



REPORT No.: SZ19050315W02

TEST REPORT

APPLICANT : Social Bicycles LLC

PRODUCT NAME : Clarion Module

MODEL NAME : Clarion Module R9

BRAND NAME : JUMP Bikes

FCC ID : 2ADEK1905R9

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

RECEIPT DATE : 2019-04-16

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Change History		
Version	Date	Reason for change
1.0	2019-06-26	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Social Bicycles LLC
Applicant Address:	55 Prospect St. Suite 410 Brooklyn, New York 11201, United States
Manufacturer:	E-BUSINESS INTERNATIONAL TECHNOLOGY(SHENZHEN) CO.LTD
Manufacturer Address:	Floor 13, Tower C, Chuangwei Building, 008 Gaoxin South First Road, Hi-Tech Park, Nanshan District, Shenzhen, China 518057

1.2. Equipment Under Test (EUT) Description

Product Name:	Clarion Module	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	R9	
Software Version:	1.2.1_rc2	
Modulation Type:	QPSK, 16QAM	
Operation Band:	Band 2 / 4 / 5 /12 /19 /26	
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 12	Tx: 699.7MHz - 715.3MHz
		Rx: 729.7MHz– 745.3MHz
	LTE Band 19	Tx: 706.5MHz - 713.5MHz
		Rx: 736.5MHz– 743.5MHz
	LTE Band 26	Tx: 824MHz - 849MHz
		Rx: 869MHz– 894MHz
Channel Bandwidth	LTE Band 2	1.4MHz
	LTE Band 4	1.4MHz
	LTE Band 5	1.4MHz



	LTE Band 12	1.4MHz
	LTE Band 19	1.4MHz
	LTE Band 26	1.4MHz
Emission Designator:	1M15G7D (LTE Band 2, QPSK, BW 1.4MHz) 1M19W7D (LTE Band 2, 16QAM, BW 1.4MHz) 1M16G7D (LTE Band 4, QPSK, BW 1.4MHz) 1M17W7D (LTE Band 4, 16QAM, BW 1.4MHz) 1M15G7D (LTE Band 5, QPSK, BW 1.4MHz) 1M18W7D (LTE Band 5, 16QAM, BW 1.4MHz) 1M16G7D (LTE Band 12, QPSK, BW 1.4MHz) 1M17W7D (LTE Band 12, 16QAM, BW 1.4MHz) 1M15G7D (LTE Band 19, QPSK, BW 1.4MHz) 1M17W7D (LTE Band 19, 16QAM, BW 1.4MHz) 1M16G7D (LTE Band 26, QPSK, BW 1.4MHz) 1M17W7D (LTE Band 26, 16QAM, BW 1.4MHz)	
Antenna Type:	Chip Antenna	
Antenna Gain:	LTE Band 2	1.0dBi
	LTE Band 4	1.0dBi
	LTE Band 5	1.0dBi
	LTE Band 12	1.0dBi
	LTE Band 19	1.0dBi
	LTE Band 26	1.0dBi
Accessory Information:	Battery	
	Brand Name:	SCUD
	Model No.:	LI-U-Clarion
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	1030mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.2V

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	Mar05, 2019 Mar06, 2019 Jun22, 2019	Zhao Zetian Ya Xinhou	PASS
2.1049	Occupied Bandwidth	Apr24&25, 2019	Zhao Zetian	PASS
2.1055, 22.355, 24.235, 27.54	Frequency Stability	Apr25, 2019	Zhao Zetian	PASS
24.232(d), 27.50(d)(5)	Peak to Average Radio	Apr28, 2019	Zhao Zetian	PASS
2.1051, 22.917(a), 24.238, 27.53(g)(h)(m)(4)	Conducted Spurious Emissions	Apr26, 2019	Zhao Zetian	PASS
2.1051, 22.917(a), 24.238, 27.53(g)(h)(m)(4)	Band Edge	Apr25&26, 2019	Zhao Zetian	PASS
2.1051, 22.917(a), 24.238, 27.53(g)(h)(m)(4)	Radiated Spurious Emissions	Jun22, 2019	Ya Xinhou	PASS

Note 1: The tests were performed according to the method of measurements prescribed in KDB 971168 D01 V03R01 (Oct 27, 2017) and ANSI C63.26 2015 section 5.2.5.5.

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/EIRP

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 2/25, 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.

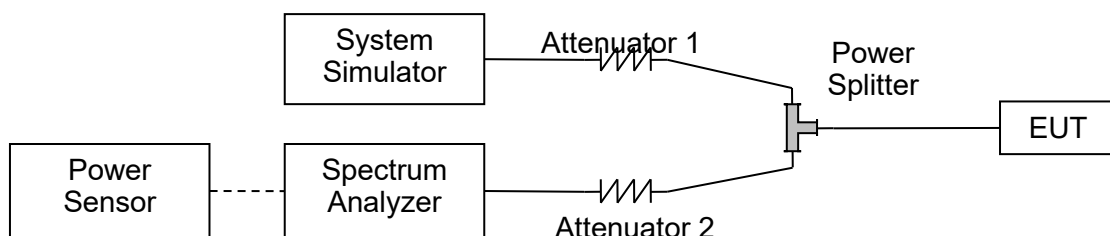
According to FCC section 27.50 (d) for LTE Band 4, fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

According to FCC section 22.913 (a.2) for LTE Band 5/26, the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 27.50 (h) for LTE Band 7/41, 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.

According to FCC section 27.50 (c) for LTE Band 12/17, Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

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 50 Ohm; 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 C63.26 2015 section 5.2.5.5.

