RF TEST REPORT

Applicant	Airspan Networks, Inc.
FCC ID	PIDAS1412CPEB41
Product	AirSpot 1412
Brand	AirSpot 1412
Model	My-Pro-SW-B38-41-C12-US
Report No.	R2110A0916-R1
Issue Date	November 11, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2020)/ FCC CFR47 Part 27C (2020)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 /27.50(h)(2)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	/27.53(m)	PASS
4	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 27.54	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 /27.53(m)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(m)	PASS
Date of Testing: October 22, 2021 ~ October 27, 2021 Date of Sample Received: October 22, 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 Shanghai, China
City:	Shanghai
Post code:	201201
Country:	P. R. China
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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	Airspan Networks, Inc.
Applicant address	777 Yamato Rd., Suite 310, Boca Raton, FL, USA
Manufacturer	Shanghai 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	My-Pro-SW-B38-41-C12-US		
Lab internal SN	R2110A0916/S01		
Hardware Version	V1.0		
Software Version	V2.1.2-20210908		
Power Supply	AC adapter/PoE		
Antenna Type	Fixed Internal Antenna		
Antenna Gain	13.06 dBi		
Test Mode(s)	LTE Band 41;		
Test Modulation	(LTE)QPSK, 16QAM, 64QAM;		
LTE Category	12		
Maximum E.I.R.P.	LTE Band 41	35.33 dBm	
Rated Power Supply Voltage	24V		
Operating Voltage	19V ~ 30V		
Operating Temperature	Lowest: -30°C Highest: +70°C		
Extreme Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 41	2496 ~ 2690	2496 ~ 2690
EUT Accessory			
Adapter	Manufacturer: SHENZHEN AQUILSTAR TECHNOLOGY CO.,LTD Model: ASSA107A-240050		
PoE	Manufacturer : GREAT POWER（PoE） Model: GRT-HCQ-A/802.01GN009		
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 CFR47 Part 27C (2020)

FCC CFR47 Part 2 (2020)

Reference standard:

ANSI C63.26 (2015)

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.
The following testing in different Bandwidth is set to detailin the following table:
Test modes are chosen to be reported as the worst case configuration below:
Test modes are chosen to be reported as the worst case configuration below for LTE Band 41:

Test items	Modes	Bandwidth (MHz)				Modulation		RB			Test Channel		
		5	10	15	20	QPSK	16QAM/ 64QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	LTE 41	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 41	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 41	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 41	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 41	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 41	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 41	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

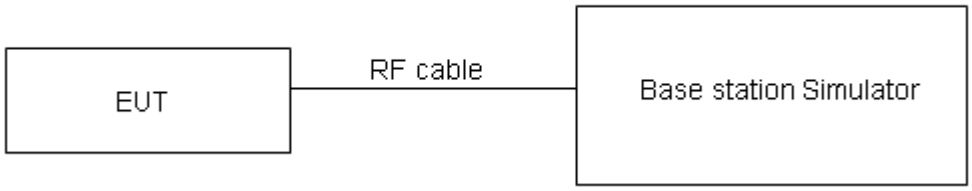
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 27.50(h) (2) specifies that “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.”

Part 27.50(h)(2) 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 ERP/EIRP.

Test Results

LTE Band 41							
Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)	Verdict
5	39675	1	#0	QPSK	19.26	32.32	PASS
5	39675	1	#Mid	QPSK	20.50	33.56	PASS
5	39675	1	#Max	QPSK	19.44	32.50	PASS
5	39675	12	#0	QPSK	20.53	33.59	PASS
5	39675	12	#Mid	QPSK	20.53	33.59	PASS
5	39675	12	#Max	QPSK	20.41	33.47	PASS
5	39675	25	#0	QPSK	20.29	33.35	PASS
5	39675	1	#0	QAM16	19.45	32.51	PASS
5	39675	1	#Mid	QAM16	20.69	33.75	PASS
5	39675	1	#Max	QAM16	19.62	32.68	PASS
5	39675	12	#0	QAM16	20.48	33.54	PASS
5	39675	12	#Mid	QAM16	20.48	33.54	PASS
5	39675	12	#Max	QAM16	20.36	33.42	PASS
5	39675	25	#0	QAM16	20.24	33.30	PASS
5	40620	1	#0	QPSK	20.53	33.59	PASS
5	40620	1	#Mid	QPSK	21.63	34.69	PASS
5	40620	1	#Max	QPSK	20.59	33.65	PASS
5	40620	12	#0	QPSK	21.84	34.90	PASS
5	40620	12	#Mid	QPSK	21.84	34.90	PASS
5	40620	12	#Max	QPSK	21.47	34.53	PASS
5	40620	25	#0	QPSK	21.47	34.53	PASS
5	40620	1	#0	QAM16	20.79	33.85	PASS
5	40620	1	#Mid	QAM16	21.90	34.96	PASS
5	40620	1	#Max	QAM16	20.83	33.89	PASS
5	40620	12	#0	QAM16	21.86	34.92	PASS
5	40620	12	#Mid	QAM16	21.86	34.92	PASS
5	40620	12	#Max	QAM16	21.50	34.56	PASS
5	40620	25	#0	QAM16	21.53	34.59	PASS
5	41565	1	#0	QPSK	20.88	33.94	PASS
5	41565	1	#Mid	QPSK	21.87	34.93	PASS
5	41565	1	#Max	QPSK	21.05	34.11	PASS
5	41565	12	#0	QPSK	22.01	35.07	PASS
5	41565	12	#Mid	QPSK	22.01	35.07	PASS
5	41565	12	#Max	QPSK	21.74	34.80	PASS
5	41565	25	#0	QPSK	21.77	34.83	PASS
5	41565	1	#0	QAM16	21.22	34.28	PASS
5	41565	1	#Mid	QAM16	22.19	35.25	PASS
5	41565	1	#Max	QAM16	21.36	34.42	PASS
5	41565	12	#0	QAM16	21.99	35.05	PASS

5	41565	12	#Mid	QAM16	21.98	35.04	PASS
5	41565	12	#Max	QAM16	21.69	34.75	PASS
5	41565	25	#0	QAM16	21.89	34.95	PASS
10	39700	1	#0	QPSK	20.06	33.12	PASS
10	39700	1	#Mid	QPSK	20.29	33.35	PASS
10	39700	1	#Max	QPSK	20.24	33.30	PASS
10	39700	25	#0	QPSK	20.45	33.51	PASS
10	39700	25	#Mid	QPSK	20.45	33.51	PASS
10	39700	25	#Max	QPSK	20.20	33.26	PASS
10	39700	50	#0	QPSK	20.32	33.38	PASS
10	39700	1	#0	QAM16	20.38	33.44	PASS
10	39700	1	#Mid	QAM16	20.60	33.66	PASS
10	39700	1	#Max	QAM16	20.65	33.71	PASS
10	39700	25	#0	QAM16	20.51	33.57	PASS
10	39700	25	#Mid	QAM16	20.51	33.57	PASS
10	39700	25	#Max	QAM16	20.41	33.47	PASS
10	39700	50	#0	QAM16	20.32	33.38	PASS
10	40620	1	#0	QPSK	21.40	34.46	PASS
10	40620	1	#Mid	QPSK	21.36	34.42	PASS
10	40620	1	#Max	QPSK	21.44	34.50	PASS
10	40620	25	#0	QPSK	21.51	34.57	PASS
10	40620	25	#Mid	QPSK	21.50	34.56	PASS
10	40620	25	#Max	QPSK	21.38	34.44	PASS
10	40620	50	#0	QPSK	21.51	34.57	PASS
10	40620	1	#0	QAM16	21.41	34.47	PASS
10	40620	1	#Mid	QAM16	21.38	34.44	PASS
10	40620	1	#Max	QAM16	21.45	34.51	PASS
10	40620	25	#0	QAM16	21.52	34.58	PASS
10	40620	25	#Mid	QAM16	21.51	34.57	PASS
10	40620	25	#Max	QAM16	21.52	34.58	PASS
10	40620	50	#0	QAM16	21.48	34.54	PASS
10	41540	1	#0	QPSK	21.85	34.91	PASS
10	41540	1	#Mid	QPSK	21.82	34.88	PASS
10	41540	1	#Max	QPSK	22.00	35.06	PASS
10	41540	25	#0	QPSK	21.91	34.97	PASS
10	41540	25	#Mid	QPSK	21.91	34.97	PASS
10	41540	25	#Max	QPSK	21.84	34.90	PASS
10	41540	50	#0	QPSK	21.88	34.94	PASS
10	41540	1	#0	QAM16	21.73	34.79	PASS
10	41540	1	#Mid	QAM16	21.70	34.76	PASS
10	41540	1	#Max	QAM16	21.90	34.96	PASS
10	41540	25	#0	QAM16	21.89	34.95	PASS
10	41540	25	#Mid	QAM16	21.89	34.95	PASS

10	41540	25	#Max	QAM16	21.85	34.91	PASS
10	41540	50	#0	QAM16	21.88	34.94	PASS
15	39725	1	#0	QPSK	20.17	33.23	PASS
15	39725	1	#Mid	QPSK	20.37	33.43	PASS
15	39725	1	#Max	QPSK	20.31	33.37	PASS
15	39725	36	#0	QPSK	20.15	33.21	PASS
15	39725	36	#Mid	QPSK	20.15	33.21	PASS
15	39725	36	#Max	QPSK	20.38	33.44	PASS
15	39725	75	#0	QPSK	20.36	33.42	PASS
15	39725	1	#0	QAM16	20.50	33.56	PASS
15	39725	1	#Mid	QAM16	20.70	33.76	PASS
15	39725	1	#Max	QAM16	20.63	33.69	PASS
15	39725	36	#0	QAM16	20.17	33.23	PASS
15	39725	36	#Mid	QAM16	20.24	33.30	PASS
15	39725	36	#Max	QAM16	20.38	33.44	PASS
15	39725	75	#0	QAM16	20.37	33.43	PASS
15	40620	1	#0	QPSK	21.36	34.42	PASS
15	40620	1	#Mid	QPSK	21.58	34.64	PASS
15	40620	1	#Max	QPSK	21.46	34.52	PASS
15	40620	36	#0	QPSK	21.47	34.53	PASS
15	40620	36	#Mid	QPSK	21.47	34.53	PASS
15	40620	36	#Max	QPSK	21.51	34.57	PASS
15	40620	75	#0	QPSK	21.65	34.71	PASS
15	40620	1	#0	QAM16	21.37	34.43	PASS
15	40620	1	#Mid	QAM16	21.59	34.65	PASS
15	40620	1	#Max	QAM16	21.48	34.54	PASS
15	40620	36	#0	QAM16	21.46	34.52	PASS
15	40620	36	#Mid	QAM16	21.46	34.52	PASS
15	40620	36	#Max	QAM16	21.50	34.56	PASS
15	40620	75	#0	QAM16	21.64	34.70	PASS
15	41515	1	#0	QPSK	22.27	35.33	PASS
15	41515	1	#Mid	QPSK	22.09	35.15	PASS
15	41515	1	#Max	QPSK	22.14	35.20	PASS
15	41515	36	#0	QPSK	21.95	35.01	PASS
15	41515	36	#Mid	QPSK	21.95	35.01	PASS
15	41515	36	#Max	QPSK	21.99	35.05	PASS
15	41515	75	#0	QPSK	22.06	35.12	PASS
15	41515	1	#0	QAM16	22.26	35.32	PASS
15	41515	1	#Mid	QAM16	22.07	35.13	PASS
15	41515	1	#Max	QAM16	22.12	35.18	PASS
15	41515	36	#0	QAM16	21.90	34.96	PASS
15	41515	36	#Mid	QAM16	21.91	34.97	PASS
15	41515	36	#Max	QAM16	21.99	35.05	PASS

15	41515	75	#0	QAM16	22.07	35.13	PASS
20	39750	1	#0	QPSK	19.98	33.04	PASS
20	39750	1	#Mid	QPSK	20.31	33.37	PASS
20	39750	1	#Max	QPSK	20.17	33.23	PASS
20	39750	50	#0	QPSK	20.30	33.36	PASS
20	39750	50	#Mid	QPSK	20.30	33.36	PASS
20	39750	50	#Max	QPSK	20.28	33.34	PASS
20	39750	100	#0	QPSK	20.23	33.29	PASS
20	39750	1	#0	QAM16	20.32	33.38	PASS
20	39750	1	#Mid	QAM16	20.51	33.57	PASS
20	39750	1	#Max	QAM16	20.37	33.43	PASS
20	39750	50	#0	QAM16	20.32	33.38	PASS
20	39750	50	#Mid	QAM16	20.32	33.38	PASS
20	39750	50	#Max	QAM16	20.30	33.36	PASS
20	39750	100	#0	QAM16	20.24	33.30	PASS
20	40620	1	#0	QPSK	21.13	34.19	PASS
20	40620	1	#Mid	QPSK	21.51	34.57	PASS
20	40620	1	#Max	QPSK	21.41	34.47	PASS
20	40620	50	#0	QPSK	21.34	34.40	PASS
20	40620	50	#Mid	QPSK	21.34	34.40	PASS
20	40620	50	#Max	QPSK	21.39	34.45	PASS
20	40620	100	#0	QPSK	21.37	34.43	PASS
20	40620	1	#0	QAM16	21.08	34.14	PASS
20	40620	1	#Mid	QAM16	21.45	34.51	PASS
20	40620	1	#Max	QAM16	21.35	34.41	PASS
20	40620	50	#0	QAM16	21.31	34.37	PASS
20	40620	50	#Mid	QAM16	21.31	34.37	PASS
20	40620	50	#Max	QAM16	21.35	34.41	PASS
20	40620	100	#0	QAM16	21.53	34.59	PASS
20	41490	1	#0	QPSK	22.13	35.19	PASS
20	41490	1	#Mid	QPSK	22.02	35.08	PASS
20	41490	1	#Max	QPSK	21.98	35.04	PASS
20	41490	50	#0	QPSK	22.20	35.26	PASS
20	41490	50	#Mid	QPSK	22.20	35.26	PASS
20	41490	50	#Max	QPSK	22.02	35.08	PASS
20	41490	100	#0	QPSK	22.18	35.24	PASS
20	41490	1	#0	QAM16	21.81	34.87	PASS
20	41490	1	#Mid	QAM16	21.68	34.74	PASS
20	41490	1	#Max	QAM16	21.65	34.71	PASS
20	41490	50	#0	QAM16	22.23	35.29	PASS
20	41490	50	#Mid	QAM16	22.23	35.29	PASS
20	41490	50	#Max	QAM16	22.06	35.12	PASS
20	41490	100	#0	QAM16	22.18	35.24	PASS

5	39675	1	#0	64QAM	19.00	32.06	PASS
5	39675	1	#Mid	64QAM	20.38	33.44	PASS
5	39675	1	#Max	64QAM	19.16	32.22	PASS
5	39675	12	#0	64QAM	20.22	33.28	PASS
5	39675	12	#Mid	64QAM	20.22	33.28	PASS
5	39675	12	#Max	64QAM	20.09	33.15	PASS
5	39675	25	#0	64QAM	19.93	32.99	PASS
5	40620	1	#0	64QAM	20.36	33.42	PASS
5	40620	1	#Mid	64QAM	21.43	34.49	PASS
5	40620	1	#Max	64QAM	20.18	33.24	PASS
5	40620	12	#0	64QAM	21.35	34.41	PASS
5	40620	12	#Mid	64QAM	21.35	34.41	PASS
5	40620	12	#Max	64QAM	20.92	33.98	PASS
5	40620	25	#0	64QAM	21.10	34.16	PASS
5	41565	1	#0	64QAM	20.50	33.56	PASS
5	41565	1	#Mid	64QAM	21.62	34.68	PASS
5	41565	1	#Max	64QAM	20.75	33.81	PASS
5	41565	12	#0	64QAM	21.77	34.83	PASS
5	41565	12	#Mid	64QAM	21.77	34.83	PASS
5	41565	12	#Max	64QAM	21.49	34.55	PASS
5	41565	25	#0	64QAM	21.52	34.58	PASS
10	39700	1	#0	64QAM	19.88	32.94	PASS
10	39700	1	#Mid	64QAM	20.19	33.25	PASS
10	39700	1	#Max	64QAM	20.05	33.11	PASS
10	39700	25	#0	64QAM	20.01	33.07	PASS
10	39700	25	#Mid	64QAM	20.01	33.07	PASS
10	39700	25	#Max	64QAM	19.76	32.82	PASS
10	39700	50	#0	64QAM	19.83	32.89	PASS
10	40620	1	#0	64QAM	20.93	33.99	PASS
10	40620	1	#Mid	64QAM	20.98	34.04	PASS
10	40620	1	#Max	64QAM	20.96	34.02	PASS
10	40620	25	#0	64QAM	21.03	34.09	PASS
10	40620	25	#Mid	64QAM	21.03	34.09	PASS
10	40620	25	#Max	64QAM	20.90	33.96	PASS
10	40620	50	#0	64QAM	20.99	34.05	PASS
10	41540	1	#0	64QAM	21.34	34.40	PASS
10	41540	1	#Mid	64QAM	21.29	34.35	PASS
10	41540	1	#Max	64QAM	21.50	34.56	PASS
10	41540	25	#0	64QAM	21.50	34.56	PASS
10	41540	25	#Mid	64QAM	21.49	34.55	PASS
10	41540	25	#Max	64QAM	21.57	34.63	PASS
10	41540	50	#0	64QAM	21.48	34.54	PASS
15	39725	1	#0	64QAM	20.05	33.11	PASS

