



TEST REPORT

APPLICANT : Jiangsu SEUIC Technology Co.,Ltd.

PRODUCT NAME : Portable Data Collection Terminal

MODEL NAME : CRUISE 1

BRAND NAME : CRUISE/SEUIC

FCC ID : 2AC68-CRUISE1P

STANDARD(S) : 47 CFR Part 22, Subpart H
47 CFR Part 24, Subpart E
47 CFR Part 27, Subpart H&L&M

RECEIPT DATE : 2018-10-15

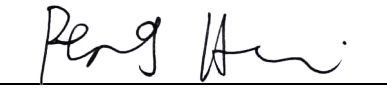
TEST DATE : 2018-10-11 to 2018-12-24

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REPORT No.: SZ18090337W08

Change History		
Version	Date	Reason for change
1.0	2018-12-24	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Jiangsu SEUIC Technology Co.,Ltd.
Applicant Address:	NO.15 Xinghuo Road,Nanjing New & High Technology Industry Development Zone,210061,Nanjing City,Jiangsu Province,China
Manufacturer:	Jiangsu SEUIC Technology Co.,Ltd.
Manufacturer Address:	NO.15 Xinghuo Road,Nanjing New & High Technology Industry Development Zone,210061,Nanjing City,Jiangsu Province,China

1.2. Equipment Under Test (EUT) Description

Product Name:	Portable Data Collection Terminal	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	SLB761_MB_V1.02_PCB	
Software Version:	D700P_I_V1.1.5	
Modulation Type:	QPSK, 16QAM	
Operation Band:	Band 2 / 4 / 5 / 7	
Frequency Range:	LTE Band 2	Tx: 1850.7MHz -1909.3MHz
		Rx: 1930.7MHz -1989.3MHz
	LTE Band 4	Tx: 1710.7MHz -1754.3MHz
		Rx: 2110.7MHz - 2154.3MHz
	LTE Band 5	Tx: 824.7MHz -848.3MHz
		Rx: 869.7MHz – 893.3MHz
	LTE Band 7	Tx: 2502.5MHz - 2567.5MHz
		Rx: 2622.5MHz – 2687.5MHz
Channel Bandwidth	LTE Band 2	1.4MHz, 3 MHz, 5 MHz, 10MHz, 15 MHz, 20 MHz
	LTE Band 4	1.4MHz, 3 MHz, 5 MHz, 10MHz, 15 MHz, 20 MHz
	LTE Band 5	1.4MHz, 3 MHz, 5 MHz, 10MHz
	LTE Band 7	5 MHz, 10MHz, 15 MHz, 20 MHz
Emission Designator:	1M10G7D (LTE Band 2, QPSK, BW 1.4MHz) 1M10W7D (LTE Band 2, 16QAM, BW 1.4MHz) 2M68G7D (LTE Band 2, QPSK, BW 3MHz) 2M68 W7D (LTE Band 2, 16QAM, BW 3MHz)	



	4M47G7D (LTE Band 2, QPSK, BW 5MHz) 4M47W7D (LTE Band 2, 16QAM, BW 5MHz) 8M94G7D (LTE Band 2, QPSK, BW 10MHz) 8M94W7D (LTE Band 2, 16QAM, BW 10MHz) 13M4G7D (LTE Band 2, QPSK, BW 15MHz) 13M4W7D (LTE Band 2, 16QAM, BW 15MHz) 17M9G7D (LTE Band 2, QPSK, BW 20MHz) 17M9W7D (LTE Band 2, 16QAM, BW 20MHz) 1M10G7D (LTE Band 4, QPSK, BW 1.4MHz) 1M10W7D (LTE Band 4, 16QAM, BW 1.4MHz) 2M68G7D (LTE Band 4, QPSK, BW 3MHz) 2M68W7D (LTE Band 4, 16QAM, BW 3MHz) 4M47G7D (LTE Band 4, QPSK, BW 5MHz) 4M46W7D (LTE Band 4, 16QAM, BW 5MHz) 8M93G7D (LTE Band 4, QPSK, BW 10MHz) 8M93W7D (LTE Band 4, 16QAM, BW 10MHz) 13M4G7D (LTE Band 4, QPSK, BW 15MHz) 13M4W7D (LTE Band 4, 16QAM, BW 15MHz) 17M9G7D (LTE Band 4, QPSK, BW 20MHz) 17M9W7D (LTE Band 4, 16QAM, BW 20MHz) 1M10G7D (LTE Band 5, QPSK, BW 1.4MHz) 1M10W7D (LTE Band 5, 16QAM, BW 1.4MHz) 2M68G7D (LTE Band 5, QPSK, BW 3MHz) 2M68W7D (LTE Band 5, 16QAM, BW 3MHz) 4M47G7D (LTE Band 5, QPSK, BW 5MHz) 4M47W7D (LTE Band 5, 16QAM, BW 5MHz) 9M08G7D (LTE Band 5, QPSK, BW 10MHz) 9M07W7D (LTE Band 5, 16QAM, BW 10MHz) 4M47G7D (LTE Band 7, QPSK, BW 5MHz) 4M46W7D (LTE Band 7, 16QAM, BW 5MHz) 9M05G7D (LTE Band 7, QPSK, BW 10MHz) 9M07W7D (LTE Band 7, 16QAM, BW 10MHz) 13M5G7D (LTE Band 7, QPSK, BW 15MHz) 13M5W7D (LTE Band 7, 16QAM, BW 15MHz) 17M9G7D (LTE Band 7, QPSK, BW 20MHz) 17M9W7D (LTE Band 7, 16QAM, BW 20MHz)
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Antenna Type:	PIFA Antenna	
Antenna Gain:	LTE Band 2	2.4 dBi
	LTE Band 4	1.2 dBi
	LTE Band 5	-0.75 dBi
	LTE Band 7	2.0 dBi
Accessory Information:	Battery	
	Brand Name:	N/A
	Model No.:	BT01700CRUISE
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4500mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.35V

Accessory Information:	AC Adapter	
	Brand Name:	SHENZHEN TIANYIN ELECTRONICS CO.,LTD
	Model No.:	TPA-23A050200UU01
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V ~ 50/60Hz 0.3A
	Rated Output:	5V=2.0A

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Test Standards and Results

The objective of the report is to perform testing according to Part 2, Part 22, Part 24 and Part 27 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Date	Test Engineer	Result
2.1046, 22.913(a)(2), 24.232(c), 27.50(c)(10) 27.50(d)(4), 27.50(h)(2)	Transmitter Conducted Output Power and ERP/EIRP	Dec 21&24, 2018	Gao Mingzhou Wang Dalong	PASS
2.1049	Occupied Bandwidth	Oct 11, 2018	Gao Mingzhou	PASS
2.1055, 22.355, 24.235, 27.54	Frequency Stability	Dec 21, 2018	Gao Mingzhou	PASS
24.232(d), 27.50(d)(5)	Peak to Average Radio	Oct 11, 2018	Gao Mingzhou	PASS
2.1051, 22.917(a), 24.238, 27.53(h)(m)(4)	Conducted Spurious Emissions	Dec 21, 2018	Gao Mingzhou	PASS
2.1051, 22.917(a), 24.238, 27.53(h)(m)(4)	Band Edge	Oct 11, 2018 Dec 21, 2018	Gao Mingzhou	PASS
2.1051, 22.917(a), 24.238, 27.53(h)(m)(4)	Radiated Spurious Emissions	Nov 08, 2018	Wang Dalong	PASS

Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 (Oct 27, 2017) and ANSI/TIA-603-E-2016.

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 26.5dB contains two parts that cable loss 16.5dB and Attenuator 10dB.

1.4. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR Part 2, Part 22H, Part 24E and 27H&L&M Requirements

2.1. Transmitter Conducted Output Power And ERP/EIPR

2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

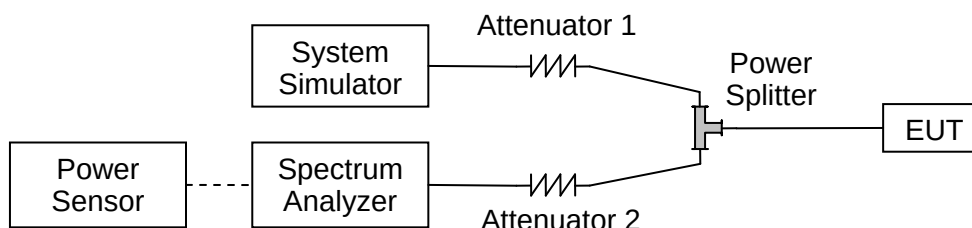
According to FCC section 24.232 (c) for LTE Band 2, Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50 (d) for LTE Band 4, fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

According to FCC section 22.913 (a.2) for LTE Band 5, the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 27.50 (h) for LTE Band 7, Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

2.1.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.



2.1.3. Test procedure

KDB 971168 D01v03 Section 5.2 and ANSI/TIA-603-E-2016.

$EIRP \text{ (dBm)} = \text{Conducted Output Power (dBm)} + \text{Antenna Gain (dBi)}$

$ERP \text{ (dBm)} = EIPR \text{ (dBm)} - 2.15$

2.1.4. Result

**Transmitter Conducted Output Power**

LTE Band2						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				18700	18900	19100
Frequency (MHz)				1860	1880	1900
20	QPSK	1	0	20.68	20.53	20.59
20	QPSK	1	49	20.53	20.51	20.42
20	QPSK	1	99	20.01	20.32	20.64
20	QPSK	50	0	19.74	19.70	19.65
20	QPSK	50	24	19.58	19.57	19.63
20	QPSK	50	50	19.56	19.56	19.54
20	QPSK	100	0	19.63	19.59	19.60
20	16QAM	1	0	19.67	18.93	19.61
20	16QAM	1	49	19.44	19.64	19.33
20	16QAM	1	99	19.40	19.24	19.59
20	16QAM	50	0	18.46	18.70	18.74
20	16QAM	50	24	18.56	18.63	18.58
20	16QAM	50	50	18.35	18.64	18.65
20	16QAM	100	0	18.50	18.61	18.57
Channel				18675	18900	19125
Frequency (MHz)				1857.5	1880	1902.5
15	QPSK	1	0	20.15	20.61	20.26
15	QPSK	1	37	20.66	20.54	20.61
15	QPSK	1	74	20.65	20.26	20.03
15	QPSK	36	0	19.16	19.52	19.58
15	QPSK	36	20	19.60	19.46	19.48
15	QPSK	36	39	19.03	19.60	19.64
15	QPSK	75	0	19.61	19.59	19.43
15	16QAM	1	0	19.05	19.38	19.37
15	16QAM	1	37	19.55	19.54	19.59
15	16QAM	1	74	19.59	19.58	19.58
15	16QAM	36	0	18.79	18.86	18.96
15	16QAM	36	20	18.94	18.97	18.99
15	16QAM	36	39	18.05	18.98	18.02
15	16QAM	75	0	18.69	18.87	18.90



