part 2.1055 part 22.355 part 24.235 part 27.54	Frequency Stability for Temperature & Voltage	<2.5 ppm	PASS
8	part 24.232(d) part 27.50(d)(5)	Peak-to-Average	<13dB	PASS

1.General Information

1.1. EUT Description

Product Name:	LTE/WCDMA Module
Model Name:	SIM7100A
Hardware Version:	V1.03
Software Version:	SIM7100A_V1.0
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: 3.4dBi
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: 1.9dBi
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: 2.8dBi
Support Band:	LTE Band XVII
Tx Frequency Range:	LTE Band XVII: 704MHz ~716MHz
Rx Frequency Range:	LTE Band XVII: 734MHz ~746MHz
Type of modulation:	LTE: QPSK,16-QAM
Antenna Type:	Connector
Antenna Peak Gain:	LTE Band XVII: 1dBi

1.2. Mode of Operation

Unilab has verified the construction and function in typical operation. EUT is inlink 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	5
	3	1	0	1	0
	5	1	24	1	24
	10	1	49	1	49
	15	1	74	1	0
	20	1	0	1	99
LTE Band 4	1.4	1	0	1	0
	3	1	0	1	0
	5	1	0	1	0
	10	1	49	1	0
	15	1	74	1	74
	20	1	99	1	99
LTE Band 5	1.4	1	0	5	1
	3	1	0	1	0
	5	1	0	8	17
	10	1	0	1	0
LTE Band 17	5	1	24	1	24
	10	1	49	1	49

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	Frequeny (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	22.79	0.19
					1	**5**	**22.81**	**0.19**
					5	1	22.72	0.19
					6	0	21.88	0.15
				16-QAM	1	0	22.85	0.19
					1	**5**	**22.93**	**0.20**
					5	1	22.86	0.19
					6	0	20.82	0.12
		18900	1880.0	QPSK	**1**	**0**	**22.80**	**0.19**
					1	5	22.79	0.19
					5	1	22.78	0.19
					6	0	21.81	0.15
				16-QAM	1	0	22.73	0.19
					1	**5**	**22.85**	**0.19**
					5	1	22.79	0.19
					6	0	20.79	0.12
		19193	1909.3	QPSK	**1**	**0**	**22.60**	**0.18**
					1	5	22.45	0.18
					5	1	22.43	0.17
					6	0	21.49	0.14
				16-QAM	**1**	**0**	**22.56**	**0.18**
					1	5	22.43	0.17
					5	1	22.41	0.17
					6	0	20.61	0.12
	3MHz	18615	1851.5	QPSK	1	0	22.76	0.19
					1	**14**	**22.90**	**0.19**
					6	9	21.87	0.15
					15	0	21.77	0.15
				16-QAM	1	0	22.79	0.19
					1	**14**	**22.94**	**0.20**
					6	9	21.82	0.15
					15	0	20.83	0.12
		18900	1880.0	QPSK	**1**	**0**	**22.80**	**0.19**
					1	14	22.77	0.19
					6	9	21.79	0.15
					15	0	21.79	0.15
				16-QAM	**1**	**0**	**22.83**	**0.19**
					1	14	22.77	0.19
					6	9	21.82	0.15
					15	0	20.86	0.12
		19185	1908.5	QPSK	**1**	**0**	**22.63**	**0.18**
					1	14	22.20	0.17

LTE Band 2		19185	1908.5	QPSK	6	9	21.41	0.14
					15	0	21.57	0.14
				16-QAM	**1**	**0**	**22.64**	**0.18**
					1	14	22.36	0.17
					6	9	21.53	0.14
					15	0	20.70	0.12
	5MHz	18625	1852.5	QPSK	1	0	22.78	0.19
					1	**24**	**22.99**	**0.20**
					8	17	21.85	0.15
					25	0	21.80	0.15
				16-QAM	1	0	22.85	0.19
					1	**24**	**22.99**	**0.20**
					8	17	21.85	0.15
					25	0	20.77	0.12
		18900	1880.0	QPSK	1	0	22.72	0.19
					1	**24**	**22.76**	**0.19**
					8	17	21.88	0.15
					25	0	21.81	0.15
				16-QAM	1	0	22.70	0.19
					1	**24**	**22.77**	**0.19**
					8	17	21.80	0.15
					25	0	20.81	0.12
		19175	1907.5	QPSK	**1**	**0**	**22.73**	**0.19**
					1	24	22.49	0.18
					8	17	21.61	0.14
					25	0	21.55	0.14
				16-QAM	**1**	**0**	**21.85**	**0.15**
					1	24	21.53	0.14
					8	17	21.55	0.14
					25	0	20.59	0.11
	10MHz	18650	1855.0	QPSK	1	0	22.75	0.19
					1	**49**	**22.95**	**0.20**
					16	34	21.94	0.16
					50	0	21.74	0.15
				16-QAM	1	0	21.47	0.14
					1	**49**	**21.68**	**0.15**
					16	34	20.97	0.13
					50	0	20.78	0.12
		18900	1880.0	QPSK	1	0	22.70	0.19
					1	**49**	**22.78**	**0.19**
					16	34	21.83	0.15
					50	0	21.72	0.15
				16-QAM	1	0	22.33	0.17
					1	**49**	**22.41**	**0.17**
					16	34	21.88	0.15
					50	0	20.65	0.12
		19150	1905.0	QPSK	**1**	**0**	**22.93**	**0.20**
					1	49	22.52	0.18

LTE Band 2					16	34	21.58	0.14
					50	0	21.52	0.14
				16-QAM	**1**	**0**	**21.75**	**0.15**
					1	49	21.42	0.14
					16	34	20.69	0.12
					50	0	20.58	0.11
	15MHz	18675	1857.5	QPSK	1	0	22.84	0.19
					1	**74**	**22.93**	**0.20**
					24	51	21.89	0.15
					75	0	21.74	0.15
				16-QAM	1	0	21.62	0.15
					1	**74**	**21.75**	**0.15**
					24	51	21.91	0.16
					75	0	20.70	0.12
		18900	1880.0	QPSK	1	0	22.79	0.19
					1	**74**	**22.85**	**0.19**
					24	51	21.69	0.15
					75	0	21.58	0.14
				16-QAM	**1**	**0**	**22.03**	**0.16**
					1	74	22.02	0.16
					24	51	21.68	0.15
					75	0	21.54	0.14
		19125	1902.5	QPSK	**1**	**0**	**22.86**	**0.19**
					1	74	22.50	0.18
					24	51	21.64	0.15
					75	0	21.62	0.15
				16-QAM	**1**	**0**	**22.40**	**0.17**
					1	74	22.06	0.16
					24	51	20.79	0.12
					75	0	20.57	0.11
	20MHz	18700	1860.0	QPSK	**1**	**0**	**22.83**	**0.19**
					1	99	22.78	0.19
					24	76	21.82	0.15
					100	0	21.72	0.15
				16-QAM	1	0	21.83	0.15
					1	**99**	**21.91**	**0.16**
					24	76	20.83	0.12
					100	0	20.65	0.12
		18900	1880.0	QPSK	1	0	22.78	0.19
					1	**99**	**22.95**	**0.20**
					24	76	21.81	0.15
					100	0	21.66	0.15
				16-QAM	1	0	22.50	0.18
					1	**99**	**22.66**	**0.18**
					24	76	20.74	0.12
					100	0	20.60	0.11
		19100	1900.0	QPSK	**1**	**0**	**22.92**	**0.20**
					1	99	22.52	0.18

					24	76	21.66	0.15
LTE Band 2					100	0	21.65	0.15
					1	**0**	**21.99**	**0.16**
				16-QAM	1	99	21.64	0.15
					24	76	20.59	0.11
					100	0	20.65	0.12

Mode	Band Width	Channel	Frequeny (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**	**22.92**	**0.20**
					1	5	22.88	0.19
					5	1	22.84	0.19
					6	0	21.94	0.16
				16-QAM	**1**	**0**	**21.75**	**0.15**
					1	5	21.72	0.15
					5	1	21.46	0.14
					6	0	20.89	0.12
		20175	1732.5	QPSK	**1**	**0**	**22.10**	**0.16**
					1	5	22.10	0.16
					5	1	22.09	0.16
					6	0	21.17	0.13
				16-QAM	**1**	**0**	**20.88**	**0.12**
					1	5	20.83	0.12
					5	1	20.51	0.11
					6	0	20.30	0.11
		20393	1754.3	QPSK	**1**	**0**	**22.66**	**0.18**
					1	5	22.63	0.18
					5	1	22.58	0.18
					6	0	21.72	0.15
				16-QAM	**1**	**0**	**21.50**	**0.14**
					1	5	21.50	0.14
					5	1	20.96	0.12
					6	0	20.60	0.11
	3MHz	19965	1711.5	QPSK	**1**	**0**	**22.96**	**0.20**
					1	14	22.84	0.19
					6	9	21.84	0.15
					15	0	21.86	0.15
				16-QAM	**1**	**0**	**21.75**	**0.15**
					1	14	21.70	0.15
					6	9	20.80	0.12
					15	0	20.89	0.12
		20175	1732.5	QPSK	1	0	22.06	0.16
					1	**14**	**22.13**	**0.16**
					6	9	21.24	0.13
					15	0	21.20	0.13

				16-QAM	1	0	22.10	0.16
					1	**14**	**22.19**	**0.17**
					6	9	20.53	0.11
					15	0	20.41	0.11
		20385	1753.5	QPSK	**1**	**0**	**22.67**	**0.18**
					1	14	22.54	0.18
					6	9	21.64	0.15
					15	0	21.59	0.14
				16-QAM	**1**	**0**	**22.29**	**0.17**
					1	14	22.15	0.16
					6	9	20.70	0.12
					15	0	20.76	0.12
	5MHz	19975	1712.5	QPSK	**1**	**0**	**22.96**	**0.20**
					1	24	22.89	0.19
					8	17	22.90	0.19
					25	0	21.74	0.15
				16-QAM	**1**	**0**	**21.96**	**0.16**
					1	24	21.85	0.15
					8	17	21.90	0.15
					25	0	20.73	0.12
		20175	1732.5	QPSK	1	0	22.05	0.16
					1	24	22.15	0.16
					8	**17**	**22.16**	**0.16**
					25	0	21.07	0.13
LTE Band 4				16-QAM	1	0	20.85	0.12
					1	24	20.92	0.12
					8	**17**	**21.26**	**0.13**
					25	0	20.46	0.11
		20375	1752.5	QPSK	**1**	**0**	**22.91**	**0.20**
					1	24	22.61	0.18
					8	17	22.67	0.18
					25	0	21.64	0.15
				16-QAM	**1**	**0**	**22.14**	**0.16**
					1	24	21.97	0.16
					8	17	21.67	0.15
					25	0	20.63	0.12
	10MHz	20000	1715.0	QPSK	**1**	**0**	**22.93**	**0.20**
					1	49	22.59	0.18
					16	34	21.70	0.15
					50	0	21.60	0.14
				16-QAM	**1**	**0**	**21.74**	**0.15**
					1	49	21.47	0.14
					16	34	20.78	0.12
					50	0	20.59	0.11
		20175	1732.5	QPSK	1	0	22.18	0.17
					1	**49**	**22.19**	**0.17**
					16	34	21.25	0.13
					50	0	21.03	0.13

				16-QAM	**1**	**0**	**21.00**	**0.13**
					1	49	20.87	0.12
					16	34	20.46	0.11
					50	0	20.45	0.11
		20350	1750.0	QPSK	1	0	22.53	0.18
					1	**49**	**22.56**	**0.18**
					16	34	21.64	0.15
					50	0	21.54	0.14
				16-QAM	1	0	22.10	0.16
					1	**49**	**22.15**	**0.16**
					16	34	20.81	0.12
					50	0	20.60	0.11
	15MHz	20025	1717.5	QPSK	**1**	**0**	**22.83**	**0.19**
					1	74	22.31	0.17
					24	51	21.49	0.14
					75	0	21.44	0.14
				16-QAM	**1**	**0**	**21.66**	**0.15**
					1	74	21.20	0.13
					24	51	20.48	0.11
					75	0	20.51	0.11
		20175	1732.5	QPSK	1	0	22.13	0.16
					1	**74**	**22.28**	**0.17**
					24	51	21.19	0.13
					75	0	20.91	0.12
LTE Band 4				16-QAM	1	0	21.47	0.14
					1	**74**	**21.53**	**0.14**
					24	51	20.44	0.11
					75	0	20.38	0.11
		20325	1747.5	QPSK	1	0	22.30	0.17
					1	**74**	**22.53**	**0.18**
					24	51	21.59	0.14
					75	0	21.39	0.14
				16-QAM	1	0	21.89	0.15
					1	**74**	**22.13**	**0.16**
					24	51	20.71	0.12
					75	0	20.43	0.11
	20MHz	20050	1720.0	QPSK	**1**	**0**	**22.79**	**0.19**
					1	99	22.22	0.17
					24	76	21.18	0.13
					100	0	21.41	0.14
				16-QAM	**1**	**0**	**21.85**	**0.15**
					1	99	21.30	0.13
					24	76	20.42	0.11
					100	0	20.38	0.11
		20175	1732.5	QPSK	1	0	22.28	0.17
					1	**99**	**22.34**	**0.17**
					24	76	21.24	0.13
					100	0	21.02	0.13

				16-QAM	1	0	22.01	0.16
					1	**99**	**22.02**	**0.16**
					24	76	20.32	0.11
					100	0	20.38	0.11
LTE Band 4		20300	1745.0	QPSK	1	0	22.15	0.16
					1	**99**	**22.61**	**0.18**
					24	76	21.64	0.15
					100	0	21.33	0.14
				16-QAM	1	0	21.27	0.13
					1	**99**	**21.68**	**0.15**
					24	76	20.53	0.11
					100	0	20.30	0.11

Mode	Band Width	Channel	Frequeny (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**	**23.75**	**0.24**
					1	5	23.71	0.23
					5	1	23.75	0.24
					6	0	22.77	0.19
				16-QAM	1	0	22.64	0.18
					1	5	22.64	0.18
					5	**1**	**22.84**	**0.19**
					6	0	21.70	0.15
		20525	836.5	QPSK	**1**	**0**	**23.74**	**0.24**
					1	5	23.68	0.23
					5	1	23.70	0.23
					6	0	22.72	0.19
				16-QAM	1	0	22.54	0.18
					1	5	22.49	0.18
					5	**1**	**22.77**	**0.19**
					6	0	21.75	0.15
		20643	848.3	QPSK	**1**	**0**	**23.67**	**0.23**
					1	5	23.52	0.22
					5	1	23.54	0.23
					6	0	22.60	0.18
				16-QAM	1	0	22.48	0.18
					1	5	22.41	0.17
					5	**1**	**22.63**	**0.18**
					6	0	21.52	0.14
	3MHz	20415	825.5	QPSK	**1**	**0**	**23.81**	**0.24**
					1	14	23.61	0.23
					6	9	22.75	0.19
					15	0	22.73	0.19
				16-QAM	**1**	**0**	**22.62**	**0.18**
					1	14	22.48	0.18
					6	9	21.70	0.15

					15	0	21.74	0.15
		20525	836.5	QPSK	**1**	**0**	**23.58**	**0.23**
					1	14	23.55	0.23
					6	9	22.74	0.19
					15	0	22.65	0.18
				16-QAM	**1**	**0**	**22.44**	**0.18**
					1	14	22.35	0.17
					6	9	21.72	0.15
					15	0	21.71	0.15
		20635	847.5	QPSK	**1**	**0**	**23.57**	**0.23**
					1	14	23.43	0.22
					6	9	22.62	0.18
					15	0	22.59	0.18
				16-QAM	**1**	**0**	**23.21**	**0.21**
					1	14	23.04	0.20
					6	9	21.59	0.14
					15	0	21.70	0.15
	5MHz	20425	826.5	QPSK	**1**	**0**	**23.85**	**0.24**
					1	24	23.63	0.23
					8	17	23.56	0.23
					25	0	22.54	0.18
				16-QAM	**1**	**0**	**23.11**	**0.20**
					1	24	22.92	0.20
					8	17	22.59	0.18
					25	0	21.50	0.14
		20525	836.5	QPSK	1	0	23.59	0.23
					1	24	23.67	0.23
					8	**17**	**23.69**	**0.23**
					25	0	22.62	0.18
				16-QAM	1	0	22.67	0.18
					1	24	22.74	0.19
					8	**17**	**22.76**	**0.19**
					25	0	21.60	0.14
		20625	846.5	QPSK	**1**	**0**	**23.64**	**0.23**
					1	24	23.50	0.22
					8	17	23.60	0.23
					25	0	22.55	0.18
				16-QAM	1	0	22.39	0.17
					1	24	22.20	0.17
					8	**17**	**22.72**	**0.19**
					25	0	21.59	0.14
	10MHz	20450	829	QPSK	**1**	**0**	**23.77**	**0.24**
					1	49	23.67	0.23
					16	34	22.69	0.19
					50	0	22.52	0.18
				16-QAM	**1**	**0**	**22.72**	**0.19**
					1	49	22.57	0.18
					16	34	21.75	0.15

LTE Band 5

					50	0	21.50	0.14
		20525	836.5	QPSK	1	0	23.54	0.23
					1	**49**	**23.71**	**0.23**
					16	34	22.70	0.19
LTE Band 5					50	0	22.51	0.18
				16-QAM	1	0	22.25	0.17
					1	**49**	**22.48**	**0.18**
					16	34	21.79	0.15
					50	0	21.55	0.14
		20600	844	QPSK	**1**	**0**	**23.65**	**0.23**
					1	49	23.52	0.22
					16	34	22.57	0.18
					50	0	22.52	0.18
				16-QAM	**1**	**0**	**22.36**	**0.17**
					1	49	22.31	0.17
					16	34	21.70	0.15
					50	0	21.53	0.14

Mode	Band Width	Channel	Frequeny (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 17	5MHz	23755	706.5	QPSK	1	0	22.52	0.18
					1	**24**	**22.60**	**0.18**
					8	17	22.56	0.18
					25	0	21.53	0.14
				16-QAM	1	0	21.84	0.15
					1	**24**	**21.94**	**0.16**
					8	17	21.58	0.14
					25	0	20.43	0.11
		23790	710	QPSK	1	0	22.41	0.17
					1	**24**	**22.60**	**0.18**
					8	17	22.56	0.18
					25	0	21.42	0.14
				16-QAM	1	0	21.50	0.14
					1	**24**	**21.66**	**0.15**
					8	17	21.62	0.15
					25	0	20.38	0.11
		23825	713.5	QPSK	**1**	**0**	**22.57**	**0.18**
					1	24	22.37	0.17
					8	17	22.54	0.18
					25	0	21.58	0.14
				16-QAM	**1**	**0**	**21.24**	**0.13**
					1	24	21.05	0.13
					8	17	21.58	0.14
					25	0	20.61	0.12
	10MHz	23780	709	QPSK	1	0	22.50	0.18

					1	**49**	**22.67**	**0.18**
					16	34	21.70	0.15
					50	0	21.30	0.13
					1	0	21.33	0.14
				16-QAM	**1**	**49**	**21.54**	**0.14**
					16	34	20.78	0.12
					50	0	20.36	0.11
		23790	710	QPSK	1	0	22.48	0.18
					1	**49**	**22.60**	**0.18**
					16	34	21.58	0.14
					50	0	21.35	0.14
				16-QAM	1	0	21.17	0.13
LTE Band 17					**1**	**49**	**21.33**	**0.14**
					16	34	20.69	0.12
					50	0	20.38	0.11
		23800	711	QPSK	**1**	**0**	**22.40**	**0.17**
					1	49	22.32	0.17
					16	34	21.53	0.14
					50	0	21.43	0.14
				16-QAM	**1**	**0**	**22.02**	**0.16**
					1	49	21.95	0.16
					16	34	20.71	0.12
					50	0	20.43	0.11

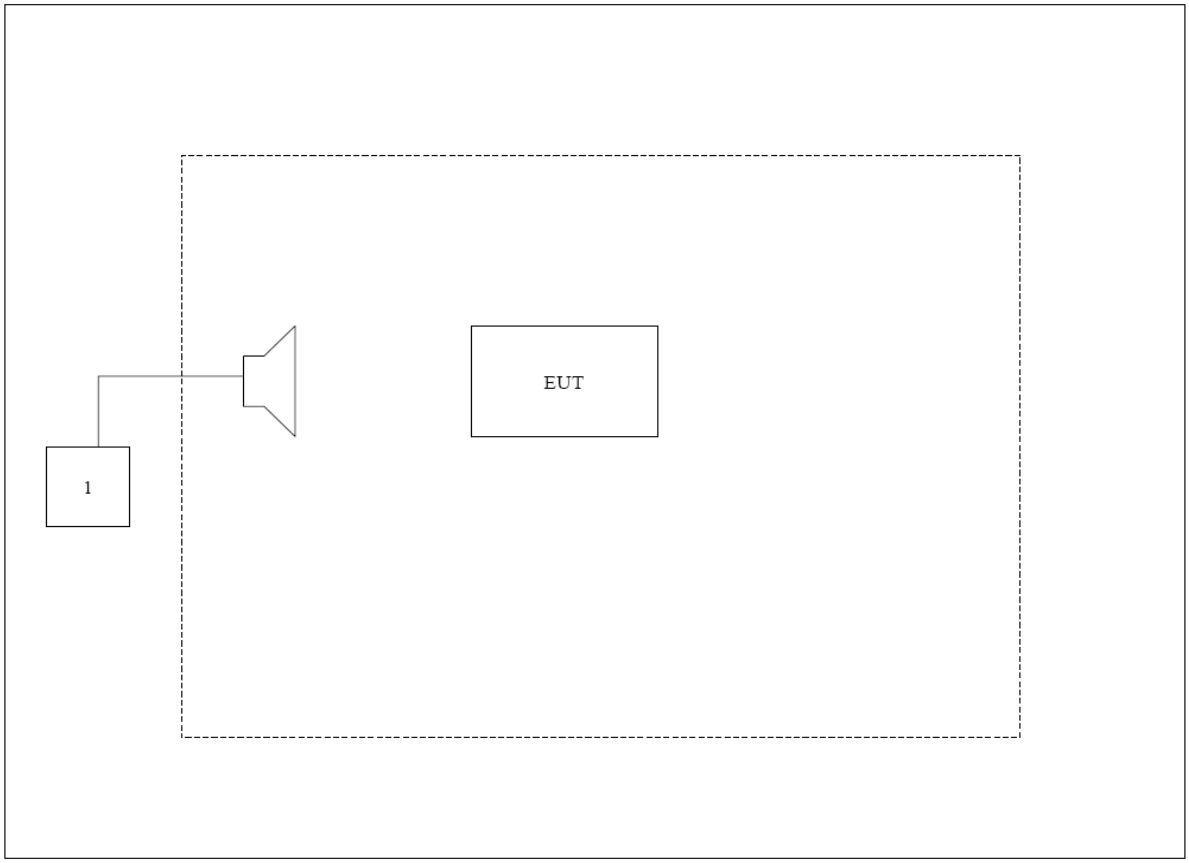
1.3. Tested System Details

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 (℃)	15-35	22
Humidity (%RH)	25-75	53
Barometric pressure (mbar)	860-1060	950-1000

3. Peak Output Power

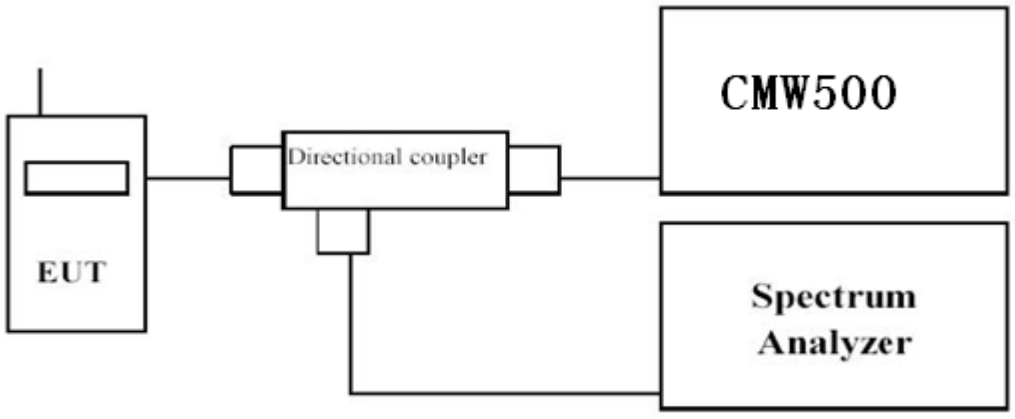
3.1. Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	12/17/2014
Radio Communication Tester	R&S	CMW500	147483	10/15/2014
Signal Generator	Agilent	N5183A	MY50140938	01/03/2015
Preamplifier	CEM	EM30180	3008A0245	02/28/2015
DC Power Supply	Agilent	6612C	MY43002989	03/03/2015
Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	10/19/2015
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	10/19/2015
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	10/19/2015
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	10/19/2015

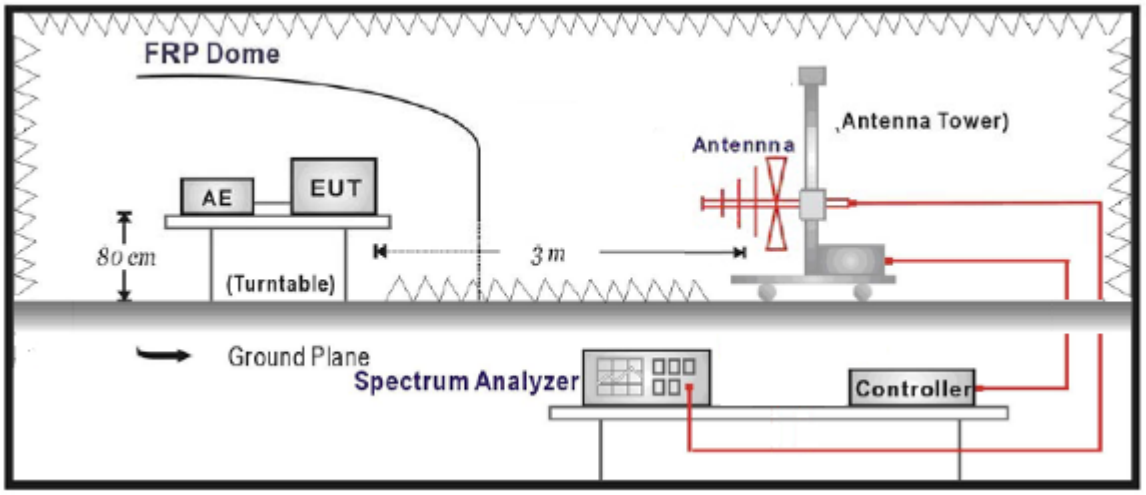
The measure equipment had been calibrated once a year.

3.2. Test Setup

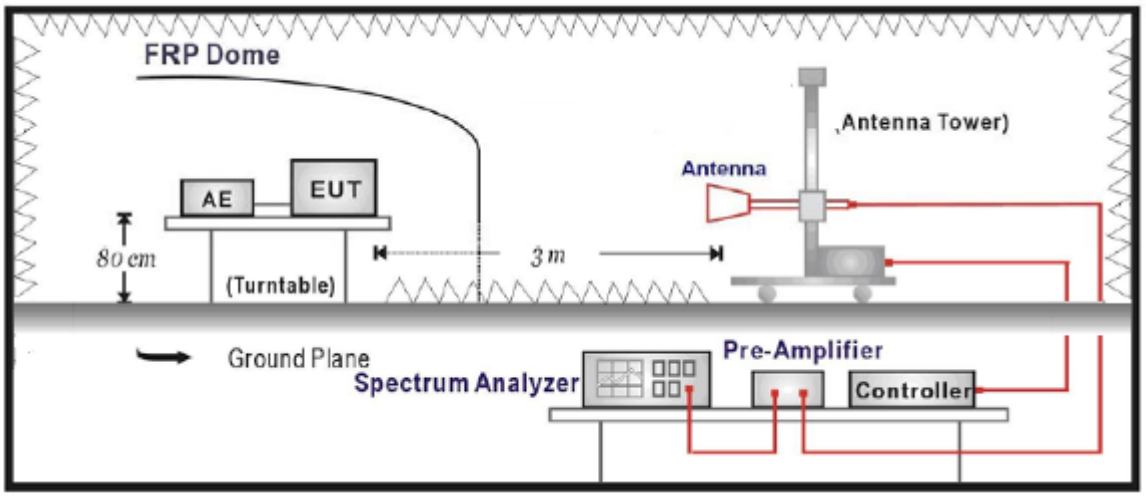
Conducted Power Measurement:



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: 2009.

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	Frequeny (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**	**5**	**22.81**	**0.19**
				16-QAM	**1**	**5**	**22.93**	**0.20**
		18900	1880.0	QPSK	1	0	22.80	0.19
				16-QAM	1	5	22.85	0.19
		19193	1909.3	QPSK	1	0	22.60	0.18
				16-QAM	1	5	22.43	0.17
	3MHz	18615	1851.5	**QPSK**	**1**	**14**	**22.90**	**0.19**
				16-QAM	**1**	**14**	**22.94**	**0.20**
		18900	1880.0	QPSK	1	0	22.80	0.19
				16-QAM	1	0	22.83	0.19
		19185	1908.5	QPSK	1	0	22.63	0.18
				16-QAM	1	0	22.64	0.18
	5MHz	18625	1852.5	**QPSK**	**1**	**24**	**22.99**	**0.20**
				16-QAM	**1**	**24**	**22.99**	**0.20**
		18900	1880.0	QPSK	1	24	22.76	0.19
				16-QAM	1	24	22.77	0.19
		19175	1907.5	QPSK	1	0	22.73	0.19
				16-QAM	1	0	21.85	0.15
	10MHz	18650	1855.0	**QPSK**	**1**	**49**	**22.95**	**0.20**
				16-QAM	1	49	21.68	0.15
		18900	1880.0	QPSK	1	49	22.78	0.19
				16-QAM	**1**	**49**	**22.41**	**0.17**
		19150	1905.0	QPSK	1	0	22.93	0.20
				16-QAM	1	0	21.75	0.15
	15MHz	18675	1857.5	**QPSK**	**1**	**74**	**22.93**	**0.20**
				16-QAM	1	74	21.75	0.15
		18900	1880.0	QPSK	1	74	22.85	0.19
				16-QAM	1	0	22.03	0.16
		19125	1902.5	QPSK	1	0	22.86	0.19
				16-QAM	**1**	**0**	**22.40**	**0.17**
	20MHz	18700	1860.0	QPSK	1	0	22.83	0.19
				16-QAM	1	99	21.91	0.16
		18900	1880.0	**QPSK**	**1**	**99**	**22.95**	**0.20**
				16-QAM	**1**	**99**	**22.66**	**0.18**
		19100	1900.0	QPSK	1	0	22.92	0.20
				16-QAM	1	0	21.99	0.16

Mode	Band Width	Channel	Frequeny (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**	**22.92**	**0.20**
				16-QAM	**1**	**0**	**21.75**	**0.15**
		20175	1732.5	QPSK	1	0	22.10	0.16
				16-QAM	1	0	20.88	0.12
		20393	1754.3	QPSK	1	0	22.66	0.18
				16-QAM	1	0	21.50	0.14
	3MHz	19965	1711.5	**QPSK**	**1**	**0**	**22.96**	**0.20**
				16-QAM	1	0	21.75	0.15
		20175	1732.5	QPSK	1	14	22.13	0.16
				16-QAM	1	14	22.19	0.17
		20385	1753.5	QPSK	1	0	22.67	0.18
				16-QAM	**1**	**0**	**22.29**	**0.17**
	5MHz	19975	1712.5	**QPSK**	**1**	**0**	**22.96**	**0.20**
				16-QAM	1	0	21.96	0.16
		20175	1732.5	QPSK	8	17	22.16	0.16
				16-QAM	8	17	21.16	0.13
		20375	1752.5	QPSK	1	0	22.91	0.20
				16-QAM	**1**	**0**	**22.14**	**0.16**
	10MHz	20000	1715.0	**QPSK**	**1**	**0**	**22.93**	**0.20**
				16-QAM	1	0	21.74	0.15
		20175	1732.5	QPSK	1	49	22.19	0.17
				16-QAM	1	0	21.00	0.13
		20350	1750.0	QPSK	1	49	22.56	0.18
				16-QAM	**1**	**49**	**22.15**	**0.16**
	15MHz	20025	1717.5	**QPSK**	**1**	**0**	**22.83**	**0.19**
				16-QAM	1	0	21.66	0.15
		20175	1732.5	QPSK	1	74	22.28	0.17
				16-QAM	1	74	21.53	0.14
		20325	1747.5	QPSK	1	74	22.53	0.18
				16-QAM	**1**	**74**	**22.13**	**0.16**
	20MHz	20050	1720.0	**QPSK**	**1**	**0**	**22.79**	**0.19**
				16-QAM	1	0	21.85	0.15
		20175	1732.5	QPSK	1	99	22.34	0.17
				16-QAM	**1**	**99**	**22.02**	**0.16**
		20300	1745.0	QPSK	1	99	22.61	0.18
				16-QAM	1	99	21.68	0.15

Mode	Band Width	Channel	Frequeny (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**	**23.75**	**0.24**
				16-QAM	**5**	**1**	**22.84**	**0.19**
		20525	836.5	QPSK	1	0	23.74	0.24
				16-QAM	5	1	22.77	0.19
		20643	848.3	QPSK	1	0	23.67	0.23
				16-QAM	5	1	22.63	0.18
	3MHz	20415	825.5	**QPSK**	**1**	**0**	**23.81**	**0.24**
				16-QAM	1	0	22.62	0.18
		20525	836.5	QPSK	1	0	23.58	0.23
				16-QAM	1	0	22.44	0.18
		20635	847.5	QPSK	1	0	23.57	0.23
				16-QAM	**1**	**0**	**23.21**	**0.21**
	5MHz	20425	826.5	**QPSK**	**1**	**0**	**23.85**	**0.24**
				16-QAM	**1**	**0**	**23.11**	**0.20**
		20525	836.5	QPSK	8	17	23.69	0.23
				16-QAM	8	17	22.76	0.19
		20625	846.5	QPSK	1	0	23.64	0.23
				16-QAM	8	17	22.72	0.19
	10MHz	20450	829	**QPSK**	**1**	**0**	**23.77**	**0.24**
				16-QAM	**1**	**0**	**22.72**	**0.19**
		20525	836.5	QPSK	1	49	23.71	0.23
				16-QAM	1	49	22.48	0.18
		20600	844	QPSK	1	0	23.65	0.23
				16-QAM	1	0	22.36	0.17

Mode	Band Width	Channel	Frequeny (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 17	5MHz	23755	706.5	**QPSK**	**1**	**24**	**22.60**	**0.18**
				16-QAM	**1**	**24**	**21.94**	**0.16**
		23790	710	QPSK	1	24	22.60	0.18
				16-QAM	1	24	21.66	0.15
		23825	713.5	QPSK	1	0	22.57	0.18
				16-QAM	1	0	21.24	0.13
	10MHz	23780	709	**QPSK**	**1**	**49**	**22.67**	**0.18**
				16-QAM	1	49	21.54	0.14
		23790	710	QPSK	1	49	22.60	0.18
				16-QAM	1	49	21.33	0.14
		23800	711	QPSK	1	0	22.40	0.17
				16-QAM	**1**	**0**	**22.02**	**0.16**

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	19.73	6.26	10.40	23.87	0.24
1850.7	V	18.40	6.26	10.40	22.54	0.18
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.72	6.19	10.43	23.96	0.25
1880.0	V	18.36	6.19	10.43	22.60	0.18
High Channel 19193 (1909.3MHz)						
1909.3	H	19.55	6.15	10.44	23.84	0.24
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 5)

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	19.30	6.26	10.40	23.44	0.22
1850.7	V	18.74	6.26	10.40	22.88	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	18.97	6.19	10.43	23.21	0.21
1880.0	V	18.23	6.19	10.43	22.47	0.18
High Channel 19193 (1909.3MHz)						
1909.3	H	18.67	6.15	10.44	22.96	0.20
1909.3	V	18.30	6.15	10.44	22.59	0.18

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	19.62	6.26	10.40	23.76	0.24
1851.5	V	18.70	6.26	10.40	22.84	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.31	6.19	10.43	23.55	0.23
1880.0	V	18.36	6.19	10.43	22.46	0.18
High Channel 19185 (1908.5MHz)						
1908.5	H	19.21	6.15	10.44	23.50	0.22
1908.5	V	18.23	6.15	10.44	22.52	0.18

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	19.31	6.26	10.40	23.45	0.22
1851.5	V	18.70	6.26	10.40	22.84	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.02	6.19	10.43	23.26	0.21
1880.0	V	18.46	6.19	10.43	22.70	0.19
High Channel 19185 (1908.5MHz)						
1908.5	H	18.87	6.15	10.44	23.16	0.21
1908.5	V	18.36	6.15	10.44	22.65	0.18

LTE Band 2 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 24)

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	19.73	6.26	10.40	23.87	0.24
1852.5	V	18.70	6.26	10.40	22.84	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.40	6.19	10.43	23.64	0.23
1880.0	V	18.69	6.19	10.43	22.93	0.20
High Channel 19175 (1907.5MHz)						
1907.5	H	19.46	6.15	10.44	23.75	0.24
1907.5	V	18.72	6.15	10.44	23.01	0.20

LTE Band 2 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 24)

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	19.40	6.26	10.40	23.54	0.23
1852.5	V	18.67	6.26	10.40	22.81	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.45	6.19	10.43	23.69	0.23
1880.0	V	18.52	6.19	10.43	22.76	0.19
High Channel 19175 (1907.5MHz)						
1907.5	H	19.15	6.15	10.44	23.44	0.22
1907.5	V	18.40	6.15	10.44	22.69	0.19

LTE Band 2 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 49)

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	19.74	6.26	10.40	23.88	0.24
1855.0	V	18.45	6.26	10.40	22.59	0.18
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.22	6.19	10.43	23.46	0.22
1880.0	V	18.61	6.19	10.43	22.85	0.19
High Channel 19150 (1905.0MHz)						
1905.0	H	19.27	6.15	10.44	23.56	0.23
1905.0	V	18.09	6.15	10.44	22.38	0.17

LTE Band 2 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 49)

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	19.52	6.26	10.40	23.66	0.23
1855.0	V	18.34	6.26	10.40	22.48	0.18
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.37	6.19	10.43	23.61	0.23
1880.0	V	18.41	6.19	10.43	22.65	0.18
High Channel 19150 (1905.0MHz)						
1905.0	H	19.23	6.15	10.44	23.52	0.22
1905.0	V	18.26	6.15	10.44	22.55	0.18

LTE Band 2 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 74)

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	19.54	6.26	10.40	23.68	0.23
1857.5	V	18.71	6.26	10.40	22.85	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.30	6.19	10.43	23.54	0.23
1880.0	V	18.38	6.19	10.43	22.62	0.18
High Channel 19125 (1902.5MHz)						
1902.5	H	19.06	6.15	10.44	23.35	0.22
1902.5	V	18.12	6.15	10.44	22.41	0.17

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	19.60	6.26	10.40	23.74	0.24
1857.5	V	18.27	6.26	10.40	22.41	0.17
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.30	6.19	10.43	23.54	0.23
1880.0	V	18.14	6.19	10.43	22.38	0.17
High Channel 19125 (1902.5MHz)						
1902.5	H	19.33	6.15	10.44	23.62	0.23
1902.5	V	17.91	6.15	10.44	22.20	0.17

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	19.74	6.26	10.40	23.88	0.24
1860.0	V	18.37	6.26	10.40	22.51	0.19
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.38	6.19	10.43	23.62	0.23
1880.0	V	18.18	6.19	10.43	22.42	0.17
High Channel 19100 (1900.0MHz)						
1900.0	H	19.46	6.15	10.44	23.75	0.24
1900.0	V	18.05	6.15	10.44	22.34	0.17

LTE Band 2 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 99)

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	19.49	6.26	10.40	23.63	0.23
1860.0	V	18.10	6.26	10.40	22.24	0.17
Middle Channel 18900 (1880.0MHz)						
1880.0	H	19.30	6.19	10.43	23.54	0.23
1880.0	V	18.12	6.19	10.43	22.36	0.17
High Channel 19100 (1900.0MHz)						
1900.0	H	19.21	6.15	10.44	23.50	0.22
1900.0	V	17.92	6.15	10.44	22.21	0.17

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	20.08	6.15	9.42	23.35	0.22
1710.7	V	19.47	6.15	9.42	22.74	0.19
Middle Channel 20175 (1732.5MHz)						
1732.5	H	20.02	6.19	9.44	23.27	0.21
1732.5	V	19.01	6.19	9.44	22.26	0.17
High Channel 20393 (1754.3MHz)						
1754.3	H	19.96	6.20	9.47	23.23	0.21
1754.3	V	19.15	6.20	9.47	22.42	0.17

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	19.81	6.15	9.42	23.08	0.20
1710.7	V	18.83	6.15	9.42	22.10	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.94	6.19	9.44	23.19	0.21
1732.5	V	18.80	6.19	9.44	22.05	0.16
High Channel 20393 (1754.3MHz)						
1754.3	H	20.07	6.20	9.47	23.34	0.22
1754.3	V	18.73	6.20	9.47	22.00	0.16

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	20.05	6.15	9.42	23.32	0.21
1711.5	V	19.14	6.15	9.42	22.41	0.17
Middle Channel 20175 (1732.5MHz)						
1732.5	H	20.01	6.19	9.44	23.26	0.21
1732.5	V	18.90	6.19	9.44	22.15	0.16
High Channel 20385 (1753.5MHz)						
1753.5	H	20.01	6.20	9.47	23.28	0.21
1753.5	V	18.92	6.20	9.47	22.19	0.17

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	19.73	6.15	9.42	23.00	0.20
1711.5	V	18.59	6.15	9.42	21.86	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.64	6.19	9.44	22.89	0.19
1732.5	V	18.65	6.19	9.44	21.90	0.15
High Channel 20385 (1753.5MHz)						
1753.5	H	19.85	6.20	9.47	23.12	0.21
1753.5	V	18.73	6.20	9.47	22.00	0.16

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	20.30	6.15	9.42	23.57	0.23
1712.5	V	18.96	6.15	9.42	22.23	0.17
Middle Channel 20175 (1732.5MHz)						
1732.5	H	20.19	6.19	9.44	23.44	0.22
1732.5	V	19.07	6.19	9.44	22.32	0.17
High Channel 20375 (1752.5MHz)						
1752.5	H	20.05	6.20	9.47	23.32	0.21
1752.5	V	18.93	6.20	9.47	22.20	0.17

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	19.85	6.15	9.42	23.12	0.21
1712.5	V	18.79	6.15	9.42	22.06	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.82	6.19	9.44	23.07	0.20
1732.5	V	18.71	6.19	9.44	21.96	0.16
High Channel 20375 (1752.5MHz)						
1752.5	H	20.02	6.20	9.47	23.29	0.21
1752.5	V	18.88	6.20	9.47	22.15	0.16

LTE Band 4 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 49)

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	19.91	6.15	9.42	23.18	0.21
1715.0	V	18.88	6.15	9.42	22.15	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	20.01	6.19	9.44	23.26	0.21
1732.5	V	18.98	6.19	9.44	22.23	0.17
High Channel 20350 (1750.0MHz)						
1750.0	H	20.03	6.20	9.47	23.30	0.21
1750.0	V	18.85	6.20	9.47	22.12	0.16

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	19.99	6.15	9.42	23.26	0.21
1715.0	V	18.87	6.15	9.42	22.14	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.83	6.19	9.44	23.08	0.20
1732.5	V	18.84	6.19	9.44	22.09	0.16
High Channel 20350 (1750.0MHz)						
1750.0	H	19.89	6.20	9.47	23.16	0.21
1750.0	V	18.93	6.20	9.47	22.20	0.17

LTE Band 4 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 74)

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	20.09	6.15	9.42	23.36	0.22
1717.5	V	18.91	6.15	9.42	22.18	0.17
Middle Channel 20175 (1732.5MHz)						
1732.5	H	20.15	6.19	9.44	23.40	0.22
1732.5	V	18.95	6.19	9.44	22.20	0.17
High Channel 20325 (1747.5MHz)						
1747.5	H	20.01	6.20	9.47	23.28	0.21
1747.5	V	18.83	6.20	9.47	22.10	0.16

LTE Band 4 (16-QAM, Band Width 15MHz,RB Size 1,RB Offset 74)

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	19.75	6.15	9.42	23.02	0.20
1717.5	V	18.60	6.15	9.42	21.87	0.15
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.85	6.19	9.44	23.10	0.20
1732.5	V	18.71	6.19	9.44	21.96	0.16
High Channel 20325 (1747.5MHz)						
1747.5	H	19.84	6.20	9.47	23.11	0.20
1747.5	V	18.73	6.20	9.47	22.00	0.16

LTE Band 4 (QPSK, Band Width 20MHz,RB Size 1,RB Offset 99)

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	19.81	6.15	9.42	23.08	0.20
1720.0	V	18.83	6.15	9.42	22.10	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.87	6.19	9.44	23.12	0.21
1732.5	V	18.91	6.19	9.44	22.16	0.16
High Channel 20300 (1745.0MHz)						
1745.0	H	20.03	6.20	9.47	23.30	0.21
1745.0	V	18.83	6.20	9.47	22.10	0.16

LTE Band 4 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 99)

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	19.75	6.15	9.42	23.02	0.20
1720.0	V	18.88	6.15	9.42	22.15	0.16
Middle Channel 20175 (1732.5MHz)						
1732.5	H	19.69	6.19	9.44	22.94	0.20
1732.5	V	18.76	6.19	9.44	22.01	0.16
High Channel 20300 (1745.0MHz)						
1745.0	H	19.61	6.20	9.47	22.88	0.19
1745.0	V	18.76	6.20	9.47	22.03	0.16

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	31.78	3.83	-2.99	24.96	0.31
824.7	V	30.39	3.83	-2.99	23.57	0.23
Middle Channel 20525 (836.5MHz)						
836.5	H	31.84	3.96	-3.04	24.84	0.30
836.5	V	30.44	3.96	-3.04	23.44	0.22
High Channel 20643 (848.3MHz)						
848.3	H	31.93	3.97	-3.10	24.86	0.31
848.3	V	30.62	3.97	-3.10	23.55	0.23

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

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	30.78	3.83	-2.99	23.96	0.25
824.7	V	29.89	3.83	-2.99	23.07	0.20
Middle Channel 20525 (836.5MHz)						
836.5	H	30.84	3.96	-3.04	23.84	0.24
836.5	V	30.00	3.96	-3.04	23.00	0.20
High Channel 20643 (848.3MHz)						
848.3	H	31.01	3.97	-3.10	23.94	0.25
848.3	V	30.02	3.97	-3.10	22.95	0.20

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	31.84	3.83	-2.99	25.02	0.32
825.5	V	30.07	3.83	-2.99	24.25	0.27
Middle Channel 20525 (836.5MHz)						
836.5	H	31.86	3.96	-3.04	24.86	0.31
836.5	V	31.24	3.96	-3.04	24.24	0.27
High Channel 20635 (847.5MHz)						
847.5	H	32.07	3.97	-3.10	25.00	0.32
847.5	V	31.44	3.97	-3.10	24.37	0.27

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	30.83	3.83	-2.99	24.01	0.25
825.5	V	30.06	3.83	-2.99	23.24	0.21
Middle Channel 20525 (836.5MHz)						
836.5	H	31.38	3.96	-3.04	24.38	0.27
836.5	V	30.44	3.96	-3.04	23.44	0.22
High Channel 20635 (847.5MHz)						
847.5	H	31.19	3.97	-3.10	24.12	0.26
847.5	V	30.37	3.97	-3.10	23.30	0.21

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	31.94	3.83	-2.99	25.12	0.33
826.5	V	31.07	3.83	-2.99	24.25	0.27
Middle Channel 20525 (836.5MHz)						
836.5	H	31.87	3.96	-3.04	24.87	0.31
836.5	V	31.10	3.96	-3.04	24.10	0.26
High Channel 20625 (846.5MHz)						
846.5	H	32.03	3.97	-3.10	24.96	0.31
846.5	V	31.20	3.97	-3.10	24.13	0.26

LTE Band 5 (16-QAM, 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 20425(826.5MHz)						
826.5	H	30.97	3.83	-2.99	24.15	0.26
826.5	V	30.46	3.83	-2.99	23.64	0.23
Middle Channel 20525 (836.5MHz)						
836.5	H	31.10	3.96	-3.04	24.10	0.26
836.5	V	30.52	3.96	-3.04	23.52	0.22
High Channel 20625 (846.5MHz)						
846.5	H	31.23	3.97	-3.10	24.16	0.26
846.5	V	30.54	3.97	-3.10	23.47	0.22

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	32.02	3.83	-2.99	25.20	0.33
829.0	V	31.38	3.83	-2.99	24.56	0.29
Middle Channel 20525 (836.5MHz)						
836.5	H	32.13	3.96	-3.04	25.13	0.33
836.5	V	31.63	3.96	-3.04	24.63	0.29
High Channel 20600 (844.0MHz)						
844.0	H	32.14	3.97	-3.10	25.07	0.32
844.0	V	31.43	3.97	-3.10	24.36	0.27

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	30.84	3.83	-2.99	24.02	0.25
829.0	V	30.06	3.83	-2.99	23.24	0.21
Middle Channel 20525 (836.5MHz)						
836.5	H	30.98	3.96	-3.04	23.98	0.25
836.5	V	30.15	3.96	-3.04	23.15	0.21
High Channel 20600 (844.0MHz)						
844.0	H	30.94	3.97	-3.10	23.87	0.24
844.0	V	30.16	3.97	-3.10	23.09	0.20

LTE Band 17 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 24)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23755(706.5MHz)						
706.5	H	29.45	3.53	-2.67	23.25	0.21
706.5	V	28.34	3.53	-2.67	22.14	0.16
Middle Channel 23790 (710.0MHz)						
710.0	H	29.36	3.54	-2.64	23.18	0.21
710.0	V	28.18	3.54	-2.64	22.00	0.16
High Channel 23825 (713.5MHz)						
713.5	H	30.10	3.55	-3.55	23.20	0.21
713.5	V	29.42	3.55	-3.55	22.32	0.17

LTE Band 17 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 24)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23755(706.5MHz)						
706.5	H	29.09	3.53	-2.67	22.89	0.19
706.5	V	27.94	3.53	-2.67	21.74	0.15
Middle Channel 23790 (710.0MHz)						
710.0	H	29.11	3.54	-2.64	22.93	0.20
710.0	V	27.84	3.54	-2.64	21.66	0.15
High Channel 23825 (713.5MHz)						
713.5	H	29.82	3.55	-3.55	22.72	0.19
713.5	V	28.77	3.55	-3.55	21.67	0.15

LTE Band 17 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 49)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23780(709.0MHz)						
709.0	H	29.25	3.53	-2.67	23.05	0.20
709.0	V	28.65	3.53	-2.67	22.45	0.18
Middle Channel 23790 (710.0MHz)						
710.0	H	29.32	3.54	-2.64	23.14	0.21
710.0	V	28.55	3.54	-2.64	22.37	0.17
High Channel 23800 (711.0MHz)						
711.0	H	30.24	3.55	-3.55	23.13	0.21
711.0	V	29.30	3.55	-3.55	22.20	0.17

LTE Band 17 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 49)

Frequency (MHz)	Ant. Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBd)	ERP (dBm)	ERP (W)
Low Channel 23780(709.0MHz)						
709.0	H	28.76	3.53	-2.67	22.56	0.18
709.0	V	27.46	3.53	-2.67	21.26	0.13
Middle Channel 23790 (710.0MHz)						
710.0	H	29.02	3.54	-2.64	22.84	0.19
710.0	V	27.56	3.54	-2.64	21.38	0.14
High Channel 23800 (711.0MHz)						
711.0	H	29.67	3.55	-3.55	22.62	0.18
711.0	V	28.23	3.55	-3.55	21.13	0.13

4. Occupied Bandwidth

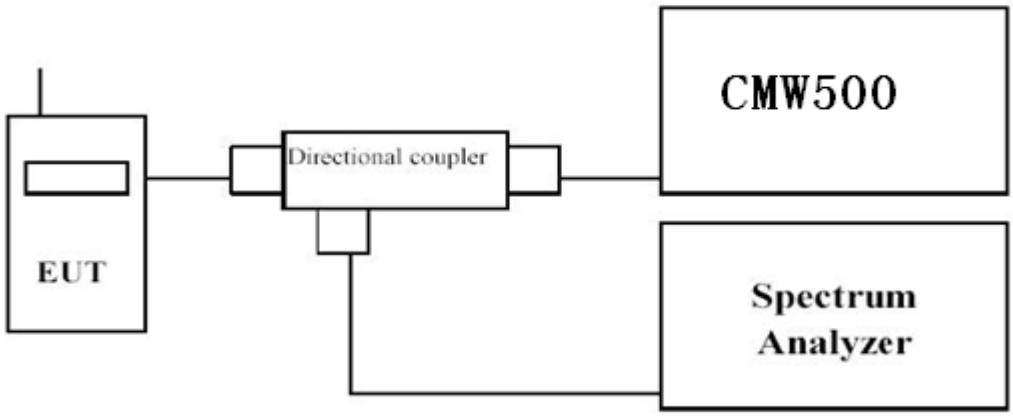
4.1. Test Equipment

Occupied Bandwidth

Instrument	Manufacturer	Model	Serial No	Cal. Date
Radio Communication Tester	R&S	CMW500	147483	10/15/2015
Spectrum Analyzer	Agilent	N9038A	MY51210142	12/17/2014
DC Power Supply	Agilent	6612C	MY43002989	03/03/2015

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 972268 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.

