



RF TEST REPORT

Applicant Honor Device Co., Ltd.

FCC ID 2AYGCNZA-LX9N

Product Smart Phone

Model NZA-LX9N

Report No. R2101A0067-R2

Issue Date February 5, 2021

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

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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: January 20, 2021 ~ January 28, 2021			
Date of Sample Received: January 18, 2021			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			



1. Test Laboratory

1.1. Notes of the test report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
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2. General Description of Equipment under Test

2.3. Applicant and Manufacturer Information

Applicant	Honor Device Co., Ltd.
Applicant address	Suite 3401, Unit A, Building 6, Shum Yip Sky Park, No. 8089, Hongli West Road, Xiangmihu Street, Futian District, Shenzhen, Guangdong 518040, People's Republic of China
Manufacturer	Honor Device Co., Ltd.
Manufacturer address	Suite 3401, Unit A, Building 6, Shum Yip Sky Park, No. 8089, Hongli West Road, Xiangmihu Street, Futian District, Shenzhen, Guangdong 518040, People's Republic of China

2.4. General information

EUT Description		
Model	NZA-LX9N	
SN	L4H0120C21000132	
Hardware Version	HL1WKGM	
Software Version	5.0.0.76	
Power Supply	Battery/AC Adapter	
Antenna Type	Internal Antenna	
Antenna Gain	Main Antenna(dBi)	Second Antenna(dBi)
	0.4	-4.2
Test Mode(s)	GSM1900; WCDMA Band II; LTE Band 2;	
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK, QPSK, 16QAM; (LTE)QPSK, 16QAM	
GPRS Multislot Class	12	
EGPRS Multislot Class	12	
HSDPA UE Category	14	
HSUPA UE Category	7	
DC-HSDPA UE Category	24	
HSPA+ UE Category	7	
LTE Category	4	
Maximum E.I.R.P	GSM 1900:	30.70dBm
	WCDMA Band II:	23.92dBm
	LTE Band 2:	23.93dBm
Rated Power Supply Voltage	3.85V	
Extreme Voltage	Minimum: 3.27V Maximum: 4.43V	



Extreme Temperature	Lowest: -30°C Highest: +50°C		
Operating Voltage	Minimum: 3.6V Maximum: 4.43V		
Operating Temperature	Lowest: 0°C Highest: +35°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
EUT Accessory			
Accessory	Model	Manufacture	No.
Adapter	HW-100225E00	Honor Device Co., Ltd. (Manufacturer: BYD)	1
		Honor Device Co., Ltd. (Manufacturer: Phitek)	2
		Honor Device Co., Ltd. (Manufacturer: HUNTKEY)	3
	HW-100225B00	Honor Device Co., Ltd. (Manufacturer: BYD)	4
		Honor Device Co., Ltd. (Manufacturer: HUNTKEY)	5
	HW-100225U00	Honor Device Co., Ltd. (Manufacturer: BYD)	6
		Honor Device Co., Ltd. (Manufacturer: HUNTKEY)	7
	HW-100225A00	Honor Device Co., Ltd. (Manufacturer: BYD)	8
		Honor Device Co., Ltd. (Manufacturer: HUNTKEY)	9
Battery	HB526488EEW	Honor Device Co., Ltd. (Manufacturer: Sunwoda)	1
		Honor Device Co., Ltd. (Manufacturer: Desay)	2
		Honor Device Co., Ltd. (Manufacturer: NVT)	3
	HB536488EEW	Honor Device Co., Ltd. (Manufacturer: Sunwoda)	4
		Honor Device Co., Ltd. (Manufacturer: Desay)	5
		Honor Device Co., Ltd. (Manufacturer: NVT)	6
Earphone	MEND1532B528A11	Jiangxi Lianchuang Hongsheng Electronic Co. ,LTD.	1
	1293-3283-3.5mm-339	Boluo County Quancheng Electronic Co.,ltd.	2
	EPAB542-2WH05-DH	FOXCONN INTERCONNECT TECHNOLOGY LIMITED	3
USB Cable	18-93C2CHO-001HF	Freeport resources Enterprises Corp.	1
	WA0020	NingBo Broad Telecommunication Co., Ltd.	2
	L99UC131-CS-H	Luxshare Precision industry Co., Ltd.	3
	203-1572-0	MING JI ELECTRONICS CO., LTD.	4
	CUDU01B-HC295-EH	FOXCONN INTERCONNECT TECHNOLOGY LIMITED	5
Note: 1.The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. There is more than one Adapter / USB cable/ Battery and Earphone,each one should be applied throughout the compliance test respectively, and however, only the worst case (Adapter 6/ USB cable 3/ Battery 2 and Earphone 3) will be recorded in this report.			



3. Applied Standards

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

Test standards:

FCC CFR 47 Part 24E (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

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) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power.

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

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

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

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

5. Test Case Results

5.1.RF Power Output and Effective Isotropic Radiated Power

Ambient condition

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

Methods of Measurement

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

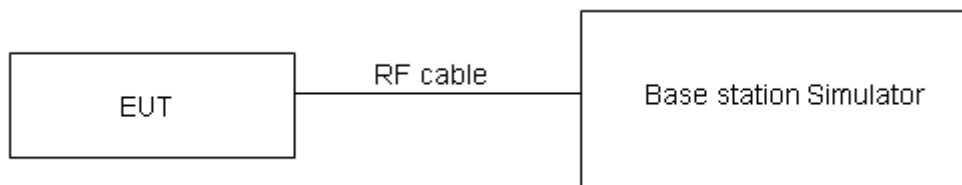
ERP can then be calculated as follows:

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

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

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 24.232(c) Mobile and portable stations are limited to 2 watts EIRP.

Rule Part 24.232(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

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

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



Test Results

GSM 1900		Maximum Output Power (dBm)			Main Antenna EIRP (dBm)			Second Antenna EIRP (dBm)		
		Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)		
		512/ 1850.2	661/ 1880	810/ 1909.8	512/ 1850.2	661/ 1880	810/ 1909.8	512/ 1850.2	661/ 1880	810/ 1909.8
GSM	CS	30.25	30.30	30.15	30.65	30.70	30.55	26.05	26.10	25.95
GPRS/EGPRS (GMSK)	1 Tx Slot	30.28	30.25	30.07	30.68	30.65	30.47	26.08	26.05	25.87
	2 Tx Slots	27.19	27.25	27.10	27.59	27.65	27.50	22.99	23.05	22.90
	3 Tx Slots	25.46	25.52	25.38	25.86	25.92	25.78	21.26	21.32	21.18
	4 Tx Slots	24.11	24.20	24.06	24.51	24.60	24.46	19.91	20.00	19.86
EGPRS (8PSK)	1 Tx Slot	26.27	26.30	26.32	26.67	26.70	26.72	22.07	22.10	22.12
	2 Tx Slots	23.30	23.32	23.49	23.70	23.72	23.89	19.10	19.12	19.29
	3 Tx Slots	21.35	21.38	21.41	21.75	21.78	21.81	17.15	17.18	17.21
	4 Tx Slots	20.19	20.30	20.35	20.59	20.70	20.75	15.99	16.10	16.15

WCDMA Band II		Maximum Output Power (dBm)			Main Antenna EIRP (dBm)			Second Antenna EIRP (dBm)		
		Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)		
		9262/ 1852.4	9400/ 1880	9538/ 1907.6	9262/ 1852.4	9400/ 1880	9538/ 1907.6	9262/ 1852.4	9400/ 1880	9538/ 1907.6
RMC	12.2k	23.47	23.52	23.43	23.87	23.92	23.83	19.27	19.32	19.23
HSDPA	Subtest 1	22.51	22.56	22.41	22.91	22.96	22.81	18.31	18.36	18.21
	Subtest 2	22.33	22.50	22.41	22.73	22.90	22.81	18.13	18.30	18.21
	Subtest 3	21.95	22.04	21.99	22.35	22.44	22.39	17.75	17.84	17.79
	Subtest 4	22.05	22.10	22.05	22.45	22.50	22.45	17.85	17.90	17.85
HSUPA	Subtest 1	20.35	20.62	20.35	20.75	21.02	20.75	16.15	16.42	16.15
	Subtest 2	20.41	20.48	20.27	20.81	20.88	20.67	16.21	16.28	16.07
	Subtest 3	21.49	21.50	21.37	21.89	21.90	21.77	17.29	17.30	17.17
	Subtest 4	19.87	20.00	19.87	20.27	20.40	20.27	15.67	15.80	15.67
	Subtest 5	21.43	21.56	21.41	21.83	21.96	21.81	17.23	17.36	17.21
DC-HSDPA	Subtest 1	22.37	22.38	22.47	22.77	22.78	22.87	18.17	18.18	18.27
	Subtest 2	22.31	22.60	22.55	22.71	23.00	22.95	18.11	18.40	18.35
	Subtest 3	21.89	22.04	22.05	22.29	22.44	22.45	17.69	17.84	17.85
	Subtest 4	21.89	22.12	21.77	22.29	22.52	22.17	17.69	17.92	17.57
HSPA+	16QAM	22.36	22.43	22.33	22.76	22.83	22.73	18.16	18.23	18.13



LTE Band 2				Maximum Output Power (dBm)			Main Antenna EIRP (dBm)			Second Antenna EIRP (dBm)		
Band width	Modulation	RB allocation	Off set	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.08	23.22	23.05	23.48	23.62	23.45	18.88	19.02	18.85
		1	2	23.47	23.49	23.43	23.87	23.89	23.83	19.27	19.29	19.23
		1	5	23.04	22.90	22.97	23.44	23.30	23.37	18.84	18.70	18.77
		3	0	23.34	23.39	23.33	23.74	23.79	23.73	19.14	19.19	19.13
		3	2	23.24	23.47	23.37	23.64	23.87	23.77	19.04	19.27	19.17
		3	3	23.35	23.25	23.35	23.75	23.65	23.75	19.15	19.05	19.15
		6	0	22.34	22.34	22.44	22.74	22.74	22.84	18.14	18.14	18.24
	16QAM	1	0	22.72	22.34	22.40	23.12	22.74	22.80	18.52	18.14	18.20
		1	2	22.70	22.68	22.72	23.10	23.08	23.12	18.50	18.48	18.52
		1	5	22.38	22.35	22.42	22.78	22.75	22.82	18.18	18.15	18.22
		3	0	22.39	22.33	22.40	22.79	22.73	22.80	18.19	18.13	18.20
		3	2	22.31	22.28	22.36	22.71	22.68	22.76	18.11	18.08	18.16
		3	3	22.40	22.37	22.43	22.80	22.77	22.83	18.20	18.17	18.23
		6	0	21.39	21.38	21.48	21.79	21.78	21.88	17.19	17.18	17.28
Band width	Modulation	RB allocation	Off set	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.10	23.26	23.08	23.50	23.66	23.48	18.90	19.06	18.88
		1	7	23.45	23.52	23.47	23.85	23.92	23.87	19.25	19.32	19.27
		1	14	23.07	22.95	23.01	23.47	23.35	23.41	18.87	18.75	18.81
		8	0	22.44	22.51	22.46	22.84	22.91	22.86	18.24	18.31	18.26
		8	4	22.36	22.57	22.49	22.76	22.97	22.89	18.16	18.37	18.29
		8	7	22.45	22.36	22.45	22.85	22.76	22.85	18.25	18.16	18.25
		15	0	22.34	22.38	22.47	22.74	22.78	22.87	18.14	18.18	18.27
	16QAM	1	0	22.75	22.36	22.43	23.15	22.76	22.83	18.55	18.16	18.23
		1	7	22.73	22.68	22.76	23.13	23.08	23.16	18.53	18.48	18.56
		1	14	22.40	22.39	22.45	22.80	22.79	22.85	18.20	18.19	18.25
		8	0	21.50	21.46	21.52	21.90	21.86	21.92	17.30	17.26	17.32
		8	4	21.42	21.41	21.48	21.82	21.81	21.88	17.22	17.21	17.28
		8	7	21.50	21.49	21.56	21.90	21.89	21.96	17.30	17.29	17.36
		15	0	21.42	21.42	21.51	21.82	21.82	21.91	17.22	17.22	17.31
Band width	Modulation	RB allocation	Off set	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.07	23.24	23.04	23.47	23.64	23.44	18.87	19.04	18.84
		1	13	23.43	23.48	23.44	23.83	23.88	23.84	19.23	19.28	19.24
		1	24	23.04	22.90	22.97	23.44	23.30	23.37	18.84	18.70	18.77



		12	0	22.41	22.46	22.42	22.81	22.86	22.82	18.21	18.26	18.22
		12	6	22.34	22.53	22.44	22.74	22.93	22.84	18.14	18.33	18.24
		12	13	22.43	22.34	22.41	22.83	22.74	22.81	18.23	18.14	18.21
		25	0	22.34	22.37	22.45	22.74	22.77	22.85	18.14	18.17	18.25
	16QAM	1	0	22.72	22.32	22.40	23.12	22.72	22.80	18.52	18.12	18.20
		1	13	22.70	22.66	22.73	23.10	23.06	23.13	18.50	18.46	18.53
		1	24	22.37	22.37	22.41	22.77	22.77	22.81	18.17	18.17	18.21
		12	0	21.48	21.42	21.49	21.88	21.82	21.89	17.28	17.22	17.29
		12	6	21.39	21.36	21.44	21.79	21.76	21.84	17.19	17.16	17.24
		12	13	21.47	21.44	21.52	21.87	21.84	21.92	17.27	17.24	17.32
		25	0	21.40	21.38	21.46	21.80	21.78	21.86	17.20	17.18	17.26
Band width	Modulation	RB allocation	Offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.09	23.25	23.07	23.49	23.65	23.47	18.89	19.05	18.87
		1	25	23.46	23.53	23.48	23.86	23.93	23.88	19.26	19.33	19.28
		1	49	23.06	22.94	23.00	23.46	23.34	23.40	18.86	18.74	18.80
		25	0	22.44	22.51	22.46	22.84	22.91	22.86	18.24	18.31	18.26
		25	13	22.37	22.58	22.48	22.77	22.98	22.88	18.17	18.38	18.28
		25	25	22.45	22.38	22.46	22.85	22.78	22.86	18.25	18.18	18.26
		50	0	22.38	22.39	22.49	22.78	22.79	22.89	18.18	18.19	18.29
	16QAM	1	0	22.74	22.35	22.42	23.14	22.75	22.82	18.54	18.15	18.22
		1	25	22.73	22.70	22.76	23.13	23.10	23.16	18.53	18.50	18.56
		1	49	22.40	22.39	22.44	22.80	22.79	22.84	18.20	18.19	18.24
		25	0	21.51	21.47	21.53	21.91	21.87	21.93	17.31	17.27	17.33
		25	13	21.41	21.40	21.47	21.81	21.80	21.87	17.21	17.20	17.27
		25	25	21.50	21.49	21.56	21.90	21.89	21.96	17.30	17.29	17.36
		50	0	21.43	21.43	21.50	21.83	21.83	21.90	17.23	17.23	17.30
Band width	Modulation	RB allocation	Offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.08	23.21	23.05	23.48	23.61	23.45	18.88	19.01	18.85
		1	38	23.44	23.52	23.45	23.84	23.92	23.85	19.24	19.32	19.25
		1	74	23.03	22.89	22.96	23.43	23.29	23.36	18.83	18.69	18.76
		36	0	22.42	22.47	22.43	22.82	22.87	22.83	18.22	18.27	18.23
		36	18	22.34	22.53	22.44	22.74	22.93	22.84	18.14	18.33	18.24
		36	39	22.42	22.35	22.42	22.82	22.75	22.82	18.22	18.15	18.22
		75	0	22.36	22.35	22.44	22.76	22.75	22.84	18.16	18.15	18.24
	16QAM	1	0	22.69	22.33	22.40	23.09	22.73	22.80	18.49	18.13	18.20
		1	38	22.71	22.67	22.74	23.11	23.07	23.14	18.51	18.47	18.54
		1	74	22.37	22.35	22.41	22.77	22.75	22.81	18.17	18.15	18.21
		36	0	21.48	21.45	21.50	21.88	21.85	21.90	17.28	17.25	17.30
		36	18	21.38	21.35	21.43	21.78	21.75	21.83	17.18	17.15	17.23



		36	39	21.48	21.45	21.53	21.88	21.85	21.93	17.28	17.25	17.33
		75	0	21.40	21.38	21.46	21.80	21.78	21.86	17.20	17.18	17.26
Band width	Modulation	RB allocation	Off set	Channel/Frequency(MHz)			Channel/Frequency(MHz)			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	23.05	23.17	23.02	23.45	23.57	23.42	18.85	18.97	18.82
		1	50	23.43	23.48	23.43	23.83	23.88	23.83	19.23	19.28	19.23
		1	99	23.01	22.88	22.93	23.41	23.28	23.33	18.81	18.68	18.73
		50	0	22.39	22.42	22.39	22.79	22.82	22.79	18.19	18.22	18.19
		50	25	22.32	22.49	22.41	22.72	22.89	22.81	18.12	18.29	18.21
		50	50	22.39	22.30	22.38	22.79	22.70	22.78	18.19	18.10	18.18
		100	0	22.33	22.30	22.40	22.73	22.70	22.80	18.13	18.10	18.20
	16QAM	1	0	22.33	22.29	22.35	22.73	22.69	22.75	18.13	18.09	18.15
		1	50	22.67	22.65	22.70	23.07	23.05	23.10	18.47	18.45	18.50
		1	99	22.35	22.32	22.39	22.75	22.72	22.79	18.15	18.12	18.19
		50	0	21.45	21.41	21.47	21.85	21.81	21.87	17.25	17.21	17.27
		50	25	21.35	21.33	21.40	21.75	21.73	21.80	17.15	17.13	17.20
		50	50	21.45	21.40	21.49	21.85	21.80	21.89	17.25	17.20	17.29
		100	0	21.38	21.34	21.43	21.78	21.74	21.83	17.18	17.14	17.23

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 18kHz 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),

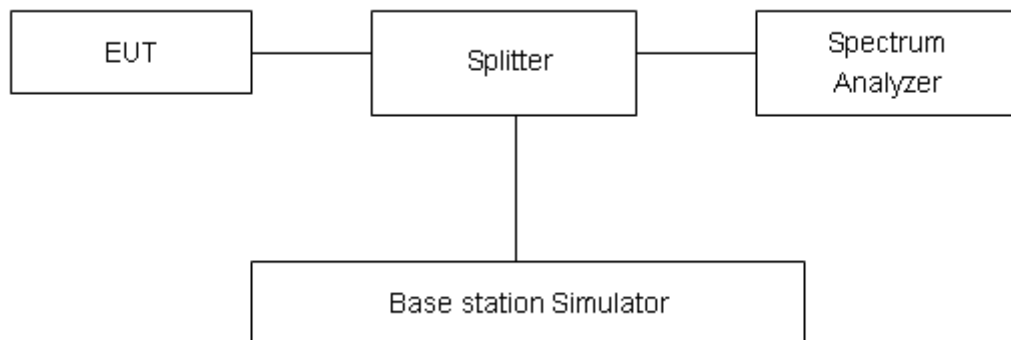
RBW is set to 200 kHz, VBW is set to 620kHz for LTE Band 2 (10MHz),

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 $k = 2$, $U = 624\text{Hz}$.

Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GMSK)	512	1850.2	0.2437	0.3064
	661	1880.0	0.2473	0.3101
	810	1909.8	0.2451	0.3112
GPRS 1900 (GMSK)	512	1850.2	0.2440	0.3171
	661	1880.0	0.2443	0.3136
	810	1909.8	0.2431	0.3102
EGPRS 1900 (8PSK)	512	1850.2	0.2449	0.3199
	661	1880.0	0.2521	0.3192
	810	1909.8	0.2521	0.3151
WCDMA Band II (RMC)	9262	1852.4	4.1728	4.6860
	9400	1880	4.1676	4.6900
	9538	1907.6	4.1680	4.6850

LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.0907	1.284
		18900	1880.0	1.0918	1.282
		19193	1909.3	1.0927	1.283
	3	18615	1851.5	2.6868	2.913
		18900	1880	2.6893	2.919
		19185	1908.5	2.6911	2.924
	5	18625	1852.5	4.5026	4.890
		18900	1880	4.5054	4.910
		19175	1907.5	4.5128	4.877
	10	18650	1855	8.9945	9.743
		18900	1880	8.9630	9.603
		19150	1905	8.9825	9.656
	15	18675	1857.5	13.483	14.51
		18900	1880	13.431	14.50



	20	19125	1902.5	13.450	14.52
		18700	1860	17.987	19.26
		18900	1880	17.994	19.22
		19100	1900	18.008	19.44
16QAM	1.4	18607	1850.7	1.0956	1.263
		18900	1880.0	1.0967	1.270
		19193	1909.3	1.0932	1.268
	3	18615	1851.5	2.6969	2.931
		18900	1880	2.6805	2.920
		19185	1908.5	2.6824	2.905
	5	18625	1852.5	4.5063	4.849
		18900	1880	4.5110	4.944
		19175	1907.5	4.5068	4.932
	10	18650	1855	8.9665	9.731
		18900	1880	9.0015	9.694
		19150	1905	8.9855	9.639
	15	18675	1857.5	13.475	14.49
		18900	1880	13.485	14.57
		19125	1902.5	13.471	14.51
	20	18700	1860	18.012	19.39
		18900	1880	17.956	19.36
		19100	1900	18.003	19.20



