RF TEST REPORT

Applicant	Quectel Wireless Solutions Co., Ltd.
FCC ID	XMR202012EC25T
Product	LTE Module
Brand	Quectel
Model	EC25-T, EC25-T MINIPCIE
Marketing	Quectel EC25-T, Quectel EC25-T MINIPCIE
Report No.	R2011A0762-R2
Issue Date	December 11, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2019)/ FCC CFR 47 Part 24E (2019)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Peng Tao

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Kai Xu

Approved by: Kai Xu

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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	Radiates Spurious Emission	2.1053 / 24.238(a)	PASS
Date of Testing: November 26, 2020 ~ December 7, 2020			
Date of Sample Received: November 25, 2020			
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.			

EC25-T, EC25-T MINIPCIE (Report No.: R2011A0762-R2) is a variant model of EC25-AF, EC25-AF MINIPCIE (Report No.: R1806A0301-R2V1). There is only tested RF Power Output and Effective Isotropic Radiated Power, Occupied Bandwidth, Band Edge Compliance and Radiates Spurious Emission for variant in this report. Other test items please refer to the model of EC25-AF, EC25-AF MINIPCIE (Report No.: R1806A0301-R2V1). The detailed product change description please refers to following ANNEX C.

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 electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
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Country:	P. R. China
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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

2.3. Applicant and Manufacturer Information

Applicant	Quectel Wireless Solutions Co., Ltd.
Applicant address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer	Quectel Wireless Solutions Co., Ltd.
Manufacturer address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

2.4. General information

EUT Description			
Model	EC25-T, EC25-T MINIPCIE		
IMEI	EC25-T: 861041050000597 EC25-T MINIPCIE: 861041050001272		
Hardware Version	R1.0		
Software Version	EC25TFAR11A01M4G		
Power Supply	External power supply		
Antenna Type	The EUT don't have standard Antenna, The Antenna used for testing in this report is the after-market accessory (Dipole Antenna)		
Antenna Gain	Frequency(MHz)	Antenna Gain(dBi)	
	1860	1.25	
	1880	1.38	
	1900	1.59	
Test Mode(s)	LTE Band 2;		
Test Modulation	QPSK,16QAM		
LTE Category	4		
Maximum E.I.R.P	LTE Band 2:	25.09dBm	
Rated Power Supply Voltage	3.8V		
Extreme Voltage	3.23V ~ 4.37V		
Extreme Temperature	-30°C ~ +50°C		
Operating Voltage	3.3V ~ 4.3V		
Operating Temperature	-40°C ~ 85°C		
Operating 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.			

Note: The detailed model difference description please refers to the ANNEX D, There are more than one model, each one should be applied throughout the compliance test respectively, however, only the worst case (EC25-T) will be recorded for conducted parts in this report.

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 (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

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 (X 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	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
Occupied Bandwidth	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
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

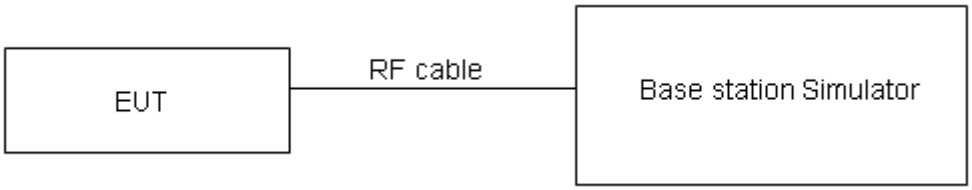
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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)	Modulation	Channel	RB Configuration	Maximum Output Power (dBm)	EIRP(dBm)	Verdict
LTE Band 2	1.4	QPSK	18607	1RB#0	23.40	24.65	PASS
LTE Band 2	1.4	QPSK	18607	1RB#2	23.47	24.72	PASS
LTE Band 2	1.4	QPSK	18607	1RB#5	23.47	24.72	PASS
LTE Band 2	1.4	QPSK	18607	3RB#0	22.40	23.65	PASS
LTE Band 2	1.4	QPSK	18607	3RB#2	22.45	23.70	PASS
LTE Band 2	1.4	QPSK	18607	3RB#3	22.32	23.57	PASS
LTE Band 2	1.4	QPSK	18607	6RB#0	22.38	23.63	PASS
LTE Band 2	1.4	QPSK	18900	1RB#0	23.34	24.72	PASS
LTE Band 2	1.4	QPSK	18900	1RB#2	23.40	24.78	PASS
LTE Band 2	1.4	QPSK	18900	1RB#5	23.10	24.48	PASS
LTE Band 2	1.4	QPSK	18900	3RB#0	22.27	23.65	PASS
LTE Band 2	1.4	QPSK	18900	3RB#2	22.27	23.65	PASS
LTE Band 2	1.4	QPSK	18900	3RB#3	22.28	23.66	PASS
LTE Band 2	1.4	QPSK	18900	6RB#0	22.39	23.77	PASS
LTE Band 2	1.4	QPSK	19193	1RB#0	23.42	25.01	PASS
LTE Band 2	1.4	QPSK	19193	1RB#2	23.11	24.70	PASS
LTE Band 2	1.4	QPSK	19193	1RB#5	23.18	24.77	PASS
LTE Band 2	1.4	QPSK	19193	3RB#0	22.36	23.95	PASS
LTE Band 2	1.4	QPSK	19193	3RB#2	22.46	24.05	PASS
LTE Band 2	1.4	QPSK	19193	3RB#3	22.43	24.02	PASS
LTE Band 2	1.4	QPSK	19193	6RB#0	22.42	24.01	PASS
LTE Band 2	1.4	16QAM	18607	1RB#0	22.24	23.49	PASS
LTE Band 2	1.4	16QAM	18607	1RB#2	22.38	23.63	PASS
LTE Band 2	1.4	16QAM	18607	1RB#5	22.10	23.35	PASS

LTE Band 2	1.4	16QAM	18607	3RB#0	21.34	22.59	PASS
LTE Band 2	1.4	16QAM	18607	3RB#2	21.31	22.56	PASS
LTE Band 2	1.4	16QAM	18607	3RB#3	21.29	22.54	PASS
LTE Band 2	1.4	16QAM	18607	6RB#0	21.29	22.54	PASS
LTE Band 2	1.4	16QAM	18900	1RB#0	22.26	23.64	PASS
LTE Band 2	1.4	16QAM	18900	1RB#2	22.01	23.39	PASS
LTE Band 2	1.4	16QAM	18900	1RB#5	22.20	23.58	PASS
LTE Band 2	1.4	16QAM	18900	3RB#0	21.18	22.56	PASS
LTE Band 2	1.4	16QAM	18900	3RB#2	21.09	22.47	PASS
LTE Band 2	1.4	16QAM	18900	3RB#3	21.22	22.60	PASS
LTE Band 2	1.4	16QAM	18900	6RB#0	21.20	22.58	PASS
LTE Band 2	1.4	16QAM	19193	1RB#0	22.19	23.78	PASS
LTE Band 2	1.4	16QAM	19193	1RB#2	22.24	23.83	PASS
LTE Band 2	1.4	16QAM	19193	1RB#5	22.12	23.71	PASS
LTE Band 2	1.4	16QAM	19193	3RB#0	21.23	22.82	PASS
LTE Band 2	1.4	16QAM	19193	3RB#2	21.43	23.02	PASS
LTE Band 2	1.4	16QAM	19193	3RB#3	21.39	22.98	PASS
LTE Band 2	1.4	16QAM	19193	6RB#0	21.41	23.00	PASS
LTE Band 2	3	QPSK	18615	1RB#0	23.42	24.67	PASS
LTE Band 2	3	QPSK	18615	1RB#7	23.50	24.75	PASS
LTE Band 2	3	QPSK	18615	1RB#14	23.50	24.75	PASS
LTE Band 2	3	QPSK	18615	8RB#0	22.48	23.73	PASS
LTE Band 2	3	QPSK	18615	8RB#4	22.55	23.80	PASS
LTE Band 2	3	QPSK	18615	8RB#7	22.40	23.65	PASS
LTE Band 2	3	QPSK	18615	15RB#0	22.41	23.66	PASS
LTE Band 2	3	QPSK	18900	1RB#0	23.38	24.76	PASS
LTE Band 2	3	QPSK	18900	1RB#7	23.45	24.83	PASS
LTE Band 2	3	QPSK	18900	1RB#14	23.15	24.53	PASS

LTE Band 2	3	QPSK	18900	8RB#0	22.37	23.75	PASS
LTE Band 2	3	QPSK	18900	8RB#4	22.35	23.73	PASS
LTE Band 2	3	QPSK	18900	8RB#7	22.37	23.75	PASS
LTE Band 2	3	QPSK	18900	15RB#0	22.43	23.81	PASS
LTE Band 2	3	QPSK	19185	1RB#0	23.45	25.04	PASS
LTE Band 2	3	QPSK	19185	1RB#7	23.15	24.74	PASS
LTE Band 2	3	QPSK	19185	1RB#14	23.22	24.81	PASS
LTE Band 2	3	QPSK	19185	8RB#0	22.47	24.06	PASS
LTE Band 2	3	QPSK	19185	8RB#4	22.56	24.15	PASS
LTE Band 2	3	QPSK	19185	8RB#7	22.51	24.10	PASS
LTE Band 2	3	QPSK	19185	15RB#0	22.45	24.04	PASS
LTE Band 2	3	16QAM	18615	1RB#0	22.27	23.52	PASS
LTE Band 2	3	16QAM	18615	1RB#7	22.41	23.66	PASS
LTE Band 2	3	16QAM	18615	1RB#14	22.12	23.37	PASS
LTE Band 2	3	16QAM	18615	8RB#0	21.43	22.68	PASS
LTE Band 2	3	16QAM	18615	8RB#4	21.40	22.65	PASS
LTE Band 2	3	16QAM	18615	8RB#7	21.37	22.62	PASS
LTE Band 2	3	16QAM	18615	15RB#0	21.32	22.57	PASS
LTE Band 2	3	16QAM	18900	1RB#0	22.28	23.66	PASS
LTE Band 2	3	16QAM	18900	1RB#7	22.06	23.44	PASS
LTE Band 2	3	16QAM	18900	1RB#14	22.24	23.62	PASS
LTE Band 2	3	16QAM	18900	8RB#0	21.29	22.67	PASS
LTE Band 2	3	16QAM	18900	8RB#4	21.20	22.58	PASS
LTE Band 2	3	16QAM	18900	8RB#7	21.32	22.70	PASS
LTE Band 2	3	16QAM	18900	15RB#0	21.24	22.62	PASS
LTE Band 2	3	16QAM	19185	1RB#0	22.22	23.81	PASS
LTE Band 2	3	16QAM	19185	1RB#7	22.28	23.87	PASS
LTE Band 2	3	16QAM	19185	1RB#14	22.15	23.74	PASS

LTE Band 2	3	16QAM	19185	8RB#0	21.33	22.92	PASS
LTE Band 2	3	16QAM	19185	8RB#4	21.53	23.12	PASS
LTE Band 2	3	16QAM	19185	8RB#7	21.50	23.09	PASS
LTE Band 2	3	16QAM	19185	15RB#0	21.44	23.03	PASS
LTE Band 2	5	QPSK	18625	1RB#0	23.46	24.71	PASS
LTE Band 2	5	QPSK	18625	1RB#13	23.57	24.82	PASS
LTE Band 2	5	QPSK	18625	1RB#24	23.56	24.81	PASS
LTE Band 2	5	QPSK	18625	12RB#0	22.55	23.80	PASS
LTE Band 2	5	QPSK	18625	12RB#6	22.60	23.85	PASS
LTE Band 2	5	QPSK	18625	12RB#13	22.47	23.72	PASS
LTE Band 2	5	QPSK	18625	25RB#0	22.49	23.74	PASS
LTE Band 2	5	QPSK	18900	1RB#0	23.50	24.88	PASS
LTE Band 2	5	QPSK	18900	1RB#13	23.50	24.88	PASS
LTE Band 2	5	QPSK	18900	1RB#24	23.22	24.60	PASS
LTE Band 2	5	QPSK	18900	12RB#0	22.41	23.79	PASS
LTE Band 2	5	QPSK	18900	12RB#6	22.40	23.78	PASS
LTE Band 2	5	QPSK	18900	12RB#13	22.47	23.85	PASS
LTE Band 2	5	QPSK	18900	25RB#0	22.52	23.90	PASS
LTE Band 2	5	QPSK	19175	1RB#0	23.50	25.09	PASS
LTE Band 2	5	QPSK	19175	1RB#13	23.22	24.81	PASS
LTE Band 2	5	QPSK	19175	1RB#24	23.31	24.90	PASS
LTE Band 2	5	QPSK	19175	12RB#0	22.53	24.12	PASS
LTE Band 2	5	QPSK	19175	12RB#6	22.60	24.19	PASS
LTE Band 2	5	QPSK	19175	12RB#13	22.51	24.10	PASS
LTE Band 2	5	QPSK	19175	25RB#0	22.46	24.05	PASS
LTE Band 2	5	16QAM	18625	1RB#0	22.29	23.54	PASS
LTE Band 2	5	16QAM	18625	1RB#13	22.43	23.68	PASS
LTE Band 2	5	16QAM	18625	1RB#24	22.14	23.39	PASS

