



RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-MF293N
Product	CPE
Model	MF293N
Report No.	R2109A0830-R2V1
Issue Date	December 24, 2021

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

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Version	Revision description	Issue Date
Rev.0	Initial issue of report.	December 21, 2021
Rev.1	Update information in Page 62.	December 24, 2021

Note: This revised report (Report No. R2109A0830-R2V1) supersedes and replaces the previously issued report (Report No. R2109A0830-R2). Please discard or destroy the previously issued report and dispose of it accordingly.



Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 24.232(c)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 /24.238(a)	PASS
4	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 24.235	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 24.238(a)	PASS
7	Radiates Spurious Emission	2.1053 / 24.238(a)	PASS

Date of Testing: September 30, 2021~ November 18, 2021
Date of Sample Received: September 27, 2021

Note: PASS: The EUT complies with the essential requirements in the standard.
FAIL: The EUT does not comply with the essential requirements in the standard.
All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.



1. Test Laboratory

1.1. Notes of the test report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
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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	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.2. General information

EUT Description			
Model	MF293N		
IMEI	863397050104476		
Hardware Version	MF293N_HW1.0		
Software Version	EN_ZTE_LMMF293NV1.0.0B01		
Power Supply	AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	1.3dBi		
Test Mode(s)	GSM1900; WCDMA Band II; LTE Band 2;		
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK, QPSK,16QAM; (LTE)QPSK,16QAM		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
DC-HSDPA UE Category	14		
DC-HSUPA Category	6		
HSPA+ UE Category	14		
LTE Category	4		
Maximum E.I.R.P	GSM 1900:	31.84dBm	
	WCDMA Band II:	24.11dBm	
	LTE Band 2:	25.90dBm	
Rated Power Supply Voltage	12V		
Operating Voltage	Minimum: 10.8V Maximum: 13.2V		
Operating Temperature	Lowest: -30°C Highest: +75°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990



	LTE Band 2	1850 ~ 1910	1930 ~ 1990
EUT Accessory			
Adapter 1	Manufacturer: bajunda Model: STC-A1215C55A-Z		
Adapter 2	Manufacturer: KLEC Model: KL-WA120150-M		
Adapter 3	Manufacturer: KLEC Model: KL-WE120150-F		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

3. Applied Standards

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

Test standards:

FCC CFR 47 Part 24E (2020)

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 GSM/WCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below:

Test items	Modes/Modulation	
	GSM 1900	WCDMA Band II
RF Power Output and Effective Isotropic Radiated Power	GSM GPRS EGPRS	RMC HSDPA/HSUPA DC-HSDPA/HSPA+
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Spurious Emissions at Antenna Terminals	GSM	RMC
Radiates Spurious Emission	GSM	RMC



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
Peak-to-Average Power Ratio	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	O	-	O	-	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case Results

5.1.RF Power Output and Effective Isotropic Radiated Power

Ambient condition

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

Methods of Measurement

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

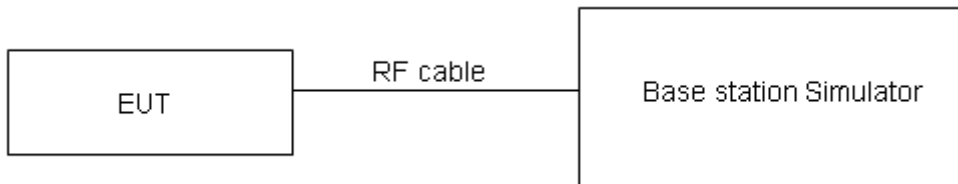
ERP can then be calculated as follows:

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

where:dBd refers to gain relative to an ideal dipole.

$$\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ (dB.)}$$

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	$\leq 2 \text{ W}$ (33 dBm)
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Measurement Uncertainty

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

Test Results

GSM 1900		Maximum Output Power (dBm)			EIRP (dBm)		
		Channel 512	Channel 661	Channel 810	Channel 512	Channel 661	Channel 810
		1850.2 (MHz)	1880 (MHz)	1909.8 (MHz)	1850.2 (MHz)	1880 (MHz)	1909.8 (MHz)
GSM(GMSK)	Results	30.34	29.83	29.56	31.64	31.13	30.86
GPRS (GMSK)	1TXslot	30.54	29.74	29.47	31.84	31.04	30.77
	2TXslots	27.05	26.35	26.02	28.35	27.65	27.32
	3TXslots	26.71	26.02	25.67	28.01	27.32	26.97
	4TXslots	24.58	23.92	23.57	25.88	25.22	24.87
EGPRS (8PSK)	1TXslot	27.97	27.02	26.94	29.27	28.32	28.24
	2TXslots	23.72	22.61	22.53	25.02	23.91	23.83
	3TXslots	23.01	21.85	21.97	24.31	23.15	23.27
	4TXslots	20.17	19.47	18.67	21.47	20.77	19.97

WCDMA Band II		Maximum Output Power (dBm)			EIRP (dBm)		
		Channel 9262	Channel 9400	Channel 9538	Channel 9262	Channel 9400	Channel 9538
		1852.4 (MHz)	1880 (MHz)	1907.6 (MHz)	1852.4 (MHz)	1880 (MHz)	1907.6 (MHz)
RMC		22.54	22.81	22.48	23.84	24.11	23.78
HSDPA	Sub - Test 1	22.00	22.23	21.92	23.30	23.53	23.22
	Sub - Test 2	21.99	22.25	21.89	23.29	23.55	23.19
	Sub - Test 3	21.46	21.75	21.41	22.76	23.05	22.71
	Sub - Test 4	21.47	21.76	21.39	22.77	23.06	22.69
HSUPA	Sub - Test 1	21.96	22.22	21.87	23.26	23.52	23.17
	Sub - Test 2	20.95	21.20	20.86	22.25	22.50	22.16
	Sub - Test 3	21.42	21.68	21.35	22.72	22.98	22.65
	Sub - Test 4	20.88	21.17	20.83	22.18	22.47	22.13
	Sub - Test 5	21.89	22.15	21.81	23.19	23.45	23.11
DC-HSDPA	Sub - Test 1	21.88	22.17	21.82	23.18	23.47	23.12
	Sub - Test 2	21.87	22.16	21.81	23.17	23.46	23.11
	Sub - Test 3	21.45	21.65	21.32	22.75	22.95	22.62
	Sub - Test 4	21.44	21.64	21.31	22.74	22.94	22.61
HSPA+	16QAM	21.43	21.72	21.38	22.73	23.02	22.68



Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)	Verdict
LTE Band 2	1.4	18607	1	#0	QPSK	22.97	24.27	PASS
LTE Band 2	1.4	18607	1	#Mid	QPSK	22.79	24.09	PASS
LTE Band 2	1.4	18607	1	#Max	QPSK	22.89	24.19	PASS
LTE Band 2	1.4	18607	3	#0	QPSK	23.01	24.31	PASS
LTE Band 2	1.4	18607	3	#Mid	QPSK	22.99	24.29	PASS
LTE Band 2	1.4	18607	3	#Max	QPSK	22.85	24.15	PASS
LTE Band 2	1.4	18607	6	#0	QPSK	21.64	22.94	PASS
LTE Band 2	1.4	18607	1	#0	QAM16	21.64	22.94	PASS
LTE Band 2	1.4	18607	1	#Mid	QAM16	21.14	22.44	PASS
LTE Band 2	1.4	18607	1	#Max	QAM16	21.43	22.73	PASS
LTE Band 2	1.4	18607	3	#0	QAM16	21.54	22.84	PASS
LTE Band 2	1.4	18607	3	#Mid	QAM16	21.54	22.84	PASS
LTE Band 2	1.4	18607	3	#Max	QAM16	21.41	22.71	PASS
LTE Band 2	1.4	18607	6	#0	QAM16	20.23	21.53	PASS
LTE Band 2	1.4	18900	1	#0	QPSK	24.00	25.30	PASS
LTE Band 2	1.4	18900	1	#Mid	QPSK	23.87	25.17	PASS
LTE Band 2	1.4	18900	1	#Max	QPSK	24.09	25.39	PASS
LTE Band 2	1.4	18900	3	#0	QPSK	23.93	25.23	PASS
LTE Band 2	1.4	18900	3	#Mid	QPSK	23.96	25.26	PASS
LTE Band 2	1.4	18900	3	#Max	QPSK	24.03	25.33	PASS
LTE Band 2	1.4	18900	6	#0	QPSK	22.82	24.12	PASS
LTE Band 2	1.4	18900	1	#0	QAM16	22.75	24.05	PASS
LTE Band 2	1.4	18900	1	#Mid	QAM16	22.65	23.95	PASS
LTE Band 2	1.4	18900	1	#Max	QAM16	22.91	24.21	PASS
LTE Band 2	1.4	18900	3	#0	QAM16	22.50	23.80	PASS
LTE Band 2	1.4	18900	3	#Mid	QAM16	22.56	23.86	PASS
LTE Band 2	1.4	18900	3	#Max	QAM16	22.79	24.09	PASS
LTE Band 2	1.4	18900	6	#0	QAM16	21.68	22.98	PASS
LTE Band 2	1.4	19193	1	#0	QPSK	23.54	24.84	PASS
LTE Band 2	1.4	19193	1	#Mid	QPSK	23.37	24.67	PASS
LTE Band 2	1.4	19193	1	#Max	QPSK	23.34	24.64	PASS
LTE Band 2	1.4	19193	3	#0	QPSK	23.42	24.72	PASS
LTE Band 2	1.4	19193	3	#Mid	QPSK	23.52	24.82	PASS
LTE Band 2	1.4	19193	3	#Max	QPSK	23.27	24.57	PASS
LTE Band 2	1.4	19193	6	#0	QPSK	22.40	23.70	PASS
LTE Band 2	1.4	19193	1	#0	QAM16	22.42	23.72	PASS
LTE Band 2	1.4	19193	1	#Mid	QAM16	22.15	23.45	PASS
LTE Band 2	1.4	19193	1	#Max	QAM16	22.10	23.40	PASS
LTE Band 2	1.4	19193	3	#0	QAM16	22.18	23.48	PASS
LTE Band 2	1.4	19193	3	#Mid	QAM16	22.22	23.52	PASS



LTE Band 2	1.4	19193	3	#Max	QAM16	22.12	23.42	PASS
LTE Band 2	1.4	19193	6	#0	QAM16	21.15	22.45	PASS
LTE Band 2	3	18615	1	#0	QPSK	22.86	24.16	PASS
LTE Band 2	3	18615	1	#Mid	QPSK	22.01	23.31	PASS
LTE Band 2	3	18615	1	#Max	QPSK	22.51	23.81	PASS
LTE Band 2	3	18615	8	#0	QPSK	21.28	22.58	PASS
LTE Band 2	3	18615	8	#Mid	QPSK	21.29	22.59	PASS
LTE Band 2	3	18615	8	#Max	QPSK	20.95	22.25	PASS
LTE Band 2	3	18615	15	#0	QPSK	21.07	22.37	PASS
LTE Band 2	3	18615	1	#0	QAM16	21.84	23.14	PASS
LTE Band 2	3	18615	1	#Mid	QAM16	20.58	21.88	PASS
LTE Band 2	3	18615	1	#Max	QAM16	21.00	22.30	PASS
LTE Band 2	3	18615	8	#0	QAM16	19.83	21.13	PASS
LTE Band 2	3	18615	8	#Mid	QAM16	19.83	21.13	PASS
LTE Band 2	3	18615	8	#Max	QAM16	19.51	20.81	PASS
LTE Band 2	3	18615	15	#0	QAM16	19.67	20.97	PASS
LTE Band 2	3	18900	1	#0	QPSK	23.63	24.93	PASS
LTE Band 2	3	18900	1	#Mid	QPSK	23.30	24.60	PASS
LTE Band 2	3	18900	1	#Max	QPSK	24.00	25.30	PASS
LTE Band 2	3	18900	8	#0	QPSK	22.41	23.71	PASS
LTE Band 2	3	18900	8	#Mid	QPSK	22.46	23.76	PASS
LTE Band 2	3	18900	8	#Max	QPSK	22.69	23.99	PASS
LTE Band 2	3	18900	15	#0	QPSK	22.52	23.82	PASS
LTE Band 2	3	18900	1	#0	QAM16	22.32	23.62	PASS
LTE Band 2	3	18900	1	#Mid	QAM16	22.00	23.30	PASS
LTE Band 2	3	18900	1	#Max	QAM16	22.69	23.99	PASS
LTE Band 2	3	18900	8	#0	QAM16	21.08	22.38	PASS
LTE Band 2	3	18900	8	#Mid	QAM16	20.97	22.27	PASS
LTE Band 2	3	18900	8	#Max	QAM16	21.21	22.51	PASS
LTE Band 2	3	18900	15	#0	QAM16	21.00	22.30	PASS
LTE Band 2	3	19185	1	#0	QPSK	23.83	25.13	PASS
LTE Band 2	3	19185	1	#Mid	QPSK	22.74	24.04	PASS
LTE Band 2	3	19185	1	#Max	QPSK	23.41	24.71	PASS
LTE Band 2	3	19185	8	#0	QPSK	22.47	23.77	PASS
LTE Band 2	3	19185	8	#Mid	QPSK	22.47	23.77	PASS
LTE Band 2	3	19185	8	#Max	QPSK	22.21	23.51	PASS
LTE Band 2	3	19185	15	#0	QPSK	22.27	23.57	PASS
LTE Band 2	3	19185	1	#0	QAM16	22.57	23.87	PASS
LTE Band 2	3	19185	1	#Mid	QAM16	21.85	23.15	PASS
LTE Band 2	3	19185	1	#Max	QAM16	22.05	23.35	PASS
LTE Band 2	3	19185	8	#0	QAM16	21.11	22.41	PASS
LTE Band 2	3	19185	8	#Mid	QAM16	21.12	22.42	PASS
LTE Band 2	3	19185	8	#Max	QAM16	20.84	22.14	PASS



LTE Band 2	3	19185	15	#0	QAM16	20.93	22.23	PASS
LTE Band 2	5	18625	1	#0	QPSK	22.77	24.07	PASS
LTE Band 2	5	18625	1	#Mid	QPSK	21.74	23.04	PASS
LTE Band 2	5	18625	1	#Max	QPSK	22.07	23.37	PASS
LTE Band 2	5	18625	12	#0	QPSK	21.20	22.50	PASS
LTE Band 2	5	18625	12	#Mid	QPSK	21.22	22.52	PASS
LTE Band 2	5	18625	12	#Max	QPSK	20.79	22.09	PASS
LTE Band 2	5	18625	25	#0	QPSK	20.95	22.25	PASS
LTE Band 2	5	18625	1	#0	QAM16	21.50	22.80	PASS
LTE Band 2	5	18625	1	#Mid	QAM16	20.49	21.79	PASS
LTE Band 2	5	18625	1	#Max	QAM16	20.61	21.91	PASS
LTE Band 2	5	18625	12	#0	QAM16	19.78	21.08	PASS
LTE Band 2	5	18625	12	#Mid	QAM16	19.79	21.09	PASS
LTE Band 2	5	18625	12	#Max	QAM16	19.25	20.55	PASS
LTE Band 2	5	18625	25	#0	QAM16	19.55	20.85	PASS
LTE Band 2	5	18900	1	#0	QPSK	23.73	25.03	PASS
LTE Band 2	5	18900	1	#Mid	QPSK	23.46	24.76	PASS
LTE Band 2	5	18900	1	#Max	QPSK	23.93	25.23	PASS
LTE Band 2	5	18900	12	#0	QPSK	22.42	23.72	PASS
LTE Band 2	5	18900	12	#Mid	QPSK	22.41	23.71	PASS
LTE Band 2	5	18900	12	#Max	QPSK	22.80	24.10	PASS
LTE Band 2	5	18900	25	#0	QPSK	22.58	23.88	PASS
LTE Band 2	5	18900	1	#0	QAM16	22.47	23.77	PASS
LTE Band 2	5	18900	1	#Mid	QAM16	22.18	23.48	PASS
LTE Band 2	5	18900	1	#Max	QAM16	22.74	24.04	PASS
LTE Band 2	5	18900	12	#0	QAM16	20.94	22.24	PASS
LTE Band 2	5	18900	12	#Mid	QAM16	20.98	22.28	PASS
LTE Band 2	5	18900	12	#Max	QAM16	21.35	22.65	PASS
LTE Band 2	5	18900	25	#0	QAM16	21.18	22.48	PASS
LTE Band 2	5	19175	1	#0	QPSK	23.83	25.13	PASS
LTE Band 2	5	19175	1	#Mid	QPSK	23.22	24.52	PASS
LTE Band 2	5	19175	1	#Max	QPSK	23.25	24.55	PASS
LTE Band 2	5	19175	12	#0	QPSK	22.62	23.92	PASS
LTE Band 2	5	19175	12	#Mid	QPSK	22.62	23.92	PASS
LTE Band 2	5	19175	12	#Max	QPSK	22.35	23.65	PASS
LTE Band 2	5	19175	25	#0	QPSK	22.50	23.80	PASS
LTE Band 2	5	19175	1	#0	QAM16	22.51	23.81	PASS
LTE Band 2	5	19175	1	#Mid	QAM16	21.97	23.27	PASS
LTE Band 2	5	19175	1	#Max	QAM16	21.92	23.22	PASS
LTE Band 2	5	19175	12	#0	QAM16	21.22	22.52	PASS
LTE Band 2	5	19175	12	#Mid	QAM16	21.23	22.53	PASS
LTE Band 2	5	19175	12	#Max	QAM16	21.07	22.37	PASS
LTE Band 2	5	19175	25	#0	QAM16	21.14	22.44	PASS



LTE Band 2	10	18650	1	#0	QPSK	23.36	24.66	PASS
LTE Band 2	10	18650	1	#Mid	QPSK	21.39	22.69	PASS
LTE Band 2	10	18650	1	#Max	QPSK	23.61	24.91	PASS
LTE Band 2	10	18650	25	#0	QPSK	20.94	22.24	PASS
LTE Band 2	10	18650	25	#Mid	QPSK	20.96	22.26	PASS
LTE Band 2	10	18650	25	#Max	QPSK	21.03	22.33	PASS
LTE Band 2	10	18650	50	#0	QPSK	20.93	22.23	PASS
LTE Band 2	10	18650	1	#0	QAM16	22.02	23.32	PASS
LTE Band 2	10	18650	1	#Mid	QAM16	19.99	21.29	PASS
LTE Band 2	10	18650	1	#Max	QAM16	22.13	23.43	PASS
LTE Band 2	10	18650	25	#0	QAM16	19.46	20.76	PASS
LTE Band 2	10	18650	25	#Mid	QAM16	19.48	20.78	PASS
LTE Band 2	10	18650	25	#Max	QAM16	19.63	20.93	PASS
LTE Band 2	10	18650	50	#0	QAM16	19.51	20.81	PASS
LTE Band 2	10	18900	1	#0	QPSK	24.51	25.81	PASS
LTE Band 2	10	18900	1	#Mid	QPSK	23.25	24.55	PASS
LTE Band 2	10	18900	1	#Max	QPSK	24.25	25.55	PASS
LTE Band 2	10	18900	25	#0	QPSK	22.61	23.91	PASS
LTE Band 2	10	18900	25	#Mid	QPSK	22.61	23.91	PASS
LTE Band 2	10	18900	25	#Max	QPSK	22.76	24.06	PASS
LTE Band 2	10	18900	50	#0	QPSK	22.56	23.86	PASS
LTE Band 2	10	18900	1	#0	QAM16	22.93	24.23	PASS
LTE Band 2	10	18900	1	#Mid	QAM16	21.75	23.05	PASS
LTE Band 2	10	18900	1	#Max	QAM16	22.89	24.19	PASS
LTE Band 2	10	18900	25	#0	QAM16	21.17	22.47	PASS
LTE Band 2	10	18900	25	#Mid	QAM16	21.18	22.48	PASS
LTE Band 2	10	18900	25	#Max	QAM16	21.47	22.77	PASS
LTE Band 2	10	18900	50	#0	QAM16	21.08	22.38	PASS
LTE Band 2	10	19150	1	#0	QPSK	24.60	25.90	PASS
LTE Band 2	10	19150	1	#Mid	QPSK	23.40	24.70	PASS
LTE Band 2	10	19150	1	#Max	QPSK	23.87	25.17	PASS
LTE Band 2	10	19150	25	#0	QPSK	22.96	24.26	PASS
LTE Band 2	10	19150	25	#Mid	QPSK	23.00	24.30	PASS
LTE Band 2	10	19150	25	#Max	QPSK	22.49	23.79	PASS
LTE Band 2	10	19150	50	#0	QPSK	22.51	23.81	PASS
LTE Band 2	10	19150	1	#0	QAM16	22.90	24.20	PASS
LTE Band 2	10	19150	1	#Mid	QAM16	21.77	23.07	PASS
LTE Band 2	10	19150	1	#Max	QAM16	22.24	23.54	PASS
LTE Band 2	10	19150	25	#0	QAM16	21.52	22.82	PASS
LTE Band 2	10	19150	25	#Mid	QAM16	21.51	22.81	PASS
LTE Band 2	10	19150	25	#Max	QAM16	21.12	22.42	PASS
LTE Band 2	10	19150	50	#0	QAM16	21.06	22.36	PASS
LTE Band 2	15	18675	1	#0	QPSK	23.41	24.71	PASS