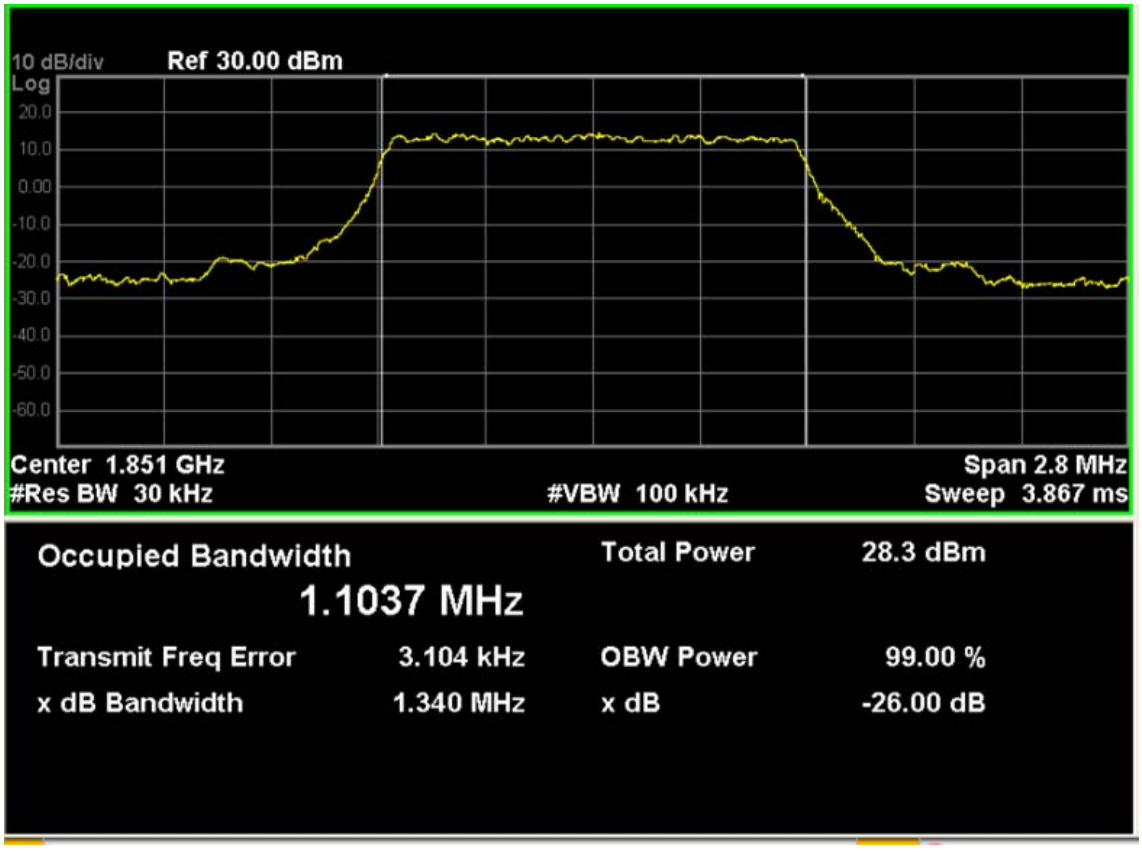
4.5. Uncertainty

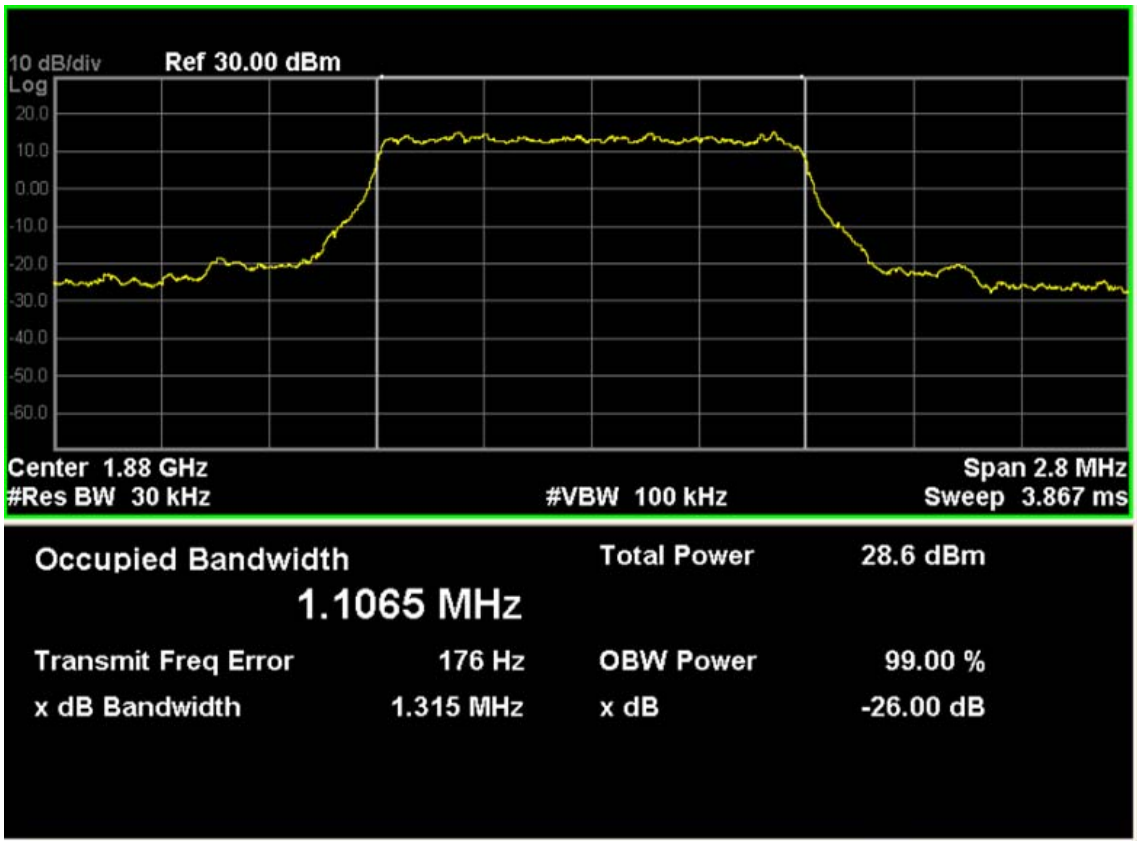
The measurement uncertainty is defined as ± 10 Hz

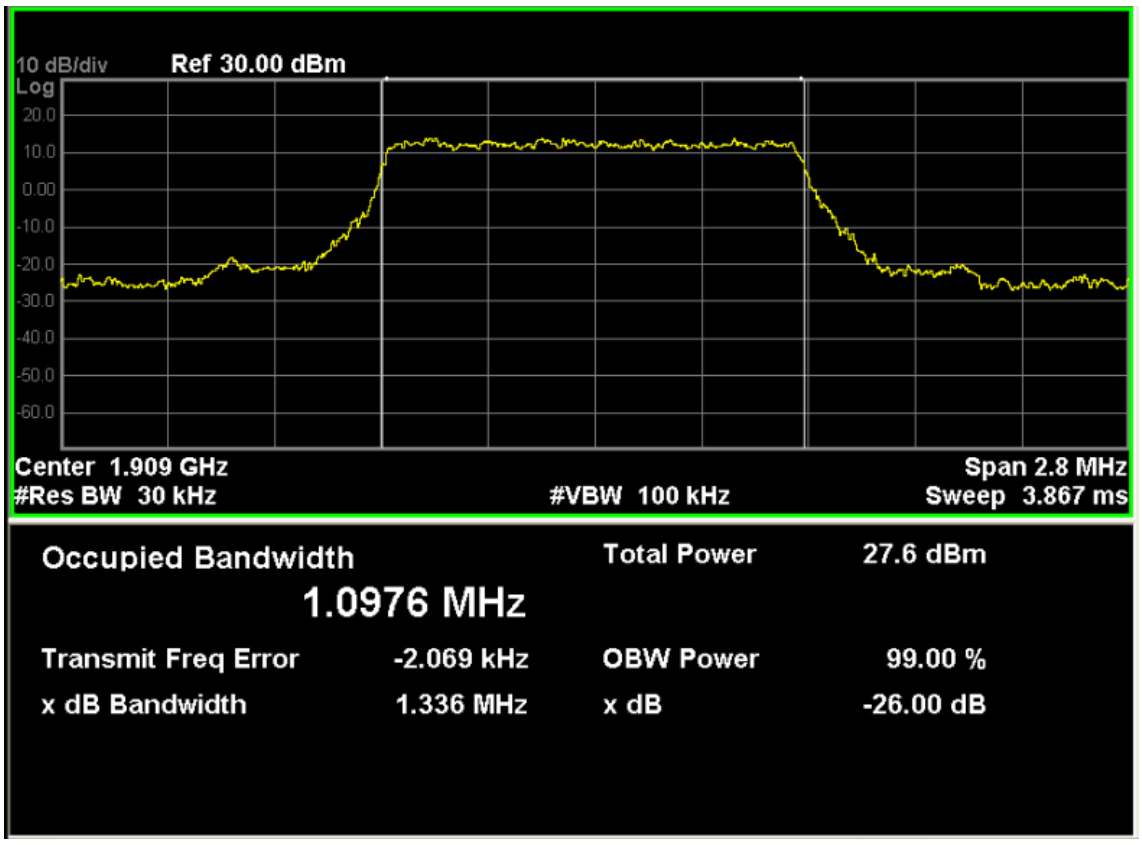
4.6. Test Result

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	1.340	1.104
18900	1880.0	1.315	1.107
19193	1909.3	1.336	1.098

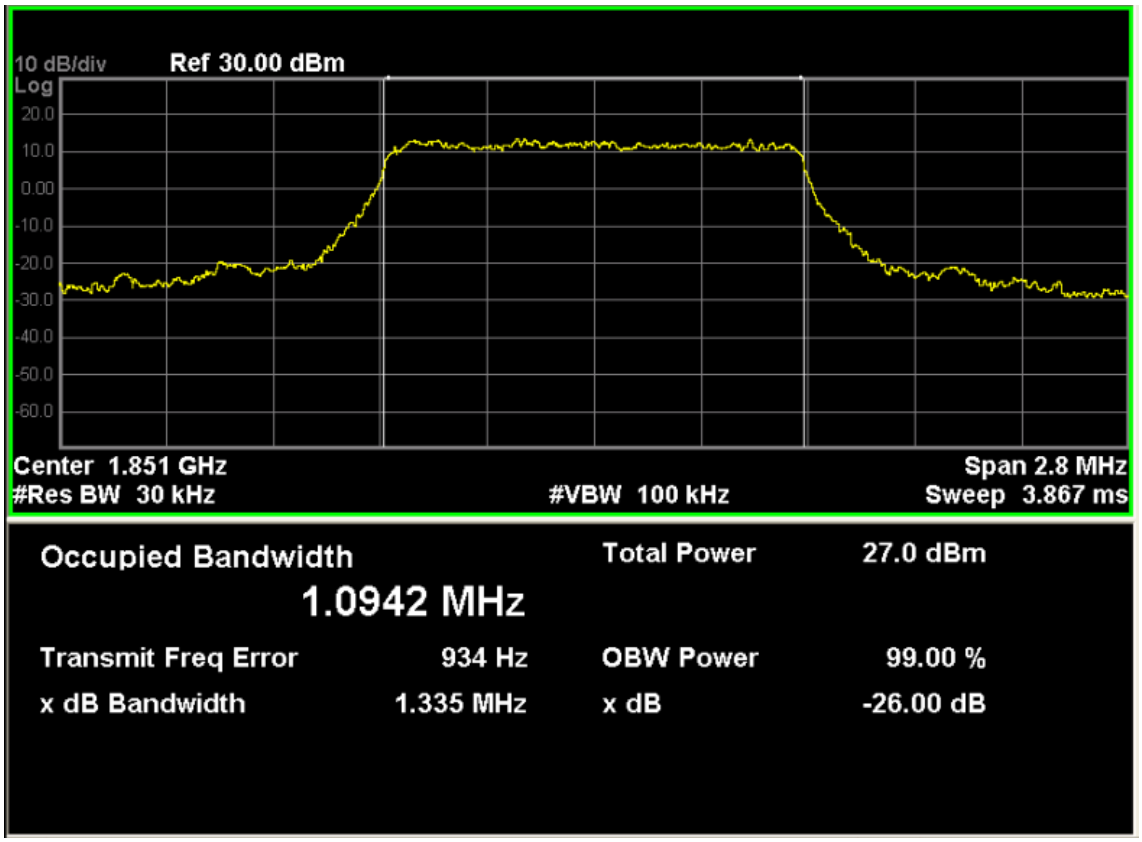


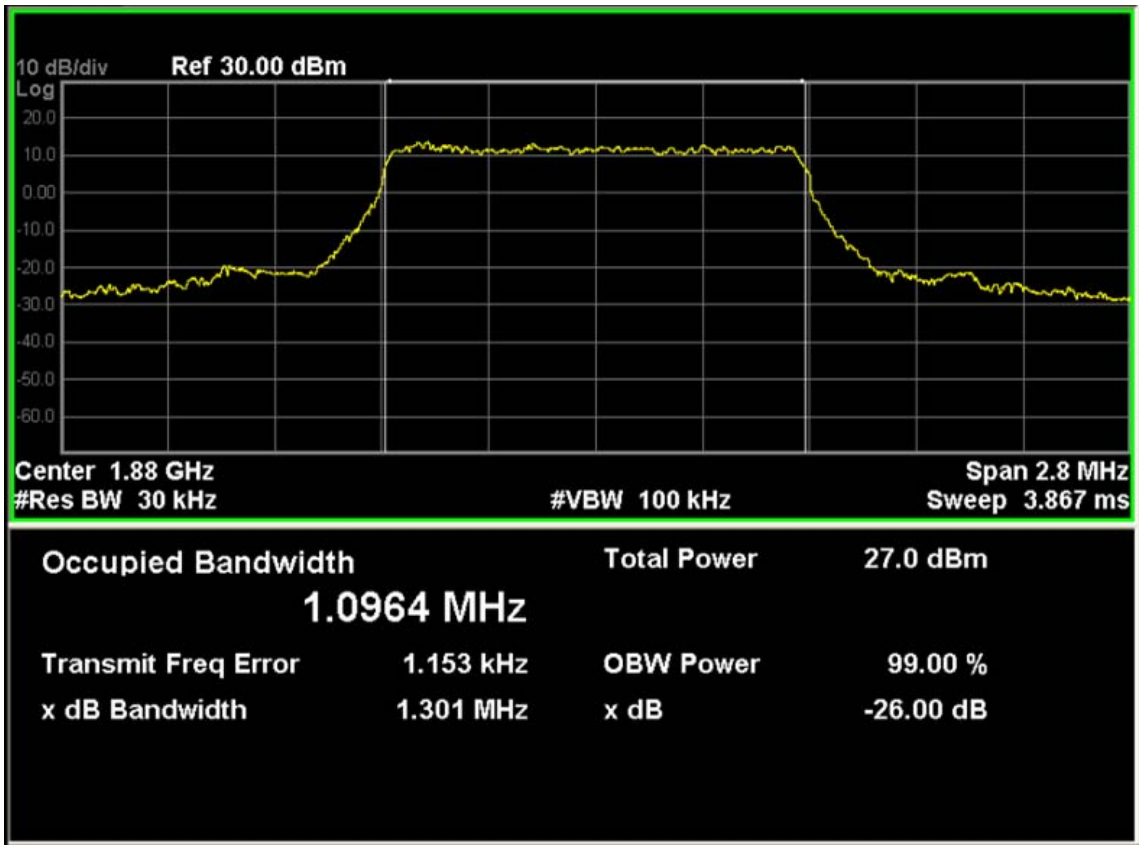

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1065 MHz
Total Power 28.6 dBm
Transmit Freq Error 176 Hz
OBW Power 99.00 %
x dB Bandwidth 1.315 MHz
x dB -26.00 dB

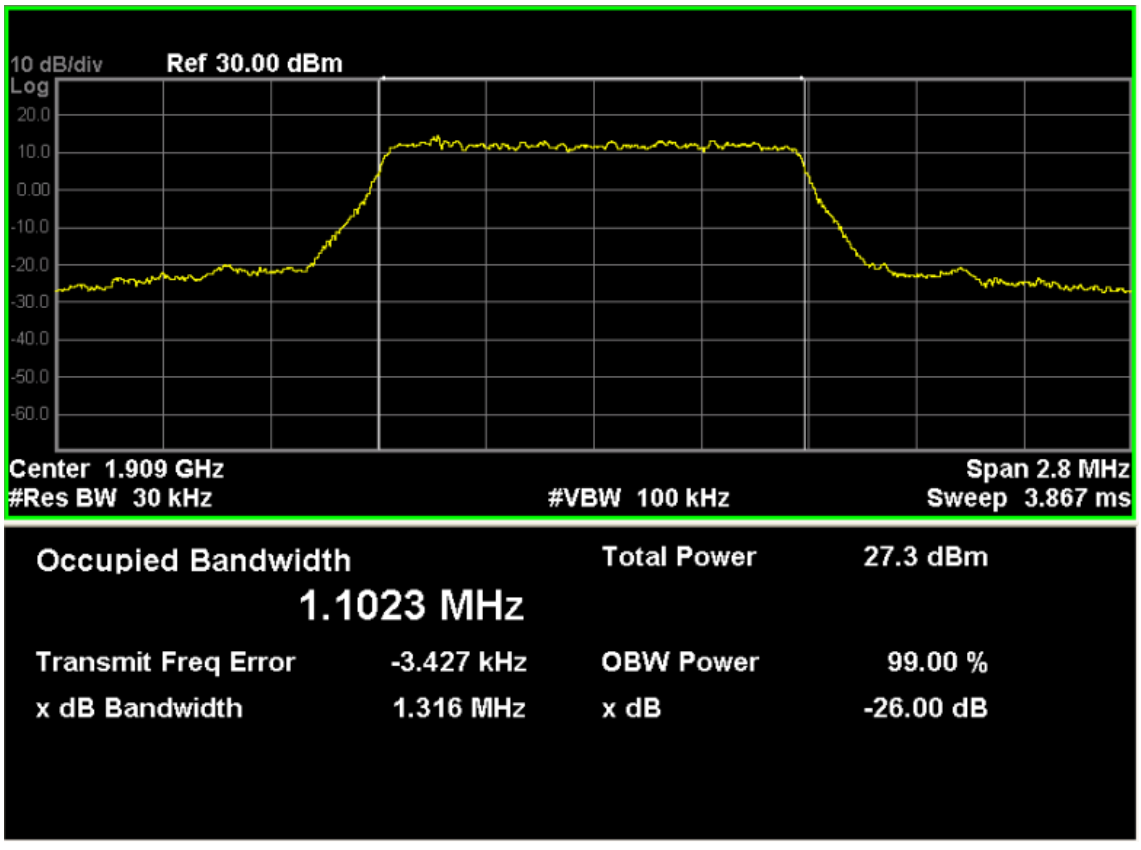

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.909 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0976 MHz
Total Power 27.6 dBm
Transmit Freq Error -2.069 kHz
OBW Power 99.00 %
x dB Bandwidth 1.336 MHz
x dB -26.00 dB

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	1.335	1.094
18900	1880.0	1.301	1.096
19193	1909.3	1.316	1.102

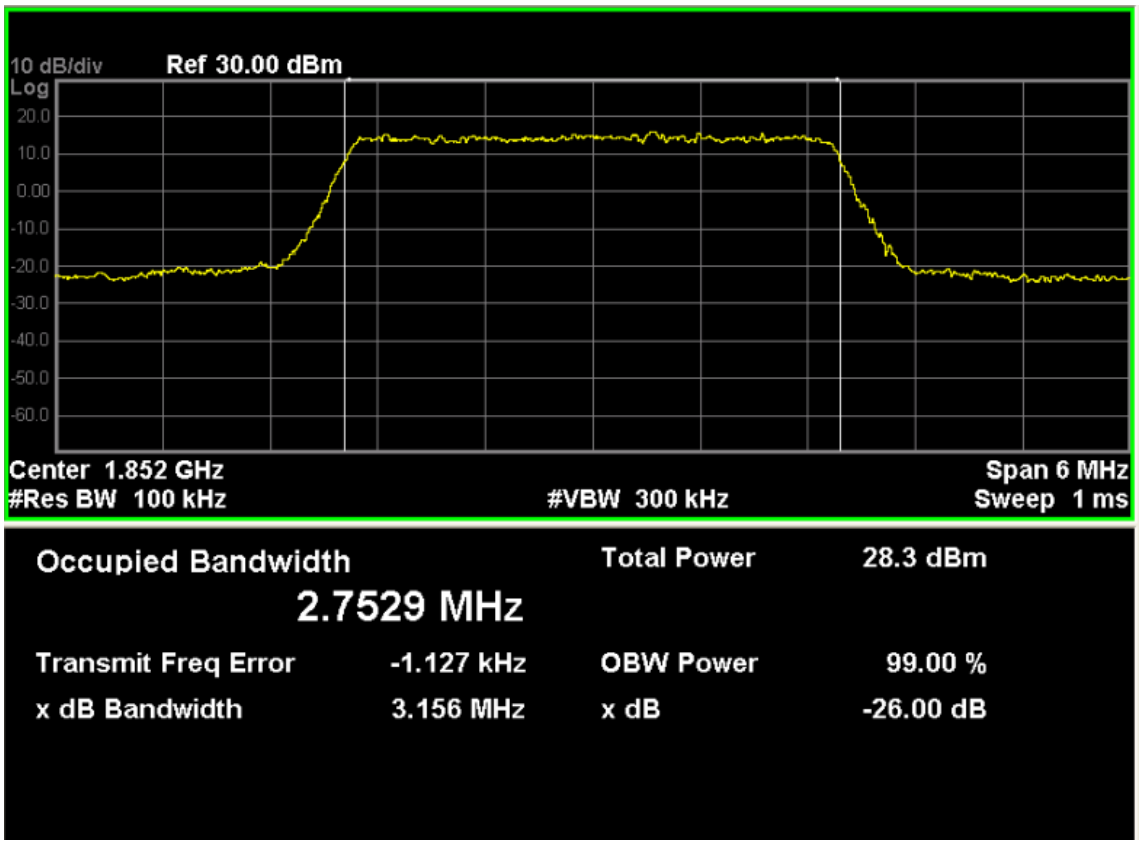


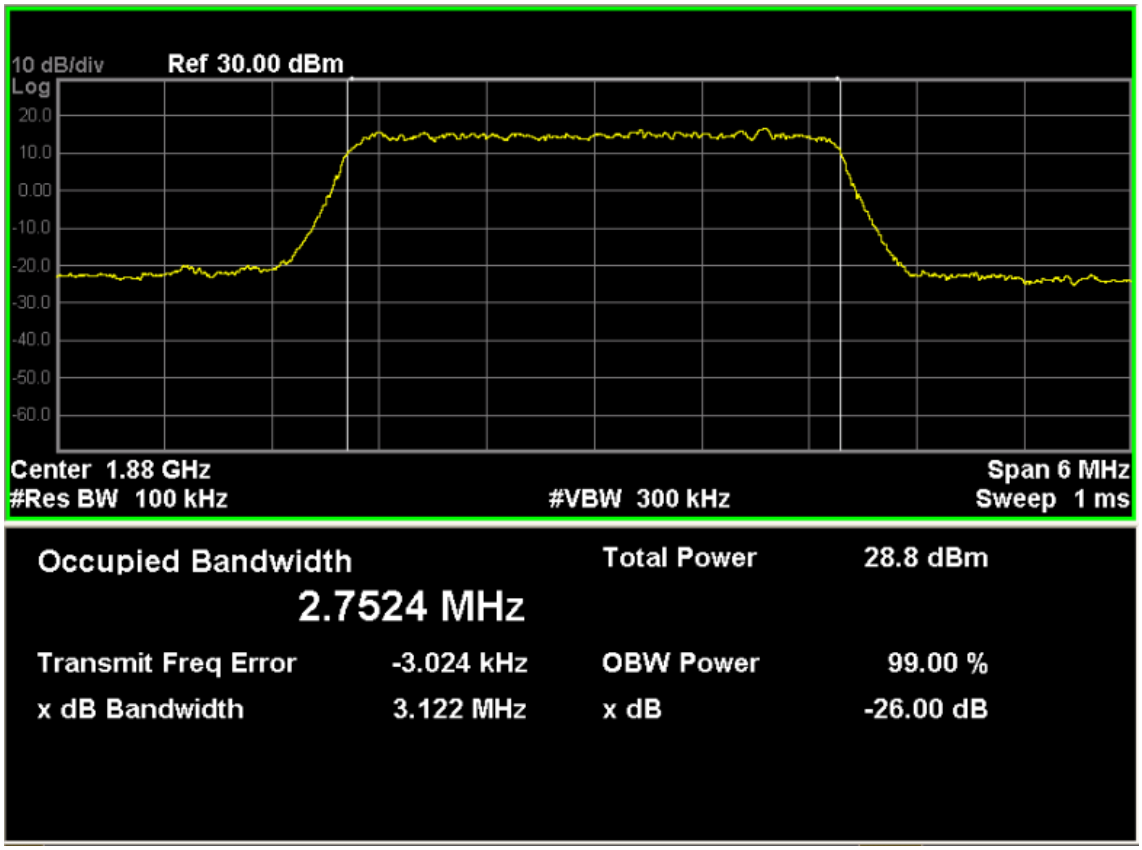

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0964 MHz
Total Power 27.0 dBm
Transmit Freq Error 1.153 kHz
OBW Power 99.00 %
x dB Bandwidth 1.301 MHz
x dB -26.00 dB

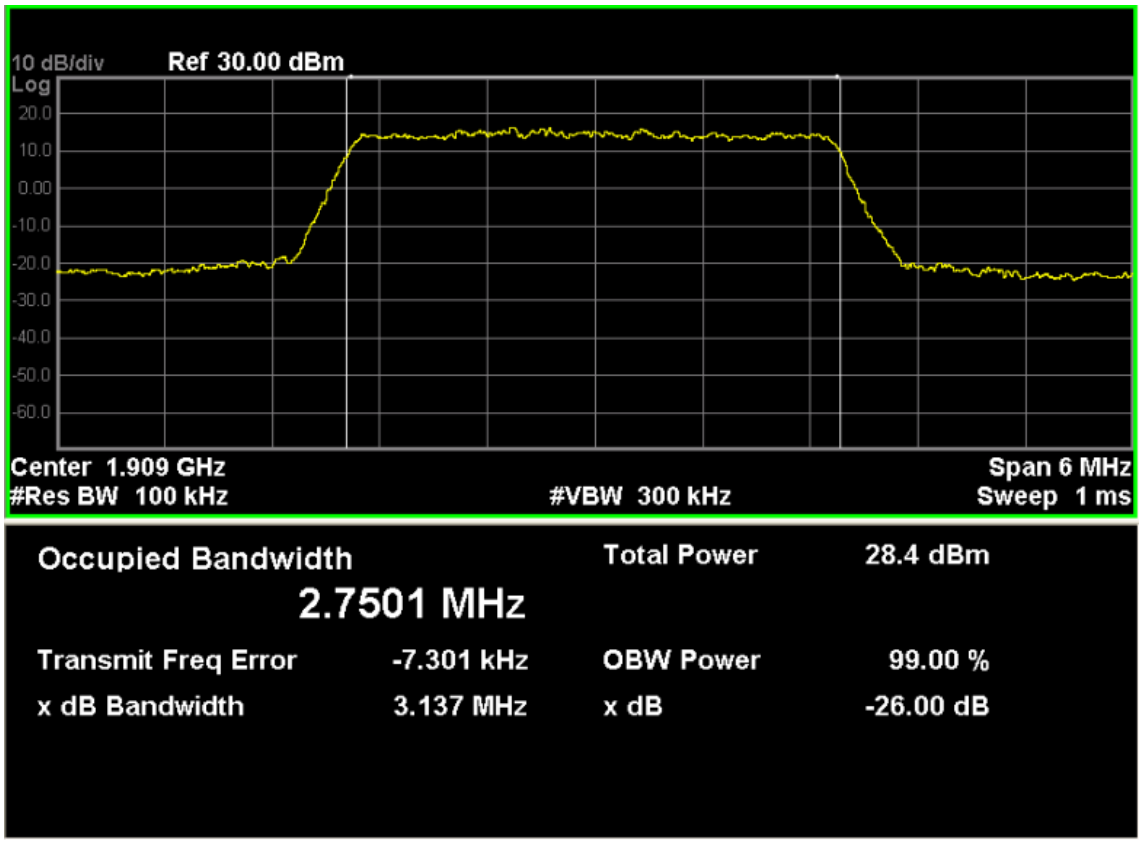

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.909 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1023 MHz
Total Power 27.3 dBm
Transmit Freq Error -3.427 kHz
OBW Power 99.00 %
x dB Bandwidth 1.316 MHz
x dB -26.00 dB

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	3.156	2.753
18900	1880.0	3.122	2.752
19185	1908.5	3.137	2.750

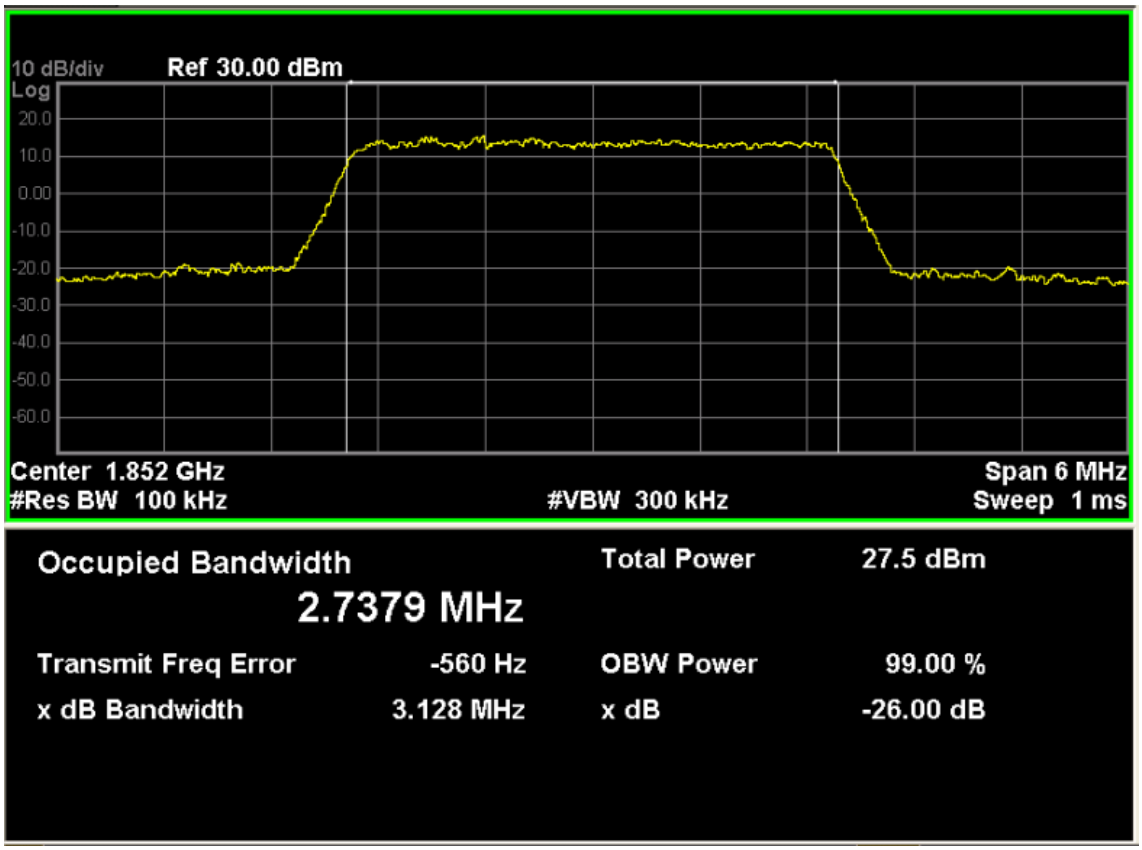


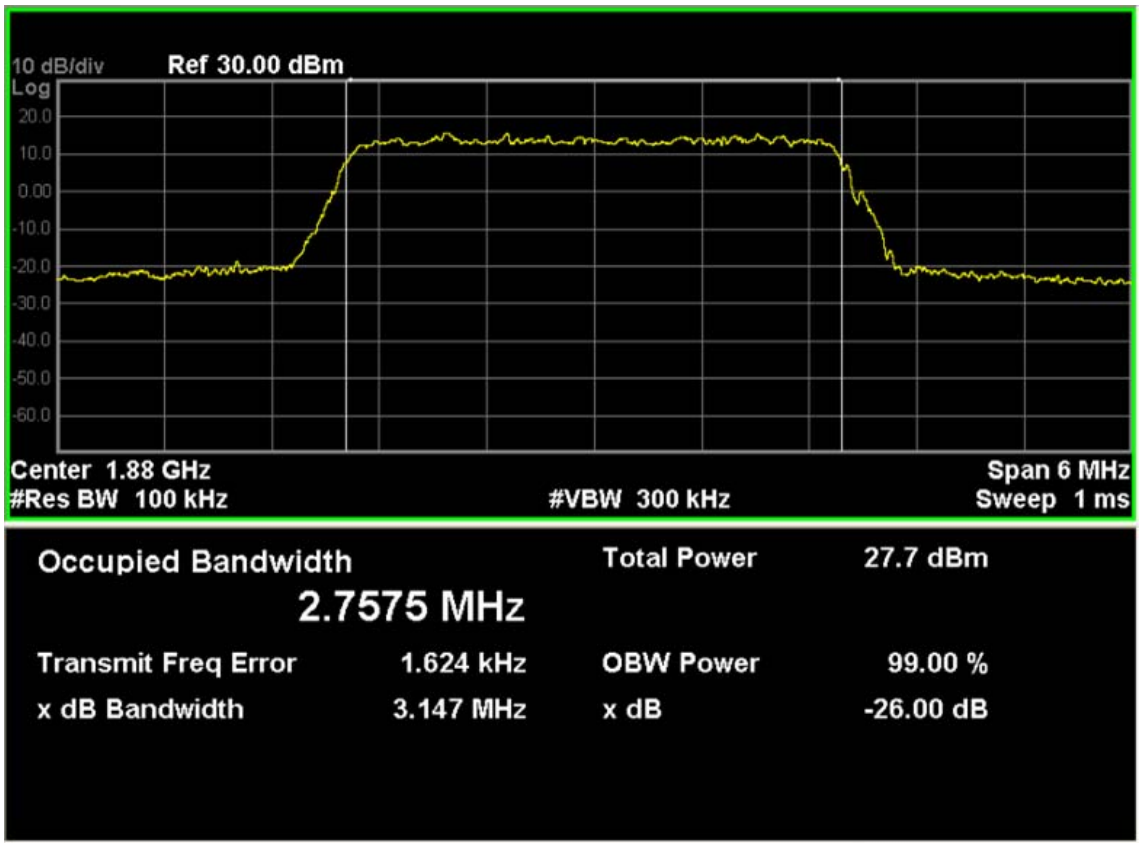

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7524 MHz
Total Power 28.8 dBm
Transmit Freq Error -3.024 kHz
OBW Power 99.00 %
x dB Bandwidth 3.122 MHz
x dB -26.00 dB

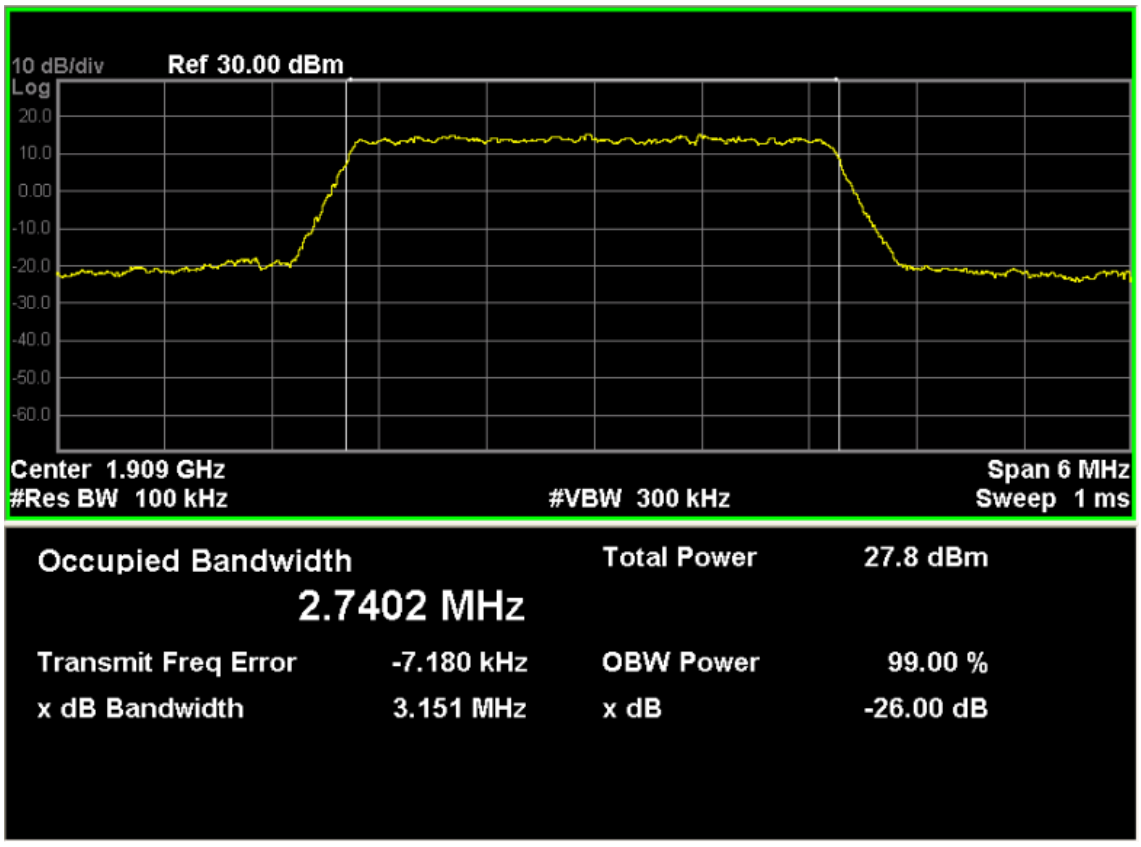

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.909 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7501 MHz
Total Power 28.4 dBm
Transmit Freq Error -7.301 kHz
OBW Power 99.00 %
x dB Bandwidth 3.137 MHz
x dB -26.00 dB

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	3.128	2.738
18900	1880.0	3.147	2.758
19185	1908.5	3.151	2.740

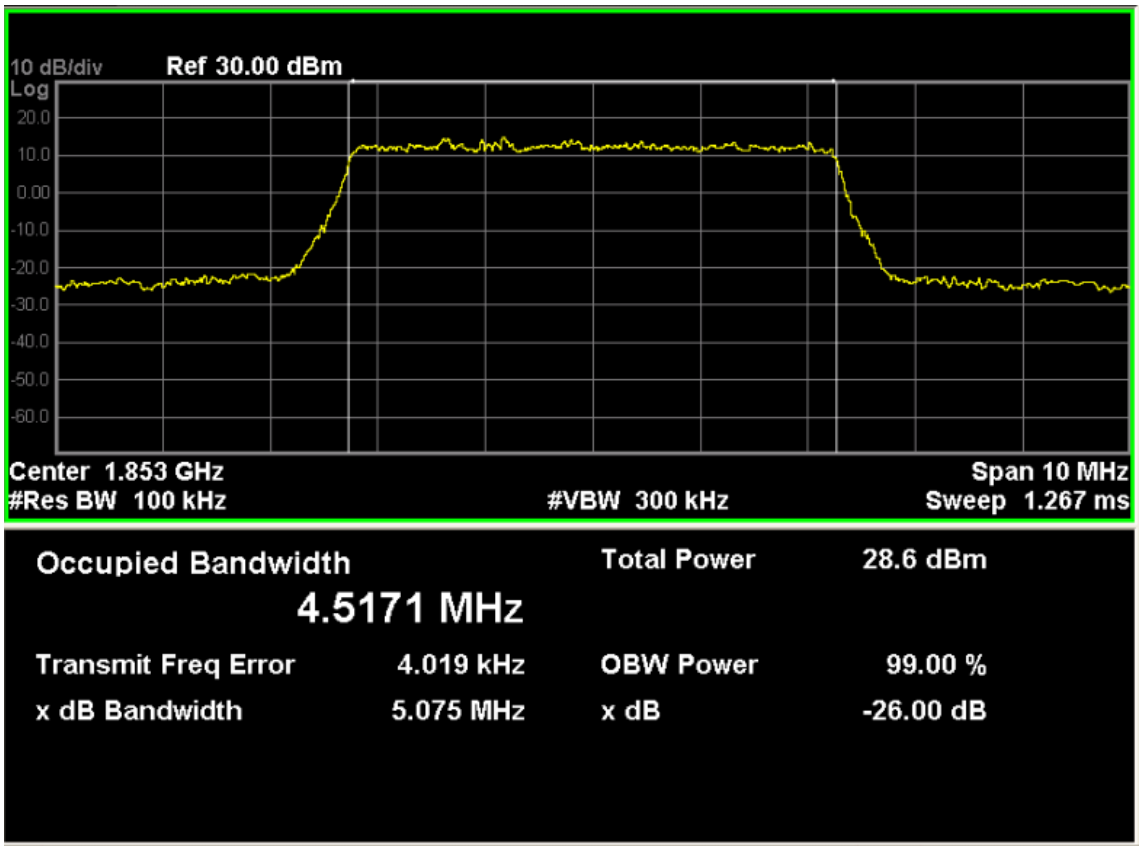


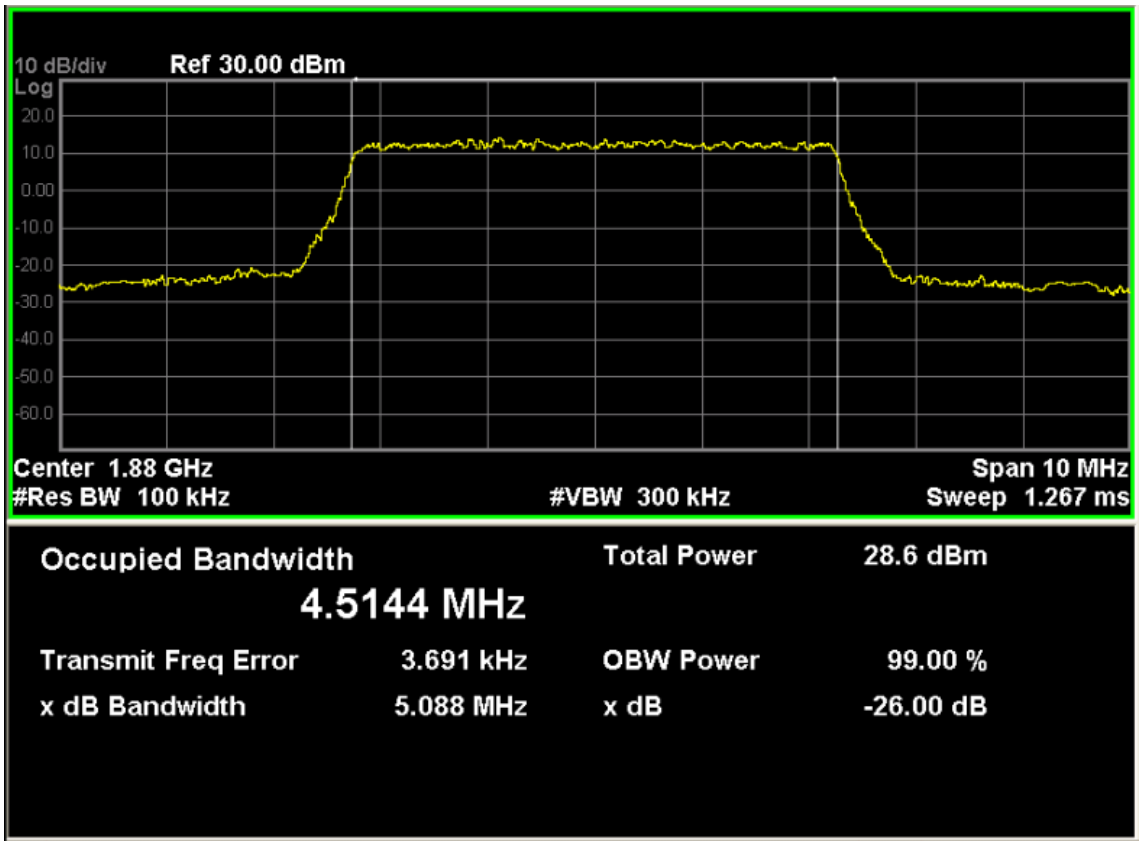

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7575 MHz
Total Power 27.7 dBm
Transmit Freq Error 1.624 kHz
OBW Power 99.00 %
x dB Bandwidth 3.147 MHz
x dB -26.00 dB

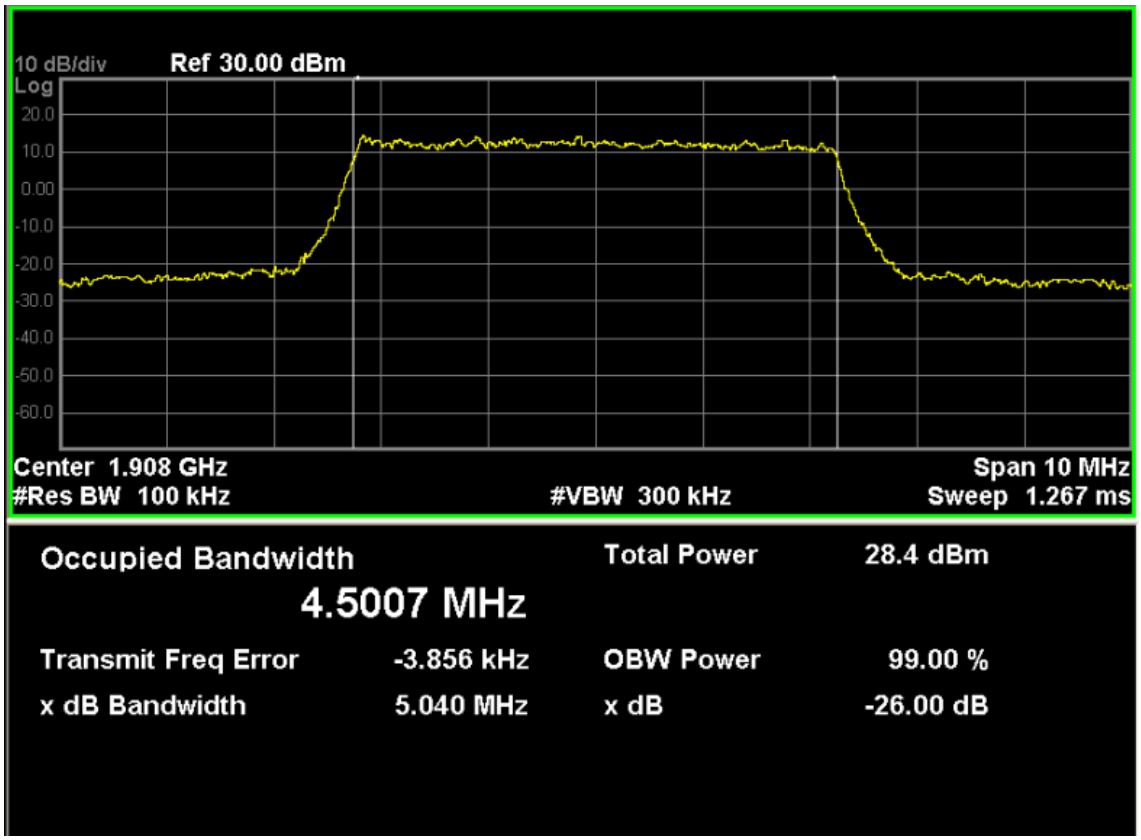

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.909 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7402 MHz
Total Power 27.8 dBm
Transmit Freq Error -7.180 kHz
OBW Power 99.00 %
x dB Bandwidth 3.151 MHz
x dB -26.00 dB

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	5.075	4.517
18900	1880.0	5.088	4.514
19175	1907.5	5.040	4.501

