

FCC Radio Test Report

FCC ID: 2AUYFRMX3686


Report No. : BTL-FCCP-1-2208G029
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 : GSM 850, WCDMA Band V, LTE Band 5

FCC Rule Part(s) : FCC CFR Title 47, Part 22, Subpart H
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 : 2022/10/25

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-1-2208G029	R00	Original Report.	2022/10/25	Valid

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

Standard(s) Section	Description	Test Result	Judgement	Remark
2.1046 22.913(a)(5)	Conducted Output Power Effective Radiated Power (ERP)	APPENDIX A	Pass	-----
2.1049	Occupied Bandwidth	APPENDIX B	Pass	-----
2.1051 22.917(a)	Conducted Spurious Emissions	APPENDIX C	Pass	-----
2.1053 22.917(a)	Radiated Spurious Emissions	APPENDIX D	Pass	-----
2.1051 22.917(a)	Band Edge Measurements	APPENDIX E	Pass	-----
-	Peak To Average Ratio	APPENDIX F	Pass	Record Only
2.1055 22.355	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:


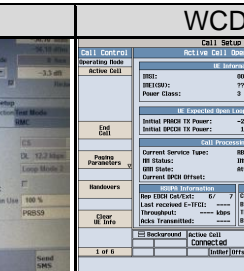
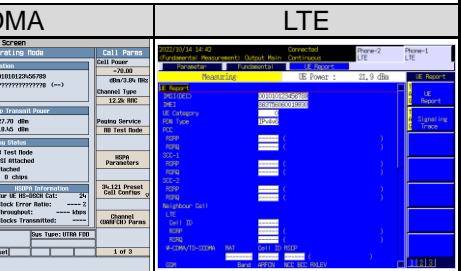
Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
Conducted Output Power and Effective Radiated Power	25.3 °C, 53 %	DC 3.87 V	Paul Shen
Occupied Bandwidth	25.3 °C, 53 %	DC 3.87 V	Paul Shen
Conducted Spurious Emissions	25.3 °C, 53 %	DC 3.87 V	Paul Shen
Radiated Spurious Emissions	Refer to data	AC 120 V	Jay Gao Mark Wang
Band Edge	25.3 °C, 53 %	DC 3.87 V	Paul Shen
Peak to Average Ratio	25.3 °C, 53 %	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 === 2A or 5-11V === 5A(MAX) I/P: 200-240V~ 50/60Hz 1.8A O/P: 5V === 2A or 5-11V === 6.1A(MAX) For VCB8JAUH: 1. I/P: 100-130V~ 50/60Hz 2.0A O/P: 5V === 2A or 5.0-11.0V === 6.1A MAX (67W MAX) 2. I/P: 200-240V~ 50/60Hz 2.0A O/P: 5V === 2A or 5.0-11.0V === 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)
	GSM 850	824 ~ 849	869 ~ 894
	WCDMA V	824 ~ 849	869 ~ 894
	LTE 5	824 ~ 849	869 ~ 894
	LTE 26	824 ~ 849	869 ~ 894

	Band	BW (MHz)	Mode	Power (W)
Maximum ERP	GSM 850/GPRS850	-	GMSK	0.274
	EDGE 850	-	8PSK	0.078
	WCDMA V	-	-	0.035
	LTE 5	1.4	QPSK	0.038
			16QAM	0.033
			64QAM	0.026
		3	QPSK	0.038
			16QAM	0.033
			64QAM	0.026
		5	QPSK	0.039
			16QAM	0.034
			64QAM	0.026
	10	QPSK	0.038	
		16QAM	0.030	
		64QAM	0.026	
	LTE 26	1.4	QPSK	0.028
			16QAM	0.024
			64QAM	0.019
		3	QPSK	0.028
			16QAM	0.024
			64QAM	0.019
		5	QPSK	0.029
			16QAM	0.025
			64QAM	0.019
10		QPSK	0.028	
		16QAM	0.024	
		64QAM	0.018	
15	QPSK	0.028		
	16QAM	0.024		
	64QAM	0.020		

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:

GSM 850				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	128	824.2	137	869.2
Mid Range	190	836.6	199	881.6
High Range	251	848.8	260	893.8

WCDMA Band V				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	4132	826.4	4357	871.4
Mid Range	4183	836.6	4408	881.5
High Range	4233	846.6	4458	891.6

LTE Band 5					
Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink (MHz)	N _{DL}	Frequency of Downlink (MHz)
Low Range	1.4	20407	824.7	2407	869.7
	3	20415	825.5	2415	870.5
	5	20425	826.5	2425	871.5
	10	20450	829	2450	874
Mid Range	1.4/3/5/10	20525	836.5	2525	881.5
High Range	1.4	20643	848.3	2643	893.3
	3	20635	847.5	2635	892.5
	5	20625	846.5	2625	891.5
	10	20600	844	2600	889

LTE Band 26					
Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink (MHz)	N _{DL}	Frequency of Downlink (MHz)
Low Range	1.4	26797	824.7	8797	869.7
	3	26805	825.5	8805	870.5
	5	26815	826.5	8815	871.5
	10	26840	829	8840	874
	15	26865	831.5	8865	876.5
Mid Range	1.4/3/5/10/15	26915	836.5	8915	881.5
High Range	1.4	27033	848.3	9033	893.3
	3	27025	847.5	9025	892.5
	5	27015	846.5	9015	891.5
	10	26990	844	8990	889
	15	26965	841.5	8965	886.5

(3) Table for Filed Antenna:

Brand	Model Name	Type	Connector	Gain (dBi)	Note
realme	Ant 0	IFA	N/A	-6.09	GSM 850
	Ant 1	IFA	N/A	-8.83	
	Ant 0	IFA	N/A	-6.09	WCDMA Band V
	Ant 1	IFA	N/A	-8.83	
	Ant 0	IFA	N/A	-6.09	LTE Band 5
	Ant 1	IFA	N/A	-8.83	
	Ant 0	IFA	N/A	-6.76	LTE Band 26
	Ant 1	IFA	N/A	-9.70	

Note: The antenna gain is provided by the manufacturer.

2.2 TEST MODES

GSM 850 MODE			
Test Item	Available Channel	Tested Channel	Mode
Conducted Output Power and Effective Radiated Power	128 to 251	128, 190, 251	GSM, GPRS, EDGE
Occupied Bandwidth	128 to 251	128, 190, 251	GSM, EDGE
Conducted Spurious Emissions	128 to 251	190	GSM, EDGE
Radiated Spurious Emissions	128 to 251	190	GSM
Band Edge	128 to 251	128, 251	GSM, EDGE
Peak to Average Ratio	128 to 251	128, 190, 251	GSM, EDGE
Frequency Stability	128 to 251	190	GSM

WCDMA BAND V MODE			
Test Item	Available Channel	Tested Channel	Mode
Conducted Output Power and Effective Radiated Power	4132 to 4233	4132, 4183, 4233	WCDMA, HSDPA, HSUPA
Occupied Bandwidth	4132 to 4233	4132, 4183, 4233	WCDMA
Conducted Spurious Emissions	4132 to 4233	4183	WCDMA
Radiated Spurious Emissions	4132 to 4233	4183	WCDMA
Band Edge	4132 to 4233	4132, 4233	WCDMA
Peak to Average Ratio	4132 to 4233	4132, 4183, 4233	WCDMA
Frequency Stability	4132 to 4233	4183	WCDMA

LTE BAND 5 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Output Power & Effective Radiated Power	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	1RB/3RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	1RB/8RB/15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	1RB/12RB/25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	1RB/25RB/50RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	50RB
Conducted Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Radiated Spurious Emissions	20450 to 20600	20525	10MHz	QPSK	1RB
Band Edge	20407 to 20643	20407, 20643	1.4MHz	QPSK	1RB/6RB
	20415 to 20635	20415, 20635	3MHz	QPSK	1RB/15RB
	20425 to 20625	20425, 20625	5MHz	QPSK	1RB/25RB
	20450 to 20600	20450, 20600	10MHz	QPSK	1RB/50RB
Peak To Average Ratio	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	1RB
Frequency Stability	20450 to 20600	20525	10MHz	QPSK	50RB