LTE Band 2	15	18675	1	#Mid	QPSK	21.94	23.24	PASS
LTE Band 2	15	18675	1	#Max	QPSK	24.25	25.55	PASS
LTE Band 2	15	18675	36	#0	QPSK	20.82	22.12	PASS
LTE Band 2	15	18675	36	#Mid	QPSK	20.82	22.12	PASS
LTE Band 2	15	18675	36	#Max	QPSK	21.84	23.14	PASS
LTE Band 2	15	18675	75	#0	QPSK	21.55	22.85	PASS
LTE Band 2	15	18675	1	#0	QAM16	21.83	23.13	PASS
LTE Band 2	15	18675	1	#Mid	QAM16	20.30	21.60	PASS
LTE Band 2	15	18675	1	#Max	QAM16	22.66	23.96	PASS
LTE Band 2	15	18675	36	#0	QAM16	19.38	20.68	PASS
LTE Band 2	15	18675	36	#Mid	QAM16	19.49	20.79	PASS
LTE Band 2	15	18675	36	#Max	QAM16	20.24	21.54	PASS
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LTE Band 2	15	18900	1	#0	QPSK	24.14	25.44	PASS
LTE Band 2	15	18900	1	#Mid	QPSK	23.23	24.53	PASS
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LTE Band 2	15	18900	36	#Max	QAM16	21.34	22.64	PASS
LTE Band 2	15	18900	75	#0	QAM16	21.21	22.51	PASS
LTE Band 2	15	19125	1	#0	QPSK	23.55	24.85	PASS
LTE Band 2	15	19125	1	#Mid	QPSK	23.80	25.10	PASS
LTE Band 2	15	19125	1	#Max	QPSK	23.81	25.11	PASS
LTE Band 2	15	19125	36	#0	QPSK	22.57	23.87	PASS
LTE Band 2	15	19125	36	#Mid	QPSK	22.53	23.83	PASS
LTE Band 2	15	19125	36	#Max	QPSK	22.55	23.85	PASS
LTE Band 2	15	19125	75	#0	QPSK	22.78	24.08	PASS
LTE Band 2	15	19125	1	#0	QAM16	21.87	23.17	PASS
LTE Band 2	15	19125	1	#Mid	QAM16	22.12	23.42	PASS
LTE Band 2	15	19125	1	#Max	QAM16	22.52	23.82	PASS
LTE Band 2	15	19125	36	#0	QAM16	21.01	22.31	PASS
LTE Band 2	15	19125	36	#Mid	QAM16	21.01	22.31	PASS
LTE Band 2	15	19125	36	#Max	QAM16	21.14	22.44	PASS
LTE Band 2	15	19125	75	#0	QAM16	21.32	22.62	PASS
LTE Band 2	20	18700	1	#0	QPSK	23.02	24.32	PASS
LTE Band 2	20	18700	1	#Mid	QPSK	22.74	24.04	PASS



LTE Band 2	20	18700	1	#Max	QPSK	24.29	25.59	PASS
LTE Band 2	20	18700	50	#0	QPSK	20.97	22.27	PASS
LTE Band 2	20	18700	50	#Mid	QPSK	21.08	22.38	PASS
LTE Band 2	20	18700	50	#Max	QPSK	22.36	23.66	PASS
LTE Band 2	20	18700	100	#0	QPSK	22.08	23.38	PASS
LTE Band 2	20	18700	1	#0	QAM16	21.46	22.76	PASS
LTE Band 2	20	18700	1	#Mid	QAM16	21.02	22.32	PASS
LTE Band 2	20	18700	1	#Max	QAM16	22.82	24.12	PASS
LTE Band 2	20	18700	50	#0	QAM16	19.63	20.93	PASS
LTE Band 2	20	18700	50	#Mid	QAM16	19.51	20.81	PASS
LTE Band 2	20	18700	50	#Max	QAM16	20.87	22.17	PASS
LTE Band 2	20	18700	100	#0	QAM16	20.52	21.82	PASS
LTE Band 2	20	18900	1	#0	QPSK	24.16	25.46	PASS
LTE Band 2	20	18900	1	#Mid	QPSK	23.59	24.89	PASS
LTE Band 2	20	18900	1	#Max	QPSK	23.70	25.00	PASS
LTE Band 2	20	18900	50	#0	QPSK	22.71	24.01	PASS
LTE Band 2	20	18900	50	#Mid	QPSK	22.72	24.02	PASS
LTE Band 2	20	18900	50	#Max	QPSK	22.35	23.65	PASS
LTE Band 2	20	18900	100	#0	QPSK	22.33	23.63	PASS
LTE Band 2	20	18900	1	#0	QAM16	22.82	24.12	PASS
LTE Band 2	20	18900	1	#Mid	QAM16	22.25	23.55	PASS
LTE Band 2	20	18900	1	#Max	QAM16	22.42	23.72	PASS
LTE Band 2	20	18900	50	#0	QAM16	21.25	22.55	PASS
LTE Band 2	20	18900	50	#Mid	QAM16	21.26	22.56	PASS
LTE Band 2	20	18900	50	#Max	QAM16	21.12	22.42	PASS
LTE Band 2	20	18900	100	#0	QAM16	21.13	22.43	PASS
LTE Band 2	20	19100	1	#0	QPSK	22.92	24.22	PASS
LTE Band 2	20	19100	1	#Mid	QPSK	23.57	24.87	PASS
LTE Band 2	20	19100	1	#Max	QPSK	23.93	25.23	PASS
LTE Band 2	20	19100	50	#0	QPSK	21.89	23.19	PASS
LTE Band 2	20	19100	50	#Mid	QPSK	21.98	23.28	PASS
LTE Band 2	20	19100	50	#Max	QPSK	22.51	23.81	PASS
LTE Band 2	20	19100	100	#0	QPSK	22.55	23.85	PASS
LTE Band 2	20	19100	1	#0	QAM16	21.42	22.72	PASS
LTE Band 2	20	19100	1	#Mid	QAM16	21.79	23.09	PASS
LTE Band 2	20	19100	1	#Max	QAM16	22.56	23.86	PASS
LTE Band 2	20	19100	50	#0	QAM16	20.37	21.67	PASS
LTE Band 2	20	19100	50	#Mid	QAM16	20.34	21.64	PASS
LTE Band 2	20	19100	50	#Max	QAM16	21.06	22.36	PASS
LTE Band 2	20	19100	100	#0	QAM16	21.14	22.44	PASS

5.2.Occupied Bandwidth

Ambient condition

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

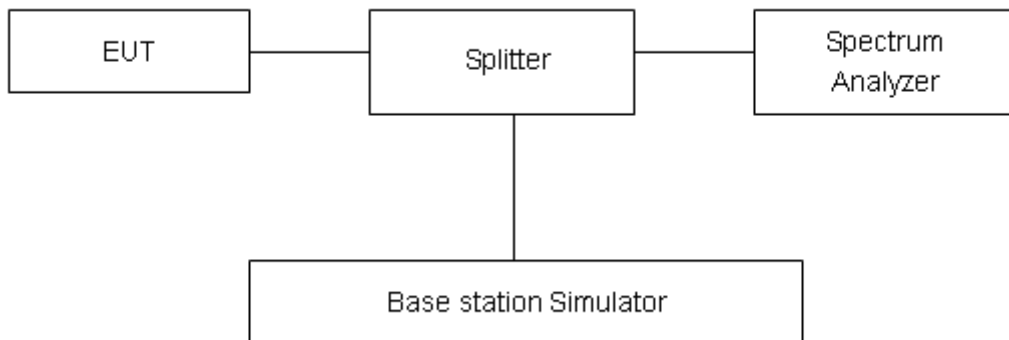
Method of Measurement

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 $\geq 1\%EBW$, 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 $k = 2$, $U = 624\text{Hz}$.

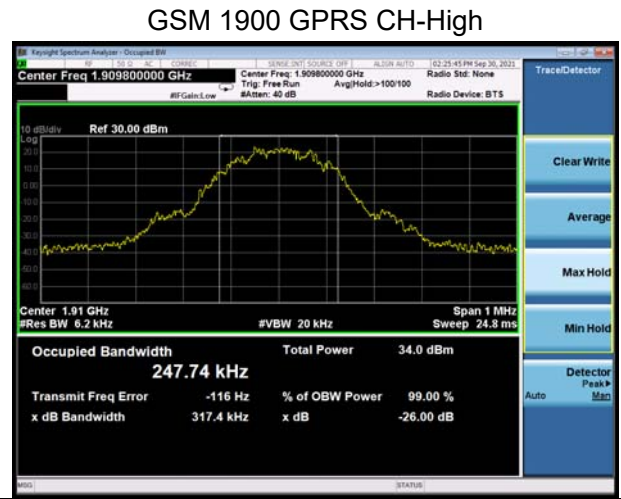
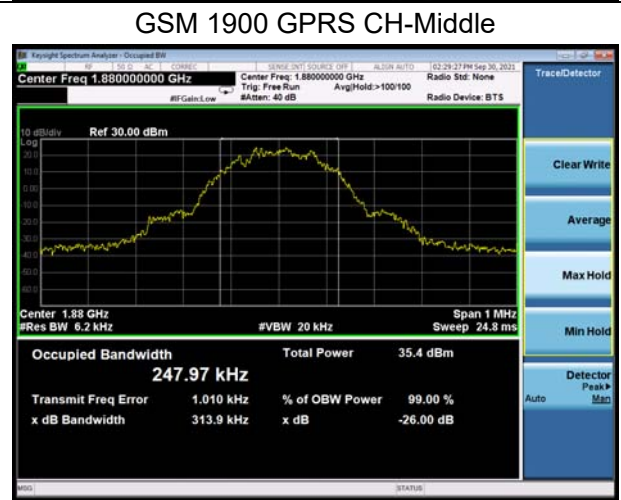
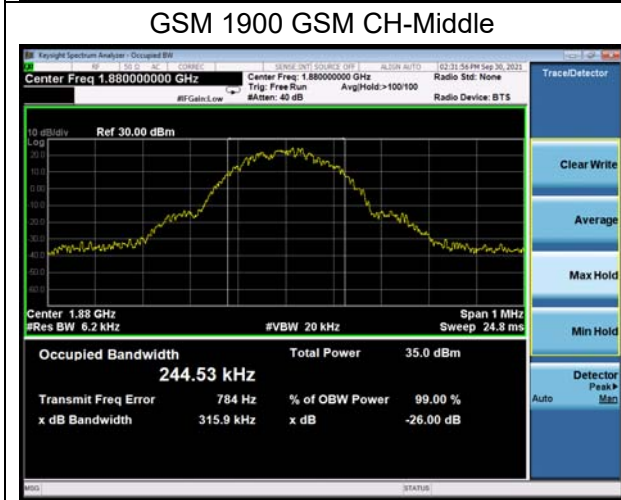
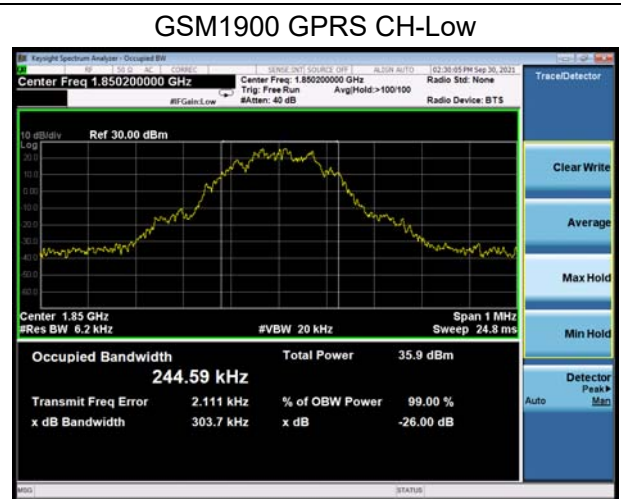
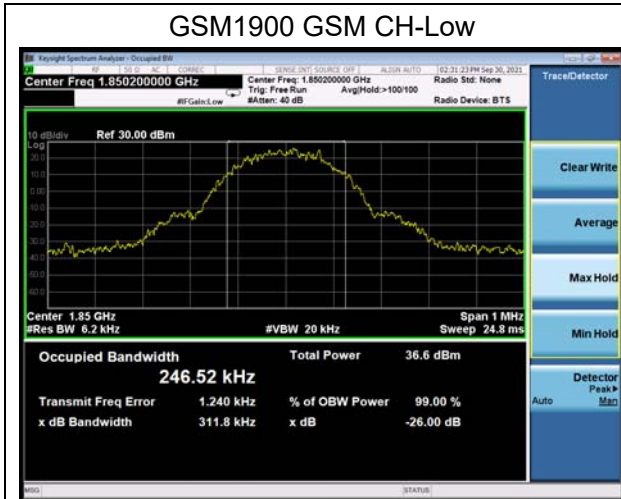
Test Result

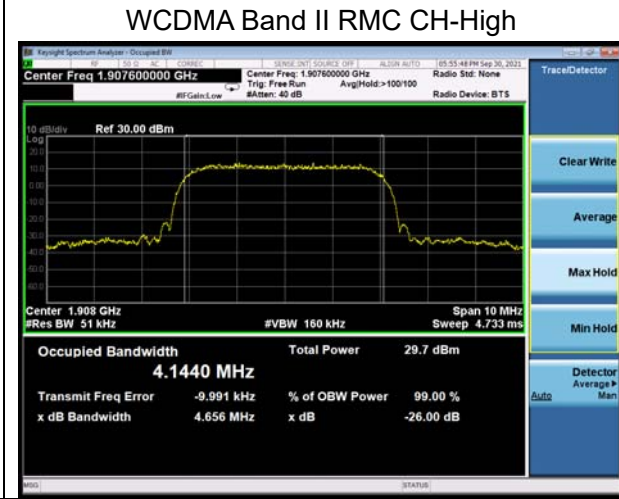
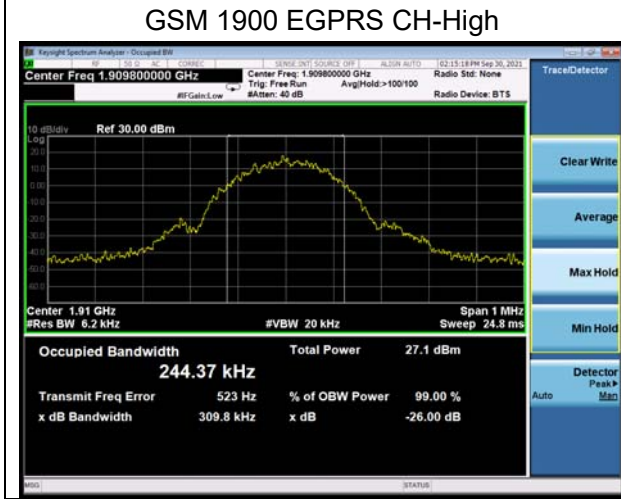
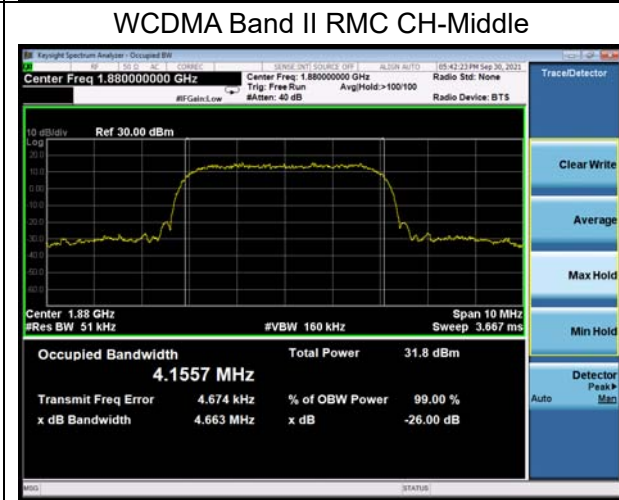
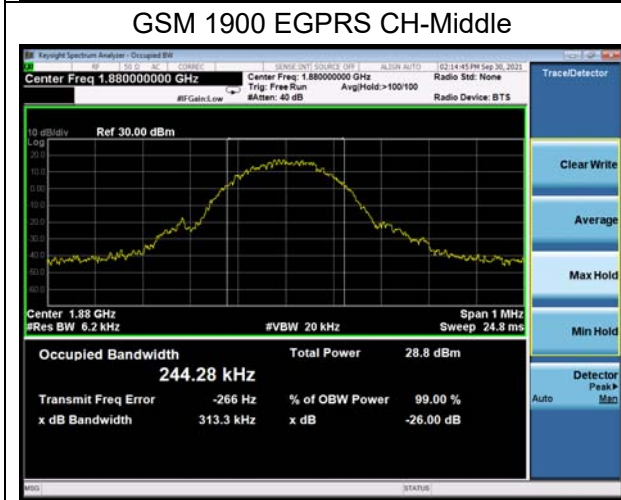
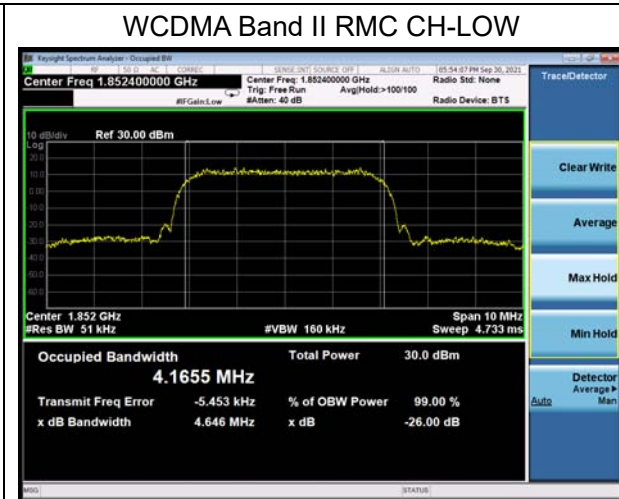
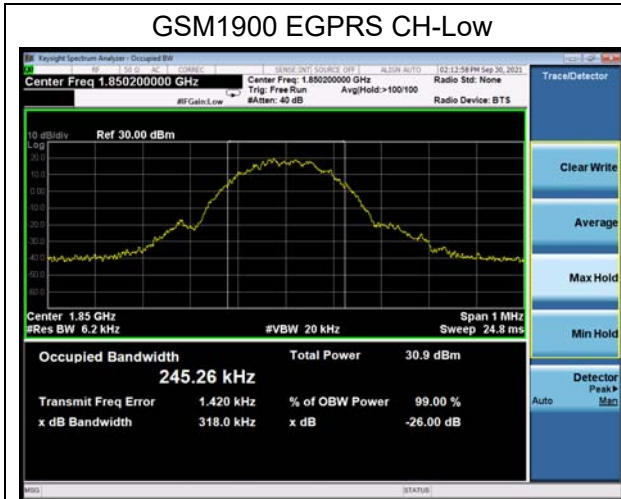
Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GMSK)	512	1850.2	0.2465	0.3118
	661	1880.0	0.2445	0.3159
	810	1909.8	0.2508	0.3139
GPRS 1900 (GMSK)	512	1850.2	0.2446	0.3037
	661	1880.0	0.2480	0.3139
	810	1909.8	0.2477	0.3174
EGPRS 1900 (8PSK)	512	1850.2	0.2453	0.3180
	661	1880.0	0.2443	0.3133
	810	1909.8	0.2444	0.3098
WCDMA Band II (RMC)	9262	1852.4	4.1655	4.6460
	9400	1880	4.1557	4.6630
	9538	1907.6	4.1440	4.6560