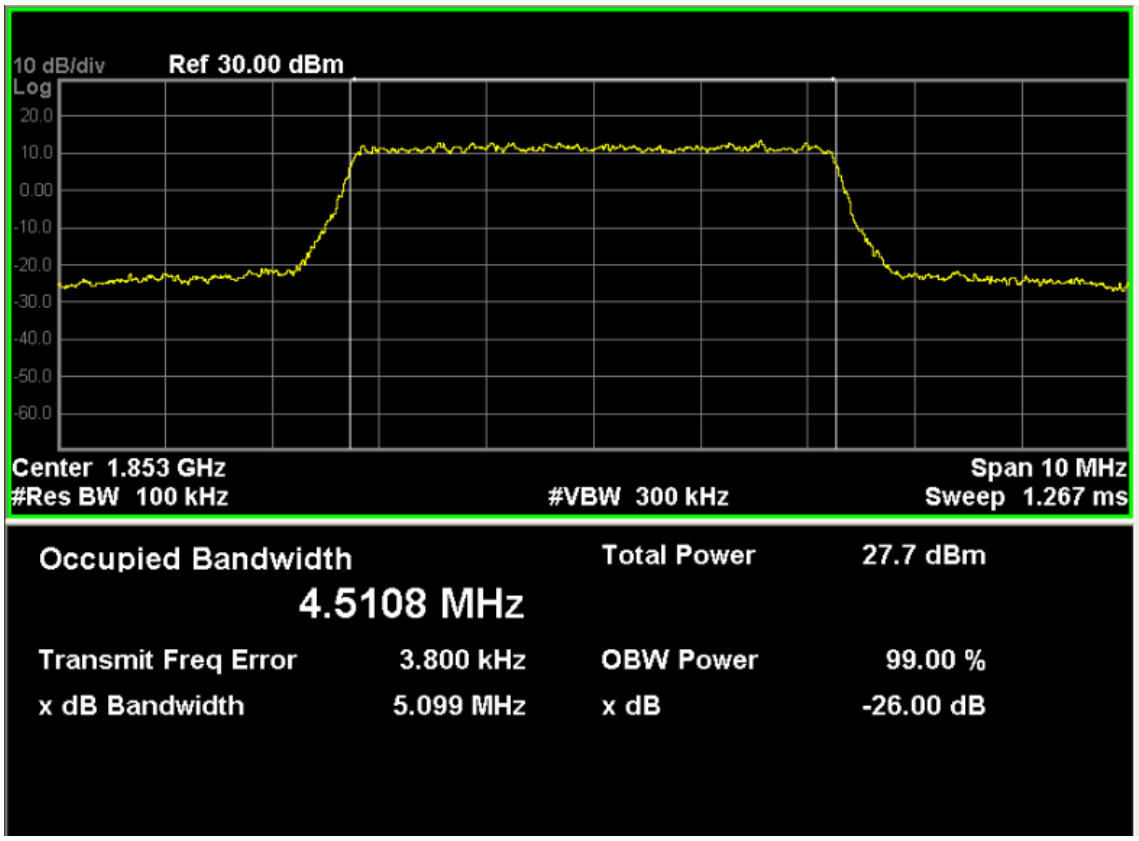


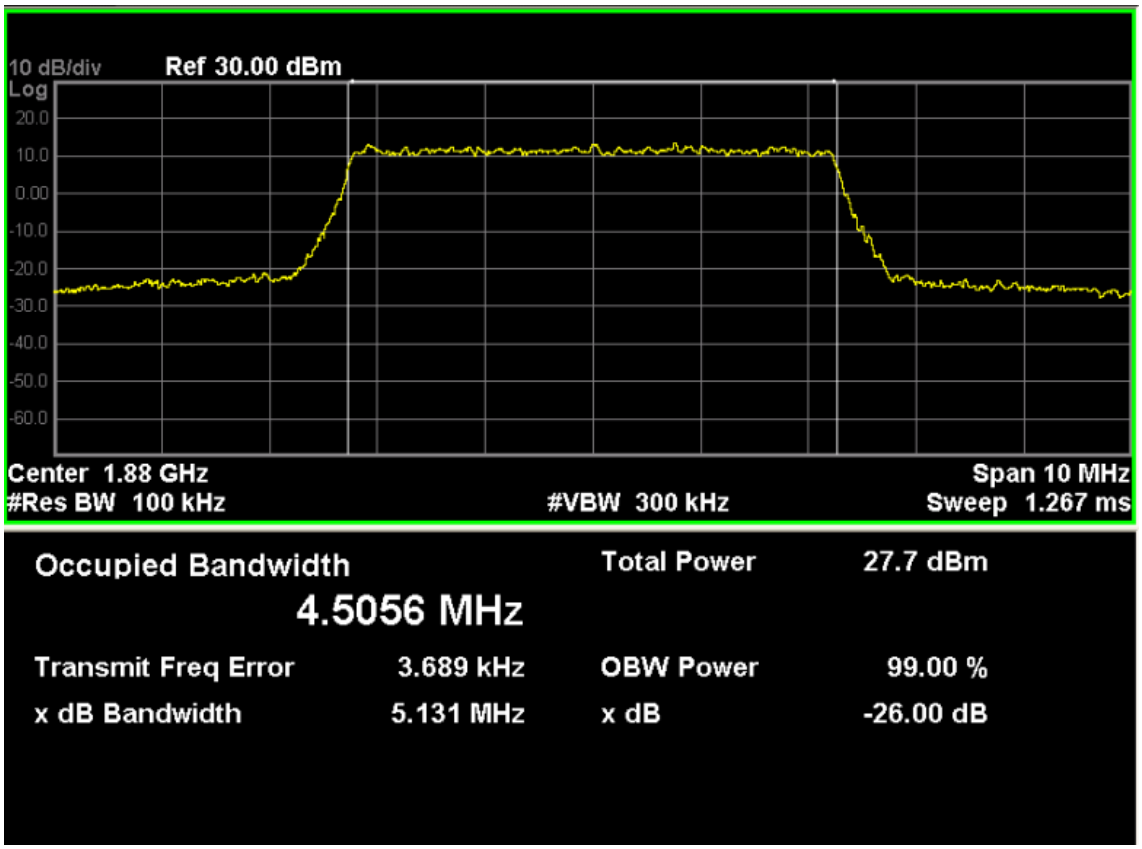

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5144 MHz
Total Power
28.6 dBm
Transmit Freq Error
3.691 kHz
OBW Power
99.00 %
x dB Bandwidth
5.088 MHz
x dB
-26.00 dB

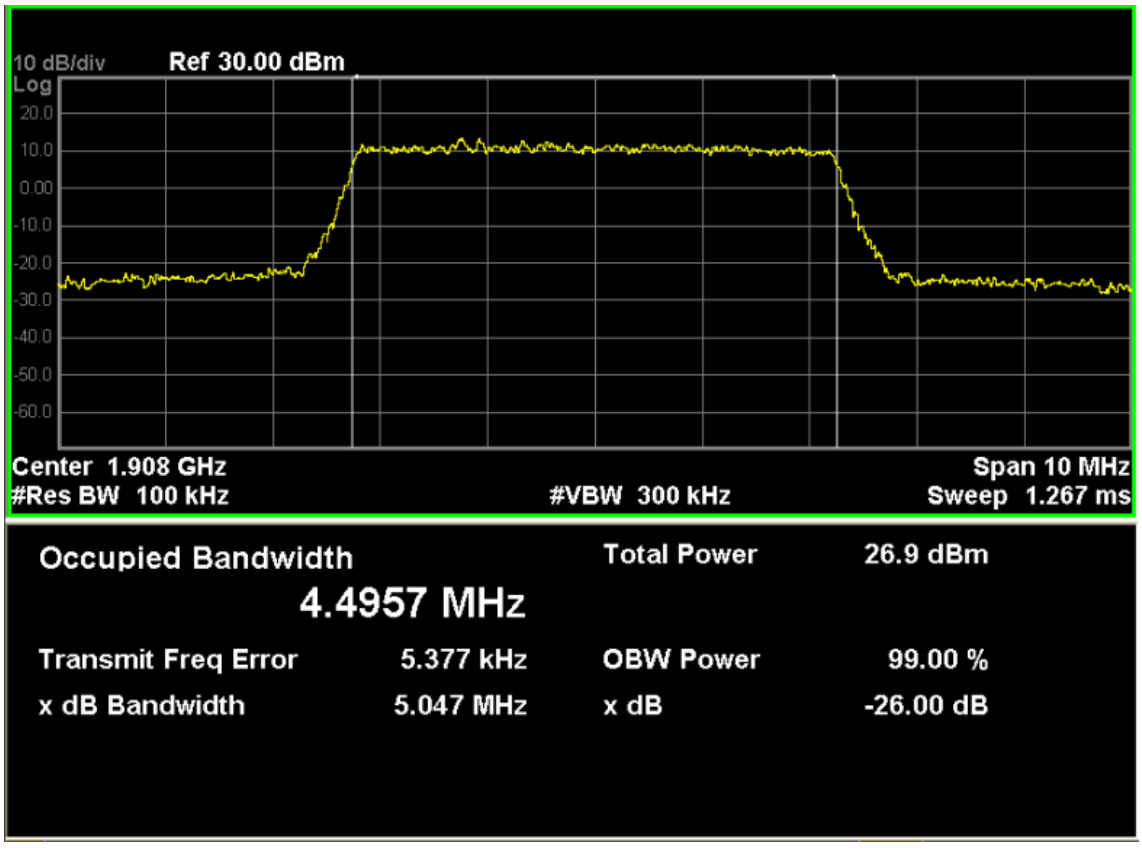

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5007 MHz
Total Power
28.4 dBm
Transmit Freq Error
-3.856 kHz
OBW Power
99.00 %
x dB Bandwidth
5.040 MHz
x dB
-26.00 dB

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	5.099	4.511
18900	1880.0	5.131	4.506
19175	1907.5	5.407	4.496

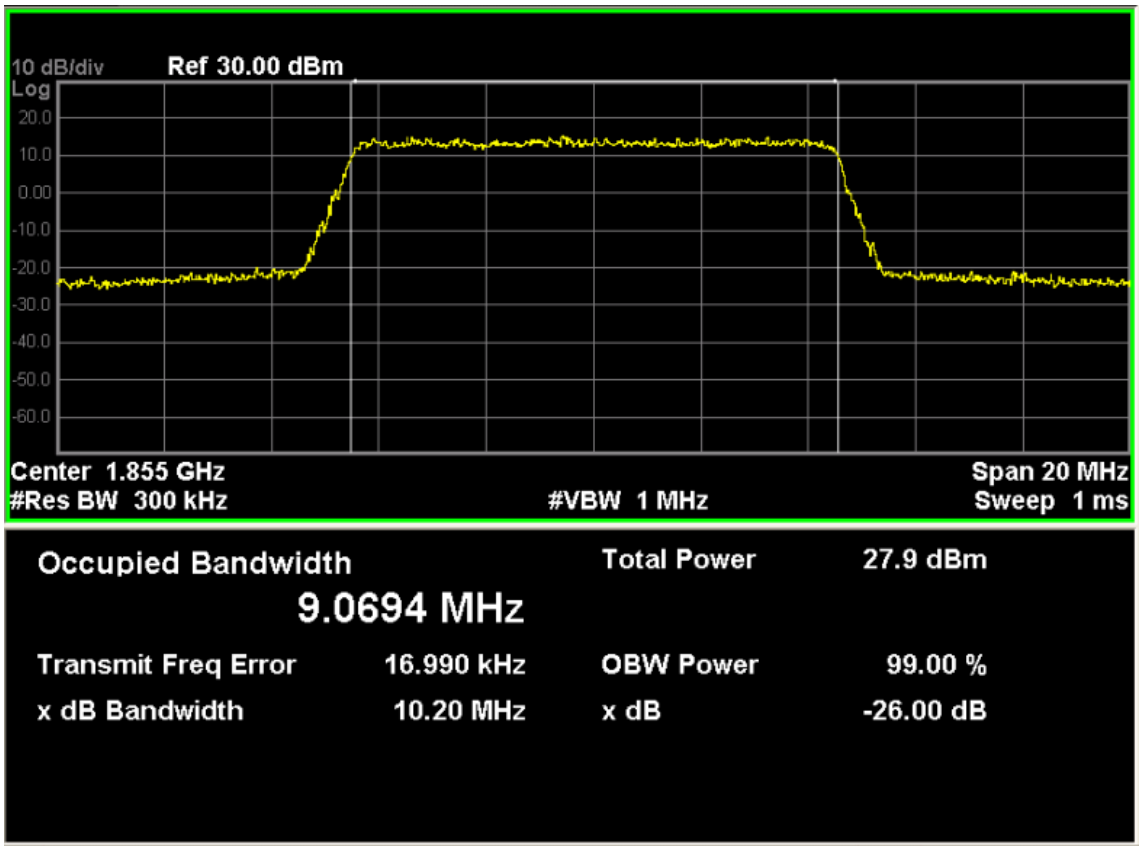


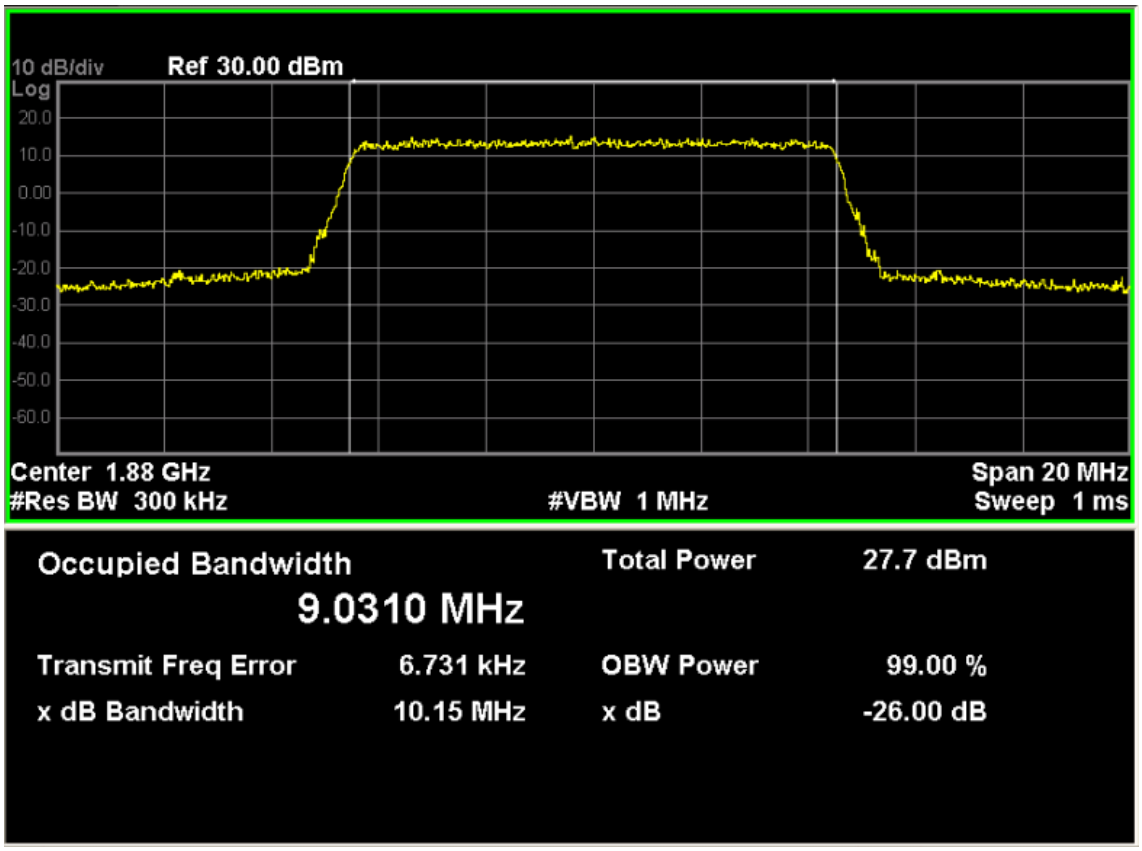

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5056 MHz
Total Power 27.7 dBm
Transmit Freq Error 3.689 kHz
OBW Power 99.00 %
x dB Bandwidth 5.131 MHz
x dB -26.00 dB

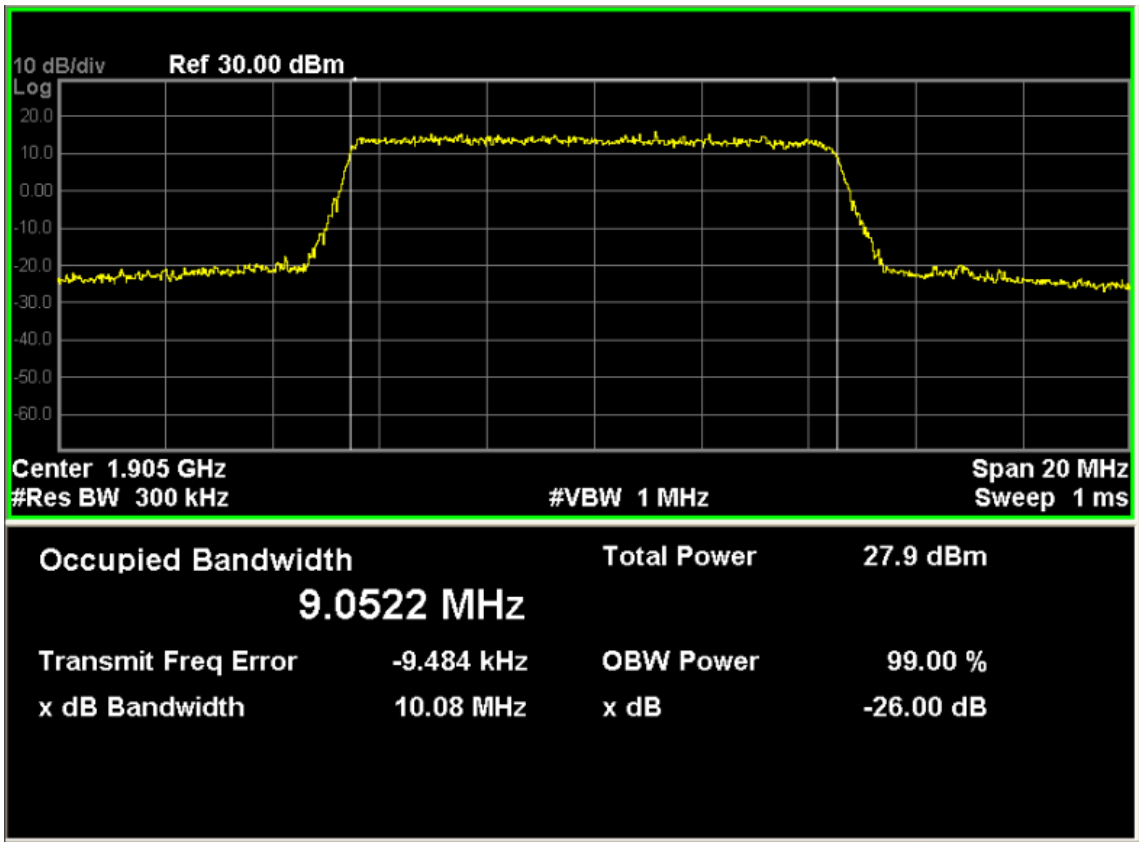

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4957 MHz
Total Power 26.9 dBm
Transmit Freq Error 5.377 kHz
OBW Power 99.00 %
x dB Bandwidth 5.047 MHz
x dB -26.00 dB

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	10.20	9.069
18900	1880.0	10.15	9.031
19150	1905.0	10.08	9.052

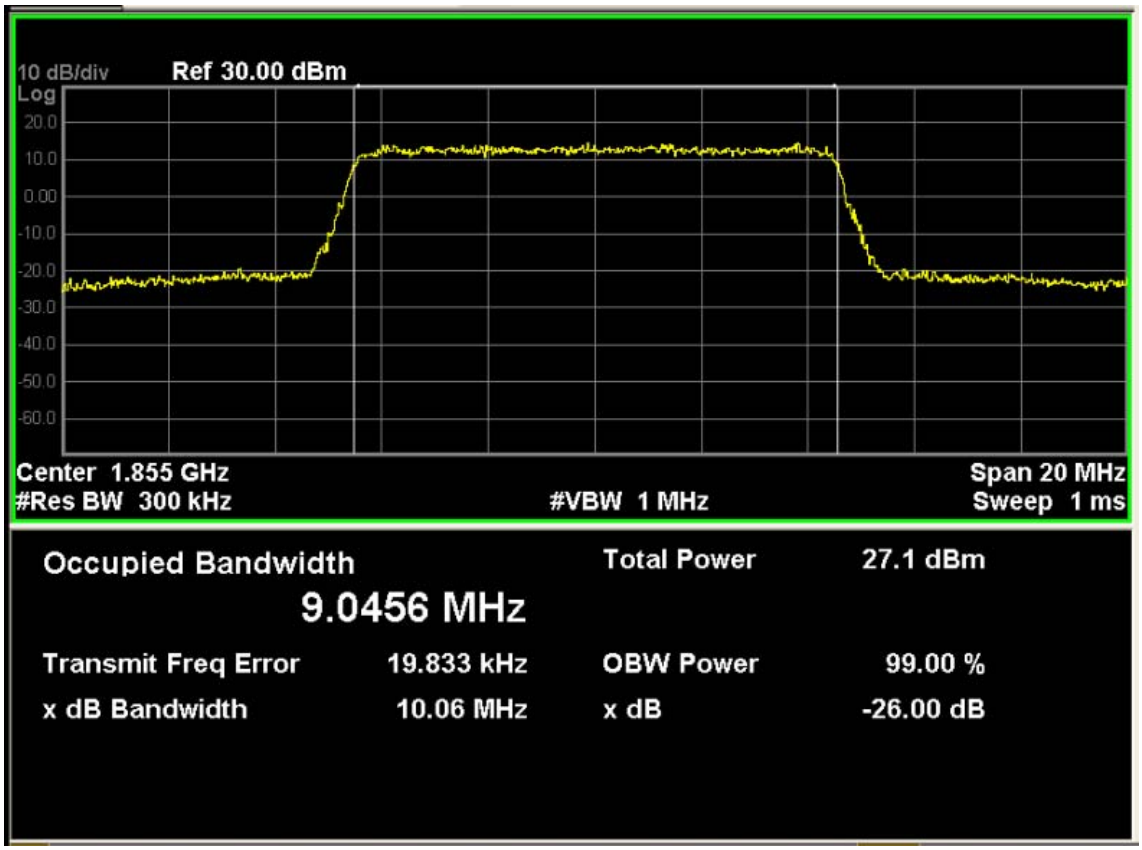


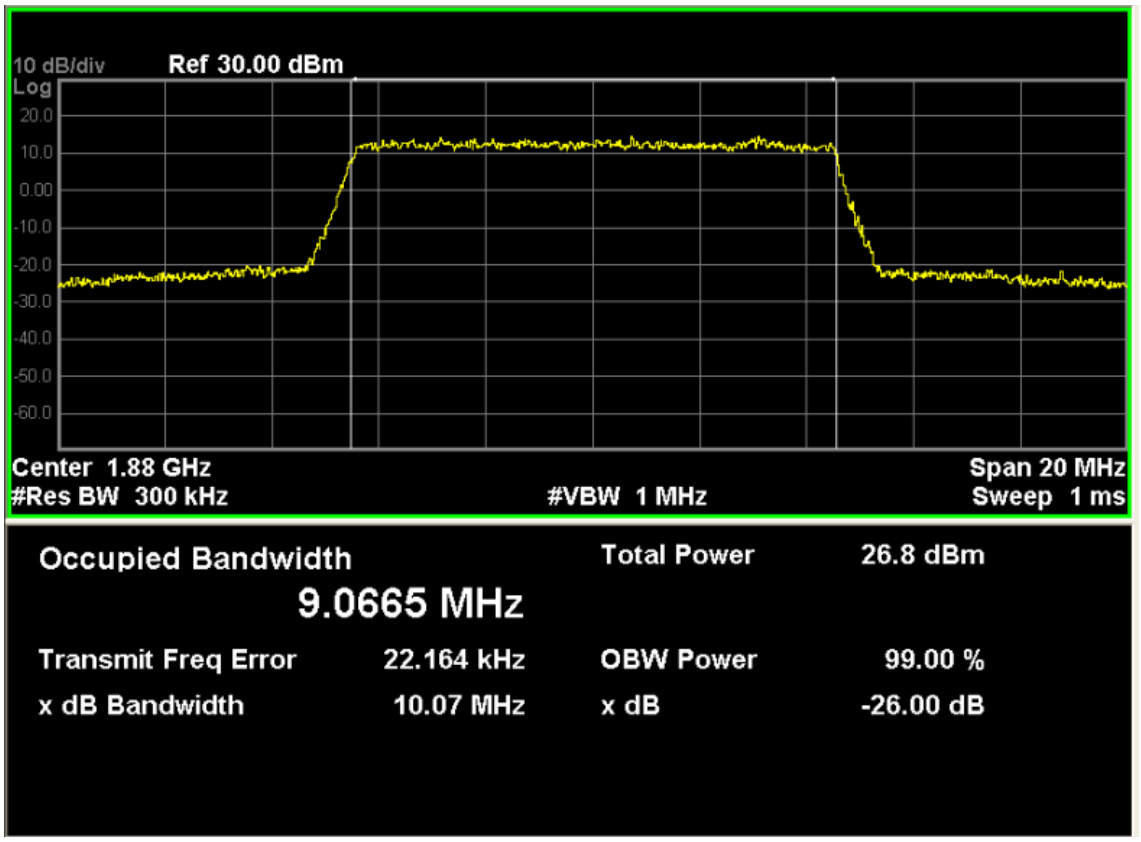

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0310 MHz
Total Power 27.7 dBm
Transmit Freq Error 6.731 kHz
OBW Power 99.00 %
x dB Bandwidth 10.15 MHz
x dB -26.00 dB

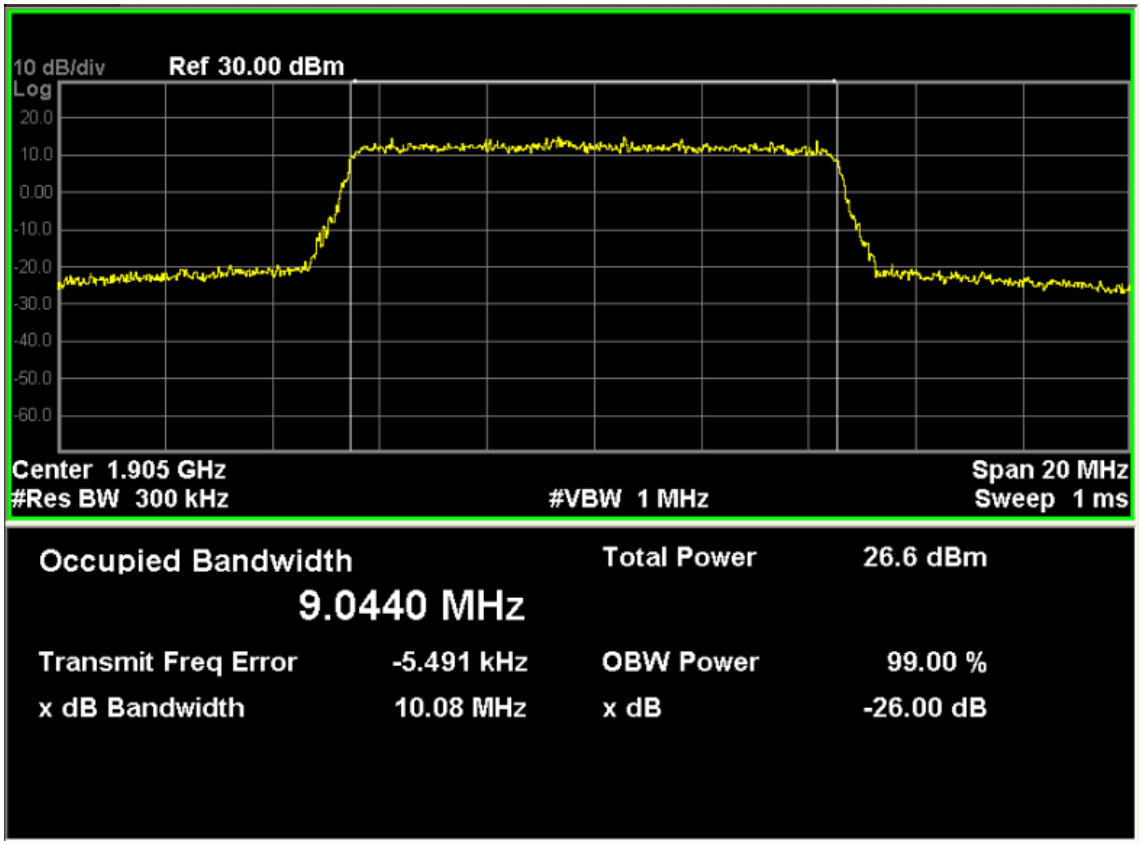

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.905 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0522 MHz
Total Power 27.9 dBm
Transmit Freq Error -9.484 kHz
OBW Power 99.00 %
x dB Bandwidth 10.08 MHz
x dB -26.00 dB

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	10.06	9.046
18900	1880.0	10.07	9.067
19150	1905.0	10.08	9.044

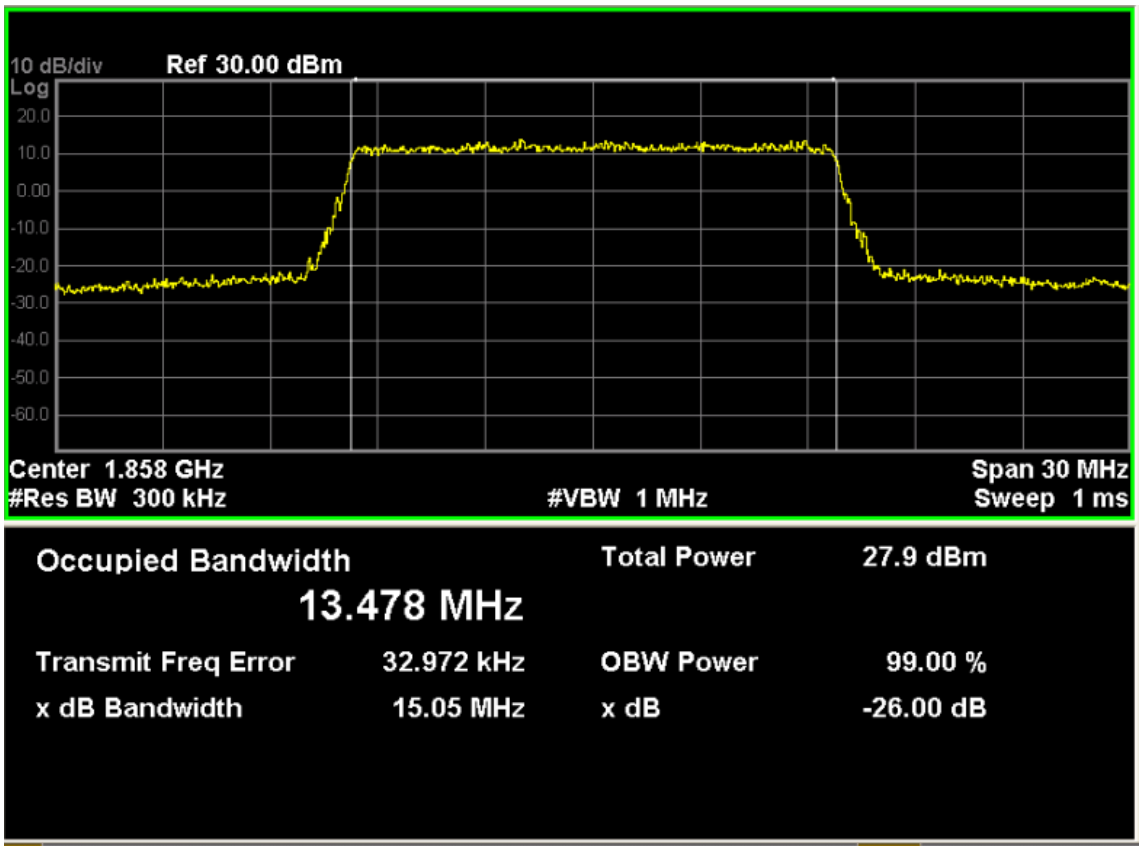


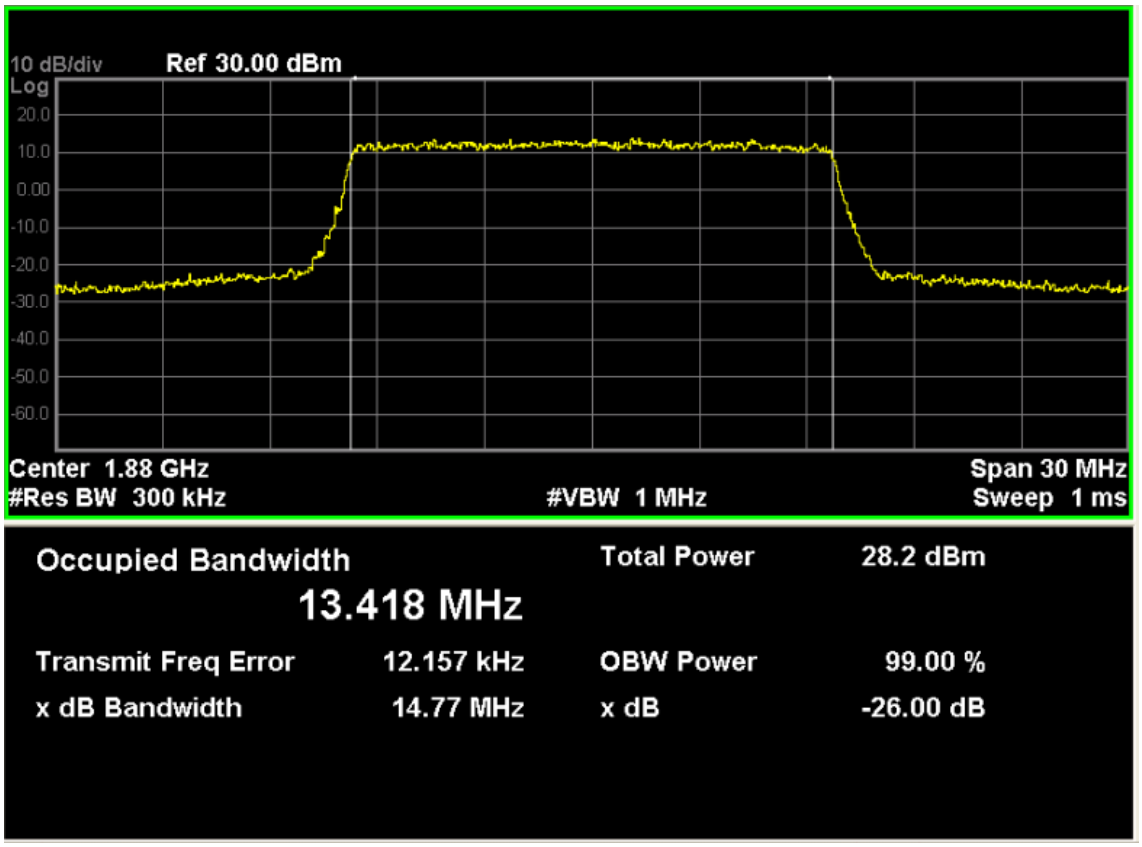

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0665 MHz
Total Power
26.8 dBm
Transmit Freq Error
22.164 kHz
OBW Power
99.00 %
x dB Bandwidth
10.07 MHz
x dB
-26.00 dB

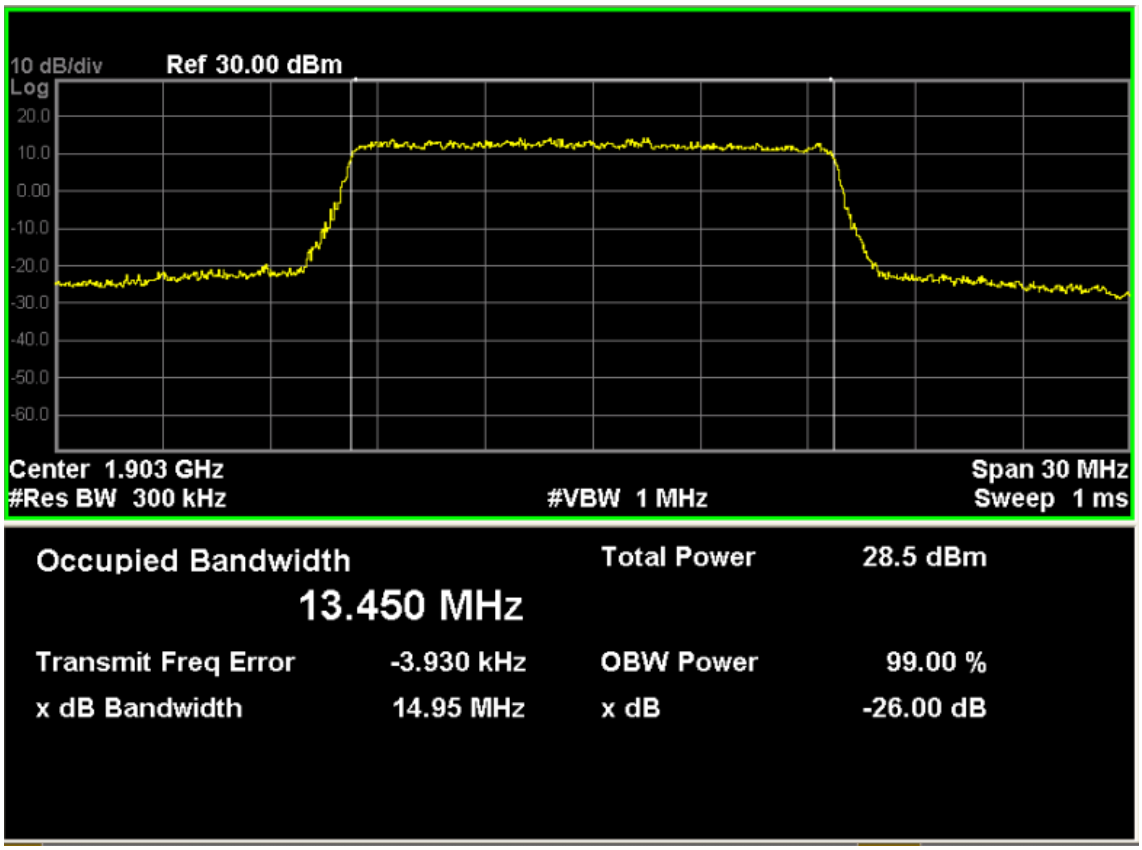

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.905 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0440 MHz
Total Power
26.6 dBm
Transmit Freq Error
-5.491 kHz
OBW Power
99.00 %
x dB Bandwidth
10.08 MHz
x dB
-26.00 dB

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	15.05	13.48
18900	1880.0	14.77	13.42
19125	1902.5	14.95	13.45

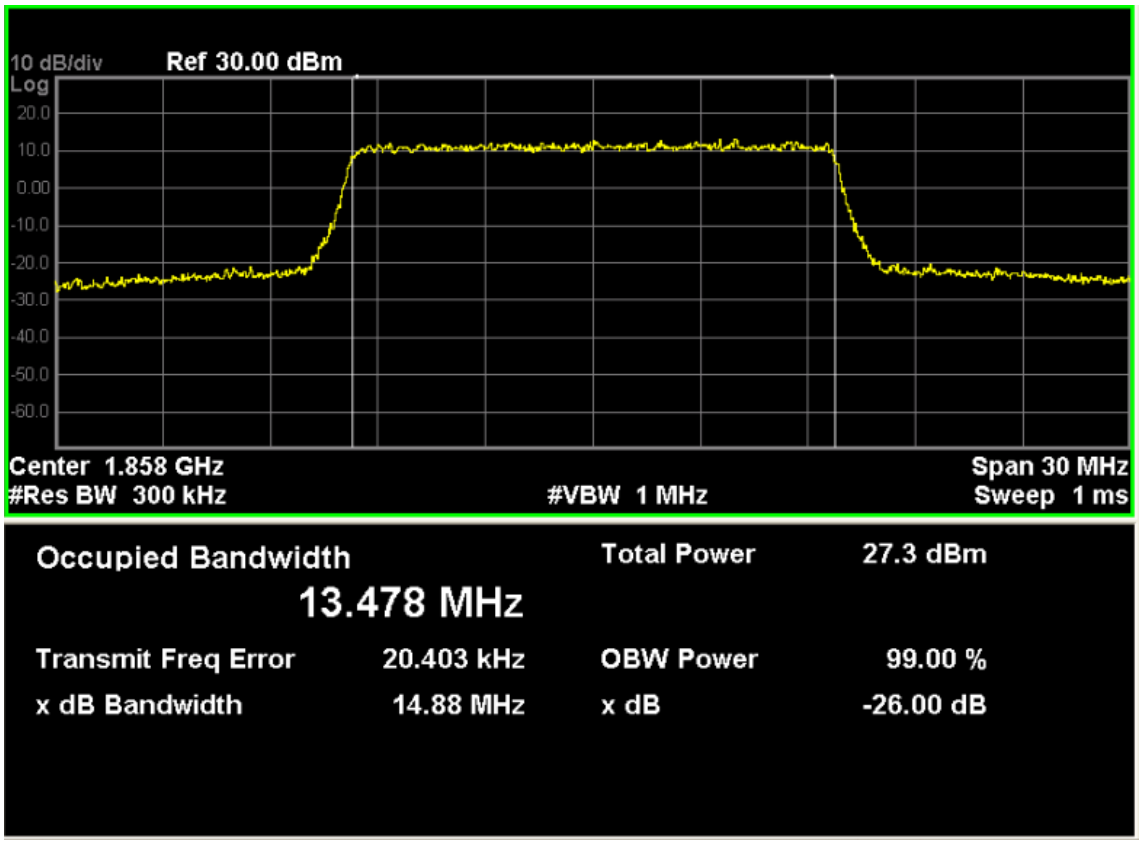


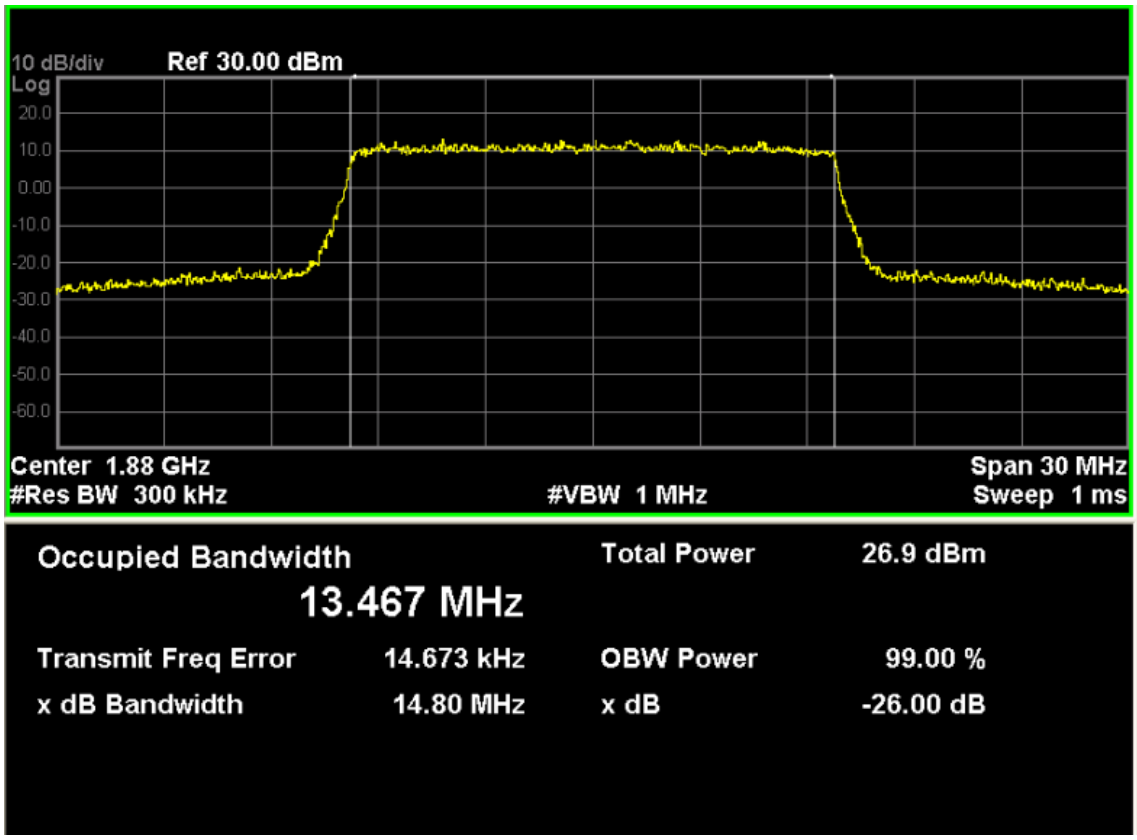

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.418 MHz
Total Power
28.2 dBm
Transmit Freq Error
12.157 kHz
OBW Power
99.00 %
x dB Bandwidth
14.77 MHz
x dB
-26.00 dB

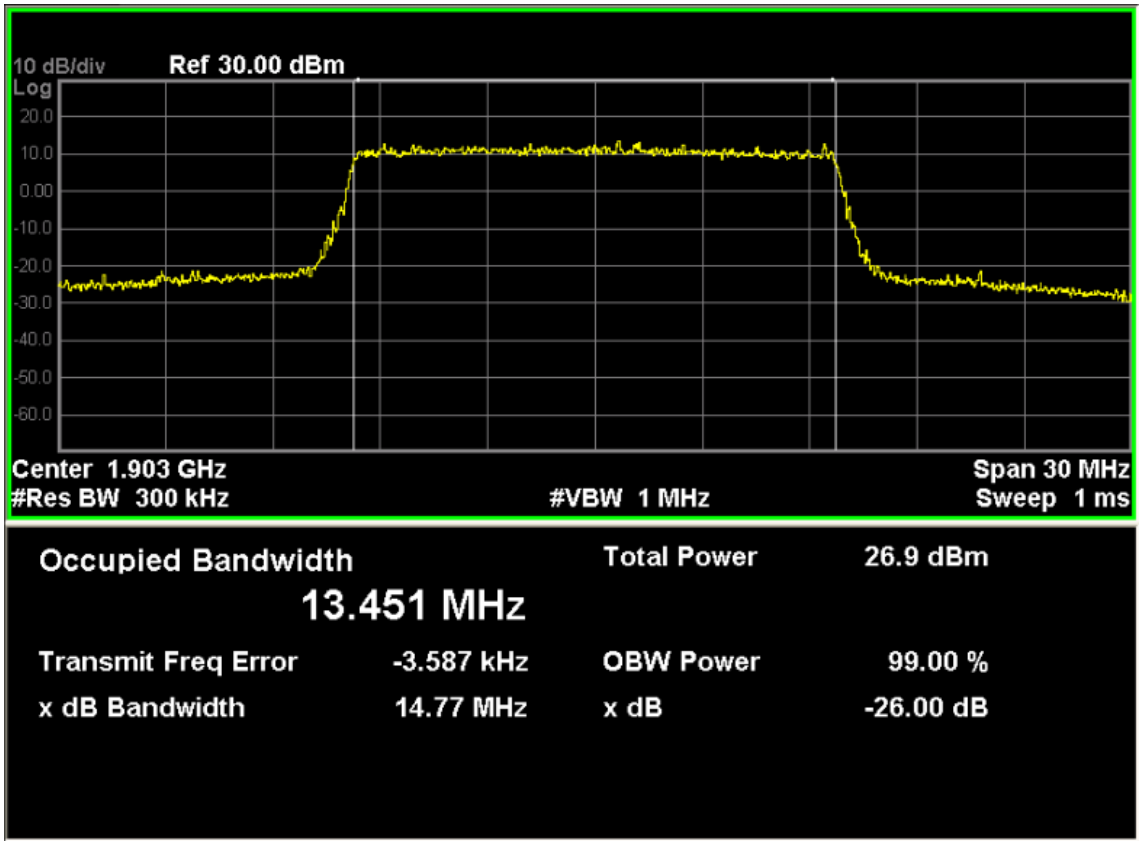

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.903 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.450 MHz
Total Power
28.5 dBm
Transmit Freq Error
-3.930 kHz
OBW Power
99.00 %
x dB Bandwidth
14.95 MHz
x dB
-26.00 dB

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	14.88	13.48
18900	1880.0	14.80	13.47
19125	1902.5	14.77	13.45

