

# FCC Radio Test Report

## FCC ID: 2AUYFRMX3686


**Report No.** : BTL-FCCP-2-2208G029  
**Equipment** : Mobile Phone  
**Model Name** : RMX3686  
**Brand Name** : realme  
**Applicant** : Realme Chongqing Mobile Telecommunications Corp., Ltd.  
**Address** : No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China.  
**Manufacturer** : Realme Chongqing Mobile Telecommunications Corp., Ltd.  
**Address** : No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China.  
**Factory** : Realme Chongqing Mobile Telecommunications Corp., Ltd.  
**Address** : No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China.

**Radio Function** : PCS 1900, WCDMA Band II, LTE Band 2

**FCC Rule Part(s)** : FCC CFR Title 47, Part 24, Subpart E  
**Measurement** : ANSI C63.26-2015  
**Procedure(s)** : ANSI/TIA-603-E-2016  
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

**Date of Receipt** : 2022/8/18  
**Date of Test** : 2022/10/13 ~ 2022/10/24  
**Issued Date** : 2022/11/01

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

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**Declaration**

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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**BTL's** laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

**Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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**REVISION HISTORY**

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2208G029	R00	Original Report.	2022/10/25	Invalid
BTL-FCCP-2-2208G029	R01	Updated information in section 2.1.	2022/11/01	Valid

## 1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Clause No	Description	Test Result	Judgement	Remark
2.1046 24.232(c)	Conducted Output Power Equivalent Isotropic Radiated Power (EIRP)	APPENDIX A	Pass	-----
2.1049	Occupied Bandwidth	APPENDIX B	Pass	-----
2.1051 24.238(a)	Conducted Spurious Emissions	APPENDIX C	Pass	-----
2.1053 24.238(a)	Radiated Spurious Emissions	APPENDIX D	Pass	-----
24.238(a)	Band Edge Measurements	APPENDIX E	Pass	-----
24.232(d)	Peak To Average Ratio	APPENDIX F	Pass	-----
2.1055 24.235	Frequency Stability	APPENDIX G	Pass	-----

**NOTE:**

- (1) "N/A" denotes test is not applicable in this Test Report.
- (2) The report format version is TP.1.1.1.

### 1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 72, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

C06       CB21       CB22

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

C05       CB08       CB11       CB15       CB16  
 SR05       SR10

### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k = 2$ , providing a level of confidence of approximately **95 %**. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2  $U_{cispr}$  requirement.

#### A. Radiated Spurious Emissions test:

Test Site	Measurement Frequency Range	U,(dB)
CB21	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

#### NOTE:

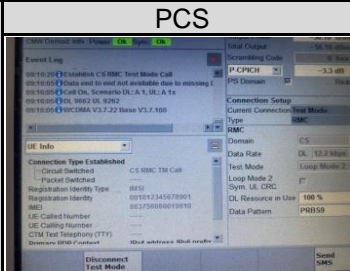
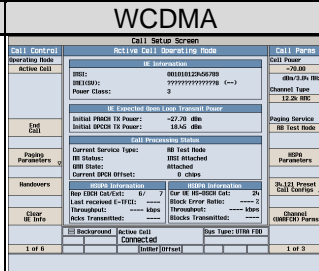
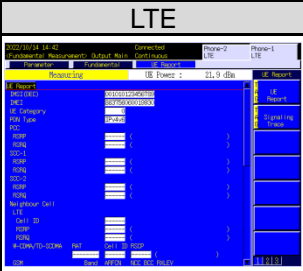
Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

### 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
Conducted Output Power and Effective Isotropic Radiated Power	24.6 °C, 57 %	DC 3.87 V	Paul Shen
Occupied Bandwidth	24.6 °C, 57 %	DC 3.87 V	Paul Shen
Conducted Spurious Emissions	24.6 °C, 57 %	DC 3.87 V	Paul Shen
Radiated Spurious Emissions	Refer to data	AC 120 V	Jay Gao
Band Edge	24.6 °C, 57 %	DC 3.87 V	Paul Shen
Peak to Average Ratio	24.6 °C, 57 %	DC 3.87 V	Paul Shen
Frequency Stability	Normal and Extreme		Paul Shen

## 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF EUT

Equipment	Mobile Phone		
Model Name	RMX3686		
Brand Name	realme		
Model Difference	N/A		
Power Source	#1 DC voltage supplied from AC/DC Adapter. #2 Supplied from Li-ion battery. #3 Supplied from USB port.		
Power Rating	#1 For VCB7CAUH: 1. I/P: 100-130V~ 50/60Hz 1.8A O/P: 5V <b>===</b> 2A or 5-11V <b>===</b> 5A(MAX) I/P: 200-240V~ 50/60Hz 1.8A O/P: 5V <b>===</b> 2A or 5-11V <b>===</b> 6.1A(MAX)  For VCB8JAUH: 1. I/P: 100-130V~ 50/60Hz 2.0A O/P: 5V <b>===</b> 2A or 5.0-11.0V <b>===</b> 6.1A MAX (67W MAX) 2. I/P: 200-240V~ 50/60Hz 2.0A O/P: 5V <b>===</b> 2A or 5.0-11.0V <b>===</b> 7.3A MAX (80W MAX)  #2 DC 3.87V, 4890mAh/18.92Wh (Min)  #3 DC 5V		
Products Covered	2 * Adapter: (1) VCB7CAUH (2) VCB8JAUH 1 * Li-ion battery: realme / BLP951 1 * TYPE-C Cable		
IMEI No.			
Operation Frequency	Band	UL Frequency (MHz)	DL Frequency (MHz)
	PCS 1900	1850 ~ 1910	1930 ~ 1990
	WCDMA II	1850 ~ 1910	1930 ~ 1990
	LTE 2	1850 ~ 1910	1930 ~ 1990



Maximum EIRP	Band	BW (MHz)	Mode	Power (W)
	GSM 1900/GPRS 1900	-	GMSK	0.439
	EDGE 1900	-	8PSK	0.152
	WCDMA II	-	-	0.096
	LTE 2	1.4	QPSK	0.094
			16QAM	0.078
			64QAM	0.063
		3	QPSK	0.094
			16QAM	0.079
			64QAM	0.063
		5	QPSK	0.095
			16QAM	0.083
			64QAM	0.062
		10	QPSK	0.094
16QAM			0.080	
64QAM			0.062	
15	QPSK	0.091		
	16QAM	0.080		
	64QAM	0.065		
20	QPSK	0.094		
	16QAM	0.083		
	64QAM	0.067		
Test Model	RMX3686			
Sample Status	Engineering Sample			
EUT Modification(s)	N/A			

**NOTE:**

(1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

**(2) Channel List:**

PCS 1900				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	512	1850.2	528	1930.2
Mid Range	661	1880	677	1960
High Range	810	1909.8	826	1989.8

WCDMA Band II				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	9262	1852.4	9662	1932.4
Mid Range	9400	1880.0	9800	1960.0
High Range	9538	1907.6	9938	1987.6

LTE Band 2					
Test Frequency ID	Bandwidth (MHz)	N <sub>UL</sub>	Frequency of Uplink (MHz)	N <sub>DL</sub>	Frequency of Downlink (MHz)
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15	18675	1857.5	675	1937.5
	20	18700	1860	700	1940
Mid Range	1.4/3/5/10/15/20	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15	19125	1902.5	1125	1982.5
	20	19100	1900	1100	1980

(3) Table for Filed Antenna:

Brand	Model Name	Type	Connector	Gain (dBi)	Note
realme	Ant 3	IFA	N/A	-3.18	PCS 1900
	Ant 4	IFA	N/A	-4.94	
	Ant 3	IFA	N/A	-3.18	WCDMA Band II
	Ant 4	IFA	N/A	-4.94	
	Ant 3	IFA	N/A	-3.18	LTE Band 2
	Ant 4	IFA	N/A	-4.94	

Note: The antenna gain is provided by the manufacturer.