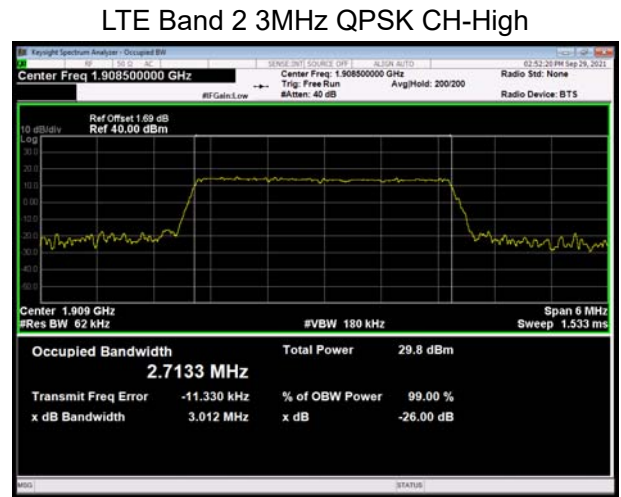
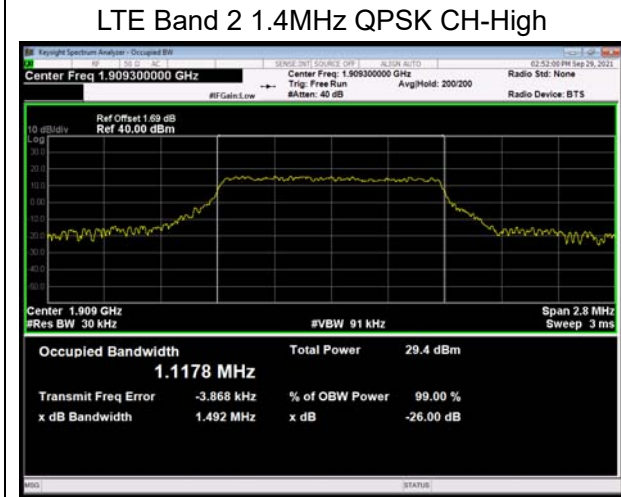
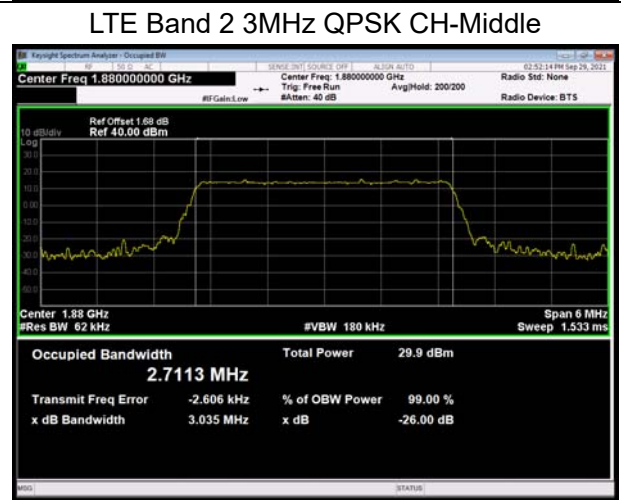
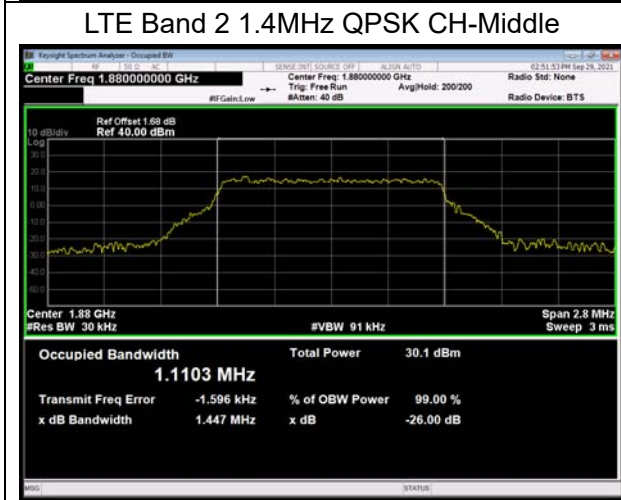
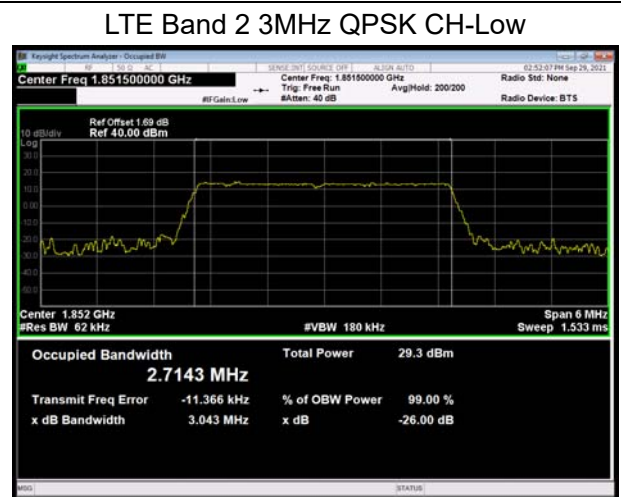
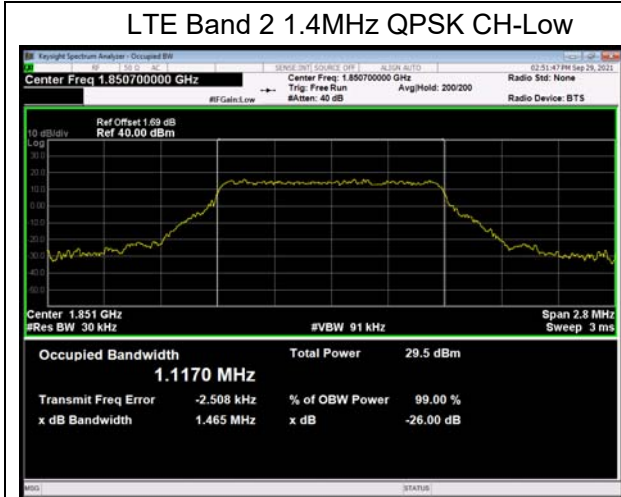
LTE Band 2						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	18607	1850.7	1.117	1.465
			18900	1880.0	1.110	1.447
			19193	1909.3	1.118	1.492
		3	18615	1851.5	2.714	3.043
			18900	1880	2.711	3.035
			19185	1908.5	2.713	3.012
		5	18625	1852.5	4.558	5.098
			18900	1880	4.549	5.134
			19175	1907.5	4.542	5.073
		10	18650	1855	9.058	10.326
			18900	1880	9.025	10.356
			19150	1905	9.017	10.183
		15	18675	1857.5	13.516	15.665
			18900	1880	13.493	15.534
			19125	1902.5	13.527	15.449
		20	18700	1860	18.049	19.889
			18900	1880	17.925	19.661

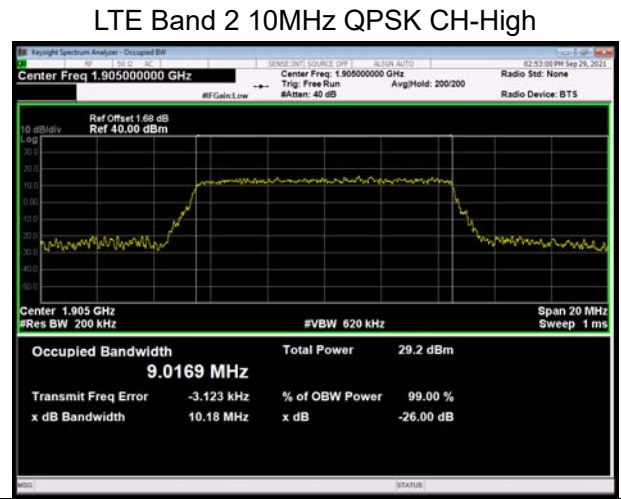
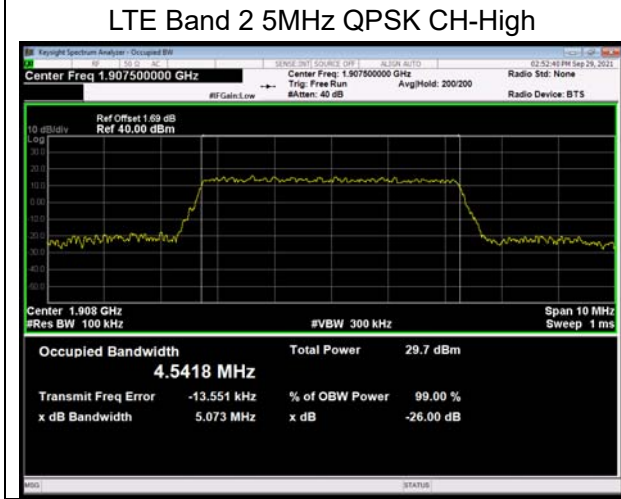
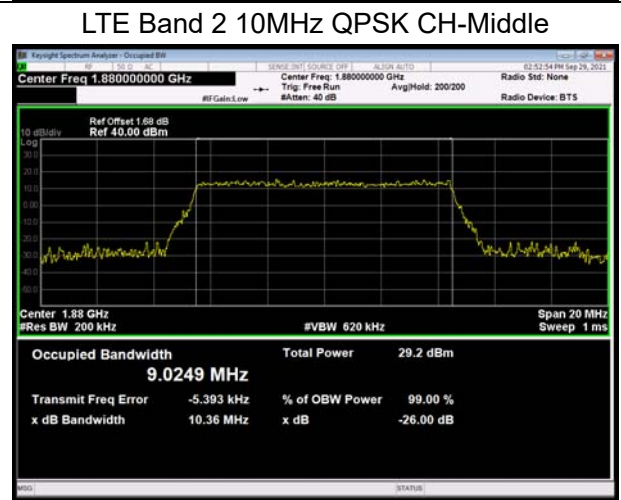
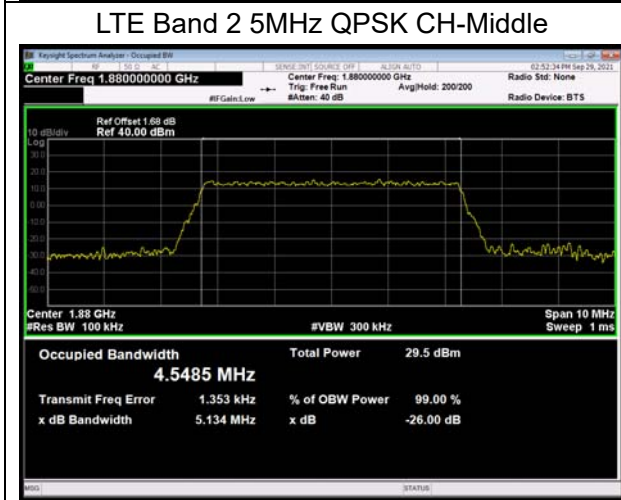
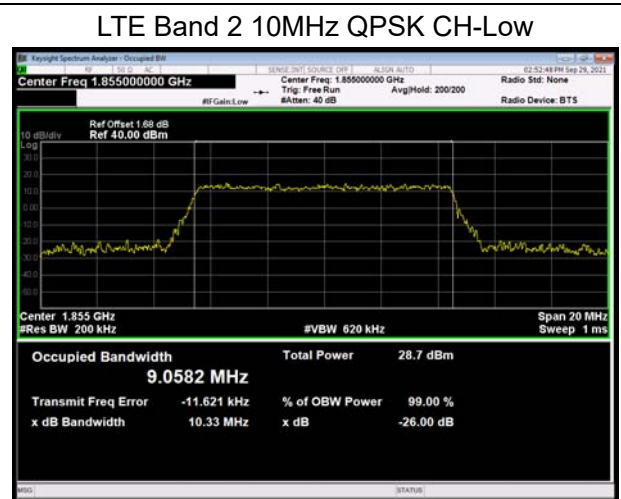
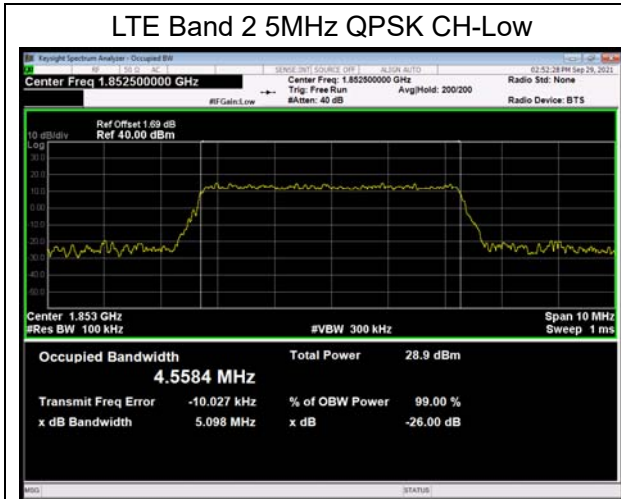


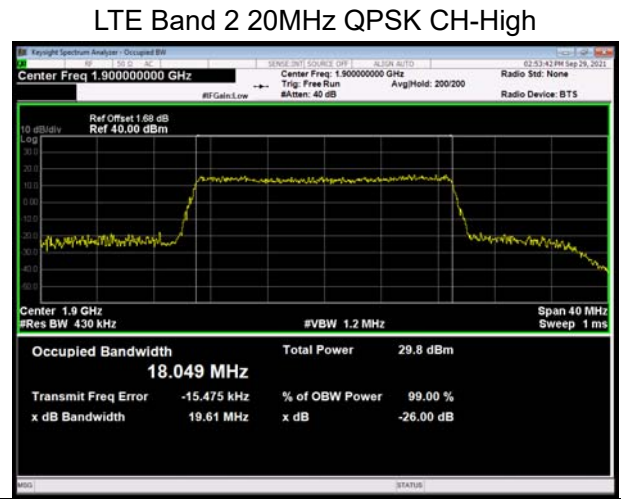
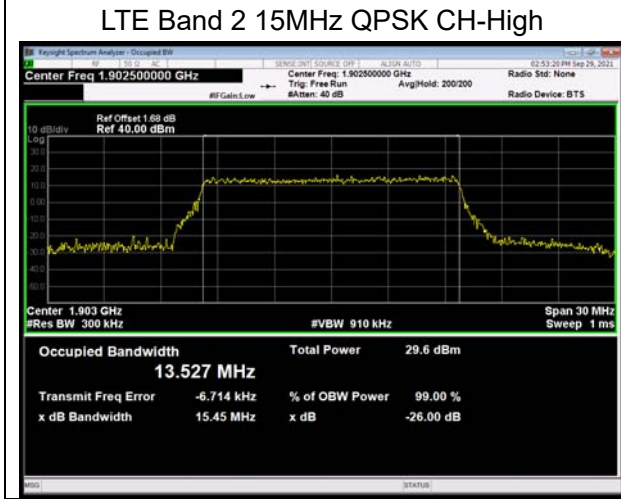
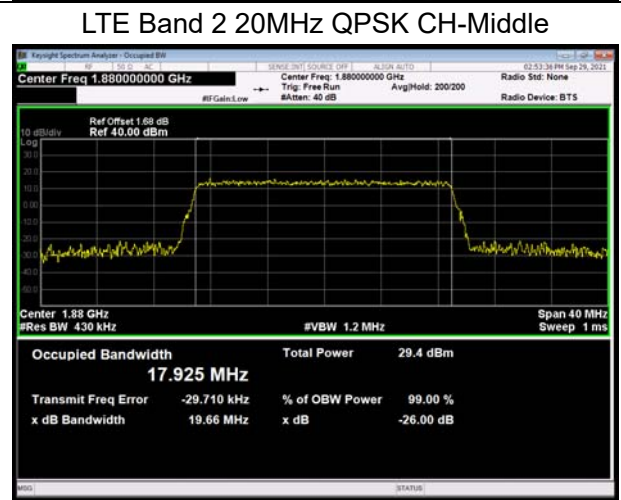
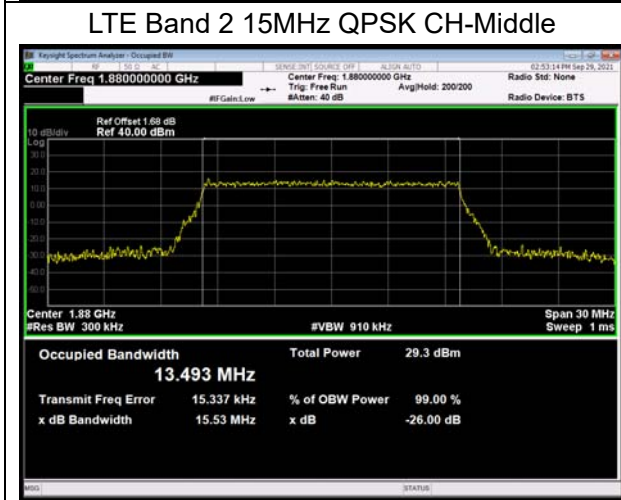
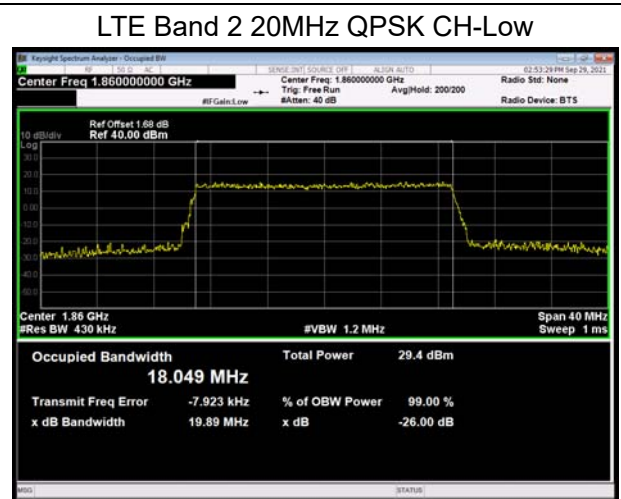
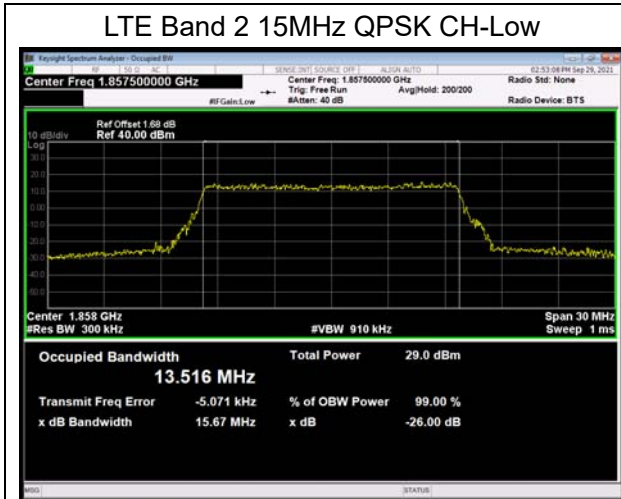
			19100	1900	18.049	19.606
	16QAM	1.4	18607	1850.7	1.112	1.435
			18900	1880.0	1.134	1.464
			19193	1909.3	1.111	1.453
		3	18615	1851.5	2.708	3.039
			18900	1880	2.707	3.018
			19185	1908.5	2.707	3.028
		5	18625	1852.5	4.534	5.122
			18900	1880	4.528	5.150
			19175	1907.5	4.524	5.115
		10	18650	1855	9.034	10.436
			18900	1880	9.007	10.286
			19150	1905	9.010	10.283
		15	18675	1857.5	13.555	15.818
			18900	1880	13.483	15.473
			19125	1902.5	13.473	15.679
		20	18700	1860	18.055	19.647
			18900	1880	17.973	19.492
			19100	1900	18.031	19.756