LTE Band 2	5	16QAM	18625	12RB#0	21.47	22.72	PASS
LTE Band 2	5	16QAM	18625	12RB#6	21.42	22.67	PASS
LTE Band 2	5	16QAM	18625	12RB#13	21.42	22.67	PASS
LTE Band 2	5	16QAM	18625	25RB#0	21.35	22.60	PASS
LTE Band 2	5	16QAM	18900	1RB#0	22.30	23.68	PASS
LTE Band 2	5	16QAM	18900	1RB#13	22.13	23.51	PASS
LTE Band 2	5	16QAM	18900	1RB#24	22.31	23.69	PASS
LTE Band 2	5	16QAM	18900	12RB#0	21.33	22.71	PASS
LTE Band 2	5	16QAM	18900	12RB#6	21.24	22.62	PASS
LTE Band 2	5	16QAM	18900	12RB#13	21.32	22.70	PASS
LTE Band 2	5	16QAM	18900	25RB#0	21.25	22.63	PASS
LTE Band 2	5	16QAM	19175	1RB#0	22.26	23.85	PASS
LTE Band 2	5	16QAM	19175	1RB#13	22.32	23.91	PASS
LTE Band 2	5	16QAM	19175	1RB#24	22.18	23.77	PASS
LTE Band 2	5	16QAM	19175	12RB#0	21.38	22.97	PASS
LTE Band 2	5	16QAM	19175	12RB#6	21.58	23.17	PASS
LTE Band 2	5	16QAM	19175	12RB#13	21.53	23.12	PASS
LTE Band 2	5	16QAM	19175	25RB#0	21.45	23.04	PASS
LTE Band 2	10	QPSK	18650	1RB#0	23.41	24.66	PASS
LTE Band 2	10	QPSK	18650	1RB#25	23.51	24.76	PASS
LTE Band 2	10	QPSK	18650	1RB#49	23.49	24.74	PASS
LTE Band 2	10	QPSK	18650	25RB#0	22.48	23.73	PASS
LTE Band 2	10	QPSK	18650	25RB#13	22.56	23.81	PASS
LTE Band 2	10	QPSK	18650	25RB#25	22.40	23.65	PASS
LTE Band 2	10	QPSK	18650	50RB#0	22.47	23.72	PASS
LTE Band 2	10	QPSK	18900	1RB#0	23.37	24.75	PASS
LTE Band 2	10	QPSK	18900	1RB#25	23.46	24.84	PASS
LTE Band 2	10	QPSK	18900	1RB#49	23.14	24.52	PASS

LTE Band 2	10	QPSK	18900	25RB#0	22.37	23.75	PASS
LTE Band 2	10	QPSK	18900	25RB#13	22.36	23.74	PASS
LTE Band 2	10	QPSK	18900	25RB#25	22.39	23.77	PASS
LTE Band 2	10	QPSK	18900	50RB#0	22.44	23.82	PASS
LTE Band 2	10	QPSK	19150	1RB#0	23.44	25.03	PASS
LTE Band 2	10	QPSK	19150	1RB#25	23.16	24.75	PASS
LTE Band 2	10	QPSK	19150	1RB#49	23.21	24.80	PASS
LTE Band 2	10	QPSK	19150	25RB#0	22.47	24.06	PASS
LTE Band 2	10	QPSK	19150	25RB#13	22.55	24.14	PASS
LTE Band 2	10	QPSK	19150	25RB#25	22.52	24.11	PASS
LTE Band 2	10	QPSK	19150	50RB#0	22.47	24.06	PASS
LTE Band 2	10	16QAM	18650	1RB#0	22.26	23.51	PASS
LTE Band 2	10	16QAM	18650	1RB#25	22.41	23.66	PASS
LTE Band 2	10	16QAM	18650	1RB#49	22.12	23.37	PASS
LTE Band 2	10	16QAM	18650	25RB#0	21.44	22.69	PASS
LTE Band 2	10	16QAM	18650	25RB#13	21.39	22.64	PASS
LTE Band 2	10	16QAM	18650	25RB#25	21.37	22.62	PASS
LTE Band 2	10	16QAM	18650	50RB#0	21.33	22.58	PASS
LTE Band 2	10	16QAM	18900	1RB#0	22.27	23.65	PASS
LTE Band 2	10	16QAM	18900	1RB#25	22.08	23.46	PASS
LTE Band 2	10	16QAM	18900	1RB#49	22.24	23.62	PASS
LTE Band 2	10	16QAM	18900	25RB#0	21.30	22.68	PASS
LTE Band 2	10	16QAM	18900	25RB#13	21.19	22.57	PASS
LTE Band 2	10	16QAM	18900	25RB#25	21.32	22.70	PASS
LTE Band 2	10	16QAM	18900	50RB#0	21.25	22.63	PASS
LTE Band 2	10	16QAM	19150	1RB#0	22.21	23.80	PASS
LTE Band 2	10	16QAM	19150	1RB#25	22.28	23.87	PASS
LTE Band 2	10	16QAM	19150	1RB#49	22.14	23.73	PASS

LTE Band 2	10	16QAM	19150	25RB#0	21.34	22.93	PASS
LTE Band 2	10	16QAM	19150	25RB#13	21.52	23.11	PASS
LTE Band 2	10	16QAM	19150	25RB#25	21.50	23.09	PASS
LTE Band 2	10	16QAM	19150	50RB#0	21.43	23.02	PASS
LTE Band 2	15	QPSK	18675	1RB#0	23.40	24.65	PASS
LTE Band 2	15	QPSK	18675	1RB#38	23.49	24.74	PASS
LTE Band 2	15	QPSK	18675	1RB#74	23.46	24.71	PASS
LTE Band 2	15	QPSK	18675	36RB#0	22.46	23.71	PASS
LTE Band 2	15	QPSK	18675	36RB#18	22.53	23.78	PASS
LTE Band 2	15	QPSK	18675	36RB#39	22.37	23.62	PASS
LTE Band 2	15	QPSK	18675	75RB#0	22.45	23.70	PASS
LTE Band 2	15	QPSK	18900	1RB#0	23.33	24.71	PASS
LTE Band 2	15	QPSK	18900	1RB#38	23.45	24.83	PASS
LTE Band 2	15	QPSK	18900	1RB#74	23.09	24.47	PASS
LTE Band 2	15	QPSK	18900	36RB#0	22.33	23.71	PASS
LTE Band 2	15	QPSK	18900	36RB#18	22.31	23.69	PASS
LTE Band 2	15	QPSK	18900	36RB#39	22.36	23.74	PASS
LTE Band 2	15	QPSK	18900	75RB#0	22.40	23.78	PASS
LTE Band 2	15	QPSK	19125	1RB#0	23.42	25.01	PASS
LTE Band 2	15	QPSK	19125	1RB#38	23.13	24.72	PASS
LTE Band 2	15	QPSK	19125	1RB#74	23.17	24.76	PASS
LTE Band 2	15	QPSK	19125	36RB#0	22.44	24.03	PASS
LTE Band 2	15	QPSK	19125	36RB#18	22.51	24.10	PASS
LTE Band 2	15	QPSK	19125	36RB#39	22.48	24.07	PASS
LTE Band 2	15	QPSK	19125	75RB#0	22.42	24.01	PASS
LTE Band 2	15	16QAM	18675	1RB#0	22.21	23.46	PASS
LTE Band 2	15	16QAM	18675	1RB#38	22.39	23.64	PASS
LTE Band 2	15	16QAM	18675	1RB#74	22.09	23.34	PASS

LTE Band 2	15	16QAM	18675	36RB#0	21.41	22.66	PASS
LTE Band 2	15	16QAM	18675	36RB#18	21.36	22.61	PASS
LTE Band 2	15	16QAM	18675	36RB#39	21.35	22.60	PASS
LTE Band 2	15	16QAM	18675	75RB#0	21.30	22.55	PASS
LTE Band 2	15	16QAM	18900	1RB#0	22.25	23.63	PASS
LTE Band 2	15	16QAM	18900	1RB#38	22.05	23.43	PASS
LTE Band 2	15	16QAM	18900	1RB#74	22.20	23.58	PASS
LTE Band 2	15	16QAM	18900	36RB#0	21.28	22.66	PASS
LTE Band 2	15	16QAM	18900	36RB#18	21.14	22.52	PASS
LTE Band 2	15	16QAM	18900	36RB#39	21.28	22.66	PASS
LTE Band 2	15	16QAM	18900	75RB#0	21.20	22.58	PASS
LTE Band 2	15	16QAM	19125	1RB#0	22.19	23.78	PASS
LTE Band 2	15	16QAM	19125	1RB#38	22.26	23.85	PASS
LTE Band 2	15	16QAM	19125	1RB#74	22.11	23.70	PASS
LTE Band 2	15	16QAM	19125	36RB#0	21.31	22.90	PASS
LTE Band 2	15	16QAM	19125	36RB#18	21.48	23.07	PASS
LTE Band 2	15	16QAM	19125	36RB#39	21.47	23.06	PASS
LTE Band 2	15	16QAM	19125	75RB#0	21.39	22.98	PASS
LTE Band 2	20	QPSK	18700	1RB#0	23.37	24.62	PASS
LTE Band 2	20	QPSK	18700	1RB#50	23.48	24.73	PASS
LTE Band 2	20	QPSK	18700	1RB#99	23.44	24.69	PASS
LTE Band 2	20	QPSK	18700	50RB#0	22.43	23.68	PASS
LTE Band 2	20	QPSK	18700	50RB#25	22.51	23.76	PASS
LTE Band 2	20	QPSK	18700	50RB#50	22.34	23.59	PASS
LTE Band 2	20	QPSK	18700	100RB#0	22.42	23.67	PASS
LTE Band 2	20	QPSK	18900	1RB#0	23.29	24.67	PASS
LTE Band 2	20	QPSK	18900	1RB#50	23.41	24.79	PASS
LTE Band 2	20	QPSK	18900	1RB#99	23.08	24.46	PASS

LTE Band 2	20	QPSK	18900	50RB#0	22.28	23.66	PASS
LTE Band 2	20	QPSK	18900	50RB#25	22.27	23.65	PASS
LTE Band 2	20	QPSK	18900	50RB#50	22.31	23.69	PASS
LTE Band 2	20	QPSK	18900	100RB#0	22.35	23.73	PASS
LTE Band 2	20	QPSK	19100	1RB#0	23.39	24.98	PASS
LTE Band 2	20	QPSK	19100	1RB#50	23.11	24.70	PASS
LTE Band 2	20	QPSK	19100	1RB#99	23.14	24.73	PASS
LTE Band 2	20	QPSK	19100	50RB#0	22.40	23.99	PASS
LTE Band 2	20	QPSK	19100	50RB#25	22.48	24.07	PASS
LTE Band 2	20	QPSK	19100	50RB#50	22.44	24.03	PASS
LTE Band 2	20	QPSK	19100	100RB#0	22.38	23.97	PASS
LTE Band 2	20	16QAM	18700	1RB#0	22.19	23.44	PASS
LTE Band 2	20	16QAM	18700	1RB#50	22.35	23.60	PASS
LTE Band 2	20	16QAM	18700	1RB#99	22.07	23.32	PASS
LTE Band 2	20	16QAM	18700	50RB#0	21.38	22.63	PASS
LTE Band 2	20	16QAM	18700	50RB#25	21.33	22.58	PASS
LTE Band 2	20	16QAM	18700	50RB#50	21.32	22.57	PASS
LTE Band 2	20	16QAM	18700	100RB#0	21.28	22.53	PASS
LTE Band 2	20	16QAM	18900	1RB#0	22.21	23.59	PASS
LTE Band 2	20	16QAM	18900	1RB#50	22.03	23.41	PASS
LTE Band 2	20	16QAM	18900	1RB#99	22.17	23.55	PASS
LTE Band 2	20	16QAM	18900	50RB#0	21.24	22.62	PASS
LTE Band 2	20	16QAM	18900	50RB#25	21.12	22.50	PASS
LTE Band 2	20	16QAM	18900	50RB#50	21.23	22.61	PASS
LTE Band 2	20	16QAM	18900	100RB#0	21.16	22.54	PASS
LTE Band 2	20	16QAM	19100	1RB#0	22.14	23.73	PASS
LTE Band 2	20	16QAM	19100	1RB#50	22.22	23.81	PASS
LTE Band 2	20	16QAM	19100	1RB#99	22.09	23.68	PASS

LTE Band 2	20	16QAM	19100	50RB#0	21.28	22.87	PASS
LTE Band 2	20	16QAM	19100	50RB#25	21.45	23.04	PASS
LTE Band 2	20	16QAM	19100	50RB#50	21.43	23.02	PASS
LTE Band 2	20	16QAM	19100	100RB#0	21.36	22.95	PASS

5.2. Occupied Bandwidth

Ambient condition

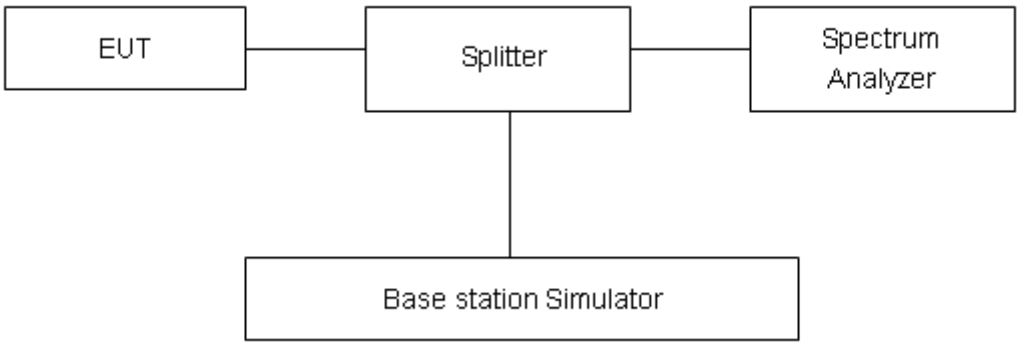
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 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.

