

FCC Radio Test Report

FCC ID: M82-NMCR014TN

Report No. : BTL-FCCP-1-2405T120A
Equipment : NMC LTE Card
Model Name : NMC-R014TN, NMC-YYR014TNXXXXXXXXXXXXXXXXXXXX (Where "X" may be 0~9 or any alphanumeric character, "-" or Blank, Y only for A-Z marketing purpose.)
Brand Name : Advantech
Applicant : Advantech Co., Ltd.
Address : No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 11491, Taiwan.
Radio Function : WCDMA Band V & LTE Band 5, 26
FCC Rule Part(s) : FCC CFR Title 47, Part 22, Subpart H
Date of Receipt : 2024/7/1
Date of Test : 2025/1/6 ~ 2025/3/6
Issued Date : 2025/4/9

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

Prepared by : Brett Shen
 Brett Shen, Engineer

Approved by : Jerry Chuang
 Jerry Chuang, Supervisor



BTL Inc.

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan

Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

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** assumes no responsibility for the data provided by the Customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by **BTL**.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

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.

CONTENTS

1	SUMMARY OF TEST RESULTS	6
1.1	REFERENCE TEST GUIDANCE	7
1.2	TEST FACILITY	7
1.3	MEASUREMENT UNCERTAINTY	7
1.4	TEST ENVIRONMENT CONDITIONS	7
2	GENERAL INFORMATION	8
2.1	DESCRIPTION OF EUT	8
2.2	TEST MODES	12
2.3	BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	15
2.4	SUPPORT UNITS	15
3	CONDUCTED OUTPUT POWER AND EFFECTIVE RADIATED POWER MEASUREMENT	16
3.1	LIMIT	16
3.2	TEST PROCEDURE	16
3.3	DEVIATION FROM TEST STANDARD	16
3.4	TEST SETUP	17
3.5	EUT OPERATING CONDITIONS	17
3.6	TEST RESULT	17
4	OCCUPIED BANDWIDTH MEASUREMENT	18
4.1	TEST PROCEDURE	18
4.2	DEVIATION FROM TEST STANDARD	18
4.3	TEST SETUP	18
4.4	TEST RESULT	18
5	CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	19
5.1	LIMIT	19
5.2	TEST PROCEDURE	19
5.3	DEVIATION FROM TEST STANDARD	19
5.4	TEST SETUP	19
5.5	TEST RESULT	19
6	RADIATED SPURIOUS EMISSIONS MEASUREMENT	20
6.1	LIMIT	20
6.2	TEST PROCEDURE	20
6.3	DEVIATION FROM TEST STANDARD	20
6.4	TEST SETUP	21
6.5	EUT OPERATING CONDITIONS	21
6.6	TEST RESULT	21
7	BAND EDGE MEASUREMENT	22
7.1	LIMIT	22
7.2	TEST PROCEDURE	22
7.3	DEVIATION FROM TEST STANDARD	22
7.4	TEST SETUP	22
7.5	TEST RESULT	22
8	PEAK TO AVERAGE RATIO MEASUREMENT	23
8.1	LIMIT	23
8.2	TEST PROCEDURE	23
8.3	DEVIATION FROM TEST STANDARD	23
8.4	TEST SETUP	23
8.5	TEST RESULT	23

9	FREQUENCY STABILITY MEASUREMENT	24
9.1	LIMIT	24
9.2	TEST PROCEDURE	24
9.3	DEVIATION FROM TEST STANDARD	24
9.4	TEST SETUP	24
9.5	TEST RESULT	24
10	LIST OF MEASURING EQUIPMENTS	25
11	EUT TEST PHOTO	26
12	EUT PHOTOS	26
APPENDIX A	CONDUCTED OUTPUT POWER AND EFFECTIVE RADIATED POWER	27
APPENDIX B	OCCUPIED BANDWIDTH	44
APPENDIX C	CONDUCTED SPURIOUS EMISSION	73
APPENDIX D	RADIATED SPURIOUS EMISSIONS	81
APPENDIX E	BAND EDGE	104
APPENDIX F	PEAK TO AVERAGE RATIO	115
APPENDIX G	FREQUENCY STABILITY	135

REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2405T120A	R00	Original Report.	2025/4/9	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	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	-----
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	-----

Statement of Conformity

The statement of conformity is based on the binary decision rule according to IEC Guide 115 and ILAC G8 "simple acceptance" principle. Without considering measurement uncertainty, its specific risk is less than 50% PFA. (PFA: Probability of False Accept)

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 REFERENCE TEST GUIDANCE

ANSI C63.26-2015

ANSI/TIA-603-E-2016

FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

1.2 TEST FACILITY

The test locations stated below are under the TAF Accreditation Number 0659.

The test location(s) used to collect the test data in this report are:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)

☐ C05 ☐ CB08 ☐ CB11 ☒ SR10 ☐ SR11

No. 72, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)

☐ C06 ☒ CB21 ☐ CB22

1.3 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 %**.

A. Effective Radiated Power and Radiated 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.

1.4 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
Conducted Output Power	23.3 °C, 51 %	AC 120V	Dolly Lin
Effective Radiated Power	Refer to data	AC 120V	Mark Wang
Occupied Bandwidth	23.3 °C, 51 %	AC 120V	Dolly Lin
Conducted Spurious Emissions	23.3 °C, 51 %	AC 120V	Dolly Lin
Radiated Spurious Emissions	Refer to data	AC 120V	Mark Wang
Band Edge	23.3 °C, 51 %	AC 120V	Dolly Lin
Peak to Average Ratio	23.3 °C, 51 %	AC 120V	Dolly Lin
Frequency Stability	Normal and Extreme		Dolly Lin

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	NMC LTE Card			
Model Name	NMC-R014TN, NMC-YYYYR014TNXXXXXXXXXXXXXXXXXXXX (Where “X” may be 0~9 or any alphanumeric character, “-” or Blank, Y only for A-Z marketing purpose.)			
Brand Name	Advantech			
Model Difference	Different model distribute to different area.			
Power Source	DC voltage supplied from host system.			
Power Rating	DC 12V			
Products Covered	1* LTE Module: Telit / LN920A12-WW			
IMEI No.	WCDMA Call Control Operating Mode Active Cell End Call Paging Parameters Handovers Clear UE Info 1 of 6 Call Setup Screen Active Cell Operating Mode UE Information UE Expected Open Loop Transmit Power Call Processing Status HSPA Information Active Cell Connected Call Params Cell Power Channel Type Paging Service HSPA Parameters 3G/2G Preset Call Control Channel (UMR/CR) Params 1 of 3 2025/01/08 11:52 Fundamental Measurement Output Main Connected Continuous Phone-2 Phone-1 LTE Parameter Fundamental UE Report Measuring UE Power : 22.1 dBm UE Report UE Report ME1 (UE) ME1 UE Category QCN Type ACC RSCP SCC-1 RSCP SCC-2 RSCP RSCP Neighbour Cell Cell ID RSCP RSCP W-CDMA/TD-SCDMA RAI Cell ID RSCP			

	LTE 26	1.4	QPSK	0.179
			16QAM	0.176
			64QAM	0.142
			256QAM	0.144
		3	QPSK	0.182
			16QAM	0.179
			64QAM	0.143
			256QAM	0.146
		5	QPSK	0.184
			16QAM	0.182
			64QAM	0.145
			256QAM	0.148
		10	QPSK	0.185
			16QAM	0.184
			64QAM	0.148
			256QAM	0.150
		15	QPSK	0.188
			16QAM	0.186
			64QAM	0.150
			256QAM	0.152
Test Model		NMC-R014TN		
Sample Status		Engineering Sample		
EUT Modification(s)		N/A		

NOTE:

- (1) The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
- (2) In this report, all the test results refer to BTL-FCCP-1-2405T119A report due to the device is identical to the referencing report and, after evaluated, no need to re-test.

(3) Channel List:

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

(4) Table for Filed Antenna:

Dipole Antenna:

Antenna	Manufacture	Part Number	Type	Connector	Gain (dBi)	Note
1	Cortec	AN0750-64S01BSM	Dipole	SMA Male	1.78	WCDMA Band V
					1.78	LTE Band 5
					1.78	LTE Band 26

Patch Type Antenna:

Antenna	Manufacture	Part Number	Type	Connector	Gain (dBi)	Note
1	Cortec	DR0727-9007BSM	PiFa	SMA Male	-2.94	WCDMA Band V
					-2.94	LTE Band 5
					-2.94	LTE Band 26
2	Cortec	DR0727-9007BSM	PiFa	SMA Male	-5.02	WCDMA Band V
					-5.02	LTE Band 5
					-5.02	LTE Band 26

- (5) The above Antenna information are derived from the antenna data sheet provided by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.2 TEST MODES

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, HSPA+
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	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/3RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/8RB/15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/12RB/25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/25RB/50RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM, 256QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM, 256QAM	15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM, 256QAM	25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM, 256QAM	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	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	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, 256QAM	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
Frequency Stability	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20415 to 20635	20525	3MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB

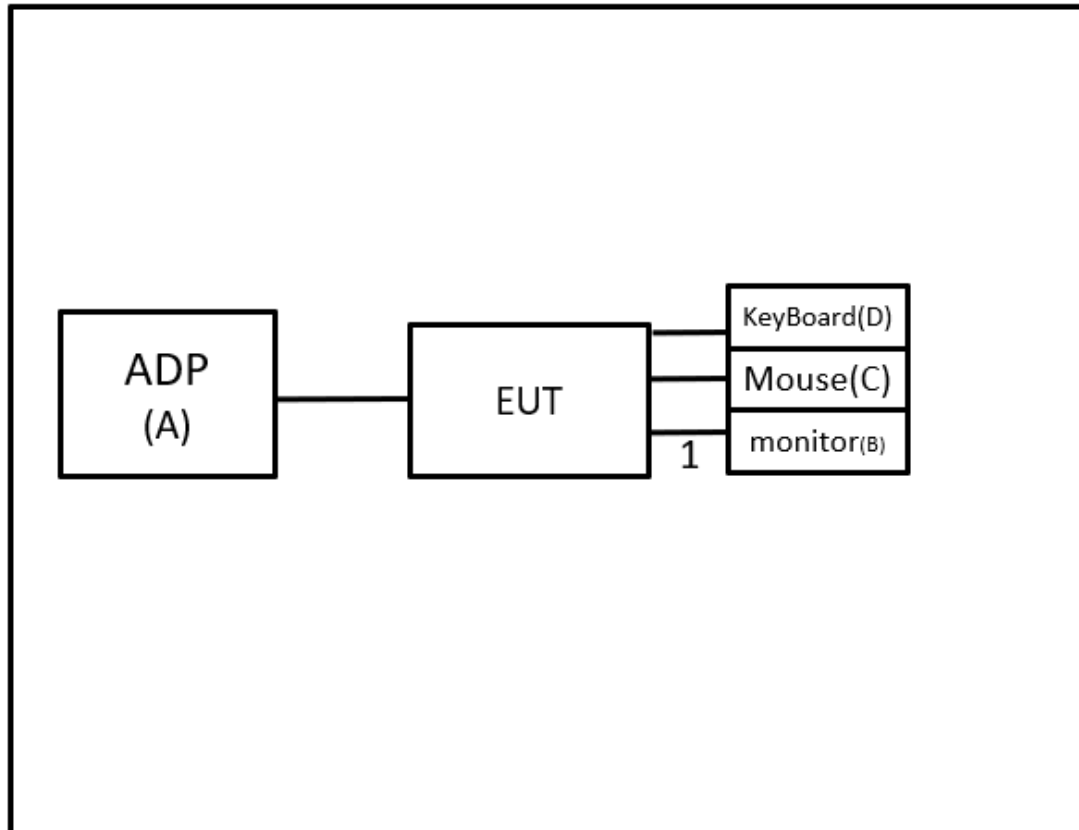
LTE BAND 26 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Output Power	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/3RB/6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/8RB/15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/12RB/25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/25RB/50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB/36RB/75RB
Occupied Bandwidth	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK, 16QAM, 64QAM, 256QAM	6RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM, 256QAM	15RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM, 256QAM	25RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM, 256QAM	50RB
	26865 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM, 256QAM	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	26815 to 27015	26865	1.4MHz	QPSK	1RB
	26815 to 27015	26865	5MHz	QPSK	1RB
	26865 to 26965	26865	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, 256QAM	1RB
	26805 to 27025	26805, 26915, 27025	3MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
	26815 to 27015	26815, 26915, 27015	5MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
	26840 to 26990	26840, 26915, 26990	10MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
	26915 to 26965	26865, 26915, 26965	15MHz	QPSK, 16QAM, 64QAM, 256QAM	1RB
Frequency Stability	26865 to 26965	26915	15MHz	QPSK	1RB

NOTE:

- (1) For Radiated Spurious Emissions both QPSK and 16QAM are evaluated, but only the worst case (QPSK) is recorded.

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	FSP GROUP INC	FSP150-AHAN3	N/A	Supplied by test requester.
B	Monitor	ACER	V227-Q	N/A	Furnished by test lab.
C	Mouse	Lenovo	SM-8823	N/A	Furnished by test lab.
D	Keyboard	Bloody	KB-8	N/A	Furnished by test lab.

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1m	VGA HD-15	Furnished by test lab.

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).

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 (dBm)		Correct Factor (dB)		Measurement Value (dBm)
-29.66	+	34.26	=	4.60

Measurement Value (dBm)		Limit Value (dBm)		Margin Level (dB)
4.60	-	38.45	=	-33.85

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.