**2.2 TEST MODES**

<b>PCS 1900 MODE</b>			
Test Item	Available Channel	Tested Channel	Mode
Conducted Output Power and Effective Isotropic Radiated Power	512 to 810	512, 661, 810	GSM, GPRS, EDGE
Occupied Bandwidth	512 to 810	512, 661, 810	GSM, EDGE
Conducted Spurious Emissions	512 to 810	661	GSM, EDGE
Radiated Spurious Emissions	512 to 810	661	GSM
Band Edge	512 to 810	512, 810	GSM, EDGE
Peak to Average Ratio	512 to 810	512, 661, 810	GSM, EDGE
Frequency Stability	512 to 810	661	GSM

<b>WCDMA BAND II MODE</b>			
Test Item	Available Channel	Tested Channel	Mode
Conducted Output Power and Effective Isotropic Radiated Power	9262 to 9538	9262, 9400, 9538	WCDMA, HSDPA, HSUPA, HSPA+
Occupied Bandwidth	9262 to 9538	9262, 9400, 9538	WCDMA
Conducted Spurious Emissions	9262 to 9538	9400	WCDMA
Radiated Spurious Emissions	9262 to 9538	9400	WCDMA
Band Edge	9262 to 9538	9262, 9538	WCDMA
Peak to Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA
Frequency Stability	9262 to 9538	9400	WCDMA

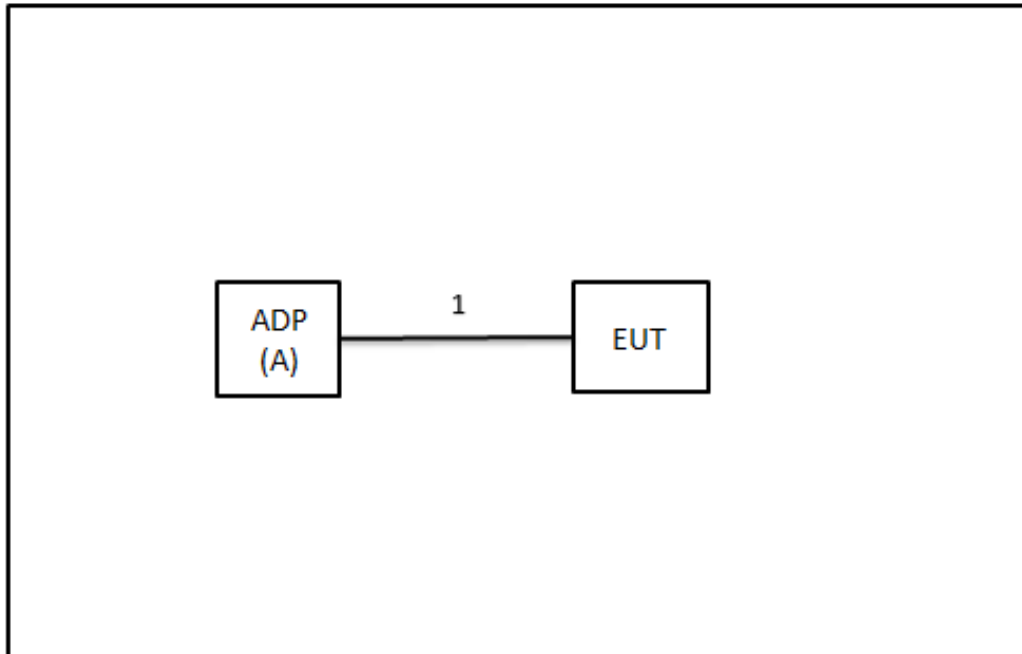
LTE BAND 2 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Output Power & Effective Isotropic Radiated Power	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM, 64QAM	1RB/3RB/6RB
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM, 64QAM	1RB/8RB/15RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM, 64QAM	1RB/12RB/25RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM, 64QAM	1RB/25RB/50RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM, 64QAM	1RB/36RB/75RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM, 64QAM	1RB/50RB/100RB
Occupied Bandwidth	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM, 64QAM	6RB
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM, 64QAM	15RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM, 64QAM	25RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM, 64QAM	50RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM, 64QAM	75 RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM, 64QAM	100RB
Conducted Spurious Emissions	18607 to 19193	18900	1.4MHz	QPSK	1RB
	18615 to 19185	18900	3MHz	QPSK	1RB
	18625 to 19175	18900	5MHz	QPSK	1RB
	18650 to 19150	18900	10MHz	QPSK	1RB
	18675 to 19125	18900	15MHz	QPSK	1RB
	18700 to 19100	18900	20MHz	QPSK	1RB
Radiated Spurious Emissions	18700 to 19100	18900	20MHz	QPSK	1RB
Band Edge	18607 to 19193	18607, 19193	1.4MHz	QPSK	1RB/6RB
	18615 to 19185	18615, 19185	3MHz	QPSK	1RB/15RB
	18625 to 19175	18625, 19175	5MHz	QPSK	1RB/25RB
	18650 to 19150	18650, 19150	10MHz	QPSK	1RB/50RB
	18675 to 19125	18675, 19125	15MHz	QPSK	1RB/75RB
	18700 to 19100	18700, 19100	20MHz	QPSK	1RB/100RB
Peak To Average Ratio	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK, 16QAM, 64QAM	1RB
	18615 to 19185	18615, 18900, 19185	3MHz	QPSK, 16QAM, 64QAM	1RB
	18625 to 19175	18625, 18900, 19175	5MHz	QPSK, 16QAM, 64QAM	1RB
	18650 to 19150	18650, 18900, 19150	10MHz	QPSK, 16QAM, 64QAM	1RB
	18675 to 19125	18675, 18900, 19125	15MHz	QPSK, 16QAM, 64QAM	1RB
	18700 to 19100	18700, 18900, 19100	20MHz	QPSK, 16QAM, 64QAM	1RB
Frequency Stability	18700 to 19100	18900	20MHz	QPSK	100RB

**NOTE:**

- (1) All X, Y and Z axes are evaluated, but only the worst case (PCS 1900: Y axis, WCDMA Band II, LTE Band 2: X axis) is recorded.
- (2) For Radiated Spurious Emissions of all modulation are evaluated, but only the worst case (QPSK) is recorded.
- (3) For radiated spurious emissions test item, all antennas had been evaluated, and in this report only recorded the worst case.
- (4) For effective Isotropic radiated power test item, only recorded the worst case.

### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.



### 2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	ADP	SUPERVOOC	VCB7CAUH	N/A	Supplied by test requester.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1m	USB to Type C Cable	Supplied by test requester.

### 3 CONDUCTED OUTPUT POWER AND EFFECTIVE ISOTROPIC RADIATED POWER MEASUREMENT

#### 3.1 LIMIT

Mobile / Portable station are limited to 2 watts e.i.r.p.

#### 3.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.

##### **EIRP / ERP Power Measurement:**

EIRP = Conducted Power + Antenna gain.

ERP power = EIPR power - 2.15 dBi.

##### **Conducted Measurement:**

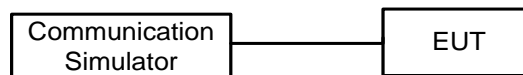
The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

#### 3.3 DEVIATION FROM TEST STANDARD

No deviation.

#### 3.4 TEST SETUP

##### **Conducted Measurement:**



#### 3.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 3.6 TEST RESULT

Please refer to the APPENDIX A.

## 4 OCCUPIED BANDWIDTH MEASUREMENT

### 4.1 TEST PROCEDURE

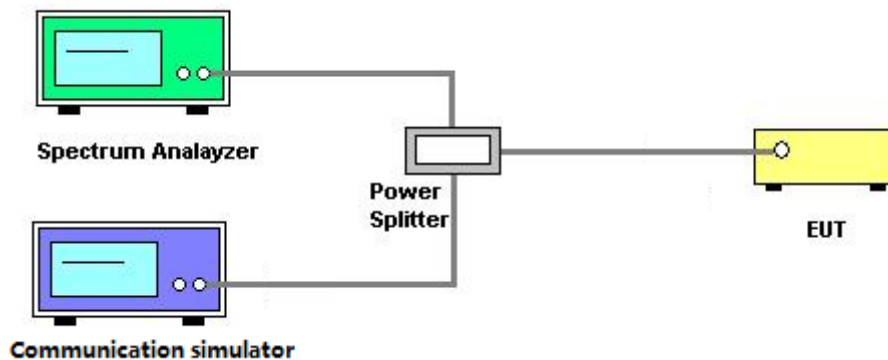
The testing follows FCC KDB 971168 v03r01 Section 4.

- The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.
- The EUT was connected to spectrum analyzer and system simulator via a power divider.
- $RBW=(1\% \sim 5\%)*EBW$   
 $VBW \geq 3* RBW$ .
- Set spectrum analyzer with Peak detector.

### 4.2 DEVIATION FROM TEST STANDARD

No deviation.

