RF TEST REPORT

Applicant	Xiaomi Communications Co., Ltd.
FCC ID	2AFZZ1119AG
Product	Mobile Phone
Model	21061119AG
Report No.	R2105A0395-R2V1
Issue Date	July 9, 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.	June 28, 2021
Rev.1	Update information in Page 6. Update Frequency Stability in Page 53 to Page 56.	July 9, 2021
Note: This revised report (Report No. R2105A0395-R2V1) supersedes and replaces the previously issued report (Report No. R2105A0395-R2). Please discard or destroy the previously issued report and dispose of it accordingly.		

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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	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: June 1, 2021 ~ June 17, 2021 and July 9, 2021
Date of Sample Received: May 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.

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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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2. General Description of Equipment under Test

2.3. Applicant and Manufacturer Information

Applicant	Xiaomi Communications Co., Ltd.
Applicant address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer	Xiaomi Communications Co., Ltd.
Manufacturer address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

2.4. General information

EUT Description			
Model	21061119AG		
IMEI	IMEI 1: 863461050011766 IMEI 2: 863461050011774		
Hardware Version	P1.1		
Software Version	MIUI12.5		
Power Supply	Battery / AC adapter		
Antenna Type	PIFA Antenna		
Antenna Gain	Mode	Main Antenna (dBi)	Second Antenna (dBi)
	GSM 1900:	0	-0.4
	WCDMA Band II:	0	-0.4
	LTE Band 2:	0	-0.4
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, 64QAM		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
HSDPA UE Category	24		
HSUPA UE Category	7		
LTE Category	7		
Maximum E.I.R.P	GSM 1900:	29.66 dBm	
	WCDMA Band II:	24.21 dBm	
	LTE Band 2:	24.33 dBm	
Rated Power Supply Voltage	3.8V		
Operating Voltage	Minimum: 3.6V Maximum: 4.45V		
Operating Temperature	Lowest: -10°C Highest: +60°C		
Extreme Temperature	Lowest: -30°C Highest: +60°C		

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	Band	Tx (MHz)	Rx (MHz)
Operating Frequency Range(s)	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	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.			

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3. Applied Standards

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

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

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2020)

KDB 971168 D01 Power Meas License Digital Systems v03r01

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4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report.

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 for GSM;
X axis, horizontal polarization for WCDMA (Main Antenna);
Z axis, vertical polarization for WCDMA (Second Antenna);
Z axis, vertical polarization for LTE (Main Antenna);
X axis, horizontal polarization for LTE (Second Antenna);) 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

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

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

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5. Test Case Results

5.1. RF Power Output and Effective Isotropic Radiated Power

Ambient condition

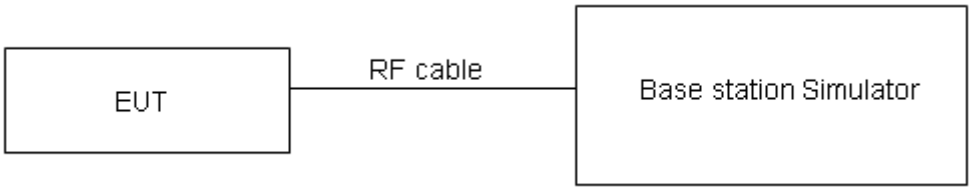
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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.

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Test Results

GSM 1900		Maximum Output Power (dBm)			EIRP (dBm) (Main antenna)			EIRP (dBm) (Second antenna)		
		Channel 512	Channel 661	Channel 810	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)	1850.2 (MHz)	1880 (MHz)	1909.8 (MHz)
GSM	Results	29.65	29.46	29.63	29.65	29.46	29.63	29.25	29.06	29.23
GPRS/ EGPRS (GMSK)	1TXslot	29.66	29.45	29.65	29.66	29.45	29.65	29.26	29.05	29.25
	2TXslots	28.97	28.79	28.97	28.97	28.79	28.97	28.57	28.39	28.57
	3TXslots	27.28	27.10	27.30	27.28	27.10	27.30	26.88	26.70	26.90
	4TXslots	26.22	26.04	26.23	26.22	26.04	26.23	25.82	25.64	25.83
EGPRS (8PSK)	1TXslot	26.13	26.01	26.10	26.13	26.01	26.10	25.73	25.61	25.70
	2TXslots	24.96	24.84	24.93	24.96	24.84	24.93	24.56	24.44	24.53
	3TXslots	22.74	22.55	22.68	22.74	22.55	22.68	22.34	22.15	22.28
	4TXslots	21.63	21.44	21.50	21.63	21.44	21.50	21.23	21.04	21.10

WCDMA Band II		Maximum Output Power (dBm)			ERP (dBm) (Main antenna)			ERP (dBm) (Second antenna)		
		Channel 9262	Channel 9400	Channel 9538	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)	1852.4 (MHz)	1880 (MHz)	1907.6 (MHz)
RMC		24.14	24.19	24.21	24.14	24.19	24.21	23.74	23.79	23.81
AMR		24.12	24.21	24.15	24.12	24.21	24.15	23.72	23.81	23.75
HSDPA	Sub - Test 1	23.48	23.81	23.83	23.48	23.81	23.83	23.08	23.41	23.43
	Sub - Test 2	23.50	23.79	23.85	23.50	23.79	23.85	23.10	23.39	23.45
	Sub - Test 3	23.30	23.11	23.15	23.30	23.11	23.15	22.90	22.71	22.75
	Sub - Test 4	23.22	23.17	23.35	23.22	23.17	23.35	22.82	22.77	22.95
HSUPA	Sub - Test 1	23.72	23.85	23.67	23.72	23.85	23.67	23.32	23.45	23.27
	Sub - Test 2	22.60	22.73	22.69	22.60	22.73	22.69	22.20	22.33	22.29
	Sub - Test 3	23.26	23.25	23.15	23.26	23.25	23.15	22.86	22.85	22.75
	Sub - Test 4	22.78	22.65	22.71	22.78	22.65	22.71	22.38	22.25	22.31
	Sub - Test 5	23.52	23.73	23.77	23.52	23.73	23.77	23.12	23.33	23.37
DC-HSDPA	Sub - Test 1	23.74	23.65	23.67	23.74	23.65	23.67	23.34	23.25	23.27
	Sub - Test 2	23.76	23.53	23.85	23.76	23.53	23.85	23.36	23.13	23.45
	Sub - Test 3	23.26	23.09	23.35	23.26	23.09	23.35	22.86	22.69	22.95
	Sub - Test 4	23.06	23.21	23.07	23.06	23.21	23.07	22.66	22.81	22.67
HSPA+	16QAM	23.38	23.33	23.35	23.38	23.33	23.35	22.98	22.93	22.95

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LTE Band 2				Maximum Output Power(dBm)			EIRP (dBm) (Main antenna)			EIRP (dBm) (Second antenna)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18607/ 1850.7	18900/ 1880	19193/ 1909.3	18607/ 1850.7	18900/ 1880	19193/ 1909.3	18607/ 1850.7	18900/ 1880	19193/ 1909.3
1.4MHz	QPSK	1	0	24.07	24.12	24.03	24.07	24.12	24.03	23.67	23.72	23.63
		1	2	24.26	24.29	24.25	24.26	24.29	24.25	23.86	23.89	23.85
		1	5	23.99	23.97	23.97	23.99	23.97	23.97	23.59	23.57	23.57
		3	0	24.11	24.17	24.19	24.11	24.17	24.19	23.71	23.77	23.79
		3	2	24.12	24.21	24.21	24.12	24.21	24.21	23.72	23.81	23.81
		3	3	24.09	24.11	24.13	24.09	24.11	24.13	23.69	23.71	23.73
		6	0	23.12	23.22	23.27	23.12	23.22	23.27	22.72	22.82	22.87
	16QAM	1	0	23.53	23.40	23.31	23.53	23.40	23.31	23.13	23.00	22.91
		1	2	23.51	23.59	23.55	23.51	23.59	23.55	23.11	23.19	23.15
		1	5	23.25	23.22	23.25	23.25	23.22	23.25	22.85	22.82	22.85
		3	0	23.09	23.11	23.19	23.09	23.11	23.19	22.69	22.71	22.79
		3	2	23.16	23.17	23.22	23.16	23.17	23.22	22.76	22.77	22.82
		3	3	23.10	23.14	23.09	23.10	23.14	23.09	22.70	22.74	22.69
		6	0	22.13	22.23	22.28	22.13	22.23	22.28	21.73	21.83	21.88
	64QAM	1	0	22.42	22.38	22.34	22.42	22.38	22.34	22.02	21.98	21.94
		1	2	22.34	22.42	22.28	22.34	22.42	22.28	21.94	22.02	21.88
		1	5	22.27	22.39	22.38	22.27	22.39	22.38	21.87	21.99	21.98
		3	0	22.13	22.17	22.14	22.13	22.17	22.14	21.73	21.77	21.74
		3	2	22.04	22.28	22.15	22.04	22.28	22.15	21.64	21.88	21.75
		3	3	22.06	22.21	22.26	22.06	22.21	22.26	21.66	21.81	21.86
		6	0	21.21	21.22	21.29	21.21	21.22	21.29	20.81	20.82	20.89
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18615/ 1851.5	18900/ 1880	19185/ 1908.5	18615/ 1851.5	18900/ 1880	19185/ 1908.5	18615/ 1851.5	18900/ 1880	19185/ 1908.5
3MHz	QPSK	1	0	24.09	24.16	24.06	24.09	24.16	24.06	23.69	23.76	23.66
		1	7	24.24	24.32	24.29	24.24	24.32	24.29	23.84	23.92	23.89
		1	14	24.02	24.02	24.01	24.02	24.02	24.01	23.62	23.62	23.61
		8	0	23.21	23.29	23.32	23.21	23.29	23.32	22.81	22.89	22.92
		8	4	23.24	23.31	23.33	23.24	23.31	23.33	22.84	22.91	22.93
		8	7	23.19	23.22	23.23	23.19	23.22	23.23	22.79	22.82	22.83
		15	0	23.12	23.26	23.30	23.12	23.26	23.30	22.72	22.86	22.90
	16QAM	1	0	23.56	23.42	23.34	23.56	23.42	23.34	23.16	23.02	22.94

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		1	7	23.54	23.59	23.59	23.54	23.59	23.59	23.14	23.19	23.19
		1	14	23.27	23.26	23.28	23.27	23.26	23.28	22.87	22.86	22.88
		8	0	22.20	22.24	22.31	22.20	22.24	22.31	21.80	21.84	21.91
		8	4	22.27	22.30	22.34	22.27	22.30	22.34	21.87	21.90	21.94
		8	7	22.20	22.26	22.22	22.20	22.26	22.22	21.80	21.86	21.82
		15	0	22.16	22.27	22.31	22.16	22.27	22.31	21.76	21.87	21.91
	64QAM	1	0	22.45	22.40	22.37	22.45	22.40	22.37	22.05	22.00	21.97
		1	7	22.37	22.42	22.30	22.37	22.42	22.30	21.97	22.02	21.90
		1	14	22.29	22.38	22.41	22.29	22.38	22.41	21.89	21.98	22.01
		8	0	21.24	21.30	21.26	21.24	21.30	21.26	20.84	20.90	20.86
		8	4	21.15	21.41	21.27	21.15	21.41	21.27	20.75	21.01	20.87
		8	7	21.16	21.33	21.39	21.16	21.33	21.39	20.76	20.93	20.99
		15	0	21.24	21.26	21.32	21.24	21.26	21.32	20.84	20.86	20.92
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18625/ 1852.5	18900/ 1880	19175/ 1907.5	18625/ 1852.5	18900/ 1880	19175/ 1907.5	18625/ 1852.5	18900/ 1880	19175/ 1907.5
5MHz	QPSK	1	0	24.06	24.14	24.02	24.06	24.14	24.02	23.66	23.74	23.62
		1	13	24.22	24.28	24.26	24.22	24.28	24.26	23.82	23.88	23.86
		1	24	23.99	23.97	23.97	23.99	23.97	23.97	23.59	23.57	23.57
		12	0	23.18	23.24	23.28	23.18	23.24	23.28	22.78	22.84	22.88
		12	6	23.22	23.27	23.28	23.22	23.27	23.28	22.82	22.87	22.88
		12	13	23.17	23.20	23.19	23.17	23.20	23.19	22.77	22.80	22.79
		25	0	23.12	23.25	23.28	23.12	23.25	23.28	22.72	22.85	22.88
	16QAM	1	0	23.53	23.38	23.31	23.53	23.38	23.31	23.13	22.98	22.91
		1	13	23.51	23.57	23.56	23.51	23.57	23.56	23.11	23.17	23.16
		1	24	23.24	23.24	23.24	23.24	23.24	23.24	22.84	22.84	22.84
		12	0	22.18	22.20	22.28	22.18	22.20	22.28	21.78	21.80	21.88
		12	6	22.24	22.25	22.30	22.24	22.25	22.30	21.84	21.85	21.90
		12	13	22.17	22.21	22.18	22.17	22.21	22.18	21.77	21.81	21.78
		25	0	22.14	22.23	22.26	22.14	22.23	22.26	21.74	21.83	21.86
	64QAM	1	0	22.42	22.40	22.34	22.42	22.40	22.34	22.02	22.00	21.94
		1	13	22.34	22.44	22.27	22.34	22.44	22.27	21.94	22.04	21.87
		1	24	22.30	22.36	22.37	22.30	22.36	22.37	21.90	21.96	21.97
		12	0	21.22	21.26	21.27	21.22	21.26	21.27	20.82	20.86	20.87
		12	6	21.12	21.36	21.23	21.12	21.36	21.23	20.72	20.96	20.83
		12	13	21.13	21.28	21.35	21.13	21.28	21.35	20.73	20.88	20.95
		25	0	21.22	21.22	21.27	21.22	21.22	21.27	20.82	20.82	20.87

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BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18650/1855	18900/1880	19150/1905	18650/1855	18900/1880	19150/1905	18650/1855	18900/1880	19150/1905
10MHz	QPSK	1	0	24.08	24.15	24.05	24.08	24.15	24.05	23.68	23.75	23.65
		1	25	24.25	24.33	24.30	24.25	24.33	24.30	23.85	23.93	23.90
		1	49	24.01	24.01	24.00	24.01	24.01	24.00	23.61	23.61	23.60
		25	0	23.21	23.29	23.32	23.21	23.29	23.32	22.81	22.89	22.92
		25	13	23.25	23.32	23.32	23.25	23.32	23.32	22.85	22.92	22.92
		25	25	23.19	23.24	23.24	23.19	23.24	23.24	22.79	22.84	22.84
		50	0	23.16	23.27	23.32	23.16	23.27	23.32	22.76	22.87	22.92
	16QAM	1	0	23.55	23.41	23.33	23.55	23.41	23.33	23.15	23.01	22.93
		1	25	23.54	23.61	23.59	23.54	23.61	23.59	23.14	23.21	23.19
		1	49	23.27	23.26	23.27	23.27	23.26	23.27	22.87	22.86	22.87
		25	0	22.21	22.25	22.32	22.21	22.25	22.32	21.81	21.85	21.92
		25	13	22.26	22.29	22.33	22.26	22.29	22.33	21.86	21.89	21.93
		25	25	22.20	22.26	22.22	22.20	22.26	22.22	21.80	21.86	21.82
		50	0	22.17	22.28	22.30	22.17	22.28	22.30	21.77	21.88	21.90
	64QAM	1	0	22.44	22.39	22.36	22.44	22.39	22.36	22.04	21.99	21.96
		1	25	22.37	22.44	22.30	22.37	22.44	22.30	21.97	22.04	21.90
		1	49	22.29	22.38	22.40	22.29	22.38	22.40	21.89	21.98	22.00
		25	0	21.25	21.31	21.27	21.25	21.31	21.27	20.85	20.91	20.87
		25	13	21.14	21.40	21.26	21.14	21.40	21.26	20.74	21.00	20.86
		25	25	21.16	21.33	21.39	21.16	21.33	21.39	20.76	20.93	20.99
		50	0	21.25	21.27	21.31	21.25	21.27	21.31	20.85	20.87	20.91

BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18675/1857.5	18900/1880	19125/1902.5	18675/1857.5	18900/1880	19125/1902.5	18675/1857.5	18900/1880	19125/1902.5
15MHz	QPSK	1	0	24.07	24.11	24.03	24.07	24.11	24.03	23.67	23.71	23.63
		1	38	24.23	24.32	24.27	24.23	24.32	24.27	23.83	23.92	23.87
		1	74	23.98	23.96	23.96	23.98	23.96	23.96	23.58	23.56	23.56
		36	0	23.19	23.25	23.29	23.19	23.25	23.29	22.79	22.85	22.89
		36	18	23.22	23.27	23.28	23.22	23.27	23.28	22.82	22.87	22.88
		36	39	23.16	23.21	23.20	23.16	23.21	23.20	22.76	22.81	22.80
		75	0	23.14	23.23	23.27	23.14	23.23	23.27	22.74	22.83	22.87
	16QAM	1	0	23.50	23.39	23.31	23.50	23.39	23.31	23.10	22.99	22.91
		1	38	23.52	23.58	23.57	23.52	23.58	23.57	23.12	23.18	23.17
		1	74	23.24	23.22	23.24	23.24	23.22	23.24	22.84	22.82	22.84

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		36	0	22.18	22.23	22.29	22.18	22.23	22.29	21.78	21.83	21.89
		36	18	22.23	22.24	22.29	22.23	22.24	22.29	21.83	21.84	21.89
		36	39	22.18	22.22	22.19	22.18	22.22	22.19	21.78	21.82	21.79
		75	0	22.14	22.23	22.26	22.14	22.23	22.26	21.74	21.83	21.86
	64QAM	1	0	22.39	22.37	22.34	22.39	22.37	22.34	21.99	21.97	21.94
		1	38	22.35	22.41	22.28	22.35	22.41	22.28	21.95	22.01	21.88
		1	74	22.30	22.37	22.41	22.30	22.37	22.41	21.90	21.97	22.01
		36	0	21.24	21.33	21.28	21.24	21.33	21.28	20.84	20.93	20.88
		36	18	21.12	21.37	21.25	21.12	21.37	21.25	20.72	20.97	20.85
		36	39	21.14	21.29	21.36	21.14	21.29	21.36	20.74	20.89	20.96
		75	0	21.22	21.22	21.27	21.22	21.22	21.27	20.82	20.82	20.87
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				18700/1860	18900/1880	19100/1900	18700/1860	18900/1880	19100/1900	18700/1860	18900/1880	19100/1900
20MHz	QPSK	1	0	24.04	24.07	24.00	24.04	24.07	24.00	23.64	23.67	23.60
		1	50	24.22	24.28	24.25	24.22	24.28	24.25	23.82	23.88	23.85
		1	99	23.96	23.95	23.93	23.96	23.95	23.93	23.56	23.55	23.53
		50	0	23.16	23.20	23.25	23.16	23.20	23.25	22.76	22.80	22.85
		50	25	23.20	23.23	23.25	23.20	23.23	23.25	22.80	22.83	22.85
		50	50	23.13	23.16	23.16	23.13	23.16	23.16	22.73	22.76	22.76
		100	0	23.11	23.18	23.23	23.11	23.18	23.23	22.71	22.78	22.83
	16QAM	1	0	23.33	23.35	23.26	23.33	23.35	23.26	22.93	22.95	22.86
		1	50	23.48	23.56	23.53	23.48	23.56	23.53	23.08	23.16	23.13
		1	99	23.22	23.19	23.22	23.22	23.19	23.22	22.82	22.79	22.82
		50	0	22.15	22.19	22.26	22.15	22.19	22.26	21.75	21.79	21.86
		50	25	22.20	22.22	22.26	22.20	22.22	22.26	21.80	21.82	21.86
		50	50	22.15	22.17	22.15	22.15	22.17	22.15	21.75	21.77	21.75
		100	0	22.12	22.19	22.23	22.12	22.19	22.23	21.72	21.79	21.83
	64QAM	1	0	22.37	22.33	22.29	22.37	22.33	22.29	21.97	21.93	21.89
		1	50	22.31	22.39	22.24	22.31	22.39	22.24	21.91	21.99	21.84
		1	99	22.24	22.31	22.35	22.24	22.31	22.35	21.84	21.91	21.95
		50	0	21.19	21.25	21.21	21.19	21.25	21.21	20.79	20.85	20.81
		50	25	21.08	21.33	21.19	21.08	21.33	21.19	20.68	20.93	20.79
		50	50	21.11	21.24	21.32	21.11	21.24	21.32	20.71	20.84	20.92
		100	0	21.20	21.18	21.24	21.20	21.18	21.24	20.80	20.78	20.84

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5.2. Occupied Bandwidth

Ambient condition

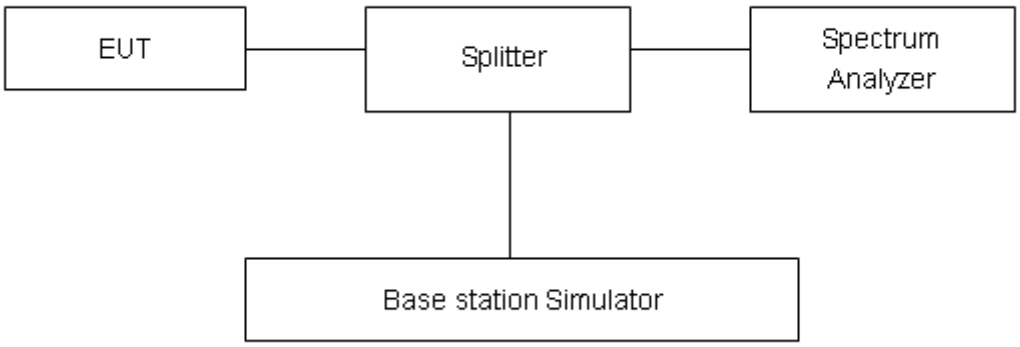
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 6.2kHz, VBW is set to 20kHz for GSM 1900,
RBW is set to 51 kHz, VBW is set to 160kHz for WCDMA Band II,
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.