15	39725	1	#Mid	64QAM	20.24	33.30	PASS
15	39725	1	#Max	64QAM	20.07	33.13	PASS
15	39725	36	#0	64QAM	19.75	32.81	PASS
15	39725	36	#Mid	64QAM	19.75	32.81	PASS
15	39725	36	#Max	64QAM	19.84	32.90	PASS
15	39725	75	#0	64QAM	19.83	32.89	PASS
15	40620	1	#0	64QAM	20.92	33.98	PASS
15	40620	1	#Mid	64QAM	21.14	34.20	PASS
15	40620	1	#Max	64QAM	21.02	34.08	PASS
15	40620	36	#0	64QAM	20.94	34.00	PASS
15	40620	36	#Mid	64QAM	20.94	34.00	PASS
15	40620	36	#Max	64QAM	20.98	34.04	PASS
15	40620	75	#0	64QAM	21.10	34.16	PASS
15	41515	1	#0	64QAM	21.73	34.79	PASS
15	41515	1	#Mid	64QAM	21.68	34.74	PASS
15	41515	1	#Max	64QAM	21.68	34.74	PASS
15	41515	36	#0	64QAM	21.47	34.53	PASS
15	41515	36	#Mid	64QAM	21.47	34.53	PASS
15	41515	36	#Max	64QAM	21.57	34.63	PASS
15	41515	75	#0	64QAM	21.64	34.70	PASS
20	39750	1	#0	64QAM	19.82	32.88	PASS
20	39750	1	#Mid	64QAM	20.00	33.06	PASS
20	39750	1	#Max	64QAM	19.84	32.90	PASS
20	39750	50	#0	64QAM	19.79	32.85	PASS
20	39750	50	#Mid	64QAM	19.79	32.85	PASS
20	39750	50	#Max	64QAM	19.69	32.75	PASS
20	39750	100	#0	64QAM	19.74	32.80	PASS
20	40620	1	#0	64QAM	20.72	33.78	PASS
20	40620	1	#Mid	64QAM	20.95	34.01	PASS
20	40620	1	#Max	64QAM	20.84	33.90	PASS
20	40620	50	#0	64QAM	20.93	33.99	PASS
20	40620	50	#Mid	64QAM	20.93	33.99	PASS
20	40620	50	#Max	64QAM	20.86	33.92	PASS
20	40620	100	#0	64QAM	20.99	34.05	PASS
20	41490	1	#0	64QAM	21.33	34.39	PASS
20	41490	1	#Mid	64QAM	21.18	34.24	PASS
20	41490	1	#Max	64QAM	21.29	34.35	PASS
20	41490	50	#0	64QAM	21.65	34.71	PASS
20	41490	50	#Mid	64QAM	21.65	34.71	PASS
20	41490	50	#Max	64QAM	21.46	34.52	PASS
20	41490	100	#0	64QAM	21.60	34.66	PASS

5.2 Occupied Bandwidth

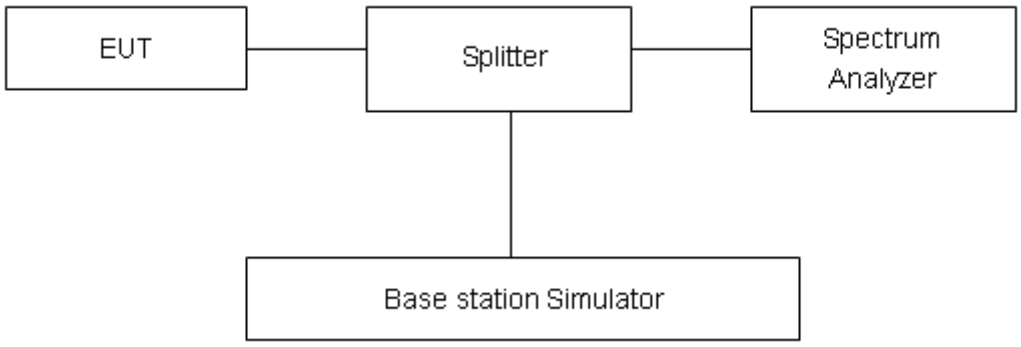
Ambient condition

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 ⩾1%EBW, VBW is set to 3x RBW.
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.

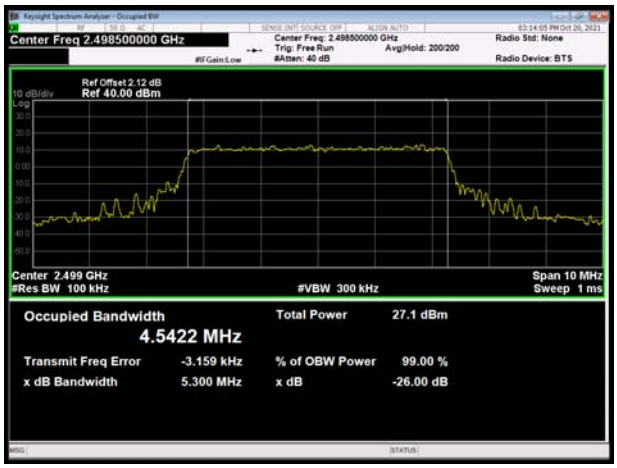
Measurement Uncertainty

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

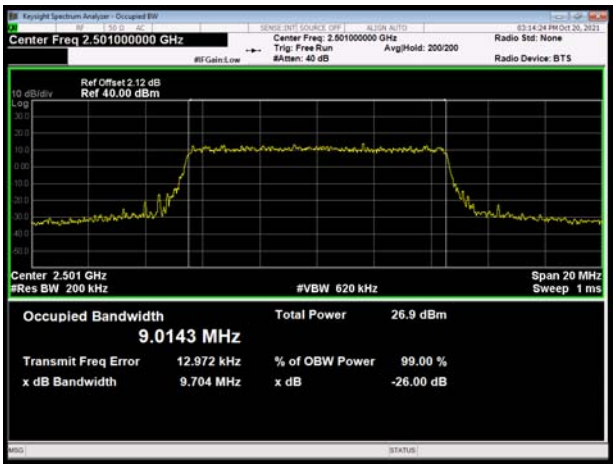
Test Result

LTE Band 41						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	39675	2498.5	4.542	5.300
			40620	2593	4.513	5.086
			41565	2687.5	4.520	5.260
		10	39700	2501	9.014	9.704
			40620	2593	9.014	10.010
			41540	2685	9.025	9.836
		15	39725	2503.5	13.473	14.406
			40620	2593	13.474	14.371
			41515	2682.5	13.438	14.327
		20	39750	2506	17.883	18.926
			40620	2593	17.916	19.023
			41490	2680	17.883	19.197
	16QAM	5	39675	2498.5	4.526	5.243
			40620	2593	4.518	5.196
			41565	2687.5	4.551	5.239
		10	39700	2501	8.982	9.926
			40620	2593	8.975	9.870
			41540	2685	8.993	10.245
		15	39725	2503.5	13.421	14.657
			40620	2593	13.474	14.542
			41515	2682.5	13.463	14.668
		20	39750	2506	17.949	19.169
			40620	2593	17.870	19.198
			41490	2680	17.873	19.066
	64QAM	5	39675	2498.5	4.512	5.204
			40620	2593	4.534	5.296
			41565	2687.5	4.513	5.253
		10	39700	2501	8.992	9.935
			40620	2593	8.968	9.839
			41540	2685	8.985	9.617
		15	39725	2503.5	13.466	14.374
			40620	2593	13.456	14.639
			41515	2682.5	13.431	14.310
		20	39750	2506	17.918	19.261
			40620	2593	17.876	19.088
			41490	2680	17.924	18.913