### 4.3 TEST SETUP



### 4.4 TEST RESULT

Please refer to the APPENDIX B

## 5 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

### 5.1 LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

### 5.2 TEST PROCEDURE

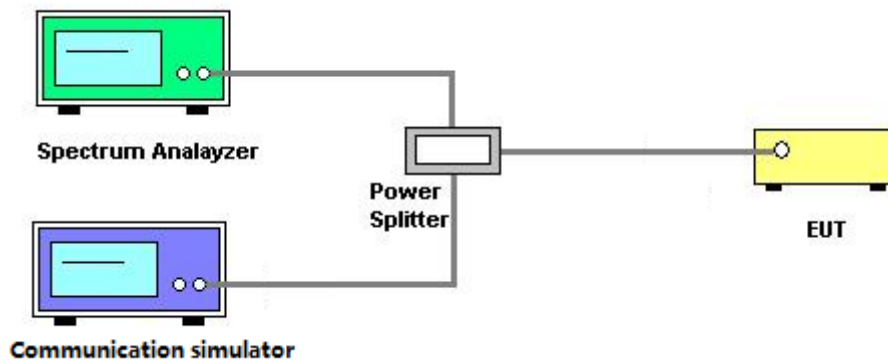
The testing follows FCC KDB 971168 v03r01 Section 6.

- The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The band edges of low and high channels for the highest RF powers were measured. Set RBW $\geq$ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
- Set spectrum analyzer with Peak detector.
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

### 5.3 DEVIATION FROM TEST STANDARD

No deviation.

### 5.4 TEST SETUP



### 5.5 TEST RESULT

Please refer to the APPENDIX C.



## 6 RADIATED SPURIOUS EMISSIONS TEST

### 6.1 LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

NOTE:

(1) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)

Margin Level = Measurement Value - Limit Value

Calculation example:

Reading Level		Correct Factor		Measurement Value
-50.43	+	-2.11	=	-52.54

Measurement Value		Limit Value		Margin Level
-52.54	-	-13	=	-39.54

### 6.2 TEST PROCEDURE

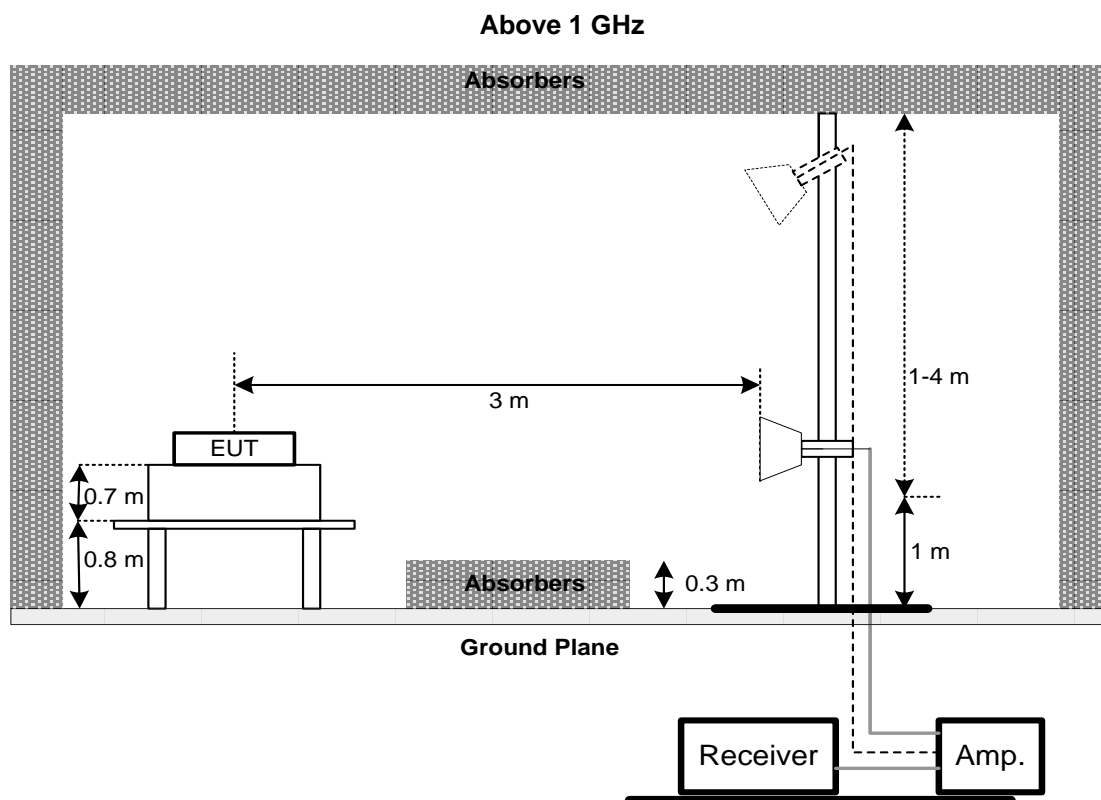
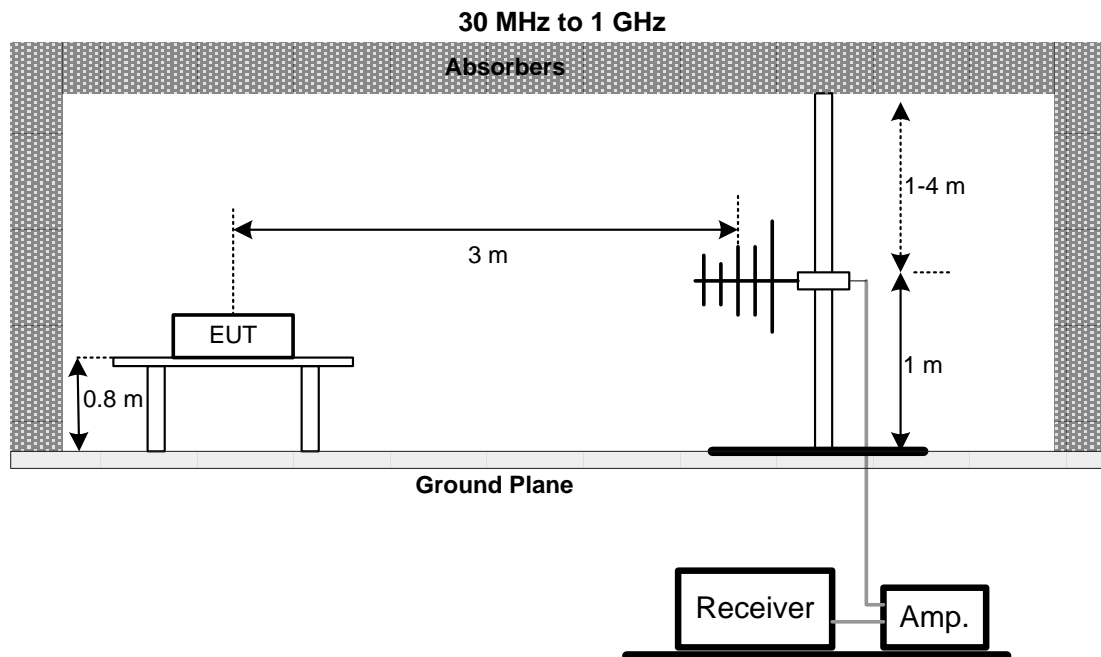
The testing follows FCC KDB 971168 v03r01 Section 6.2.

- a. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G - TX cable loss + Antenna gain of substitution horn.
- d. ERP can be calculated form EIRP by subtracting the gain of dipole,  $ERP = EIPR - 2.15\text{dBi}$ .
- e. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 6.3 DEVIATION FROM TEST STANDARD

No deviation.

## 6.4 TEST SETUP



## 6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 6.6 TEST RESULT

Please refer to the APPENDIX D.

## 7 BAND EDGE MEASUREMENT

### 7.1 LIMIT

A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 7.2 TEST PROCEDURE

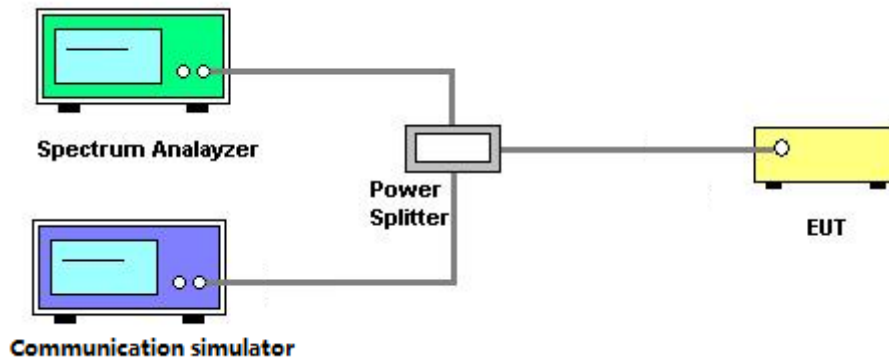
The testing follows FCC KDB 971168 v03r01 Section 6.