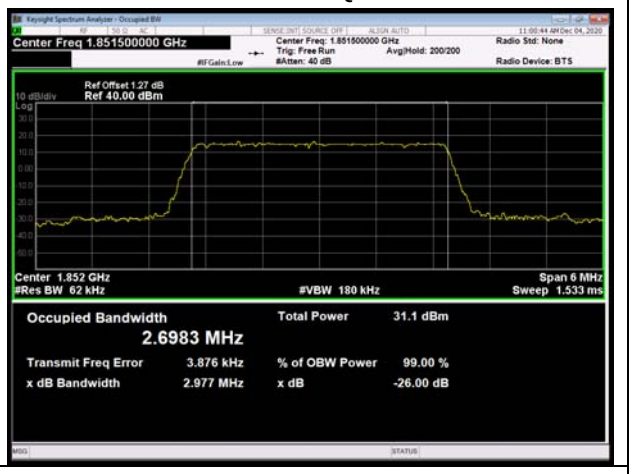
Test Result

LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.0896	1.291
		18900	1880	1.0975	1.291
		19193	1909.3	1.1029	1.277
	3	18615	1851.5	2.6983	2.977
		18900	1880	2.7030	2.989
		19185	1908.5	2.7087	3.002
	5	18625	1852.5	4.5173	4.960
		18900	1880	4.5193	4.984
		19175	1907.5	4.5224	4.948
	10	18650	1855	8.9783	9.872
		18900	1880	8.9586	9.740
		19150	1905	8.9791	9.795
	15	18675	1857.5	13.3920	14.650
		18900	1880	13.4140	14.400
		19125	1902.5	13.4270	14.600
	20	18700	1860	17.9190	19.390
		18900	1880	17.8950	19.320
		19100	1900	17.8510	19.300
16QAM	1.4	18607	1850.7	1.1009	1.286
		18900	1880	1.0962	1.270
		19193	1909.3	1.0913	1.295
	3	18615	1851.5	2.6924	2.960
		18900	1880	2.6896	3.008
		19185	1908.5	2.6970	3.003
	5	18625	1852.5	4.5011	4.976
		18900	1880	4.5183	5.023
		19175	1907.5	4.5216	5.048
	10	18650	1855	8.9743	9.681
		18900	1880	8.9552	9.616
		19150	1905	8.9662	9.879

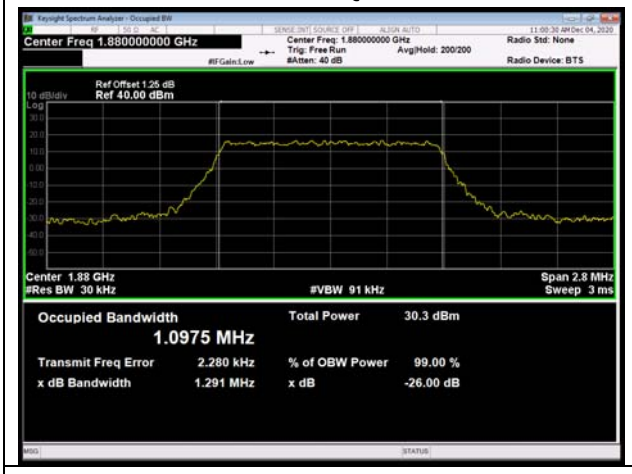
	15	18675	1857.5	13.4430	14.520
		18900	1880	13.4250	14.590
		19125	1902.5	13.4300	14.520
	20	18700	1860	17.9140	19.200
		18900	1880	17.8830	19.380
		19100	1900	17.8850	19.310