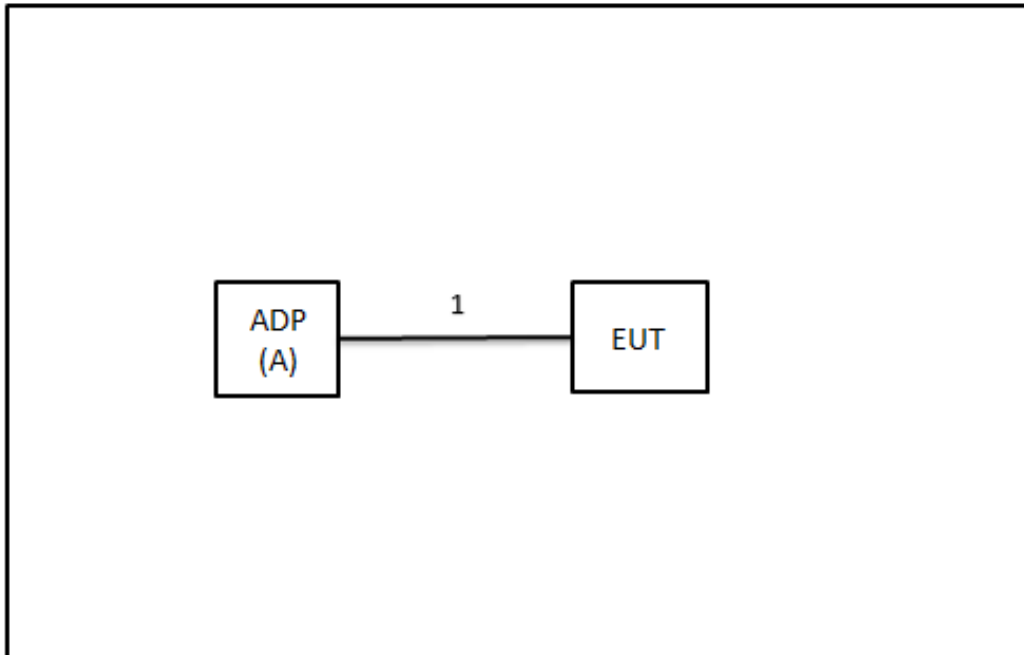
LTE BAND 26 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Output Power & Effective Radiated Power	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM, 64QAM	1RB/3RB/6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM	1RB/8RB/15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM	1RB/12RB/25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM	1RB/25RB/50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM	1RB/36RB/75RB
Occupied Bandwidth	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM, 64QAM	6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM	15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM	25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM	50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM	75RB
Conducted Spurious Emissions	26815 to 27015	26915	1.4MHz	QPSK	1RB
	26815 to 27015	26915	5MHz	QPSK	1RB
	26865 to 26965	26915	15MHz	QPSK	1RB
Radiated Spurious Emissions	26865 to 26965	26915	15MHz	QPSK	1RB
Band Edge	26797 to 27033	26797, 27033	1.4MHz	QPSK	1RB/6RB
	26805 to 27025	26805, 27025	3MHz	QPSK	1RB/15RB
	26815 to 27015	26815, 27015	5MHz	QPSK	1RB/25RB
	26840 to 26990	26840, 26990	10MHz	QPSK	1RB/50RB
	26865 to 26965	26865, 26965	15MHz	QPSK	1RB/75RB
Peak To Average Ratio	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM, 64QAM	1RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM	1RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM	1RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM	1RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM	1RB
Frequency Stability	26865 to 26965	26915	15MHz	QPSK	75RB

NOTE:

- (1) All X, Y and Z axes are evaluated, but only the worst case (GSM 850: X axis, WCDMA Band V, LTE Band 5: Z 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 radiated power test item only recorded the worst case in this report.

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 RADIATED POWER MEASUREMENT

3.1 LIMIT

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts (38.45 dBm).

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:

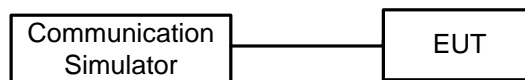
The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

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

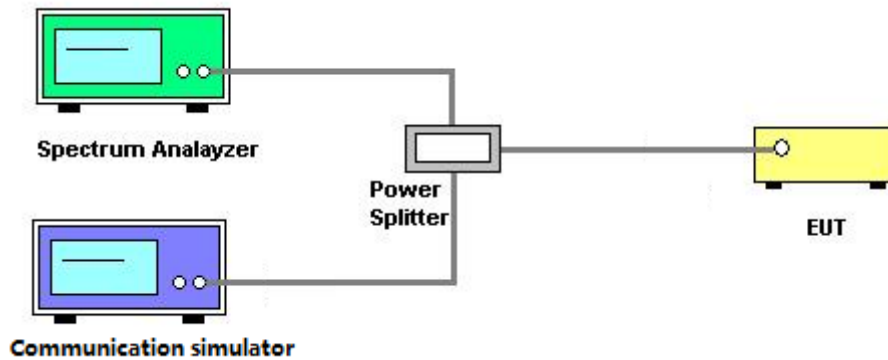
The testing follows FCC KDB 971168 v03r01 Section 4.

- 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

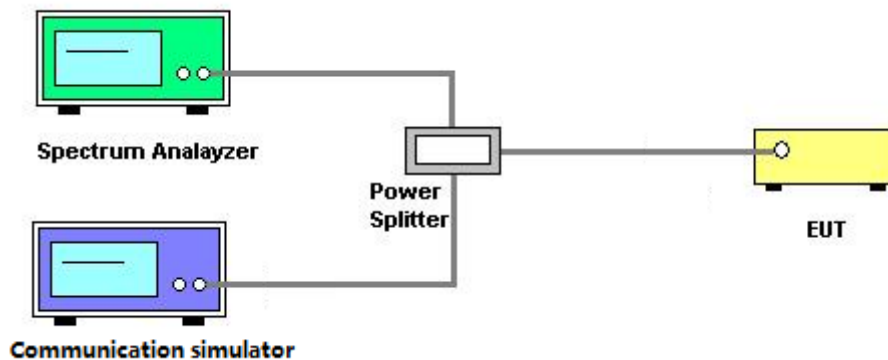
The testing follows FCC KDB 971168 v03r01 Section 6.

