

FCC Test Report

(PART 27)

Report No.: RFBFBE-WTW-P22030942-2

FCC ID: 2AJLF-VAB-1

Test Model: VAB-1

Received Date: 2022/6/7

Test Date: 2022/7/14 ~ 2022/7/30

Issued Date: 2022/8/22

Applicant: DataRemote Incorporated

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Test Location (2): B2F., No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan

FCC Registration / 788550 / TW0003

Designation Number: 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RFBFBE-WTW-P22030942-2	Original Release	2022/8/22

1 Certificate of Conformity

Product: Cellular Backup Router

Brand: DATAREMOTE

Test Model: VAB-1

Sample Status: Engineering Sample

Applicant: DataRemote Incorporated

Test Date: 2022/7/14 ~ 2022/7/30

Standards: FCC Part 27, Subpart C, H, F, L

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Vera Huang, **Date:** 2022/8/22
Vera Huang / Specialist

Approved by : Jeremy Lin, **Date:** 2022/8/22
Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (WCDMA)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -38.54 dB at 3465.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -37.98 dB at 3421.40 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 12)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)	Equivalent radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -43.00 dB at 157.55 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 13)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(b)	Equivalent radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(c)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(c)(f)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(c)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -17.39 dB at 1559.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 66)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)	Equivalent Isotropically radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -36.74 dB at 3555.00 MHz.

Applied Standard: FCC Part 27 & Part 2 (LTE 71)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(c)	Equivalent radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 27.53(g)	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Out of Band Emission Measurements	Pass	Meet the requirement of limit.
--	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -41.65 dB at 1361.00 MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.0400 dB
	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~ 1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	UNAT_5+	PAD-CH6-01	N/A	N/A
Antenna Tower Controller Max-Full	MF-7802	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB9168	9168-616	2021/10/27	2022/10/26
Preamplifier Agilent	310N	187226	2022/6/14	2023/6/13
Pre-amplifier EMCI	EMC001340	980201	2021/9/15	2022/9/14
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2022/1/15	2023/1/14
RF Coaxial Cable ETS-Lindgren	EMC104-SM-SM-10000	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-4	2022/6/14	2023/6/13
	RFC-SMS-100-SMS-24-IN	Cable-CH1-02(RFC-SMS-100-SMS-24)	2022/6/14	2023/6/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Test Receiver Agilent	N9038A	MY52260177	2021/9/1	2022/8/31
Turn Table Max-Full	TT-1510	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802	N/A	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	8	N/A	N/A
Horn Antenna ETS-Lindgren	3117	00143293	2021/11/14	2022/11/13
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170241	2021/10/26	2022/10/25
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2022/2/16	2023/2/15

Notes:

1. The test was performed in XD - 966 chamber 6.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

3 General Information

3.1 General Description of EUT

Product	Cellular Backup Router	
Brand	DATAREMOTE	
Test Model	VAB-1	
Status of EUT	Engineering Sample	
Power Supply Rating	12Vdc / 19Vdc (from adapter)	
Modulation Type	WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM	
Frequency Range	WCDMA Band 4	1712.4 ~ 1752.6 MHz
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
	LTE Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1779.3 MHz
	LTE Band 66 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1778.5 MHz
	LTE Band 66 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1777.5 MHz
	LTE Band 66 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1775.0 MHz
	LTE Band 66 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1772.5 MHz
	LTE Band 66 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1770.0 MHz
	LTE Band 71 (Channel Bandwidth: 5 MHz)	665.5 ~ 695.5 MHz
	LTE Band 71 (Channel Bandwidth: 10 MHz)	668.0 ~ 693.0 MHz
	LTE Band 71 (Channel Bandwidth: 15 MHz)	670.5 ~ 690.5 MHz
	LTE Band 71 (Channel Bandwidth: 20 MHz)	673.0 ~ 688.0 MHz

Emission Designator	WCDMA Band 4	4M15F9W
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 4 (Channel Bandwidth: 3 MHz)	2M70D7W
	LTE Band 4 (Channel Bandwidth: 5 MHz)	4M49G7D
	LTE Band 4 (Channel Bandwidth: 10 MHz)	8M96G7D
	LTE Band 4 (Channel Bandwidth: 15 MHz)	13M4G7D
	LTE Band 4 (Channel Bandwidth: 20 MHz)	17M9D7W
	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 12 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE Band 12 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 12 (Channel Bandwidth: 10 MHz)	8M97D7W
	LTE Band 13 (Channel Bandwidth: 5 MHz)	4M49G7D
	LTE Band 13 (Channel Bandwidth: 10 MHz)	8M96D7W
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	1M09G7D
	LTE Band 66 (Channel Bandwidth: 3 MHz)	2M70D7W
	LTE Band 66 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 66 (Channel Bandwidth: 10 MHz)	8M96G7D
	LTE Band 66 (Channel Bandwidth: 15 MHz)	13M4G7D
	LTE Band 66 (Channel Bandwidth: 20 MHz)	17M9D7W
	LTE Band 71 (Channel Bandwidth: 5 MHz)	4M49G7D
	LTE Band 71 (Channel Bandwidth: 10 MHz)	8M97D7W
	LTE Band 71 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 71 (Channel Bandwidth: 20 MHz)	17M9D7W
Max. ERP Power	LTE Band 12 (Channel Bandwidth: 1.4 MHz)	207.491mW (23.17dBm)
	LTE Band 12 (Channel Bandwidth: 3 MHz)	210.378mW (23.23dBm)
	LTE Band 12 (Channel Bandwidth: 5 MHz)	209.411mW (23.21dBm)
	LTE Band 12 (Channel Bandwidth: 10 MHz)	208.449mW (23.19dBm)
	LTE Band 13 (Channel Bandwidth: 5 MHz)	160.694mW (22.06dBm)
	LTE Band 13 (Channel Bandwidth: 10 MHz)	159.221mW (22.02dBm)
	LTE Band 71 (Channel Bandwidth: 5 MHz)	201.837mW (23.05dBm)
	LTE Band 71 (Channel Bandwidth: 10 MHz)	199.067mW (22.99dBm)
	LTE Band 71 (Channel Bandwidth: 15 MHz)	200.909mW (23.03dBm)
	LTE Band 71 (Channel Bandwidth: 20 MHz)	200.909mW (23.03dBm)

Max. EIRP Power	WCDMA Band 4	314.775mW (24.98dBm)
	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	300.608mW (24.78dBm)
	LTE Band 4 (Channel Bandwidth: 3 MHz)	306.196mW (24.86dBm)
	LTE Band 4 (Channel Bandwidth: 5 MHz)	303.389mW (24.82dBm)
	LTE Band 4 (Channel Bandwidth: 10 MHz)	306.196mW (24.86dBm)
	LTE Band 4 (Channel Bandwidth: 15 MHz)	306.196mW (24.86dBm)
	LTE Band 4 (Channel Bandwidth: 20 MHz)	304.089mW (24.83dBm)
	LTE Band 66 (Channel Bandwidth: 1.4 MHz)	334.965mW (25.25dBm)
	LTE Band 66 (Channel Bandwidth: 3 MHz)	334.195mW (25.24dBm)
	LTE Band 66 (Channel Bandwidth: 5 MHz)	332.660mW (25.22dBm)
	LTE Band 66 (Channel Bandwidth: 10 MHz)	332.660mW (25.22dBm)
	LTE Band 66 (Channel Bandwidth: 15 MHz)	328.095mW (25.16dBm)
	LTE Band 66 (Channel Bandwidth: 20 MHz)	328.095mW (25.16dBm)
Antenna Type Refer to Note as below		
Accessory Device Refer to Note as below		
Data Cable Supplied Refer to Note as below		

Note:

1. The EUT contains following accessory devices.

AC Adapter 1	Brand	MOSO
	Model	MSS-V2500WR120-030E0-US
	AC Input	100-240V, 50/60Hz, 1A max.
	DC Output	12V, 2.5A
	DC Output Cable	1.5m, Non-shielded
AC Adapter 2	Brand	MOSO
	Model	MS-V3420R190-065L0-US
	AC Input	100-240V, 50/60Hz, 1.5A max.
	DC Output	19V, 3.42A
	DC Output Cable	1.5m, Non-shielded
Ethernet Cable 1	Signal Line	1.5m, Non-shielded, yellow
Ethernet Cable 2	Signal Line	1.5m, Non-shielded, red
Phone Cable	Signal Line	1.5m, Non-shielded, gray
Power Cable 1	Model	BGW-210
	Signal Line	1.5m, Non-shielded, black
Power Cable 2	Model	BGW-320
	Signal Line	1.5m, Non-shielded, white

*After pretesting, Adapter 1 was the worst case and chosen for final test.

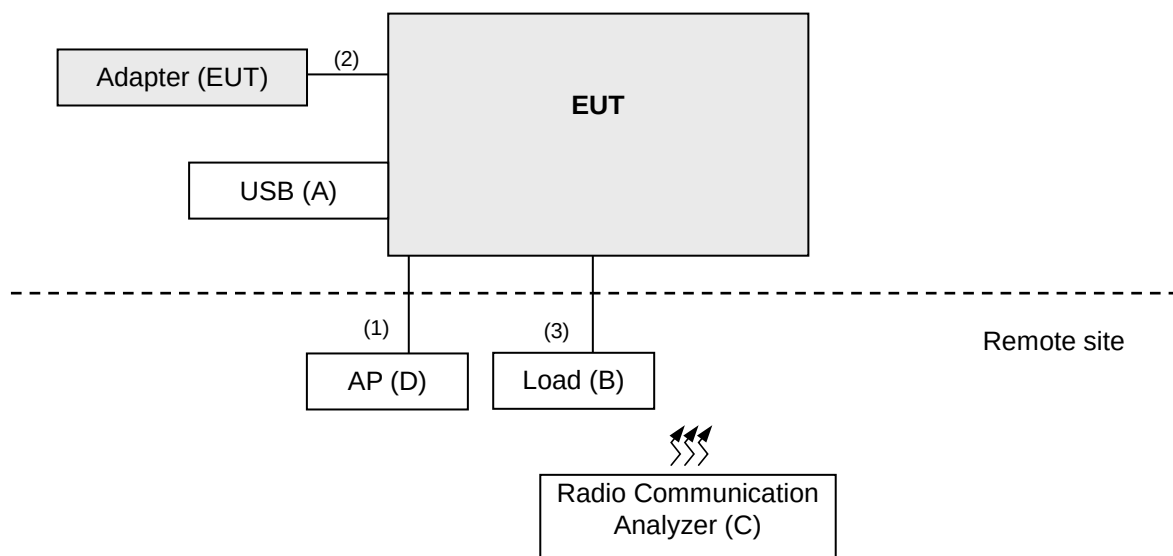
2. The antenna information is listed as below.