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Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GMSK)	512	1850.2	0.2456	0.306
	661	1880.0	0.2459	0.316
	810	1909.8	0.2470	0.314
GPRS 1900 (GMSK)	512	1850.2	0.2436	0.317
	661	1880.0	0.2438	0.312
	810	1909.8	0.2444	0.317
EGPRS 1900 (8PSK)	512	1850.2	0.2448	0.303
	661	1880.0	0.2365	0.300
	810	1909.8	0.2470	0.306
WCDMA Band II (RMC)	9262	1852.4	4.1618	4.670
	9400	1880	4.1551	4.680
	9538	1907.6	4.1522	4.659

LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.0950	1.277
		18900	1880.0	1.0876	1.275
		19193	1909.3	1.0913	1.288
	3	18615	1851.5	2.6807	2.924
		18900	1880	2.6971	2.922
		19185	1908.5	2.7020	2.913
	5	18625	1852.5	4.5117	4.826
		18900	1880	4.5056	4.876
		19175	1907.5	4.5205	4.903
	10	18650	1855	8.9807	9.652
		18900	1880	8.9702	9.662
		19150	1905	8.9944	9.676

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	15	18675	1857.5	13.4640	14.530
		18900	1880	13.4850	14.670
		19125	1902.5	13.4270	14.520
	20	18700	1860	17.9700	19.300
		18900	1880	17.9650	19.260
		19100	1900	18.0110	19.270
16QAM	1.4	18607	1850.7	1.0923	1.297
		18900	1880.0	1.0977	1.279
		19193	1909.3	1.0935	1.265
	3	18615	1851.5	2.6865	2.921
		18900	1880	2.6922	2.950
		19185	1908.5	2.6835	2.940
	5	18625	1852.5	4.5169	4.943
		18900	1880	4.5241	4.938
		19175	1907.5	4.5024	4.896
	10	18650	1855	8.9726	9.666
		18900	1880	8.9782	9.697
		19150	1905	8.9866	9.698
	15	18675	1857.5	13.4620	14.390
		18900	1880	13.4580	14.470
		19125	1902.5	13.4580	14.590
	20	18700	1860	17.9180	19.170
		18900	1880	17.9090	19.340
		19100	1900	17.9750	19.170
64QAM	1.4	18607	1850.7	1.1003	1.298
		18900	1880	1.0946	1.274
		19193	1909.3	1.0948	1.287
	3	18615	1851.5	2.6833	2.926
		18900	1880	2.6869	2.922
		19185	1908.5	2.6952	2.929
	5	18625	1852.5	4.5004	4.911
		18900	1880	4.5251	4.943
		19175	1907.5	4.5259	4.890
	10	18650	1855	8.9897	9.648

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		18900	1880	8.9772	9.619
		19150	1905	9.0065	9.752
	15	18675	1857.5	13.4720	14.430
		18900	1880	13.4740	14.570
		19125	1902.5	13.5030	14.550
	20	18700	1860	17.9140	19.120
		18900	1880	17.9740	19.450
		19100	1900	17.9800	19.260

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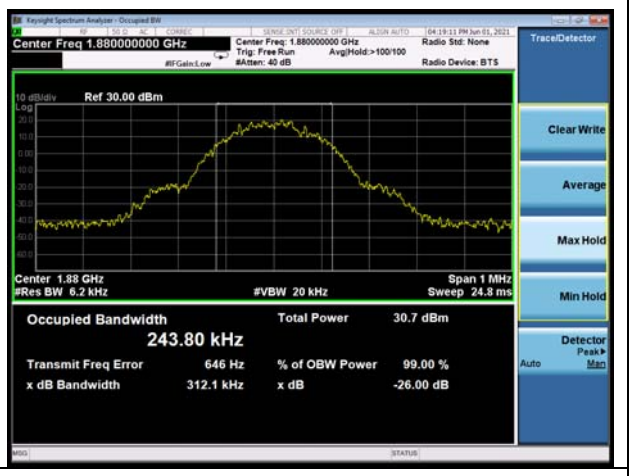
GSM1900 GSM CH-Low

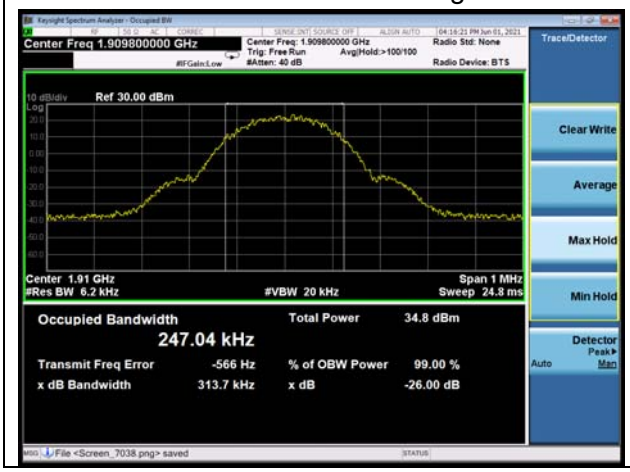
GSM1900 GPRS CH-Low

GSM 1900 GSM CH-Middle

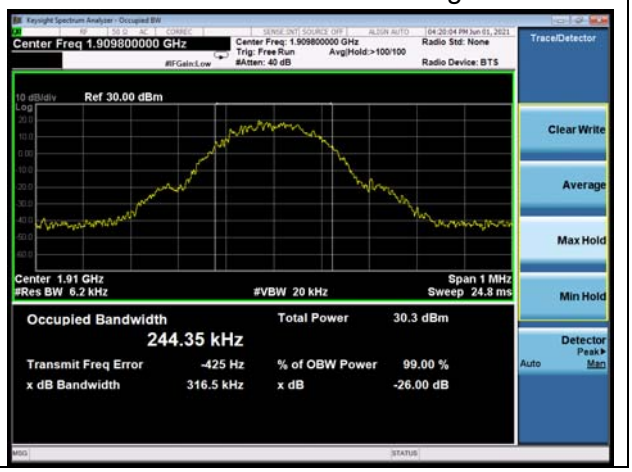
GSM 1900 GPRS CH-Middle



GSM 1900 GSM CH-High



GSM 1900 GPRS CH-High



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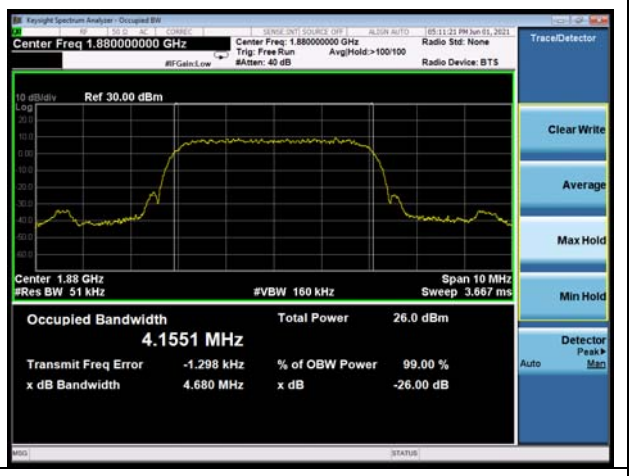
GSM1900 EGPRS CH-Low

WCDMA Band II RMC CH-LOW

GSM 1900 EGPRS CH-Middle

WCDMA Band II RMC CH-Middle



GSM 1900 EGPRS CH-High

WCDMA Band II RMC CH-High

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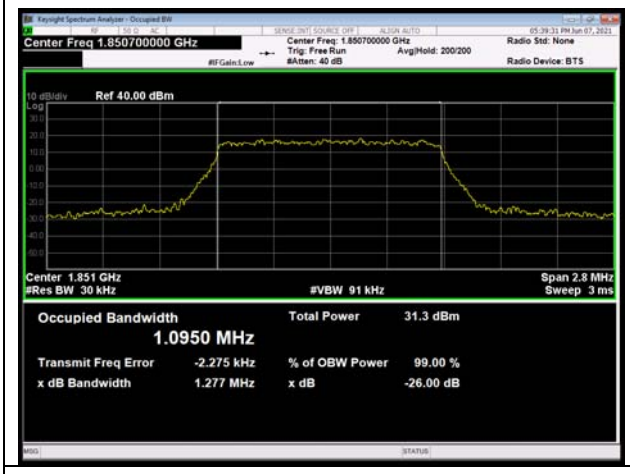
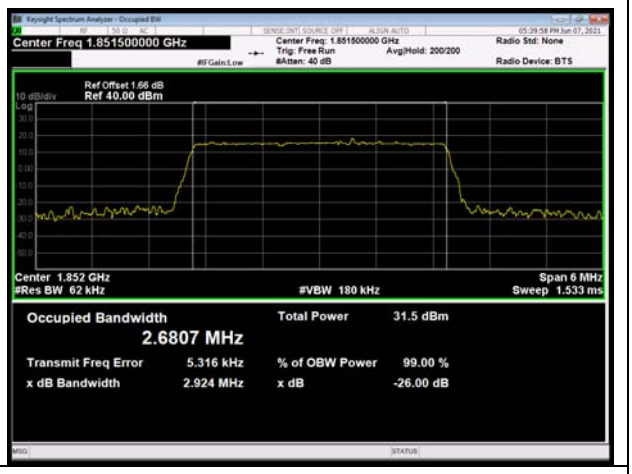
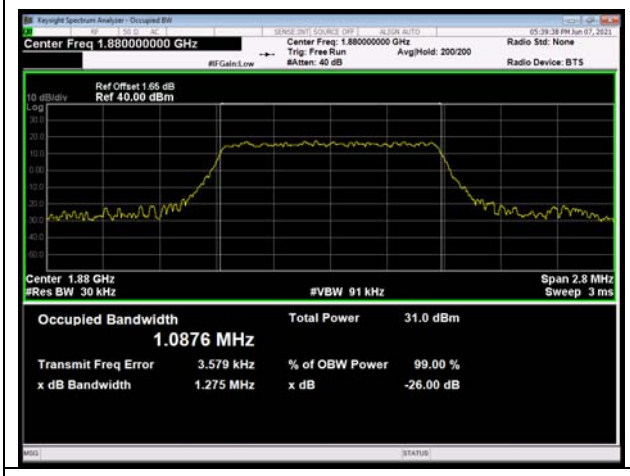
LTE Band 2 1.4MHz QPSK CH-Low



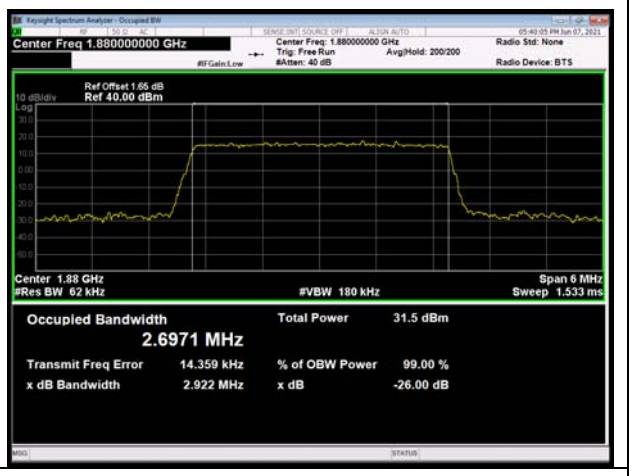
LTE Band 2 3MHz QPSK CH-Low



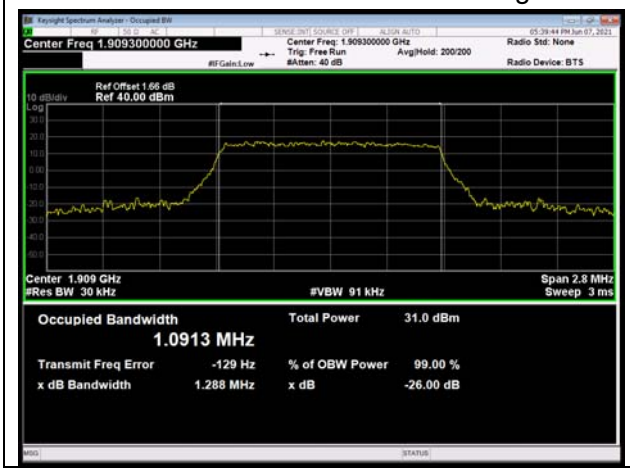
LTE Band 2 1.4MHz QPSK CH-Middle



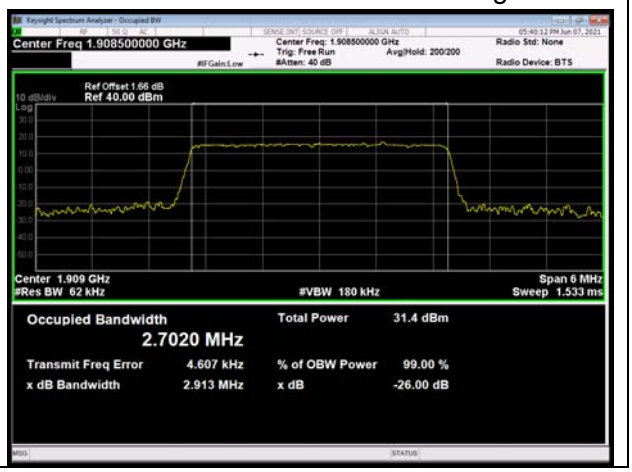
LTE Band 2 3MHz QPSK CH-Middle



LTE Band 2 1.4MHz QPSK CH-High



LTE Band 2 3MHz QPSK CH-High



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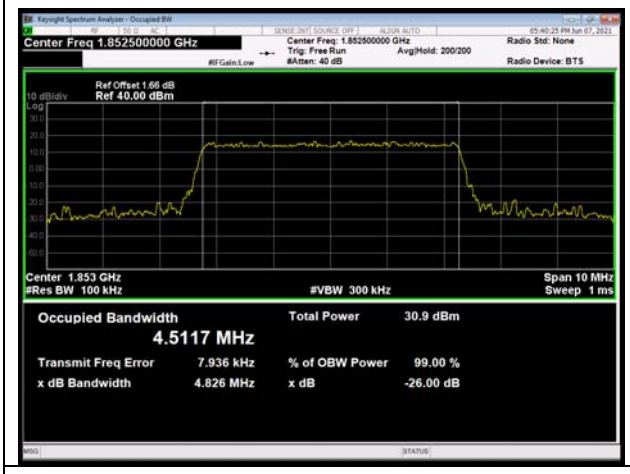
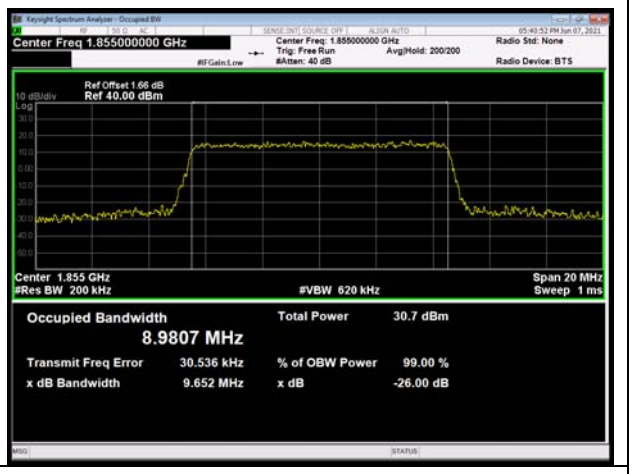
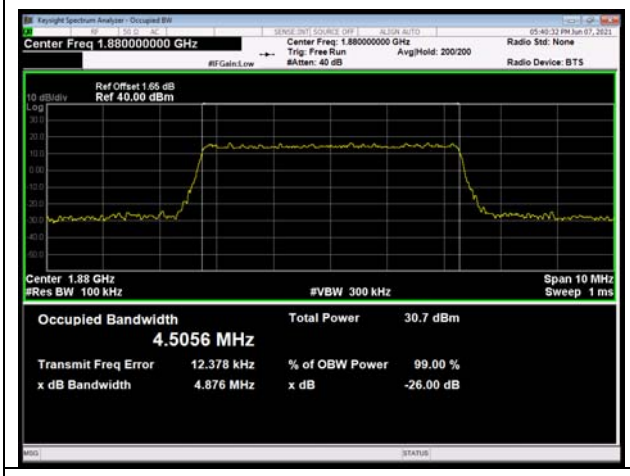
LTE Band 2 5MHz QPSK CH-Low



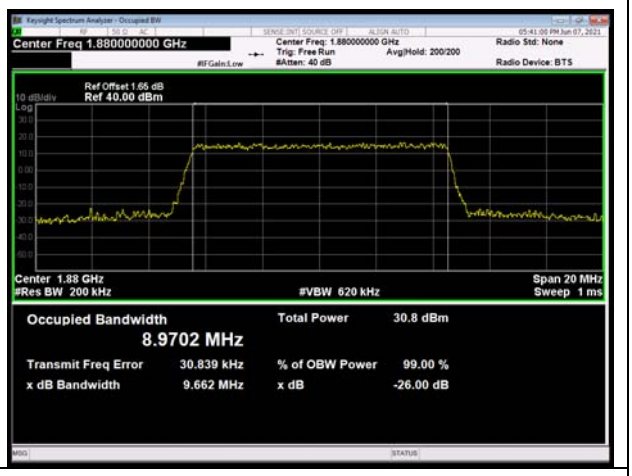
LTE Band 2 10MHz QPSK CH-Low



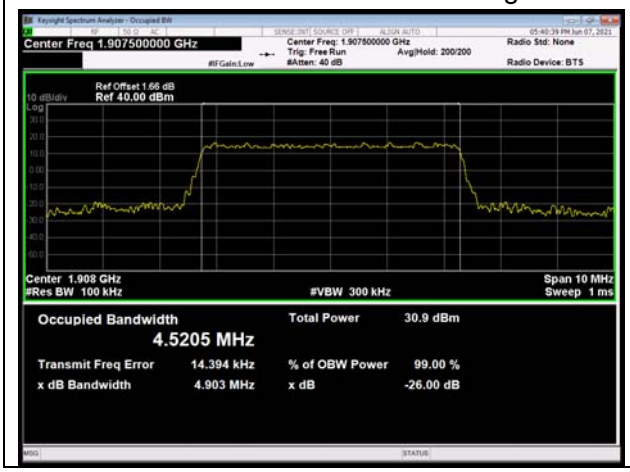
LTE Band 2 5MHz QPSK CH-Middle



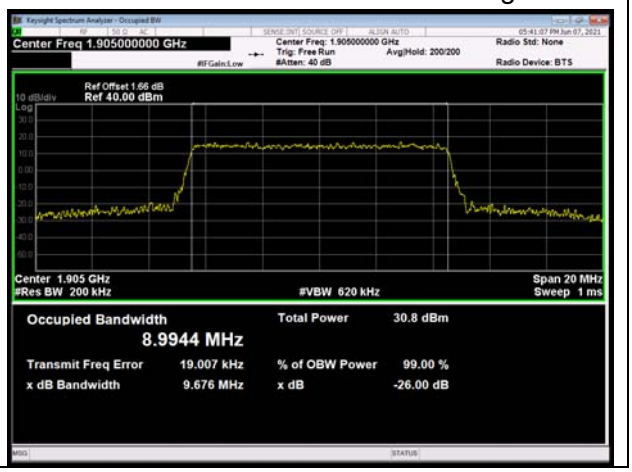
LTE Band 2 10MHz QPSK CH-Middle



LTE Band 2 5MHz QPSK CH-High



LTE Band 2 10MHz QPSK CH-High



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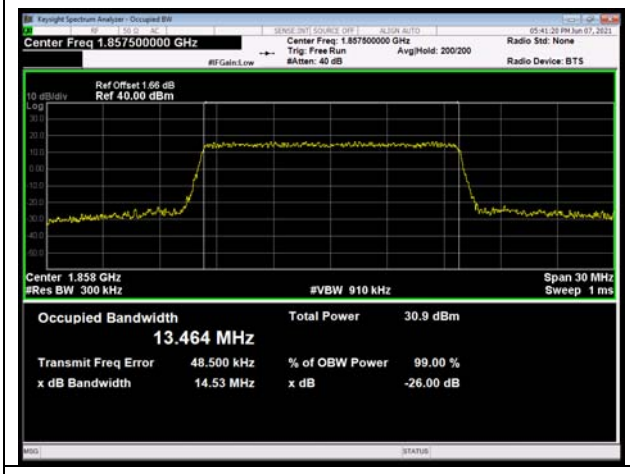
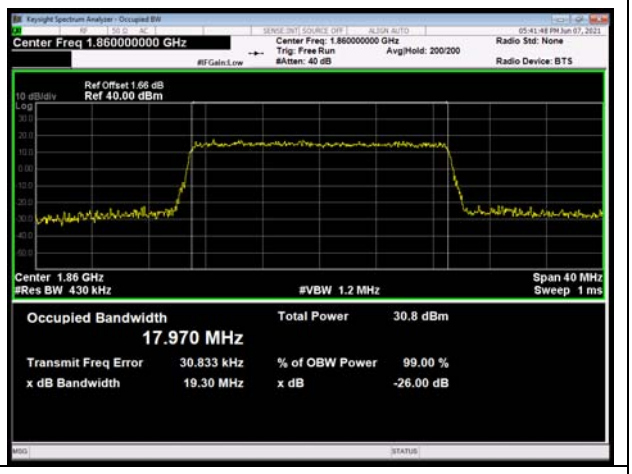
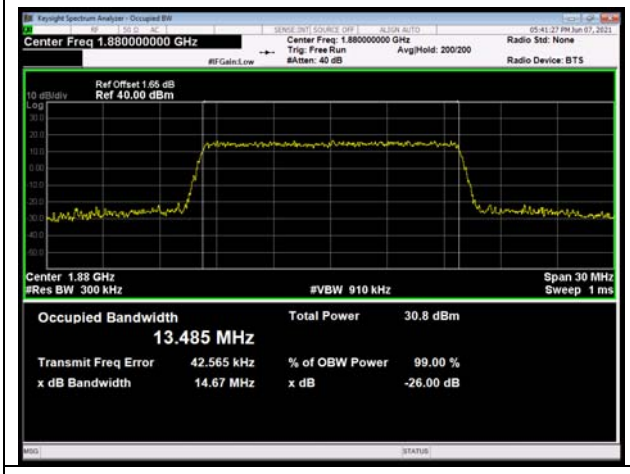
LTE Band 2 15MHz QPSK CH-Low