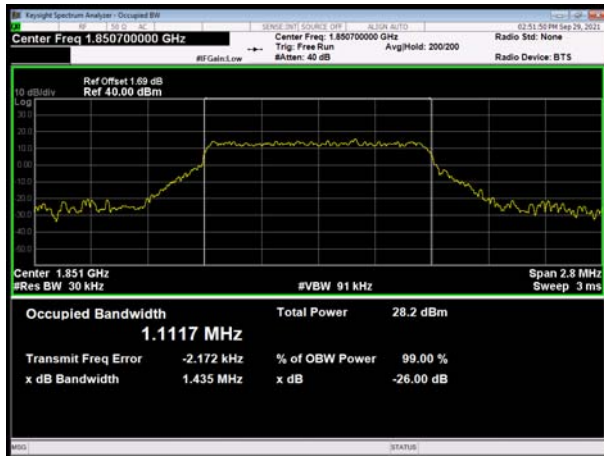




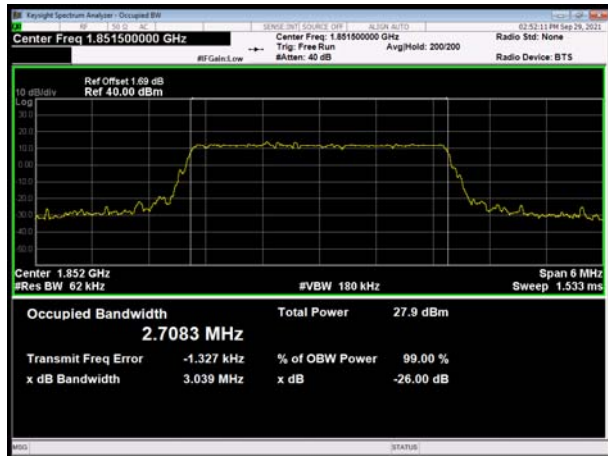




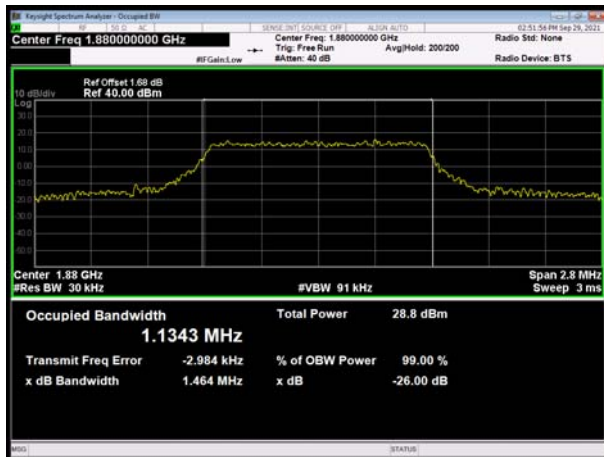
LTE Band 2 1.4MHz 16QAM CH-Low



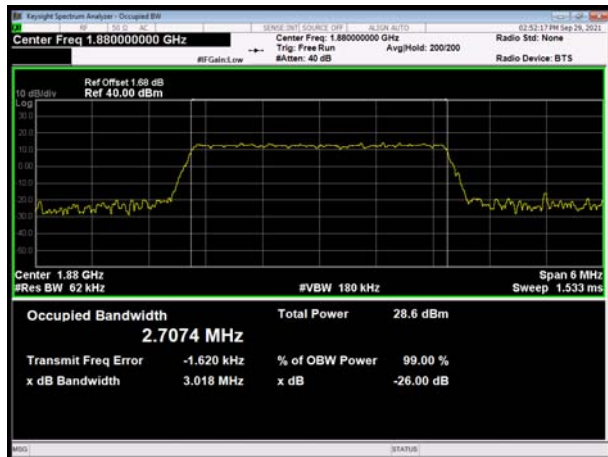
LTE Band 2 3MHz 16QAM CH-Low



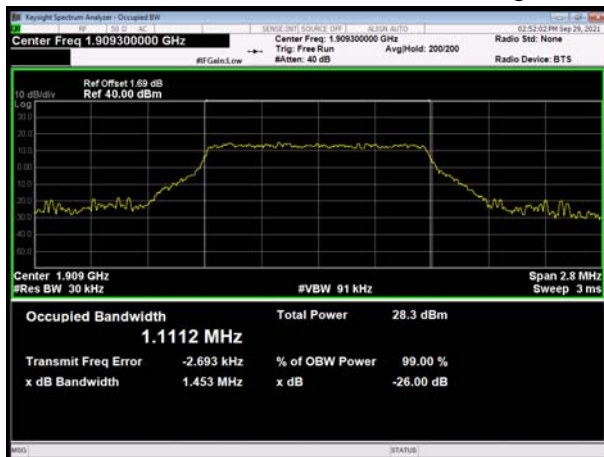
LTE Band 2 1.4MHz 16QAM CH-Middle



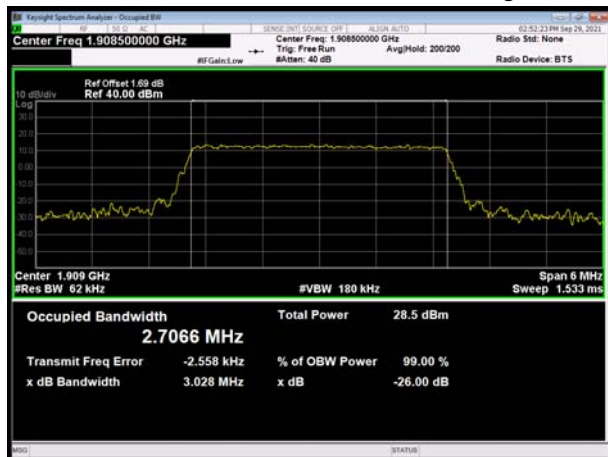
LTE Band 2 3MHz 16QAM CH-Middle

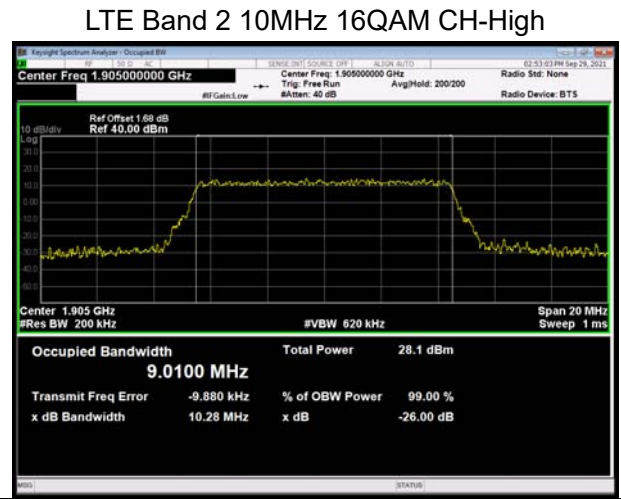
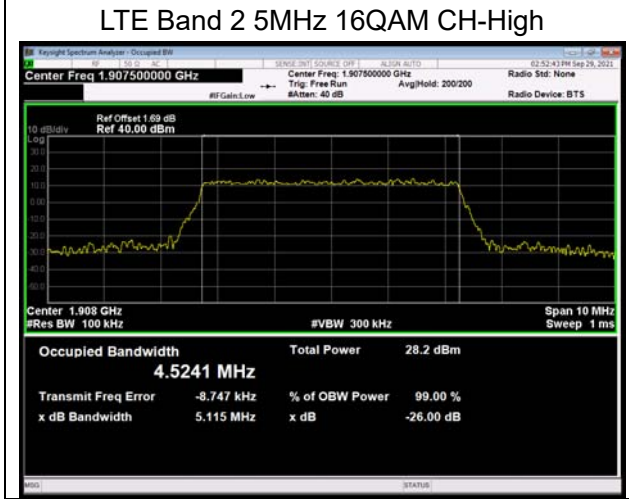
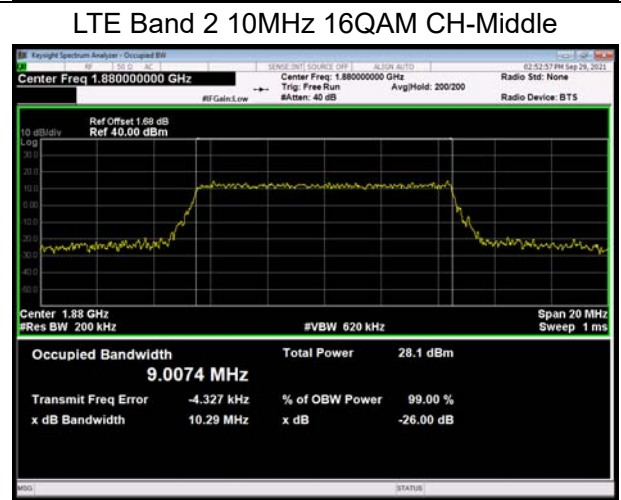
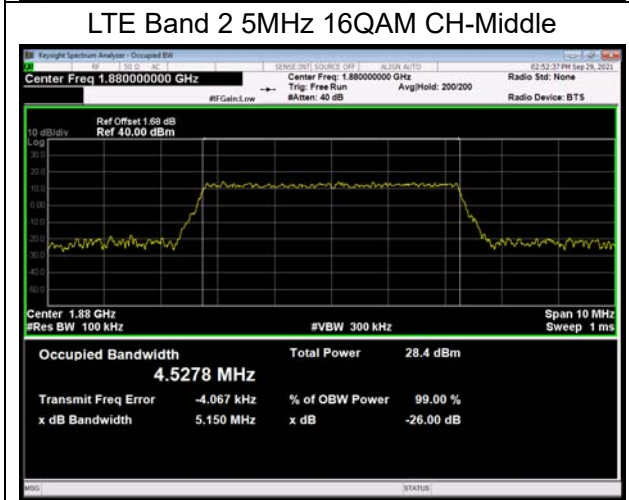
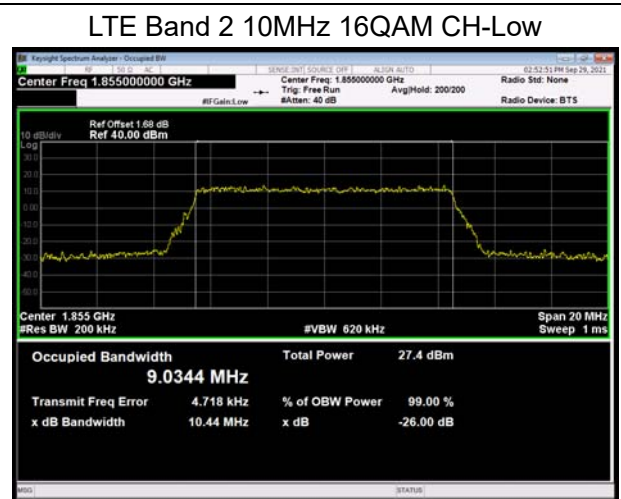
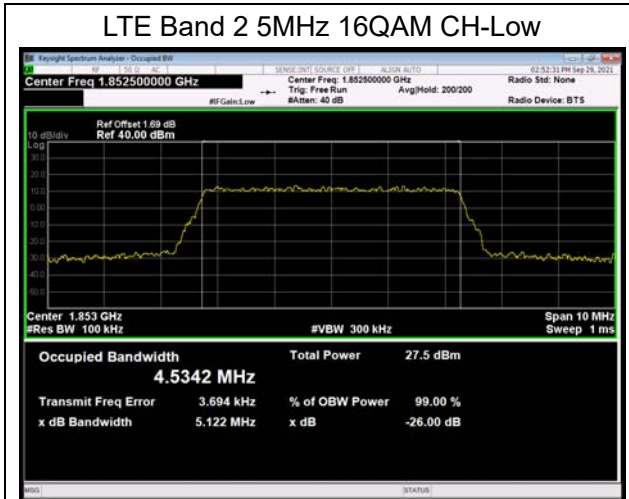


LTE Band 2 1.4MHz 16QAM CH-High



LTE Band 2 3MHz 16QAM CH-High



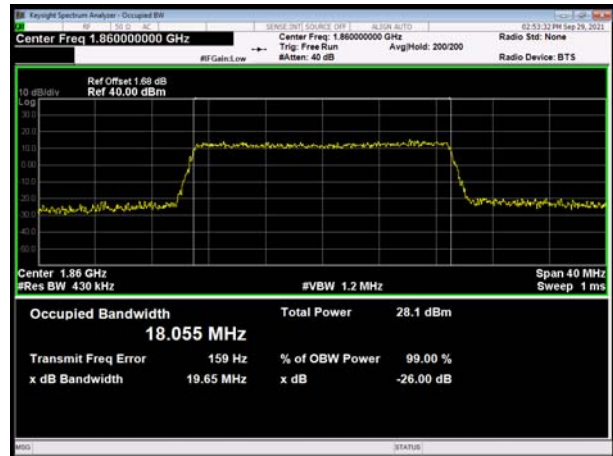




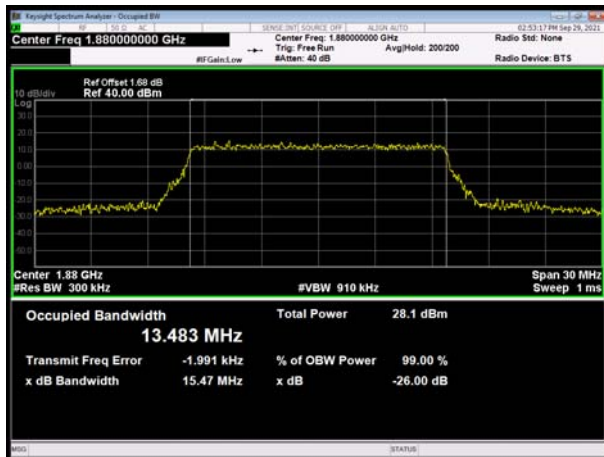
LTE Band 2 15MHz 16QAM CH-Low



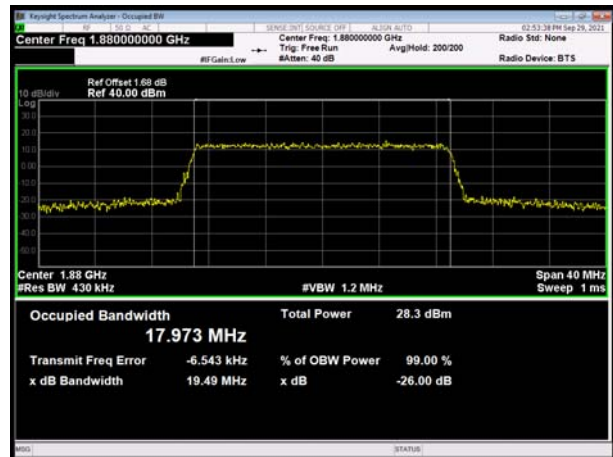
LTE Band 2 20MHz 16QAM CH-Low



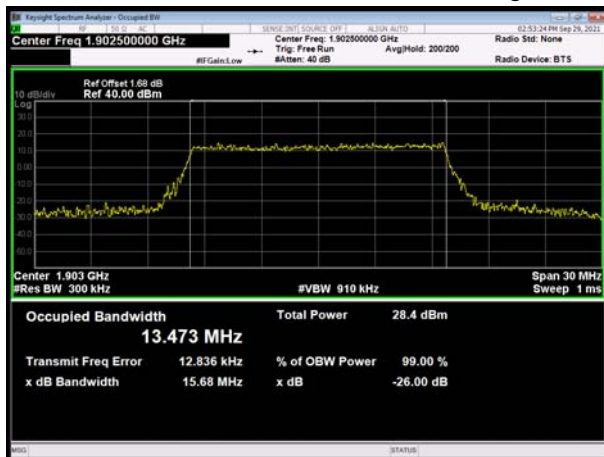
LTE Band 2 15MHz 16QAM CH-Middle



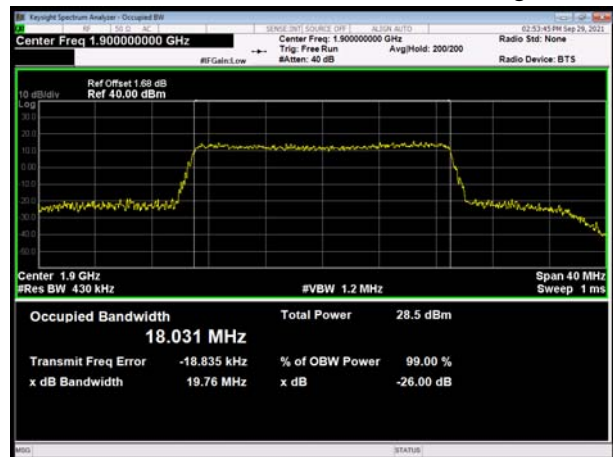
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High



LTE Band 2 20MHz 16QAM CH-High



5.3. Band Edge Compliance

Ambient condition

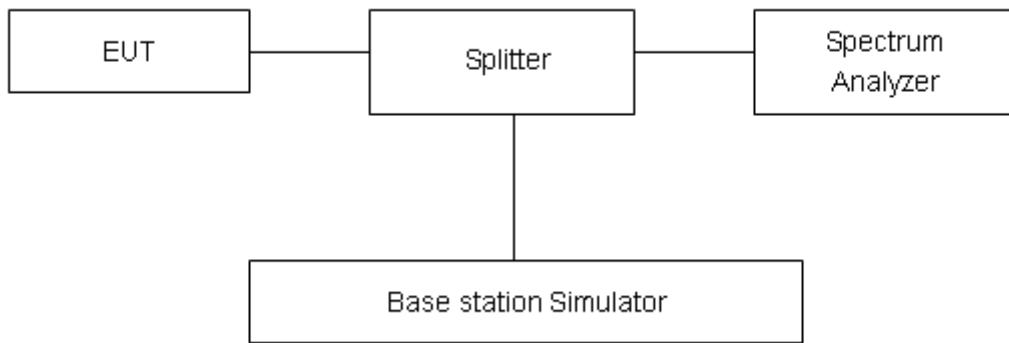
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 $\geq 1\%EBW$, VBW is set to 3x RBW.

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

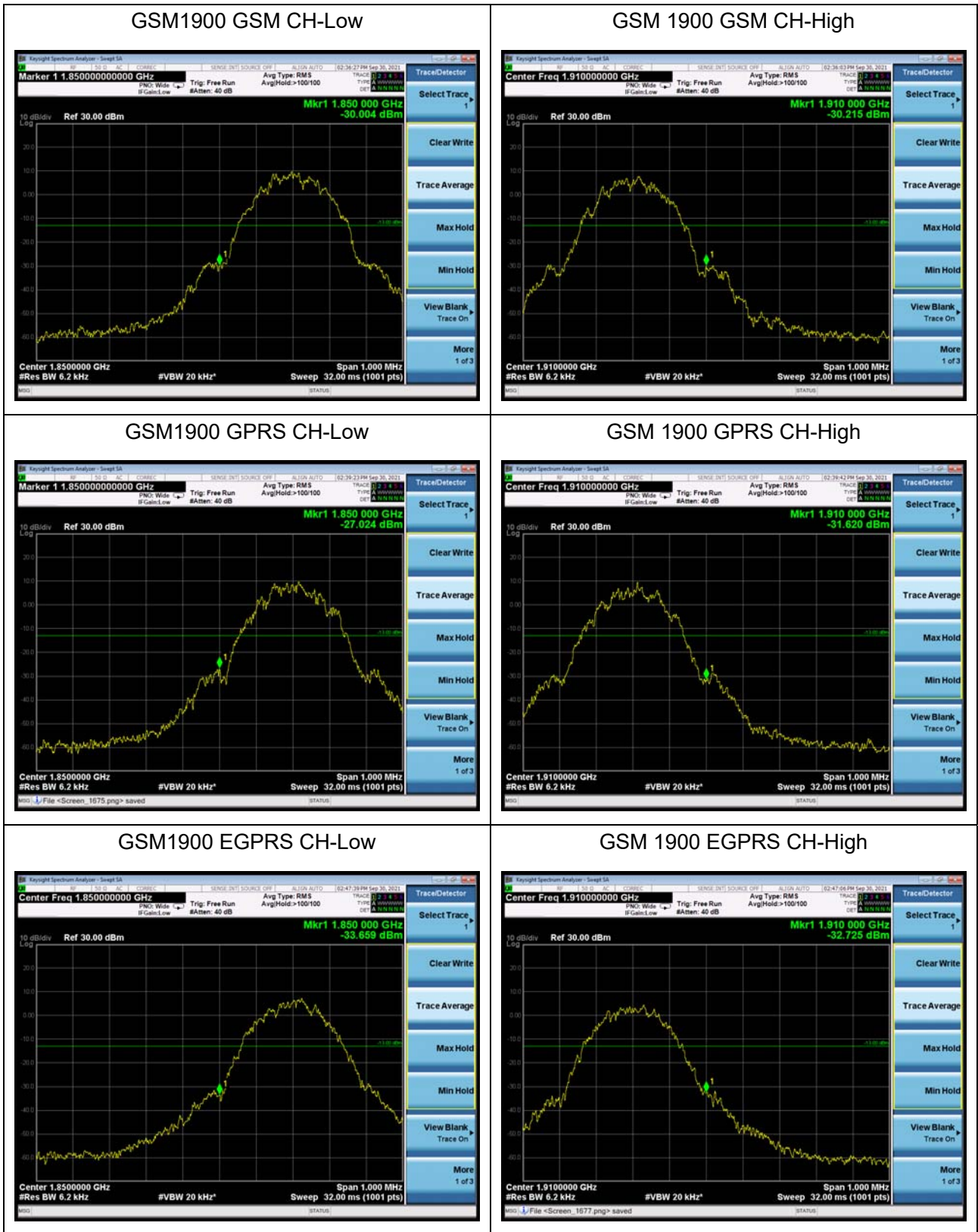
Rule Part 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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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:





WCDMA Band II RMC CH-Low



WCDMA Band II RMC CH-High



LTE Band 2 1.4MHz QPSK 1RB CH-Low



LTE Band 2 1.4MHz QPSK 1RB CH-High



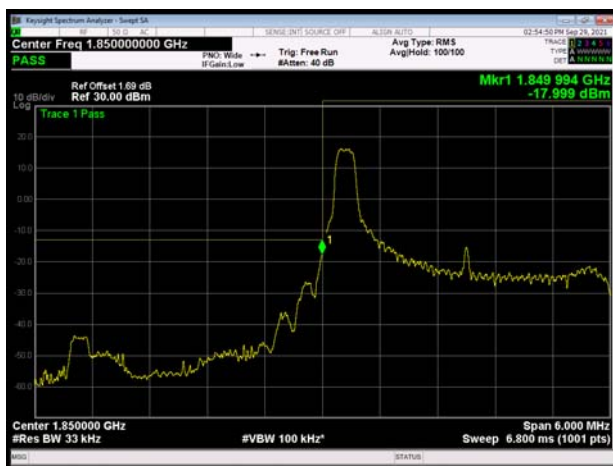
LTE Band 2 1.4MHz QPSK 100%RB CH-Low



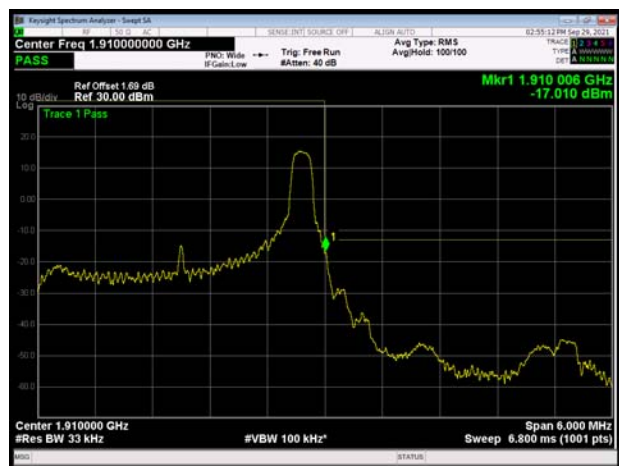
LTE Band 2 1.4MHz QPSK 100%RB CH-High



LTE Band 2 3MHz QPSK 1RB CH-Low



LTE Band 2 3MHz QPSK 1RB CH-High





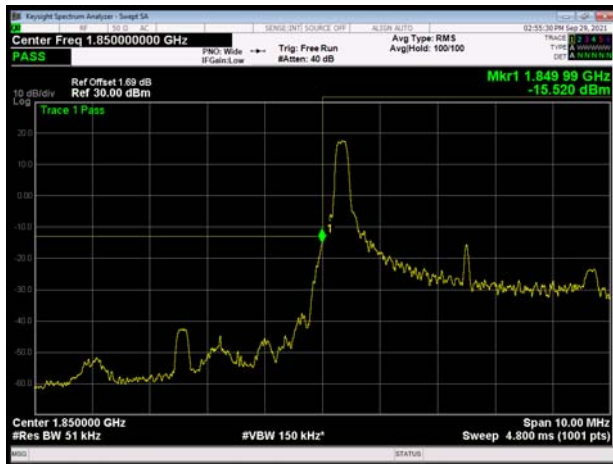
LTE Band 2 3MHz QPSK 100%RB CH-Low



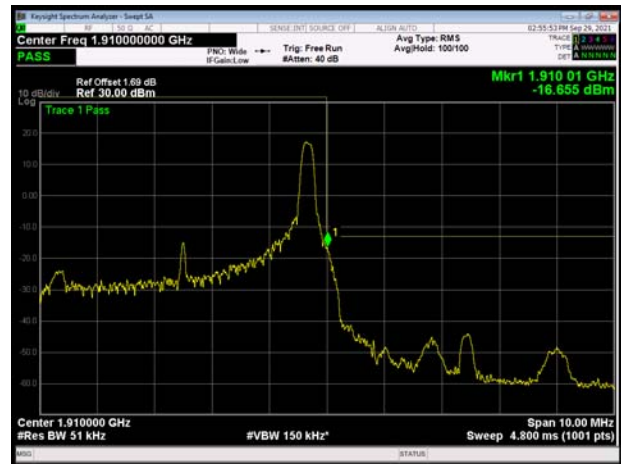
LTE Band 2 3MHz QPSK 100%RB CH-High



LTE Band 2 5MHz QPSK 1RB CH-Low



LTE Band 2 5MHz QPSK 1RB CH-High



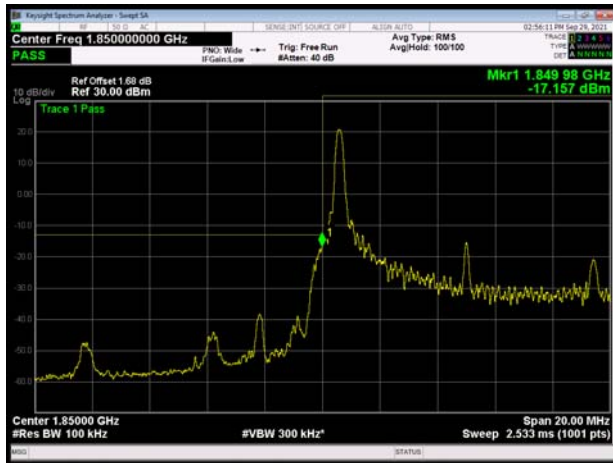
LTE Band 2 5MHz QPSK 100%RB CH-Low



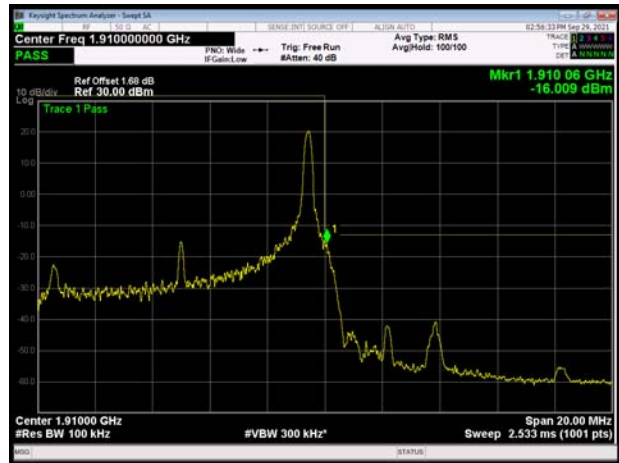
LTE Band 2 5MHz QPSK 100%RB CH-High



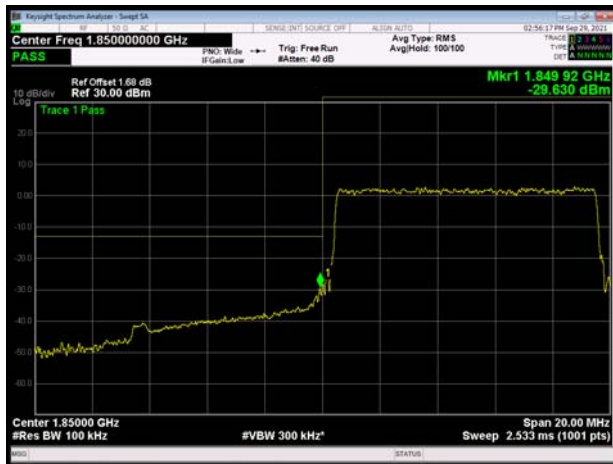
LTE Band 2 10MHz QPSK 1RB CH-Low



LTE Band 2 10MHz QPSK 1RB CH-High



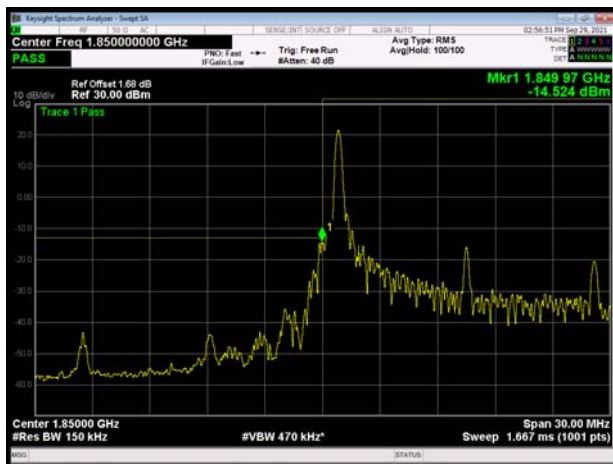
LTE Band 2 10MHz QPSK 100%RB CH-Low



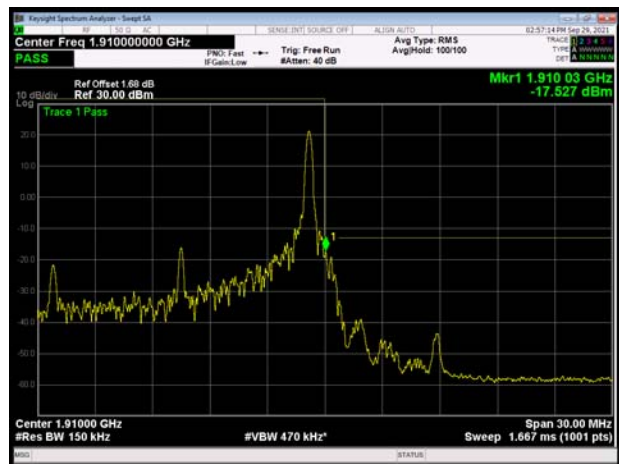
LTE Band 2 10MHz QPSK 100%RB CH-High



LTE Band 2 15MHz QPSK 1RB CH-Low



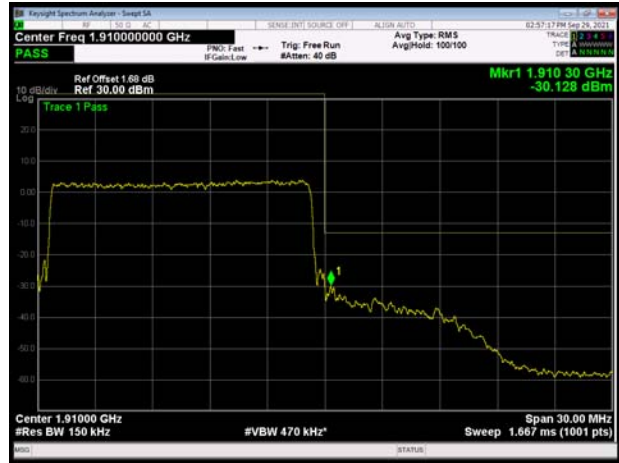
LTE Band 2 15MHz QPSK 1RB CH-High



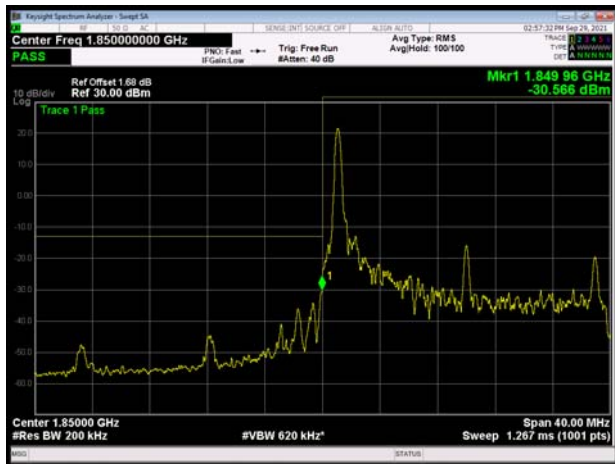
LTE Band 2 15MHz QPSK 100%RB CH-Low



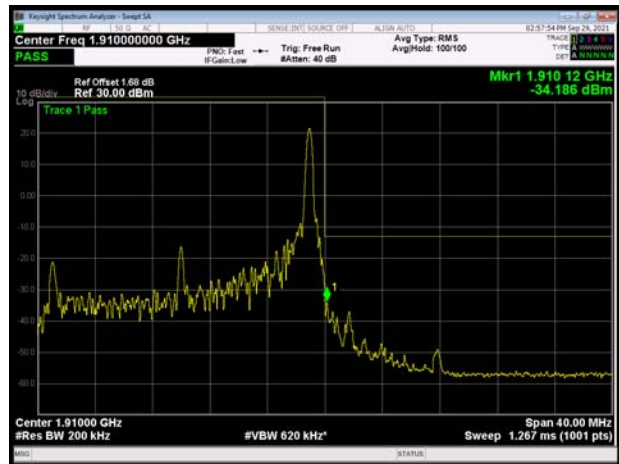
LTE Band 2 15MHz QPSK 100%RB CH-High



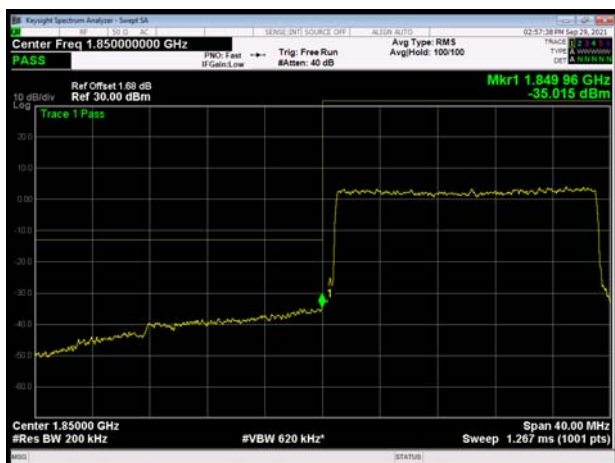
LTE Band 2 20MHz QPSK 1RB CH-Low



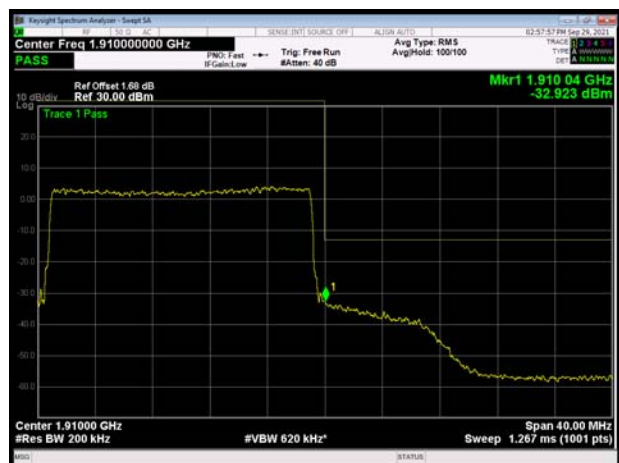
LTE Band 2 20MHz QPSK 1RB CH-High



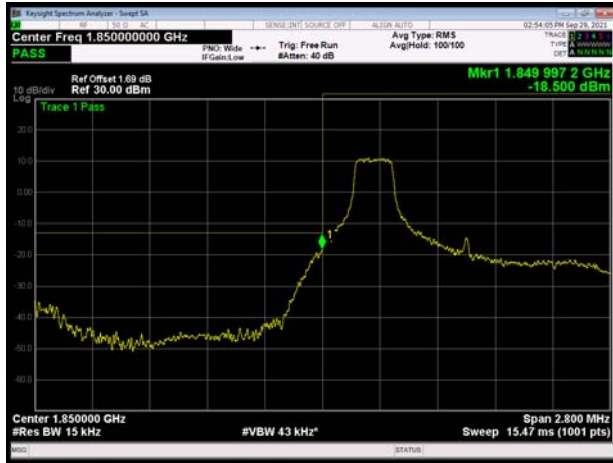
LTE Band 2 20MHz QPSK 100%RB CH-Low



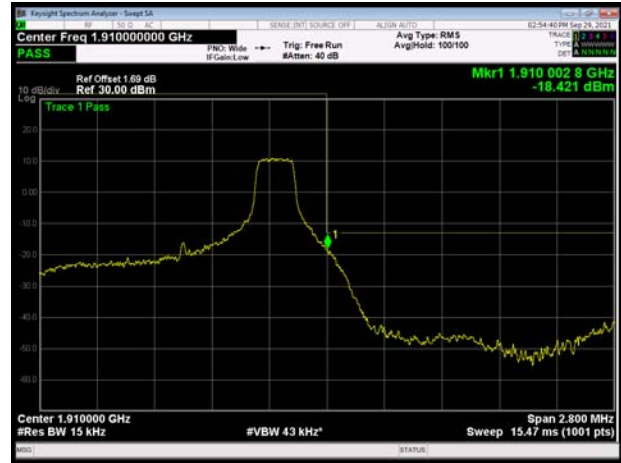
LTE Band 2 20MHz QPSK 100%RB CH-High



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



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



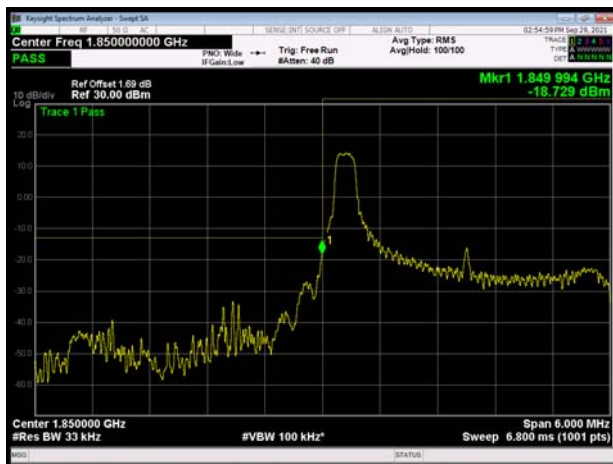
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low