- 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

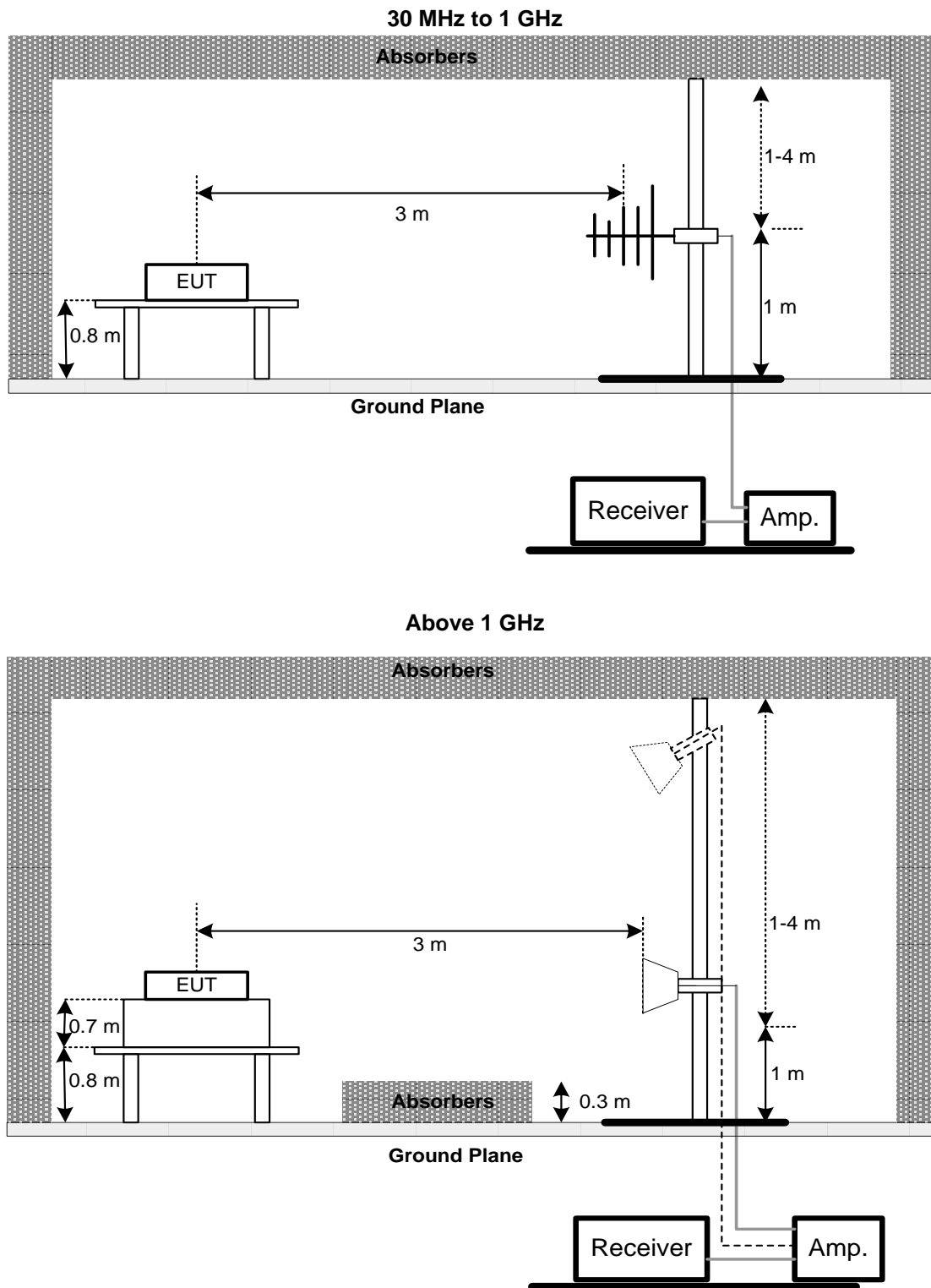
The testing follows FCC KDB 971168 v03r01 Section 6.2.

- 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

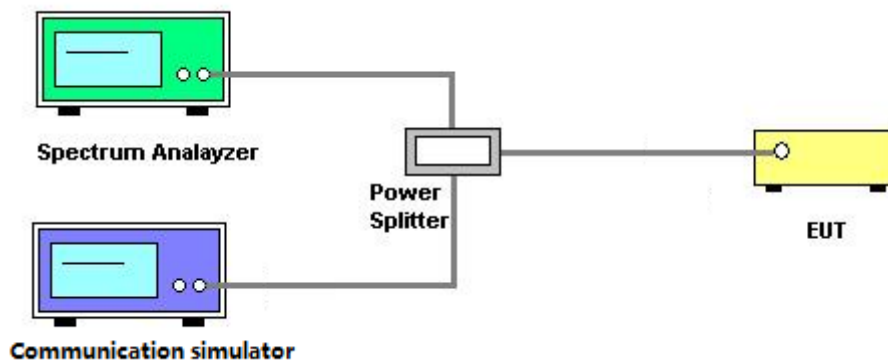
The testing follows FCC KDB 971168 v03r01 Section 6.

- 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

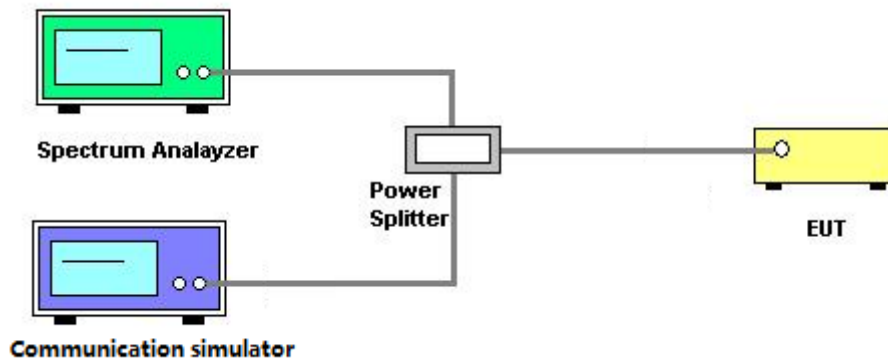
The testing follows FCC KDB 971168 v03r01 Section 5.7.

- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- 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

± 1.5 ppm is for base and fixed station. ± 2.5 ppm is for mobile station.

9.2 TEST PROCEDURE

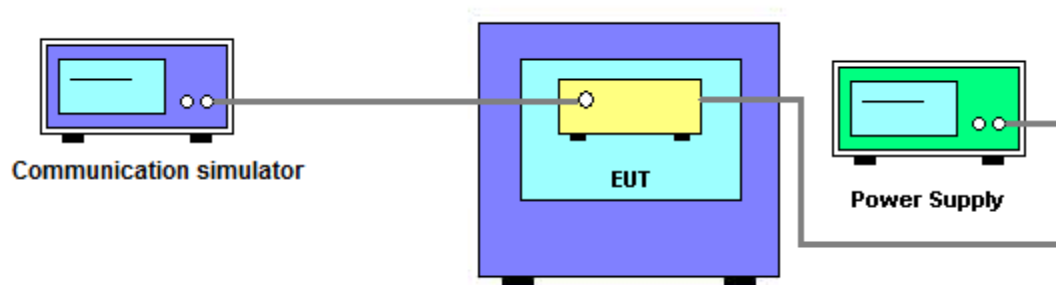
The testing follows FCC KDB 971168 v03r01 Section 9.

- 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 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_EMCI (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 0)		-6.09		
GSM850		128CH	190CH	251CH
		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		32.44	32.61	32.41
GPRS (GMSK)	1 Tx Slot	32.42	32.58	32.39
	2 Tx Slot	29.71	29.72	29.58
	3 Tx Slot	27.44	27.51	27.35
	4 Tx Slot	26.28	26.44	26.12
EDGE (8PSK)	1 Tx Slot	26.72	27.09	27.14
	2 Tx Slot	23.69	23.18	23.54
	3 Tx Slot	22.25	21.83	22.24
	4 Tx Slot	21.85	21.50	21.49

Ant Gain(Ant 0)		-6.09		
Modulation	Band	WCDMA Band V		
	Tx Channel	4132CH	4182CH	4233CH
	Frequency	826.4MHz	836.4MHz	846.6MHz
QPSK	RMC 12.2K	23.68	23.66	23.61
	HSDPA Subtest-1	22.7	22.68	22.69
	HSDPA Subtest-2	22.71	22.67	22.72
	HSDPA Subtest-3	22.28	22.22	22.19
	HSDPA Subtest-4	22.22	22.15	22.19
	HSUPA Subtest-1	21.02	21.06	21.02
	HSUPA Subtest-2	19.66	19.62	19.64
	HSUPA Subtest-3	20.59	20.61	20.65
	HSUPA Subtest-4	20.15	20.09	20.14
	HSUPA Subtest-5	22.66	22.68	22.69

Ant Gain(Ant 0)	-6.09					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20407CH	20525CH	20643CH
				824.7MHz	836.5MHz	848.3MHz
5 / 1.4MHz	QPSK	1	0	24.07	23.94	23.89
		1	2	24.07	23.98	23.96
		1	5	24.09	23.97	23.95
		3	0	24.01	24.00	23.92
		3	1	24.01	23.99	23.93
		3	2	24.01	23.95	23.97
		6	0	23.04	23.01	22.91
	16QAM	1	0	23.40	23.02	23.06
		1	2	23.39	23.02	23.13
		1	5	23.38	23.08	23.12
		3	0	23.21	23.15	22.98
		3	1	23.18	23.17	22.99
		3	2	23.18	23.13	23.01
		6	0	21.89	22.17	22.03
	64QAM	1	0	22.16	22.17	22.27
		1	2	22.19	22.17	22.38
		1	5	22.15	22.21	22.32
		3	0	22.06	21.97	22.22
		3	1	22.08	21.99	22.24
		3	2	22.10	21.92	22.25
		6	0	21.23	21.04	20.88