Radiated Measurement:

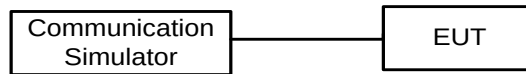
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 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
- EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- ERP can be calculated form EIRP by subtracting the gain of dipole, ERP = EIPR - 2.15dBi..
- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.3 DEVIATION FROM TEST STANDARD

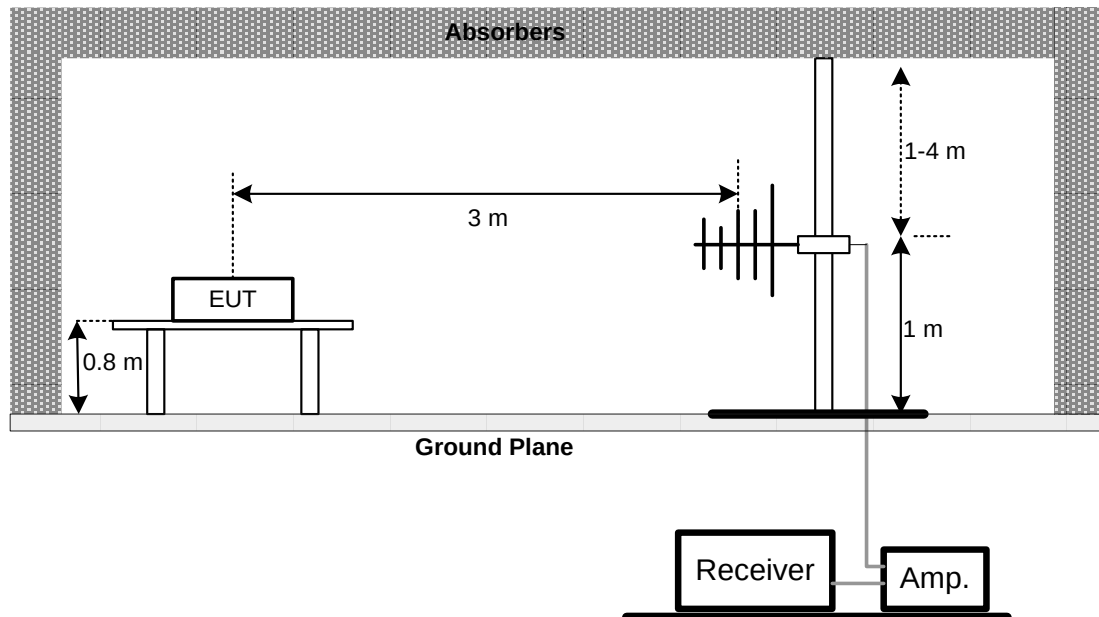
No deviation.

3.4 TEST SETUP

Conducted Measurement:



Radiated 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

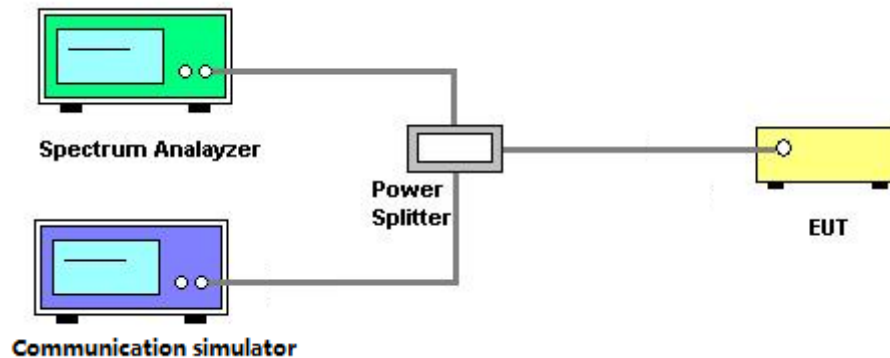
The testing follows FCC KDB 971168 v03r01 Section 4.

- 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.
- $RBW = (1\% \sim 5\%) \cdot EBW$
 $VBW \geq 3 \cdot RBW$.
- 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

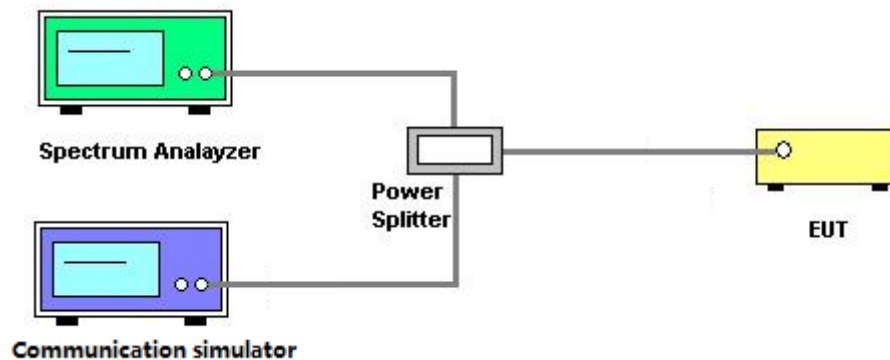
The testing follows FCC KDB 971168 v03r01 Section 6.

- 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>=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 MEASUREMENT

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 (dBm)		Correct Factor (dB)		Measurement Value (dBm)
-50.43	+	-2.11	=	-52.54

Measurement Value (dBm)		Limit Value (dBm)		Margin Level (dB)
-52.54	-	-13	=	-39.54

6.2 TEST PROCEDURE

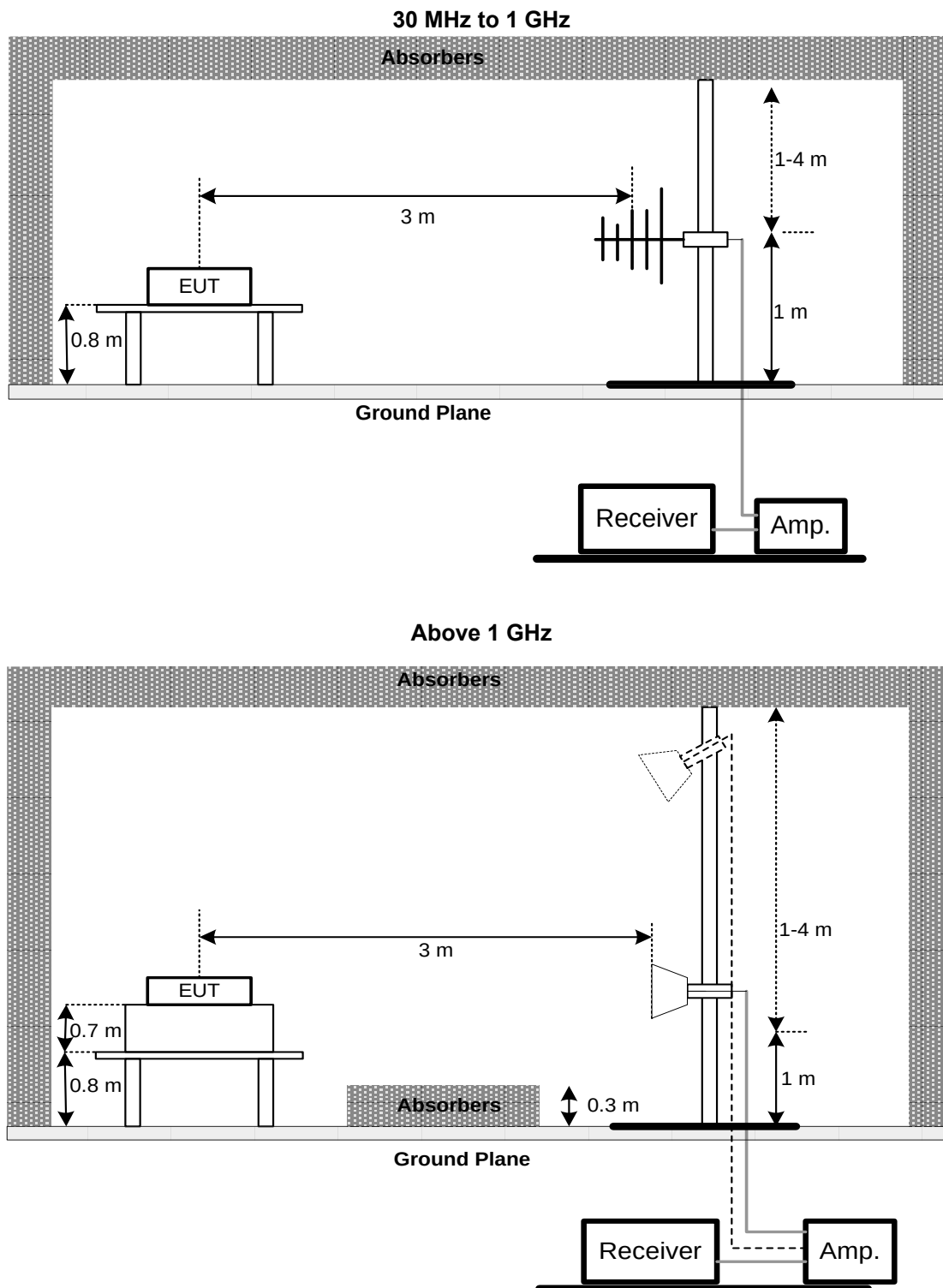
The testing follows FCC KDB 971168 v03r01 Section 6.2.

- Substitution method is used for E.I.R.P measurement. 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.
- 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
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$
- ERP can be calculated form EIRP by subtracting the gain of dipole, $ERP = EIPR - 2.15\text{dBi.}$
- 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

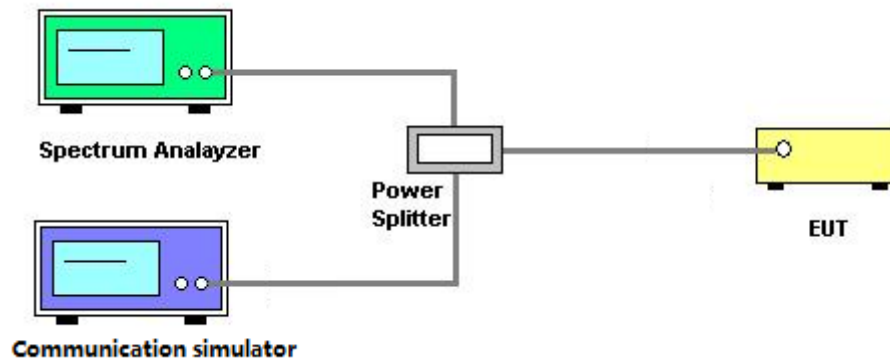
The testing follows FCC KDB 971168 v03r01 Section 6.

- All measurements were done at low and high operational frequency range.
- 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

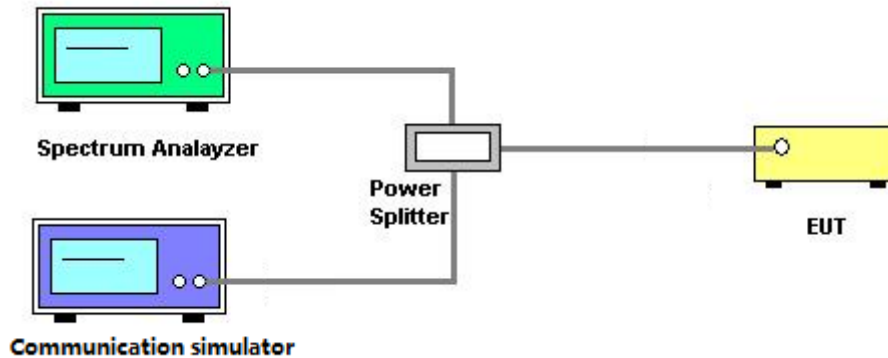
The testing follows FCC KDB 971168 v03r01 Section 5.7.

- 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

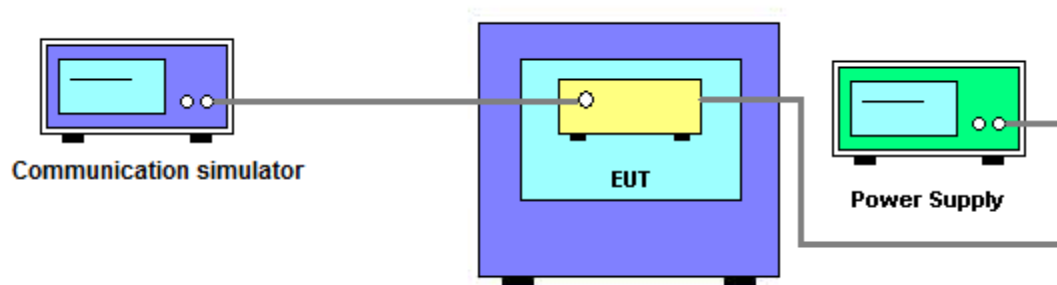
The testing follows FCC KDB 971168 v03r01 Section 9.

- 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

Effective Radiated Power and Radiated Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC330N	980850	2024/9/5	2025/9/4
2	Preamplifier	EMCI	EMC118A45SE	980819	2024/3/6	2025/3/5
3	Preamplifier	EMCI	EMC118A45SE	980819	2025/3/5	2026/3/4
4	Pre-Amplifier	EMCI	EMC184045SE	980907	2024/9/4	2025/9/3
5	Preamplifier	EMCI	EMC001340	980579	2024/9/4	2025/9/3
6	Test Cable	EMCI	EMC104-SM-1000	180809	2024/3/8	2025/3/7
7	Test Cable	EMCI	EMC104-SM-SM-3000	220322	2024/3/8	2025/3/7
8	Test Cable	EMCI	EMC104-SM-SM-7000	220324	2024/3/8	2025/3/7
9	EXA Signal Analyzer	keysight	N9020B	MY57120120	2024/2/23	2025/2/22
10	EXA Signal Analyzer	keysight	N9020B	MY57120120	2025/2/19	2026/2/18
11	Loop Ant	Electro-Metrics	EMCI-LPA600	291	2024/9/9	2025/9/8
12	Horn Antenna	RFSPIN	DRH18-E	211202A18EN	2024/5/9	2025/5/8
13	Horn Ant	Schwarzbeck	BBHA 9170D	1136	2024/5/17	2025/5/16
14	Log-bicon Antenna	Schwarzbeck	VULB9168	1369	2024/6/14	2025/6/13
15	6dB Attenuator	EMCI	EMCI-N-6-06	AT-06001	2024/6/14	2025/6/13
16	Test Cable	EMCI	EMC101G-KM-KM-3000	220329	2024/3/13	2025/3/12
17	Test Cable	EMCI	EMC102-KM-KM-1000	220327	2024/3/13	2025/3/12
18	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A
19	Radio Communication Test Station	ANRITSU	MT8821C	6262044728	2024/11/19	2025/11/18

Conducted Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSV7	103032	2024/8/7	2025/8/6
2	EXA Spectrum Analyzer	Keysight	N9010A	MY56480489	2025/1/2	2026/1/1
3	Thermal Chamber	HOLINK	H-TH-2SP-B	EK04101902	2024/6/28	2025/6/27
4	WIRELESS COMMUNICATION TEST SET	Agilent	E5515C	GB47390193	2024/7/7	2025/7/6
5	Radio Communication Analyzer	ANRITSU	MT8820C	6201168846	2024/8/20	2025/8/19

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-2405T120A-FCCP-1 (APPENDIX-TEST PHOTOS).