LTE Band 2 1.4MHz QPSK CH-Low

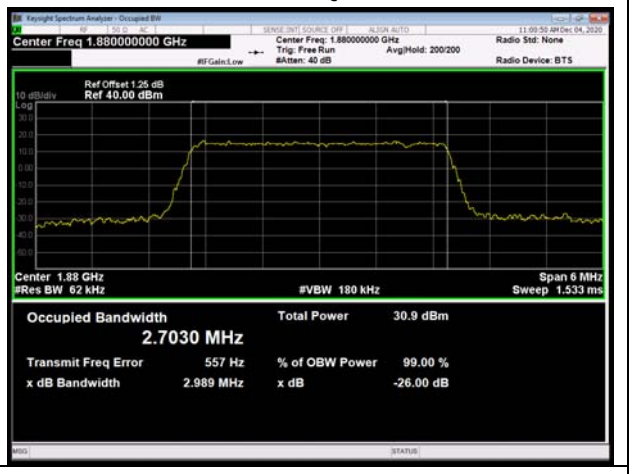
LTE Band 2 3MHz QPSK CH-Low



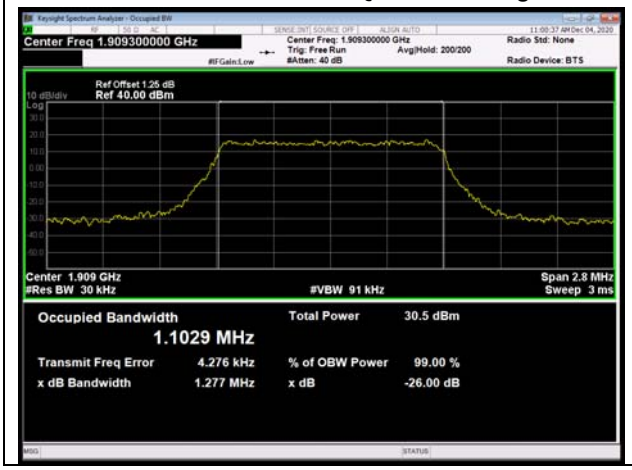
LTE Band 2 1.4MHz QPSK CH-Middle



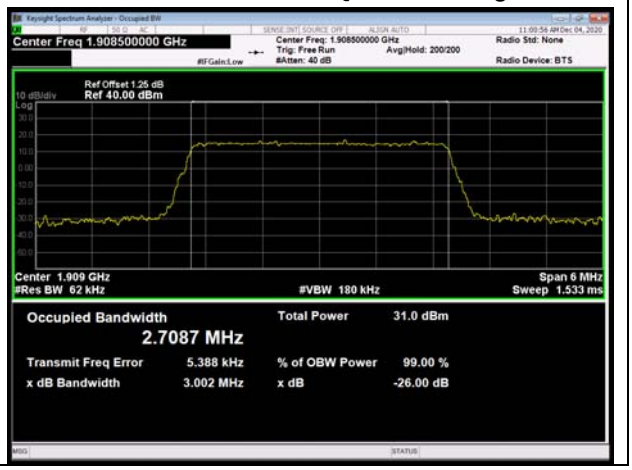
LTE Band 2 3MHz QPSK CH-Middle



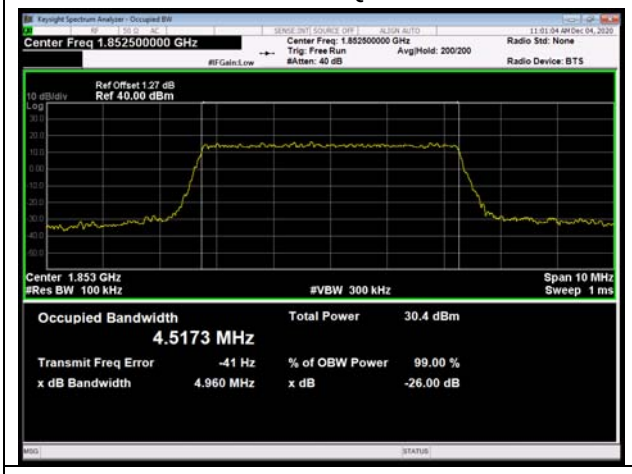
LTE Band 2 1.4MHz QPSK CH-High



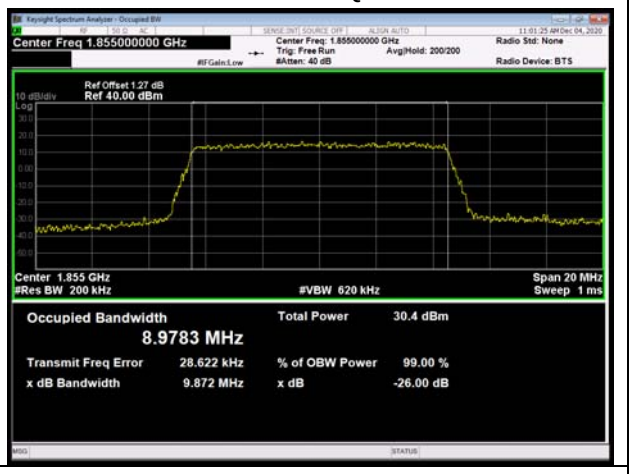
LTE Band 2 3MHz QPSK CH-High



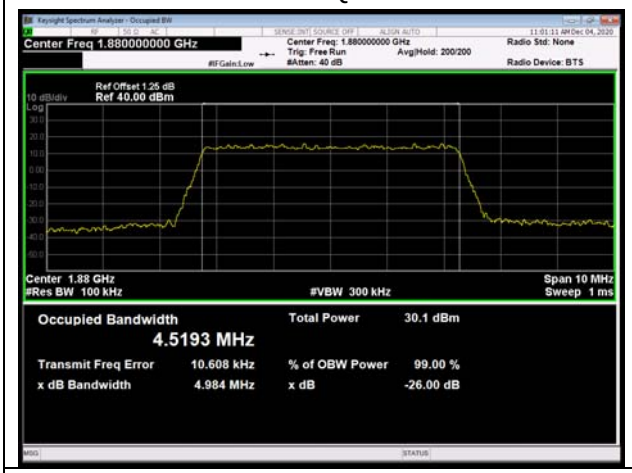
LTE Band 2 5MHz QPSK CH-Low



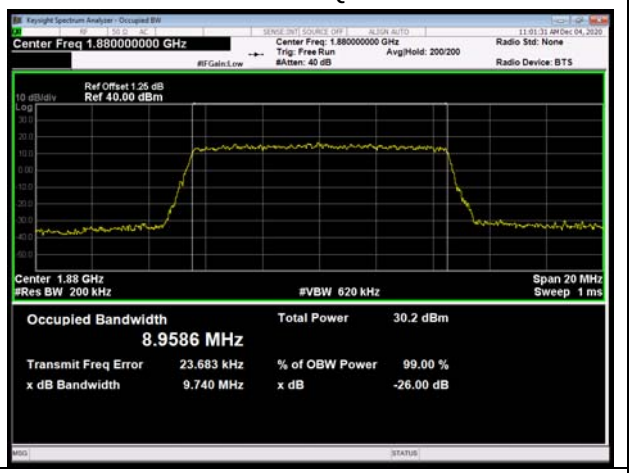
LTE Band 2 10MHz QPSK CH-Low



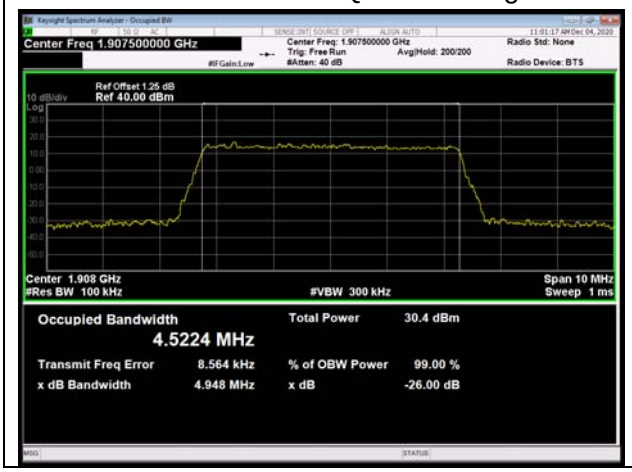
LTE Band 2 5MHz QPSK CH-Middle



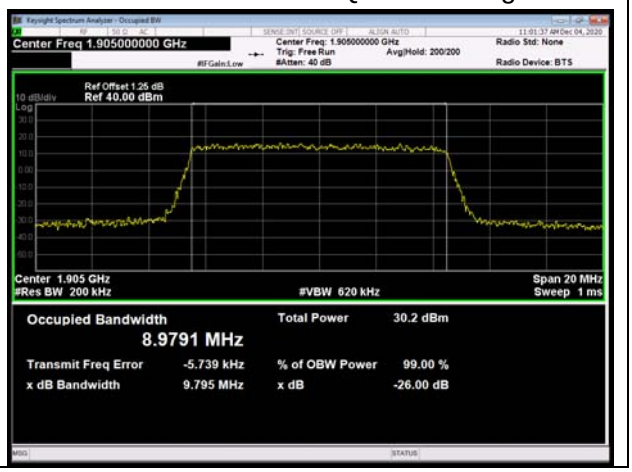
LTE Band 2 10MHz QPSK CH-Middle



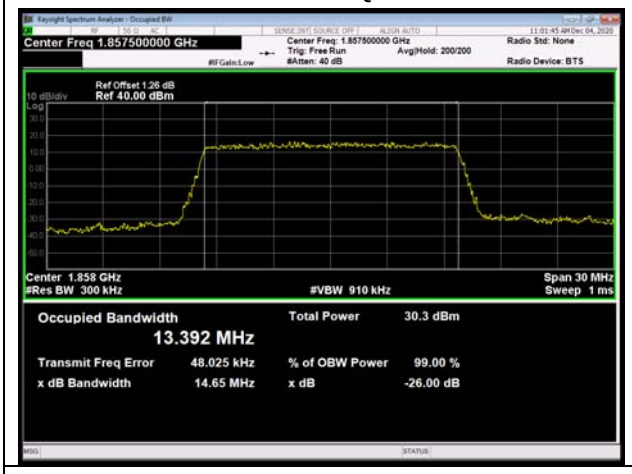
LTE Band 2 5MHz QPSK CH-High



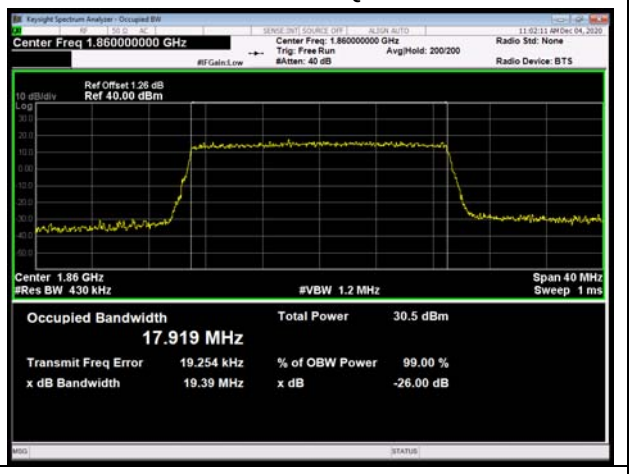
LTE Band 2 10MHz QPSK CH-High



LTE Band 2 15MHz QPSK CH-Low

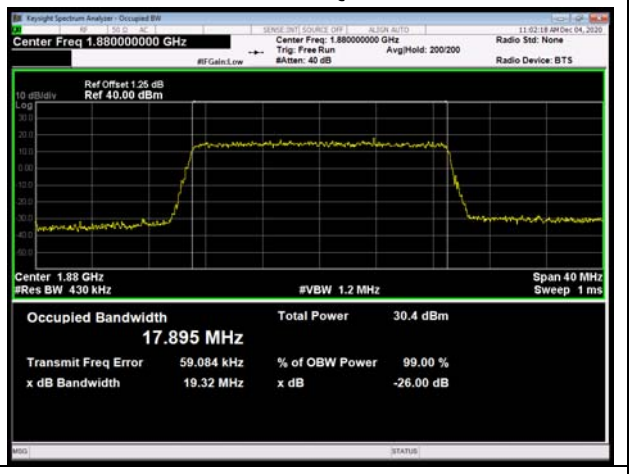


LTE Band 2 20MHz QPSK CH-Low

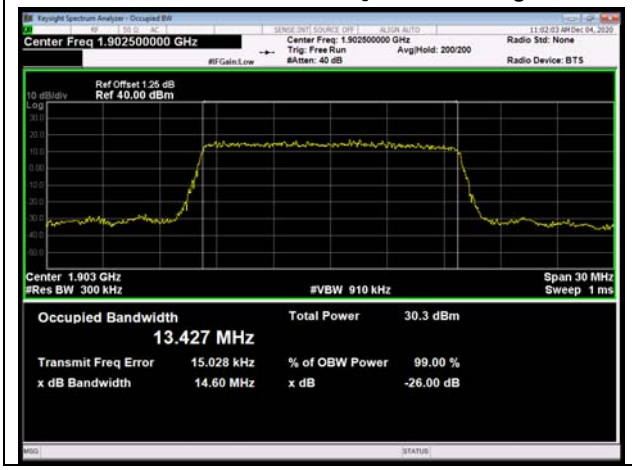


LTE Band 2 15MHz QPSK CH-Middle

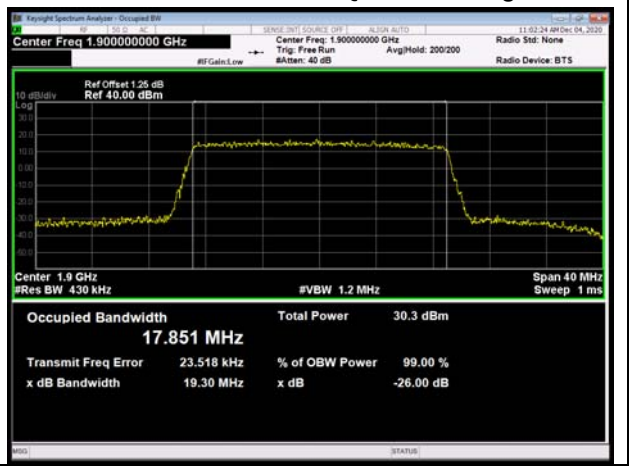
LTE Band 2 20MHz QPSK CH-Middle



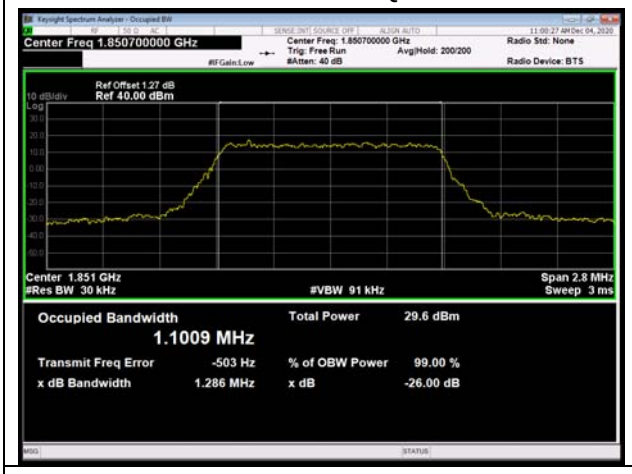
LTE Band 2 15MHz QPSK CH-High



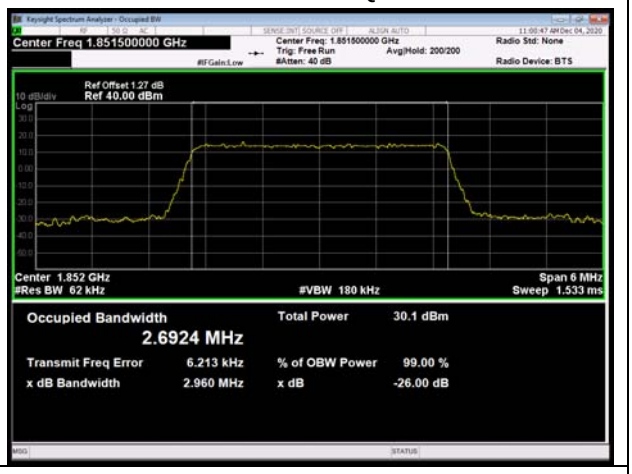
LTE Band 2 20MHz QPSK CH-High



LTE Band 2 1.4MHz 16QAM CH-Low



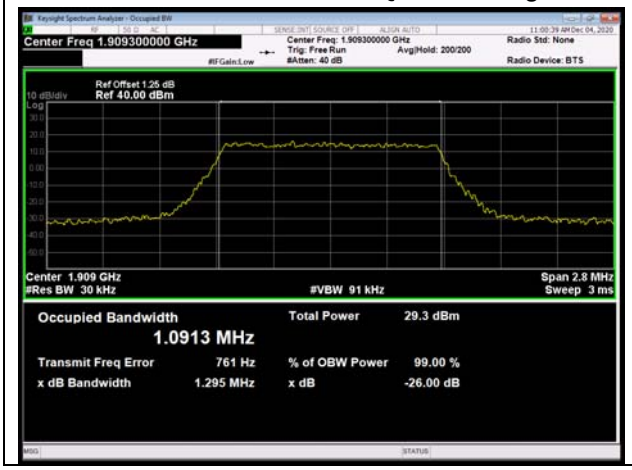
LTE Band 2 3MHz 16QAM CH-Low



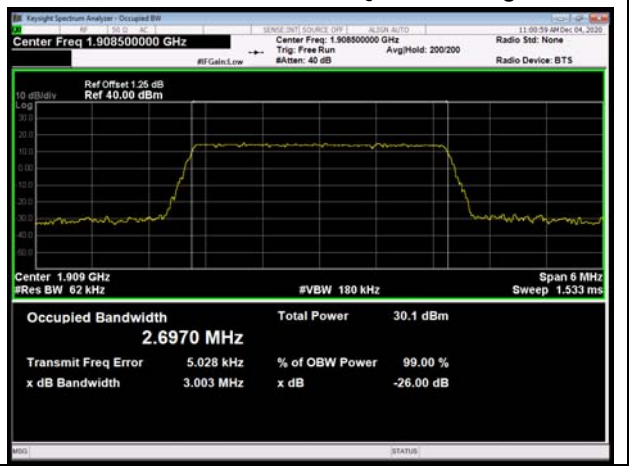