LTE Band2						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				18650	18900	19150
Frequency (MHz)				1855	1880	1905
10	QPSK	1	0	20.61	20.56	20.59
10	QPSK	1	25	20.65	20.56	20.63
10	QPSK	1	49	20.51	20.59	20.51
10	QPSK	25	0	19.62	19.55	19.51
10	QPSK	25	12	19.55	19.59	19.66
10	QPSK	25	25	19.62	19.59	19.64
10	QPSK	50	0	19.65	19.50	19.50
10	16QAM	1	0	19.64	19.50	19.51
10	16QAM	1	25	19.51	19.54	19.51
10	16QAM	1	49	19.20	19.50	19.56
10	16QAM	25	0	18.68	18.81	18.63
10	16QAM	25	12	18.55	18.90	18.94
10	16QAM	25	25	18.58	18.88	18.83
10	16QAM	50	0	18.51	18.61	18.93
Channel				18625	18900	19175
Frequency (MHz)				1852.5	1880	1907.5
5	QPSK	1	0	20.61	20.46	20.66
5	QPSK	1	12	20.25	20.66	20.20
5	QPSK	1	24	20.60	20.46	20.66
5	QPSK	12	0	19.61	19.66	19.66
5	QPSK	12	7	19.62	19.62	19.60
5	QPSK	12	13	19.60	19.66	19.65
5	QPSK	25	0	19.60	19.61	19.60
5	16QAM	1	0	19.62	19.66	19.53
5	16QAM	1	12	19.66	19.56	19.66
5	16QAM	1	24	19.01	19.42	19.66
5	16QAM	12	0	18.59	18.63	18.83
5	16QAM	12	7	18.72	18.82	18.89
5	16QAM	12	13	18.71	18.75	18.90
5	16QAM	25	0	18.82	18.79	18.93



LTE Band2						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				18615	18900	19185
Frequency (MHz)				1851.5	1880	1908.5
3	QPSK	1	0	20.66	20.54	20.66
3	QPSK	1	8	20.56	20.53	20.01
3	QPSK	1	14	20.51	20.60	20.04
3	QPSK	8	0	19.55	19.65	19.60
3	QPSK	8	4	19.64	19.62	19.58
3	QPSK	8	7	19.56	19.63	19.63
3	QPSK	15	0	19.60	19.53	19.63
3	16QAM	1	0	19.53	19.50	19.63
3	16QAM	1	8	19.52	19.54	19.40
3	16QAM	1	14	19.62	19.56	19.51
3	16QAM	8	0	18.80	18.54	18.07
3	16QAM	8	4	18.76	18.64	18.66
3	16QAM	8	7	18.07	18.56	18.07
3	16QAM	15	0	18.76	18.92	18.15
Channel				18607	18900	19193
Frequency (MHz)				1850.7	1880	1909.3
1.4	QPSK	1	0	20.51	20.65	20.04
1.4	QPSK	1	3	20.56	20.65	20.63
1.4	QPSK	1	5	20.50	20.55	20.04
1.4	QPSK	3	0	20.50	20.50	20.15
1.4	QPSK	3	1	20.64	20.55	20.26
1.4	QPSK	3	3	20.56	20.51	20.15
1.4	QPSK	6	0	19.56	19.54	19.66
1.4	16QAM	1	0	19.55	19.66	19.63
1.4	16QAM	1	3	19.05	19.65	19.31
1.4	16QAM	1	5	19.62	19.56	19.53
1.4	16QAM	3	0	19.56	19.46	19.56
1.4	16QAM	3	1	19.56	19.55	19.66
1.4	16QAM	3	3	19.56	19.52	19.61
1.4	16QAM	6	0	18.55	18.59	18.59



LTE Band4						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20050	20175	20300
Frequency (MHz)				1720	1732.5	1745
20	QPSK	1	0	21.86	22.02	22.32
20	QPSK	1	49	21.86	21.86	21.98
20	QPSK	1	99	21.79	21.87	21.82
20	QPSK	50	0	21.82	21.82	22.05
20	QPSK	50	24	21.68	21.71	21.93
20	QPSK	50	50	21.92	21.98	22.26
20	QPSK	100	0	20.87	20.79	20.94
20	16QAM	1	0	21.16	20.89	20.53
20	16QAM	1	49	21.30	21.34	20.70
20	16QAM	1	99	21.20	21.16	20.58
20	16QAM	50	0	20.87	21.04	21.21
20	16QAM	50	24	20.82	21.08	21.25
20	16QAM	50	50	20.78	20.97	21.14
20	16QAM	100	0	19.73	19.82	20.13
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	21.63	21.64	21.64
15	QPSK	1	37	21.72	21.81	21.89
15	QPSK	1	74	21.34	21.52	21.74
15	QPSK	36	0	20.56	20.77	20.59
15	QPSK	36	20	20.6	20.77	20.56
15	QPSK	36	39	20.64	20.68	20.55
15	QPSK	75	0	20.51	20.61	20.54
15	16QAM	1	0	20.42	20.48	20.41
15	16QAM	1	37	20.68	20.63	20.37
15	16QAM	1	74	20.21	20.21	20.87
15	16QAM	36	0	19.57	19.71	19.61
15	16QAM	36	20	19.69	19.73	19.72
15	16QAM	36	39	19.58	19.78	19.68
15	16QAM	75	0	19.65	19.75	19.72



LTE Band4						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20000	20175	20350
Frequency (MHz)				1715	1732.5	1750
10	QPSK	1	0	21.67	21.97	21.67
10	QPSK	1	25	21.97	21.8	21.71
10	QPSK	1	49	21.72	22.07	21.86
10	QPSK	25	0	20.86	20.75	20.82
10	QPSK	25	12	20.8	20.78	20.78
10	QPSK	25	25	20.89	20.78	21
10	QPSK	50	0	20.83	20.8	20.85
10	16QAM	1	0	20.46	21.49	20.25
10	16QAM	1	25	20.88	20.76	20.66
10	16QAM	1	49	20.85	20.72	20.86
10	16QAM	25	0	19.81	19.8	19.87
10	16QAM	25	12	19.74	19.72	19.92
10	16QAM	25	25	19.84	19.77	20.06
10	16QAM	50	0	19.62	19.76	20.01
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	21.39	21.28	21.24
5	QPSK	1	12	21.81	21.71	21.70
5	QPSK	1	24	21.22	21.53	21.59
5	QPSK	12	0	20.47	20.65	20.58
5	QPSK	12	7	20.51	20.75	20.57
5	QPSK	12	13	20.56	20.73	20.55
5	QPSK	25	0	20.60	20.73	20.57
5	16QAM	1	0	20.00	20.32	20.54
5	16QAM	1	12	20.54	20.10	20.66
5	16QAM	1	24	19.85	20.54	20.18
5	16QAM	12	0	19.53	19.65	19.72
5	16QAM	12	7	19.58	19.72	19.90
5	16QAM	12	13	19.56	19.87	19.71
5	16QAM	25	0	19.55	19.61	19.68



LTE Band4						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				19965	20175	20385
Frequency (MHz)				1711.5	1732.5	1753.5
3	QPSK	1	0	22.07	21.73	22.08
3	QPSK	1	8	21.80	21.73	21.67
3	QPSK	1	14	21.95	22.00	21.71
3	QPSK	8	0	20.77	20.86	20.88
3	QPSK	8	4	20.96	20.80	20.85
3	QPSK	8	7	20.90	20.82	20.88
3	QPSK	15	0	20.86	20.71	20.95
3	16QAM	1	0	20.58	20.48	20.71
3	16QAM	1	8	20.52	20.47	20.50
3	16QAM	1	14	20.62	20.69	20.84
3	16QAM	8	0	19.71	19.88	20.08
3	16QAM	8	4	20.29	19.62	19.97
3	16QAM	8	7	19.77	19.86	20.02
3	16QAM	15	0	19.81	19.59	20.01
Channel				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	21.38	21.27	21.66
1.4	QPSK	1	3	21.34	21.67	22.14
1.4	QPSK	1	5	21.19	21.3	21.63
1.4	QPSK	3	0	20.62	20.73	20.71
1.4	QPSK	3	1	20.56	20.77	20.46
1.4	QPSK	3	3	20.59	20.61	20.58
1.4	QPSK	6	0	20.6	20.58	20.6
1.4	16QAM	1	0	20.34	20.77	20.79
1.4	16QAM	1	3	20.1	20.26	20.65
1.4	16QAM	1	5	20.47	20.34	20.63
1.4	16QAM	3	0	19.62	19.62	19.83
1.4	16QAM	3	1	19.72	19.75	19.63
1.4	16QAM	3	3	19.6	19.63	19.73
1.4	16QAM	6	0	19.64	19.66	19.73



LTE Band5						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20450	20525	20600
Frequency (MHz)				829	836.5	844
10	QPSK	1	0	21.52	21.40	21.65
10	QPSK	1	25	21.43	21.16	21.56
10	QPSK	1	49	21.31	21.11	21.59
10	QPSK	25	0	20.39	20.48	20.58
10	QPSK	25	12	20.5	20.49	20.46
10	QPSK	25	25	20.47	20.41	20.52
10	QPSK	50	0	20.58	20.46	20.38
10	16QAM	1	0	20.2	20.48	20.46
10	16QAM	1	25	20.52	19.9	20.39
10	16QAM	1	49	20.03	20.16	20.36
10	16QAM	25	0	19.41	19.2	19.37
10	16QAM	25	12	19.42	19.51	19.42
10	16QAM	25	25	19.4	19.5	19.62
10	16QAM	50	0	19.49	19.28	19.7
Channel				20425	20525	20625
Frequency (MHz)				826.5	836.5	846.5
5	QPSK	1	0	21.32	21.13	21.25
5	QPSK	1	12	21.42	21.36	21.52
5	QPSK	1	24	21.31	21.11	21.59
5	QPSK	12	0	20.25	20.45	20.40
5	QPSK	12	7	20.50	20.49	20.46
5	QPSK	12	13	20.45	20.43	20.52
5	QPSK	25	0	20.58	20.46	20.38
5	16QAM	1	0	20.20	20.41	20.42
5	16QAM	1	12	20.52	19.90	20.39
5	16QAM	1	24	20.03	20.26	20.33
5	16QAM	12	0	19.41	19.29	19.30
5	16QAM	12	7	19.49	19.52	19.45
5	16QAM	12	13	19.48	19.50	19.62
5	16QAM	25	0	19.69	19.38	19.80



LTE Band5						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20415	20525	20635
Frequency (MHz)				825.5	836.5	847.5
3	QPSK	1	0	21.40	21.39	21.44
3	QPSK	1	8	21.21	21.06	21.41
3	QPSK	1	14	21.52	21.10	21.51
3	QPSK	8	0	20.43	20.43	20.48
3	QPSK	8	4	20.43	20.47	20.61
3	QPSK	8	7	20.40	20.46	20.65
3	QPSK	15	0	20.42	20.48	20.47
3	16QAM	1	0	20.57	20.37	20.62
3	16QAM	1	8	20.03	20.62	20.49
3	16QAM	1	14	20.18	20.26	20.31
3	16QAM	8	0	19.45	19.45	19.18
3	16QAM	8	4	19.46	19.34	19.55
3	16QAM	8	7	19.40	19.50	19.40
3	16QAM	15	0	19.38	19.06	19.31
Channel				20407	20525	20643
Frequency (MHz)				824.7	836.5	848.3
1.4	QPSK	1	0	21.24	21.29	21.56
1.4	QPSK	1	3	21.40	21.55	21.59
1.4	QPSK	1	5	21.34	21.42	21.43
1.4	QPSK	3	0	21.38	21.53	21.61
1.4	QPSK	3	1	21.59	21.50	21.56
1.4	QPSK	3	3	21.14	21.32	21.24
1.4	QPSK	6	0	20.37	20.37	20.51
1.4	16QAM	1	0	20.30	20.36	20.44
1.4	16QAM	1	3	20.46	20.29	20.78
1.4	16QAM	1	5	20.39	20.12	20.62
1.4	16QAM	3	0	20.28	20.32	20.51
1.4	16QAM	3	1	20.42	20.47	20.42
1.4	16QAM	3	3	20.25	20.37	20.38
1.4	16QAM	6	0	19.51	19.34	19.54