12 EUT PHOTOS

Please refer to document Appendix No.: EP-2405T120A-1 (APPENDIX-EUT PHOTOS).

APPENDIX A CONDUCTED OUTPUT POWER AND EFFECTIVE RADIATED POWER

Conducted Output Power and calculated ERP:

WCDMA Band V Power:

Band	Mode	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	ERP Power (dBm)	ERP Power (W)
WCDMA Band V	Rel 99	4132/4357	826.4	23.05	22.68	0.185
		4183/4408	836.6	23.04	22.67	0.185
		4233/4458	846.6	23.12	22.75	0.188

Band	Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	ERP Power (dBm)	ERP Power (W)
HSDPA V	1	4132/4357	826.4	22.21	21.84	0.153
		4183/4408	836.6	22.24	21.87	0.154
		4233/4458	846.6	22.23	21.86	0.153
	2	4132/4357	826.4	22.14	21.77	0.150
		4183/4408	836.6	22.11	21.74	0.149
		4233/4458	846.6	22.15	21.78	0.151
	3	4132/4357	826.4	21.67	21.30	0.135
		4183/4408	836.6	21.62	21.25	0.133
		4233/4458	846.6	21.76	21.39	0.138
	4	4132/4357	826.4	21.60	21.23	0.133
		4183/4408	836.6	21.55	21.18	0.131
		4233/4458	846.6	21.69	21.32	0.136

Band	Sub-test	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	ERP Power (dBm)	ERP Power (W)
HSUPA V	1	4132/4357	826.4	22.17	21.80	0.151
		4183/4408	836.6	22.15	21.78	0.151
		4233/4458	846.6	22.18	21.81	0.152
	2	4132/4357	826.4	20.19	19.82	0.096
		4183/4408	836.6	20.20	19.83	0.096
		4233/4458	846.6	20.15	19.78	0.095
	3	4132/4357	826.4	21.24	20.87	0.122
		4183/4408	836.6	21.19	20.82	0.121
		4233/4458	846.6	21.22	20.85	0.122
	4	4132/4357	826.4	20.20	19.83	0.096
		4183/4408	836.6	20.15	19.78	0.095
		4233/4458	846.6	20.25	19.88	0.097
	5	4132/4357	826.4	22.34	21.97	0.157
		4183/4408	836.6	22.21	21.84	0.153
		4233/4458	846.6	22.28	21.91	0.155

LTE Band 5 Power:

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
5	1.4	20407	824.7	QPSK	1	0	0	22.88	22.51	0.178
					1	2	0	22.77	22.40	0.174
					1	5	0	22.79	22.42	0.175
					6	0	1	21.99	21.62	0.145
				16QAM	1	0	1	22.73	22.36	0.172
					1	2	1	22.63	22.26	0.168
					1	5	1	22.69	22.32	0.171
					6	0	2	22.07	21.70	0.148
				64QAM	1	0	2	22.03	21.66	0.147
					1	2	2	22.04	21.67	0.147
					1	5	2	22.06	21.69	0.148
					6	0	3	21.00	20.63	0.116
				256QAM	1	0	4	21.92	21.55	0.143
					1	2	4	21.86	21.49	0.141
					1	5	4	21.96	21.59	0.144
					6	0	5	21.04	20.67	0.117
		20525	836.5	QPSK	1	0	0	22.93	22.56	0.180
					1	2	0	22.80	22.43	0.175
					1	5	0	22.91	22.54	0.179
					6	0	1	21.84	21.47	0.140
				16QAM	1	0	1	22.83	22.46	0.176
					1	2	1	22.88	22.51	0.178
					1	5	1	22.87	22.50	0.178
					6	0	2	21.91	21.54	0.143
				64QAM	1	0	2	21.90	21.53	0.142
					1	2	2	22.03	21.66	0.147
					1	5	2	22.01	21.64	0.146
					6	0	3	21.00	20.63	0.116
				256QAM	1	0	4	22.11	21.74	0.149
					1	2	4	22.19	21.82	0.152
					1	5	4	22.11	21.74	0.149
					6	0	5	21.04	20.67	0.117
		20643	848.3	QPSK	1	0	0	22.96	22.59	0.182
					1	2	0	22.82	22.45	0.176
					1	5	0	22.96	22.59	0.182
					6	0	1	22.02	21.65	0.146
				16QAM	1	0	1	22.85	22.48	0.177
					1	2	1	22.85	22.48	0.177
					1	5	1	22.92	22.55	0.180
					6	0	2	22.06	21.69	0.148
				64QAM	1	0	2	22.10	21.73	0.149
					1	2	2	22.06	21.69	0.148
					1	5	2	21.99	21.62	0.145
					6	0	3	21.04	20.67	0.117
				256QAM	1	0	4	21.96	21.59	0.144
					1	2	4	22.00	21.63	0.146
					1	5	4	22.10	21.73	0.149
					6	0	5	21.03	20.66	0.116

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
5	3	20415	825.5	QPSK	1	0	0	22.95	22.58	0.181
					1	8	0	22.84	22.47	0.177
					1	14	0	22.86	22.49	0.177
					15	0	1	22.06	21.69	0.148
				16QAM	1	0	1	22.81	22.44	0.175
					1	8	1	22.70	22.33	0.171
					1	14	1	22.74	22.37	0.173
					15	0	2	22.11	21.74	0.149
				64QAM	1	0	2	22.10	21.73	0.149
					1	8	2	22.11	21.74	0.149
					1	14	2	22.10	21.73	0.149
					15	0	3	21.01	20.64	0.116
				256QAM	1	0	4	21.97	21.60	0.145
					1	8	4	21.92	21.55	0.143
					1	14	4	22.01	21.64	0.146
					15	0	5	21.06	20.69	0.117
		20525	836.5	QPSK	1	0	0	22.97	22.60	0.182
					1	8	0	22.86	22.49	0.177
					1	14	0	22.95	22.58	0.181
					15	0	1	21.92	21.55	0.143
				16QAM	1	0	1	22.89	22.52	0.179
					1	8	1	22.94	22.57	0.181
					1	14	1	22.94	22.57	0.181
					15	0	2	21.98	21.61	0.145
				64QAM	1	0	2	21.95	21.58	0.144
					1	8	2	22.10	21.73	0.149
					1	14	2	22.09	21.72	0.149
					15	0	3	21.03	20.66	0.116
				256QAM	1	0	4	22.15	21.78	0.151
					1	8	4	22.24	21.87	0.154
					1	14	4	22.15	21.78	0.151
					15	0	5	21.06	20.69	0.117
		20635	847.5	QPSK	1	0	0	23.01	22.64	0.184
					1	8	0	22.89	22.52	0.179
					1	14	0	23.02	22.65	0.184
					15	0	1	22.08	21.71	0.148
				16QAM	1	0	1	22.92	22.55	0.180
					1	8	1	22.91	22.54	0.179
					1	14	1	22.97	22.60	0.182
					15	0	2	22.11	21.74	0.149
				64QAM	1	0	2	22.18	21.81	0.152
					1	8	2	22.13	21.76	0.150
					1	14	2	22.06	21.69	0.148
					15	0	3	21.06	20.69	0.117
				256QAM	1	0	4	22.02	21.65	0.146
					1	8	4	22.06	21.69	0.148
					1	14	4	22.18	21.81	0.152
					15	0	5	21.08	20.71	0.118

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
5	5	20425	826.5	QPSK	1	0	0	23.03	22.66	0.185
					1	12	0	22.91	22.54	0.179
					1	24	0	22.93	22.56	0.180
					25	0	1	22.10	21.73	0.149
				16QAM	1	0	1	22.86	22.49	0.177
					1	12	1	22.78	22.41	0.174
					1	24	1	22.82	22.45	0.176
					25	0	2	22.16	21.79	0.151
				64QAM	1	0	2	22.14	21.77	0.150
					1	12	2	22.17	21.80	0.151
					1	24	2	22.17	21.80	0.151
					25	0	3	21.08	20.71	0.118
				256QAM	1	0	4	22.04	21.67	0.147
					1	12	4	21.98	21.61	0.145
					1	24	4	22.07	21.70	0.148
					25	0	5	21.08	20.71	0.118
		20525	836.5	QPSK	1	0	0	23.04	22.67	0.185
					1	12	0	22.94	22.57	0.181
					1	24	0	23.01	22.64	0.184
					25	0	1	22.00	21.63	0.146
				16QAM	1	0	1	22.95	22.58	0.181
					1	12	1	22.99	22.62	0.183
					1	24	1	23.00	22.63	0.183
					25	0	2	22.05	21.68	0.147
				64QAM	1	0	2	22.03	21.66	0.147
					1	12	2	22.17	21.80	0.151
					1	24	2	22.15	21.78	0.151
					25	0	3	21.04	20.67	0.117
				256QAM	1	0	4	22.19	21.82	0.152
					1	12	4	22.31	21.94	0.156
					1	24	4	22.22	21.85	0.153
					25	0	5	21.12	20.75	0.119
		20625	846.5	QPSK	1	0	0	23.07	22.70	0.186
					1	12	0	22.97	22.60	0.182
					1	24	0	23.06	22.69	0.186
					25	0	1	22.13	21.76	0.150
				16QAM	1	0	1	23.00	22.63	0.183
					1	12	1	22.98	22.61	0.182
					1	24	1	23.02	22.65	0.184
					25	0	2	22.15	21.78	0.151
				64QAM	1	0	2	22.26	21.89	0.155
					1	12	2	22.21	21.84	0.153
					1	24	2	22.13	21.76	0.150
					25	0	3	21.07	20.70	0.117
				256QAM	1	0	4	22.09	21.72	0.149
					1	12	4	22.12	21.75	0.150
					1	24	4	22.23	21.86	0.153
					25	0	5	21.15	20.78	0.120

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
5	10	20450	829.0	QPSK	1	0	0	23.07	22.70	0.186
					1	24	0	22.96	22.59	0.182
					1	49	0	22.97	22.60	0.182
					50	0	1	22.17	21.80	0.151
				16QAM	1	0	1	22.93	22.56	0.180
					1	24	1	22.83	22.46	0.176
					1	49	1	22.88	22.51	0.178
					50	0	2	22.23	21.86	0.153
				64QAM	1	0	2	22.19	21.82	0.152
					1	24	2	22.22	21.85	0.153
					1	49	2	22.25	21.88	0.154
					50	0	3	21.13	20.76	0.119
				256QAM	1	0	4	22.08	21.71	0.148
					1	24	4	22.04	21.67	0.147
					1	49	4	22.14	21.77	0.150
					50	0	5	21.15	20.78	0.120
		20525	836.5	QPSK	1	0	0	23.09	22.72	0.187
					1	24	0	23.01	22.64	0.184
					1	49	0	23.06	22.69	0.186
					50	0	1	22.07	21.70	0.148
				16QAM	1	0	1	23.02	22.65	0.184
					1	24	1	23.04	22.67	0.185
					1	49	1	23.07	22.70	0.186
					50	0	2	22.10	21.73	0.149
				64QAM	1	0	2	22.09	21.72	0.149
					1	24	2	22.23	21.86	0.153
					1	49	2	22.22	21.85	0.153
					50	0	3	21.11	20.74	0.119
				256QAM	1	0	4	22.25	21.88	0.154
					1	24	4	22.35	21.98	0.158
					1	49	4	22.28	21.91	0.155
					50	0	5	21.16	20.79	0.120
		20600	844.0	QPSK	1	0	0	23.13	22.76	0.189
					1	24	0	23.04	22.67	0.185
					1	49	0	23.10	22.73	0.187
					50	0	1	22.21	21.84	0.153
				16QAM	1	0	1	23.05	22.68	0.185
					1	24	1	23.02	22.65	0.184
					1	49	1	23.07	22.70	0.186
					50	0	2	22.19	21.82	0.152
				64QAM	1	0	2	22.33	21.96	0.157
					1	24	2	22.27	21.90	0.155
					1	49	2	22.20	21.83	0.152
					50	0	3	21.13	20.76	0.119
				256QAM	1	0	4	22.13	21.76	0.150
					1	24	4	22.17	21.80	0.151
					1	49	4	22.28	21.91	0.155
					50	0	5	21.19	20.82	0.121

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

LTE Band 26 Power:

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
26	1.4	26797	824.7	QPSK	1	0	0	22.68	22.31	0.170
					1	2	0	21.82	21.45	0.140
					1	5	0	22.76	22.39	0.173
					6	0	1	21.77	21.40	0.138
				16QAM	1	0	1	22.78	22.41	0.174
					1	2	1	22.70	22.33	0.171
					1	5	1	22.71	22.34	0.171
					6	0	2	21.77	21.40	0.138
				64QAM	1	0	2	21.76	21.39	0.138
					1	2	2	21.81	21.44	0.139
					1	5	2	21.88	21.51	0.142
					6	0	3	21.26	20.89	0.123
				256QAM	1	0	4	21.81	21.44	0.139
					1	2	4	21.89	21.52	0.142
					1	5	4	21.83	21.46	0.140
					6	0	5	21.06	20.69	0.117
		26915	836.5	QPSK	1	0	0	22.83	22.46	0.176
					1	2	0	22.70	22.33	0.171
					1	5	0	22.83	22.46	0.176
					6	0	1	21.66	21.29	0.135
				16QAM	1	0	1	22.68	22.31	0.170
					1	2	1	22.80	22.43	0.175
					1	5	1	22.71	22.34	0.171
					6	0	2	21.74	21.37	0.137
				64QAM	1	0	2	21.70	21.33	0.136
					1	2	2	21.82	21.45	0.140
					1	5	2	21.84	21.47	0.140
					6	0	3	21.04	20.67	0.117
				256QAM	1	0	4	21.94	21.57	0.144
					1	2	4	21.84	21.47	0.140
					1	5	4	21.95	21.58	0.144
					6	0	5	21.03	20.66	0.116
		27033	848.3	QPSK	1	0	0	22.72	22.35	0.172
					1	2	0	22.73	22.36	0.172
					1	5	0	22.91	22.54	0.179
					6	0	1	21.77	21.40	0.138
				16QAM	1	0	1	22.82	22.45	0.176
					1	2	1	22.78	22.41	0.174
					1	5	1	22.78	22.41	0.174
					6	0	2	21.90	21.53	0.142
				64QAM	1	0	2	21.73	21.36	0.137
					1	2	2	21.80	21.43	0.139
					1	5	2	21.74	21.37	0.137
					6	0	3	21.03	20.66	0.116
				256QAM	1	0	4	21.77	21.40	0.138
					1	2	4	21.94	21.57	0.144
					1	5	4	21.88	21.51	0.142
					6	0	5	21.00	20.63	0.116