LTE Band 2 1.4MHz 16QAM CH-Middle

LTE Band 2 3MHz 16QAM CH-Middle

LTE Band 2 1.4MHz 16QAM CH-High

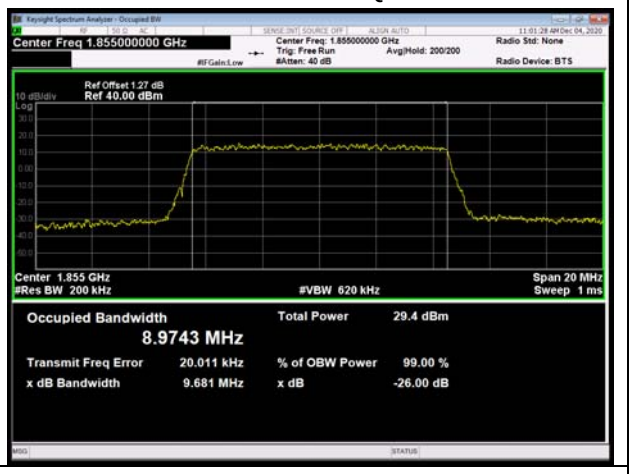


LTE Band 2 3MHz 16QAM CH-High

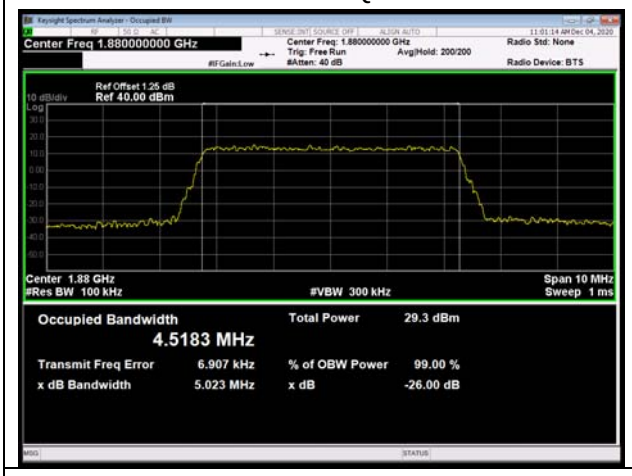


LTE Band 2 5MHz 16QAM CH-Low

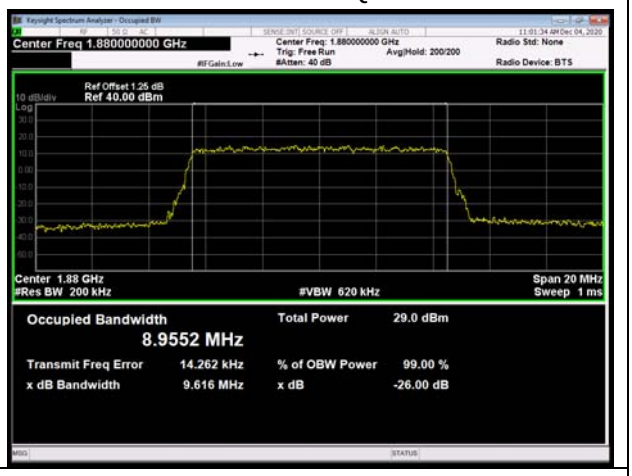
LTE Band 2 10MHz 16QAM CH-Low



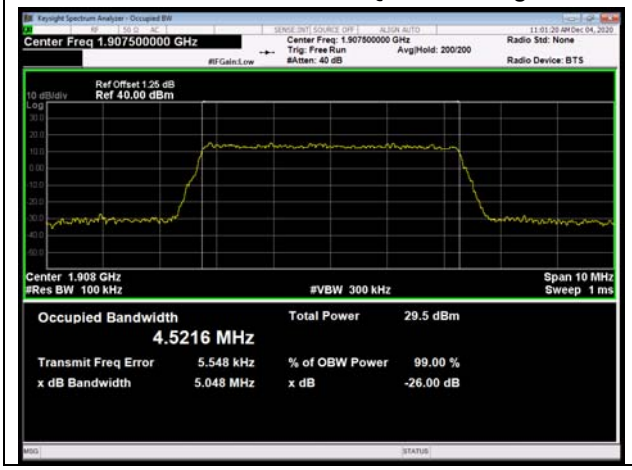
LTE Band 2 5MHz 16QAM CH-Middle



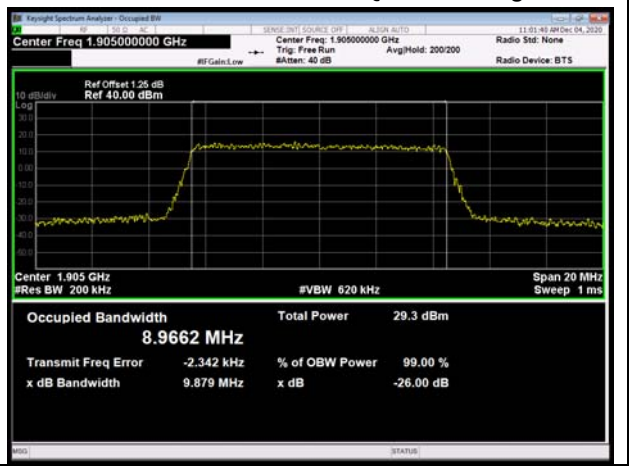
LTE Band 2 10MHz 16QAM CH-Middle



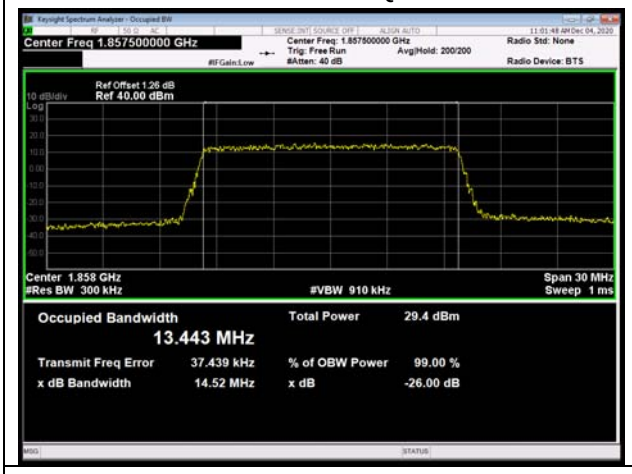
LTE Band 2 5MHz 16QAM CH-High



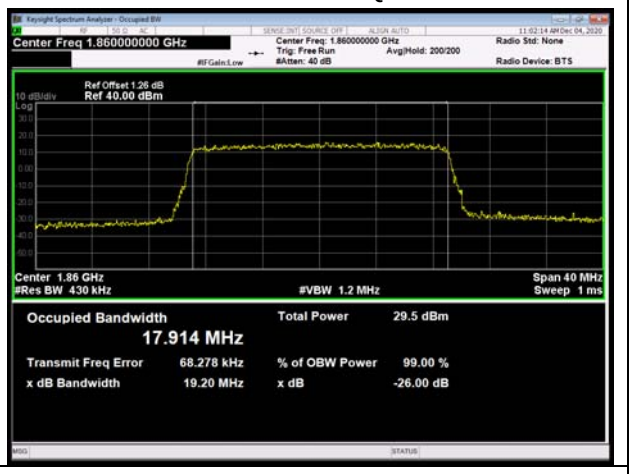
LTE Band 2 10MHz 16QAM CH-High



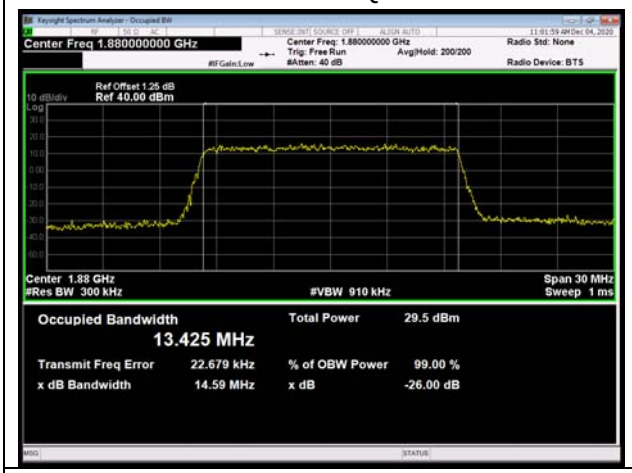
LTE Band 2 15MHz 16QAM CH-Low



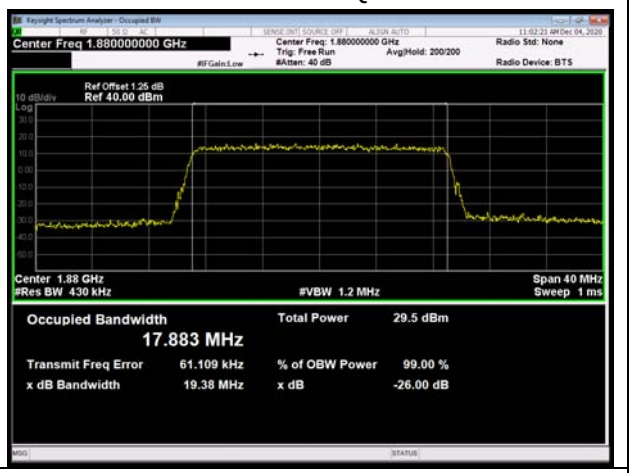
LTE Band 2 20MHz 16QAM CH-Low



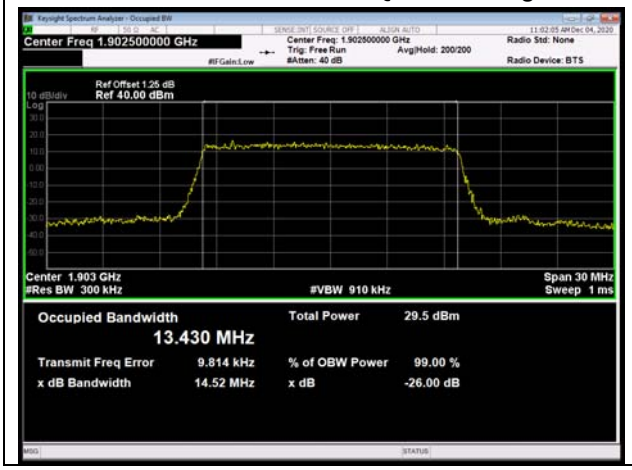
LTE Band 2 15MHz 16QAM CH-Middle



LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High



LTE Band 2 20MHz 16QAM CH-High

5.3. Band Edge Compliance

Ambient condition

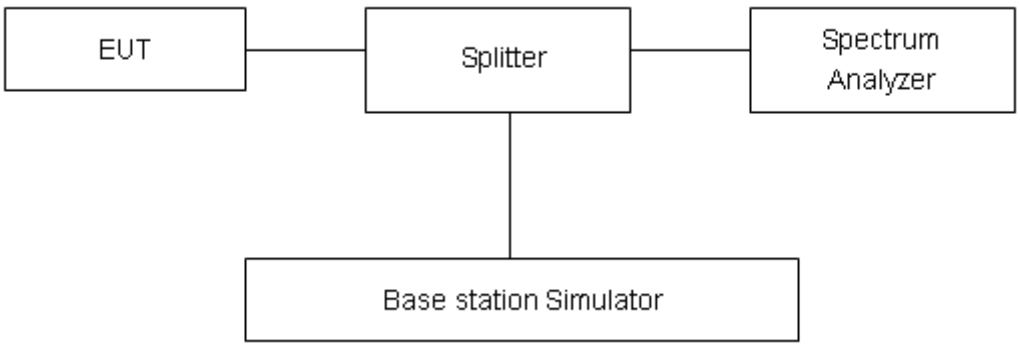
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 30kHz,VBW is set to 91kHz 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

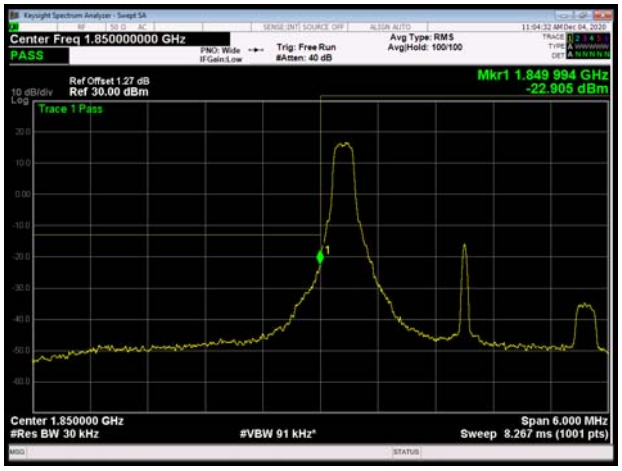
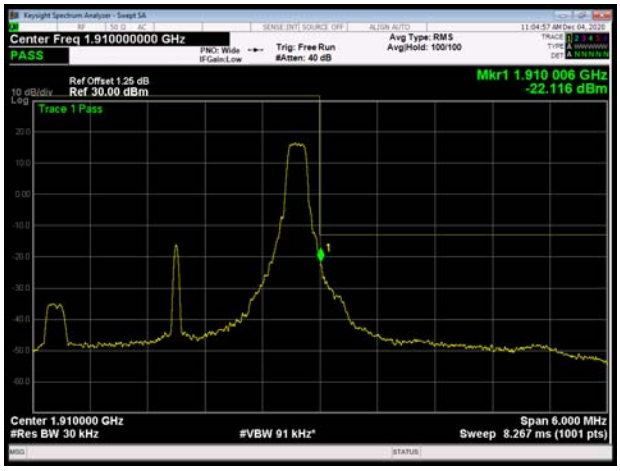
Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

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.

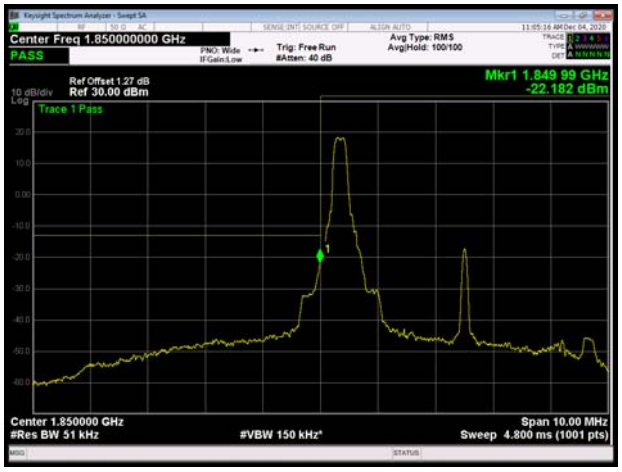
Test Result:

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
	

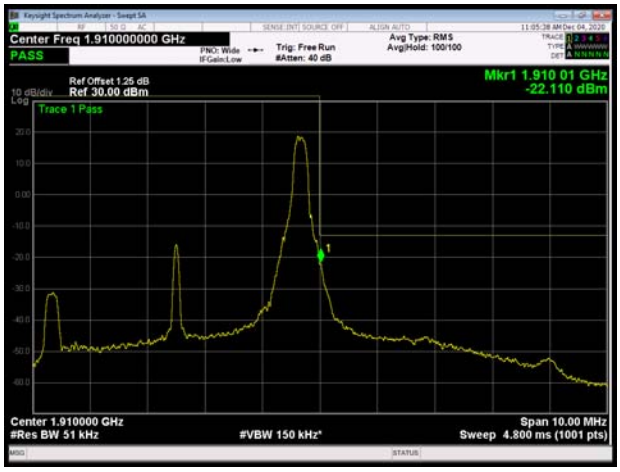
LTE Band 2 3MHz QPSK 100%RB CH-Low

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

LTE Band 2 5MHz QPSK 1RB CH-Low



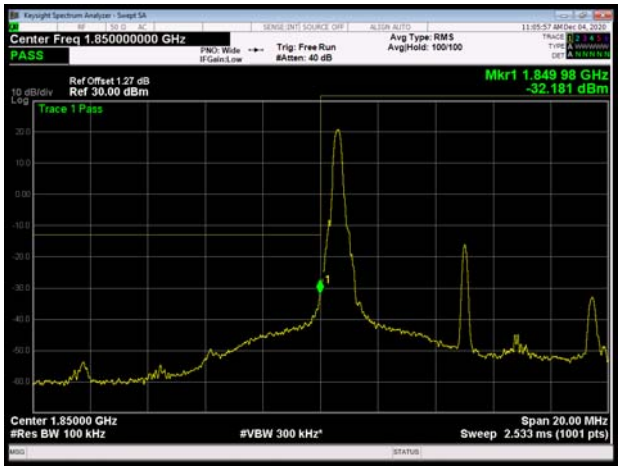
LTE Band 2 5MHz QPSK 1RB CH-High



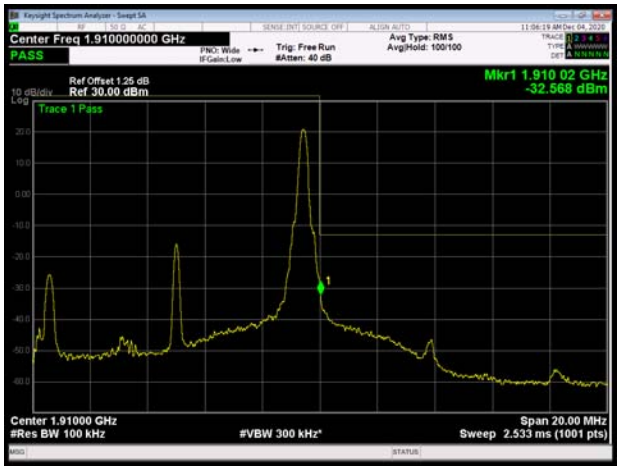
LTE Band 2 5MHz QPSK 100%RB CH-Low

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

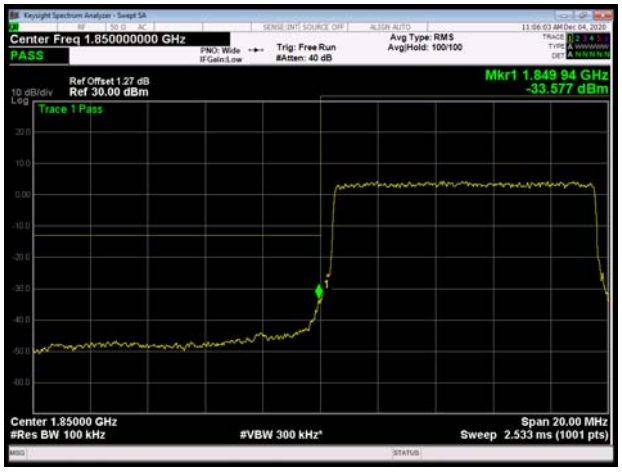
LTE Band 2 10MHz QPSK 1RB CH-Low



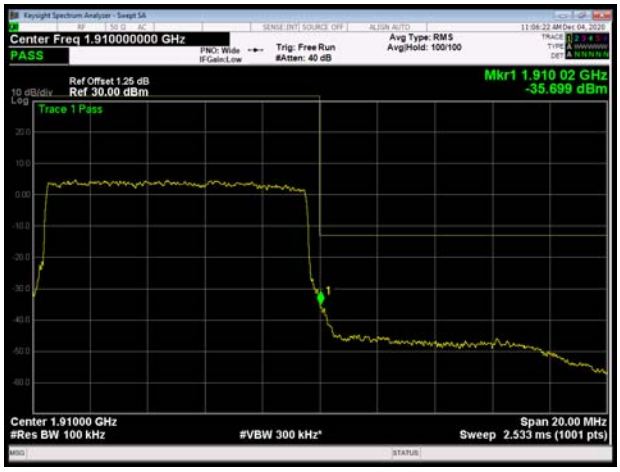
LTE Band 2 10MHz QPSK 1RB CH-High



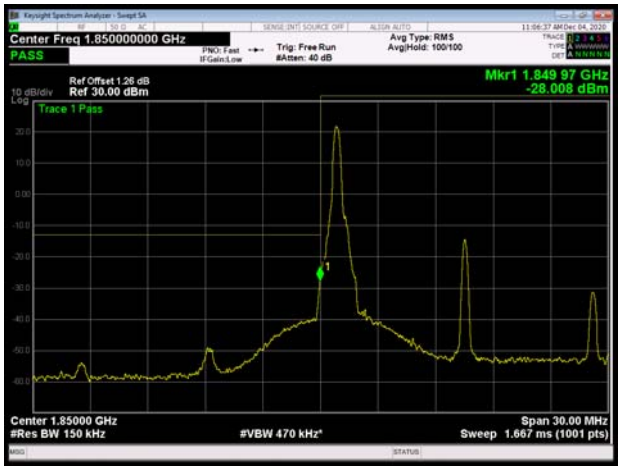
LTE Band 2 10MHz QPSK 100%RB CH-Low



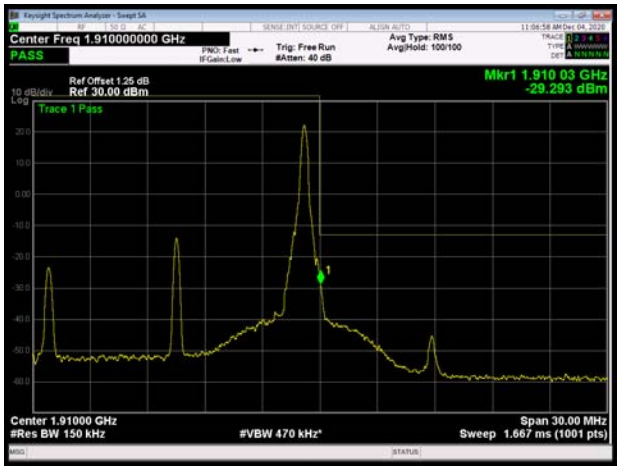
LTE Band 2 10MHz QPSK 100%RB CH-High



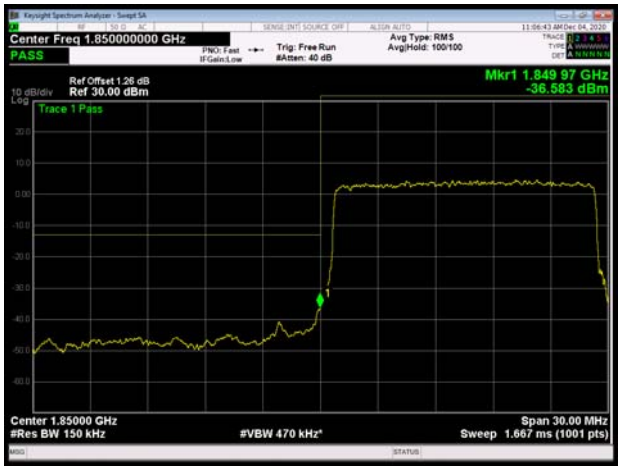
LTE Band 2 15MHz QPSK 1RB CH-Low



LTE Band 2 15MHz QPSK 1RB CH-High

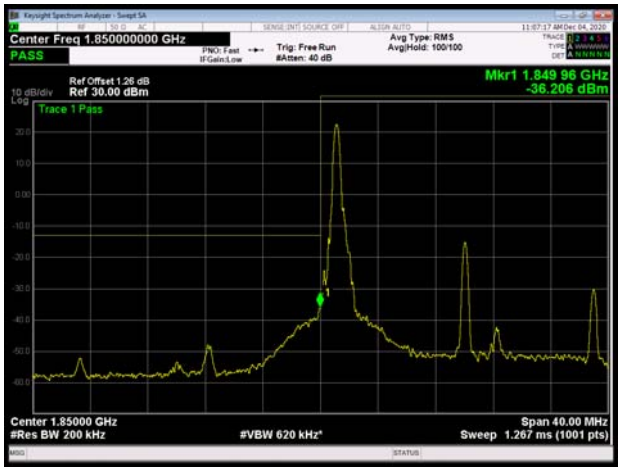


LTE Band 2 15MHz QPSK 100%RB CH-Low

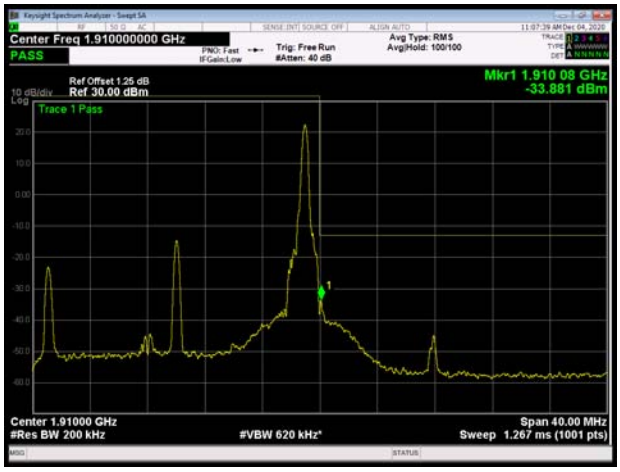


LTE Band 2 15MHz QPSK 100%RB CH-High

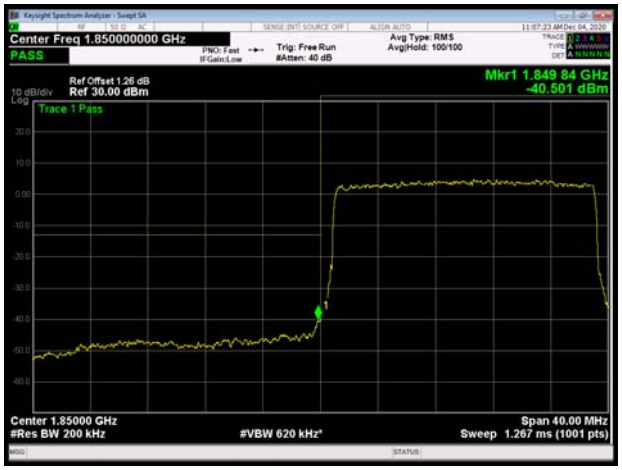
LTE Band 2 20MHz QPSK 1RB CH-Low



LTE Band 2 20MHz QPSK 1RB CH-High

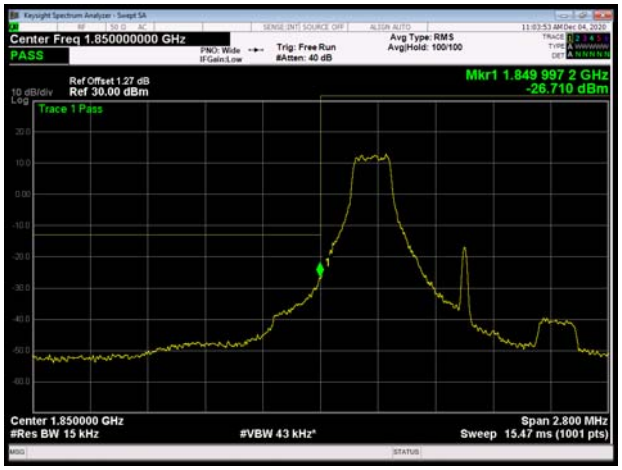


LTE Band 2 20MHz QPSK 100%RB CH-Low



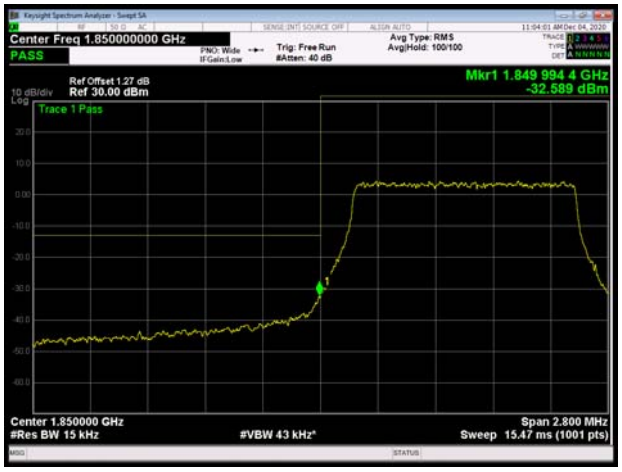
LTE Band 2 20MHz QPSK 100%RB CH-High

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



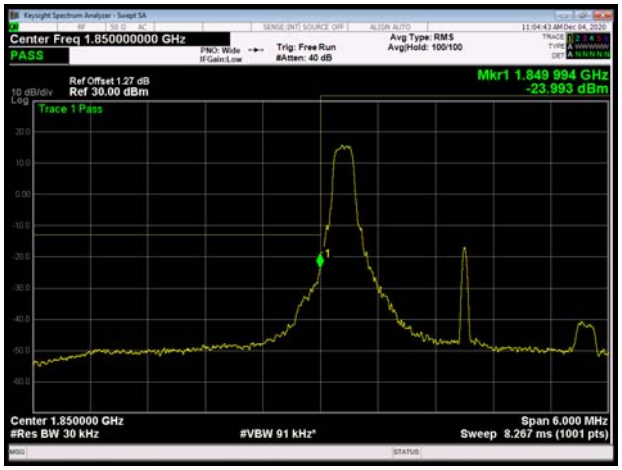
LTE Band 2 1.4MHz 16QAM 1RB CH-High

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

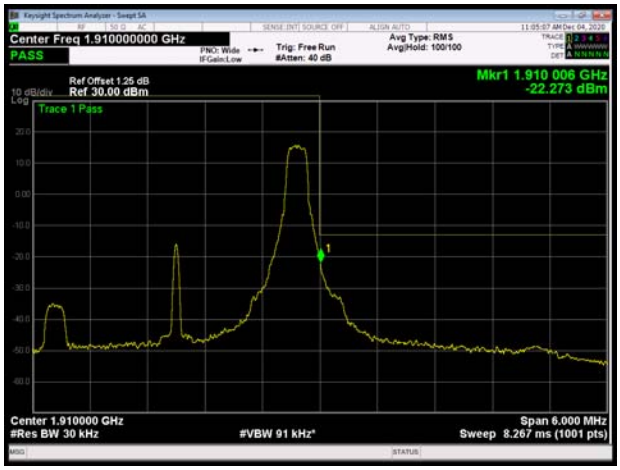


LTE Band 2 1.4MHz 16QAM 100%RB CH-High

