RF TEST REPORT

Applicant	Smawave Technology Co. ,Ltd
FCC ID	2AU8HSRM310
Product	Outdoor CPE
Brand	Smawave
Model	SRM310, SRT011
Report No.	R2109A0783-R1
Issue Date	October 26, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2020)/ FCC CFR 47 Part 24E (2020)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 24.232(c)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 /24.238(a)	PASS
4	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 24.235	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 24.238(a)	PASS
7	Radiates Spurious Emission	2.1053 / 24.238(a)	PASS
Date of Testing: September 7, 2021 ~ September 29, 2021 Date of Sample Received: September 2, 2021			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Smawave Technology Co. ,Ltd
Applicant address	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China
Manufacturer	Smawave Technology Co. ,Ltd
Manufacturer address	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China

2.2. General information

EUT Description			
Model	SRM310, SRT011		
SN	R2109A0783/S01		
Hardware Version	V1.0		
Software Version	MG56_BYPASS		
Power Supply	External power supply		
Antenna Type	Dipole Antenna		
Antenna Gain	7.5dBi		
Test Mode(s)	LTE Band 2;		
Test Modulation	(LTE)QPSK,16QAM, 64QAM		
LTE Category	6		
Maximum E.I.R.P	LTE Band 2:	28.37dBm	
Rated Power Supply Voltage	24V		
Operating Voltage	Minimum: 19V Maximum: 30V		
Operating Temperature	Lowest: -30°C Highest: +70°C		
Extreme Temperature	Lowest: -30°C Highest: +70°C		
Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:
FCC CFR 47 Part 24E (2020)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2020)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for LTE Band 2:

Test items	Bandwidth (MHz)						Modulation			RB			Test Channel		
	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	O	O	O	O	-	-	O	-	-	O	O	O
Radiates Spurious Emission	O	-	O	-	-	O	O	-	-	O	-	-	-	O	-
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.														

5. Test Case Results

5.1. RF Power Output and Effective Isotropic Radiated Power

Ambient condition

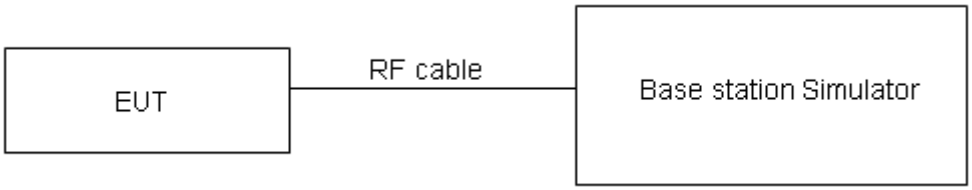
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBi)
where:dBd refers to gain relative to an ideal dipole.
EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 24.232(c) Mobile and portable stations are limited to 2 watts EIRP.
Rule Part 24.232(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Limit	≤ 2 W (33 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB for RF power output, k = 2, U= 1.19 dB for EIRP.

Test Results

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
LTE Band 2	1.4	18607	1	#0	QPSK	19.97	27.47
LTE Band 2	1.4	18607	1	#Mid	QPSK	19.93	27.43
LTE Band 2	1.4	18607	1	#Max	QPSK	19.93	27.43
LTE Band 2	1.4	18607	3	#0	QPSK	19.85	27.35
LTE Band 2	1.4	18607	3	#Mid	QPSK	19.84	27.34
LTE Band 2	1.4	18607	3	#Max	QPSK	19.74	27.24
LTE Band 2	1.4	18607	6	#0	QPSK	19.78	27.28
LTE Band 2	1.4	18607	1	#0	QAM16	19.87	27.37
LTE Band 2	1.4	18607	1	#Mid	QAM16	19.99	27.49
LTE Band 2	1.4	18607	1	#Max	QAM16	19.98	27.48
LTE Band 2	1.4	18607	3	#0	QAM16	20.11	27.61
LTE Band 2	1.4	18607	3	#Mid	QAM16	20.11	27.61
LTE Band 2	1.4	18607	3	#Max	QAM16	20.00	27.50
LTE Band 2	1.4	18607	6	#0	QAM16	19.92	27.42
LTE Band 2	1.4	18900	1	#0	QPSK	18.75	26.25
LTE Band 2	1.4	18900	1	#Mid	QPSK	18.75	26.25
LTE Band 2	1.4	18900	1	#Max	QPSK	18.90	26.40
LTE Band 2	1.4	18900	3	#0	QPSK	18.62	26.12
LTE Band 2	1.4	18900	3	#Mid	QPSK	18.62	26.12
LTE Band 2	1.4	18900	3	#Max	QPSK	18.77	26.27
LTE Band 2	1.4	18900	6	#0	QPSK	18.72	26.22
LTE Band 2	1.4	18900	1	#0	QAM16	18.86	26.36
LTE Band 2	1.4	18900	1	#Mid	QAM16	18.87	26.37
LTE Band 2	1.4	18900	1	#Max	QAM16	19.00	26.50
LTE Band 2	1.4	18900	3	#0	QAM16	18.60	26.10
LTE Band 2	1.4	18900	3	#Mid	QAM16	18.60	26.10
LTE Band 2	1.4	18900	3	#Max	QAM16	18.77	26.27
LTE Band 2	1.4	18900	6	#0	QAM16	18.63	26.13
LTE Band 2	1.4	19193	1	#0	QPSK	20.39	27.89
LTE Band 2	1.4	19193	1	#Mid	QPSK	20.09	27.59
LTE Band 2	1.4	19193	1	#Max	QPSK	20.09	27.59
LTE Band 2	1.4	19193	3	#0	QPSK	20.22	27.72
LTE Band 2	1.4	19193	3	#Mid	QPSK	20.21	27.71
LTE Band 2	1.4	19193	3	#Max	QPSK	20.11	27.61
LTE Band 2	1.4	19193	6	#0	QPSK	20.11	27.61
LTE Band 2	1.4	19193	1	#0	QAM16	20.19	27.69
LTE Band 2	1.4	19193	1	#Mid	QAM16	19.90	27.40
LTE Band 2	1.4	19193	1	#Max	QAM16	19.93	27.43
LTE Band 2	1.4	19193	3	#0	QAM16	20.15	27.65

LTE Band 2	1.4	19193	3	#Mid	QAM16	20.15	27.65
LTE Band 2	1.4	19193	3	#Max	QAM16	20.05	27.55
LTE Band 2	1.4	19193	6	#0	QAM16	20.09	27.59
LTE Band 2	3	18615	1	#0	QPSK	19.65	27.15
LTE Band 2	3	18615	1	#Mid	QPSK	19.69	27.19
LTE Band 2	3	18615	1	#Max	QPSK	19.55	27.05
LTE Band 2	3	18615	8	#0	QPSK	20.25	27.75
LTE Band 2	3	18615	8	#Mid	QPSK	20.25	27.75
LTE Band 2	3	18615	8	#Max	QPSK	19.77	27.27
LTE Band 2	3	18615	15	#0	QPSK	19.75	27.25
LTE Band 2	3	18615	1	#0	QAM16	19.99	27.49
LTE Band 2	3	18615	1	#Mid	QAM16	19.93	27.43
LTE Band 2	3	18615	1	#Max	QAM16	19.80	27.30
LTE Band 2	3	18615	8	#0	QAM16	20.23	27.73
LTE Band 2	3	18615	8	#Mid	QAM16	20.23	27.73
LTE Band 2	3	18615	8	#Max	QAM16	19.75	27.25
LTE Band 2	3	18615	15	#0	QAM16	19.71	27.21
LTE Band 2	3	18900	1	#0	QPSK	18.35	25.85
LTE Band 2	3	18900	1	#Mid	QPSK	18.56	26.06
LTE Band 2	3	18900	1	#Max	QPSK	18.87	26.37
LTE Band 2	3	18900	8	#0	QPSK	18.88	26.38
LTE Band 2	3	18900	8	#Mid	QPSK	18.87	26.37
LTE Band 2	3	18900	8	#Max	QPSK	18.67	26.17
LTE Band 2	3	18900	15	#0	QPSK	18.62	26.12
LTE Band 2	3	18900	1	#0	QAM16	18.59	26.09
LTE Band 2	3	18900	1	#Mid	QAM16	18.67	26.17
LTE Band 2	3	18900	1	#Max	QAM16	18.98	26.48
LTE Band 2	3	18900	8	#0	QAM16	18.83	26.33
LTE Band 2	3	18900	8	#Mid	QAM16	18.82	26.32
LTE Band 2	3	18900	8	#Max	QAM16	18.63	26.13
LTE Band 2	3	18900	15	#0	QAM16	18.50	26.00
LTE Band 2	3	19185	1	#0	QPSK	19.92	27.42
LTE Band 2	3	19185	1	#Mid	QPSK	19.99	27.49
LTE Band 2	3	19185	1	#Max	QPSK	20.07	27.57
LTE Band 2	3	19185	8	#0	QPSK	20.29	27.79
LTE Band 2	3	19185	8	#Mid	QPSK	20.30	27.80
LTE Band 2	3	19185	8	#Max	QPSK	20.02	27.52
LTE Band 2	3	19185	15	#0	QPSK	20.01	27.51
LTE Band 2	3	19185	1	#0	QAM16	19.62	27.12
LTE Band 2	3	19185	1	#Mid	QAM16	19.82	27.32
LTE Band 2	3	19185	1	#Max	QAM16	19.90	27.40
LTE Band 2	3	19185	8	#0	QAM16	20.30	27.80
LTE Band 2	3	19185	8	#Mid	QAM16	20.29	27.79

LTE Band 2	3	19185	8	#Max	QAM16	20.02	27.52
LTE Band 2	3	19185	15	#0	QAM16	20.02	27.52
LTE Band 2	5	18625	1	#0	QPSK	19.81	27.31
LTE Band 2	5	18625	1	#Mid	QPSK	19.55	27.05
LTE Band 2	5	18625	1	#Max	QPSK	19.26	26.76
LTE Band 2	5	18625	12	#0	QPSK	20.03	27.53
LTE Band 2	5	18625	12	#Mid	QPSK	20.02	27.52
LTE Band 2	5	18625	12	#Max	QPSK	19.58	27.08
LTE Band 2	5	18625	25	#0	QPSK	19.71	27.21
LTE Band 2	5	18625	1	#0	QAM16	20.17	27.67
LTE Band 2	5	18625	1	#Mid	QAM16	19.95	27.45
LTE Band 2	5	18625	1	#Max	QAM16	19.67	27.17
LTE Band 2	5	18625	12	#0	QAM16	20.13	27.63
LTE Band 2	5	18625	12	#Mid	QAM16	20.12	27.62
LTE Band 2	5	18625	12	#Max	QAM16	19.57	27.07
LTE Band 2	5	18625	25	#0	QAM16	19.74	27.24
LTE Band 2	5	18900	1	#0	QPSK	18.33	25.83
LTE Band 2	5	18900	1	#Mid	QPSK	18.61	26.11
LTE Band 2	5	18900	1	#Max	QPSK	19.12	26.62
LTE Band 2	5	18900	12	#0	QPSK	18.67	26.17
LTE Band 2	5	18900	12	#Mid	QPSK	18.66	26.16
LTE Band 2	5	18900	12	#Max	QPSK	18.93	26.43
LTE Band 2	5	18900	25	#0	QPSK	18.72	26.22
LTE Band 2	5	18900	1	#0	QAM16	18.54	26.04
LTE Band 2	5	18900	1	#Mid	QAM16	18.76	26.26
LTE Band 2	5	18900	1	#Max	QAM16	19.29	26.79
LTE Band 2	5	18900	12	#0	QAM16	18.58	26.08
LTE Band 2	5	18900	12	#Mid	QAM16	18.57	26.07
LTE Band 2	5	18900	12	#Max	QAM16	18.84	26.34
LTE Band 2	5	18900	25	#0	QAM16	18.64	26.14
LTE Band 2	5	19175	1	#0	QPSK	19.25	26.75
LTE Band 2	5	19175	1	#Mid	QPSK	19.94	27.44
LTE Band 2	5	19175	1	#Max	QPSK	19.98	27.48
LTE Band 2	5	19175	12	#0	QPSK	19.79	27.29
LTE Band 2	5	19175	12	#Mid	QPSK	19.88	27.38
LTE Band 2	5	19175	12	#Max	QPSK	20.04	27.54
LTE Band 2	5	19175	25	#0	QPSK	19.87	27.37
LTE Band 2	5	19175	1	#0	QAM16	19.50	27.00
LTE Band 2	5	19175	1	#Mid	QAM16	20.19	27.69
LTE Band 2	5	19175	1	#Max	QAM16	20.23	27.73
LTE Band 2	5	19175	12	#0	QAM16	19.91	27.41
LTE Band 2	5	19175	12	#Mid	QAM16	19.90	27.40
LTE Band 2	5	19175	12	#Max	QAM16	20.07	27.57

LTE Band 2	5	19175	25	#0	QAM16	19.85	27.35
LTE Band 2	10	18650	1	#0	QPSK	20.24	27.74
LTE Band 2	10	18650	1	#Mid	QPSK	19.42	26.92
LTE Band 2	10	18650	1	#Max	QPSK	18.84	26.34
LTE Band 2	10	18650	25	#0	QPSK	19.90	27.40
LTE Band 2	10	18650	25	#Mid	QPSK	19.90	27.40
LTE Band 2	10	18650	25	#Max	QPSK	18.96	26.46
LTE Band 2	10	18650	50	#0	QPSK	19.47	26.97
LTE Band 2	10	18650	1	#0	QAM16	20.47	27.97
LTE Band 2	10	18650	1	#Mid	QAM16	19.68	27.18
LTE Band 2	10	18650	1	#Max	QAM16	19.11	26.61
LTE Band 2	10	18650	25	#0	QAM16	19.95	27.45
LTE Band 2	10	18650	25	#Mid	QAM16	19.95	27.45
LTE Band 2	10	18650	25	#Max	QAM16	19.05	26.55
LTE Band 2	10	18650	50	#0	QAM16	19.46	26.96
LTE Band 2	10	18900	1	#0	QPSK	18.35	25.85
LTE Band 2	10	18900	1	#Mid	QPSK	18.88	26.38
LTE Band 2	10	18900	1	#Max	QPSK	19.88	27.38
LTE Band 2	10	18900	25	#0	QPSK	18.50	26.00
LTE Band 2	10	18900	25	#Mid	QPSK	18.57	26.07
LTE Band 2	10	18900	25	#Max	QPSK	19.34	26.84
LTE Band 2	10	18900	50	#0	QPSK	18.93	26.43
LTE Band 2	10	18900	1	#0	QAM16	18.57	26.07
LTE Band 2	10	18900	1	#Mid	QAM16	18.99	26.49
LTE Band 2	10	18900	1	#Max	QAM16	20.04	27.54
LTE Band 2	10	18900	25	#0	QAM16	18.57	26.07
LTE Band 2	10	18900	25	#Mid	QAM16	18.56	26.06
LTE Band 2	10	18900	25	#Max	QAM16	19.33	26.83
LTE Band 2	10	18900	50	#0	QAM16	18.87	26.37
LTE Band 2	10	19150	1	#0	QPSK	18.87	26.37
LTE Band 2	10	19150	1	#Mid	QPSK	19.52	27.02
LTE Band 2	10	19150	1	#Max	QPSK	20.46	27.96
LTE Band 2	10	19150	25	#0	QPSK	18.91	26.41
LTE Band 2	10	19150	25	#Mid	QPSK	18.89	26.39
LTE Band 2	10	19150	25	#Max	QPSK	20.04	27.54
LTE Band 2	10	19150	50	#0	QPSK	19.51	27.01
LTE Band 2	10	19150	1	#0	QAM16	18.70	26.20
LTE Band 2	10	19150	1	#Mid	QAM16	19.36	26.86
LTE Band 2	10	19150	1	#Max	QAM16	20.28	27.78
LTE Band 2	10	19150	25	#0	QAM16	18.89	26.39
LTE Band 2	10	19150	25	#Mid	QAM16	18.88	26.38
LTE Band 2	10	19150	25	#Max	QAM16	20.05	27.55
LTE Band 2	10	19150	50	#0	QAM16	19.51	27.01

LTE Band 2	15	18675	1	#0	QPSK	20.29	27.79
LTE Band 2	15	18675	1	#Mid	QPSK	18.77	26.27
LTE Band 2	15	18675	1	#Max	QPSK	18.08	25.58
LTE Band 2	15	18675	36	#0	QPSK	19.56	27.06
LTE Band 2	15	18675	36	#Mid	QPSK	19.56	27.06
LTE Band 2	15	18675	36	#Max	QPSK	18.15	25.65
LTE Band 2	15	18675	75	#0	QPSK	18.95	26.45
LTE Band 2	15	18675	1	#0	QAM16	20.54	28.04
LTE Band 2	15	18675	1	#Mid	QAM16	19.05	26.55
LTE Band 2	15	18675	1	#Max	QAM16	18.35	25.85
LTE Band 2	15	18675	36	#0	QAM16	19.57	27.07
LTE Band 2	15	18675	36	#Mid	QAM16	19.57	27.07
LTE Band 2	15	18675	36	#Max	QAM16	18.17	25.67
LTE Band 2	15	18675	75	#0	QAM16	18.97	26.47
LTE Band 2	15	18900	1	#0	QPSK	18.21	25.71
LTE Band 2	15	18900	1	#Mid	QPSK	18.78	26.28
LTE Band 2	15	18900	1	#Max	QPSK	20.17	27.67
LTE Band 2	15	18900	36	#0	QPSK	18.29	25.79
LTE Band 2	15	18900	36	#Mid	QPSK	18.27	25.77
LTE Band 2	15	18900	36	#Max	QPSK	19.42	26.92
LTE Band 2	15	18900	75	#0	QPSK	18.90	26.40
LTE Band 2	15	18900	1	#0	QAM16	18.31	25.81
LTE Band 2	15	18900	1	#Mid	QAM16	19.02	26.52
LTE Band 2	15	18900	1	#Max	QAM16	20.28	27.78
LTE Band 2	15	18900	36	#0	QAM16	18.25	25.75
LTE Band 2	15	18900	36	#Mid	QAM16	18.23	25.73
LTE Band 2	15	18900	36	#Max	QAM16	19.38	26.88
LTE Band 2	15	18900	75	#0	QAM16	18.85	26.35
LTE Band 2	15	19125	1	#0	QPSK	19.40	26.90
LTE Band 2	15	19125	1	#Mid	QPSK	18.76	26.26
LTE Band 2	15	19125	1	#Max	QPSK	20.60	28.10
LTE Band 2	15	19125	36	#0	QPSK	18.61	26.11
LTE Band 2	15	19125	36	#Mid	QPSK	18.60	26.10
LTE Band 2	15	19125	36	#Max	QPSK	19.65	27.15
LTE Band 2	15	19125	75	#0	QPSK	19.13	26.63
LTE Band 2	15	19125	1	#0	QAM16	19.39	26.89
LTE Band 2	15	19125	1	#Mid	QAM16	18.77	26.27
LTE Band 2	15	19125	1	#Max	QAM16	20.59	28.09
LTE Band 2	15	19125	36	#0	QAM16	18.59	26.09
LTE Band 2	15	19125	36	#Mid	QAM16	18.59	26.09
LTE Band 2	15	19125	36	#Max	QAM16	19.62	27.12
LTE Band 2	15	19125	75	#0	QAM16	19.13	26.63
LTE Band 2	20	18700	1	#0	QPSK	20.59	28.09