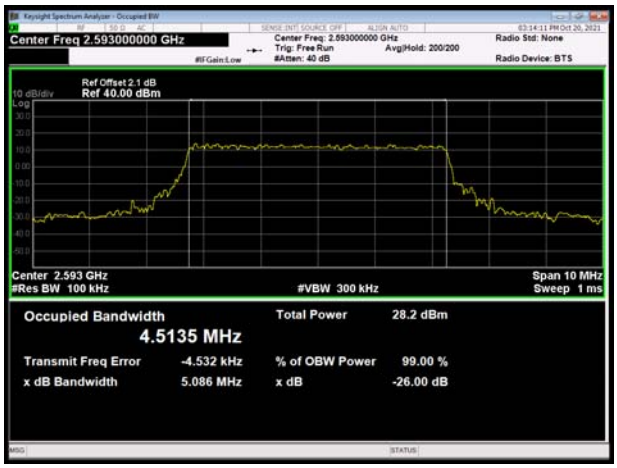
LTE Band 41 QPSK 5MHz CH-Low



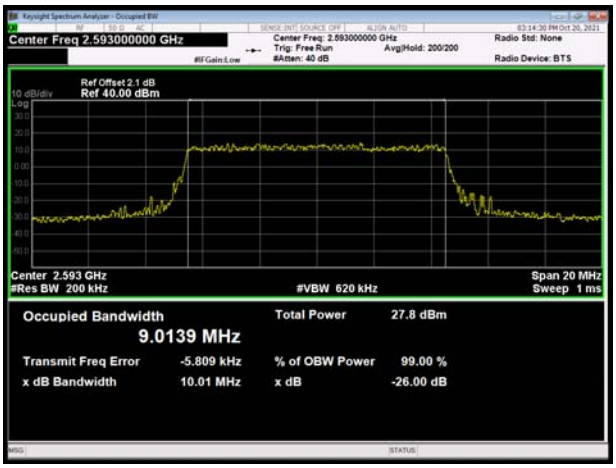
LTE Band 41 QPSK 10MHz CH-Low



LTE Band 41 QPSK 5MHz CH-Middle

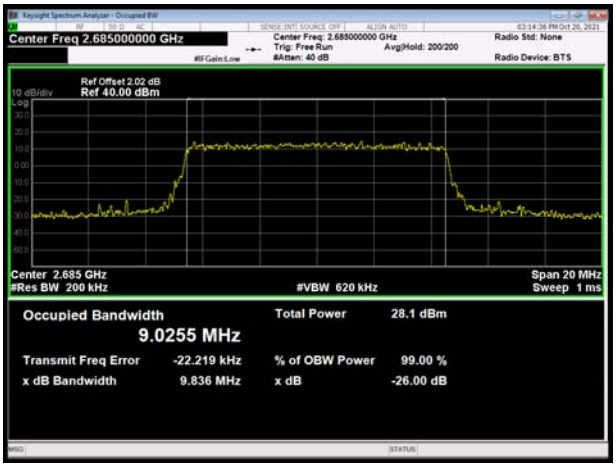


LTE Band 41 QPSK 10MHz CH-Middle

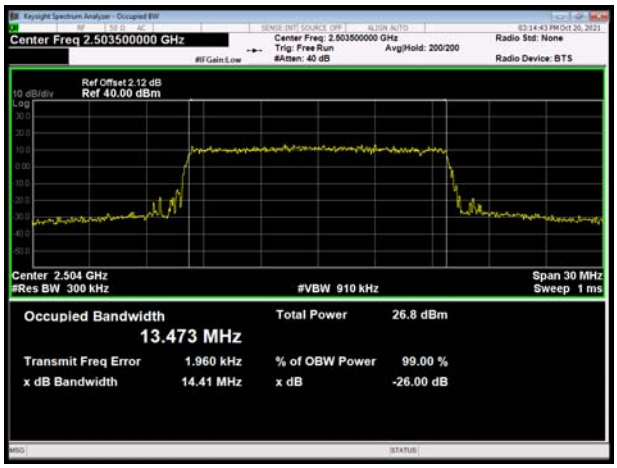


LTE Band 41 QPSK 5MHz CH-High

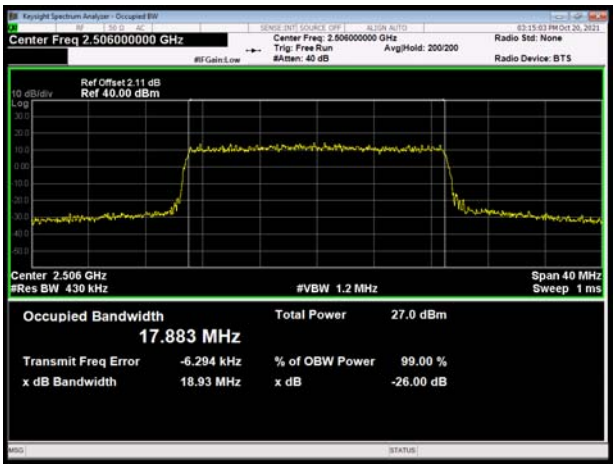
LTE Band 41 QPSK 10MHz CH-High



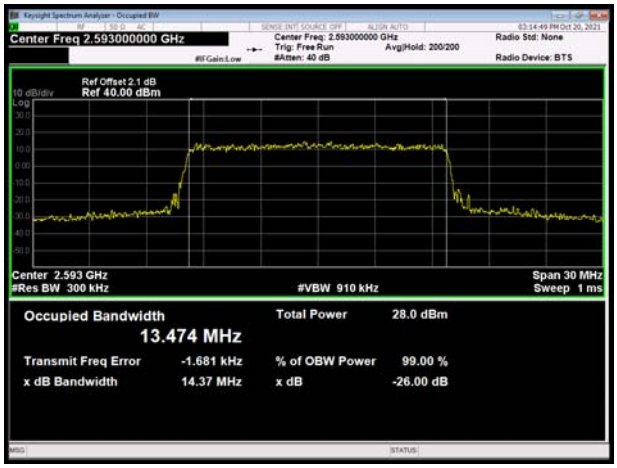
LTE Band 41 QPSK 15MHz CH-Low



LTE Band 41 QPSK 20MHz CH-Low

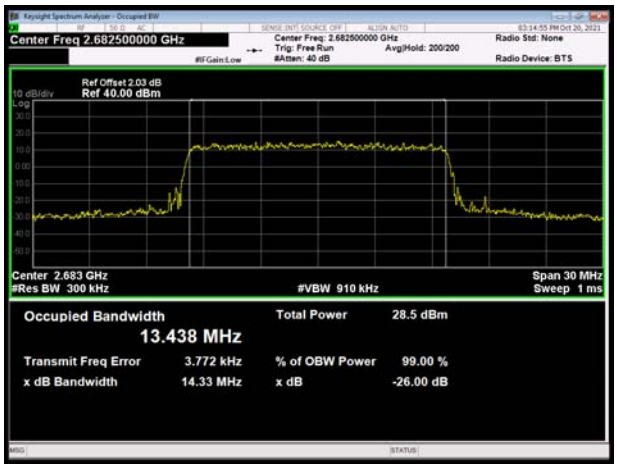


LTE Band 41 QPSK 15MHz CH-Middle

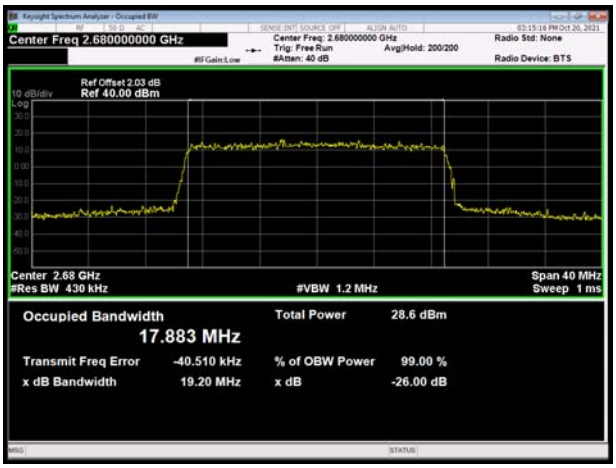


LTE Band 41 QPSK 20MHz CH-Middle

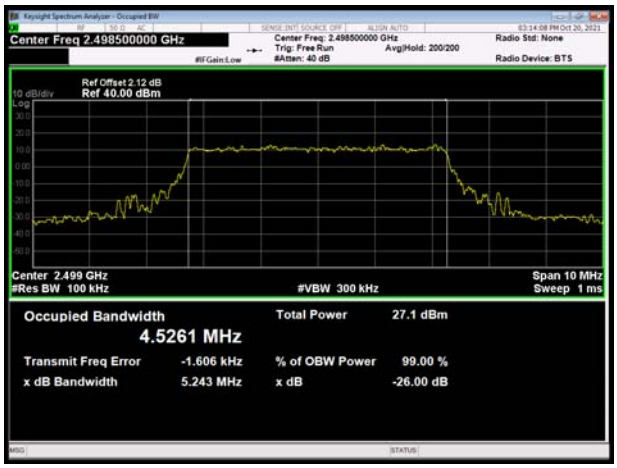
LTE Band 41 QPSK 15MHz CH-High



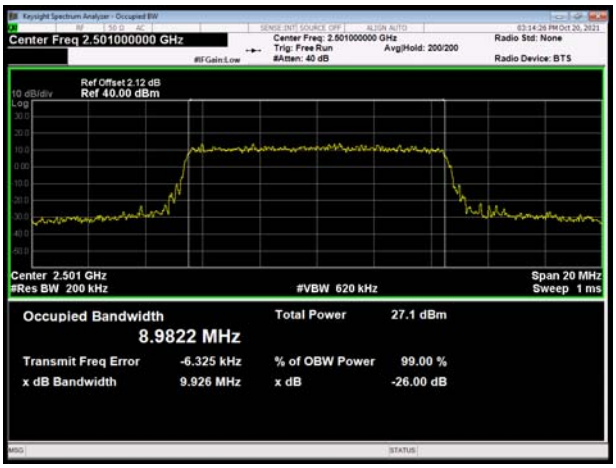
LTE Band 41 QPSK 20MHz CH-High



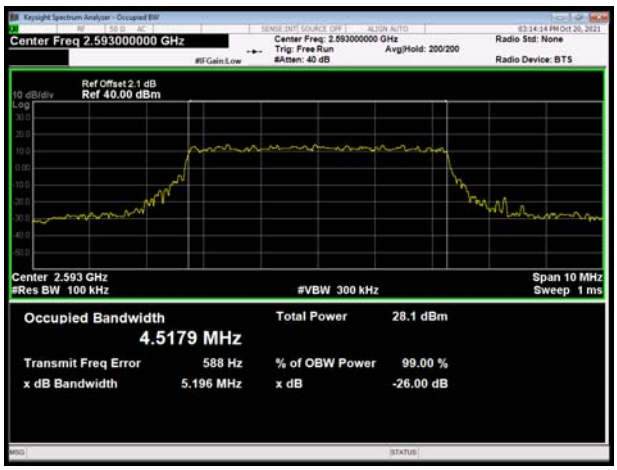
LTE Band 41 16QAM 5MHz CH-Low



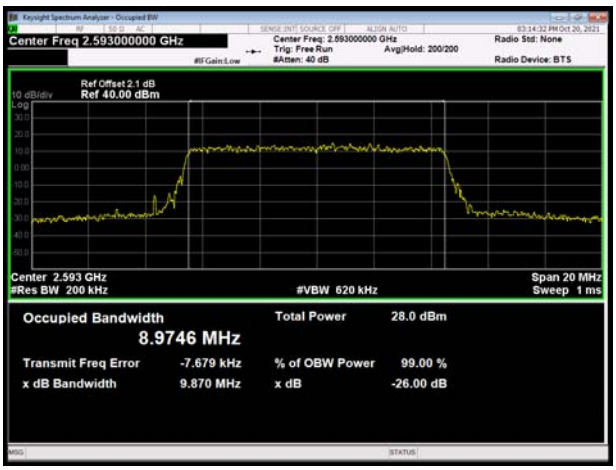
LTE Band 41 16QAM 10MHz CH-Low



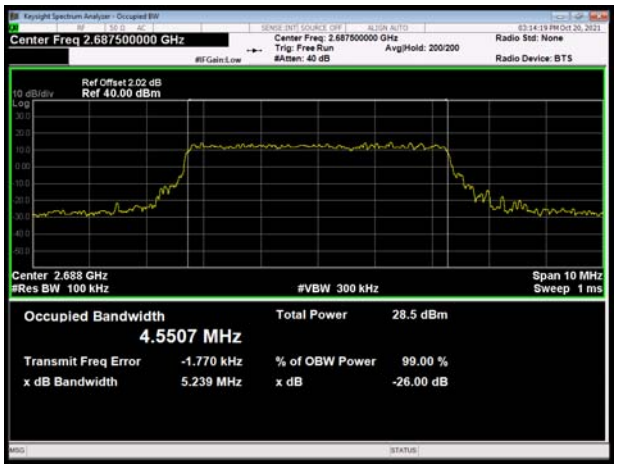
LTE Band 41 16QAM 5MHz CH-Middle



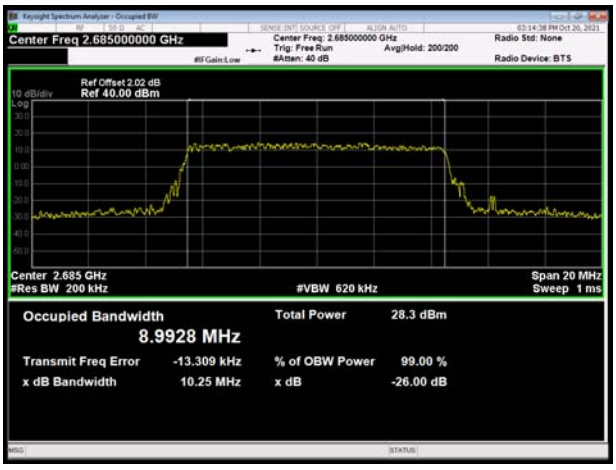
LTE Band 41 16QAM 10MHz CH-Middle



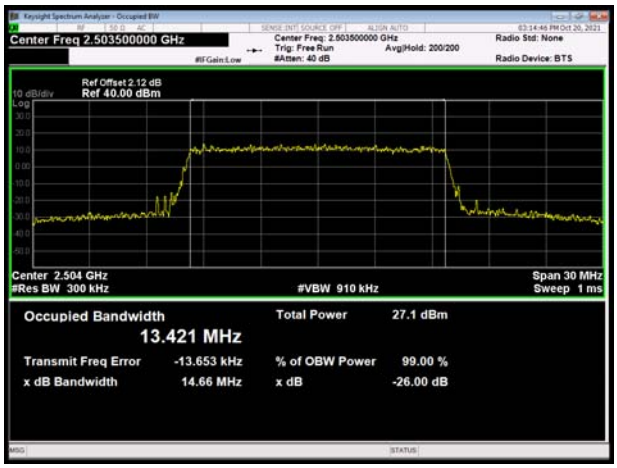
LTE Band 41 16QAM 5MHz CH-High



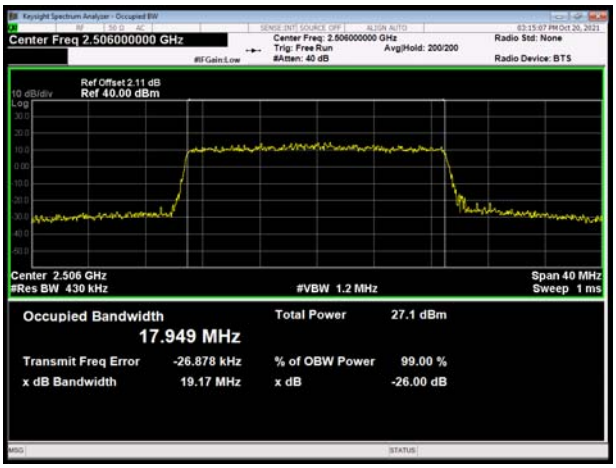
LTE Band 41 16QAM 10MHz CH-High



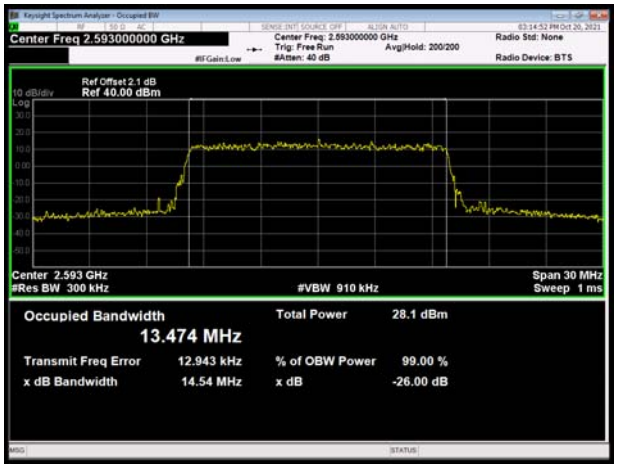
LTE Band 41 16QAM 15MHz CH-Low



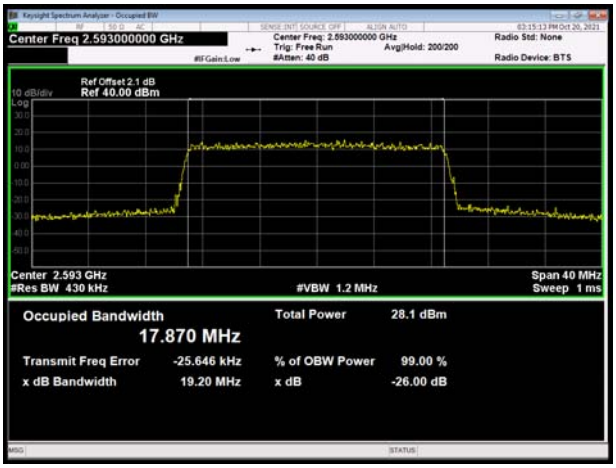
LTE Band 41 16QAM 20MHz CH-Low



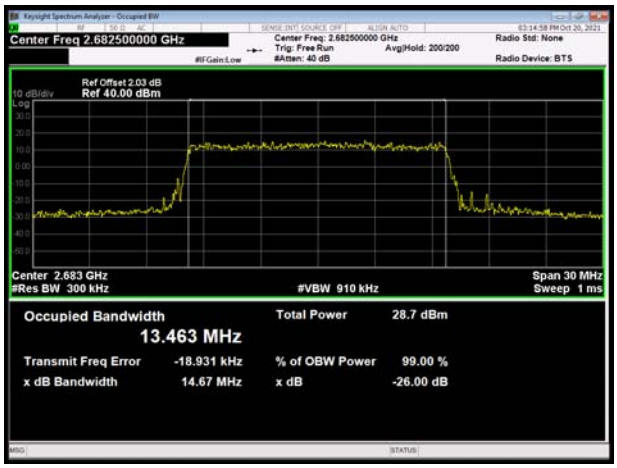
LTE Band 41 16QAM 15MHz CH-Middle



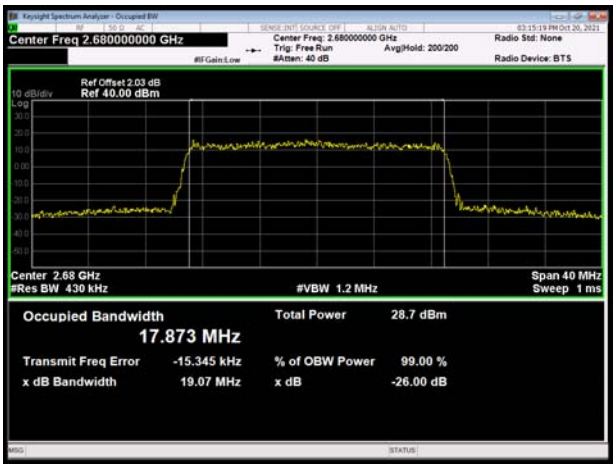
LTE Band 41 16QAM 20MHz CH-Middle



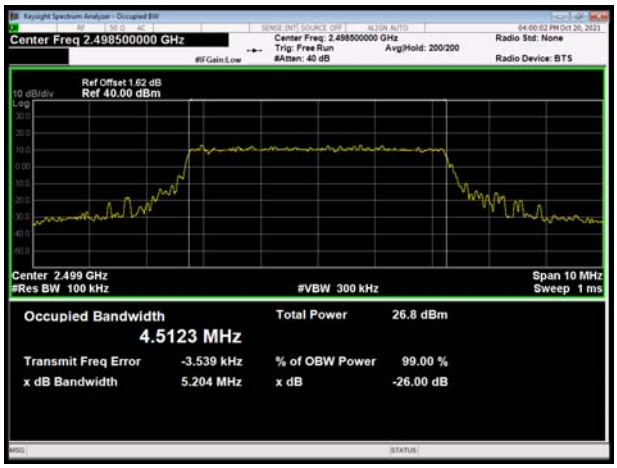
LTE Band 41 16QAM 15MHz CH-High



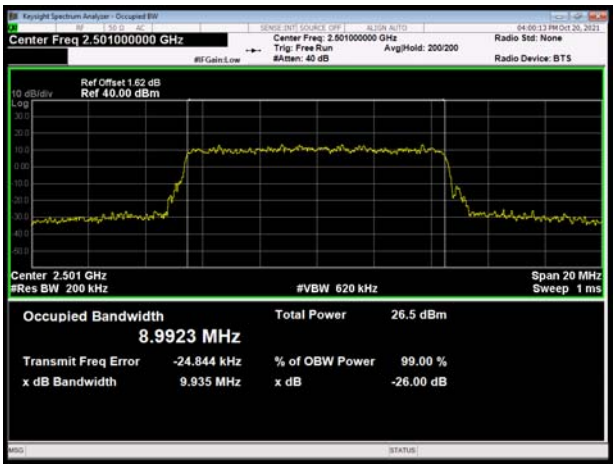
LTE Band 41 16QAM 20MHz CH-High



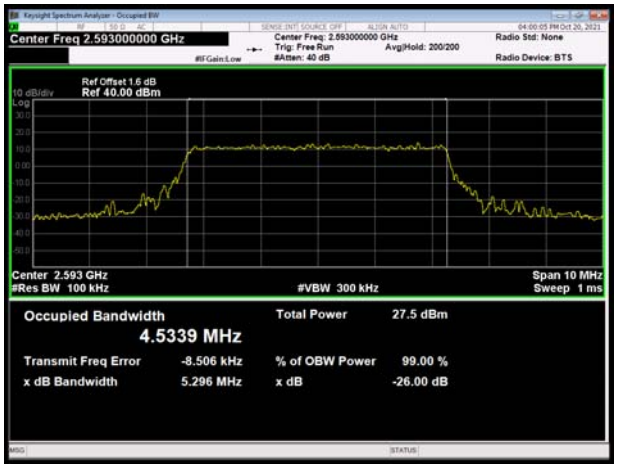
LTE Band 41 64QAM 5MHz CH-Low



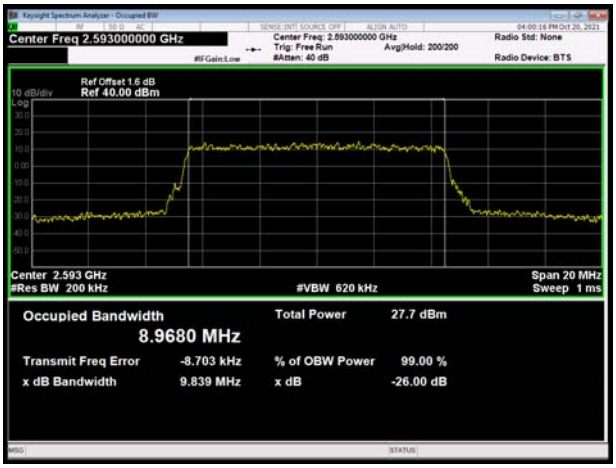
LTE Band 41 64QAM 10MHz CH-Low



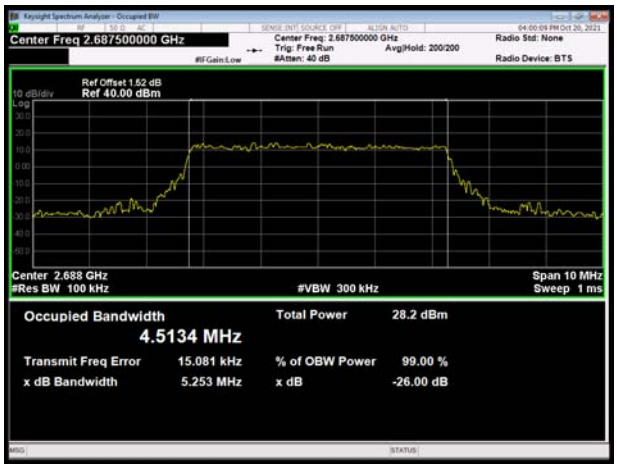