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
26	3	26805	825.5	QPSK	1	0	0	22.75	22.38	0.173
					1	8	0	21.89	21.52	0.142
					1	14	0	22.83	22.46	0.176
					15	0	1	21.84	21.47	0.140
				16QAM	1	0	1	22.86	22.49	0.177
					1	8	1	22.77	22.40	0.174
					1	14	1	22.76	22.39	0.173
					15	0	2	21.81	21.44	0.139
				64QAM	1	0	2	21.83	21.46	0.140
					1	8	2	21.88	21.51	0.142
					1	14	2	21.92	21.55	0.143
					15	0	3	21.31	20.94	0.124
				256QAM	1	0	4	21.86	21.49	0.141
					1	8	4	21.95	21.58	0.144
					1	14	4	21.88	21.51	0.142
					15	0	5	21.08	20.71	0.118
		26915	836.5	QPSK	1	0	0	22.87	22.50	0.178
					1	8	0	22.76	22.39	0.173
					1	14	0	22.87	22.50	0.178
					15	0	1	21.74	21.37	0.137
				16QAM	1	0	1	22.74	22.37	0.173
					1	8	1	22.86	22.49	0.177
					1	14	1	22.78	22.41	0.174
					15	0	2	21.81	21.44	0.139
				64QAM	1	0	2	21.75	21.38	0.137
					1	8	2	21.89	21.52	0.142
					1	14	2	21.92	21.55	0.143
					15	0	3	21.06	20.69	0.117
				256QAM	1	0	4	21.98	21.61	0.145
					1	8	4	21.89	21.52	0.142
					1	14	4	21.99	21.62	0.145
					15	0	5	21.05	20.68	0.117
		27025	847.5	QPSK	1	0	0	22.77	22.40	0.174
					1	8	0	22.80	22.43	0.175
					1	14	0	22.97	22.60	0.182
					15	0	1	21.83	21.46	0.140
				16QAM	1	0	1	22.89	22.52	0.179
					1	8	1	22.84	22.47	0.177
					1	14	1	22.83	22.46	0.176
					15	0	2	21.95	21.58	0.144
				64QAM	1	0	2	21.81	21.44	0.139
					1	8	2	21.87	21.50	0.141
					1	14	2	21.81	21.44	0.139
					15	0	3	21.04	20.67	0.117
				256QAM	1	0	4	21.83	21.46	0.140
					1	8	4	22.00	21.63	0.146
					1	14	4	21.96	21.59	0.144
					15	0	5	21.05	20.68	0.117

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
26	5	26815	826.5	QPSK	1	0	0	22.83	22.46	0.176
					1	12	0	21.96	21.59	0.144
					1	24	0	22.90	22.53	0.179
					25	0	1	21.88	21.51	0.142
				16QAM	1	0	1	22.91	22.54	0.179
					1	12	1	22.85	22.48	0.177
					1	24	1	22.84	22.47	0.177
					25	0	2	21.86	21.49	0.141
				64QAM	1	0	2	21.87	21.50	0.141
					1	12	2	21.94	21.57	0.144
					1	24	2	21.99	21.62	0.145
					25	0	3	21.38	21.01	0.126
				256QAM	1	0	4	21.93	21.56	0.143
					1	12	4	22.01	21.64	0.146
					1	24	4	21.94	21.57	0.144
					25	0	5	21.09	20.72	0.118
		26915	836.5	QPSK	1	0	0	22.94	22.57	0.181
					1	12	0	22.84	22.47	0.177
					1	24	0	22.93	22.56	0.180
					25	0	1	21.82	21.45	0.140
				16QAM	1	0	1	22.80	22.43	0.175
					1	12	1	22.91	22.54	0.179
					1	24	1	22.84	22.47	0.177
					25	0	2	21.88	21.51	0.142
				64QAM	1	0	2	21.83	21.46	0.140
					1	12	2	21.96	21.59	0.144
					1	24	2	21.98	21.61	0.145
					25	0	3	21.07	20.70	0.117
				256QAM	1	0	4	22.02	21.65	0.146
					1	12	4	21.96	21.59	0.144
					1	24	4	22.06	21.69	0.148
					25	0	5	21.08	20.71	0.118
		27015	846.5	QPSK	1	0	0	22.83	22.46	0.176
					1	12	0	22.88	22.51	0.178
					1	24	0	23.01	22.64	0.184
					25	0	1	21.88	21.51	0.142
				16QAM	1	0	1	22.97	22.60	0.182
					1	12	1	22.91	22.54	0.179
					1	24	1	22.88	22.51	0.178
					25	0	2	21.99	21.62	0.145
				64QAM	1	0	2	21.89	21.52	0.142
					1	12	2	21.95	21.58	0.144
					1	24	2	21.88	21.51	0.142
					25	0	3	21.06	20.69	0.117
				256QAM	1	0	4	21.90	21.53	0.142
					1	12	4	22.06	21.69	0.148
					1	24	4	22.01	21.64	0.146
					25	0	5	21.07	20.70	0.117

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
26	10	26840	829.0	QPSK	1	0	0	22.87	22.50	0.178
					1	24	0	22.01	21.64	0.146
					1	49	0	22.94	22.57	0.181
					50	0	1	21.95	21.58	0.144
				16QAM	1	0	1	22.98	22.61	0.182
					1	24	1	22.90	22.53	0.179
					1	49	1	22.90	22.53	0.179
					50	0	2	21.93	21.56	0.143
				64QAM	1	0	2	21.92	21.55	0.143
					1	24	2	21.99	21.62	0.145
					1	49	2	22.07	21.70	0.148
					50	0	3	21.43	21.06	0.128
				256QAM	1	0	4	21.97	21.60	0.145
					1	24	4	22.07	21.70	0.148
					1	49	4	22.01	21.64	0.146
					50	0	5	21.10	20.73	0.118
		26915	836.5	QPSK	1	0	0	22.99	22.62	0.183
					1	24	0	22.91	22.54	0.179
					1	49	0	22.98	22.61	0.182
					50	0	1	21.89	21.52	0.142
				16QAM	1	0	1	22.87	22.50	0.178
					1	24	1	22.96	22.59	0.182
					1	49	1	22.91	22.54	0.179
					50	0	2	21.93	21.56	0.143
				64QAM	1	0	2	21.89	21.52	0.142
					1	24	2	22.02	21.65	0.146
					1	49	2	22.05	21.68	0.147
					50	0	3	21.09	20.72	0.118
				256QAM	1	0	4	22.08	21.71	0.148
					1	24	4	22.00	21.63	0.146
					1	49	4	22.12	21.75	0.150
					50	0	5	21.09	20.72	0.118
		26990	844.0	QPSK	1	0	0	22.89	22.52	0.179
					1	24	0	22.95	22.58	0.181
					1	49	0	23.05	22.68	0.185
					50	0	1	21.96	21.59	0.144
				16QAM	1	0	1	23.02	22.65	0.184
					1	24	1	22.95	22.58	0.181
					1	49	1	22.93	22.56	0.180
					50	0	2	22.03	21.66	0.147
				64QAM	1	0	2	21.96	21.59	0.144
					1	24	2	22.01	21.64	0.146
					1	49	2	21.95	21.58	0.144
					50	0	3	21.12	20.75	0.119
				256QAM	1	0	4	21.94	21.57	0.144
					1	24	4	22.11	21.74	0.149
					1	49	4	22.06	21.69	0.148
					50	0	5	21.08	20.71	0.118

NOTE:

(1) EIRP = Average power + Antenna gain.

(2) ERP = EIRP - 2.15.

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

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	ERP power (dBm)	ERP power (W)
26	15	26865	831.5	QPSK	1	0	0	22.95	22.58	0.181
					1	38	0	22.07	21.70	0.148
					1	74	0	23.01	22.64	0.184
					75	0	1	22.03	21.66	0.147
				16QAM	1	0	1	23.04	22.67	0.185
					1	38	1	22.98	22.61	0.182
					1	74	1	22.95	22.58	0.181
					75	0	2	21.97	21.60	0.145
				64QAM	1	0	2	21.98	21.61	0.145
					1	38	2	22.05	21.68	0.147
					1	74	2	22.11	21.74	0.149
					75	0	3	21.50	21.13	0.130
				256QAM	1	0	4	22.02	21.65	0.146
					1	38	4	22.14	21.77	0.150
					1	74	4	22.09	21.72	0.149
					75	0	5	21.16	20.79	0.120
		26915	836.5	QPSK	1	0	0	23.05	22.68	0.185
					1	38	0	22.98	22.61	0.182
					1	74	0	23.02	22.65	0.184
					75	0	1	21.95	21.58	0.144
				16QAM	1	0	1	22.94	22.57	0.181
					1	38	1	23.04	22.67	0.185
					1	74	1	22.96	22.59	0.182
					75	0	2	21.98	21.61	0.145
				64QAM	1	0	2	21.95	21.58	0.144
					1	38	2	22.07	21.70	0.148
					1	74	2	22.12	21.75	0.150
					75	0	3	21.16	20.79	0.120
				256QAM	1	0	4	22.12	21.75	0.150
					1	38	4	22.04	21.67	0.147
					1	74	4	22.18	21.81	0.152
					75	0	5	21.13	20.76	0.119
		26965	841.5	QPSK	1	0	0	22.95	22.58	0.181
					1	38	0	23.03	22.66	0.185
					1	74	0	23.12	22.75	0.188
					75	0	1	22.00	21.63	0.146
				16QAM	1	0	1	23.06	22.69	0.186
					1	38	1	23.00	22.63	0.183
					1	74	1	22.99	22.62	0.183
					75	0	2	22.08	21.71	0.148
				64QAM	1	0	2	22.04	21.67	0.147
					1	38	2	22.06	21.69	0.148
					1	74	2	22.01	21.64	0.146
					75	0	3	21.18	20.81	0.121
				256QAM	1	0	4	22.02	21.65	0.146
					1	38	4	22.15	21.78	0.151
					1	74	4	22.11	21.74	0.149
					75	0	5	21.12	20.75	0.119

NOTE:

(1) EIRP = Average power + Antenna gain.

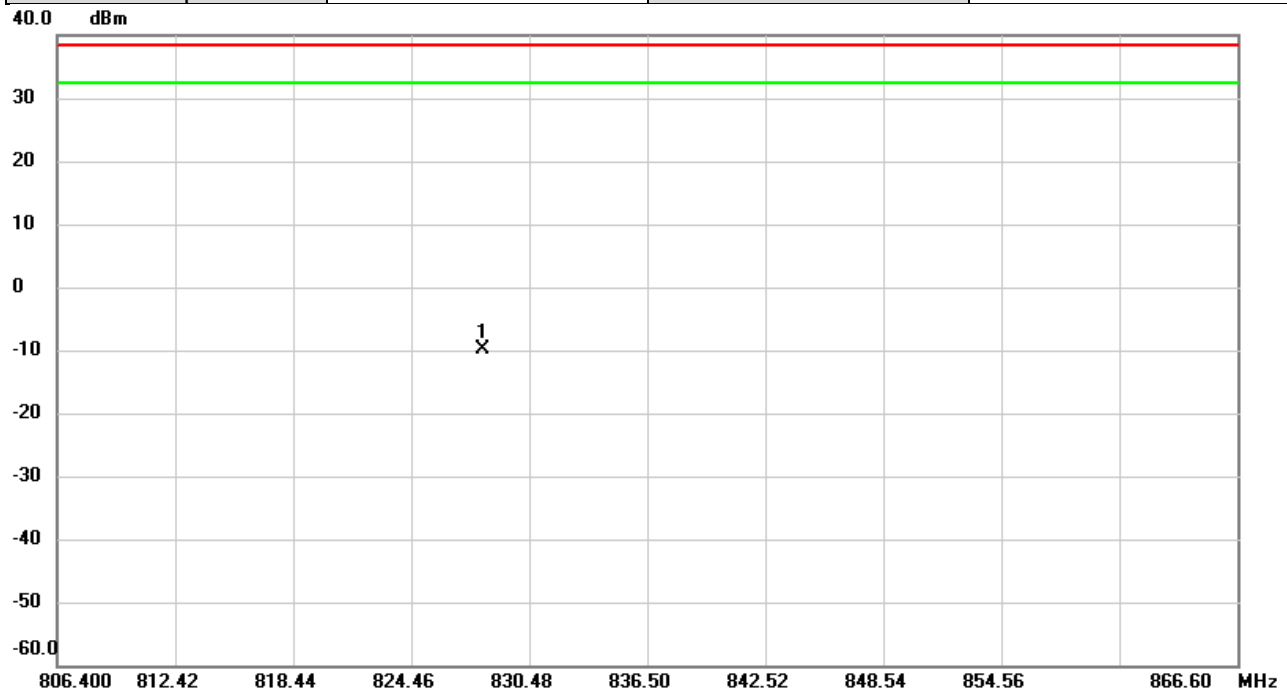
(2) ERP = EIRP - 2.15.