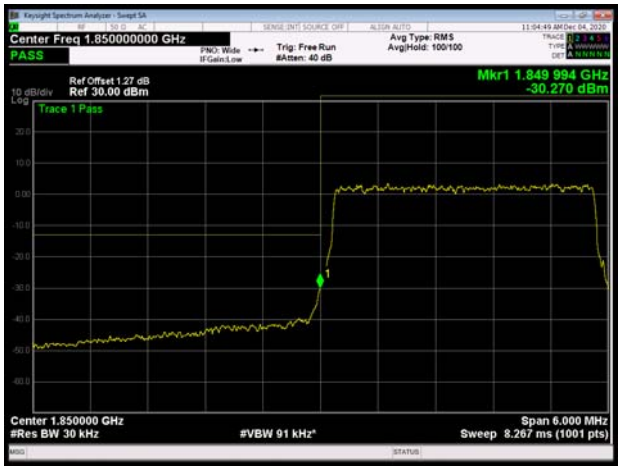
LTE Band 2 3MHz 16QAM 1RB CH-Low



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

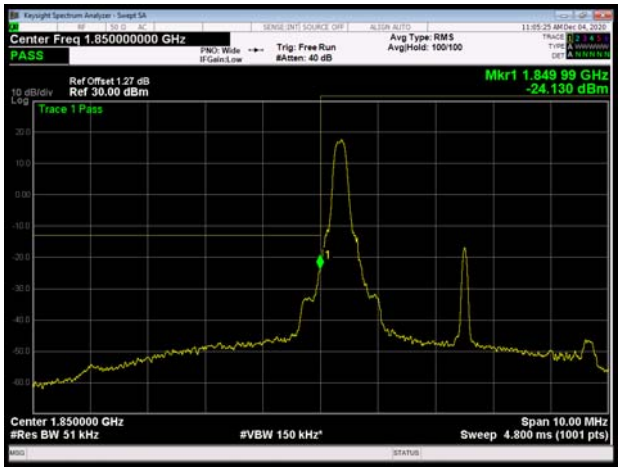


LTE Band 2 3MHz 16QAM 100%RB CH-Low

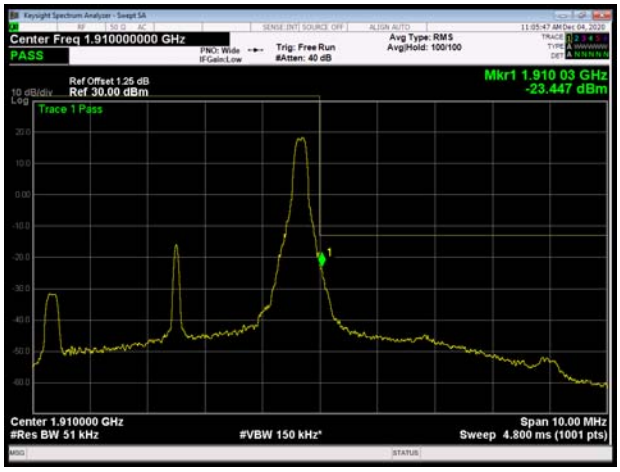


LTE Band 2 3MHz 16QAM 100%RB CH-High

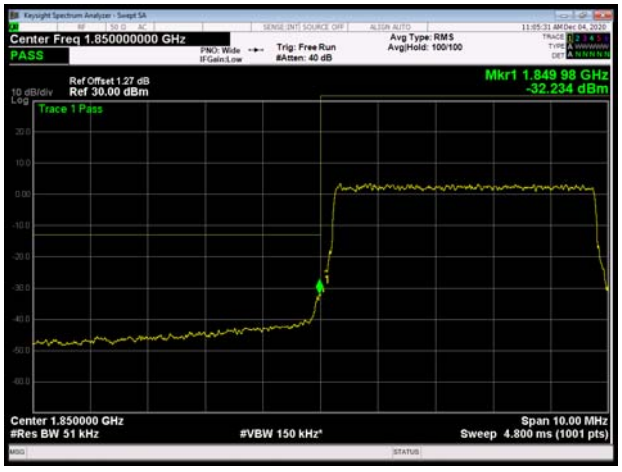
LTE Band 2 5MHz 16QAM 1RB CH-Low



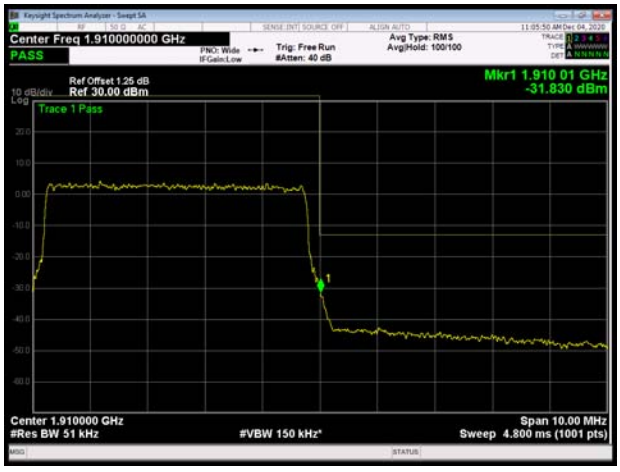
LTE Band 2 5MHz 16QAM 1RB CH-High



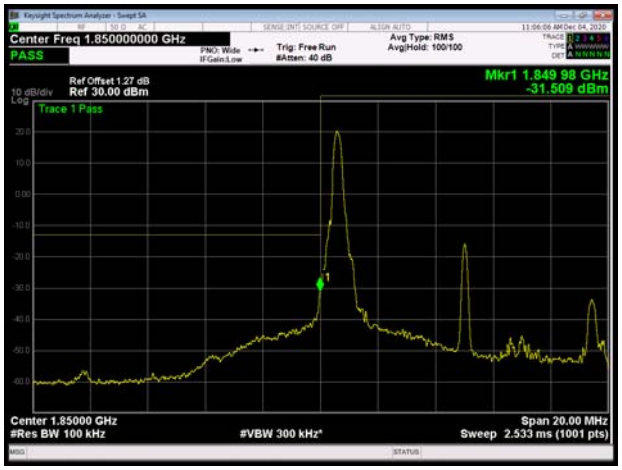
LTE Band 2 5MHz 16QAM 100%RB CH-Low



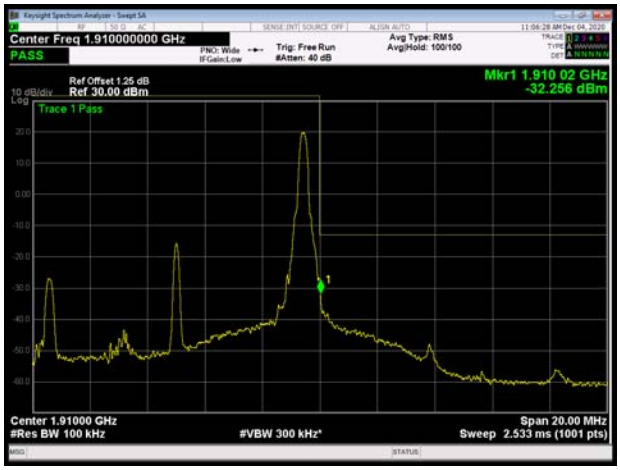
LTE Band 2 5MHz 16QAM 100%RB CH-High



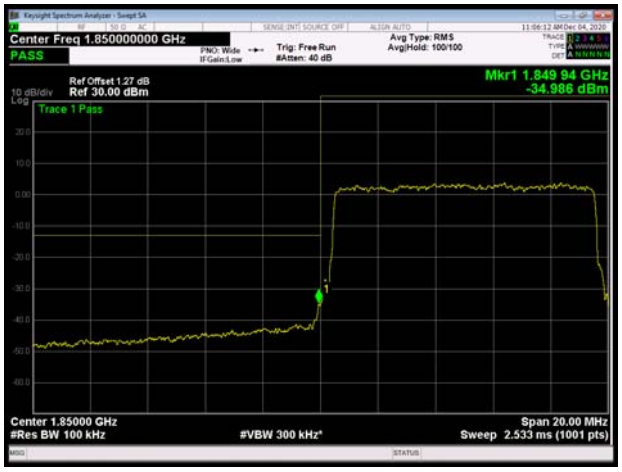
LTE Band 2 10MHz 16QAM 1RB CH-Low



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

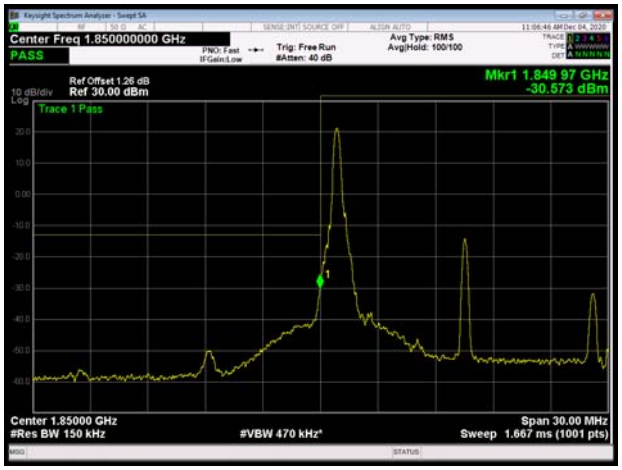


LTE Band 2 10MHz 16QAM 100%RB CH-Low

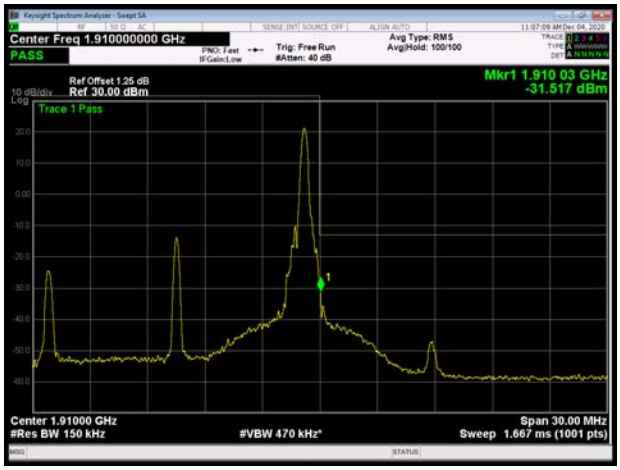


LTE Band 2 10MHz 16QAM 100%RB CH-High

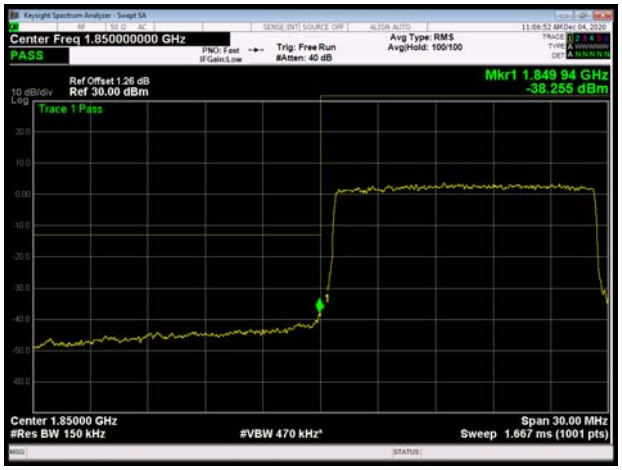
LTE Band 2 15MHz 16QAM 1RB CH-Low



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

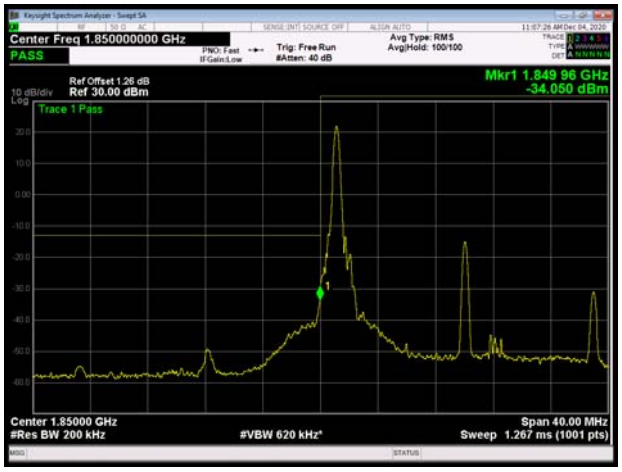


LTE Band 2 15MHz 16QAM 100%RB CH-Low

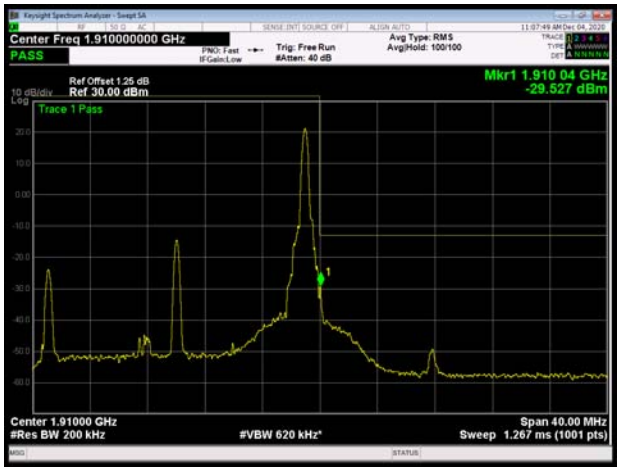


LTE Band 2 15MHz 16QAM 100%RB CH-High

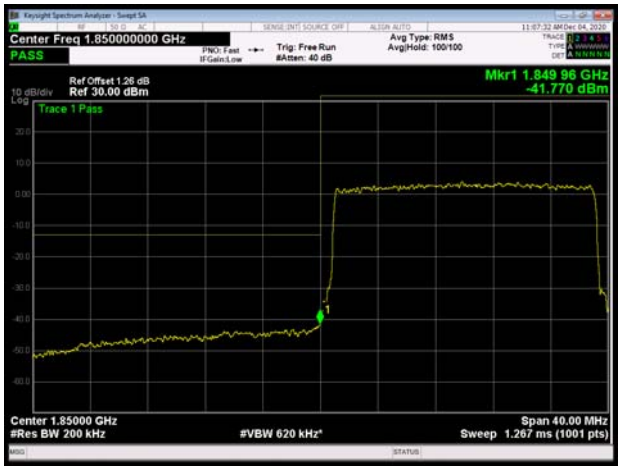
LTE Band 2 20MHz 16QAM 1RB CH-Low



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

5.4. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

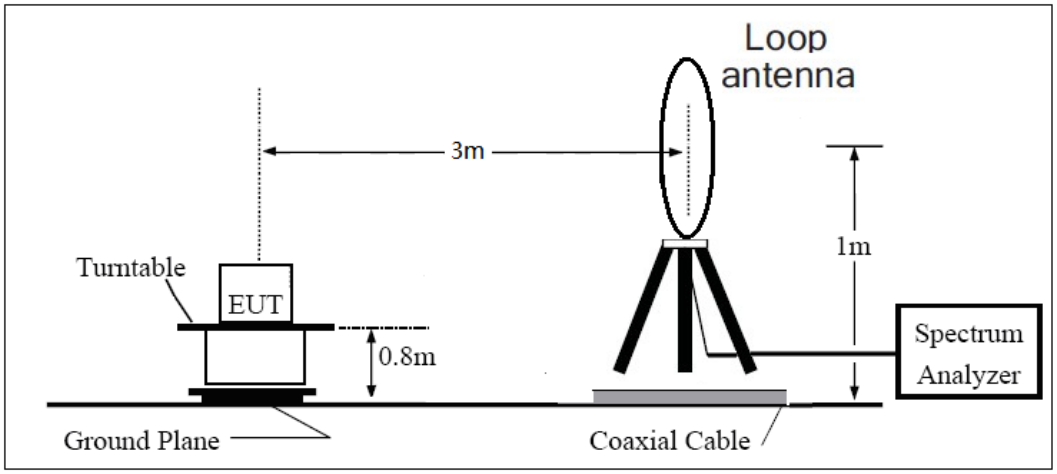
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , 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 dBi)