LTE Band7						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20850	21100	21350
Frequency (MHz)				2510	2535	2560
20	QPSK	1	0	22.13	21.85	21.68
20	QPSK	1	49	22.11	21.6	22.04
20	QPSK	1	99	21.73	21.38	21.44
20	QPSK	50	0	20.82	20.75	20.72
20	QPSK	50	24	20.81	20.78	20.78
20	QPSK	50	50	20.64	20.73	20.53
20	QPSK	100	0	20.67	20.79	20.73
20	16QAM	1	0	20.54	20.26	20.27
20	16QAM	1	49	20.42	20.45	20.21
20	16QAM	1	99	20.71	20.71	20.09
20	16QAM	50	0	19.65	19.6	19.59
20	16QAM	50	24	19.8	19.69	19.5
20	16QAM	50	50	19.81	19.81	19.75
20	16QAM	100	0	19.61	19.64	19.6
Channel				20825	21100	21375
Frequency (MHz)				2507.5	2535	2562.5
15	QPSK	1	0	21.83	21.73	21.85
15	QPSK	1	37	21.91	21.98	21.9
15	QPSK	1	74	21.88	21.89	21.73
15	QPSK	36	0	20.96	20.80	20.74
15	QPSK	36	20	20.87	20.85	20.75
15	QPSK	36	39	20.82	20.98	20.70
15	QPSK	75	0	20.91	20.87	20.84
15	16QAM	1	0	20.96	20.22	20.39
15	16QAM	1	37	21.09	20.43	20.93
15	16QAM	1	74	20.43	20.42	20.30
15	16QAM	36	0	19.90	19.55	19.78
15	16QAM	36	20	19.94	19.78	19.51
15	16QAM	36	39	19.78	19.80	19.79
15	16QAM	75	0	19.77	19.73	19.81



LTE Band7						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20800	21100	21400
Frequency (MHz)				2505	2535	2565
10	QPSK	1	0	21.73	21.64	21.83
10	QPSK	1	25	21.74	21.63	21.64
10	QPSK	1	49	21.85	21.60	21.44
10	QPSK	25	0	20.75	20.72	20.64
10	QPSK	25	12	20.86	20.77	20.64
10	QPSK	25	25	20.79	20.81	20.69
10	QPSK	50	0	20.87	20.77	20.63
10	16QAM	1	0	20.70	20.45	20.40
10	16QAM	1	25	20.70	20.85	20.59
10	16QAM	1	49	20.44	20.78	19.99
10	16QAM	25	0	19.85	19.81	19.71
10	16QAM	25	12	19.75	19.90	19.77
10	16QAM	25	25	19.80	19.86	19.72
10	16QAM	50	0	19.73	19.84	19.62
Channel				20775	21100	21425
Frequency (MHz)				2502.5	2535	2567.5
5	QPSK	1	0	21.62	21.57	21.47
5	QPSK	1	12	21.87	21.87	21.68
5	QPSK	1	24	21.76	21.64	21.34
5	QPSK	12	0	20.67	20.71	20.63
5	QPSK	12	7	20.84	20.76	20.60
5	QPSK	12	13	20.84	20.71	20.60
5	QPSK	25	0	20.83	20.76	20.68
5	16QAM	1	0	20.19	20.58	20.28
5	16QAM	1	12	20.67	20.57	20.35
5	16QAM	1	24	20.40	20.28	20.89
5	16QAM	12	0	19.68	19.71	19.77
5	16QAM	12	7	19.83	19.49	19.51
5	16QAM	12	13	19.68	19.72	19.61
5	16QAM	25	0	19.93	19.73	19.42

**Effective Radiated Power and Effective Isotropic Radiated Power**

LTE Band2				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				18700	18900	19100
Frequency (MHz)				1860	1880	1900
20	QPSK	1	0	23.08	22.93	22.99
20	QPSK	1	49	22.93	22.91	22.82
20	QPSK	1	99	22.41	22.72	23.04
20	QPSK	50	0	22.14	22.10	22.05
20	QPSK	50	24	21.98	21.97	22.03
20	QPSK	50	50	21.96	21.96	21.94
20	QPSK	100	0	22.03	21.99	22.00
20	16QAM	1	0	22.07	21.33	22.01
20	16QAM	1	49	21.84	22.04	21.73
20	16QAM	1	99	21.80	21.64	21.99
20	16QAM	50	0	20.86	21.10	21.14
20	16QAM	50	24	20.96	21.03	20.98
20	16QAM	50	50	20.75	21.04	21.05
20	16QAM	100	0	20.90	21.01	20.97
Channel				18675	18900	19125
Frequency (MHz)				1857.5	1880	1902.5
15	QPSK	1	0	22.55	23.01	22.66
15	QPSK	1	37	23.06	22.94	23.01
15	QPSK	1	74	23.05	22.66	22.43
15	QPSK	36	0	21.56	21.92	21.98
15	QPSK	36	20	22.00	21.86	21.88
15	QPSK	36	39	21.43	22.00	22.04
15	QPSK	75	0	22.01	21.99	21.83
15	16QAM	1	0	21.45	21.78	21.77
15	16QAM	1	37	21.95	21.94	21.99
15	16QAM	1	74	21.99	21.98	21.98
15	16QAM	36	0	21.19	21.26	21.36
15	16QAM	36	20	21.34	21.37	21.39
15	16QAM	36	39	20.45	21.38	20.42
15	16QAM	75	0	21.09	21.27	21.30



LTE Band2				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				18650	18900	19150
Frequency (MHz)				1855	1880	1905
10	QPSK	1	0	23.01	22.96	22.99
10	QPSK	1	25	23.05	22.96	23.03
10	QPSK	1	49	22.91	22.99	22.91
10	QPSK	25	0	22.02	21.95	21.91
10	QPSK	25	12	21.95	21.99	22.06
10	QPSK	25	25	22.02	21.99	22.04
10	QPSK	50	0	22.05	21.9	21.90
10	16QAM	1	0	22.04	21.9	21.91
10	16QAM	1	25	21.91	21.94	21.91
10	16QAM	1	49	21.6	21.90	21.96
10	16QAM	25	0	21.08	21.21	21.03
10	16QAM	25	12	20.95	21.3	21.34
10	16QAM	25	25	20.98	21.28	21.23
10	16QAM	50	0	20.91	21.01	21.33
Channel				18625	18900	19175
Frequency (MHz)				1852.5	1880	1907.5
5	QPSK	1	0	23.01	22.86	23.06
5	QPSK	1	12	22.65	23.06	22.6
5	QPSK	1	24	23.00	22.86	23.06
5	QPSK	12	0	22.01	22.06	22.06
5	QPSK	12	7	22.02	22.02	22.00
5	QPSK	12	13	22.00	22.06	22.05
5	QPSK	25	0	22.00	22.01	22.00
5	16QAM	1	0	22.02	22.06	21.93
5	16QAM	1	12	22.06	21.96	22.06
5	16QAM	1	24	21.41	21.82	22.06
5	16QAM	12	0	20.99	21.03	21.23
5	16QAM	12	7	21.12	21.22	21.29
5	16QAM	12	13	21.11	21.15	21.30
5	16QAM	25	0	21.22	21.19	21.33



LTE Band2				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				18615	18900	19185
Frequency (MHz)				1851.5	1880	1908.5
3	QPSK	1	0	23.06	22.94	23.06
3	QPSK	1	8	22.96	22.93	22.41
3	QPSK	1	14	22.91	23.00	22.44
3	QPSK	8	0	21.95	22.05	22.00
3	QPSK	8	4	22.04	22.02	21.98
3	QPSK	8	7	21.96	22.03	22.03
3	QPSK	15	0	22.00	21.93	22.03
3	16QAM	1	0	21.93	21.9	22.03
3	16QAM	1	8	21.92	21.94	21.80
3	16QAM	1	14	22.02	21.96	21.91
3	16QAM	8	0	21.2	20.94	20.47
3	16QAM	8	4	21.16	21.04	21.06
3	16QAM	8	7	20.47	20.96	20.47
3	16QAM	15	0	21.16	21.32	20.55
Channel				18607	18900	19193
Frequency (MHz)				1850.7	1880	1909.3
1.4	QPSK	1	0	22.91	23.05	22.44
1.4	QPSK	1	3	22.96	23.05	23.03
1.4	QPSK	1	5	22.90	22.95	22.44
1.4	QPSK	3	0	22.90	22.90	22.55
1.4	QPSK	3	1	23.04	22.95	22.66
1.4	QPSK	3	3	22.96	22.91	22.55
1.4	QPSK	6	0	21.96	21.94	22.06
1.4	16QAM	1	0	21.95	22.06	22.03
1.4	16QAM	1	3	21.45	22.05	21.71
1.4	16QAM	1	5	22.02	21.96	21.93
1.4	16QAM	3	0	21.96	21.86	21.96
1.4	16QAM	3	1	21.96	21.95	22.06
1.4	16QAM	3	3	21.96	21.92	22.01
1.4	16QAM	6	0	20.95	20.99	20.99



LTE Band4				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				20050	20175	20300
Frequency (MHz)				1720	1732.5	1745
20	QPSK	1	0	23.06	23.22	23.52
20	QPSK	1	49	23.06	23.06	23.18
20	QPSK	1	99	22.99	23.07	23.02
20	QPSK	50	0	23.02	23.02	23.25
20	QPSK	50	24	22.88	22.91	23.13
20	QPSK	50	50	23.12	23.18	23.46
20	QPSK	100	0	22.07	21.99	22.14
20	16QAM	1	0	22.36	22.09	21.73
20	16QAM	1	49	22.50	22.54	21.90
20	16QAM	1	99	22.40	22.36	21.78
20	16QAM	50	0	22.07	22.24	22.41
20	16QAM	50	24	22.02	22.28	22.45
20	16QAM	50	50	21.98	22.17	22.34
20	16QAM	100	0	20.93	21.02	21.33
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	22.83	22.84	22.84
15	QPSK	1	37	22.92	23.01	23.09
15	QPSK	1	74	22.54	22.72	22.94
15	QPSK	36	0	21.76	21.97	21.79
15	QPSK	36	20	21.8	21.97	21.76
15	QPSK	36	39	21.84	21.88	21.75
15	QPSK	75	0	21.71	21.81	21.74
15	16QAM	1	0	21.62	21.68	21.61
15	16QAM	1	37	21.88	21.83	21.57
15	16QAM	1	74	21.41	21.41	22.07
15	16QAM	36	0	20.77	20.91	20.81
15	16QAM	36	20	20.89	20.93	20.92
15	16QAM	36	39	20.78	20.98	20.88
15	16QAM	75	0	20.85	20.95	20.92



LTE Band4				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				20000	20175	20350
Frequency (MHz)				1715	1732.5	1750
10	QPSK	1	0	22.87	23.17	22.87
10	QPSK	1	25	23.17	23.00	22.91
10	QPSK	1	49	22.92	23.27	23.06
10	QPSK	25	0	22.06	21.95	22.02
10	QPSK	25	12	22.00	21.98	21.98
10	QPSK	25	25	22.09	21.98	22.20
10	QPSK	50	0	22.03	22.00	22.05
10	16QAM	1	0	21.66	22.69	21.45
10	16QAM	1	25	22.08	21.96	21.86
10	16QAM	1	49	22.05	21.92	22.06
10	16QAM	25	0	21.01	21.00	21.07
10	16QAM	25	12	20.94	20.92	21.12
10	16QAM	25	25	21.04	20.97	21.26
10	16QAM	50	0	20.82	20.96	21.21
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	22.59	22.48	22.44
5	QPSK	1	12	23.01	22.91	22.9
5	QPSK	1	24	22.42	22.73	22.79
5	QPSK	12	0	21.67	21.85	21.78
5	QPSK	12	7	21.71	21.95	21.77
5	QPSK	12	13	21.76	21.93	21.75
5	QPSK	25	0	21.8	21.93	21.77
5	16QAM	1	0	21.2	21.52	21.74
5	16QAM	1	12	21.74	21.3	21.86
5	16QAM	1	24	21.05	21.74	21.38
5	16QAM	12	0	20.73	20.85	20.92
5	16QAM	12	7	20.78	20.92	21.1
5	16QAM	12	13	20.76	21.07	20.91
5	16QAM	25	0	20.75	20.81	20.88