LTE Band 2 20MHz QPSK CH-Low

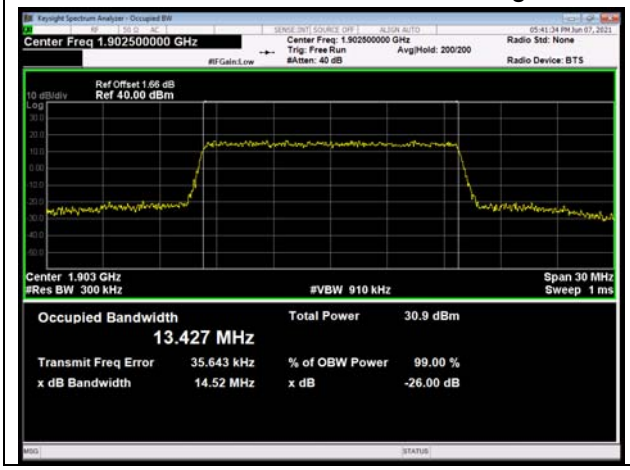


LTE Band 2 15MHz QPSK CH-Middle



LTE Band 2 20MHz QPSK CH-Middle

LTE Band 2 15MHz QPSK CH-High



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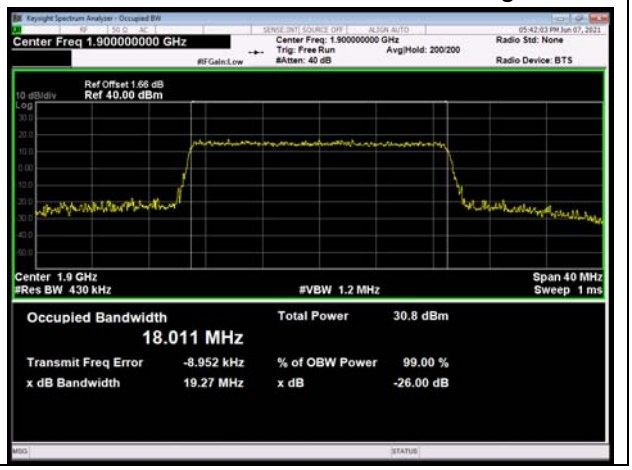

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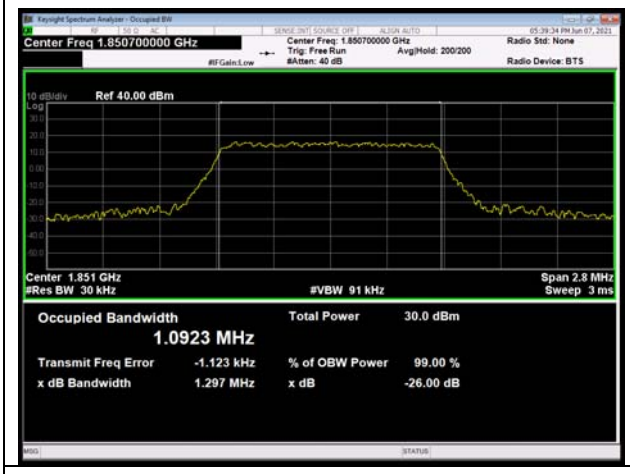
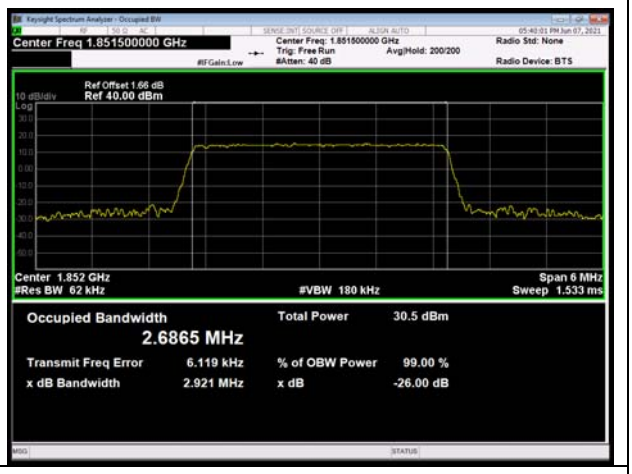
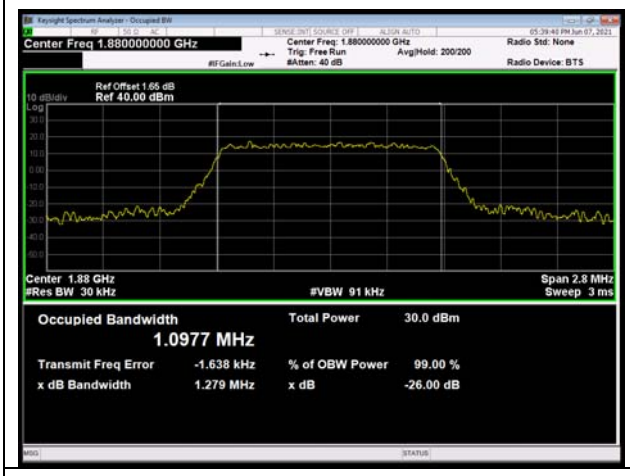
LTE Band 2 1.4MHz 16QAM CH-Low



LTE Band 2 3MHz 16QAM CH-Low



LTE Band 2 1.4MHz 16QAM CH-Middle



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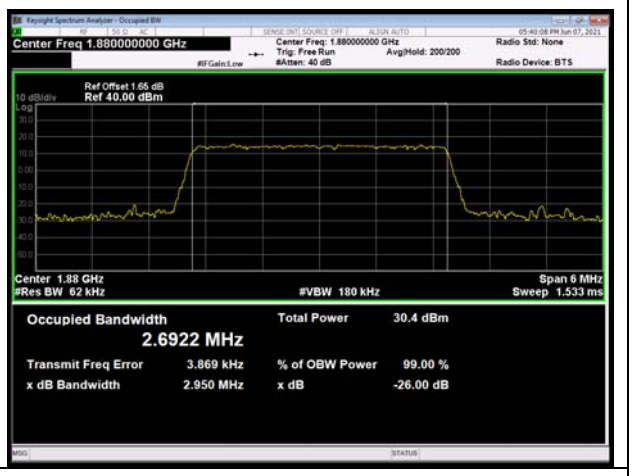
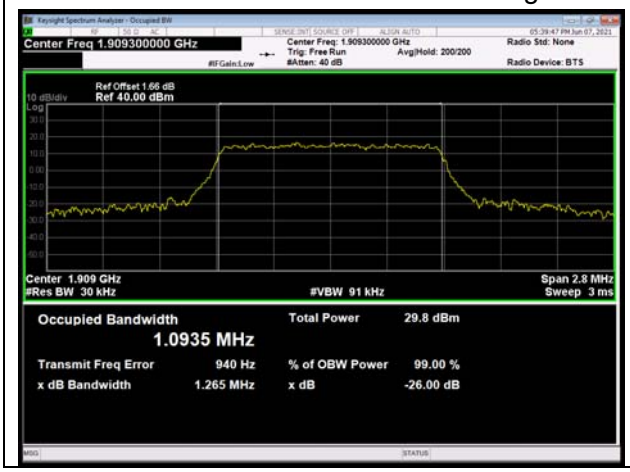
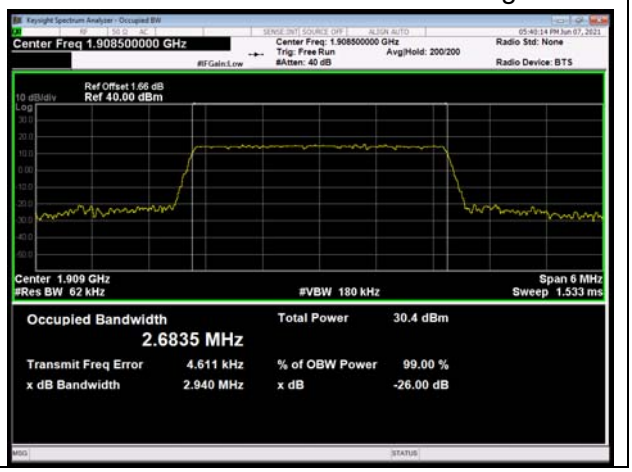


LTE Band 2 1.4MHz 16QAM CH-High



LTE Band 2 3MHz 16QAM CH-High



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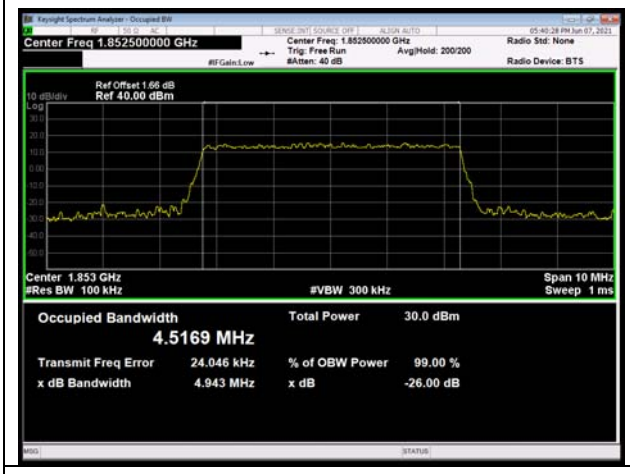
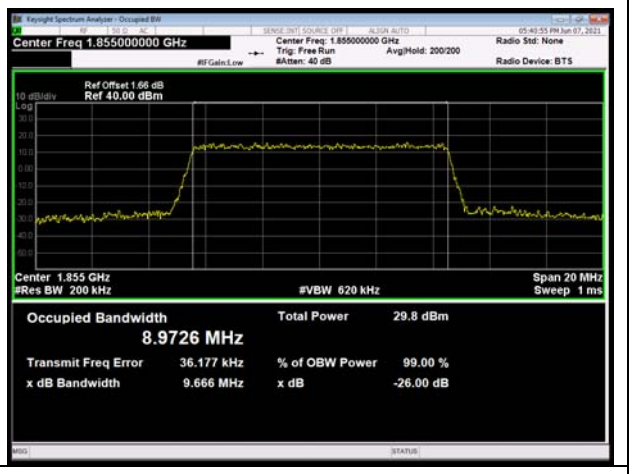
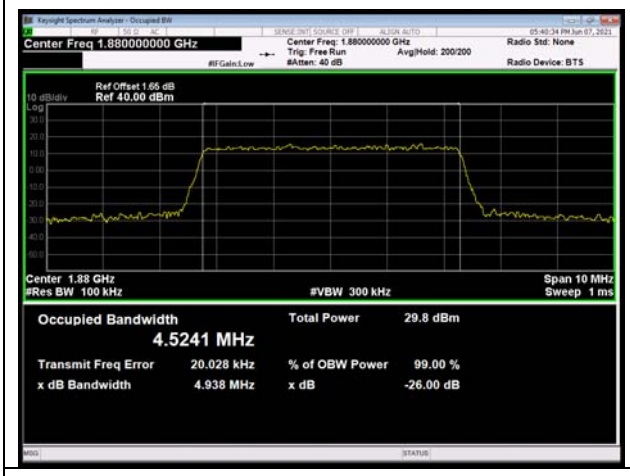
LTE Band 2 5MHz 16QAM CH-Low



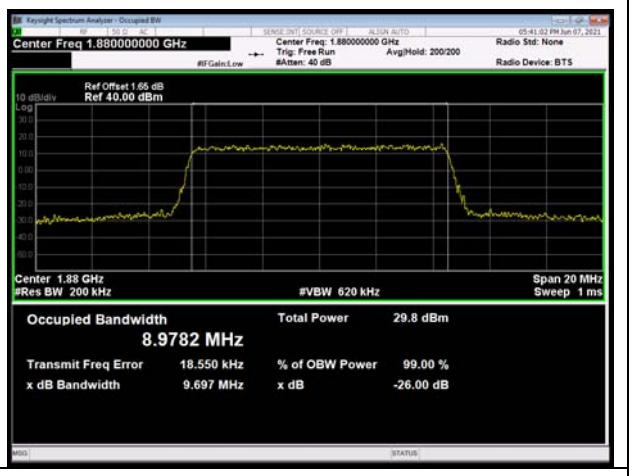
LTE Band 2 10MHz 16QAM CH-Low



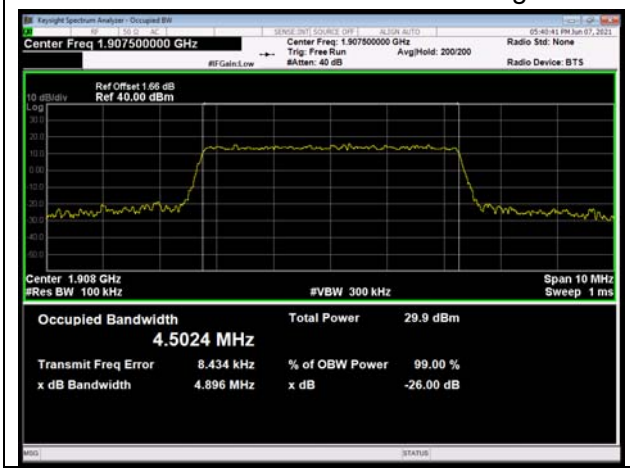
LTE Band 2 5MHz 16QAM CH-Middle



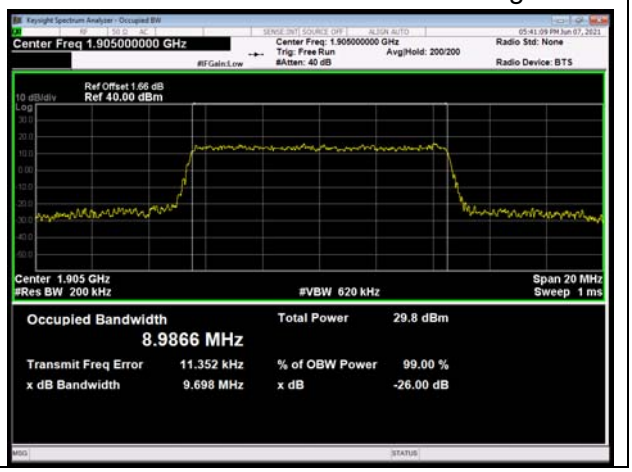
LTE Band 2 10MHz 16QAM CH-Middle



LTE Band 2 5MHz 16QAM CH-High



LTE Band 2 10MHz 16QAM CH-High



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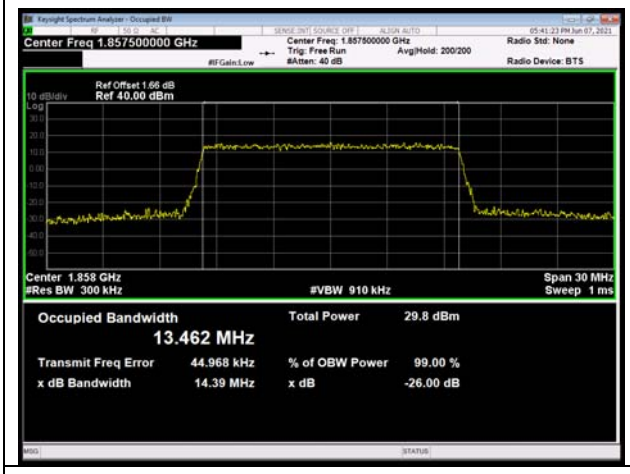
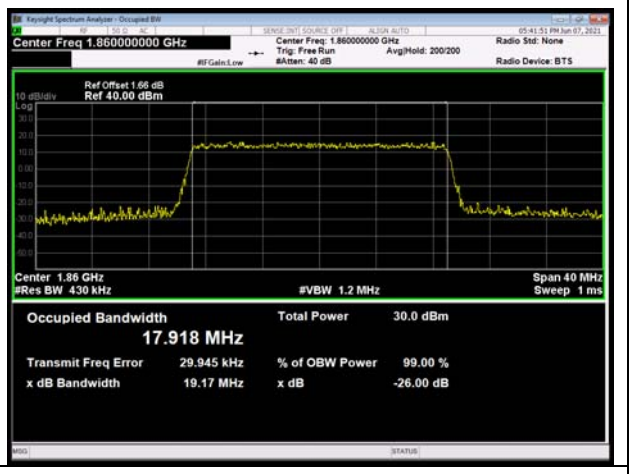
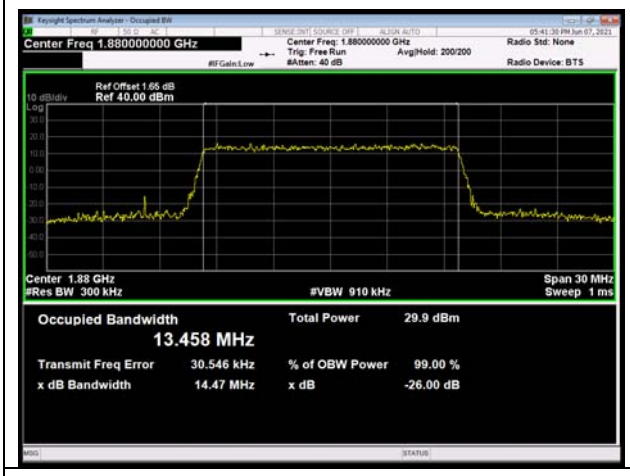
LTE Band 2 15MHz 16QAM CH-Low



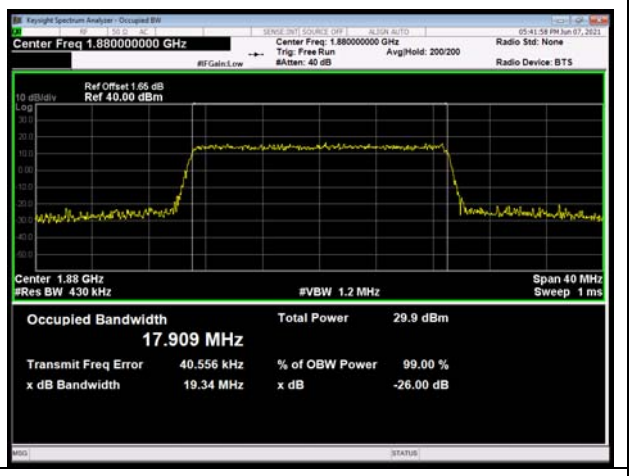
LTE Band 2 20MHz 16QAM CH-Low



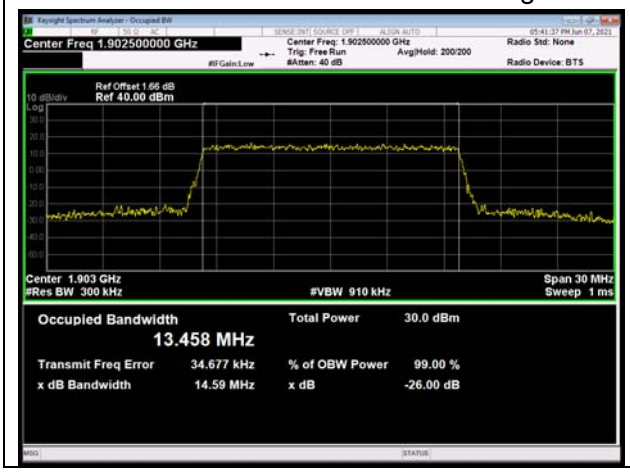
LTE Band 2 15MHz 16QAM CH-Middle



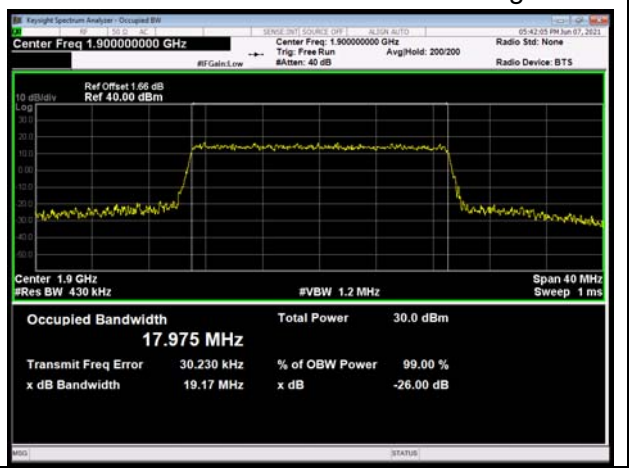
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High