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





GSM1900 EGPRS CH-Low



WCDMA Band II RMC CH-LOW



GSM 1900 EGPRS CH-Middle



WCDMA Band II RMC CH-Middle



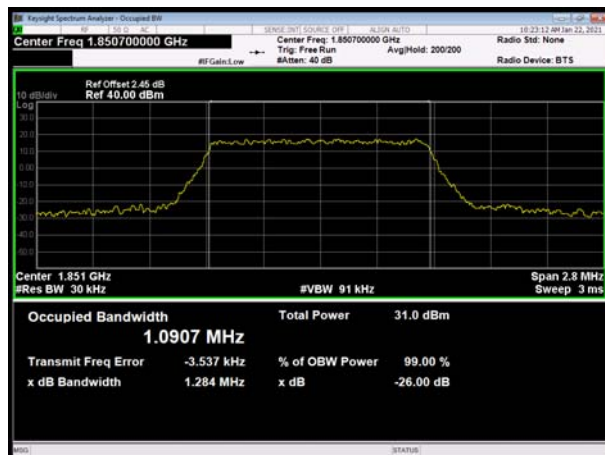
GSM 1900 EGPRS CH-High



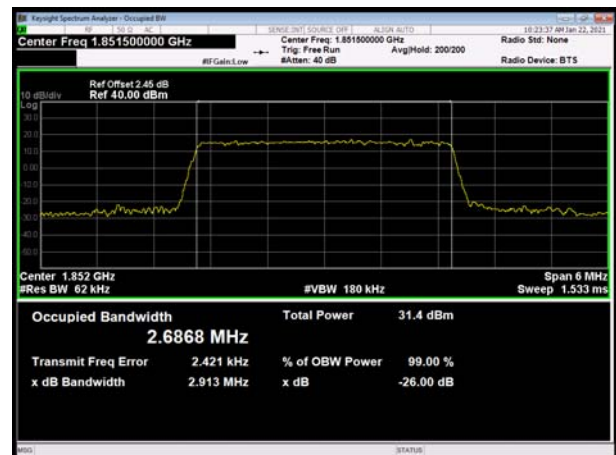
WCDMA Band II RMC CH-High



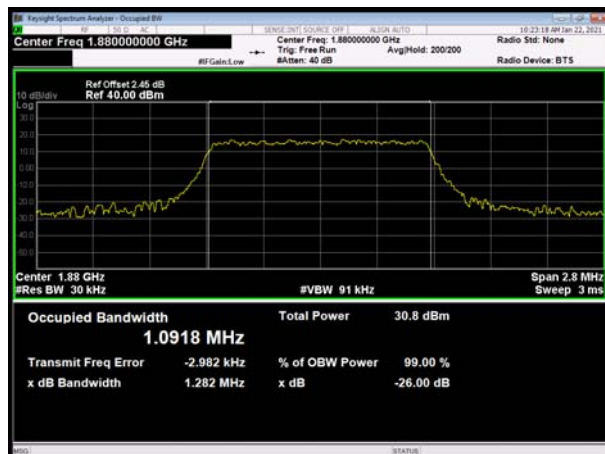
LTE Band 2 1.4MHz QPSK CH-Low



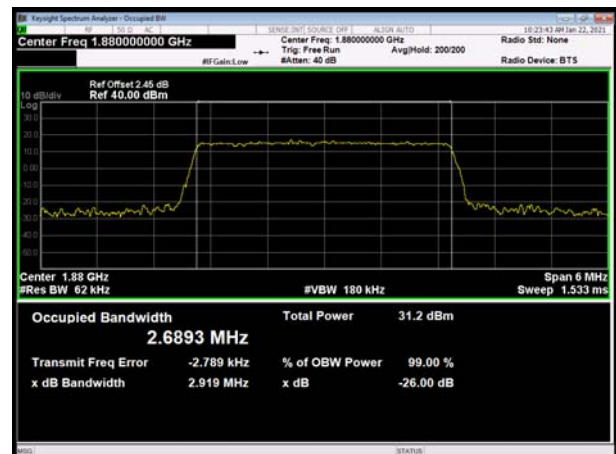
LTE Band 2 3MHz QPSK CH-Low



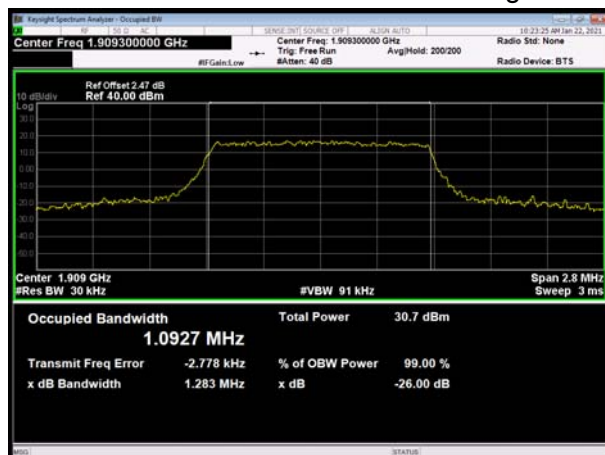
LTE Band 2 1.4MHz QPSK CH-Middle



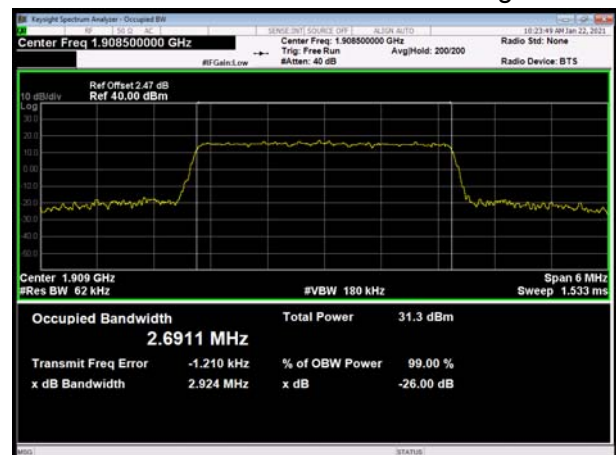
LTE Band 2 3MHz QPSK CH-Middle



LTE Band 2 1.4MHz QPSK CH-High

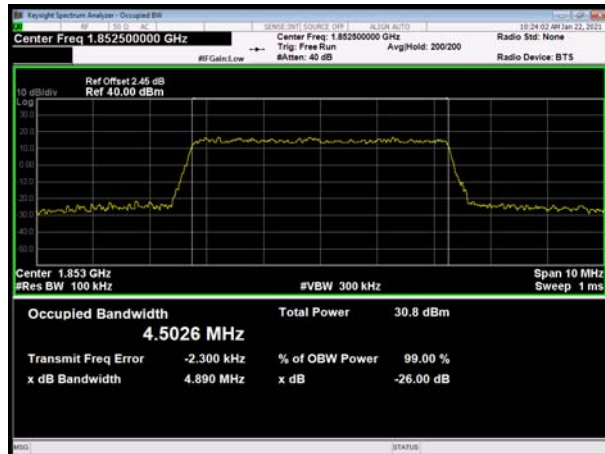


LTE Band 2 3MHz QPSK CH-High

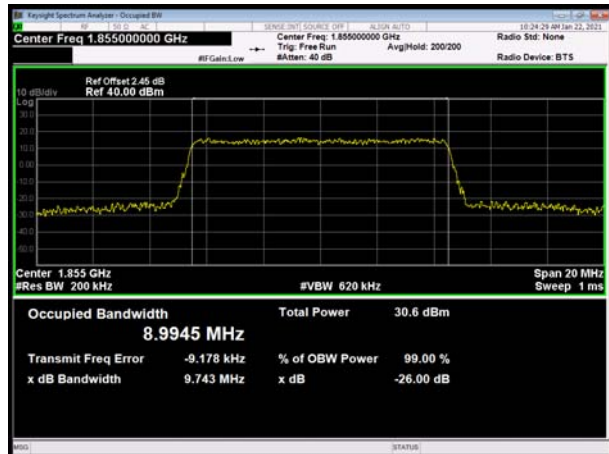




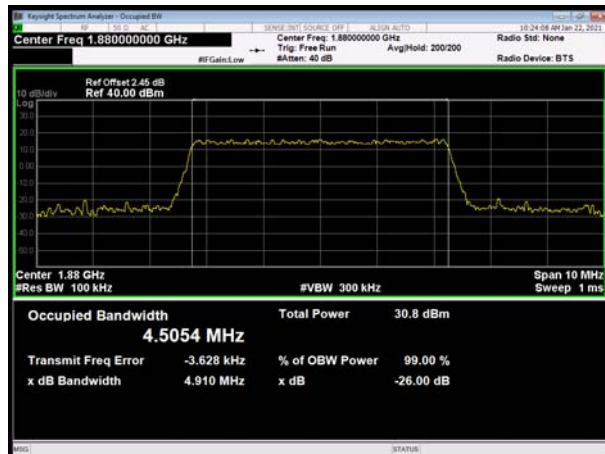
LTE Band 2 5MHz QPSK CH-Low



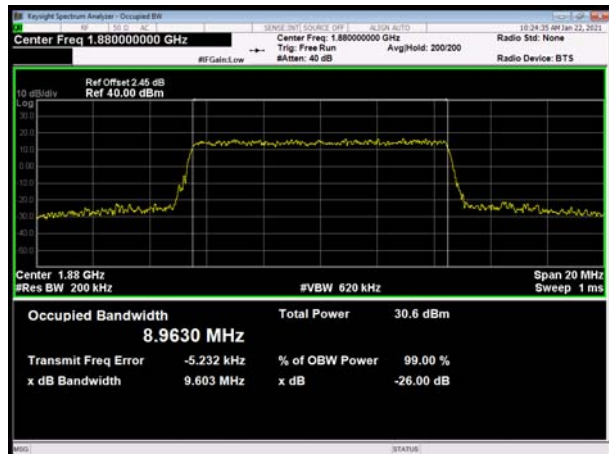
LTE Band 2 10MHz QPSK CH-Low



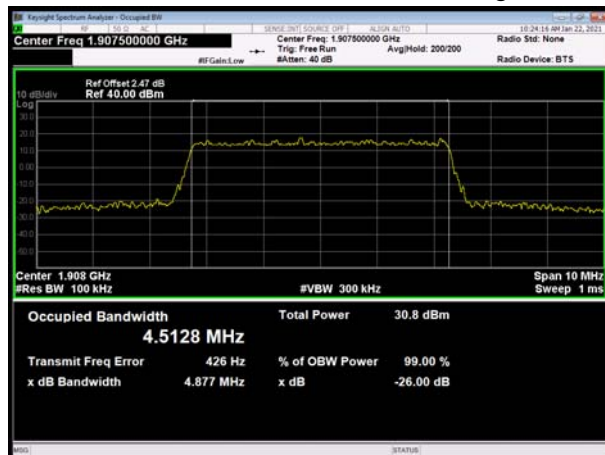
LTE Band 2 5MHz QPSK CH-Middle



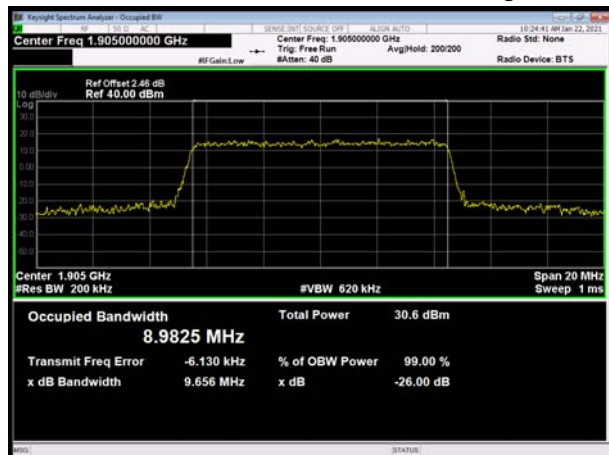
LTE Band 2 10MHz QPSK CH-Middle



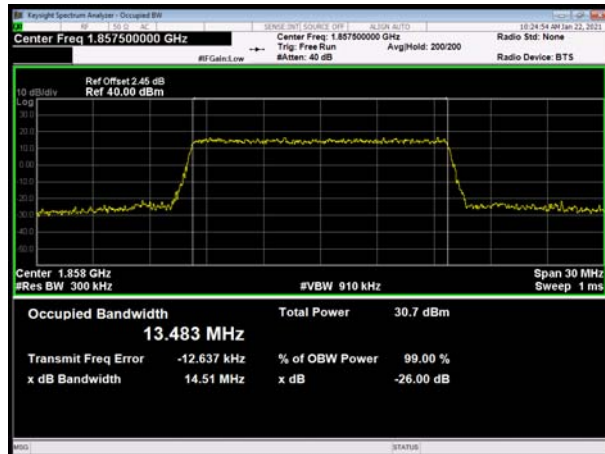
LTE Band 2 5MHz QPSK CH-High



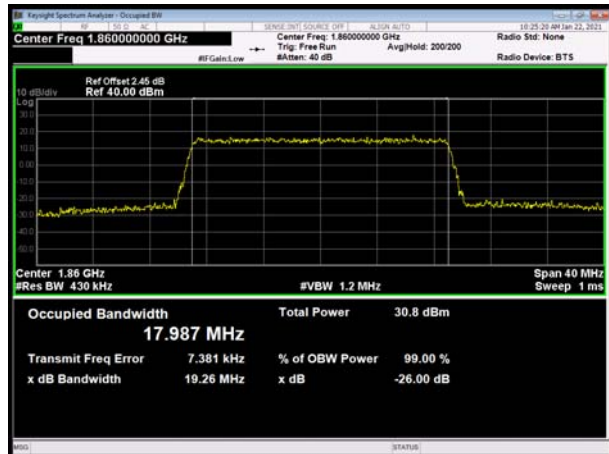
LTE Band 2 10MHz QPSK CH-High



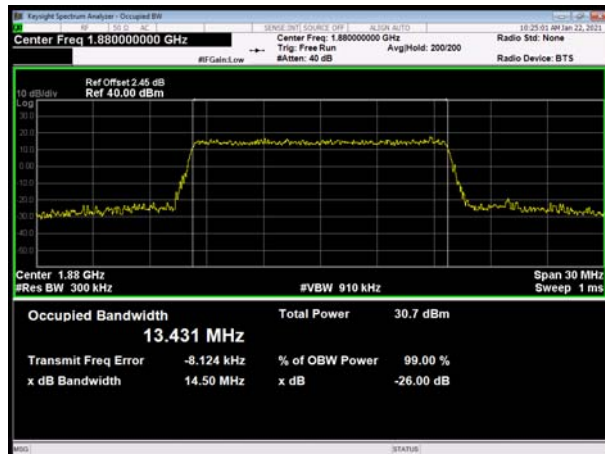
LTE Band 2 15MHz QPSK CH-Low



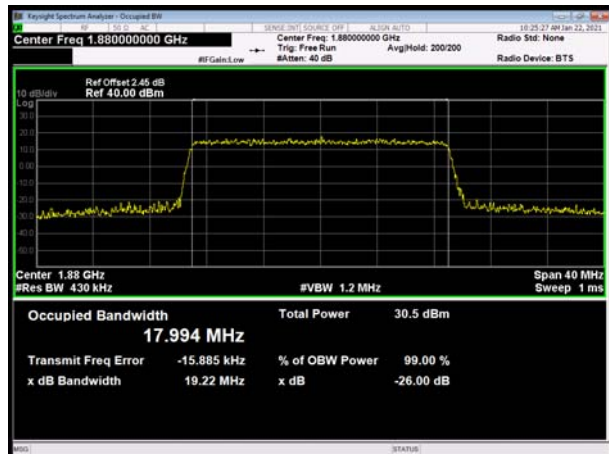
LTE Band 2 20MHz QPSK CH-Low



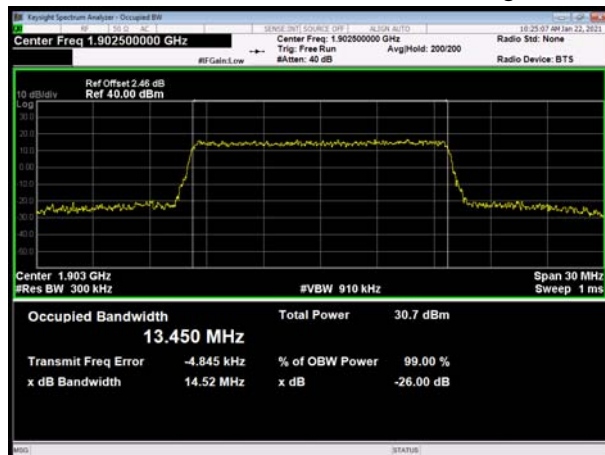
LTE Band 2 15MHz QPSK CH-Middle



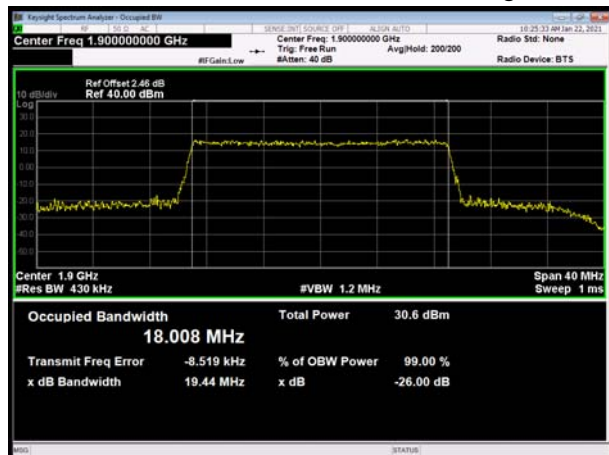
LTE Band 2 20MHz QPSK CH-Middle



LTE Band 2 15MHz QPSK CH-High



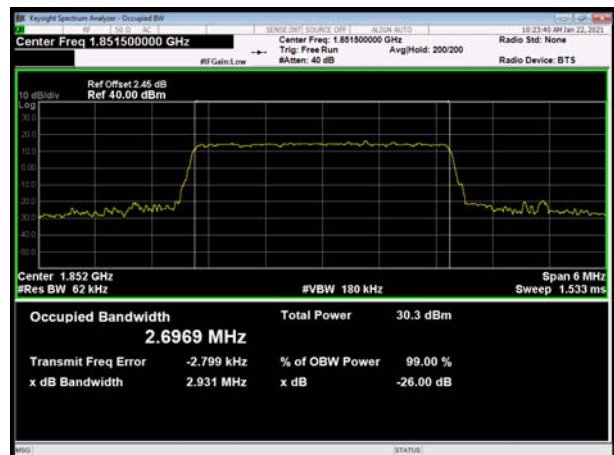
LTE Band 2 20MHz QPSK CH-High



LTE Band 2 1.4MHz 16QAM CH-Low



LTE Band 2 3MHz 16QAM CH-Low



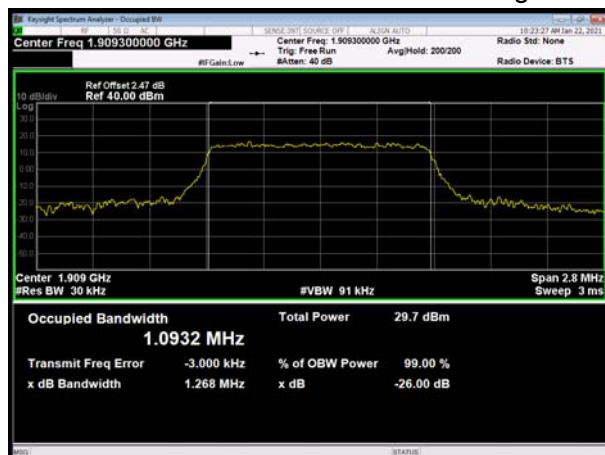
LTE Band 2 1.4MHz 16QAM CH-Middle



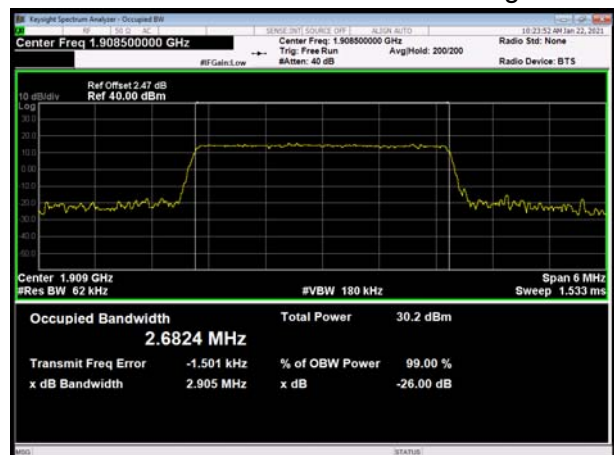
LTE Band 2 3MHz 16QAM CH-Middle



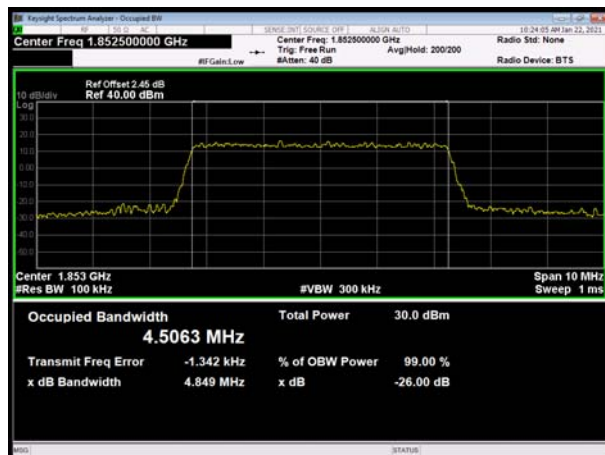
LTE Band 2 1.4MHz 16QAM CH-High



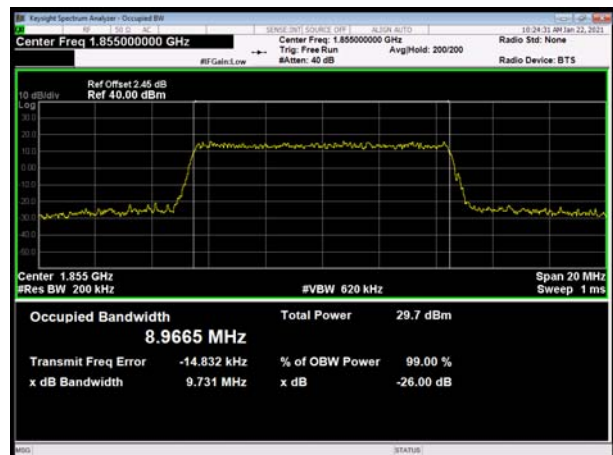
LTE Band 2 3MHz 16QAM CH-High



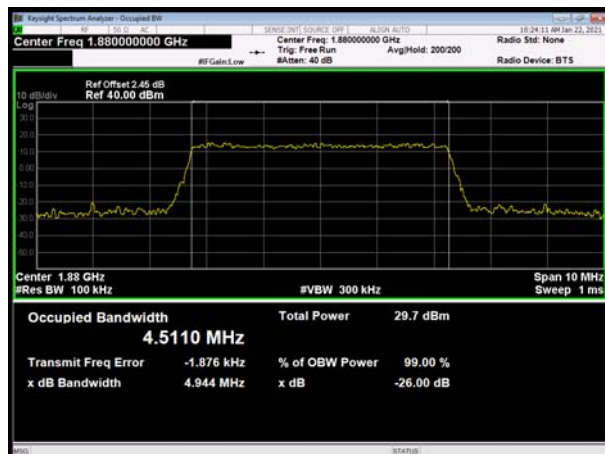
LTE Band 2 5MHz 16QAM CH-Low



LTE Band 2 10MHz 16QAM CH-Low



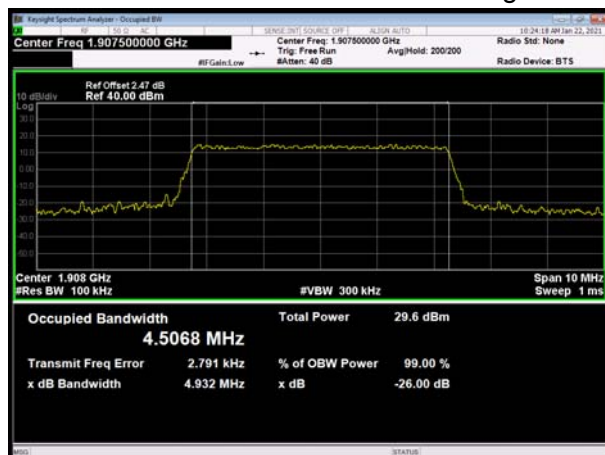
LTE Band 2 5MHz 16QAM CH-Middle



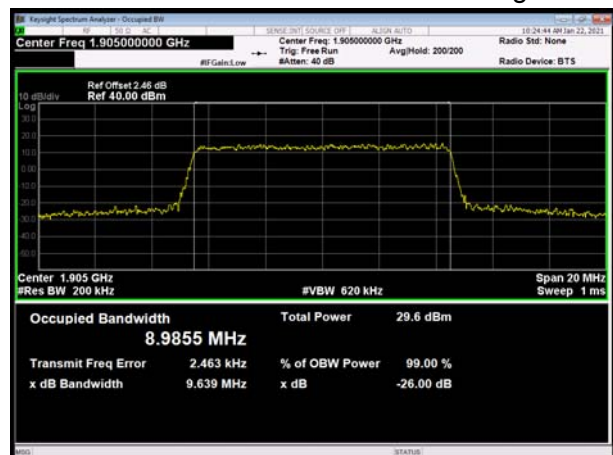
LTE Band 2 10MHz 16QAM CH-Middle



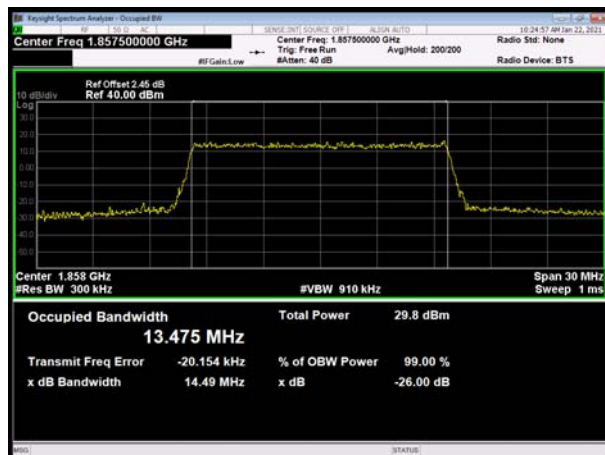
LTE Band 2 5MHz 16QAM CH-High



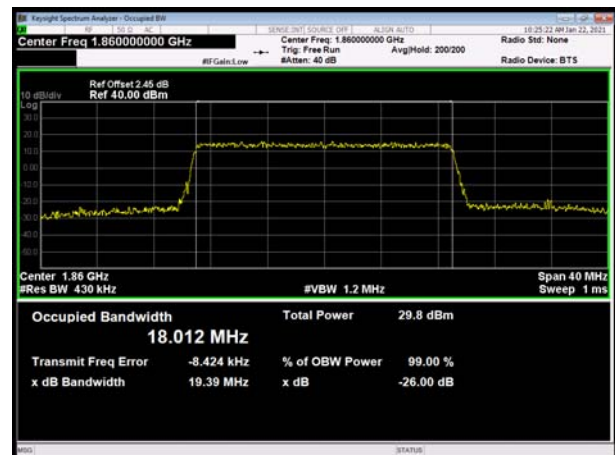
LTE Band 2 10MHz 16QAM CH-High



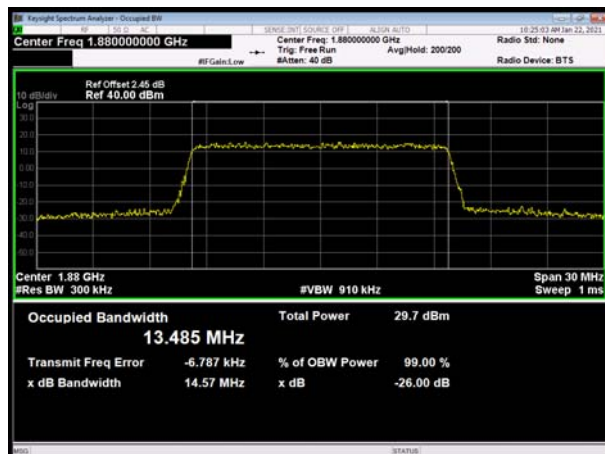
LTE Band 2 15MHz 16QAM CH-Low



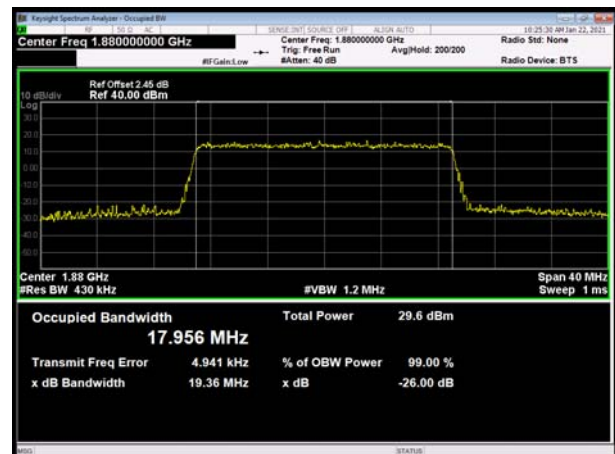
LTE Band 2 20MHz 16QAM CH-Low



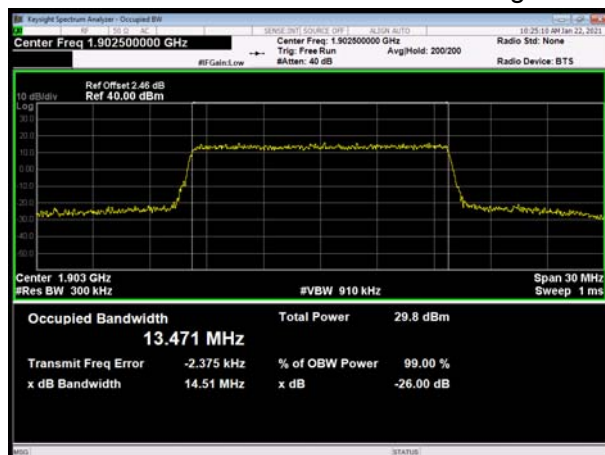
LTE Band 2 15MHz 16QAM CH-Middle



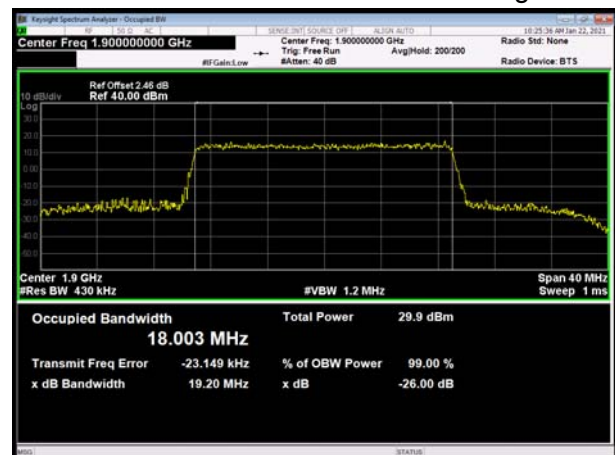
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High



LTE Band 2 20MHz 16QAM CH-High



5.3.Band Edge Compliance

Ambient condition

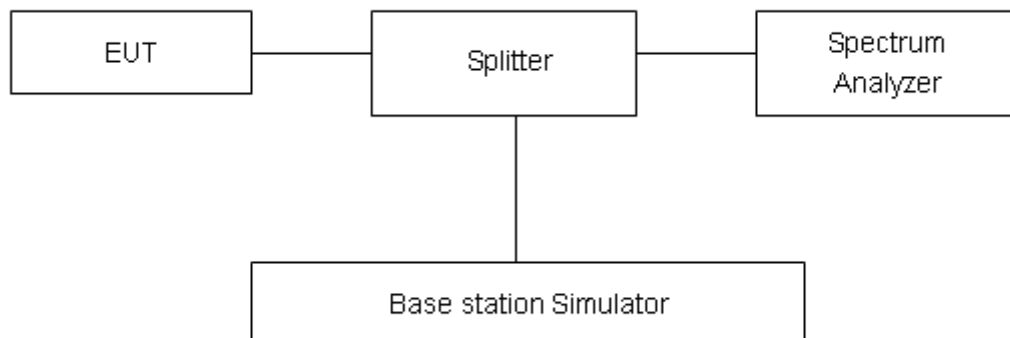
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 6.2kHz, VBW is set to 18kHz for GSM 1900, RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II, RBW is set to 15kHz, VBW is set to 43kHz for LTE Band 2 (1.4MHz), RBW is set to 30kHz,VBW is set to 91kHz for LTE Band 2 (3MHz), RBW is set to 51kHz,VBW is set to 150kHz for LTE Band 2 (5MHz), RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2 (10MHz), RBW is set to 150kHz,VBW is set to 470kHz for LTE Band 2 (15MHz), RBW is set to 200kHz,VBW is set to 620kHz for LTE Band 2 (20MHz).