Antenna Type	Dipole Antenna	
Band	Antenna Gain (dBi)	
	Ant. 1	Ant. 2
WCDMA 4 / LTE 4	1.66	1.66
LTE 12	1.68	1.68
LTE 13	1.63	1.63
LTE 66	1.95	1.95
LTE 71	1.5	1.5

3. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

4. 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.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	USB	SanDisk	BM210257950Z	N/A	N/A	Supplied by lab
B	Load	N/A	N/A	N/A	N/A	Supplied by lab
C	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	N/A	Supplied by lab
D	AP	ASUS	AC750	H7ITDV002001	NA	Supplied by lab

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	4	2	No	0	Supplied by lab
2.	AC Cable	1	1.5	No	0	Supplied by applicant
3.	RJ-41 Cable	1	2	No	0	Supplied by lab

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
WCDMA	90 degree
LTE Band 4	0 degree
LTE Band 12	90 degree
LTE Band 13	90 degree
LTE Band 66	90 degree
LTE Band 71	90 degree

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
-	Modulation Characteristics	1312 to 1513	1413	WCDMA
-	Frequency Stability	1312 to 1513	1312, 1513	WCDMA
-	Occupied Bandwidth	1312 to 1513	1312, 1413, 1513	WCDMA
-	Band Edge	1312 to 1513	1312, 1513	WCDMA
-	Peak to Average Ratio	1312 to 1513	1312, 1413, 1513	WCDMA
-	Conducted Emission	1312 to 1513	1312, 1413, 1513	WCDMA
-	Radiated Emission Below 1GHz	1312 to 1513	1413	WCDMA
-	Radiated Emission Above 1GHz	1312 to 1513	1312, 1413, 1513	WCDMA

LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK / 16QAM	1 Half Full
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK / 16QAM	1 Half Full
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK / 16QAM	1 Half Full
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK / 16QAM	1 Half Full
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK / 16QAM	1 Half Full
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK / 16QAM	1 Half Full
-	Modulation Characteristics	20050 to 20300	20175	5 MHz	QPSK / 16QAM	Full
-	Frequency Stability	19957 to 20393	19957, 20393	1.4 MHz	QPSK	Full
		19965 to 20385	19965, 20385	3 MHz	QPSK	Full
		19975 to 20375	19975, 20375	5 MHz	QPSK	Full
		20000 to 20350	20000, 20350	10 MHz	QPSK	Full
		20025 to 20325	20025, 20325	15 MHz	QPSK	Full
		20050 to 20300	20050, 20300	20 MHz	QPSK	Full
-	Occupied Bandwidth	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK / 16QAM	Full
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK / 16QAM	Full
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK / 16QAM	Full
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK / 16QAM	Full
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK / 16QAM	Full
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK / 16QAM	Full
-	Peak to Average Ratio	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK / 16QAM	1
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK / 16QAM	1
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK / 16QAM	1
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK / 16QAM	1
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK / 16QAM	1
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK / 16QAM	1

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Band Edge	19957 to 20393	19957, 20393	1.4 MHz	QPSK	1 Half Full
		19965 to 20385	19965, 20385	3 MHz	QPSK	1 Half Full
		19975 to 20375	19975, 20375	5 MHz	QPSK	1 Half Full
		20000 to 20350	20000, 20350	10 MHz	QPSK	1 Half Full
		20025 to 20325	20025, 20325	15 MHz	QPSK	1 Half Full
		20050 to 20300	20050, 20300	20 MHz	QPSK	1 Half Full
-	Conducted Emission	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK	1
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK	1
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK	1
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	1
-	Radiated Emission Below 1GHz	20050 to 20300	20175	20 MHz	QPSK	1
-	Radiated Emission Above 1GHz	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK	1
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK	1
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only EIRP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 12

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	ERP	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK / 16QAM	1 Half Full
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK / 16QAM	1 Half Full
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK / 16QAM	1 Half Full
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK / 16QAM	1 Half Full
-	Modulation Characteristics	23060 to 23130	23095	5 MHz	QPSK / 16QAM	Full
-	Frequency Stability	23017 to 23173	23017, 23173	1.4 MHz	QPSK	Full
		23025 to 23165	23025, 23165	3 MHz	QPSK	Full
		23035 to 23155	23035, 23155	5 MHz	QPSK	Full
		23060 to 23130	23060, 23130	10 MHz	QPSK	Full
-	Occupied Bandwidth	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK / 16QAM	Full
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK / 16QAM	Full
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK / 16QAM	Full
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK / 16QAM	Full
-	Peak to Average Ratio	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK / 16QAM	1
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK / 16QAM	1
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK / 16QAM	1
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK / 16QAM	1
-	Band Edge	23017 to 23173	23017, 23173	1.4 MHz	QPSK	1 Half Full
		23025 to 23165	23025, 23165	3 MHz	QPSK	1 Half Full
		23035 to 23155	23035, 23155	5 MHz	QPSK	1 Half Full
		23060 to 23130	23060, 23130	10 MHz	QPSK	1 Half Full

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Conducted Emission	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1
		23025 to 23165	23025, 23095, 23165	3 MHz	QPSK	1
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1
-	Radiated Emission Below 1GHz	23017 to 23173	23017	1.4 MHz	QPSK	1
-	Radiated Emission Above 1GHz	23017 to 23173	23017, 23095, 23173	1.4 MHz	QPSK	1
		23035 to 23155	23035, 23095, 23155	5 MHz	QPSK	1
		23060 to 23130	23060, 23095, 23130	10 MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 13

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	ERP	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK / 16QAM	1 Half Full
		23230	23230	10 MHz	QPSK / 16QAM	1 Half Full
-	Modulation Characteristics	23230	23230	5 MHz	QPSK / 16QAM	Full
-	Frequency Stability	23205 to 23255	23205, 23255	5 MHz	QPSK	Full
		23230	23230	10 MHz	QPSK	Full
-	Occupied Bandwidth	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK / 16QAM	Full
		23230	23230	10 MHz	QPSK / 16QAM	Full
-	Peak to Average Ratio	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK / 16QAM	1
		23230	23230	10 MHz	QPSK / 16QAM	1
-	Band Edge	23205 to 23255	23205, 23255	5 MHz	QPSK	1 Half Full
		23230	23230, 23230	10 MHz	QPSK	1 Half Full
-	Conducted Emission	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1
		23230	23230	10 MHz	QPSK	1
-	Radiated Emission Below 1GHz	23205 to 23255	23205	5 MHz	QPSK	1
-	Radiated Emission Above 1GHz	23205 to 23255	23205, 23230, 23255	5 MHz	QPSK	1
		23230	23230	10 MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	EIRP	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK / 16QAM	1 Half Full
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK / 16QAM	1 Half Full
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK / 16QAM	1 Half Full
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK / 16QAM	1 Half Full
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK / 16QAM	1 Half Full
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK / 16QAM	1 Half Full
-	Modulation Characteristics	132072 to 132572	132322	5 MHz	QPSK / 16QAM	Full
-	Frequency Stability	131979 to 132665	131979, 132665	1.4 MHz	QPSK	Full
		131987 to 132657	131987, 132657	3 MHz	QPSK	Full
		131997 to 132647	131997, 132647	5 MHz	QPSK	Full
		132022 to 132622	132022, 132622	10 MHz	QPSK	Full
		132047 to 132597	132047, 132597	15 MHz	QPSK	Full
		132072 to 132572	132072, 132572	20 MHz	QPSK	Full
-	Occupied Bandwidth	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK / 16QAM	Full
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK / 16QAM	Full
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK / 16QAM	Full
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK / 16QAM	Full
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK / 16QAM	Full
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK / 16QAM	Full
-	Peak to Average Ratio	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK / 16QAM	1
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK / 16QAM	1
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK / 16QAM	1
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK / 16QAM	1
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK / 16QAM	1
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK / 16QAM	1

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	Band Edge	131979 to 132665	131979, 132665	1.4 MHz	QPSK	1 Half Full
		131987 to 132657	131987, 132657	3 MHz	QPSK	1 Half Full
		131997 to 132647	131997, 132647	5 MHz	QPSK	1 Half Full
		132022 to 132622	132022, 132622	10 MHz	QPSK	1 Half Full
		132047 to 132597	132047, 132597	15 MHz	QPSK	1 Half Full
		132072 to 132572	132072, 132572	20 MHz	QPSK	1 Half Full
-	Conducted Emission	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1
		131987 to 132657	131987, 132322, 132657	3 MHz	QPSK	1
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1
		132022 to 132622	132022, 132322, 132622	10 MHz	QPSK	1
		132047 to 132597	132047, 132322, 132597	15 MHz	QPSK	1
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1
-	Radiated Emission Below 1GHz	131997 to 132647	132647	5 MHz	QPSK	1
-	Radiated Emission Above 1GHz	131979 to 132665	131979, 132322, 132665	1.4 MHz	QPSK	1
		131997 to 132647	131997, 132322, 132647	5 MHz	QPSK	1
		132072 to 132572	132072, 132322, 132572	20 MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only EIRP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under worse mode according to the maximum output power.

LTE Band 71

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	RB #
-	ERP	133147 to 133447	133147, 133297, 133447	5 MHz	QPSK / 16QAM	1 Half Full
		133172 to 133422	133172, 133297, 133422	10 MHz	QPSK / 16QAM	1 Half Full
		133197 to 133397	133197, 133297, 133397	15 MHz	QPSK / 16QAM	1 Half Full
		133222 to 133372	133222, 133297, 133372	20 MHz	QPSK / 16QAM	1 Half Full
-	Modulation Characteristics	133222 to 133372	133297	20 MHz	QPSK / 16QAM	Full
-	Frequency Stability	133147 to 133447	133147, 133447	5 MHz	QPSK	Full
		133172 to 133422	133172, 133422	10 MHz	QPSK	Full
		133197 to 133397	133197, 133397	15 MHz	QPSK	Full
		133222 to 133372	133222, 133372	20 MHz	QPSK	Full
-	Occupied Bandwidth	133147 to 133447	133147, 133297, 133447	5 MHz	QPSK / 16QAM	Full
		133172 to 133422	133172, 133297, 133422	10 MHz	QPSK / 16QAM	Full
		133197 to 133397	133197, 133297, 133397	15 MHz	QPSK / 16QAM	Full
		133222 to 133372	133222, 133297, 133372	20 MHz	QPSK / 16QAM	Full
-	Peak to Average Ratio	133147 to 133447	133147, 133297, 133447	5 MHz	QPSK / 16QAM	1
		133172 to 133422	133172, 133297, 133422	10 MHz	QPSK / 16QAM	1
		133197 to 133397	133197, 133297, 133397	15 MHz	QPSK / 16QAM	1
		133222 to 133372	133222, 133297, 133372	20 MHz	QPSK / 16QAM	1
-	Band Edge	133147 to 133447	133147, 133447	5 MHz	QPSK	1 Half Full
		133172 to 133422	133172, 133422	10 MHz	QPSK	1 Half Full
		133197 to 133397	133197, 133397	15 MHz	QPSK	1 Half Full
		133222 to 133372	133222, 133372	20 MHz	QPSK	1 Half Full
-	Conducted Emission	133147 to 133447	133147, 133297, 133447	5 MHz	QPSK	1
		133172 to 133422	133172, 133297, 133422	10 MHz	QPSK	1
		133197 to 133397	133197, 133297, 133397	15 MHz	QPSK	1
		133222 to 133372	133222, 133297, 133372	20 MHz	QPSK	1
-	Radiated Emission Below 1GHz	133147 to 133447	133297	5 MHz	QPSK	1
-	Radiated Emission Above 1GHz	133147 to 133447	133147, 133297, 133447	5 MHz	QPSK	1
		133222 to 133372	133222, 133297, 133372	20 MHz	QPSK	1