LTE Band 2	20	18700	1	#Mid	QPSK	18.46	25.96
LTE Band 2	20	18700	1	#Max	QPSK	17.67	25.17
LTE Band 2	20	18700	50	#0	QPSK	19.62	27.12
LTE Band 2	20	18700	50	#Mid	QPSK	19.63	27.13
LTE Band 2	20	18700	50	#Max	QPSK	18.11	25.61
LTE Band 2	20	18700	100	#0	QPSK	19.14	26.64
LTE Band 2	20	18700	1	#0	QAM16	20.74	28.24
LTE Band 2	20	18700	1	#Mid	QAM16	18.80	26.30
LTE Band 2	20	18700	1	#Max	QAM16	17.86	25.36
LTE Band 2	20	18700	50	#0	QAM16	19.63	27.13
LTE Band 2	20	18700	50	#Mid	QAM16	19.64	27.14
LTE Band 2	20	18700	50	#Max	QAM16	18.12	25.62
LTE Band 2	20	18700	100	#0	QAM16	19.13	26.63
LTE Band 2	20	18900	1	#0	QPSK	18.04	25.54
LTE Band 2	20	18900	1	#Mid	QPSK	19.06	26.56
LTE Band 2	20	18900	1	#Max	QPSK	20.51	28.01
LTE Band 2	20	18900	50	#0	QPSK	18.47	25.97
LTE Band 2	20	18900	50	#Mid	QPSK	18.46	25.96
LTE Band 2	20	18900	50	#Max	QPSK	19.78	27.28
LTE Band 2	20	18900	100	#0	QPSK	19.38	26.88
LTE Band 2	20	18900	1	#0	QAM16	17.97	25.47
LTE Band 2	20	18900	1	#Mid	QAM16	18.95	26.45
LTE Band 2	20	18900	1	#Max	QAM16	20.30	27.80
LTE Band 2	20	18900	50	#0	QAM16	18.42	25.92
LTE Band 2	20	18900	50	#Mid	QAM16	18.40	25.90
LTE Band 2	20	18900	50	#Max	QAM16	19.72	27.22
LTE Band 2	20	18900	100	#0	QAM16	19.36	26.86
LTE Band 2	20	19100	1	#0	QPSK	20.13	27.63
LTE Band 2	20	19100	1	#Mid	QPSK	18.71	26.21
LTE Band 2	20	19100	1	#Max	QPSK	20.87	28.37
LTE Band 2	20	19100	50	#0	QPSK	19.31	26.81
LTE Band 2	20	19100	50	#Mid	QPSK	19.33	26.83
LTE Band 2	20	19100	50	#Max	QPSK	19.63	27.13
LTE Band 2	20	19100	100	#0	QPSK	19.51	27.01
LTE Band 2	20	19100	1	#0	QAM16	19.89	27.39
LTE Band 2	20	19100	1	#Mid	QAM16	18.50	26.00
LTE Band 2	20	19100	1	#Max	QAM16	20.62	28.12
LTE Band 2	20	19100	50	#0	QAM16	19.35	26.85
LTE Band 2	20	19100	50	#Mid	QAM16	19.36	26.86
LTE Band 2	20	19100	50	#Max	QAM16	19.68	27.18
LTE Band 2	20	19100	100	#0	QAM16	19.50	27.00

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
LTE Band 2	1.4	18607	1	#0	QAM64	19.43	26.93
LTE Band 2	1.4	18607	1	#Mid	QAM64	19.57	27.07
LTE Band 2	1.4	18607	1	#Max	QAM64	19.56	27.06
LTE Band 2	1.4	18607	3	#0	QAM64	19.42	26.92
LTE Band 2	1.4	18607	3	#Mid	QAM64	19.42	26.92
LTE Band 2	1.4	18607	3	#Max	QAM64	19.32	26.82
LTE Band 2	1.4	18607	6	#0	QAM64	19.33	26.83
LTE Band 2	1.4	18900	1	#0	QAM64	18.17	25.67
LTE Band 2	1.4	18900	1	#Mid	QAM64	18.16	25.66
LTE Band 2	1.4	18900	1	#Max	QAM64	18.18	25.68
LTE Band 2	1.4	18900	3	#0	QAM64	18.12	25.62
LTE Band 2	1.4	18900	3	#Mid	QAM64	18.11	25.61
LTE Band 2	1.4	18900	3	#Max	QAM64	18.27	25.77
LTE Band 2	1.4	18900	6	#0	QAM64	18.22	25.72
LTE Band 2	1.4	19193	1	#0	QAM64	19.93	27.43
LTE Band 2	1.4	19193	1	#Mid	QAM64	19.51	27.01
LTE Band 2	1.4	19193	1	#Max	QAM64	19.51	27.01
LTE Band 2	1.4	19193	3	#0	QAM64	19.88	27.38
LTE Band 2	1.4	19193	3	#Mid	QAM64	19.91	27.41
LTE Band 2	1.4	19193	3	#Max	QAM64	19.80	27.30
LTE Band 2	1.4	19193	6	#0	QAM64	19.64	27.14
LTE Band 2	3	18615	1	#0	QAM64	19.48	26.98
LTE Band 2	3	18615	1	#Mid	QAM64	19.37	26.87
LTE Band 2	3	18615	1	#Max	QAM64	19.38	26.88
LTE Band 2	3	18615	8	#0	QAM64	19.79	27.29
LTE Band 2	3	18615	8	#Mid	QAM64	19.78	27.28
LTE Band 2	3	18615	8	#Max	QAM64	19.31	26.81
LTE Band 2	3	18615	15	#0	QAM64	19.26	26.76
LTE Band 2	3	18900	1	#0	QAM64	17.98	25.48
LTE Band 2	3	18900	1	#Mid	QAM64	18.19	25.69
LTE Band 2	3	18900	1	#Max	QAM64	18.49	25.99
LTE Band 2	3	18900	8	#0	QAM64	18.34	25.84
LTE Band 2	3	18900	8	#Mid	QAM64	18.34	25.84
LTE Band 2	3	18900	8	#Max	QAM64	18.27	25.77
LTE Band 2	3	18900	15	#0	QAM64	18.12	25.62
LTE Band 2	3	19185	1	#0	QAM64	19.29	26.79
LTE Band 2	3	19185	1	#Mid	QAM64	19.45	26.95
LTE Band 2	3	19185	1	#Max	QAM64	19.37	26.87
LTE Band 2	3	19185	8	#0	QAM64	19.99	27.49
LTE Band 2	3	19185	8	#Mid	QAM64	19.98	27.48
LTE Band 2	3	19185	8	#Max	QAM64	19.50	27.00

LTE Band 2	3	19185	15	#0	QAM64	19.64	27.14
LTE Band 2	5	18625	1	#0	QAM64	19.67	27.17
LTE Band 2	5	18625	1	#Mid	QAM64	19.45	26.95
LTE Band 2	5	18625	1	#Max	QAM64	19.17	26.67
LTE Band 2	5	18625	12	#0	QAM64	19.62	27.12
LTE Band 2	5	18625	12	#Mid	QAM64	19.61	27.11
LTE Band 2	5	18625	12	#Max	QAM64	19.04	26.54
LTE Band 2	5	18625	25	#0	QAM64	19.21	26.71
LTE Band 2	5	18900	1	#0	QAM64	18.01	25.51
LTE Band 2	5	18900	1	#Mid	QAM64	18.35	25.85
LTE Band 2	5	18900	1	#Max	QAM64	18.89	26.39
LTE Band 2	5	18900	12	#0	QAM64	18.15	25.65
LTE Band 2	5	18900	12	#Mid	QAM64	18.14	25.64
LTE Band 2	5	18900	12	#Max	QAM64	18.44	25.94
LTE Band 2	5	18900	25	#0	QAM64	18.23	25.73
LTE Band 2	5	19175	1	#0	QAM64	18.96	26.46
LTE Band 2	5	19175	1	#Mid	QAM64	19.79	27.29
LTE Band 2	5	19175	1	#Max	QAM64	19.76	27.26
LTE Band 2	5	19175	12	#0	QAM64	19.38	26.88
LTE Band 2	5	19175	12	#Mid	QAM64	19.50	27.00
LTE Band 2	5	19175	12	#Max	QAM64	19.70	27.20
LTE Band 2	5	19175	25	#0	QAM64	19.44	26.94
LTE Band 2	10	18650	1	#0	QAM64	19.96	27.46
LTE Band 2	10	18650	1	#Mid	QAM64	19.27	26.77
LTE Band 2	10	18650	1	#Max	QAM64	18.67	26.17
LTE Band 2	10	18650	25	#0	QAM64	19.54	27.04
LTE Band 2	10	18650	25	#Mid	QAM64	19.53	27.03
LTE Band 2	10	18650	25	#Max	QAM64	18.62	26.12
LTE Band 2	10	18650	50	#0	QAM64	19.04	26.54
LTE Band 2	10	18900	1	#0	QAM64	18.02	25.52
LTE Band 2	10	18900	1	#Mid	QAM64	18.57	26.07
LTE Band 2	10	18900	1	#Max	QAM64	19.52	27.02
LTE Band 2	10	18900	25	#0	QAM64	18.02	25.52
LTE Band 2	10	18900	25	#Mid	QAM64	18.00	25.50
LTE Band 2	10	18900	25	#Max	QAM64	18.92	26.42
LTE Band 2	10	18900	50	#0	QAM64	18.44	25.94
LTE Band 2	10	19150	1	#0	QAM64	18.20	25.70
LTE Band 2	10	19150	1	#Mid	QAM64	18.88	26.38
LTE Band 2	10	19150	1	#Max	QAM64	19.78	27.28
LTE Band 2	10	19150	25	#0	QAM64	18.29	25.79
LTE Band 2	10	19150	25	#Mid	QAM64	18.28	25.78
LTE Band 2	10	19150	25	#Max	QAM64	19.62	27.12
LTE Band 2	10	19150	50	#0	QAM64	19.02	26.52

LTE Band 2	15	18675	1	#0	QAM64	19.84	27.34
LTE Band 2	15	18675	1	#Mid	QAM64	18.36	25.86
LTE Band 2	15	18675	1	#Max	QAM64	17.59	25.09
LTE Band 2	15	18675	36	#0	QAM64	19.16	26.66
LTE Band 2	15	18675	36	#Mid	QAM64	19.15	26.65
LTE Band 2	15	18675	36	#Max	QAM64	17.73	25.23
LTE Band 2	15	18675	75	#0	QAM64	18.54	26.04
LTE Band 2	15	18900	1	#0	QAM64	17.88	25.38
LTE Band 2	15	18900	1	#Mid	QAM64	18.58	26.08
LTE Band 2	15	18900	1	#Max	QAM64	19.86	27.36
LTE Band 2	15	18900	36	#0	QAM64	17.71	25.21
LTE Band 2	15	18900	36	#Mid	QAM64	17.69	25.19
LTE Band 2	15	18900	36	#Max	QAM64	18.98	26.48
LTE Band 2	15	18900	75	#0	QAM64	18.44	25.94
LTE Band 2	15	19125	1	#0	QAM64	18.96	26.46
LTE Band 2	15	19125	1	#Mid	QAM64	18.33	25.83
LTE Band 2	15	19125	1	#Max	QAM64	20.28	27.78
LTE Band 2	15	19125	36	#0	QAM64	18.15	25.65
LTE Band 2	15	19125	36	#Mid	QAM64	18.14	25.64
LTE Band 2	15	19125	36	#Max	QAM64	19.22	26.72
LTE Band 2	15	19125	75	#0	QAM64	18.66	26.16
LTE Band 2	20	18700	1	#0	QAM64	20.31	27.81
LTE Band 2	20	18700	1	#Mid	QAM64	18.23	25.73
LTE Band 2	20	18700	1	#Max	QAM64	17.36	24.86
LTE Band 2	20	18700	50	#0	QAM64	19.18	26.68
LTE Band 2	20	18700	50	#Mid	QAM64	19.19	26.69
LTE Band 2	20	18700	50	#Max	QAM64	17.63	25.13
LTE Band 2	20	18700	100	#0	QAM64	18.66	26.16
LTE Band 2	20	18900	1	#0	QAM64	17.32	24.82
LTE Band 2	20	18900	1	#Mid	QAM64	18.43	25.93
LTE Band 2	20	18900	1	#Max	QAM64	19.81	27.31
LTE Band 2	20	18900	50	#0	QAM64	17.89	25.39
LTE Band 2	20	18900	50	#Mid	QAM64	17.87	25.37
LTE Band 2	20	18900	50	#Max	QAM64	19.21	26.71
LTE Band 2	20	18900	100	#0	QAM64	18.84	26.34
LTE Band 2	20	19100	1	#0	QAM64	19.36	26.86
LTE Band 2	20	19100	1	#Mid	QAM64	17.94	25.44
LTE Band 2	20	19100	1	#Max	QAM64	20.09	27.59
LTE Band 2	20	19100	50	#0	QAM64	18.79	26.29
LTE Band 2	20	19100	50	#Mid	QAM64	18.80	26.30
LTE Band 2	20	19100	50	#Max	QAM64	19.13	26.63
LTE Band 2	20	19100	100	#0	QAM64	19.08	26.58

5.2. Occupied Bandwidth

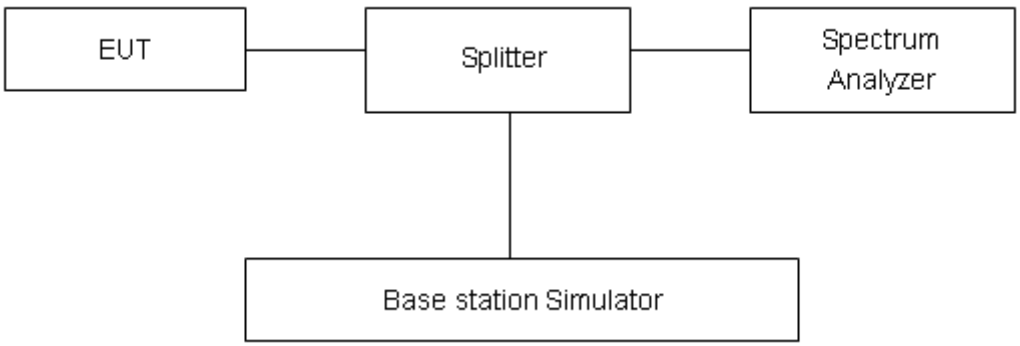
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to 30 kHz, VBW is set to 91kHz for LTE Band 2 (1.4MHz),
RBW is set to 62 kHz, VBW is set to 180 kHz for LTE Band 2 (3MHz),
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 2(5MHz),
RBW is set to 200 kHz, VBW is set to 620kHz for LTE Band 2(10MHz),
RBW is set to 300kHz,VBW is set to 910kHz for LTE Band 2(15MHz).
RBW is set to 430kHz,VBW is set to 1.2MHz for LTE Band 2(20MHz).
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

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

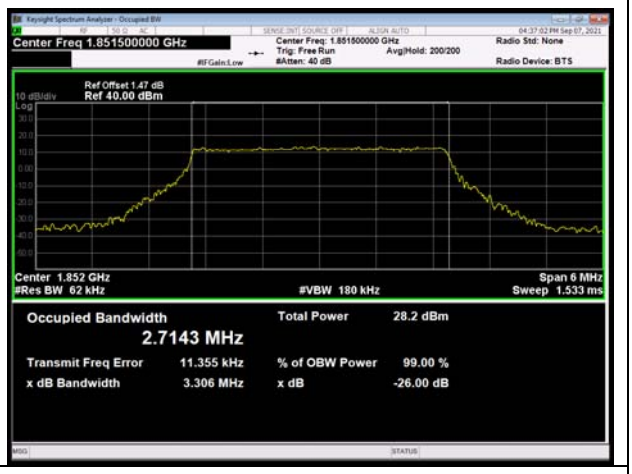
Test Result

LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.112	1.499
		18900	1880.0	1.120	1.490
		19193	1909.3	1.108	1.488
	3	18615	1851.5	2.714	3.306
		18900	1880	2.717	3.280
		19185	1908.5	2.712	3.316
	5	18625	1852.5	4.568	5.274
		18900	1880	4.529	5.233
		19175	1907.5	4.537	5.215
	10	18650	1855	8.994	9.879
		18900	1880	8.992	9.930
		19150	1905	8.980	9.880
	15	18675	1857.5	13.421	14.566
		18900	1880	13.469	14.618
		19125	1902.5	13.491	14.686
	20	18700	1860	17.906	19.234
		18900	1880	17.940	19.207
		19100	1900	17.975	19.272
16QAM	1.4	18607	1850.7	1.123	1.548
		18900	1880.0	1.113	1.455
		19193	1909.3	1.112	1.430
	3	18615	1851.5	2.741	3.295
		18900	1880	2.717	3.411
		19185	1908.5	2.712	3.367
	5	18625	1852.5	4.519	5.170
		18900	1880	4.555	5.445
		19175	1907.5	4.529	5.245
	10	18650	1855	8.968	9.854
		18900	1880	8.991	9.710

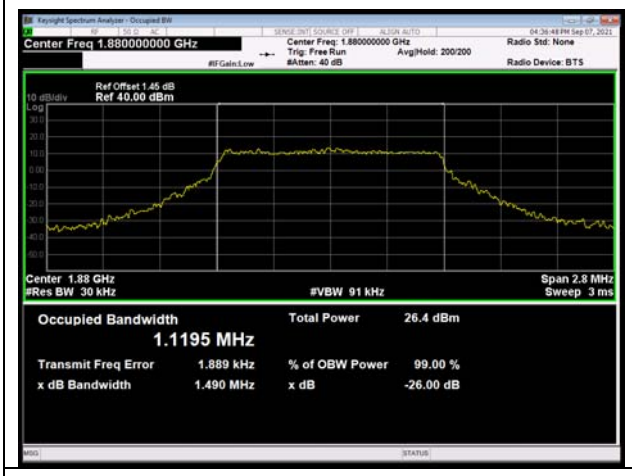
		19150	1905	8.977	9.730
	15	18675	1857.5	13.433	14.342
		18900	1880	13.494	14.441
		19125	1902.5	13.541	14.704
	20	18700	1860	17.850	19.192
		18900	1880	17.938	19.100
		19100	1900	18.015	19.255
64QAM	1.4	18607	1850.7	1.121	1.533
		18900	1880	1.104	1.471
		19193	1909.3	1.118	1.448
	3	18615	1851.5	2.721	3.302
		18900	1880	2.710	3.291
		19185	1908.5	2.711	3.406
	5	18625	1852.5	4.524	5.174
		18900	1880	4.529	5.416
		19175	1907.5	4.544	5.365
	10	18650	1855	8.963	9.910
		18900	1880	8.992	10.008
		19150	1905	8.985	10.034
	15	18675	1857.5	13.416	14.360
		18900	1880	13.506	14.632
		19125	1902.5	13.509	14.492
	20	18700	1860	17.850	19.180
		18900	1880	17.991	19.356
		19100	1900	17.996	19.265