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

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

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				18625	18900	19175
Frequency (MHz)				1852.5	1880	1907.5
1.4	QPSK	1	0	23.15	23.06	23.27
1.4	QPSK	1	3	23.22	23.10	23.06
1.4	QPSK	1	5	23.17	23.33	23.04
1.4	QPSK	3	0	22.03	22.14	22.11
1.4	QPSK	3	1	22.16	22.04	22.14
1.4	QPSK	3	3	22.11	22.16	22.05
1.4	QPSK	6	0	22.14	22.13	22.11
1.4	16QAM	1	0	22.03	22.47	22.04
1.4	16QAM	1	3	22.44	22.04	22.21
1.4	16QAM	1	5	22.07	22.46	22.26
1.4	16QAM	3	0	21.37	21.34	21.24
1.4	16QAM	3	1	21.29	21.25	21.35
1.4	16QAM	3	3	21.30	21.22	21.14
1.4	16QAM	6	0	21.08	21.24	21.32

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				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
1.4	QPSK	1	0	22.03	22.16	22.10
1.4	QPSK	1	3	22.15	22.04	22.14
1.4	QPSK	1	5	22.11	22.15	22.04
1.4	QPSK	3	0	21.06	21.08	21.26
1.4	QPSK	3	1	21.35	21.22	21.22
1.4	QPSK	3	3	21.30	21.27	21.24
1.4	QPSK	6	0	21.32	21.22	21.35



1.4	16QAM	1	0	21.26	21.23	21.19
1.4	16QAM	1	3	21.06	21.09	21.26
1.4	16QAM	1	5	21.34	21.35	21.31
1.4	16QAM	3	0	20.19	20.40	20.10
1.4	16QAM	3	1	20.35	20.27	20.41
1.4	16QAM	3	3	20.50	20.28	20.22
1.4	16QAM	6	0	19.99	20.54	20.28

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				20425	20525	20625
Frequency (MHz)				826.5	836.5	846.5
1.4	QPSK	1	0	22.83	22.93	22.92
1.4	QPSK	1	3	22.90	22.93	22.81
1.4	QPSK	1	5	22.89	22.92	22.82
1.4	QPSK	3	0	22.97	22.79	22.75
1.4	QPSK	3	1	22.91	22.73	22.75
1.4	QPSK	3	3	22.79	22.94	22.94
1.4	QPSK	6	0	21.26	21.26	21.18
1.4	16QAM	1	0	21.21	21.16	21.00
1.4	16QAM	1	3	21.16	20.97	21.37
1.4	16QAM	1	5	21.50	20.94	21.60
1.4	16QAM	3	0	21.30	21.31	20.92
1.4	16QAM	3	1	21.62	21.30	21.06
1.4	16QAM	3	3	21.20	21.53	21.58
1.4	16QAM	6	0	20.51	20.54	20.05

LTE Band 12

BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
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Channel				23035	23095	23155
Frequency (MHz)				706.5	707.5	713.5
1.4	QPSK	1	0	22.36	22.20	22.32
1.4	QPSK	1	3	22.24	22.07	21.98
1.4	QPSK	1	5	22.36	21.90	22.19
1.4	QPSK	3	0	21.51	21.38	21.28
1.4	QPSK	3	1	21.68	21.03	20.91
1.4	QPSK	3	3	20.93	21.24	21.08
1.4	QPSK	6	0	21.31	21.21	21.07
1.4	16QAM	1	0	21.37	21.61	21.43
1.4	16QAM	1	3	21.66	20.96	21.03
1.4	16QAM	1	5	21.50	21.27	21.20
1.4	16QAM	3	0	21.14	21.47	21.34
1.4	16QAM	3	1	21.70	21.15	21.65
1.4	16QAM	3	3	21.00	21.61	21.37
1.4	16QAM	6	0	20.56	20.47	20.32

LTE Band 19

BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				24025	24075	24125
Frequency (MHz)				832.5	837.5	842.5
1.4	QPSK	1	0	22.58	22.54	22.58
1.4	QPSK	1	3	22.61	22.61	22.52
1.4	QPSK	1	5	22.79	22.65	22.60
1.4	QPSK	3	0	21.42	20.98	21.00
1.4	QPSK	3	1	21.55	21.69	20.97
1.4	QPSK	3	3	21.51	21.70	21.09
1.4	QPSK	6	0	21.37	21.02	20.92
1.4	16QAM	1	0	21.60	21.20	21.43
1.4	16QAM	1	3	21.47	21.51	21.34
1.4	16QAM	1	5	21.56	21.53	21.29
1.4	16QAM	3	0	19.97	20.25	20.22
1.4	16QAM	3	1	20.39	20.24	19.97
1.4	16QAM	3	3	19.99	20.34	20.14
1.4	16QAM	6	0	20.29	20.21	19.99



LTE Band 26						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				26805	26915	27033
Frequency (MHz)				824.7	836.5	848.3
1.4	QPSK	1	0	22.05	22.16	22.13
1.4	QPSK	1	3	22.20	22.06	22.14
1.4	QPSK	1	5	22.14	22.17	22.04
1.4	QPSK	3	0	21.06	21.13	21.26
1.4	QPSK	3	1	21.31	21.26	21.33
1.4	QPSK	3	3	21.12	21.12	21.21
1.4	QPSK	6	0	21.26	21.25	21.24
1.4	16QAM	1	0	21.09	21.13	21.27
1.4	16QAM	1	3	21.36	21.28	21.32
1.4	16QAM	1	5	21.16	21.15	21.23
1.4	16QAM	3	0	20.20	20.23	20.16
1.4	16QAM	3	1	20.19	20.09	19.99
1.4	16QAM	3	3	19.99	20.15	20.14
1.4	16QAM	6	0	20.15	20.47	20.25