- a. All measurements were done at low and high operational frequency range.
- b. Record the max trace plot into the test report.

### 7.3 DEVIATION FROM TEST STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 TEST RESULT

Please refer to the APPENDIX E

## 8 PEAK TO AVERAGE RATIO MEASUREMENT

### 8.1 LIMIT

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.

### 8.2 TEST PROCEDURE

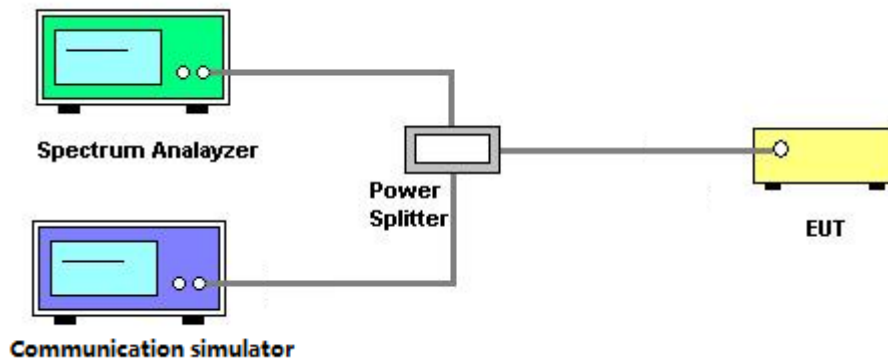
The testing follows FCC KDB 971168 v03r01 Section 5.7.

- a. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth.
- b. Set the number of counts to a value that stabilizes the measured CCDF curve.
- c. Record the maximum PAPR level associated with a probability of 0.1%.

### 8.3 DEVIATION FROM TEST STANDARD

No deviation.

### 8.4 TEST SETUP



### 8.5 TEST RESULT

Please refer to the APPENDIX F.

## 9 FREQUENCY STABILITY MEASUREMENT

### 9.1 LIMIT

$\pm 1.5$  ppm is for base and fixed station.  $\pm 2.5$  ppm is for mobile station.

### 9.2 TEST PROCEDURE

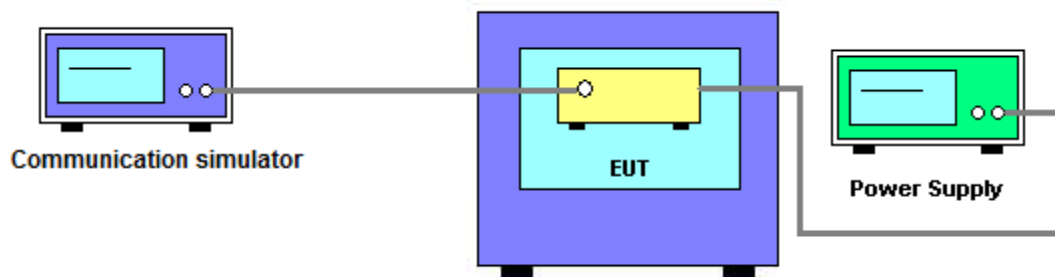
The testing follows FCC KDB 971168 v03r01 Section 9.

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^\circ\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
- The frequency error was recorded frequency error from the communication simulator.

### 9.3 DEVIATION FROM TEST STANDARD

No deviation.

### 9.4 TEST SETUP



### 9.5 TEST RESULT

Please refer to the APPENDIX G

**10 LIST OF MEASURING EQUIPMENTS**
**Conducted Output Power and Equivalent Isotropic Radiated Power**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2022/7/7	2023/7/6
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/12/15	2022/12/14

**Radiated Spurious Emissions**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC330N	980850	2022/9/19	2023/9/18
2	Preamplifier	EMCI	EMC118A45SE	980819	2022/3/8	2023/3/7
3	Preamplifier	EMCI	EMC184045SE	980882	2022/2/9	2023/2/8
4	Test Cable	EMCI	EMC104-SM-SM-1000	220319	2022/3/15	2023/3/14
5	Test Cable	EMCI	EMC104-SM-SM-3000	220322	2022/3/15	2023/3/14
6	Test Cable	EMCI	EMC104-SM-SM-7000	220324	2022/3/15	2023/3/14
7	EXA Signal Analyzer	keysight	N9020B	MY57120120	2022/3/7	2023/3/6
8	Horn Antenna	RFSPIN	DRH18-E	211202A18EN	2022/5/18	2023/5/17
9	Horn Ant	Schwarzbeck	BBHA 9170D	1136	2022/5/18	2023/5/17
10	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2022/5/20	2023/5/19
11	6dB Attenuator	EMCI	EMCI-N-6-06	AT-N0625	2022/5/20	2023/5/19
12	Test Cable	EMCI	EMC101G-KM-KM-3000	220329	2022/3/15	2023/3/14
13	Test Cable	EMCI	EMC102-KM-KM-1000	220327	2022/3/15	2023/3/14
14	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A
15	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2022/7/7	2023/7/6
16	Radio Communication Analyzer (LTE)	Anritsu	MT8820C	6201381608	2021/12/15	2022/12/14

**Frequency Stability Measurement**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2022/7/7	2023/7/6
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/12/15	2022/12/14
3	Thermal Chamber	HOLINK	H-TH-2SP-B	EK04101902	2022/6/27	2023/6/26

**Others Conducted Measurement**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2022/7/7	2023/7/6
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/12/15	2022/12/14
3	Spectrum Analyzer	Agilent	N9010A	MY54200240	2022/6/9	2023/6/8

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.  
All calibration period of equipment list is one year.

## **11 EUT TEST PHOTO**

Please refer to document Appendix No.: TP-2208G029-FCCP-1 (APPENDIX-TEST PHOTOS).

## **12 EUT PHOTOS**

Please refer to document Appendix No.: EP-2208G029-1 (APPENDIX-EUT PHOTOS).



## **APPENDIX A    CONDUCTED OUTPUT POWER AND EFFECTIVE RADIATED POWER**

**Conducted Output Power:**

Ant Gain(Ant 3)	-3.18			
PCS1900		512CH	661CH	810CH
		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		29.6	29.49	29.24
GPRS (GMSK)	1 Tx Slot	29.59	29.44	29.16
	2 Tx Slot	26.85	26.69	26.68
	3 Tx Slot	24.59	24.49	24.42
	4 Tx Slot	23.32	23.26	23.14
EDGE (8PSK)	1 Tx Slot	24.97	25.01	24.89
	2 Tx Slot	22.89	22.94	22.88
	3 Tx Slot	20.86	21.00	20.65
	4 Tx Slot	20.22	20.02	20.45

Ant Gain(Ant 3)	-3.18			
Modulation	Band	WCDMA Band II		
	Tx Channel	9262CH	9400CH	9538CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
QPSK	RMC 12.2K	23.01	23	23.02
	HSDPA Subtest-1	21.98	22.05	22.09
	HSDPA Subtest-2	21.99	22.04	22.05
	HSDPA Subtest-3	21.51	21.49	21.62
	HSDPA Subtest-4	21.41	21.5	21.52
	HSUPA Subtest-1	21.17	21.17	21.22
	HSUPA Subtest-2	19.62	19.65	19.78
	HSUPA Subtest-3	20.69	20.69	20.74
	HSUPA Subtest-4	20.15	20.17	20.31
	HSUPA Subtest-5	22.7	22.7	22.79

Ant Gain(Ant 3)	-3.18					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18607CH	18900CH	19193CH
				1850.7MHz	1880MHz	1909.3MHz
2 / 1.4MHz	QPSK	1	0	22.79	22.78	22.88
		1	2	22.78	22.76	22.90
		1	5	22.77	22.77	22.88
		3	0	22.78	22.80	22.75
		3	1	22.76	22.83	22.78
		3	2	22.79	22.80	22.78
	16QAM	6	0	21.80	21.80	21.78
		1	0	21.82	21.94	22.12
		1	2	21.78	21.92	22.12
		1	5	21.83	21.93	22.12
		3	0	21.94	21.84	21.99
		3	1	21.97	21.85	21.97
	64QAM	3	2	21.94	21.82	21.97
		6	0	20.95	20.89	20.62
		1	0	20.95	21.13	20.93
		1	2	20.95	21.20	20.94
		1	5	20.98	21.12	20.93
		3	0	20.72	21.11	20.85
		3	1	20.74	21.12	20.85
		3	2	20.75	21.05	20.87
		6	0	20.00	19.92	20.16