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, only ERP, Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under worse mode according to the maximum output power.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP / EIRP	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Modulation Characteristics	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Frequency Stability	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Occupied Bandwidth	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Band Edge	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Peak to Average Ratio	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Conducted Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	James Yang
Radiated Emission Below 1GHz	26 deg. C, 62 % RH	120 Vac, 60 Hz	Charles Hsiao
Radiated Emission Above 1GHz	25 deg. C, 60 % RH	120 Vac, 60 Hz	Karl Lee

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For LTE Band 13:

Control stations and mobile stations in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

For LTE Band 12, 71:

Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

For WCDMA Band 4, LTE Band 4, 66:

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

4.1.2 Test Procedures

Conducted Power Measurement:

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

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	23.24	23.32	23.27
HSDPA Subtest-1	22.47	22.63	22.51
HSUPA Subtest-1	21.94	21.99	22.05

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	22.91	23.05	22.80
		1	2	23.04	23.02	22.99
		1	5	22.95	23.01	23.12
		3	0	22.35	22.04	22.37
		3	1	22.38	22.15	22.16
		3	3	22.22	22.03	22.17
		6	0	22.02	22.05	22.31
1.4M	16QAM	1	0	22.06	22.20	22.01
		1	2	22.07	22.38	22.15
		1	5	22.14	22.12	22.02
		3	0	21.30	21.28	21.36
		3	1	21.24	21.41	21.30
		3	3	21.45	21.22	21.36
		6	0	21.59	21.43	21.28

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	23.02	23.07	23.19
		1	7	23.20	23.17	22.99
		1	14	23.07	23.11	23.12
		8	0	22.37	22.30	22.17
		8	3	22.36	22.05	22.39
		8	7	22.01	22.09	22.12
		15	0	22.31	22.07	22.35
3M	16QAM	1	0	22.22	22.09	22.35
		1	7	22.11	22.10	22.09
		1	14	22.30	22.35	22.16
		8	0	21.27	21.44	21.28
		8	3	21.42	21.33	21.31
		8	7	21.24	21.54	21.33
		15	0	21.25	21.32	21.21

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	23.09	22.96	22.91
		1	12	23.16	23.03	22.94
		1	24	23.05	22.93	22.81
		12	0	22.15	22.06	22.19
		12	6	22.31	22.19	22.20
		12	13	22.19	22.07	22.04
		25	0	22.01	22.17	22.32
5M	16QAM	1	0	22.34	22.19	22.33
		1	12	22.03	22.34	22.19
		1	24	22.23	22.02	22.37
		12	0	21.60	21.34	21.49
		12	6	21.25	21.24	21.20
		12	13	21.37	21.37	21.35
		25	0	21.20	21.27	21.35

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	23.20	23.16	22.97
		1	24	22.83	23.14	23.03
		1	49	23.12	23.13	23.11
		25	0	22.28	22.26	22.21
		25	12	22.39	22.00	22.08
		25	25	22.05	22.22	22.12
		50	0	22.38	22.32	22.34
10M	16QAM	1	0	22.23	22.24	22.17
		1	24	22.29	22.19	22.36
		1	49	22.08	22.20	22.15
		25	0	21.44	21.57	21.50
		25	12	21.41	21.25	21.27
		25	25	21.34	21.54	21.31
		50	0	21.36	21.54	21.34

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	22.89	22.95	22.97
		1	37	22.96	23.17	22.83
		1	74	22.99	23.18	23.20
		36	0	22.39	22.38	22.06
		36	19	22.15	22.36	22.12
		36	39	22.33	22.14	22.24
		75	0	22.22	22.10	22.34
15M	16QAM	1	0	22.24	22.11	22.07
		1	37	22.19	22.16	22.10
		1	74	22.18	22.25	22.10
		36	0	21.35	21.20	21.52
		36	19	21.27	21.30	21.53
		36	39	21.41	21.55	21.43
		75	0	21.56	21.57	21.29

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	22.93	22.99	23.17
		1	50	23.01	22.93	23.09
		1	99	23.03	22.94	22.99
		50	0	22.35	22.22	22.36
		50	25	22.34	22.15	22.13
		50	50	22.12	22.35	22.34
		100	0	22.18	22.26	22.24
20M	16QAM	1	0	22.06	22.21	22.09
		1	50	22.01	22.05	22.30
		1	99	22.03	22.26	22.36
		50	0	21.58	21.34	21.55
		50	25	21.46	21.54	21.41
		50	50	21.49	21.58	21.51
		100	0	21.36	21.28	21.40

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	23.64	23.56	23.53
		1	2	23.46	23.46	23.49
		1	5	23.57	23.42	23.49
		3	0	22.74	22.60	22.81
		3	1	22.66	22.72	22.84
		3	3	22.62	22.79	22.79
		6	0	22.71	22.89	22.88
1.4M	16QAM	1	0	22.84	22.89	22.66
		1	2	22.85	22.77	22.71
		1	5	22.74	22.80	22.76
		3	0	21.83	22.01	21.94
		3	1	21.98	21.96	21.89
		3	3	21.85	22.06	21.98
		6	0	22.06	21.98	21.92

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	23.62	23.61	23.42
		1	7	23.43	23.40	23.70
		1	14	23.62	23.48	23.56
		8	0	22.70	22.81	22.87
		8	3	22.87	22.71	22.74
		8	7	22.78	22.75	22.87
		15	0	22.90	22.79	22.68
3M	16QAM	1	0	22.88	22.86	22.72
		1	7	22.71	22.63	22.83
		1	14	22.81	22.66	22.80
		8	0	21.81	21.89	21.87
		8	3	22.02	21.90	21.96
		8	7	21.82	21.81	21.80
		15	0	21.97	21.84	21.90

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	23.68	23.62	23.49
		1	12	23.49	23.55	23.48
		1	24	23.55	23.61	23.43
		12	0	22.82	22.76	22.70
		12	6	22.72	22.60	22.89
		12	13	22.74	22.77	22.73
		25	0	22.82	22.89	22.66
5M	16QAM	1	0	22.81	22.81	22.70
		1	12	22.74	22.76	22.60
		1	24	22.61	22.77	22.88
		12	0	22.03	22.09	21.97
		12	6	22.04	22.06	21.92
		12	13	21.89	22.01	21.97
		25	0	21.81	22.08	21.84

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	23.65	23.51	23.43
		1	24	23.52	23.60	23.66
		1	49	23.43	23.62	23.55
		25	0	22.87	22.83	22.78
		25	12	22.66	22.75	22.69
		25	25	22.81	22.70	22.70
		50	0	22.65	22.80	22.84
10M	16QAM	1	0	22.86	22.85	22.79
		1	24	22.70	22.82	22.64
		1	49	22.81	22.63	22.71
		25	0	21.85	22.01	22.01
		25	12	21.95	22.03	21.82
		25	25	22.03	21.80	21.94
		50	0	21.99	21.85	21.85

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	22.42	22.48	22.36
		1	12	22.35	22.58	22.58
		1	24	22.41	22.37	22.48
		12	0	21.50	21.75	21.52
		12	6	21.52	21.54	21.71
		12	13	21.79	21.77	21.79
		25	0	21.70	21.50	21.74
5M	16QAM	1	0	21.74	21.64	21.50
		1	12	21.50	21.76	21.74
		1	24	21.52	21.63	21.78
		12	0	20.84	20.77	20.93
		12	6	20.95	20.99	20.91
		12	13	20.70	20.99	20.74
		25	0	20.91	20.73	20.87

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	22.54
		1	24	22.32
		1	49	22.48
		25	0	21.67
		25	12	21.51
		25	25	21.57
		50	0	21.73
10M	16QAM	1	0	21.52
		1	24	21.63
		1	49	21.51
		25	0	20.74
		25	12	20.89
		25	25	20.95
		50	0	20.79

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	23.14	22.99	23.28
		1	2	23.30	23.13	23.24
		1	5	23.08	23.00	23.22
		3	0	22.30	22.16	22.35
		3	1	22.29	22.43	22.15
		3	3	22.38	22.30	22.43
		6	0	22.22	22.30	22.39
1.4M	16QAM	1	0	22.41	22.24	22.22
		1	2	22.50	22.19	22.24
		1	5	22.39	22.12	22.17
		3	0	21.54	21.59	21.39
		3	1	21.62	21.41	21.59
		3	3	21.50	21.59	21.54
		6	0	21.56	21.63	21.40

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	22.90	22.95	23.01
		1	7	23.14	22.92	23.29
		1	14	23.01	23.10	22.94
		8	0	22.19	22.16	22.24
		8	3	22.13	22.12	22.16
		8	7	22.30	22.48	22.42
		15	0	22.33	22.46	22.12
3M	16QAM	1	0	22.47	22.21	22.13
		1	7	22.39	22.49	22.21
		1	14	22.24	22.45	22.38
		8	0	21.45	21.36	21.49
		8	3	21.34	21.33	21.36
		8	7	21.37	21.64	21.69
		15	0	21.66	21.38	21.35

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	22.90	23.10	22.90
		1	12	22.92	23.23	23.01
		1	24	22.95	23.04	23.27
		12	0	22.35	22.15	22.25
		12	6	22.42	22.39	22.29
		12	13	22.44	22.29	22.10
		25	0	22.41	22.20	22.33
5M	16QAM	1	0	22.33	22.27	22.13
		1	12	22.26	22.13	22.10
		1	24	22.34	22.15	22.42
		12	0	21.63	21.58	21.58
		12	6	21.69	21.53	21.40
		12	13	21.43	21.66	21.49
		25	0	21.67	21.43	21.32

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	23.14	23.21	23.01
		1	24	22.99	23.13	23.27
		1	49	23.02	23.02	23.03
		25	0	22.25	22.21	22.31
		25	12	22.26	22.13	22.41
		25	25	22.41	22.38	22.37
		50	0	22.35	22.12	22.40
10M	16QAM	1	0	22.35	22.28	22.26
		1	24	22.21	22.32	22.11
		1	49	22.15	22.33	22.35
		25	0	21.68	21.68	21.43
		25	12	21.47	21.65	21.53
		25	25	21.68	21.61	21.67
		50	0	21.68	21.49	21.56