LTE Band 2 1.4MHz QPSK CH-Low

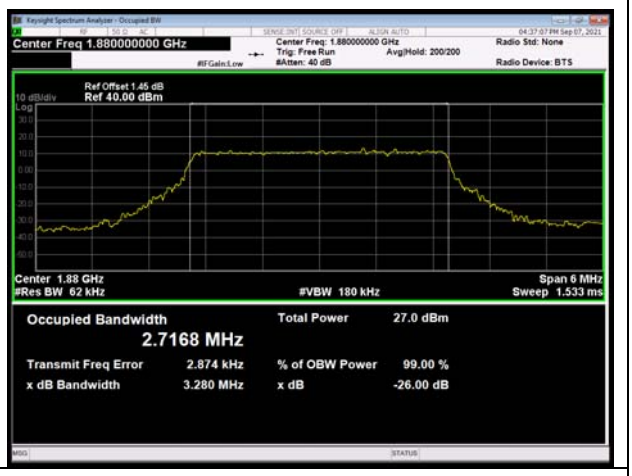
LTE Band 2 3MHz QPSK CH-Low



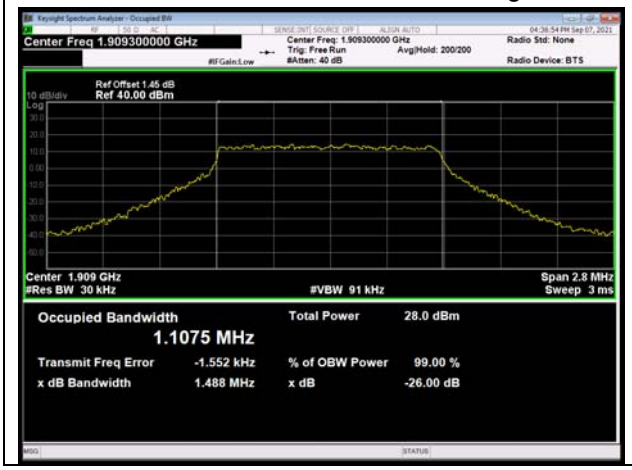
LTE Band 2 1.4MHz QPSK CH-Middle



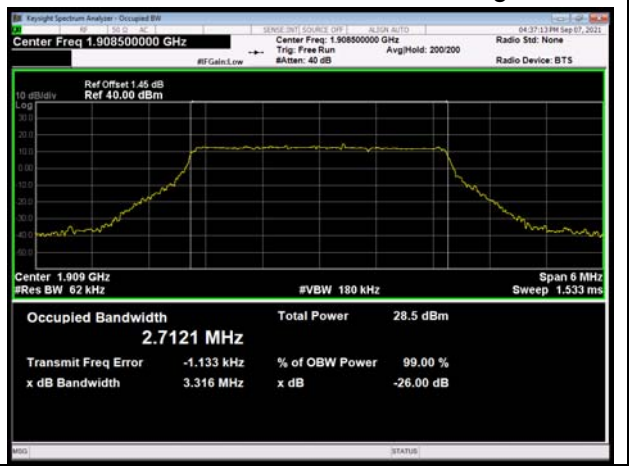
LTE Band 2 3MHz QPSK CH-Middle



LTE Band 2 1.4MHz QPSK CH-High

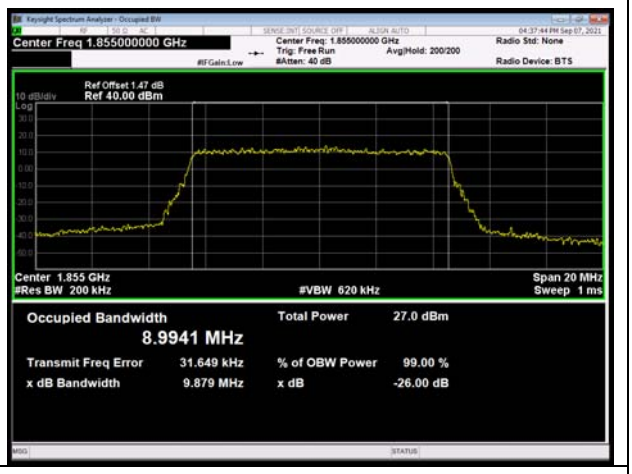


LTE Band 2 3MHz QPSK CH-High

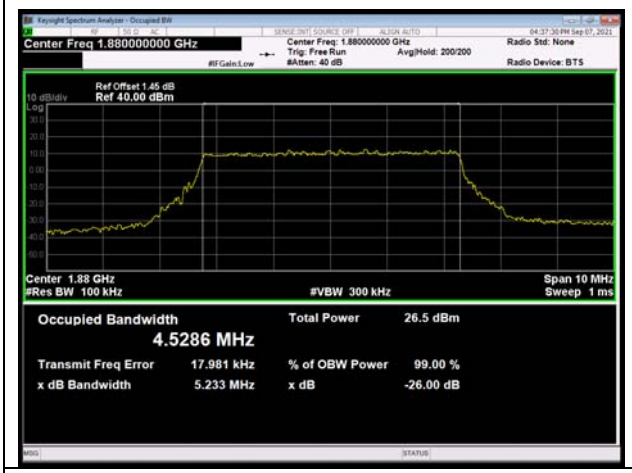


LTE Band 2 5MHz QPSK CH-Low

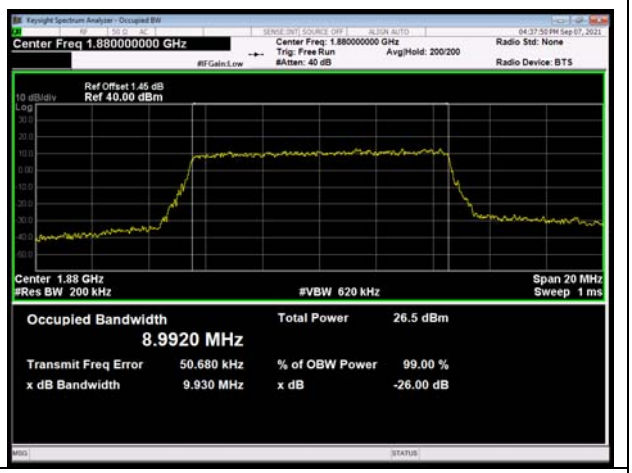
LTE Band 2 10MHz QPSK CH-Low



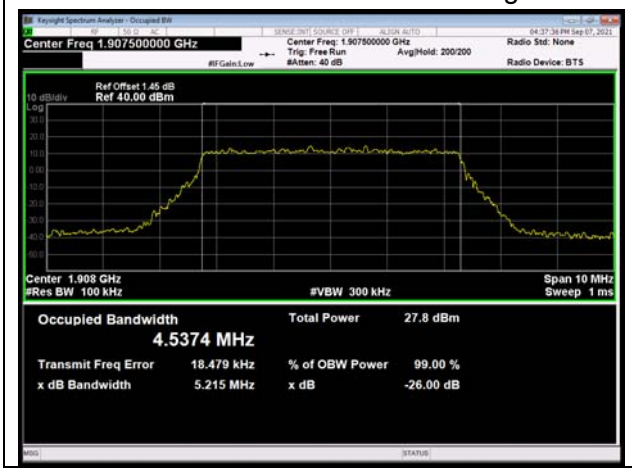
LTE Band 2 5MHz QPSK CH-Middle



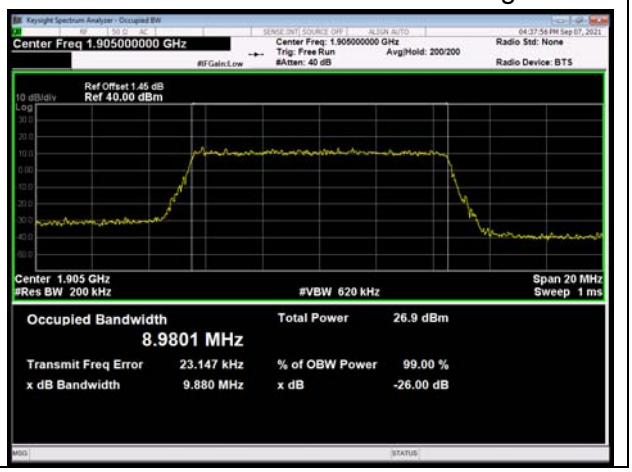
LTE Band 2 10MHz QPSK CH-Middle



LTE Band 2 5MHz QPSK CH-High



LTE Band 2 10MHz QPSK CH-High

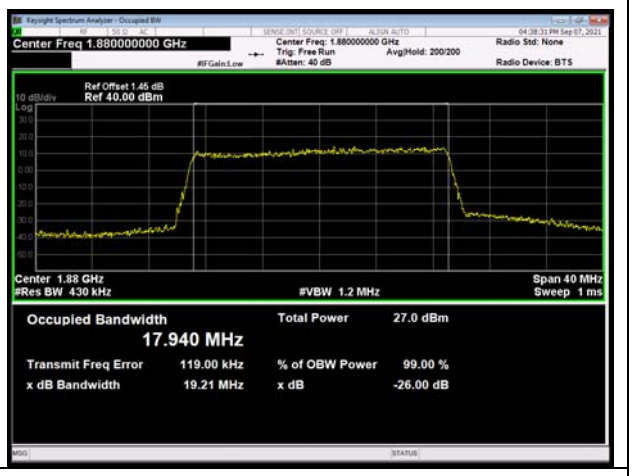


LTE Band 2 15MHz QPSK CH-Low

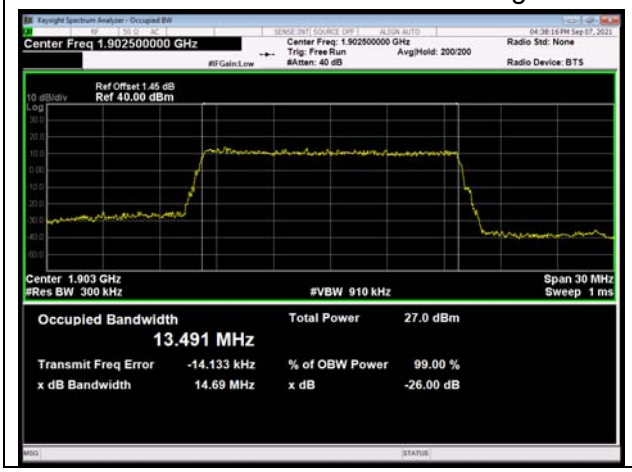
LTE Band 2 20MHz QPSK CH-Low

LTE Band 2 15MHz QPSK CH-Middle

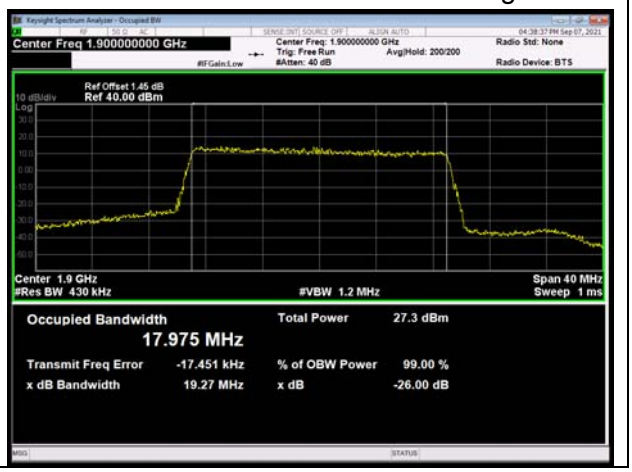
LTE Band 2 20MHz QPSK CH-Middle



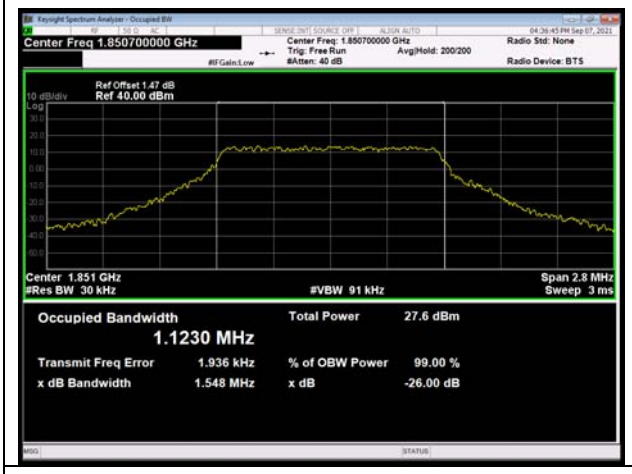
LTE Band 2 15MHz QPSK CH-High



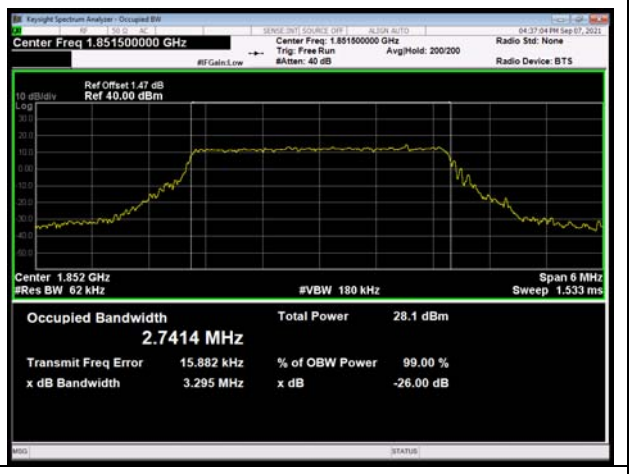
LTE Band 2 20MHz QPSK CH-High



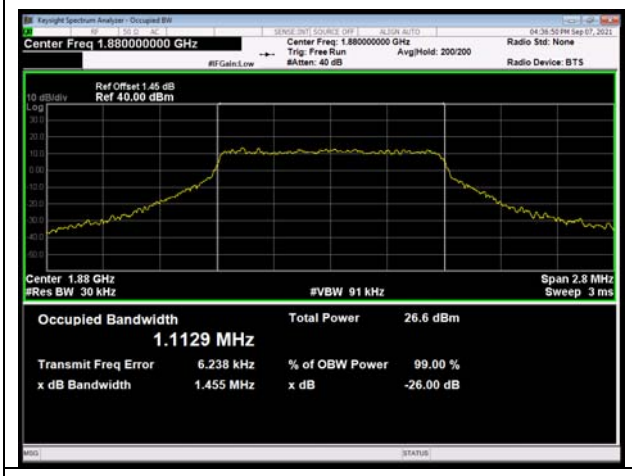
LTE Band 2 1.4MHz 16QAM CH-Low



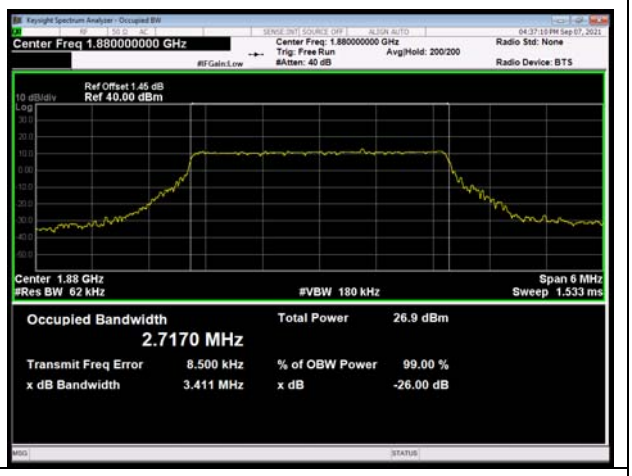
LTE Band 2 3MHz 16QAM CH-Low



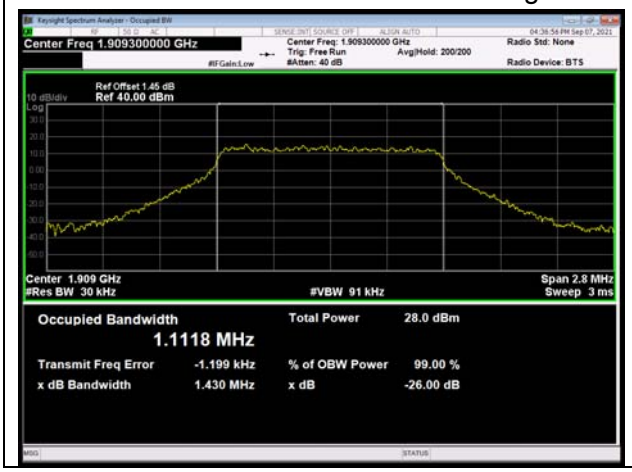
LTE Band 2 1.4MHz 16QAM CH-Middle



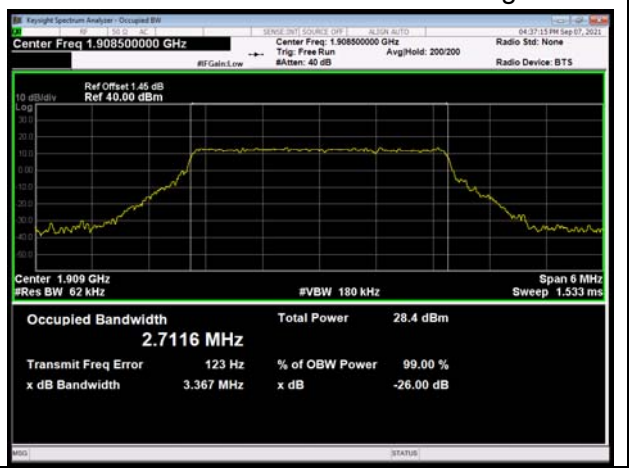
LTE Band 2 3MHz 16QAM CH-Middle



LTE Band 2 1.4MHz 16QAM CH-High

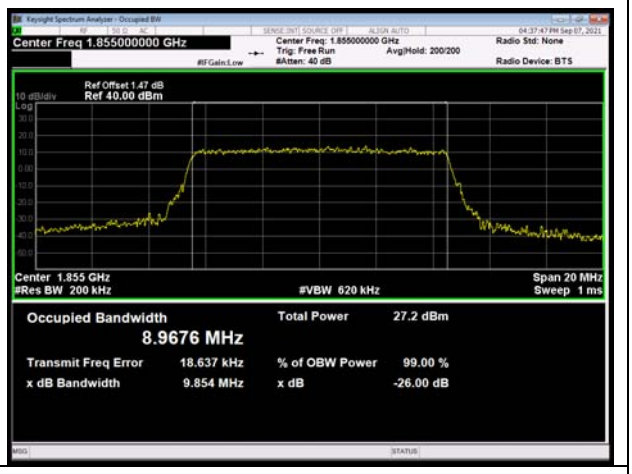


LTE Band 2 3MHz 16QAM CH-High

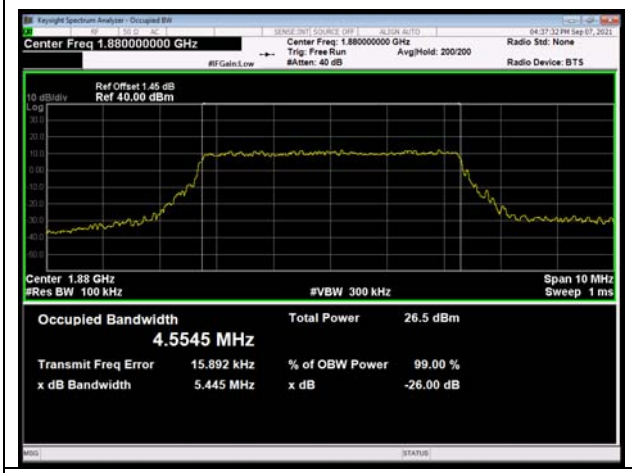


LTE Band 2 5MHz 16QAM CH-Low

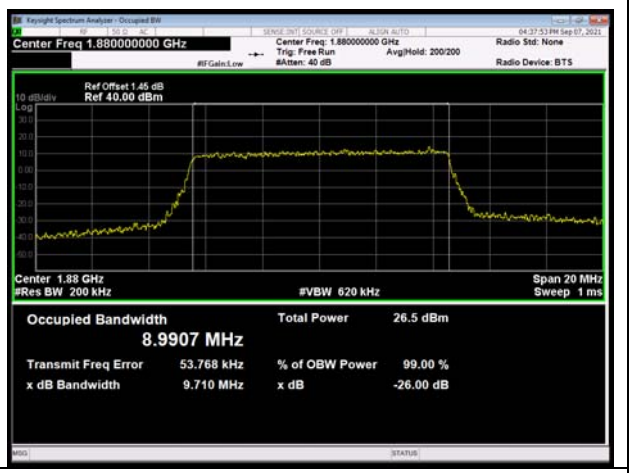
LTE Band 2 10MHz 16QAM CH-Low



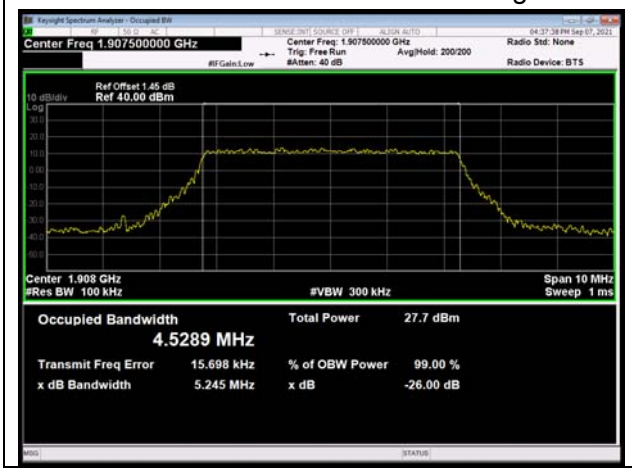
LTE Band 2 5MHz 16QAM CH-Middle



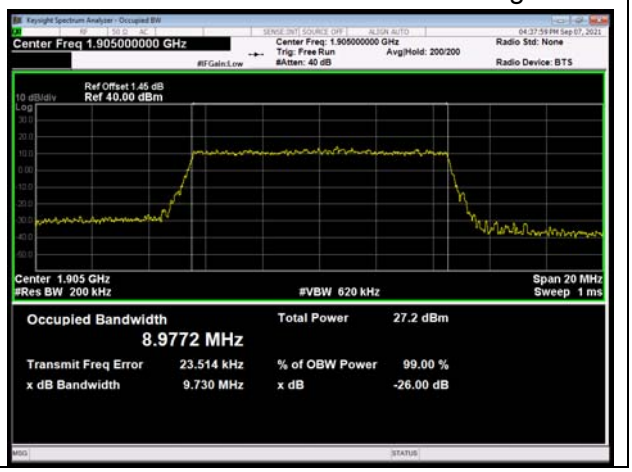
LTE Band 2 10MHz 16QAM CH-Middle



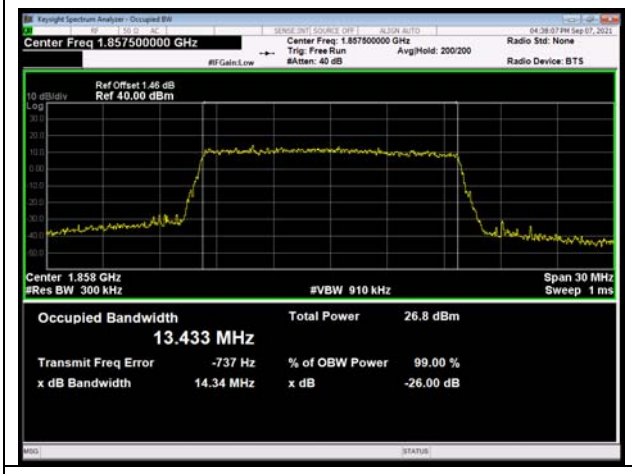
LTE Band 2 5MHz 16QAM CH-High



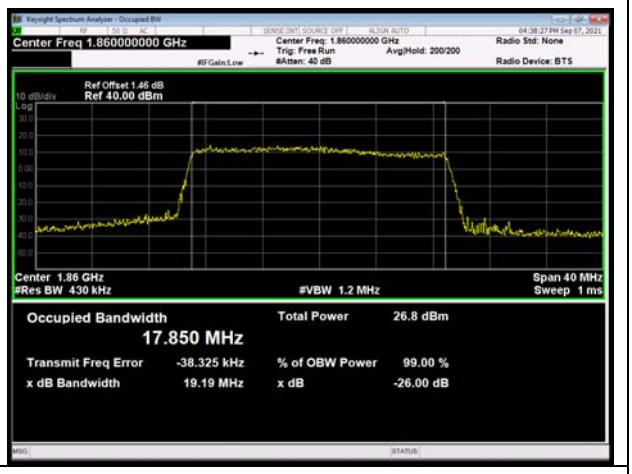
LTE Band 2 10MHz 16QAM CH-High



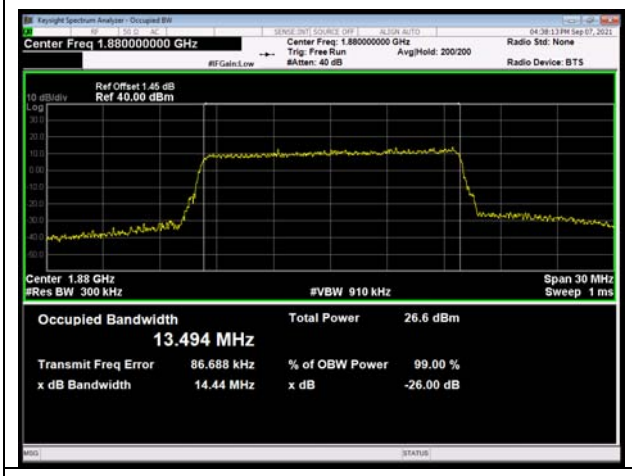
LTE Band 2 15MHz 16QAM CH-Low



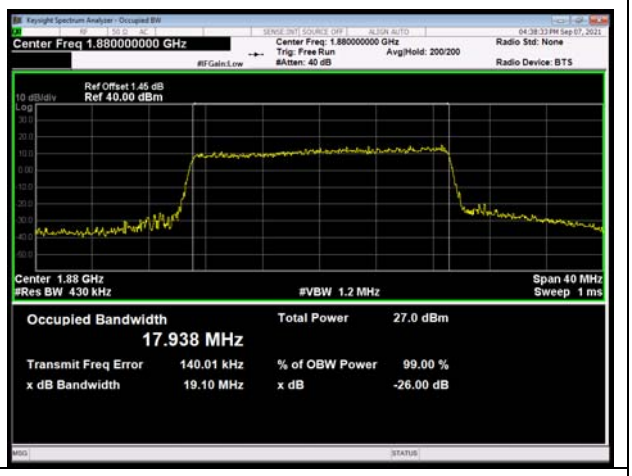
LTE Band 2 20MHz 16QAM CH-Low