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

Radiated ERP Power:

Patch Type Antenna:

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4132	Polarization	Vertical
Temp	25°C	Hum.	61%

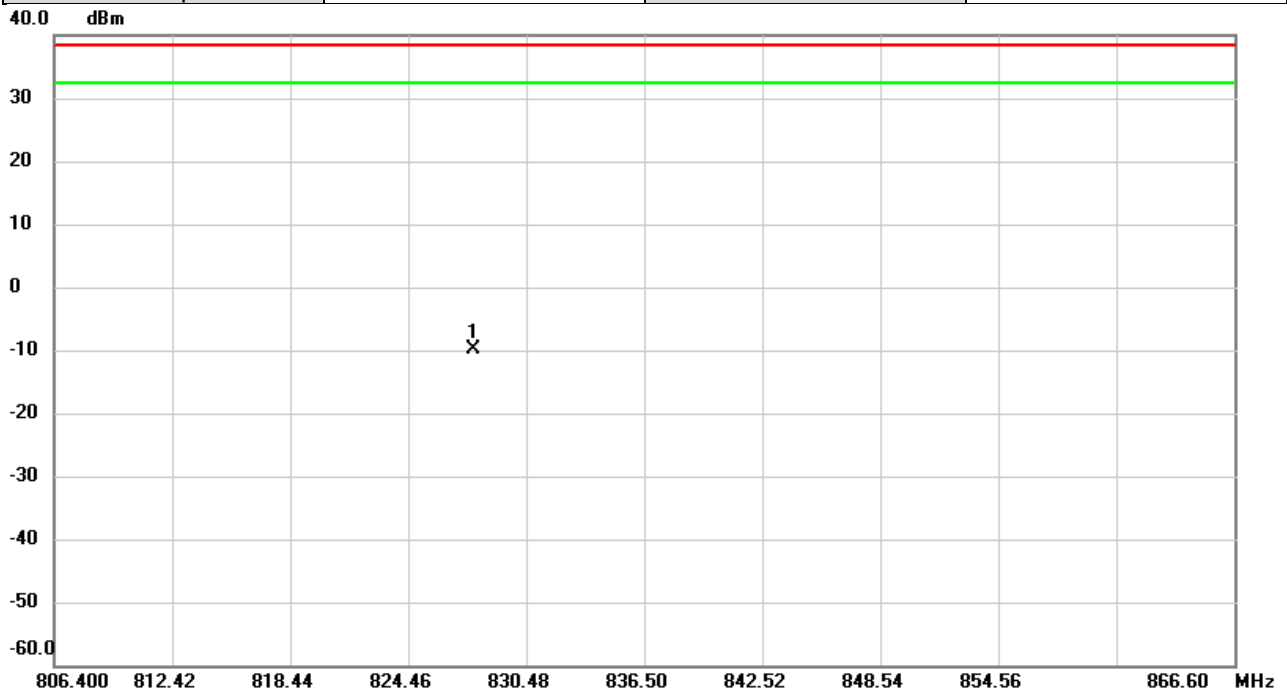


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	828.0860	-14.34	4.54	-9.80	38.45	-48.25	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4132	Polarization	Horizontal
Temp	25°C	Hum.	61%

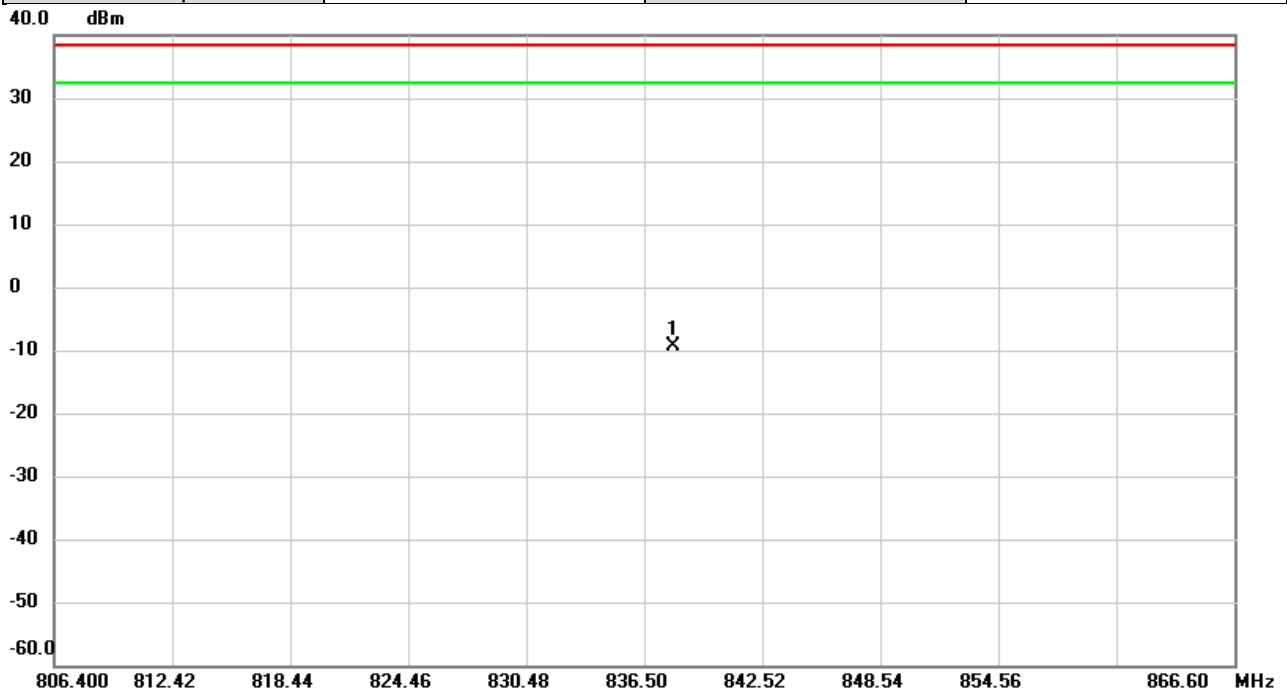


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	827.8131	-14.03	4.08	-9.95	38.45	-48.40	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4183	Polarization	Vertical
Temp	25°C	Hum.	61%

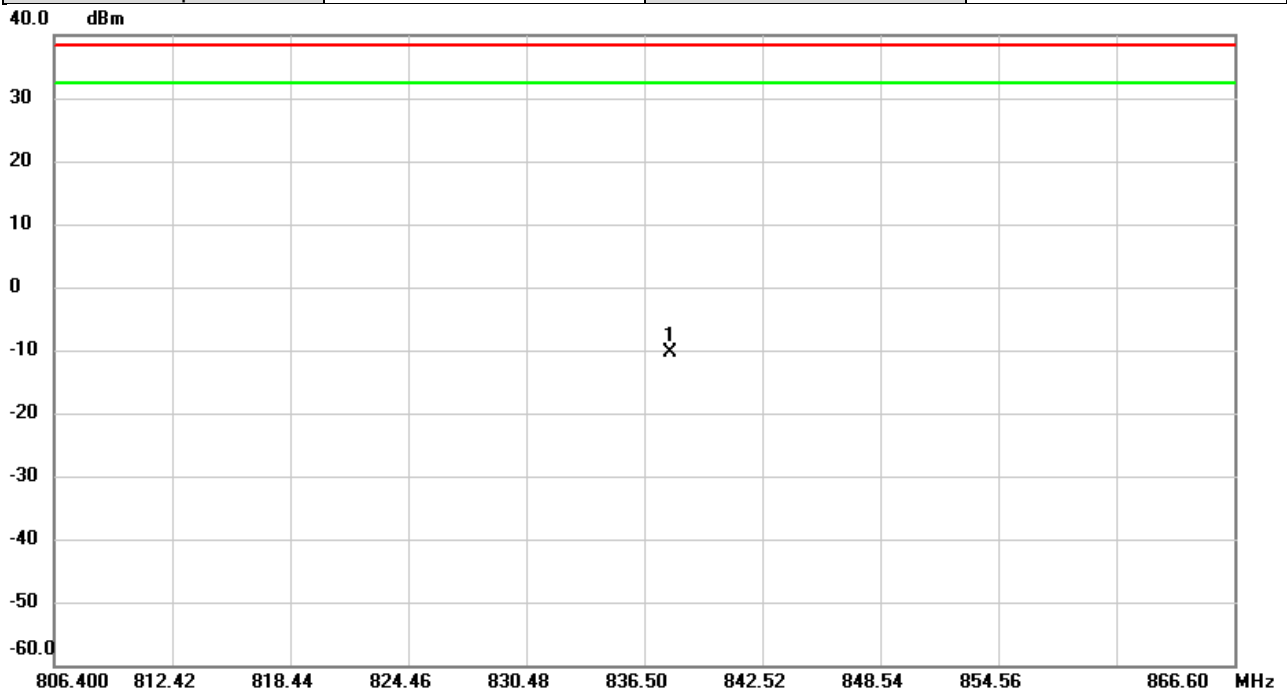


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	838.0030	-14.22	4.79	-9.43	38.45	-47.88	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4183	Polarization	Horizontal
Temp	25°C	Hum.	61%

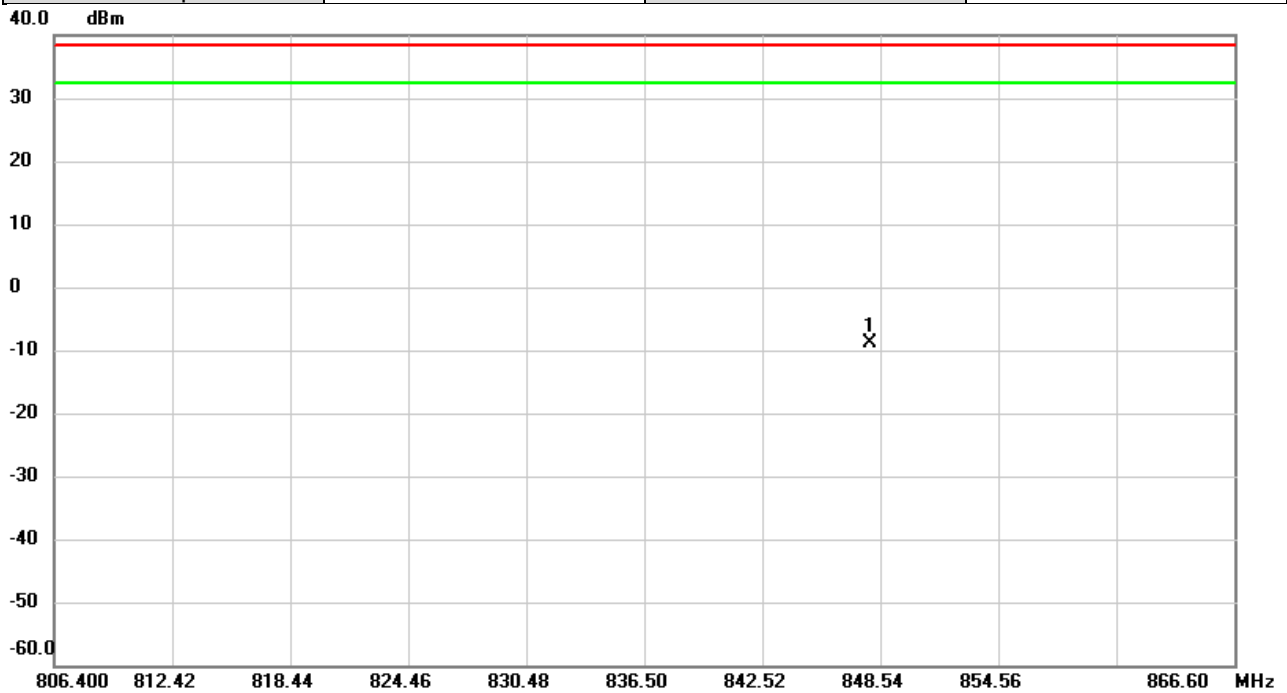


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	837.8124	-14.49	4.10	-10.39	38.45	-48.84	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4233	Polarization	Vertical
Temp	25°C	Hum.	61%

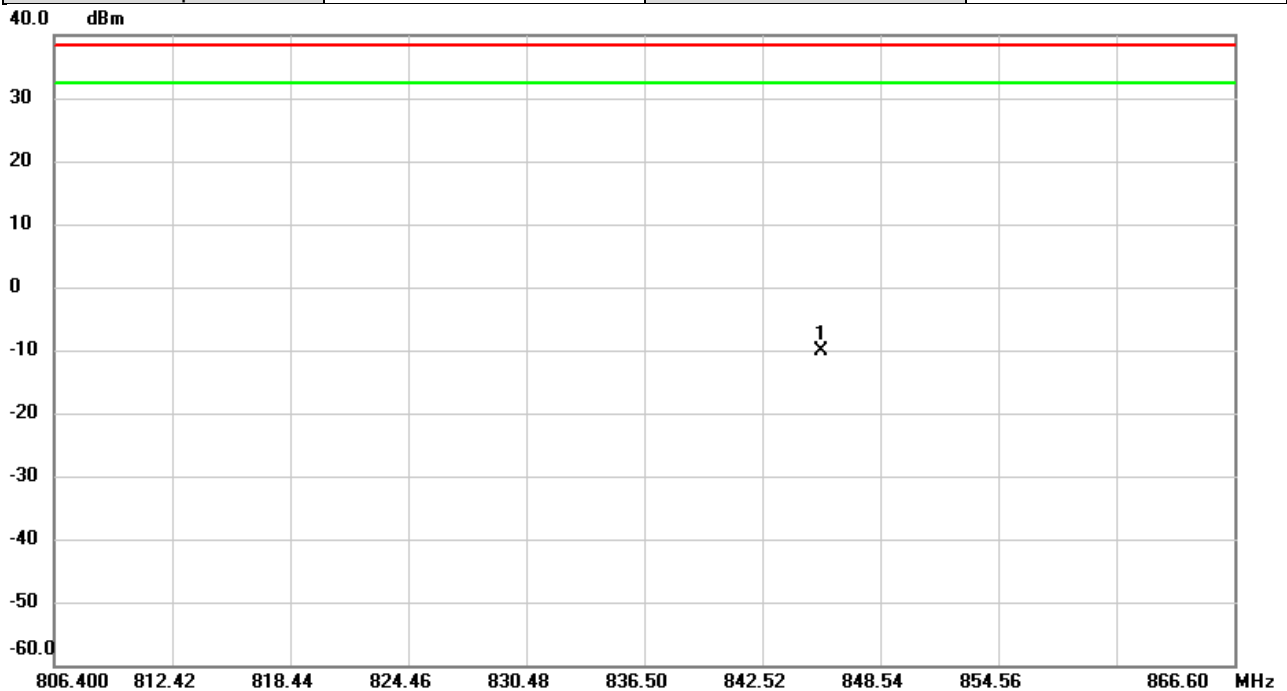


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	848.0263	-13.92	5.04	-8.88	38.45	-47.33	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2025/1/21
Test Channel	CH4233	Polarization	Horizontal
Temp	25°C	Hum.	61%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	845.4920	-14.13	4.11	-10.02	38.45	-48.47	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B OCCUPIED BANDWIDTH