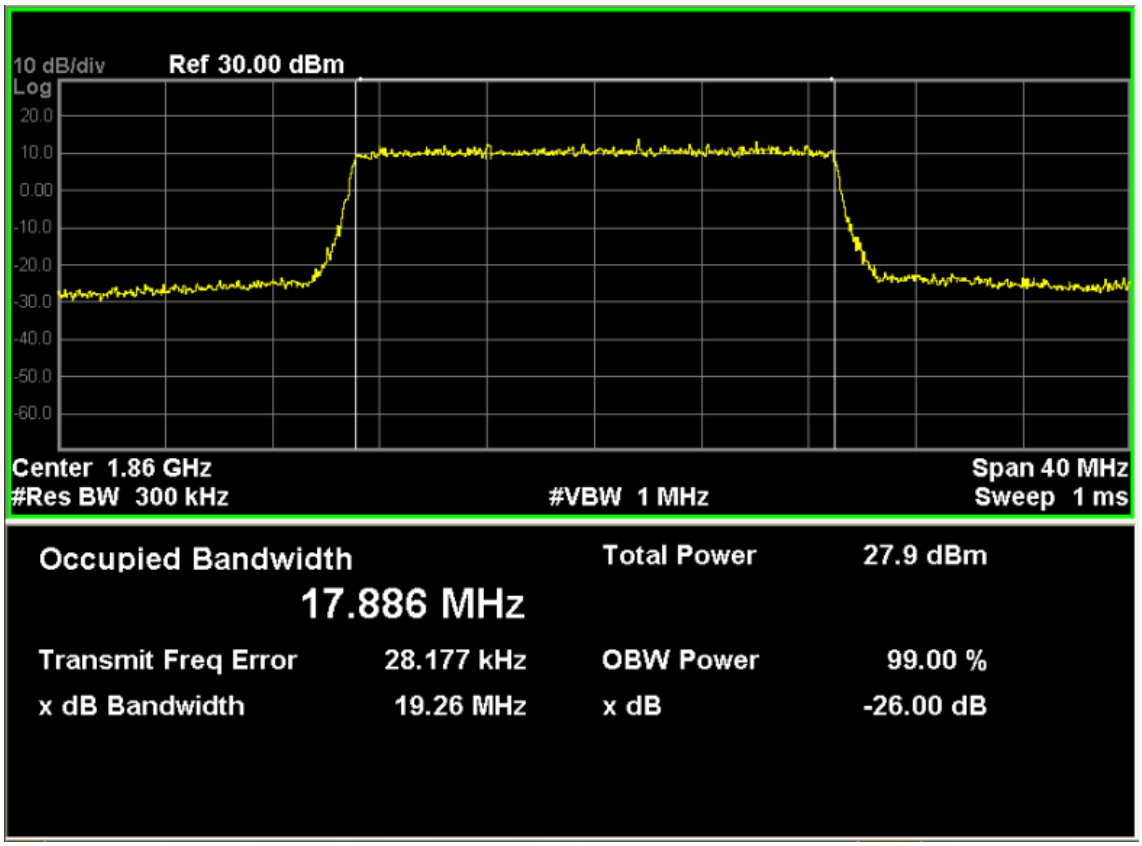


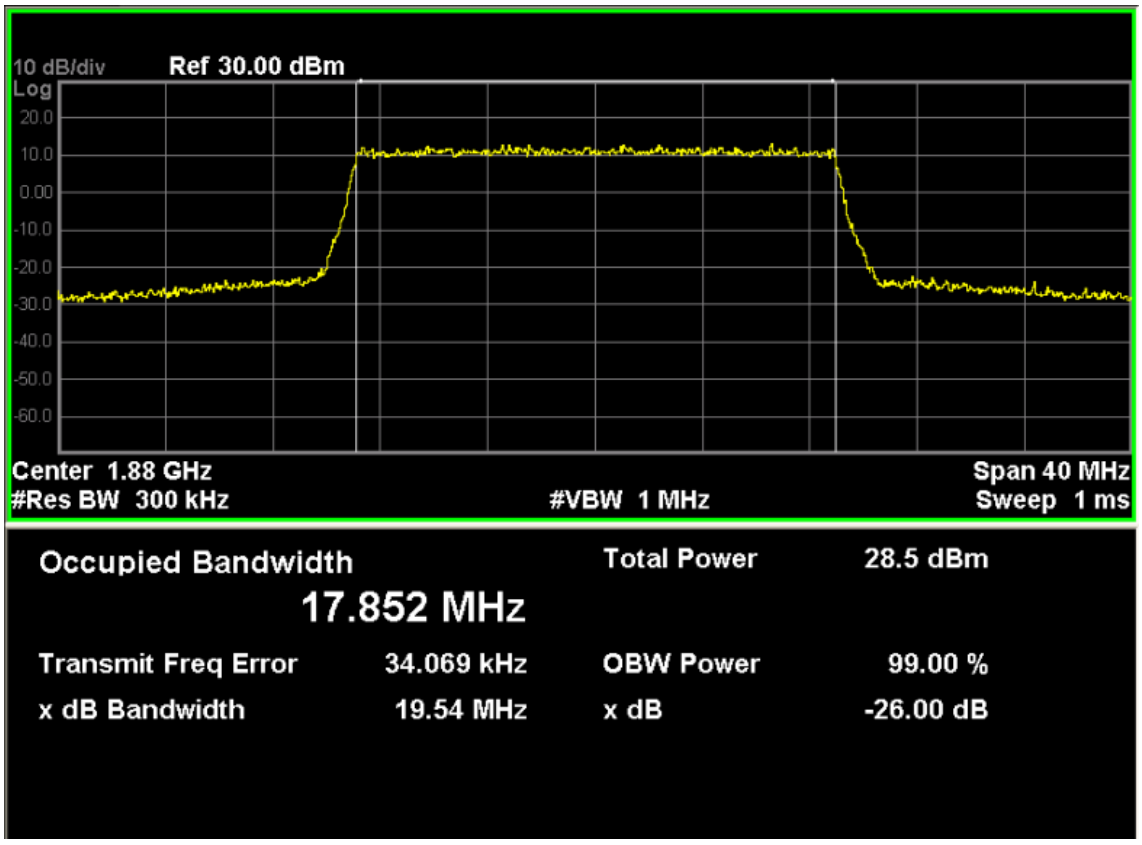

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.467 MHz
Total Power
26.9 dBm
Transmit Freq Error
14.673 kHz
OBW Power
99.00 %
x dB Bandwidth
14.80 MHz
x dB
-26.00 dB

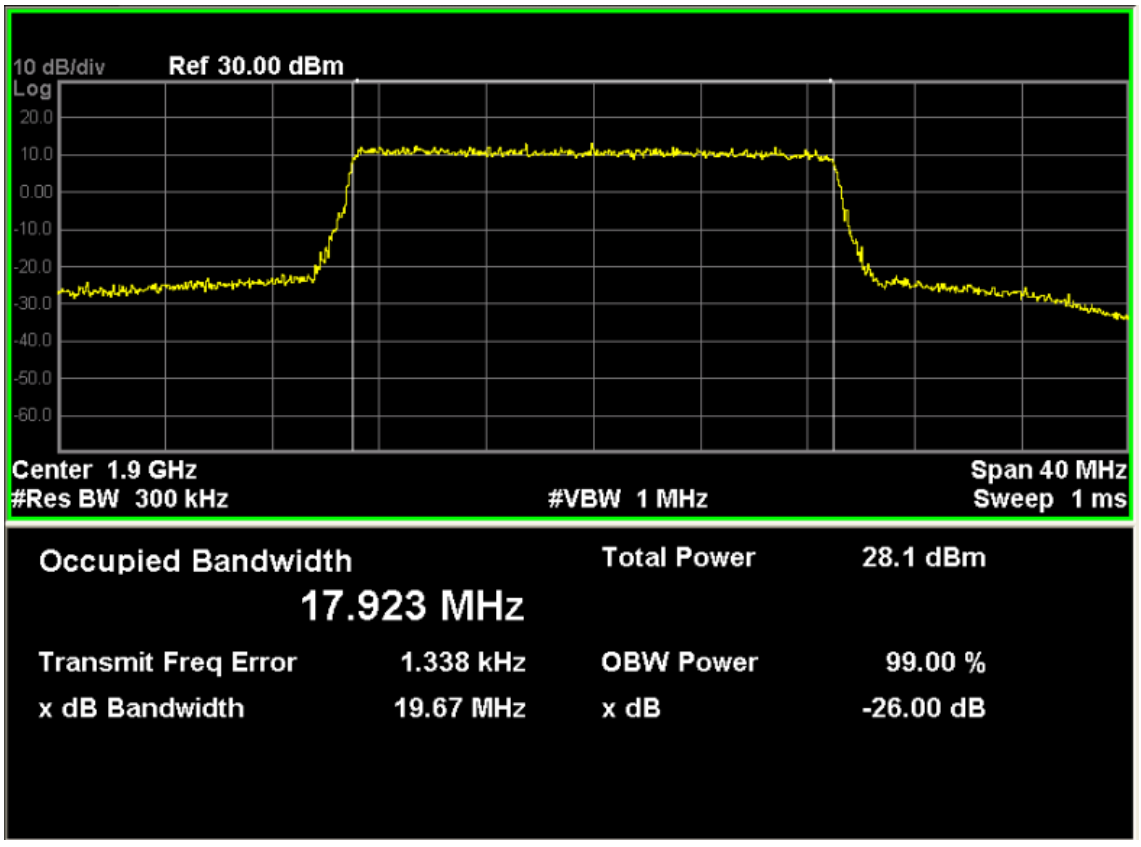

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.903 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.451 MHz
Total Power
26.9 dBm
Transmit Freq Error
-3.587 kHz
OBW Power
99.00 %
x dB Bandwidth
14.77 MHz
x dB
-26.00 dB

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	19.26	17.89
18900	1880.0	19.54	17.85
19100	1900.0	19.67	17.92

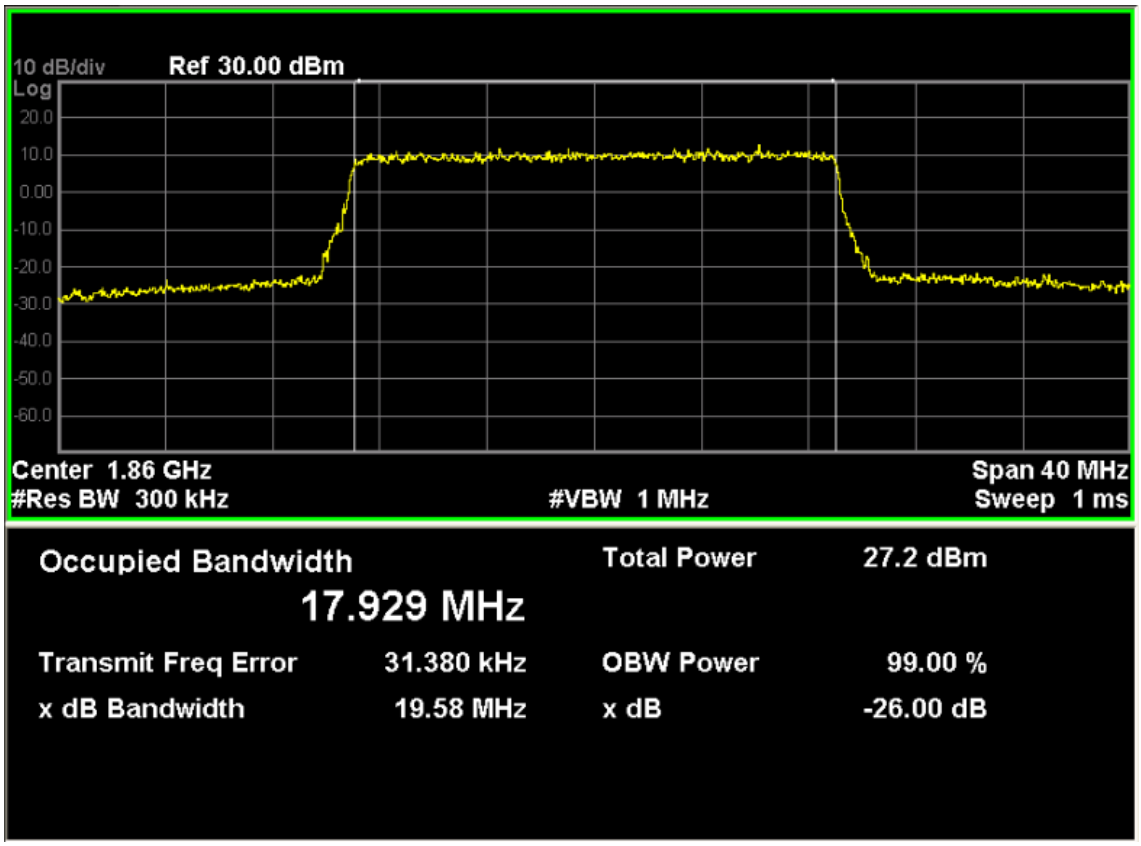


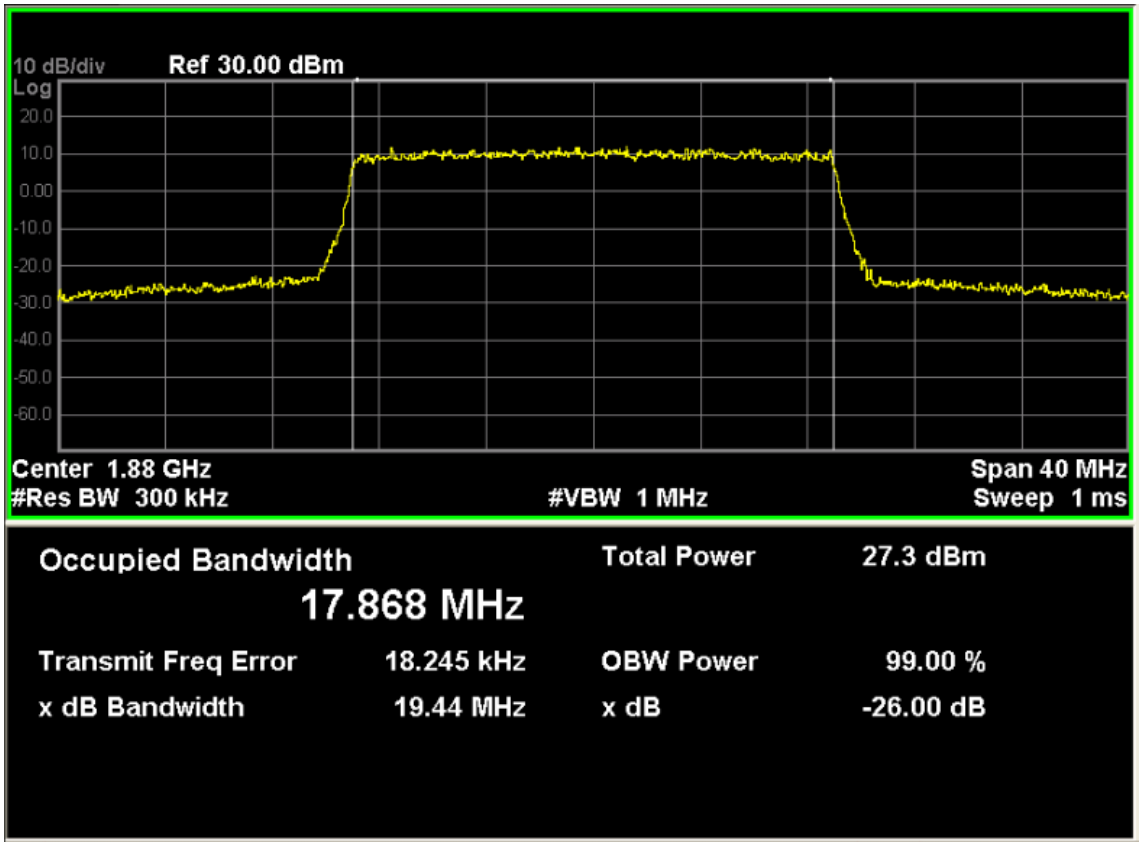

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.852 MHz
Total Power 28.5 dBm
Transmit Freq Error 34.069 kHz
OBW Power 99.00 %
x dB Bandwidth 19.54 MHz
x dB -26.00 dB

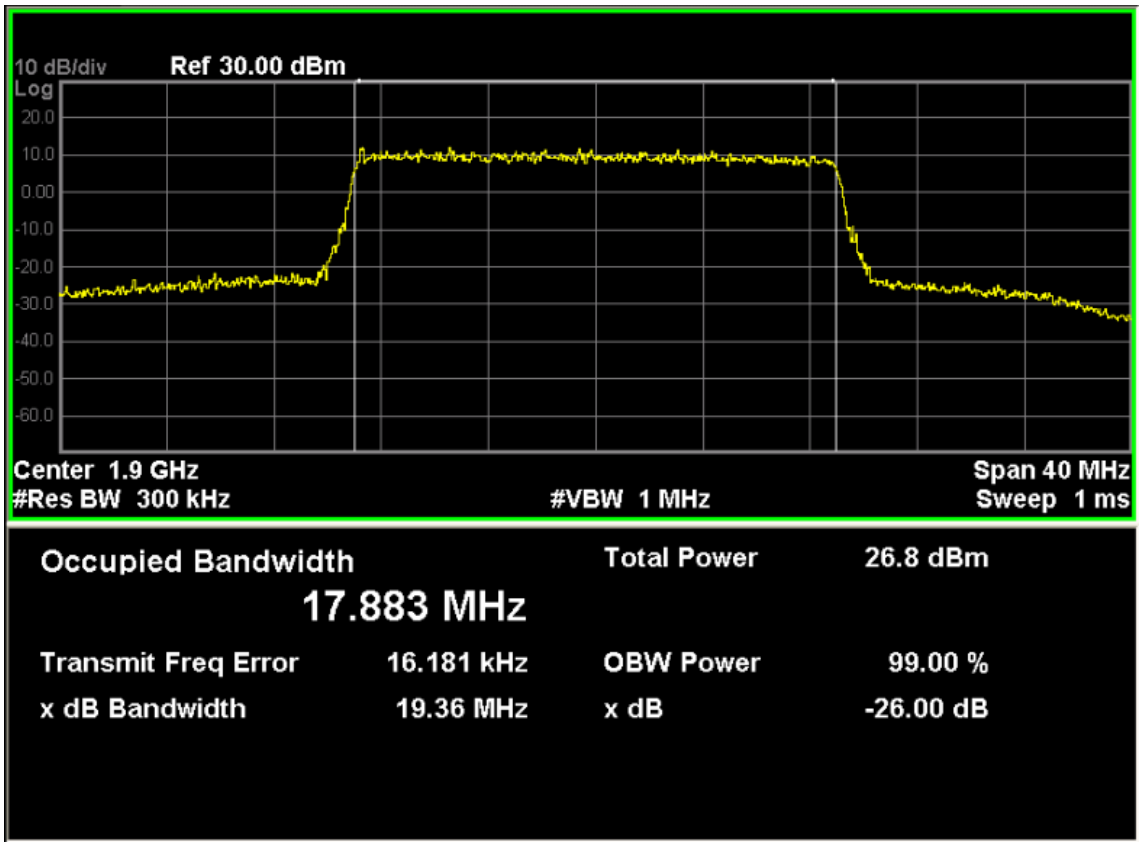

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.9 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.923 MHz
Total Power 28.1 dBm
Transmit Freq Error 1.338 kHz
OBW Power 99.00 %
x dB Bandwidth 19.67 MHz
x dB -26.00 dB

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	19.58	17.93
18900	1880.0	19.44	17.87
19100	1900.0	19.36	17.88

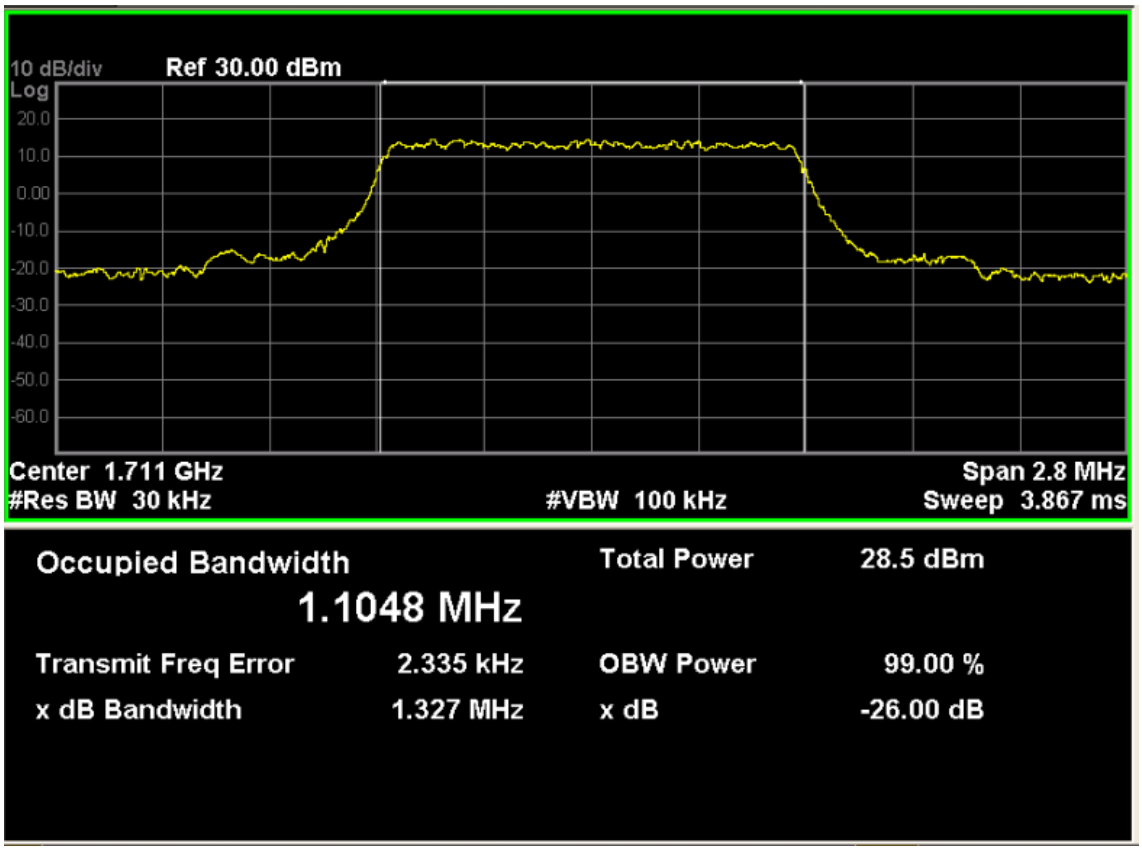


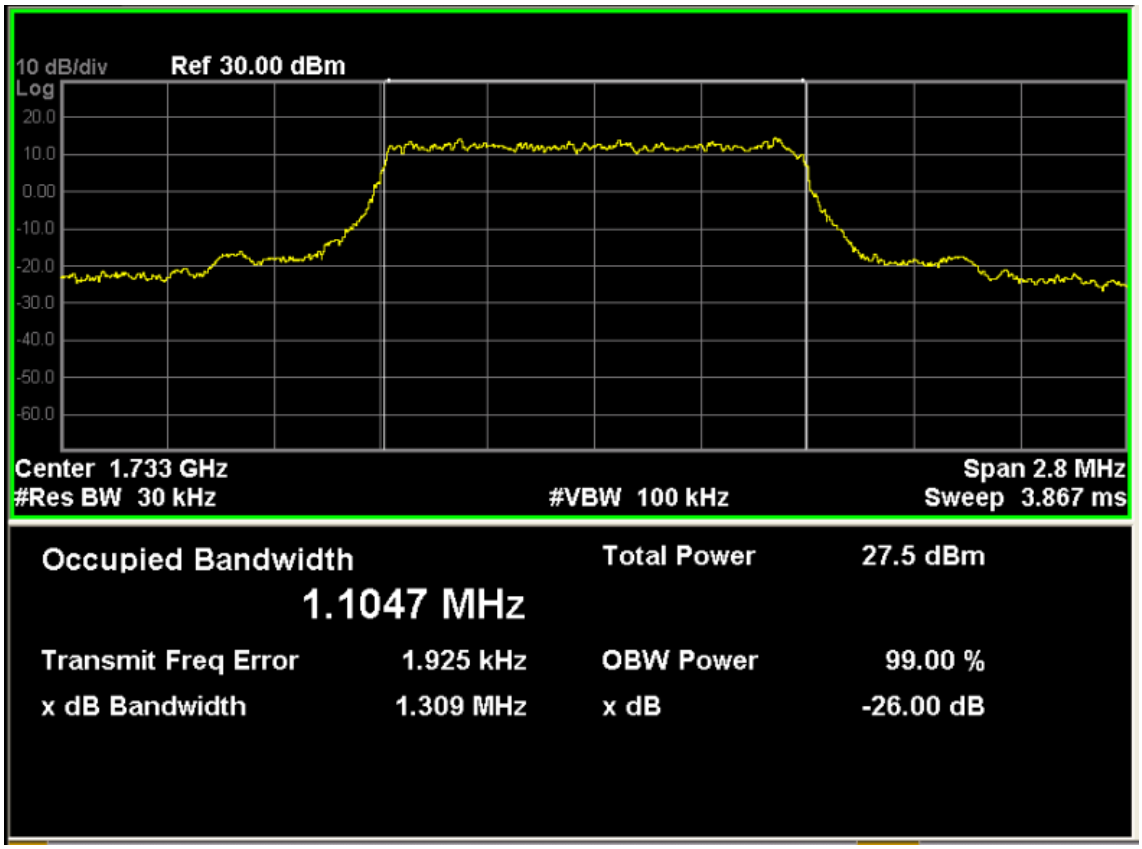

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.868 MHz
Total Power 27.3 dBm
Transmit Freq Error 18.245 kHz
OBW Power 99.00 %
x dB Bandwidth 19.44 MHz
x dB -26.00 dB

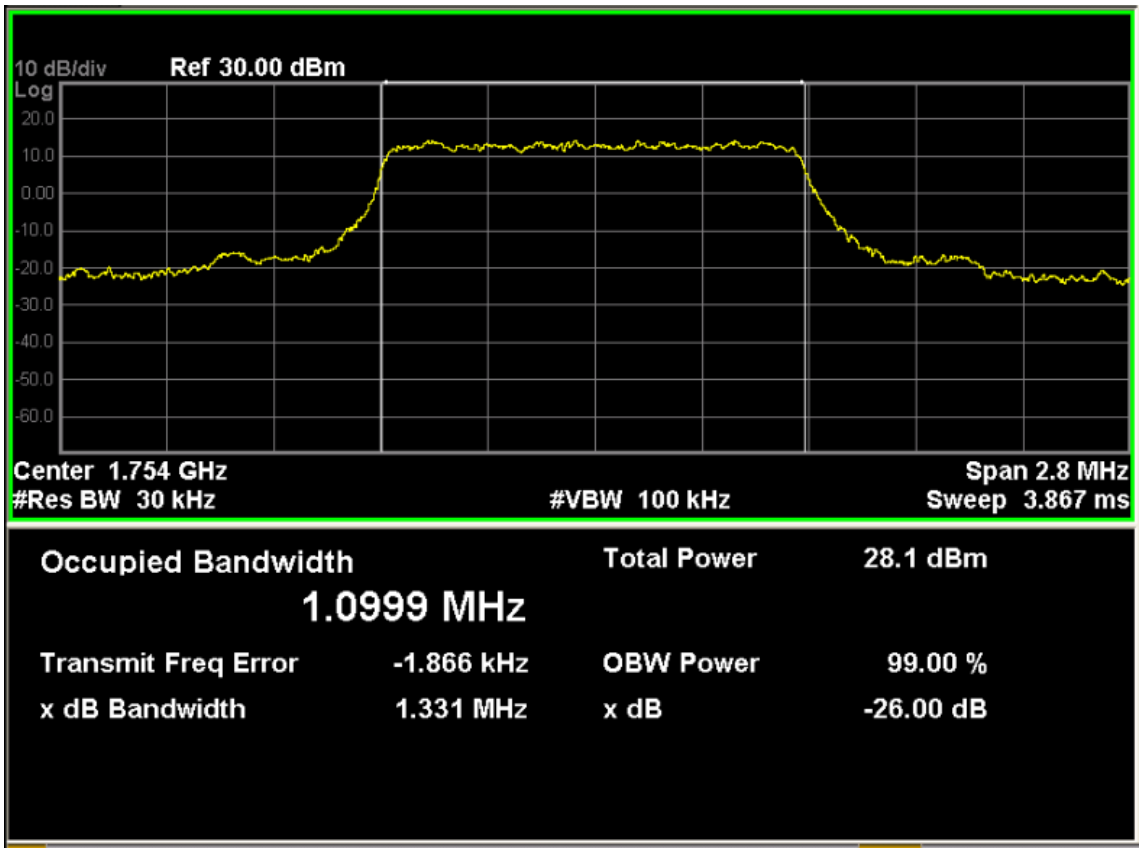

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.9 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.883 MHz
Total Power 26.8 dBm
Transmit Freq Error 16.181 kHz
OBW Power 99.00 %
x dB Bandwidth 19.36 MHz
x dB -26.00 dB

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	1.327	1.105
20175	1732.5	1.309	1.105
20393	1754.3	1.331	1.100

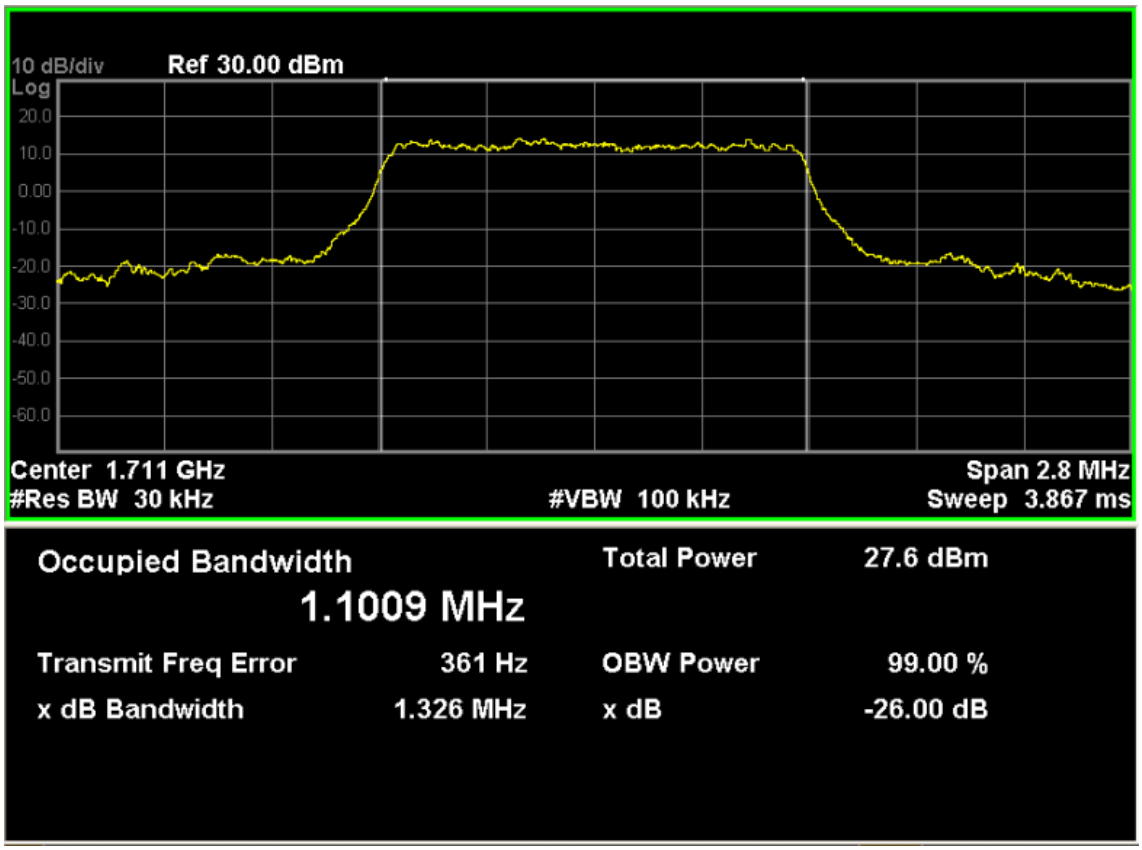


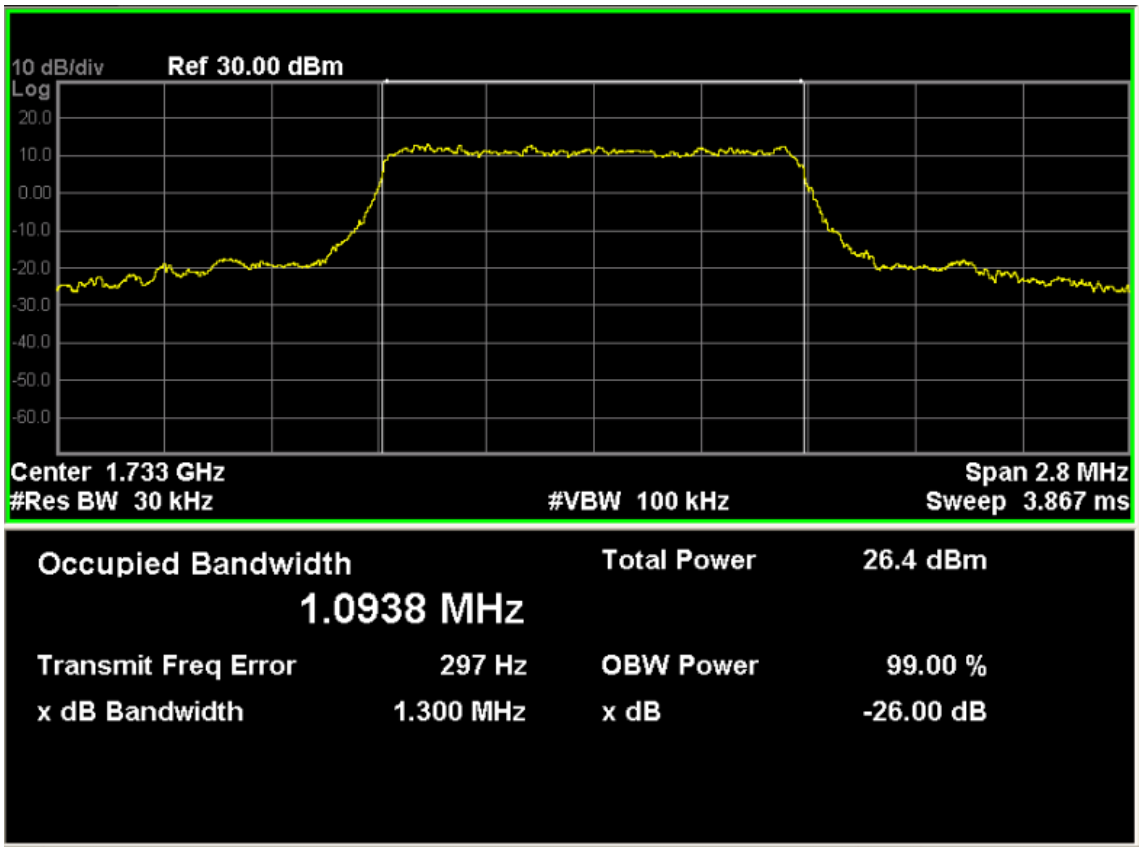

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1047 MHz
Total Power
27.5 dBm
Transmit Freq Error
1.925 kHz
OBW Power
99.00 %
x dB Bandwidth
1.309 MHz
x dB
-26.00 dB

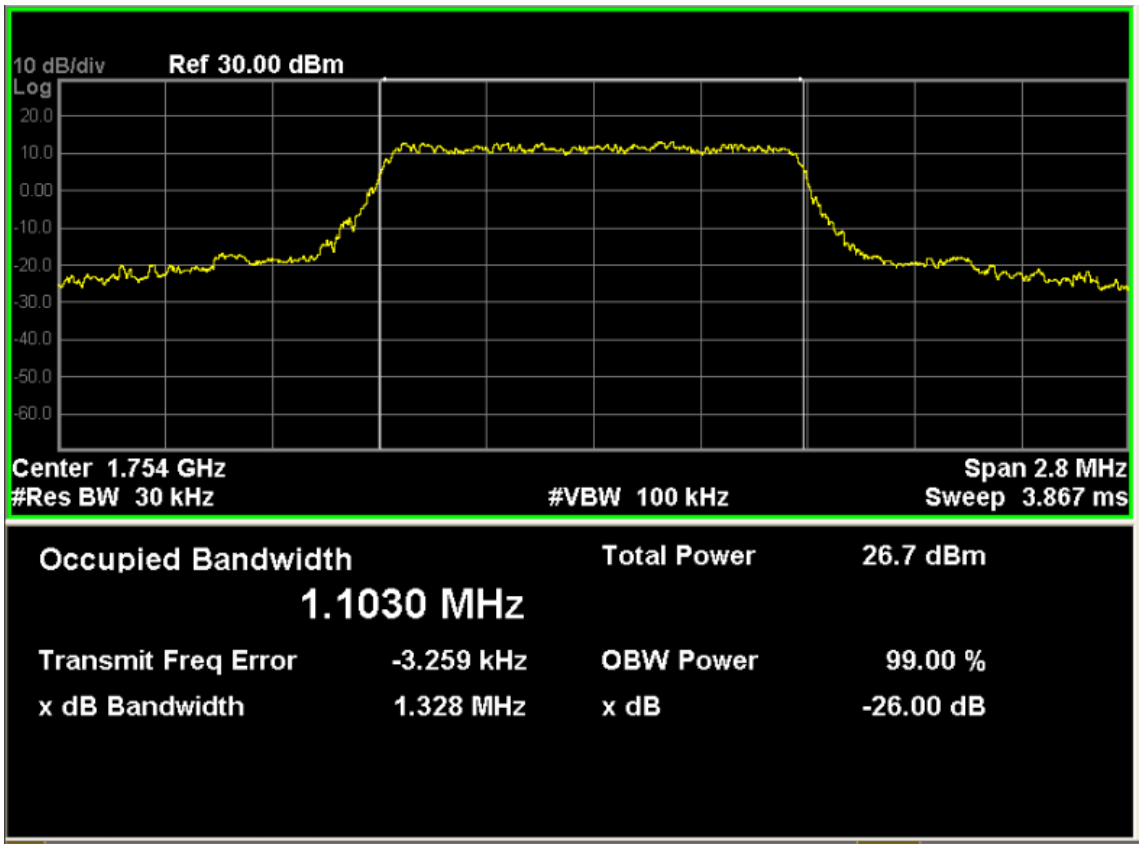

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.754 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0999 MHz
Total Power
28.1 dBm
Transmit Freq Error
-1.866 kHz
OBW Power
99.00 %
x dB Bandwidth
1.331 MHz
x dB
-26.00 dB

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	1.326	1.101
20175	1732.5	1.300	1.094
20393	1754.3	1.328	1.103

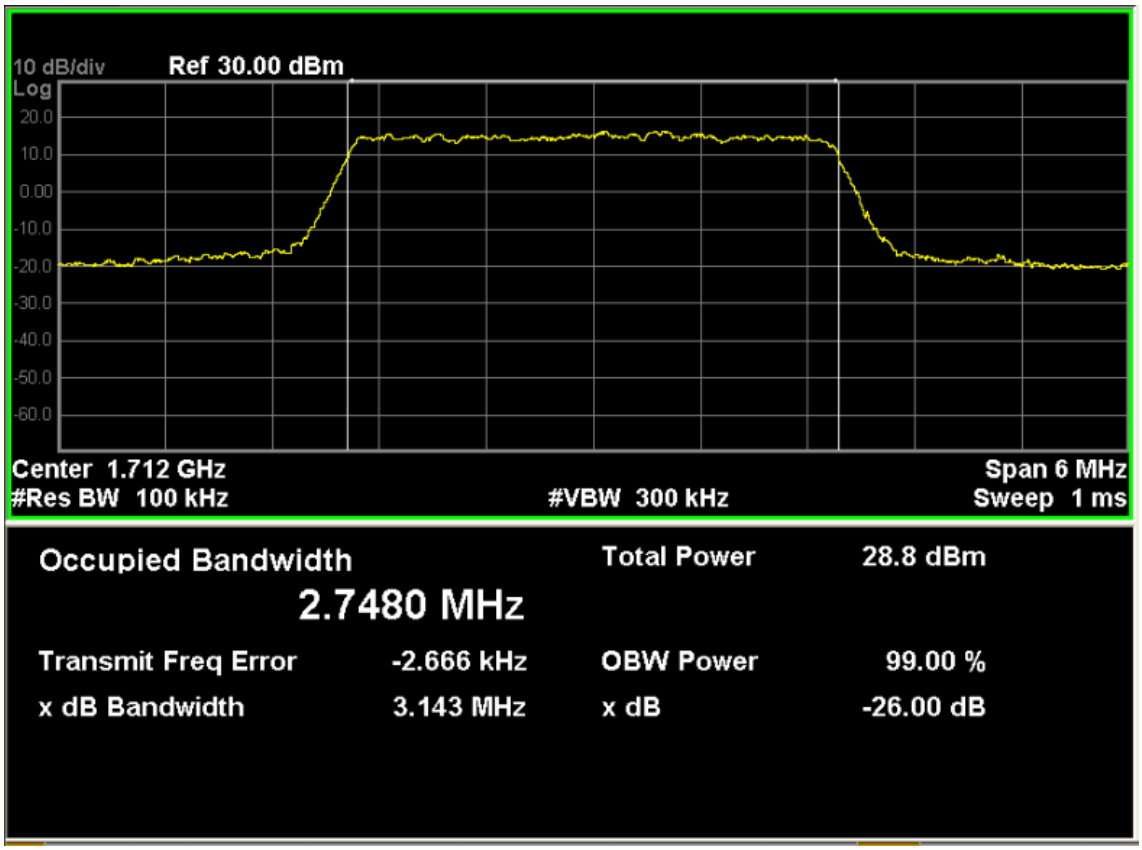


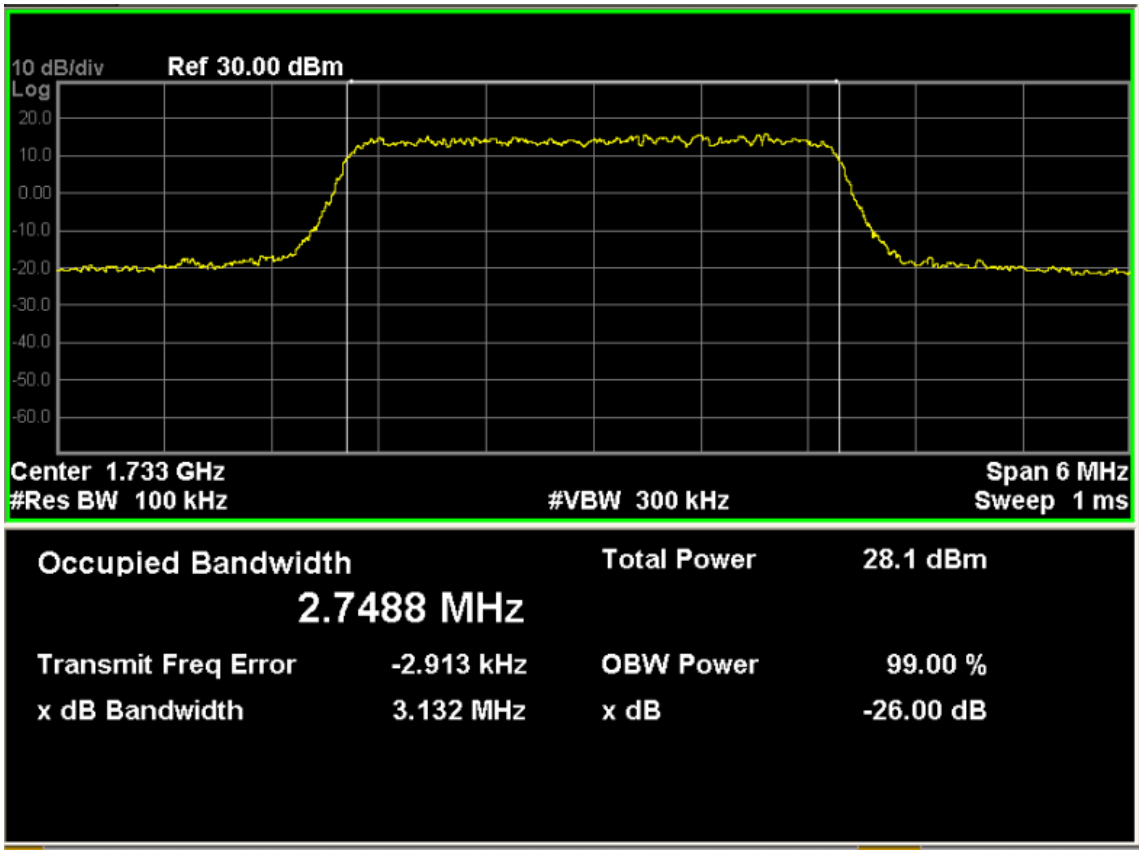

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0938 MHz
Total Power 26.4 dBm
Transmit Freq Error 297 Hz
OBW Power 99.00 %
x dB Bandwidth 1.300 MHz
x dB -26.00 dB

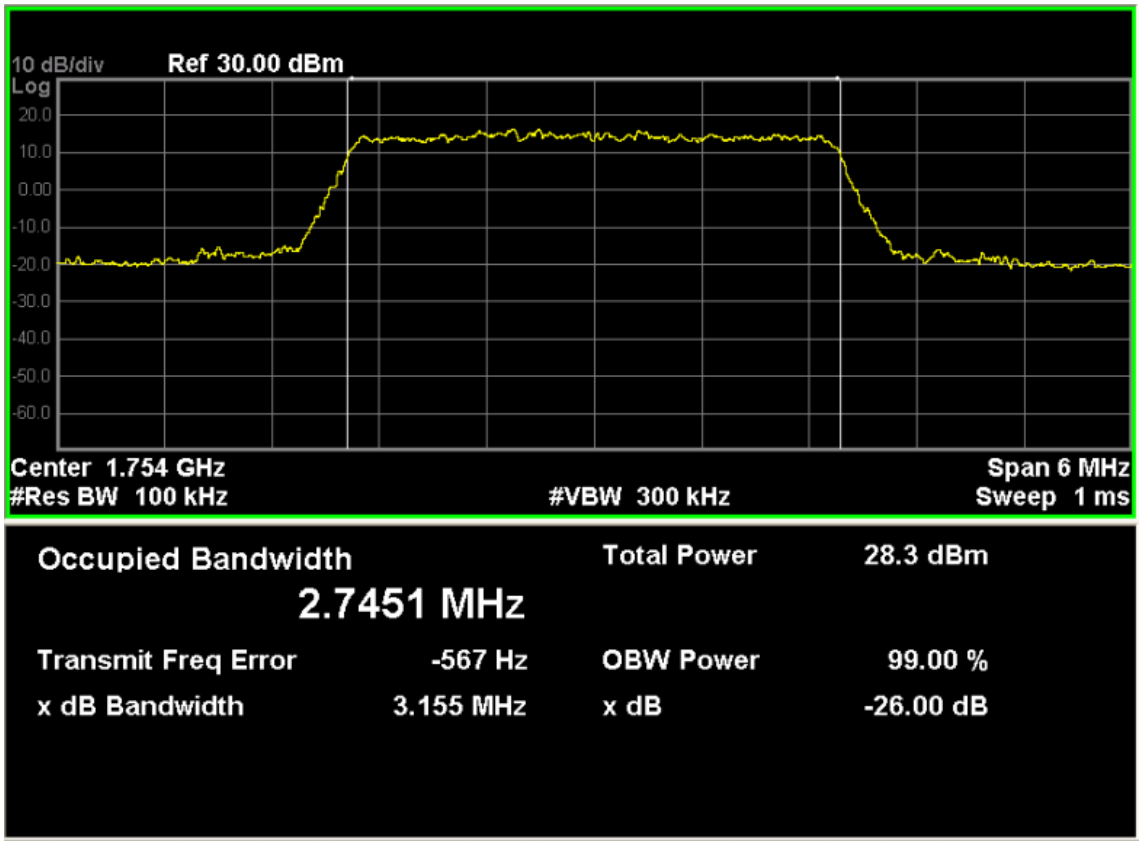

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.754 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1030 MHz
Total Power 26.7 dBm
Transmit Freq Error -3.259 kHz
OBW Power 99.00 %
x dB Bandwidth 1.328 MHz
x dB -26.00 dB

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	3.143	2.748
20175	1732.5	3.132	2.749
20385	1753.5	3.155	2.745

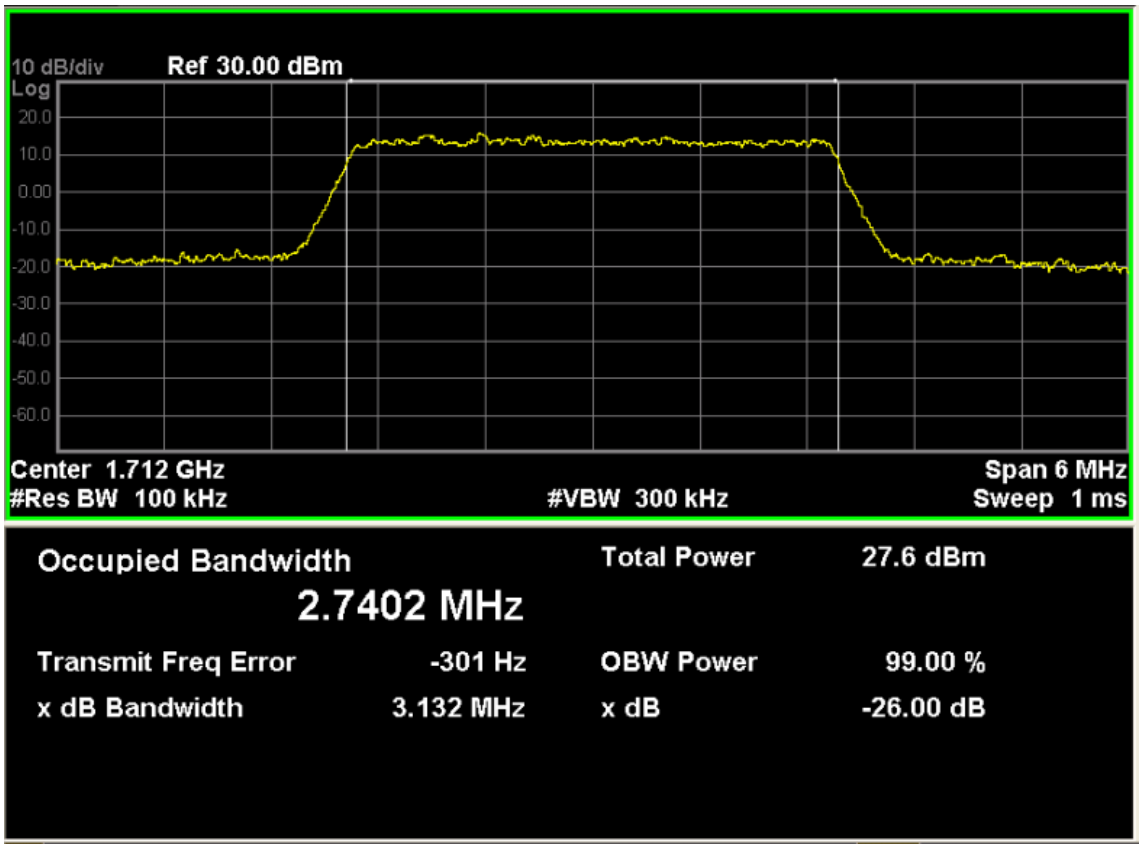


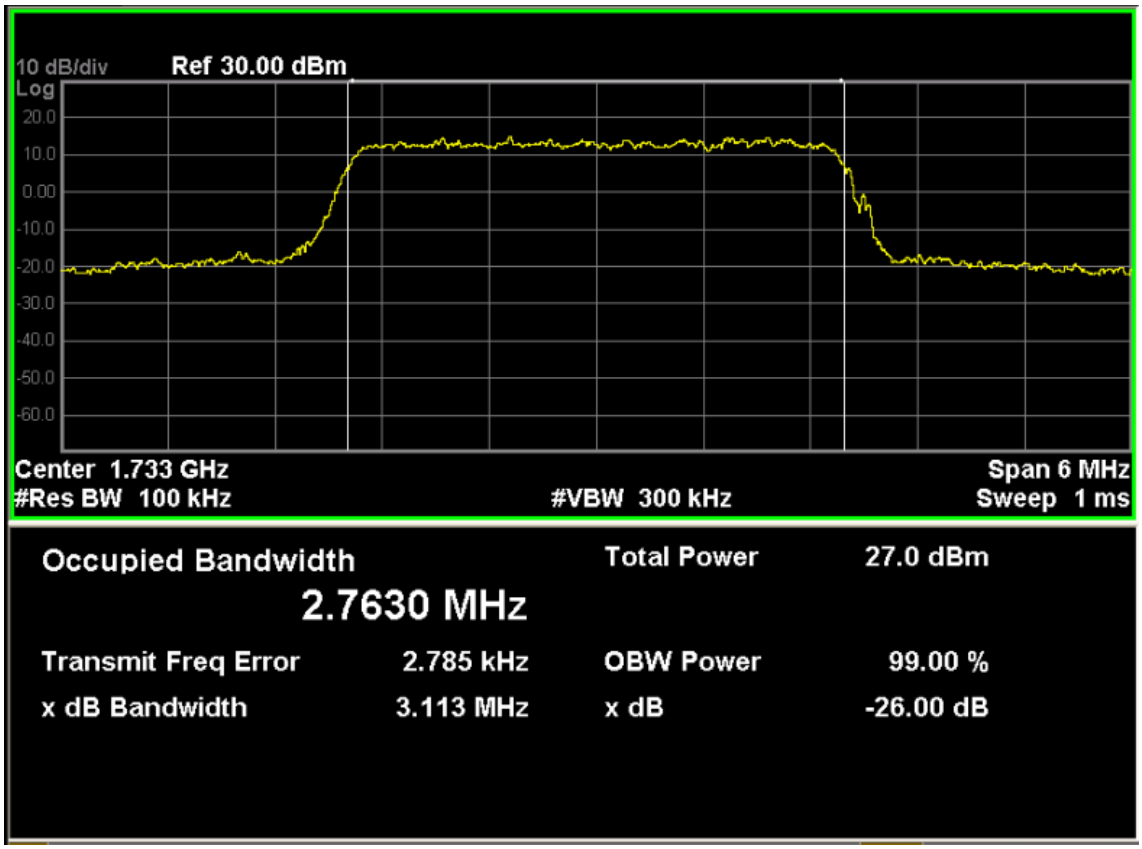

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7488 MHz
Total Power 28.1 dBm
Transmit Freq Error -2.913 kHz
OBW Power 99.00 %
x dB Bandwidth 3.132 MHz
x dB -26.00 dB