LTE Band 41 64QAM 5MHz CH-Middle



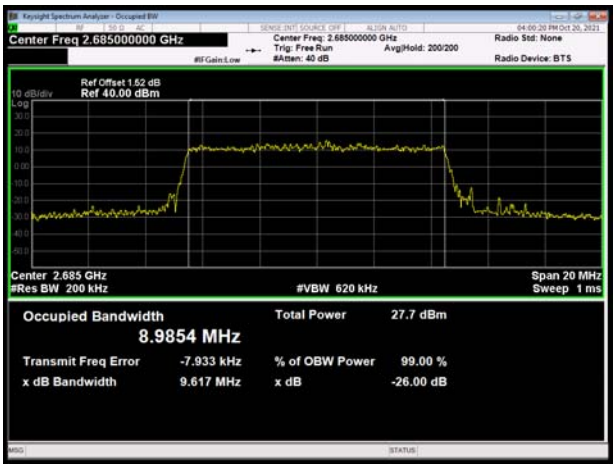
LTE Band 41 64QAM 10MHz CH-Middle



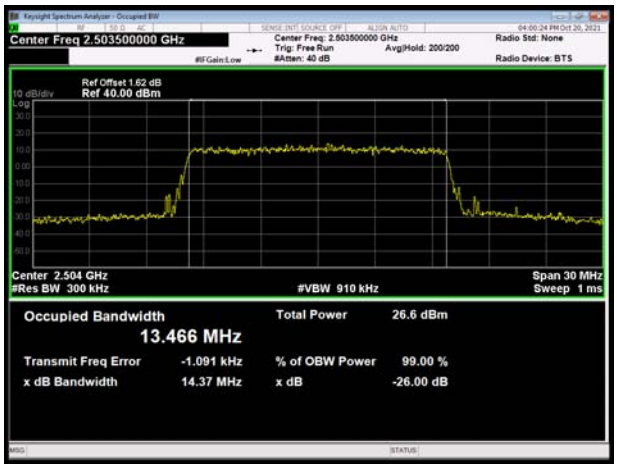
LTE Band 41 64QAM 5MHz CH-High



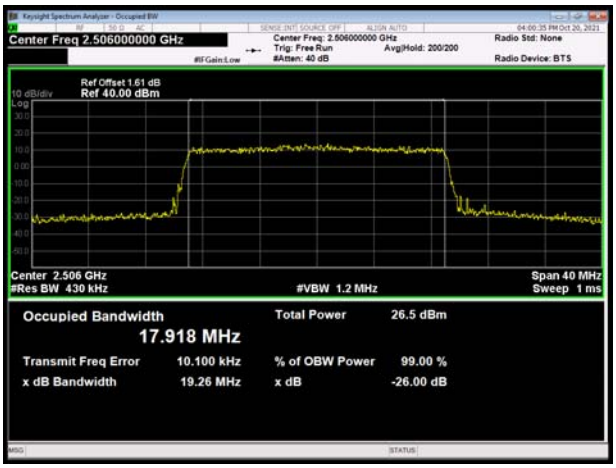
LTE Band 41 64QAM 10MHz CH-High



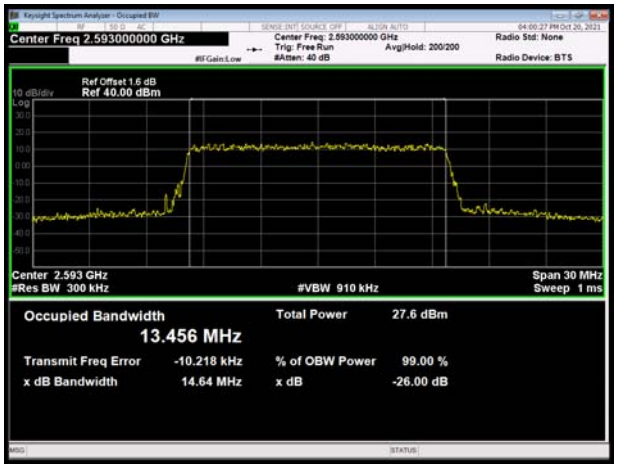
LTE Band 41 64QAM 15MHz CH-Low



LTE Band 41 64QAM 20MHz CH-Low

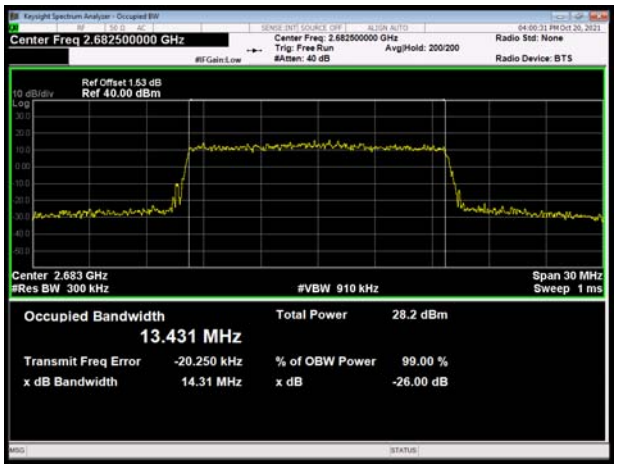


LTE Band 41 64QAM 15MHz CH-Middle

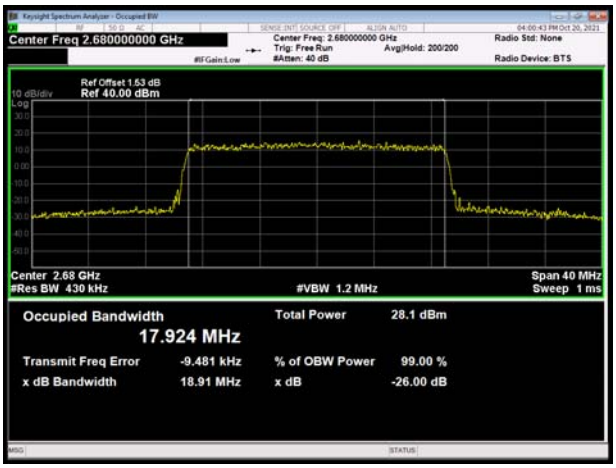


LTE Band 41 64QAM 20MHz CH-Middle

LTE Band 41 64QAM 15MHz CH-High



LTE Band 41 64QAM 20MHz CH-High



5.3 Band Edge Compliance

Ambient condition

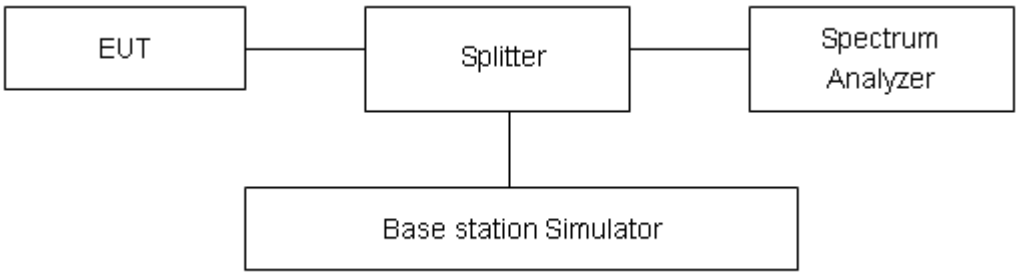
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 testing follows KDB 971168 D01 v03r01 Section 6.0
The EUT was connected to spectrum analyzer and system simulator via a power divider.
The band edges of low and high channels for the highest RF powers were measured.
For LTE Band 7/38 the middle channel, high channel of LTE Band 41 set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
For LTE Band 41 low channel set RBW >= 2% EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

on spectrum analyzer.
Set spectrum analyzer with RMS detector.
The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Checked that all the results comply with the emission limit line.

Test Setup



Limits

Rule Part 27.53(m) (4)/ specifies that “for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on

frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.
Example:
The limit line is derived from 43 + 10log (P) dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log (P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

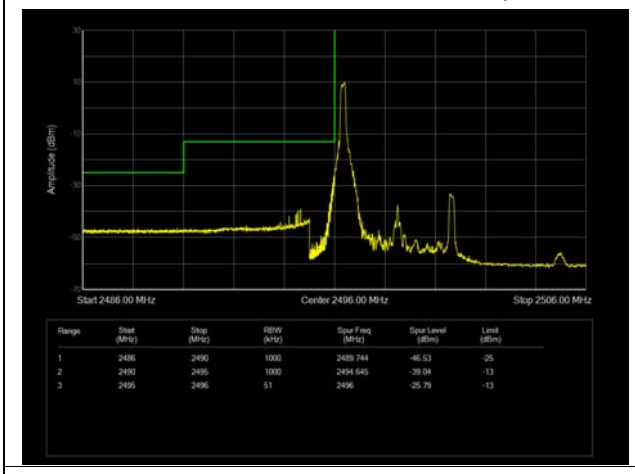
Measurement Uncertainty

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

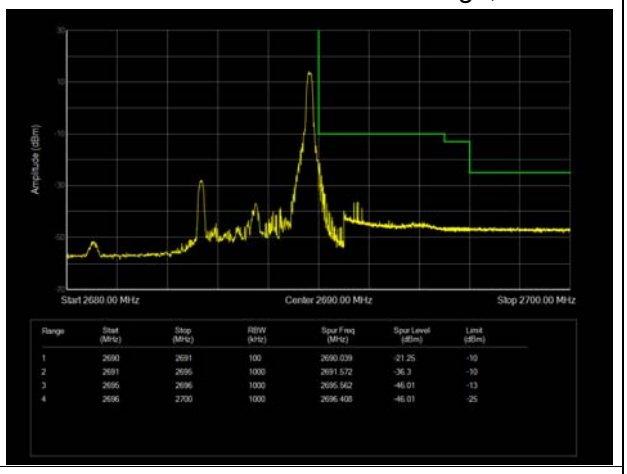
Test Result

All the test traces in the plots shows the test results clearly.