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20415CH	20525CH	20635CH
				825.5MHz	836.5MHz	847.5MHz
5 / 3MHz	QPSK	1	0	23.93	23.94	23.93
		1	7	23.98	23.97	23.91
		1	14	23.99	23.99	23.93
		8	0	22.97	22.94	22.97
		8	4	22.94	22.99	22.94
		8	7	22.97	23.00	22.93
		15	0	22.96	23.00	22.98
	16QAM	1	0	22.91	23.34	22.98
		1	7	22.94	23.37	23.00
		1	14	22.89	23.44	23.03
		8	0	22.08	22.04	22.01
		8	4	22.06	22.06	21.98
		8	7	22.09	22.09	21.97
		15	0	21.98	22.03	21.90
	64QAM	1	0	22.29	22.14	22.12
		1	7	22.29	22.18	22.10
		1	14	22.34	22.19	22.13
		8	0	21.01	20.99	20.90
		8	4	20.98	21.00	20.88
		8	7	21.02	21.02	20.86
		15	0	20.90	21.03	20.96

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20425CH	20525CH	20625CH
				826.5MHz	836.5MHz	846.5MHz
5 / 5MHz	QPSK	1	0	24.15	24.05	24.05
		1	13	24.10	24.06	24.05
		1	24	24.15	24.09	24.09
		12	0	23.02	23.04	23.04
		12	6	22.98	23.03	22.94
		12	11	22.91	23.01	22.95
		25	0	23.00	23.01	22.98
	16QAM	1	0	23.26	23.57	23.02
		1	13	23.24	23.56	23.00
		1	24	23.38	23.56	23.04
		12	0	22.04	22.13	22.09
		12	6	22.05	22.12	22.00
		12	11	21.97	22.10	21.96
		25	0	22.02	22.09	21.92
	64QAM	1	0	21.93	22.27	22.16
		1	13	21.89	22.33	22.18
		1	24	21.96	22.39	22.24
		12	0	20.99	20.94	21.05
		12	6	21.00	20.91	20.97
		12	11	20.93	20.92	20.96
		25	0	20.90	20.95	20.96

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20450CH	20525CH	20600CH
				829.0MHz	836.5MHz	844.0MHz
5 / 10MHz	QPSK	1	0	23.93	23.93	24.00
		1	25	24.02	24.01	23.98
		1	49	23.95	24.03	23.98
		25	0	23.10	23.02	22.93
		25	13	22.98	23.00	22.96
		25	25	22.95	23.08	22.87
		50	0	23.05	23.09	22.95
	16QAM	1	0	22.89	22.95	22.93
		1	25	23.07	23.05	22.92
		1	49	22.90	23.01	22.91
		25	0	22.09	22.13	21.96
		25	13	22.01	22.11	21.99
		25	25	21.97	22.22	21.87
		50	0	22.02	22.10	21.91
	64QAM	1	0	22.27	22.15	22.17
		1	25	22.39	22.21	22.17
		1	49	22.33	22.11	22.15
		25	0	21.14	21.12	20.97
		25	13	21.06	21.05	21.00
		25	25	20.99	21.15	20.92
		50	0	21.04	21.10	20.91

Ant Gain(Ant 0)	-6.76					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26797	CH26915	CH27033
				824.7MHz	836.5MHz	848.3MHz
26 / 1.4MHz	QPSK	1	0	23.43	23.34	23.22
		1	2	23.40	23.33	23.23
		1	5	23.42	23.32	23.31
		3	0	23.33	23.34	23.23
		3	1	23.34	23.33	23.25
		3	2	23.34	23.30	23.26
	16QAM	6	0	22.36	22.33	22.22
		1	0	22.48	22.71	22.27
		1	2	22.49	22.70	22.28
		1	5	22.48	22.72	22.36
		3	0	22.38	22.52	22.41
		3	1	22.37	22.49	22.42
	64QAM	3	2	22.39	22.47	22.38
		6	0	21.45	21.20	21.39
		1	0	21.51	21.67	21.39
		1	2	21.50	21.74	21.41
		1	5	21.50	21.66	21.40
		3	0	21.28	21.61	21.31
		3	1	21.29	21.61	21.32
		3	2	21.29	21.59	21.30
		6	0	20.37	20.27	20.49

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26805	CH26915	CH27025
				825.5MHz	836.5MHz	847.5MHz
26 / 3MHz	QPSK	1	0	23.35	23.32	23.24
		1	7	23.37	23.30	23.28
		1	14	23.27	23.29	23.33
		8	0	22.30	22.32	22.23
		8	4	22.29	22.33	22.21
		8	7	22.27	22.33	22.21
	16QAM	15	0	22.28	22.33	22.26
		1	0	22.72	22.36	22.20
		1	7	22.70	22.39	22.20
		1	14	22.65	22.38	22.20
		8	0	21.38	21.35	21.35
		8	4	21.38	21.34	21.31
	64QAM	8	7	21.37	21.34	21.33
		15	0	21.31	21.28	21.29
		1	0	21.46	21.50	21.59
		1	7	21.50	21.51	21.56
		1	14	21.46	21.47	21.58
		8	0	20.33	20.26	20.30
		8	4	20.32	20.25	20.25
		8	7	20.31	20.28	20.26
		15	0	20.30	20.33	20.19

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26815	CH26915	CH27015
				826.5MHz	836.5MHz	846.5MHz
26 / 5MHz	QPSK	1	0	23.40	23.42	23.44
		1	13	23.32	23.43	23.37
		1	24	23.42	23.46	23.47
		12	0	22.35	22.35	22.35
		12	6	22.32	22.33	22.24
		12	11	22.28	22.37	22.24
		25	0	22.31	22.37	22.33
	16QAM	1	0	22.83	22.40	22.51
		1	13	22.84	22.39	22.48
		1	24	22.94	22.45	22.54
		12	0	21.43	21.37	21.40
		12	6	21.43	21.36	21.30
		12	11	21.41	21.36	21.31
		25	0	21.39	21.31	21.34
	64QAM	1	0	21.65	21.52	21.20
		1	13	21.56	21.55	21.15
		1	24	21.63	21.60	21.25
		12	0	20.23	20.37	20.34
		12	6	20.21	20.34	20.25
		12	11	20.18	20.37	20.27
		25	0	20.26	20.34	20.27

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26840	CH26915	CH26990
				829MHz	836.5MHz	844MHz
26 / 10MHz	QPSK	1	0	23.35	23.32	23.30
		1	25	23.34	23.34	23.26
		1	49	23.28	23.26	23.20
		25	0	22.45	22.36	22.23
		25	13	22.35	22.33	22.26
		25	25	22.26	22.42	22.15
		50	0	22.39	22.40	22.23
	16QAM	1	0	22.67	22.27	22.27
		1	25	22.71	22.42	22.20
		1	49	22.67	22.33	22.14
		25	0	21.46	21.44	21.24
		25	13	21.38	21.44	21.28
		25	25	21.27	21.52	21.17
		50	0	21.35	21.42	21.18
	64QAM	1	0	21.46	21.39	21.57
		1	25	21.53	21.51	21.56
		1	49	21.48	21.44	21.50
		25	0	20.47	20.41	20.23
		25	13	20.39	20.39	20.31
		25	25	20.28	20.48	20.20
		50	0	20.35	20.36	20.19

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26865	CH26915	CH26965
				831.5MHz	836.5MHz	841.5MHz
26 / 15MHz	QPSK	1	0	23.32	23.20	23.23
		1	38	23.36	23.30	23.34
		1	74	23.31	23.19	23.22
		36	0	22.39	22.30	22.19
		36	18	22.32	22.28	22.26
		36	39	22.31	22.33	22.19
		75	0	22.40	22.36	22.21
	16QAM	1	0	22.65	22.62	22.22
		1	38	22.64	22.78	22.23
		1	74	22.65	22.63	22.11
		36	0	21.44	21.27	21.21
		36	18	21.34	21.25	21.28
		36	39	21.35	21.33	21.18
		75	0	21.38	21.36	21.19
	64QAM	1	0	21.42	21.82	21.54
		1	38	21.48	21.89	21.54
		1	74	21.41	21.79	21.47
		36	0	20.38	20.27	20.17
		36	18	20.35	20.24	20.24
		36	39	20.35	20.30	20.16
		75	0	20.35	20.39	20.18