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	23.15	23.21	23.09
		1	37	23.13	23.16	22.93
		1	74	23.05	23.11	23.16
		36	0	22.45	22.36	22.44
		36	19	22.37	22.36	22.21
		36	39	22.41	22.37	22.16
		75	0	22.30	22.27	22.13
15M	16QAM	1	0	22.37	22.43	22.16
		1	37	22.44	22.37	22.25
		1	74	22.25	22.37	22.24
		36	0	21.59	21.58	21.62
		36	19	21.38	21.53	21.49
		36	39	21.34	21.70	21.67
		75	0	21.47	21.34	21.50

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	22.96	23.06	22.90
		1	50	22.99	23.21	22.96
		1	99	23.00	23.14	22.99
		50	0	22.12	22.39	22.34
		50	25	22.18	22.18	22.34
		50	50	22.13	22.27	22.42
		100	0	22.17	22.31	22.34
20M	16QAM	1	0	22.42	22.28	22.36
		1	50	22.43	22.49	22.10
		1	99	22.12	22.37	22.38
		50	0	21.31	21.33	21.54
		50	25	21.60	21.41	21.53
		50	50	21.38	21.63	21.48
		100	0	21.65	21.34	21.33

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133147	133297	133447
		Frequency (MHz)		665.5	680.5	695.5
5M	QPSK	1	0	23.54	23.59	23.43
		1	12	23.50	23.45	23.70
		1	24	23.32	23.36	23.59
		12	0	22.56	22.70	22.83
		12	6	22.54	22.61	22.58
		12	13	22.60	22.82	22.54
		25	0	22.69	22.53	22.77
5M	16QAM	1	0	22.73	22.65	22.86
		1	12	22.88	22.55	22.58
		1	24	22.74	22.66	22.75
		12	0	21.95	21.75	21.90
		12	6	21.72	21.79	21.95
		12	13	21.81	22.01	21.94
		25	0	21.82	21.79	22.03

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	QPSK	1	0	23.62	23.32	23.32
		1	24	23.64	23.54	23.32
		1	49	23.40	23.48	23.61
		25	0	22.61	22.87	22.71
		25	12	22.84	22.63	22.79
		25	25	22.72	22.62	22.80
		50	0	22.75	22.71	22.77
10M	16QAM	1	0	22.65	22.82	22.89
		1	24	22.52	22.85	22.77
		1	49	22.58	22.77	22.50
		25	0	22.09	22.01	22.07
		25	12	22.04	21.80	22.07
		25	25	22.08	21.74	21.86
		50	0	21.95	21.85	22.10

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	23.51	23.43	23.39
		1	37	23.68	23.47	23.57
		1	74	23.38	23.45	23.55
		36	0	22.79	22.59	22.88
		36	19	22.82	22.74	22.53
		36	39	22.76	22.73	22.71
		75	0	22.53	22.87	22.69
15M	16QAM	1	0	22.81	22.58	22.71
		1	37	22.69	22.77	22.65
		1	74	22.66	22.56	22.63
		36	0	21.89	22.00	21.94
		36	19	22.01	21.76	21.72
		36	39	22.07	22.08	21.86
		75	0	22.04	21.95	22.06

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	QPSK	1	0	23.53	23.47	23.52
		1	50	23.37	23.46	23.57
		1	99	23.65	23.48	23.68
		50	0	22.78	22.53	22.68
		50	25	22.88	22.79	22.86
		50	50	22.69	22.54	22.70
		100	0	22.51	22.59	22.74
20M	16QAM	1	0	22.73	22.76	22.75
		1	50	22.57	22.54	22.84
		1	99	22.88	22.88	22.86
		50	0	21.88	22.09	21.82
		50	25	22.04	21.90	21.87
		50	50	21.82	21.71	21.98
		100	0	22.06	22.04	21.96

ERP/EIRP Power (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	24.90	24.98	24.93
HSDPA Subtest-1	24.13	24.29	24.17
HSUPA Subtest-1	23.60	23.65	23.71

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19957	20175	20393
		Frequency (MHz)		1710.7	1732.5	1754.3
1.4M	QPSK	1	0	24.57	24.71	24.46
		1	2	24.70	24.68	24.65
		1	5	24.61	24.67	24.78
		3	0	24.01	23.70	24.03
		3	1	24.04	23.81	23.82
		3	3	23.88	23.69	23.83
		6	0	23.68	23.71	23.97
1.4M	16QAM	1	0	23.72	23.86	23.67
		1	2	23.73	24.04	23.81
		1	5	23.80	23.78	23.68
		3	0	22.96	22.94	23.02
		3	1	22.90	23.07	22.96
		3	3	23.11	22.88	23.02
		6	0	23.25	23.09	22.94

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19965	20175	20385
		Frequency (MHz)		1711.5	1732.5	1753.5
3M	QPSK	1	0	24.68	24.73	24.85
		1	7	24.86	24.83	24.65
		1	14	24.73	24.77	24.78
		8	0	24.03	23.96	23.83
		8	3	24.02	23.71	24.05
		8	7	23.67	23.75	23.78
		15	0	23.97	23.73	24.01
3M	16QAM	1	0	23.88	23.75	24.01
		1	7	23.77	23.76	23.75
		1	14	23.96	24.01	23.82
		8	0	22.93	23.10	22.94
		8	3	23.08	22.99	22.97
		8	7	22.90	23.20	22.99
		15	0	22.91	22.98	22.87

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		19975	20175	20375
		Frequency (MHz)		1712.5	1732.5	1752.5
5M	QPSK	1	0	24.75	24.62	24.57
		1	12	24.82	24.69	24.60
		1	24	24.71	24.59	24.47
		12	0	23.81	23.72	23.85
		12	6	23.97	23.85	23.86
		12	13	23.85	23.73	23.70
		25	0	23.67	23.83	23.98
5M	16QAM	1	0	24.00	23.85	23.99
		1	12	23.69	24.00	23.85
		1	24	23.89	23.68	24.03
		12	0	23.26	23.00	23.15
		12	6	22.91	22.90	22.86
		12	13	23.03	23.03	23.01
		25	0	22.86	22.93	23.01

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20000	20175	20350
		Frequency (MHz)		1715	1732.5	1750
10M	QPSK	1	0	24.86	24.82	24.63
		1	24	24.49	24.80	24.69
		1	49	24.78	24.79	24.77
		25	0	23.94	23.92	23.87
		25	12	24.05	23.66	23.74
		25	25	23.71	23.88	23.78
		50	0	24.04	23.98	24.00
10M	16QAM	1	0	23.89	23.90	23.83
		1	24	23.95	23.85	24.02
		1	49	23.74	23.86	23.81
		25	0	23.10	23.23	23.16
		25	12	23.07	22.91	22.93
		25	25	23.00	23.20	22.97
		50	0	23.02	23.20	23.00

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20025	20175	20325
		Frequency (MHz)		1717.5	1732.5	1747.5
15M	QPSK	1	0	24.55	24.61	24.63
		1	37	24.62	24.83	24.49
		1	74	24.65	24.84	24.86
		36	0	24.05	24.04	23.72
		36	19	23.81	24.02	23.78
		36	39	23.99	23.80	23.90
		75	0	23.88	23.76	24.00
15M	16QAM	1	0	23.90	23.77	23.73
		1	37	23.85	23.82	23.76
		1	74	23.84	23.91	23.76
		36	0	23.01	22.86	23.18
		36	19	22.93	22.96	23.19
		36	39	23.07	23.21	23.09
		75	0	23.22	23.23	22.95

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 4						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20050	20175	20300
		Frequency (MHz)		1720	1732.5	1745
20M	QPSK	1	0	24.59	24.65	24.83
		1	50	24.67	24.59	24.75
		1	99	24.69	24.60	24.65
		50	0	24.01	23.88	24.02
		50	25	24.00	23.81	23.79
		50	50	23.78	24.01	24.00
		100	0	23.84	23.92	23.90
20M	16QAM	1	0	23.72	23.87	23.75
		1	50	23.67	23.71	23.96
		1	99	23.69	23.92	24.02
		50	0	23.24	23.00	23.21
		50	25	23.12	23.20	23.07
		50	50	23.15	23.24	23.17
		100	0	23.02	22.94	23.06

*EIRP = Conducted + antenna gain (1.66dBi)

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23017	23095	23173
		Frequency (MHz)		699.7	707.5	715.3
1.4M	QPSK	1	0	23.17	23.09	23.06
		1	2	22.99	22.99	23.02
		1	5	23.10	22.95	23.02
		3	0	22.27	22.13	22.34
		3	1	22.19	22.25	22.37
		3	3	22.15	22.32	22.32
		6	0	22.24	22.42	22.41
1.4M	16QAM	1	0	22.37	22.42	22.19
		1	2	22.38	22.30	22.24
		1	5	22.27	22.33	22.29
		3	0	21.36	21.54	21.47
		3	1	21.51	21.49	21.42
		3	3	21.38	21.59	21.51
		6	0	21.59	21.51	21.45

*ERP = Conducted + antenna gain (1.68dBi)-2.15

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23025	23095	23165
		Frequency (MHz)		700.5	707.5	714.5
3M	QPSK	1	0	23.15	23.14	22.95
		1	7	22.96	22.93	23.23
		1	14	23.15	23.01	23.09
		8	0	22.23	22.34	22.40
		8	3	22.40	22.24	22.27
		8	7	22.31	22.28	22.40
		15	0	22.43	22.32	22.21
3M	16QAM	1	0	22.41	22.39	22.25
		1	7	22.24	22.16	22.36
		1	14	22.34	22.19	22.33
		8	0	21.34	21.42	21.40
		8	3	21.55	21.43	21.49
		8	7	21.35	21.34	21.33
		15	0	21.50	21.37	21.43

*ERP = Conducted + antenna gain (1.68dBi)-2.15

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23035	23095	23155
		Frequency (MHz)		701.5	707.5	713.5
5M	QPSK	1	0	23.21	23.15	23.02
		1	12	23.02	23.08	23.01
		1	24	23.08	23.14	22.96
		12	0	22.35	22.29	22.23
		12	6	22.25	22.13	22.42
		12	13	22.27	22.30	22.26
		25	0	22.35	22.42	22.19
5M	16QAM	1	0	22.34	22.34	22.23
		1	12	22.27	22.29	22.13
		1	24	22.14	22.30	22.41
		12	0	21.56	21.62	21.50
		12	6	21.57	21.59	21.45
		12	13	21.42	21.54	21.50
		25	0	21.34	21.61	21.37

*ERP = Conducted + antenna gain (1.68dBi)-2.15

LTE Band 12						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23060	23095	23130
		Frequency (MHz)		704	707.5	711
10M	QPSK	1	0	23.18	23.04	22.96
		1	24	23.05	23.13	23.19
		1	49	22.96	23.15	23.08
		25	0	22.40	22.36	22.31
		25	12	22.19	22.28	22.22
		25	25	22.34	22.23	22.23
		50	0	22.18	22.33	22.37
10M	16QAM	1	0	22.39	22.38	22.32
		1	24	22.23	22.35	22.17
		1	49	22.34	22.16	22.24
		25	0	21.38	21.54	21.54
		25	12	21.48	21.56	21.35
		25	25	21.56	21.33	21.47
		50	0	21.52	21.38	21.38