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

LTE Band2				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				18607	18900	19193
Frequency (MHz)				1850.7	1880	1909.3
1.4	QPSK	1	0	24.15	24.06	24.27
1.4	QPSK	1	3	24.22	24.10	24.06
1.4	QPSK	1	5	24.17	24.33	24.04
1.4	QPSK	3	0	23.03	23.14	23.11
1.4	QPSK	3	1	23.16	23.04	23.14
1.4	QPSK	3	3	23.11	23.16	23.05
1.4	QPSK	6	0	23.14	23.13	23.11
1.4	16QAM	1	0	23.03	23.47	23.04
1.4	16QAM	1	3	23.44	23.04	23.21
1.4	16QAM	1	5	23.07	23.46	23.26
1.4	16QAM	3	0	22.37	22.34	22.24
1.4	16QAM	3	1	22.29	22.25	22.35
1.4	16QAM	3	3	22.30	22.22	22.14
1.4	16QAM	6	0	22.08	22.24	22.32

LTE Band4				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				19957	20175	20393
Frequency (MHz)				1710.7	1732.5	1754.3
1.4	QPSK	1	0	23.03	23.16	23.10
1.4	QPSK	1	3	23.15	23.04	23.14
1.4	QPSK	1	5	23.11	23.15	23.04
1.4	QPSK	3	0	22.06	22.08	22.26
1.4	QPSK	3	1	22.35	22.22	22.22
1.4	QPSK	3	3	22.30	22.27	22.24
1.4	QPSK	6	0	22.32	22.22	22.35



1.4	16QAM	1	0	22.26	22.23	22.19
1.4	16QAM	1	3	22.06	22.09	22.26
1.4	16QAM	1	5	22.34	22.35	22.31
1.4	16QAM	3	0	21.19	21.40	21.10
1.4	16QAM	3	1	21.35	21.27	21.41
1.4	16QAM	3	3	21.50	21.28	21.22
1.4	16QAM	6	0	20.99	21.54	21.28

LTE Band5				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				20407	20525	20643
Frequency (MHz)				824.7	836.5	848.3
1.4	QPSK	1	0	21.68	21.78	21.77
1.4	QPSK	1	3	21.75	21.78	21.66
1.4	QPSK	1	5	21.74	21.77	21.67
1.4	QPSK	3	0	21.82	21.64	21.60
1.4	QPSK	3	1	21.76	21.58	21.60
1.4	QPSK	3	3	21.64	21.79	21.79
1.4	QPSK	6	0	20.11	20.11	20.03
1.4	16QAM	1	0	20.06	20.01	19.85
1.4	16QAM	1	3	20.01	19.82	20.22
1.4	16QAM	1	5	20.35	19.79	20.45
1.4	16QAM	3	0	20.15	20.16	19.77
1.4	16QAM	3	1	20.47	20.15	19.91
1.4	16QAM	3	3	20.05	20.38	20.43
1.4	16QAM	6	0	19.36	19.39	18.90

LTE Band 12				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.



Channel				23017	23095	23173
Frequency (MHz)				699.7	707.5	715.3
1.4	QPSK	1	0	21.21	21.05	21.17
1.4	QPSK	1	3	21.09	20.92	20.83
1.4	QPSK	1	5	21.21	20.75	21.04
1.4	QPSK	3	0	20.36	20.23	20.13
1.4	QPSK	3	1	20.53	19.88	19.76
1.4	QPSK	3	3	19.78	20.09	19.93
1.4	QPSK	6	0	20.16	20.06	19.92
1.4	16QAM	1	0	20.22	20.46	20.28
1.4	16QAM	1	3	20.51	19.81	19.88
1.4	16QAM	1	5	20.35	20.12	20.05
1.4	16QAM	3	0	19.99	20.32	20.19
1.4	16QAM	3	1	20.55	20.00	20.50
1.4	16QAM	3	3	19.85	20.46	20.22
1.4	16QAM	6	0	19.41	19.32	19.17

LTE Band 13				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				23205	23230	23255
Frequency (MHz)				779.5	782	784.5
1.4	QPSK	1	0	21.60	21.71	21.64
1.4	QPSK	1	3	21.64	21.70	21.71
1.4	QPSK	1	5	21.60	21.58	21.68
1.4	QPSK	3	0	20.39	20.41	20.29
1.4	QPSK	3	1	20.16	20.16	20.32
1.4	QPSK	3	3	20.32	20.32	20.30
1.4	QPSK	6	0	20.13	20.13	20.29
1.4	16QAM	1	0	20.36	20.27	20.38
1.4	16QAM	1	3	20.09	20.15	20.27
1.4	16QAM	1	5	20.33	20.29	20.35
1.4	16QAM	3	0	19.39	19.18	19.28
1.4	16QAM	3	1	19.07	19.31	19.05
1.4	16QAM	3	3	19.01	19.23	19.37
1.4	16QAM	6	0	19.13	19.74	19.42



LTE Band 19				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				24025	24075	24125
Frequency (MHz)				832.5	837.5	842.5
1.4	QPSK	1	0	21.43	21.39	21.43
1.4	QPSK	1	3	21.46	21.46	21.37
1.4	QPSK	1	5	21.64	21.50	21.45
1.4	QPSK	3	0	20.27	19.83	19.85
1.4	QPSK	3	1	20.40	20.54	19.82
1.4	QPSK	3	3	20.36	20.55	19.94
1.4	QPSK	6	0	20.22	19.87	19.77
1.4	16QAM	1	0	20.45	20.05	20.28
1.4	16QAM	1	3	20.32	20.36	20.19
1.4	16QAM	1	5	20.41	20.38	20.14
1.4	16QAM	3	0	18.82	19.10	19.07
1.4	16QAM	3	1	19.24	19.09	18.82
1.4	16QAM	3	3	18.84	19.19	18.99
1.4	16QAM	6	0	19.14	19.06	18.84