Ant Gain(Ant 1)		-8.83		
GSM850		128CH	190CH	251CH
		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		32.57	32.76	32.61
GPRS (GMSK)	1 Tx Slot	32.58	32.72	32.59
	2 Tx Slot	29.84	29.93	29.83
	3 Tx Slot	27.63	27.73	27.71
	4 Tx Slot	26.49	26.57	26.46
EDGE (8PSK)	1 Tx Slot	26.83	26.99	26.82
	2 Tx Slot	23.86	23.99	23.72
	3 Tx Slot	22.26	21.82	22.22
	4 Tx Slot	21.51	21.44	21.51

Ant Gain(Ant 1)		-8.83		
Modulation	Band	WCDMA Band V		
	Tx Channel	4132CH	4182CH	4233CH
	Frequency	826.4MHz	836.4MHz	846.6MHz
QPSK	RMC 12.2K	24.04	23.99	24.02
	HSDPA Subtest-1	22.74	22.7	22.71
	HSDPA Subtest-2	22.72	22.6	22.68
	HSDPA Subtest-3	22.25	22.19	22.21
	HSDPA Subtest-4	22.09	22.17	22.17
	HSUPA Subtest-1	21.09	21.12	21.11
	HSUPA Subtest-2	19.61	19.62	19.6
	HSUPA Subtest-3	20.66	20.59	20.61
	HSUPA Subtest-4	20.87	20.83	20.87
	HSUPA Subtest-5	22.69	22.66	22.59

Ant Gain(Ant 1)	-8.83					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20407CH	20525CH	20643CH
				824.7MHz	836.5MHz	848.3MHz
5 / 1.4MHz	QPSK	1	0	24.16	24.14	24.22
		1	2	24.16	24.16	24.27
		1	5	24.18	24.15	24.24
		3	0	24.19	24.18	24.12
		3	1	24.19	24.17	24.14
		3	2	24.13	24.16	24.14
		6	0	23.19	23.18	23.14
	16QAM	1	0	23.21	23.30	23.51
		1	2	23.22	23.32	23.57
		1	5	23.24	23.34	23.56
		3	0	23.34	23.23	23.32
		3	1	23.35	23.24	23.33
		3	2	23.32	23.21	23.32
		6	0	22.33	22.31	22.00
	64QAM	1	0	22.37	22.51	22.30
		1	2	22.36	22.59	22.38
		1	5	22.40	22.54	22.30
		3	0	22.15	22.49	22.21
		3	1	22.14	22.49	22.24
		3	2	22.15	22.44	22.23
		6	0	21.22	21.16	21.38

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20415CH	20525CH	20635CH
				825.5MHz	836.5MHz	847.5MHz
5 / 3MHz	QPSK	1	0	24.08	24.13	24.15
		1	7	24.17	24.16	24.10
		1	14	24.19	24.21	24.11
		8	0	23.14	23.15	23.16
		8	4	23.11	23.18	23.14
		8	7	23.15	23.21	23.12
		15	0	23.14	23.19	23.15
	16QAM	1	0	23.09	23.53	23.15
		1	7	23.10	23.56	23.17
		1	14	23.08	23.59	23.22
		8	0	22.24	22.22	22.19
		8	4	22.23	22.25	22.16
		8	7	22.25	22.27	22.15
		15	0	22.16	22.22	22.10
	64QAM	1	0	22.44	22.36	22.33
		1	7	22.49	22.38	22.32
		1	14	22.49	22.39	22.31
		8	0	21.18	21.19	21.10
		8	4	21.19	21.21	21.07
		8	7	21.20	21.23	21.07
		15	0	21.10	21.21	21.16

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20425CH	20525CH	20625CH
				826.5MHz	836.5MHz	846.5MHz
5 / 5MHz	QPSK	1	0	24.32	24.24	24.25
		1	13	24.27	24.23	24.25
		1	24	24.33	24.28	24.29
		12	0	23.17	23.23	23.24
		12	6	23.16	23.23	23.18
		12	11	23.09	23.22	23.15
		25	0	23.16	23.21	23.19
	16QAM	1	0	23.42	23.75	23.20
		1	13	23.41	23.75	23.19
		1	24	23.55	23.74	23.21
		12	0	22.21	22.33	22.26
		12	6	22.22	22.30	22.19
		12	11	22.14	22.30	22.15
		25	0	22.19	22.25	22.09
	64QAM	1	0	22.12	22.47	22.36
		1	13	22.07	22.52	22.38
		1	24	22.16	22.59	22.45
		12	0	21.16	21.14	21.26
		12	6	21.19	21.10	21.17
		12	11	21.13	21.10	21.17
		25	0	21.12	21.16	21.18

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20450CH	20525CH	20600CH
				829.0MHz	836.5MHz	844.0MHz
5 / 10MHz	QPSK	1	0	24.10	24.10	24.23
		1	25	24.21	24.19	24.19
		1	49	24.14	24.20	24.17
		25	0	23.25	23.25	23.12
		25	13	23.17	23.18	23.16
		25	25	23.13	23.31	23.06
		50	0	23.21	23.29	23.14
	16QAM	1	0	23.06	23.50	23.26
		1	25	23.15	23.57	23.21
		1	49	23.08	23.55	23.20
		25	0	22.25	22.28	22.20
		25	13	22.19	22.24	22.25
		25	25	22.13	22.35	22.13
		50	0	22.18	22.30	22.13
	64QAM	1	0	22.42	22.35	22.45
		1	25	22.57	22.43	22.47
		1	49	22.52	22.33	22.46
		25	0	21.31	21.32	21.12
		25	13	21.26	21.26	21.21
		25	25	21.17	21.38	21.09
		50	0	21.20	21.31	21.11

Ant Gain(Ant 1)	-9.70					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26797	CH26915	CH27033
				824.7MHz	836.5MHz	848.3MHz
26 / 1.4MHz	QPSK	1	0	23.53	23.47	23.52
		1	2	23.53	23.49	23.48
		1	5	23.50	23.50	23.51
		3	0	23.54	23.50	23.43
		3	1	23.54	23.50	23.44
		3	2	23.50	23.50	23.44
		6	0	22.53	22.49	22.43
	16QAM	1	0	22.92	22.55	22.59
		1	2	22.93	22.55	22.58
		1	5	22.90	22.59	22.62
		3	0	22.72	22.68	22.49
		3	1	22.70	22.68	22.48
		3	2	22.71	22.65	22.48
		6	0	21.44	21.69	21.55
	64QAM	1	0	21.67	21.67	21.81
		1	2	21.71	21.67	21.87
		1	5	21.63	21.71	21.83
		3	0	21.61	21.47	21.72
		3	1	21.58	21.46	21.74
		3	2	21.61	21.44	21.72
		3	2	21.61	21.44	21.72
		6	0	20.76	20.55	20.39

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26805	CH26915	CH27025
				825.5MHz	836.5MHz	847.5MHz
26 / 3MHz	QPSK	1	0	23.53	23.50	23.43
		1	7	23.54	23.49	23.47
		1	14	23.45	23.50	23.56
		8	0	22.47	22.49	22.42
		8	4	22.48	22.53	22.41
		8	7	22.44	22.52	22.42
		15	0	22.47	22.51	22.43
	16QAM	1	0	22.90	22.55	22.39
		1	7	22.89	22.57	22.39
		1	14	22.84	22.55	22.39
		8	0	21.58	21.54	21.56
		8	4	21.55	21.52	21.52
		8	7	21.54	21.54	21.54
		15	0	21.51	21.47	21.50
	64QAM	1	0	21.61	21.69	21.77
		1	7	21.66	21.66	21.76
		1	14	21.63	21.67	21.78
		8	0	20.51	20.43	20.47
		8	4	20.50	20.43	20.46
		8	7	20.48	20.46	20.46
		8	7	20.48	20.46	20.46
		15	0	20.48	20.53	20.37