LTE Band4				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.
Channel				19965	20175	20385
Frequency (MHz)				1711.5	1732.5	1753.5
3	QPSK	1	0	23.27	22.93	23.28
3	QPSK	1	8	23.00	22.93	22.87
3	QPSK	1	14	23.15	23.2	22.91
3	QPSK	8	0	21.97	22.06	22.08
3	QPSK	8	4	22.16	22.00	22.05
3	QPSK	8	7	22.10	22.02	22.08
3	QPSK	15	0	22.06	21.91	22.15
3	16QAM	1	0	21.78	21.68	21.91
3	16QAM	1	8	21.72	21.67	21.70
3	16QAM	1	14	21.82	21.89	22.04
3	16QAM	8	0	20.91	21.08	21.28
3	16QAM	8	4	21.49	20.82	21.17
3	16QAM	8	7	20.97	21.06	21.22
3	16QAM	15	0	21.01	20.79	21.21
Channel				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	22.58	22.47	22.86
1.4	QPSK	1	3	22.54	22.87	23.34
1.4	QPSK	1	5	22.39	22.50	22.83
1.4	QPSK	3	0	21.82	21.93	21.91
1.4	QPSK	3	1	21.76	21.97	21.66
1.4	QPSK	3	3	21.79	21.81	21.78
1.4	QPSK	6	0	21.80	21.78	21.80
1.4	16QAM	1	0	21.54	21.97	21.99
1.4	16QAM	1	3	21.30	21.46	21.85
1.4	16QAM	1	5	21.67	21.54	21.83
1.4	16QAM	3	0	20.82	20.82	21.03
1.4	16QAM	3	1	20.92	20.95	20.83
1.4	16QAM	3	3	20.80	20.83	20.93
1.4	16QAM	6	0	20.84	20.86	20.93



LTE Band5				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				20450	20525	20600
Frequency (MHz)				829	836.5	844
10	QPSK	1	0	18.62	18.50	18.75
10	QPSK	1	25	18.53	18.26	18.66
10	QPSK	1	49	18.41	18.21	18.69
10	QPSK	25	0	17.49	17.58	17.68
10	QPSK	25	12	17.60	17.59	17.56
10	QPSK	25	25	17.57	17.51	17.62
10	QPSK	50	0	17.68	17.56	17.48
10	16QAM	1	0	17.30	17.58	17.56
10	16QAM	1	25	17.62	17.00	17.49
10	16QAM	1	49	17.13	17.26	17.46
10	16QAM	25	0	16.51	16.30	16.47
10	16QAM	25	12	16.52	16.61	16.52
10	16QAM	25	25	16.50	16.60	16.72
10	16QAM	50	0	16.59	16.38	16.80
Channel				20425	20525	20625
Frequency (MHz)				826.5	836.5	846.5
5	QPSK	1	0	18.42	18.23	18.35
5	QPSK	1	12	18.52	18.46	18.62
5	QPSK	1	24	18.41	18.21	18.69
5	QPSK	12	0	17.35	17.55	17.50
5	QPSK	12	7	17.60	17.59	17.56
5	QPSK	12	13	17.55	17.53	17.62
5	QPSK	25	0	17.68	17.56	17.48
5	16QAM	1	0	17.30	17.51	17.52
5	16QAM	1	12	17.62	17.00	17.49
5	16QAM	1	24	17.13	17.36	17.43
5	16QAM	12	0	16.51	16.39	16.40
5	16QAM	12	7	16.59	16.62	16.55
5	16QAM	12	13	16.58	16.6	16.72
5	16QAM	25	0	16.79	16.48	16.90



LTE Band5				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.
Channel				20415	20525	20635
Frequency (MHz)				825.5	836.5	847.5
3	QPSK	1	0	15.94	15.86	15.83
3	QPSK	1	8	15.80	15.80	15.63
3	QPSK	1	14	15.50	15.59	15.66
3	QPSK	8	0	14.85	14.89	14.95
3	QPSK	8	4	14.77	14.90	14.91
3	QPSK	8	7	14.75	14.82	14.84
3	QPSK	15	0	14.71	14.85	14.88
3	16QAM	1	0	15.05	15.17	15.3
3	16QAM	1	8	15.06	15.17	15.51
3	16QAM	1	14	14.94	15.02	15.44
3	16QAM	8	0	14.04	13.83	14.12
3	16QAM	8	4	13.94	13.84	14.04
3	16QAM	8	7	13.79	13.80	13.74
3	16QAM	15	0	13.96	13.82	13.87
Channel				20407	20525	20643
Frequency (MHz)				824.7	836.5	848.3
1.4	QPSK	1	0	15.83	15.71	15.60
1.4	QPSK	1	3	15.82	15.72	15.68
1.4	QPSK	1	5	15.78	15.79	15.74
1.4	QPSK	3	0	15.85	15.91	15.94
1.4	QPSK	3	1	15.93	15.82	15.86
1.4	QPSK	3	3	15.94	15.89	15.92
1.4	QPSK	6	0	14.77	14.79	14.80
1.4	16QAM	1	0	14.71	15.00	14.65
1.4	16QAM	1	3	14.56	15.07	15.15
1.4	16QAM	1	5	14.53	15.43	15.00
1.4	16QAM	3	0	15.06	15.28	14.97
1.4	16QAM	3	1	15.13	15.32	15.00
1.4	16QAM	3	3	15.08	15.14	14.97
1.4	16QAM	6	0	13.62	13.40	13.39



LTE Band7				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20850	21100	21350
Frequency (MHz)				2510	2535	2560
20	QPSK	1	0	24.13	23.85	23.68
20	QPSK	1	49	24.11	23.60	24.04
20	QPSK	1	99	23.73	23.38	23.44
20	QPSK	50	0	22.82	22.75	22.72
20	QPSK	50	24	22.81	22.78	22.78
20	QPSK	50	50	22.64	22.73	22.53
20	QPSK	100	0	22.67	22.79	22.73
20	16QAM	1	0	22.54	22.26	22.27
20	16QAM	1	49	22.42	22.45	22.21
20	16QAM	1	99	22.71	22.71	22.09
20	16QAM	50	0	21.65	21.60	21.59
20	16QAM	50	24	21.80	21.69	21.50
20	16QAM	50	50	21.81	21.81	21.75
20	16QAM	100	0	21.61	21.64	21.60
Channel				20825	21100	21375
Frequency (MHz)				2507.5	2535	2562.5
15	QPSK	1	0	23.83	23.73	23.85
15	QPSK	1	37	23.91	23.98	23.90
15	QPSK	1	74	23.88	23.89	23.73
15	QPSK	36	0	22.96	22.80	22.74
15	QPSK	36	20	22.87	22.85	22.75
15	QPSK	36	39	22.82	22.98	22.70
15	QPSK	75	0	22.91	22.87	22.84
15	16QAM	1	0	22.96	22.22	22.39
15	16QAM	1	37	23.09	22.43	22.93
15	16QAM	1	74	22.43	22.42	22.30
15	16QAM	36	0	21.90	21.55	21.78
15	16QAM	36	20	21.94	21.78	21.51
15	16QAM	36	39	21.78	21.80	21.79
15	16QAM	75	0	21.77	21.73	21.81



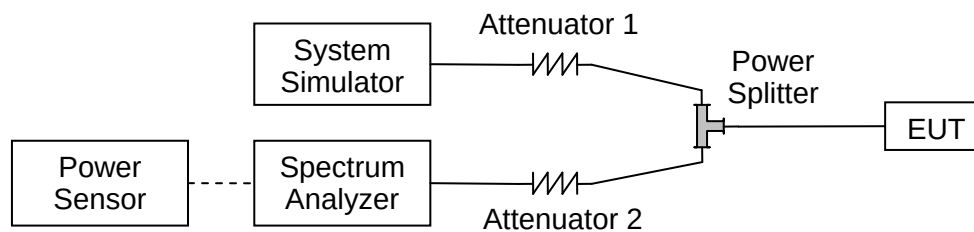
LTE Band7				Measured EIRP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20800	21100	21400
Frequency (MHz)				2505	2535	2565
10	QPSK	1	0	23.73	23.64	23.83
10	QPSK	1	25	23.74	23.63	23.64
10	QPSK	1	49	23.85	23.60	23.44
10	QPSK	25	0	22.75	22.72	22.64
10	QPSK	25	12	22.86	22.77	22.64
10	QPSK	25	25	22.79	22.81	22.69
10	QPSK	50	0	22.87	22.77	22.63
10	16QAM	1	0	22.70	22.45	22.40
10	16QAM	1	25	22.70	22.85	22.59
10	16QAM	1	49	22.44	22.78	21.99
10	16QAM	25	0	21.85	21.81	21.71
10	16QAM	25	12	21.75	21.90	21.77
10	16QAM	25	25	21.80	21.86	21.72
10	16QAM	50	0	21.73	21.84	21.62
Channel				20775	21100	21425
Frequency (MHz)				2502.5	2535	2567.5
5	QPSK	1	0	23.62	23.57	23.47
5	QPSK	1	12	23.87	23.87	23.68
5	QPSK	1	24	23.76	23.64	23.34
5	QPSK	12	0	22.67	22.71	22.63
5	QPSK	12	7	22.84	22.76	22.6
5	QPSK	12	13	22.84	22.71	22.6
5	QPSK	25	0	22.83	22.76	22.68
5	16QAM	1	0	22.19	22.58	22.28
5	16QAM	1	12	22.67	22.57	22.35
5	16QAM	1	24	22.40	22.28	22.89
5	16QAM	12	0	21.68	21.71	21.77
5	16QAM	12	7	21.83	21.49	21.51
5	16QAM	12	13	21.68	21.72	21.61
5	16QAM	25	0	21.93	21.73	21.42

2.2. Occupied Bandwidth

2.2.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.2.3. Test procedure

KDB 971168 D01v03 Section 4.1 and ANSI/TIA-603-E-2016.