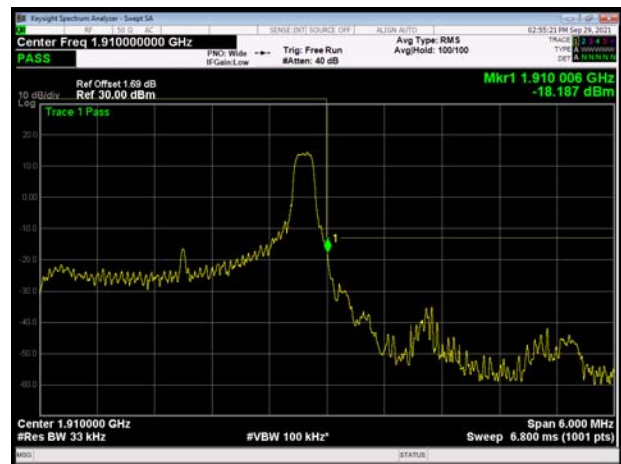
LTE Band 2 1.4MHz 16QAM 100%RB CH-High



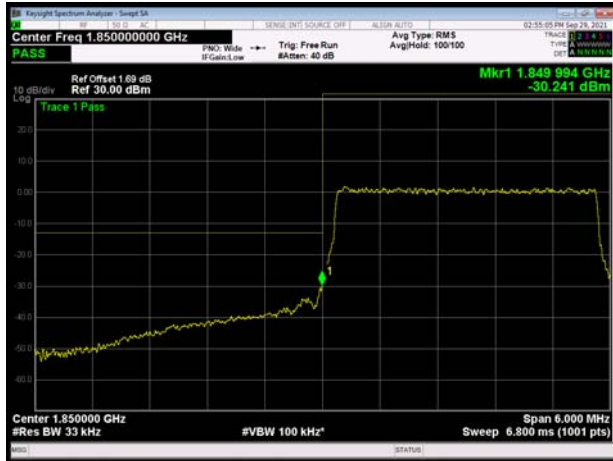
LTE Band 2 3MHz 16QAM 1RB CH-Low



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



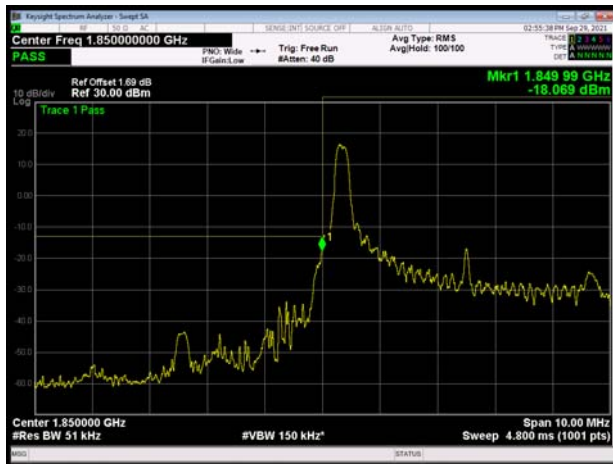
LTE Band 2 3MHz 16QAM 100%RB CH-Low



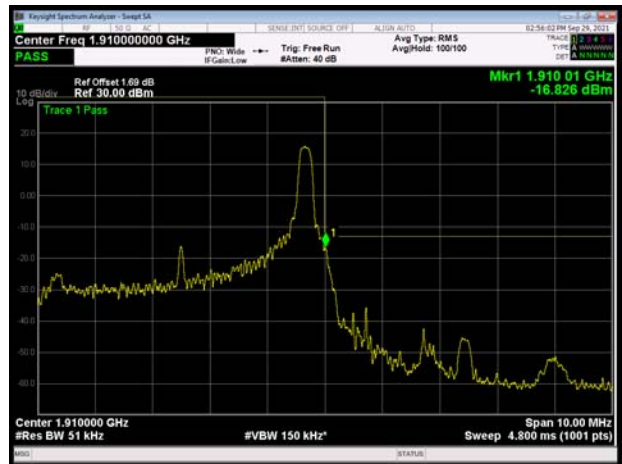
LTE Band 2 3MHz 16QAM 100%RB CH-High



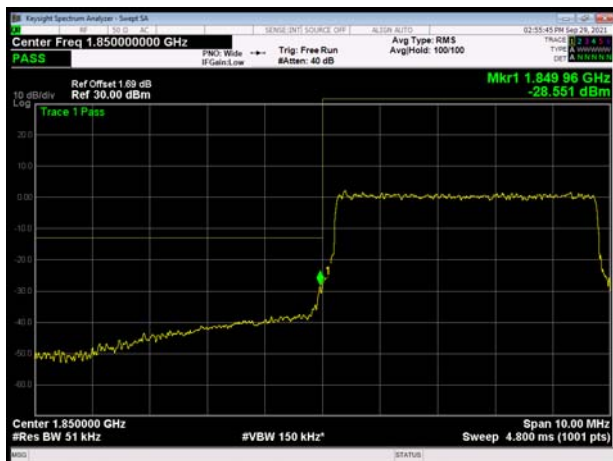
LTE Band 2 5MHz 16QAM 1RB CH-Low



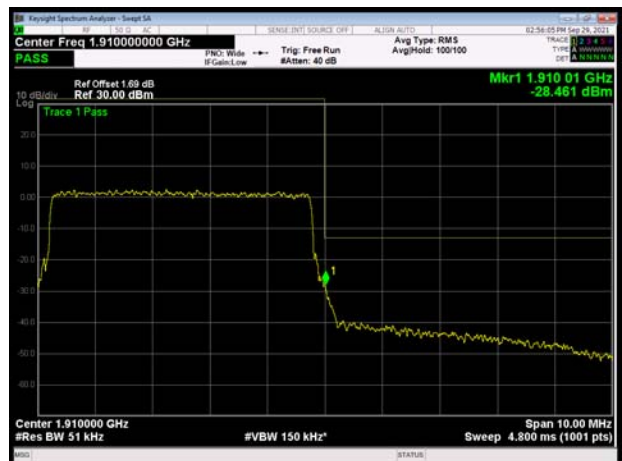
LTE Band 2 5MHz 16QAM 1RB CH-High



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

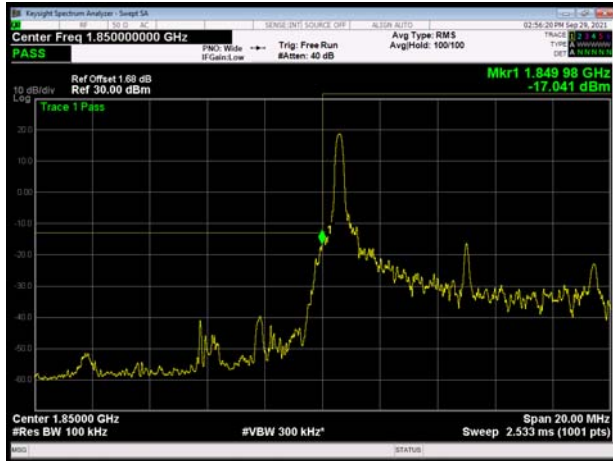


LTE Band 2 5MHz 16QAM 100%RB CH-High

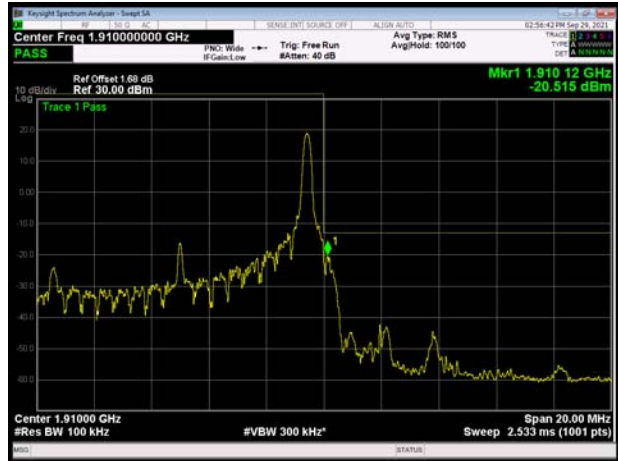




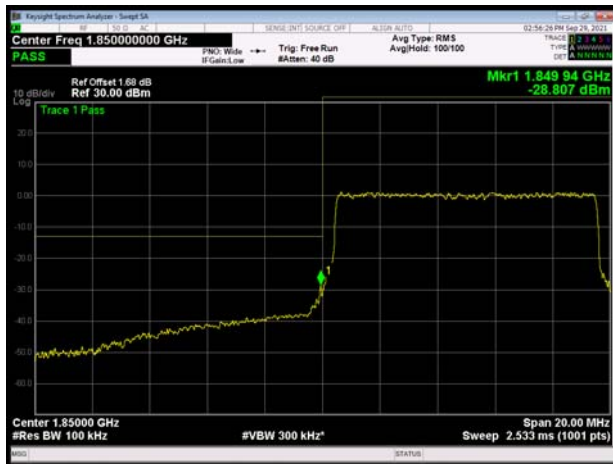
LTE Band 2 10MHz 16QAM 1RB CH-Low



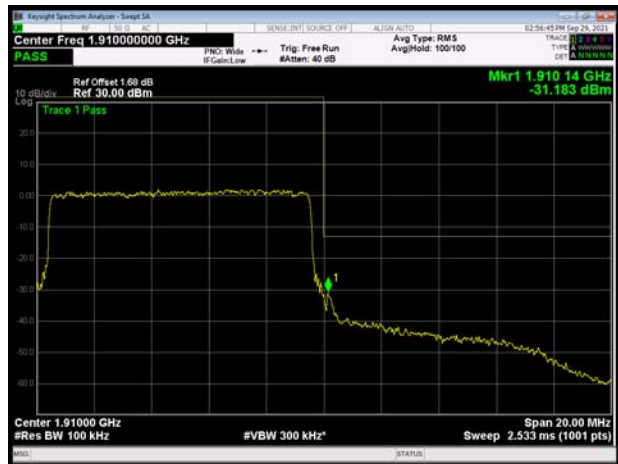
LTE Band 2 10MHz 16QAM 1RB CH-High



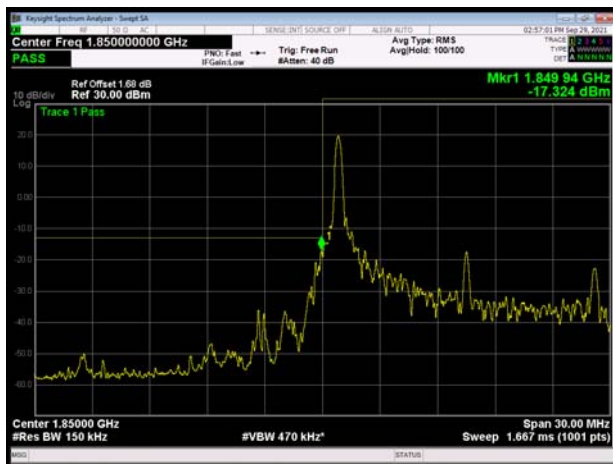
LTE Band 2 10MHz 16QAM 100%RB CH-Low



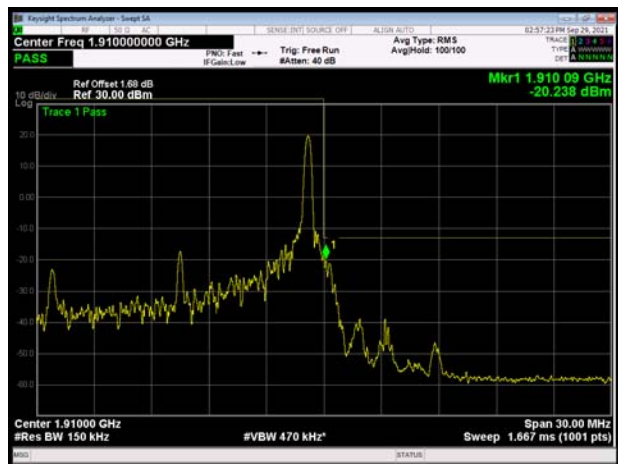
LTE Band 2 10MHz 16QAM 100%RB CH-High



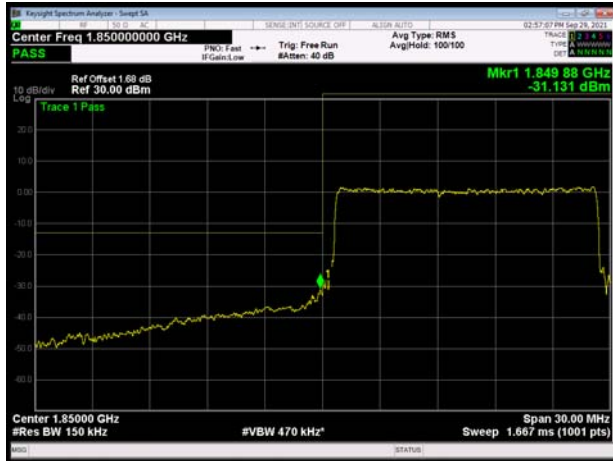
LTE Band 2 15MHz 16QAM 1RB CH-Low



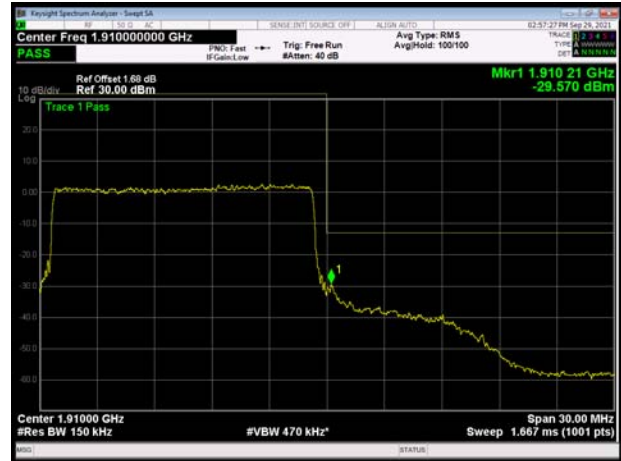
LTE Band 2 15MHz 16QAM 1RB CH-High



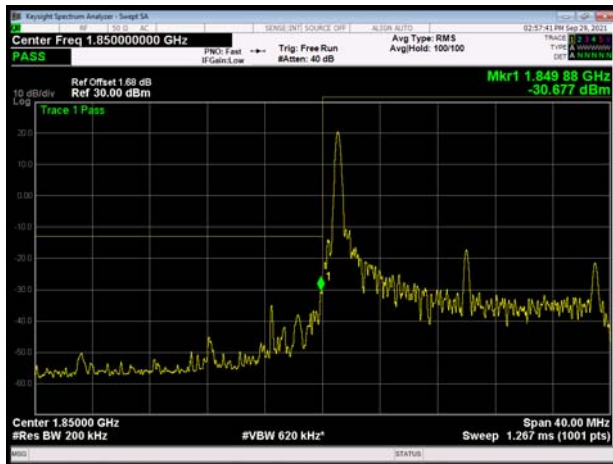
LTE Band 2 15MHz 16QAM 100%RB CH-Low



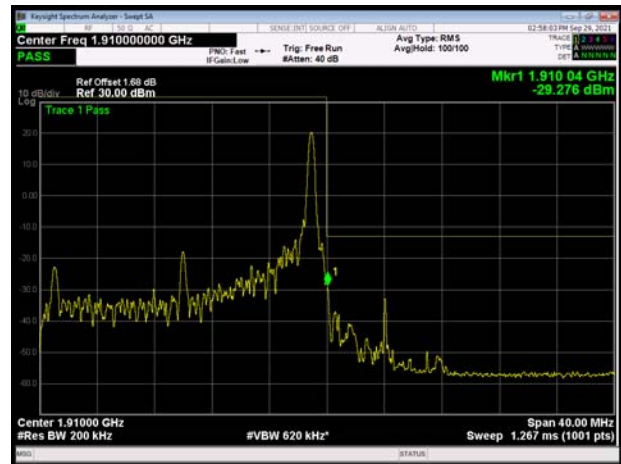
LTE Band 2 15MHz 16QAM 100%RB CH-High



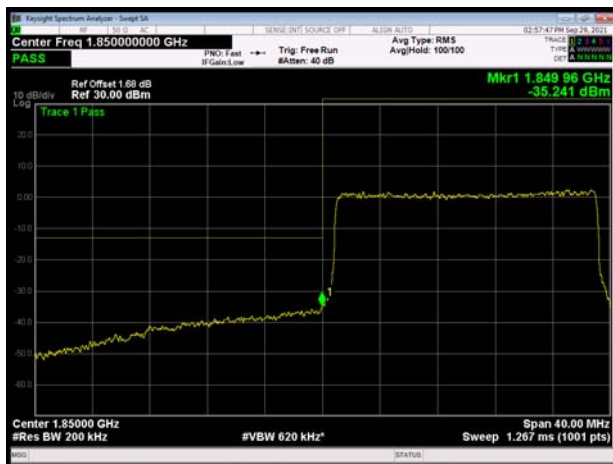
LTE Band 2 20MHz 16QAM 1RB CH-Low



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. Peak-to-Average Power Ratio (PAPR)

Ambient condition

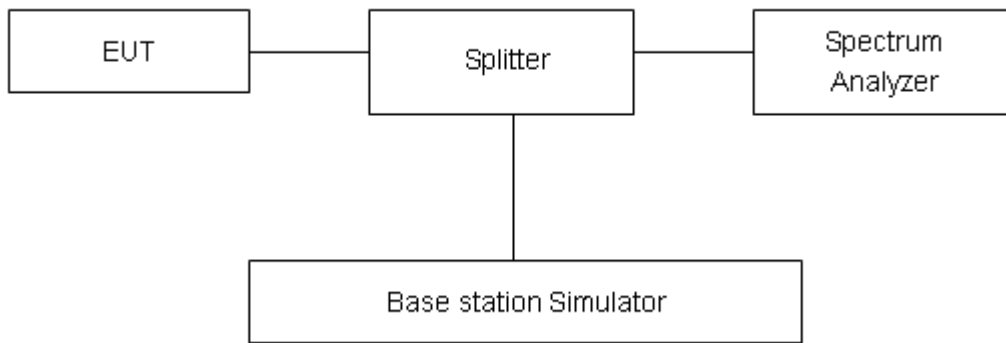
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

$$PAPR (dB) = PPk (dBm) - PAvg (dBm).$$

Test Setup



Limits

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

Measurement Uncertainty

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

**Test Results**

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	30.58	27.85	2.73	≤13	PASS
	661	1880	29.32	26.59	2.73	≤13	PASS
	810	1909.8	28.30	25.56	2.74	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	29.93	27.19	2.74	≤13	PASS
	661	1880	29.47	26.75	2.72	≤13	PASS
	810	1909.8	29.52	26.79	2.73	≤13	PASS
EGPRS 1900 (8PSK)	512	1850.2	26.74	21.94	4.80	≤13	PASS
	661	1880	25.35	20.34	5.01	≤13	PASS
	810	1909.8	23.89	19.29	4.60	≤13	PASS
WCDMA Band II (RMC)	9262	1852.4	23.95	20.69	3.26	≤13	PASS
	9400	1880	23.42	20.27	3.15	≤13	PASS
	9538	1907.6	22.62	19.58	3.04	≤13	PASS



LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	27.24	21.33	5.91	≤13	PASS
		18900	1880.0	27.06	21.95	5.11	≤13	PASS
		19193	1909.3	26.04	21.33	4.71	≤13	PASS
	3	18615	1851.5	26.70	20.76	5.94	≤13	PASS
		18900	1880	26.84	21.55	5.29	≤13	PASS
		19185	1908.5	26.06	21.22	4.84	≤13	PASS
	5	18625	1852.5	26.67	20.84	5.83	≤13	PASS
		18900	1880	26.95	21.67	5.28	≤13	PASS
		19175	1907.5	26.33	21.52	4.81	≤13	PASS
	10	18650	1855	26.78	20.86	5.92	≤13	PASS
		18900	1880	27.04	21.64	5.40	≤13	PASS
		19150	1905	26.66	21.40	5.26	≤13	PASS
	15	18675	1857.5	27.55	21.18	6.37	≤13	PASS
		18900	1880	27.39	21.58	5.81	≤13	PASS
		19125	1902.5	27.51	21.69	5.82	≤13	PASS
20	18700	1860	27.40	21.37	6.03	≤13	PASS	
	18900	1880	27.13	21.48	5.65	≤13	PASS	
	19100	1900	27.67	21.89	5.78	≤13	PASS	
16QAM	1.4	18607	1850.7	26.53	19.85	6.68	≤13	PASS
		18900	1880.0	26.16	20.67	5.49	≤13	PASS
		19193	1909.3	25.78	20.11	5.67	≤13	PASS
	3	18615	1851.5	26.14	19.43	6.71	≤13	PASS
		18900	1880	25.91	20.29	5.62	≤13	PASS
		19185	1908.5	25.83	20.01	5.82	≤13	PASS
	5	18625	1852.5	26.24	19.51	6.73	≤13	PASS
		18900	1880	25.96	20.41	5.55	≤13	PASS
		19175	1907.5	26.09	20.26	5.83	≤13	PASS
	10	18650	1855	26.22	19.50	6.72	≤13	PASS
		18900	1880	26.06	20.39	5.67	≤13	PASS
		19150	1905	26.30	20.05	6.25	≤13	PASS
	15	18675	1857.5	26.69	19.91	6.78	≤13	PASS
		18900	1880	26.26	20.32	5.94	≤13	PASS
		19125	1902.5	26.83	20.45	6.38	≤13	PASS
20	18700	1860	26.74	20.09	6.65	≤13	PASS	
	18900	1880	26.26	20.22	6.04	≤13	PASS	
	19100	1900	26.94	20.44	6.50	≤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 +50°C in 10°C step size,

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

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

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

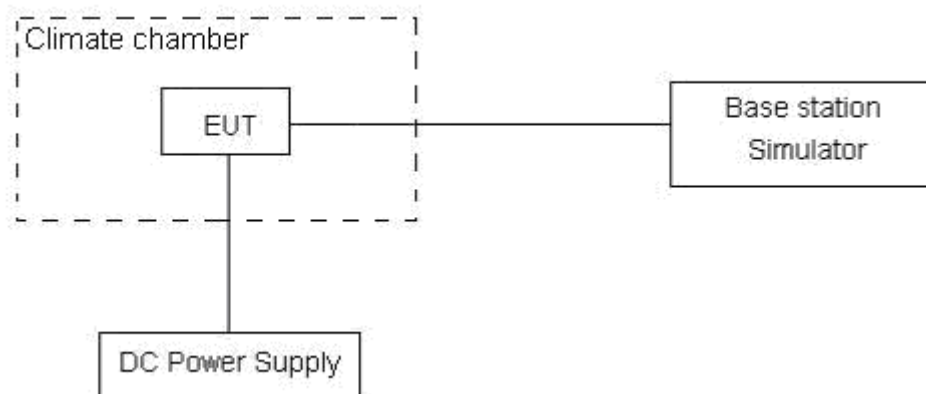
Frequency Stability (Voltage Variation)

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 10.8V and 13.2V, with a nominal voltage of 12V.