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26815	CH26915	CH27015
				826.5MHz	836.5MHz	846.5MHz
26 / 5MHz	QPSK	1	0	23.58	23.61	23.64
		1	13	23.51	23.62	23.58
		1	24	23.61	23.65	23.65
		12	0	22.53	22.55	22.55
		12	6	22.51	22.51	22.46
		12	11	22.46	22.56	22.44
		25	0	22.50	22.56	22.53
	16QAM	1	0	23.02	22.56	22.69
		1	13	23.01	22.57	22.67
		1	24	23.15	22.64	22.76
		12	0	21.61	21.56	21.60
		12	6	21.61	21.54	21.50
		12	11	21.60	21.58	21.51
		25	0	21.57	21.50	21.56
	64QAM	1	0	21.84	21.72	21.41
		1	13	21.76	21.73	21.37
		1	24	21.82	21.79	21.48
		12	0	20.41	20.56	20.54
		12	6	20.39	20.53	20.46
		12	11	20.36	20.56	20.46
		25	0	20.44	20.55	20.46

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26840	CH26915	CH26990
				829MHz	836.5MHz	844MHz
26 / 10MHz	QPSK	1	0	23.54	23.53	23.52
		1	25	23.53	23.52	23.47
		1	49	23.47	23.48	23.45
		25	0	22.62	22.58	22.43
		25	13	22.54	22.55	22.48
		25	25	22.45	22.62	22.36
		50	0	22.57	22.61	22.43
	16QAM	1	0	22.86	22.47	22.48
		1	25	22.89	22.59	22.41
		1	49	22.88	22.53	22.35
		25	0	21.62	21.64	21.43
		25	13	21.57	21.64	21.51
		25	25	21.48	21.73	21.40
		50	0	21.52	21.62	21.38
	64QAM	1	0	21.62	21.57	21.77
		1	25	21.73	21.68	21.77
		1	49	21.68	21.64	21.71
		25	0	20.65	20.62	20.43
		25	13	20.58	20.58	20.52
		25	25	20.50	20.64	20.40
		50	0	20.53	20.55	20.39

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26865	CH26915	CH26965
				831.5MHz	836.5MHz	841.5MHz
26 / 15MHz	QPSK	1	0	23.49	23.49	23.37
		1	38	23.45	23.54	23.47
		1	74	23.51	23.43	23.35
		36	0	22.59	22.50	22.40
		36	18	22.52	22.45	22.46
		36	39	22.49	22.56	22.39
		75	0	22.59	22.56	22.42
	16QAM	1	0	22.85	22.81	22.42
		1	38	22.87	22.95	22.44
		1	74	22.86	22.85	22.32
		36	0	21.62	21.49	21.40
		36	18	21.54	21.45	21.47
		36	39	21.55	21.54	21.39
		75	0	21.58	21.57	21.41
	64QAM	1	0	21.59	22.02	21.75
		1	38	21.67	22.10	21.75
		1	74	21.61	22.01	21.70
		36	0	20.59	20.48	20.40
		36	18	20.54	20.48	20.45
		36	39	20.53	20.53	20.37
		75	0	20.55	20.57	20.40

Effective Radiated Power:

Ant Gain(Ant 0)		-6.09		
GSM850		128CH	190CH	251CH
		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		24.20	24.37	24.17
GPRS (GMSK)	1 Tx Slot	24.18	24.34	24.15
	2 Tx Slot	21.47	21.48	21.34
	3 Tx Slot	19.20	19.27	19.11
	4 Tx Slot	18.04	18.20	17.88
EDGE (8PSK)	1 Tx Slot	18.48	18.85	18.90
	2 Tx Slot	15.45	14.94	15.30
	3 Tx Slot	14.01	13.59	14.00
	4 Tx Slot	13.61	13.26	13.25

Ant Gain(Ant 0)		-6.09		
Modulation	Band	WCDMA Band V		
	Tx Channel	4132CH	4182CH	4233CH
	Frequency	826.4MHz	836.4MHz	846.6MHz
QPSK	RMC 12.2K	15.44	15.42	15.37
	HSDPA Subtest-1	14.46	14.44	14.45
	HSDPA Subtest-2	14.47	14.43	14.48
	HSDPA Subtest-3	14.04	13.98	13.95
	HSDPA Subtest-4	13.98	13.91	13.95
	HSUPA Subtest-1	12.78	12.82	12.78
	HSUPA Subtest-2	11.42	11.38	11.40
	HSUPA Subtest-3	12.35	12.37	12.41
	HSUPA Subtest-4	11.91	11.85	11.90
	HSUPA Subtest-5	14.42	14.44	14.45

Ant Gain(Ant 0)	-6.09					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20407CH	20525CH	20643CH
				824.7MHz	836.5MHz	848.3MHz
5 / 1.4MHz	QPSK	1	0	15.83	15.70	15.65
		1	2	15.83	15.74	15.72
		1	5	15.85	15.73	15.71
		3	0	15.77	15.76	15.68
		3	1	15.77	15.75	15.69
		3	2	15.77	15.71	15.73
	16QAM	6	0	14.80	14.77	14.67
		1	0	15.16	14.78	14.82
		1	2	15.15	14.78	14.89
		1	5	15.14	14.84	14.88
		3	0	14.97	14.91	14.74
		3	1	14.94	14.93	14.75
	64QAM	3	2	14.94	14.89	14.77
		6	0	13.65	13.93	13.79
		1	0	13.92	13.93	14.03
		1	2	13.95	13.93	14.14
		1	5	13.91	13.97	14.08
		3	0	13.82	13.73	13.98
		3	1	13.84	13.75	14.00
		3	2	13.86	13.68	14.01
		6	0	12.99	12.80	12.64

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20415CH	20525CH	20635CH
				825.5MHz	836.5MHz	847.5MHz
5 / 3MHz	QPSK	1	0	15.69	15.70	15.69
		1	7	15.74	15.73	15.67
		1	14	15.75	15.75	15.69
		8	0	14.73	14.70	14.73
		8	4	14.70	14.75	14.70
		8	7	14.73	14.76	14.69
		15	0	14.72	14.76	14.74
	16QAM	1	0	14.67	15.10	14.74
		1	7	14.70	15.13	14.76
		1	14	14.65	15.20	14.79
		8	0	13.84	13.80	13.77
		8	4	13.82	13.82	13.74
		8	7	13.85	13.85	13.73
		15	0	13.74	13.79	13.66
	64QAM	1	0	14.05	13.90	13.88
		1	7	14.05	13.94	13.86
		1	14	14.10	13.95	13.89
		8	0	12.77	12.75	12.66
		8	4	12.74	12.76	12.64
		8	7	12.78	12.78	12.62
		15	0	12.66	12.79	12.72

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20425CH	20525CH	20625CH
				826.5MHz	836.5MHz	846.5MHz
5 / 5MHz	QPSK	1	0	15.91	15.81	15.81
		1	13	15.86	15.82	15.81
		1	24	15.91	15.85	15.85
		12	0	14.78	14.80	14.80
		12	6	14.74	14.79	14.70
		12	11	14.67	14.77	14.71
		25	0	14.76	14.77	14.74
	16QAM	1	0	15.02	15.33	14.78
		1	13	15.00	15.32	14.76
		1	24	15.14	15.32	14.80
		12	0	13.80	13.89	13.85
		12	6	13.81	13.88	13.76
		12	11	13.73	13.86	13.72
		25	0	13.78	13.85	13.68
	64QAM	1	0	13.69	14.03	13.92
		1	13	13.65	14.09	13.94
		1	24	13.72	14.15	14.00
		12	0	12.75	12.70	12.81
		12	6	12.76	12.67	12.73
		12	11	12.69	12.68	12.72
		25	0	12.66	12.71	12.72

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20450CH	20525CH	20600CH
				829.0MHz	836.5MHz	844.0MHz
5 / 10MHz	QPSK	1	0	15.69	15.69	15.76
		1	25	15.78	15.77	15.74
		1	49	15.71	15.79	15.74
		25	0	14.86	14.78	14.69
		25	13	14.74	14.76	14.72
		25	25	14.71	14.84	14.63
		50	0	14.81	14.85	14.71
	16QAM	1	0	14.65	14.71	14.69
		1	25	14.83	14.81	14.68
		1	49	14.66	14.77	14.67
		25	0	13.85	13.89	13.72
		25	13	13.77	13.87	13.75
		25	25	13.73	13.98	13.63
		50	0	13.78	13.86	13.67
	64QAM	1	0	14.03	13.91	13.93
		1	25	14.15	13.97	13.93
		1	49	14.09	13.87	13.91
		25	0	12.90	12.88	12.73
		25	13	12.82	12.81	12.76
		25	25	12.75	12.91	12.68
		50	0	12.80	12.86	12.67