2.2.4. Test Result

LTE Band 2, BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18607	1850.7	1.094	1.268	1.093	1.278
18900	1880.0	1.097	1.289	1.097	1.292
19192	1909.2	1.097	1.296	1.097	1.315

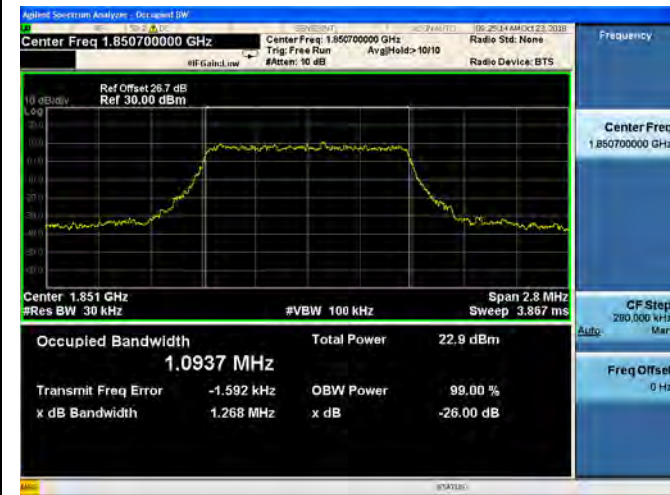


LTE Band 2, BW: 3MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18615	1851.5	2.680	2.923	2.677	2.926
18900	1880.0	2.677	2.921	2.679	2.947
19184	1908.4	2.682	2.984	2.680	2.992
LTE Band 2, BW: 5MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18625	1852.5	4.462	4.924	4.462	4.926
18900	1880.0	4.464	4.882	4.471	4.907
19175	1907.5	4.470	4.931	4.471	4.932
LTE Band 2, BW: 10MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18650	1855.0	8.933	9.660	8.934	9.668
18900	1880.0	8.937	9.730	8.940	9.746
19150	1905.0	8.936	9.753	8.941	9.682
LTE Band 2, BW: 15MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18675	1857.5	13.410	14.32	13.403	14.37
18900	1880.0	13.389	14.38	14.410	14.49
19125	1902.5	13.391	14.36	13.389	14.31
LTE Band 2, BW: 20MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
18700	1860.0	17.871	19.22	17.855	19.17
18900	1880.0	17.886	19.28	17.863	19.23
19100	1900.0	17.830	19.00	17.819	19.16



LTE Band 2 99%&26dB Bandwidth

1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH



1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH

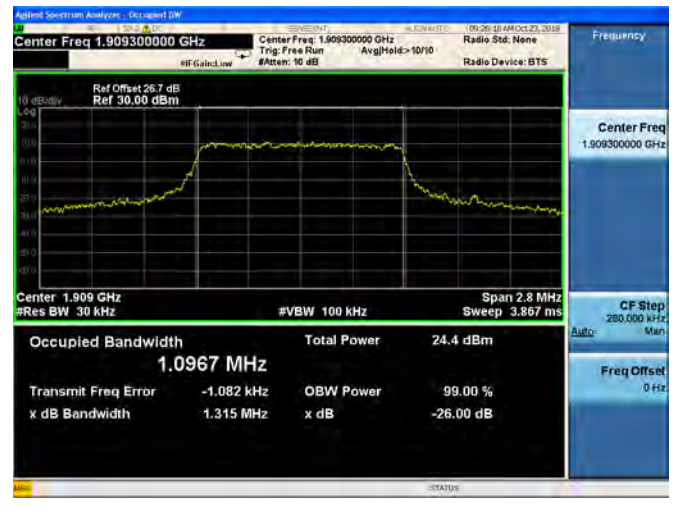


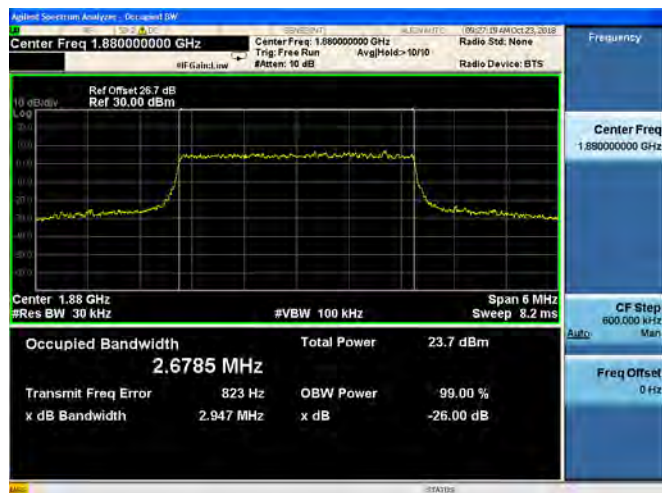
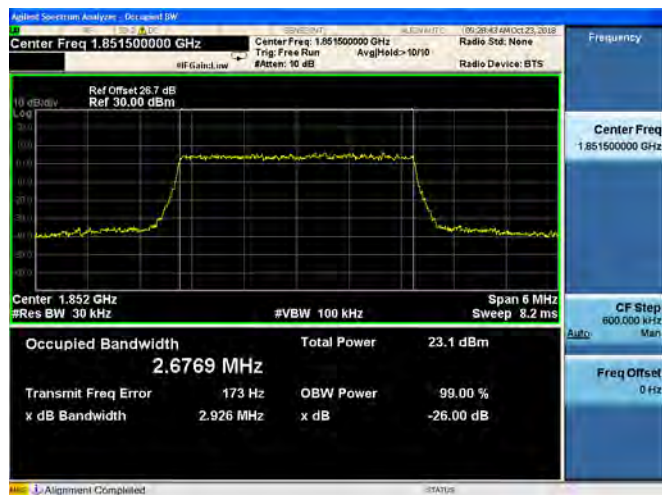


1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH



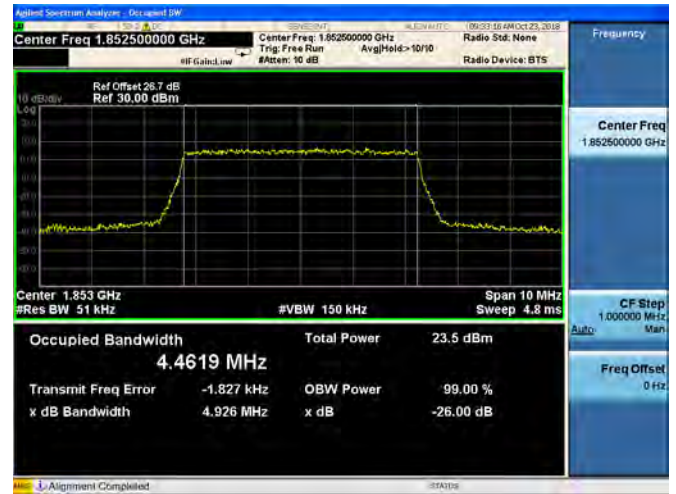




5MHz/QPSK/Low CH



5MHz/16QAM/Low CH



5MHz/QPSK/Mid CH



5MHz/16QAM/Mid CH



5MHz/QPSK/High CH



5MHz/16QAM/High CH





10MHz/QPSK/Low CH



10MHz/16QAM/Low CH



10MHz/QPSK/Mid CH



10MHz/16QAM/Mid CH



10MHz/QPSK/High CH



10MHz/16QAM/High CH

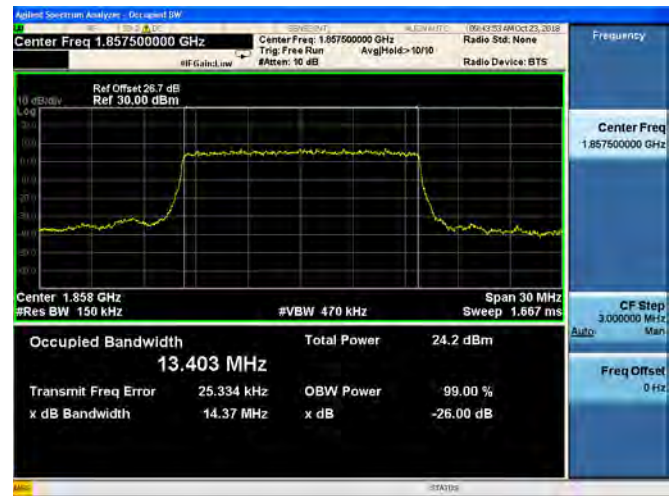




15MHz/QPSK/Low CH



15MHz/16QAM/Low CH



15MHz/QPSK/Mid CH



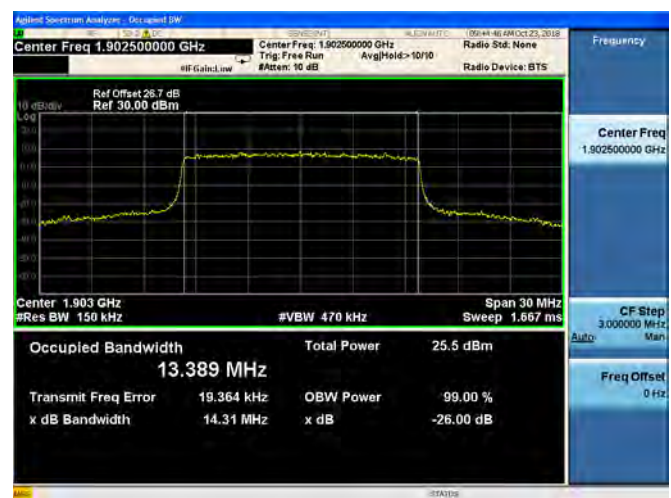
15MHz/16QAM/Mid CH



15MHz/QPSK/High CH

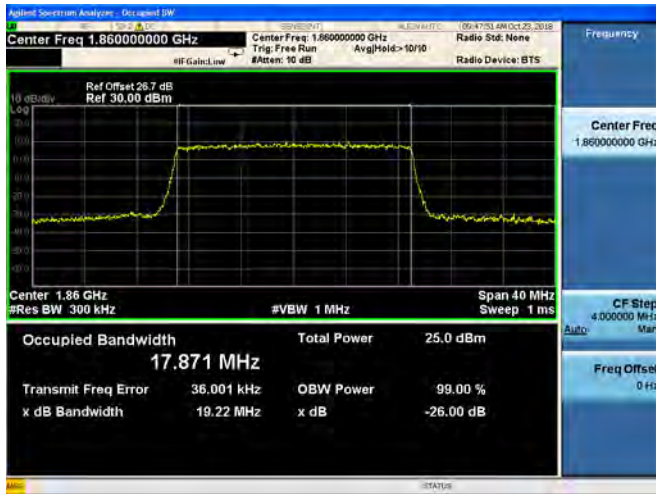


15MHz/16QAM/High CH

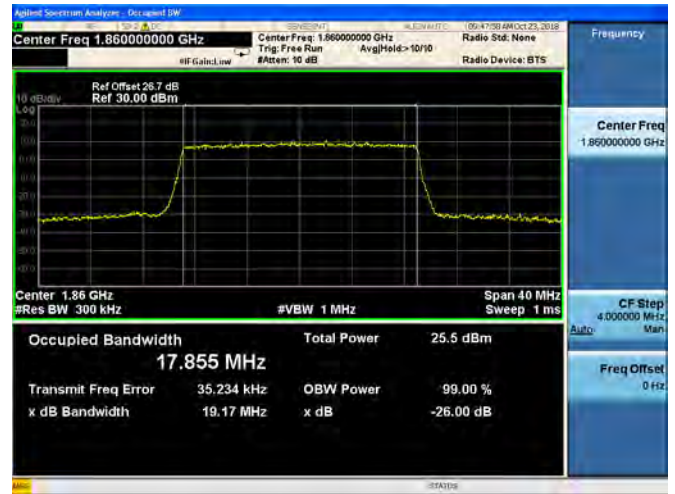




20MHz/QPSK/Low CH



20MHz/16QAM/Low CH



20MHz/QPSK/Mid CH



20MHz/16QAM/Mid CH



20MHz/QPSK/High CH



20MHz/16QAM/High CH





LTE Band 4, BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
19957	1710.7	1.095	1.259	1.094	1.282
20175	1732.5	1.094	1.290	1.095	1.293
20392	1754.2	1.093	1.283	1.094	1.289
LTE Band 4, BW: 3MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
19965	1711.5	2.678	2.911	2.677	2.905
20175	1732.5	2.676	2.919	2.676	2.920
20384	1753.4	2.675	2.917	2.675	2.917
LTE Band 4, BW: 5MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
19975	1712.5	4.463	4.892	4.463	4.901
20175	1732.5	4.463	4.899	4.463	4.904
20375	1752.5	4.466	4.919	4.464	4.920
LTE Band 4, BW: 10MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20000	1715.0	8.926	9.541	8.926	9.577
20175	1732.5	8.933	9.665	8.931	9.655
20350	1750.0	8.921	9.598	8.933	9.591
LTE Band 4, BW: 15MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20025	1717.5	13.369	14.37	13.365	14.37
20175	1732.5	13.373	14.24	13.386	14.32
20325	1747.5	13.385	14.29	13.400	14.26