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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



Test Result:

GSM1900 GSM CH-Low



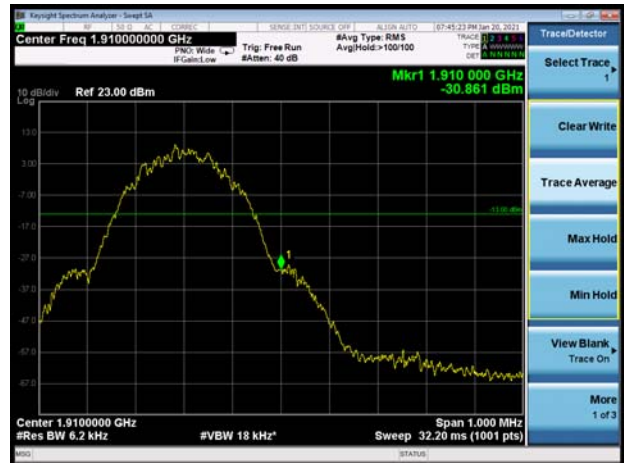
GSM 1900 GSM CH-High



GSM1900 GPRS CH-Low



GSM 1900 GPRS CH-High



GSM1900 EGPRS CH-Low



GSM 1900 EGPRS CH-High



WCDMA Band II RMC CH-Low



WCDMA Band II RMC CH-High



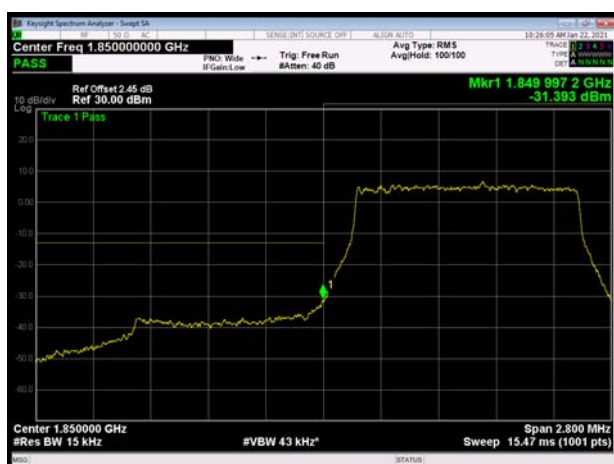
LTE Band 2 1.4MHz QPSK 1RB CH-Low



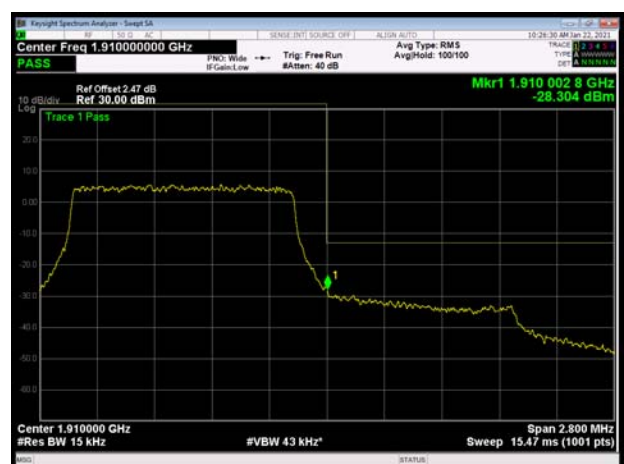
LTE Band 2 1.4MHz QPSK 1RB CH-High



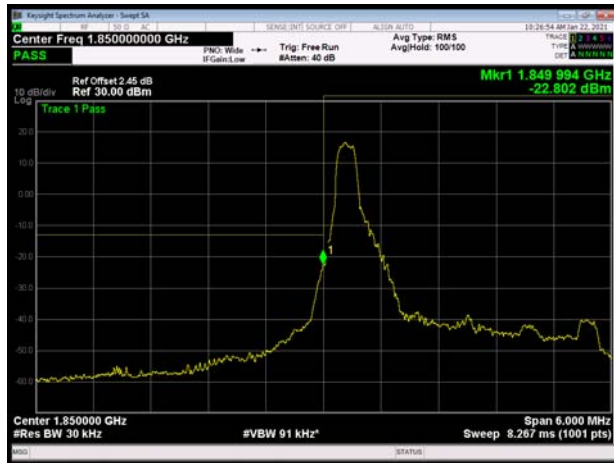
LTE Band 2 1.4MHz QPSK 100%RB CH-Low



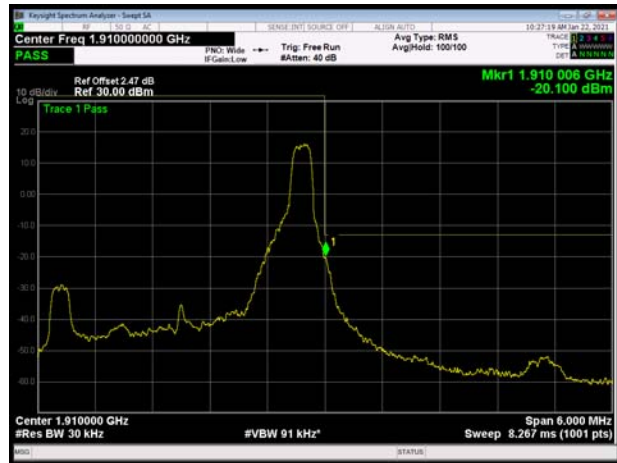
LTE Band 2 1.4MHz QPSK 100%RB CH-High



LTE Band 2 3MHz QPSK 1RB CH-Low



LTE Band 2 3MHz QPSK 1RB CH-High



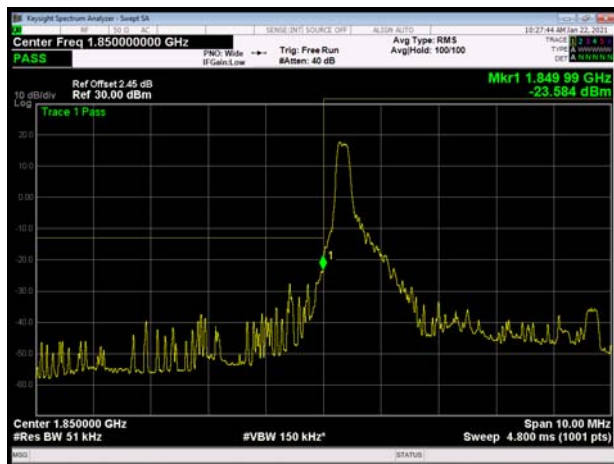
LTE Band 2 3MHz QPSK 100%RB CH-Low



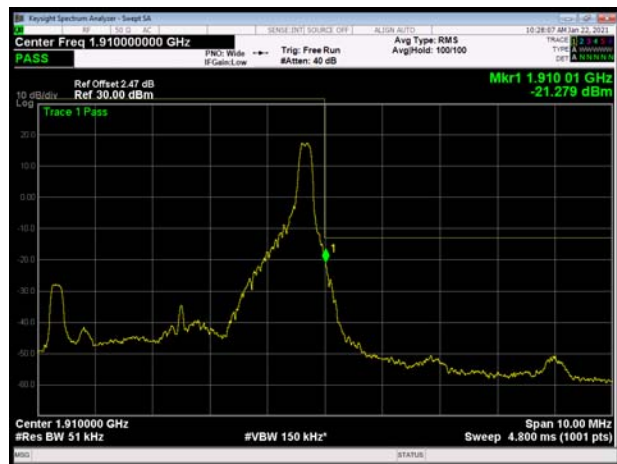
LTE Band 2 3MHz QPSK 100%RB CH-High



LTE Band 2 5MHz QPSK 1RB CH-Low

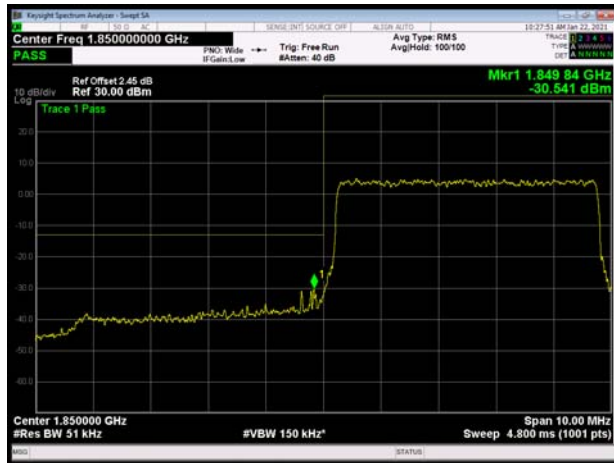


LTE Band 2 5MHz QPSK 1RB CH-High





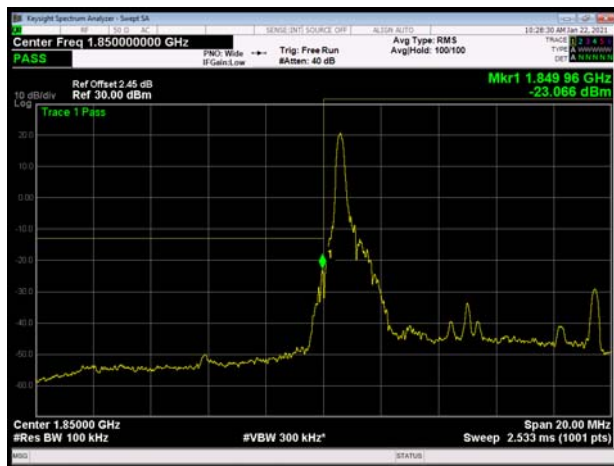
LTE Band 2 5MHz QPSK 100%RB CH-Low



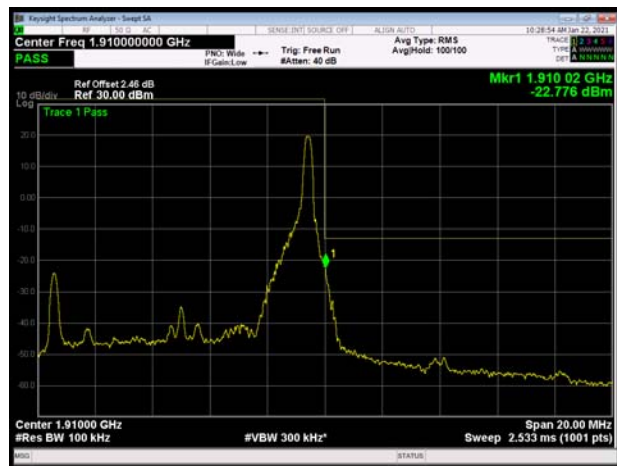
LTE Band 2 5MHz QPSK 100%RB CH-High



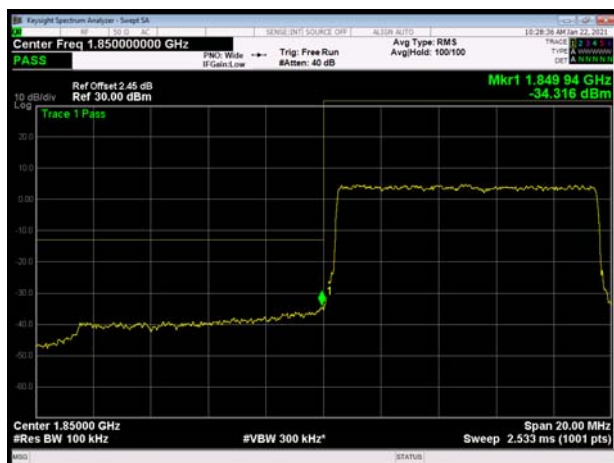
LTE Band 2 10MHz QPSK 1RB CH-Low



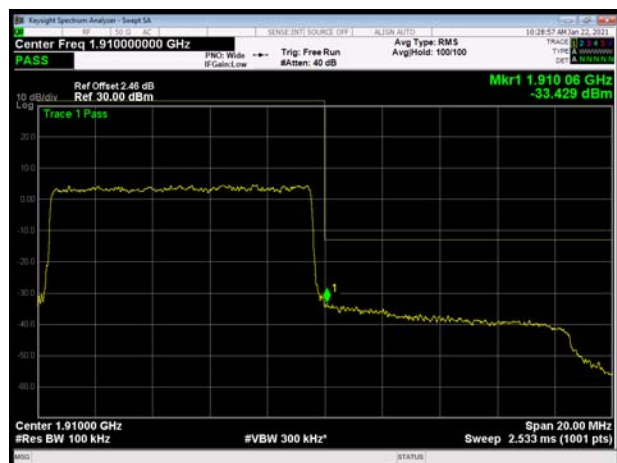
LTE Band 2 10MHz QPSK 1RB CH-High



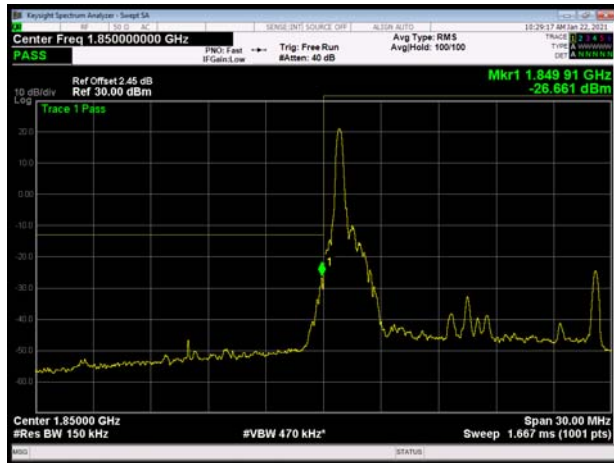
LTE Band 2 10MHz QPSK 100%RB CH-Low



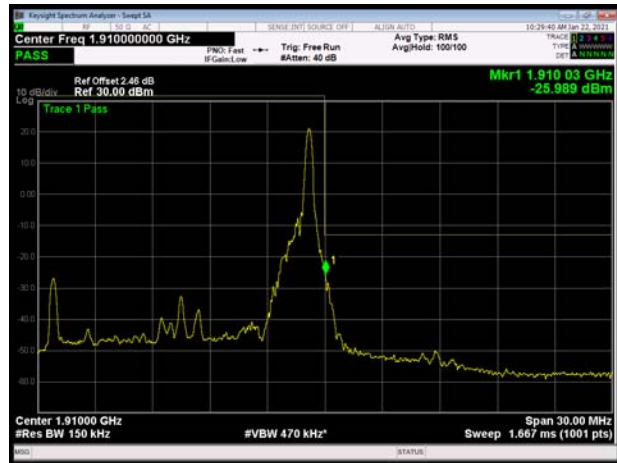
LTE Band 2 10MHz QPSK 100%RB CH-High



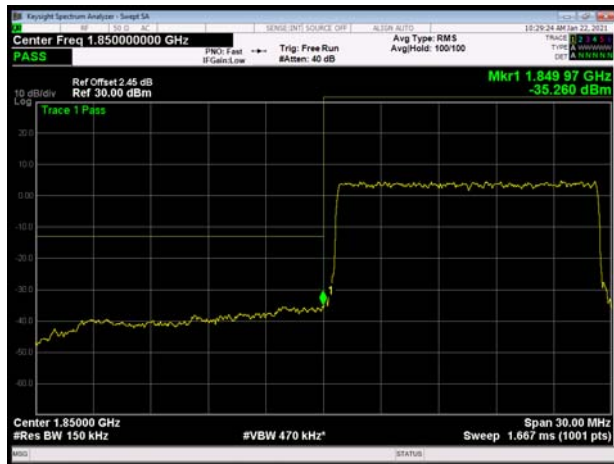
LTE Band 2 15MHz QPSK 1RB CH-Low



LTE Band 2 15MHz QPSK 1RB CH-High



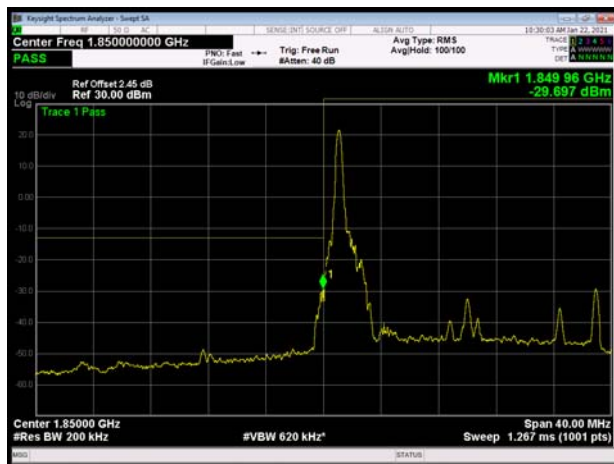
LTE Band 2 15MHz QPSK 100%RB CH-Low



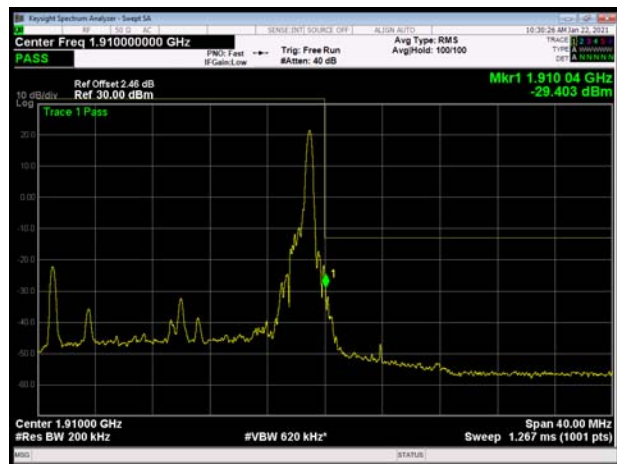
LTE Band 2 15MHz QPSK 100%RB CH-High



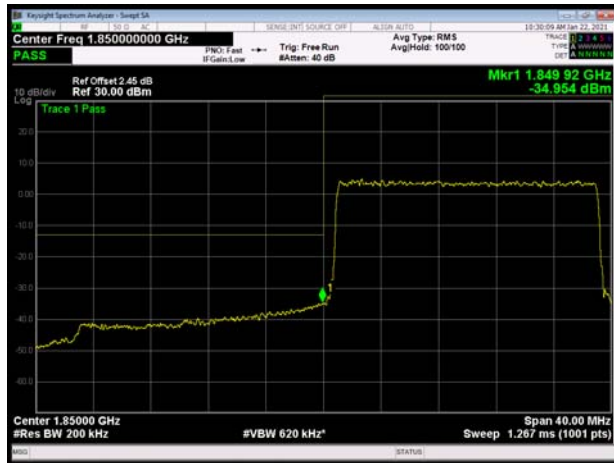
LTE Band 2 20MHz QPSK 1RB CH-Low



LTE Band 2 20MHz QPSK 1RB CH-High



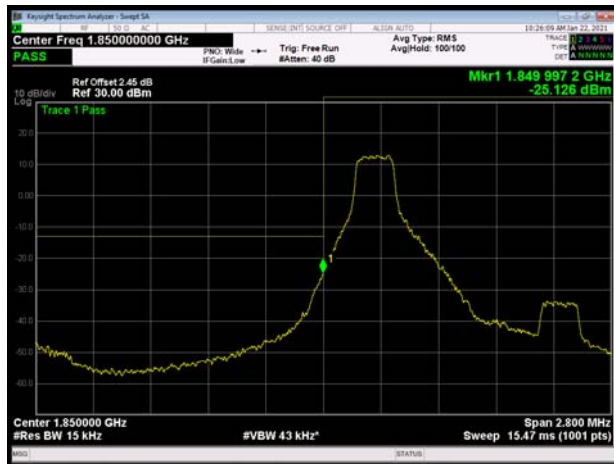
LTE Band 2 20MHz QPSK 100%RB CH-Low



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



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



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



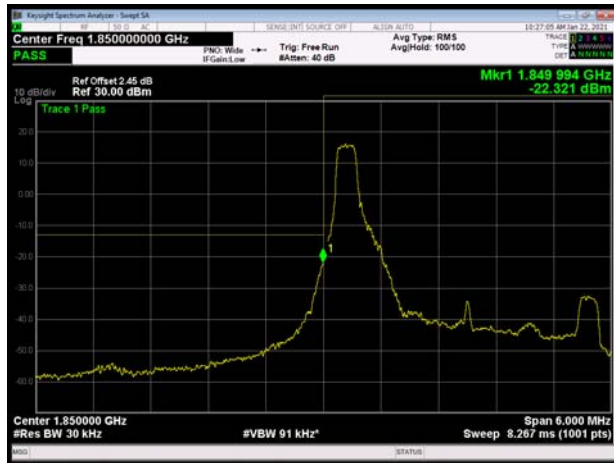
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low