Ant Gain(Ant 0)	-6.76					
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26797	CH26915	CH27033
				824.7MHz	836.5MHz	848.3MHz
26 / 1.4MHz	QPSK	1	0	14.52	14.43	14.31
		1	2	14.49	14.42	14.32
		1	5	14.51	14.41	14.40
		3	0	14.42	14.43	14.32
		3	1	14.43	14.42	14.34
		3	2	14.43	14.39	14.35
	16QAM	6	0	13.45	13.42	13.31
		1	0	13.57	13.80	13.36
		1	2	13.58	13.79	13.37
		1	5	13.57	13.81	13.45
		3	0	13.47	13.61	13.50
		3	1	13.46	13.58	13.51
	64QAM	3	2	13.48	13.56	13.47
		6	0	12.54	12.29	12.48
		1	0	12.60	12.76	12.48
		1	2	12.59	12.83	12.50
		1	5	12.59	12.75	12.49
		3	0	12.37	12.70	12.40
		3	1	12.38	12.70	12.41
		3	2	12.38	12.68	12.39
		6	0	11.46	11.36	11.58

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26805	CH26915	CH27025
				825.5MHz	836.5MHz	847.5MHz
26 / 3MHz	QPSK	1	0	14.44	14.41	14.33
		1	7	14.46	14.39	14.37
		1	14	14.36	14.38	14.42
		8	0	13.39	13.41	13.32
		8	4	13.38	13.42	13.30
		8	7	13.36	13.42	13.30
		15	0	13.37	13.42	13.35
	16QAM	1	0	13.81	13.45	13.29
		1	7	13.79	13.48	13.29
		1	14	13.74	13.47	13.29
		8	0	12.47	12.44	12.44
		8	4	12.47	12.43	12.40
		8	7	12.46	12.43	12.42
		15	0	12.40	12.37	12.38
	64QAM	1	0	12.55	12.59	12.68
		1	7	12.59	12.60	12.65
		1	14	12.55	12.56	12.67
		8	0	11.42	11.35	11.39
		8	4	11.41	11.34	11.34
		8	7	11.40	11.37	11.35
		15	0	11.39	11.42	11.28

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26815	CH26915	CH27015
				826.5MHz	836.5MHz	846.5MHz
26 / 5MHz	QPSK	1	0	14.49	14.51	14.53
		1	13	14.41	14.52	14.46
		1	24	14.51	14.55	14.56
		12	0	13.44	13.44	13.44
		12	6	13.41	13.42	13.33
		12	11	13.37	13.46	13.33
		25	0	13.40	13.46	13.42
	16QAM	1	0	13.92	13.49	13.60
		1	13	13.93	13.48	13.57
		1	24	14.03	13.54	13.63
		12	0	12.52	12.46	12.49
		12	6	12.52	12.45	12.39
		12	11	12.50	12.45	12.40
		25	0	12.48	12.40	12.43
	64QAM	1	0	12.74	12.61	12.29
		1	13	12.65	12.64	12.24
		1	24	12.72	12.69	12.34
		12	0	11.32	11.46	11.43
		12	6	11.30	11.43	11.34
		12	11	11.27	11.46	11.36
		25	0	11.35	11.43	11.36

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26840	CH26915	CH26990
				829MHz	836.5MHz	844MHz
26 / 10MHz	QPSK	1	0	14.44	14.41	14.39
		1	25	14.43	14.43	14.35
		1	49	14.37	14.35	14.29
		25	0	13.54	13.45	13.32
		25	13	13.44	13.42	13.35
		25	25	13.35	13.51	13.24
		50	0	13.48	13.49	13.32
	16QAM	1	0	13.76	13.36	13.36
		1	25	13.80	13.51	13.29
		1	49	13.76	13.42	13.23
		25	0	12.55	12.53	12.33
		25	13	12.47	12.53	12.37
		25	25	12.36	12.61	12.26
		50	0	12.44	12.51	12.27
	64QAM	1	0	12.55	12.48	12.66
		1	25	12.62	12.60	12.65
		1	49	12.57	12.53	12.59
		25	0	11.56	11.50	11.32
		25	13	11.48	11.48	11.40
		25	25	11.37	11.57	11.29
		50	0	11.44	11.45	11.28

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				CH26865	CH26915	CH26965
				831.5MHz	836.5MHz	841.5MHz
26 / 15MHz	QPSK	1	0	14.41	14.29	14.32
		1	38	14.45	14.39	14.43
		1	74	14.40	14.28	14.31
		36	0	13.48	13.39	13.28
		36	18	13.41	13.37	13.35
		36	39	13.40	13.42	13.28
		75	0	13.49	13.45	13.30
	16QAM	1	0	13.74	13.71	13.31
		1	38	13.73	13.87	13.32
		1	74	13.74	13.72	13.20
		36	0	12.53	12.36	12.30
		36	18	12.43	12.34	12.37
		36	39	12.44	12.42	12.27
		75	0	12.47	12.45	12.28
	64QAM	1	0	12.51	12.91	12.63
		1	38	12.57	12.98	12.63
		1	74	12.50	12.88	12.56
		36	0	11.47	11.36	11.26
		36	18	11.44	11.33	11.33
		36	39	11.44	11.39	11.25
		75	0	11.44	11.48	11.27

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

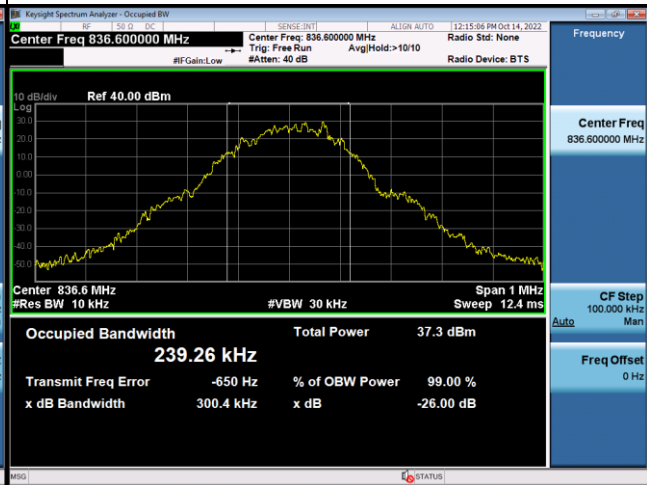
GSM 850					
GSM			EDGE		
CS			8PSK		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
128	824.2	0.2413	128	824.2	0.2459
190	836.6	0.2393	190	836.6	0.2490
251	848.8	0.2386	251	848.8	0.2463
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
128	824.2	0.3051	128	824.2	0.3120
190	836.6	0.3004	190	836.6	0.3151
251	848.8	0.2984	251	848.8	0.3036