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18615CH	18900CH	19185CH
				1851.5MHz	1880MHz	1908.5MHz
2 / 3MHz	QPSK	1	0	22.76	22.85	22.71
		1	7	22.83	22.92	22.74
		1	14	22.85	22.84	22.70
		8	0	21.80	21.81	21.76
		8	4	21.78	21.81	21.74
		8	7	21.79	21.78	21.73
		15	0	21.81	21.78	21.78
	16QAM	1	0	21.84	21.74	22.09
		1	7	21.85	21.74	22.15
		1	14	21.84	21.70	22.14
		8	0	20.83	20.91	20.85
		8	4	20.82	20.89	20.81
		8	7	20.82	20.88	20.81
		15	0	20.75	20.80	20.79
	64QAM	1	0	21.12	20.94	20.88
		1	7	21.16	20.98	20.94
		1	14	21.16	20.98	20.86
		8	0	20.02	19.99	19.85
		8	4	20.01	20.00	19.86
		8	7	20.02	19.97	19.84
		15	0	19.92	19.94	19.95

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18625CH	18900CH	19175CH
				1852.5MHz	1880MHz	1907.5MHz
2 / 5MHz	QPSK	1	0	22.96	22.98	22.85
		1	13	22.95	22.91	22.82
		1	24	22.94	22.92	22.85
		12	0	21.82	21.85	21.82
		12	6	21.80	21.81	21.79
		12	11	21.81	21.75	21.74
		25	0	21.84	21.82	21.79
	16QAM	1	0	22.09	22.38	22.04
		1	13	22.11	22.35	22.03
		1	24	22.12	22.38	22.09
		12	0	20.87	20.96	20.82
		12	6	20.89	20.92	20.80
		12	11	20.86	20.89	20.77
		25	0	20.86	20.89	20.81
	64QAM	1	0	20.72	21.10	20.99
		1	13	20.73	21.09	20.99
		1	24	20.73	21.10	21.03
		12	0	19.99	19.93	19.96
		12	6	19.99	19.90	19.98
		12	11	19.97	19.85	19.92
		25	0	19.94	19.94	19.96

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18650CH	18900CH	19150CH
				1855MHz	1880MHz	1905MHz
2 / 10MHz	QPSK	1	0	22.78	22.89	22.74
		1	25	22.80	22.85	22.79
		1	49	22.78	22.83	22.76
		25	0	21.80	21.87	21.89
		25	13	21.82	21.86	21.76
		25	25	21.85	21.85	21.75
		50	0	21.85	21.89	21.80
	16QAM	1	0	21.74	22.20	21.73
		1	25	21.75	22.19	21.79
		1	49	21.71	22.15	21.74
		25	0	20.82	20.88	20.94
		25	13	20.84	20.86	20.84
		25	25	20.87	20.87	20.82
		50	0	20.80	20.87	20.78
	64QAM	1	0	21.11	21.00	20.88
		1	25	21.13	21.01	20.95
		1	49	21.10	20.95	20.89
		25	0	19.98	20.06	20.08
		25	13	20.00	20.06	19.97
		25	25	20.02	20.06	19.95
		50	0	19.97	20.04	19.92

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18675CH	18900CH	19125CH
				1857.5MHz	1880MHz	1902.5MHz
2 / 15MHz	QPSK	1	0	22.74	22.67	22.72
		1	38	22.78	22.78	22.72
		1	74	22.65	22.68	22.68
		36	0	21.77	21.78	21.81
		36	18	21.79	21.76	21.79
		36	39	21.78	21.80	21.74
		75	0	21.82	21.84	21.79
	16QAM	1	0	22.18	21.64	22.12
		1	38	22.22	21.74	22.12
		1	74	22.08	21.64	22.08
		36	0	20.75	20.81	20.87
		36	18	20.76	20.79	20.82
		36	39	20.73	20.81	20.77
		75	0	20.78	20.84	20.76
	64QAM	1	0	21.07	20.87	21.28
		1	38	21.13	20.96	21.28
		1	74	20.99	20.87	21.25
		36	0	19.96	20.02	19.92
		36	18	19.97	19.99	19.93
		36	39	19.92	20.02	19.87
		75	0	19.93	19.97	19.97

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18700CH	18900CH	19100CH
				1860MHz	1880MHz	1900MHz
2 / 20MHz	QPSK	1	0	22.81	22.76	22.71
		1	50	22.85	22.92	22.80
		1	99	22.71	22.76	22.71
		50	0	21.77	21.82	21.82
		50	25	21.80	21.86	21.78
		50	50	21.74	21.86	21.64
		100	0	21.77	21.84	21.73
	16QAM	1	0	22.29	22.09	22.11
		1	50	22.38	22.26	22.17
		1	99	22.24	22.08	22.12
		50	0	20.77	20.81	20.76
		50	25	20.80	20.85	20.74
		50	50	20.75	20.84	20.58
		100	0	20.77	20.82	20.74
	64QAM	1	0	21.03	21.30	20.83
		1	50	21.06	21.43	20.85
		1	99	20.94	21.28	20.78
		50	0	19.96	19.97	19.95
		50	25	19.97	20.01	19.94
		50	50	19.93	20.00	19.77
		100	0	19.91	19.95	19.89

Ant Gain(Ant 4)	-4.94			
PCS1900		512CH	661CH	810CH
		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		28.96	28.83	28.67
GPRS (GMSK)	1 Tx Slot	28.91	28.84	28.65
	2 Tx Slot	26.28	26.18	26.08
	3 Tx Slot	24.08	24.04	23.93
	4 Tx Slot	22.85	22.87	22.76
EDGE (8PSK)	1 Tx Slot	24.48	24.45	24.04
	2 Tx Slot	22.63	22.60	22.68
	3 Tx Slot	20.33	20.42	20.30
	4 Tx Slot	19.45	19.72	19.40

Ant Gain(Ant 4)	-4.94			
Modulation	Band	WCDMA Band II		
	Tx Channel	9262CH	9400CH	9538CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
QPSK	RMC 12.2K	22.4	22.33	22.39
	HSDPA Subtest-1	21.42	21.33	21.36
	HSDPA Subtest-2	21.39	21.29	21.35
	HSDPA Subtest-3	20.9	20.83	20.89
	HSDPA Subtest-4	20.85	20.77	20.86
	HSUPA Subtest-1	20.58	20.5	20.65
	HSUPA Subtest-2	19	18.96	19.15
	HSUPA Subtest-3	20.05	20.02	20.17
	HSUPA Subtest-4	19.54	19.51	19.66
	HSUPA Subtest-5	22.06	22.02	22.16

Ant Gain(Ant 4)	-4.94					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18607CH	18900CH	19193CH
				1850.7MHz	1880MHz	1909.3MHz
2 / 1.4MHz	QPSK	1	0	22.25	22.19	22.02
		1	2	22.28	22.18	22.03
		1	5	22.28	22.17	22.04
		3	0	22.17	22.18	22.10
		3	1	22.20	22.15	22.12
		3	2	22.19	22.11	22.12
	16QAM	6	0	21.21	21.15	21.09
		1	0	21.18	21.17	21.02
		1	2	21.18	21.15	21.04
		1	5	21.20	21.18	21.09
		3	0	21.31	21.31	21.23
		3	1	21.34	21.31	21.23
	64QAM	3	2	21.30	21.26	21.20
		6	0	20.31	20.30	20.22
		1	0	20.32	20.50	20.22
		1	2	20.31	20.56	20.21
		1	5	20.36	20.50	20.24
		3	0	20.10	20.45	20.02
		3	1	20.09	20.45	20.02
		3	2	20.11	20.41	20.02
		6	0	19.36	19.26	19.28

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18615CH	18900CH	19185CH
				1851.5MHz	1880MHz	1908.5MHz
2 / 3MHz	QPSK	1	0	22.16	22.22	22.02
		1	7	22.23	22.26	22.07
		1	14	22.24	22.19	22.04
		8	0	21.19	21.16	21.07
		8	4	21.18	21.15	21.06
		8	7	21.19	21.13	21.06
		15	0	21.19	21.13	21.09
	16QAM	1	0	21.09	21.53	21.08
		1	7	21.14	21.55	21.11
		1	14	21.11	21.55	21.06
		8	0	20.28	20.26	20.12
		8	4	20.25	20.23	20.12
		8	7	20.27	20.21	20.08
		15	0	20.20	20.16	20.04
	64QAM	1	0	20.50	20.27	20.22
		1	7	20.50	20.33	20.24
		1	14	20.51	20.31	20.21
		8	0	19.38	19.36	19.19
		8	4	19.36	19.36	19.17
		8	7	19.39	19.31	19.17
		15	0	19.29	19.30	19.27