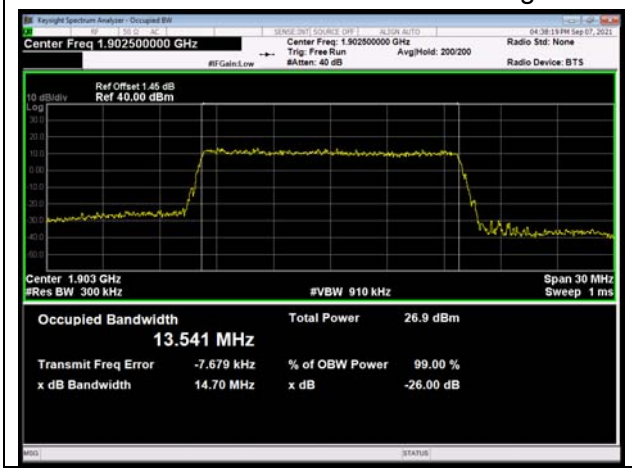
LTE Band 2 15MHz 16QAM CH-Middle



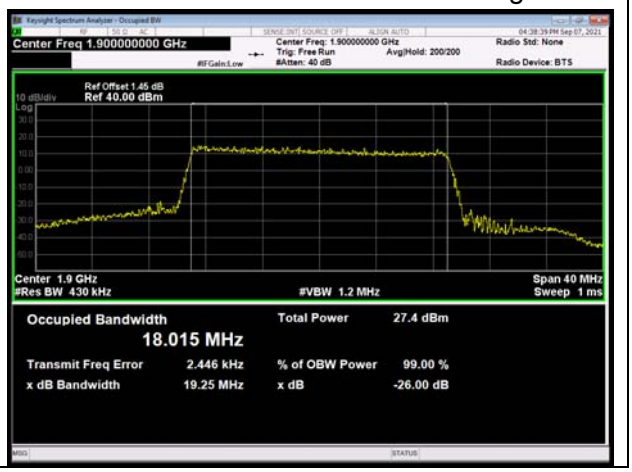
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High

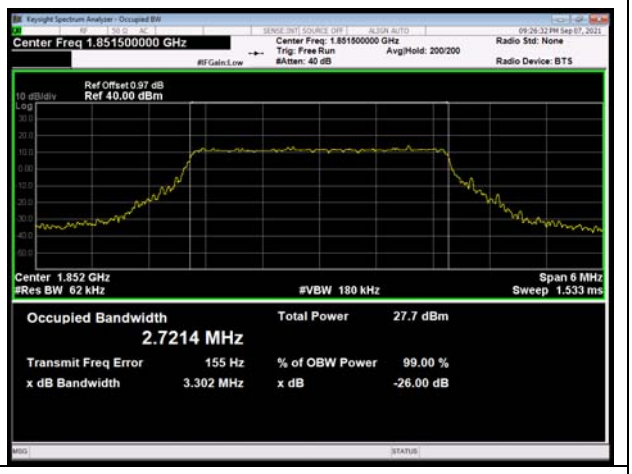


LTE Band 2 20MHz 16QAM CH-High

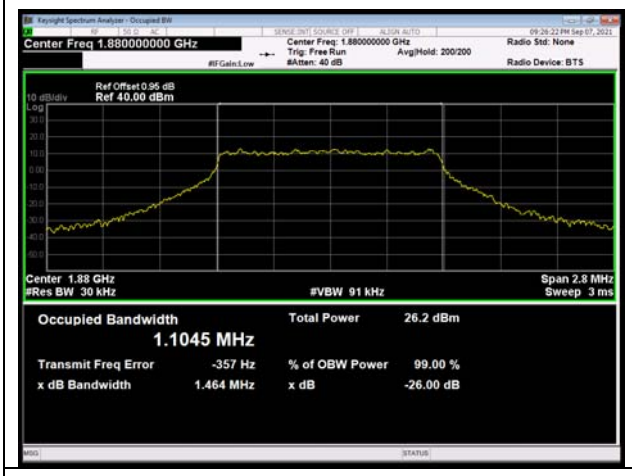


LTE Band 2 1.4MHz 64QAM CH-Low

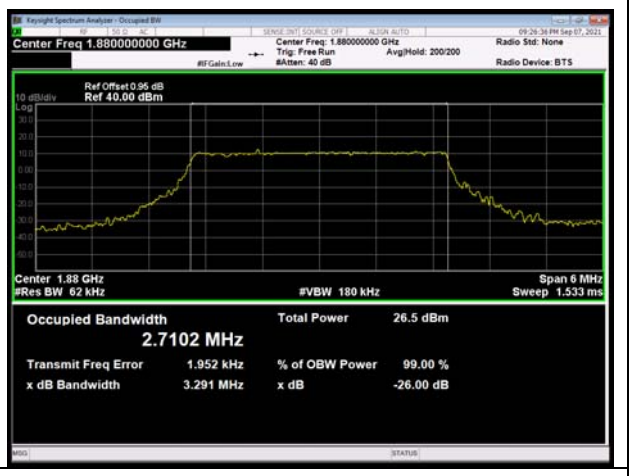
LTE Band 2 3MHz 64QAM CH-Low



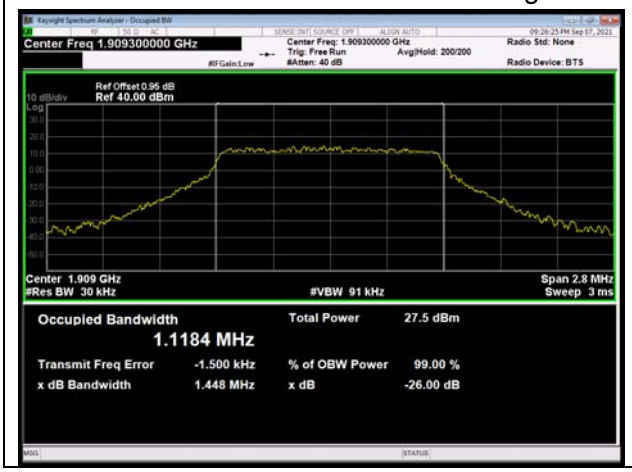
LTE Band 2 1.4MHz 64QAM CH-Middle



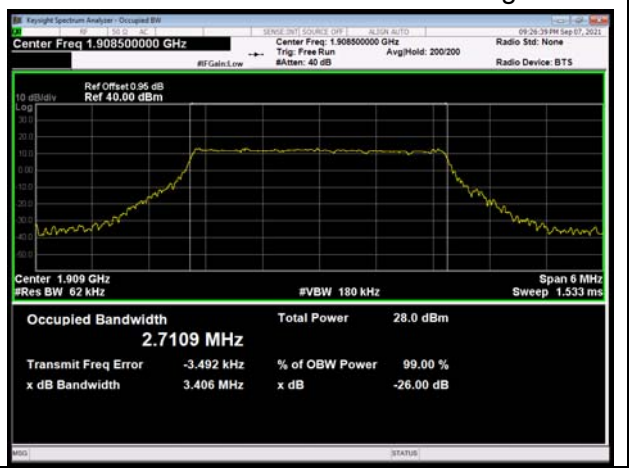
LTE Band 2 3MHz 64QAM CH-Middle



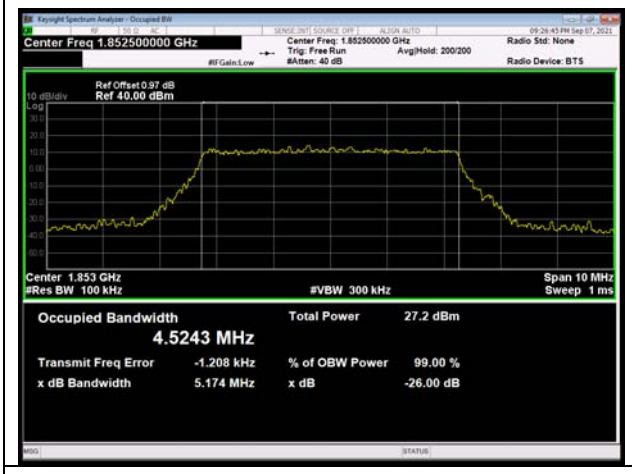
LTE Band 2 1.4MHz 64QAM CH-High



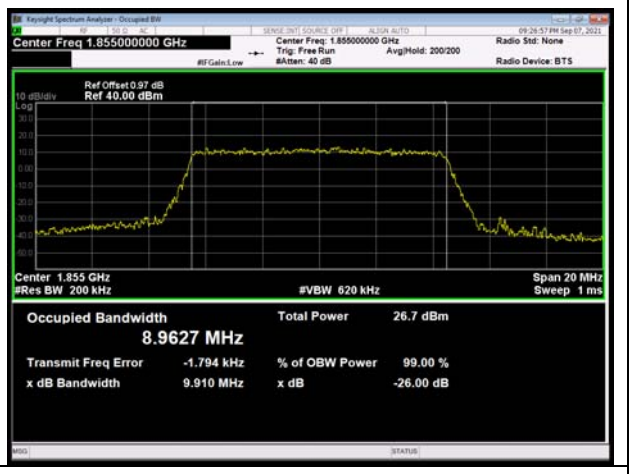
LTE Band 2 3MHz 64QAM CH-High



LTE Band 2 5MHz 64QAM CH-Low

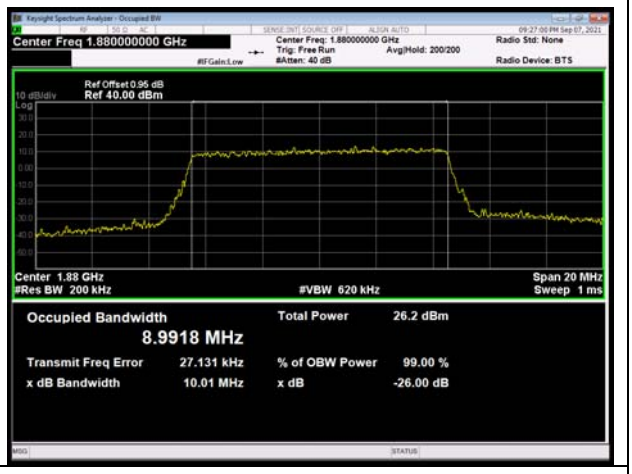


LTE Band 2 10MHz 64QAM CH-Low

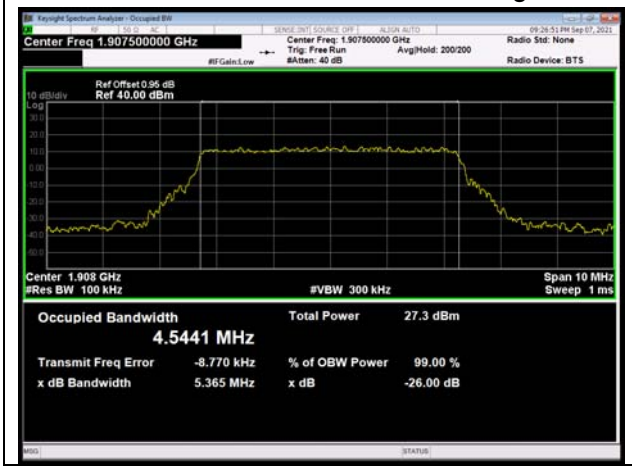


LTE Band 2 5MHz 64QAM CH-Middle

LTE Band 2 10MHz 64QAM CH-Middle



LTE Band 2 5MHz 64QAM CH-High

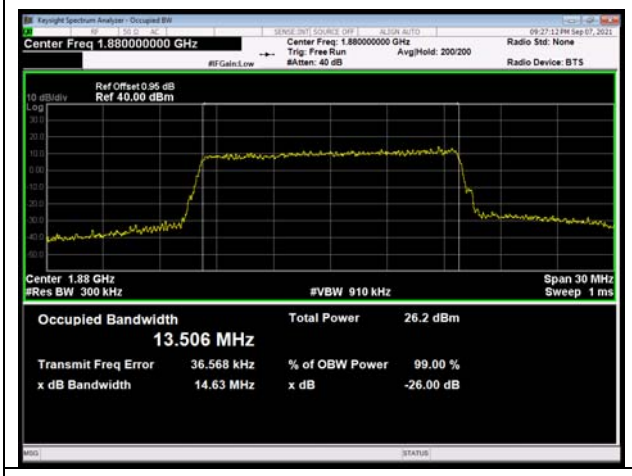


LTE Band 2 10MHz 64QAM CH-High

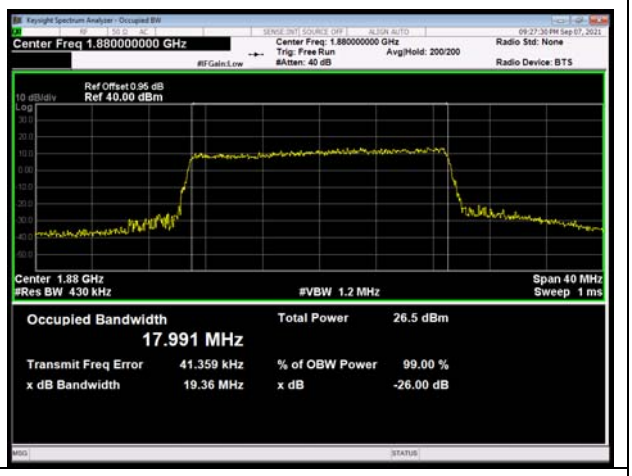
LTE Band 2 15MHz 64QAM CH-Low

LTE Band 2 20MHz 64QAM CH-Low

LTE Band 2 15MHz 64QAM CH-Middle

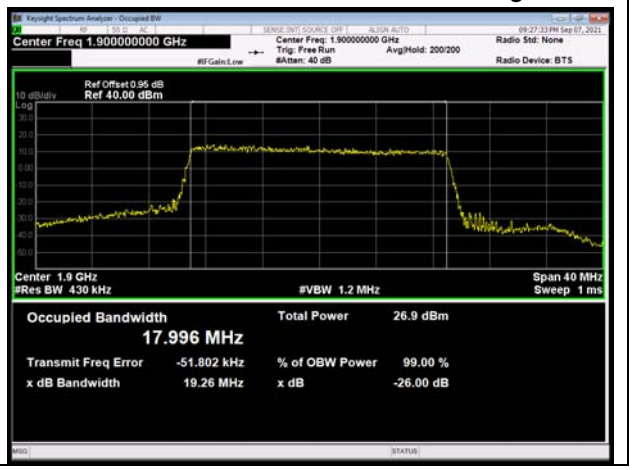


LTE Band 2 20MHz 64QAM CH-Middle



LTE Band 2 15MHz 64QAM CH-High

LTE Band 2 20MHz 64QAM CH-High



5.3. Band Edge Compliance

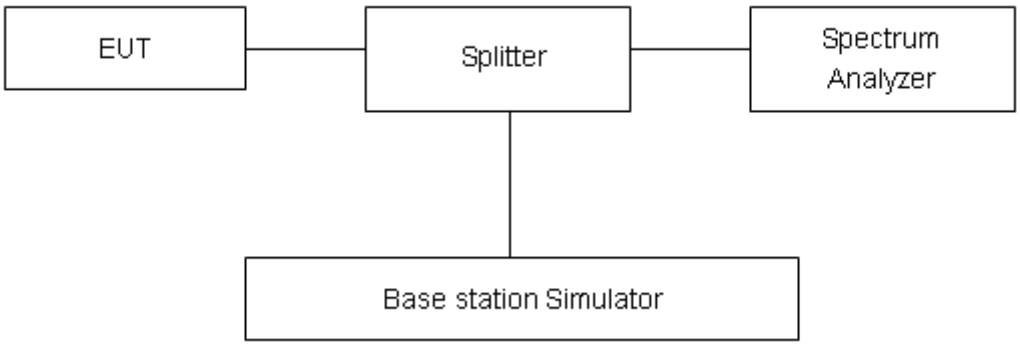
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and
RBW is set to 15kHz, VBW is set to 43kHz for LTE Band 2(1.4MHz),
RBW is set to 33kHz,VBW is set to 100kHz for LTE Band 2(3MHz),
RBW is set to 51kHz,VBW is set to 150kHz for LTE Band 2(5MHz),
RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2(10MHz),
RBW is set to 150kHz,VBW is set to 470kHz for LTE Band 2(15MHz),
RBW is set to 200kHz,VBW is set to 620kHz for LTE Band 2(20MHz).
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

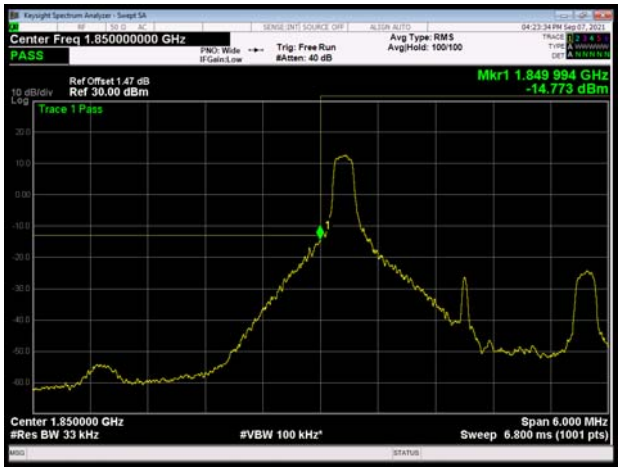
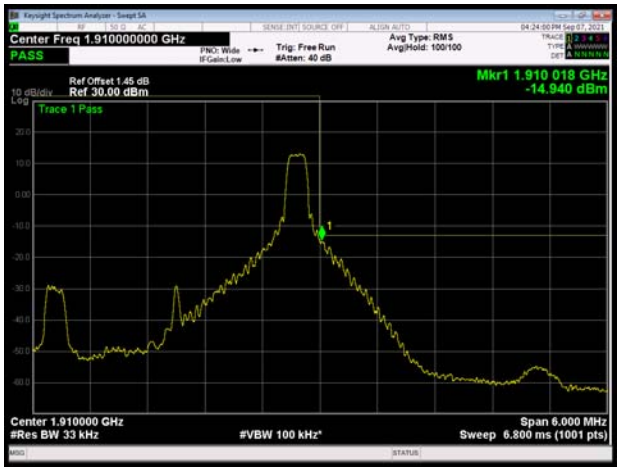
Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

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

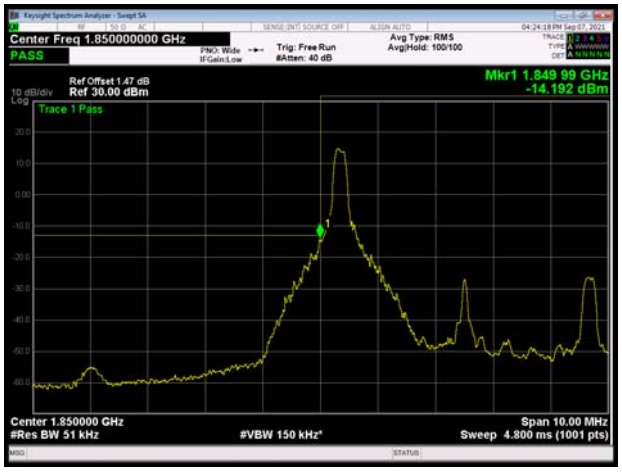
Test Result:

LTE Band 2 1.4MHz QPSK 1RB CH-Low	LTE Band 2 1.4MHz QPSK 1RB CH-High
	
LTE Band 2 1.4MHz QPSK 100%RB CH-Low	LTE Band 2 1.4MHz QPSK 100%RB CH-High
	
LTE Band 2 3MHz QPSK 1RB CH-Low	LTE Band 2 3MHz QPSK 1RB CH-High
	

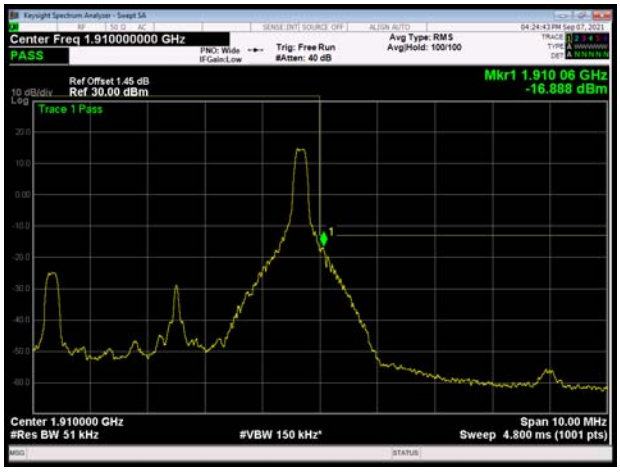
LTE Band 2 3MHz QPSK 100%RB CH-Low

LTE Band 2 3MHz QPSK 100%RB CH-High

LTE Band 2 5MHz QPSK 1RB CH-Low



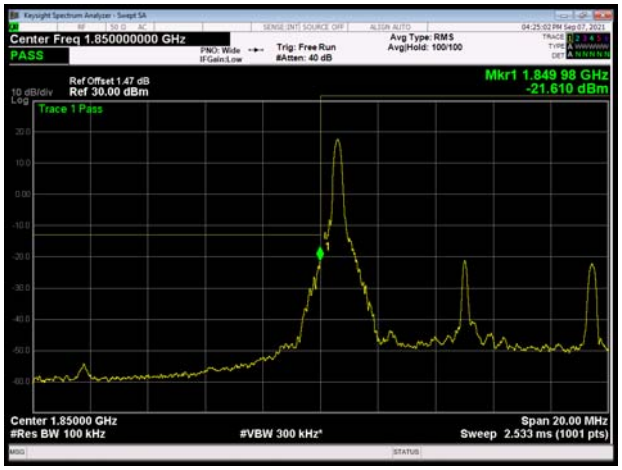
LTE Band 2 5MHz QPSK 1RB CH-High



LTE Band 2 5MHz QPSK 100%RB CH-Low

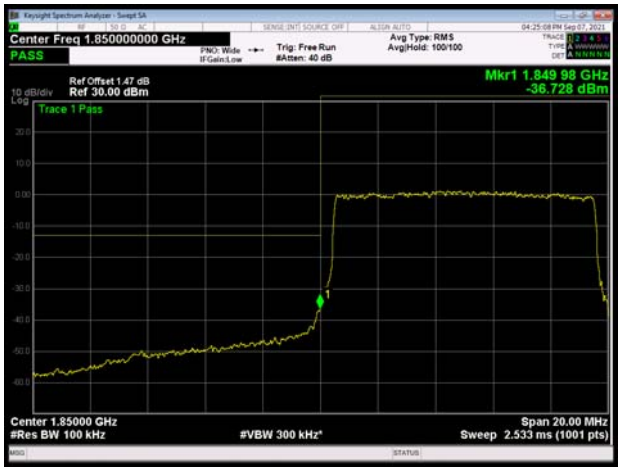
LTE Band 2 5MHz QPSK 100%RB CH-High

LTE Band 2 10MHz QPSK 1RB CH-Low



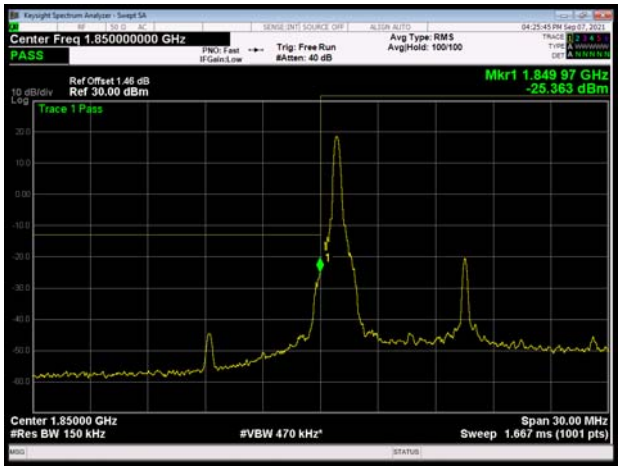
LTE Band 2 10MHz QPSK 1RB CH-High

LTE Band 2 10MHz QPSK 100%RB CH-Low

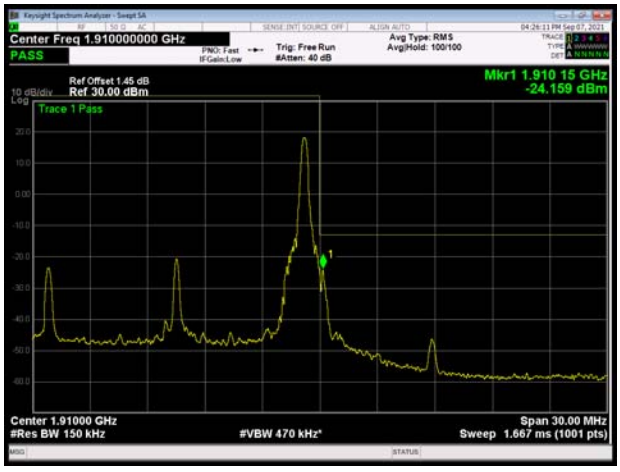


LTE Band 2 10MHz QPSK 100%RB CH-High

LTE Band 2 15MHz QPSK 1RB CH-Low

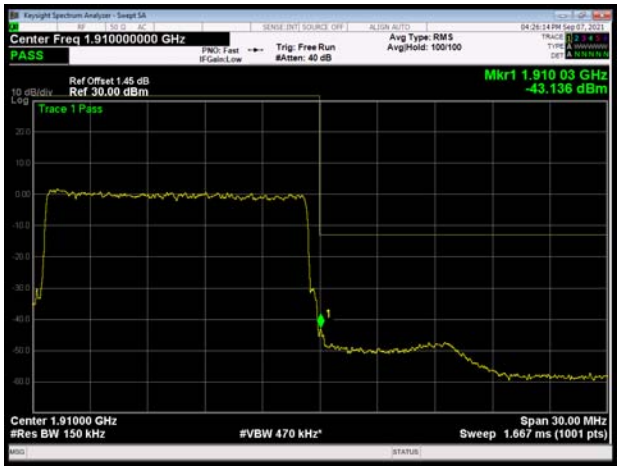


LTE Band 2 15MHz QPSK 1RB CH-High

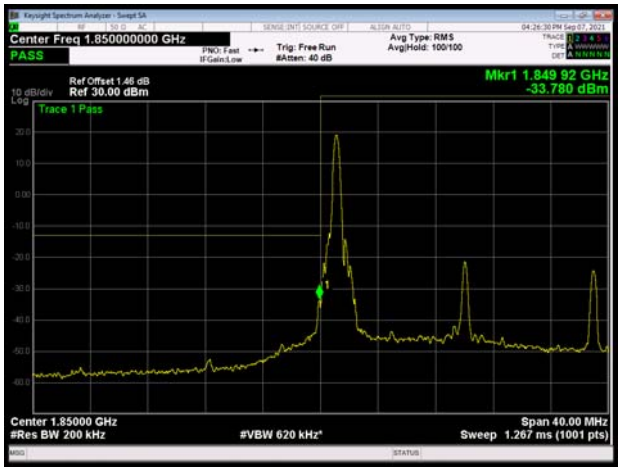


LTE Band 2 15MHz QPSK 100%RB CH-Low

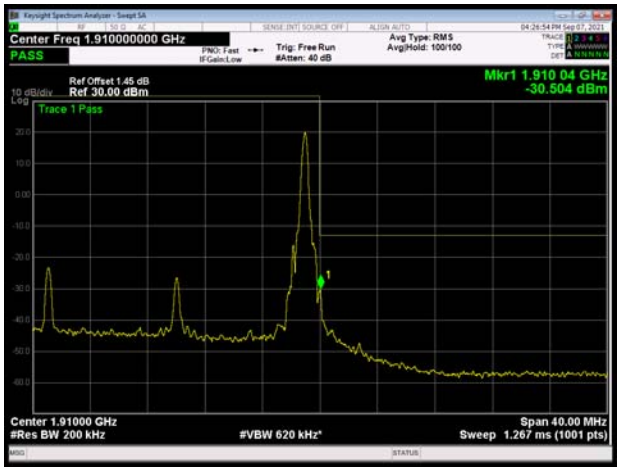
LTE Band 2 15MHz QPSK 100%RB CH-High



LTE Band 2 20MHz QPSK 1RB CH-Low

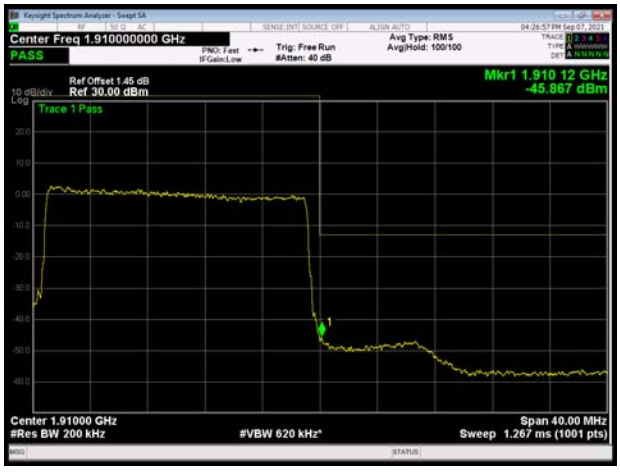


LTE Band 2 20MHz QPSK 1RB CH-High

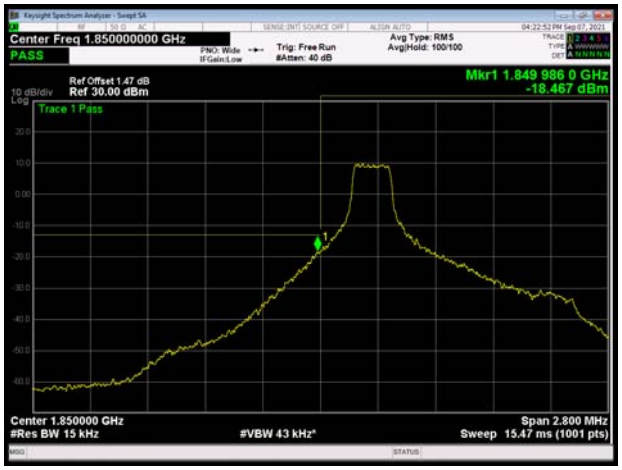


LTE Band 2 20MHz QPSK 100%RB CH-Low

LTE Band 2 20MHz QPSK 100%RB CH-High



LTE Band 2 1.4MHz 16QAM 1RB CH-Low

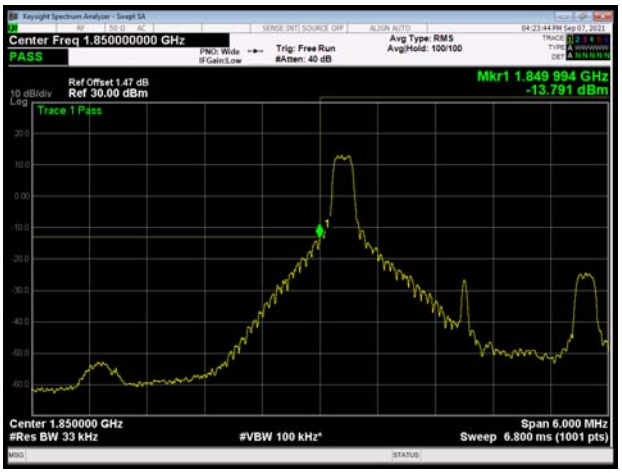


LTE Band 2 1.4MHz 16QAM 1RB CH-High

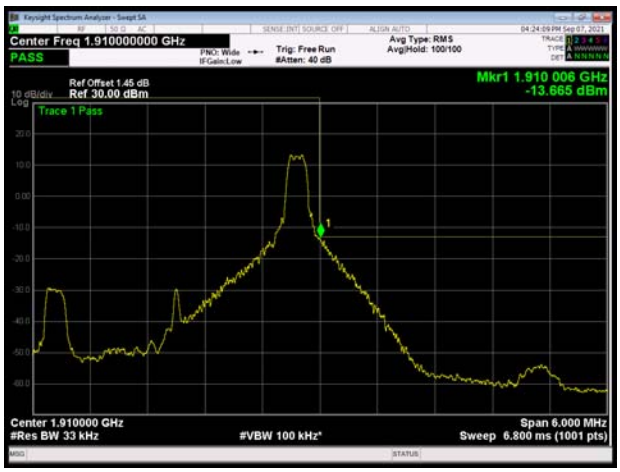
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low