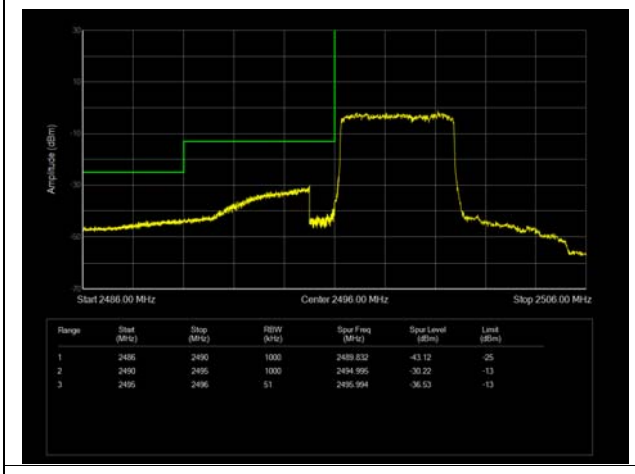
LTE Band 41 QPSK 5MHz CH-Low, 1 RB



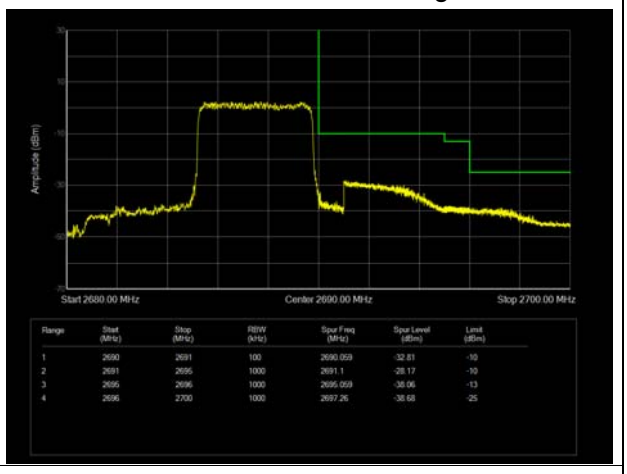
LTE Band 41 QPSK 5MHz CH-High, 1 RB



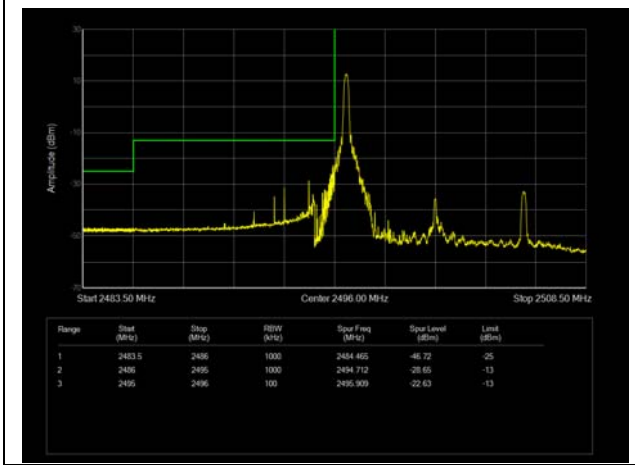
LTE Band 41 QPSK 5MHz CH-Low, 100%RB



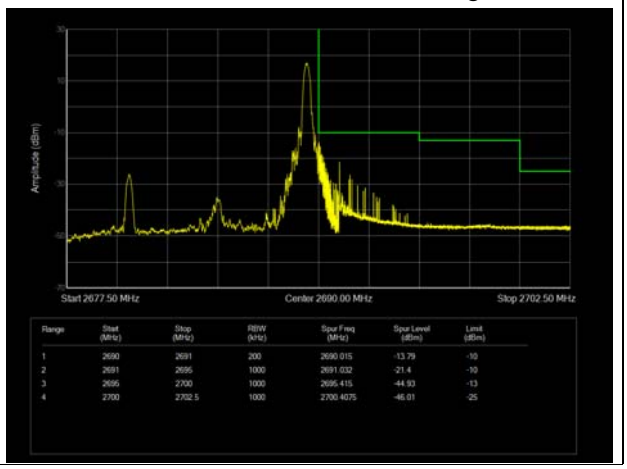
LTE Band 41 QPSK 5MHz CH-High, 100%RB



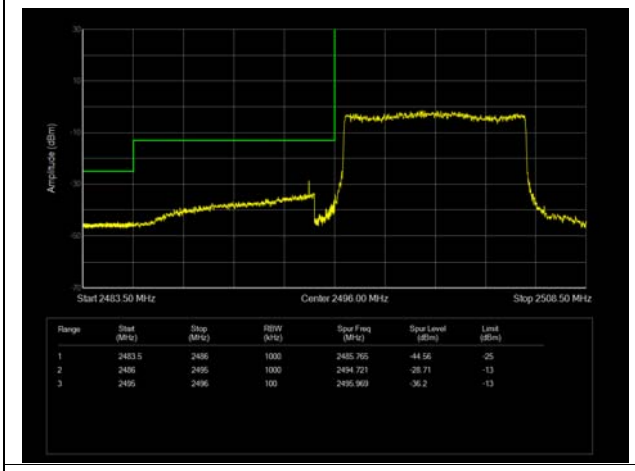
LTE Band 41 QPSK 10MHz CH-Low, 1 RB



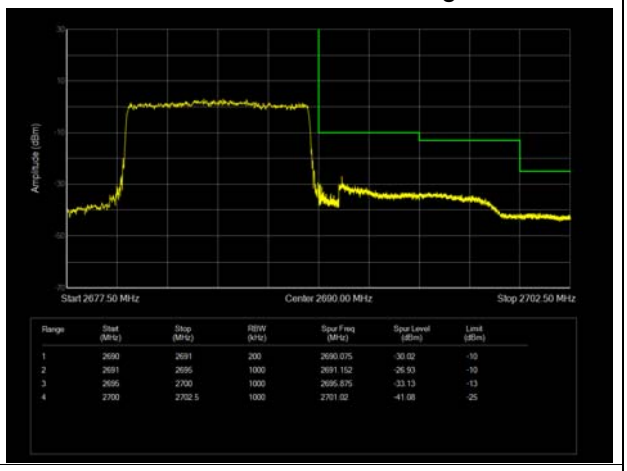
LTE Band 41 QPSK 10MHz CH-High, 1 RB



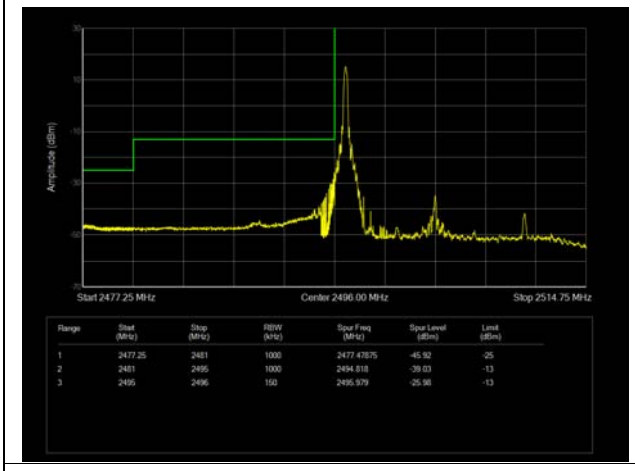
LTE Band 41 QPSK 10MHz CH-Low, 100%RB



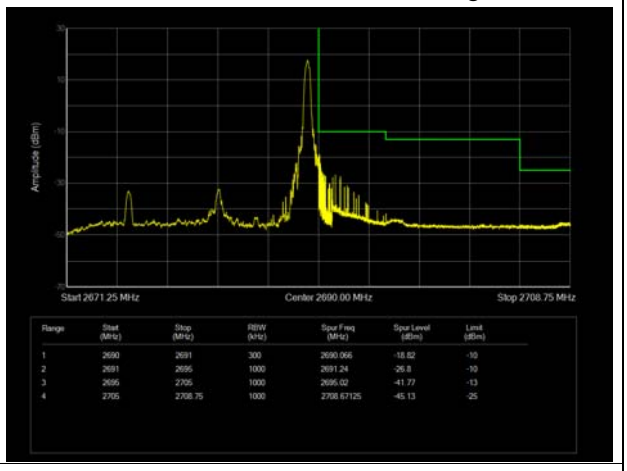
LTE Band 41 QPSK 10MHz CH-High, 100%RB



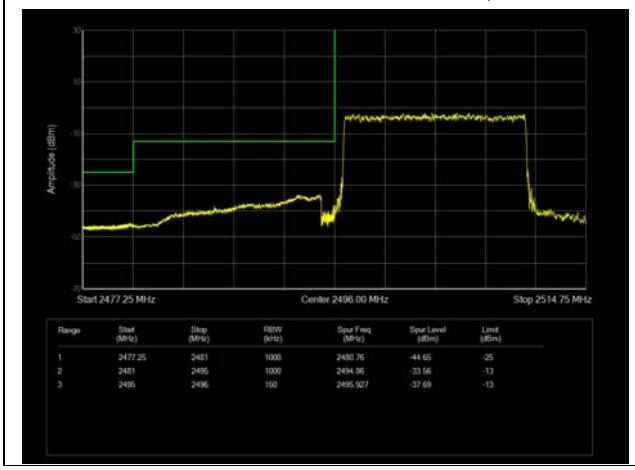
LTE Band 41 QPSK 15MHz CH-Low, 1 RB



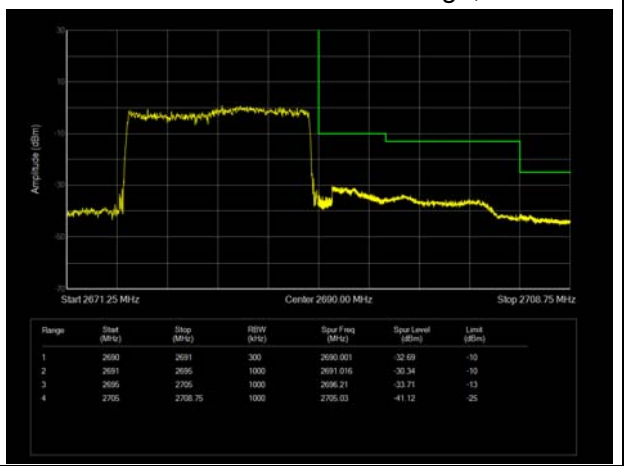
LTE Band 41 QPSK 15MHz CH-High, 1 RB



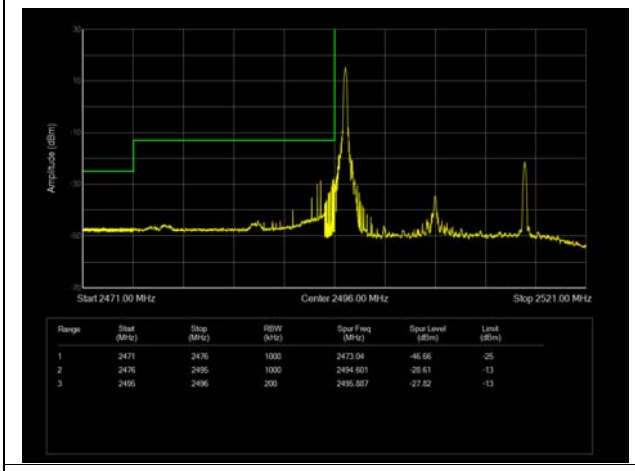
LTE Band 41 QPSK 15MHz CH-Low, 100%RB



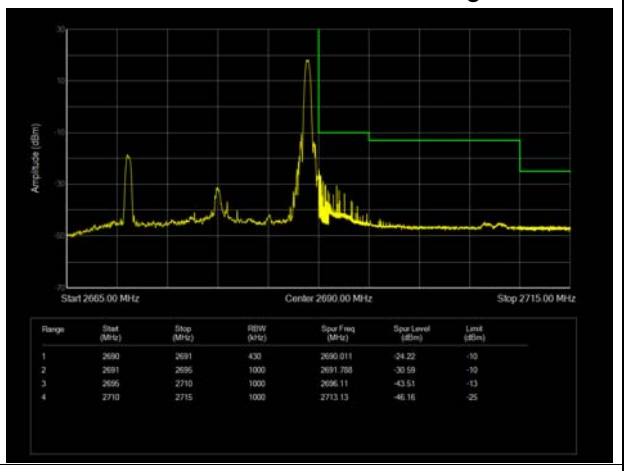
LTE Band 41 QPSK 15MHz CH-High, 100%RB



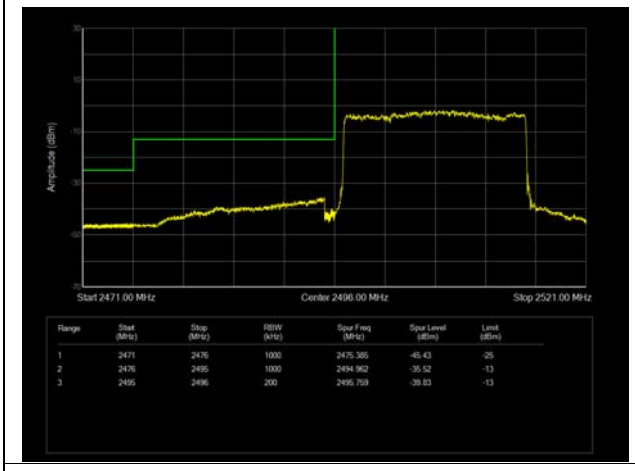
LTE Band 41 QPSK 20MHz CH-Low, 1 RB



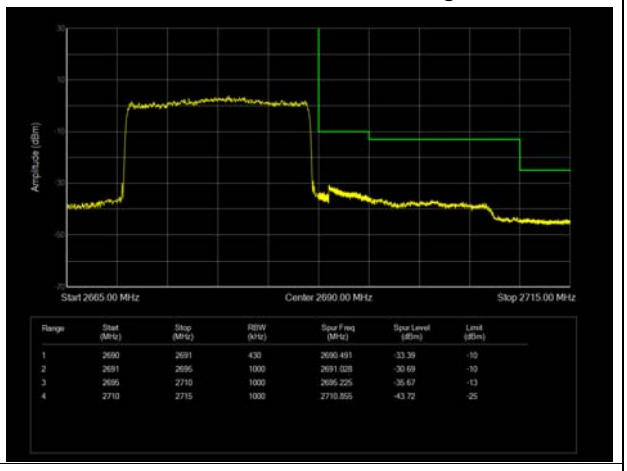
LTE Band 41 QPSK 20MHz CH-High, 1 RB



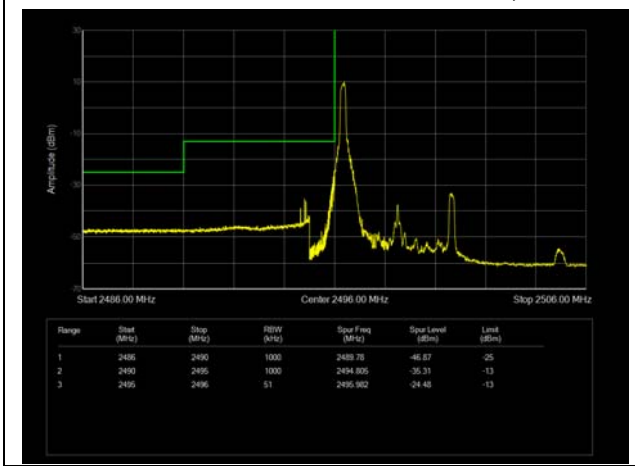
LTE Band 41 QPSK 20MHz CH-Low, 100%RB



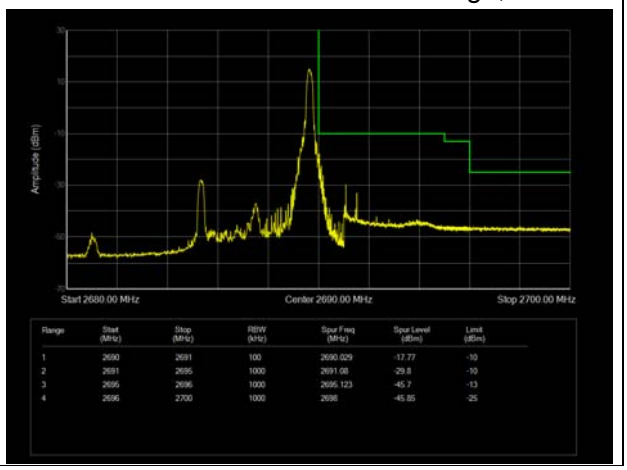
LTE Band 41 QPSK 20MHz CH-High, 100%RB



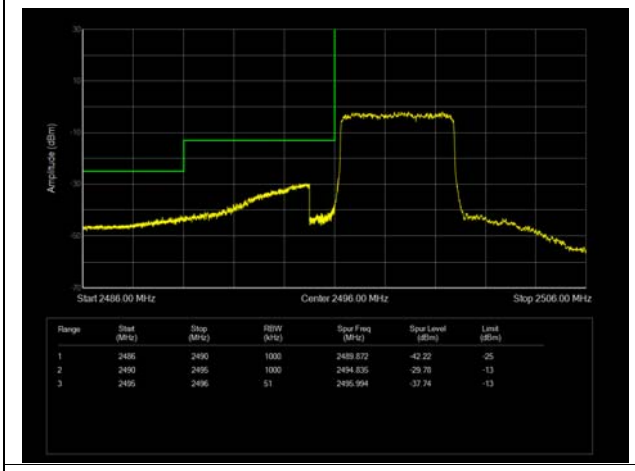
LTE Band 41 16QAM 5MHz CH-Low, 1 RB



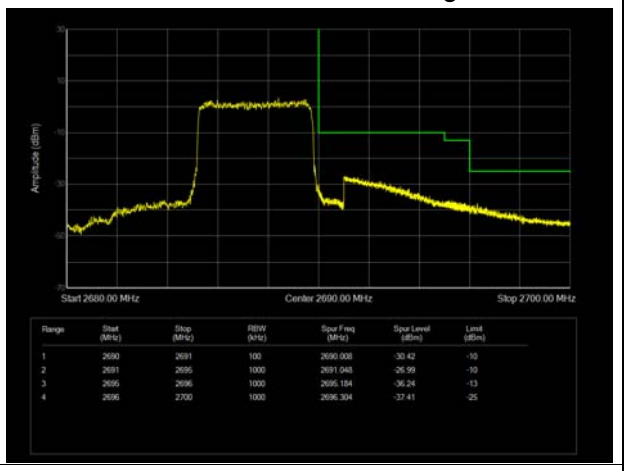
LTE Band 41 16QAM 5MHz CH-High, 1 RB



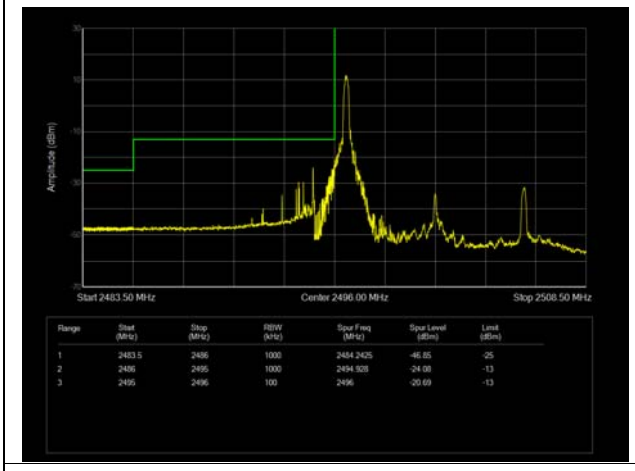
LTE Band 41 16QAM 5MHz CH-Low, 100%RB



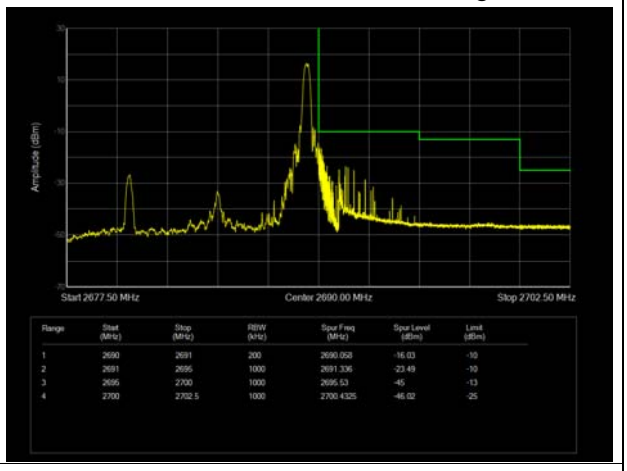
LTE Band 41 16QAM 5MHz CH-High, 100%RB



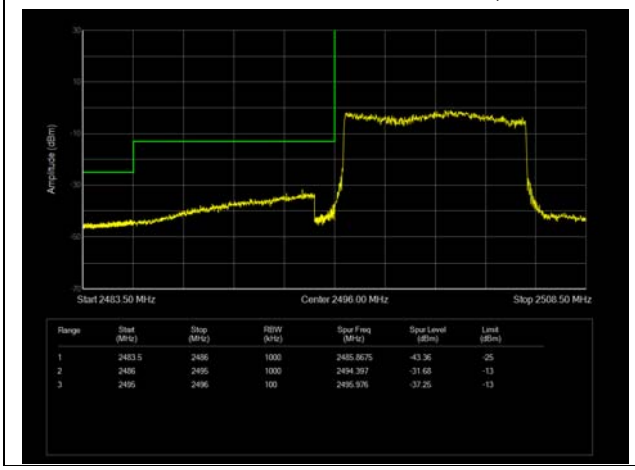
LTE Band 41 16QAM 10MHz CH-Low, 1 RB



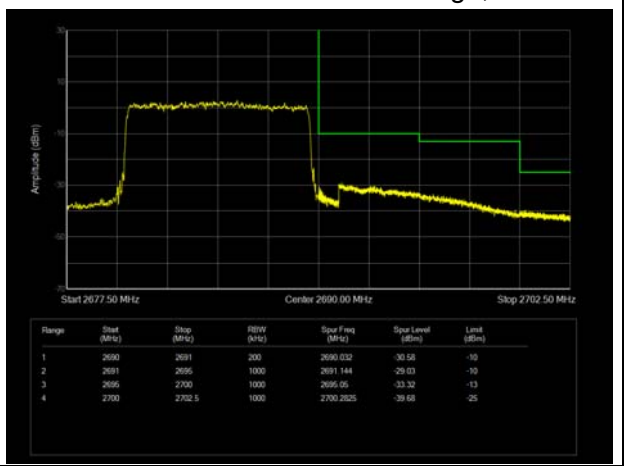
LTE Band 41 16QAM 10MHz CH-High, 1 RB



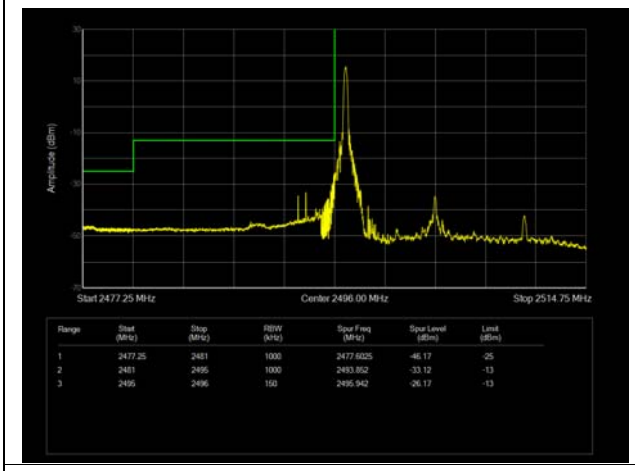
LTE Band 41 16QAM 10MHz CH-Low, 100%RB



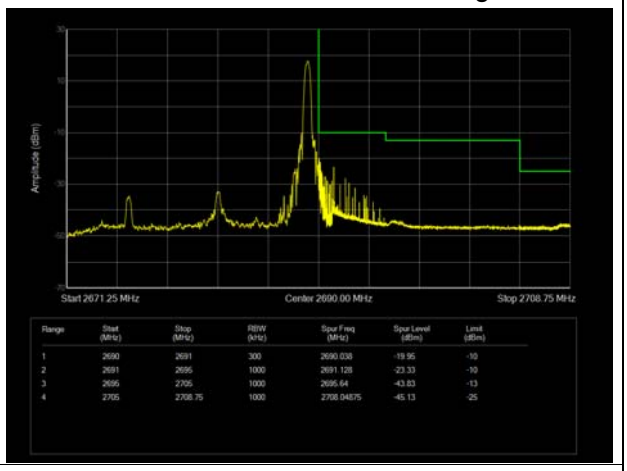
LTE Band 41 16QAM 10MHz CH-High, 100%RB



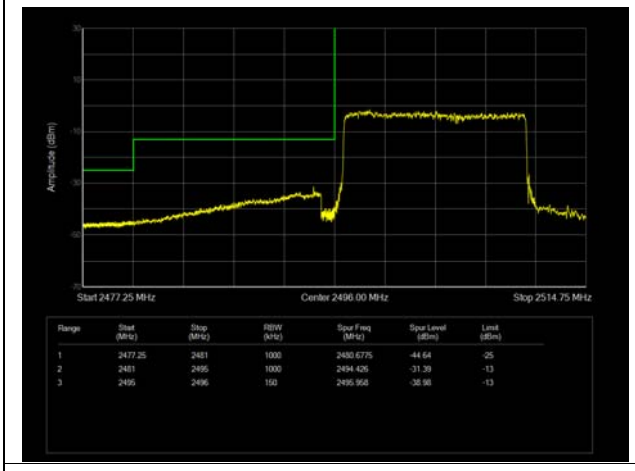
LTE Band 41 16QAM 15MHz CH-Low, 1 RB



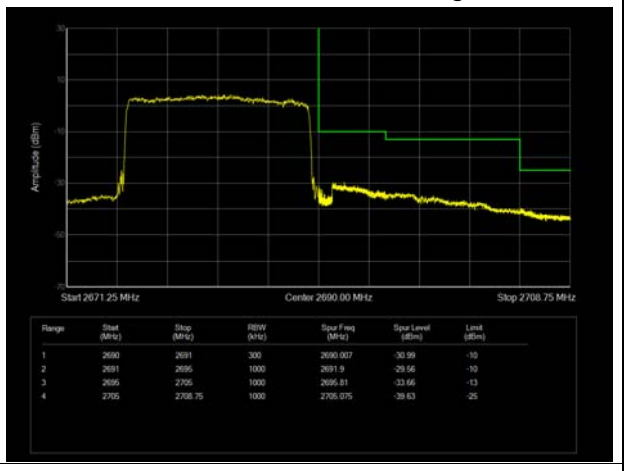
LTE Band 41 16QAM 15MHz CH-High, 1 RB



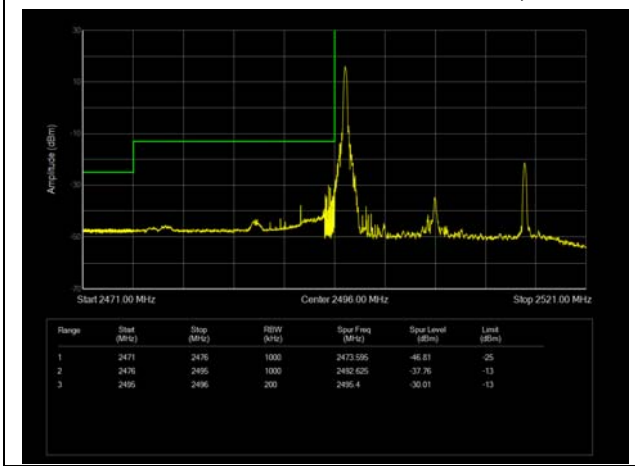
LTE Band 41 16QAM 15MHz CH-Low, 100%RB



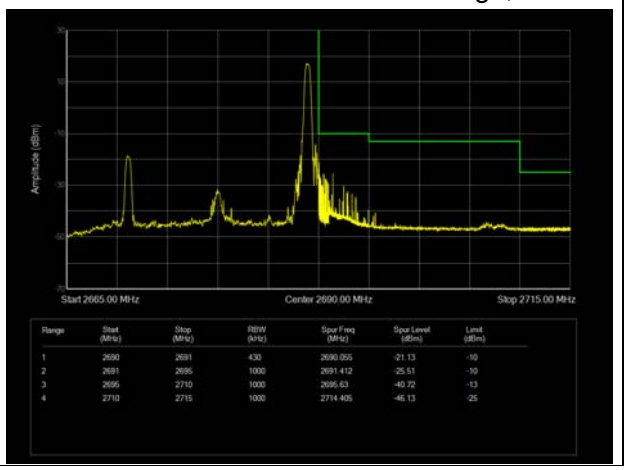
LTE Band 41 16QAM 15MHz CH-High, 100%RB



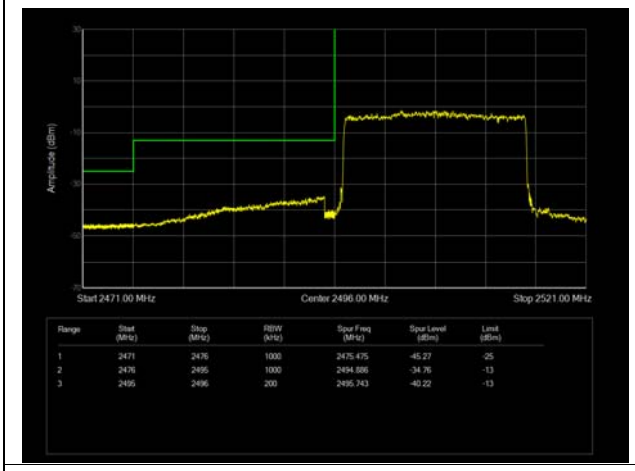
LTE Band 41 16QAM 20MHz CH-Low, RB 1



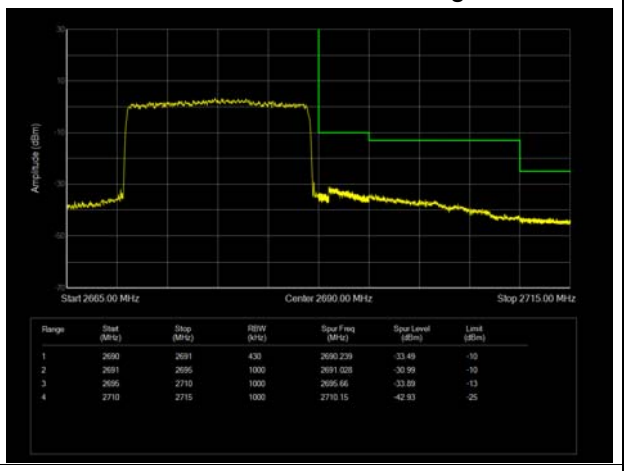
LTE Band 41 16QAM 20MHz CH-High, RB 1



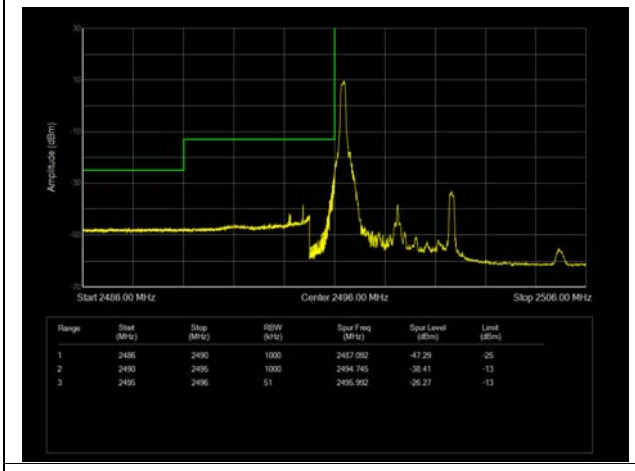
LTE Band 41 16QAM 20MHz CH-Low, 100%RB



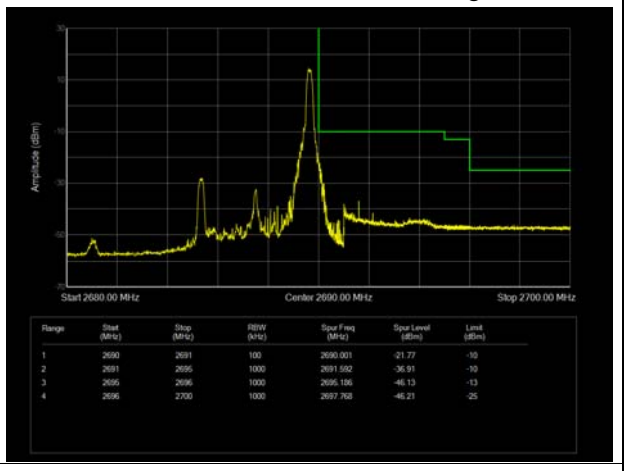
LTE Band 41 16QAM 20MHz CH-High, 100%RB



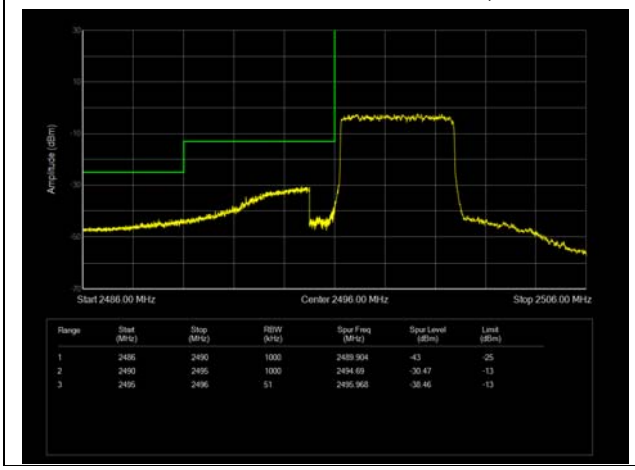
LTE Band 41 64QAM 5MHz CH-Low, 1 RB



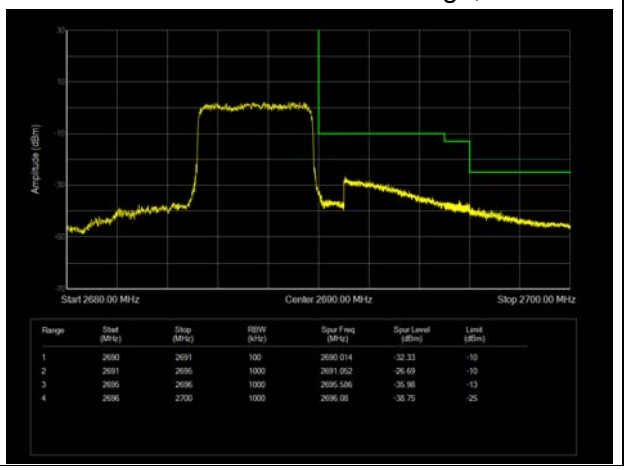
LTE Band 41 64QAM 5MHz CH-High, 1 RB



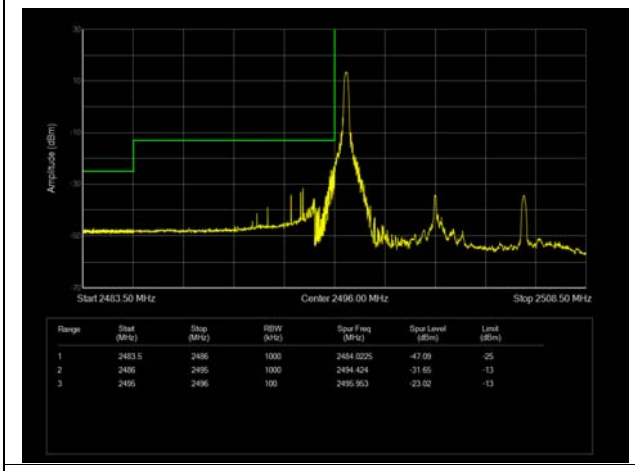
LTE Band 41 64QAM 5MHz CH-Low, 100%RB



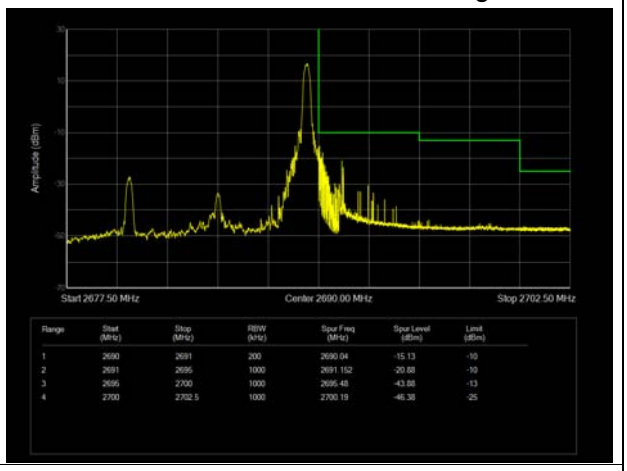
LTE Band 41 64QAM 5MHz CH-High, 100%RB



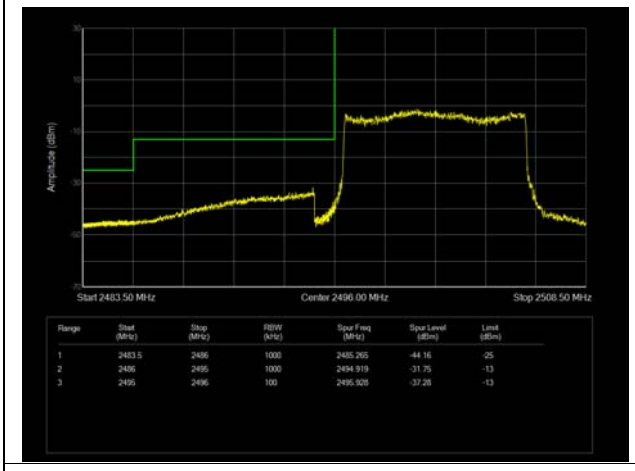
LTE Band 41 64QAM 10MHz CH-Low, 1 RB



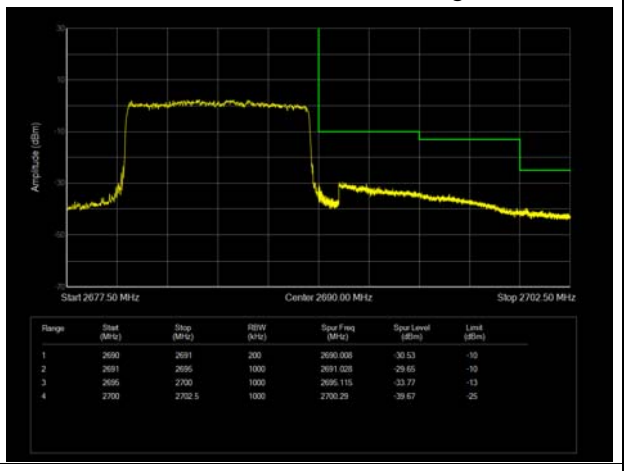
LTE Band 41 64QAM 10MHz CH-High, 1 RB



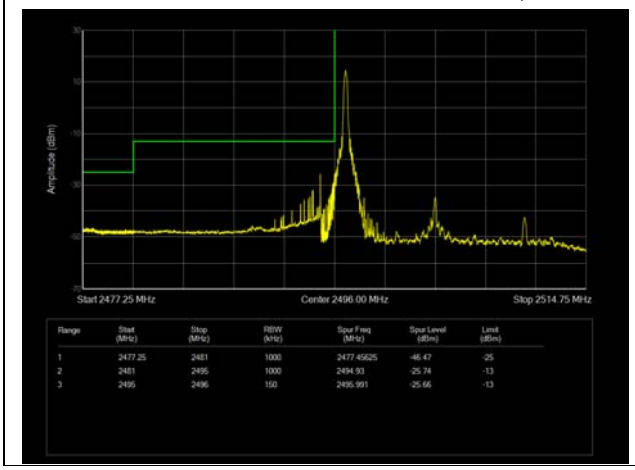
LTE Band 41 64QAM 10MHz CH-Low, 100%RB