*ERP = Conducted + antenna gain (1.68dBi)-2.15

LTE Band 13						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		23205	23230	23255
		Frequency (MHz)		779.5	782	784.5
5M	QPSK	1	0	21.90	21.96	21.84
		1	12	21.83	22.06	22.06
		1	24	21.89	21.85	21.96
		12	0	20.98	21.23	21.00
		12	6	21.00	21.02	21.19
		12	13	21.27	21.25	21.27
		25	0	21.18	20.98	21.22
5M	16QAM	1	0	21.22	21.12	20.98
		1	12	20.98	21.24	21.22
		1	24	21.00	21.11	21.26
		12	0	20.32	20.25	20.41
		12	6	20.43	20.47	20.39
		12	13	20.18	20.47	20.22
		25	0	20.39	20.21	20.35

*ERP = Conducted + antenna gain (1.63dBi)-2.15

LTE Band 13				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		23230
		Frequency (MHz)		782
10M	QPSK	1	0	22.02
		1	24	21.80
		1	49	21.96
		25	0	21.15
		25	12	20.99
		25	25	21.05
		50	0	21.21
10M	16QAM	1	0	21.00
		1	24	21.11
		1	49	20.99
		25	0	20.22
		25	12	20.37
		25	25	20.43
		50	0	20.27

*ERP = Conducted + antenna gain (1.63dBi)-2.15

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131979	132322	132665
		Frequency (MHz)		1710.7	1745	1779.3
1.4M	QPSK	1	0	25.09	24.94	25.23
		1	2	25.25	25.08	25.19
		1	5	25.03	24.95	25.17
		3	0	24.25	24.11	24.30
		3	1	24.24	24.38	24.10
		3	3	24.33	24.25	24.38
		6	0	24.17	24.25	24.34
1.4M	16QAM	1	0	24.36	24.19	24.17
		1	2	24.45	24.14	24.19
		1	5	24.34	24.07	24.12
		3	0	23.49	23.54	23.34
		3	1	23.57	23.36	23.54
		3	3	23.45	23.54	23.49
		6	0	23.51	23.58	23.35

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131987	132322	132657
		Frequency (MHz)		1711.5	1745	1778.5
3M	QPSK	1	0	24.85	24.90	24.96
		1	7	25.09	24.87	25.24
		1	14	24.96	25.05	24.89
		8	0	24.14	24.11	24.19
		8	3	24.08	24.07	24.11
		8	7	24.25	24.43	24.37
		15	0	24.28	24.41	24.07
3M	16QAM	1	0	24.42	24.16	24.08
		1	7	24.34	24.44	24.16
		1	14	24.19	24.40	24.33
		8	0	23.40	23.31	23.44
		8	3	23.29	23.28	23.31
		8	7	23.32	23.59	23.64
		15	0	23.61	23.33	23.30

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		131997	132322	132647
		Frequency (MHz)		1712.5	1745	1777.5
5M	QPSK	1	0	24.85	25.05	24.85
		1	12	24.87	25.18	24.96
		1	24	24.90	24.99	25.22
		12	0	24.30	24.10	24.20
		12	6	24.37	24.34	24.24
		12	13	24.39	24.24	24.05
		25	0	24.36	24.15	24.28
5M	16QAM	1	0	24.28	24.22	24.08
		1	12	24.21	24.08	24.05
		1	24	24.29	24.10	24.37
		12	0	23.58	23.53	23.53
		12	6	23.64	23.48	23.35
		12	13	23.38	23.61	23.44
		25	0	23.62	23.38	23.27

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132022	132322	132622
		Frequency (MHz)		1715	1745	1775
10M	QPSK	1	0	25.09	25.16	24.96
		1	24	24.94	25.08	25.22
		1	49	24.97	24.97	24.98
		25	0	24.20	24.16	24.26
		25	12	24.21	24.08	24.36
		25	25	24.36	24.33	24.32
		50	0	24.30	24.07	24.35
10M	16QAM	1	0	24.30	24.23	24.21
		1	24	24.16	24.27	24.06
		1	49	24.10	24.28	24.30
		25	0	23.63	23.63	23.38
		25	12	23.42	23.60	23.48
		25	25	23.63	23.56	23.62
		50	0	23.63	23.44	23.51

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132047	132322	132597
		Frequency (MHz)		1717.5	1745	1772.5
15M	QPSK	1	0	25.10	25.16	25.04
		1	37	25.08	25.11	24.88
		1	74	25.00	25.06	25.11
		36	0	24.40	24.31	24.39
		36	19	24.32	24.31	24.16
		36	39	24.36	24.32	24.11
		75	0	24.25	24.22	24.08
15M	16QAM	1	0	24.32	24.38	24.11
		1	37	24.39	24.32	24.20
		1	74	24.20	24.32	24.19
		36	0	23.54	23.53	23.57
		36	19	23.33	23.48	23.44
		36	39	23.29	23.65	23.62
		75	0	23.42	23.29	23.45

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 66						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		132072	132322	132572
		Frequency (MHz)		1720	1745	1770
20M	QPSK	1	0	24.91	25.01	24.85
		1	50	24.94	25.16	24.91
		1	99	24.95	25.09	24.94
		50	0	24.07	24.34	24.29
		50	25	24.13	24.13	24.29
		50	50	24.08	24.22	24.37
		100	0	24.12	24.26	24.29
20M	16QAM	1	0	24.37	24.23	24.31
		1	50	24.38	24.44	24.05
		1	99	24.07	24.32	24.33
		50	0	23.26	23.28	23.49
		50	25	23.55	23.36	23.48
		50	50	23.33	23.58	23.43
		100	0	23.60	23.29	23.28

*EIRP = Conducted + antenna gain (1.95dBi)

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133147	133297	133447
		Frequency (MHz)		665.5	680.5	695.5
5M	QPSK	1	0	22.89	22.94	22.78
		1	12	22.85	22.80	23.05
		1	24	22.67	22.71	22.94
		12	0	21.91	22.05	22.18
		12	6	21.89	21.96	21.93
		12	13	21.95	22.17	21.89
		25	0	22.04	21.88	22.12
5M	16QAM	1	0	22.08	22.00	22.21
		1	12	22.23	21.90	21.93
		1	24	22.09	22.01	22.10
		12	0	21.30	21.10	21.25
		12	6	21.07	21.14	21.30
		12	13	21.16	21.36	21.29
		25	0	21.17	21.14	21.38

*ERP = Conducted + antenna gain (1.5dBi)-2.15

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133172	133297	133422
		Frequency (MHz)		668	680.5	693
10M	QPSK	1	0	22.97	22.67	22.67
		1	24	22.99	22.89	22.67
		1	49	22.75	22.83	22.96
		25	0	21.96	22.22	22.06
		25	12	22.19	21.98	22.14
		25	25	22.07	21.97	22.15
		50	0	22.10	22.06	22.12
10M	16QAM	1	0	22.00	22.17	22.24
		1	24	21.87	22.20	22.12
		1	49	21.93	22.12	21.85
		25	0	21.44	21.36	21.42
		25	12	21.39	21.15	21.42
		25	25	21.43	21.09	21.21
		50	0	21.30	21.20	21.45

*ERP = Conducted + antenna gain (1.5dBi)-2.15

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133197	133297	133397
		Frequency (MHz)		670.5	680.5	690.5
15M	QPSK	1	0	22.86	22.78	22.74
		1	37	23.03	22.82	22.92
		1	74	22.73	22.80	22.90
		36	0	22.14	21.94	22.23
		36	19	22.17	22.09	21.88
		36	39	22.11	22.08	22.06
		75	0	21.88	22.22	22.04
15M	16QAM	1	0	22.16	21.93	22.06
		1	37	22.04	22.12	22.00
		1	74	22.01	21.91	21.98
		36	0	21.24	21.35	21.29
		36	19	21.36	21.11	21.07
		36	39	21.42	21.43	21.21
		75	0	21.39	21.30	21.41

*ERP = Conducted + antenna gain (1.5dBi)-2.15

LTE Band 71						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		133222	133297	133372
		Frequency (MHz)		673	680.5	688
20M	QPSK	1	0	22.88	22.82	22.87
		1	50	22.72	22.81	22.92
		1	99	23.00	22.83	23.03
		50	0	22.13	21.88	22.03
		50	25	22.23	22.14	22.21
		50	50	22.04	21.89	22.05
		100	0	21.86	21.94	22.09
20M	16QAM	1	0	22.08	22.11	22.10
		1	50	21.92	21.89	22.19
		1	99	22.23	22.23	22.21
		50	0	21.23	21.44	21.17
		50	25	21.39	21.25	21.22
		50	50	21.17	21.06	21.33
		100	0	21.41	21.39	21.31

*ERP = Conducted + antenna gain (1.5dBi)-2.15

Spectrum Plot of Measurement

LTE Band 4

Channel 20175

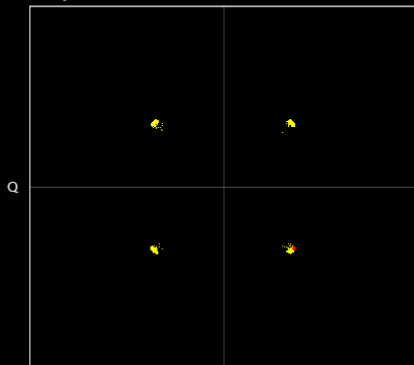
QPSK

16QAM

Fundamental > Constellation

0 Symbol
I 0.7238 Q -0.6874

Meas. Count : 1/ 1

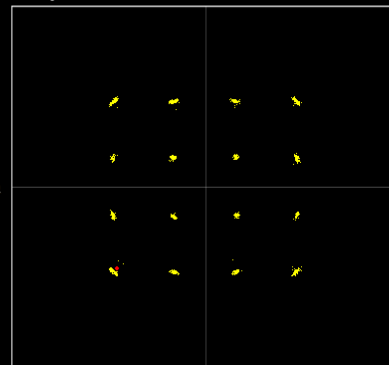


	Avg.	Max.	Min.	Limit
EVM	2.66	2.66	2.66 %(rms)	≤ 17.5 %(rms)
Peak Vector Error	30.60	30.60	30.60 %	
Carrier Leakage	-41.98	-41.98	-41.98 dBc	
IQ Imbalance	98.93	98.93	98.93 %(I/Q)	

Fundamental > Constellation

0 Symbol
I -0.9144 Q -0.9076

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	2.74	2.74	2.74 %(rms)	≤ 12.5 %(rms)
Peak Vector Error	36.14	36.14	36.14 %	
Carrier Leakage	-40.73	-40.73	-40.73 dBc	
IQ Imbalance	98.98	98.98	98.98 %(I/Q)	