LTE Band 2 20MHz 16QAM CH-High



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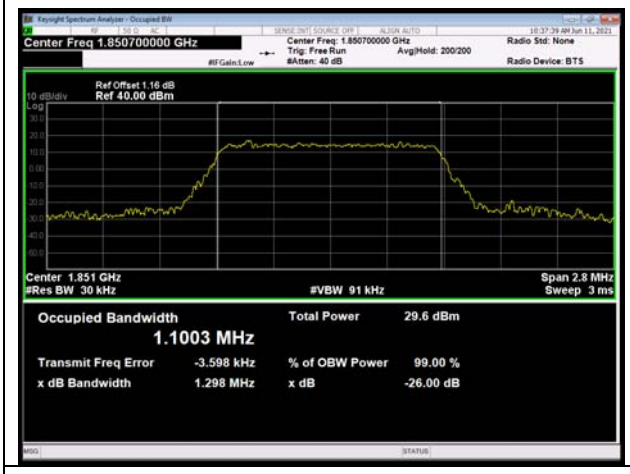
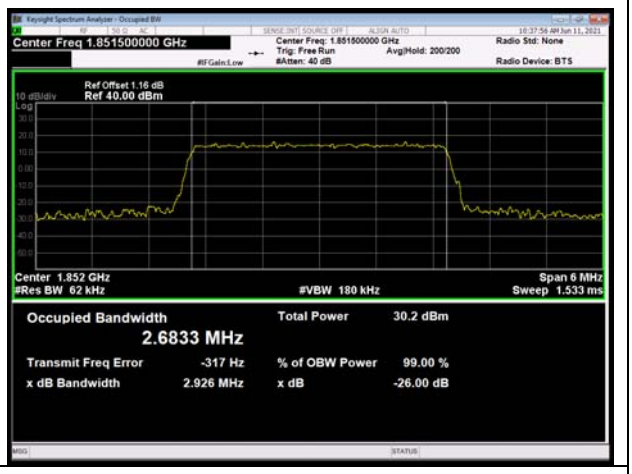
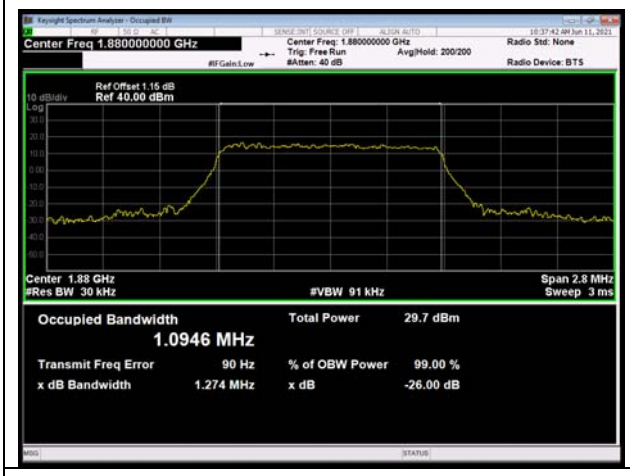
LTE Band 2 1.4MHz 64QAM CH-Low



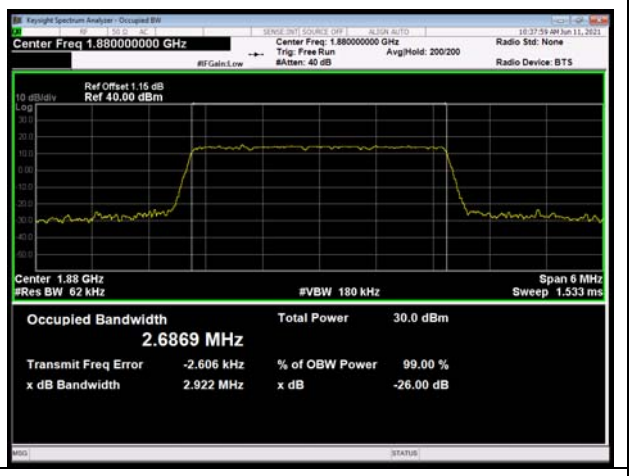
LTE Band 2 3MHz 64QAM CH-Low



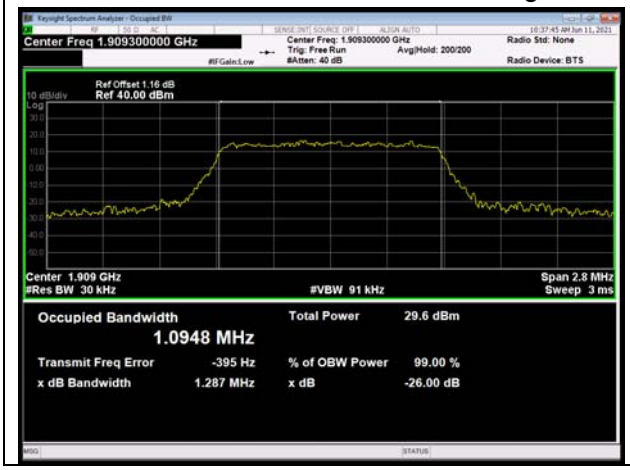
LTE Band 2 1.4MHz 64QAM CH-Middle



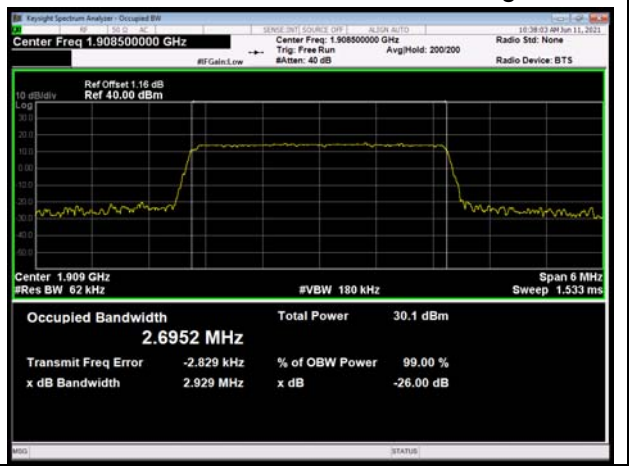
LTE Band 2 3MHz 64QAM CH-Middle



LTE Band 2 1.4MHz 64QAM CH-High



LTE Band 2 3MHz 64QAM CH-High



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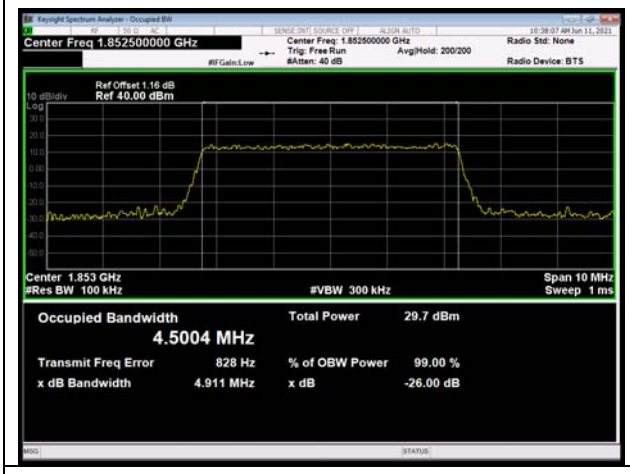
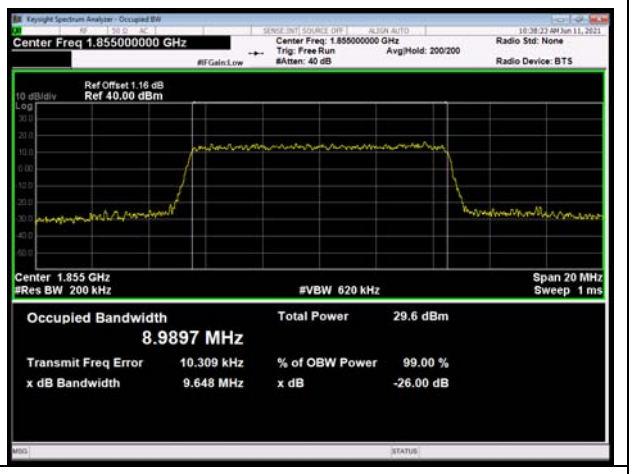
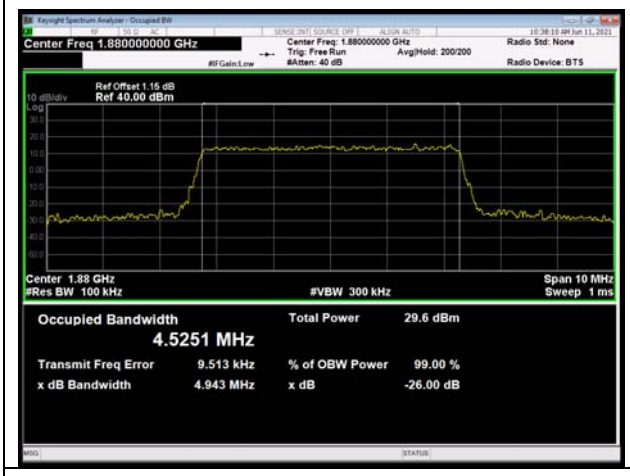
LTE Band 2 5MHz 64QAM CH-Low



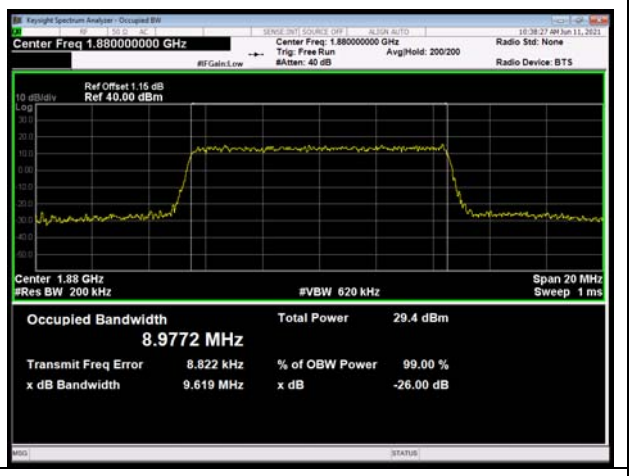
LTE Band 2 10MHz 64QAM CH-Low



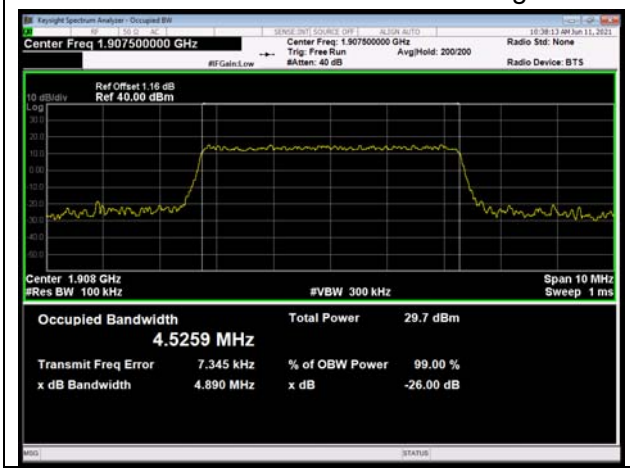
LTE Band 2 5MHz 64QAM CH-Middle



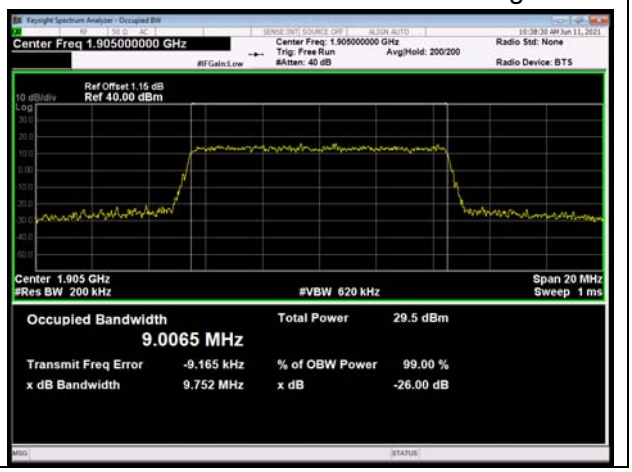
LTE Band 2 10MHz 64QAM CH-Middle



LTE Band 2 5MHz 64QAM CH-High



LTE Band 2 10MHz 64QAM CH-High



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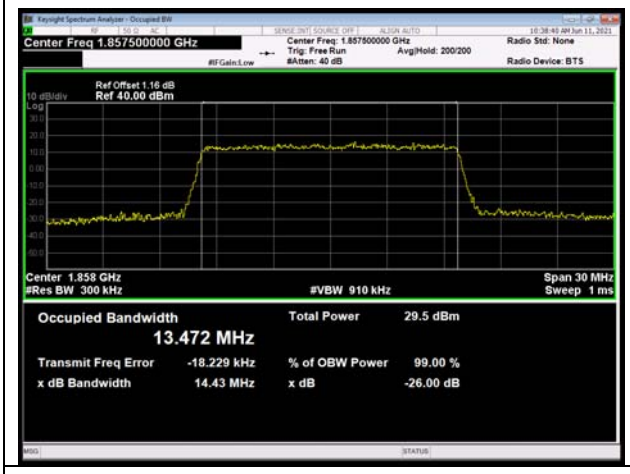
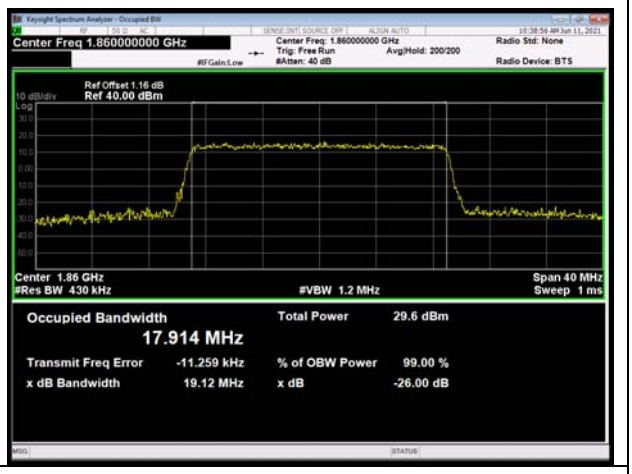
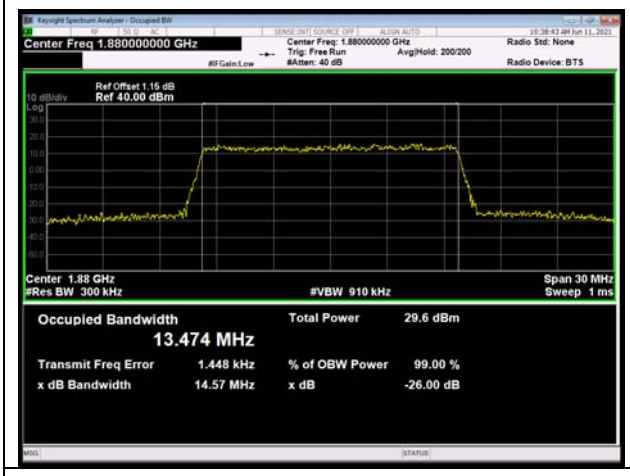
LTE Band 2 15MHz 64QAM CH-Low



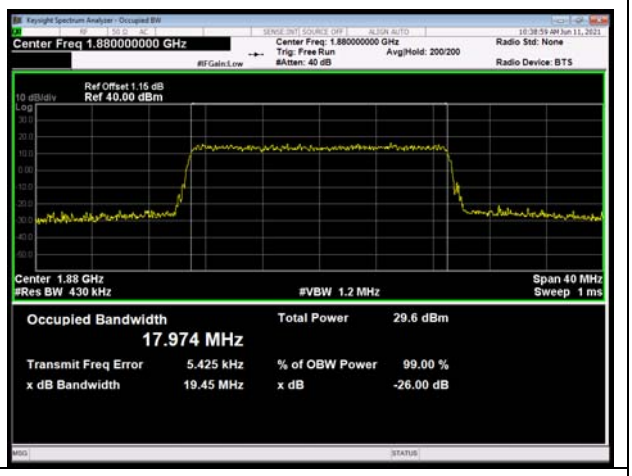
LTE Band 2 20MHz 64QAM CH-Low



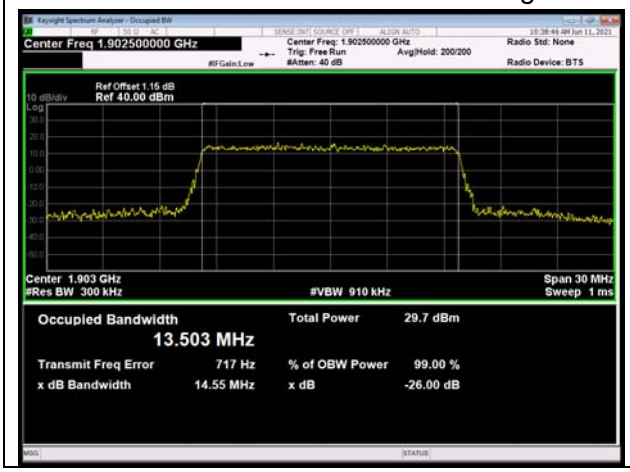
LTE Band 2 15MHz 64QAM CH-Middle



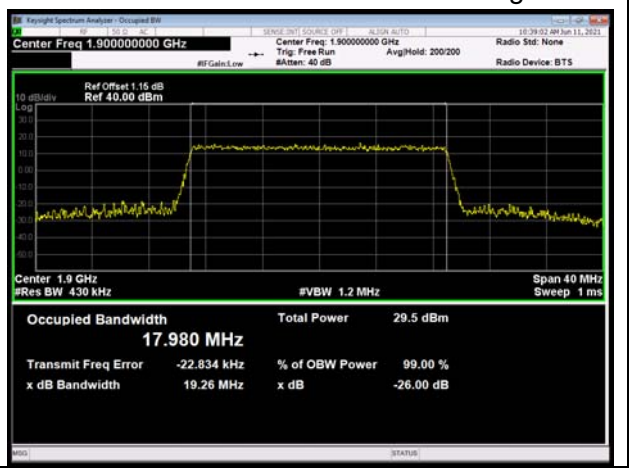
LTE Band 2 20MHz 64QAM CH-Middle



LTE Band 2 15MHz 64QAM CH-High



LTE Band 2 20MHz 64QAM CH-High



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5.3. Band Edge Compliance

Ambient condition

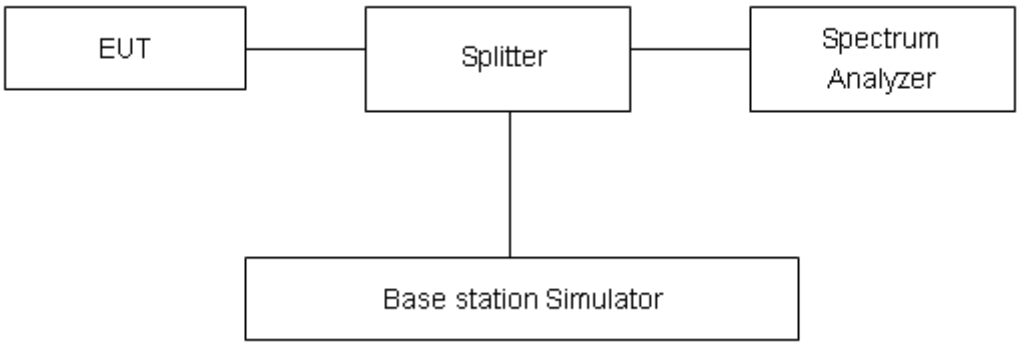
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 ⩾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 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.