LTE Band 2 1.4MHz 16QAM 100%RB CH-High

LTE Band 2 3MHz 16QAM 1RB CH-Low



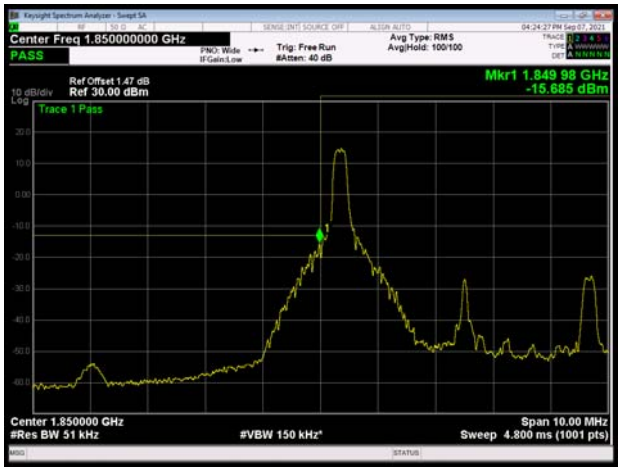
LTE Band 2 3MHz 16QAM 1RB CH-High



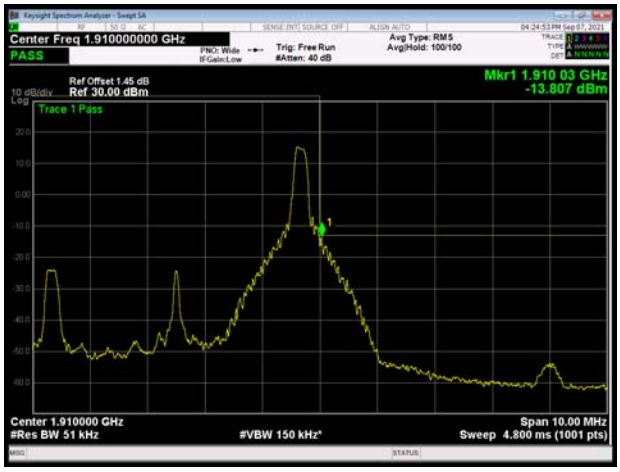
LTE Band 2 3MHz 16QAM 100%RB CH-Low

LTE Band 2 3MHz 16QAM 100%RB CH-High

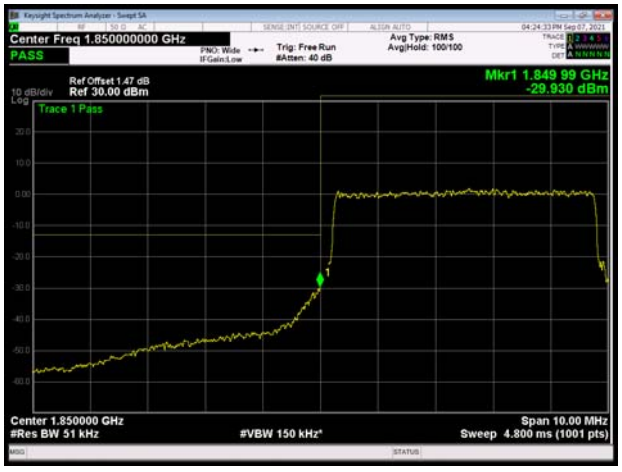
LTE Band 2 5MHz 16QAM 1RB CH-Low



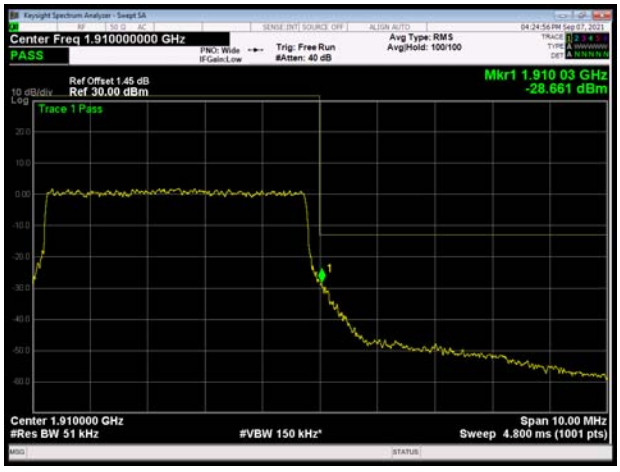
LTE Band 2 5MHz 16QAM 1RB CH-High



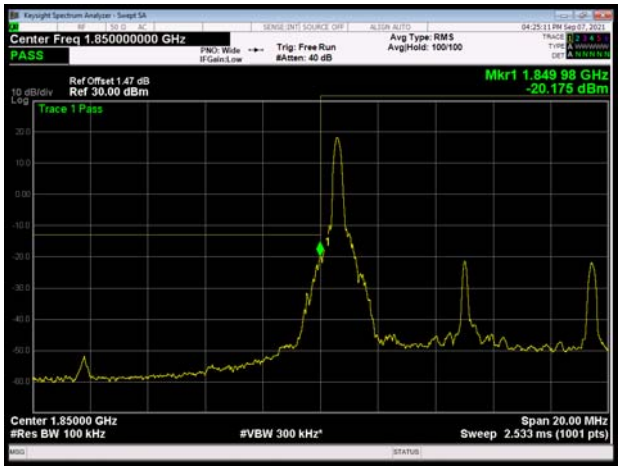
LTE Band 2 5MHz 16QAM 100%RB CH-Low



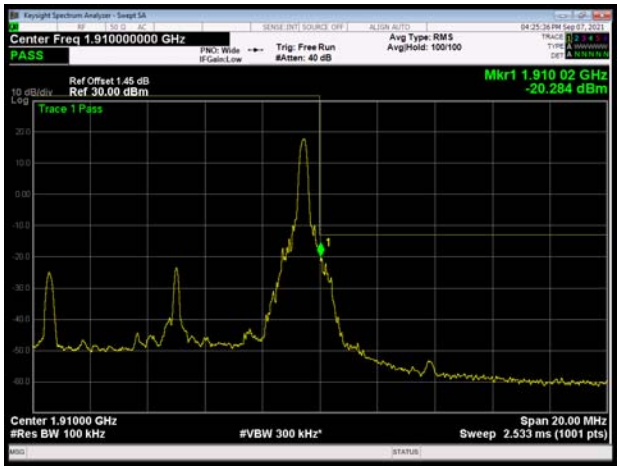
LTE Band 2 5MHz 16QAM 100%RB CH-High



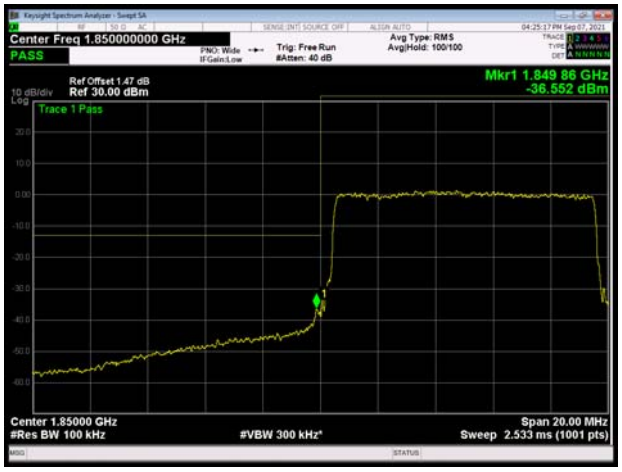
LTE Band 2 10MHz 16QAM 1RB CH-Low



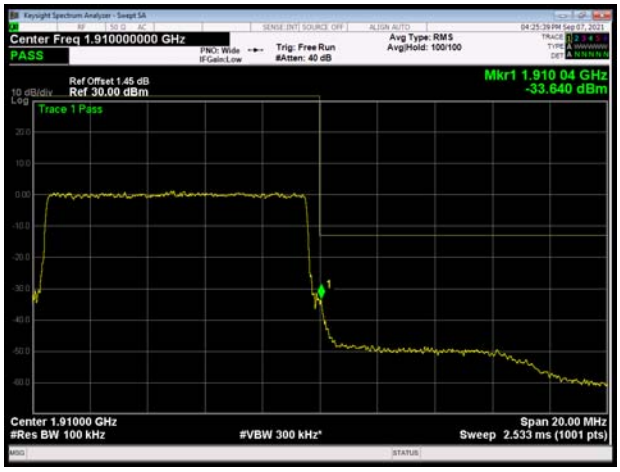
LTE Band 2 10MHz 16QAM 1RB CH-High



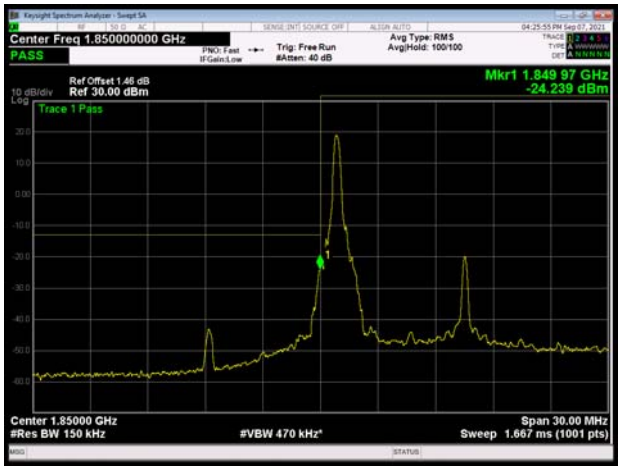
LTE Band 2 10MHz 16QAM 100%RB CH-Low



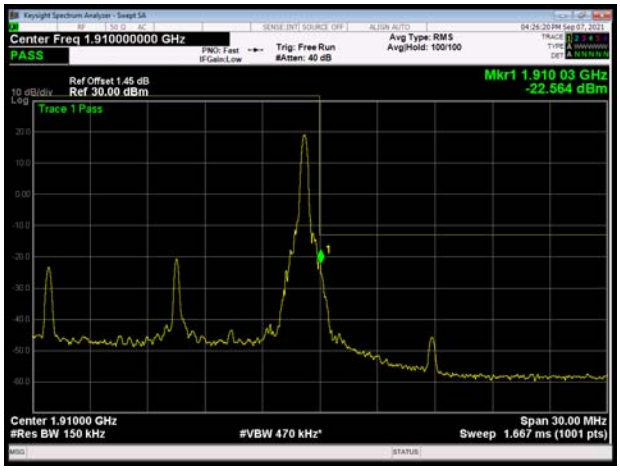
LTE Band 2 10MHz 16QAM 100%RB CH-High



LTE Band 2 15MHz 16QAM 1RB CH-Low

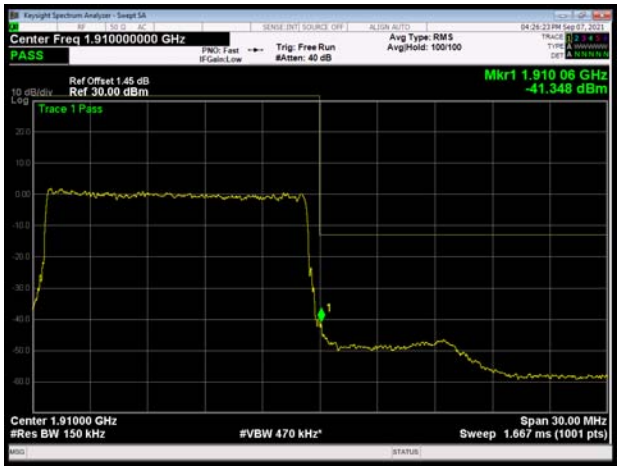


LTE Band 2 15MHz 16QAM 1RB CH-High

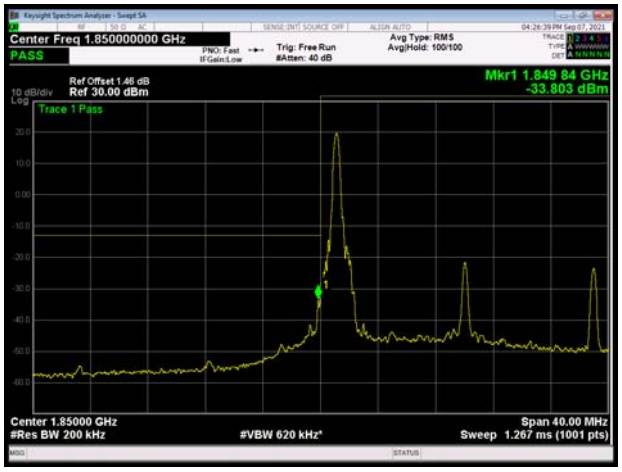


LTE Band 2 15MHz 16QAM 100%RB CH-Low

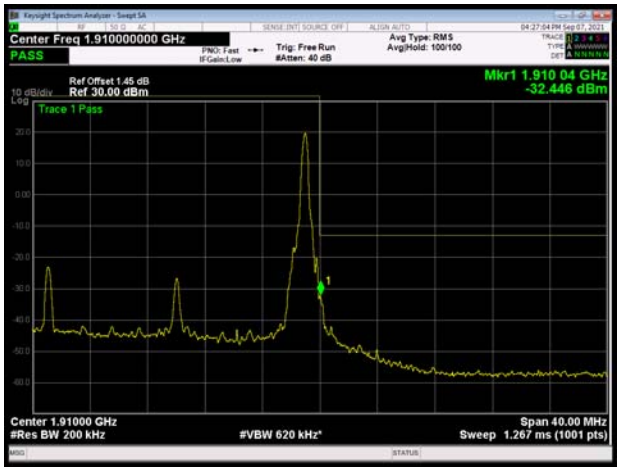
LTE Band 2 15MHz 16QAM 100%RB CH-High



LTE Band 2 20MHz 16QAM 1RB CH-Low



LTE Band 2 20MHz 16QAM 1RB CH-High

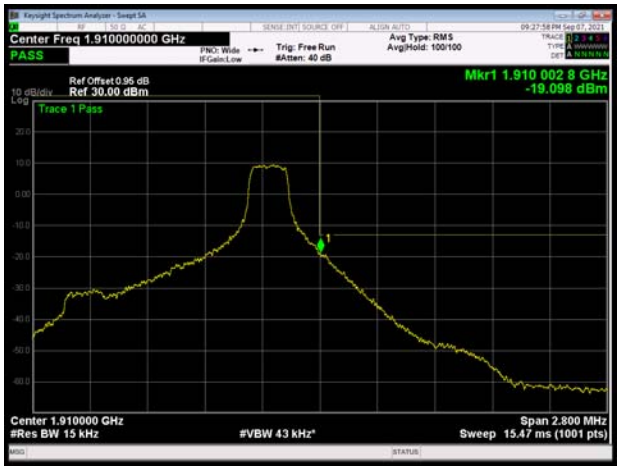


LTE Band 2 20MHz 16QAM 100%RB CH-Low

LTE Band 2 20MHz 16QAM 100%RB CH-High

LTE Band 2 1.4MHz 64QAM 1RB CH-Low

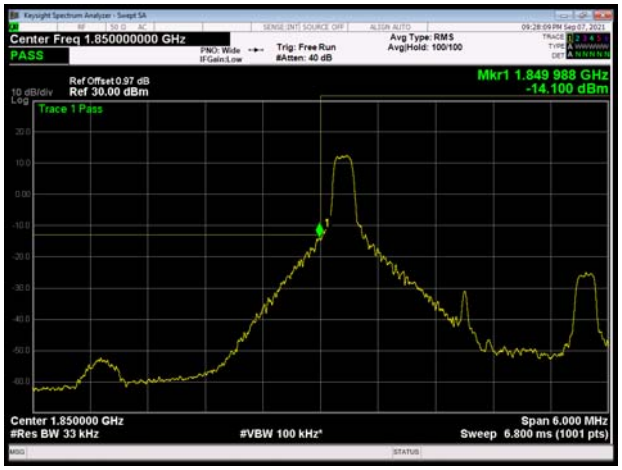
LTE Band 2 1.4MHz 64QAM 1RB CH-High



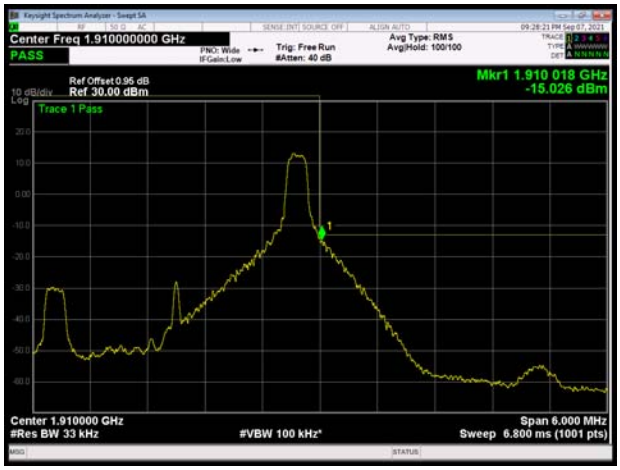
LTE Band 2 1.4MHz 64QAM 100%RB CH-Low

LTE Band 2 1.4MHz 64QAM 100%RB CH-High

LTE Band 2 3MHz 64QAM 1RB CH-Low



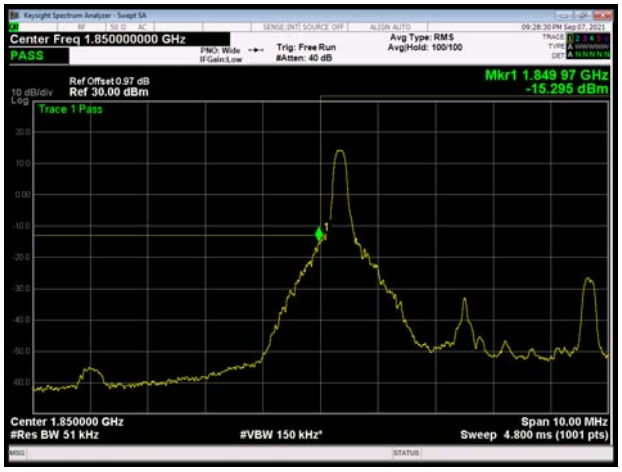
LTE Band 2 3MHz 64QAM 1RB CH-High



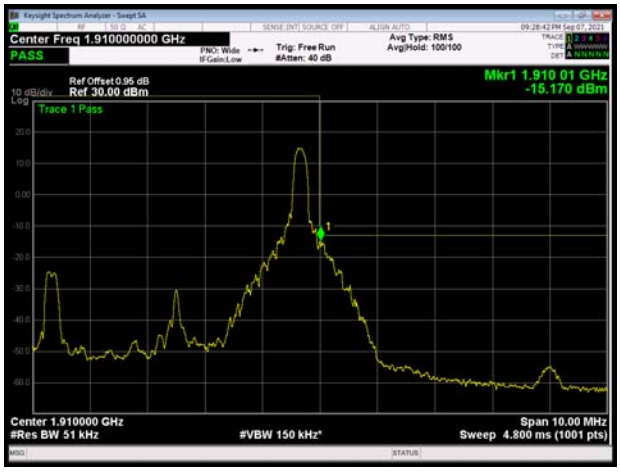
LTE Band 2 3MHz 64QAM 100%RB CH-Low

LTE Band 2 3MHz 64QAM 100%RB CH-High

LTE Band 2 5MHz 64QAM 1RB CH-Low



LTE Band 2 5MHz 64QAM 1RB CH-High



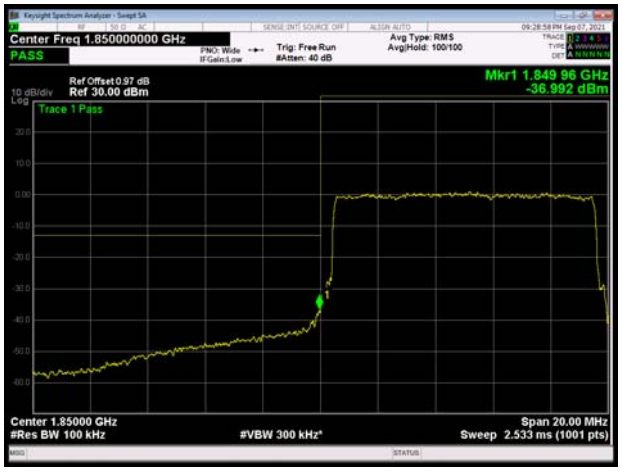
LTE Band 2 5MHz 64QAM 100%RB CH-Low

LTE Band 2 5MHz 64QAM 100%RB CH-High

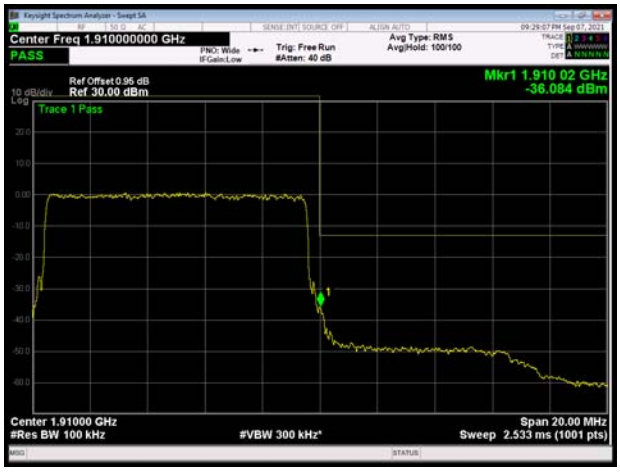
LTE Band 2 10MHz 64QAM 1RB CH-Low

LTE Band 2 10MHz 64QAM 1RB CH-High

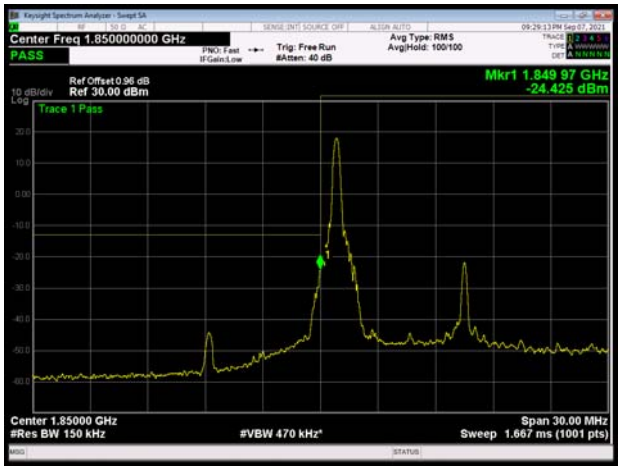
LTE Band 2 10MHz 64QAM 100%RB CH-Low



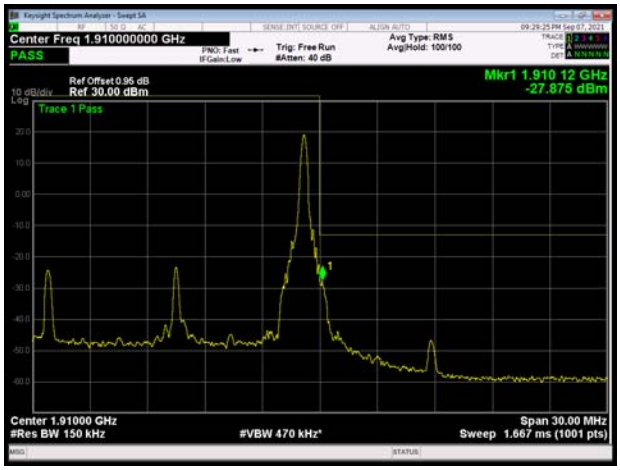
LTE Band 2 10MHz 64QAM 100%RB CH-High



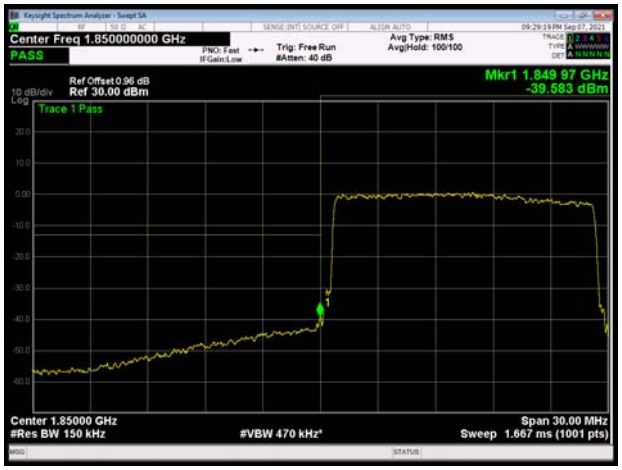
LTE Band 2 15MHz 64QAM 1RB CH-Low



LTE Band 2 15MHz 64QAM 1RB CH-High

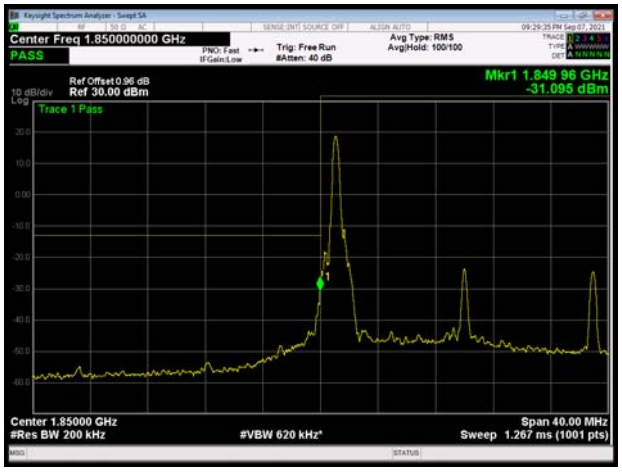


LTE Band 2 15MHz 64QAM 100%RB CH-Low

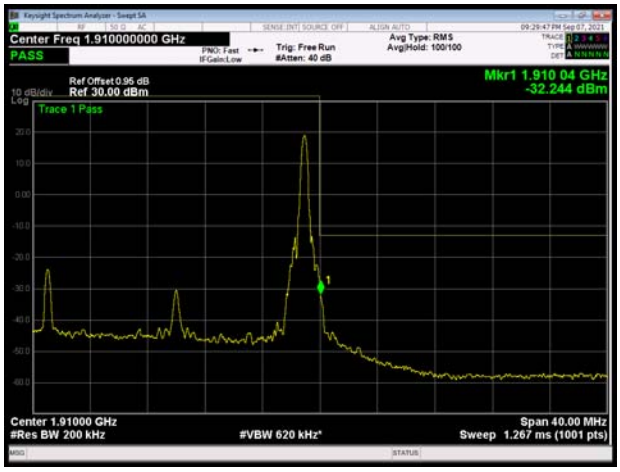


LTE Band 2 15MHz 64QAM 100%RB CH-High

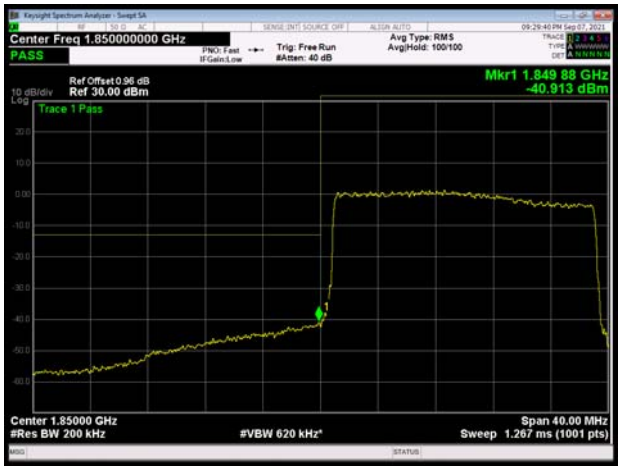
LTE Band 2 20MHz 64QAM 1RB CH-Low



LTE Band 2 20MHz 64QAM 1RB CH-High



LTE Band 2 20MHz 64QAM 100%RB CH-Low



LTE Band 2 20MHz 64QAM 100%RB CH-High

5.4. Peak-to-Average Power Ratio (PAPR)

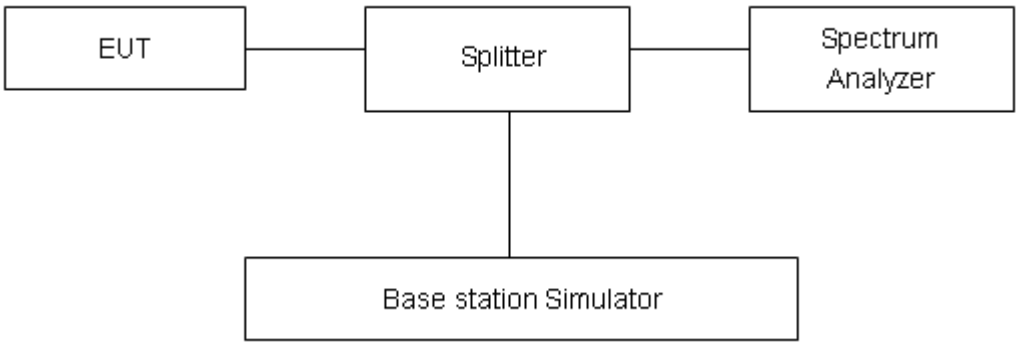
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the

normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	25.19	19.67	5.52	≤13	PASS
		18900	1880.0	23.85	18.51	5.34	≤13	PASS
		19193	1909.3	25.46	19.92	5.54	≤13	PASS
	3	18615	1851.5	25.00	19.51	5.49	≤13	PASS
		18900	1880	23.87	18.42	5.45	≤13	PASS
		19185	1908.5	25.33	19.84	5.49	≤13	PASS
	5	18625	1852.5	25.12	19.55	5.57	≤13	PASS
		18900	1880	24.00	18.54	5.46	≤13	PASS
		19175	1907.5	25.28	19.72	5.56	≤13	PASS
	10	18650	1855	24.71	19.23	5.48	≤13	PASS
		18900	1880	24.24	18.79	5.45	≤13	PASS
		19150	1905	24.82	19.22	5.60	≤13	PASS
	15	18675	1857.5	24.54	18.81	5.73	≤13	PASS
		18900	1880	24.58	18.74	5.84	≤13	PASS
		19125	1902.5	25.06	19.00	6.06	≤13	PASS
	20	18700	1860	24.28	18.89	5.39	≤13	PASS
		18900	1880	24.64	19.10	5.54	≤13	PASS
		19100	1900	25.10	19.36	5.74	≤13	PASS
16QAM	1.4	18607	1850.7	25.72	19.67	6.05	≤13	PASS
		18900	1880.0	24.66	18.52	6.14	≤13	PASS
		19193	1909.3	26.00	19.89	6.11	≤13	PASS
	3	18615	1851.5	25.72	19.52	6.20	≤13	PASS
		18900	1880	24.53	18.38	6.15	≤13	PASS
		19185	1908.5	26.07	19.84	6.23	≤13	PASS
	5	18625	1852.5	25.63	19.50	6.13	≤13	PASS
		18900	1880	24.57	18.52	6.05	≤13	PASS
		19175	1907.5	25.95	19.73	6.22	≤13	PASS
	10	18650	1855	25.37	19.19	6.18	≤13	PASS
		18900	1880	24.87	18.74	6.13	≤13	PASS
		19150	1905	25.61	19.34	6.27	≤13	PASS
	15	18675	1857.5	25.00	18.79	6.21	≤13	PASS
		18900	1880	24.93	18.69	6.24	≤13	PASS
		19125	1902.5	25.40	18.99	6.41	≤13	PASS
	20	18700	1860	25.05	18.86	6.19	≤13	PASS
		18900	1880	25.32	19.06	6.26	≤13	PASS
		19100	1900	25.71	19.35	6.36	≤13	PASS
64QAM	1.4	18607	1850.7	25.24	19.17	6.07	≤13	PASS
		18900	1880.0	24.28	18.14	6.14	≤13	PASS
		19193	1909.3	25.55	19.47	6.08	≤13	PASS

	3	18615	1851.5	25.22	19.02	6.20	≤13	PASS
		18900	1880	24.11	17.99	6.12	≤13	PASS
		19185	1908.5	25.63	19.46	6.17	≤13	PASS
	5	18625	1852.5	25.15	19.02	6.13	≤13	PASS
		18900	1880	24.18	18.12	6.06	≤13	PASS
		19175	1907.5	25.55	19.34	6.21	≤13	PASS
	10	18650	1855	24.93	18.79	6.14	≤13	PASS
		18900	1880	24.48	18.33	6.15	≤13	PASS
		19150	1905	25.09	18.80	6.29	≤13	PASS
	15	18675	1857.5	24.61	18.42	6.19	≤13	PASS
		18900	1880	24.53	18.30	6.23	≤13	PASS
		19125	1902.5	24.89	18.47	6.42	≤13	PASS
	20	18700	1860	24.67	18.50	6.17	≤13	PASS
		18900	1880	24.89	18.67	6.22	≤13	PASS
		19100	1900	25.30	18.93	6.37	≤13	PASS

5.5. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +70°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +70°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

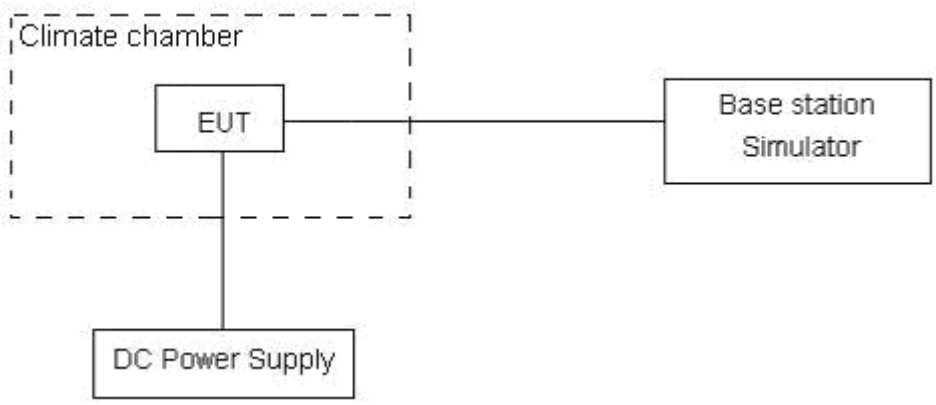
Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 19 V and 30 V, with a nominal voltage of 24V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 3, U= 0.01ppm.

Test Result

LTE Band 2								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	8.26	13.21	9.02	0.00439	0.00703	0.00480	PASS
Extreme（70℃）		9.66	17.60	2.01	0.00514	0.00936	0.00107	PASS
Extreme（60℃）		4.97	10.23	5.50	0.00265	0.00544	0.00292	PASS
Extreme（50℃）		1.56	6.30	14.13	0.00083	0.00335	0.00752	PASS
Extreme（40℃）		9.53	3.28	3.47	0.00507	0.00175	0.00184	PASS
Extreme（30℃）		3.78	10.94	5.93	0.00201	0.00582	0.00315	PASS
Extreme（20℃）		5.24	7.49	10.90	0.00279	0.00398	0.00580	PASS
Extreme（10℃）		12.47	7.27	14.16	0.00663	0.00387	0.00753	PASS
Extreme（0℃）		11.68	12.13	4.58	0.00621	0.00645	0.00243	PASS
Extreme（-10℃）		11.02	17.83	12.10	0.00586	0.00948	0.00644	PASS
Extreme（-20℃）		12.15	4.78	12.78	0.00646	0.00254	0.00680	PASS
Extreme（-30℃）		3.28	11.14	10.54	0.00175	0.00592	0.00561	PASS
25℃	LV	9.56	13.41	12.95	0.00509	0.00713	0.00689	PASS
	HV	5.79	2.49	16.41	0.00308	0.00133	0.00873	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	6.07	1.83	17.71	0.00323	0.00097	0.00942	PASS
Extreme（70℃）		7.69	4.89	10.73	0.00409	0.00260	0.00571	PASS
Extreme（60℃）		8.19	10.01	4.91	0.00435	0.00532	0.00261	PASS
Extreme（50℃）		10.59	8.51	3.00	0.00563	0.00453	0.00160	PASS
Extreme（40℃）		1.74	17.54	7.70	0.00092	0.00933	0.00410	PASS
Extreme（30℃）		16.47	4.75	11.57	0.00876	0.00253	0.00615	PASS
Extreme（20℃）		8.19	3.51	14.48	0.00436	0.00187	0.00770	PASS
Extreme（10℃）		5.26	14.23	16.17	0.00280	0.00757	0.00860	PASS
Extreme（0℃）		6.89	7.00	7.13	0.00366	0.00372	0.00379	PASS
Extreme（-10℃）		15.78	2.46	12.52	0.00839	0.00131	0.00666	PASS
Extreme（-20℃）		16.26	16.47	4.97	0.00865	0.00876	0.00264	PASS
Extreme（-30℃）		7.67	4.44	5.56	0.00408	0.00236	0.00296	PASS
25℃	LV	14.00	3.79	6.38	0.00745	0.00201	0.00339	PASS
	HV	11.11	1.76	3.41	0.00591	0.00094	0.00181	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Verdict

		(Hz)	(Hz)	(Hz)	Stability (ppm)	Stability (ppm)	Stability (ppm)	
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	5.41	9.07	6.79	0.00288	0.00482	0.00361	PASS
Extreme（70℃）		7.31	7.99	10.18	0.00389	0.00425	0.00541	PASS
Extreme（60℃）		15.72	2.73	2.40	0.00836	0.00145	0.00128	PASS
Extreme（50℃）		16.85	3.20	14.96	0.00896	0.00170	0.00796	PASS
Extreme（40℃）		6.29	7.31	14.75	0.00335	0.00389	0.00785	PASS
Extreme（30℃）		1.29	3.89	11.38	0.00069	0.00207	0.00606	PASS
Extreme（20℃）		10.55	10.82	15.21	0.00561	0.00576	0.00809	PASS
Extreme（10℃）		17.88	15.49	7.77	0.00951	0.00824	0.00414	PASS
Extreme（0℃）		3.48	11.83	6.28	0.00185	0.00629	0.00334	PASS
Extreme（-10℃）		16.15	13.88	17.18	0.00859	0.00738	0.00914	PASS
Extreme（-20℃）		7.24	15.75	11.30	0.00385	0.00838	0.00601	PASS
Extreme（-30℃）		17.83	12.53	9.27	0.00948	0.00667	0.00493	PASS
25℃	LV	15.82	11.06	13.58	0.00842	0.00588	0.00722	PASS
	HV	13.81	14.75	5.21	0.00734	0.00784	0.00277	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	10.91	9.18	14.22	0.00580	0.00488	0.00756	PASS
Extreme（70℃）		9.06	1.38	6.88	0.00482	0.00073	0.00366	PASS
Extreme（60℃）		12.78	14.51	1.73	0.00680	0.00772	0.00092	PASS
Extreme（50℃）		15.20	14.62	14.80	0.00808	0.00778	0.00787	PASS
Extreme（40℃）		8.36	9.11	10.75	0.00445	0.00484	0.00572	PASS
Extreme（30℃）		4.61	3.47	9.01	0.00245	0.00185	0.00479	PASS
Extreme（20℃）		14.66	15.28	8.11	0.00780	0.00813	0.00431	PASS
Extreme（10℃）		5.13	15.35	6.24	0.00273	0.00817	0.00332	PASS
Extreme（0℃）		17.47	3.68	3.33	0.00929	0.00196	0.00177	PASS
Extreme（-10℃）		7.89	4.38	12.18	0.00420	0.00233	0.00648	PASS
Extreme（-20℃）		14.52	10.93	5.49	0.00772	0.00581	0.00292	PASS
Extreme（-30℃）		11.76	6.31	6.59	0.00626	0.00335	0.00351	PASS
25℃	LV	2.96	2.48	7.23	0.00158	0.00132	0.00384	PASS
	HV	10.23	15.53	7.57	0.00544	0.00826	0.00402	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	2.21	12.75	17.66	0.00118	0.00678	0.00940	PASS

Extreme（70℃）		11.80	6.65	3.85	0.00628	0.00354	0.00205	PASS
Extreme（60℃）		10.45	13.89	13.17	0.00556	0.00739	0.00700	PASS
Extreme（50℃）		5.42	7.00	8.18	0.00288	0.00372	0.00435	PASS
Extreme（40℃）		16.13	11.84	1.55	0.00858	0.00630	0.00083	PASS
Extreme（30℃）		5.62	1.88	9.29	0.00299	0.00100	0.00494	PASS
Extreme（20℃）		8.36	11.26	15.37	0.00445	0.00599	0.00817	PASS
Extreme（10℃）		16.88	15.61	15.87	0.00898	0.00830	0.00844	PASS
Extreme（0℃）		6.51	2.46	6.13	0.00346	0.00131	0.00326	PASS
Extreme（-10℃）		4.16	5.26	2.21	0.00221	0.00280	0.00118	PASS
Extreme（-20℃）		11.39	8.38	7.43	0.00606	0.00446	0.00395	PASS
Extreme（-30℃）		10.30	14.29	10.25	0.00548	0.00760	0.00545	PASS
25℃	LV	16.04	9.23	17.91	0.00853	0.00491	0.00953	PASS
	HV	3.89	3.52	4.97	0.00207	0.00187	0.00264	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	4.49	9.86	4.24	0.00239	0.00525	0.00226	PASS
Extreme（70℃）		7.01	3.48	6.72	0.00373	0.00185	0.00357	PASS
Extreme（60℃）		11.54	12.30	11.71	0.00614	0.00654	0.00623	PASS
Extreme（50℃）		12.75	1.75	4.50	0.00678	0.00093	0.00239	PASS
Extreme（40℃）		3.35	6.70	15.29	0.00178	0.00356	0.00813	PASS
Extreme（30℃）		11.38	5.62	7.49	0.00605	0.00299	0.00399	PASS
Extreme（20℃）		15.87	11.61	17.65	0.00844	0.00618	0.00939	PASS
Extreme（10℃）		7.73	1.53	5.40	0.00411	0.00081	0.00287	PASS
Extreme（0℃）		6.35	5.82	5.97	0.00338	0.00310	0.00317	PASS
Extreme（-10℃）		9.38	10.00	2.05	0.00499	0.00532	0.00109	PASS
Extreme（-20℃）		3.26	5.44	9.64	0.00173	0.00290	0.00513	PASS
Extreme（-30℃）		10.48	17.43	12.75	0.00557	0.00927	0.00678	PASS
25℃	LV	6.28	9.75	13.80	0.00334	0.00519	0.00734	PASS
	HV	12.67	15.52	1.86	0.00674	0.00825	0.00099	PASS

5.6. Spurious Emissions at Antenna Terminals

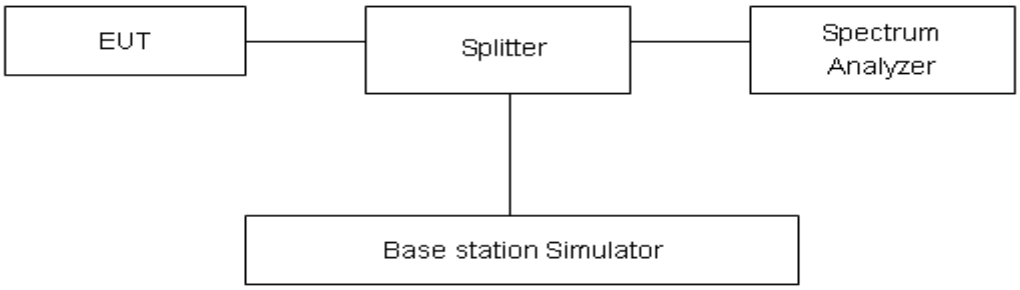
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)
RBW is set to 100 kHz (30MHz~1000 MHz)
RBW is set to 1000 kHz (above 1000MHz)
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

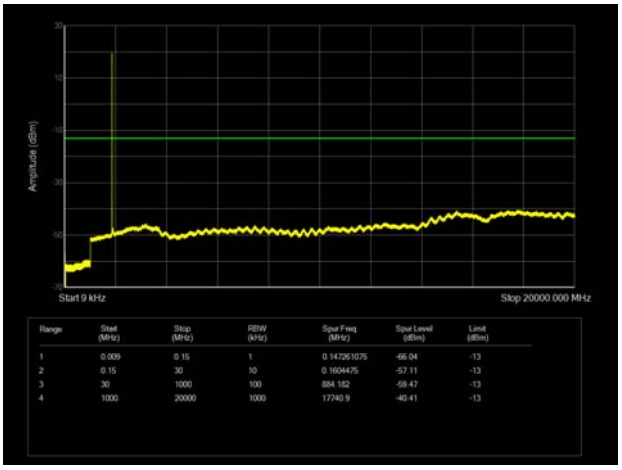
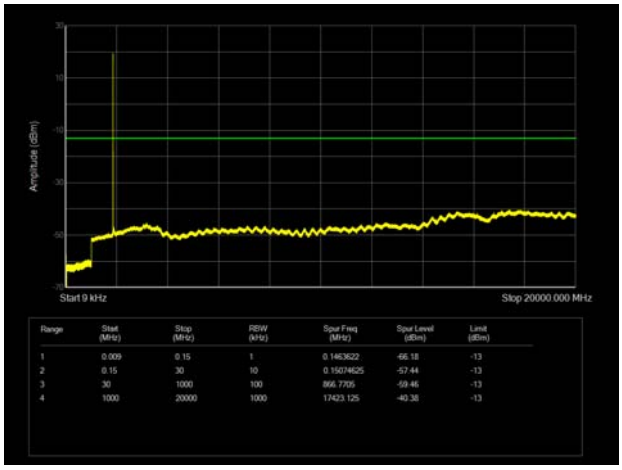
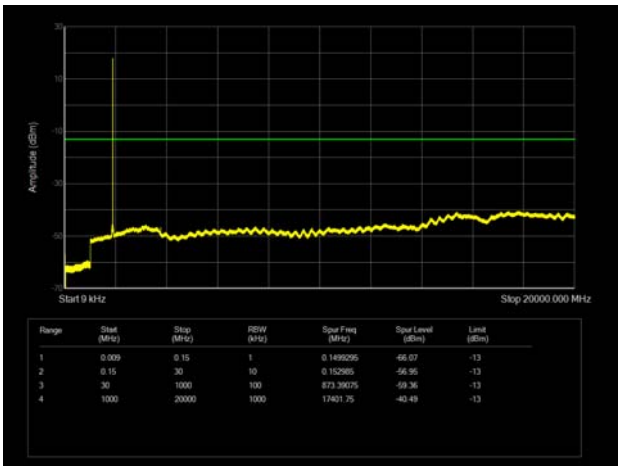
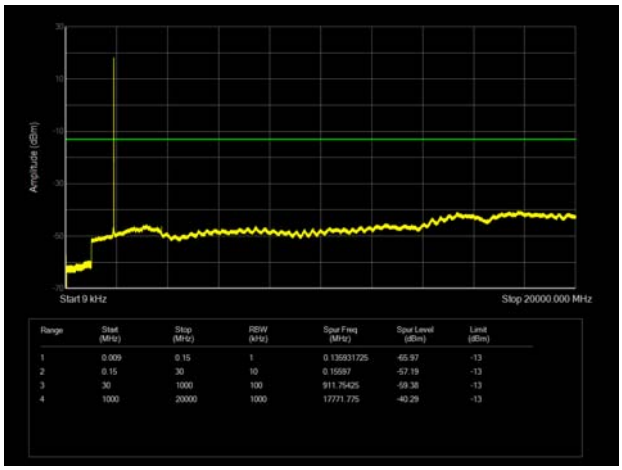
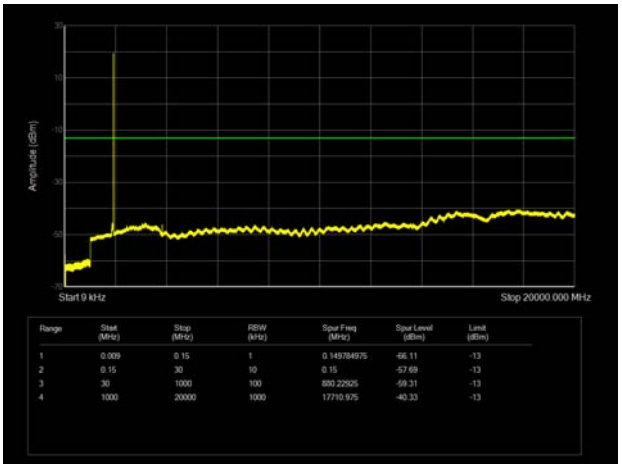
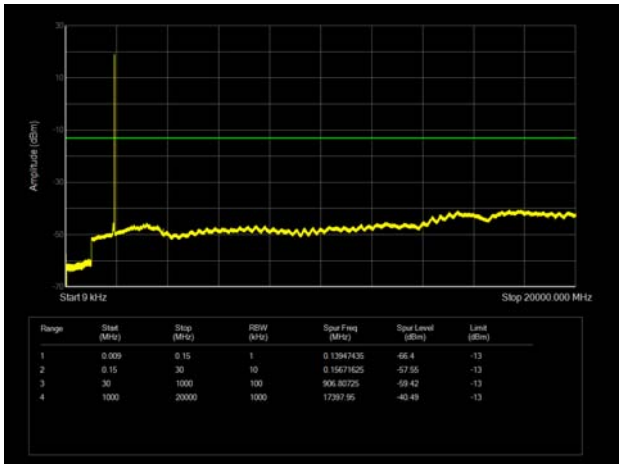
Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor *k* = 1.96.