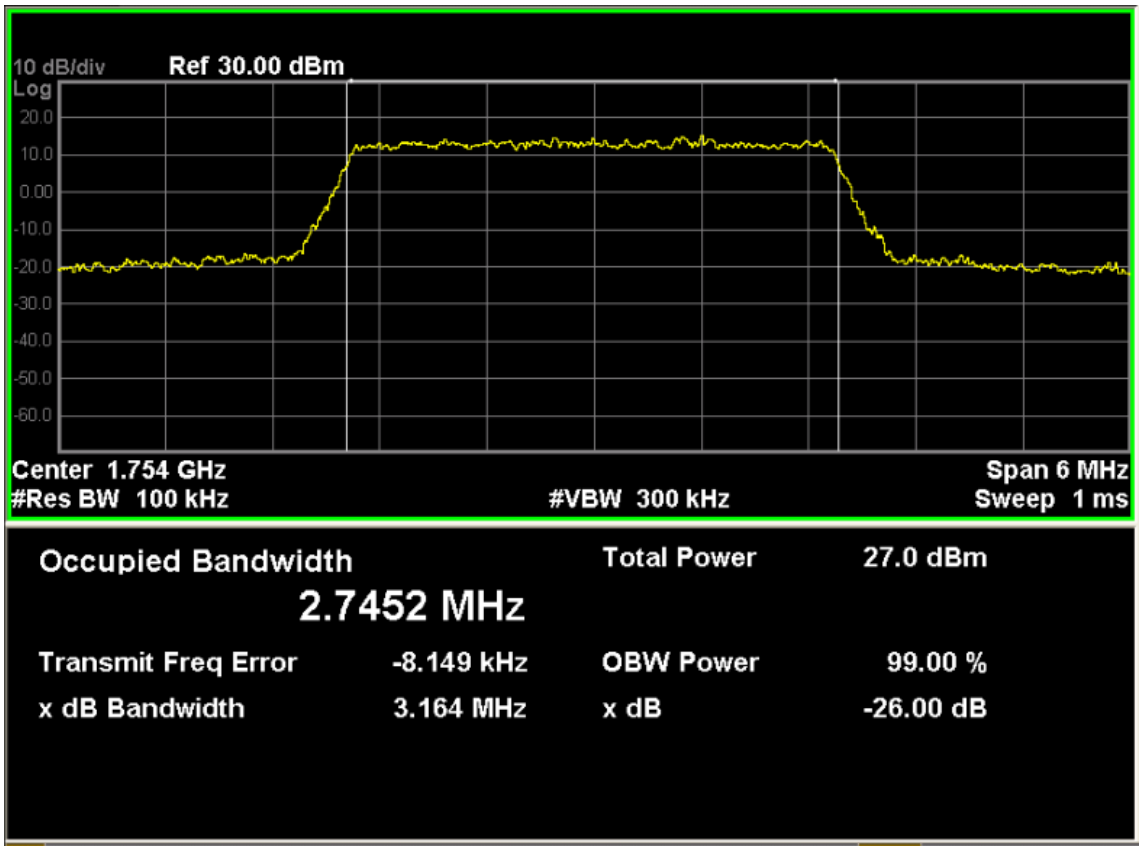

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.754 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7451 MHz
Total Power 28.3 dBm
Transmit Freq Error -567 Hz
OBW Power 99.00 %
x dB Bandwidth 3.155 MHz
x dB -26.00 dB

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	3.132	2.740
20175	1732.5	3.113	2.763
20385	1753.5	3.164	2.745

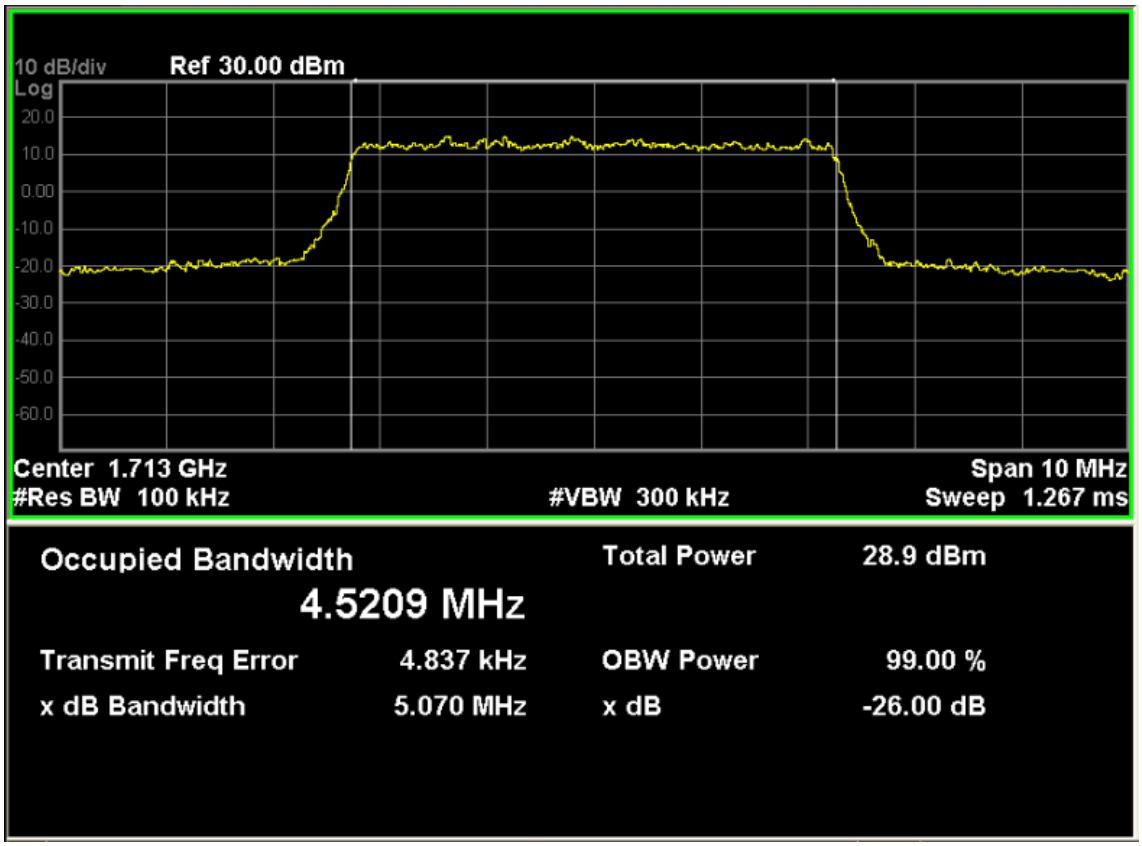


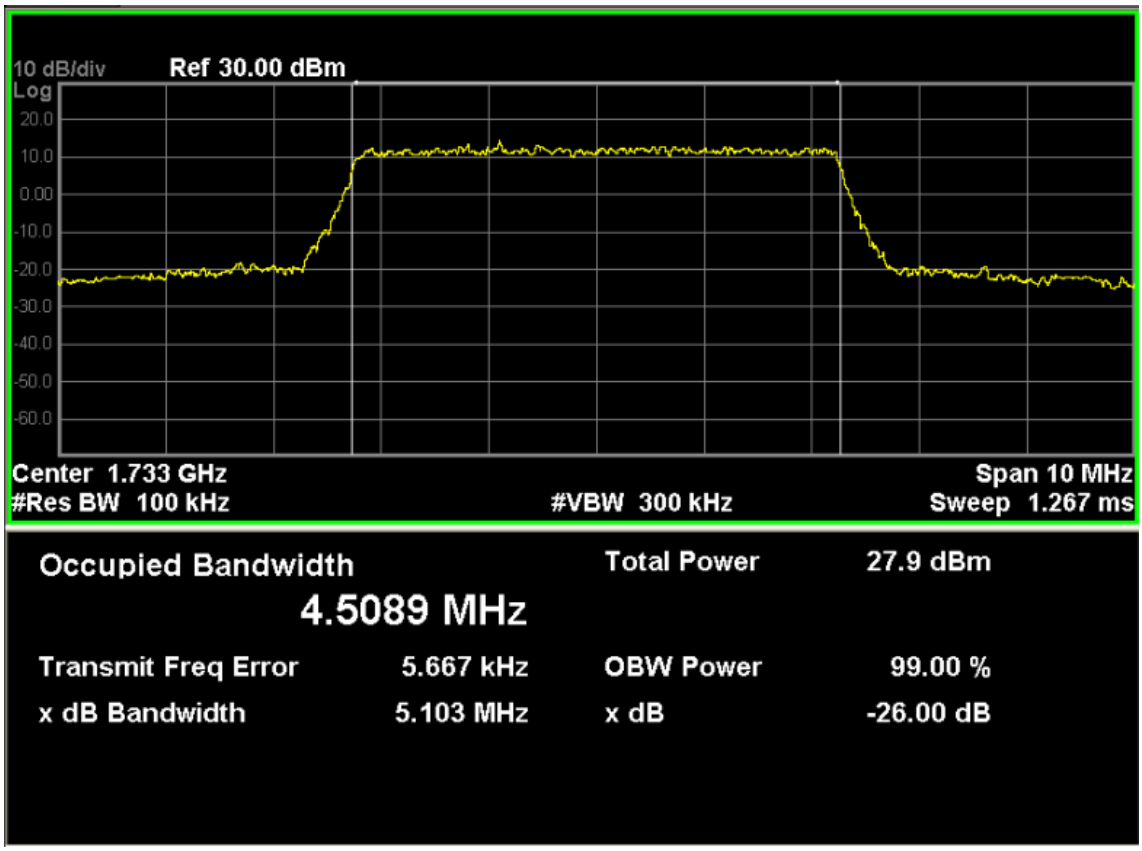

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7630 MHz
Total Power 27.0 dBm
Transmit Freq Error 2.785 kHz
OBW Power 99.00 %
x dB Bandwidth 3.113 MHz
x dB -26.00 dB

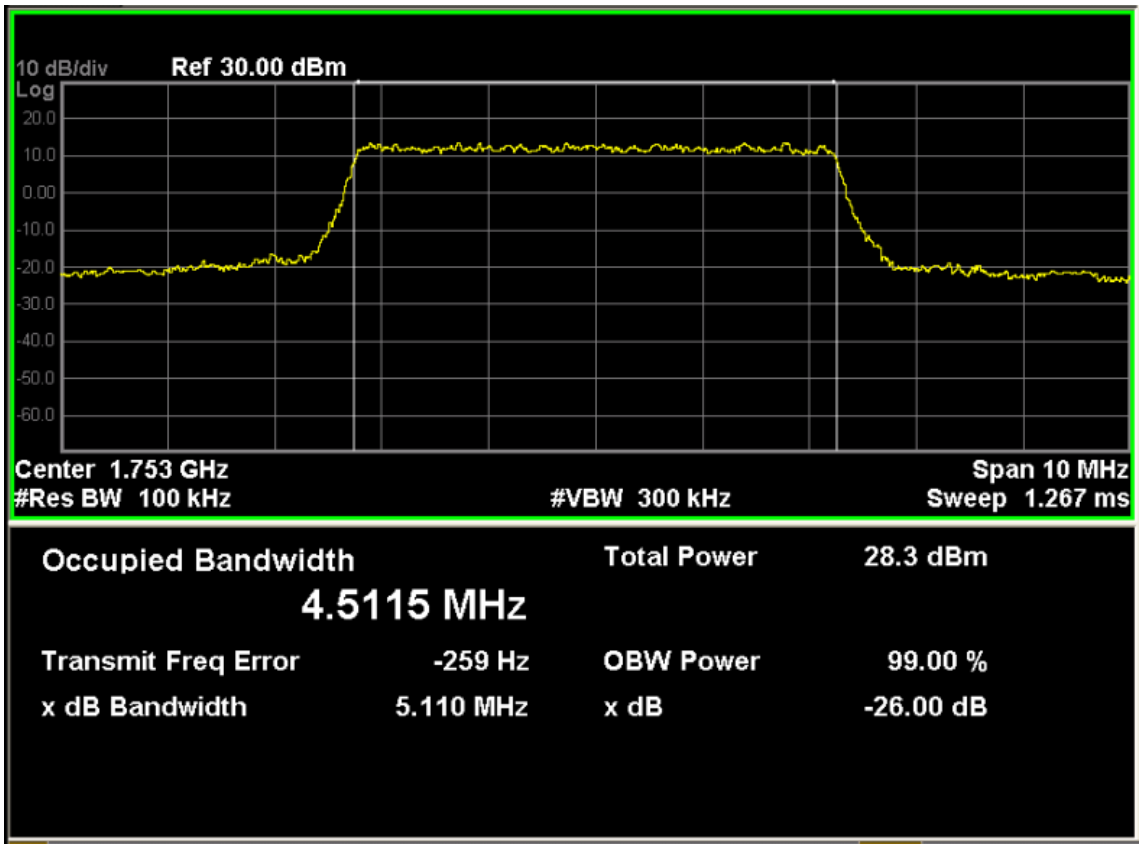

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.754 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7452 MHz
Total Power 27.0 dBm
Transmit Freq Error -8.149 kHz
OBW Power 99.00 %
x dB Bandwidth 3.164 MHz
x dB -26.00 dB

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	5.070	4.521
20175	1732.5	5.103	4.509
20375	1752.5	5.110	4.512

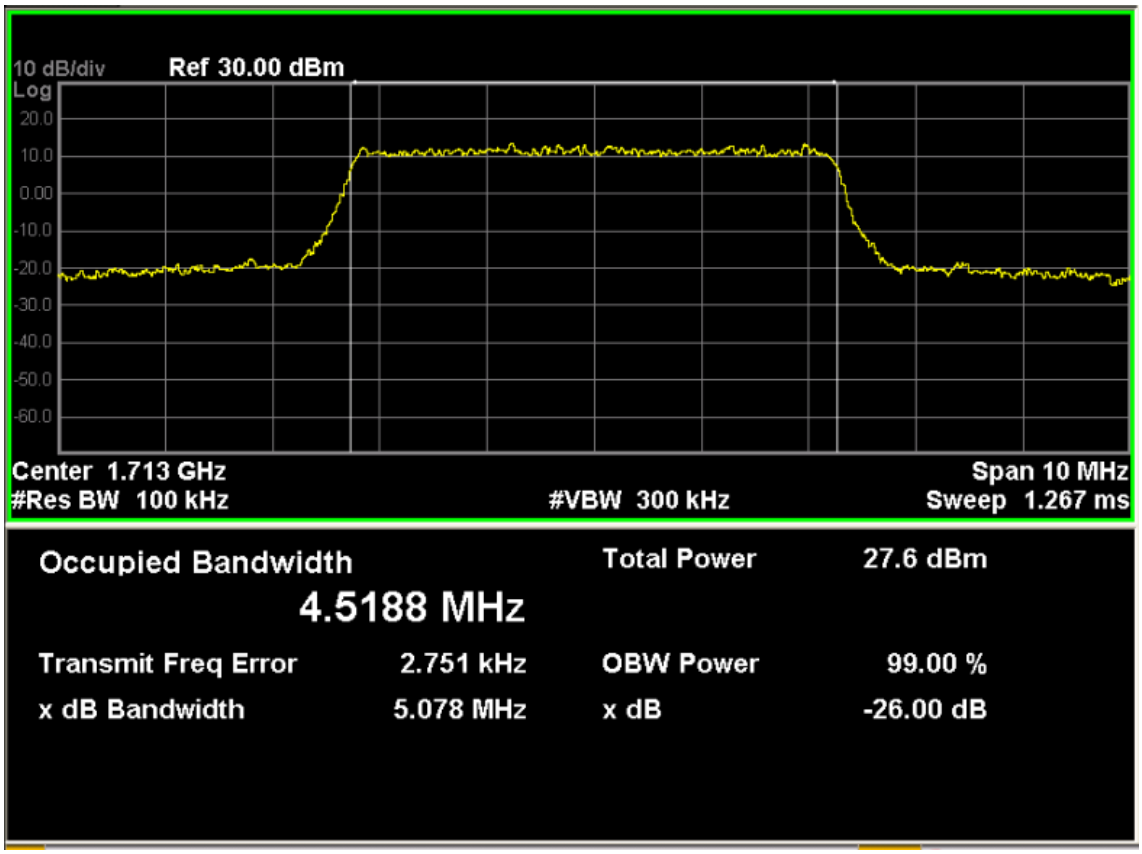


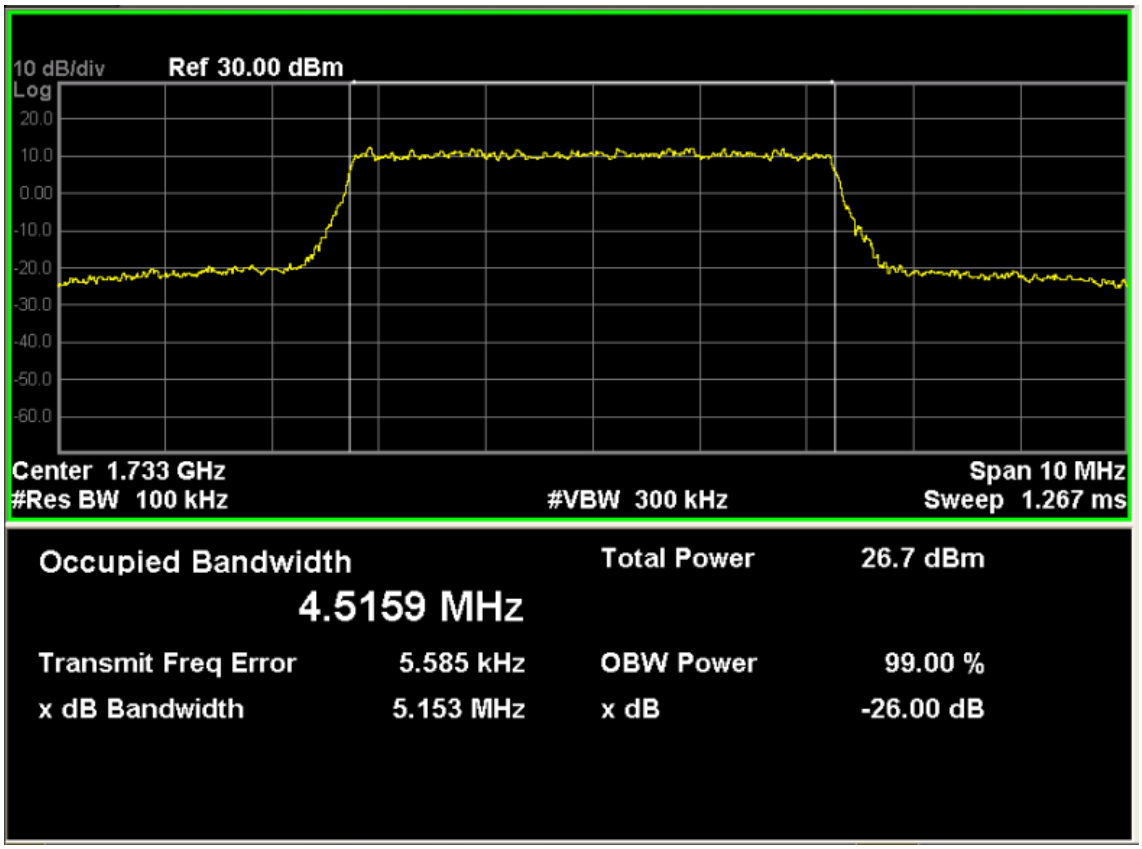

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5089 MHz
Total Power 27.9 dBm
Transmit Freq Error 5.667 kHz
OBW Power 99.00 %
x dB Bandwidth 5.103 MHz
x dB -26.00 dB

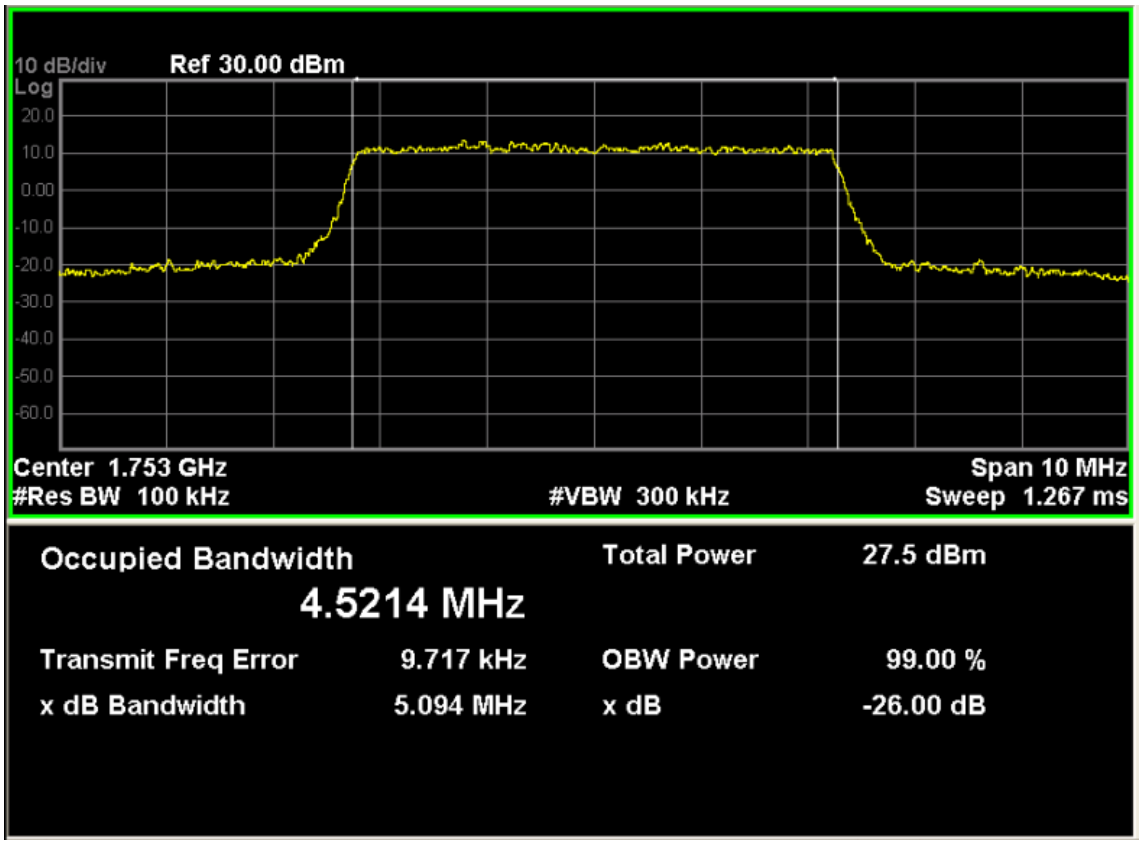

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.753 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5115 MHz
Total Power 28.3 dBm
Transmit Freq Error -259 Hz
OBW Power 99.00 %
x dB Bandwidth 5.110 MHz
x dB -26.00 dB

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	5.078	4.519
20175	1732.5	5.153	4.516
20375	1752.5	5.049	4.521

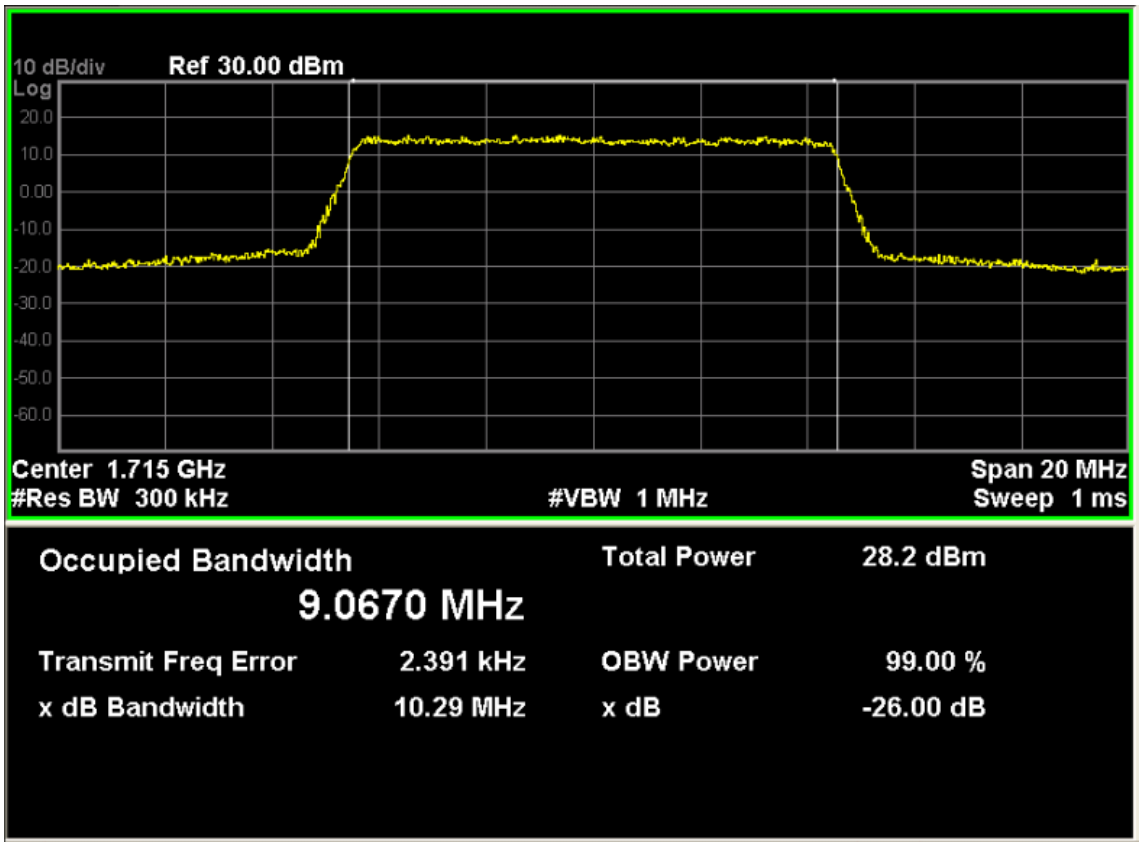


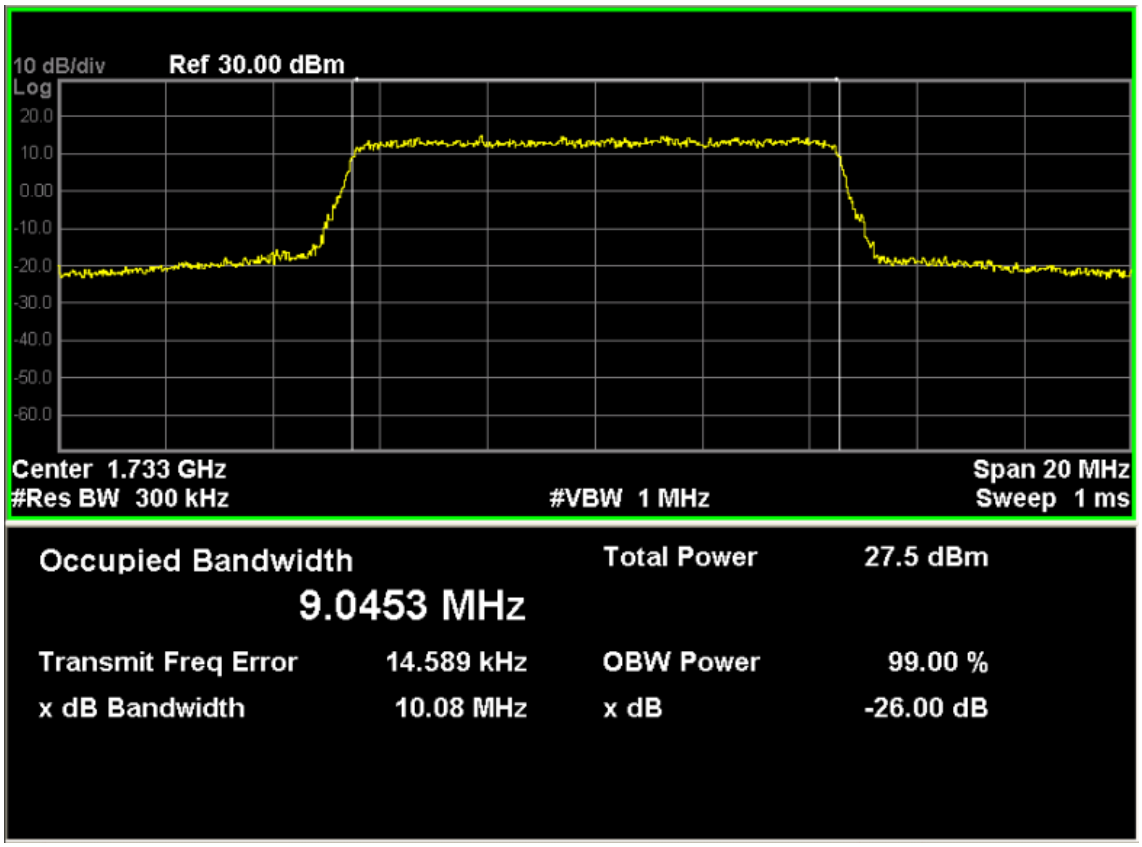

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5159 MHz
Total Power 26.7 dBm
Transmit Freq Error 5.585 kHz
OBW Power 99.00 %
x dB Bandwidth 5.153 MHz
x dB -26.00 dB

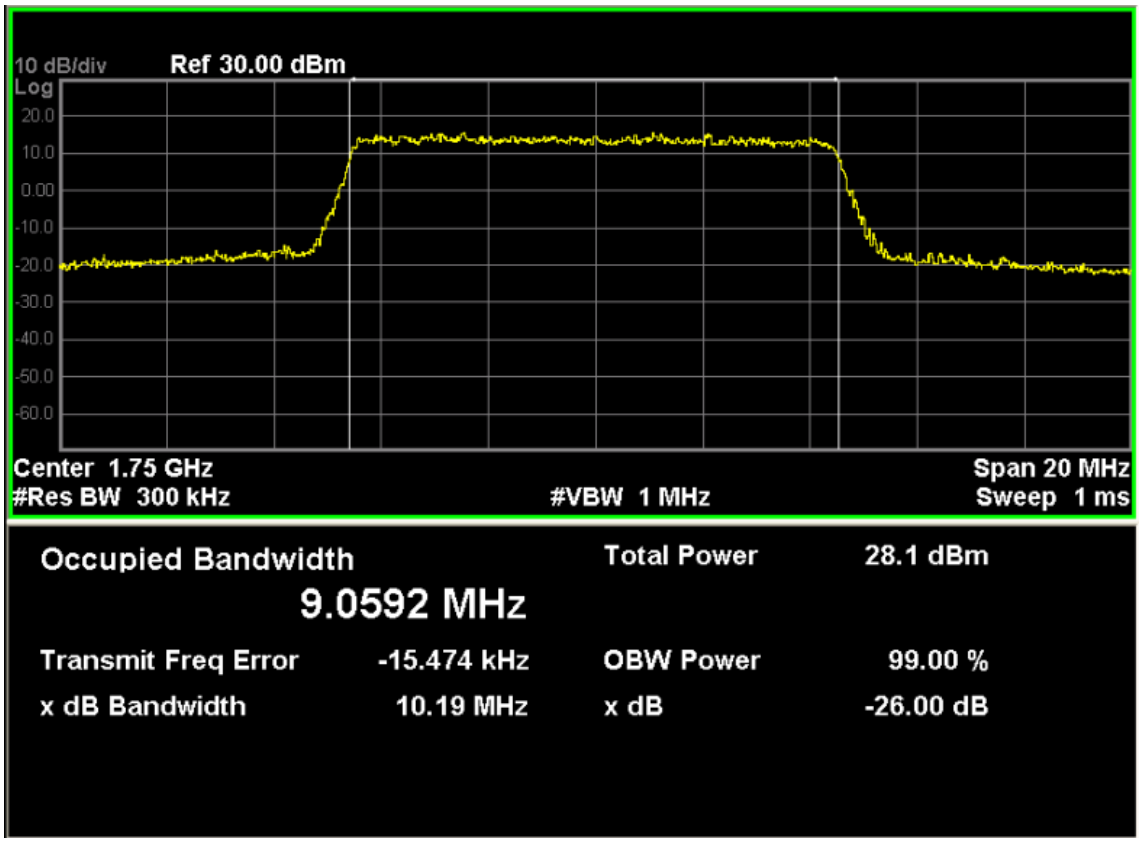

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.753 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5214 MHz
Total Power 27.5 dBm
Transmit Freq Error 9.717 kHz
OBW Power 99.00 %
x dB Bandwidth 5.094 MHz
x dB -26.00 dB

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	10.29	9.067
20175	1732.5	10.08	9.045
20350	1750.0	10.19	9.059

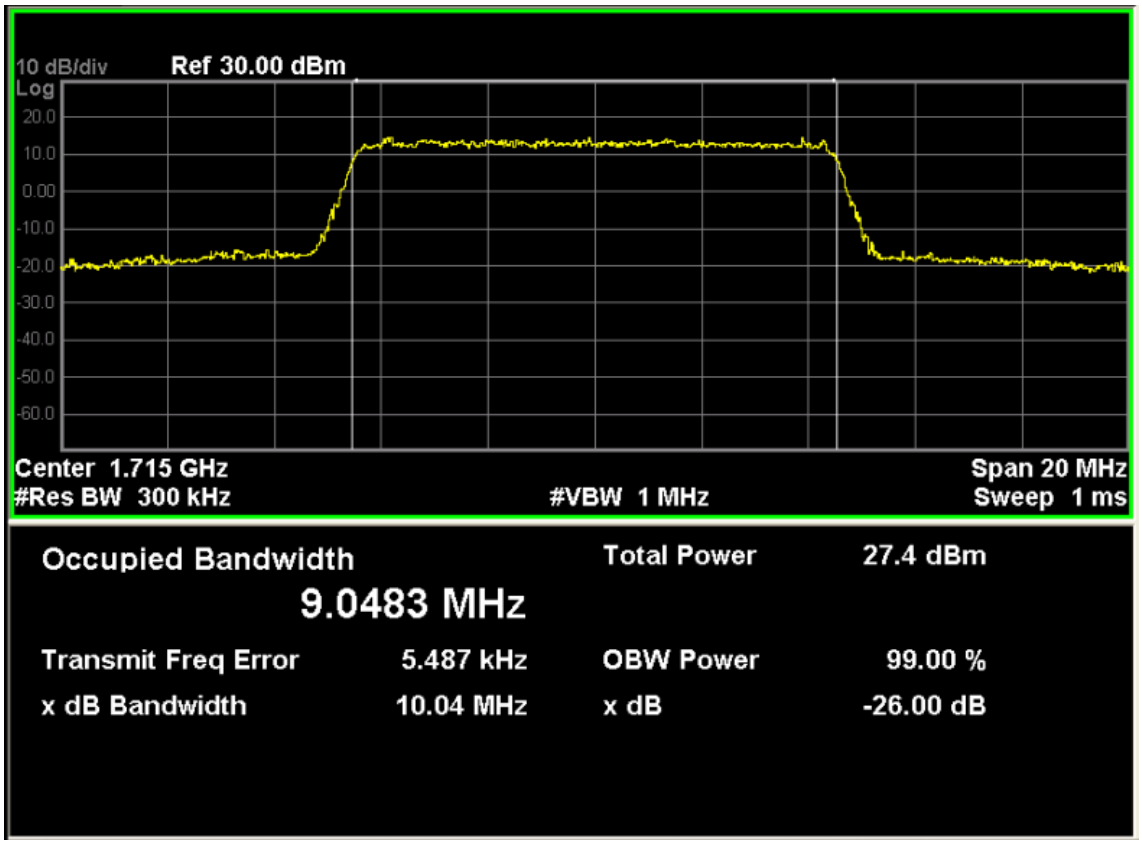


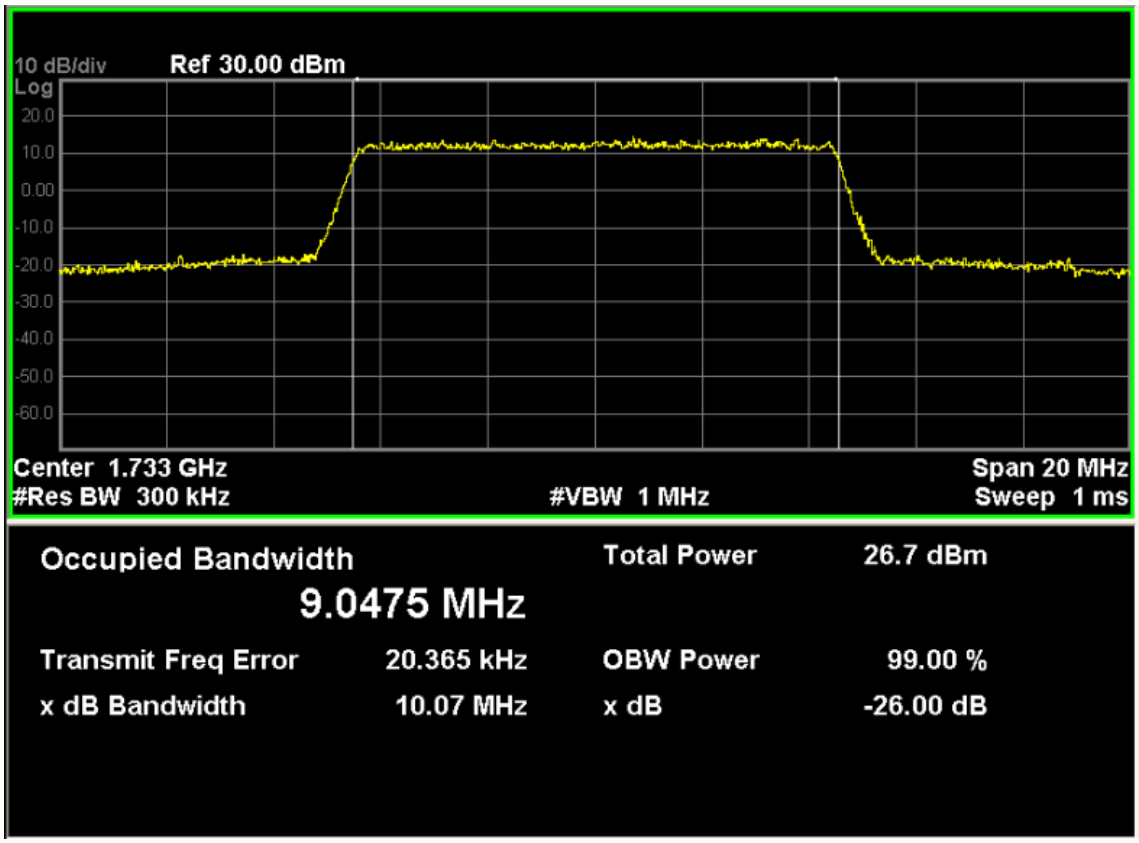

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0453 MHz
Total Power 27.5 dBm
Transmit Freq Error 14.589 kHz
OBW Power 99.00 %
x dB Bandwidth 10.08 MHz
x dB -26.00 dB

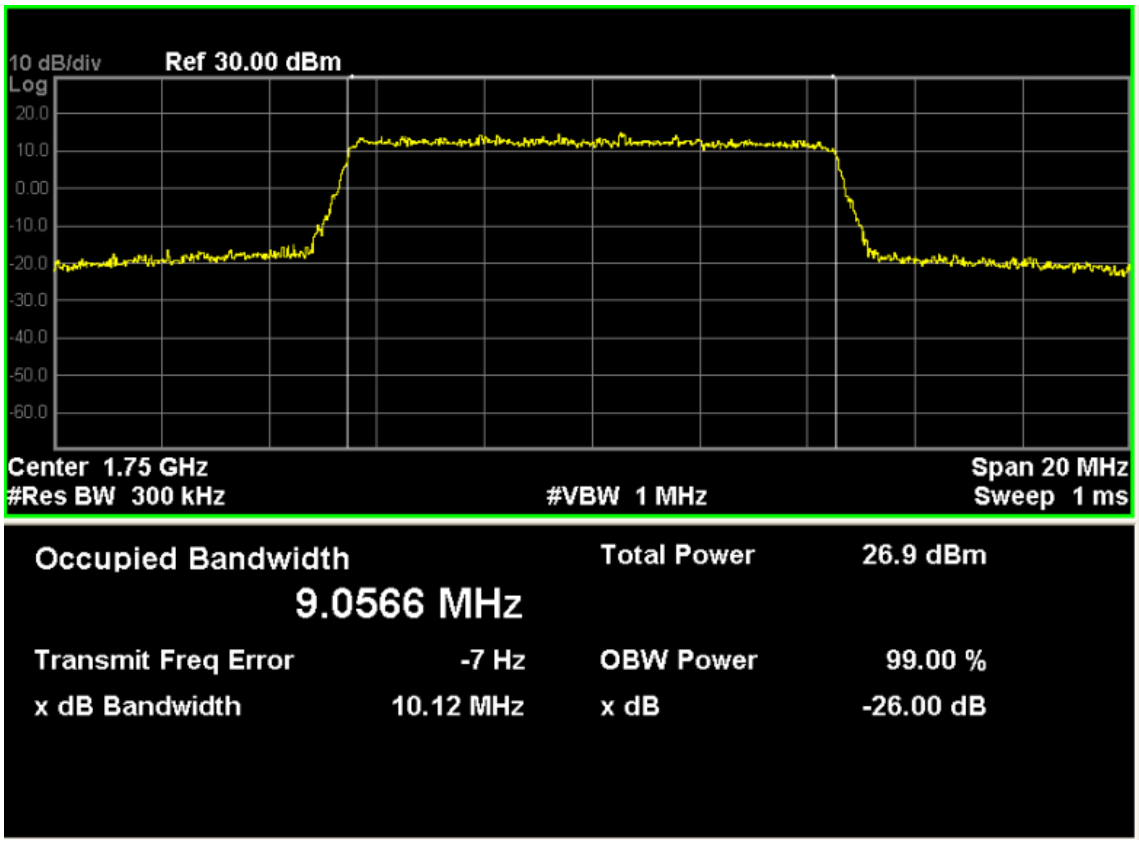

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.75 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0592 MHz
Total Power 28.1 dBm
Transmit Freq Error -15.474 kHz
OBW Power 99.00 %
x dB Bandwidth 10.19 MHz
x dB -26.00 dB

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	10.04	9.048
20175	1732.5	10.07	9.048
20350	1750.0	10.12	9.057

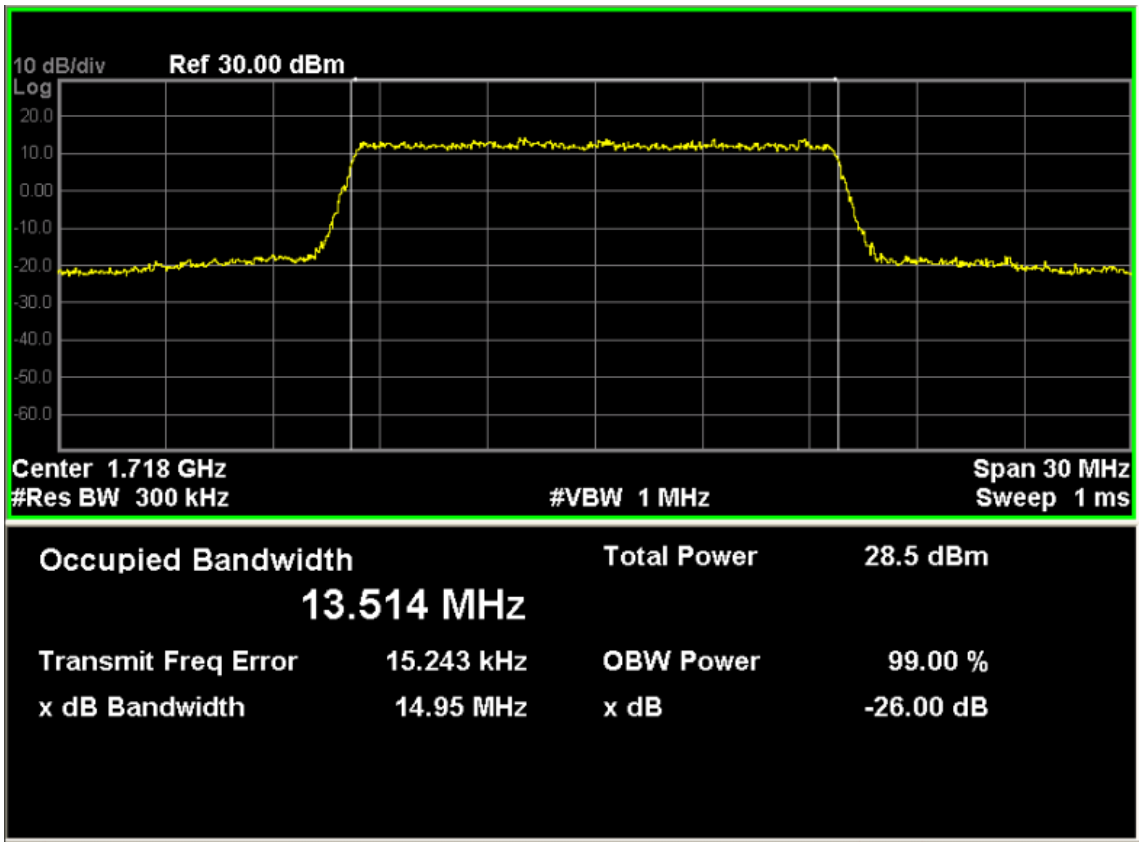


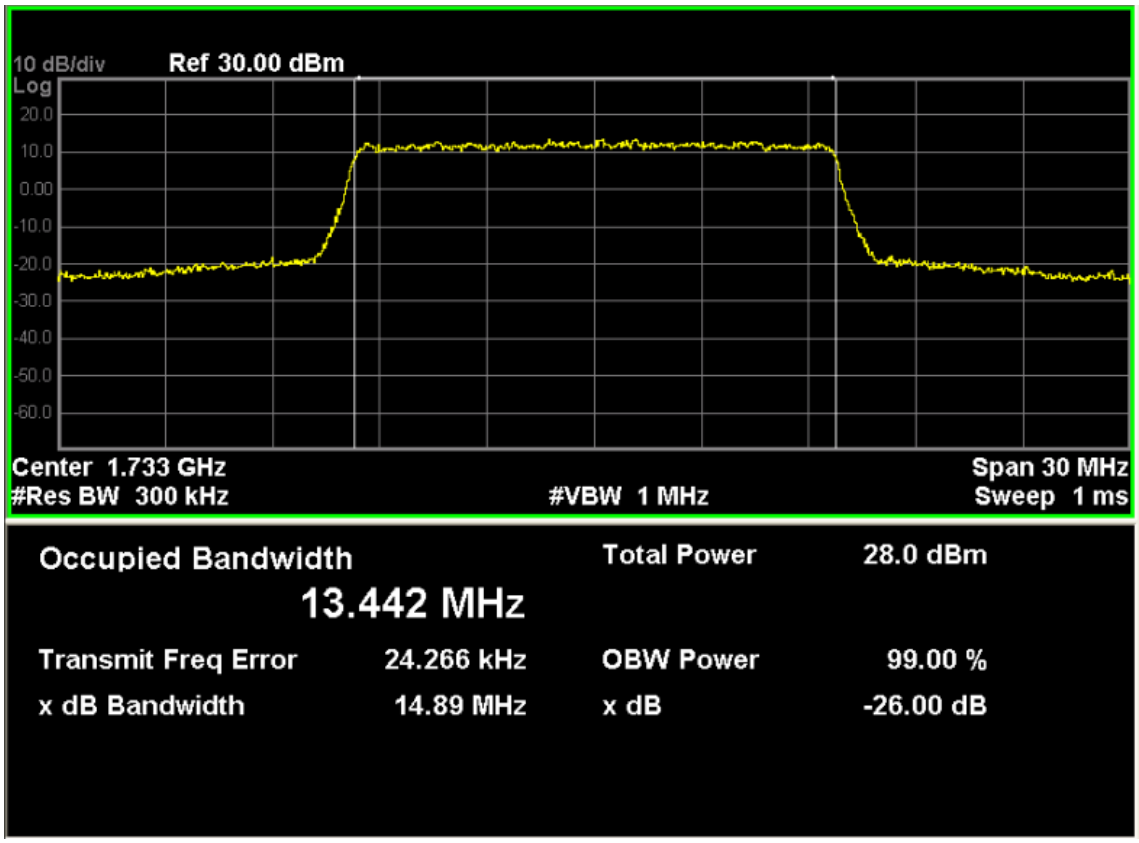

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0475 MHz
Total Power 26.7 dBm
Transmit Freq Error 20.365 kHz
OBW Power 99.00 %
x dB Bandwidth 10.07 MHz
x dB -26.00 dB