LTE Band 26				Measured ERP		
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				26815	26915	27015
Frequency (MHz)				826.5	836.5	846.5
1.4	QPSK	1	0	20.90	21.01	20.98
1.4	QPSK	1	3	21.05	20.91	20.99
1.4	QPSK	1	5	20.99	21.02	20.89
1.4	QPSK	3	0	19.91	19.98	20.11
1.4	QPSK	3	1	20.16	20.11	20.18
1.4	QPSK	3	3	19.97	19.97	20.06
1.4	QPSK	6	0	20.11	20.10	20.09
1.4	16QAM	1	0	19.94	19.98	20.12
1.4	16QAM	1	3	20.21	20.13	20.17
1.4	16QAM	1	5	20.01	20.00	20.08



REPORT No.: SZ19050315W02

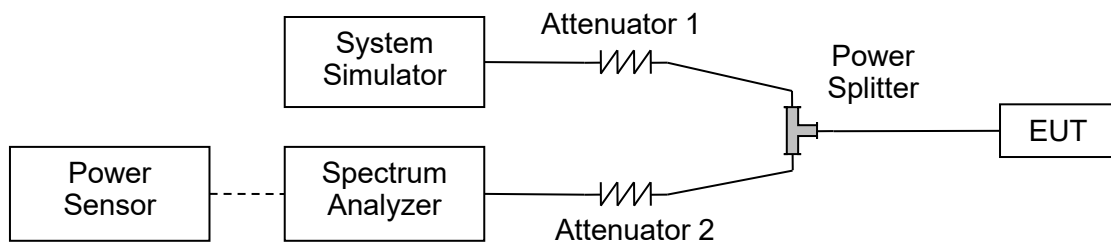
1.4	16QAM	3	0	19.05	19.08	19.01
1.4	16QAM	3	1	19.04	18.94	18.84
1.4	16QAM	3	3	18.84	19.00	18.99
1.4	16QAM	6	0	19.00	19.32	19.10

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 50 Ohm; 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)
18625	1852.5	1.15	1.49	1.19	1.55
18900	1880.0	1.15	1.45	1.16	1.52
19175	1907.5	1.14	1.48	1.17	1.51