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Test Result:

GSM1900 GSM CH-Low

GSM 1900 GSM CH-High

GSM1900 GPRS CH-Low

GSM 1900 GPRS CH-High

GSM1900 EGPRS CH-Low

GSM 1900 EGPRS CH-High

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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

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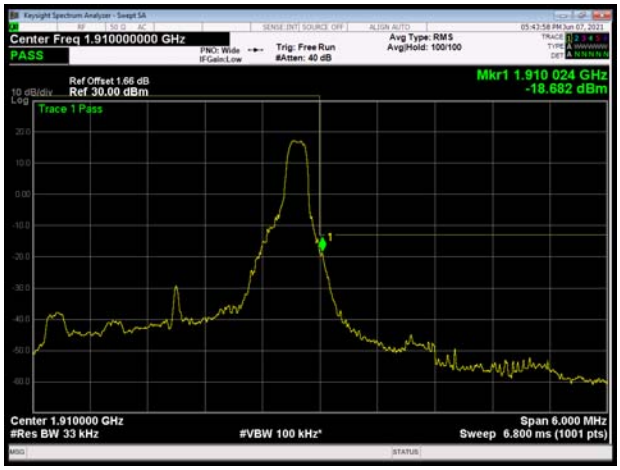
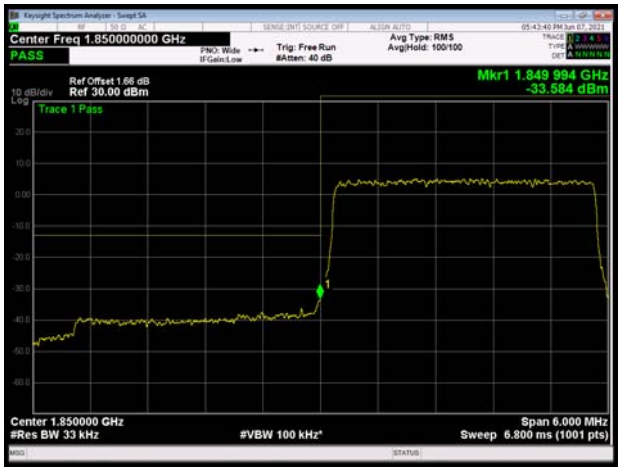
LTE Band 2 3MHz QPSK 1RB CH-Low

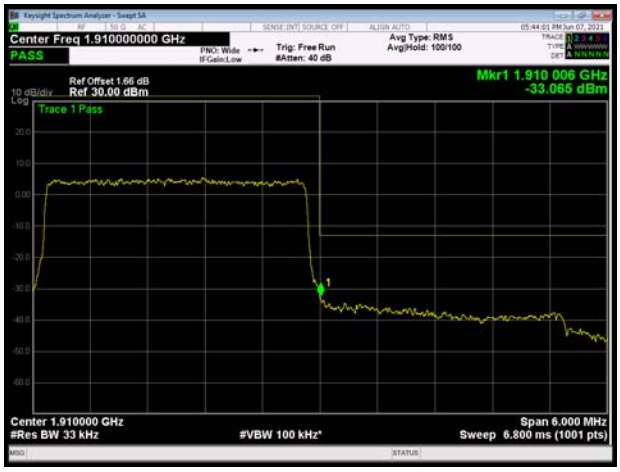
LTE Band 2 3MHz QPSK 1RB CH-High



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

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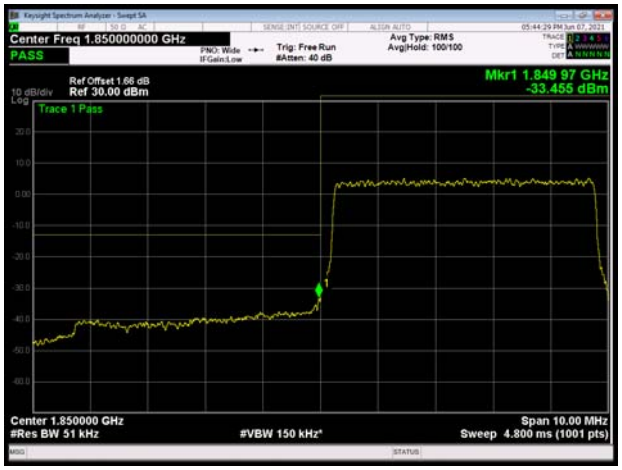
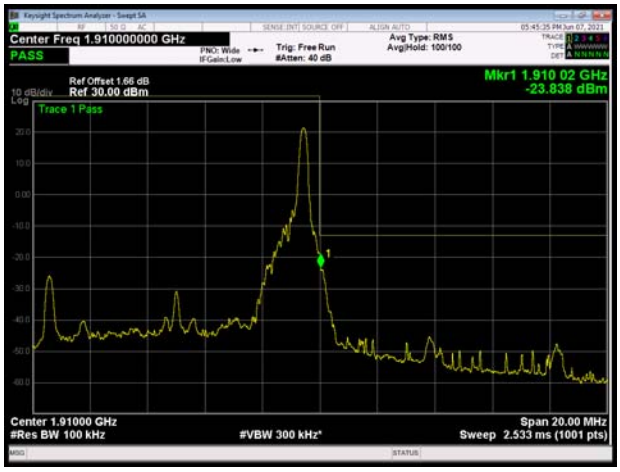
LTE Band 2 5MHz QPSK 100%RB CH-Low



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

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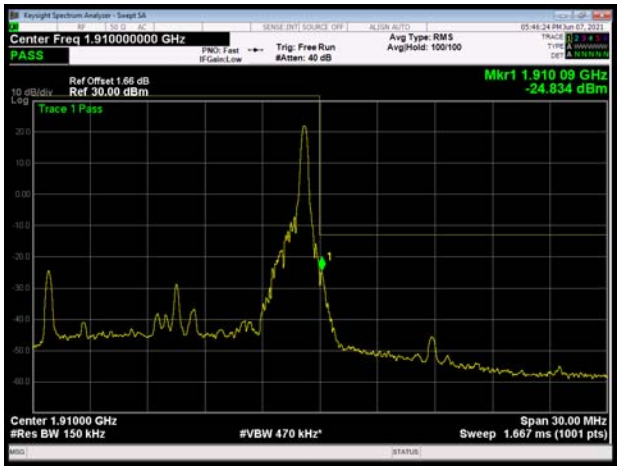
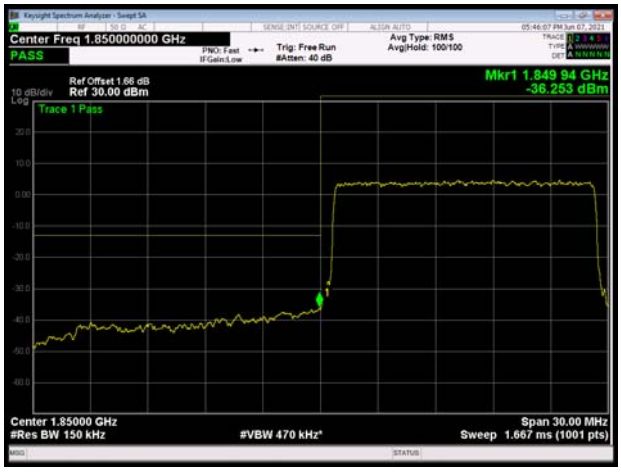
LTE Band 2 15MHz QPSK 1RB CH-Low

LTE Band 2 15MHz QPSK 1RB CH-High



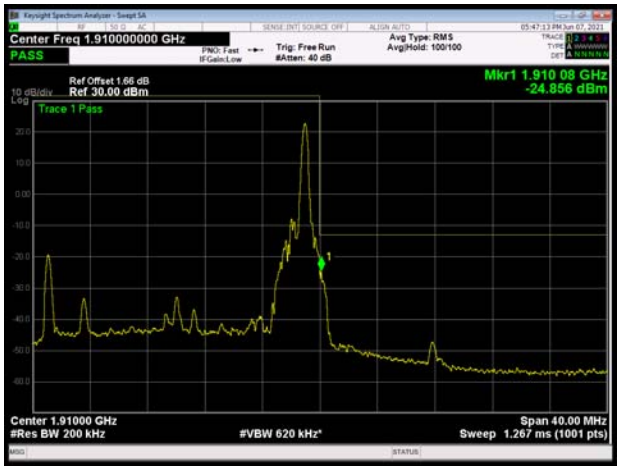
LTE Band 2 15MHz QPSK 100%RB CH-Low



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



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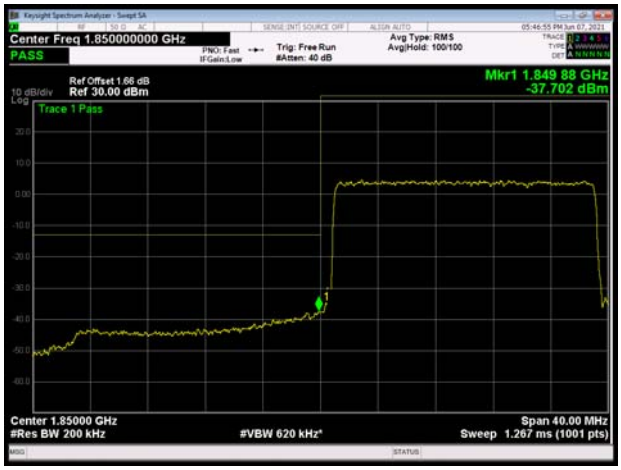
LTE Band 2 20MHz QPSK 100%RB CH-Low



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

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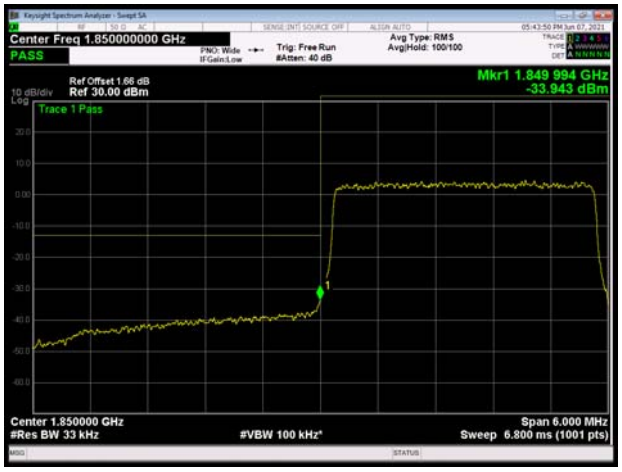
LTE Band 2 3MHz 16QAM 1RB CH-Low

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

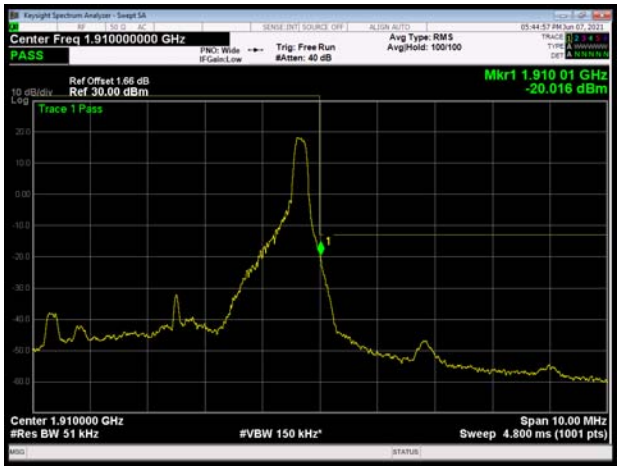
LTE Band 2 3MHz 16QAM 100%RB CH-Low



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



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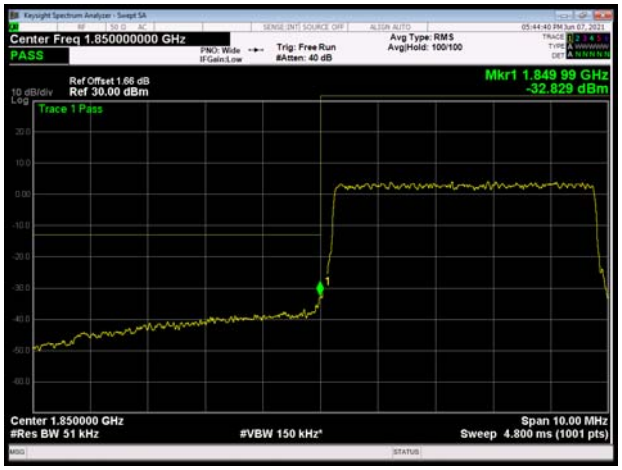
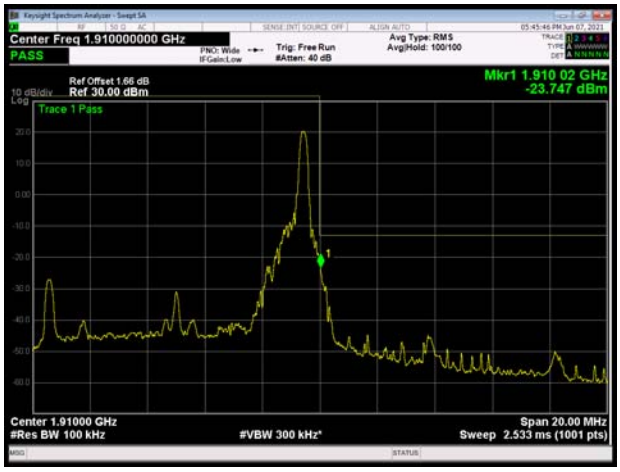
LTE Band 2 5MHz 16QAM 100%RB CH-Low



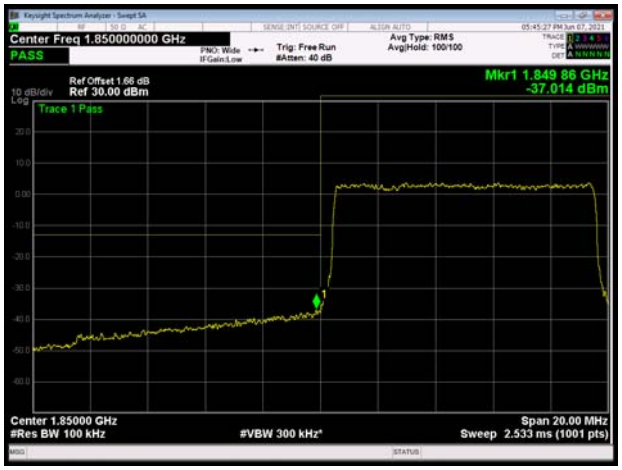
LTE Band 2 5MHz 16QAM 100%RB CH-High

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

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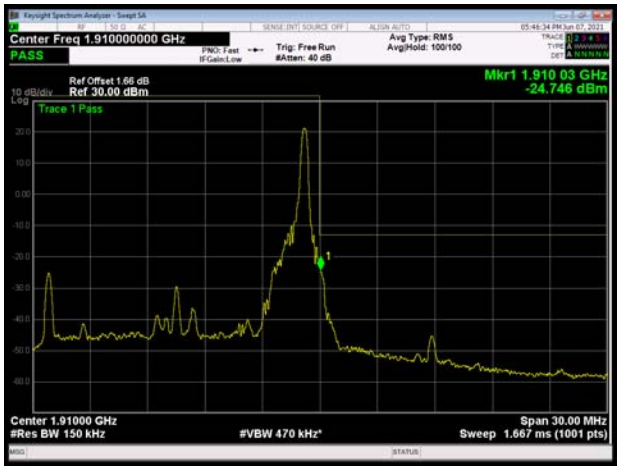
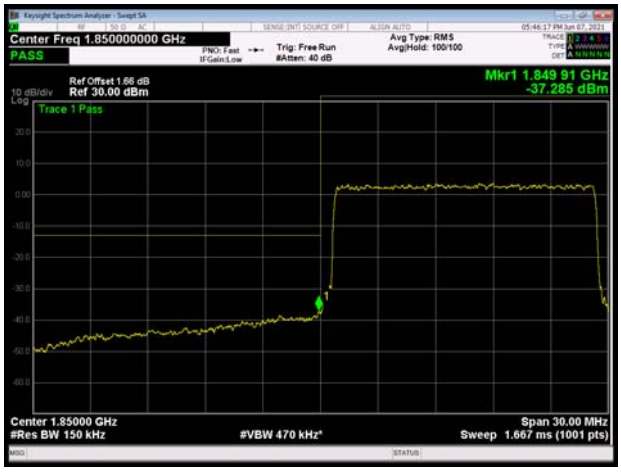
LTE Band 2 15MHz 16QAM 1RB CH-Low

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

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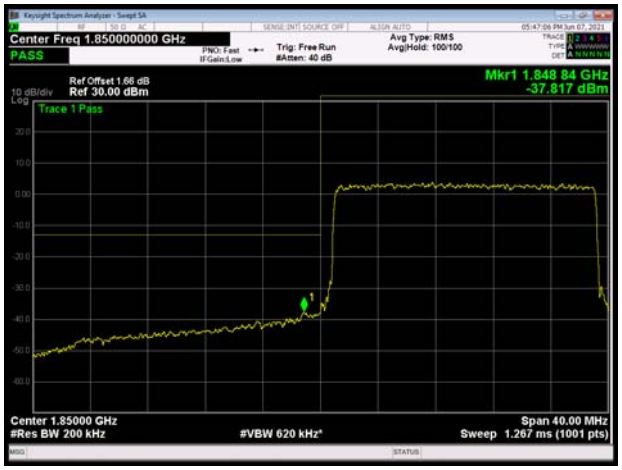
LTE Band 2 20MHz 16QAM 100%RB CH-Low



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

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

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

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

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

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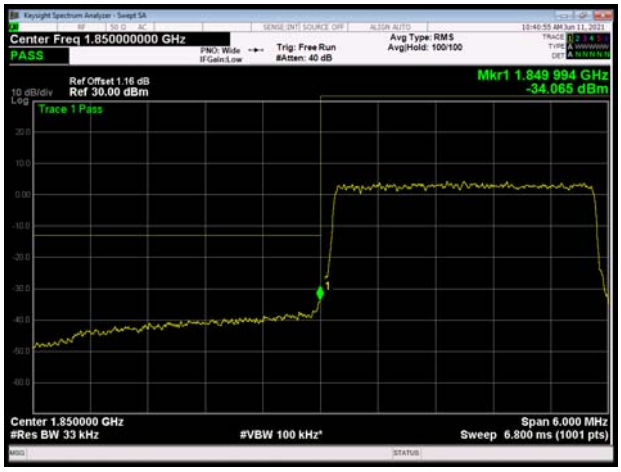
LTE Band 2 3MHz 64QAM 1RB CH-Low

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

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



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

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

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

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

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

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

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

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

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

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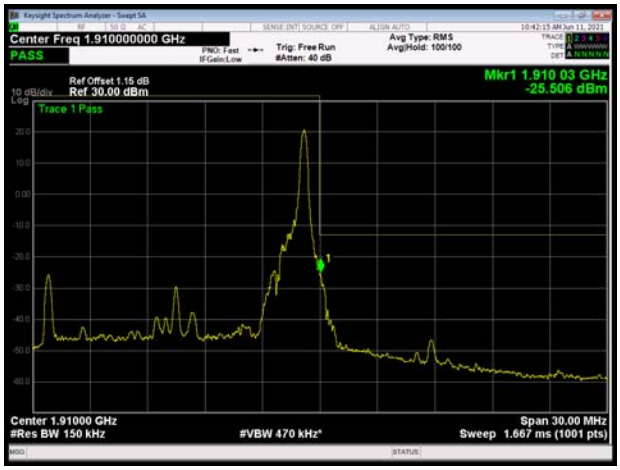
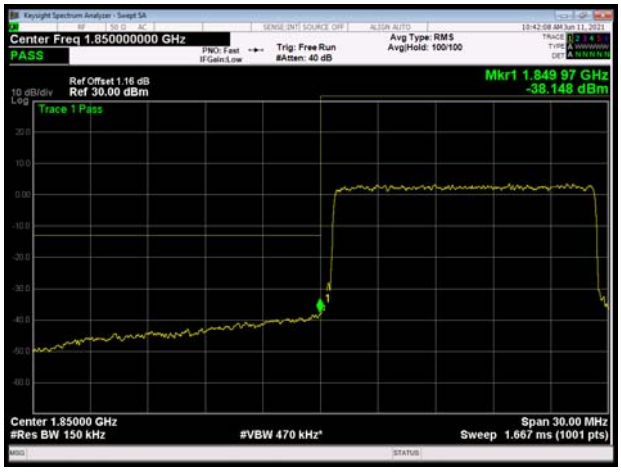
LTE Band 2 15MHz 64QAM 1RB CH-Low