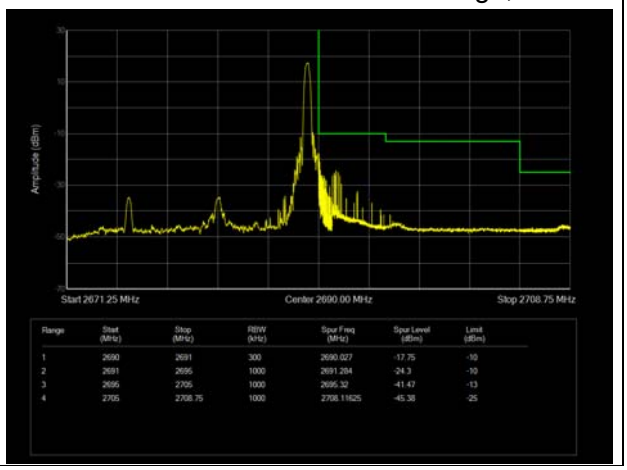
LTE Band 41 64QAM 10MHz CH-High, 100%RB



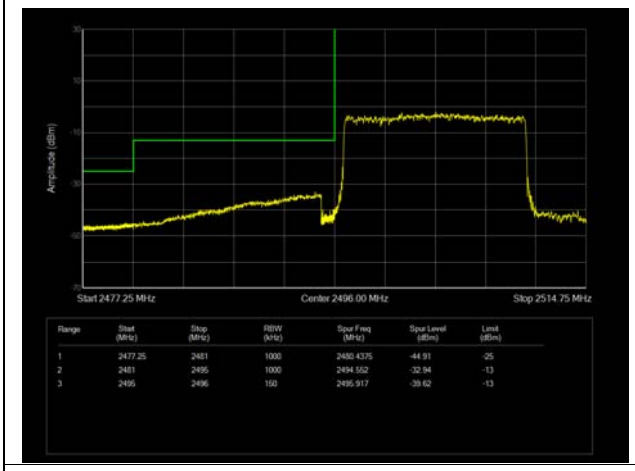
LTE Band 41 64QAM 15MHz CH-Low, 1 RB



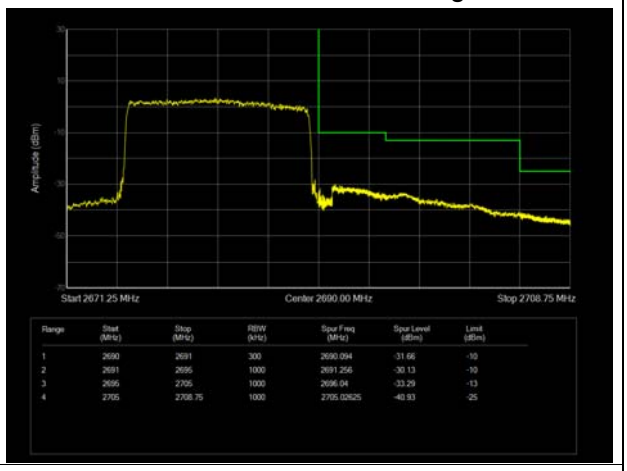
LTE Band 41 64QAM 15MHz CH-High, 1 RB



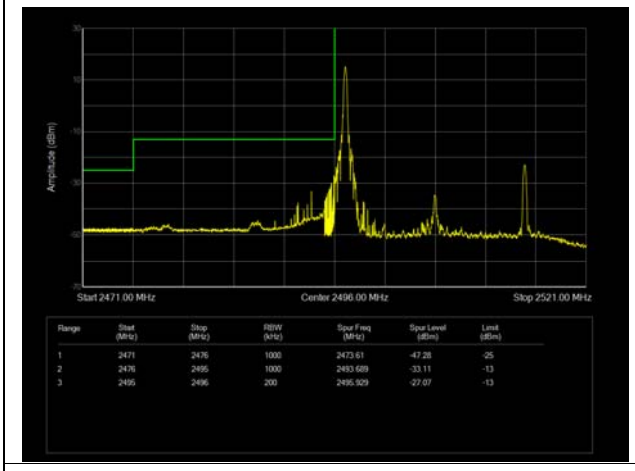
LTE Band 41 64QAM 15MHz CH-Low, 100%RB



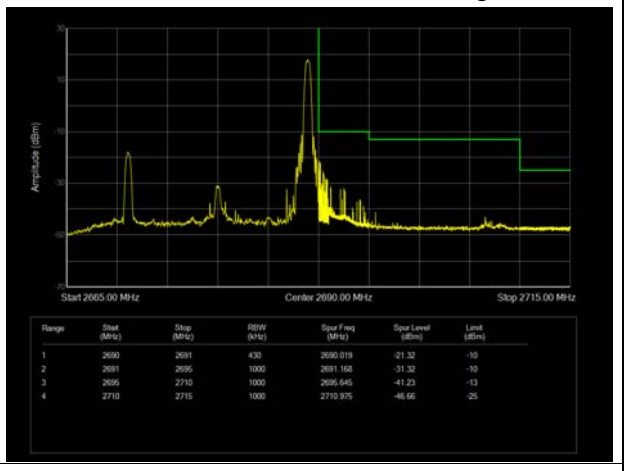
LTE Band 41 64QAM 15MHz CH-High, 100%RB



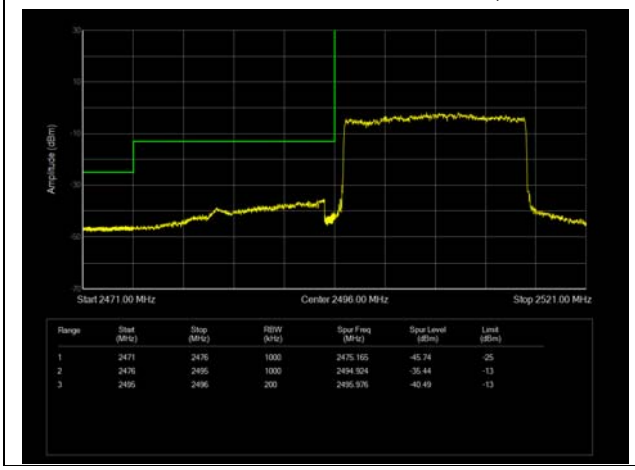
LTE Band 41 64QAM 20MHz CH-Low, 1 RB



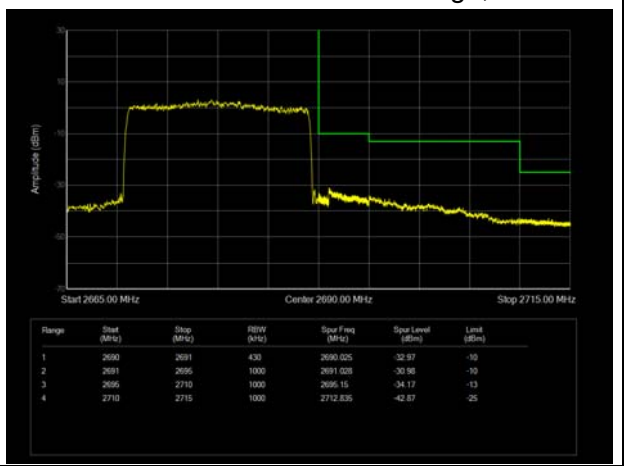
LTE Band 41 64QAM 20MHz CH-High, 1 RB



LTE Band 41 64QAM 20MHz CH-Low, 100%RB



LTE Band 41 64QAM 20MHz CH-High, 100%RB



5.4 Peak-to-Average Power Ratio (PAPR)

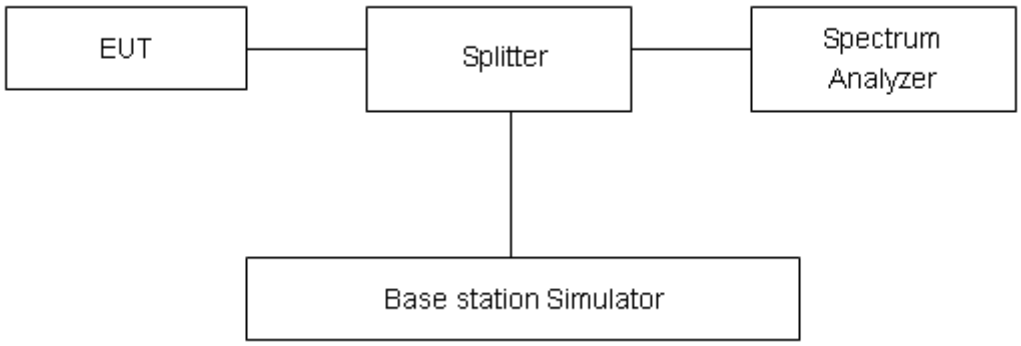
Ambient condition

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

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for thenormal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

LTE Band 41								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	39675	2498.5	25.22	16.33	8.89	≤13	PASS
		40620	2593	25.97	17.00	8.97	≤13	PASS
		41565	2687.5	26.11	15.83	10.28	≤13	PASS
	10	39700	2501	24.95	16.25	8.70	≤13	PASS
		40620	2593	26.01	17.24	8.77	≤13	PASS
		41540	2685	26.33	17.26	9.07	≤13	PASS
	15	39725	2503.5	25.37	16.24	9.13	≤13	PASS
		40620	2593	26.13	15.59	10.54	≤13	PASS
		41515	2682.5	26.78	17.41	9.37	≤13	PASS
	20	39750	2506	24.61	14.79	9.82	≤13	PASS
		40620	2593	25.77	16.62	9.15	≤13	PASS
		41490	2680	26.57	18.07	8.50	≤13	PASS
16QAM	5	39675	2498.5	25.70	15.30	10.40	≤13	PASS
		40620	2593	26.53	16.08	10.45	≤13	PASS
		41565	2687.5	26.80	17.50	9.30	≤13	PASS
	10	39700	2501	25.57	15.42	10.15	≤13	PASS
		40620	2593	26.72	17.54	9.18	≤13	PASS
		41540	2685	26.88	16.48	10.40	≤13	PASS
	15	39725	2503.5	25.85	15.90	9.95	≤13	PASS
		40620	2593	26.82	17.55	9.27	≤13	PASS
		41515	2682.5	27.16	16.64	10.52	≤13	PASS
	20	39750	2506	25.52	16.60	8.92	≤13	PASS
		40620	2593	26.30	15.18	11.12	≤13	PASS
		41490	2680	27.26	18.40	8.86	≤13	PASS
64QAM	5	39675	2498.5	25.39	16.27	9.12	≤13	PASS
		40620	2593	26.13	16.45	9.68	≤13	PASS
		41565	2687.5	26.51	16.99	9.52	≤13	PASS
	10	39700	2501	25.05	14.48	10.57	≤13	PASS
		40620	2593	25.97	16.02	9.95	≤13	PASS
		41540	2685	26.45	16.99	9.46	≤13	PASS

	15	39725	2503.5	25.23	14.88	10.35	≤13	PASS
		40620	2593	26.32	17.00	9.32	≤13	PASS
		41515	2682.5	26.67	16.19	10.48	≤13	PASS
	20	39750	2506	25.05	15.33	9.72	≤13	PASS
		40620	2593	26.15	17.45	8.70	≤13	PASS
		41490	2680	26.55	16.43	10.12	≤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 -10°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.

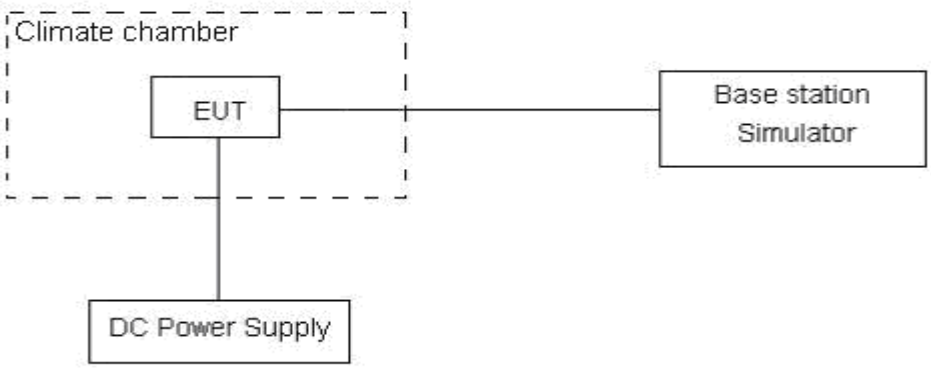
Frequency Stability (Voltage Variation)

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 30V, with a nominal voltage of 24V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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 41								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	8.20	2.73	10.94	0.00316	0.00105	0.00422	PASS
Extreme（50℃）		14.57	12.71	1.29	0.00562	0.00490	0.00050	PASS
Extreme（40℃）		7.91	6.00	17.26	0.00305	0.00231	0.00666	PASS
Extreme（30℃）		1.45	1.28	10.79	0.00056	0.00049	0.00416	PASS
Extreme（20℃）		7.00	12.64	6.63	0.00270	0.00487	0.00256	PASS