Spectrum Plot

GSM-128



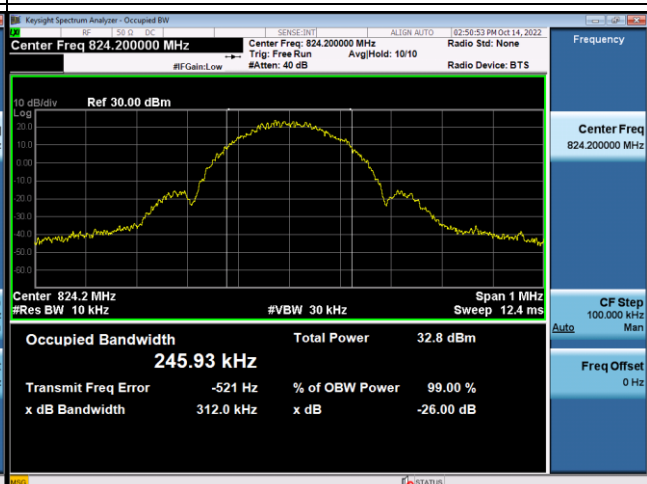
GSM-190



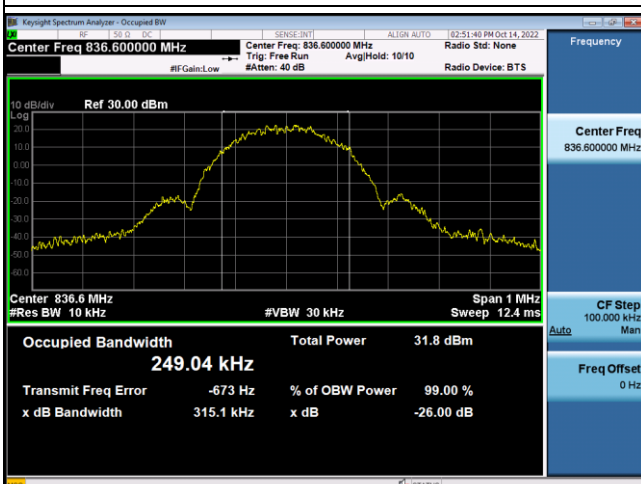
GSM-251



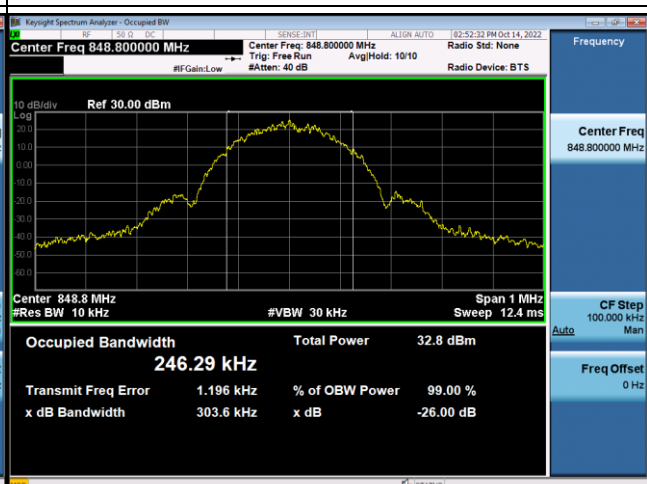
EDGE-128



EDGE-190



EDGE-251



WCDMA Band V_WCDMA

QPSK

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
4132	826.4	4.1482	4132	826.4	4.673
4183	836.6	4.1677	4183	836.3	4.704
4233	846.6	4.1681	4233	846.6	4.726

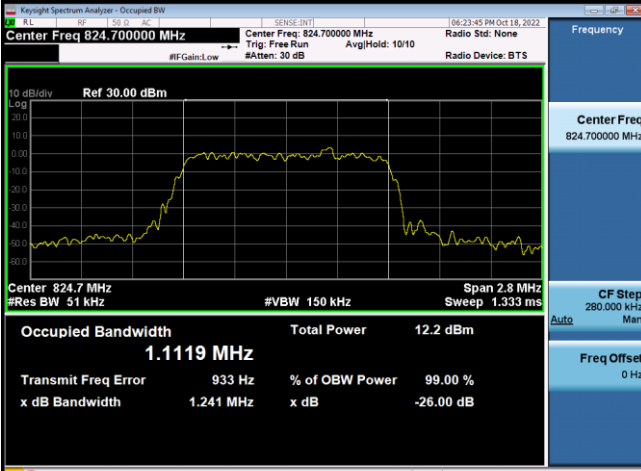
Spectrum Plot



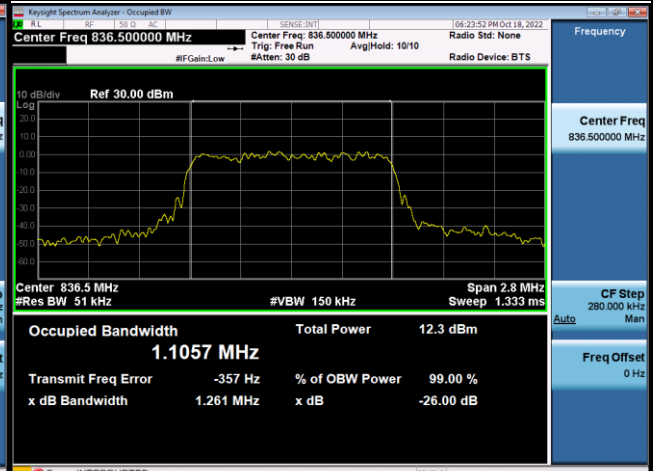
LTE Band 5_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.1119	20407	824.7	1.241
20525	836.5	1.1057	20525	836.5	1.261
20643	848.3	1.1016	20643	848.3	1.228
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.1023	20407	824.7	1.272
20525	836.5	1.0920	20525	836.5	1.226
20643	848.3	1.1079	20643	848.3	1.237
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.1048	20407	824.7	1.211
20525	836.5	1.0996	20525	836.5	1.263
20643	848.3	1.0946	20643	848.3	1.249

Spectrum Plot

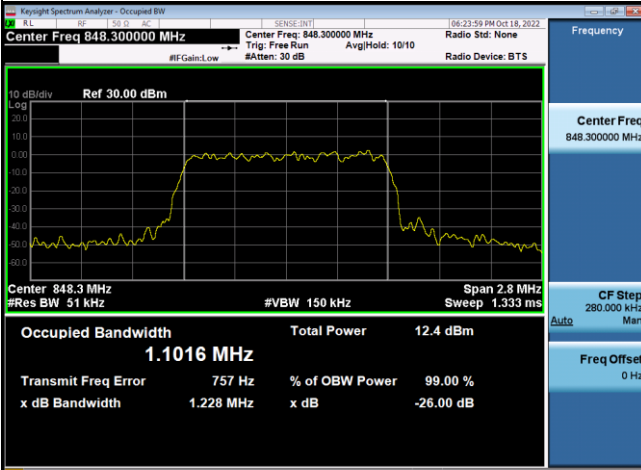
QPSK-20407



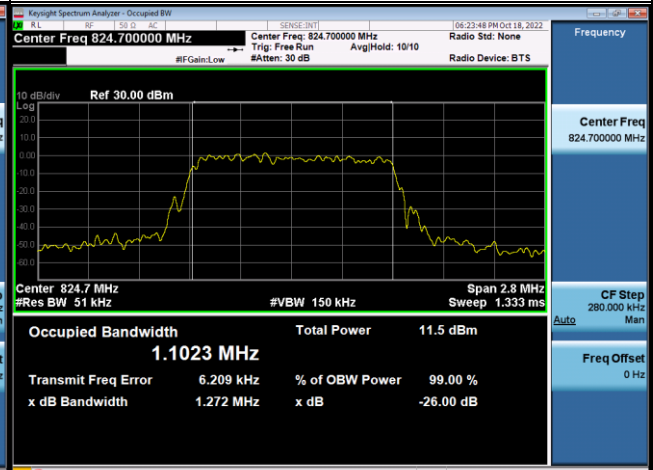
QPSK-20525



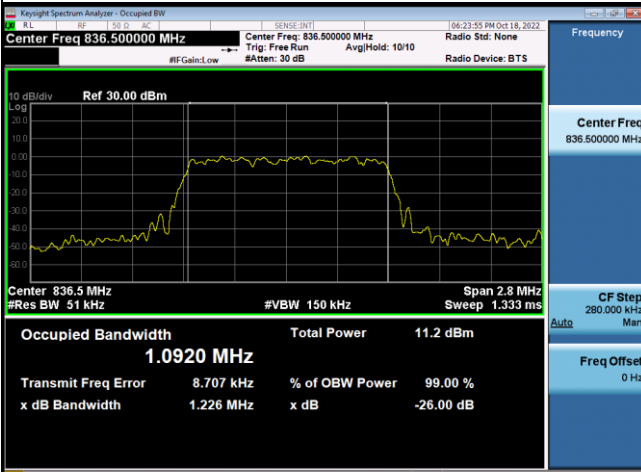
QPSK-20643



16QAM-20407



16QAM-20525



16QAM-20643