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



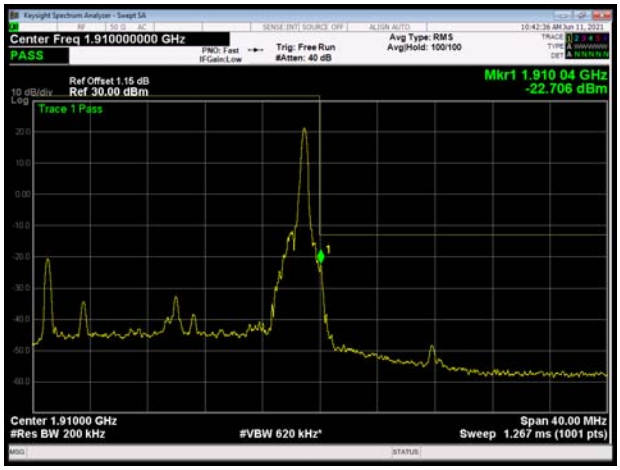
LTE Band 2 15MHz 64QAM 100%RB CH-Low



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

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

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



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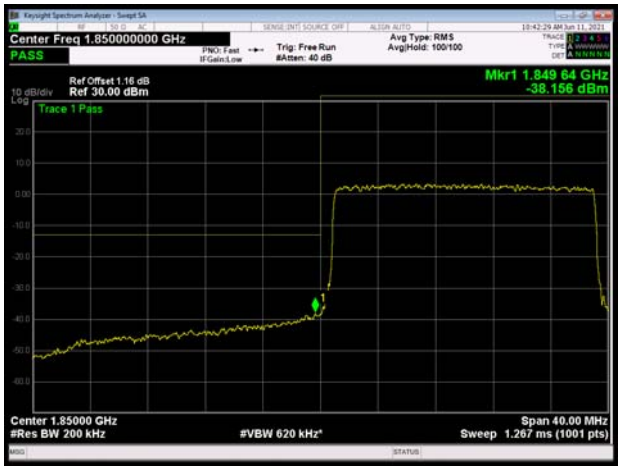
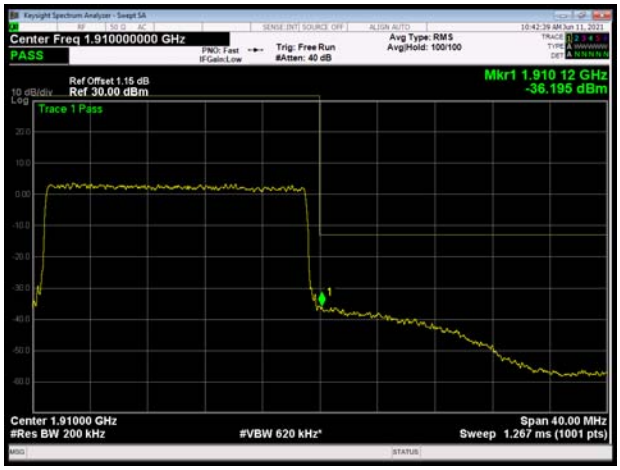
LTE Band 2 20MHz 16QAM 100%RB CH-Low	LTE Band 2 20MHz 16QAM 100%RB CH-High
	

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

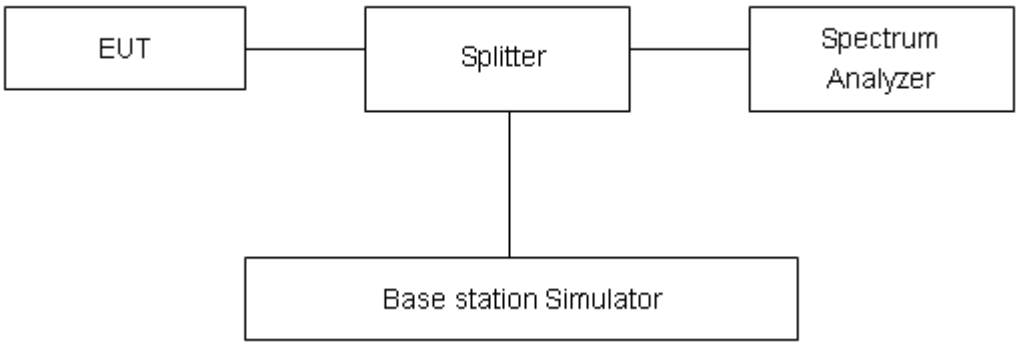
Ambient condition

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

Methods of Measurement

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

Test Setup



Limits

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

Measurement Uncertainty

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

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

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Test Results

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	28.73	26.10	2.63	≤13	PASS
	661	1880	28.42	25.78	2.64	≤13	PASS
	810	1909.8	27.97	25.33	2.64	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	25.24	22.61	2.63	≤13	PASS
	661	1880	24.94	22.31	2.63	≤13	PASS
	810	1909.8	24.51	21.87	2.64	≤13	PASS
EGPRS 1900 (8PSK)	512	1850.2	28.46	22.20	6.26	≤13	PASS
	661	1880	28.15	21.82	6.33	≤13	PASS
	810	1909.8	27.49	21.20	6.29	≤13	PASS
WCDMA Band II (RMC)	9262	1852.4	20.26	17.07	3.19	≤13	PASS
	9400	1880	20.16	16.96	3.20	≤13	PASS
	9538	1907.6	19.77	16.57	3.20	≤13	PASS

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LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	28.06	22.95	5.11	≤13	PASS
		18900	1880.0	28.14	22.93	5.21	≤13	PASS
		19193	1909.3	27.69	22.95	4.74	≤13	PASS
	3	18615	1851.5	28.08	22.89	5.19	≤13	PASS
		18900	1880	28.18	22.88	5.30	≤13	PASS
		19185	1908.5	27.78	22.88	4.90	≤13	PASS
	5	18625	1852.5	28.25	22.91	5.34	≤13	PASS
		18900	1880	28.35	22.90	5.45	≤13	PASS
		19175	1907.5	27.89	22.91	4.98	≤13	PASS
	10	18650	1855	28.27	22.93	5.34	≤13	PASS
		18900	1880	28.35	22.92	5.43	≤13	PASS
		19150	1905	28.16	22.96	5.20	≤13	PASS
	15	18675	1857.5	28.63	22.92	5.71	≤13	PASS
		18900	1880	28.70	22.92	5.78	≤13	PASS
		19125	1902.5	28.47	22.97	5.50	≤13	PASS
	20	18700	1860	28.33	22.87	5.46	≤13	PASS
		18900	1880	28.41	22.87	5.54	≤13	PASS
		19100	1900	28.36	22.90	5.46	≤13	PASS
16QAM	1.4	18607	1850.7	27.88	21.92	5.96	≤13	PASS
		18900	1880.0	27.93	21.93	6.00	≤13	PASS
		19193	1909.3	27.58	21.95	5.63	≤13	PASS
	3	18615	1851.5	27.92	21.91	6.01	≤13	PASS
		18900	1880	28.04	21.89	6.15	≤13	PASS
		19185	1908.5	27.63	21.89	5.74	≤13	PASS
	5	18625	1852.5	27.94	21.91	6.03	≤13	PASS
		18900	1880	28.11	21.90	6.21	≤13	PASS
		19175	1907.5	27.73	21.93	5.80	≤13	PASS
	10	18650	1855	28.06	21.92	6.14	≤13	PASS
		18900	1880	28.18	21.94	6.24	≤13	PASS
		19150	1905	27.92	21.95	5.97	≤13	PASS
	15	18675	1857.5	28.18	21.90	6.28	≤13	PASS
		18900	1880	28.22	21.90	6.32	≤13	PASS
		19125	1902.5	28.07	21.93	6.14	≤13	PASS
	20	18700	1860	28.16	21.89	6.27	≤13	PASS
		18900	1880	28.20	21.90	6.30	≤13	PASS
		19100	1900	28.08	21.91	6.17	≤13	PASS
64QAM	1.4	18607	1850.7	27.57	21.59	5.98	≤13	PASS
		18900	1880.0	27.70	21.58	6.12	≤13	PASS
		19193	1909.3	27.29	21.56	5.73	≤13	PASS

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	3	18615	1851.5	27.65	21.57	6.08	≤13	PASS
		18900	1880	27.72	21.57	6.15	≤13	PASS
		19185	1908.5	27.42	21.61	5.81	≤13	PASS
	5	18625	1852.5	27.66	21.58	6.08	≤13	PASS
		18900	1880	27.77	21.61	6.16	≤13	PASS
		19175	1907.5	27.52	21.61	5.91	≤13	PASS
	10	18650	1855	27.71	21.59	6.12	≤13	PASS
		18900	1880	27.82	21.59	6.23	≤13	PASS
		19150	1905	27.68	21.63	6.05	≤13	PASS
	15	18675	1857.5	27.84	21.59	6.25	≤13	PASS
		18900	1880	27.90	21.57	6.33	≤13	PASS
		19125	1902.5	27.79	21.60	6.19	≤13	PASS
	20	18700	1860	27.75	21.50	6.25	≤13	PASS
		18900	1880	27.96	21.59	6.37	≤13	PASS
		19100	1900	27.78	21.60	6.18	≤13	PASS

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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 +60°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 +60°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

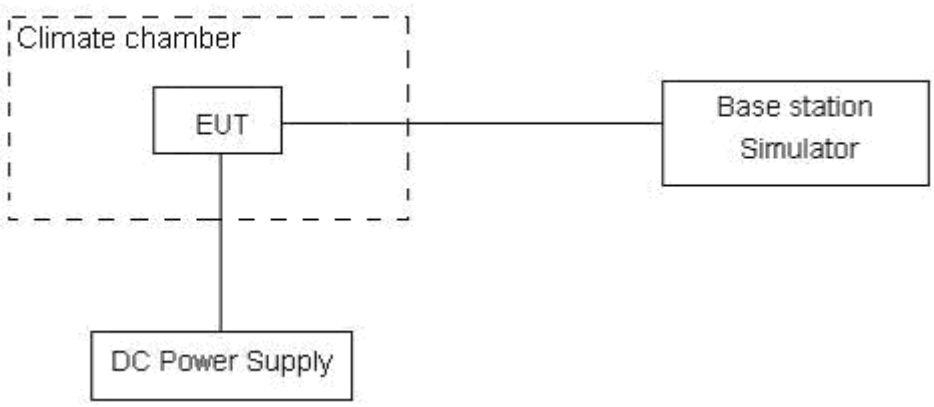
Frequency Stability (Voltage Variation)

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 3.6 V and 4.45 V, with a nominal voltage of 3.8V.

Test setup



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Limits

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

Measurement Uncertainty

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

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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℃）	Normal	1.10	1.88	0.00058	0.00100	PASS
Extreme（60℃）		14.97	17.26	0.00796	0.00918	PASS
Extreme（50℃）		9.45	5.35	0.00503	0.00285	PASS
Extreme（40℃）		17.80	8.05	0.00947	0.00428	PASS
Extreme（30℃）		3.73	17.64	0.00198	0.00938	PASS
Extreme（20℃）		2.13	15.94	0.00113	0.00848	PASS
Extreme（10℃）		3.44	6.60	0.00183	0.00351	PASS
Extreme（0℃）		5.48	10.42	0.00291	0.00554	PASS
Extreme（-10℃）		2.86	4.07	0.00152	0.00217	PASS
Extreme（-20℃）		8.47	8.28	0.00450	0.00440	PASS
Extreme（-30℃）		2.29	10.19	0.00122	0.00542	PASS
25℃	LV	3.47	10.58	0.00184	0.00563	PASS
	HV	2.14	12.95	0.00114	0.00689	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℃）	Normal	12.14	3.94	0.00646	0.00210	PASS
Extreme（60℃）		12.89	15.84	0.00686	0.00842	PASS
Extreme（50℃）		17.30	12.38	0.00920	0.00658	PASS
Extreme（40℃）		10.65	2.88	0.00566	0.00153	PASS
Extreme（30℃）		15.19	12.99	0.00808	0.00691	PASS
Extreme（20℃）		16.01	4.96	0.00852	0.00264	PASS
Extreme（10℃）		6.50	2.62	0.00346	0.00139	PASS
Extreme（0℃）		9.10	17.26	0.00484	0.00918	PASS
Extreme（-10℃）		5.79	2.95	0.00308	0.00157	PASS
Extreme（-20℃）		7.86	1.57	0.00418	0.00083	PASS
Extreme（-30℃）		7.85	15.28	0.00417	0.00813	PASS
25℃	LV	10.44	8.47	0.00555	0.00450	PASS
	HV	16.37	14.90	0.00871	0.00792	PASS

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LTE Band 2								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	15.50	8.21	6.32	0.00825	0.00437	0.00336	PASS
Extreme（60℃）		13.37	2.65	2.32	0.00711	0.00141	0.00123	PASS
Extreme（50℃）		14.83	16.90	6.95	0.00789	0.00899	0.00370	PASS
Extreme（40℃）		5.01	7.28	16.66	0.00267	0.00387	0.00886	PASS
Extreme（30℃）		8.13	5.86	11.40	0.00432	0.00311	0.00607	PASS
Extreme（20℃）		8.52	16.08	1.73	0.00453	0.00855	0.00092	PASS
Extreme（10℃）		17.56	6.17	6.01	0.00934	0.00328	0.00320	PASS
Extreme（0℃）		2.96	15.36	4.76	0.00157	0.00817	0.00253	PASS
Extreme（-10℃）		9.81	1.17	9.36	0.00522	0.00062	0.00498	PASS
Extreme（-20℃）		4.30	7.56	2.92	0.00229	0.00402	0.00155	PASS
Extreme（-30℃）		7.07	6.14	1.59	0.00376	0.00327	0.00084	PASS
25℃	LV	5.71	17.35	12.41	0.00304	0.00923	0.00660	PASS
	HV	6.40	1.53	16.05	0.00341	0.00081	0.00853	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	8.64	7.85	17.52	0.00460	0.00418	0.00932	PASS
Extreme（60℃）		1.97	6.58	9.90	0.00105	0.00350	0.00526	PASS
Extreme（50℃）		5.35	1.25	6.16	0.00284	0.00067	0.00328	PASS
Extreme（40℃）		11.07	1.22	1.98	0.00589	0.00065	0.00105	PASS
Extreme（30℃）		7.62	8.36	5.35	0.00405	0.00445	0.00285	PASS
Extreme（20℃）		13.24	9.49	14.90	0.00704	0.00505	0.00792	PASS
Extreme（10℃）		13.02	7.16	9.85	0.00693	0.00381	0.00524	PASS
Extreme（0℃）		1.87	16.89	16.81	0.00099	0.00898	0.00894	PASS
Extreme（-10℃）		7.68	5.84	4.08	0.00408	0.00311	0.00217	PASS
Extreme（-20℃）		4.12	15.26	14.34	0.00219	0.00812	0.00763	PASS
Extreme（-30℃）		7.18	9.56	10.59	0.00382	0.00508	0.00563	PASS
25℃	LV	11.01	3.97	7.18	0.00585	0.00211	0.00382	PASS
	HV	9.91	2.19	4.21	0.00527	0.00116	0.00224	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	5MHz							

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Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	5.33	8.51	2.62	0.00284	0.00453	0.00139	PASS
Extreme（60℃）		8.31	15.47	10.16	0.00442	0.00823	0.00540	PASS
Extreme（50℃）		3.43	11.54	16.65	0.00182	0.00614	0.00886	PASS
Extreme（40℃）		11.77	5.19	9.50	0.00626	0.00276	0.00505	PASS
Extreme（30℃）		13.49	3.19	9.10	0.00718	0.00170	0.00484	PASS
Extreme（20℃）		6.41	3.04	15.87	0.00341	0.00162	0.00844	PASS
Extreme（10℃）		17.04	4.38	13.72	0.00906	0.00233	0.00730	PASS
Extreme（0℃）		11.73	8.06	4.95	0.00624	0.00429	0.00264	PASS
Extreme（-10℃）		12.39	7.38	11.67	0.00659	0.00392	0.00621	PASS
Extreme（-20℃）		9.49	15.07	17.35	0.00505	0.00802	0.00923	PASS
Extreme（-30℃）		7.13	14.94	11.66	0.00379	0.00795	0.00620	PASS
25℃	LV	5.37	8.05	10.46	0.00286	0.00428	0.00556	PASS
	HV	14.44	16.65	6.96	0.00768	0.00885	0.00370	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	13.85	2.42	10.06	0.00737	0.00129	0.00535	PASS
Extreme（60℃）		17.38	6.74	17.71	0.00924	0.00358	0.00942	PASS
Extreme（50℃）		4.67	13.90	2.31	0.00249	0.00740	0.00123	PASS
Extreme（40℃）		15.23	6.61	1.47	0.00810	0.00351	0.00078	PASS
Extreme（30℃）		1.28	16.36	7.45	0.00068	0.00870	0.00396	PASS
Extreme（20℃）		15.15	6.94	1.35	0.00806	0.00369	0.00072	PASS
Extreme（10℃）		14.48	1.37	11.25	0.00770	0.00073	0.00598	PASS
Extreme（0℃）		13.77	10.65	6.56	0.00733	0.00566	0.00349	PASS
Extreme（-10℃）		8.15	8.29	14.17	0.00434	0.00441	0.00754	PASS
Extreme（-20℃）		5.66	2.84	2.32	0.00301	0.00151	0.00123	PASS
Extreme（-30℃）		4.94	2.49	4.82	0.00263	0.00132	0.00256	PASS
25℃	LV	11.04	3.05	4.05	0.00587	0.00162	0.00216	PASS
	HV	12.78	10.39	1.41	0.00680	0.00553	0.00075	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	3.16	4.67	3.36	0.00168	0.00249	0.00178	PASS
Extreme（60℃）		1.94	1.33	5.92	0.00103	0.00070	0.00315	PASS
Extreme（50℃）		16.73	4.75	12.84	0.00890	0.00253	0.00683	PASS
Extreme（40℃）		1.56	14.72	9.34	0.00083	0.00783	0.00497	PASS
Extreme（30℃）		10.29	8.25	7.20	0.00547	0.00439	0.00383	PASS

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Extreme（20℃）		13.56	6.05	12.23	0.00721	0.00322	0.00651	PASS
Extreme（10℃）		11.00	2.04	14.60	0.00585	0.00108	0.00776	PASS
Extreme（0℃）		4.31	17.44	2.90	0.00229	0.00928	0.00154	PASS
Extreme（-10℃）		12.37	14.91	1.19	0.00658	0.00793	0.00064	PASS
Extreme（-20℃）		15.24	10.78	7.30	0.00811	0.00573	0.00389	PASS
Extreme（-30℃）		2.64	13.16	1.80	0.00140	0.00700	0.00096	PASS
25℃	LV	1.86	2.44	13.51	0.00099	0.00130	0.00719	PASS
	HV	10.70	16.40	10.45	0.00569	0.00872	0.00556	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability（ppm）	Frequency Stability（ppm）	Frequency Stability（ppm）	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	6.53	17.41	10.01	0.00347	0.00926	0.00533	PASS
Extreme（60℃）		13.14	2.71	12.03	0.00699	0.00144	0.00640	PASS
Extreme（50℃）		6.66	16.27	16.09	0.00354	0.00865	0.00856	PASS
Extreme（40℃）		6.03	9.49	6.49	0.00321	0.00505	0.00345	PASS
Extreme（30℃）		13.37	16.24	14.32	0.00711	0.00864	0.00761	PASS
Extreme（20℃）		4.15	6.09	2.78	0.00221	0.00324	0.00148	PASS
Extreme（10℃）		1.04	9.93	15.18	0.00055	0.00528	0.00807	PASS
Extreme（0℃）		15.88	8.84	5.71	0.00845	0.00470	0.00304	PASS
Extreme（-10℃）		3.97	9.13	12.88	0.00211	0.00486	0.00685	PASS
Extreme（-20℃）		15.21	6.13	11.45	0.00809	0.00326	0.00609	PASS
Extreme（-30℃）		15.89	5.36	4.94	0.00845	0.00285	0.00263	PASS
25℃	LV	6.01	5.34	14.92	0.00320	0.00284	0.00794	PASS
	HV	8.91	7.44	1.46	0.00474	0.00396	0.00078	PASS

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5.6. Spurious Emissions at Antenna Terminals