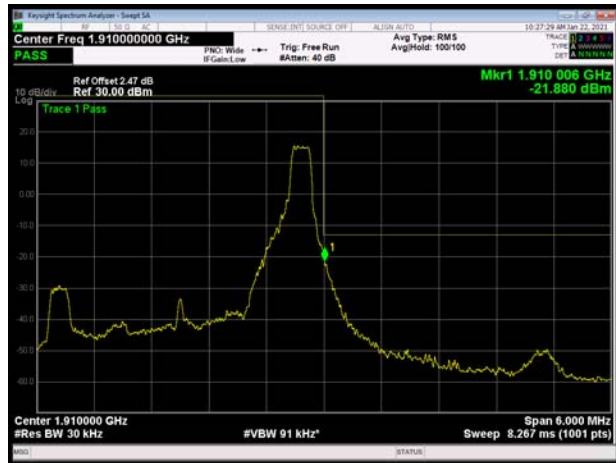
LTE Band 2 1.4MHz 16QAM 100%RB CH-High



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



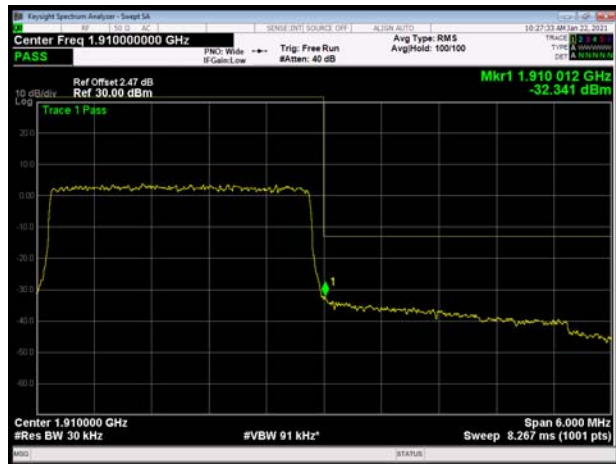
LTE Band 2 3MHz 16QAM 1RB CH-High



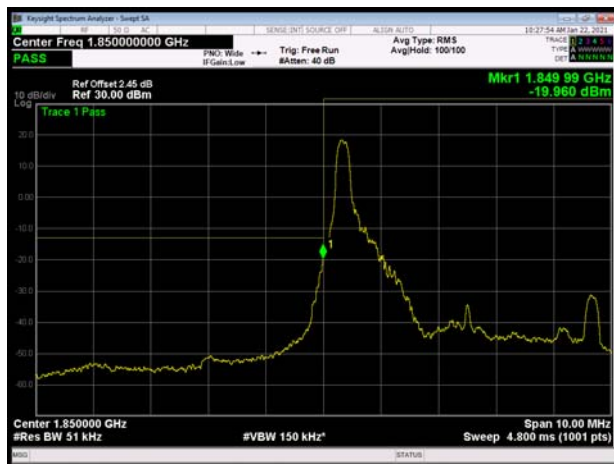
LTE Band 2 3MHz 16QAM 100%RB CH-Low



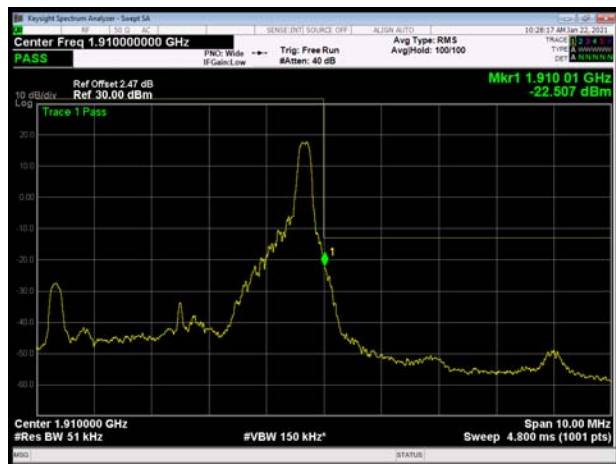
LTE Band 2 3MHz 16QAM 100%RB CH-High



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



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





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



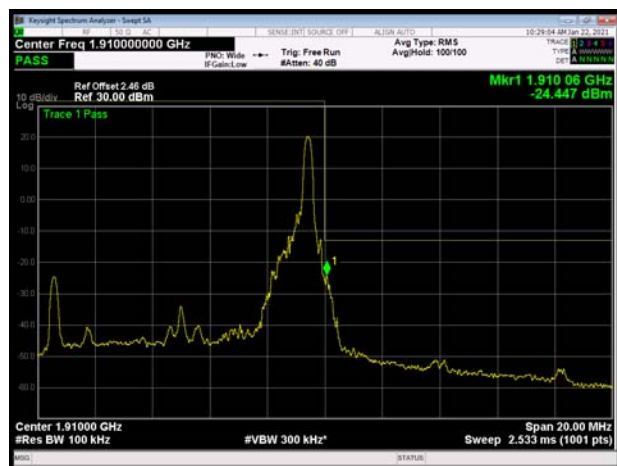
LTE Band 2 5MHz 16QAM 100%RB CH-High



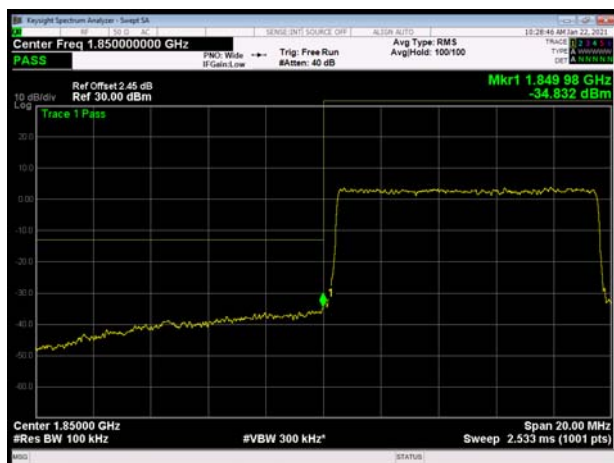
LTE Band 2 10MHz 16QAM 1RB CH-Low



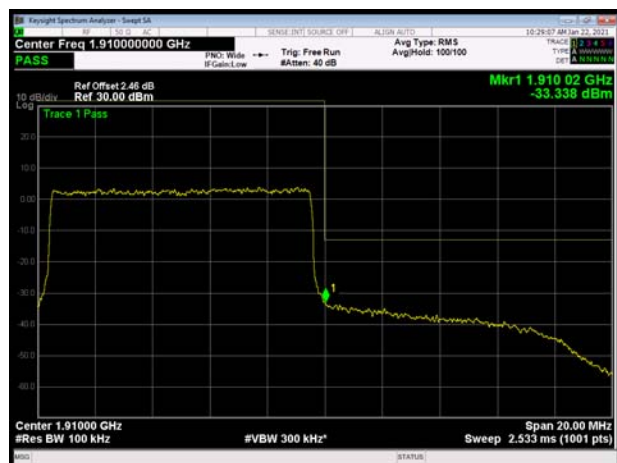
LTE Band 2 10MHz 16QAM 1RB CH-High



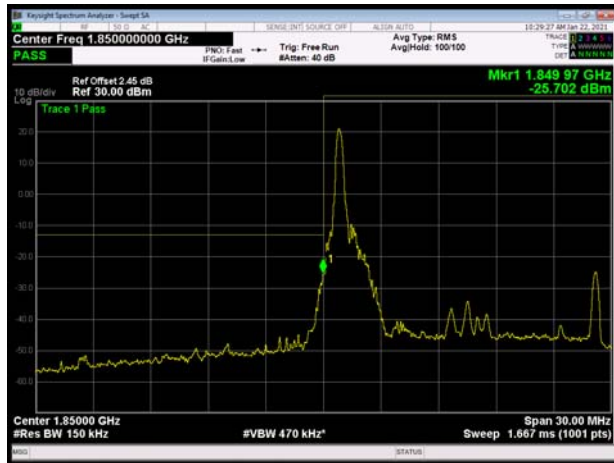
LTE Band 2 10MHz 16QAM 100%RB CH-Low



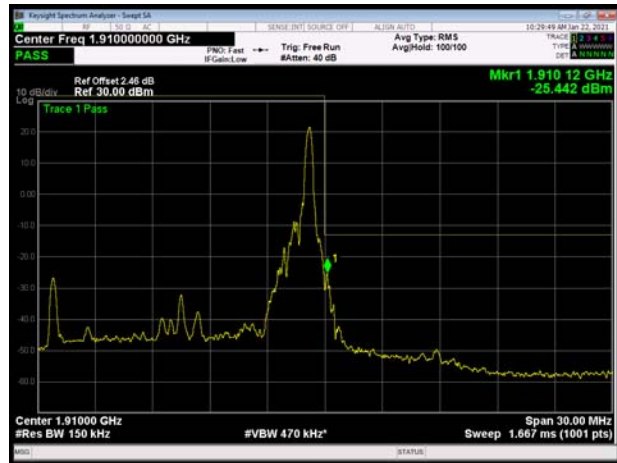
LTE Band 2 10MHz 16QAM 100%RB CH-High



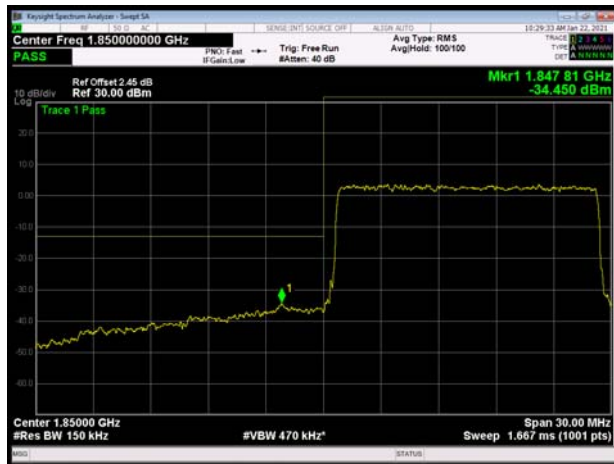
LTE Band 2 15MHz 16QAM 1RB CH-Low



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



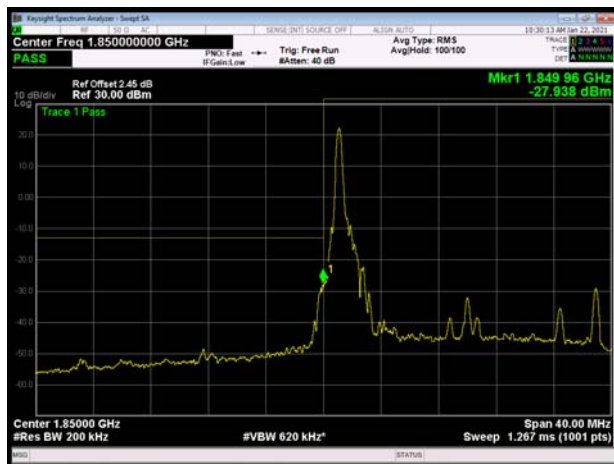
LTE Band 2 15MHz 16QAM 100%RB CH-Low



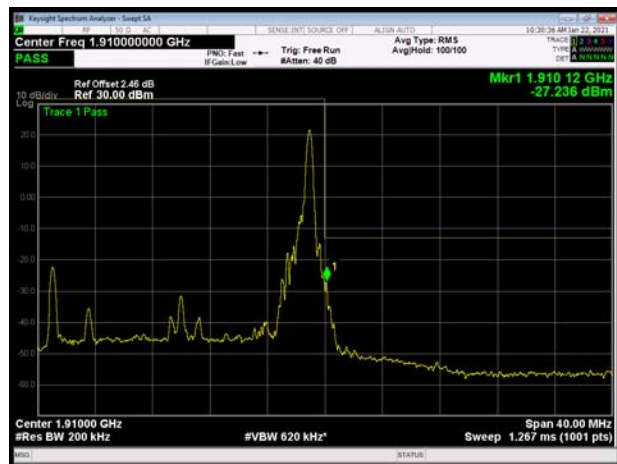
LTE Band 2 15MHz 16QAM 100%RB CH-High



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

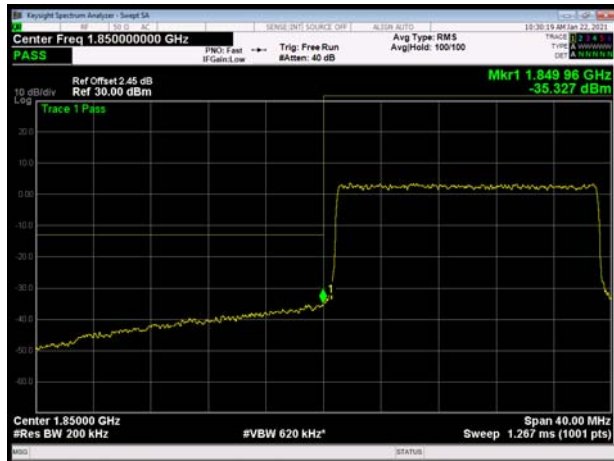


LTE Band 2 20MHz 16QAM 1RB CH-High





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



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



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

Ambient condition

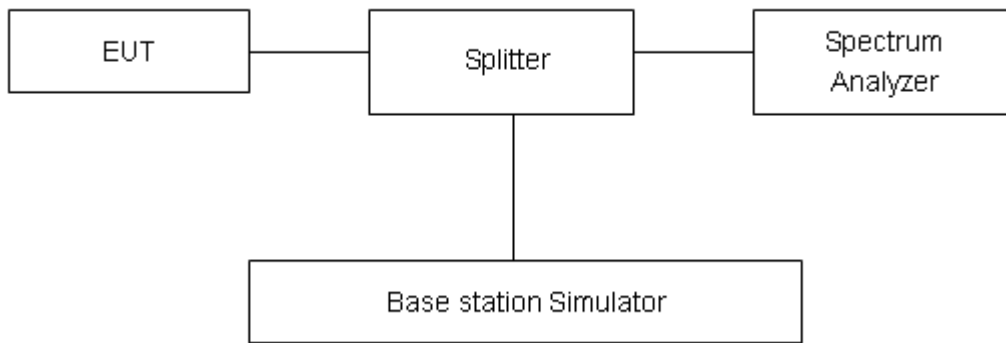
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Limits

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

Measurement Uncertainty

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

**Test Results**

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	32.24	30.25	1.99	≤13	PASS
	661	1880	32.33	30.30	2.03	≤13	PASS
	810	1909.8	32.19	30.15	2.04	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	32.54	30.28	2.26	≤13	PASS
	661	1880	32.43	30.25	2.18	≤13	PASS
	810	1909.8	32.22	30.07	2.15	≤13	PASS
EGPRS 1900 (8PSK)	512	1850.2	28.90	26.27	2.63	≤13	PASS
	661	1880	28.89	26.30	2.59	≤13	PASS
	810	1909.8	28.86	26.32	2.54	≤13	PASS
WCDMA Band II (RMC)	9262	1852.4	24.35	21.18	3.17	≤13	PASS
	9400	1880	24.15	21.03	3.12	≤13	PASS
	9538	1907.6	23.85	20.77	3.08	≤13	PASS



LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	27.96	22.83	5.13	≤13	PASS
		18900	1880.0	27.87	22.70	5.17	≤13	PASS
		19193	1909.3	27.06	22.75	4.31	≤13	PASS
	3	18615	1851.5	28.00	22.79	5.21	≤13	PASS
		18900	1880	27.94	22.68	5.26	≤13	PASS
		19185	1908.5	27.29	22.70	4.59	≤13	PASS
	5	18625	1852.5	28.11	22.83	5.28	≤13	PASS
		18900	1880	28.06	22.70	5.36	≤13	PASS
		19175	1907.5	27.56	22.70	4.86	≤13	PASS
	10	18650	1855	28.25	22.85	5.40	≤13	PASS
		18900	1880	28.08	22.70	5.38	≤13	PASS
		19150	1905	27.93	22.76	5.17	≤13	PASS
	15	18675	1857.5	28.62	22.87	5.75	≤13	PASS
		18900	1880	28.44	22.76	5.68	≤13	PASS
		19125	1902.5	28.38	22.81	5.57	≤13	PASS
	20	18700	1860	28.39	22.79	5.60	≤13	PASS
		18900	1880	28.19	22.68	5.51	≤13	PASS
		19100	1900	28.33	22.82	5.51	≤13	PASS
16QAM	1.4	18607	1850.7	27.77	21.81	5.96	≤13	PASS
		18900	1880.0	27.59	21.67	5.92	≤13	PASS
		19193	1909.3	27.00	21.72	5.28	≤13	PASS
	3	18615	1851.5	27.88	21.85	6.03	≤13	PASS
		18900	1880	27.81	21.69	6.12	≤13	PASS
		19185	1908.5	27.23	21.67	5.56	≤13	PASS
	5	18625	1852.5	27.89	21.83	6.06	≤13	PASS
		18900	1880	27.81	21.73	6.08	≤13	PASS
		19175	1907.5	27.41	21.68	5.73	≤13	PASS
	10	18650	1855	28.00	21.86	6.14	≤13	PASS
		18900	1880	27.91	21.74	6.17	≤13	PASS
		19150	1905	27.76	21.78	5.98	≤13	PASS
	15	18675	1857.5	28.18	21.85	6.33	≤13	PASS
		18900	1880	28.04	21.74	6.30	≤13	PASS
		19125	1902.5	28.00	21.79	6.21	≤13	PASS
	20	18700	1860	28.18	21.81	6.37	≤13	PASS
		18900	1880	27.93	21.66	6.27	≤13	PASS
		19100	1900	28.10	21.83	6.27	≤13	PASS

5.5.Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

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

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

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

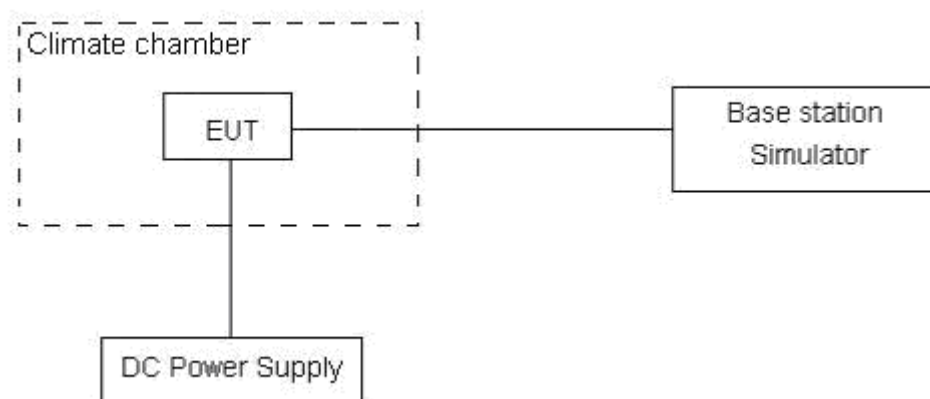
Frequency Stability (Voltage Variation)

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

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

This transceiver is specified to operate with an input voltage of between 3.27 V and 4.43 V, with a nominal voltage of 3.85V.

Test setup



Limits

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

Measurement Uncertainty

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

Test Result

GSM1900						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal (25℃)	Normal	4.50	15.97	0.00239	0.00849	PASS
Extreme (50℃)		11.64	1.98	0.00619	0.00105	PASS
Extreme (40℃)		1.52	3.18	0.00081	0.00169	PASS
Extreme (30℃)		17.45	6.67	0.00928	0.00355	PASS
Extreme (20℃)		8.02	10.37	0.00427	0.00551	PASS
Extreme (10℃)		6.63	11.05	0.00353	0.00588	PASS
Extreme (0℃)		15.37	16.76	0.00817	0.00891	PASS
Extreme (-10℃)		8.95	1.66	0.00476	0.00088	PASS
Extreme (-20℃)		13.24	1.51	0.00704	0.00080	PASS
Extreme (-30℃)		1.51	1.11	0.00081	0.00059	PASS
25℃	LV	2.57	13.45	0.00136	0.00716	PASS
	HV	8.68	4.54	0.00462	0.00242	PASS

WCDMA Band II						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25℃)	Normal	13.55	16.59	0.00721	0.00882	PASS
Extreme (50℃)		7.17	1.41	0.00381	0.00075	PASS
Extreme (40℃)		8.13	2.79	0.00433	0.00148	PASS
Extreme (30℃)		16.18	13.66	0.00861	0.00726	PASS
Extreme (20℃)		17.93	3.47	0.00954	0.00185	PASS
Extreme (10℃)		4.93	14.37	0.00262	0.00764	PASS
Extreme (0℃)		14.73	6.81	0.00784	0.00362	PASS
Extreme (-10℃)		14.59	8.51	0.00776	0.00453	PASS
Extreme (-20℃)		7.28	11.29	0.00387	0.00601	PASS
Extreme (-30℃)		17.76	3.44	0.00944	0.00183	PASS
25℃	LV	5.64	15.28	0.00300	0.00813	PASS
	HV	17.48	14.13	0.00930	0.00751	PASS

LTE Band 2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	13.27	16.77	0.00706	0.00892	PASS
Extreme (50℃)		8.30	1.29	0.00441	0.00069	PASS
Extreme (40℃)		11.18	17.54	0.00595	0.00933	PASS
Extreme (30℃)		6.42	8.33	0.00342	0.00443	PASS
Extreme (20℃)		15.44	3.51	0.00821	0.00186	PASS
Extreme (10℃)		15.98	12.76	0.00850	0.00679	PASS
Extreme (0℃)		2.89	4.49	0.00154	0.00239	PASS
Extreme (-10℃)		11.74	6.33	0.00625	0.00337	PASS
Extreme (-20℃)		1.64	10.10	0.00087	0.00537	PASS
Extreme (-30℃)		11.21	8.60	0.00596	0.00457	PASS
25℃	LV	1.99	2.13	0.00106	0.00113	PASS
	HV	4.89	5.67	0.00260	0.00302	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	4.41	14.52	0.00235	0.00772	PASS
Extreme (50℃)		17.72	13.78	0.00943	0.00733	PASS
Extreme (40℃)		15.24	15.62	0.00811	0.00831	PASS
Extreme (30℃)		5.68	10.85	0.00302	0.00577	PASS
Extreme (20℃)		1.34	14.77	0.00071	0.00785	PASS
Extreme (10℃)		9.23	17.19	0.00491	0.00914	PASS
Extreme (0℃)		10.41	8.48	0.00554	0.00451	PASS
Extreme (-10℃)		10.62	14.48	0.00565	0.00770	PASS
Extreme (-20℃)		15.40	12.55	0.00819	0.00667	PASS
Extreme (-30℃)		3.19	8.17	0.00169	0.00434	PASS
25℃	LV	8.94	2.14	0.00475	0.00114	PASS
	HV	10.12	7.01	0.00538	0.00373	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	11.77	15.35	0.00626	0.00817	PASS
Extreme (50℃)		8.05	6.21	0.00428	0.00330	PASS



Extreme (40℃)		17.33	13.53	0.00922	0.00720	PASS
Extreme (30℃)		16.63	14.08	0.00885	0.00749	PASS
Extreme (20℃)		2.95	6.68	0.00157	0.00355	PASS
Extreme (10℃)		5.02	4.63	0.00267	0.00246	PASS
Extreme (0℃)		9.87	1.85	0.00525	0.00098	PASS
Extreme (-10℃)		10.34	6.05	0.00550	0.00322	PASS
Extreme (-20℃)		3.74	11.07	0.00199	0.00589	PASS
Extreme (-30℃)		12.18	13.07	0.00648	0.00695	PASS
25℃	LV	6.61	8.68	0.00352	0.00461	PASS
	HV	9.90	5.31	0.00527	0.00283	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	16.22	2.70	0.00863	0.00144	PASS
Extreme (50℃)		15.46	11.20	0.00822	0.00596	PASS
Extreme (40℃)		4.38	6.94	0.00233	0.00369	PASS
Extreme (30℃)		10.18	9.07	0.00542	0.00482	PASS
Extreme (20℃)		6.77	12.77	0.00360	0.00679	PASS
Extreme (10℃)		10.44	11.09	0.00555	0.00590	PASS
Extreme (0℃)		10.68	3.58	0.00568	0.00190	PASS
Extreme (-10℃)		8.77	7.42	0.00466	0.00395	PASS
Extreme (-20℃)		8.15	3.38	0.00433	0.00180	PASS
Extreme (-30℃)		6.87	5.94	0.00366	0.00316	PASS
25℃	LV	13.85	4.77	0.00737	0.00254	PASS
	HV	13.65	10.78	0.00726	0.00574	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	7.14	11.98	0.00380	0.00637	PASS
Extreme (50℃)		7.21	9.55	0.00384	0.00508	PASS
Extreme (40℃)		2.50	1.49	0.00133	0.00079	PASS
Extreme (30℃)		14.22	9.43	0.00756	0.00502	PASS
Extreme (20℃)		12.99	1.91	0.00691	0.00102	PASS
Extreme (10℃)		1.46	12.17	0.00078	0.00647	PASS
Extreme (0℃)		4.67	11.49	0.00248	0.00611	PASS
Extreme (-10℃)		11.66	11.81	0.00620	0.00628	PASS
Extreme (-20℃)		4.92	9.10	0.00262	0.00484	PASS
Extreme (-30℃)		12.45	6.55	0.00662	0.00348	PASS
25℃	LV	15.14	11.24	0.00805	0.00598	PASS



	HV	16.95	4.70	0.00902	0.00250	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal (25℃)	Normal	14.64	7.36	0.00779	0.00392	PASS
Extreme (50℃)		5.46	15.97	0.00291	0.00849	PASS
Extreme (40℃)		1.27	17.00	0.00068	0.00904	PASS
Extreme (30℃)		14.28	16.72	0.00759	0.00889	PASS
Extreme (20℃)		17.40	3.05	0.00925	0.00162	PASS
Extreme (10℃)		13.00	5.26	0.00692	0.00280	PASS
Extreme (0℃)		12.93	17.61	0.00688	0.00936	PASS
Extreme (-10℃)		11.09	9.43	0.00590	0.00501	PASS
Extreme (-20℃)		5.48	7.25	0.00291	0.00386	PASS
Extreme (-30℃)		6.15	9.54	0.00327	0.00507	PASS
25℃	LV	16.74	11.91	0.00890	0.00633	PASS
	HV	9.83	10.79	0.00523	0.00574	PASS

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

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

Method of Measurement

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

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

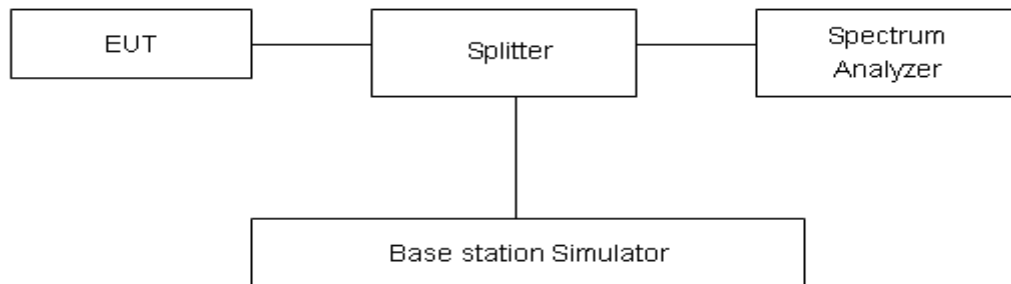
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

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

RBW is set to 1000 kHz (above 1000MHz)

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 $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

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

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

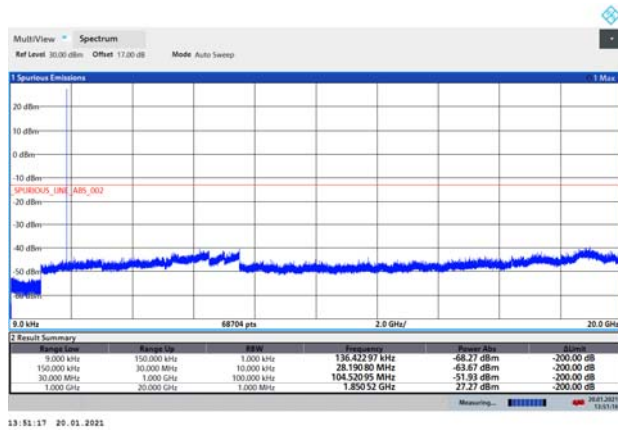


Test Result

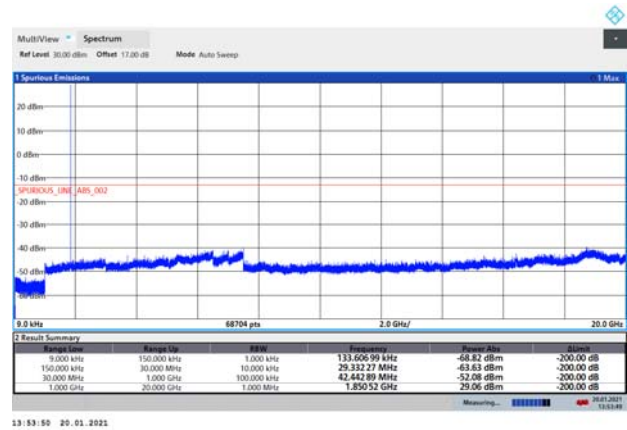
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