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



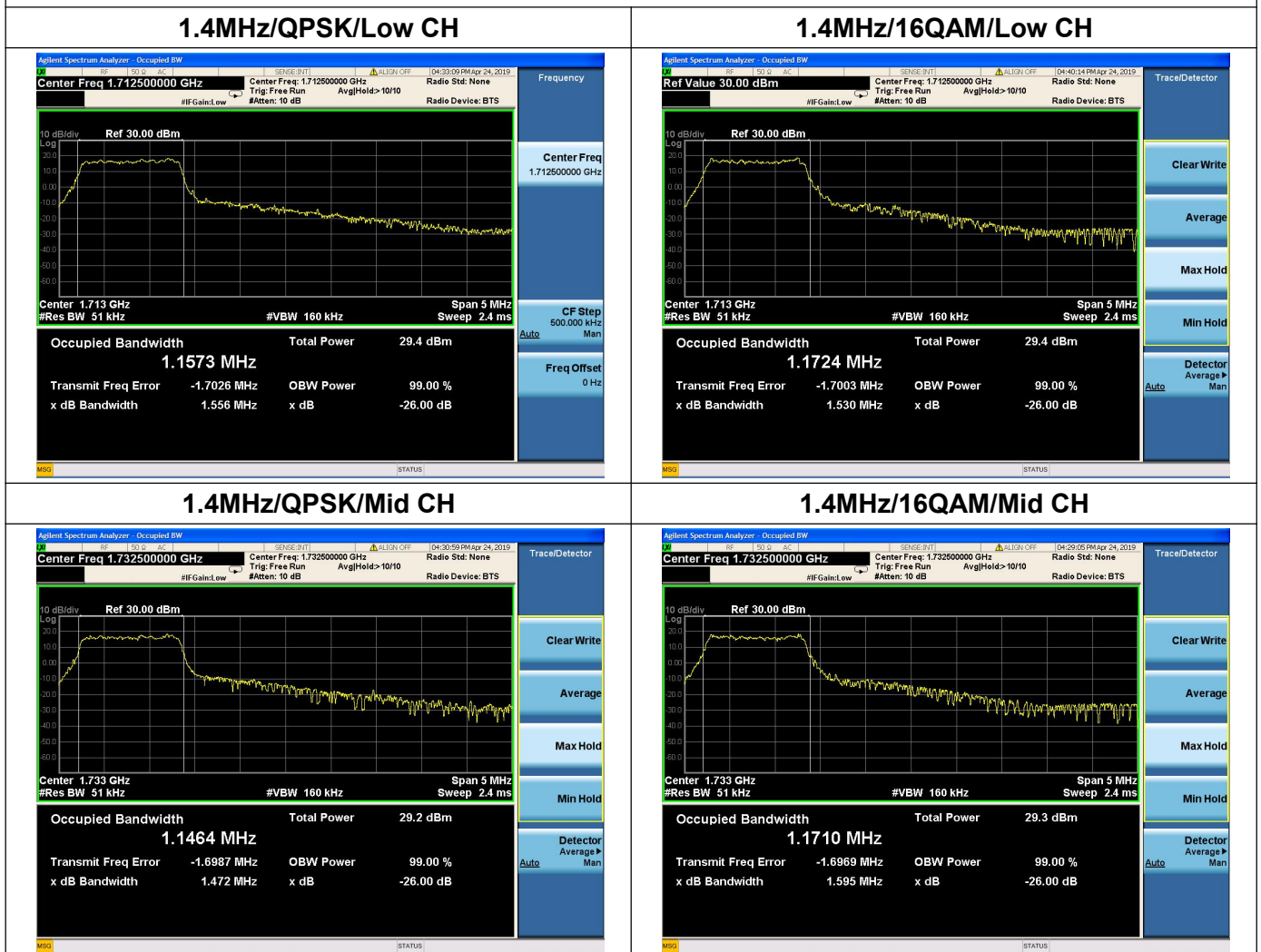
1.4MHz/16QAM/High CH





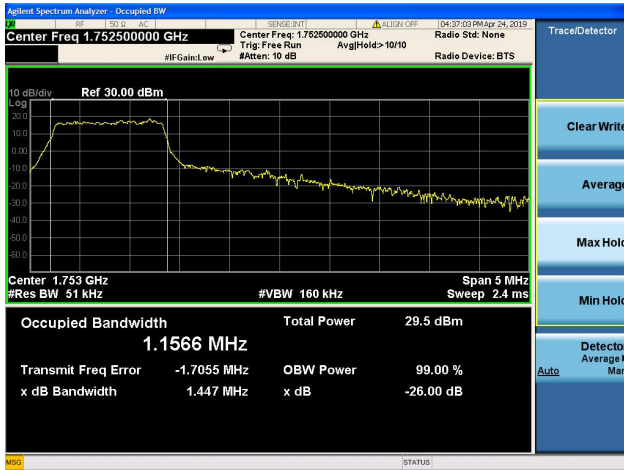
LTE Band 4,BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
19975	1712.5	1.15	1.47	1.17	1.60
20175	1732.5	1.16	1.56	1.17	1.60
20375	1752.5	1.16	1.45	1.17	1.54

LTE Band 4 99%&26dB Bandwidth

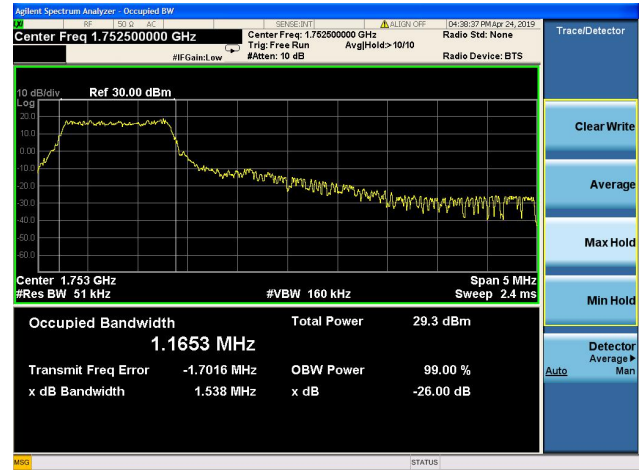




1.4MHz/QPSK/High CH



1.4MHz/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)
20425	826.5	1.14	1.46	1.17	1.49
20525	836.5	1.14	1.41	1.18	1.58
20625	846.5	1.15	1.45	1.16	1.48

LTE Band 5 99%&26dB Bandwidth

1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH





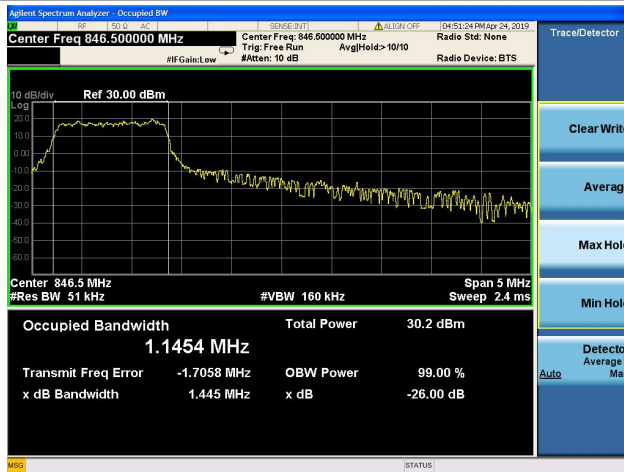
1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH



1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH

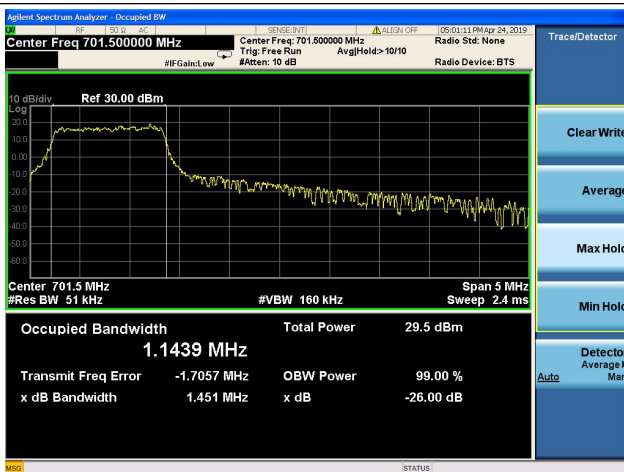




LTE Band 12,BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
23035	701.5	1.14	1.45	1.17	1.52
23095	707.5	1.16	1.46	1.16	1.49
23165	714.5	1.15	1.46	1.17	1.48