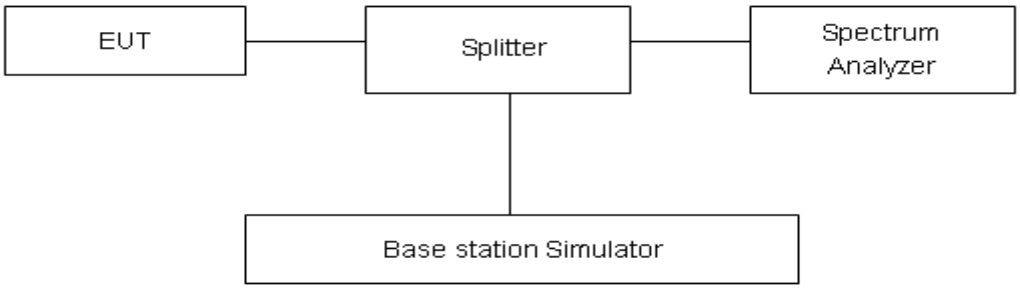
Ambient condition

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

Test setup



Limits

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

Limit	-13 dBm

Measurement Uncertainty

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

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

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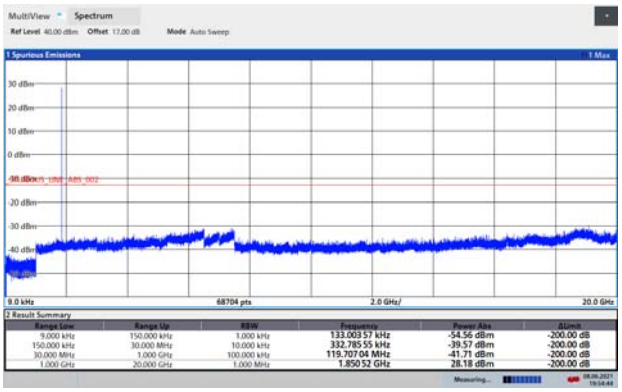
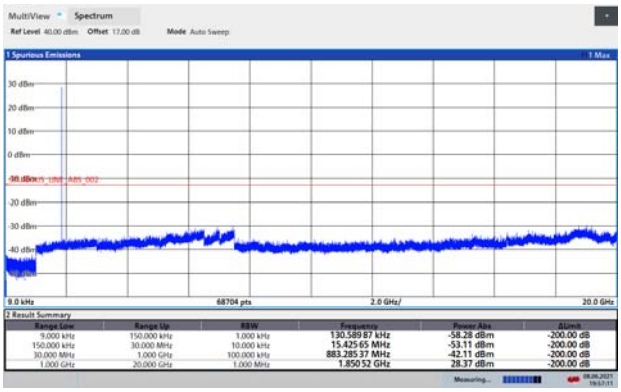
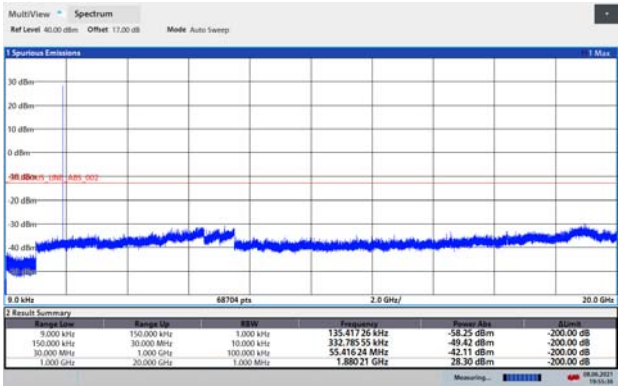
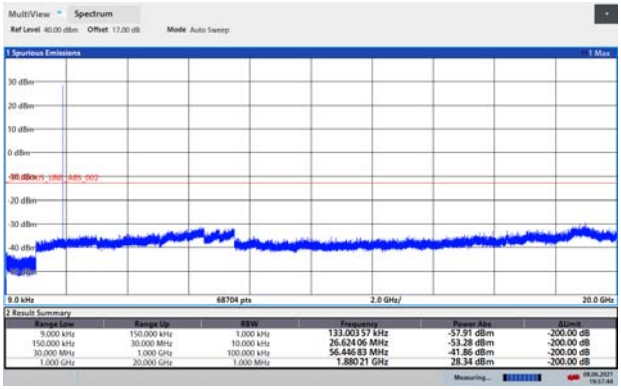
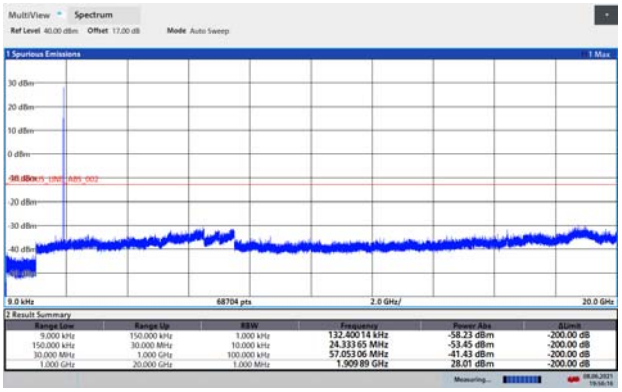
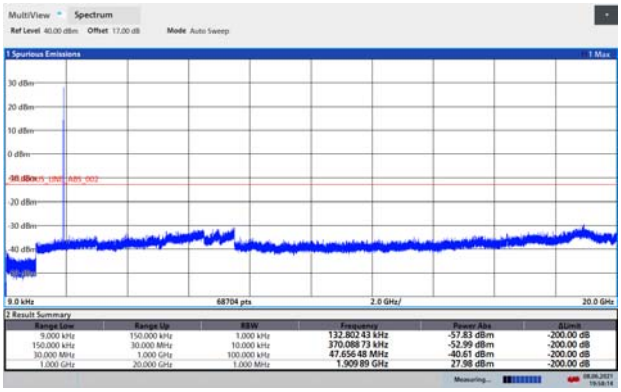
Test Result

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.

GSM 1900 CH-Low 9kHz ~ 20GHz	GPRS 1900 CH-Low 9kHz ~ 20GHz
	
GSM 1900 CH- Middle 9kHz ~ 20GHz	GPRS 1900 CH- Middle 9kHz ~ 20GHz
	
GSM 1900 CH- High 9kHz ~ 20GHz	GPRS 1900 CH- High 9kHz ~ 20GHz
	
EGPRS 1900 CH-Low 9kHz ~ 20GHz	WCDMA BAND II CH-Low 9kHz ~ 20GHz

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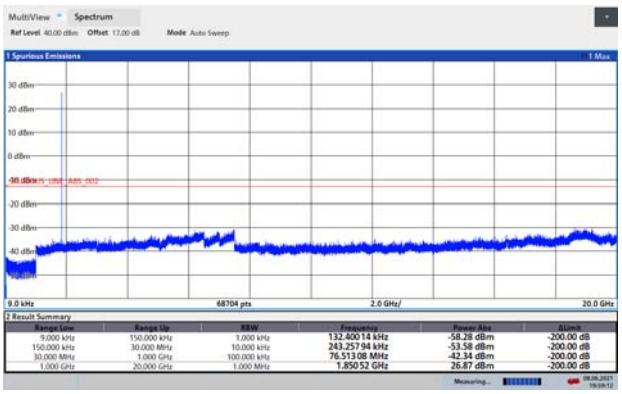
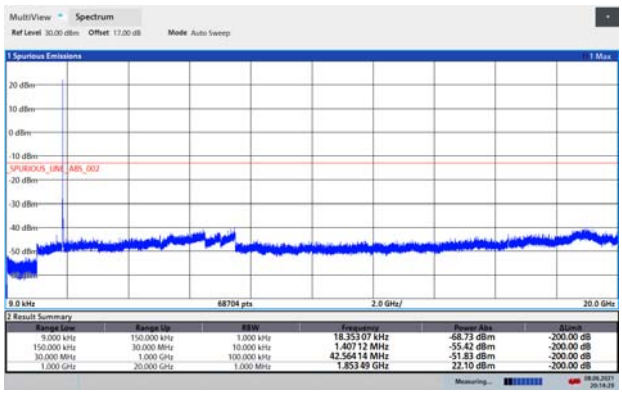
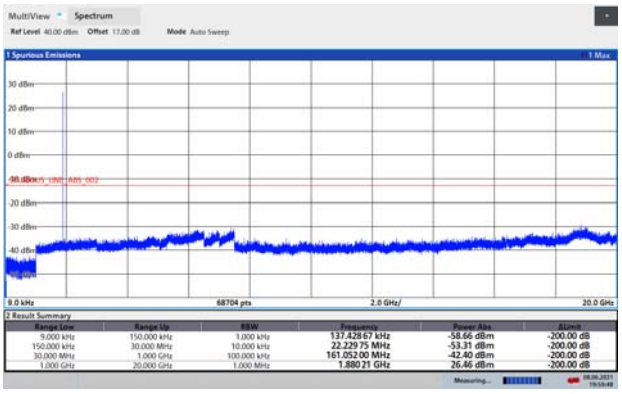
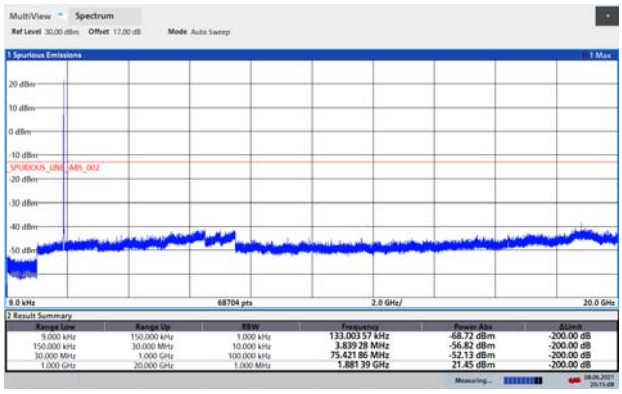




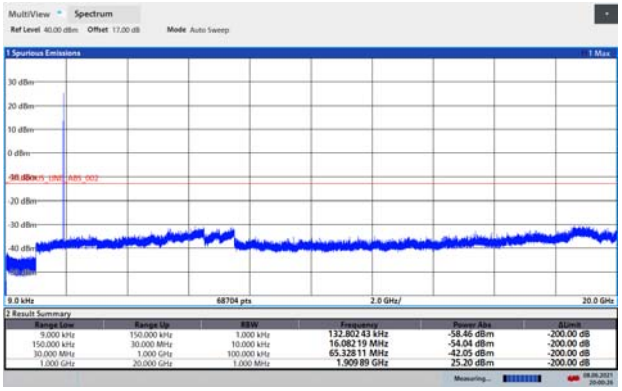
EGPRS 1900 CH- Middle 9kHz ~ 20GHz



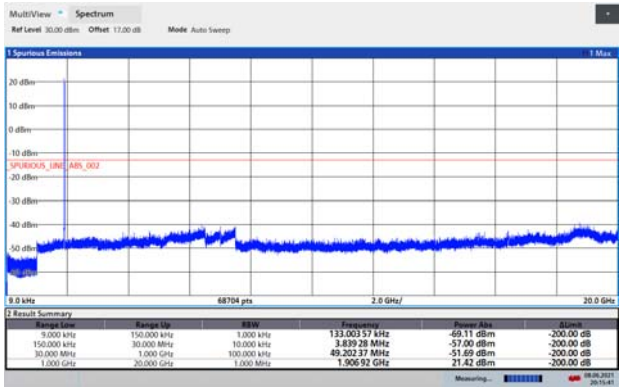
WCDMA BAND II CH- Middle 9kHz ~ 20GHz



EGPRS 1900 CH- High 9kHz ~ 20GHz



WCDMA BAND II CH-High 9kHz ~ 20GHz



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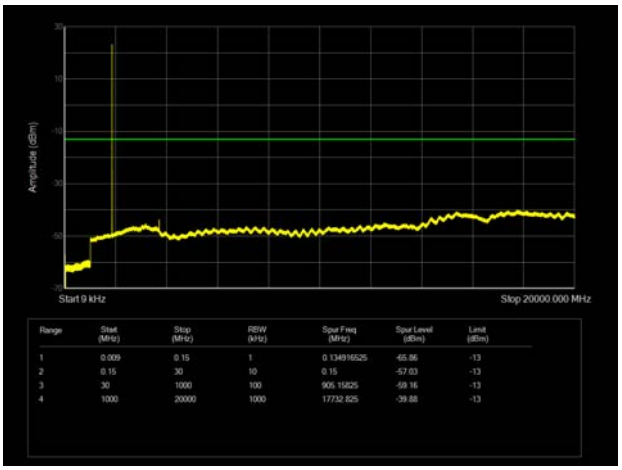
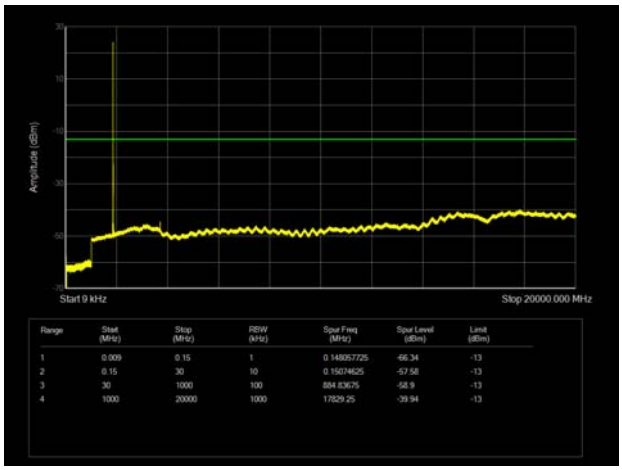
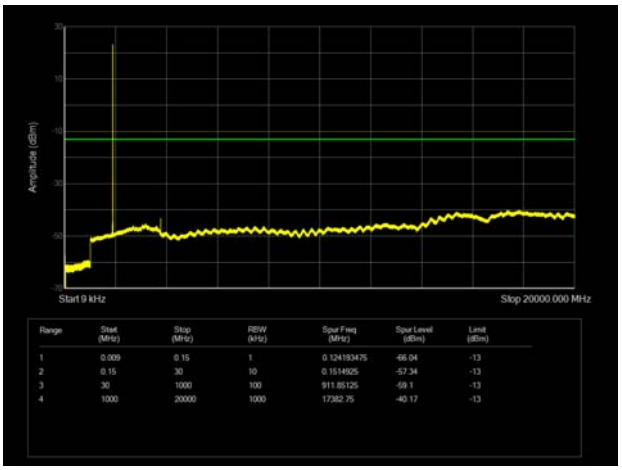
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



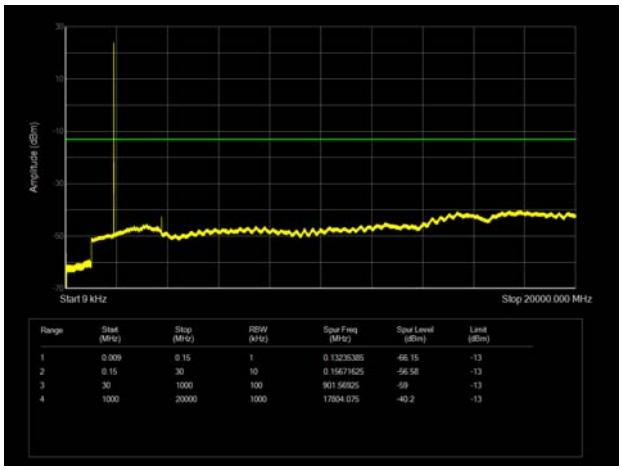
LTE Band 2 3MHz CH-Low 9kHz~20GHz



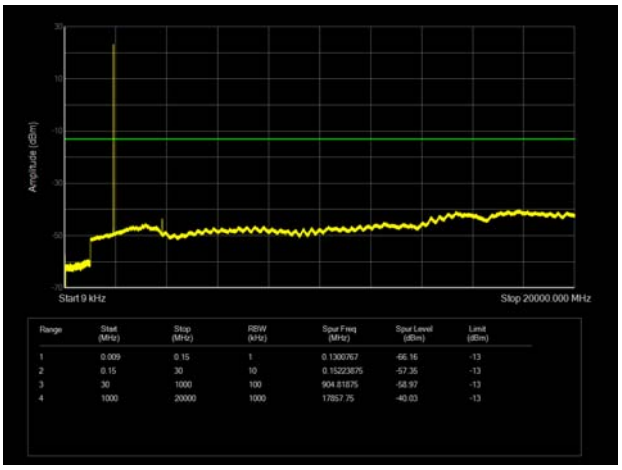
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



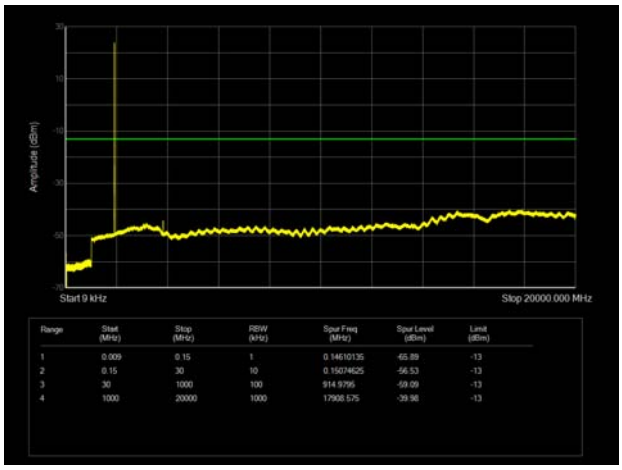
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



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



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



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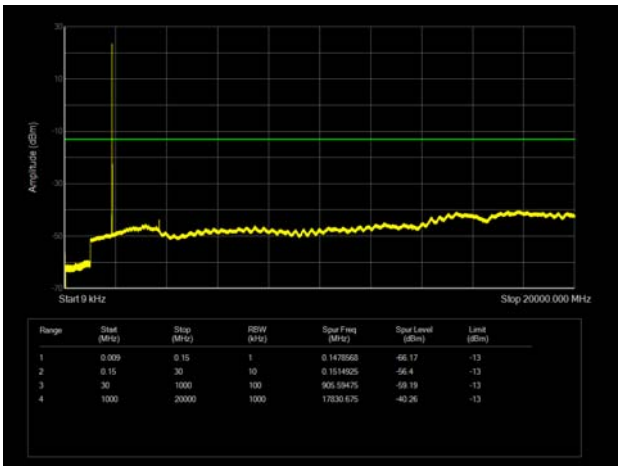
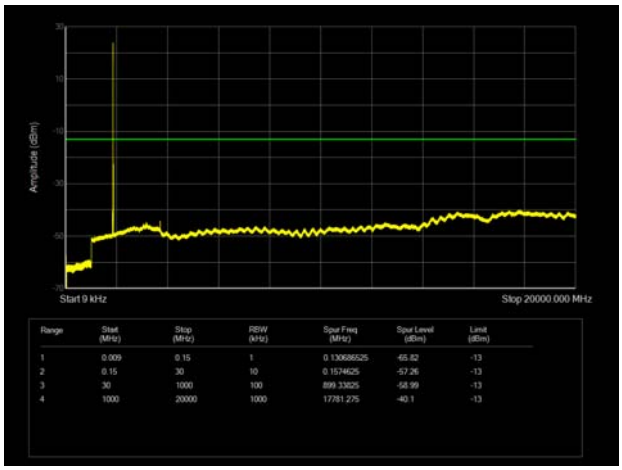
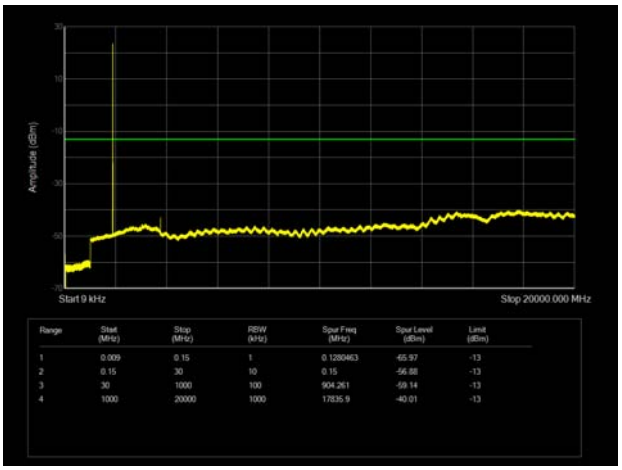
LTE Band 2 5MHz CH-Low 9kHz~20GHz



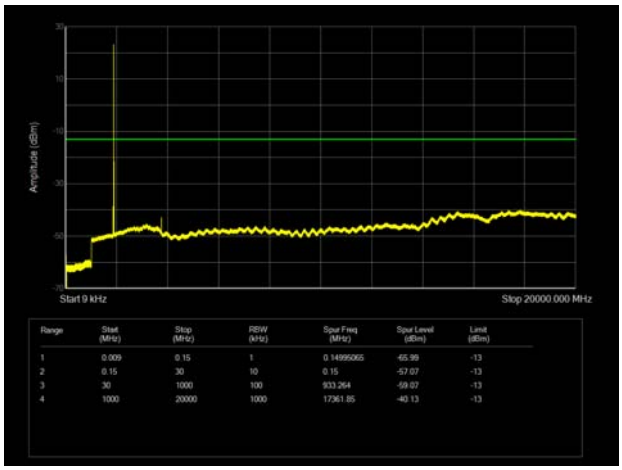
LTE Band 2 10MHz CH-Low 9kHz~20GHz



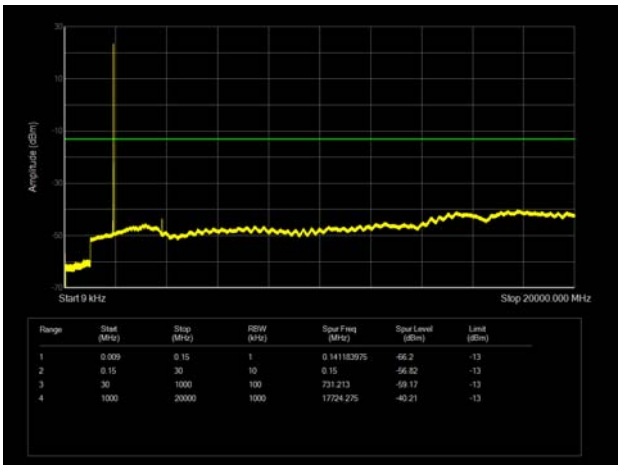
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