Extreme（10℃）		17.30	3.66	3.64	0.00667	0.00141	0.00140	PASS
Extreme（0℃）		17.19	3.28	7.33	0.00663	0.00126	0.00283	PASS
Extreme（-10℃）		7.07	4.93	17.12	0.00273	0.00190	0.00660	PASS
Extreme（-20℃）		13.12	5.47	5.18	0.00506	0.00211	0.00200	PASS
Extreme（-30℃）		14.66	17.96	4.40	0.00565	0.00692	0.00170	PASS
25℃	LV	13.11	8.42	12.67	0.00506	0.00325	0.00489	PASS
	HV	14.46	10.95	8.19	0.00558	0.00422	0.00316	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	16.29	10.76	16.32	0.00628	0.00415	0.00629	PASS
Extreme（50℃）		8.34	7.61	7.13	0.00321	0.00294	0.00275	PASS
Extreme（40℃）		11.40	12.12	12.58	0.00440	0.00467	0.00485	PASS
Extreme（30℃）		2.12	8.22	7.56	0.00082	0.00317	0.00291	PASS
Extreme（20℃）		12.98	8.50	6.45	0.00501	0.00328	0.00249	PASS
Extreme（10℃）		1.30	17.93	6.97	0.00050	0.00691	0.00269	PASS
Extreme（0℃）		16.57	7.92	9.38	0.00639	0.00306	0.00362	PASS
Extreme（-10℃）		15.87	16.40	7.86	0.00612	0.00632	0.00303	PASS
Extreme（-20℃）		9.04	14.67	1.65	0.00349	0.00566	0.00064	PASS
Extreme（-30℃）		13.91	5.63	12.44	0.00536	0.00217	0.00480	PASS
25℃	LV	17.60	2.48	3.79	0.00679	0.00096	0.00146	PASS
	HV	10.76	1.17	16.46	0.00415	0.00045	0.00635	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	16.66	8.36	13.02	0.00643	0.00322	0.00502	PASS
Extreme（50℃）		11.71	3.05	9.50	0.00451	0.00118	0.00366	PASS

Extreme（40℃）		15.23	5.39	13.29	0.00588	0.00208	0.00512	PASS
Extreme（30℃）		1.28	5.80	8.49	0.00049	0.00224	0.00327	PASS
Extreme（20℃）		9.04	10.65	8.84	0.00349	0.00411	0.00341	PASS
Extreme（10℃）		4.19	15.86	13.00	0.00162	0.00612	0.00501	PASS
Extreme（0℃）		16.37	17.58	8.79	0.00631	0.00678	0.00339	PASS
Extreme（-10℃）		3.35	1.03	13.62	0.00129	0.00040	0.00525	PASS
Extreme（-20℃）		14.90	9.85	15.72	0.00574	0.00380	0.00606	PASS
Extreme（-30℃）		3.02	2.13	17.83	0.00117	0.00082	0.00687	PASS
25℃	LV	16.06	5.90	4.18	0.00619	0.00228	0.00161	PASS
	HV	9.39	2.42	16.64	0.00362	0.00093	0.00642	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	13.58	10.58	12.79	0.00524	0.00408	0.00493	PASS
Extreme（50℃）		4.49	10.16	14.35	0.00173	0.00392	0.00553	PASS
Extreme（40℃）		4.80	6.99	1.15	0.00185	0.00270	0.00044	PASS
Extreme（30℃）		3.64	10.50	5.39	0.00140	0.00405	0.00208	PASS
Extreme（20℃）		7.33	13.00	4.94	0.00283	0.00501	0.00190	PASS
Extreme（10℃）		16.55	17.04	11.00	0.00638	0.00657	0.00424	PASS
Extreme（0℃）		11.47	9.31	7.38	0.00442	0.00359	0.00285	PASS
Extreme（-10℃）		10.81	10.08	9.14	0.00417	0.00389	0.00352	PASS
Extreme（-20℃）		10.70	7.50	9.51	0.00413	0.00289	0.00367	PASS
Extreme（-30℃）		7.87	10.17	15.37	0.00303	0.00392	0.00593	PASS
25℃	LV	9.79	13.96	7.29	0.00378	0.00538	0.00281	PASS
	HV	6.19	9.46	11.52	0.00239	0.00365	0.00444	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

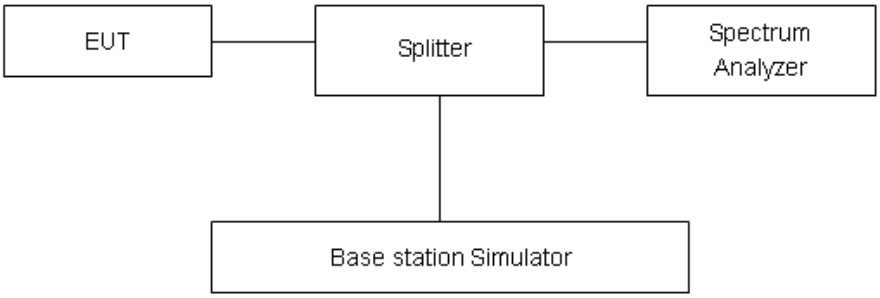
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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)

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53(m) 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53(m) Limit	-25 dBm

Measurement Uncertainty

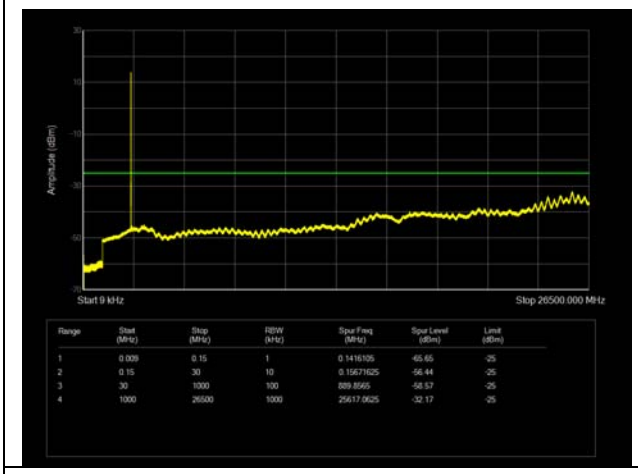
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

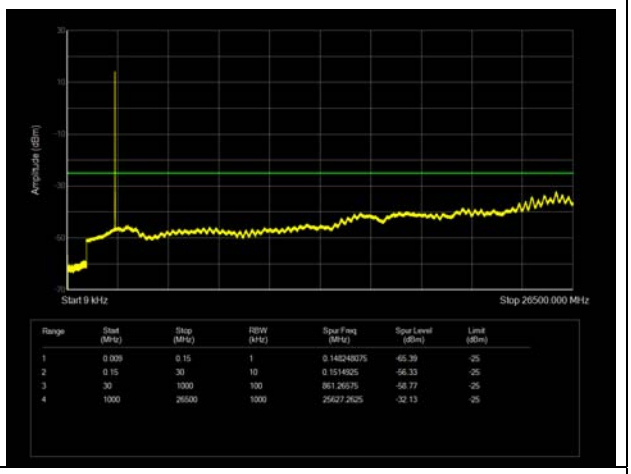
Test Result

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.