LTE Band 12 99%&26dB Bandwidth

1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH

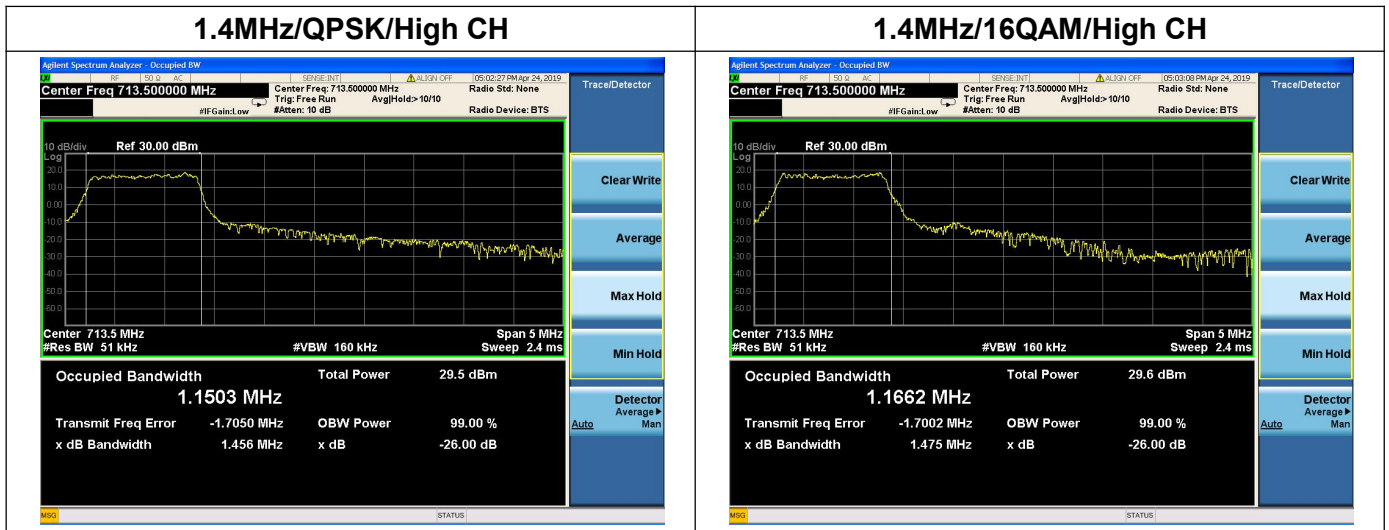


1.4MHz/QPSK/Mid CH

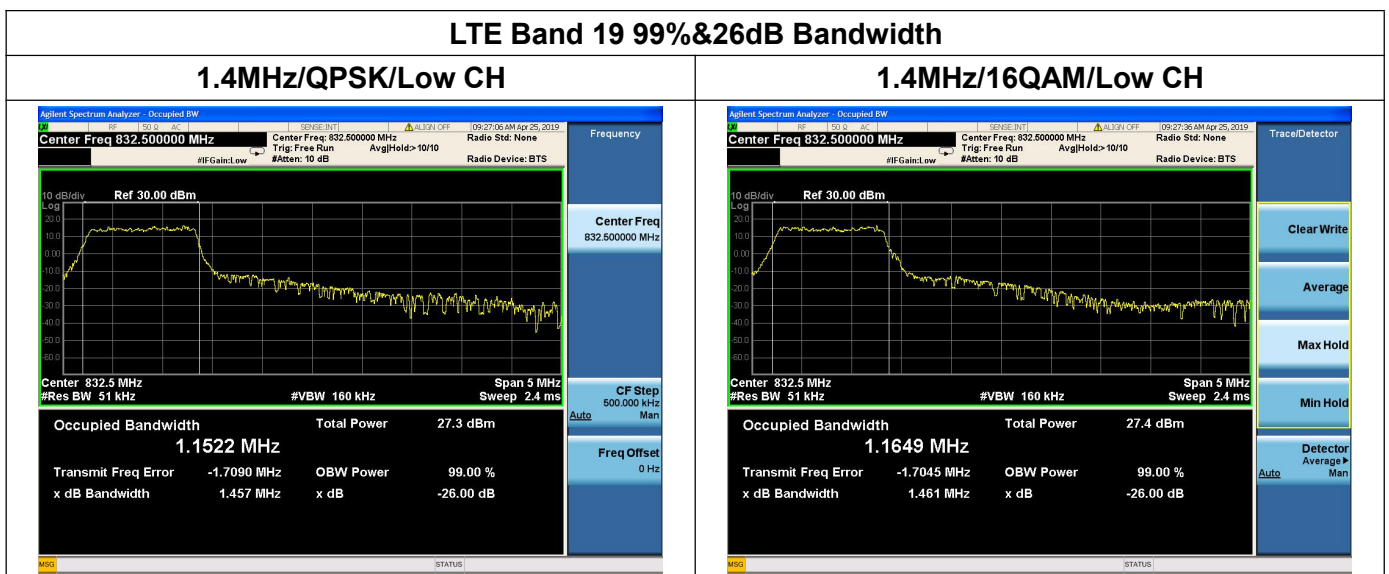


1.4MHz/16QAM/Mid CH



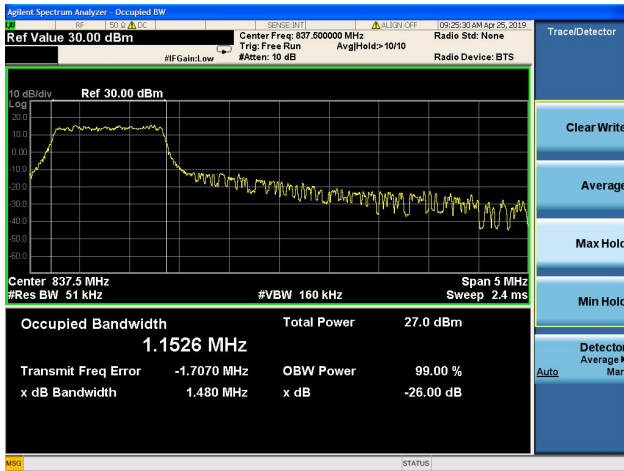


LTE Band 19,BW: 1.4MHz					
Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
24025	832.5	1.15	1.46	1.16	1.46
24075	837.5	1.15	1.48	1.17	1.49
24125	842.5	1.15	1.57	1.16	1.49