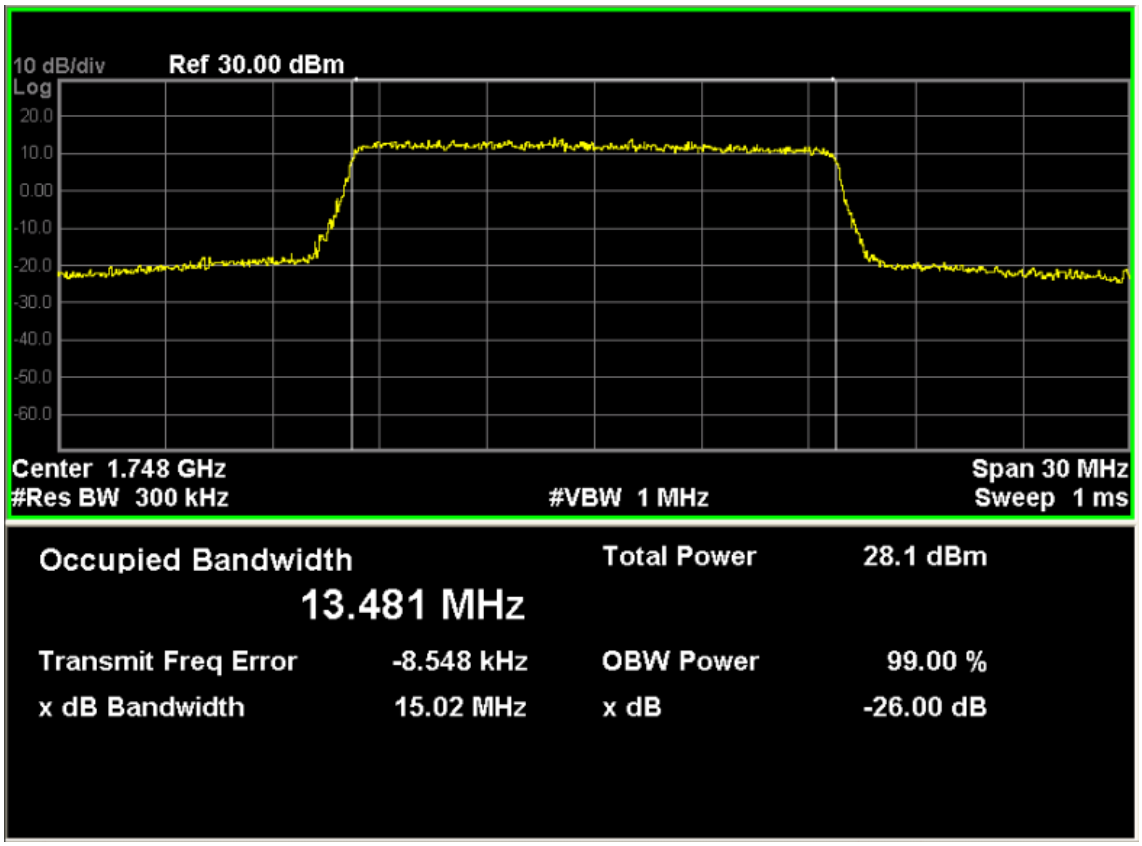

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.75 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0566 MHz
Total Power 26.9 dBm
Transmit Freq Error -7 Hz
OBW Power 99.00 %
x dB Bandwidth 10.12 MHz
x dB -26.00 dB

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	14.95	13.51
20175	1732.5	14.89	13.44
20325	1747.5	15.02	13.48

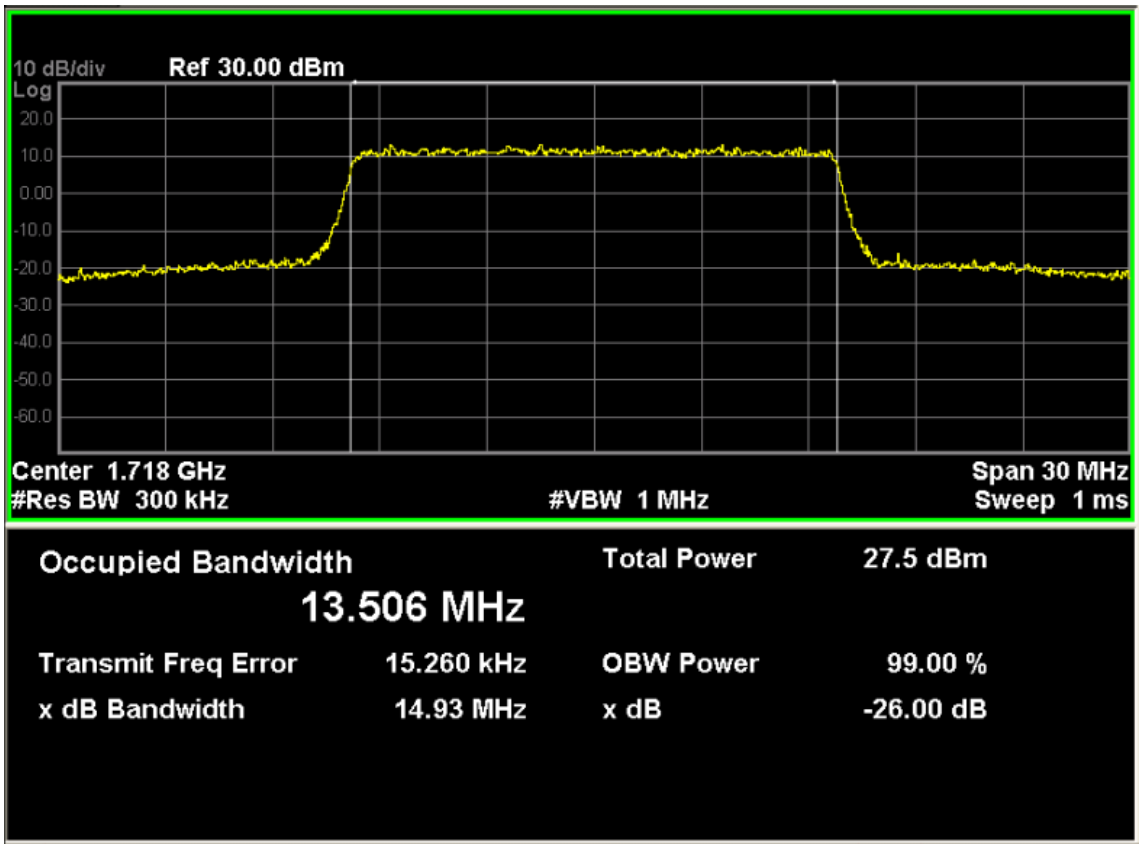


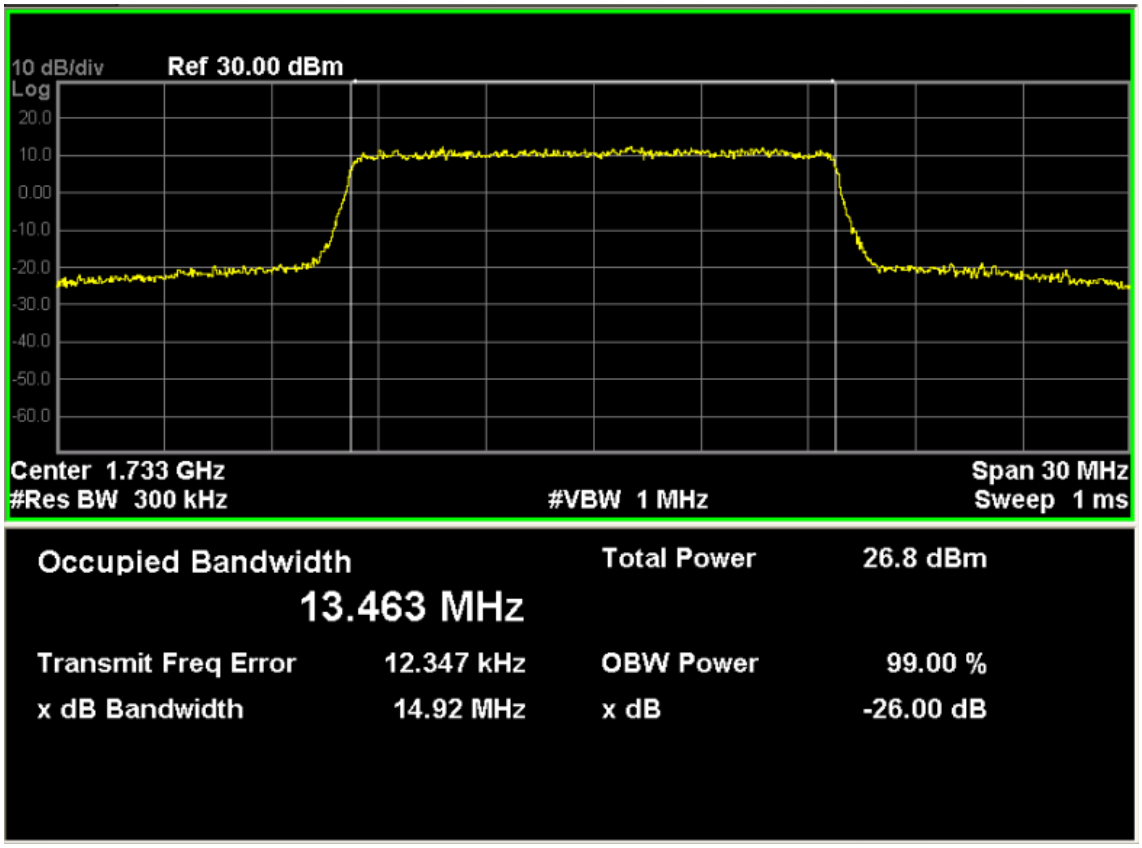

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.442 MHz
Total Power 28.0 dBm
Transmit Freq Error 24.266 kHz
OBW Power 99.00 %
x dB Bandwidth 14.89 MHz
x dB -26.00 dB

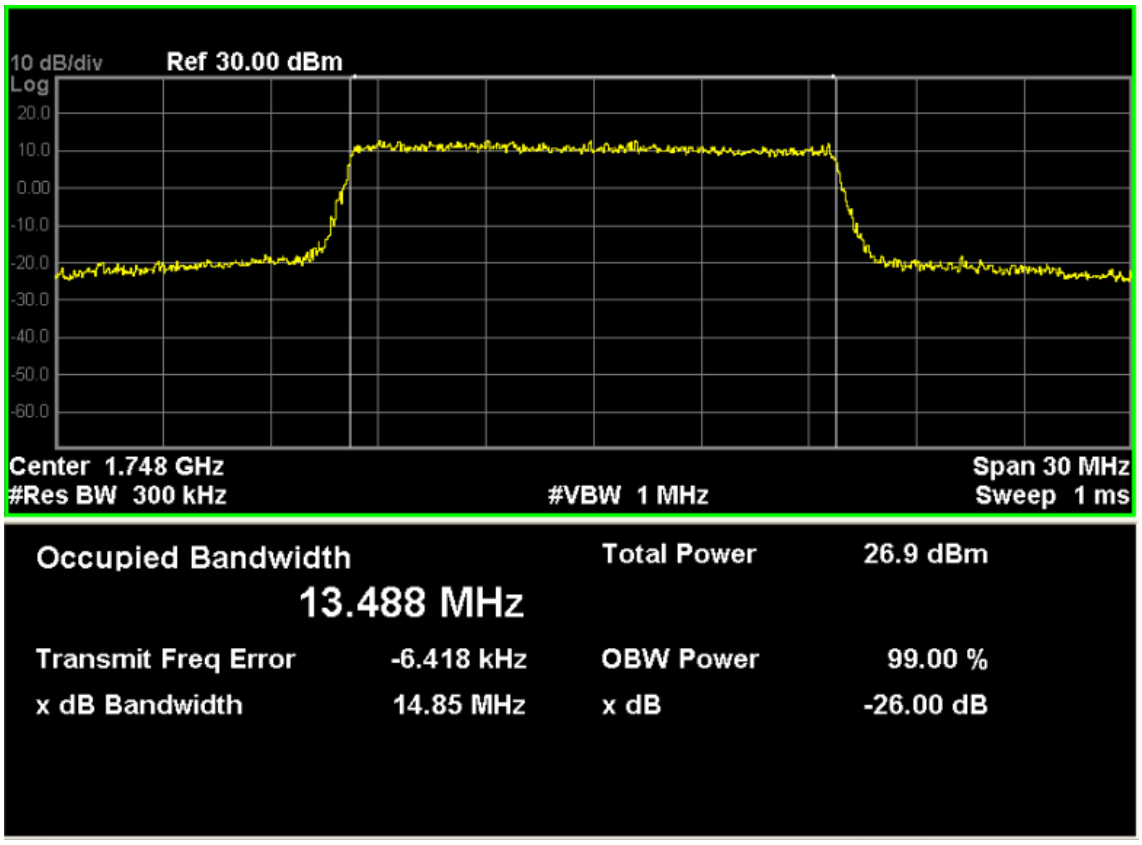

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.748 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.481 MHz
Total Power 28.1 dBm
Transmit Freq Error -8.548 kHz
OBW Power 99.00 %
x dB Bandwidth 15.02 MHz
x dB -26.00 dB

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	14.95	13.51
20175	1732.5	14.89	13.44
20325	1747.5	15.02	13.48

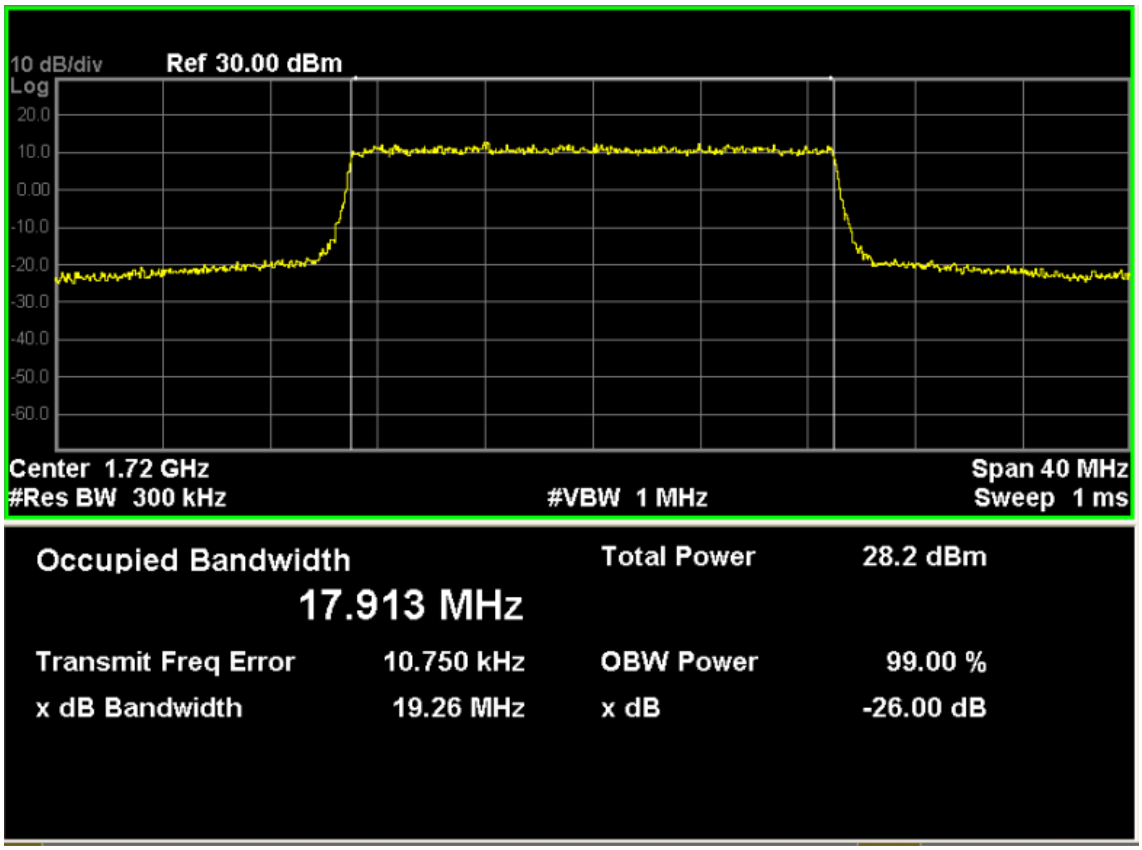


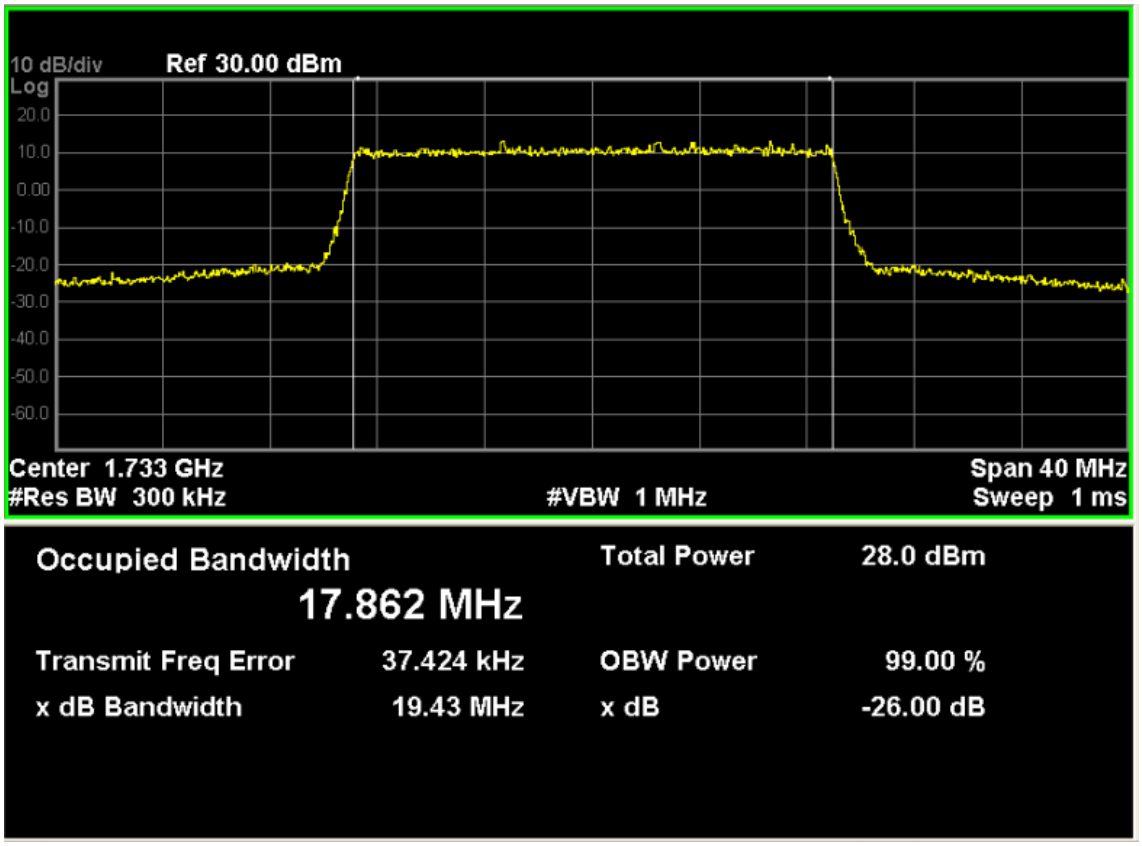

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.463 MHz
Total Power 26.8 dBm
Transmit Freq Error 12.347 kHz
OBW Power 99.00 %
x dB Bandwidth 14.92 MHz
x dB -26.00 dB

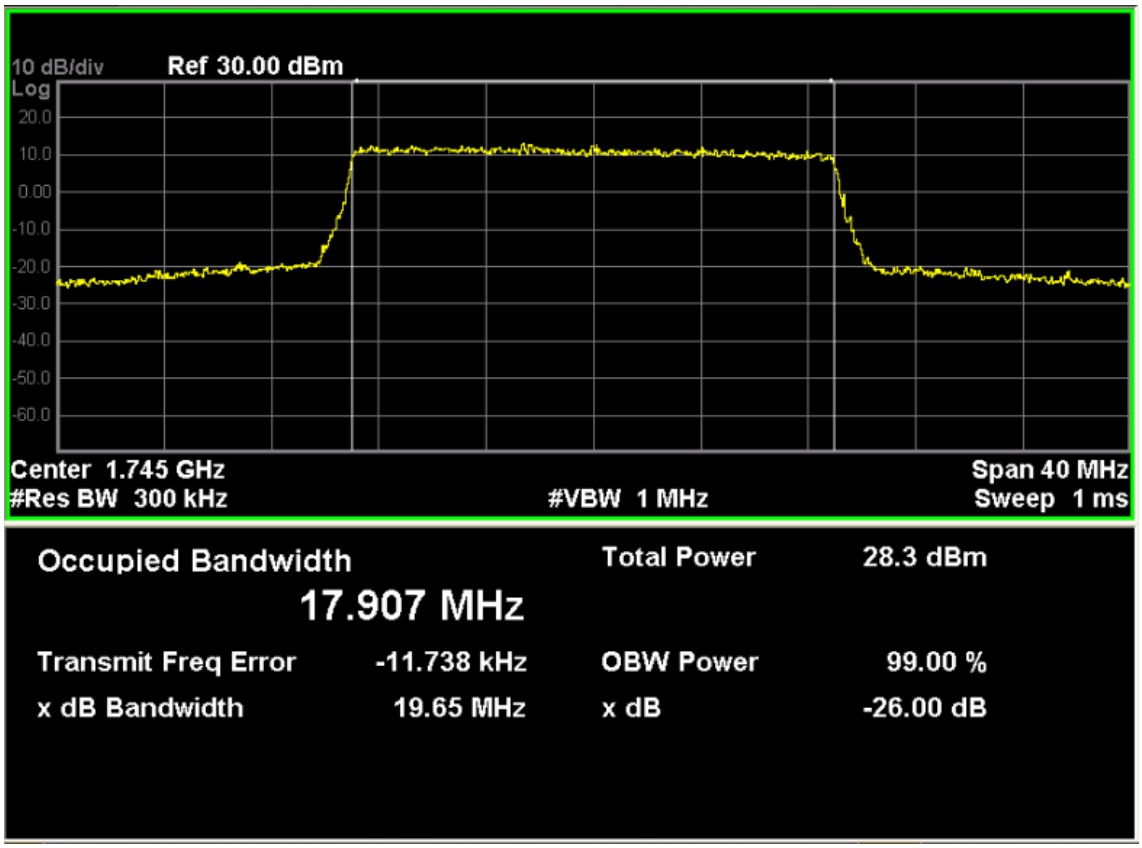

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.748 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.488 MHz
Total Power 26.9 dBm
Transmit Freq Error -6.418 kHz
OBW Power 99.00 %
x dB Bandwidth 14.85 MHz
x dB -26.00 dB

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	19.26	17.91
20175	1732.5	19.43	17.86
20300	1745.0	19.65	17.91

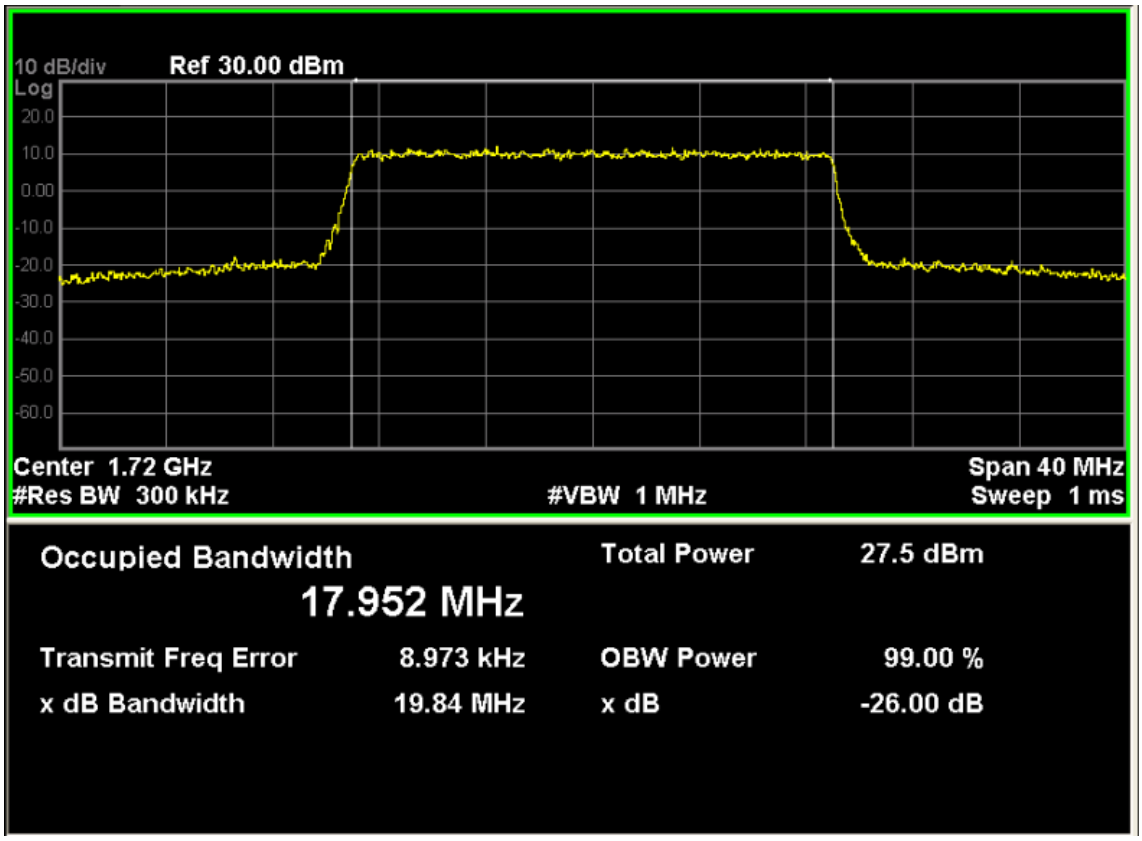


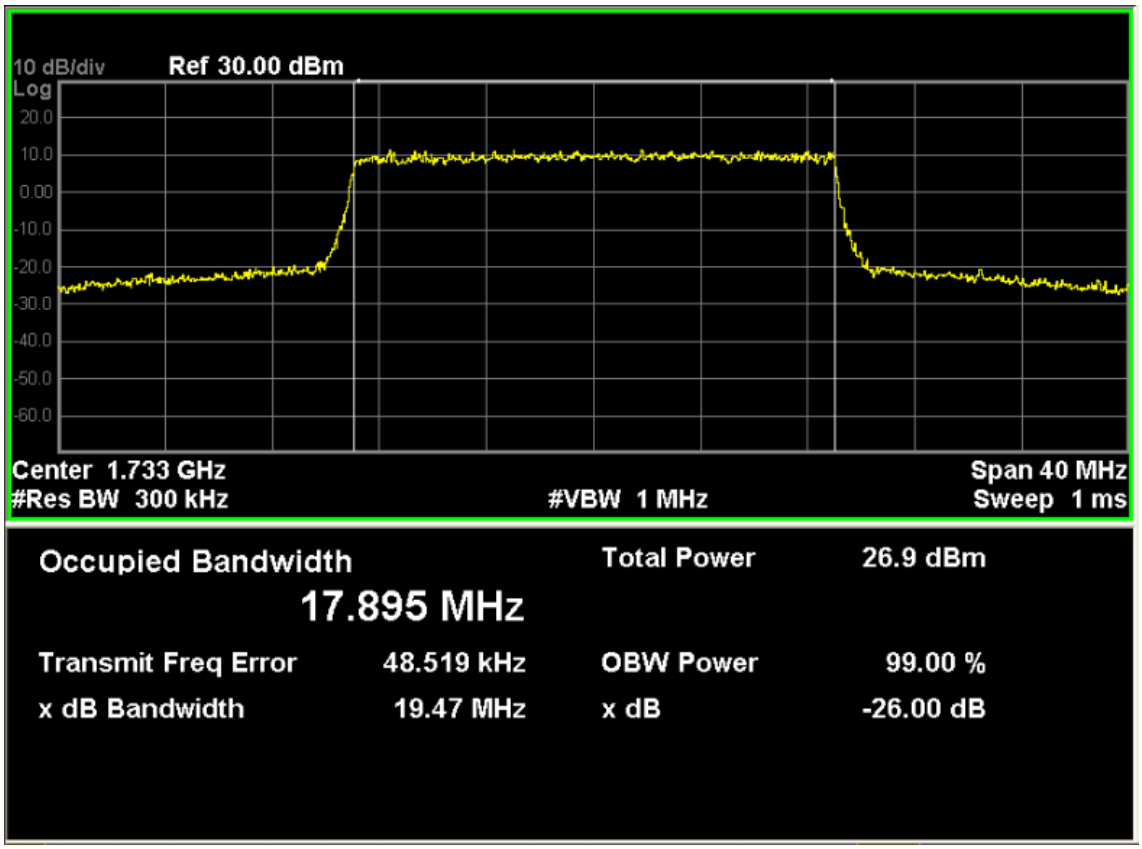

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.862 MHz
Total Power 28.0 dBm
Transmit Freq Error 37.424 kHz
OBW Power 99.00 %
x dB Bandwidth 19.43 MHz
x dB -26.00 dB

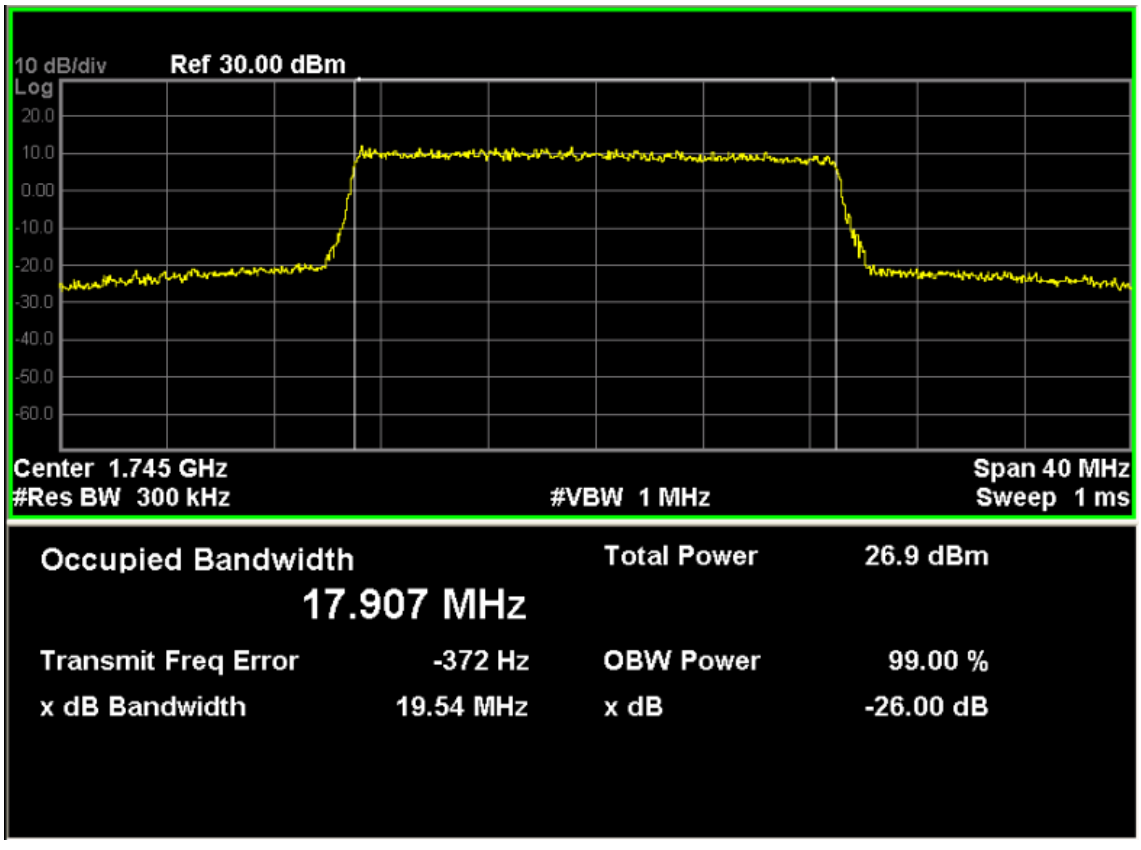

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.745 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.907 MHz
Total Power 28.3 dBm
Transmit Freq Error -11.738 kHz
OBW Power 99.00 %
x dB Bandwidth 19.65 MHz
x dB -26.00 dB

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	19.84	17.95
20175	1732.5	19.47	17.90
20300	1745.0	19.54	17.91

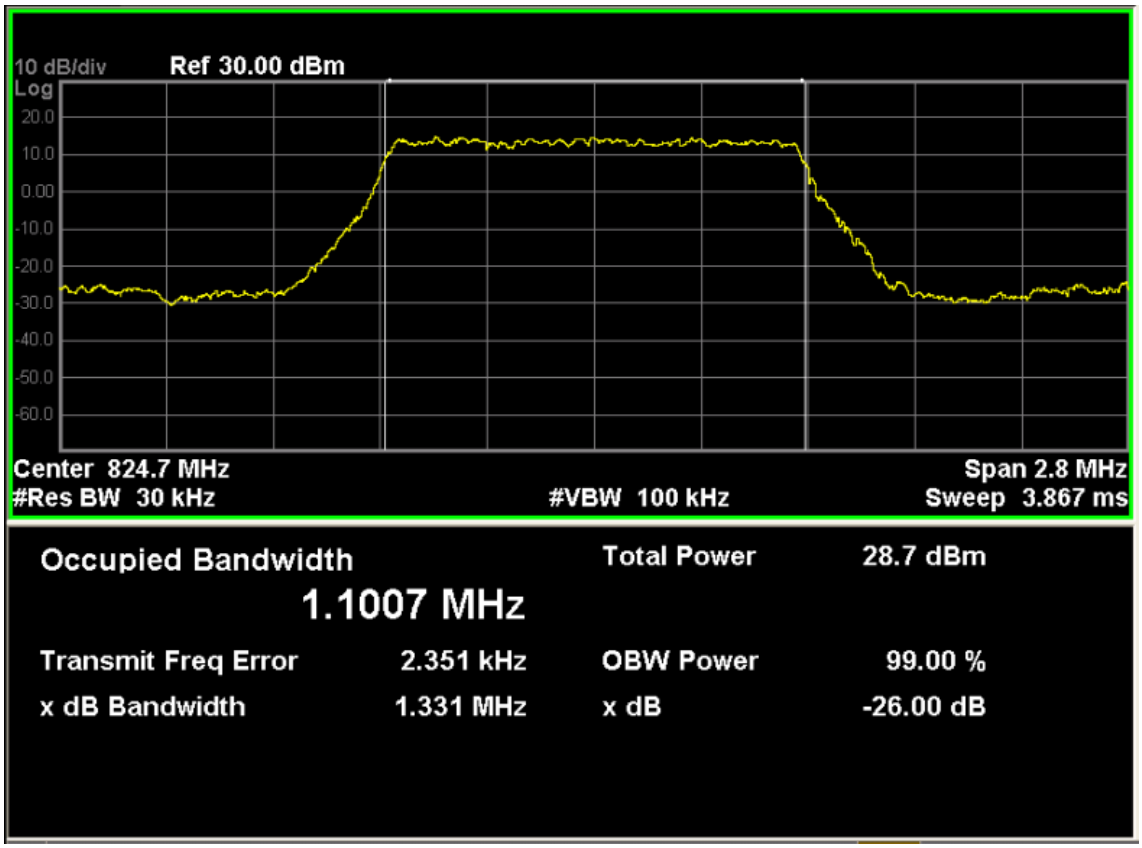


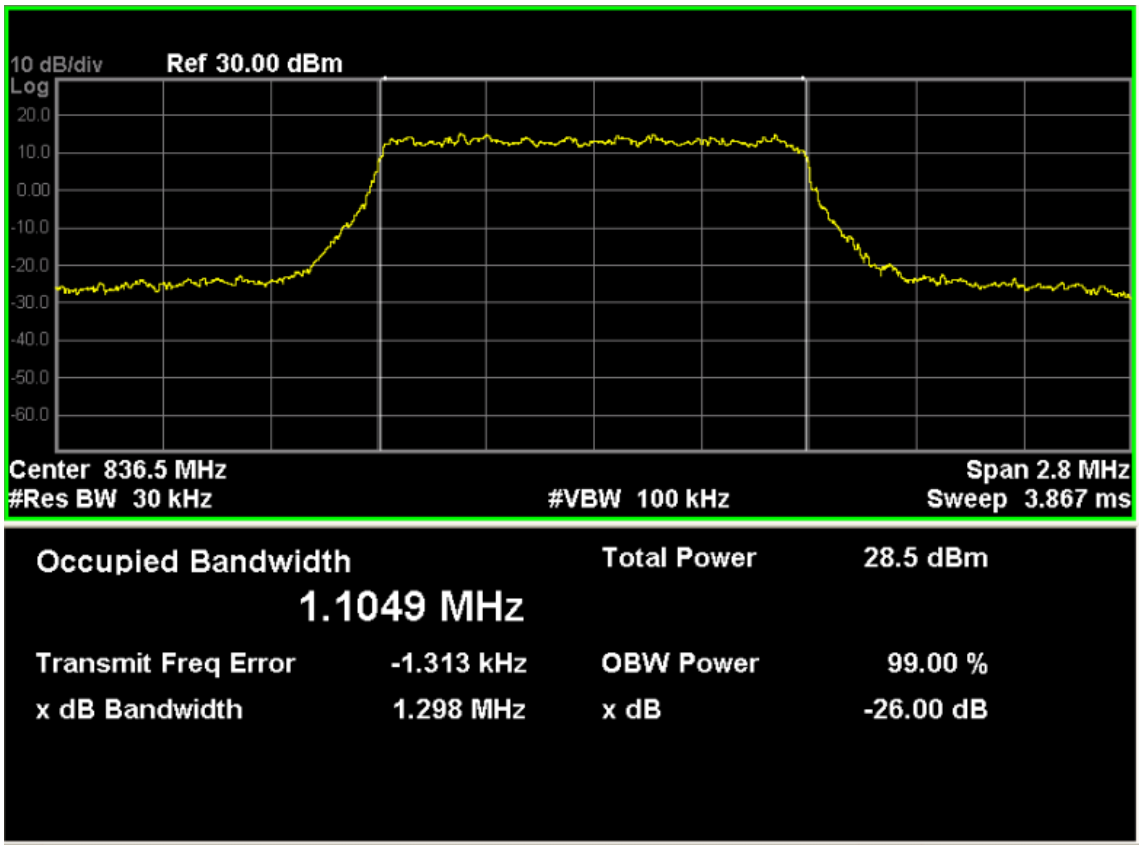

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.895 MHz
Total Power 26.9 dBm
Transmit Freq Error 48.519 kHz
OBW Power 99.00 %
x dB Bandwidth 19.47 MHz
x dB -26.00 dB

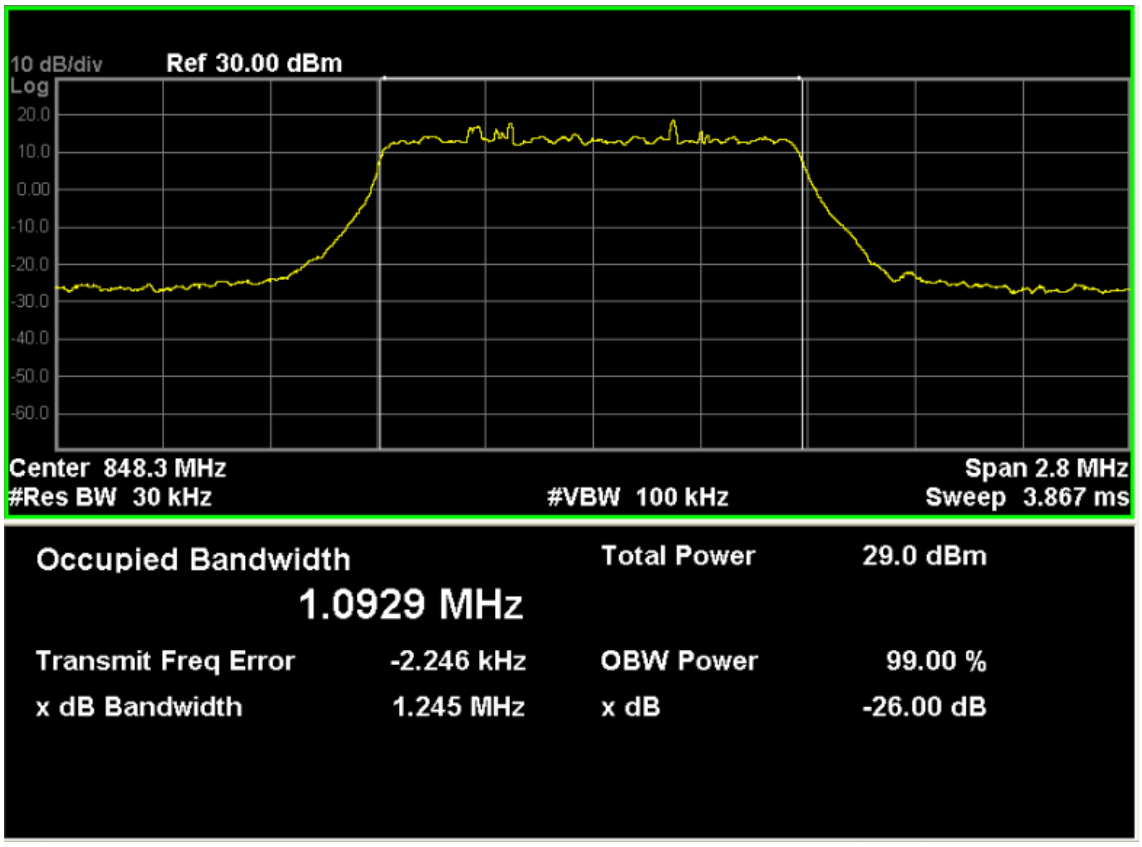

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.745 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.907 MHz
Total Power 26.9 dBm
Transmit Freq Error -372 Hz
OBW Power 99.00 %
x dB Bandwidth 19.54 MHz
x dB -26.00 dB

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	1.331	1.101
20525	836.5	1.298	1.105
20643	848.3	1.245	1.093

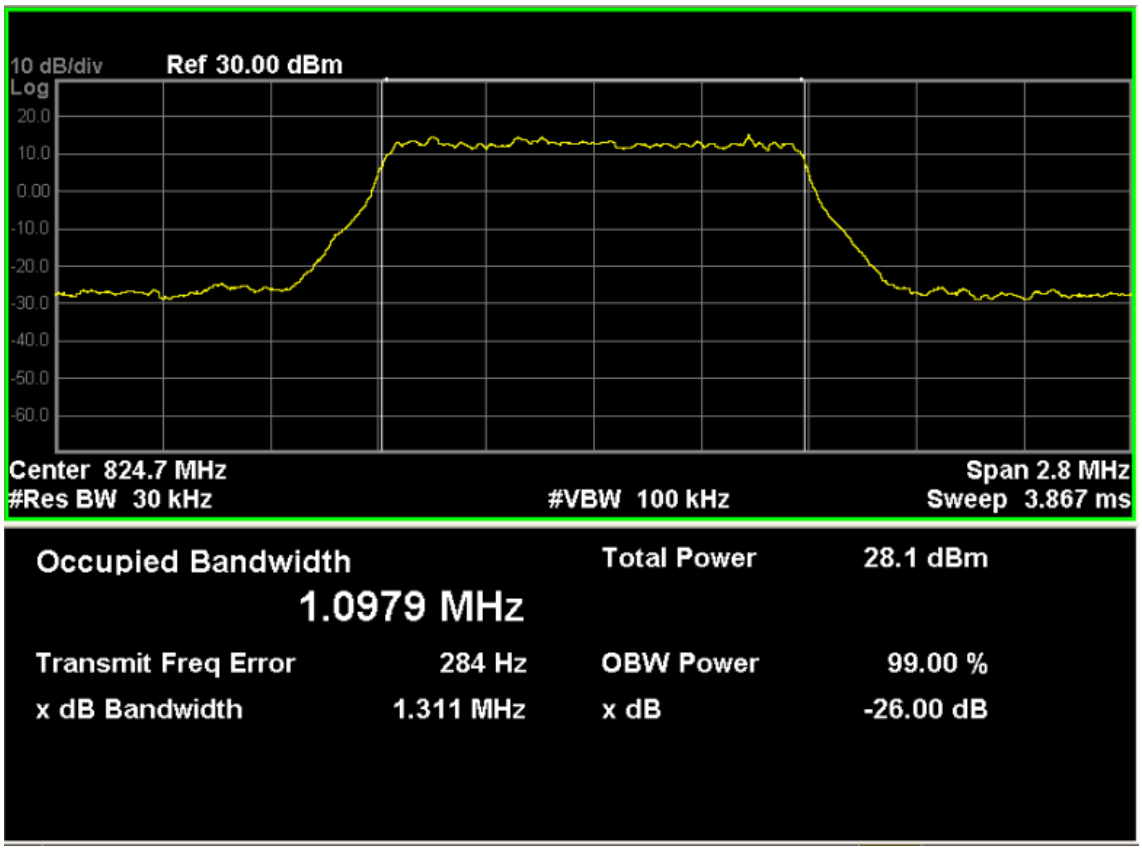


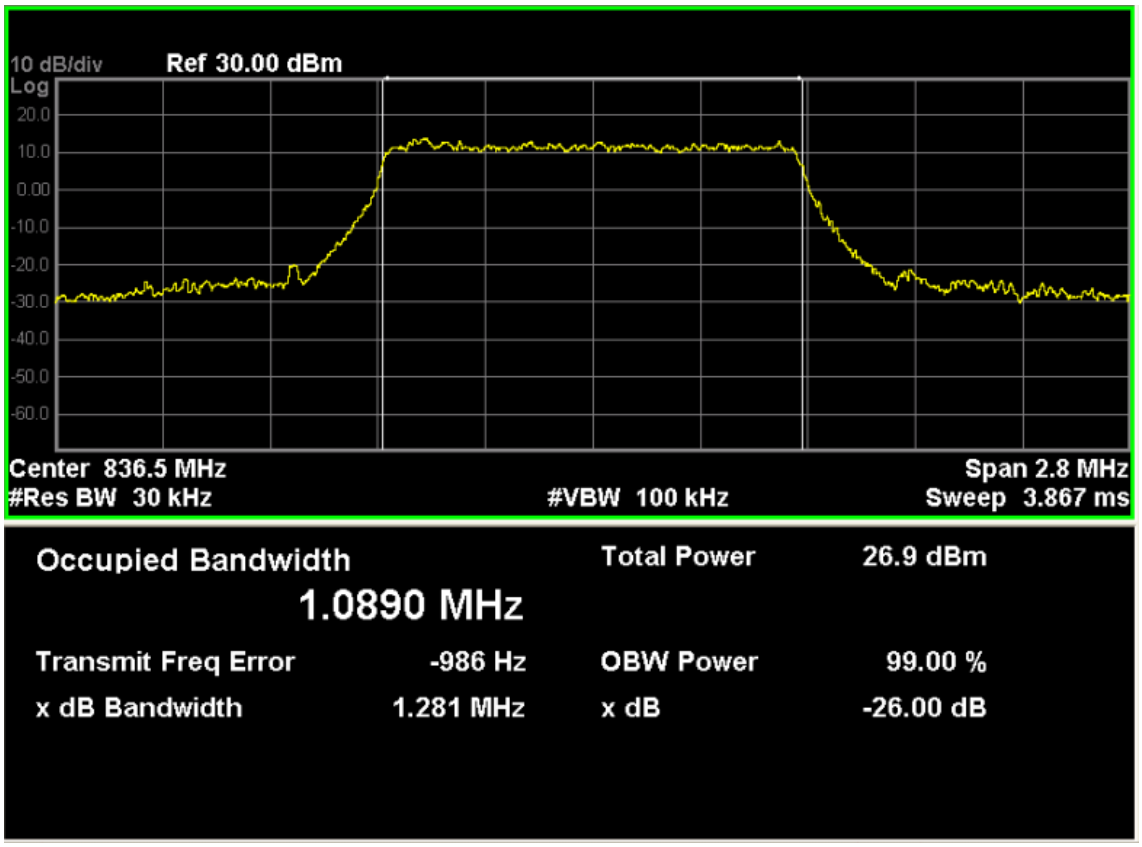

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 836.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1049 MHz
Total Power 28.5 dBm
Transmit Freq Error -1.313 kHz
OBW Power 99.00 %
x dB Bandwidth 1.298 MHz
x dB -26.00 dB

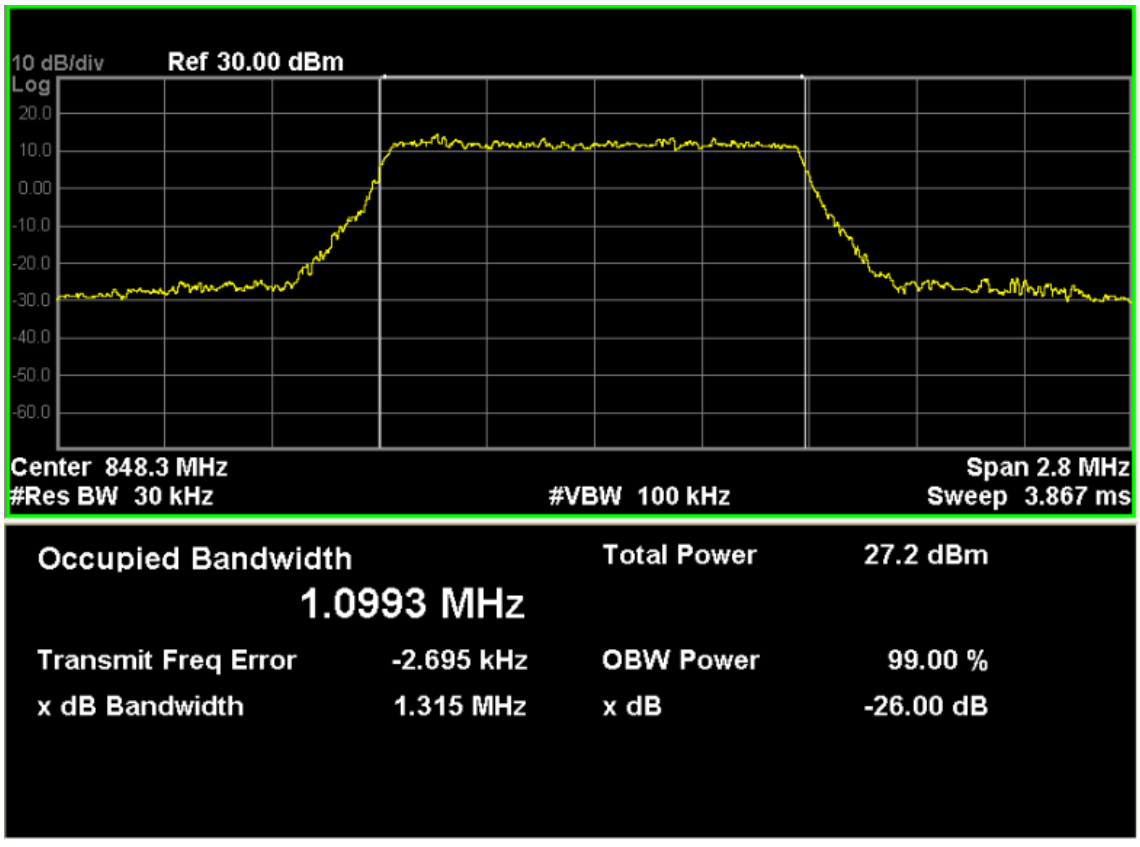

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 848.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0929 MHz
Total Power 29.0 dBm
Transmit Freq Error -2.246 kHz
OBW Power 99.00 %
x dB Bandwidth 1.245 MHz
x dB -26.00 dB

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	1.311	1.098
20525	836.5	1.281	1.089
20643	848.3	1.315	1.099