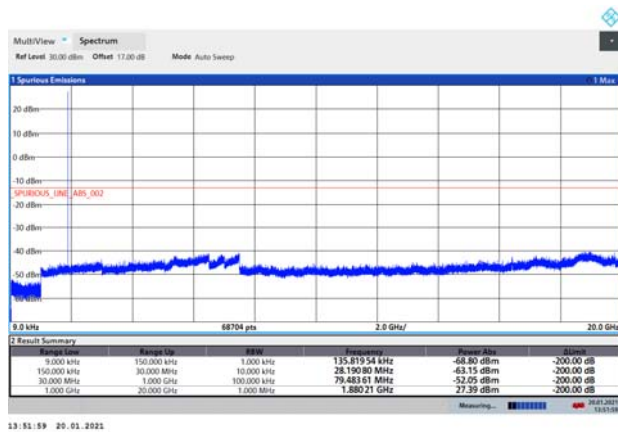
GSM 1900 CH-Low 9kHz ~ 20GHz



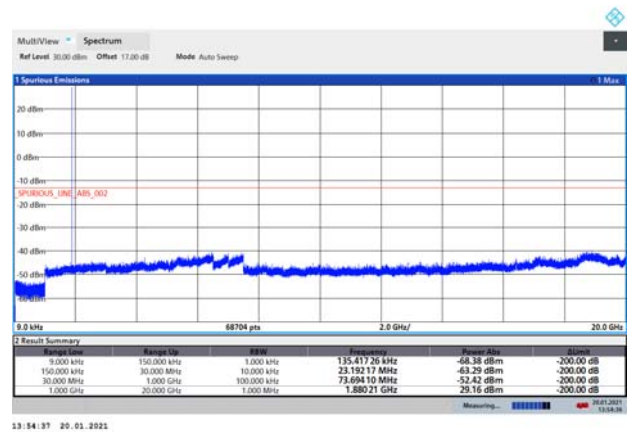
GPRS 1900 CH-Low 9kHz ~ 20GHz



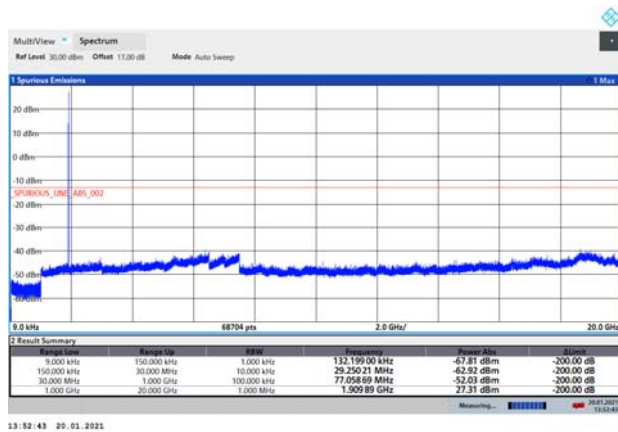
GSM 1900 CH-Middle 9kHz ~ 20GHz



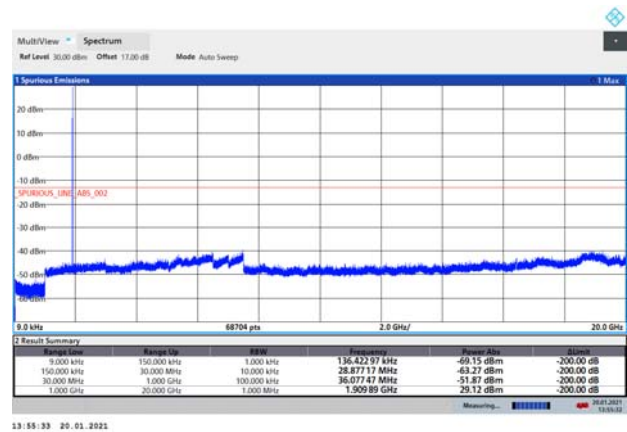
GPRS 1900 CH-Middle 9kHz ~ 20GHz



GSM 1900 CH-High 9kHz ~ 20GHz

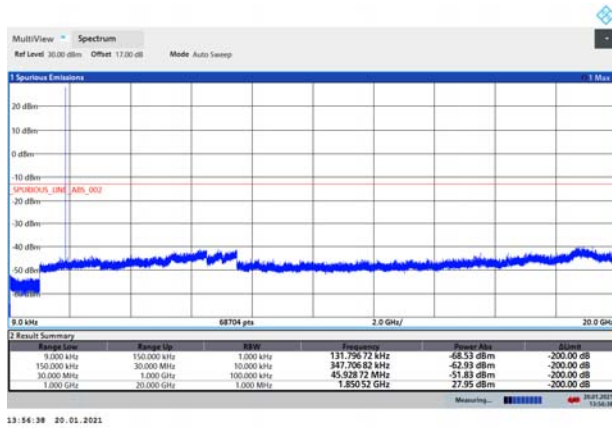


GPRS 1900 CH-High 9kHz ~ 20GHz

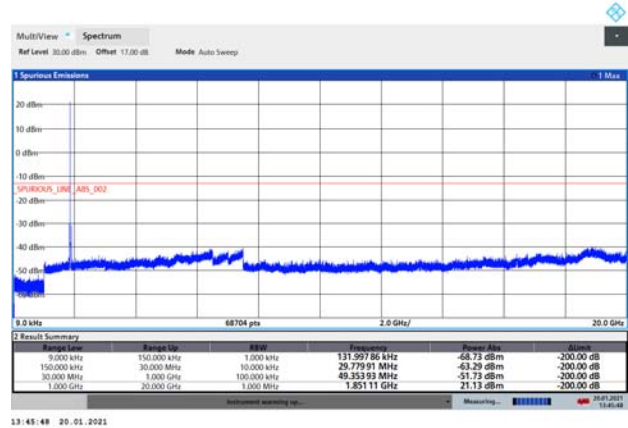




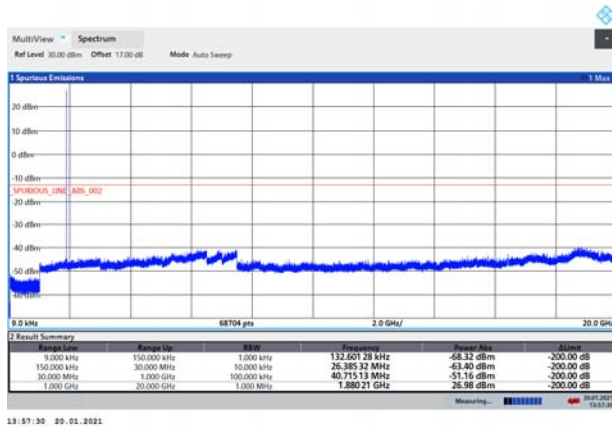
EGPRS 1900 CH-Low 9kHz ~ 20GHz



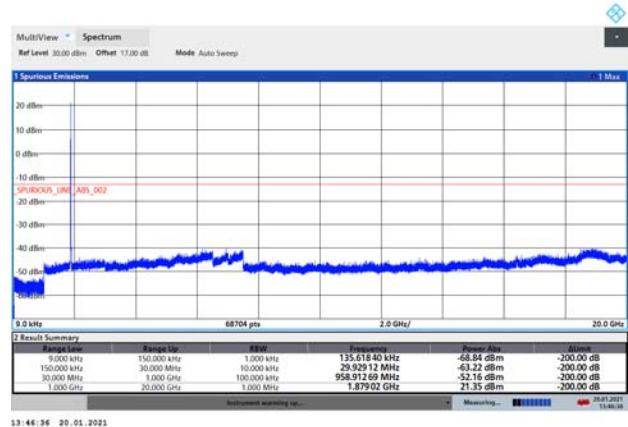
WCDMA BAND II CH-Low 9kHz ~ 20GHz



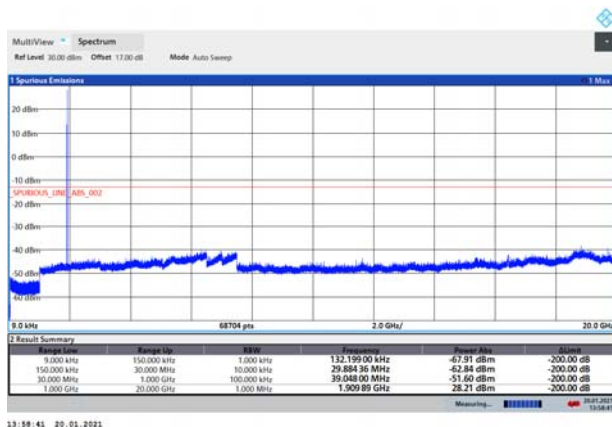
EGPRS 1900 CH-Middle 9kHz ~ 20GHz



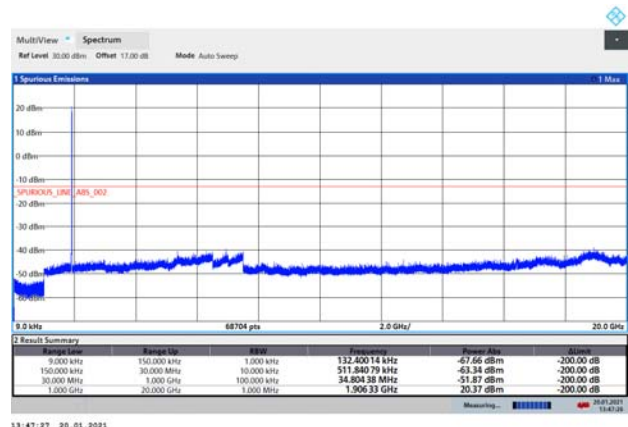
WCDMA BAND II CH-Middle 9kHz ~ 20GHz



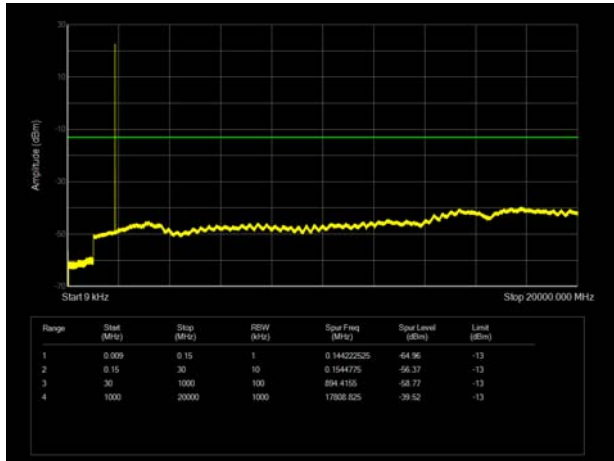
EGPRS 1900 CH-High 9kHz ~ 20GHz



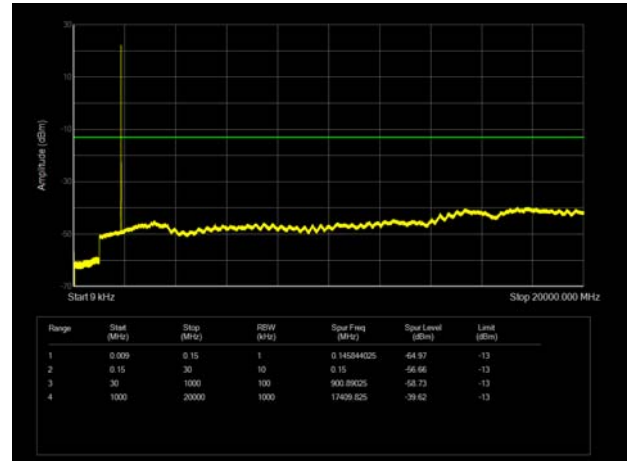
WCDMA BAND II CH-High 9kHz ~ 20GHz



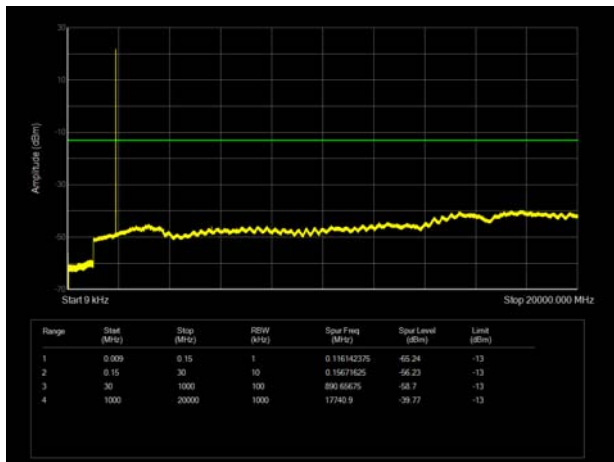
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



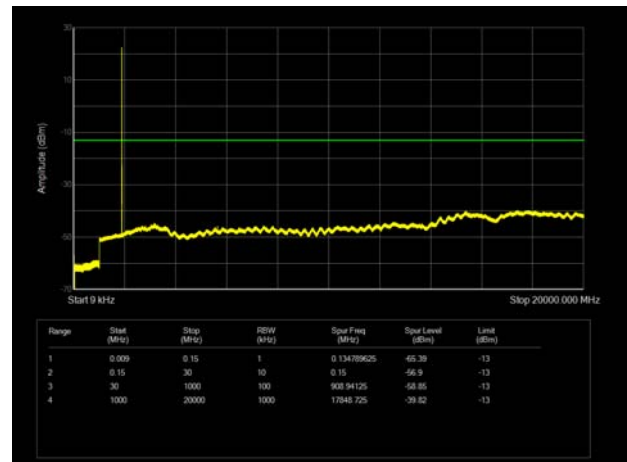
LTE Band 2 3MHz CH-Low 9kHz~20GHz



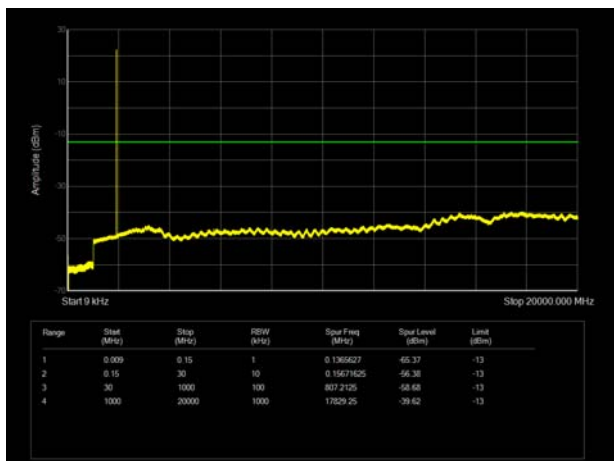
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



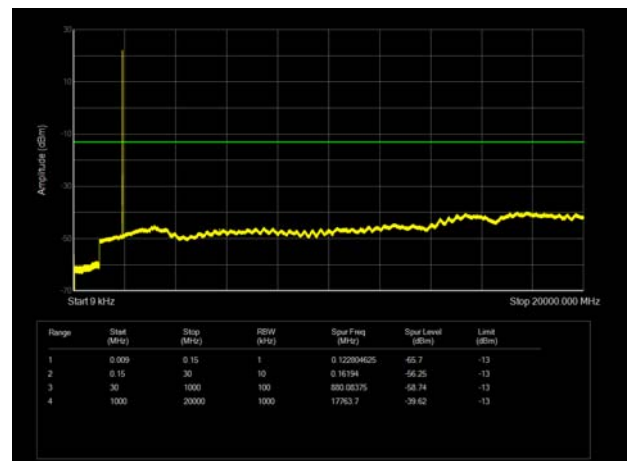
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



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

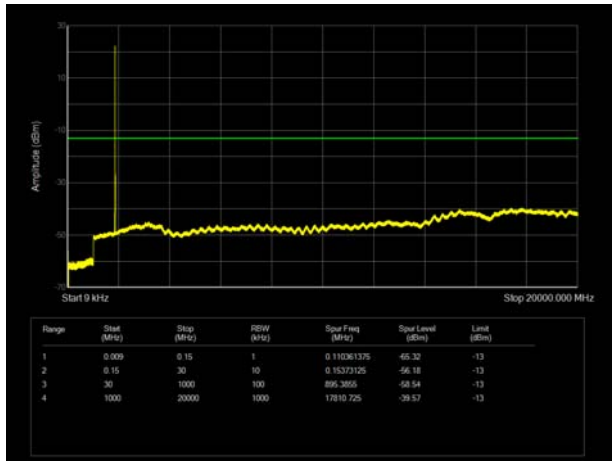


LTE Band 2 3MHz CH-High 9kHz~20GHz

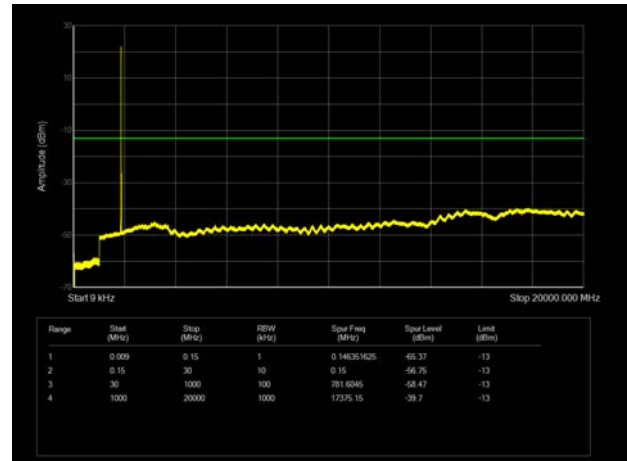




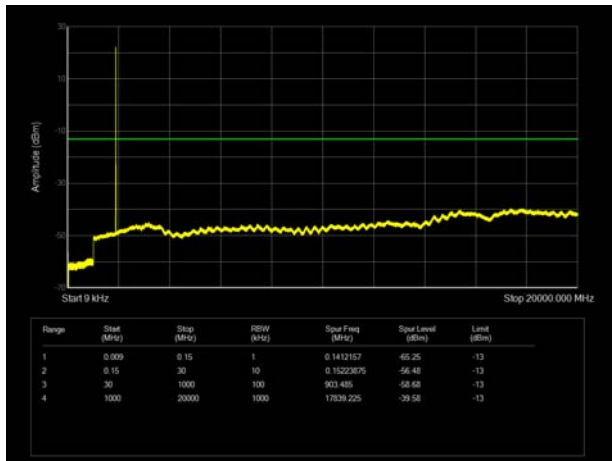
LTE Band 2 5MHz CH-Low 9kHz~20GHz



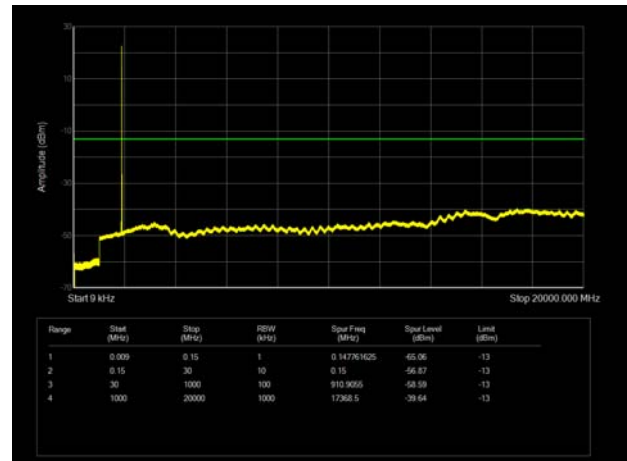
LTE Band 2 10MHz CH-Low 9kHz~20GHz



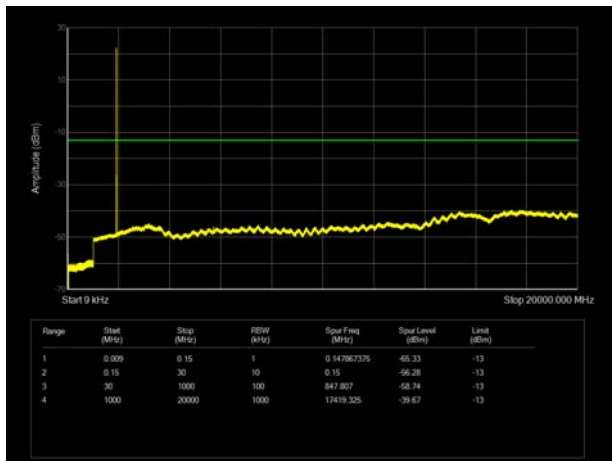
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



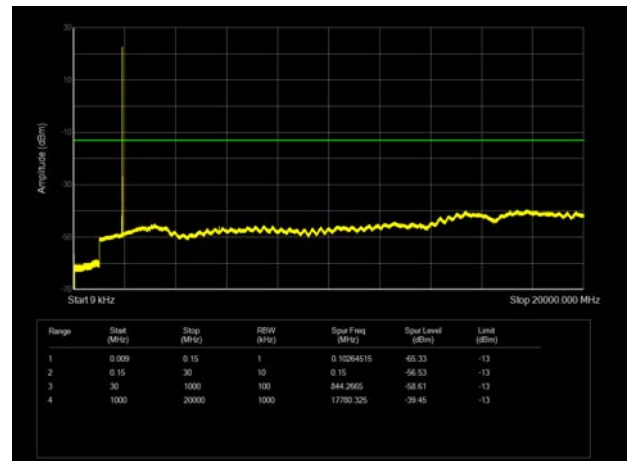
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