Spectrum Plot of Measurement

LTE Band 12

Channel 23095

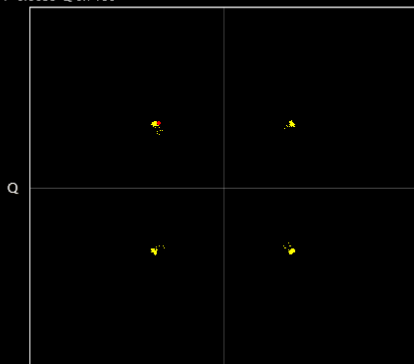
QPSK

16QAM

Fundamental > Constellation

0 Symbol
I -0.6659 Q 0.7180

Meas. Count : 1/ 1

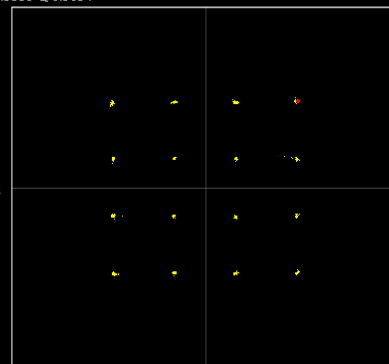


	Avg.	Max.	Min.	Limit
EVM	2.05	2.05	2.05 %(rms)	≤ 17.5 %(rms)
Peak Vector Error	26.19	26.19	26.19 %	
Carrier Leakage	-47.43	-47.43	-47.43 dBc	
IQ Imbalance	99.77	99.77	99.77 %(I/Q)	

Fundamental > Constellation

0 Symbol
I 0.9559 Q 0.9654

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	2.01	2.01	2.01 %(rms)	≤ 12.5 %(rms)
Peak Vector Error	30.41	30.41	30.41 %	
Carrier Leakage	-48.56	-48.56	-48.56 dBc	
IQ Imbalance	99.88	99.88	99.88 %(I/Q)	

Spectrum Plot of Measurement

LTE Band 13

Channel 23230

QPSK

16QAM

Fundamental > Constellation

0 Symbol
I 0.7196 Q -0.6870

Meas. Count : 1/ 1

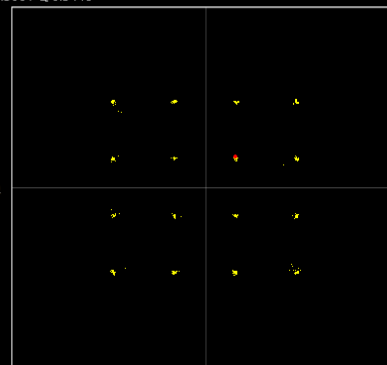


	Avg.	Max.	Min.	Limit
EVM	2.06	2.06	2.06 %(rms)	≤ 17.5 %(rms)
Peak Vector Error	22.29	22.29	22.29 %	
Carrier Leakage	-67.02	-67.02	-67.02 dBc	
IQ Imbalance	100.23	100.23	100.23 %(I/Q)	

Fundamental > Constellation

0 Symbol
I 0.3061 Q 0.3448

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	1.96	1.96	1.96 %(rms)	≤ 12.5 %(rms)
Peak Vector Error	26.70	26.70	26.70 %	
Carrier Leakage	-60.44	-60.44	-60.44 dBc	
IQ Imbalance	100.05	100.05	100.05 %(I/Q)	

Spectrum Plot of Measurement

LTE Band 66

Channel 132322

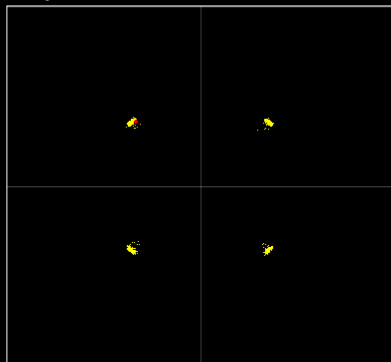
QPSK

16QAM

Fundamental > Constellation

0 Symbol
I -0.6635 Q 0.7158

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	2.59	2.59	2.59 %(rms)	≤ 17.5 %(rms)
Peak Vector Error	27.71	27.71	27.71 %	
Carrier Leakage	-42.66	-42.66	-42.66 dBc	
IQ Imbalance	98.86	98.86	98.86 %(I/Q)	

Fundamental > Constellation

0 Symbol
I -0.2851 Q 0.9906

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	2.93	2.93	2.93 %(rms)	≤ 12.5 %(rms)
Peak Vector Error	29.38	29.38	29.38 %	
Carrier Leakage	-41.46	-41.46	-41.46 dBc	
IQ Imbalance	98.89	98.89	98.89 %(I/Q)	

Spectrum Plot of Measurement

LTE Band 71

Channel 133297

QPSK

16QAM

Fundamental > Constellation

0 Symbol
I 0.7495 Q -0.6531

Meas. Count : 1/ 1

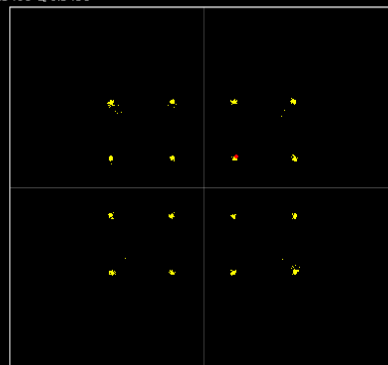


	Avg.	Max.	Min.	Limit
EVM	2.02	2.02	2.02 %(rms)	≤ 17.5 %(rms)
Peak Vector Error	24.89	24.89	24.89 %	
Carrier Leakage	-62.61	-62.61	-62.61 dBc	
IQ Imbalance	99.62	99.62	99.62 %(I/Q)	

Fundamental > Constellation

0 Symbol
I 0.3408 Q 0.3458

Meas. Count : 1/ 1



	Avg.	Max.	Min.	Limit
EVM	2.23	2.23	2.23 %(rms)	≤ 12.5 %(rms)
Peak Vector Error	32.59	32.59	32.59 %	
Carrier Leakage	-62.14	-62.14	-62.14 dBc	
IQ Imbalance	99.59	99.59	99.59 %(I/Q)	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

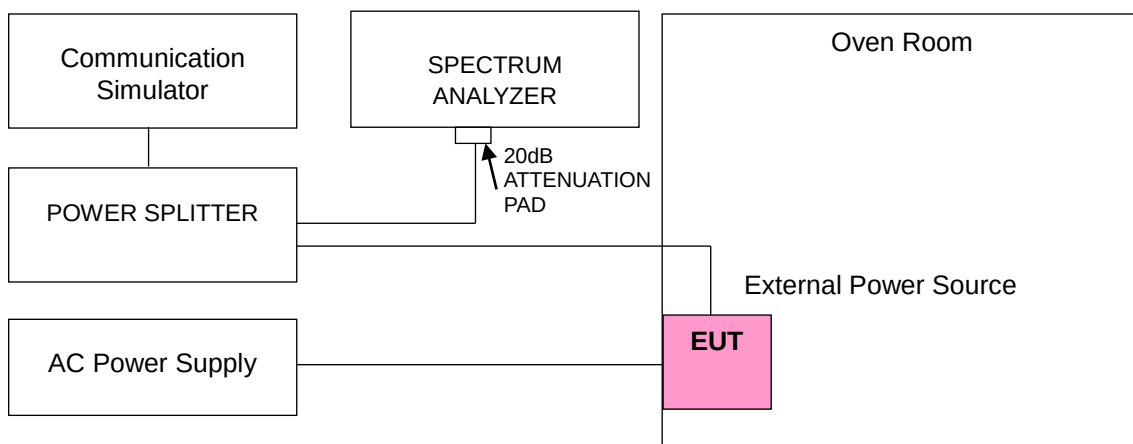
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

- 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 AC 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.

Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1712.4000019	0.001	1752.6000040	0.002
120	1712.4000011	0.001	1752.6000011	0.001
132	1712.4000038	0.002	1752.6000013	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.4000011	0.001	1752.6000022	0.001
-20	1712.4000031	0.002	1752.6000035	0.002
-10	1712.4000010	0.001	1752.6000034	0.002
0	1712.4000017	0.001	1752.6000019	0.001
10	1712.4000013	0.001	1752.6000039	0.002
20	1712.3999966	-0.002	1752.5999984	-0.001
30	1712.3999973	-0.002	1752.5999980	-0.001
40	1712.3999964	-0.002	1752.5999972	-0.002
50	1712.3999970	-0.002	1752.5999987	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1710.7000031	0.002	1754.3000025	0.001
120	1710.7000018	0.001	1754.3000027	0.002
132	1710.7000039	0.002	1754.3000015	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.7000015	0.001	1754.3000016	0.001
-20	1710.7000017	0.001	1754.3000021	0.001
-10	1710.7000011	0.001	1754.3000023	0.001
0	1710.7000037	0.002	1754.3000027	0.002
10	1710.7000040	0.002	1754.3000012	0.001
20	1710.6999970	-0.002	1754.2999972	-0.002
30	1710.6999988	-0.001	1754.2999975	-0.001
40	1710.6999986	-0.001	1754.2999964	-0.002
50	1710.6999971	-0.002	1754.2999989	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1711.5000035	0.002	1753.5000031	0.002
120	1711.5000020	0.001	1753.5000018	0.001
132	1711.5000010	0.001	1753.5000021	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.5000038	0.002	1753.5000025	0.001
-20	1711.5000013	0.001	1753.5000036	0.002
-10	1711.5000031	0.002	1753.5000029	0.002
0	1711.5000019	0.001	1753.5000019	0.001
10	1711.5000011	0.001	1753.5000038	0.002
20	1711.4999989	-0.001	1753.4999987	-0.001
30	1711.4999962	-0.002	1753.4999980	-0.001
40	1711.4999964	-0.002	1753.4999990	-0.001
50	1711.4999975	-0.001	1753.4999989	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1712.5000031	0.002	1752.5000026	0.001
120	1712.5000020	0.001	1752.5000016	0.001
132	1712.5000017	0.001	1752.5000021	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.5000038	0.002	1752.5000014	0.001
-20	1712.5000034	0.002	1752.5000030	0.002
-10	1712.5000014	0.001	1752.5000037	0.002
0	1712.5000039	0.002	1752.5000028	0.002
10	1712.5000039	0.002	1752.5000031	0.002
20	1712.4999971	-0.002	1752.4999988	-0.001
30	1712.4999976	-0.001	1752.4999969	-0.002
40	1712.4999971	-0.002	1752.4999971	-0.002
50	1712.4999981	-0.001	1752.4999964	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1715.0000028	0.002	1750.0000033	0.002
120	1715.0000010	0.001	1750.0000010	0.001
132	1715.0000010	0.001	1750.0000024	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.0000033	0.002	1750.0000038	0.002
-20	1715.0000011	0.001	1750.0000011	0.001
-10	1715.0000017	0.001	1750.0000033	0.002
0	1715.0000018	0.001	1750.0000019	0.001
10	1715.0000032	0.002	1750.0000012	0.001
20	1714.9999988	-0.001	1749.9999982	-0.001
30	1714.9999968	-0.002	1749.9999974	-0.001
40	1714.9999988	-0.001	1749.9999983	-0.001
50	1714.9999986	-0.001	1749.9999985	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1717.5000030	0.002	1747.5000021	0.001
120	1717.5000010	0.001	1747.5000023	0.001
132	1717.5000034	0.002	1747.5000018	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.5000011	0.001	1747.5000029	0.002
-20	1717.5000029	0.002	1747.5000031	0.002
-10	1717.5000039	0.002	1747.5000012	0.001
0	1717.5000024	0.001	1747.5000021	0.001
10	1717.5000017	0.001	1747.5000016	0.001
20	1717.4999970	-0.002	1747.4999973	-0.002
30	1717.4999985	-0.001	1747.4999961	-0.002
40	1717.4999988	-0.001	1747.4999979	-0.001
50	1717.4999988	-0.001	1747.4999985	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1720.0000027	0.002	1745.0000027	0.002
120	1720.0000032	0.002	1745.0000012	0.001
132	1720.0000027	0.002	1745.0000025	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 4			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.0000026	0.002	1745.0000024	0.001
-20	1720.0000036	0.002	1745.0000027	0.002
-10	1720.0000034	0.002	1745.0000035	0.002
0	1720.0000021	0.001	1745.0000026	0.001
10	1720.0000031	0.002	1745.0000026	0.001
20	1719.9999967	-0.002	1744.9999980	-0.001
30	1719.9999970	-0.002	1744.9999961	-0.002
40	1719.9999988	-0.001	1744.9999961	-0.002
50	1719.9999969	-0.002	1744.9999986	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	699.7000021	0.003	715.3000020	0.003
120	699.7000032	0.005	715.3000040	0.006
132	699.7000038	0.005	715.3000020	0.003