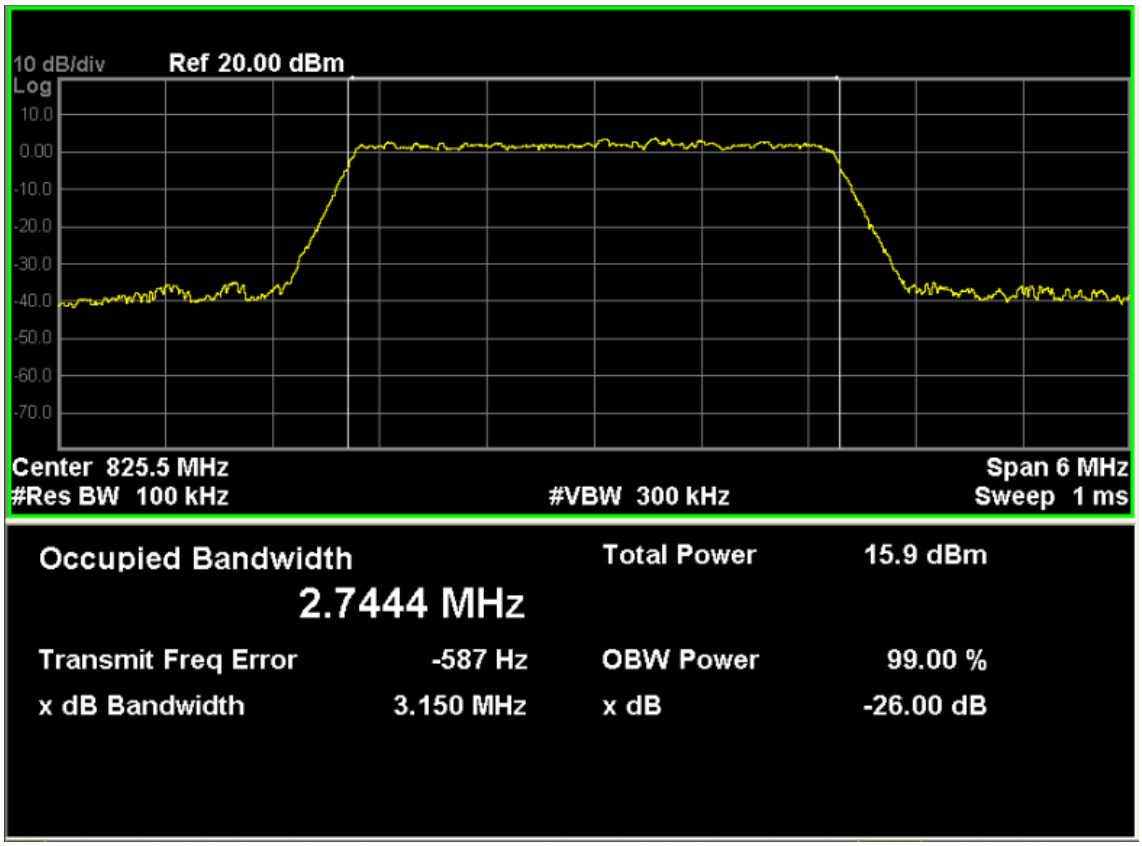


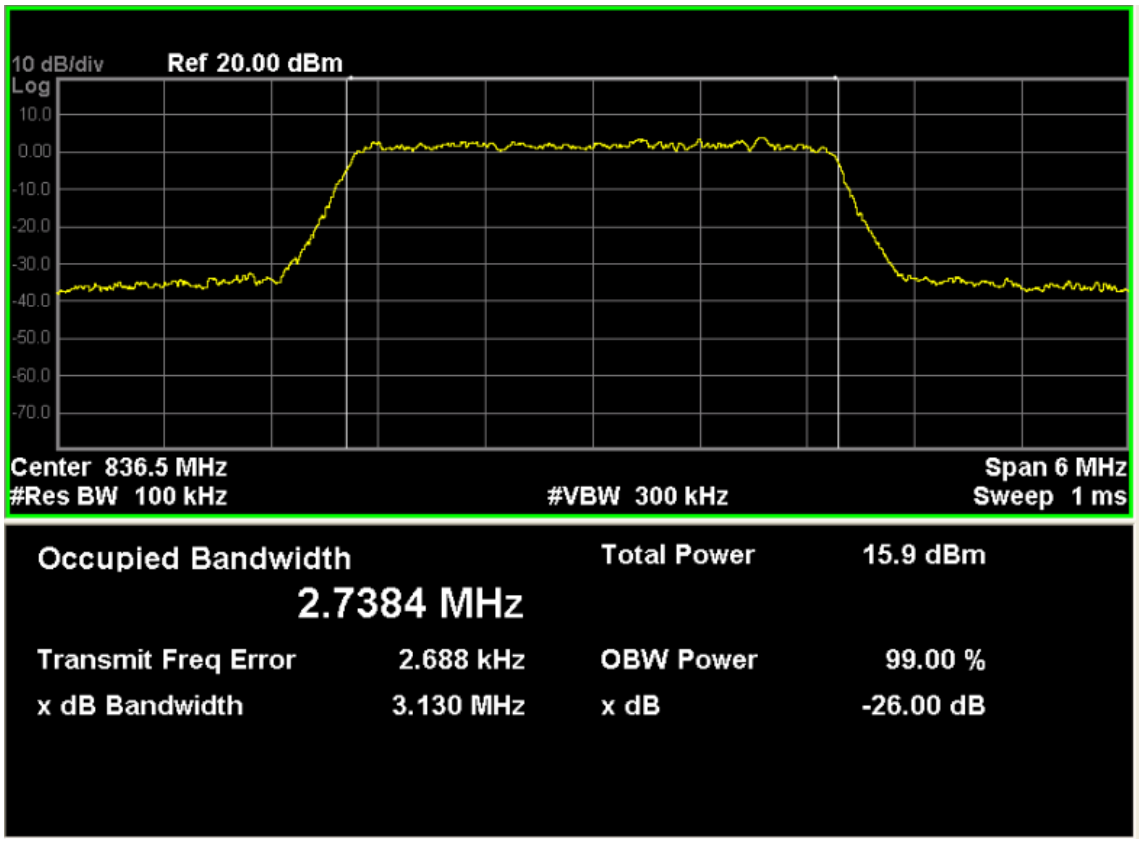

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 836.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0890 MHz
Total Power 26.9 dBm
Transmit Freq Error -986 Hz
OBW Power 99.00 %
x dB Bandwidth 1.281 MHz
x dB -26.00 dB

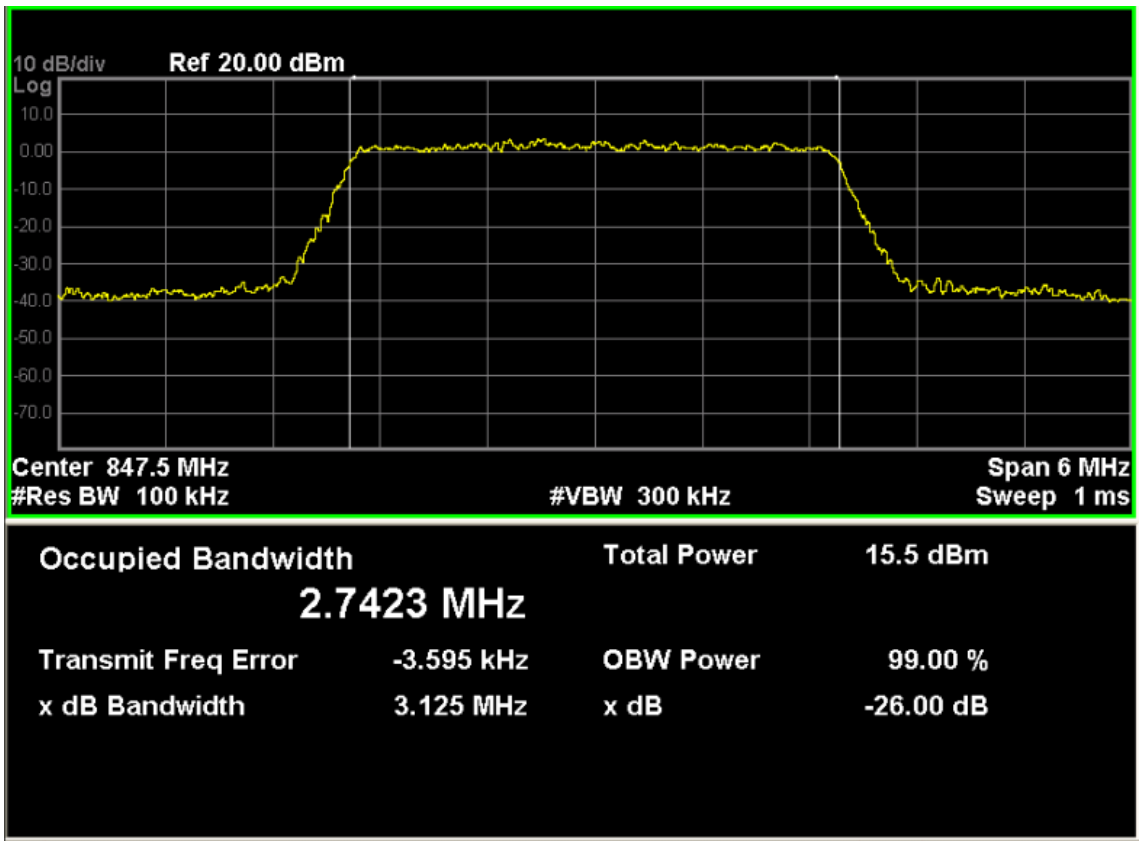

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 848.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0993 MHz
Total Power 27.2 dBm
Transmit Freq Error -2.695 kHz
OBW Power 99.00 %
x dB Bandwidth 1.315 MHz
x dB -26.00 dB

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	3.150	2.744
20525	836.5	3.130	2.738
20635	847.5	3.125	2.742

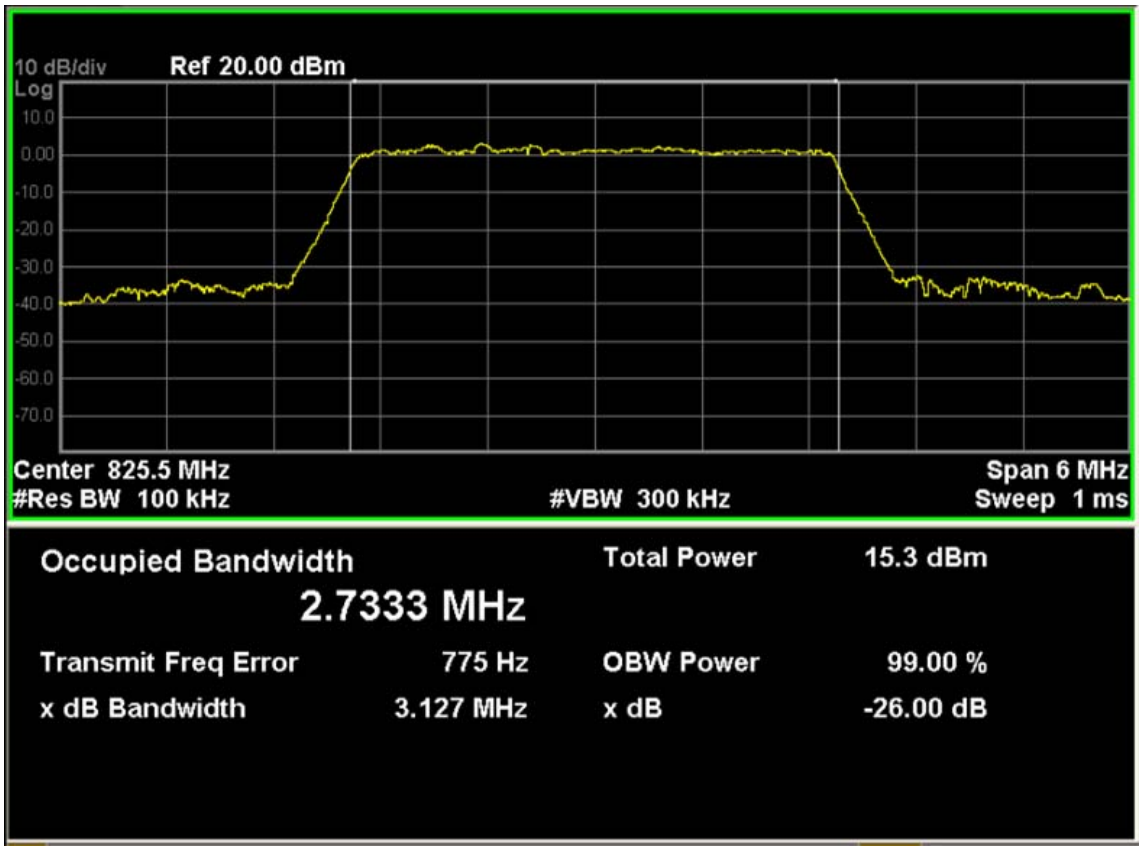


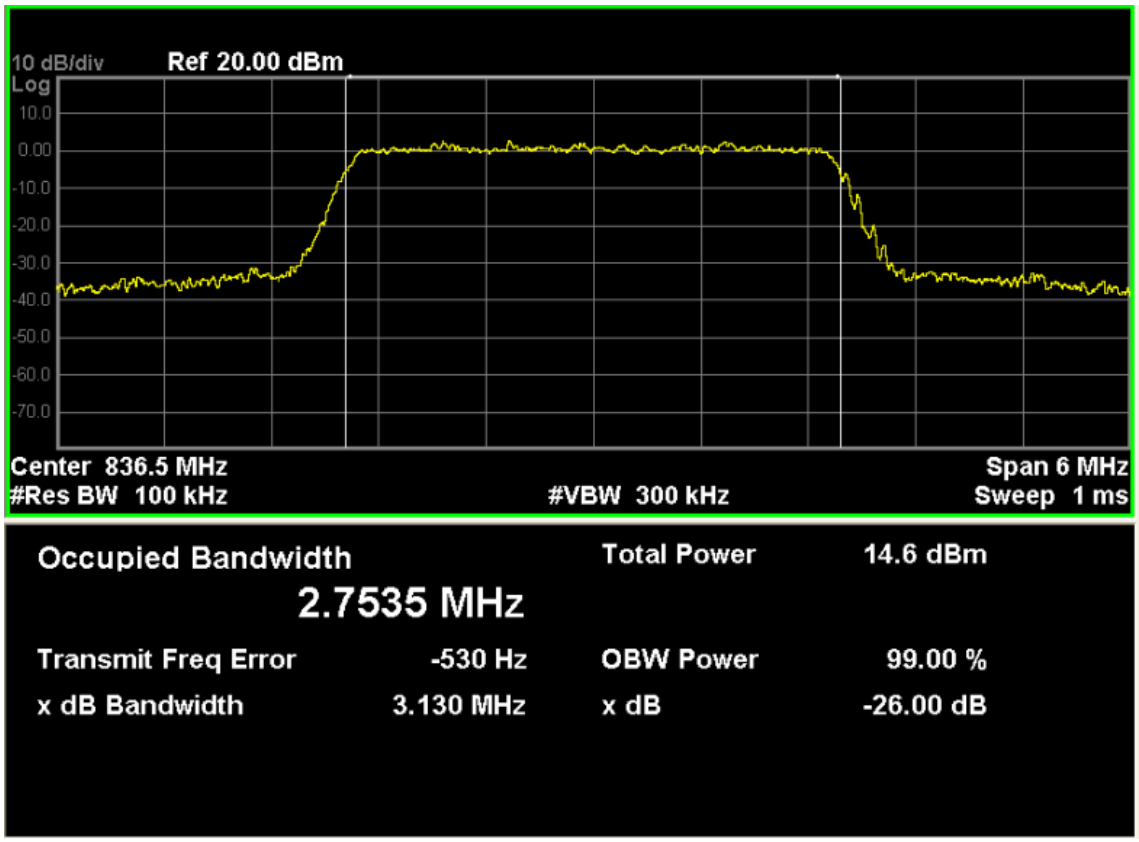

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7384 MHz
Total Power 15.9 dBm
Transmit Freq Error 2.688 kHz
OBW Power 99.00 %
x dB Bandwidth 3.130 MHz
x dB -26.00 dB

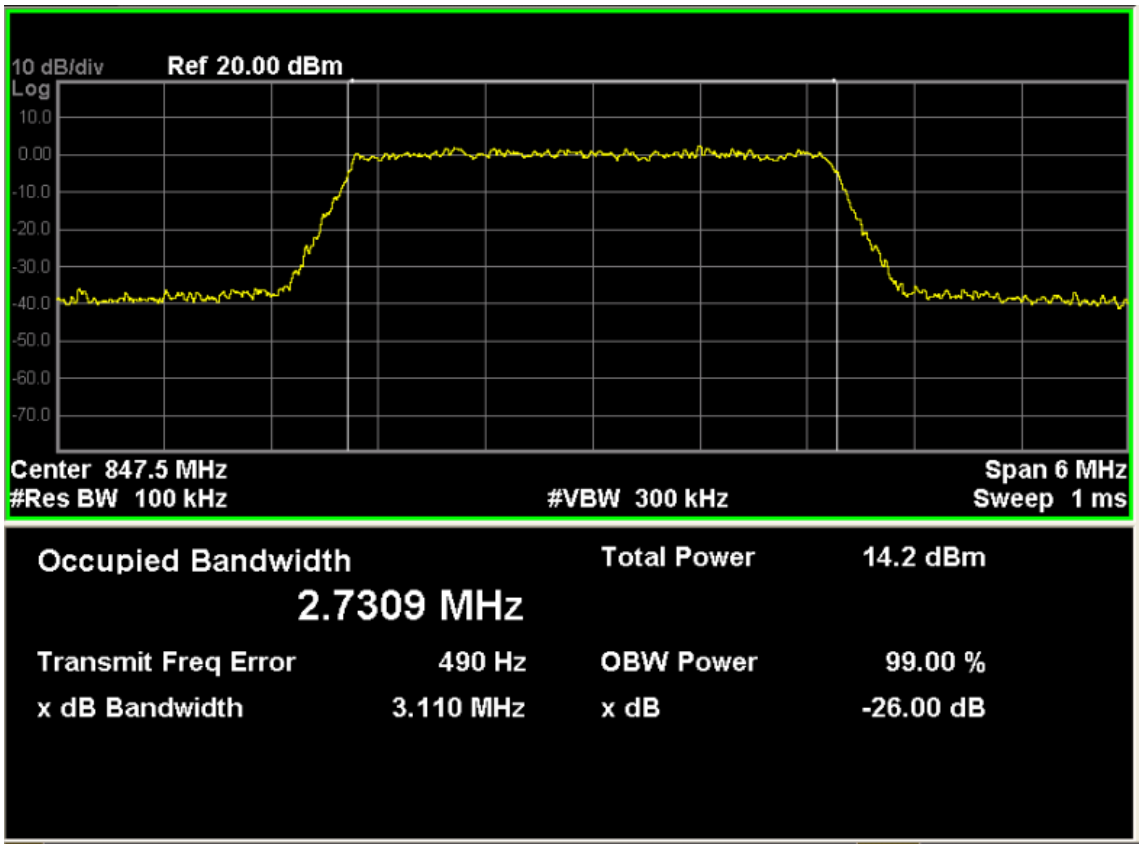

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 847.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7423 MHz
Total Power 15.5 dBm
Transmit Freq Error -3.595 kHz
OBW Power 99.00 %
x dB Bandwidth 3.125 MHz
x dB -26.00 dB

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	3.127	2.733
20525	836.5	3.130	2.754
20635	847.5	3.110	2.731

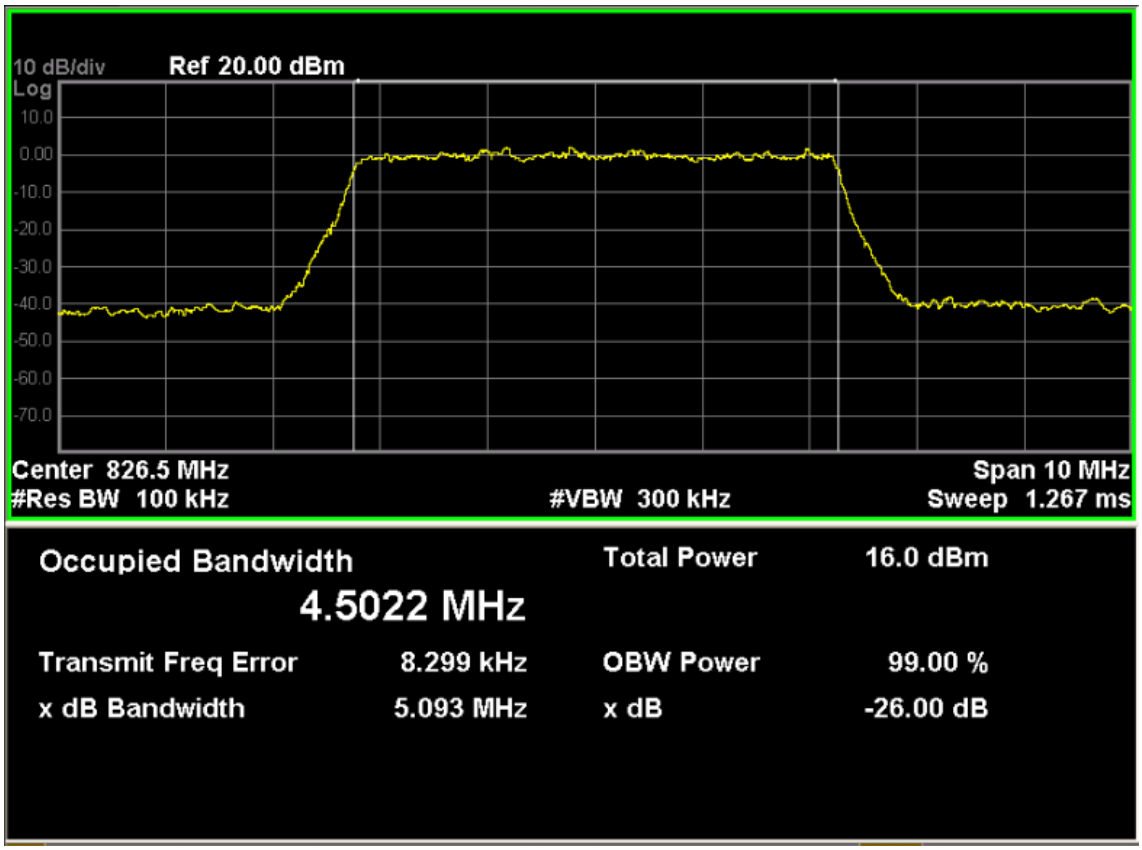


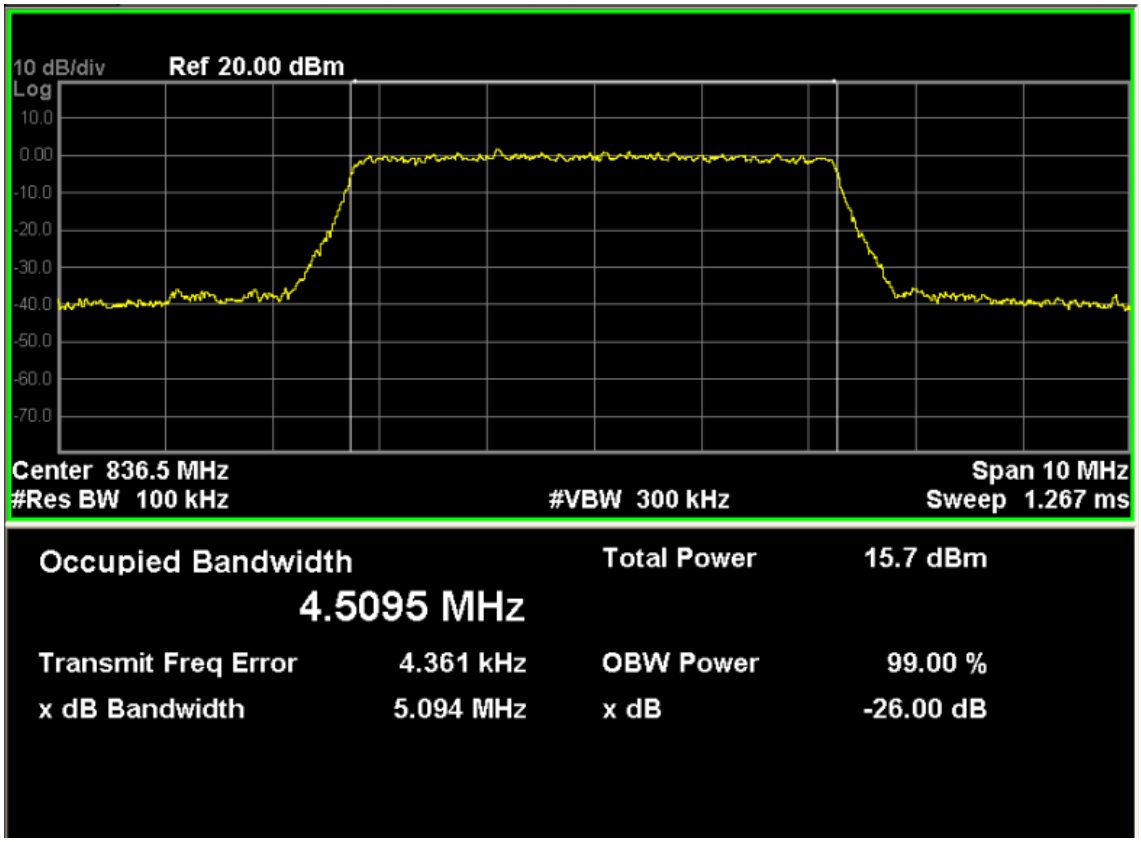

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7535 MHz
Total Power 14.6 dBm
Transmit Freq Error -530 Hz
OBW Power 99.00 %
x dB Bandwidth 3.130 MHz
x dB -26.00 dB

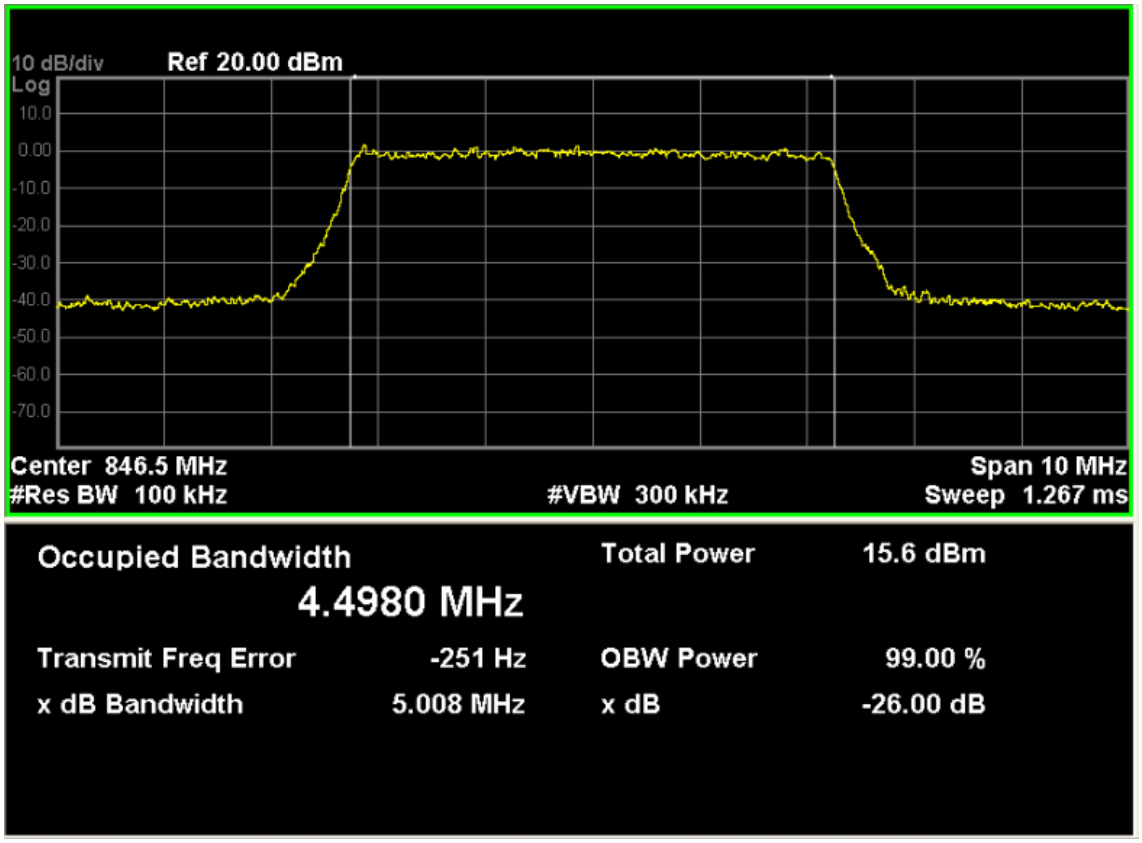

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 847.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7309 MHz
Total Power 14.2 dBm
Transmit Freq Error 490 Hz
OBW Power 99.00 %
x dB Bandwidth 3.110 MHz
x dB -26.00 dB

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	5.093	4.502
20525	836.5	5.094	4.510
20625	846.5	5.008	4.498

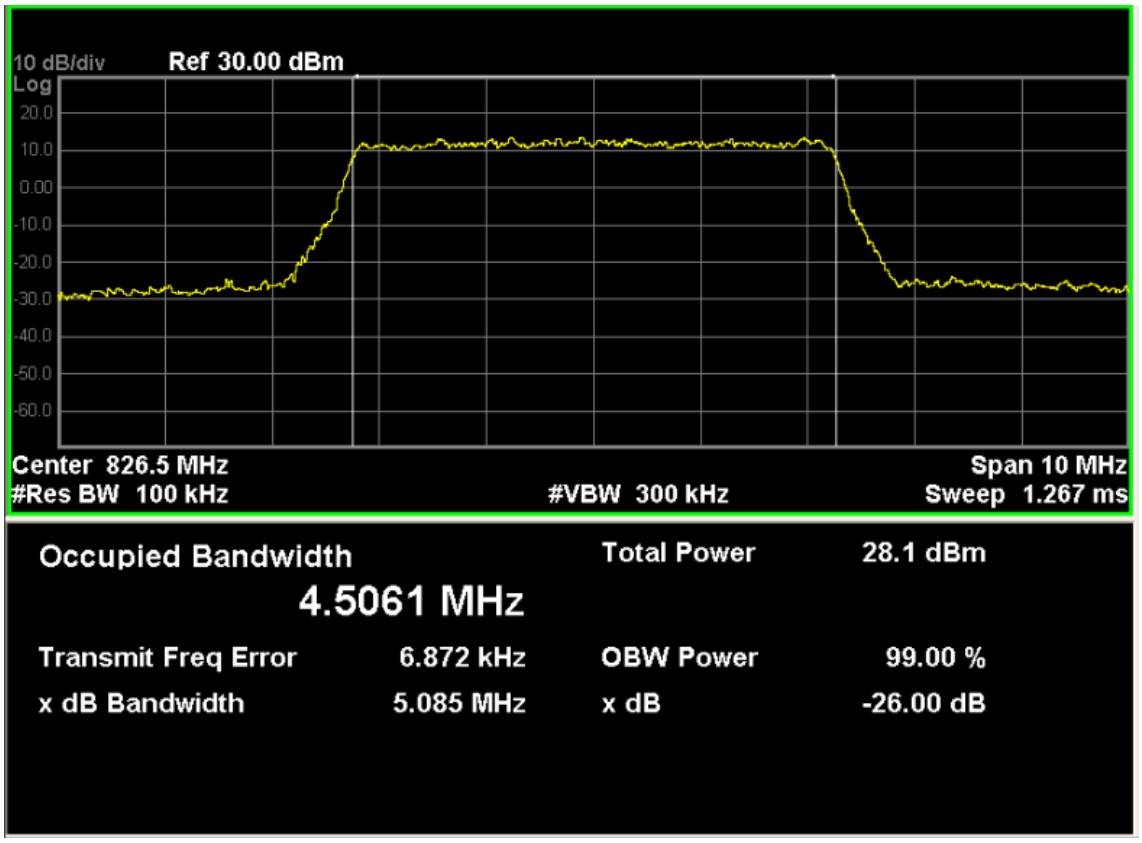


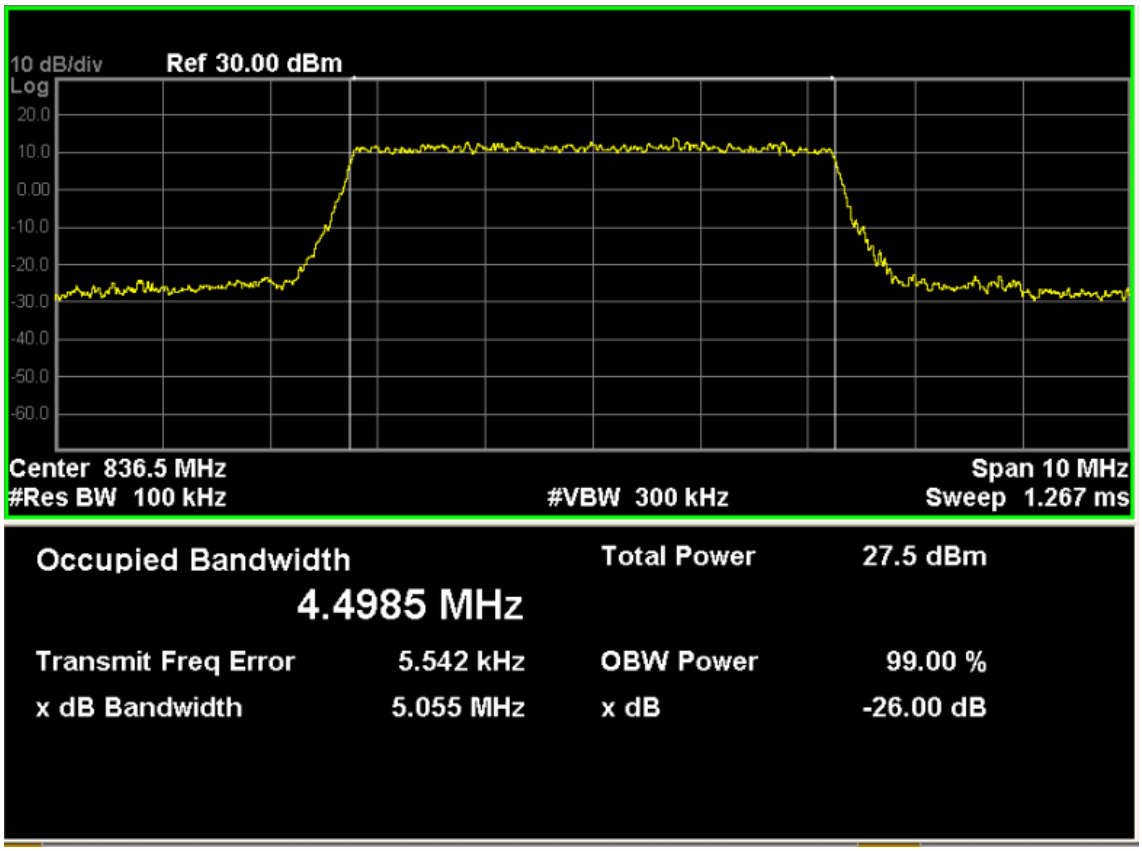

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5095 MHz
Total Power 15.7 dBm
Transmit Freq Error 4.361 kHz
OBW Power 99.00 %
x dB Bandwidth 5.094 MHz
x dB -26.00 dB

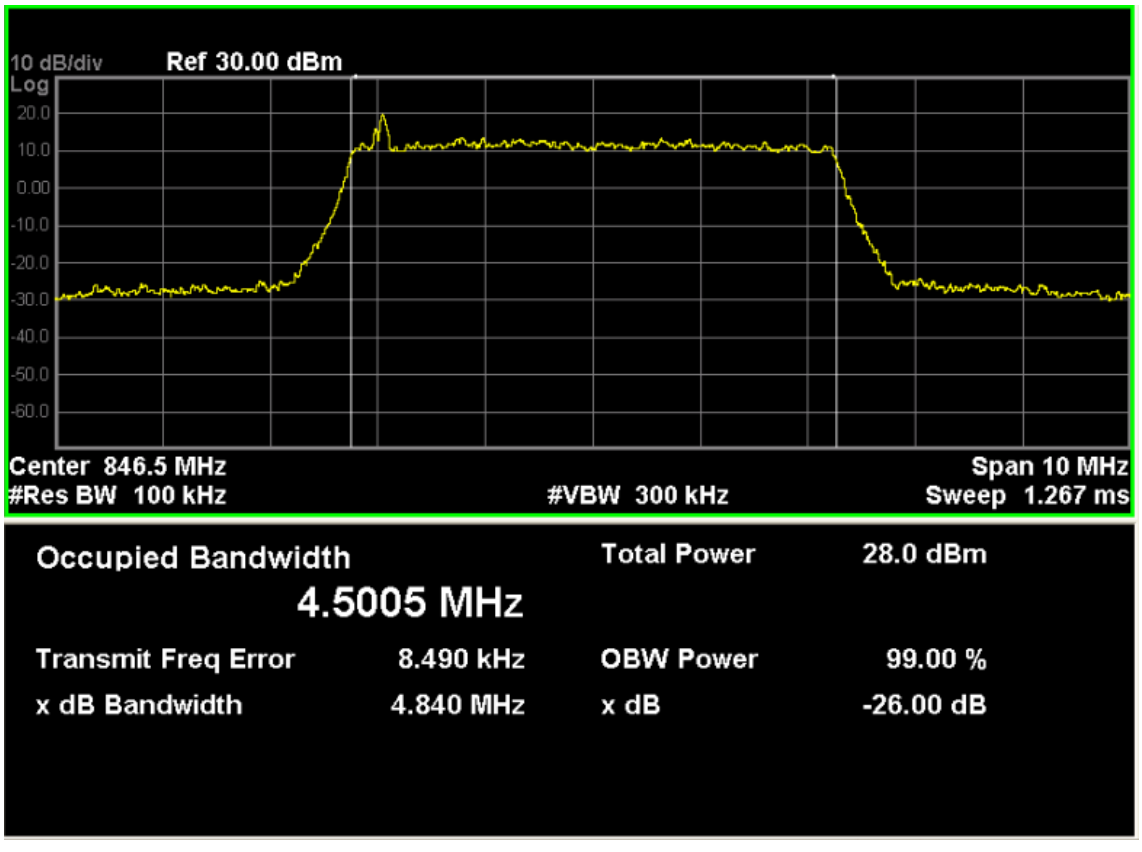

10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 846.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4980 MHz
Total Power 15.6 dBm
Transmit Freq Error -251 Hz
OBW Power 99.00 %
x dB Bandwidth 5.008 MHz
x dB -26.00 dB

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	5.085	4.506
20525	836.5	5.055	4.499
20625	846.5	4.840	4.501

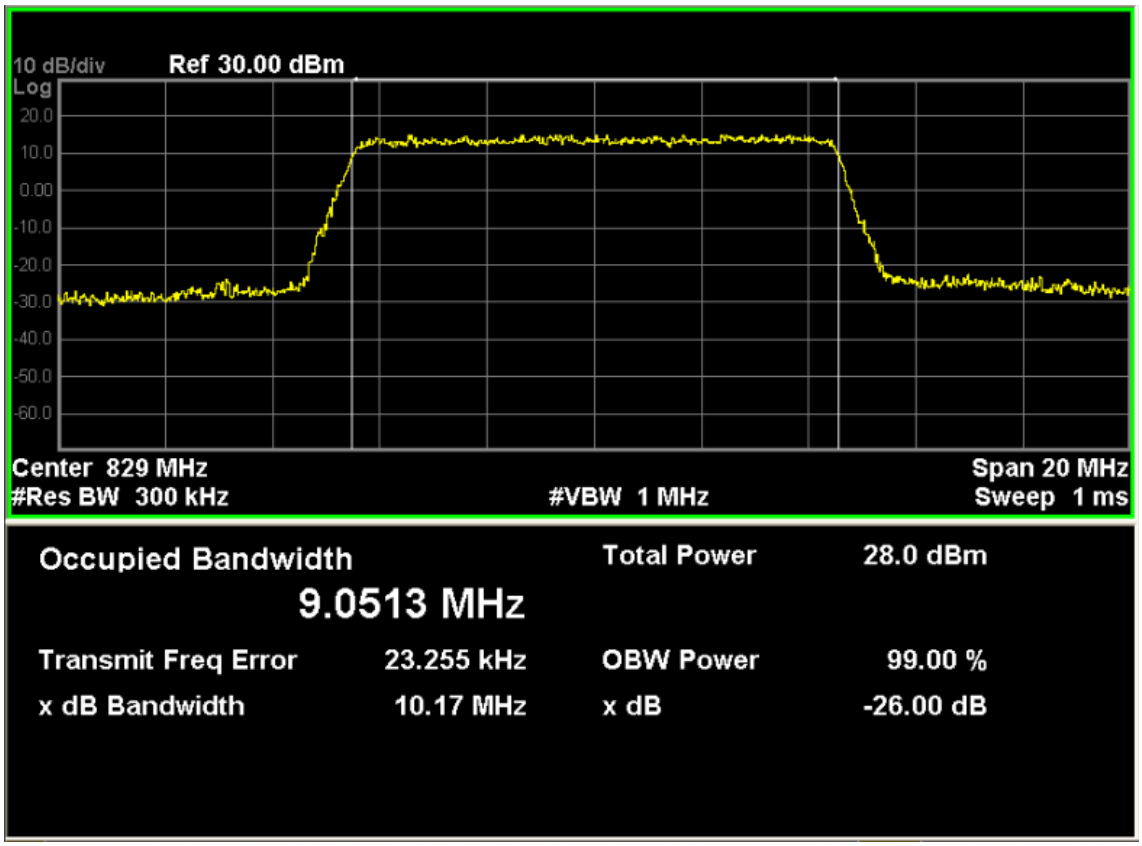


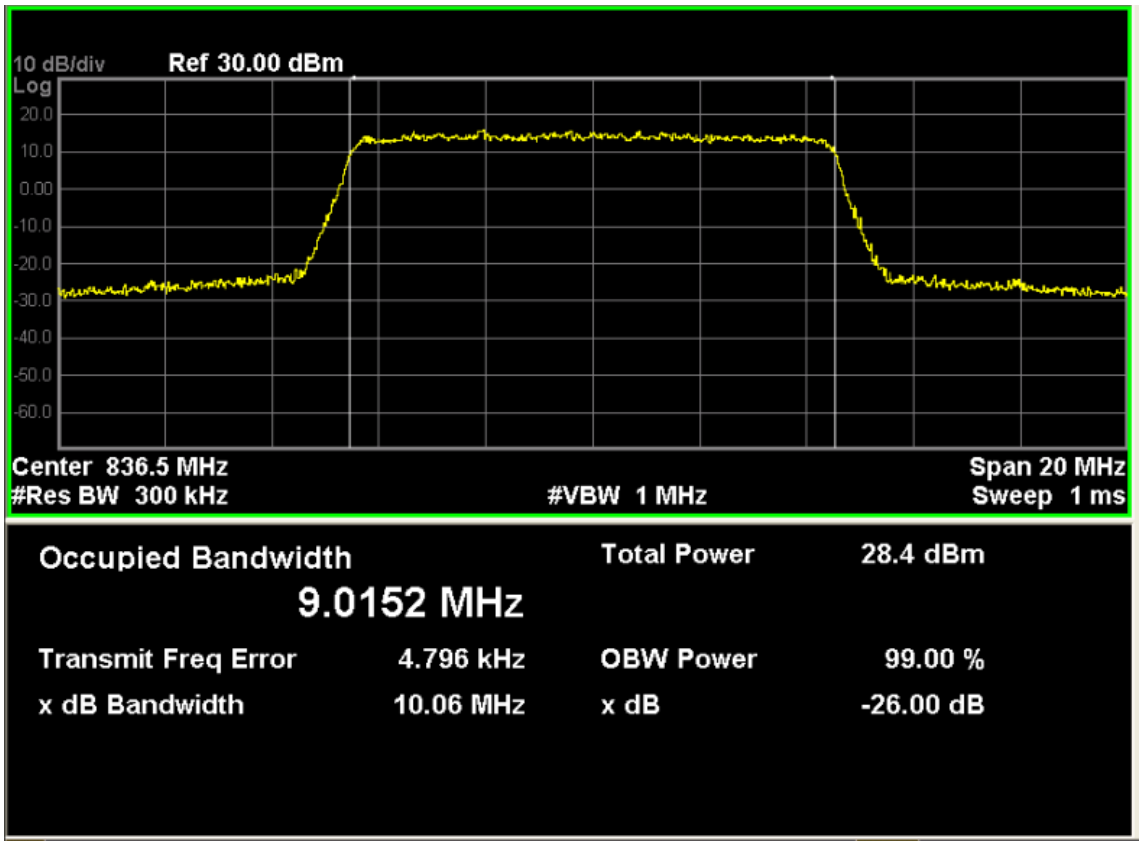

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4985 MHz
Total Power 27.5 dBm
Transmit Freq Error 5.542 kHz
OBW Power 99.00 %
x dB Bandwidth 5.055 MHz
x dB -26.00 dB

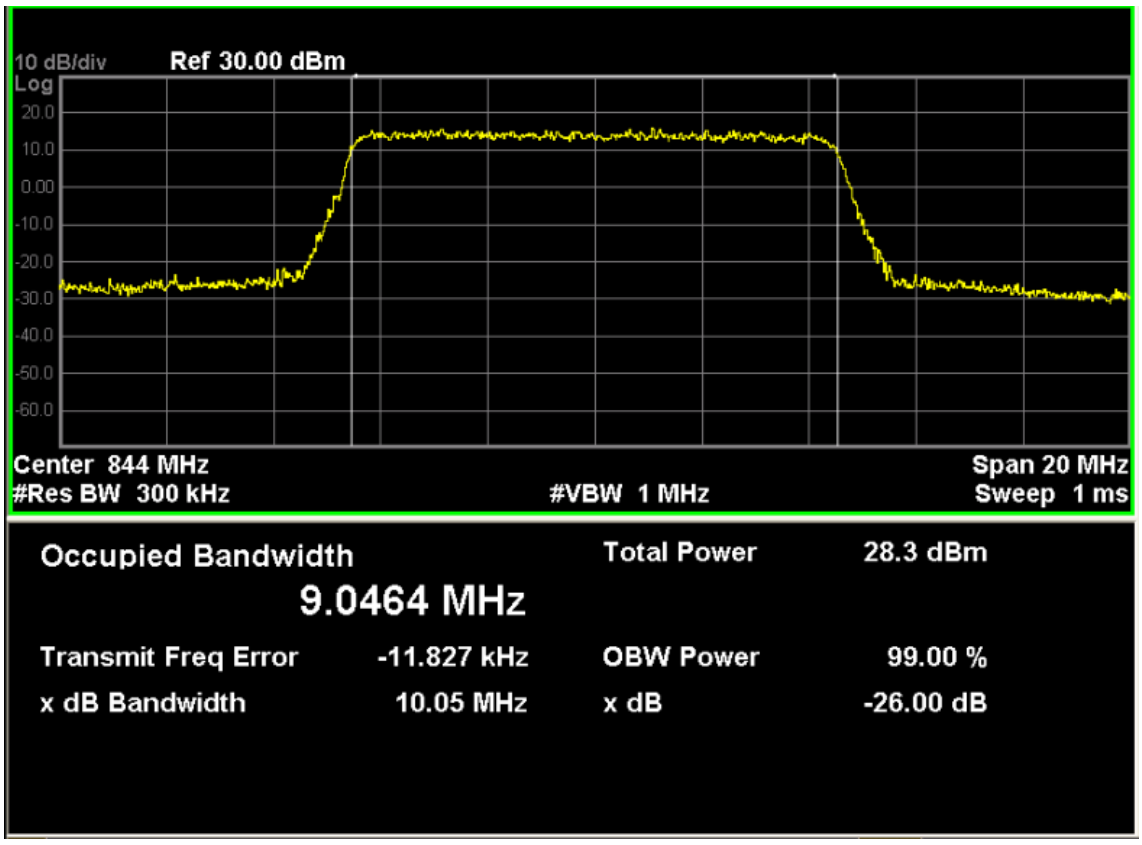

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 846.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5005 MHz
Total Power 28.0 dBm
Transmit Freq Error 8.490 kHz
OBW Power 99.00 %
x dB Bandwidth 4.840 MHz
x dB -26.00 dB

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	10.17	9.051
20525	836.5	10.06	9.015
20600	844.0	10.05	9.046