1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH



1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH



LTE Band 26 ,BW: 1.4MHz

Channel	Frequency (MHz)	QPSK		16QAM	
		99% Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
26815	826.5	1.15	1.44	1.17	1.48
26915	836.5	1.16	1.45	1.17	1.47
27015	846.5	1.14	1.41	1.17	1.48



LTE Band 19 99%&26dB Bandwidth

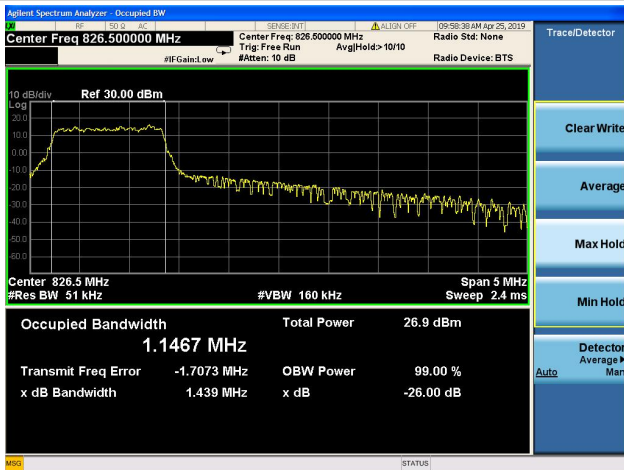
1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH



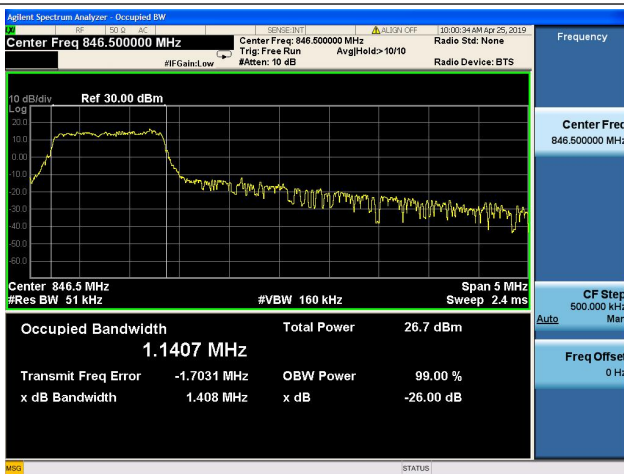
1.4MHz/QPSK/Mid CH



1.4MHz/16QAM/Mid CH



1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH



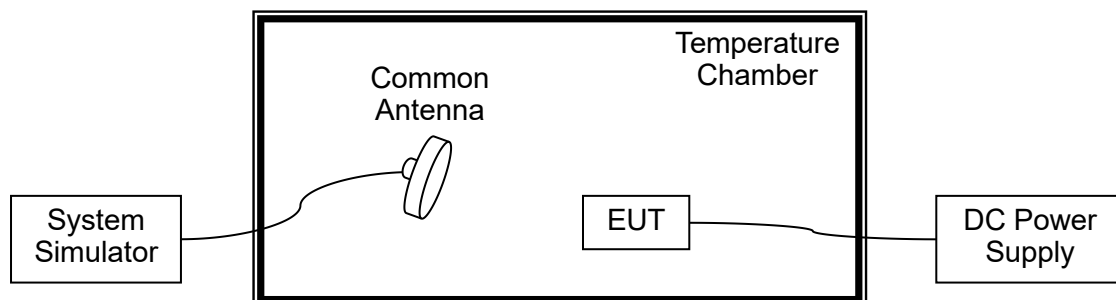
2.3. Frequency Stability

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 -20°C to +55°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	-20	-35	-0.019	PASS
100		-10	54	0.029	
100		0	35	0.019	
100		+10	-75	-0.040	
100		+20	-67	-0.036	
100		+30	-52	-0.028	
100		+40	52	0.028	
100		+50	56	0.030	
100		+55	22	0.012	
100	4.35	+20	35	0.019	
115	3.5	+20	55	0.029	

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	-20	31	0.018	PASS
100		-10	24	0.014	
100		0	-22	-0.013	
100		+10	93	0.054	
100		+20	-27	-0.016	
100		+30	-57	-0.033	
100		+40	25	0.014	
100		+50	93	0.054	
100		+55	63	0.036	
115	4.35	+20	25	0.014	
85	3.5	+20	-24	-0.014	



LTE Band 5, QPSK, Channel 20525, Frequency 836.5MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	-20	42	0.050	PASS
100		-10	-77	-0.092	
100		0	-43	-0.051	
100		+10	-69	-0.082	
100		+20	-73	-0.087	
100		+30	42	0.050	
100		+40	74	0.088	
100		+50	43	0.051	
100		+55	15	0.018	
115	4.35	+20	21	0.025	
85	3.5	+20	-59	-0.071	

LTE Band 12, QPSK, Channel 23095, Frequency 707.5MHz Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.8	-20	43	0.024	PASS
100		-10	26	0.015	
100		0	-66	-0.037	
100		+10	45	0.025	
100		+20	-27	-0.015	
100		+30	-27	-0.015	
100		+40	25	0.014	
100		+50	56	0.032	
100		+55	17	0.010	
115	4.35	+20	37	0.021	
85	3.5	+20	-25	-0.014	



LTE Band 19, QPSK, Channel 24075, Frequency 847MHz Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.8	-20	54	0.064	PASS
100		-10	65	0.078	
100		0	-35	-0.042	
100		+10	-49	-0.059	
100		+20	-17	-0.020	
100		+30	-57	-0.068	
100		+40	-22	-0.026	
100		+50	-39	-0.047	
100		+55	-66	-0.079	
115	4.35	+20	-42	-0.050	
85	3.5	+20	42	0.050	