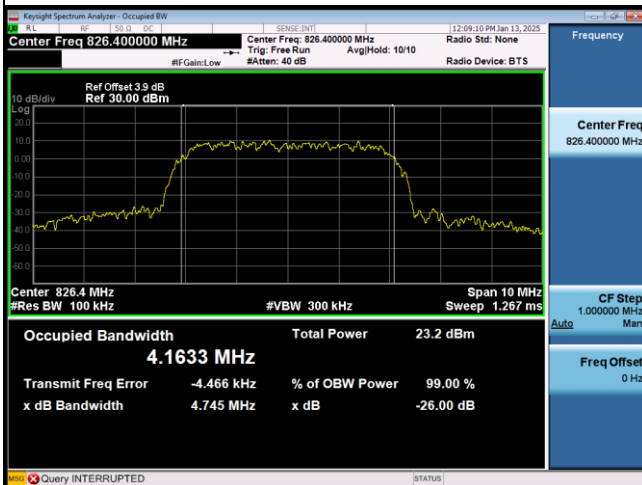
WCDMA Band V_WCDMA

QPSK

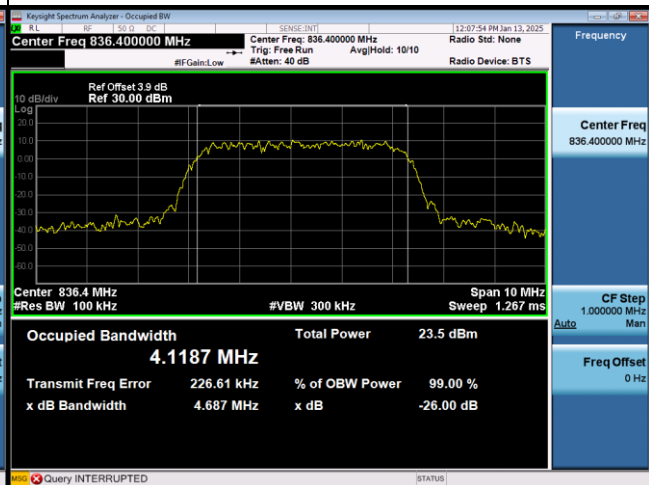
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
4132	826.4	4.1633	4132	826.4	4.745
4183	836.6	4.1187	4183	836.3	4.687
4233	846.6	4.1579	4233	846.6	4.694

Spectrum Plot

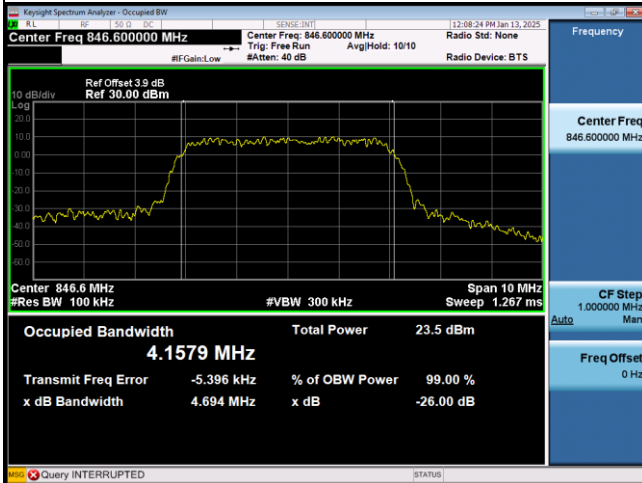
4132



4183



4233

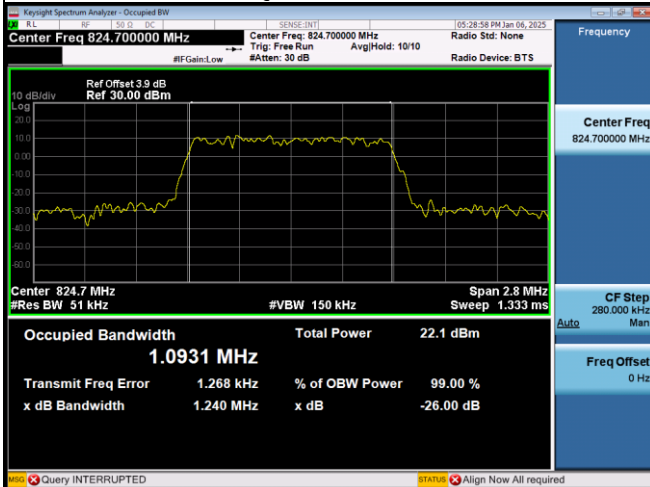


-

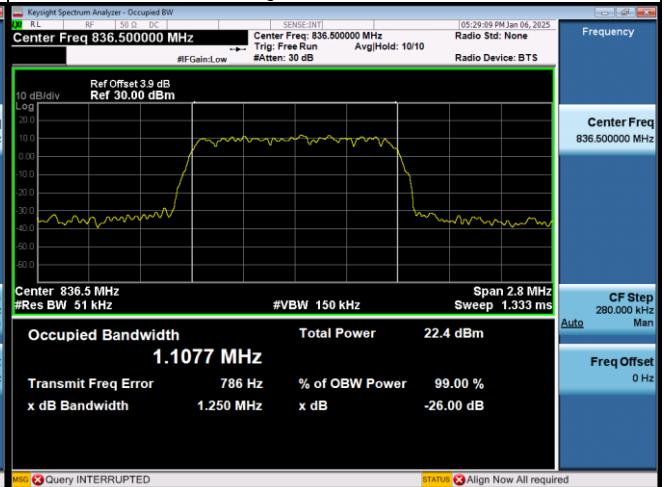
LTE Band 5_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0931	20407	824.7	1.240
20525	836.5	1.1077	20525	836.5	1.250
20643	848.3	1.0997	20643	848.3	1.201
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.1045	20407	824.7	1.245
20525	836.5	1.1062	20525	836.5	1.233
20643	848.3	1.1054	20643	848.3	1.228
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0929	20407	824.7	1.228
20525	836.5	1.1140	20525	836.5	1.211
20643	848.3	1.0979	20643	848.3	1.220
256QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0981	20407	824.7	1.237
20525	836.5	1.0951	20525	836.5	1.208
20643	848.3	1.0928	20643	848.3	1.228