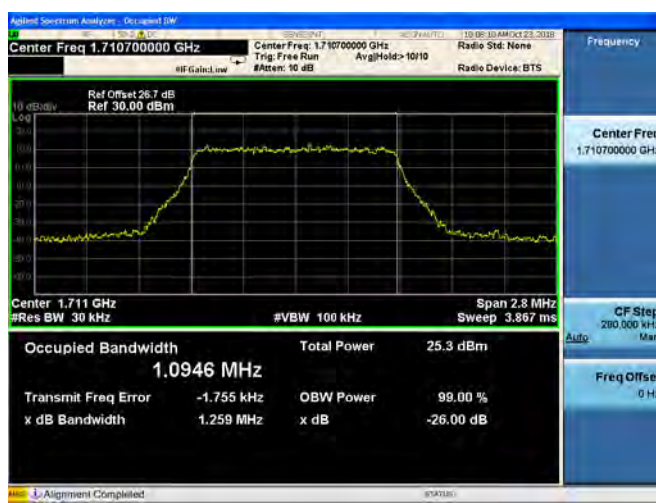


LTE Band 4, BW: 20MHz

Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20050	1720.0	17.876	19.19	17.879	19.19
20175	1732.5	17.843	19.16	17.832	19.17
20300	1745.0	17.772	19.19	17.779	19.16

LTE Band 4 99%&26dB Bandwidth

1.4MHz/QPSK/Low CH



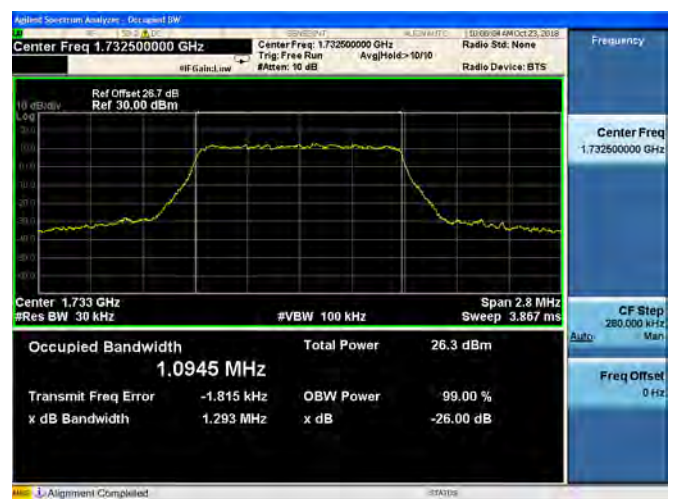
1.4MHz/16QAM/Low CH



1.4MHz/QPSK/Mid CH

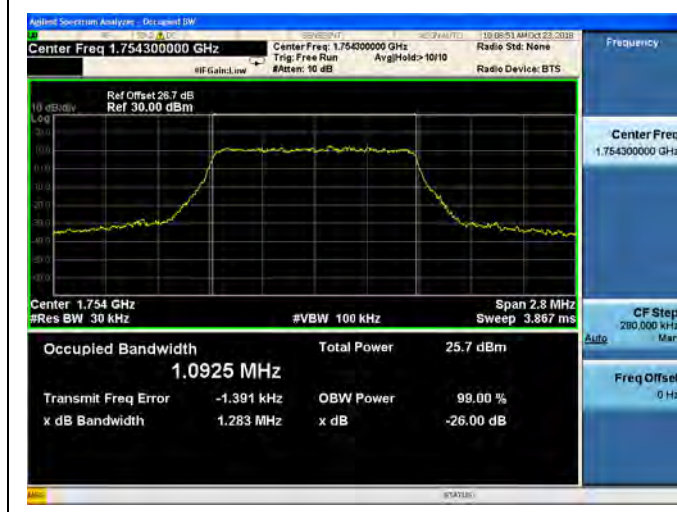


1.4MHz/16QAM/Mid CH



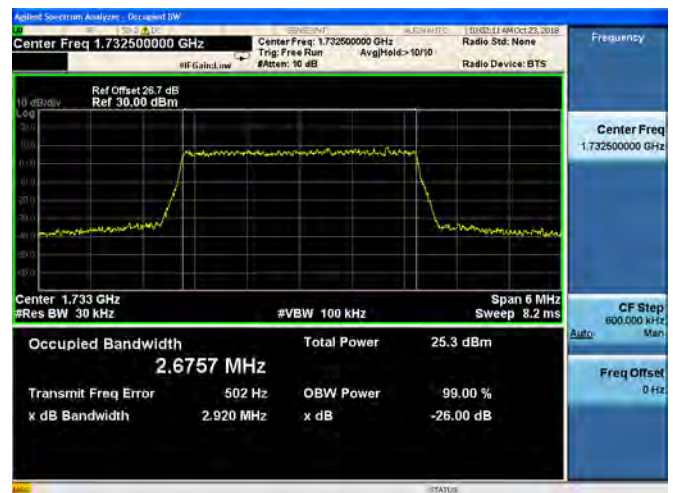
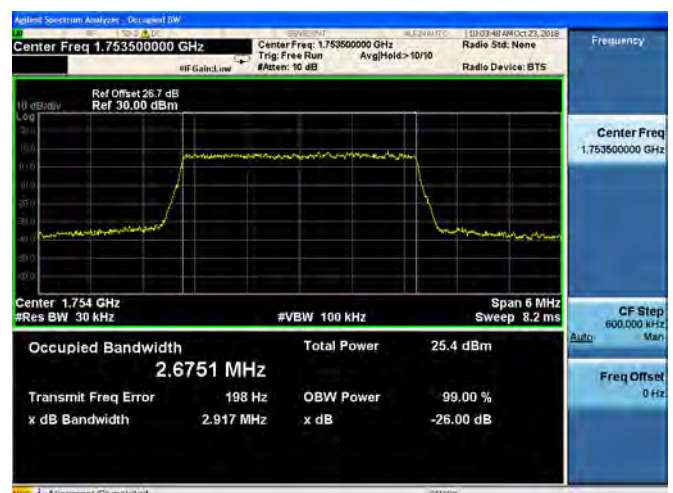


1.4MHz/QPSK/High CH



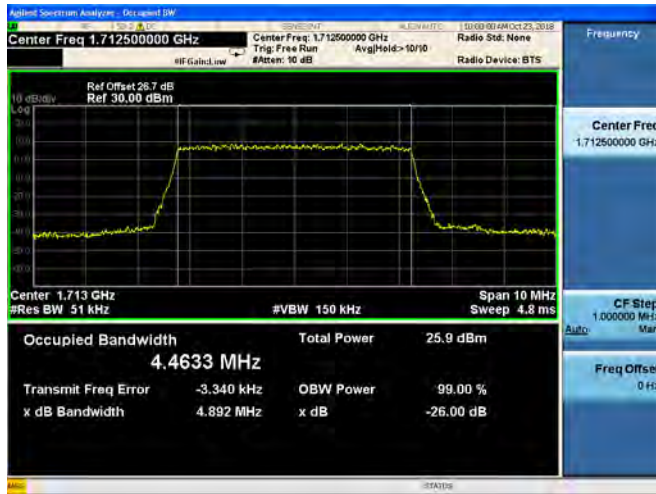
1.4MHz/16QAM/High CH



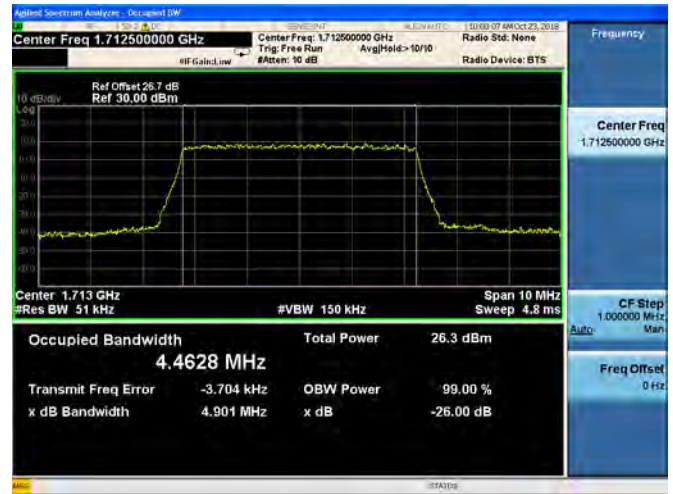
**3MHz/QPSK/Low CH****3MHz/16QAM/Low CH****3MHz/QPSK/Mid CH****3MHz/16QAM/Mid CH****3MHz/QPSK/High CH****3MHz/16QAM/High CH**