Test setup



**Limits**

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

Measurement Uncertainty

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

Test Result

GSM1900						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal (25°C)	Normal	2.86	10.82	0.00152	0.00575	PASS
Extreme (50°C)		16.50	10.16	0.00878	0.00540	PASS
Extreme (40°C)		5.65	5.61	0.00300	0.00299	PASS
Extreme (30°C)		8.50	2.97	0.00452	0.00158	PASS
Extreme (20°C)		1.77	16.18	0.00094	0.00861	PASS
Extreme (10°C)		12.10	2.97	0.00644	0.00158	PASS
Extreme (0°C)		17.74	12.81	0.00944	0.00681	PASS
Extreme (-10°C)		11.25	8.96	0.00598	0.00477	PASS
Extreme (-20°C)		13.17	8.44	0.00701	0.00449	PASS
Extreme (-30°C)		9.51	13.34	0.00506	0.00709	PASS
25°C	LV	3.39	4.82	0.00180	0.00256	PASS
	HV	3.01	9.70	0.00160	0.00516	PASS

WCDMA Band II						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal (25°C)	Normal	7.70	2.04	0.00410	0.00108	PASS
Extreme (50°C)		3.32	4.67	0.00177	0.00248	PASS
Extreme (40°C)		3.42	6.78	0.00182	0.00361	PASS
Extreme (30°C)		4.39	17.40	0.00234	0.00926	PASS
Extreme (20°C)		16.17	3.91	0.00860	0.00208	PASS
Extreme (10°C)		14.79	4.48	0.00787	0.00238	PASS
Extreme (0°C)		11.26	12.04	0.00599	0.00640	PASS
Extreme (-10°C)		6.24	6.10	0.00332	0.00324	PASS
Extreme (-20°C)		5.31	5.41	0.00283	0.00288	PASS
Extreme (-30°C)		3.60	8.83	0.00192	0.00470	PASS
25°C	LV	13.70	16.79	0.00729	0.00893	PASS
	HV	1.49	15.27	0.00079	0.00812	PASS

LTE Band 2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	12.93	2.83	0.00688	0.00151	PASS
Extreme (50°C)		17.12	13.47	0.00910	0.00717	PASS
Extreme (40°C)		17.93	16.20	0.00954	0.00862	PASS
Extreme (30°C)		13.91	8.82	0.00740	0.00469	PASS
Extreme (20°C)		11.72	15.54	0.00623	0.00826	PASS
Extreme (10°C)		7.06	8.37	0.00376	0.00445	PASS
Extreme (0°C)		16.51	5.52	0.00878	0.00293	PASS
Extreme (-10°C)		15.87	4.22	0.00844	0.00224	PASS
Extreme (-20°C)		11.94	15.96	0.00635	0.00849	PASS
Extreme (-30°C)		16.60	11.14	0.00883	0.00593	PASS
25°C	LV	11.73	13.12	0.00624	0.00698	PASS
	HV	15.94	17.77	0.00848	0.00945	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	9.25	7.04	0.00492	0.00374	PASS
Extreme (50°C)		14.50	10.24	0.00771	0.00545	PASS
Extreme (40°C)		2.61	9.27	0.00139	0.00493	PASS
Extreme (30°C)		15.43	3.82	0.00821	0.00203	PASS
Extreme (20°C)		12.20	6.60	0.00649	0.00351	PASS
Extreme (10°C)		3.39	10.97	0.00180	0.00583	PASS
Extreme (0°C)		3.30	3.78	0.00176	0.00201	PASS
Extreme (-10°C)		1.71	4.99	0.00091	0.00265	PASS
Extreme (-20°C)		4.46	2.49	0.00237	0.00132	PASS
Extreme (-30°C)		8.15	17.59	0.00434	0.00935	PASS
25°C	LV	5.89	8.29	0.00313	0.00441	PASS
	HV	12.72	7.97	0.00677	0.00424	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	7.29	1.79	0.00388	0.00095	PASS
Extreme (50°C)		3.40	4.79	0.00181	0.00255	PASS
Extreme (40°C)		3.17	1.47	0.00169	0.00078	PASS
Extreme (30°C)		5.42	8.48	0.00288	0.00451	PASS



Extreme (20°C)		2.99	9.59	0.00159	0.00510	PASS
Extreme (10°C)		17.78	5.46	0.00946	0.00290	PASS
Extreme (0°C)		11.48	7.10	0.00611	0.00378	PASS
Extreme (-10°C)		4.75	9.68	0.00253	0.00515	PASS
Extreme (-20°C)		4.80	14.67	0.00255	0.00780	PASS
Extreme (-30°C)		5.57	12.60	0.00296	0.00670	PASS
25°C	LV	3.67	5.65	0.00195	0.00300	PASS
	HV	12.81	11.54	0.00681	0.00614	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	16.95	4.47	0.00901	0.00238	PASS
Extreme (50°C)		13.75	13.01	0.00731	0.00692	PASS
Extreme (40°C)		12.06	1.33	0.00642	0.00071	PASS
Extreme (30°C)		2.32	8.56	0.00124	0.00455	PASS
Extreme (20°C)		17.59	1.57	0.00936	0.00083	PASS
Extreme (10°C)		6.75	7.30	0.00359	0.00388	PASS
Extreme (0°C)		8.04	15.94	0.00428	0.00848	PASS
Extreme (-10°C)		4.51	6.67	0.00240	0.00355	PASS
Extreme (-20°C)		16.66	6.24	0.00886	0.00332	PASS
Extreme (-30°C)		16.76	4.16	0.00892	0.00221	PASS
25°C	LV	15.33	5.81	0.00815	0.00309	PASS
	HV	1.43	4.46	0.00076	0.00237	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	10.60	4.48	0.00564	0.00238	PASS
Extreme (50°C)		5.42	3.59	0.00288	0.00191	PASS
Extreme (40°C)		12.90	5.83	0.00686	0.00310	PASS
Extreme (30°C)		1.63	4.39	0.00087	0.00234	PASS
Extreme (20°C)		4.09	16.20	0.00218	0.00861	PASS
Extreme (10°C)		9.46	5.04	0.00503	0.00268	PASS
Extreme (0°C)		8.66	14.79	0.00461	0.00787	PASS
Extreme (-10°C)		8.47	7.01	0.00450	0.00373	PASS
Extreme (-20°C)		8.73	11.70	0.00464	0.00622	PASS
Extreme (-30°C)		15.39	10.78	0.00818	0.00574	PASS
25°C	LV	5.46	10.41	0.00291	0.00554	PASS
	HV	16.06	12.29	0.00854	0.00654	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					



Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25°C)	Normal	12.97	1.91	0.00690	0.00102	PASS
Extreme (50°C)		7.85	8.58	0.00417	0.00456	PASS
Extreme (40°C)		9.55	1.00	0.00508	0.00053	PASS
Extreme (30°C)		11.87	3.36	0.00631	0.00179	PASS
Extreme (20°C)		13.96	14.23	0.00743	0.00757	PASS
Extreme (10°C)		1.49	8.89	0.00079	0.00473	PASS
Extreme (0°C)		10.10	16.78	0.00537	0.00893	PASS
Extreme (-10°C)		5.06	8.55	0.00269	0.00455	PASS
Extreme (-20°C)		14.33	1.28	0.00762	0.00068	PASS
Extreme (-30°C)		14.88	7.94	0.00791	0.00422	PASS
25°C	LV	16.84	10.79	0.00896	0.00574	PASS
	HV	4.22	4.03	0.00224	0.00214	PASS

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

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

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

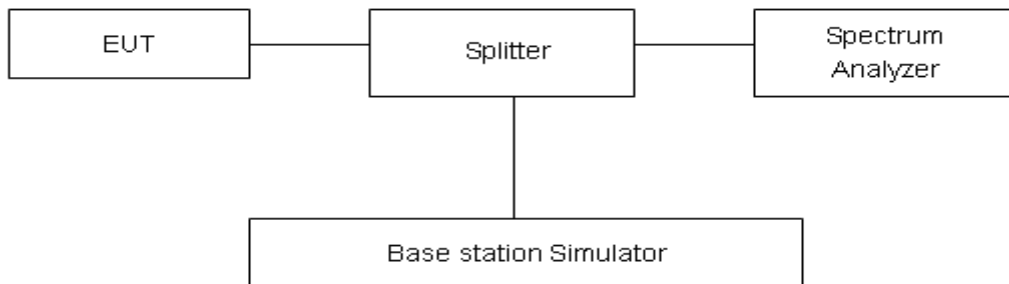
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

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

Test setup



Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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

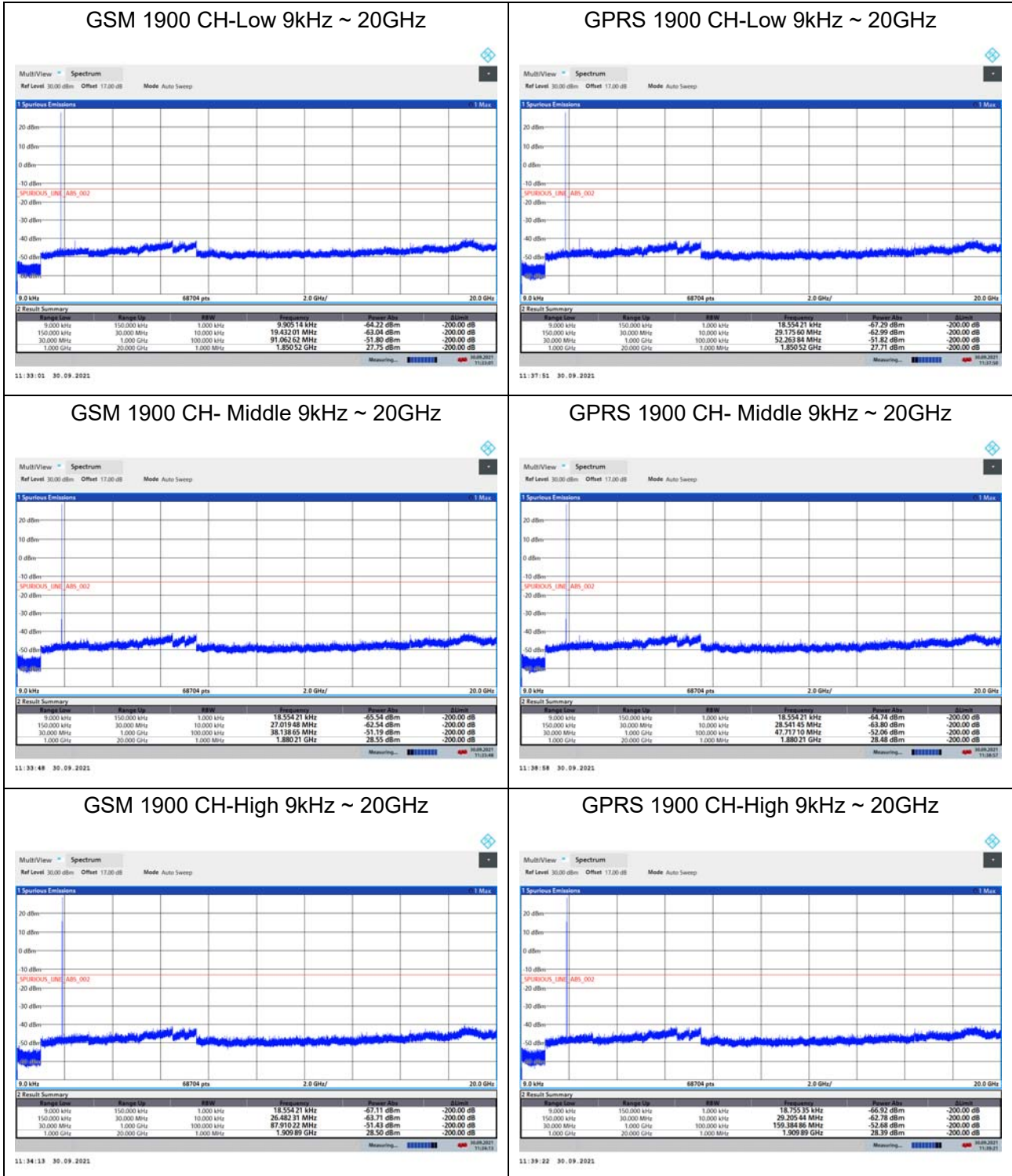
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-20GHz	1.407 dB



Test Result

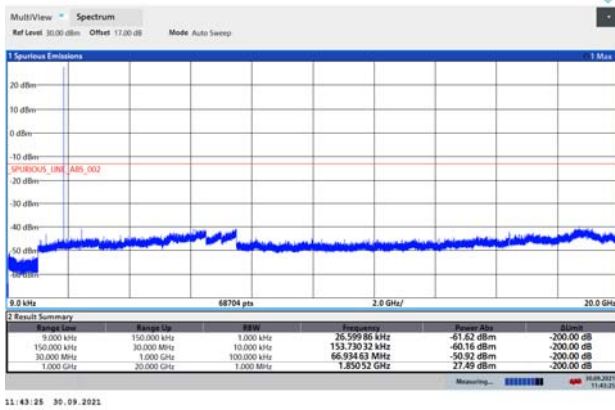
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.



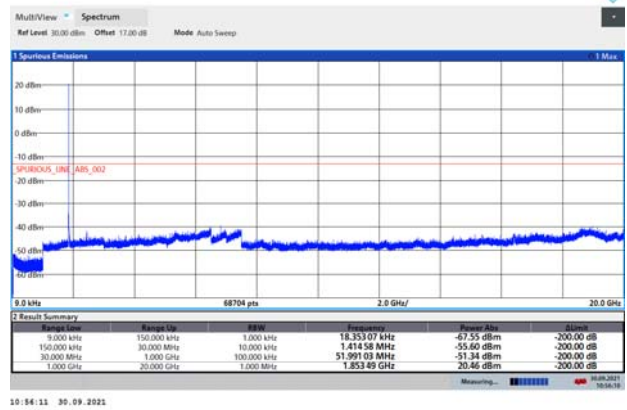


EGPRS 1900 CH-Low 9kHz ~ 20GHz



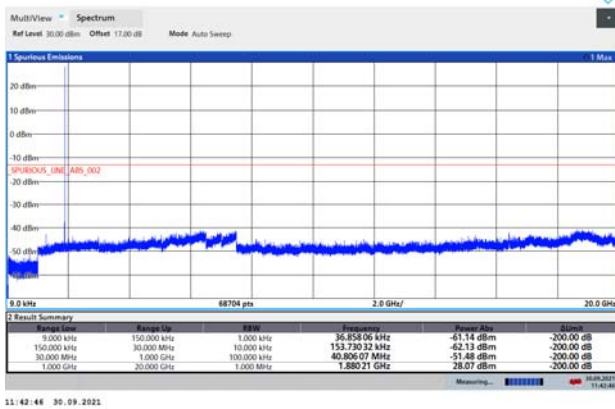
11:43:28 30.09.2021

WCDMA BAND II CH-Low 9kHz ~ 20GHz



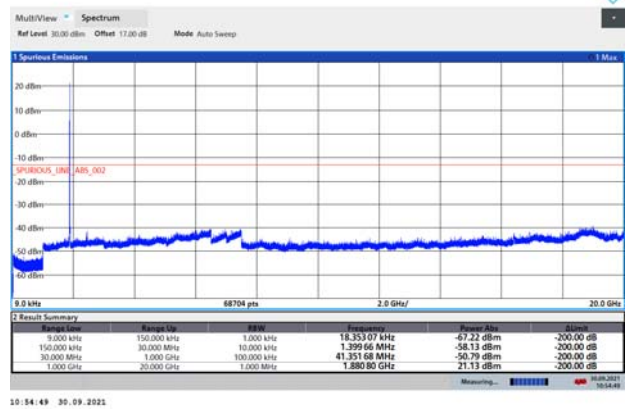
10:56:11 30.09.2021

EGPRS 1900 CH- Middle 9kHz ~ 20GHz



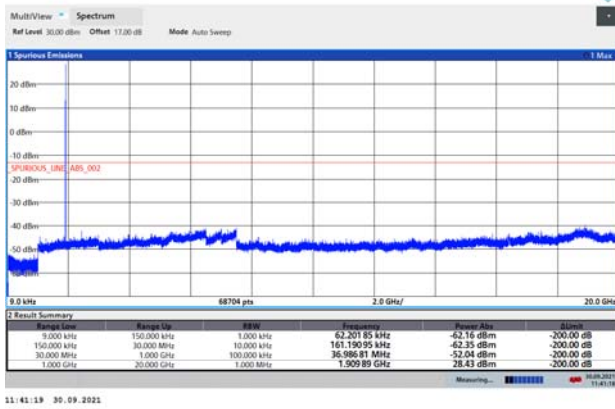
11:42:46 30.09.2021

WCDMA BAND II CH- Middle 9kHz ~ 20GHz



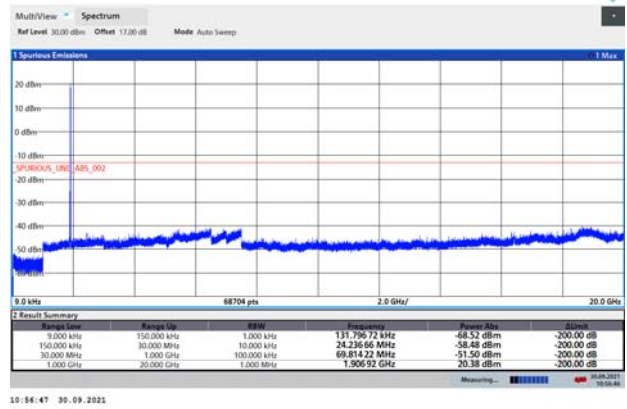
10:56:49 30.09.2021

EGPRS 1900 CH-High 9kHz ~ 20GHz



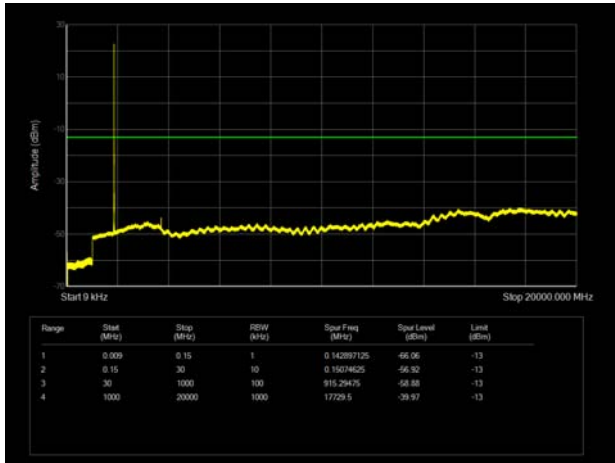
11:41:19 30.09.2021

WCDMA BAND II CH-High 9kHz ~ 20GHz

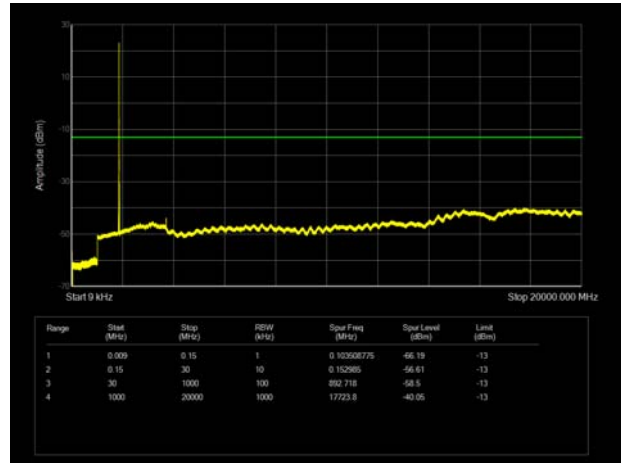


10:56:47 30.09.2021

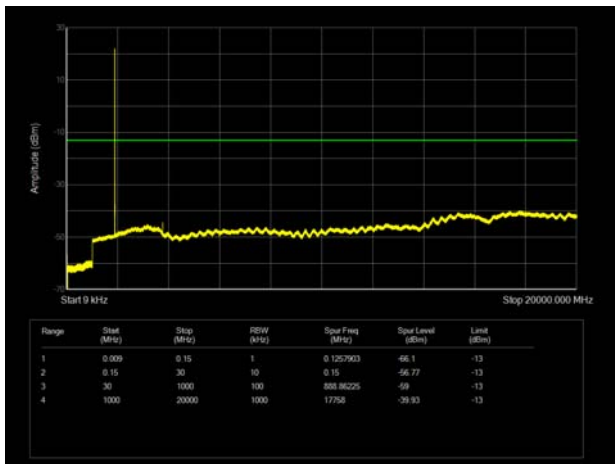
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



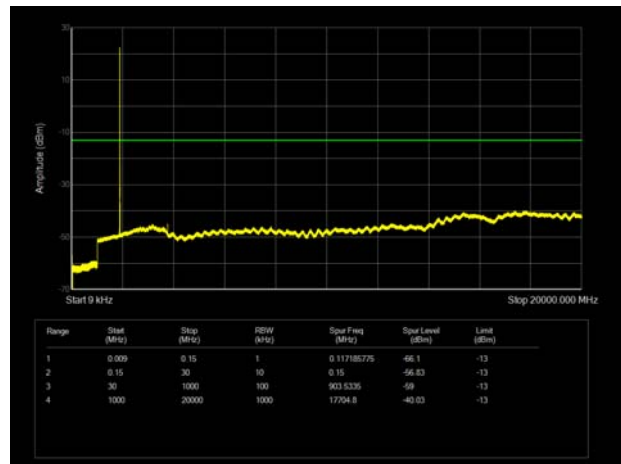
LTE Band 2 3MHz CH-Low 9kHz~20GHz



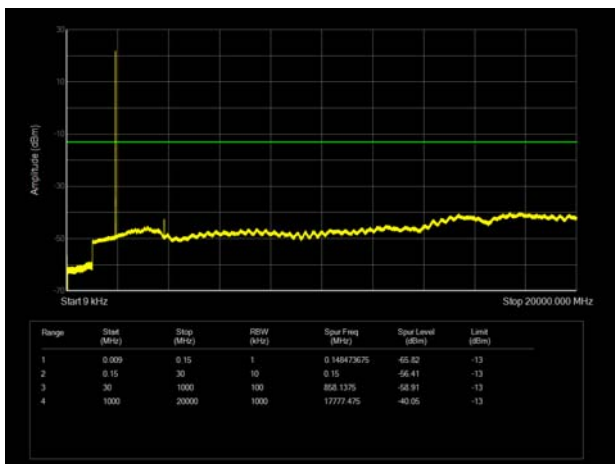
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



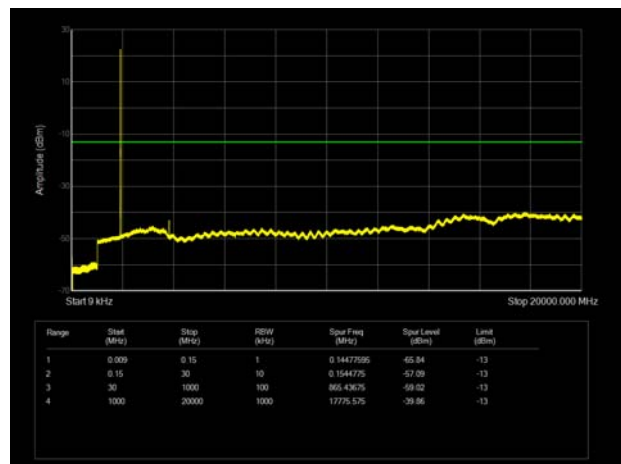
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