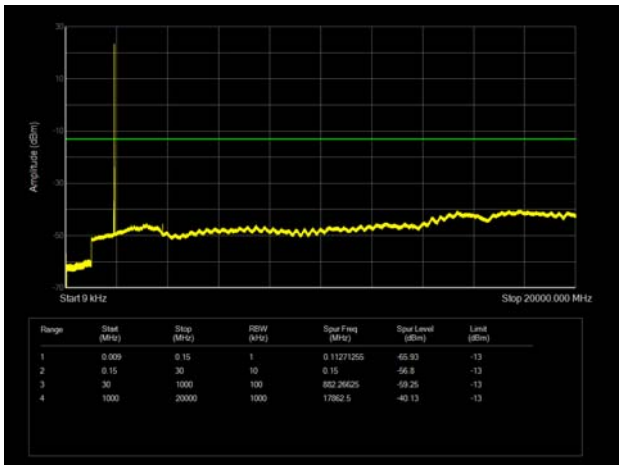
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



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



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



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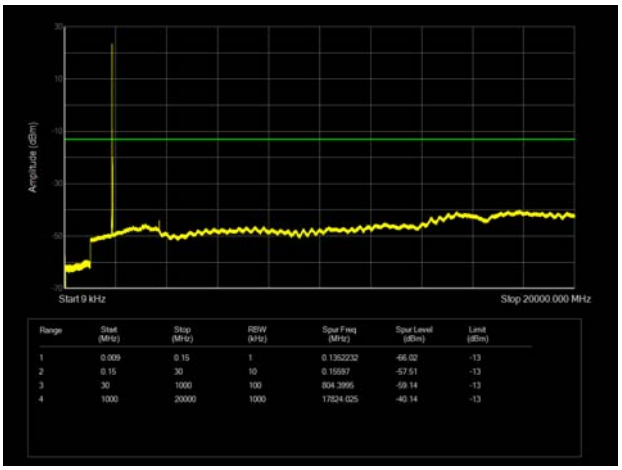
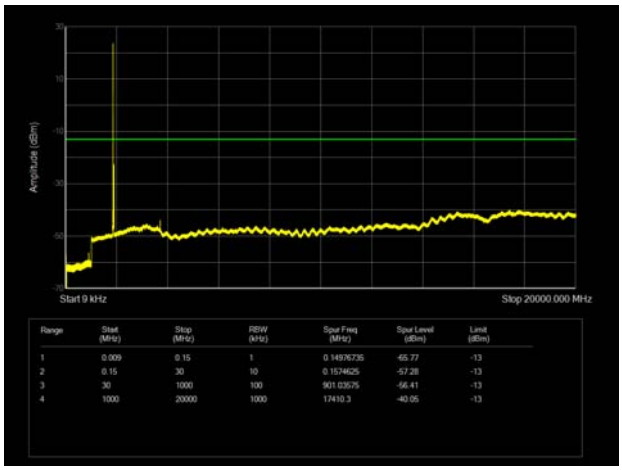
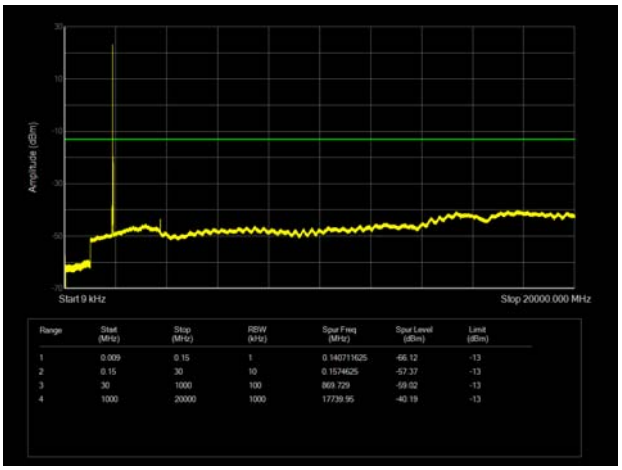
LTE Band 2 15MHz CH-Low 9kHz~20GHz



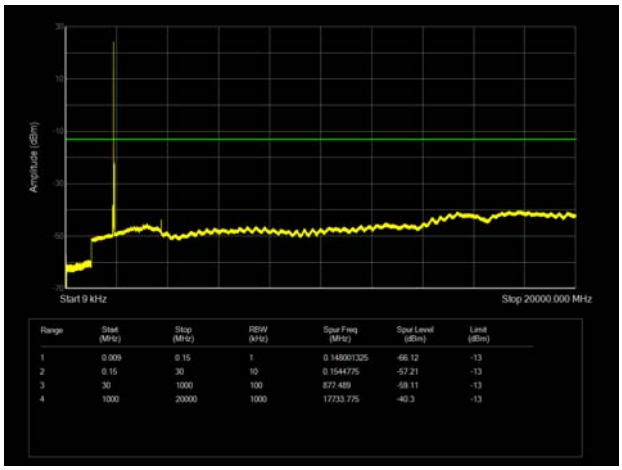
LTE Band 2 20MHz CH-Low 9kHz~20GHz



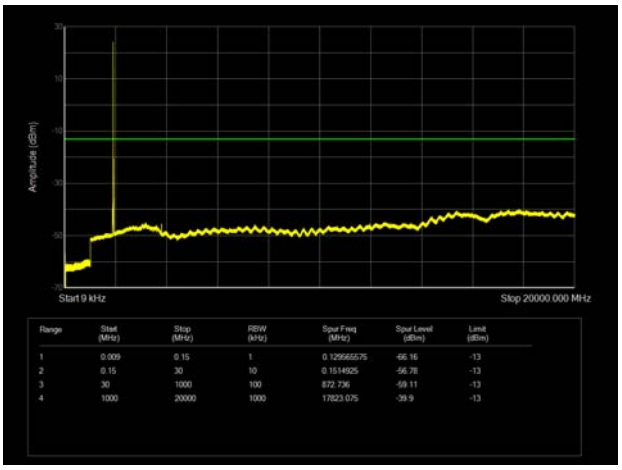
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



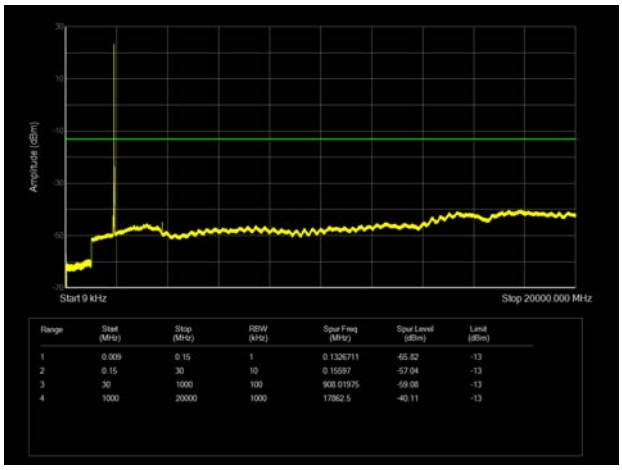
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



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



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



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5.7. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

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

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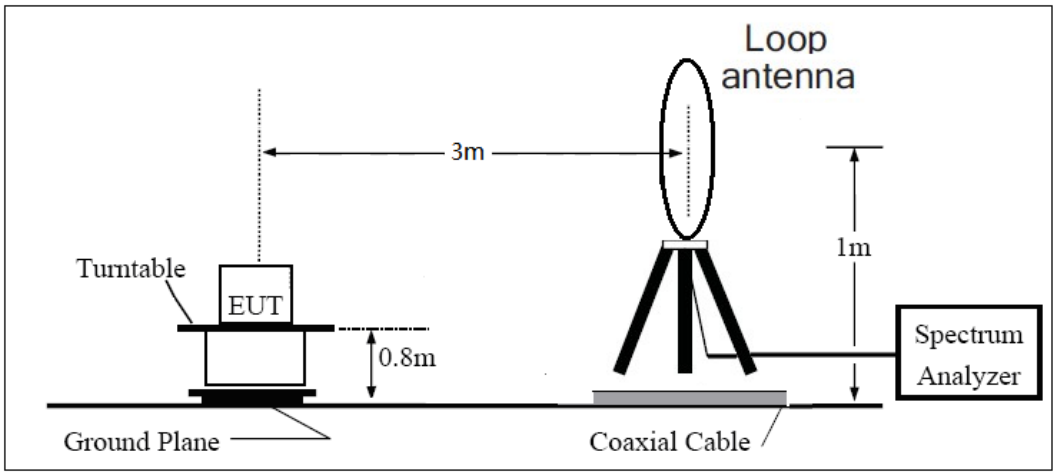
= EIRP-2.15dBi.

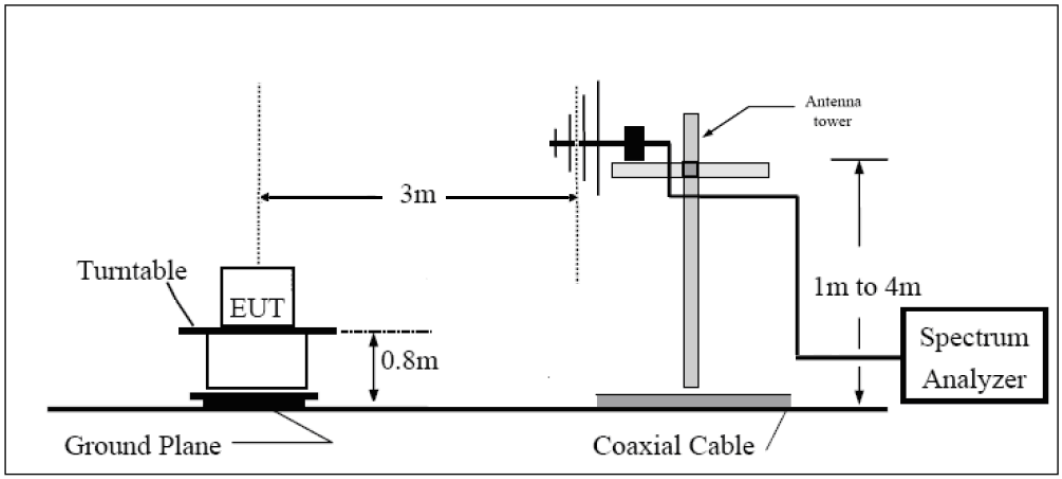
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

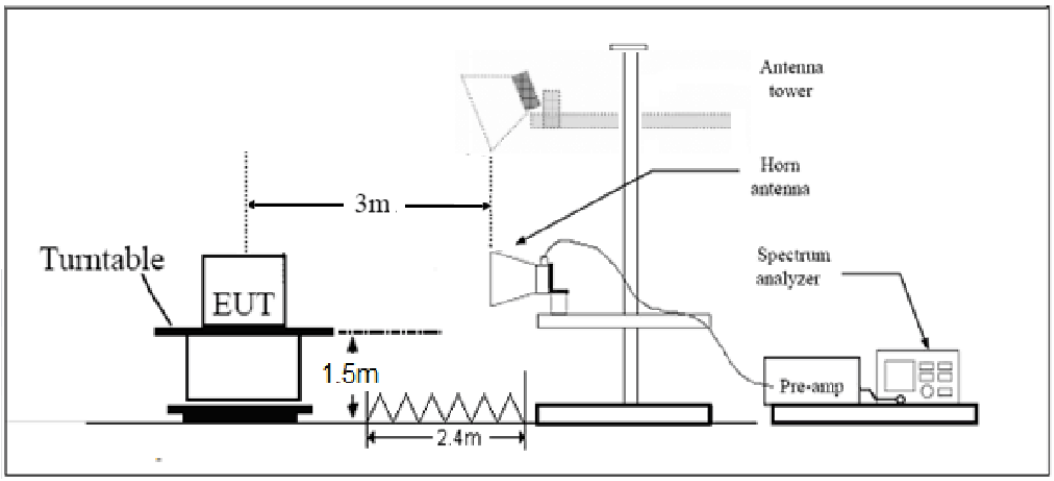
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

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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.

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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.

Main Antenna

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	-62.89	2.60	12.50	Horizontal	-52.99	-13.00	39.99	45
3	5640.00	-60.88	3.30	12.50	Horizontal	-51.68	-13.00	38.68	135
4	7520.00	-56.81	4.20	12.20	Horizontal	-48.81	-13.00	35.81	90
5	9400.00	-51.81	4.30	11.10	Horizontal	-45.01	-13.00	32.01	0
6	11280.00	-48.61	5.90	11.90	Horizontal	-42.61	-13.00	29.61	135
7	13160.00	-51.21	5.70	14.00	Horizontal	-42.91	-13.00	29.91	90
8	15040.00	-46.45	5.80	13.10	Horizontal	-39.15	-13.00	26.15	135
9	16920.00	-49.55	6.10	14.60	Horizontal	-41.05	-13.00	28.05	45
10	18800.00	-	-	-	-	-	-	-	-

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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	3757.80	-65.08	2.60	12.50	Horizontal	-55.18	-13.00	42.18	45
3	5636.70	-61.72	3.30	12.50	Horizontal	-52.52	-13.00	39.52	0
4	7515.60	-58.45	4.20	12.20	Horizontal	-50.45	-13.00	37.45	0
5	9394.50	-53.25	4.30	11.10	Horizontal	-46.45	-13.00	33.45	90
6	11273.40	-51.77	5.90	11.90	Horizontal	-45.77	-13.00	32.77	225
7	13152.30	-53.68	5.70	14.00	Horizontal	-45.38	-13.00	32.38	225
8	15031.20	-57.53	5.80	13.10	Horizontal	-50.23	-13.00	37.23	135
9	16910.10	-51.14	6.10	14.60	Horizontal	-42.64	-13.00	29.64	135
10	18789.00	-	-	-	-	-	-	-	-

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.

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LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.00	-60.18	2.60	12.50	Horizontal	-50.28	-13.00	37.28	90
3	5638.88	-60.59	3.30	12.50	Horizontal	-51.39	-13.00	38.39	0
4	7520.00	-56.50	4.20	12.20	Horizontal	-48.50	-13.00	35.50	0
5	9400.00	-52.43	4.30	11.10	Horizontal	-45.63	-13.00	32.63	45
6	11280.00	-50.65	5.90	11.90	Horizontal	-44.65	-13.00	31.65	225
7	13160.00	-51.28	5.70	14.00	Horizontal	-42.98	-13.00	29.98	45
8	15040.00	-43.78	5.80	13.10	Horizontal	-36.48	-13.00	23.48	315
9	16920.00	-48.64	6.10	14.60	Horizontal	-40.14	-13.00	27.14	90
10	18800.00	-	-	-	-	-	-	-	-
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 2 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.63	-59.76	2.60	12.50	Horizontal	-49.86	-13.00	36.86	315
3	5633.63	-61.16	3.30	12.50	Horizontal	-51.96	-13.00	38.96	0
4	7520.00	-56.89	4.20	12.20	Horizontal	-48.89	-13.00	35.89	45
5	9400.00	-51.15	4.30	11.10	Horizontal	-44.35	-13.00	31.35	180
6	11280.00	-50.14	5.90	11.90	Horizontal	-44.14	-13.00	31.14	90
7	13160.00	-51.70	5.70	14.00	Horizontal	-43.40	-13.00	30.40	45
8	15040.00	-46.55	5.80	13.10	Horizontal	-39.25	-13.00	26.25	315
9	16920.00	-50.10	6.10	14.60	Horizontal	-41.60	-13.00	28.60	270
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.									

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LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.13	-62.14	2.60	12.50	Horizontal	-52.24	-13.00	39.24	0
3	5613.38	-60.82	3.30	12.50	Horizontal	-51.62	-13.00	38.62	45
4	7484.63	-57.09	4.20	12.20	Horizontal	-49.09	-13.00	36.09	180
5	9400.00	-50.31	4.30	11.10	Horizontal	-43.51	-13.00	30.51	90
6	11280.00	-51.07	5.90	11.90	Horizontal	-45.07	-13.00	32.07	135
7	13160.00	-51.17	5.70	14.00	Horizontal	-42.87	-13.00	29.87	90
8	15040.00	-46.62	5.80	13.10	Horizontal	-39.32	-13.00	26.32	45
9	16920.00	-48.26	6.10	14.60	Horizontal	-39.76	-13.00	26.76	225
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.

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Second Antenna

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	-65.95	2.60	12.50	Horizontal	-56.05	-13.00	43.05	45
3	5640.00	-61.43	3.30	12.50	Horizontal	-52.23	-13.00	39.23	0
4	7520.00	-56.94	4.20	12.20	Horizontal	-48.94	-13.00	35.94	225
5	9400.00	-52.27	4.30	11.10	Horizontal	-45.47	-13.00	32.47	135
6	11280.00	-50.17	5.90	11.90	Horizontal	-44.17	-13.00	31.17	135
7	13160.00	-50.93	5.70	14.00	Horizontal	-42.63	-13.00	29.63	45
8	15040.00	-46.29	5.80	13.10	Horizontal	-38.99	-13.00	25.99	0
9	16920.00	-48.60	6.10	14.60	Horizontal	-40.10	-13.00	27.10	0
10	18800.00	-	-	-	-	-	-	-	-

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

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	-57.15	2.60	12.50	Horizontal	-47.25	-13.00	34.25	90
3	5640.00	-60.66	3.30	12.50	Horizontal	-51.46	-13.00	38.46	45
4	7520.00	-58.76	4.20	12.20	Horizontal	-50.76	-13.00	37.76	135
5	9400.00	-50.89	4.30	11.10	Horizontal	-44.09	-13.00	31.09	90
6	11280.00	-50.03	5.90	11.90	Horizontal	-44.03	-13.00	31.03	45
7	13160.00	-51.32	5.70	14.00	Horizontal	-43.02	-13.00	30.02	135
8	15040.00	-45.50	5.80	13.10	Horizontal	-38.20	-13.00	25.20	270
9	16920.00	-49.45	6.10	14.60	Horizontal	-40.95	-13.00	27.95	180
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.

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LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.00	-55.61	2.60	12.50	Horizontal	-45.71	-13.00	32.71	180
3	5638.88	-60.50	3.30	12.50	Horizontal	-51.30	-13.00	38.30	45
4	7520.00	-57.57	4.20	12.20	Horizontal	-49.57	-13.00	36.57	90
5	9400.00	-51.43	4.30	11.10	Horizontal	-44.63	-13.00	31.63	0
6	11280.00	-49.40	5.90	11.90	Horizontal	-43.40	-13.00	30.40	135
7	13160.00	-51.14	5.70	14.00	Horizontal	-42.84	-13.00	29.84	45
8	15040.00	-45.84	5.80	13.10	Horizontal	-38.54	-13.00	25.54	225
9	16920.00	-50.56	6.10	14.60	Horizontal	-42.06	-13.00	29.06	180
10	18800.00	-	-	-	-	-	-	-	-

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 2 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.63	-55.45	2.60	12.50	Horizontal	-45.55	-13.00	32.55	45
3	5633.63	-60.57	3.30	12.50	Horizontal	-51.37	-13.00	38.37	135
4	7520.00	-57.96	4.20	12.20	Horizontal	-49.96	-13.00	36.96	270
5	9400.00	-51.88	4.30	11.10	Horizontal	-45.08	-13.00	32.08	0
6	11280.00	-50.49	5.90	11.90	Horizontal	-44.49	-13.00	31.49	90
7	13160.00	-51.44	5.70	14.00	Horizontal	-43.14	-13.00	30.14	45
8	15040.00	-46.91	5.80	13.10	Horizontal	-39.61	-13.00	26.61	225
9	16920.00	-49.91	6.10	14.60	Horizontal	-41.41	-13.00	28.41	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.

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LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.13	-57.05	2.60	12.50	Horizontal	-47.15	-13.00	34.15	225
3	5613.38	-60.55	3.30	12.50	Horizontal	-51.35	-13.00	38.35	90
4	7484.63	-57.58	4.20	12.20	Horizontal	-49.58	-13.00	36.58	0
5	9400.00	-53.45	4.30	11.10	Horizontal	-46.65	-13.00	33.65	45
6	11280.00	-51.02	5.90	11.90	Horizontal	-45.02	-13.00	32.02	315
7	13160.00	-51.90	5.70	14.00	Horizontal	-43.60	-13.00	30.60	90
8	15040.00	-45.55	5.80	13.10	Horizontal	-38.25	-13.00	25.25	45
9	16920.00	-49.85	6.10	14.60	Horizontal	-41.35	-13.00	28.35	270
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.									

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6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMU200	118133	2021-05-15	2022-05-14
Base Station Simulator	R&S	CMW500	113824	2021-05-15	2022-05-14
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2021-05-15	2022-05-14
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2021-5-15	2022-5-14
Signal Analyzer	R&S	FSV30	100815	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2022-12-15
Horn Antenna	R&S	HF907	102723	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	2021-05-15	2022-05-14
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preampflier	R&S	SCU18	102327	2021-05-15	2022-05-14
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2021-06-09	2021-12-08
RF Cable	Agilent	SMA 15cm	0001	2021-06-09	2021-12-08
Software	R&S	EMC32	9.26.0	/	/

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

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ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

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ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

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