and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

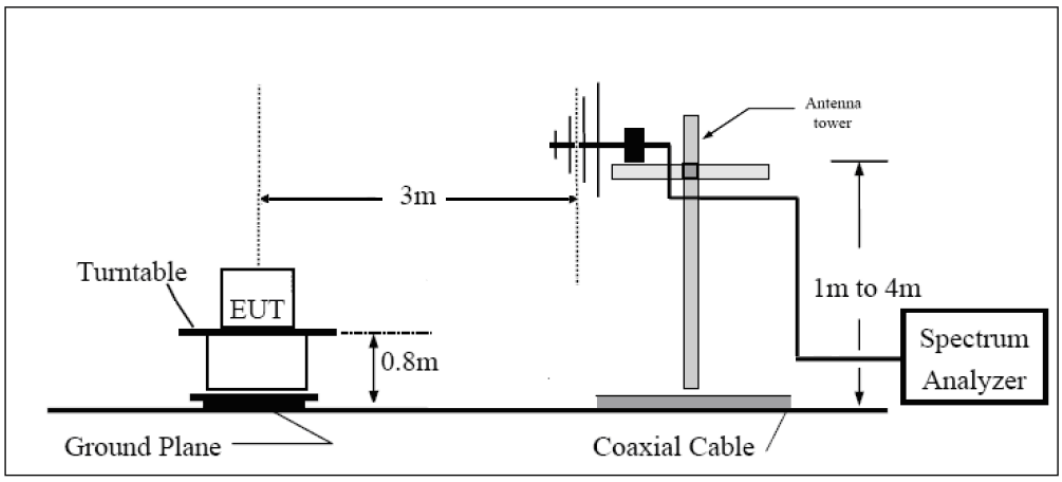
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

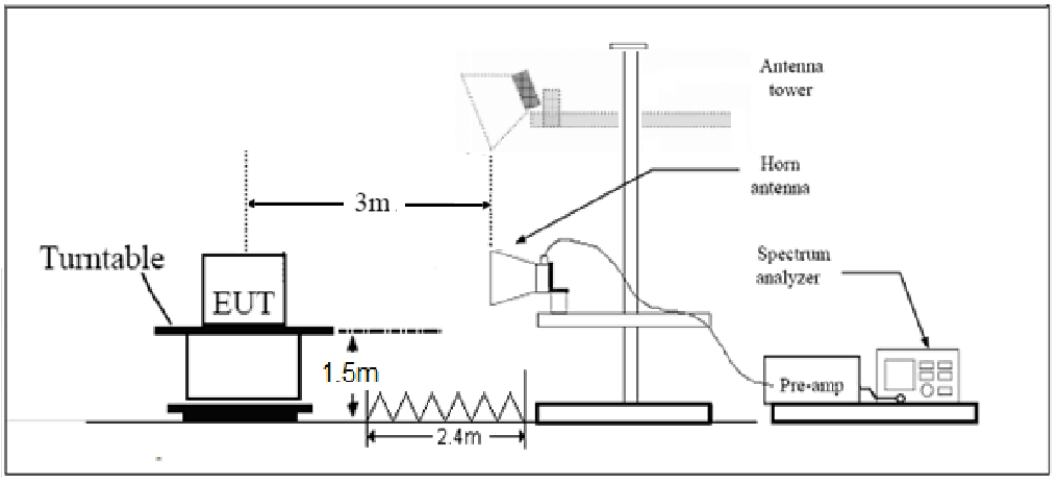
9KHz ~ 30MHz



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.

EC25-T:

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	3759.0	-56.76	5.10	11.05	Horizontal	-50.81	-13.00	37.81	45
3	5638.5	-56.22	5.42	12.65	Horizontal	-48.99	-13.00	35.99	45
4	7520.0	-57.88	6.70	13.85	Horizontal	-50.73	-13.00	37.73	0
5	9400.0	-57.17	7.01	14.75	Horizontal	-49.43	-13.00	36.43	315
6	11280.0	-53.36	7.48	15.95	Horizontal	-44.89	-13.00	31.89	45
7	13160.0	-54.54	7.51	16.55	Horizontal	-45.50	-13.00	32.50	225
8	15040.0	-52.60	8.24	15.35	Horizontal	-45.49	-13.00	32.49	90
9	16920.0	-49.54	8.41	14.95	Horizontal	-43.00	-13.00	30.00	180
10	18800.0	--	--	--	--	--	--	--	--
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	3755.6	-57.44	5.10	11.05	Horizontal	-51.49	-13.00	38.49	90
3	5633.6	-48.98	5.42	12.65	Horizontal	-41.75	-13.00	28.75	180
4	7520.0	-57.33	6.70	13.85	Horizontal	-50.18	-13.00	37.18	270
5	9400.0	-55.60	7.01	14.75	Horizontal	-47.86	-13.00	34.86	315
6	11280.0	-52.88	7.48	15.95	Horizontal	-44.41	-13.00	31.41	45
7	13160.0	-54.00	7.51	16.55	Horizontal	-44.96	-13.00	31.96	0
8	15040.0	-54.49	8.24	15.35	Horizontal	-47.38	-13.00	34.38	180
9	16920.0	-49.49	8.41	14.95	Horizontal	-42.95	-13.00	29.95	270
10	18800.0	--	--	--	--	--	--	--	--
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	3742.1	-54.64	5.10	11.05	Horizontal	-48.69	-13.00	35.69	45
3	5613.4	-50.92	5.42	12.65	Horizontal	-43.69	-13.00	30.69	315
4	7484.6	-56.71	6.70	13.85	Horizontal	-49.56	-13.00	36.56	90
5	9400.0	-55.44	7.01	14.75	Horizontal	-47.70	-13.00	34.70	180
6	11280.0	-53.29	7.48	15.95	Horizontal	-44.82	-13.00	31.82	270
7	13160.0	-55.92	7.51	16.55	Horizontal	-46.88	-13.00	33.88	45
8	15040.0	-53.50	8.24	15.35	Horizontal	-46.39	-13.00	33.39	225
9	16920.0	-49.24	8.41	14.95	Horizontal	-42.70	-13.00	29.70	0
10	18800.0	--	--	--	--	--	--	--	--

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.

EC25-T MINIPCIE:

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	3759.0	-46.69	5.10	11.05	Horizontal	-40.74	-13.00	27.74	225
3	5638.5	-48.36	5.42	12.65	Horizontal	-41.13	-13.00	28.13	315
4	7520.0	-56.97	6.70	13.85	Horizontal	-49.82	-13.00	36.82	45
5	9400.0	-52.92	7.01	14.75	Horizontal	-45.18	-13.00	32.18	270
6	11280.0	-52.62	7.48	15.95	Horizontal	-44.15	-13.00	31.15	180
7	13160.0	-55.31	7.51	16.55	Horizontal	-46.27	-13.00	33.27	0
8	15040.0	-53.10	8.24	15.35	Horizontal	-45.99	-13.00	32.99	45
9	16920.0	-50.41	8.41	14.95	Horizontal	-43.87	-13.00	30.87	315
10	18800.0	--	--	--	--	--	--	--	--

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	3755.6	-47.56	5.10	11.05	Horizontal	-41.61	-13.00	28.61	0
3	5633.6	-48.91	5.42	12.65	Horizontal	-41.68	-13.00	28.68	180
4	7520.0	-57.55	6.70	13.85	Horizontal	-50.40	-13.00	37.40	315
5	9400.0	-55.30	7.01	14.75	Horizontal	-47.56	-13.00	34.56	45
6	11280.0	-52.87	7.48	15.95	Horizontal	-44.40	-13.00	31.40	0
7	13160.0	-55.13	7.51	16.55	Horizontal	-46.09	-13.00	33.09	225
8	15040.0	-53.70	8.24	15.35	Horizontal	-46.59	-13.00	33.59	315
9	16920.0	-49.53	8.41	14.95	Horizontal	-42.99	-13.00	29.99	270
10	18800.0	--	--	--	--	--	--	--	--

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	3742.1	-47.78	5.10	11.05	Horizontal	-41.83	-13.00	28.83	225
3	5613.4	-48.92	5.42	12.65	Horizontal	-41.69	-13.00	28.69	90
4	7484.6	-56.66	6.70	13.85	Horizontal	-49.51	-13.00	36.51	315
5	9400.0	-55.76	7.01	14.75	Horizontal	-48.02	-13.00	35.02	45
6	11280.0	-53.31	7.48	15.95	Horizontal	-44.84	-13.00	31.84	0
7	13160.0	-56.02	7.51	16.55	Horizontal	-46.98	-13.00	33.98	180
8	15040.0	-53.74	8.24	15.35	Horizontal	-46.63	-13.00	33.63	270
9	16920.0	-49.93	8.41	14.95	Horizontal	-43.39	-13.00	30.39	45
10	18800.0	--	--	--	--	--	--	--	--

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	2020-05-17	2021-05-16
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preampflier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-06-12	2020-12-11
Software	R&S	EMC32	9.26.0	/	/

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

ANNEX C: Statement of Product Change

Quectel Wireless Solutions Co., Ltd

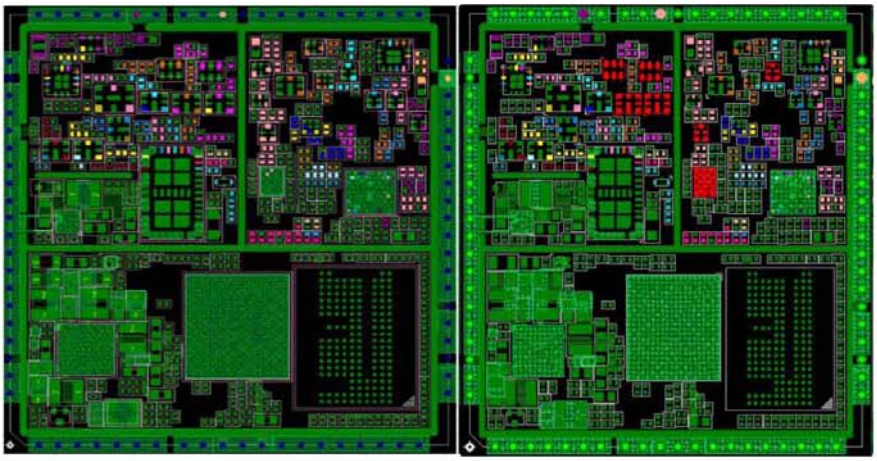
Statement

We **Quectel Wireless Solutions Co., Ltd** declare the following models.

Product Name: LTE Module
Model Number: EC25-AF, EC25-AF MINIPCIE
Variant Model: EC25-T, EC25-T MINIPCIE
Hardware Version: R1.0

Module	Category	Supported Band
EC25-AF EC25-AF MINIPCIE	CAT4	WCDMA: B2/B4/B5 LTE: B2/B4/B5/B12/B13/B14/B66/B71
EC25-T EC25-T MINIPCIE	CAT4	LTE: B2/B4/B5/B12/B66/B71

EC25-AF&EC25-AF MINIPCIE and EC25-T&EC25-T MINIPCIE share the same HW design, EC25-T&EC25-T MINIPCIE reduce B13and B14 and GPSIC on the basis of EC25-AF&EC25-AF MINIPCIE. The details are shown as following pictures and table.



Quectel Wireless Solutions Co., Ltd

Designator	EC25-AF EC25-AF MINIPCIE (Part Description)	EC25-T EC25-T MINIPCIE (Part Description)
U1102	IC RF Rx filter UNBalance B14 15dBm 1.1x0.9mm H0.5mm RO	NM
U0906	IC RF DPX LTE UNBalance B14 1.8x1.4mm H0.475mm RO	NM
U0908 U0909	IC RF TX LPF 699-960MHz 1.6x0.8mm H0.6mm RO	NM
U0805	IC RF GNSS RECEIVER WGR7640 17-WLNSP 0.4pitch 2.07x1.51mm H0.63mm RO	NM
U0806	IC RF RX filter GPS/ GLONASS /BEIDOU Balance 13dBm 1.1x0.9mm H0.5mm RO	NM
U0907	IC RF DPX LTE Unbalance B13 1.8x1.4mm H0.5mm RO	NM

EC25-T & EC25-T MINIPCIE also disabled WCDMA bands through SW.

These changes will not impact RF performance for other original LTE bands.

Your assistance on this matter is highly appreciated.

Sincerely,

Name: Jean Hu

Title: Certification Section

ANNEX D: Statement of Model Difference

Quectel Wireless Solutions Co., Ltd

Statement

We Quectel Wireless Solutions Co., Ltd declare the following models as series application.

Name: LTE Module
Parent Model: EC25-T
Variant Model: EC25-T MINIPCIE

EC25-T and EC25-T MINIPCIE are same LTE modules. They have the same frequency and use the same chipset and share the same software & hardware design.

EC25-T MINIPCIE makes up of EC25-T module and PCIe carrier board. The carrier board switches EC25-T module to follow PCI Express Mini Card standard connector protocol. No any other internal changes in EC25-T module. We hereby state that two models are identical in interior structure and components, and just connector interface is different for the marketing requirement.

Your assistance on this matter is highly appreciated.

Sincerely,

Name: Jean Hu Jean Hu
Title: Certification Section

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