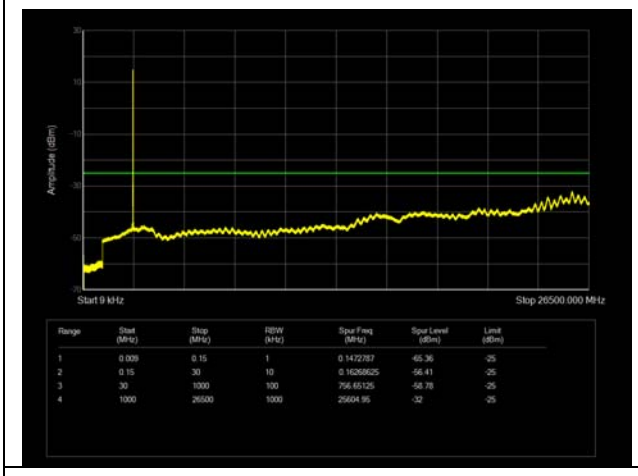
LTE Band 41 1.4MHz CH-Low 9kHz~26.5GHz



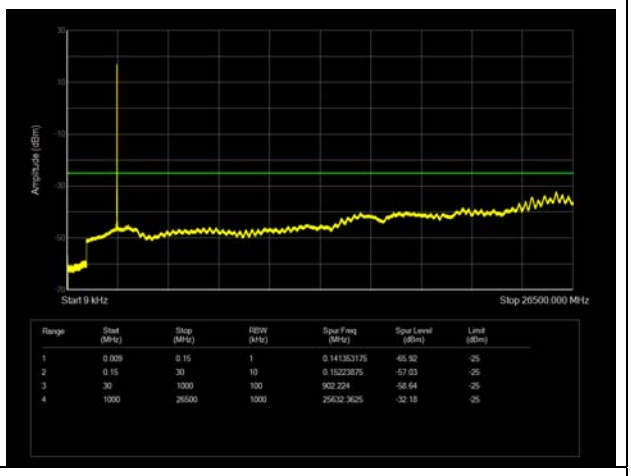
LTE Band 41 5MHz CH- Low 9kHz~26.5GHz



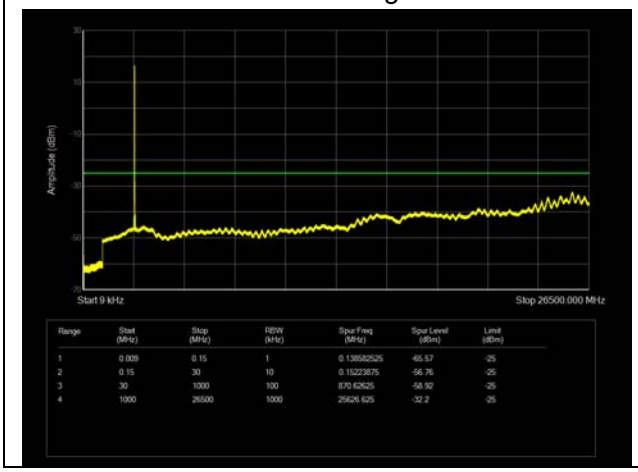
LTE Band 41 1.4MHz CH-Middle 9kHz~26.5GHz



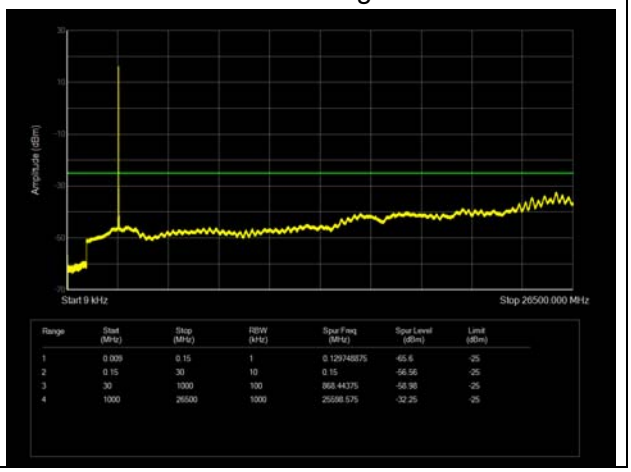
LTE Band 41 5MHz CH- Middle 9kHz~26.5GHz



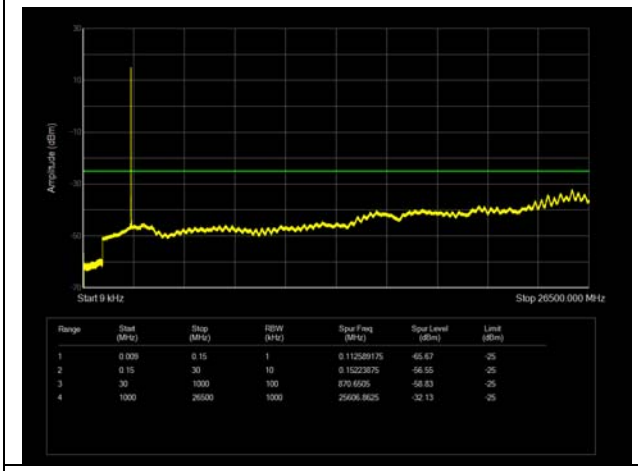
LTE Band 41 1.4MHz CH-High 9kHz~26.5GHz



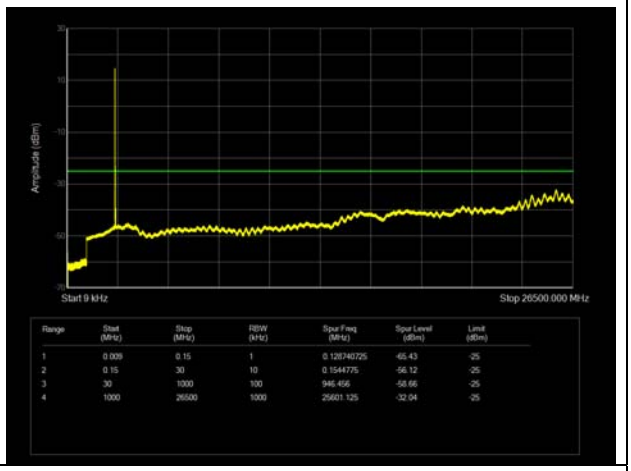
LTE Band 41 5MHz CH-High 9kHz~26.5GHz



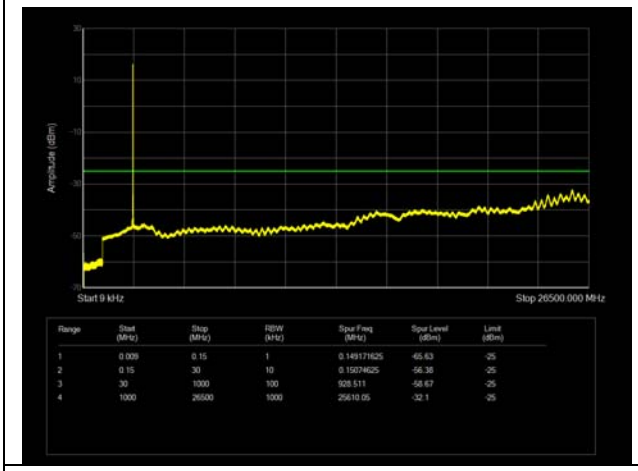
LTE Band 41 15MHz CH- Low 9kHz~26.5GHz



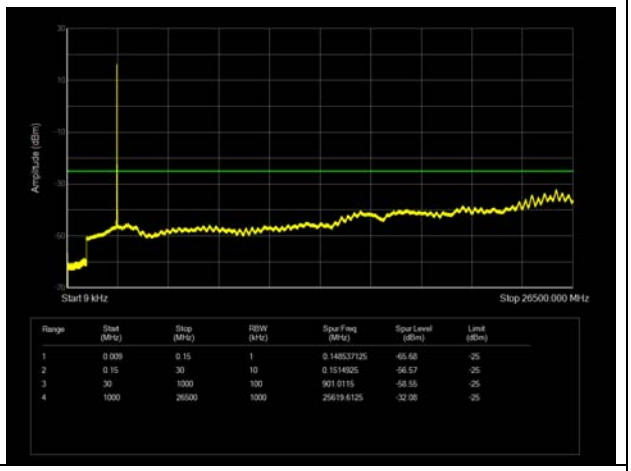
LTE Band 41 20MHz CH-Low 9kHz~26.5GHz



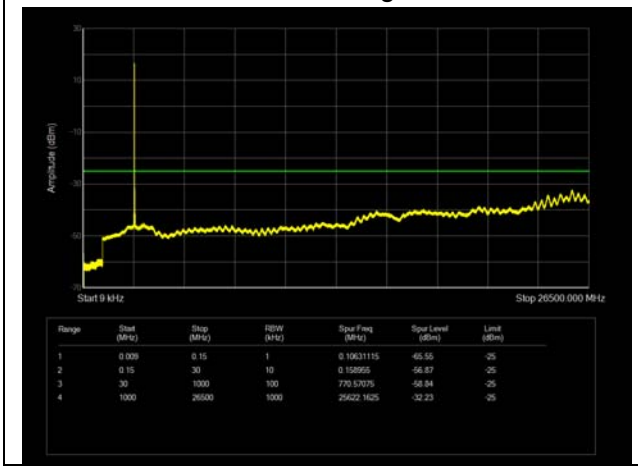
LTE Band 41 15MHz CH- Middle 9kHz~26.5GHz



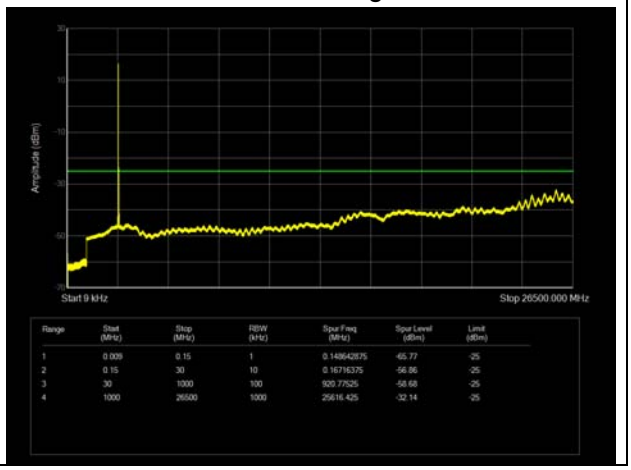
LTE Band 41 20MHz CH- Middle 9kHz~26.5GHz



LTE Band 41 15MHz CH-High 9kHz~26.5GHz



LTE Band 41 20MHz CH- High 9kHz~26.5GHz



5.7 Radiates Spurious Emission

Ambient condition

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

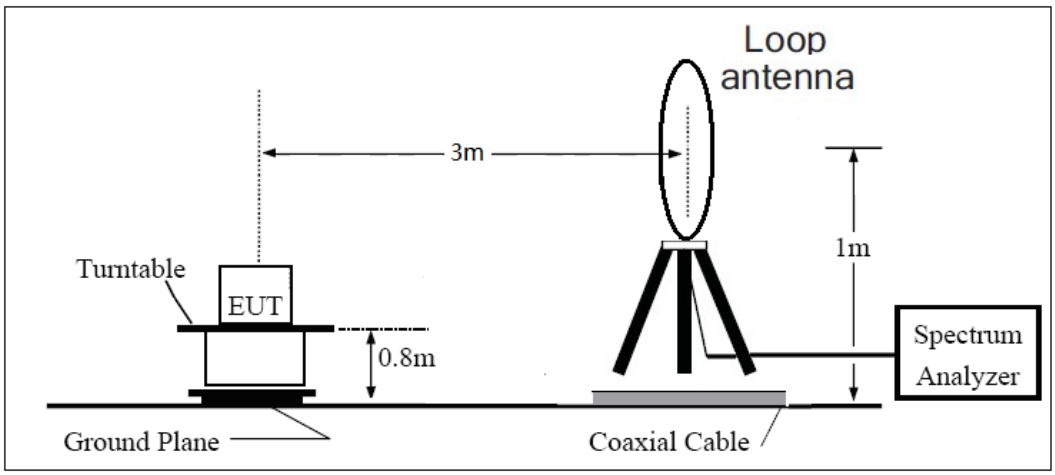
Method of Measurement

1. The testing follows FCC KDB 971168 D01 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=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, 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 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dB.

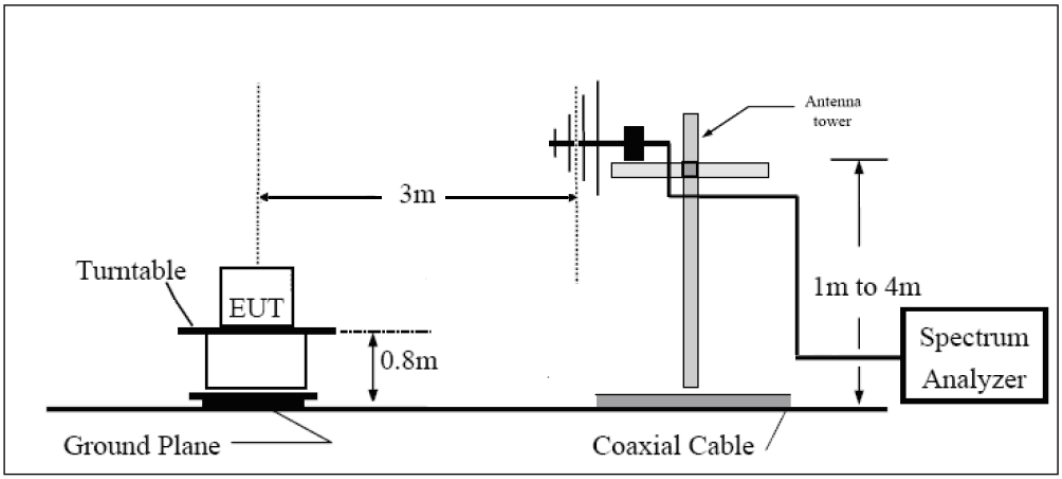
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

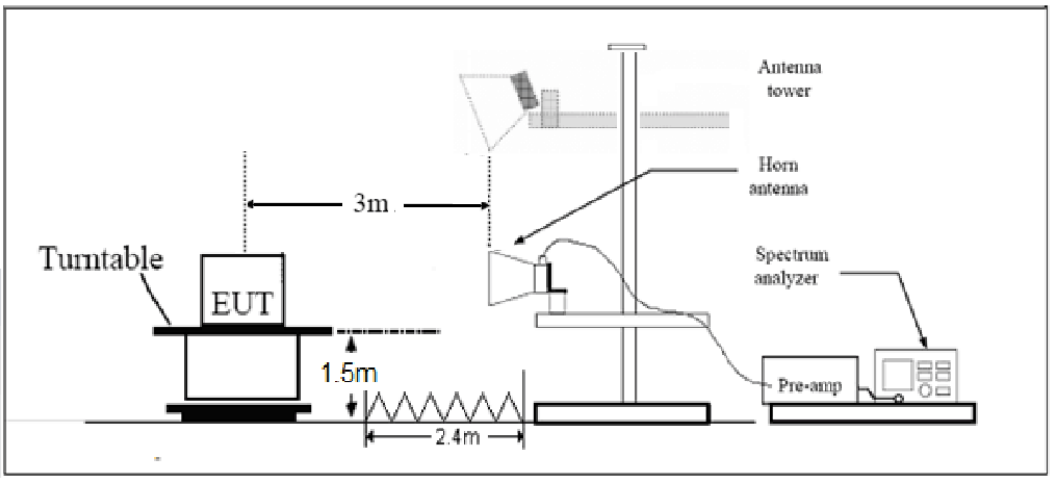
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 27.53(m) 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53(m) Limit	-25 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 41 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5181.00	-54.33	3.20	12.50	vertical	-45.03	-25.00	20.03	45
3	7771.50	-52.72	4.40	12.30	vertical	-44.82	-25.00	19.82	135
4	10362.00	-51.20	4.70	11.80	vertical	-44.10	-25.00	19.10	0
5	12952.00	-52.60	5.40	14.00	vertical	-44.00	-25.00	19.00	180
6	15543.00	-56.49	6.10	16.80	vertical	-45.79	-25.00	20.79	315
7	--	--	--	--	--	--	--	--	--
8	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--
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 vertical position.									

LTE Band 41 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5166.00	-49.56	3.20	12.50	vertical	-40.26	-25.00	15.26	0
3	7749.00	-48.66	4.40	12.30	vertical	-40.76	-25.00	15.76	225
4	10332.00	-55.80	4.70	11.80	vertical	-48.70	-25.00	23.70	45
5	12915.00	-50.72	5.40	14.00	vertical	-42.12	-25.00	17.12	180
6	15498.00	-56.09	6.10	16.80	vertical	-45.39	-25.00	20.39	315
7	--	--	--	--	--	--	--	--	--
8	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--

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 vertical position.

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2021-05-15	2022-05-14
Climate Chamber	Weiss	VT4002	582261194500 10	2021-05-15	2022-05-14
Spectrum Analyzer	Key sight	N9020A	MY52330084	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV30	104028	2021-05-15	2022-05-14
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	01111	2019--9-12	2022-09-11
Horn Antenna	Schwarzbeck	BBHA 9120D	1594	2020-12-17	2021-12-16
Software	R&S	EMC32	10.35.1	/	/

********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.