5MHz/QPSK/Low CH



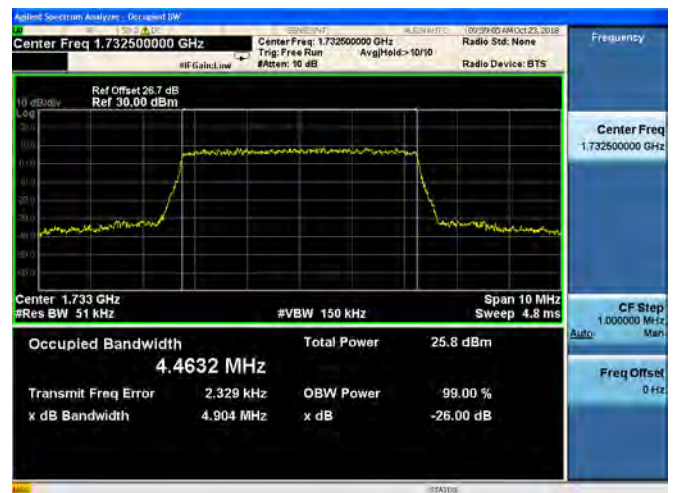
5MHz/16QAM/Low CH



5MHz/QPSK/Mid CH



5MHz/16QAM/Mid CH



5MHz/QPSK/High CH

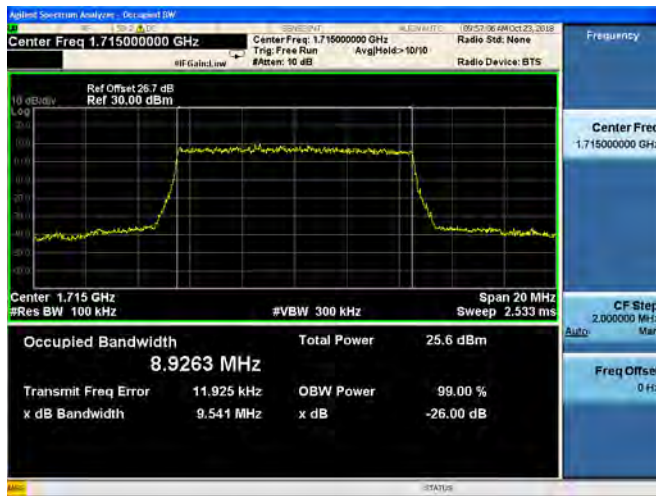


5MHz/16QAM/High CH

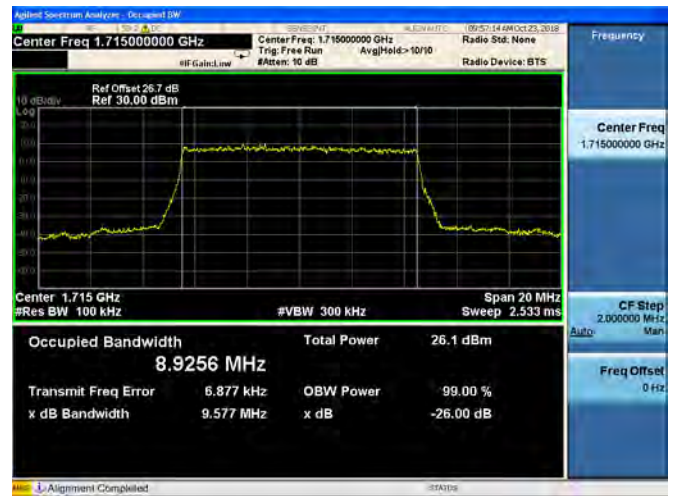




10MHz/QPSK/Low CH



10MHz/16QAM/Low CH



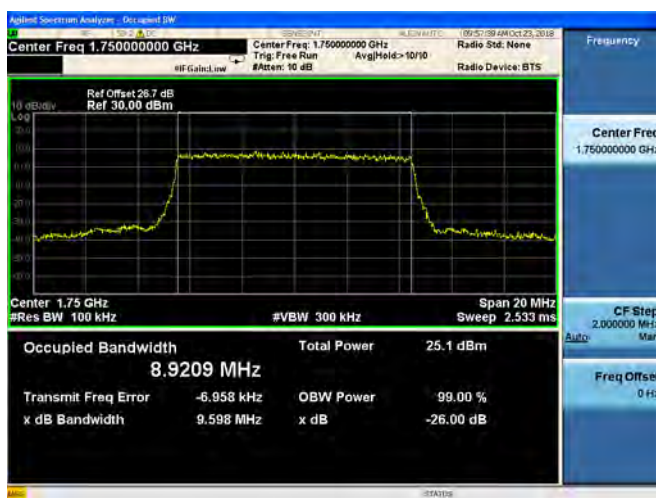
10MHz/QPSK/Mid CH



10MHz/16QAM/Mid CH



10MHz/QPSK/High CH



10MHz/16QAM/High CH





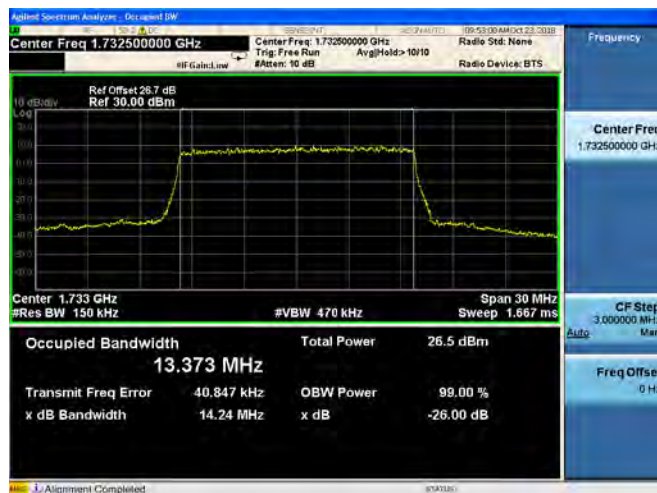
15MHz/QPSK/Low CH



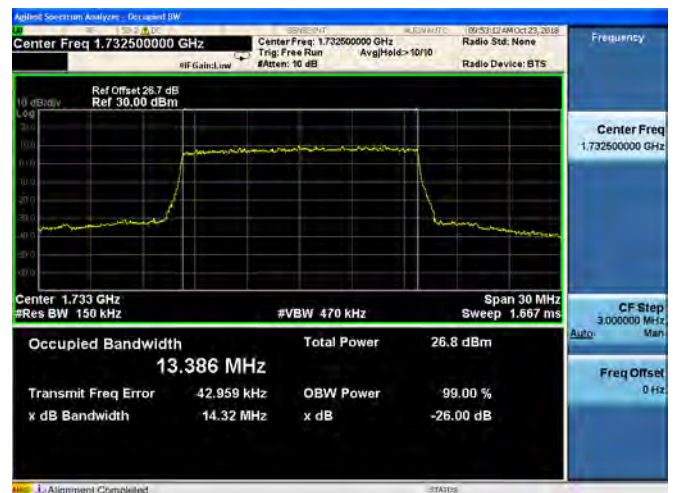
15MHz/16QAM/Low CH



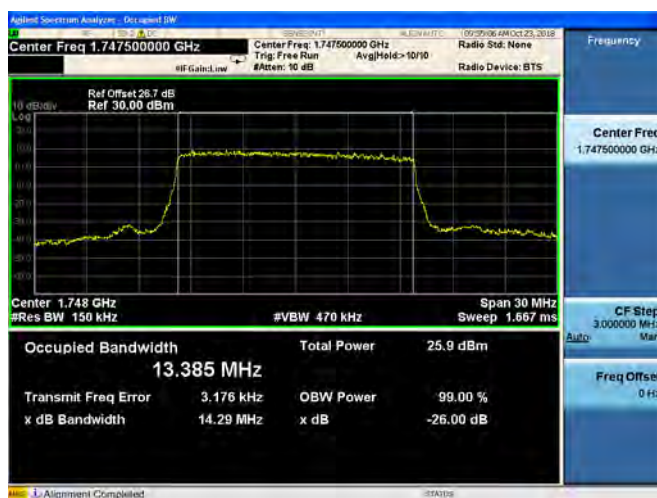
15MHz/QPSK/Mid CH



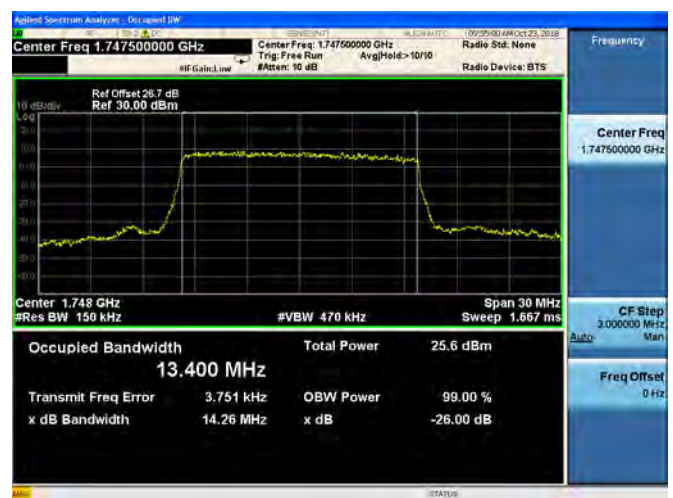
15MHz/16QAM/Mid CH



15MHz/QPSK/High CH



15MHz/16QAM/High CH

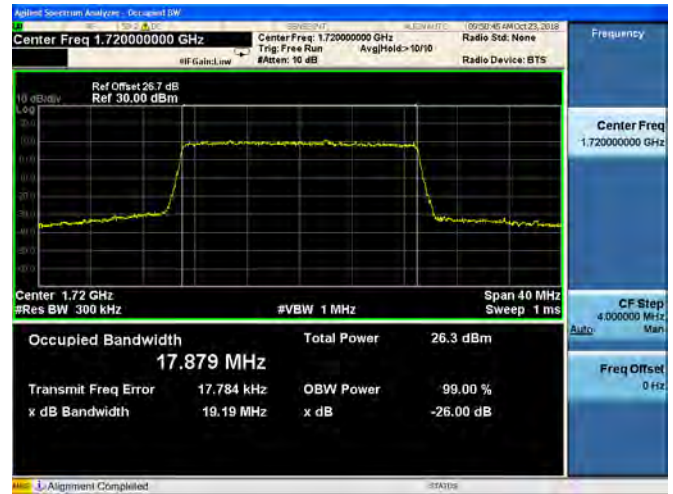




20MHz/QPSK/Low CH



20MHz/16QAM/Low CH



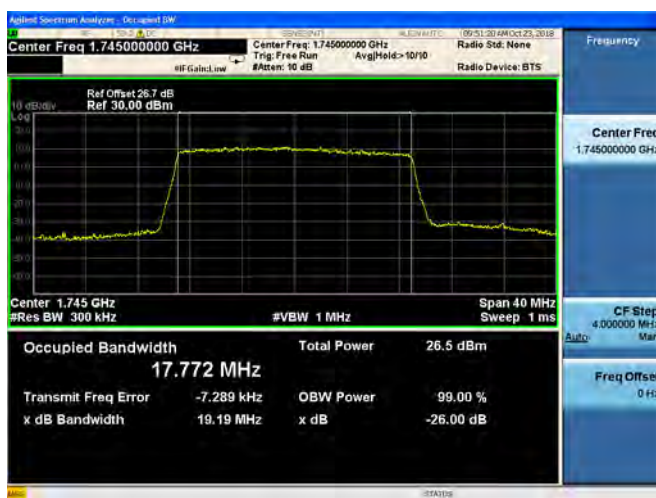
20MHz/QPSK/Mid CH



20MHz/16QAM/Mid CH



20MHz/QPSK/High CH



20MHz/16QAM/High CH





LTE Band 5, BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.096	1.263	1.096	1.275
20525	836.5	1.095	1.282	1.095	1.276
20643	848.3	1.095	1.281	1.094	1.278
LTE Band 5, BW: 3MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.675	2.917	2.676	2.916
20525	836.5	2.675	2.920	2.675	2.931
20635	847.5	2.675	2.908	2.676	2.929
LTE Band 5, BW: 5MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.469	4.885	4.465	4.895
20525	836.5	4.461	4.908	4.457	4.894
20625	846.5	4.462	4.909	4.460	4.913
LTE Band 5, BW: 10MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20450	829.0	9.066	9.918	9.054	10.03
20525	836.5	9.078	9.964	9.073	9.991
20600	844.0	9.011	9.898	9.031	9.953



LTE Band 5 99%&26dB Bandwidth

1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH



1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH

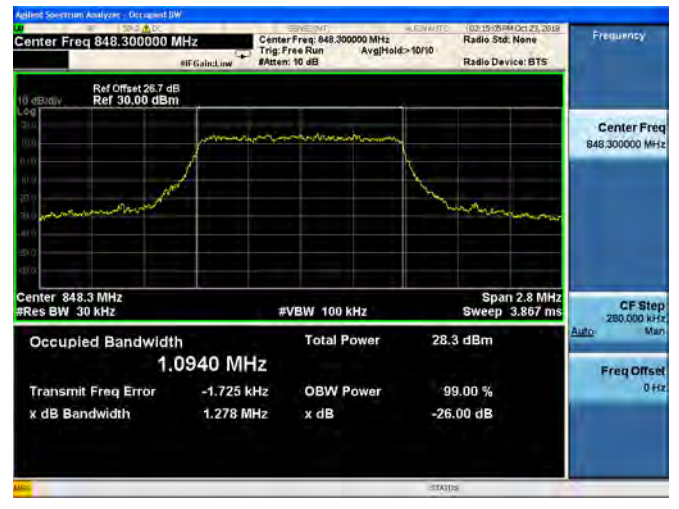


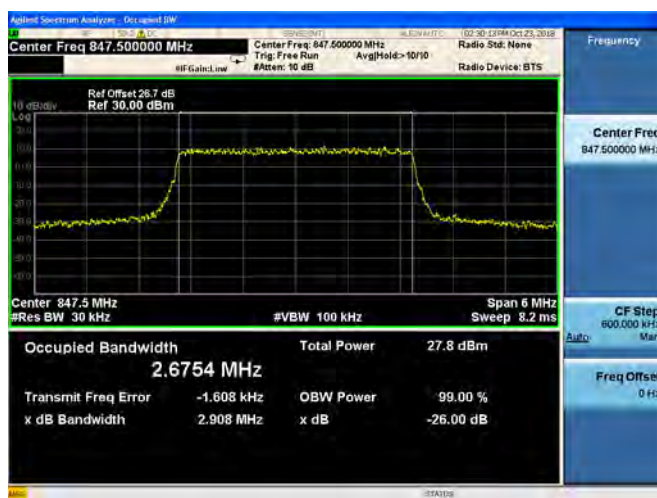


1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH



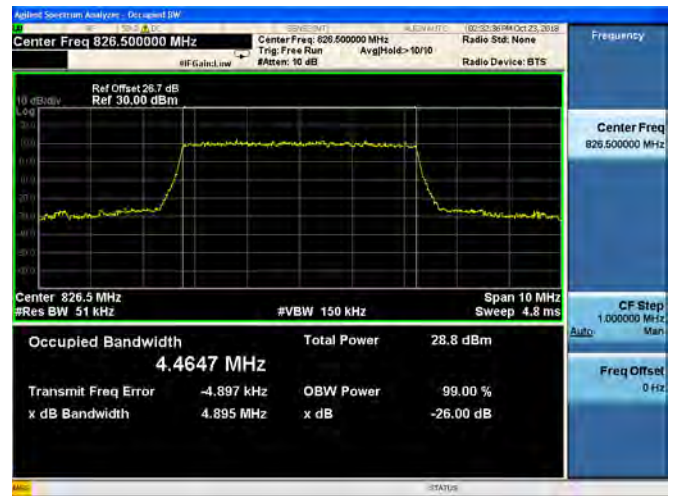
**3MHz/QPSK/Low CH****3MHz/16QAM/Low CH****3MHz/QPSK/Mid CH****3MHz/16QAM/Mid CH****3MHz/QPSK/High CH****3MHz/16QAM/High CH**