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18625CH	18900CH	19175CH
				1852.5MHz	1880MHz	1907.5MHz
2 / 5MHz	QPSK	1	0	22.34	22.25	22.22
		1	13	22.34	22.20	22.18
		1	24	22.33	22.22	22.20
		12	0	21.20	21.22	21.12
		12	6	21.20	21.17	21.10
		12	11	21.19	21.12	21.07
		25	0	21.22	21.18	21.12
	16QAM	1	0	21.45	21.73	21.14
		1	13	21.47	21.71	21.10
		1	24	21.46	21.71	21.12
		12	0	20.23	20.32	20.11
		12	6	20.22	20.28	20.12
		12	11	20.22	20.24	20.07
		25	0	20.21	20.24	20.05
	64QAM	1	0	20.11	20.48	20.33
		1	13	20.11	20.46	20.33
		1	24	20.11	20.47	20.38
		12	0	19.36	19.28	19.29
		12	6	19.34	19.25	19.29
		12	11	19.34	19.19	19.25
		25	0	19.32	19.28	19.27

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18650CH	18900CH	19150CH
				1855MHz	1880MHz	1905MHz
2 / 10MHz	QPSK	1	0	22.17	22.19	22.04
		1	25	22.17	22.17	22.11
		1	49	22.15	22.13	22.08
		25	0	21.13	21.22	21.21
		25	13	21.15	21.19	21.09
		25	25	21.18	21.19	21.05
		50	0	21.20	21.25	21.13
	16QAM	1	0	21.18	21.11	21.43
		1	25	21.19	21.13	21.46
		1	49	21.16	21.07	21.45
		25	0	20.23	20.23	20.23
		25	13	20.26	20.21	20.11
		25	25	20.30	20.24	20.07
		50	0	20.19	20.18	20.11
	64QAM	1	0	20.48	20.33	20.22
		1	25	20.50	20.36	20.26
		1	49	20.48	20.28	20.23
		25	0	19.31	19.42	19.44
		25	13	19.36	19.39	19.30
		25	25	19.40	19.39	19.26
		50	0	19.32	19.39	19.24



LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18675CH	18900CH	19125CH
				1857.5MHz	1880MHz	1902.5MHz
2 / 15MHz	QPSK	1	0	22.17	22.05	22.10
		1	38	22.23	22.14	22.10
		1	74	22.08	22.05	22.04
		36	0	21.11	21.17	21.13
		36	18	21.13	21.13	21.10
		36	39	21.12	21.17	21.03
		75	0	21.15	21.23	21.07
	16QAM	1	0	21.05	21.47	21.43
		1	38	21.11	21.56	21.40
		1	74	20.94	21.48	21.38
		36	0	20.11	20.23	20.11
		36	18	20.14	20.18	20.10
		36	39	20.10	20.22	20.01
		75	0	20.14	20.23	20.03
	64QAM	1	0	20.48	20.22	20.63
		1	38	20.54	20.31	20.61
		1	74	20.38	20.22	20.59
		36	0	19.32	19.38	19.29
		36	18	19.35	19.37	19.27
		36	39	19.31	19.38	19.18
		75	0	19.35	19.36	19.28

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18700CH	18900CH	19100CH
				1860MHz	1880MHz	1900MHz
2 / 20MHz	QPSK	1	0	22.17	22.11	22.05
		1	50	22.21	22.26	22.12
		1	99	22.07	22.11	22.04
		50	0	21.11	21.20	21.13
		50	25	21.16	21.23	21.13
		50	50	21.07	21.23	20.96
		100	0	21.11	21.21	21.07
	16QAM	1	0	21.52	21.58	21.42
		1	50	21.58	21.75	21.44
		1	99	21.43	21.58	21.38
		50	0	20.07	20.20	20.12
		50	25	20.12	20.21	20.14
		50	50	20.01	20.23	19.97
		100	0	20.08	20.22	20.04
	64QAM	1	0	20.42	20.65	20.16
		1	50	20.42	20.78	20.18
		1	99	20.32	20.62	20.13
		50	0	19.31	19.35	19.27
		50	25	19.36	19.38	19.29
		50	50	19.26	19.38	19.08
		100	0	19.28	19.33	19.18

**Effective Isotropic Radiated Power:**

Ant Gain(Ant 3)	-3.18			
PCS1900		512CH	661CH	810CH
		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		26.42	26.31	26.06
GPRS (GMSK)	1 Tx Slot	26.41	26.26	25.98
	2 Tx Slot	23.67	23.51	23.50
	3 Tx Slot	21.41	21.31	21.24
	4 Tx Slot	20.14	20.08	19.96
EDGE (8PSK)	1 Tx Slot	21.79	21.83	21.71
	2 Tx Slot	19.71	19.76	19.70
	3 Tx Slot	17.68	17.82	17.47
	4 Tx Slot	17.04	16.84	17.27

Ant Gain(Ant 3)	-3.18			
Modulation	Band	WCDMA Band II		
	Tx Channel	9262CH	9400CH	9538CH
	Frequency	1852.4MHz	1880MHz	1907.6MHz
QPSK	RMC 12.2K	19.83	19.82	19.84
	HSDPA Subtest-1	18.80	18.87	18.91
	HSDPA Subtest-2	18.81	18.86	18.87
	HSDPA Subtest-3	18.33	18.31	18.44
	HSDPA Subtest-4	18.23	18.32	18.34
	HSUPA Subtest-1	17.99	17.99	18.04
	HSUPA Subtest-2	16.44	16.47	16.60
	HSUPA Subtest-3	17.51	17.51	17.56
	HSUPA Subtest-4	16.97	16.99	17.13
	HSUPA Subtest-5	19.52	19.52	19.61

Ant Gain(Ant 3)	-3.18					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18607CH	18900CH	19193CH
				1850.7MHz	1880MHz	1909.3MHz
2 / 1.4MHz	QPSK	1	0	19.61	19.60	19.70
		1	2	19.60	19.58	19.72
		1	5	19.59	19.59	19.70
		3	0	19.60	19.62	19.57
		3	1	19.58	19.65	19.60
		3	2	19.61	19.62	19.60
	16QAM	6	0	18.62	18.62	18.60
		1	0	18.64	18.76	18.94
		1	2	18.60	18.74	18.94
		1	5	18.65	18.75	18.94
		3	0	18.76	18.66	18.81
		3	1	18.79	18.67	18.79
	64QAM	3	2	18.76	18.64	18.79
		6	0	17.77	17.71	17.44
		1	0	17.77	17.95	17.75
		1	2	17.77	18.02	17.76
		1	5	17.80	17.94	17.75
		3	0	17.54	17.93	17.67
		3	1	17.56	17.94	17.67
		3	2	17.57	17.87	17.69
		6	0	16.82	16.74	16.98

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18615CH	18900CH	19185CH
				1851.5MHz	1880MHz	1908.5MHz
2 / 3MHz	QPSK	1	0	19.58	19.67	19.53
		1	7	19.65	19.74	19.56
		1	14	19.67	19.66	19.52
		8	0	18.62	18.63	18.58
		8	4	18.60	18.63	18.56
		8	7	18.61	18.60	18.55
	16QAM	15	0	18.63	18.60	18.60
		1	0	18.66	18.56	18.91
		1	7	18.67	18.56	18.97
		1	14	18.66	18.52	18.96
		8	0	17.65	17.73	17.67
		8	4	17.64	17.71	17.63
	64QAM	8	7	17.64	17.70	17.63
		15	0	17.57	17.62	17.61
		1	0	17.94	17.76	17.70
		1	7	17.98	17.80	17.76
		1	14	17.98	17.80	17.68
		8	0	16.84	16.81	16.67
		8	4	16.83	16.82	16.68
		8	7	16.84	16.79	16.66
		15	0	16.74	16.76	16.77