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.7000027	0.004	715.3000020	0.003
-20	699.7000010	0.001	715.3000029	0.004
-10	699.7000010	0.001	715.3000019	0.003
0	699.7000040	0.006	715.3000010	0.001
10	699.7000040	0.006	715.3000018	0.003
20	699.6999963	-0.005	715.2999985	-0.002
30	699.6999978	-0.003	715.2999960	-0.006
40	699.6999974	-0.004	715.2999969	-0.004
50	699.6999964	-0.005	715.2999982	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	700.5000022	0.003	714.5000017	0.002
120	700.5000038	0.005	714.5000019	0.003
132	700.5000013	0.002	714.5000021	0.003

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	700.5000035	0.005	714.5000018	0.003
-20	700.5000035	0.005	714.5000020	0.003
-10	700.5000033	0.005	714.5000032	0.004
0	700.5000035	0.005	714.5000019	0.003
10	700.5000013	0.002	714.5000024	0.003
20	700.4999968	-0.005	714.4999976	-0.003
30	700.4999990	-0.001	714.4999979	-0.003
40	700.4999971	-0.004	714.4999961	-0.005
50	700.4999972	-0.004	714.4999985	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	701.5000015	0.002	713.5000017	0.002
120	701.5000021	0.003	713.5000010	0.001
132	701.5000022	0.003	713.5000026	0.004

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.5000038	0.005	713.5000012	0.002
-20	701.5000026	0.004	713.5000019	0.003
-10	701.5000019	0.003	713.5000032	0.004
0	701.5000037	0.005	713.5000026	0.004
10	701.5000016	0.002	713.5000016	0.002
20	701.4999978	-0.003	713.4999962	-0.005
30	701.4999975	-0.004	713.4999972	-0.004
40	701.4999975	-0.004	713.4999978	-0.003
50	701.4999961	-0.006	713.4999988	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	704.0000029	0.004	711.0000032	0.005
120	704.0000013	0.002	711.0000030	0.004
132	704.0000016	0.002	711.0000038	0.005

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.0000038	0.005	711.0000024	0.003
-20	704.0000027	0.004	711.0000028	0.004
-10	704.0000036	0.005	711.0000016	0.002
0	704.0000032	0.005	711.0000011	0.002
10	704.0000031	0.004	711.0000030	0.004
20	703.9999986	-0.002	710.9999986	-0.002
30	703.9999979	-0.003	710.9999960	-0.006
40	703.9999982	-0.003	710.9999987	-0.002
50	703.9999962	-0.005	710.9999990	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	779.5000021	0.003	784.5000021	0.003
120	779.5000037	0.005	784.5000035	0.004
132	779.5000019	0.002	784.5000015	0.002

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 13			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.5000013	0.002	784.5000027	0.003
-20	779.5000018	0.002	784.5000010	0.001
-10	779.5000030	0.004	784.5000040	0.005
0	779.5000038	0.005	784.5000040	0.005
10	779.5000032	0.004	784.5000012	0.002
20	779.4999963	-0.005	784.4999967	-0.004
30	779.4999982	-0.002	784.4999980	-0.003
40	779.4999978	-0.003	784.4999984	-0.002
50	779.4999976	-0.003	784.4999963	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
108	782.0000030	0.004
120	782.0000040	0.005
132	782.0000030	0.004

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 13	
	Channel Bandwidth: 10 MHz	
	Frequency (MHz)	Frequency Error (ppm)
-30	782.0000031	0.004
-20	782.0000021	0.003
-10	782.0000021	0.003
0	782.0000027	0.003
10	782.0000021	0.003
20	781.9999982	-0.002
30	781.9999972	-0.004
40	781.9999978	-0.003
50	781.9999963	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1710.7000022	0.001	1779.3000013	0.001
120	1710.7000013	0.001	1779.3000036	0.002
132	1710.7000034	0.002	1779.3000016	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.7000033	0.002	1779.3000026	0.001
-20	1710.7000021	0.001	1779.3000037	0.002
-10	1710.7000016	0.001	1779.3000016	0.001
0	1710.7000026	0.002	1779.3000010	0.001
10	1710.7000013	0.001	1779.3000013	0.001
20	1710.6999962	-0.002	1779.2999971	-0.002
30	1710.6999974	-0.002	1779.2999962	-0.002
40	1710.6999974	-0.002	1779.2999964	-0.002
50	1710.6999984	-0.001	1779.2999988	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1711.5000031	0.002	1778.5000024	0.001
120	1711.5000034	0.002	1778.5000033	0.002
132	1711.5000028	0.002	1778.5000021	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.5000032	0.002	1778.5000023	0.001
-20	1711.5000025	0.001	1778.5000018	0.001
-10	1711.5000013	0.001	1778.5000031	0.002
0	1711.5000018	0.001	1778.5000025	0.001
10	1711.5000014	0.001	1778.5000022	0.001
20	1711.4999971	-0.002	1778.4999970	-0.002
30	1711.4999976	-0.001	1778.4999985	-0.001
40	1711.4999965	-0.002	1778.4999989	-0.001
50	1711.4999974	-0.002	1778.4999971	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1712.5000022	0.001	1777.5000034	0.002
120	1712.5000026	0.002	1777.5000037	0.002
132	1712.5000012	0.001	1777.5000015	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.5000011	0.001	1777.5000034	0.002
-20	1712.5000026	0.002	1777.5000030	0.002
-10	1712.5000023	0.001	1777.5000030	0.002
0	1712.5000019	0.001	1777.5000028	0.002
10	1712.5000034	0.002	1777.5000019	0.001
20	1712.4999962	-0.002	1777.4999965	-0.002
30	1712.4999988	-0.001	1777.4999965	-0.002
40	1712.4999983	-0.001	1777.4999979	-0.001
50	1712.4999980	-0.001	1777.4999970	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1715.0000024	0.001	1775.0000016	0.001
120	1715.0000034	0.002	1775.0000028	0.002
132	1715.0000034	0.002	1775.0000019	0.001

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.0000031	0.002	1775.0000025	0.001
-20	1715.0000030	0.002	1775.0000029	0.002
-10	1715.0000022	0.001	1775.0000023	0.001
0	1715.0000020	0.001	1775.0000018	0.001
10	1715.0000024	0.001	1775.0000040	0.002
20	1714.9999968	-0.002	1774.9999976	-0.001
30	1714.9999971	-0.002	1774.9999979	-0.001
40	1714.9999989	-0.001	1774.9999990	-0.001
50	1714.9999981	-0.001	1774.9999980	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1717.5000011	0.001	1772.5000034	0.002
120	1717.5000019	0.001	1772.5000033	0.002
132	1717.5000037	0.002	1772.5000033	0.002

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.5000031	0.002	1772.5000025	0.001
-20	1717.5000011	0.001	1772.5000013	0.001
-10	1717.5000038	0.002	1772.5000023	0.001
0	1717.5000032	0.002	1772.5000019	0.001
10	1717.5000018	0.001	1772.5000030	0.002
20	1717.4999971	-0.002	1772.4999990	-0.001
30	1717.4999981	-0.001	1772.4999970	-0.002
40	1717.4999985	-0.001	1772.4999985	-0.001
50	1717.4999980	-0.001	1772.4999968	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	1720.0000022	0.001	1770.0000018	0.001
120	1720.0000017	0.001	1770.0000039	0.002
132	1720.0000027	0.002	1770.0000030	0.002

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1720.0000031	0.002	1770.0000032	0.002
-20	1720.0000031	0.002	1770.0000022	0.001
-10	1720.0000016	0.001	1770.0000038	0.002
0	1720.0000012	0.001	1770.0000014	0.001
10	1720.0000013	0.001	1770.0000014	0.001
20	1719.9999960	-0.002	1769.9999962	-0.002
30	1719.9999960	-0.002	1769.9999972	-0.002
40	1719.9999964	-0.002	1769.9999966	-0.002
50	1719.9999978	-0.001	1769.9999964	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	665.5000030	0.005	695.5000015	0.002
120	665.5000017	0.003	695.5000026	0.004
132	665.5000037	0.006	695.5000037	0.005

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	665.5000016	0.002	695.5000016	0.002
-20	665.5000022	0.003	695.5000039	0.006
-10	665.5000013	0.002	695.5000024	0.003
0	665.5000014	0.002	695.5000035	0.005
10	665.5000014	0.002	695.5000019	0.003
20	665.4999982	-0.003	695.4999971	-0.004
30	665.4999990	-0.002	695.4999982	-0.003
40	665.4999961	-0.006	695.4999986	-0.002
50	665.4999983	-0.003	695.4999962	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	668.0000016	0.002	693.0000036	0.005
120	668.0000022	0.003	693.0000032	0.005
132	668.0000025	0.004	693.0000030	0.004