5MHz/QPSK/Low CH



5MHz/16QAM/Low CH



5MHz/QPSK/Mid CH



5MHz/16QAM/Mid CH



5MHz/QPSK/High CH



5MHz/16QAM/High CH





10MHz/QPSK/Low CH



10MHz/16QAM/Low CH



10MHz/QPSK/Mid CH



10MHz/16QAM/Mid CH



10MHz/QPSK/High CH



10MHz/16QAM/High CH





LTE Band 7, BW: 5MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20775	2502.5	4.469	4.913	4.464	4.910
21100	2535.0	4.461	4.913	4.462	4.912
21425	2567.5	4.456	4.857	4.461	4.901
LTE Band 7, BW: 10MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20800	2505.0	9.047	9.903	9.070	9.970
21100	2535.0	9.040	9.986	9.059	9.990
21400	2565.0	9.049	9.956	9.055	10.00
LTE Band 7, BW: 15MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20825	2507.5	13.451	14.54	13.444	14.62
21100	2535.0	13.431	14.60	13.454	14.58
21375	2562.5	13.454	14.58	13.441	14.63
LTE Band 7, BW: 20MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
20850	2510.0	17.850	19.05	17.831	19.20
21100	2535.0	17.813	19.21	17.828	19.22
21350	2560.0	17.857	19.20	17.854	19.16



LTE Band 7 99%&26dB Bandwidth

5MHz/QPSK/Low CH



5MHz/16QAM/Low CH



5MHz/QPSK/Mid CH

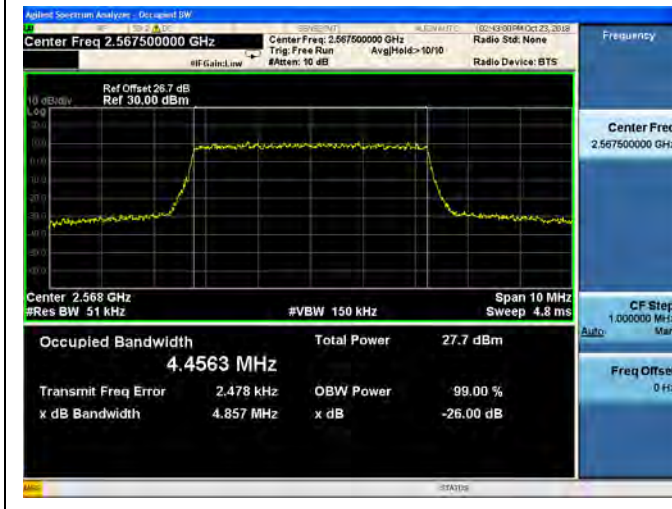


5MHz/16QAM/Mid CH

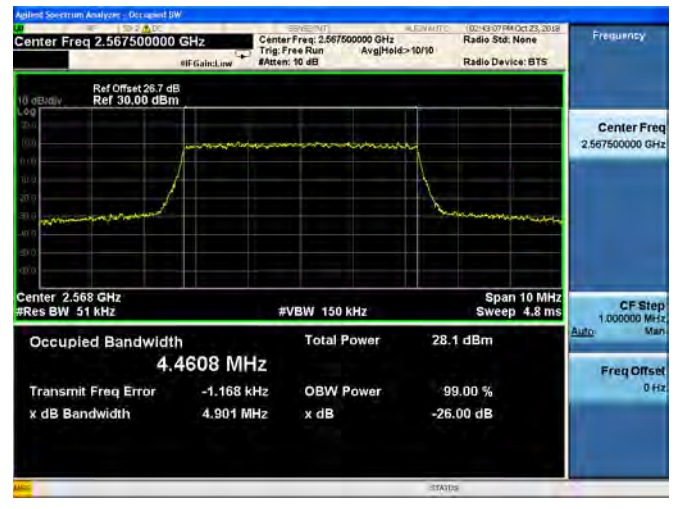




5MHz/QPSK/High CH



5MHz/16QAM/High CH





10MHz/QPSK/Low CH



10MHz/16QAM/Low CH



10MHz/QPSK/Mid CH



10MHz/16QAM/Mid CH



10MHz/QPSK/High CH



10MHz/16QAM/High CH

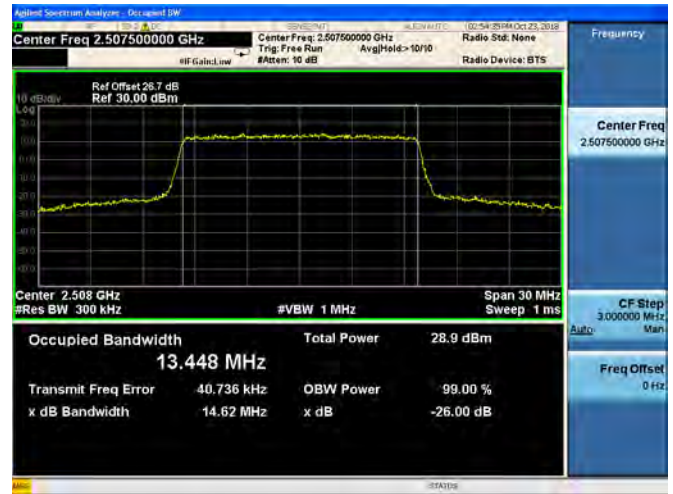




15MHz/QPSK/Low CH



15MHz/16QAM/Low CH



15MHz/QPSK/Mid CH



15MHz/16QAM/Mid CH



15MHz/QPSK/High CH



15MHz/16QAM/High CH

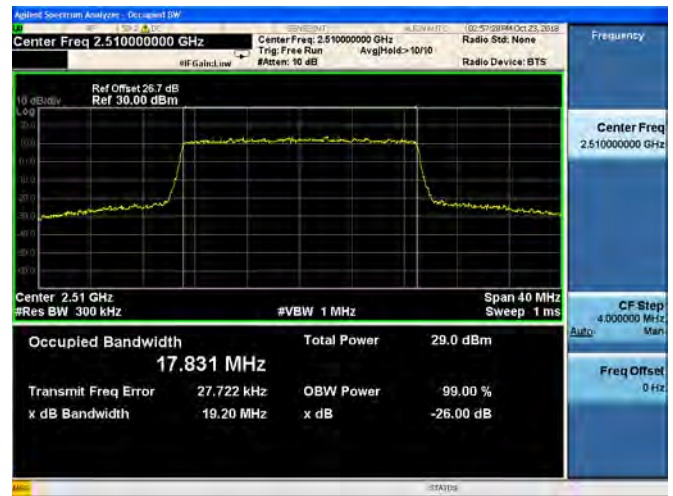




20MHz/QPSK/Low CH



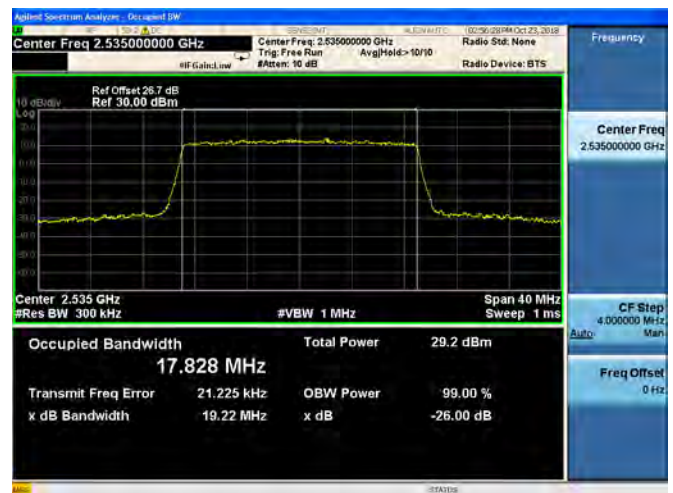
20MHz/16QAM/Low CH



20MHz/QPSK/Mid CH



20MHz/16QAM/Mid CH



20MHz/QPSK/High CH



20MHz/16QAM/High CH



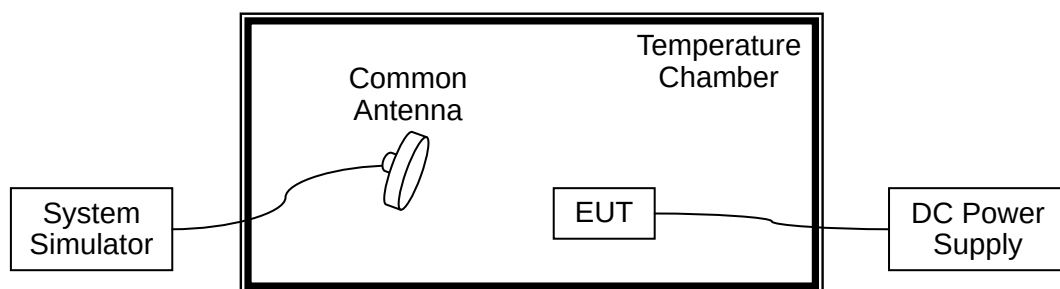
2.3. Frequency Stability

2.3.1. Requirement

According to FCC section 2.1055 & 27.54&24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4. Test Result

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.35VDC and 3.5VDC, which are specified by the applicant; the normal temperature here used is 20°C.



LTE Band 2, QPSK, Channel 18900, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	-30	29	0.016	PASS
100		-20	31	0.018	
100		-10	-58	-0.031	
100		0	42	0.022	
100		+10	-16	-0.009	
100		+20	-47	-0.025	
100		+30	25	0.013	
100		+40	47	0.025	
100		+50	13	0.007	
115		+20	26	0.014	
85	3.23	+20	-15	-0.008	

LTE Band 4, QPSK, Channel 20175, Frequency 1732.5MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	-30	23	0.013	PASS
100		-20	-69	-0.039	
100		-10	42	0.024	
100		0	53	0.031	
100		+10	64	0.037	
100		+20	77	0.044	
100		+30	86	0.049	
100		+40	85	0.049	
100		+50	91	0.053	
115	4.37	+20	75	0.043	
85	3.23	+20	36	0.021	