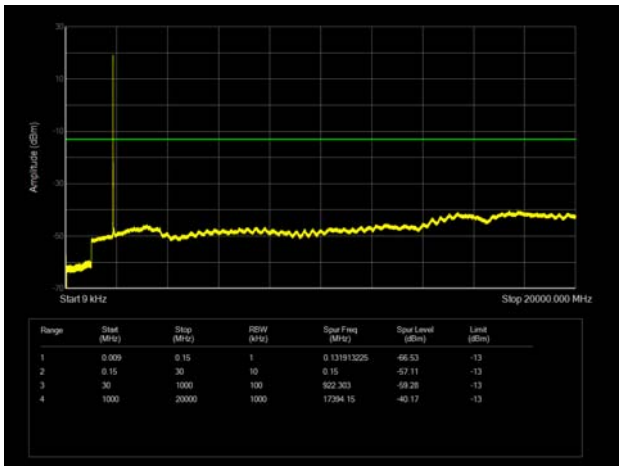
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-20GHz	1.407 dB

Test Result

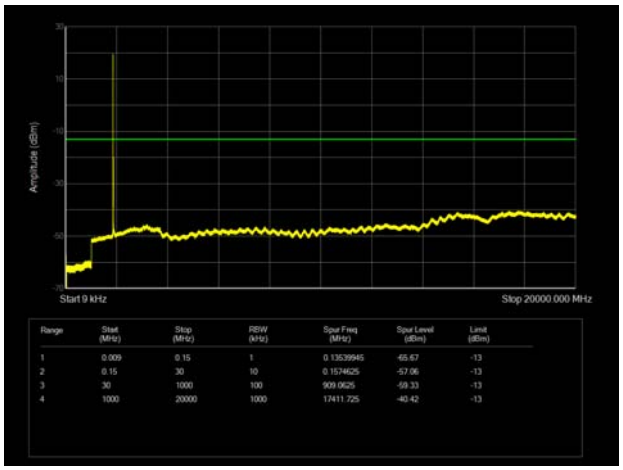
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.
The signal beyond the limit is carrier.

LTE Band 2 1.4MHz CH-Low 9kHz~20GHz	LTE Band 2 3MHz CH-Low 9kHz~20GHz
	
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz	LTE Band 2 3MHz CH-Middle 9kHz~20GHz
	
LTE Band 2 1.4MHz CH-High 9kHz~20GHz	LTE Band 2 3MHz CH-High 9kHz~20GHz
	

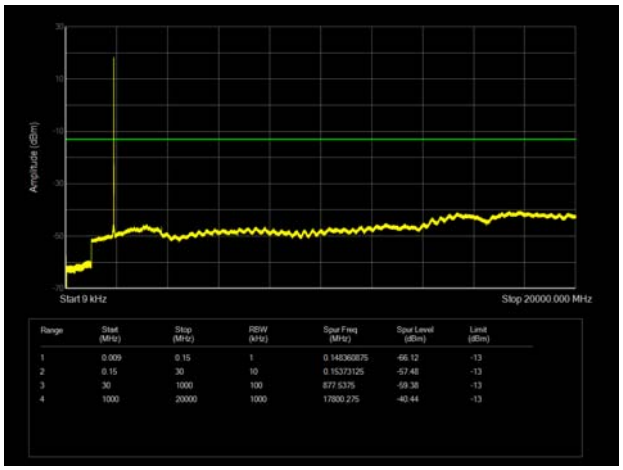
LTE Band 2 5MHz CH-Low 9kHz~20GHz



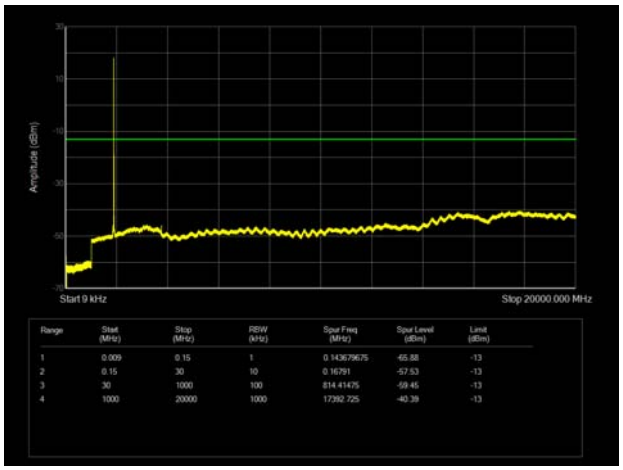
LTE Band 2 10MHz CH-Low 9kHz~20GHz



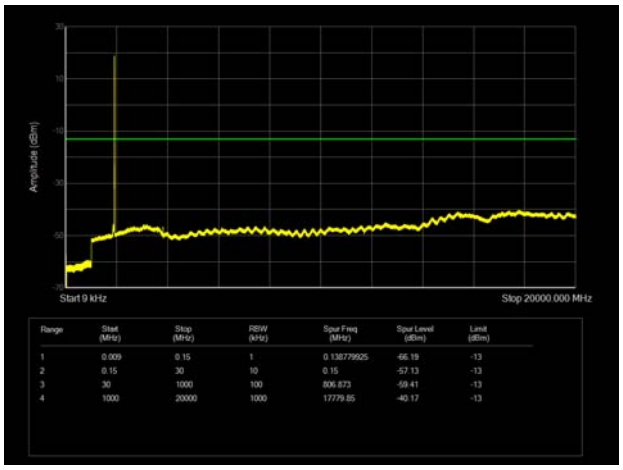
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



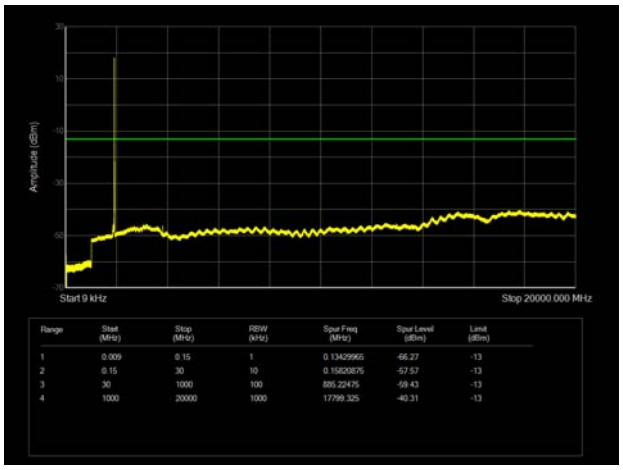
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



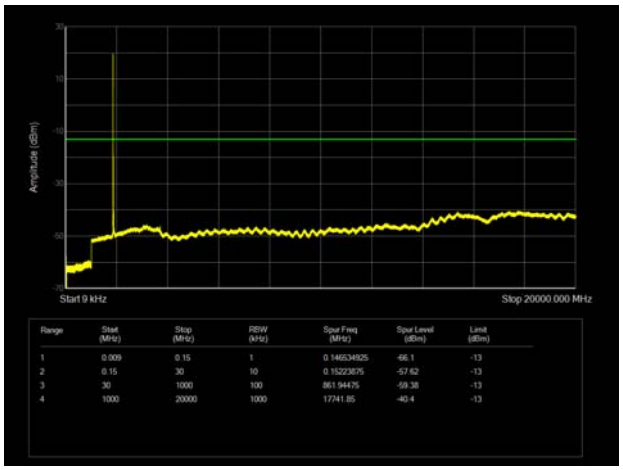
LTE Band 2 5MHz CH-High 9kHz~20GHz



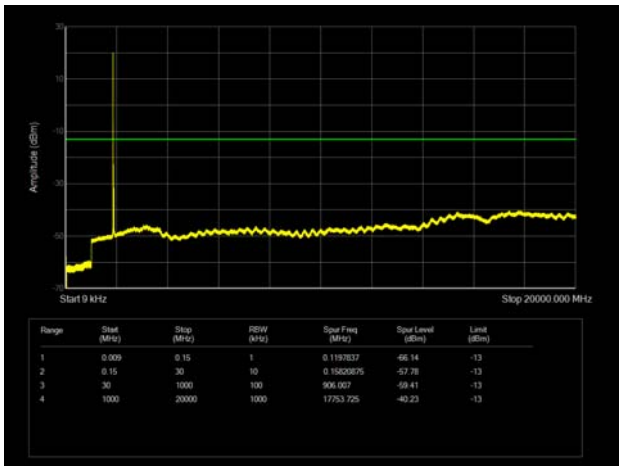
LTE Band 2 10MHz CH-High 9kHz~20GHz



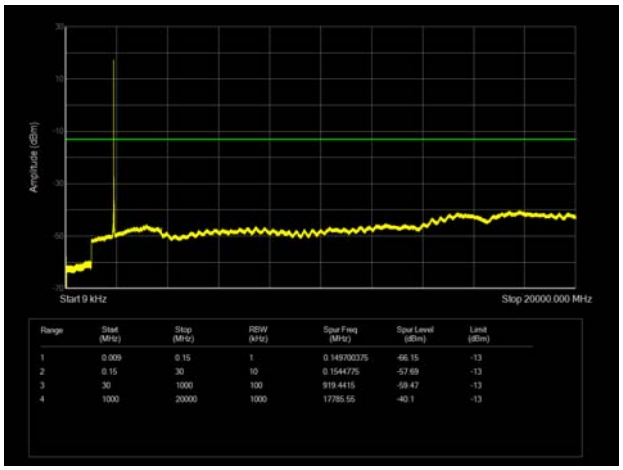
LTE Band 2 15MHz CH-Low 9kHz~20GHz



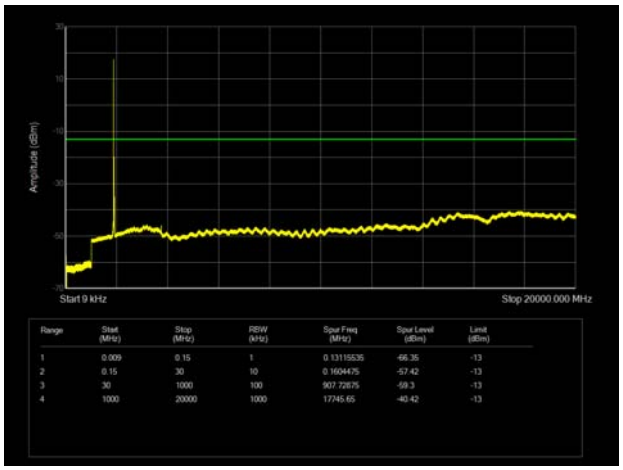
LTE Band 2 20MHz CH-Low 9kHz~20GHz



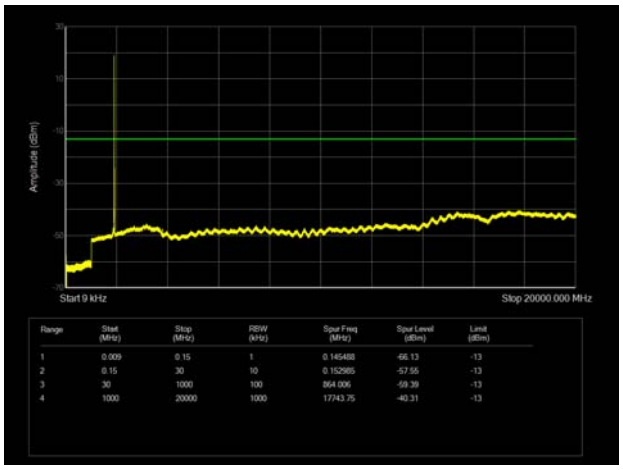
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



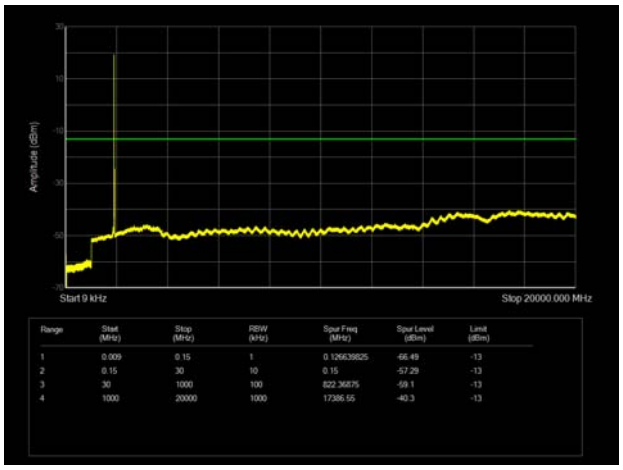
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



LTE Band 2 15MHz CH-High 9kHz~20GHz



LTE Band 2 20MHz CH-High 9kHz~20GHz



5.7. Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

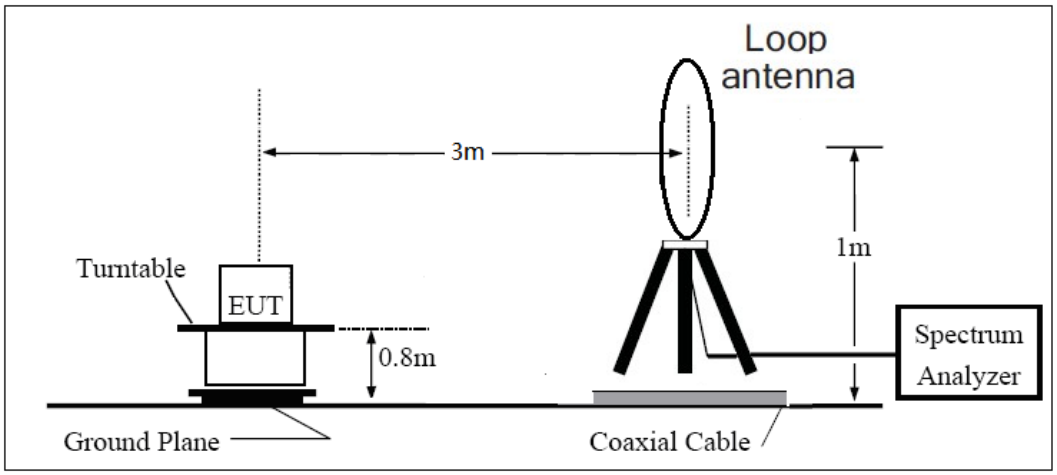
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dBi.

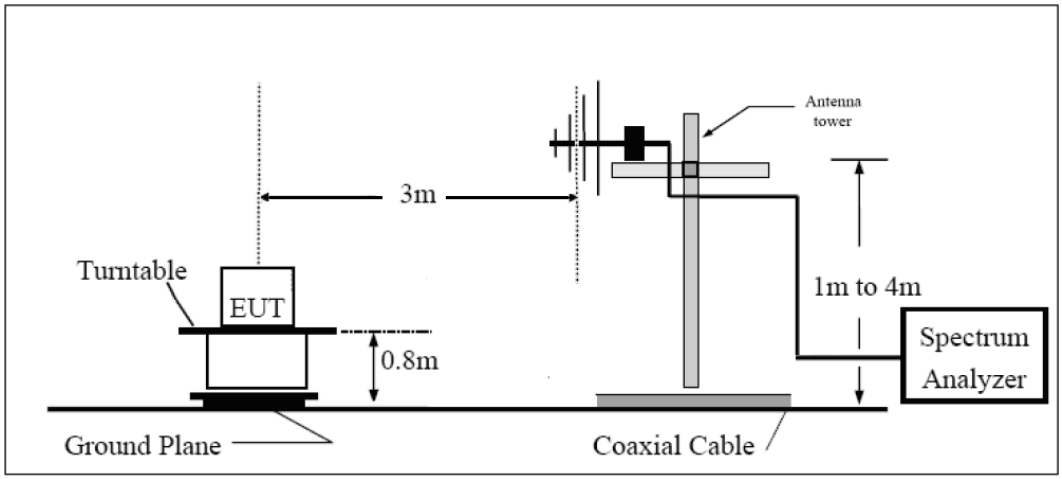
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

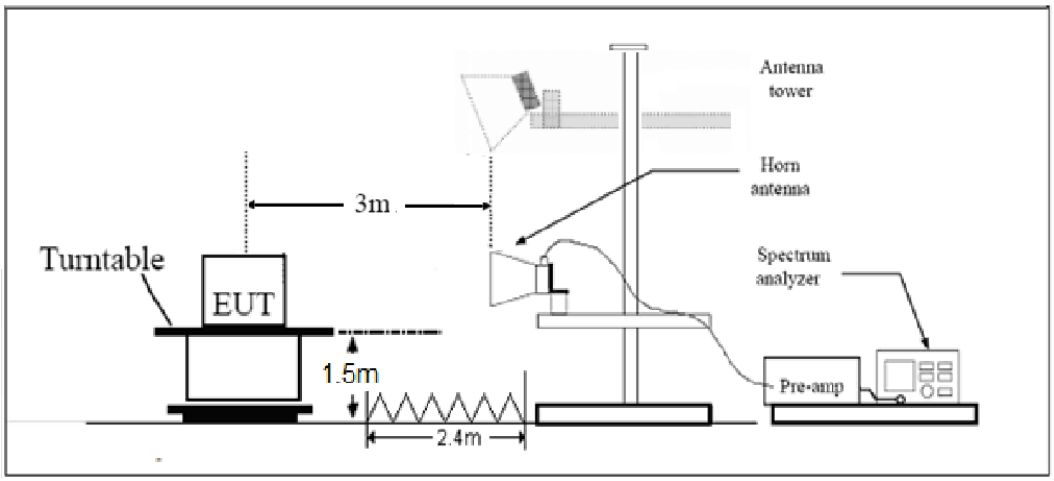
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor k = 1.96, U= 3.55 dB.

Test Result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.00	-50.79	2.60	12.50	Horizontal	-40.89	-13.00	27.89	45
3	5638.88	-51.16	3.30	12.50	Horizontal	-41.96	-13.00	28.96	90
4	7520.00	-52.22	4.20	12.20	Horizontal	-44.22	-13.00	31.22	135
5	9400.00	-44.87	4.30	11.10	Horizontal	-38.07	-13.00	25.07	225
6	11280.00	-51.35	5.90	11.90	Horizontal	-45.35	-13.00	32.35	135
7	13160.00	-53.10	5.70	14.00	Horizontal	-44.80	-13.00	31.80	90
8	15040.00	-55.09	5.80	13.10	Horizontal	-47.79	-13.00	34.79	180
9	16920.00	-53.36	6.10	14.60	Horizontal	-44.86	-13.00	31.86	45
10	18800.00	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 2 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.63	-49.09	2.60	12.50	Horizontal	-39.19	-13.00	26.19	135
3	5633.63	-51.71	3.30	12.50	Horizontal	-42.51	-13.00	29.51	225
4	7520.00	-53.03	4.20	12.20	Horizontal	-45.03	-13.00	32.03	135
5	9400.00	-45.23	4.30	11.10	Horizontal	-38.43	-13.00	25.43	0
6	11280.00	-48.19	5.90	11.90	Horizontal	-42.19	-13.00	29.19	45
7	13160.00	-50.98	5.70	14.00	Horizontal	-42.68	-13.00	29.68	90
8	15040.00	-56.50	5.80	13.10	Horizontal	-49.20	-13.00	36.20	315
9	16920.00	-54.04	6.10	14.60	Horizontal	-45.54	-13.00	32.54	45
10	18800.00	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.13	-50.18	2.60	12.50	Horizontal	-40.28	-13.00	27.28	0
3	5613.38	-54.43	3.30	12.50	Horizontal	-45.23	-13.00	32.23	45
4	7484.63	-54.31	4.20	12.20	Horizontal	-46.31	-13.00	33.31	90
5	9400.00	-48.21	4.30	11.10	Horizontal	-41.41	-13.00	28.41	45
6	11280.00	-49.84	5.90	11.90	Horizontal	-43.84	-13.00	30.84	135
7	13160.00	-54.28	5.70	14.00	Horizontal	-45.98	-13.00	32.98	225
8	15040.00	-54.15	5.80	13.10	Horizontal	-46.85	-13.00	33.85	135
9	16920.00	-54.97	6.10	14.60	Horizontal	-46.47	-13.00	33.47	0
10	18800.00	--	--	--	--	--	--	--	--
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMU200	118133	2021-05-15	2022-05-14
Base Station Simulator	R&S	CMW500	113824	2021-05-15	2022-05-14
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2021-05-15	2022-05-14
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2022-12-15
Horn Antenna	R&S	HF907	102723	2020-08-11	2023-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2021-06-19	2023-06-18
Signal generator	R&S	SMB 100A	102594	2021-05-15	2022-05-14
Climatic Chamber	Weiss	VT4002	582261194500 10	2021-05-15	2022-05-14
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2021-06-09	2021-12-08
RF Cable	Agilent	SMA 15cm	0001	2021-06-09	2021-12-08
Software	R&S	EMC32	9.26.0	/	/

********END OF REPORT ********

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.