Spectrum Plot

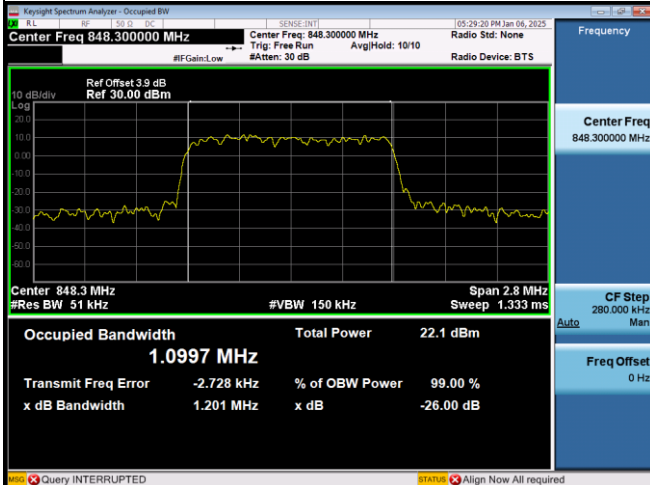
QPSK-20407



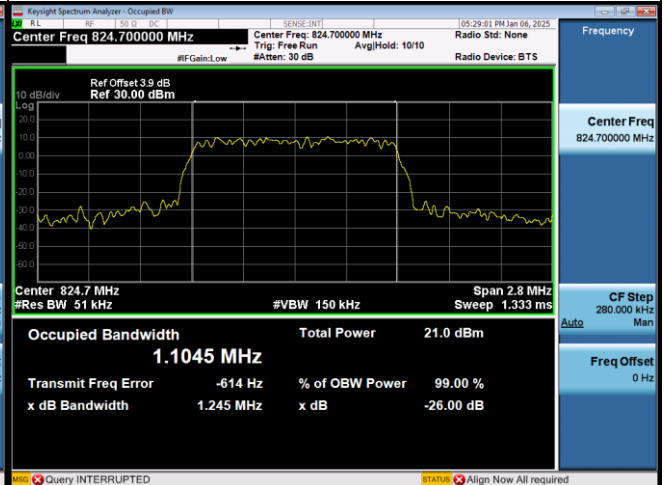
QPSK-20525



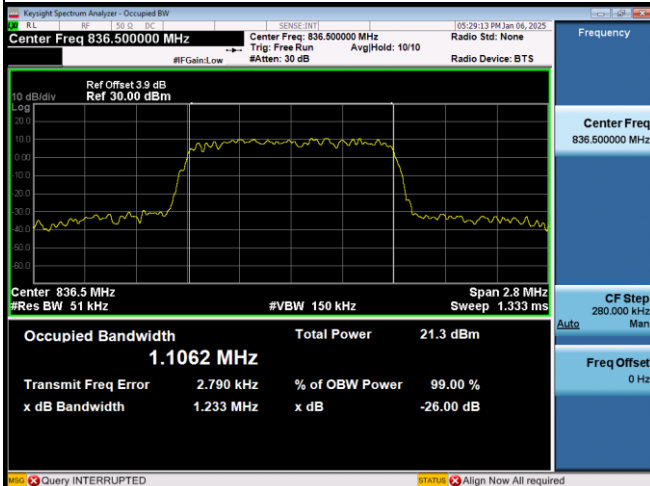
QPSK-20643



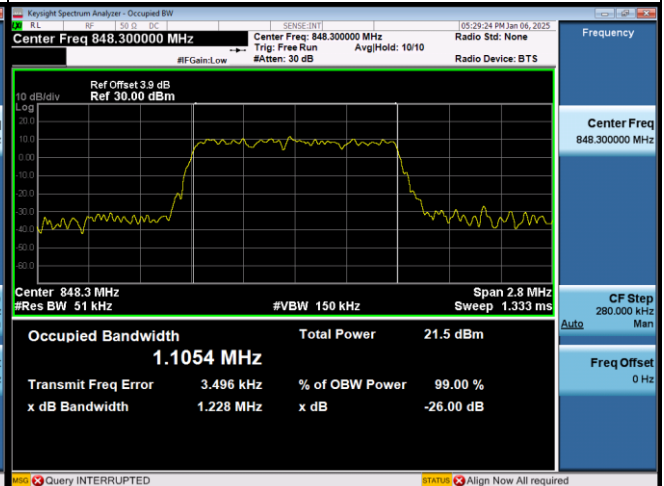
16QAM-20407

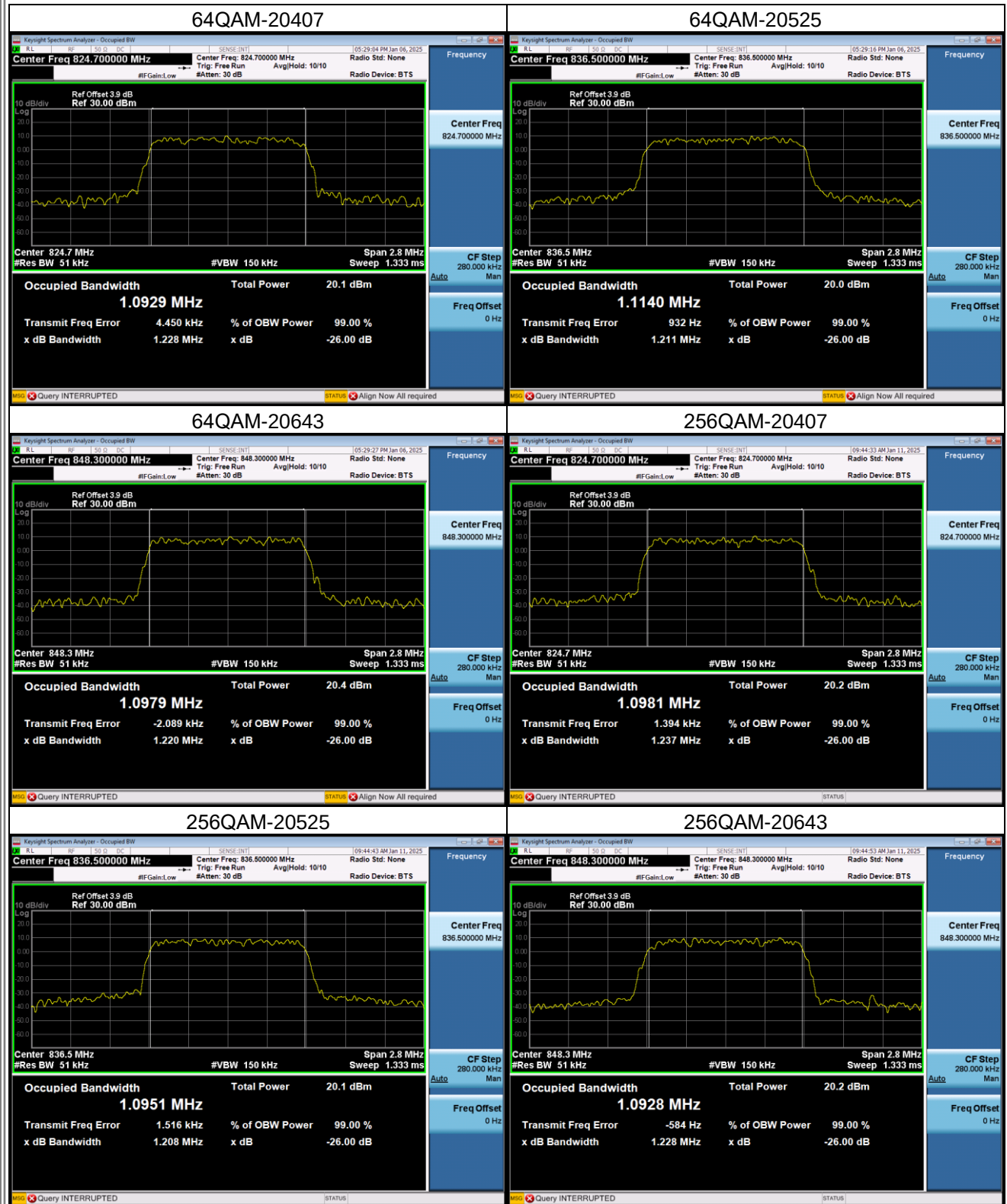


16QAM-20525



16QAM-20643

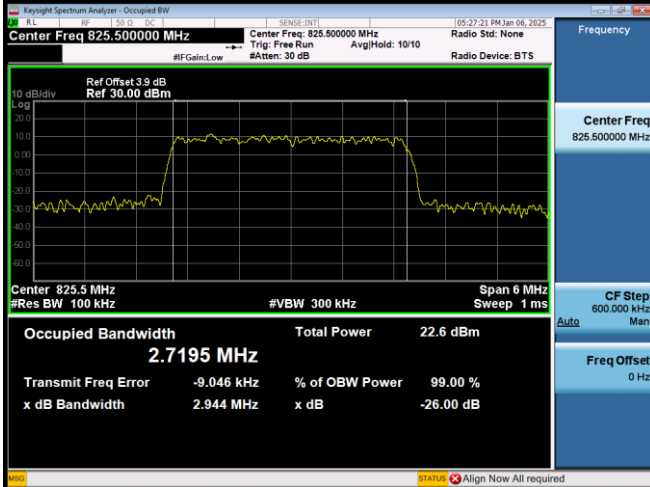




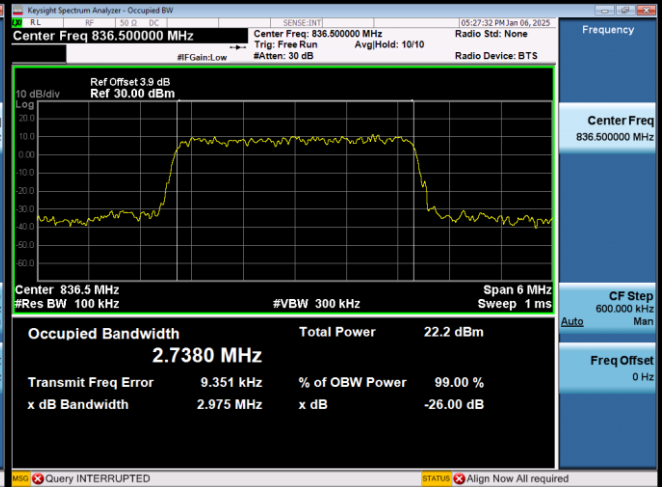
LTE Band 5_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7195	20415	825.5	2.944
20525	836.5	2.7380	20525	836.5	2.975
20635	847.5	2.7216	20635	847.5	2.974
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7259	20415	825.5	3.018
20525	836.5	2.7300	20525	836.5	2.938
20635	847.5	2.7338	20635	847.5	2.947
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7226	20415	825.5	2.924
20525	836.5	2.7114	20525	836.5	2.936
20635	847.5	2.6813	20635	847.5	2.926
256QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7084	20415	825.5	2.925
20525	836.5	2.7202	20525	836.5	2.940
20635	847.5	2.7211	20635	847.5	2.939

Spectrum Plot

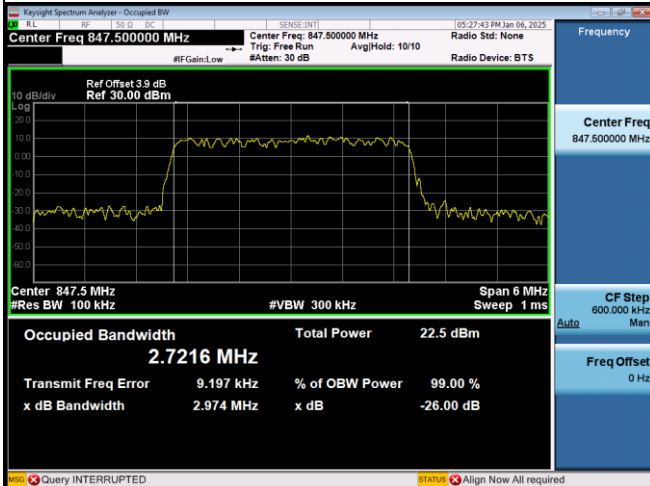
QPSK-20415



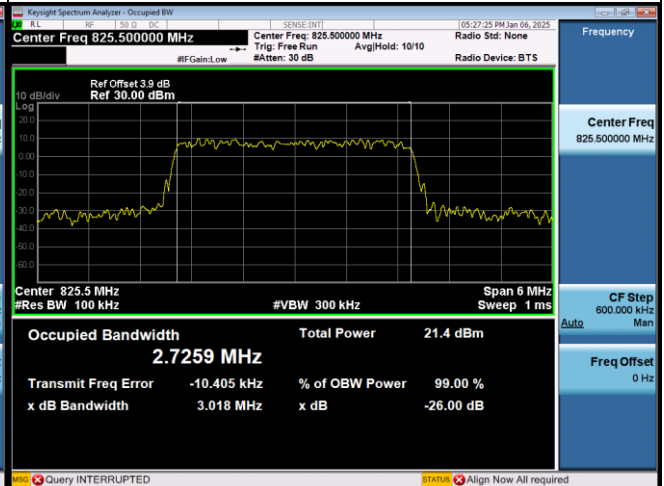
QPSK-20525



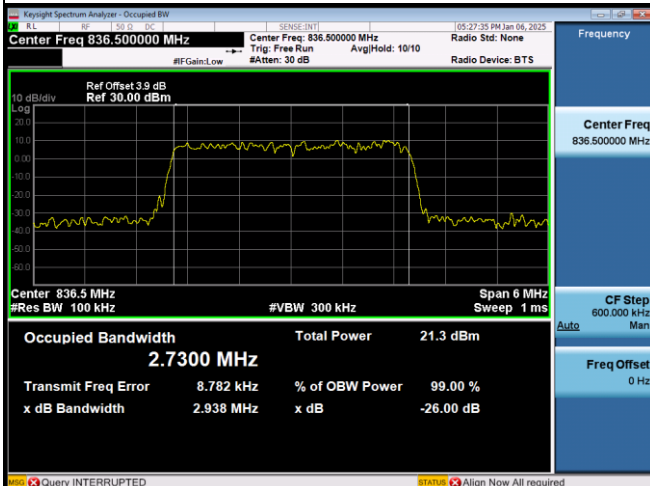
QPSK-20635



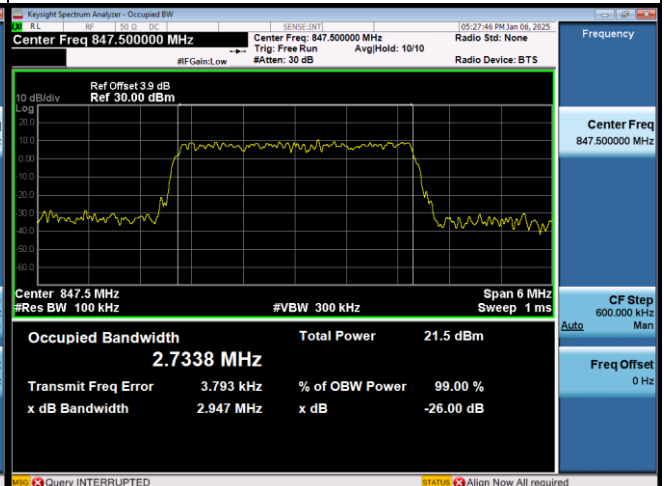
16QAM-20415

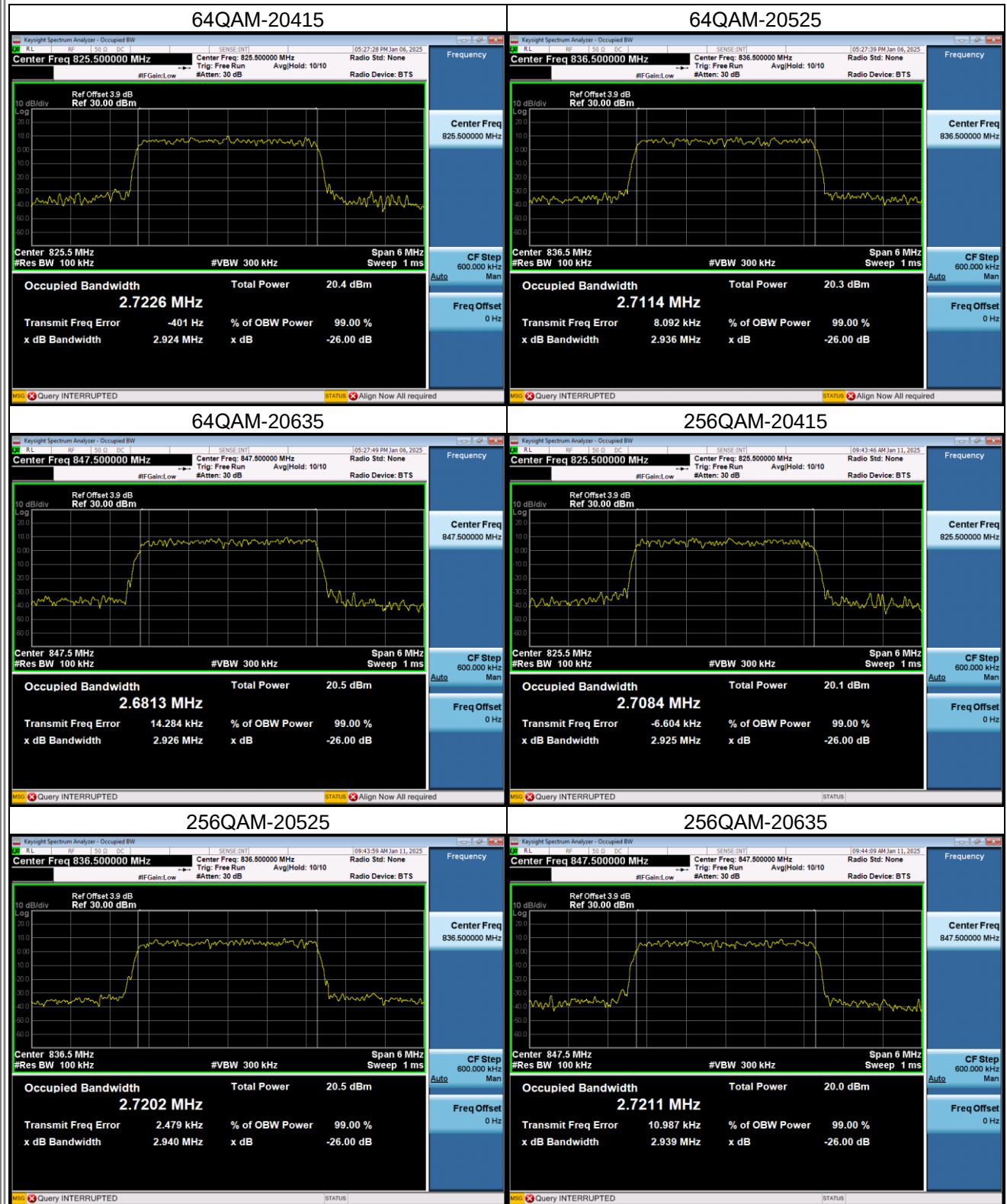


16QAM-20525



16QAM-20635

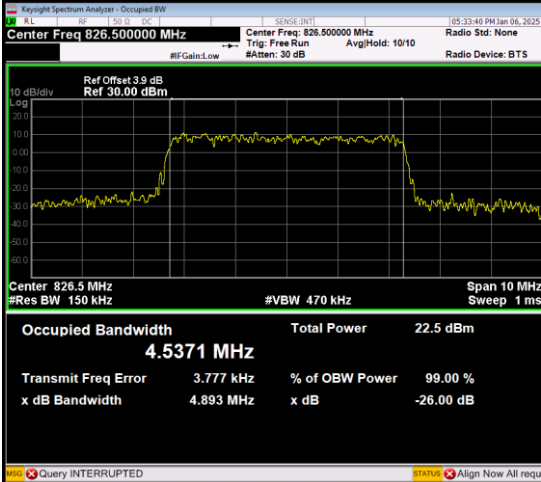




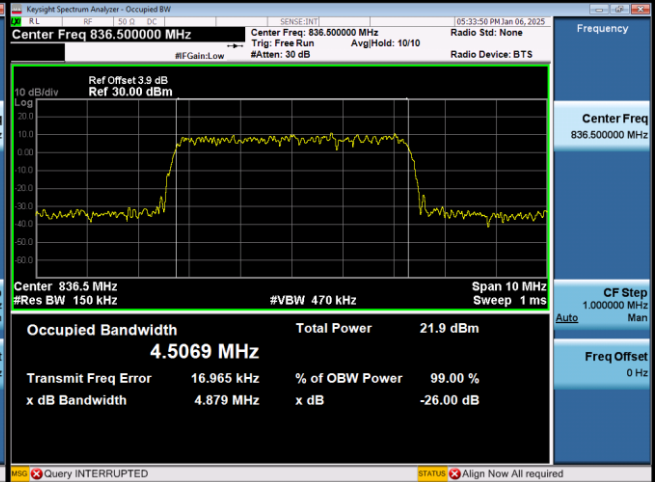
LTE Band 5_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5371	20425	826.5	4.893
20525	836.5	4.5069	20525	836.5	4.879
20625	846.5	4.5378	20625	846.5	4.857
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5020	20425	826.5	4.838
20525	836.5	4.5262	20525	836.5	4.835
20625	846.5	4.4971	20625	846.5	4.817
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5268	20425	826.5	4.913
20525	836.5	4.5059	20525	836.5	4.839
20625	846.5	4.5378	20625	846.5	4.828
256QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5037	20425	826.5	4.832
20525	836.5	4.4777	20525	836.5	4.834
20625	846.5	4.5305	20625	846.5	4.872