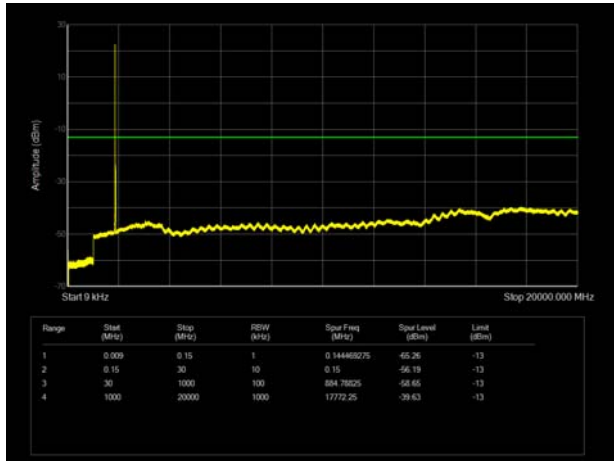
LTE Band 2 5MHz CH-High 9kHz~20GHz



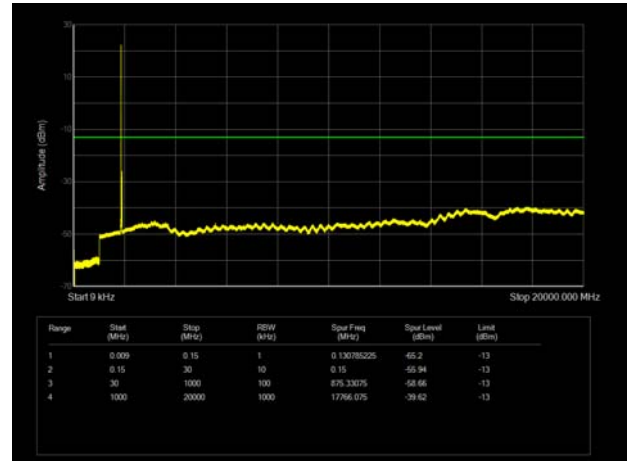
LTE Band 2 10MHz CH-High 9kHz~20GHz



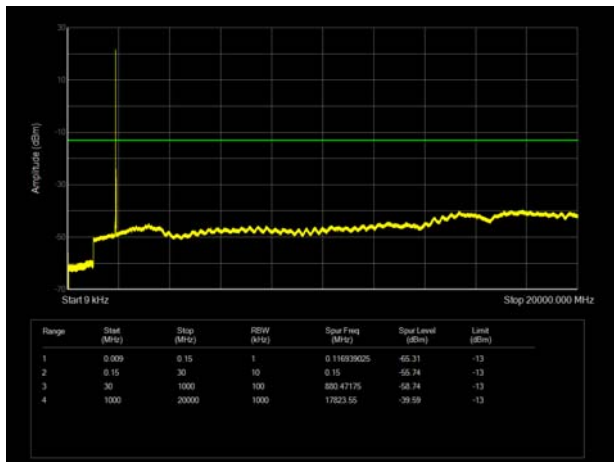
LTE Band 2 15MHz CH-Low 9kHz~20GHz



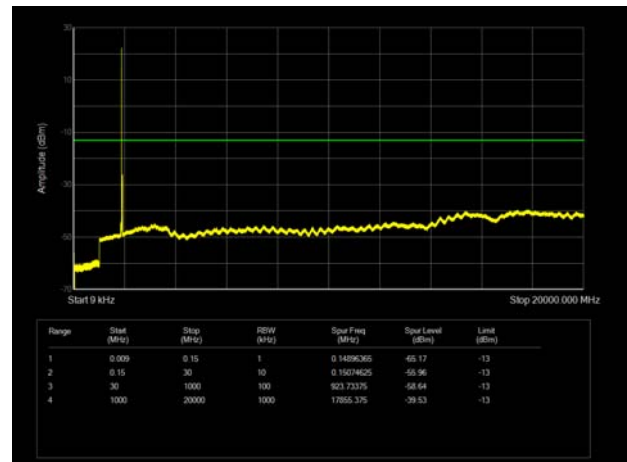
LTE Band 2 20MHz CH-Low 9kHz~20GHz



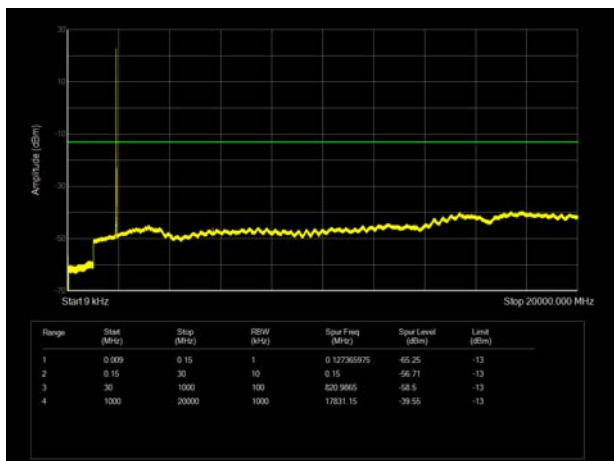
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



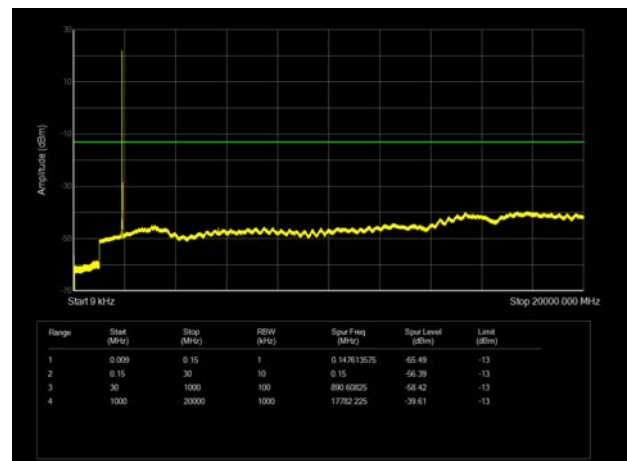
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



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



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



5.7. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

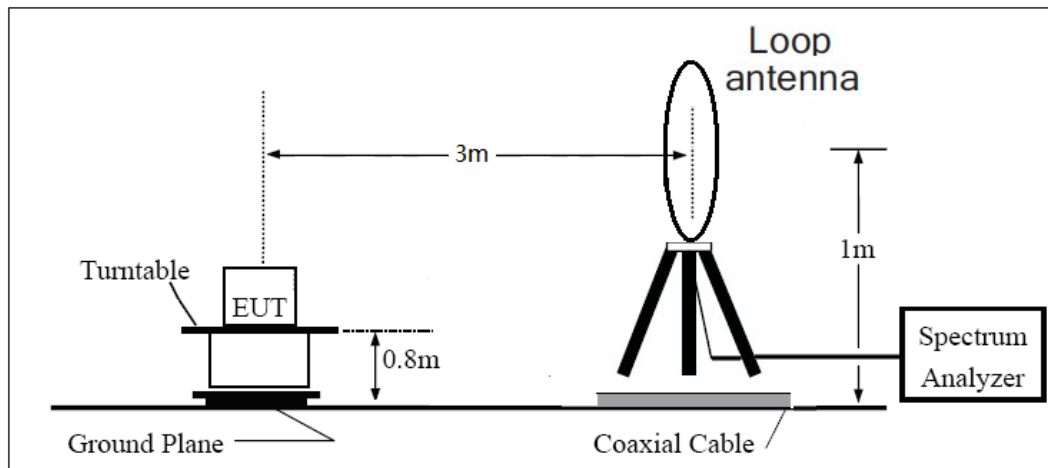
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

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

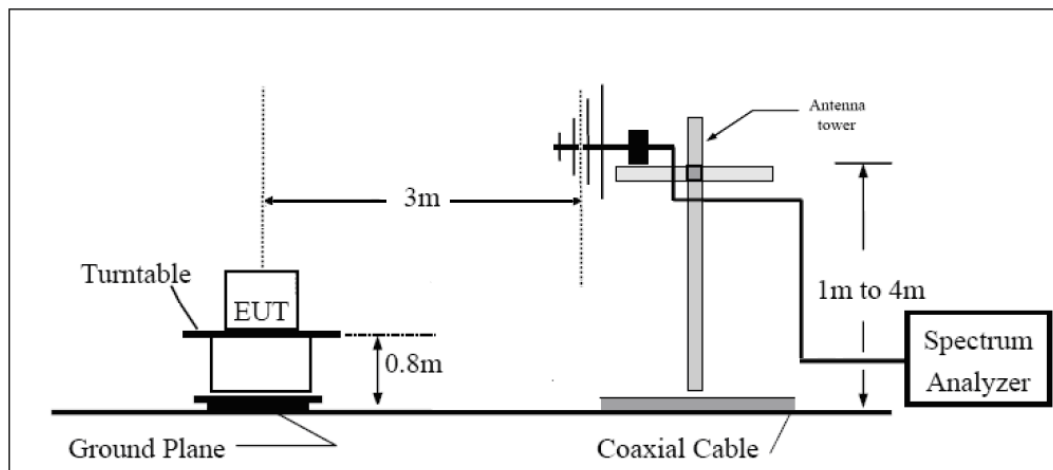
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

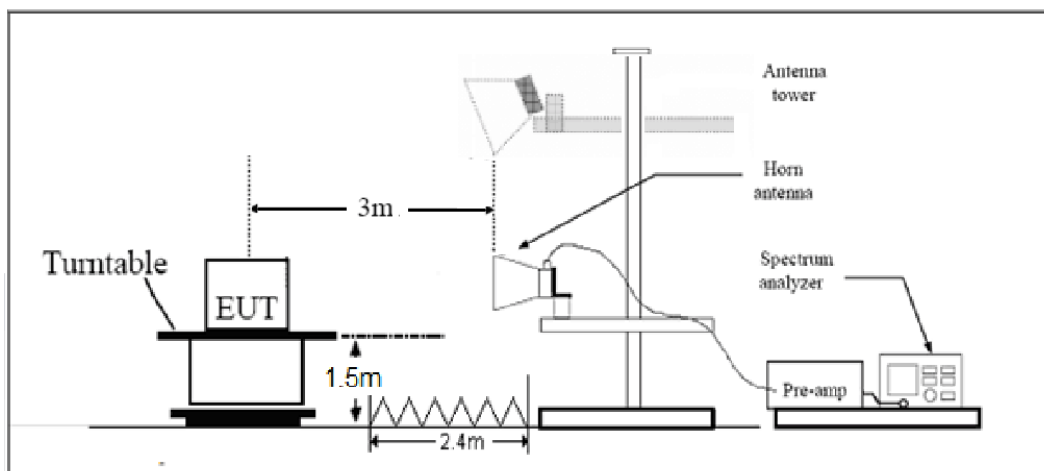
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz





Note: Area side: 2.4mX3.6m

Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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

Test Result

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

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	-62.33	5.10	11.05	Horizontal	-56.38	-13.00	43.38	180
3	5640.00	-59.15	5.42	12.65	Horizontal	-51.92	-13.00	38.92	135
4	7520.00	-53.85	6.70	13.85	Horizontal	-46.70	-13.00	33.70	90
5	9400.00	-54.87	7.01	14.75	Horizontal	-47.13	-13.00	34.13	315
6	11280.00	-51.83	7.48	15.95	Horizontal	-43.36	-13.00	30.36	45
7	13160.00	-56.48	7.51	16.55	Horizontal	-47.44	-13.00	34.44	225
8	15040.00	-53.42	8.24	15.35	Horizontal	-46.31	-13.00	33.31	0
9	16920.00	-50.63	8.41	14.95	Horizontal	-44.09	-13.00	31.09	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.

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	-60.04	5.10	11.05	Horizontal	-54.09	-13.00	41.09	135
3	5640.00	-58.70	5.42	12.65	Horizontal	-51.47	-13.00	38.47	90
4	7520.00	-54.82	6.70	13.85	Horizontal	-47.67	-13.00	34.67	180
5	9400.00	-54.46	7.01	14.75	Horizontal	-46.72	-13.00	33.72	45
6	11280.00	-48.87	7.48	15.95	Horizontal	-40.40	-13.00	27.40	135
7	13160.00	-52.67	7.51	16.55	Horizontal	-43.63	-13.00	30.63	90
8	15040.00	-52.36	8.24	15.35	Horizontal	-45.25	-13.00	32.25	315
9	16920.00	-51.00	8.41	14.95	Horizontal	-44.46	-13.00	31.46	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 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	-61.58	5.10	11.05	Horizontal	-55.63	-13.00	42.63	90
3	5638.88	-55.79	5.42	12.65	Horizontal	-48.56	-13.00	35.56	225
4	7520.00	-56.29	6.70	13.85	Horizontal	-49.14	-13.00	36.14	315
5	9400.00	-55.01	7.01	14.75	Horizontal	-47.27	-13.00	34.27	0
6	11280.00	-52.39	7.48	15.95	Horizontal	-43.92	-13.00	30.92	225
7	13160.00	-54.63	7.51	16.55	Horizontal	-45.59	-13.00	32.59	90
8	15040.00	-53.58	8.24	15.35	Horizontal	-46.47	-13.00	33.47	45
9	16920.00	-50.70	8.41	14.95	Horizontal	-44.16	-13.00	31.16	315
10	18800.00	-	-	-	-	-	-	-	-

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

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

LTE Band 2 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	-60.49	5.10	11.05	Horizontal	-54.54	-13.00	41.54	180
3	5633.63	-56.76	5.42	12.65	Horizontal	-49.53	-13.00	36.53	90
4	7520.00	-55.59	6.70	13.85	Horizontal	-48.44	-13.00	35.44	0
5	9400.00	-55.54	7.01	14.75	Horizontal	-47.80	-13.00	34.80	45
6	11280.00	-53.06	7.48	15.95	Horizontal	-44.59	-13.00	31.59	315
7	13160.00	-55.27	7.51	16.55	Horizontal	-46.23	-13.00	33.23	90
8	15040.00	-53.71	8.24	15.35	Horizontal	-46.60	-13.00	33.60	45
9	16920.00	-50.84	8.41	14.95	Horizontal	-44.30	-13.00	31.30	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.

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	-62.31	5.10	11.05	Horizontal	-56.36	-13.00	43.36	0
3	5613.38	-58.25	5.42	12.65	Horizontal	-51.02	-13.00	38.02	45
4	7484.63	-56.94	6.70	13.85	Horizontal	-49.79	-13.00	36.79	225
5	9400.00	-54.46	7.01	14.75	Horizontal	-46.72	-13.00	33.72	315
6	11280.00	-52.89	7.48	15.95	Horizontal	-44.42	-13.00	31.42	90
7	13160.00	-51.85	7.51	16.55	Horizontal	-42.81	-13.00	29.81	45
8	15040.00	-52.92	8.24	15.35	Horizontal	-45.81	-13.00	32.81	225
9	16920.00	-51.39	8.41	14.95	Horizontal	-44.85	-13.00	31.85	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.

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	-56.94	5.10	11.05	Horizontal	-50.99	-13.00	37.99	225
3	5640.00	-58.79	5.42	12.65	Horizontal	-51.56	-13.00	38.56	315
4	7520.00	-55.39	6.70	13.85	Horizontal	-48.24	-13.00	35.24	45
5	9400.00	-51.50	7.01	14.75	Horizontal	-43.76	-13.00	30.76	180
6	11280.00	-49.83	7.48	15.95	Horizontal	-41.36	-13.00	28.36	315
7	13160.00	-49.78	7.51	16.55	Horizontal	-40.74	-13.00	27.74	270
8	15040.00	-52.29	8.24	15.35	Horizontal	-45.18	-13.00	32.18	90
9	16920.00	-47.38	8.41	14.95	Horizontal	-40.84	-13.00	27.84	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	3760.00	-61.27	5.10	11.05	Horizontal	-55.32	-13.00	42.32	45
3	5640.00	-59.40	5.42	12.65	Horizontal	-52.17	-13.00	39.17	180
4	7520.00	-55.26	6.70	13.85	Horizontal	-48.11	-13.00	35.11	315
5	9400.00	-52.11	7.01	14.75	Horizontal	-44.37	-13.00	31.37	225
6	11280.00	-49.82	7.48	15.95	Horizontal	-41.35	-13.00	28.35	45
7	13160.00	-50.48	7.51	16.55	Horizontal	-41.44	-13.00	28.44	90
8	15040.00	-52.81	8.24	15.35	Horizontal	-45.70	-13.00	32.70	45
9	16920.00	-46.24	8.41	14.95	Horizontal	-39.70	-13.00	26.70	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.

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	-54.05	5.10	11.05	Horizontal	-48.10	-13.00	35.10	135
3	5638.88	-58.83	5.42	12.65	Horizontal	-51.60	-13.00	38.60	225
4	7520.00	-55.49	6.70	13.85	Horizontal	-48.34	-13.00	35.34	315
5	9400.00	-52.05	7.01	14.75	Horizontal	-44.31	-13.00	31.31	0
6	11280.00	-50.07	7.48	15.95	Horizontal	-41.60	-13.00	28.60	225
7	13160.00	-51.34	7.51	16.55	Horizontal	-42.30	-13.00	29.30	90
8	15040.00	-53.05	8.24	15.35	Horizontal	-45.94	-13.00	32.94	45
9	16920.00	-47.25	8.41	14.95	Horizontal	-40.71	-13.00	27.71	315
10	18800.00	-	-	-	-	-	-	-	-

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

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

LTE Band 2 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	-53.92	5.10	11.05	Horizontal	-47.97	-13.00	34.97	225
3	5633.63	-58.77	5.42	12.65	Horizontal	-51.54	-13.00	38.54	90
4	7520.00	-55.54	6.70	13.85	Horizontal	-48.39	-13.00	35.39	135
5	9400.00	-51.98	7.01	14.75	Horizontal	-44.24	-13.00	31.24	0
6	11280.00	-49.48	7.48	15.95	Horizontal	-41.01	-13.00	28.01	135
7	13160.00	-50.65	7.51	16.55	Horizontal	-41.61	-13.00	28.61	270
8	15040.00	-53.81	8.24	15.35	Horizontal	-46.70	-13.00	33.70	315
9	16920.00	-47.21	8.41	14.95	Horizontal	-40.67	-13.00	27.67	45
10	18800.00	-	-	-	-	-	-	-	-

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

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

LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.13	-55.78	5.10	11.05	Horizontal	-49.83	-13.00	36.83	45
3	5613.38	-58.45	5.42	12.65	Horizontal	-51.22	-13.00	38.22	270
4	7484.63	-55.95	6.70	13.85	Horizontal	-48.80	-13.00	35.80	0
5	9400.00	-53.07	7.01	14.75	Horizontal	-45.33	-13.00	32.33	315
6	11280.00	-49.56	7.48	15.95	Horizontal	-41.09	-13.00	28.09	135
7	13160.00	-50.67	7.51	16.55	Horizontal	-41.63	-13.00	28.63	225
8	15040.00	-52.25	8.24	15.35	Horizontal	-45.14	-13.00	32.14	90
9	16920.00	-47.43	8.41	14.95	Horizontal	-40.89	-13.00	27.89	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.

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMU200	118133	2020-05-17	2021-05-16
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	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	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preamplifier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-12-10	2021-06-09
Software	R&S	EMC32	9.26.0	/	/

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



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.