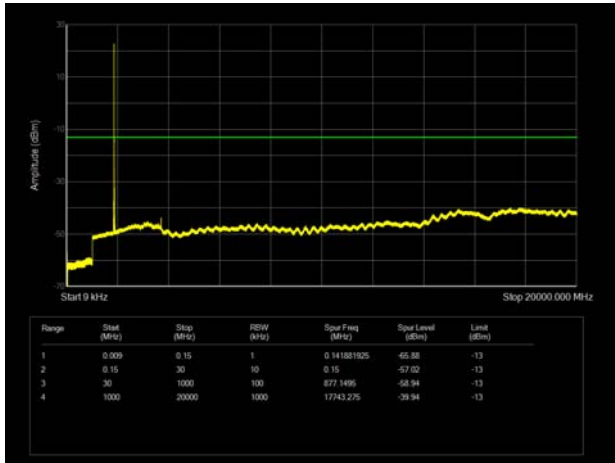
LTE Band 2 1.4MHz CH-High 9kHz~20GHz



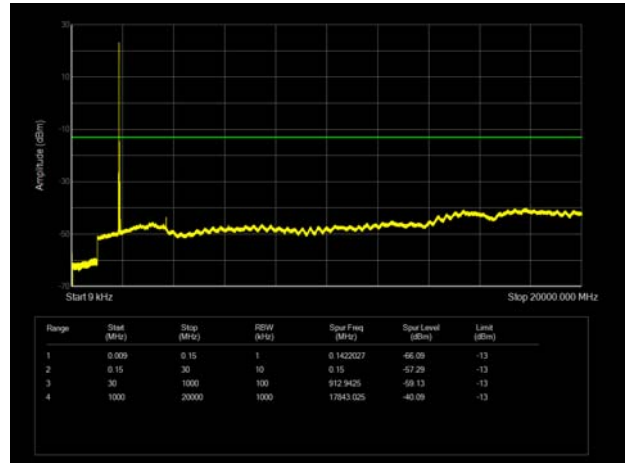
LTE Band 2 3MHz CH-High 9kHz~20GHz



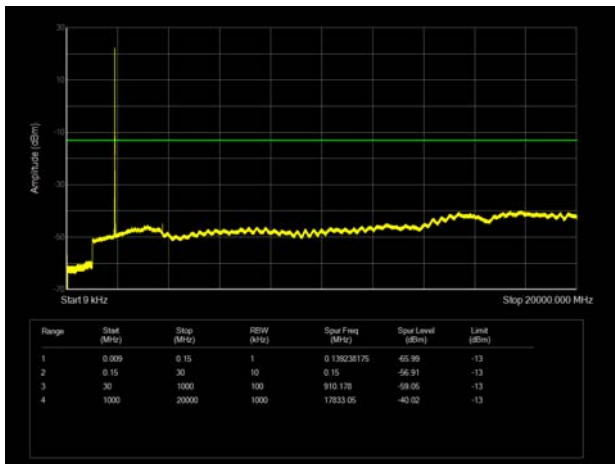
LTE Band 2 5MHz CH-Low 9kHz~20GHz



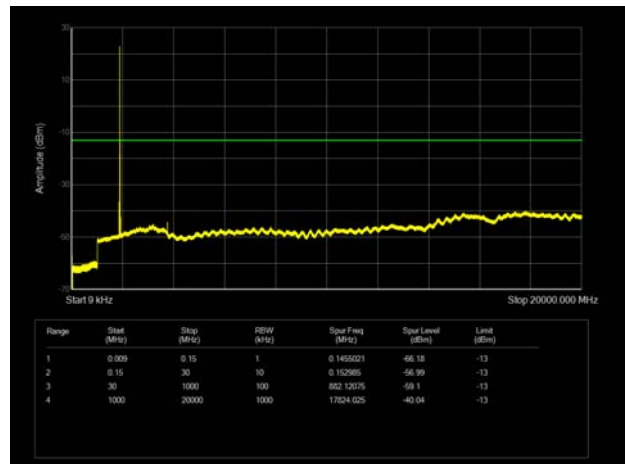
LTE Band 2 10MHz CH-Low 9kHz~20GHz



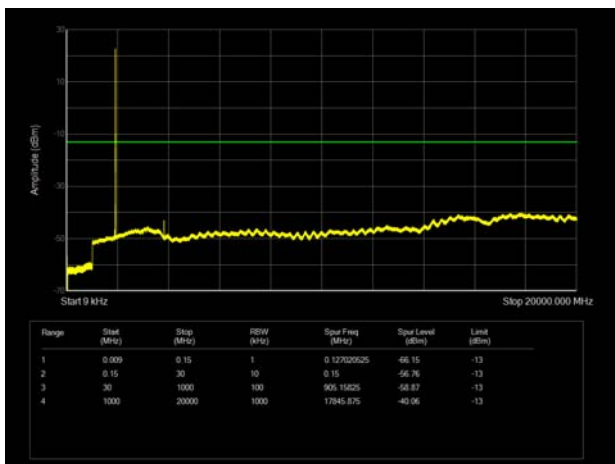
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



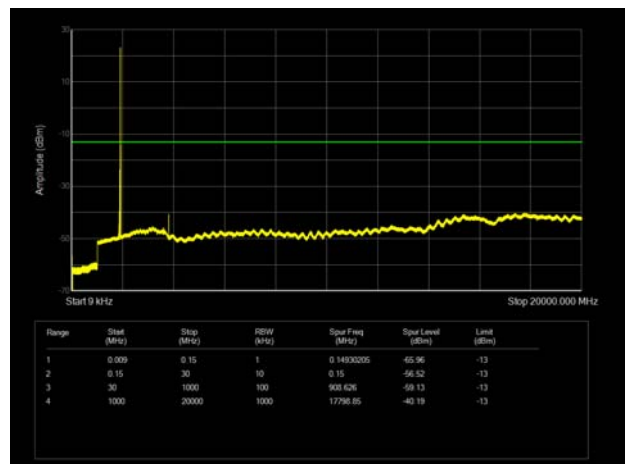
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



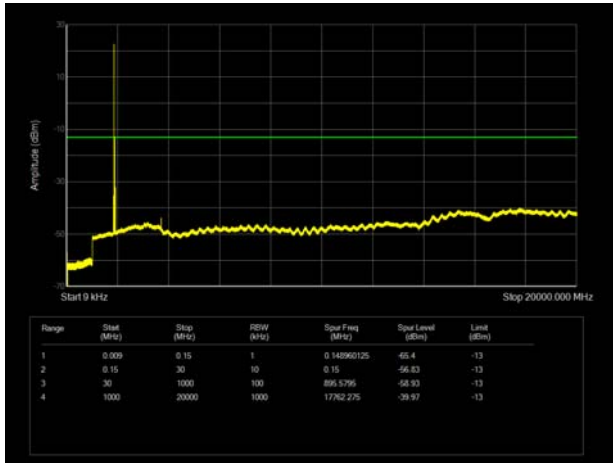
LTE Band 2 5MHz CH-High 9kHz~20GHz



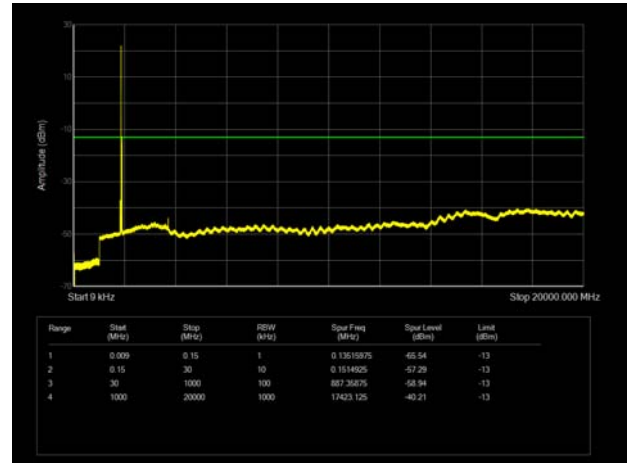
LTE Band 2 10MHz CH-High 9kHz~20GHz



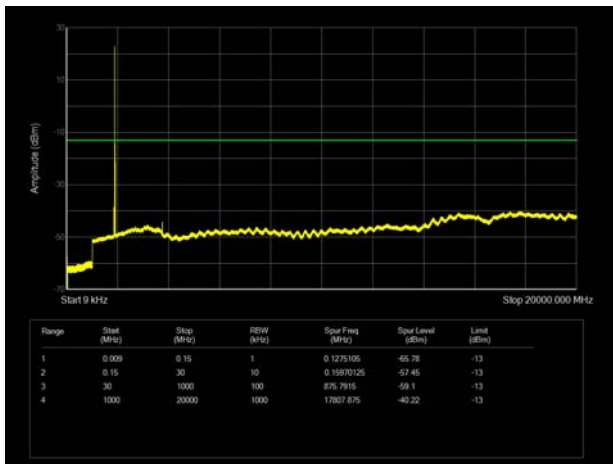
LTE Band 2 15MHz CH-Low 9kHz~20GHz



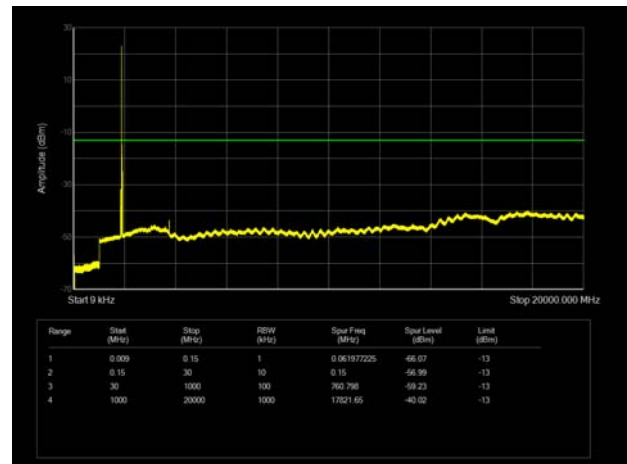
LTE Band 2 20MHz CH-Low 9kHz~20GHz



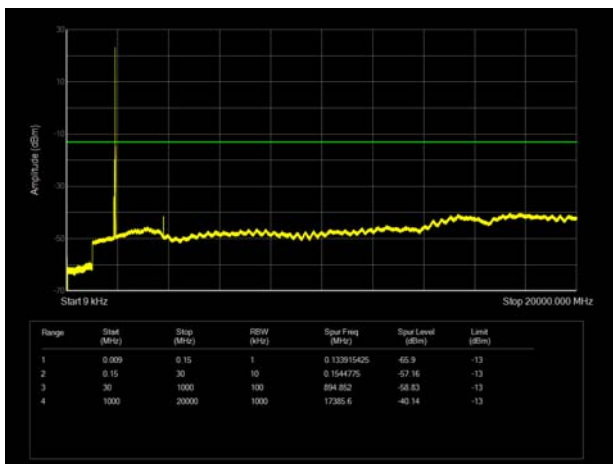
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



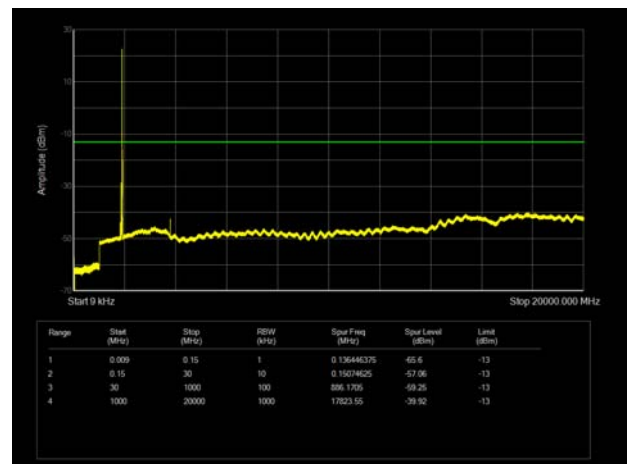
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



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



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



5.7. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

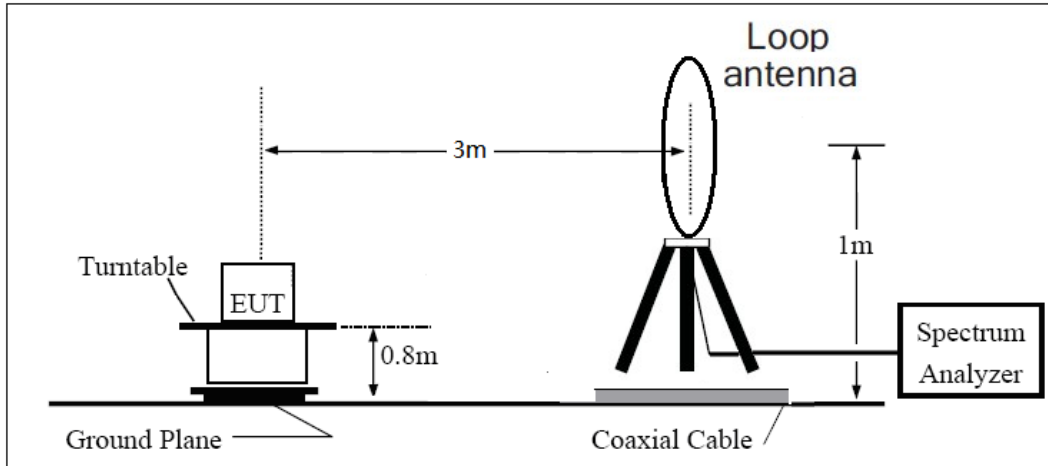
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable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

= EIRP-2.15dB.

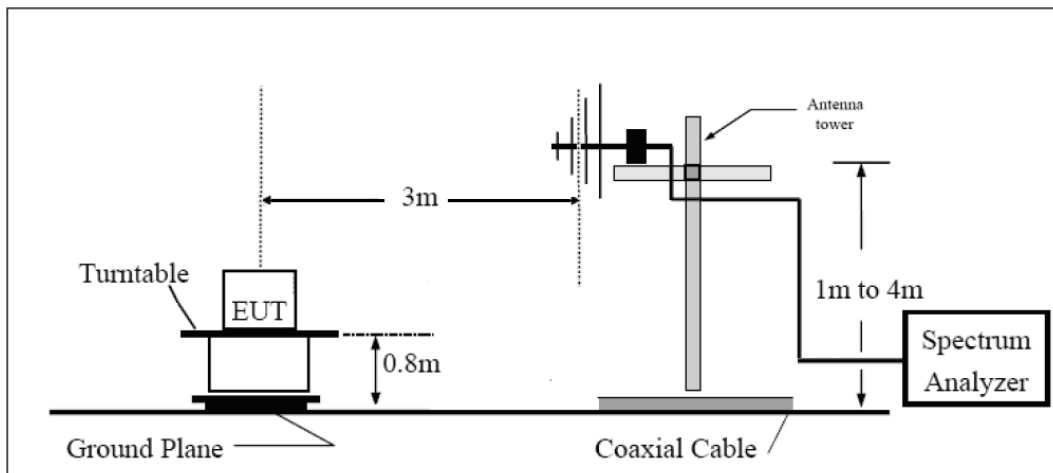
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

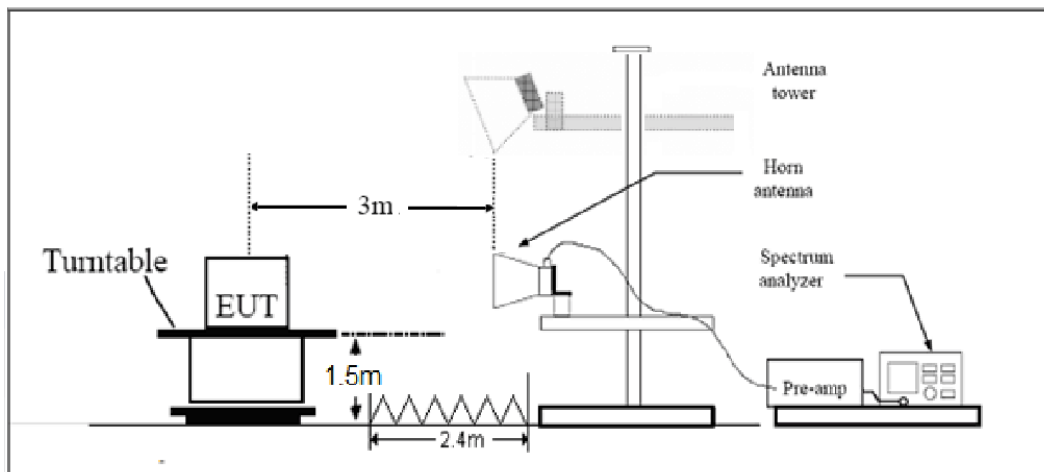
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

**Limits**

Rule Part 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 $43 + 10 \log_{10}(P)$ dB.”

Limit	-13 dBm
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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.

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.00	-65.63	2.60	12.50	Horizontal	-55.73	-13.00	42.73	45
3	5640.00	-59.98	3.30	12.50	Horizontal	-50.78	-13.00	37.78	135
4	7520.00	-48.23	4.20	12.20	Horizontal	-40.23	-13.00	27.23	180
5	9400.00	-51.74	4.30	11.10	Horizontal	-44.94	-13.00	31.94	225
6	11280.00	-48.72	5.90	11.90	Horizontal	-42.72	-13.00	29.72	90
7	13160.00	-51.09	5.70	14.00	Horizontal	-42.79	-13.00	29.79	90
8	15040.00	-48.17	5.80	13.10	Horizontal	-40.87	-13.00	27.87	45
9	16920.00	-48.37	6.10	14.60	Horizontal	-39.87	-13.00	26.87	135
10	18800.00	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.

WCDMA Band II CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.00	-62.31	2.60	12.50	Horizontal	-52.41	-13.00	39.41	90
3	5640.00	-60.92	3.30	12.50	Horizontal	-51.72	-13.00	38.72	45
4	7520.00	-54.86	4.20	12.20	Horizontal	-46.86	-13.00	33.86	315
5	9400.00	-49.44	4.30	11.10	Horizontal	-42.64	-13.00	29.64	90
6	11280.00	-50.52	5.90	11.90	Horizontal	-44.52	-13.00	31.52	270
7	13160.00	-51.38	5.70	14.00	Horizontal	-43.08	-13.00	30.08	90
8	15040.00	-45.04	5.80	13.10	Horizontal	-37.74	-13.00	24.74	45
9	16920.00	-49.02	6.10	14.60	Horizontal	-40.52	-13.00	27.52	315
10	18800.00	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.



LTE Band 2 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	-59.83	2.60	12.50	Horizontal	-49.93	-13.0	36.93	225
3	5638.9	-61.99	3.30	12.50	Horizontal	-52.79	-13.0	39.79	90
4	7520.0	-52.64	4.20	12.20	Horizontal	-44.64	-13.0	31.64	45
5	9400.0	-45.28	4.30	11.10	Horizontal	-38.48	-13.0	25.48	45
6	11280.0	-48.63	5.90	11.90	Horizontal	-42.63	-13.0	29.63	135
7	13160.0	-50.45	5.70	14.00	Horizontal	-42.15	-13.0	29.15	0
8	15040.0	-45.97	5.80	13.10	Horizontal	-38.67	-13.0	25.67	90
9	16920.0	-48.04	6.10	14.60	Horizontal	-39.54	-13.0	26.54	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.

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	-62.18	2.60	12.50	Horizontal	-52.28	-13.0	39.28	135
3	5633.6	-60.94	3.30	12.50	Horizontal	-51.74	-13.0	38.74	225
4	7520.0	-50.78	4.20	12.20	Horizontal	-42.78	-13.0	29.78	45
5	9400.0	-42.86	4.30	11.10	Horizontal	-36.06	-13.0	23.06	135
6	11280.0	-49.48	5.90	11.90	Horizontal	-43.48	-13.0	30.48	0
7	13160.0	-51.17	5.70	14.00	Horizontal	-42.87	-13.0	29.87	45
8	15040.0	-44.50	5.80	13.10	Horizontal	-37.20	-13.0	24.20	225
9	16920.0	-48.85	6.10	14.60	Horizontal	-40.35	-13.0	27.35	135
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	-59.46	2.60	12.50	Horizontal	-49.56	-13.0	36.56	0
3	5613.4	-59.73	3.30	12.50	Horizontal	-50.53	-13.0	37.53	135
4	7484.6	-51.01	4.20	12.20	Horizontal	-43.01	-13.0	30.01	45
5	9400.0	-44.89	4.30	11.10	Horizontal	-38.09	-13.0	25.09	90
6	11280.0	-49.85	5.90	11.90	Horizontal	-43.85	-13.0	30.85	45
7	13160.0	-50.66	5.70	14.00	Horizontal	-42.36	-13.0	29.36	135
8	15040.0	-44.86	5.80	13.10	Horizontal	-37.56	-13.0	24.56	90
9	16920.0	-48.03	6.10	14.60	Horizontal	-39.53	-13.0	26.53	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.



6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	150415	2021-05-15	2022-05-14
Climate Chamber	Weiss	VT4002	58226119450 010	2021-05-15	2022-05-14
Universal Radio Communication Tester	Agilent	E5515C	GB44400275	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12
Spectrum Analyzer	R&S	FSV30	104028	2021-05-15	2022-05-14
Horn Antenna	Schwarzbeck	BBHA 9120D	1594	2020-12-17	2021-12-16
Horn Antenna	ETS-Lindgren	3160-09	00102643	2021-10-10	2024-10-09
Software	R&S	EMC32	10.35.10	/	/

*****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.