Spectrum Plot

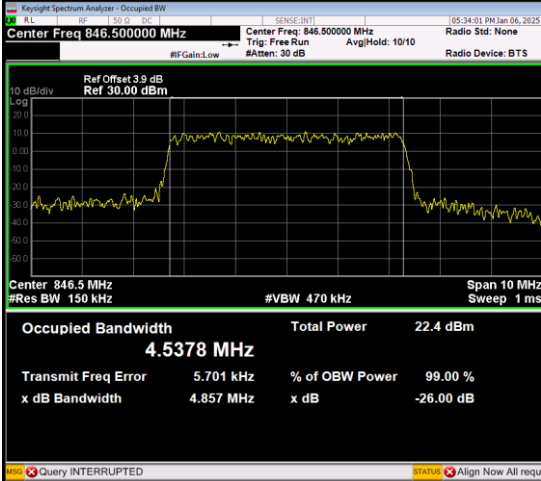
QPSK-20425



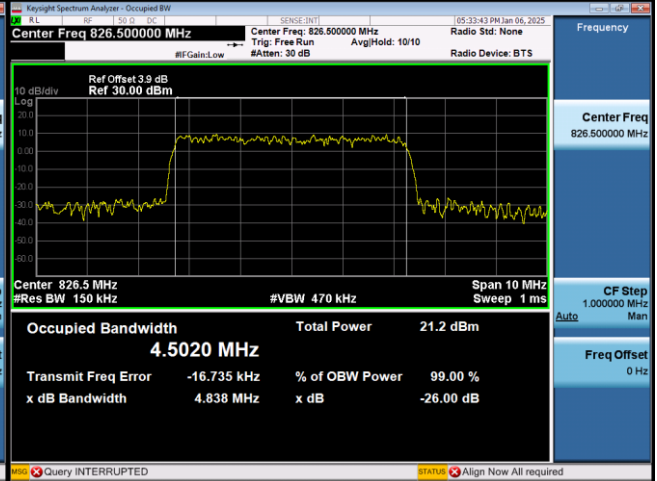
QPSK-20525



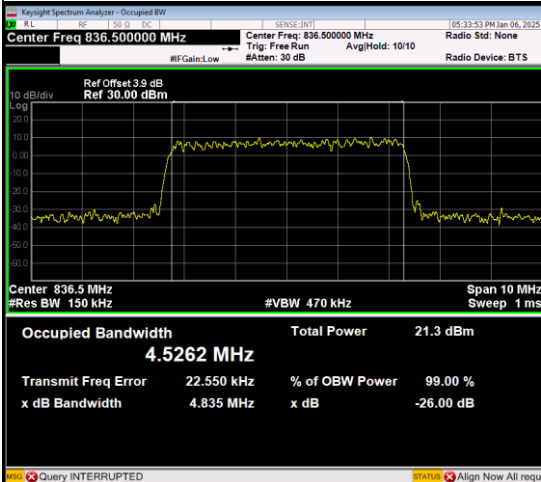
QPSK-20625



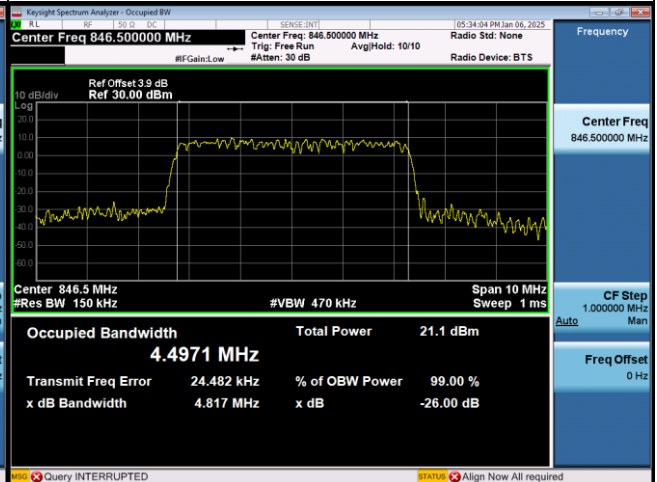
16QAM-20425

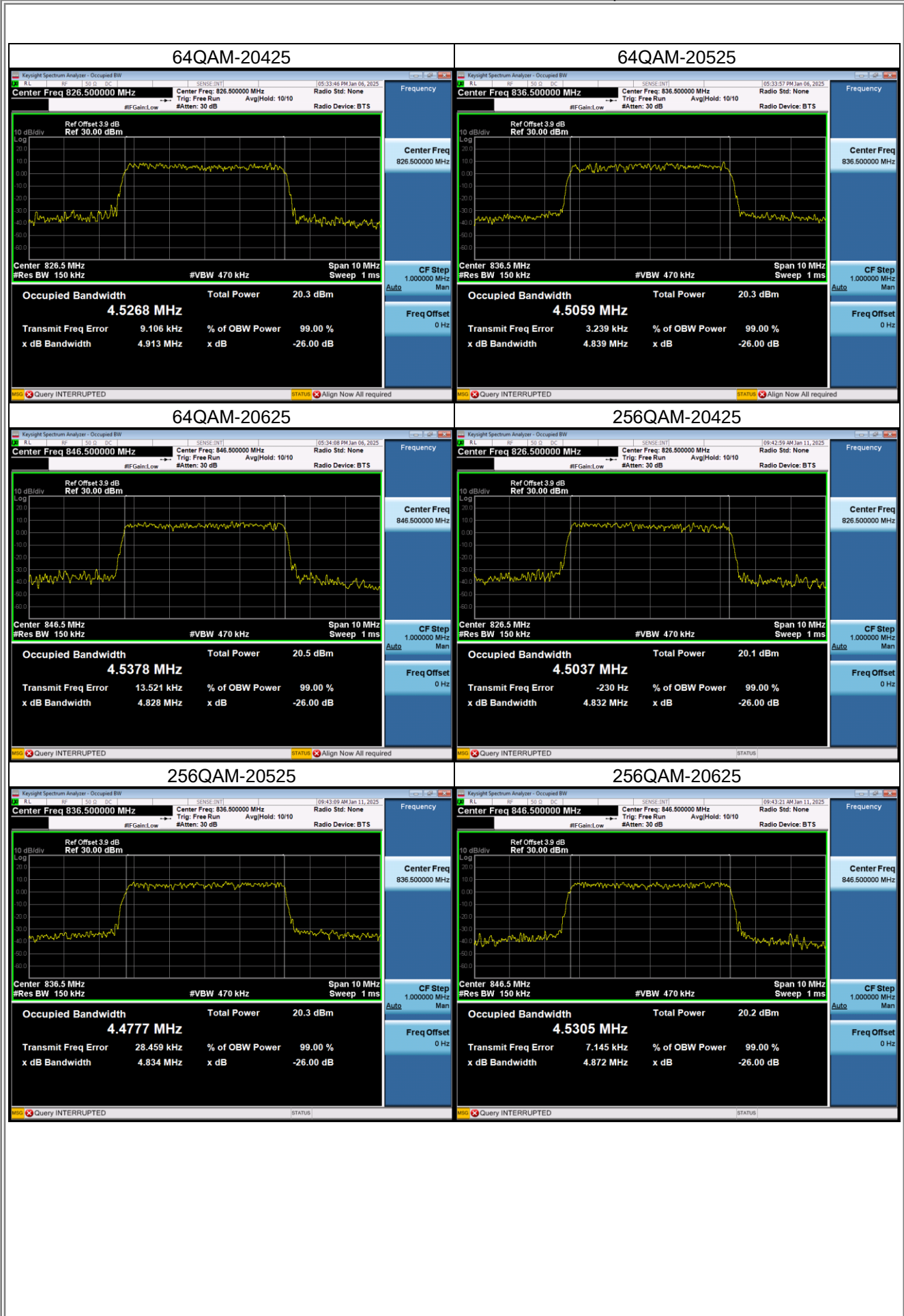


16QAM-20525



16QAM-20625

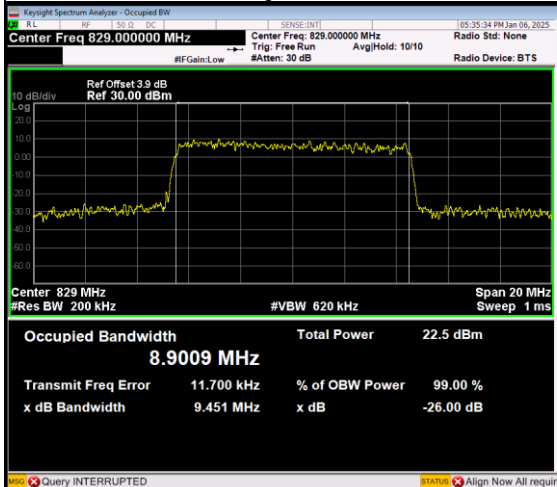




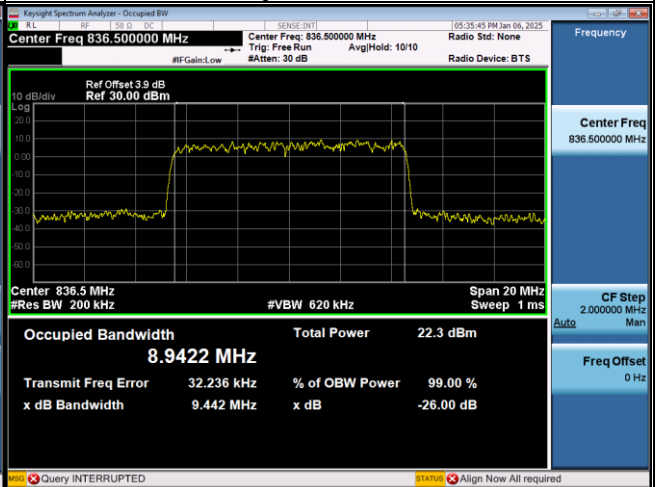
LTE Band 5_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.9009	20450	829.0	9.451
20525	836.5	8.9422	20525	836.5	9.442
20600	844.0	8.9655	20600	844.0	9.425
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.9361	20450	829.0	9.520
20525	836.5	8.9390	20525	836.5	9.444
20600	844.0	8.9549	20600	844.0	9.435
64QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.9921	20450	829.0	9.524
20525	836.5	8.9784	20525	836.5	9.467
20600	844.0	9.0149	20600	844.0	9.503
256QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.9155	20450	829.0	9.453
20525	836.5	8.9541	20525	836.5	9.446
20600	844.0	8.9610	20600	844.0	9.439

Spectrum Plot

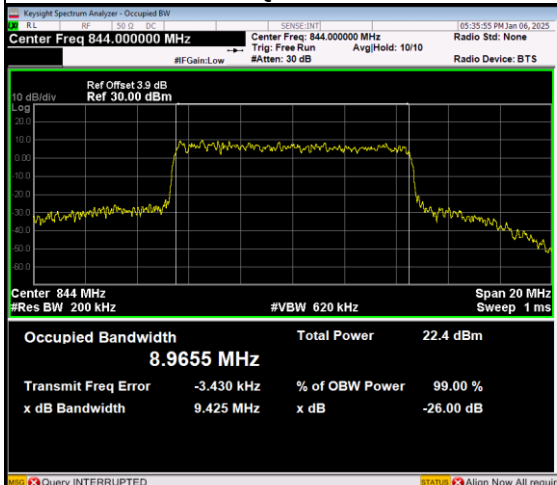
QPSK-20450



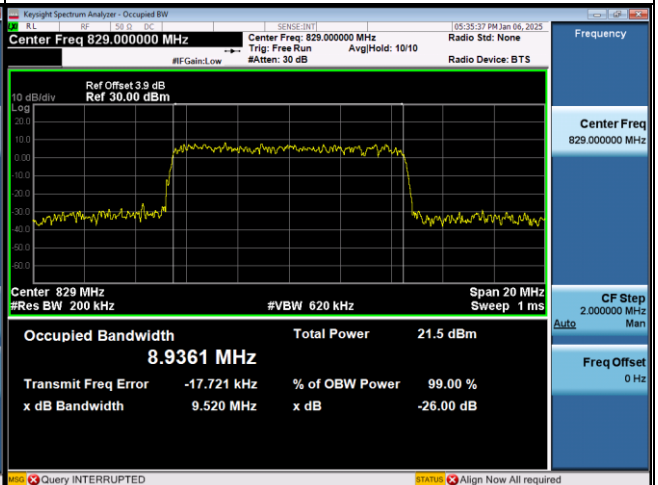
QPSK-20525



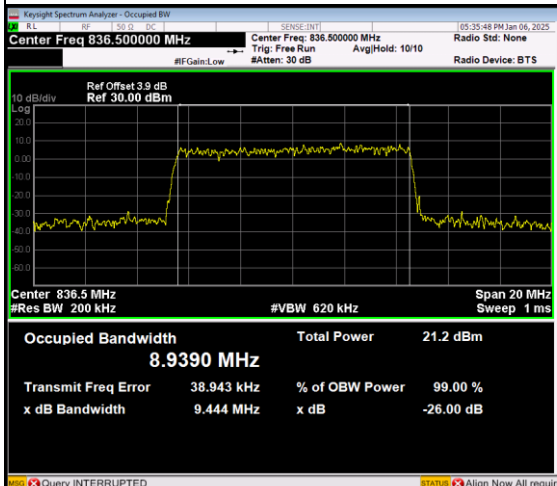
QPSK-20600



16QAM-20450



16QAM-20525



16QAM-20600