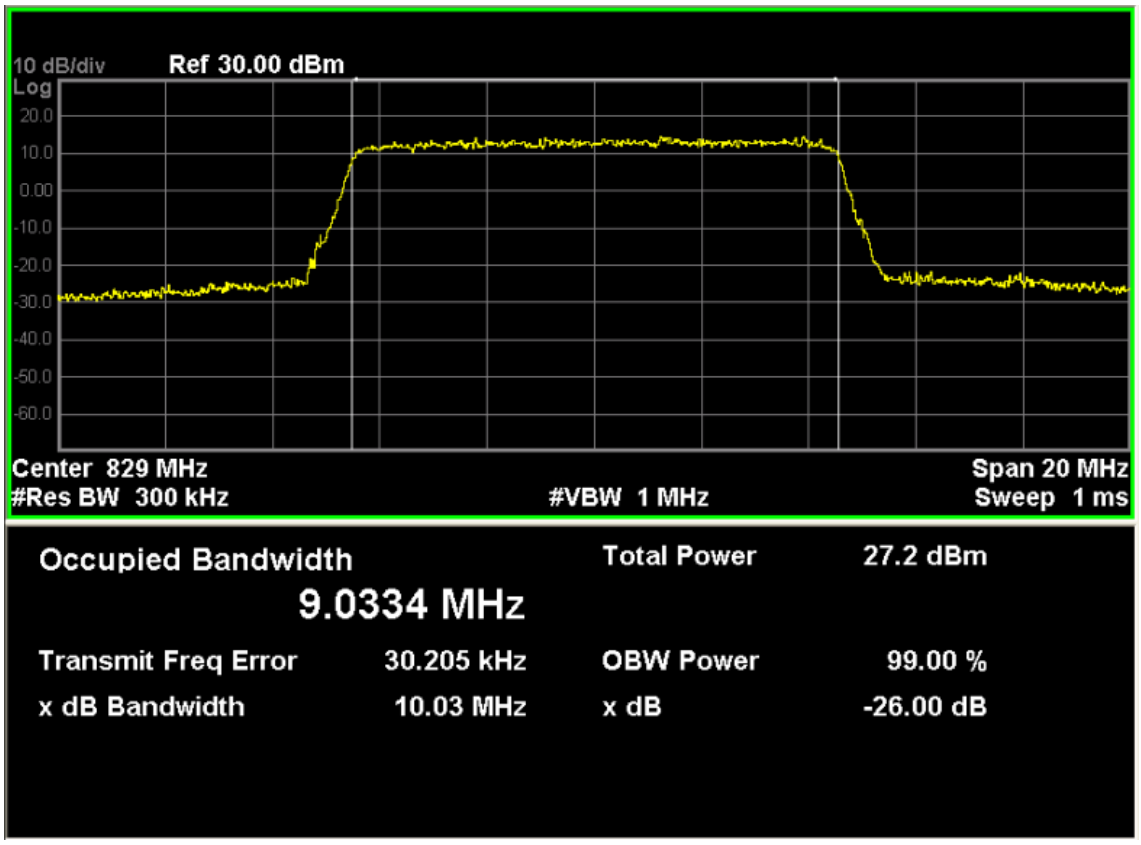


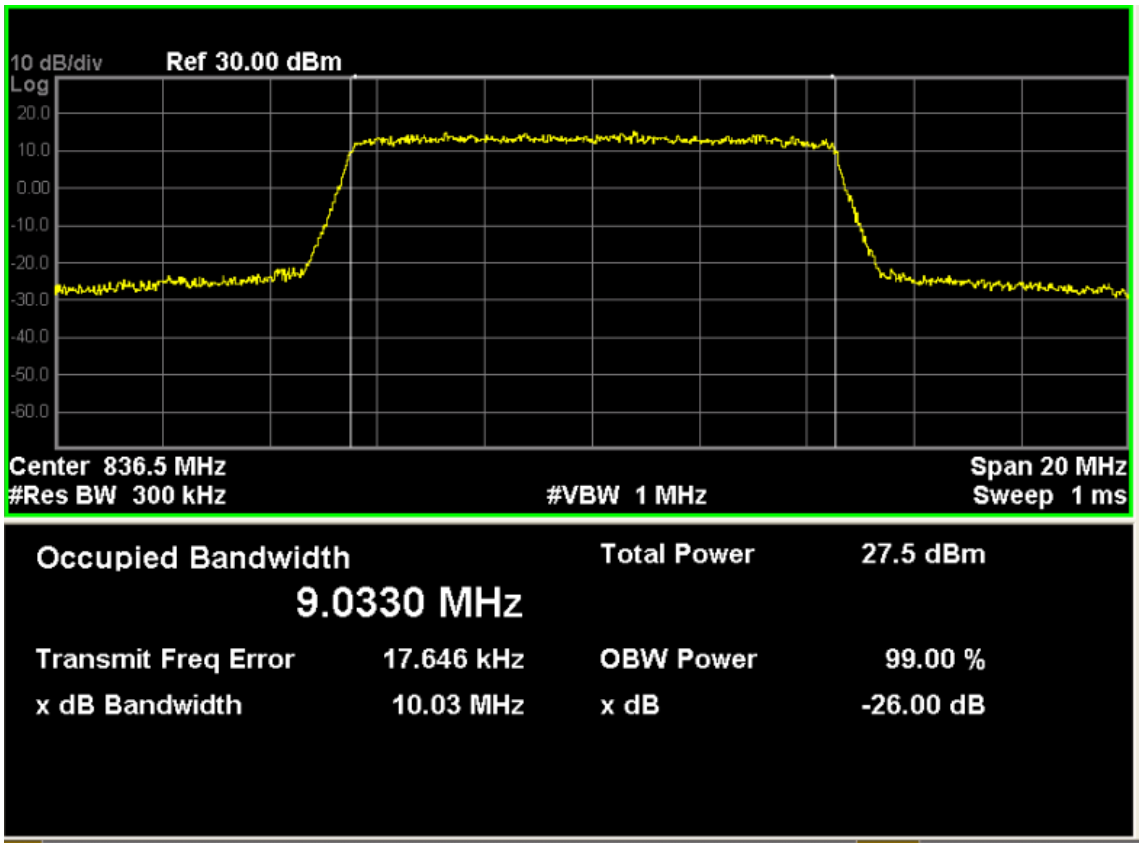

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 836.5 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0152 MHz
Total Power 28.4 dBm
Transmit Freq Error 4.796 kHz
OBW Power 99.00 %
x dB Bandwidth 10.06 MHz
x dB -26.00 dB

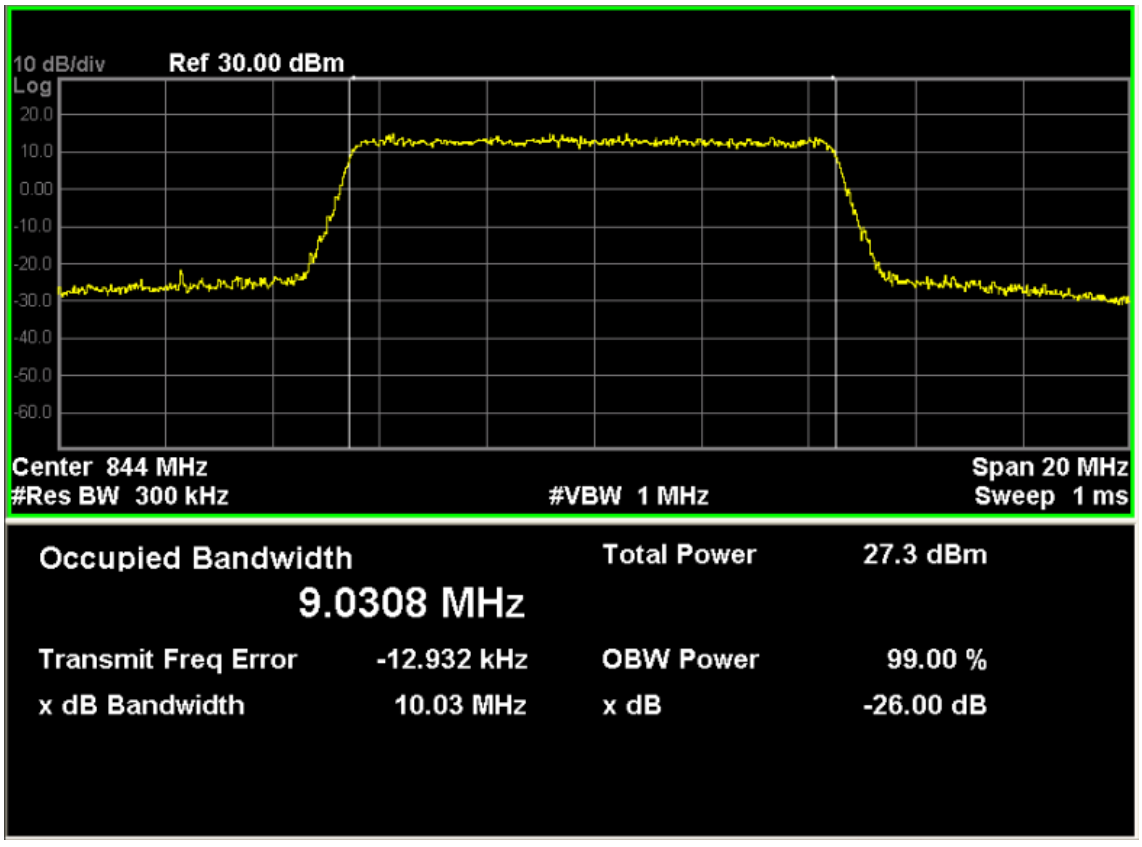

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 844 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0464 MHz
Total Power 28.3 dBm
Transmit Freq Error -11.827 kHz
OBW Power 99.00 %
x dB Bandwidth 10.05 MHz
x dB -26.00 dB

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	10.03	9.033
20525	836.5	10.03	9.033
20600	844.0	10.03	9.031

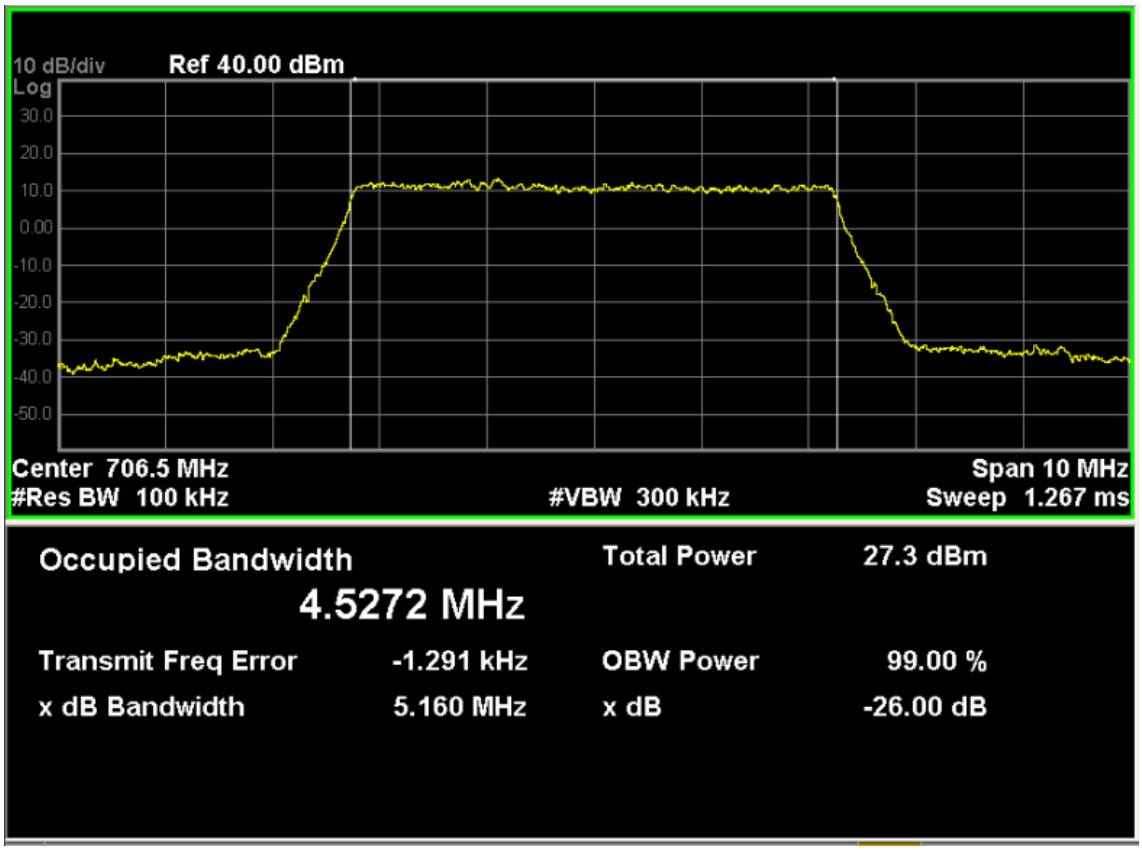


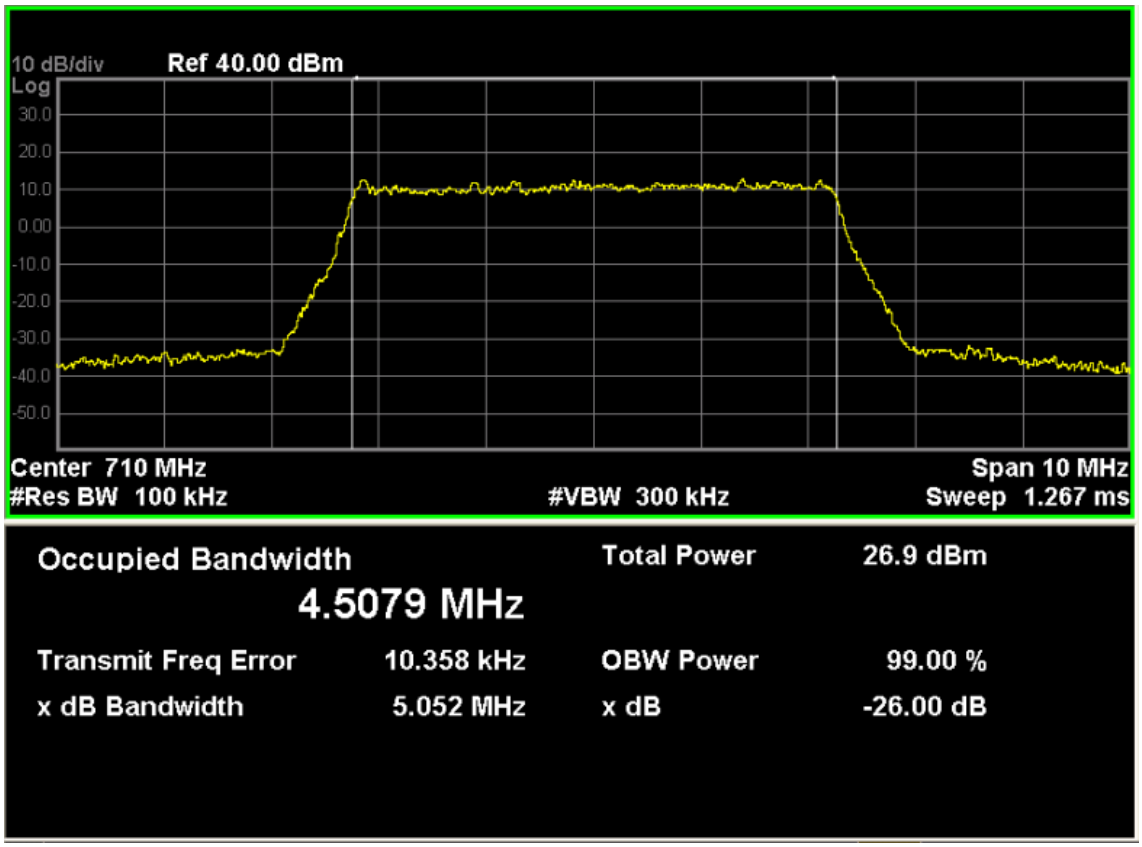

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 836.5 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0330 MHz
Total Power 27.5 dBm
Transmit Freq Error 17.646 kHz
OBW Power 99.00 %
x dB Bandwidth 10.03 MHz
x dB -26.00 dB

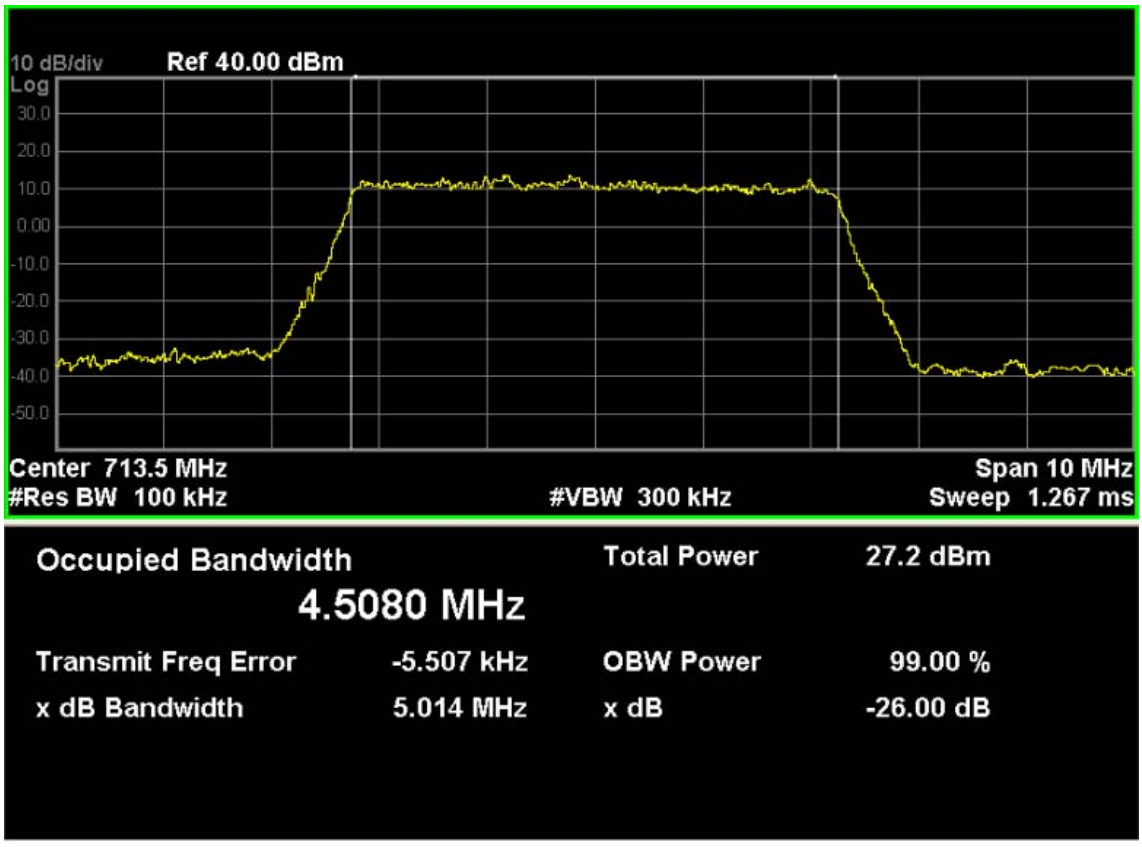

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 844 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0308 MHz
Total Power 27.3 dBm
Transmit Freq Error -12.932 kHz
OBW Power 99.00 %
x dB Bandwidth 10.03 MHz
x dB -26.00 dB

LTE Band 17 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23755	706.5	5.160	4.527
23790	710.0	5.052	4.508
23825	713.5	5.014	4.508

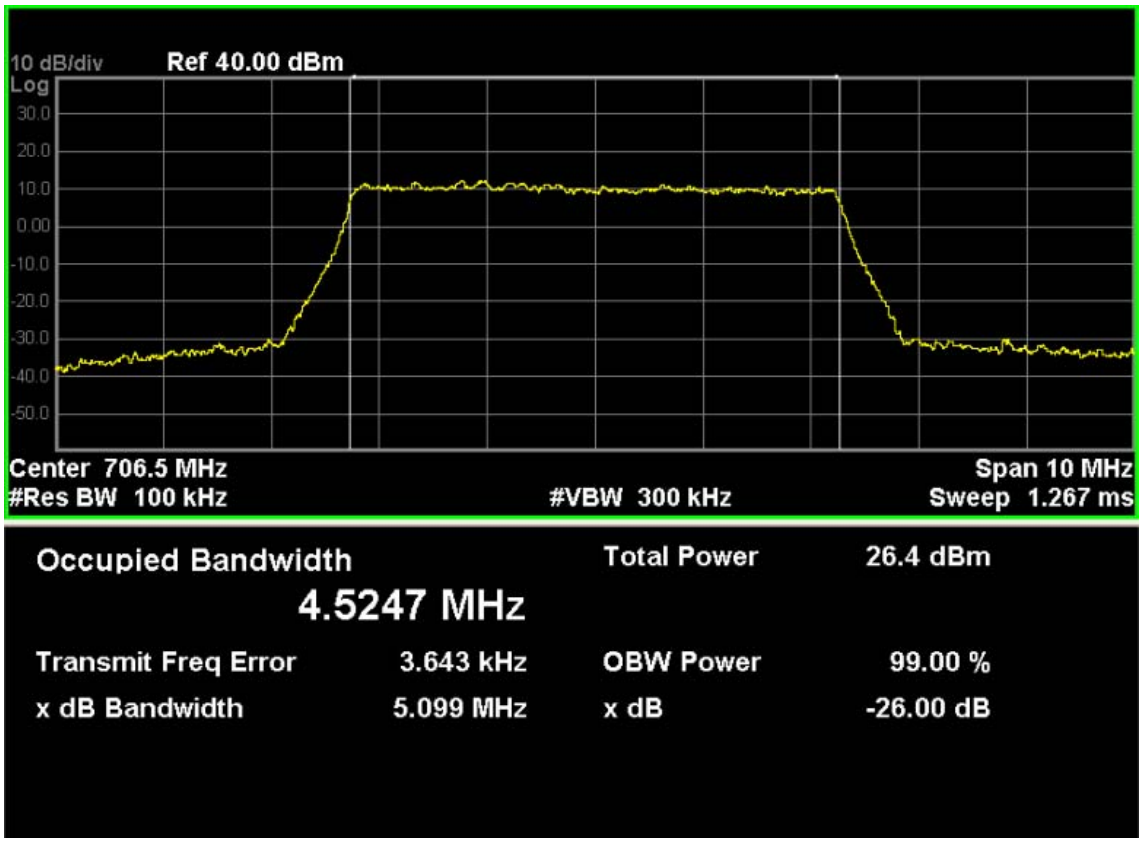


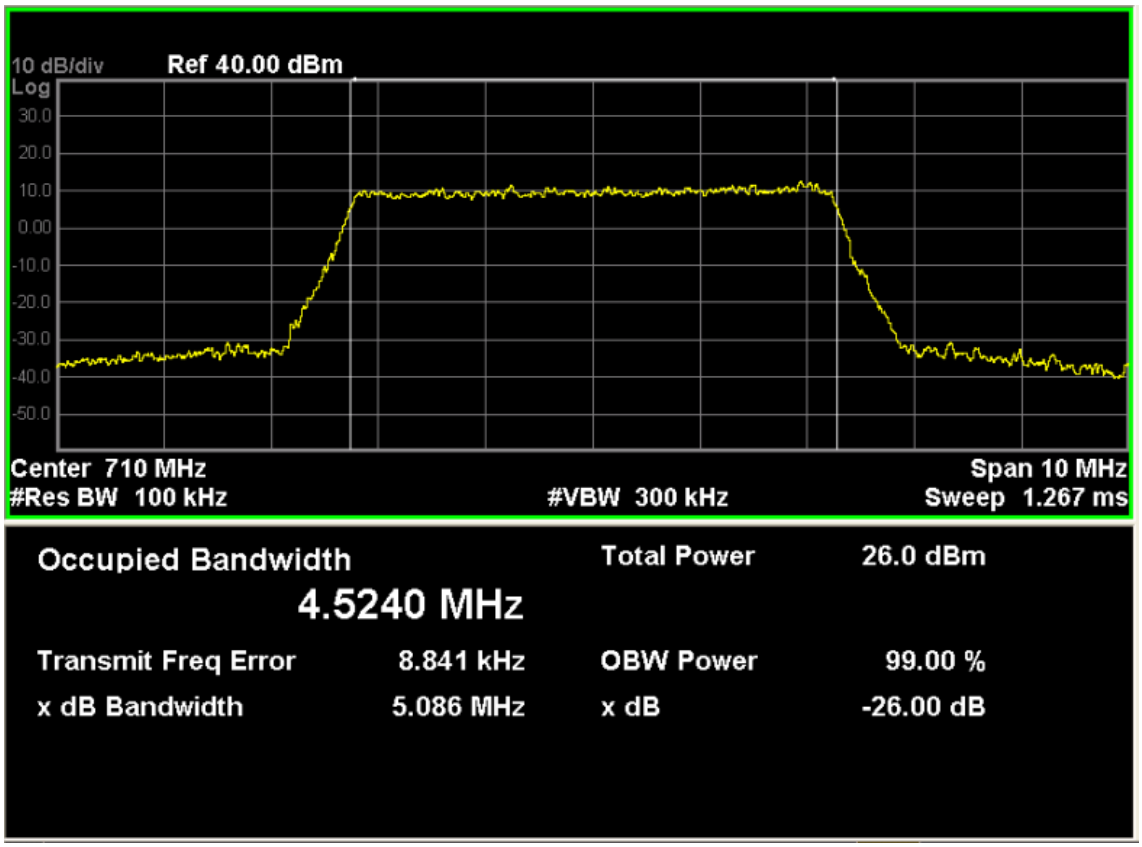

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 710 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5079 MHz
Total Power 26.9 dBm
Transmit Freq Error 10.358 kHz
OBW Power 99.00 %
x dB Bandwidth 5.052 MHz
x dB -26.00 dB

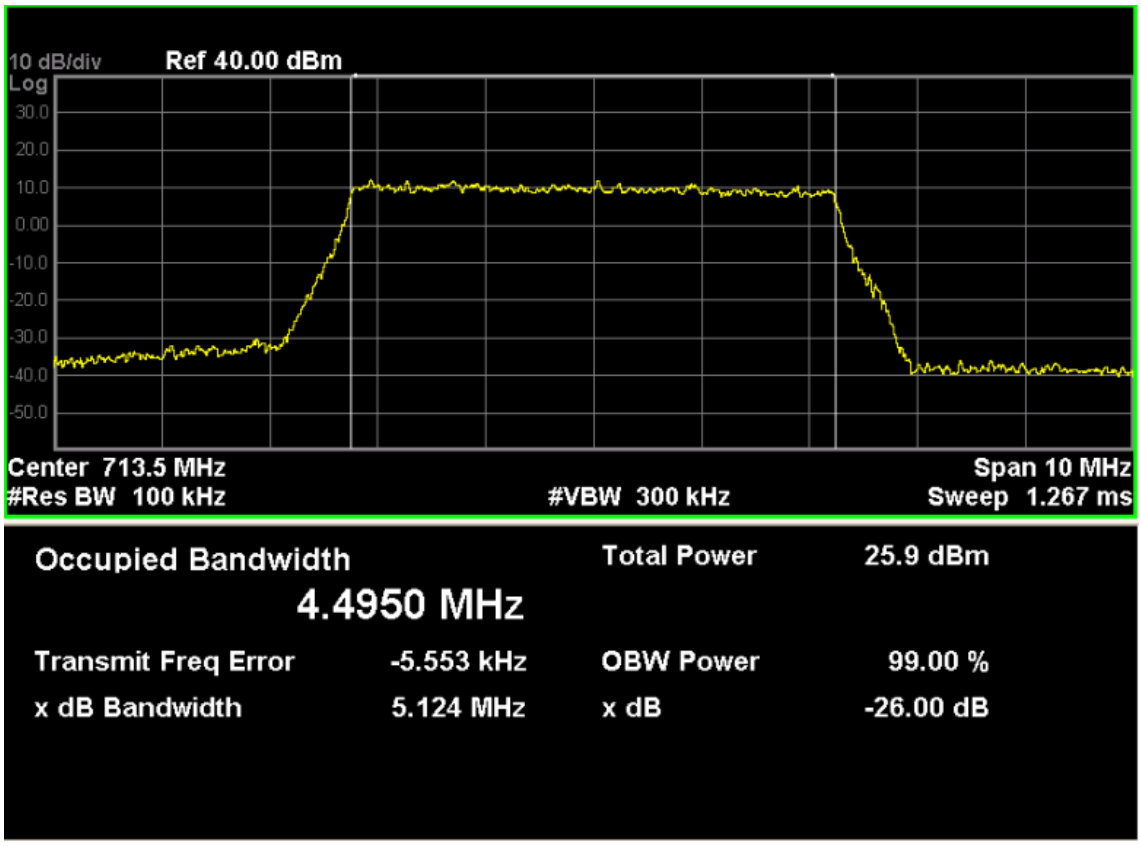

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 713.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5080 MHz
Total Power 27.2 dBm
Transmit Freq Error -5.507 kHz
OBW Power 99.00 %
x dB Bandwidth 5.014 MHz
x dB -26.00 dB

LTE Band 17 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23755	706.5	5.099	4.525
23790	710.0	5.086	4.524
23825	713.5	5.124	4.495

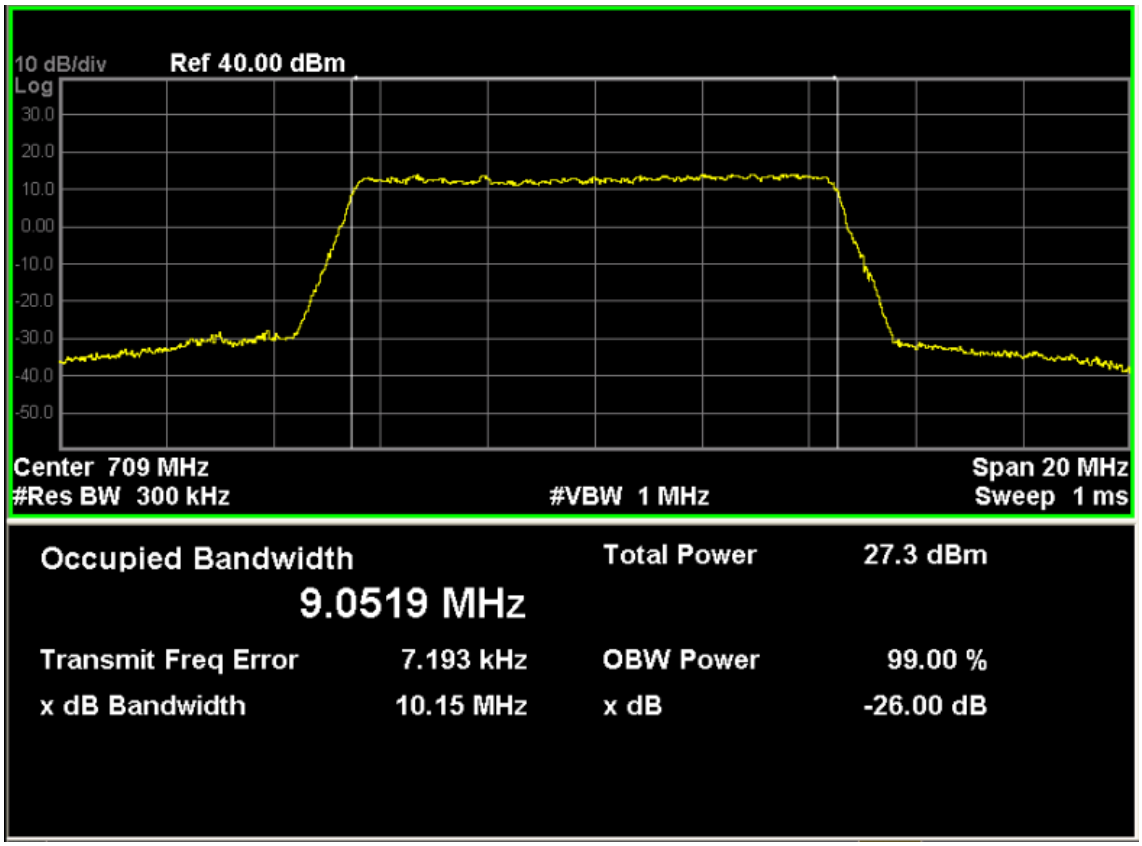


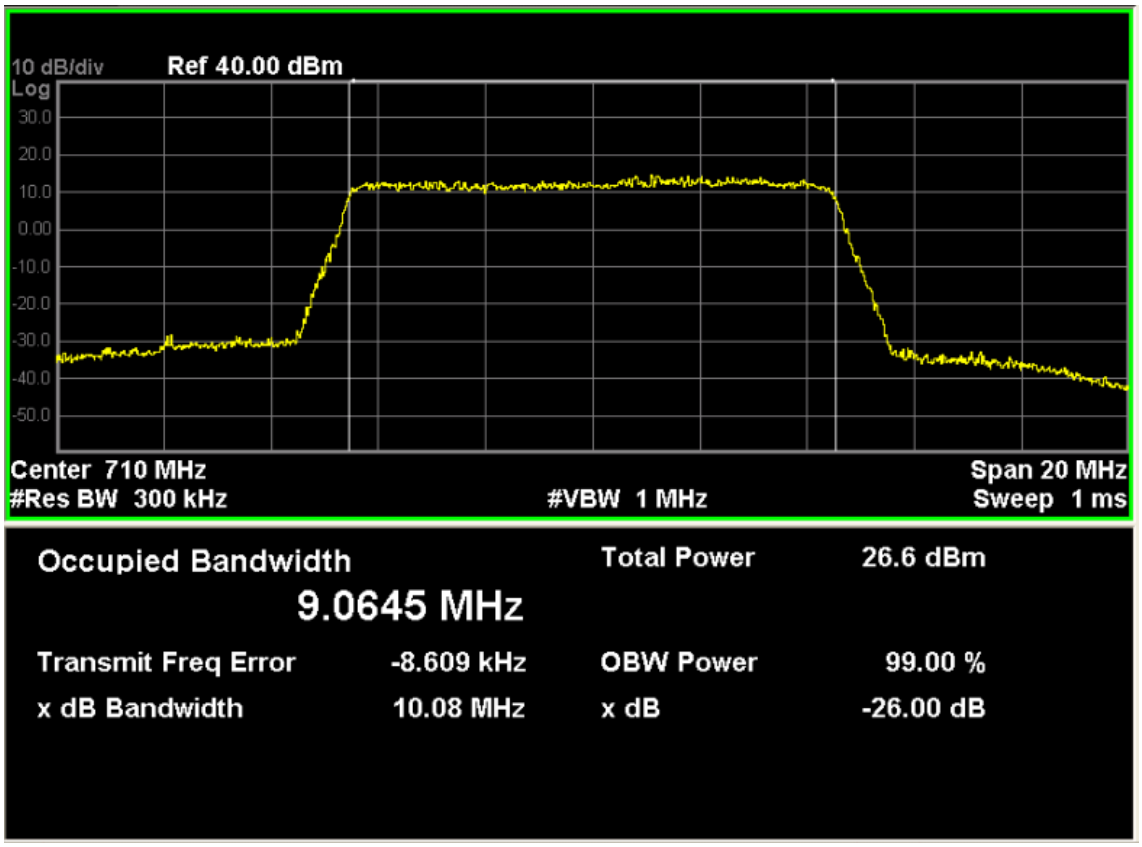

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 710 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5240 MHz
Total Power
26.0 dBm
Transmit Freq Error
8.841 kHz
OBW Power
99.00 %
x dB Bandwidth
5.086 MHz
x dB
-26.00 dB

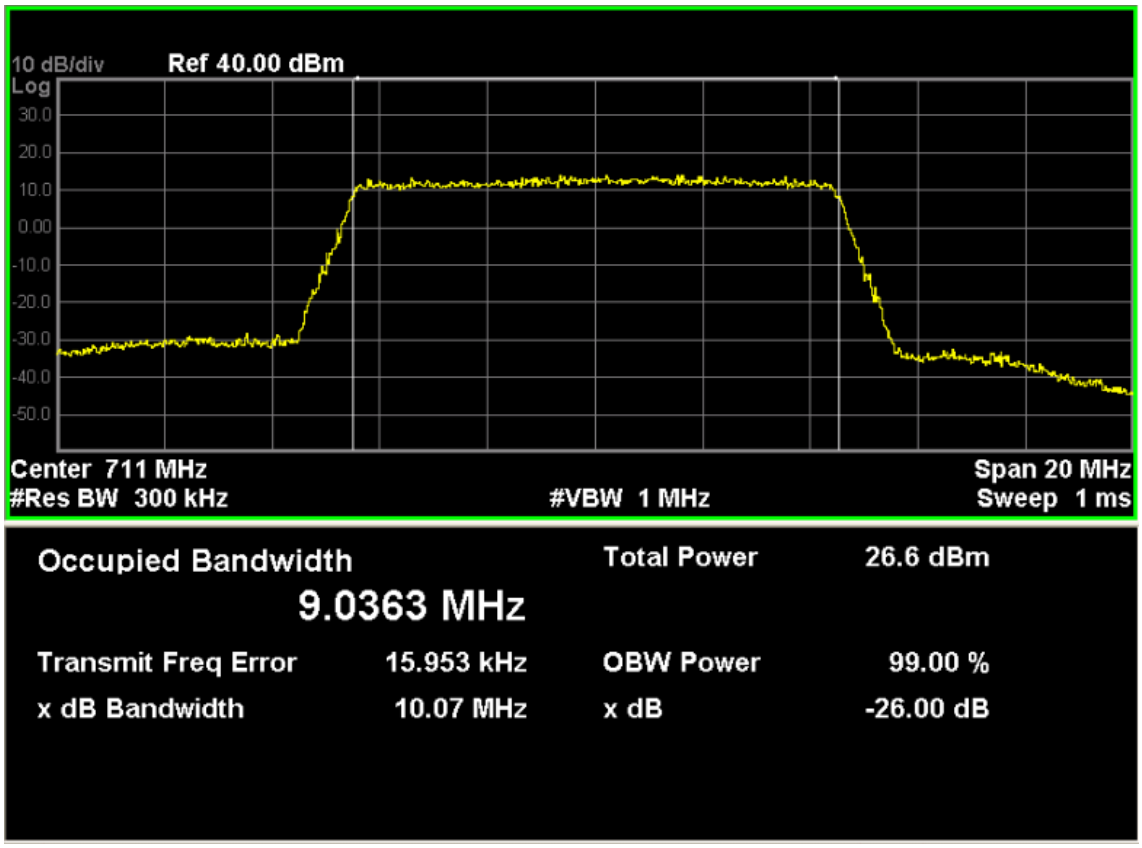

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 713.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4950 MHz
Total Power
25.9 dBm
Transmit Freq Error
-5.553 kHz
OBW Power
99.00 %
x dB Bandwidth
5.124 MHz
x dB
-26.00 dB

LTE Band 17 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23780	709.0	10.15	9.052
23790	710.0	10.08	9.045
23800	711.0	10.07	9.036

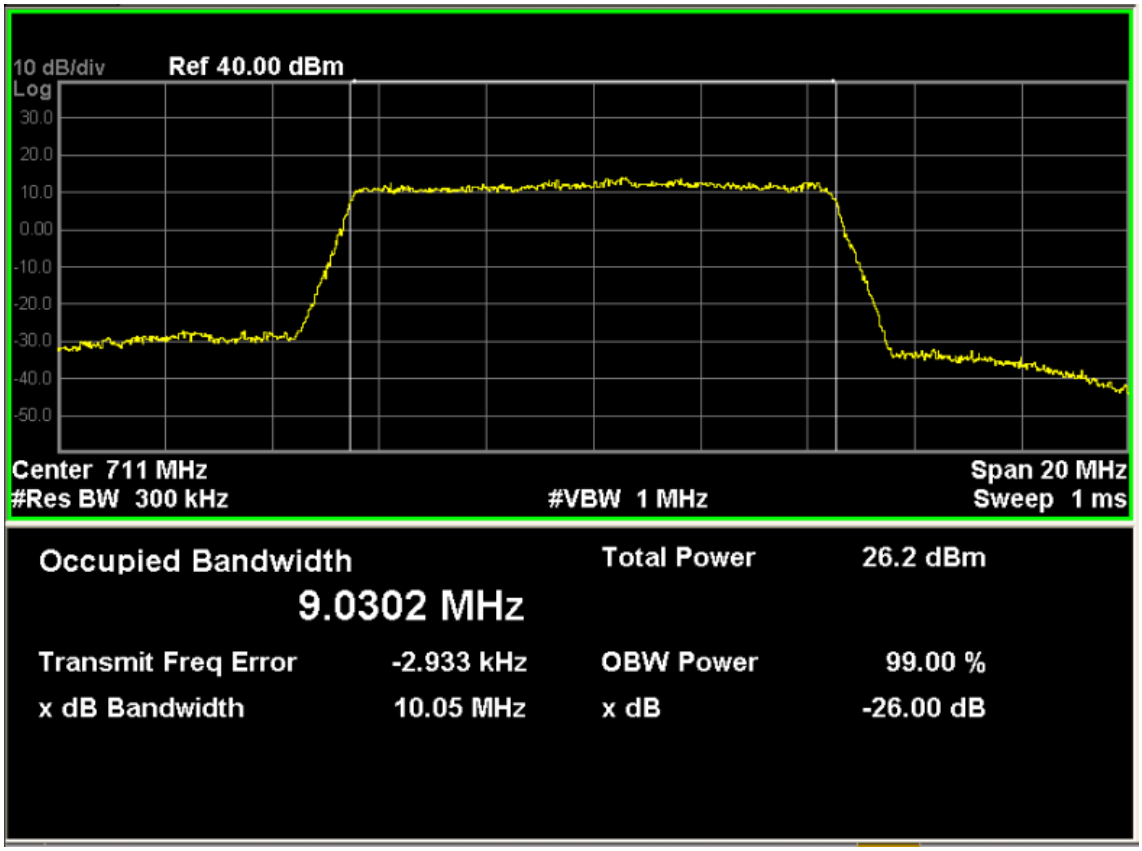


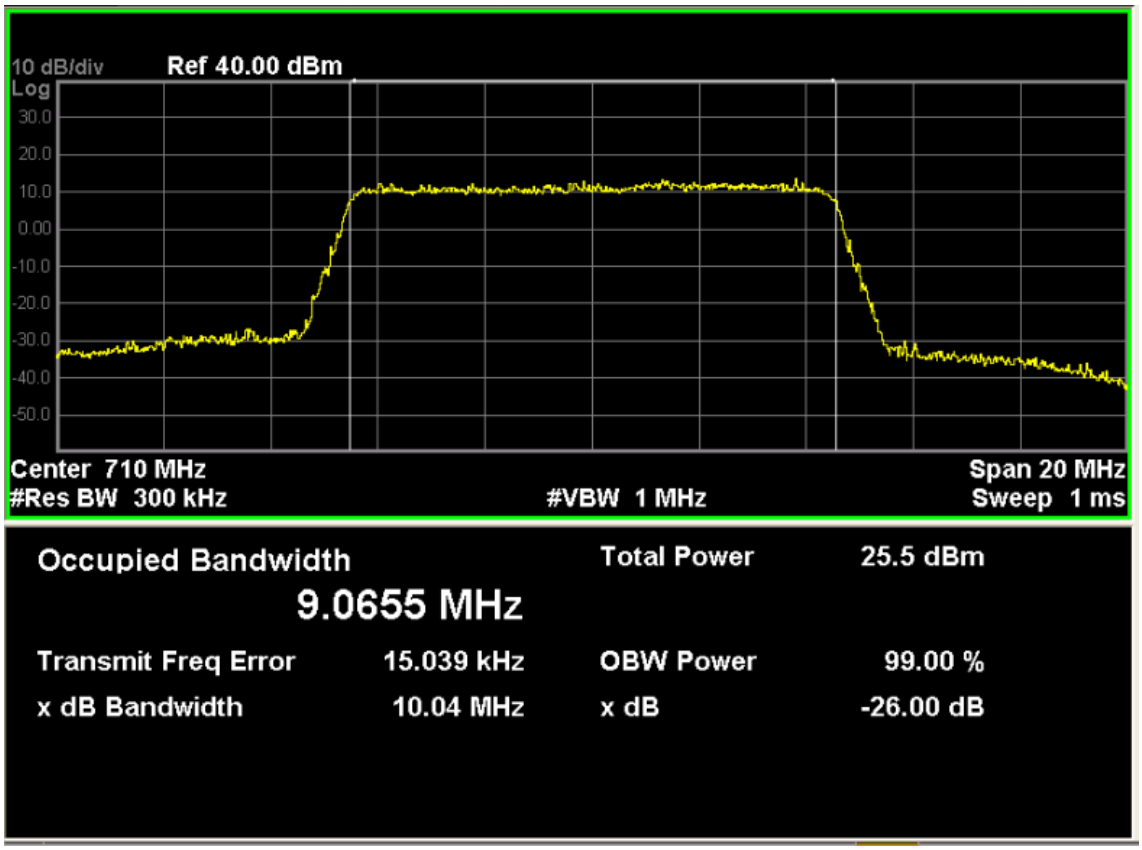

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 710 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0645 MHz
Total Power 26.6 dBm
Transmit Freq Error -8.609 kHz
OBW Power 99.00 %
x dB Bandwidth 10.08 MHz
x dB -26.00 dB

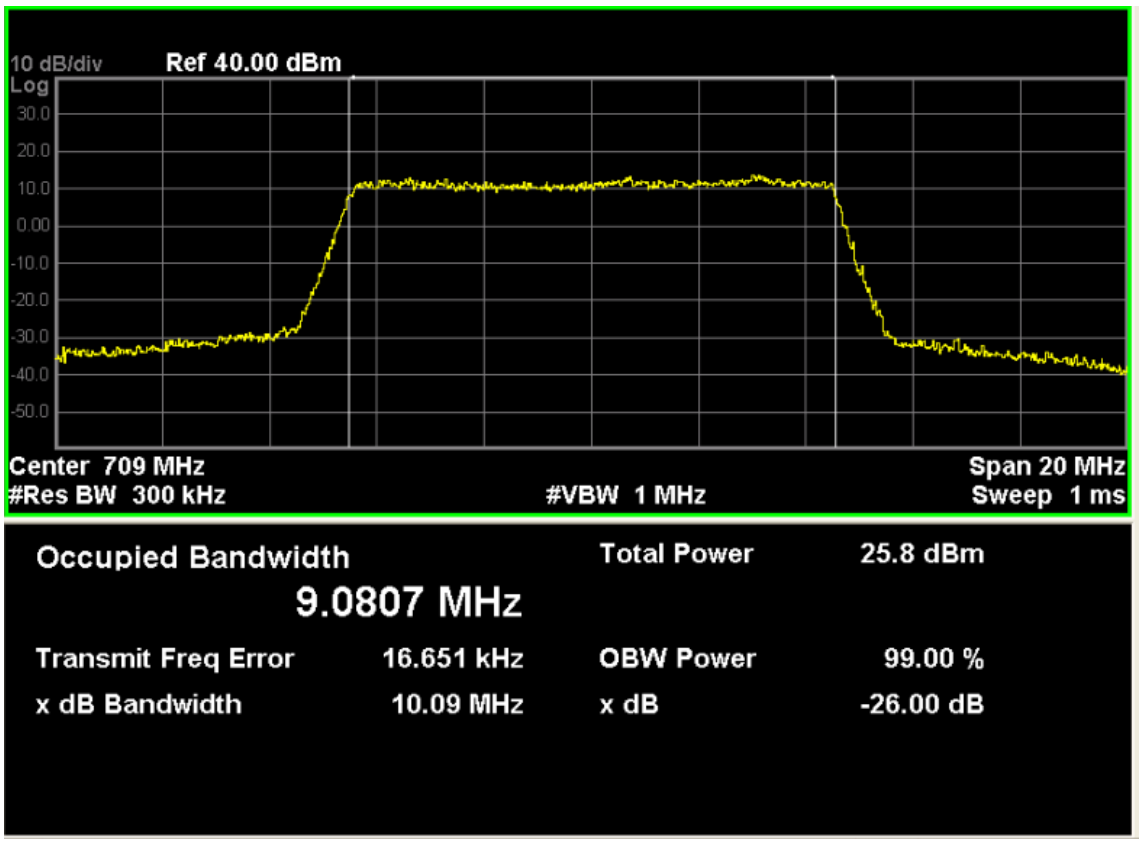

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 711 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0363 MHz
Total Power 26.6 dBm
Transmit Freq Error 15.953 kHz
OBW Power 99.00 %
x dB Bandwidth 10.07 MHz
x dB -26.00 dB

LTE Band 17 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)

Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
23780	709.0	10.05	9.030
23790	710.0	10.04	9.066
23800	711.0	10.09	9.081




10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 710 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0655 MHz
Total Power
25.5 dBm
Transmit Freq Error
15.039 kHz
OBW Power
99.00 %
x dB Bandwidth
10.04 MHz
x dB
-26.00 dB


10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 709 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0807 MHz
Total Power
25.8 dBm
Transmit Freq Error
16.651 kHz
OBW Power
99.00 %
x dB Bandwidth
10.09 MHz
x dB
-26.00 dB

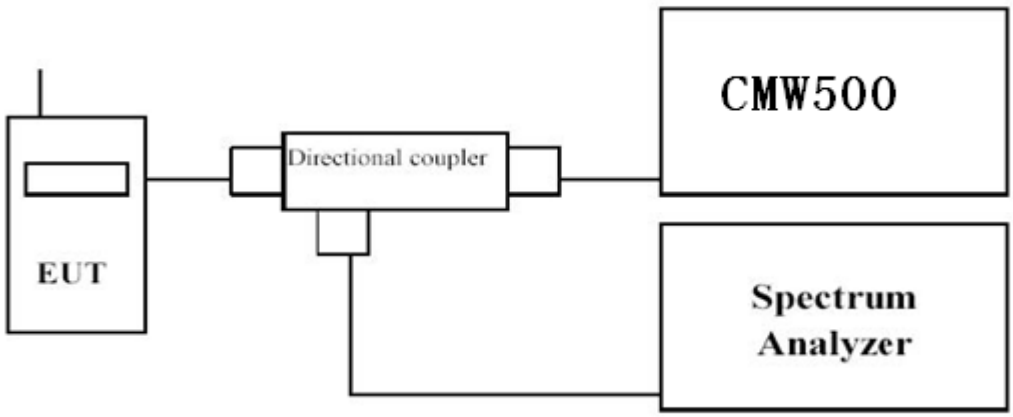
5.Spurious Emission At Antenna Terminals (+/- 1MHz)

5.1. Test Equipment

Instrument	Manufacturer	Model	Serial No	Cal. Date
Radio Communication Tester	R&S	CMW500	147483	10/15/2015
Spectrum Analyzer	Agilent	N9038A	MY51210142	12/17/2014
DC Power Supply	Agilent	6612C	MY43002989	03/03/2015

The measure equipment had been calibrated once a year.

5.2. Test Setup



5.3. Limit

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 + 10log(P) dB.

5.4. Test Procedure

In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.

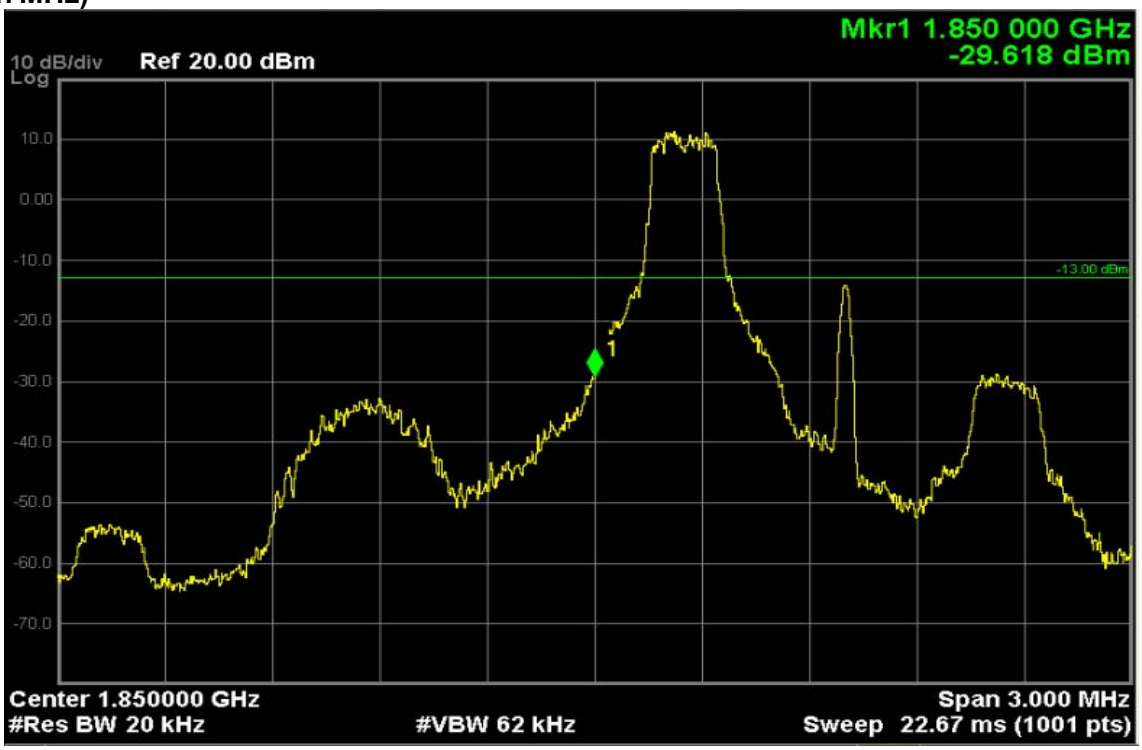
Procedure:
1. The testing follows FCC KDB 972268 v02v02 Section 6.0;
2. The EUT was connected to spectrum analyzer and the CMW500;
3. The band edges of low and high channels for the highest RF powers were measured.Set RBW≥ 1%OBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.

5.5. Uncertainty

The measurement uncertainty is defined as ±1.2 dB.

5.6. Test Result

LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0,Channel 18607,Frequeny 1850.7MHz)



LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0,Channel 18607,Frequeny 1850.7MHz)