LTE Band 26, QPSK, Channel 26915, Frequency 836.5MHz Limit =Within Authorized Band					
Voltage(%)	Power(VDC)	Temp(°C)	Fre. Dev.(Hz)	Deviation (ppm)	Result
100	3.8	-30	56	0.067	PASS
100		-20	32	0.038	
100		-10	-39	-0.047	
100		0	-47	-0.056	
100		+10	65	0.078	
100		+20	-52	-0.062	
100		+30	40	0.048	
100		+40	57	0.068	
100		+50	32	0.038	
115	4.35	+20	41	0.049	
85	3.5	+20	44	0.053	

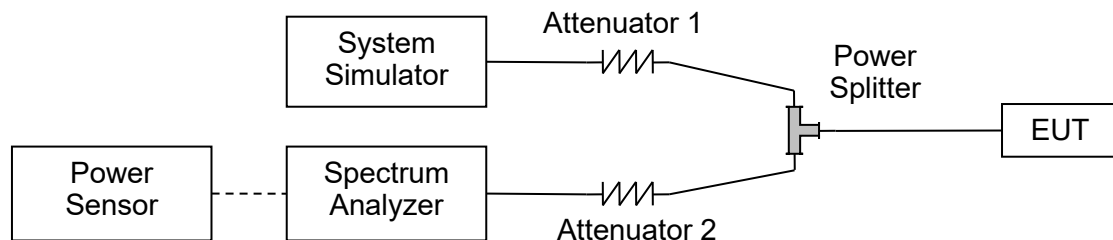
2.4. Peak to Average Radio

2.4.1. Requirement

According to FCC section 24.232(d), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

A. Test Set:



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 50 Ohm; 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.

2.4.3. Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.



LTE Band 2,BW: 1.4MHz

Channel	Frequency (MHz)	Peak to Average Ratio(dB)	
		QPSK	16QAM
18625	1852.5	8.54	8.59
18900	1880.0	9.87	9.46
19175	1907.5	8.89	9.94

LTE Band 2 Peak to Average Ratio

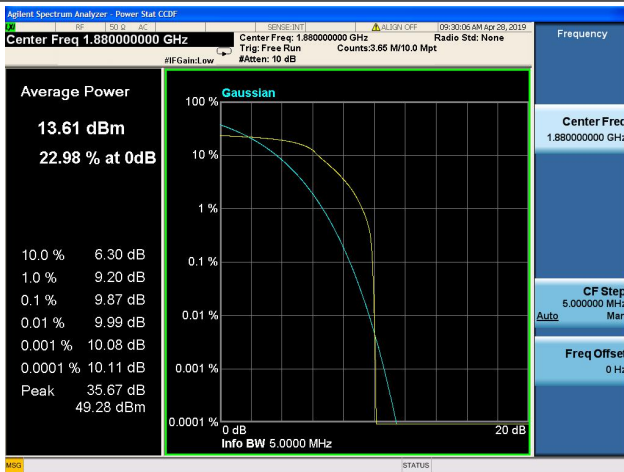
1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH



1.4MHz/QPSK/Mid CH

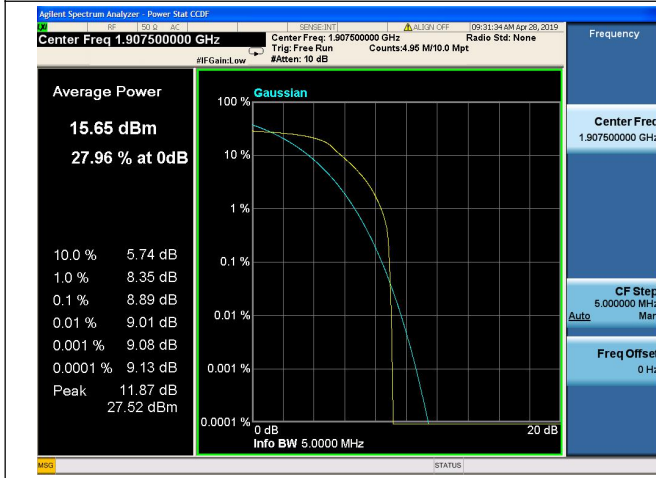


1.4MHz/16QAM/Mid CH

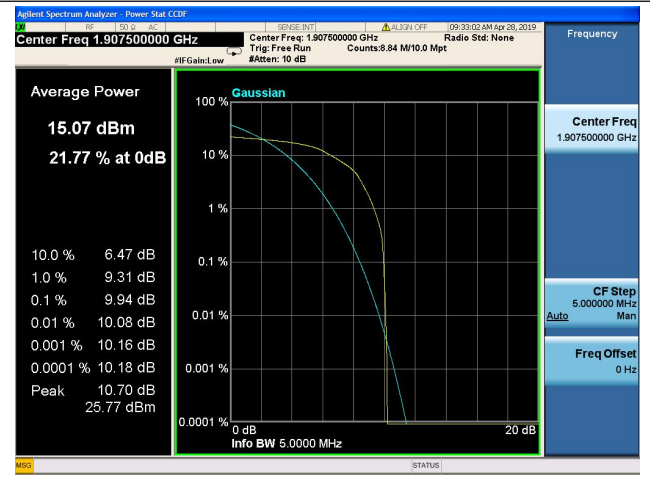




1.4MHz/QPSK/High CH



1.4MHz/16QAM/High CH



LTE Band 4, BW: 1.4MHz

Channel	Frequency (MHz)	Peak to Average Ratio(dB)	
		QPSK	16QAM
18625	1852.5	9.03	10.07
18900	1880.0	9.70	10.32
19175	1907.5	9.08	9.92

LTE Band 4 Peak to Average Ratio

1.4MHz/QPSK/Low CH



1.4MHz/16QAM/Low CH