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18625CH	18900CH	19175CH
				1852.5MHz	1880MHz	1907.5MHz
2 / 5MHz	QPSK	1	0	19.78	19.80	19.67
		1	13	19.77	19.73	19.64
		1	24	19.76	19.74	19.67
		12	0	18.64	18.67	18.64
		12	6	18.62	18.63	18.61
		12	11	18.63	18.57	18.56
		25	0	18.66	18.64	18.61
	16QAM	1	0	18.91	19.20	18.86
		1	13	18.93	19.17	18.85
		1	24	18.94	19.20	18.91
		12	0	17.69	17.78	17.64
		12	6	17.71	17.74	17.62
		12	11	17.68	17.71	17.59
		25	0	17.68	17.71	17.63
	64QAM	1	0	17.54	17.92	17.81
		1	13	17.55	17.91	17.81
		1	24	17.55	17.92	17.85
		12	0	16.81	16.75	16.78
		12	6	16.81	16.72	16.80
		12	11	16.79	16.67	16.74
		25	0	16.76	16.76	16.78

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18650CH	18900CH	19150CH
				1855MHz	1880MHz	1905MHz
2 / 10MHz	QPSK	1	0	19.60	19.71	19.56
		1	25	19.62	19.67	19.61
		1	49	19.60	19.65	19.58
		25	0	18.62	18.69	18.71
		25	13	18.64	18.68	18.58
		25	25	18.67	18.67	18.57
		50	0	18.67	18.71	18.62
	16QAM	1	0	18.56	19.02	18.55
		1	25	18.57	19.01	18.61
		1	49	18.53	18.97	18.56
		25	0	17.64	17.70	17.76
		25	13	17.66	17.68	17.66
		25	25	17.69	17.69	17.64
		50	0	17.62	17.69	17.60
	64QAM	1	0	17.93	17.82	17.70
		1	25	17.95	17.83	17.77
		1	49	17.92	17.77	17.71
		25	0	16.80	16.88	16.90
		25	13	16.82	16.88	16.79
		25	25	16.84	16.88	16.77
		50	0	16.79	16.86	16.74

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18675CH	18900CH	19125CH
				1857.5MHz	1880MHz	1902.5MHz
2 / 15MHz	QPSK	1	0	19.56	19.49	19.54
		1	38	19.60	19.60	19.54
		1	74	19.47	19.50	19.50
		36	0	18.59	18.60	18.63
		36	18	18.61	18.58	18.61
		36	39	18.60	18.62	18.56
		75	0	18.64	18.66	18.61
	16QAM	1	0	19.00	18.46	18.94
		1	38	19.04	18.56	18.94
		1	74	18.90	18.46	18.90
		36	0	17.57	17.63	17.69
		36	18	17.58	17.61	17.64
		36	39	17.55	17.63	17.59
		75	0	17.60	17.66	17.58
	64QAM	1	0	17.89	17.69	18.10
		1	38	17.95	17.78	18.10
		1	74	17.81	17.69	18.07
		36	0	16.78	16.84	16.74
		36	18	16.79	16.81	16.75
		36	39	16.74	16.84	16.69
		75	0	16.75	16.79	16.79

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				18700CH	18900CH	19100CH
				1860MHz	1880MHz	1900MHz
2 / 20MHz	QPSK	1	0	19.63	19.58	19.53
		1	50	19.67	19.74	19.62
		1	99	19.53	19.58	19.53
		50	0	18.59	18.64	18.64
		50	25	18.62	18.68	18.60
		50	50	18.56	18.68	18.46
		100	0	18.59	18.66	18.55
	16QAM	1	0	19.11	18.91	18.93
		1	50	19.20	19.08	18.99
		1	99	19.06	18.90	18.94
		50	0	17.59	17.63	17.58
		50	25	17.62	17.67	17.56
		50	50	17.57	17.66	17.40
		100	0	17.59	17.64	17.56
	64QAM	1	0	17.85	18.12	17.65
		1	50	17.88	18.25	17.67
		1	99	17.76	18.10	17.60
		50	0	16.78	16.79	16.77
		50	25	16.79	16.83	16.76
		50	50	16.75	16.82	16.59
		100	0	16.73	16.77	16.71

**NOTE:**

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

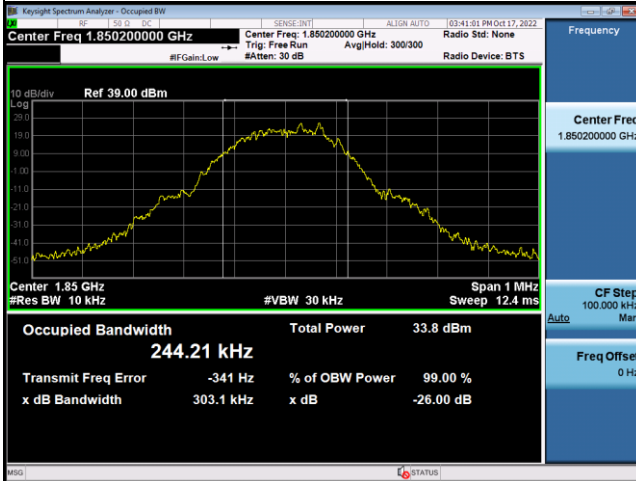
 (3)  $P(W) = 1 W \cdot 10^{(P(dBm) / 10) / 1000}$

## APPENDIX B OCCUPIED BANDWIDTH

PCS1900					
GSM			EDGE		
CS			8PSK		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
512	1850.2	0.2442	512	1850.2	0.2476
661	1880	0.2424	661	1880	0.2451
810	1909.8	0.2440	810	1909.8	0.2474
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
512	1850.2	0.3031	512	1850.2	0.3138
661	1880	0.3085	661	1880	0.3124
810	1909.8	0.3027	810	1909.8	0.3082

## Spectrum Plot

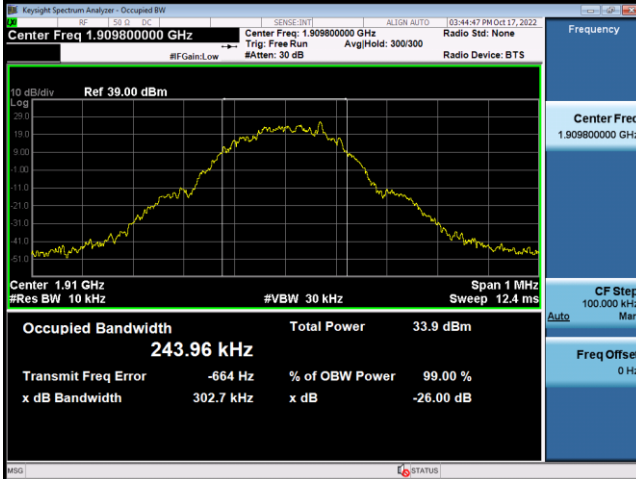
### GSM-512



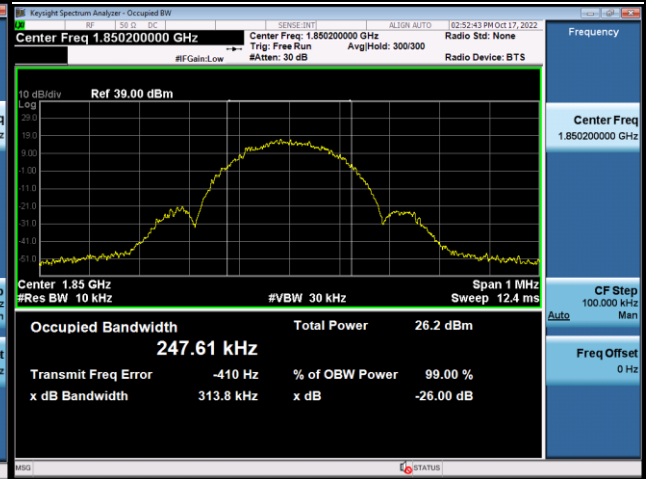
### GSM-661



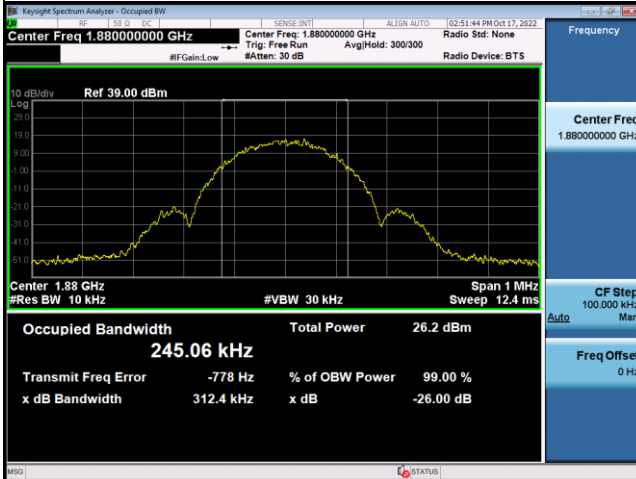
### GSM-810



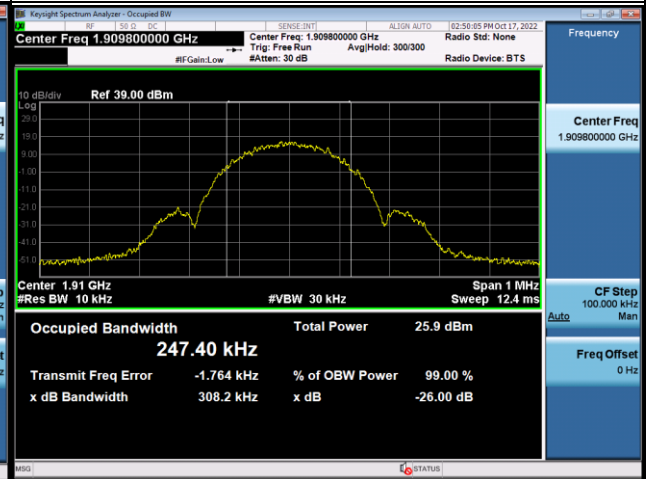
### EDGE-512



### EDGE-661



### EDGE-810





## WCDMA Band II\_WCDMA

### QPSK

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
9262	1852.4	4.1888	9262	1852.4	4.720
9400	1880	4.1512	9400	1880	4.652
9538	1907.6	4.1557	9538	1907.6	4.686

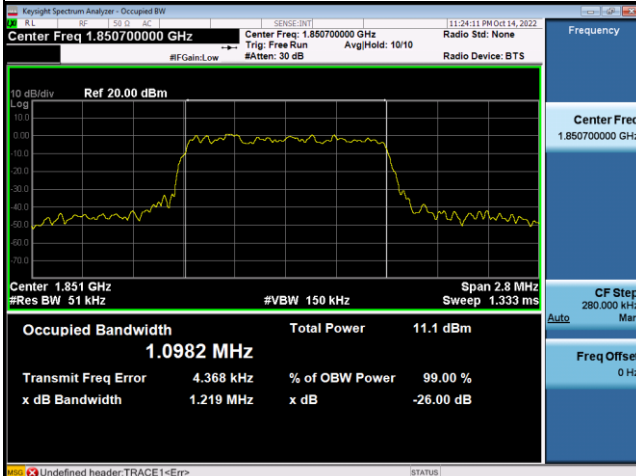
### Spectrum Plot



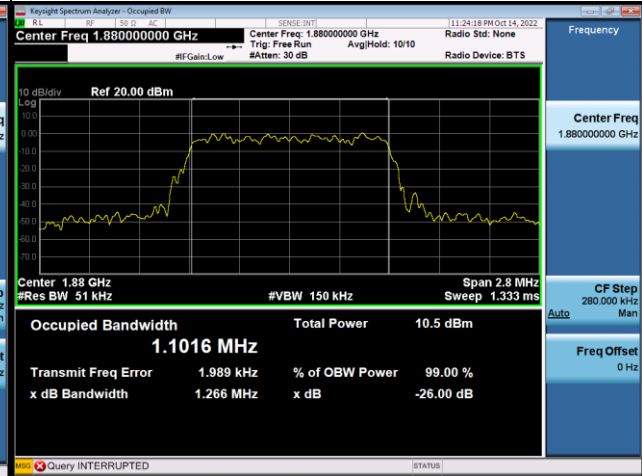
LTE Band 2_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18607	1850.7	1.0982	18607	1850.7	1.219
18900	1880	1.1016	18900	1880	1.266
19193	1909.3	1.0931	19193	1909.3	1.248
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18607	1850.7	1.1042	18607	1850.7	1.275
18900	1880	1.0982	18900	1880	1.189
19193	1909.3	1.0986	19193	1909.3	1.284
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18607	1850.7	1.0876	18607	1850.7	1.261
18900	1880	1.1053	18900	1880	1.225
19193	1909.3	1.0978	19193	1909.3	1.253

## Spectrum Plot

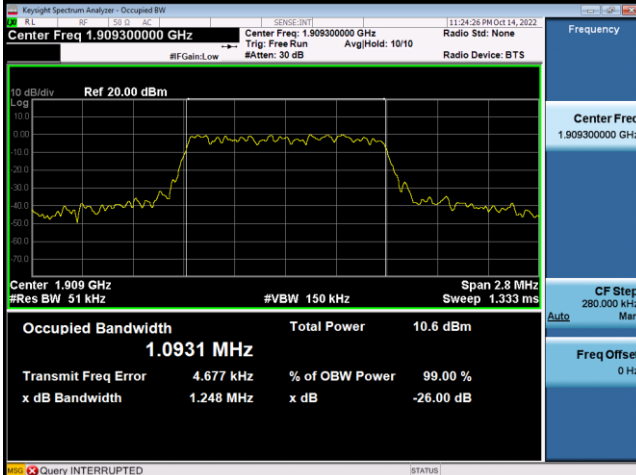
### QPSK-18607



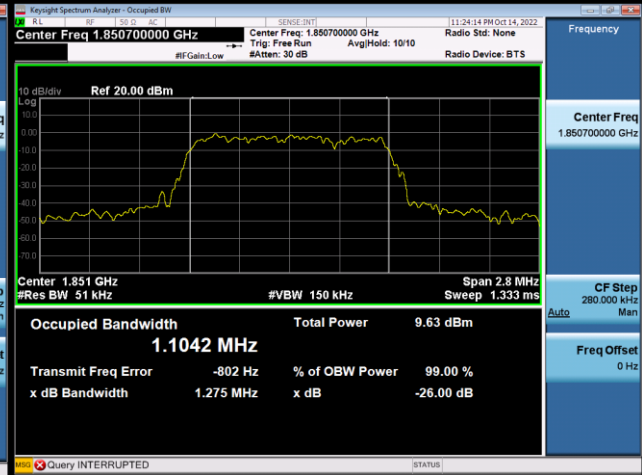
### QPSK-18900



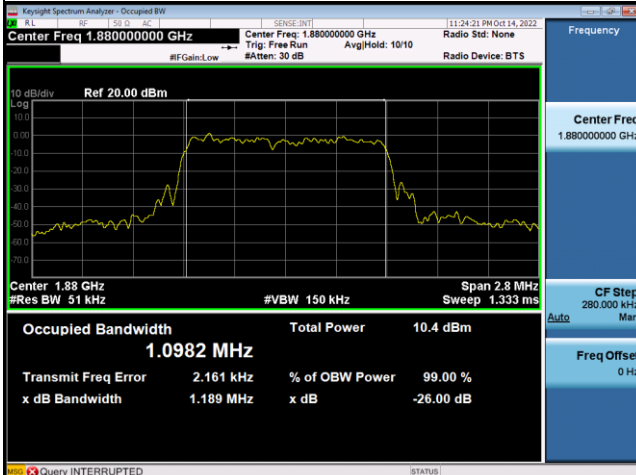
### QPSK-19193



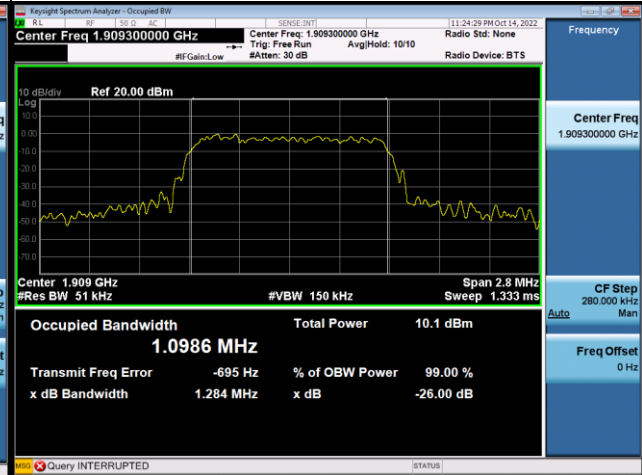
### 16QAM-18607



### 16QAM-18900



### 16QAM-19193





LTE Band 2_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18615	1851.5	2.6865	18615	1851.5	2.942
18900	1880	2.6963	18900	1880	2.941
19185	1908.5	2.7279	19185	1908.5	2.931
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18615	1851.5	2.7044	18615	1851.5	2.901
18900	1880	2.7288	18900	1880	2.927
19185	1908.5	2.7129	19185	1908.5	2.923
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
18615	1851.5	2.7011	18615	1851.5	2.924
18900	1880	2.7333	18900	1880	2.929
19185	1908.5	2.7202	19185	1908.5	2.929