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	668.0000022	0.003	693.0000017	0.002
-20	668.0000011	0.002	693.0000026	0.004
-10	668.0000026	0.004	693.0000027	0.004
0	668.0000018	0.003	693.0000036	0.005
10	668.0000024	0.004	693.0000038	0.005
20	667.9999982	-0.003	692.9999964	-0.005
30	667.9999972	-0.004	692.9999964	-0.005
40	667.9999990	-0.001	692.9999967	-0.005
50	667.9999963	-0.006	692.9999989	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	670.5000013	0.002	690.5000012	0.002
120	670.5000028	0.004	690.5000023	0.003
132	670.5000024	0.004	690.5000039	0.006

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	670.5000018	0.003	690.5000011	0.002
-20	670.5000019	0.003	690.5000016	0.002
-10	670.5000015	0.002	690.5000023	0.003
0	670.5000019	0.003	690.5000026	0.004
10	670.5000038	0.006	690.5000010	0.001
20	670.4999989	-0.002	690.4999969	-0.004
30	670.4999990	-0.001	690.4999982	-0.003
40	670.4999968	-0.005	690.4999990	-0.001
50	670.4999961	-0.006	690.4999966	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
108	673.0000026	0.004	688.0000034	0.005
120	673.0000033	0.005	688.0000015	0.002
132	673.0000034	0.005	688.0000012	0.002

Note: The applicant defined the normal working voltage is from 108 Vac to 132 Vac.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 71			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	673.0000036	0.005	688.0000025	0.004
-20	673.0000030	0.004	688.0000039	0.006
-10	673.0000035	0.005	688.0000016	0.002
0	673.0000037	0.005	688.0000032	0.005
10	673.0000018	0.003	688.0000027	0.004
20	672.9999975	-0.004	687.9999980	-0.003
30	672.9999971	-0.004	687.9999967	-0.005
40	672.9999990	-0.001	687.9999988	-0.002
50	672.9999988	-0.002	687.9999983	-0.002

4.4 Occupied Bandwidth Measurement

4.4.1 Limits of Occupied Bandwidth Measurement

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.2 Test Procedure

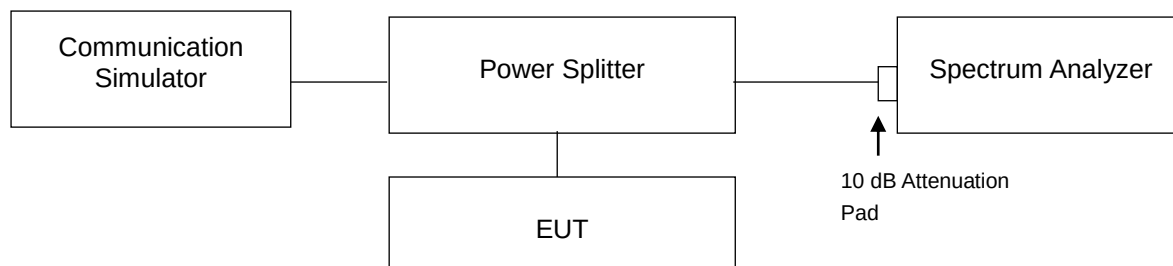
The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.
- Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

4.4.3 Test Setup

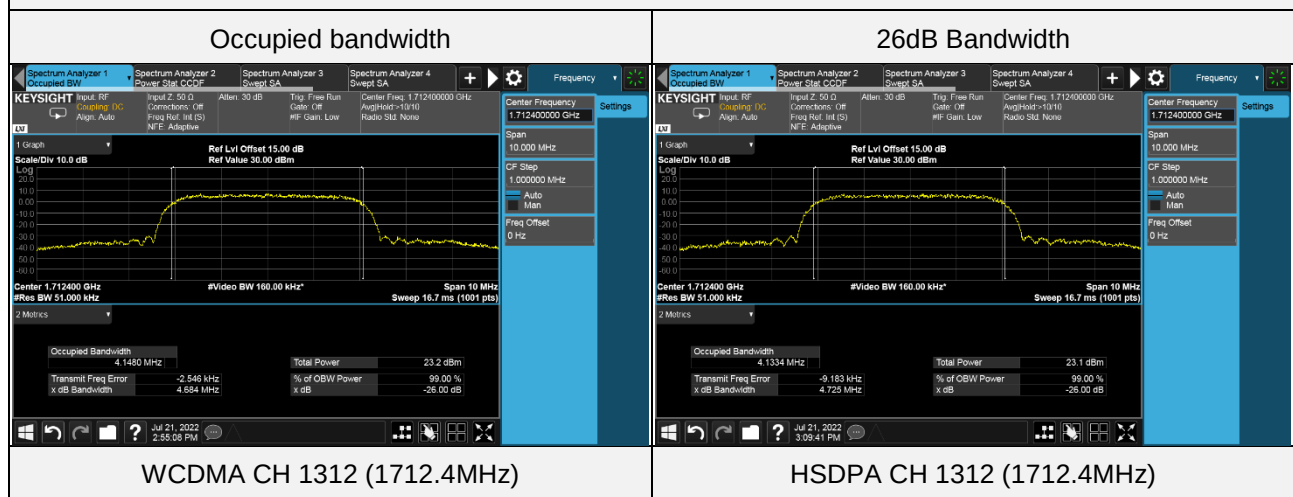


4.4.4 Test Result

WCDMA Band 4

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26dB Bandwidth (MHz)
WCDMA	1312	1712.4	4.15	4.68
WCDMA	1413	1732.6	4.14	4.66
WCDMA	1513	1752.6	4.13	4.71
HSDPA	1312	1712.4	4.13	4.73
HSDPA	1413	1732.6	4.13	4.68
HSDPA	1513	1752.6	4.15	4.70
HSUPA	1312	1712.4	4.14	4.72
HSUPA	1413	1732.6	4.13	4.70
HSUPA	1513	1752.6	4.14	4.69

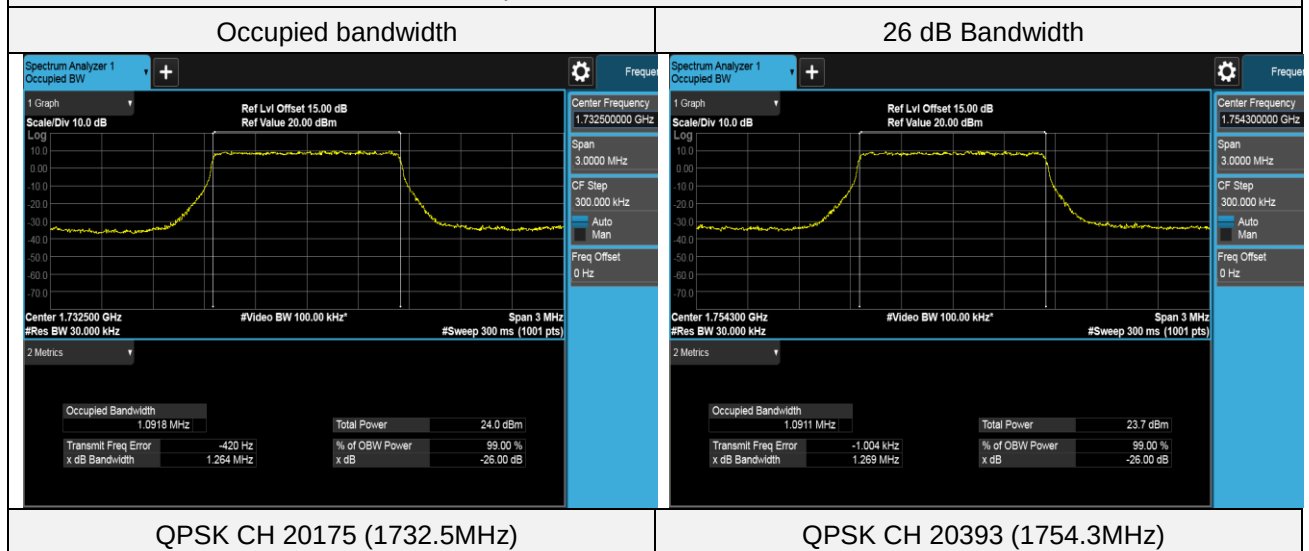
Spectrum Plot of Worst Value



LTE Band 4 (Channel Bandwidth 1.4MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19957	1710.7	1.0881	1.265
QPSK	20175	1732.5	1.0918	1.264
QPSK	20393	1754.3	1.0911	1.269
16QAM	19957	1710.7	1.0889	1.259
16QAM	20175	1732.5	1.0872	1.253
16QAM	20393	1754.3	1.0879	1.251

Spectrum Plot of Worst Value

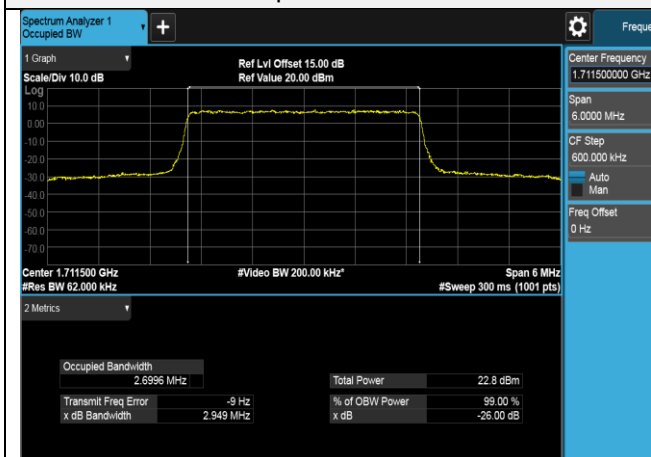


LTE Band 4 (Channel Bandwidth 3MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19965	1711.5	2.6993	2.921
QPSK	20175	1732.5	2.6985	2.920
QPSK	20385	1753.5	2.6956	2.921
16QAM	19965	1711.5	2.6996	2.949
16QAM	20175	1732.5	2.6984	2.918
16QAM	20385	1753.5	2.6993	2.931

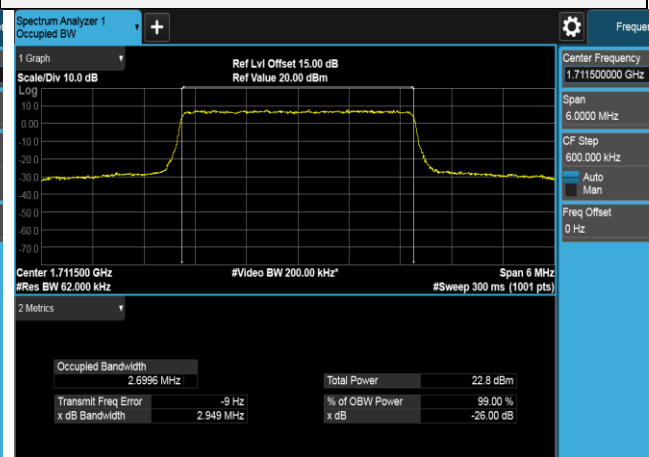
Spectrum Plot of Worst Value

Occupied bandwidth



16QAM CH 19965 (1711.5MHz)

26 dB Bandwidth

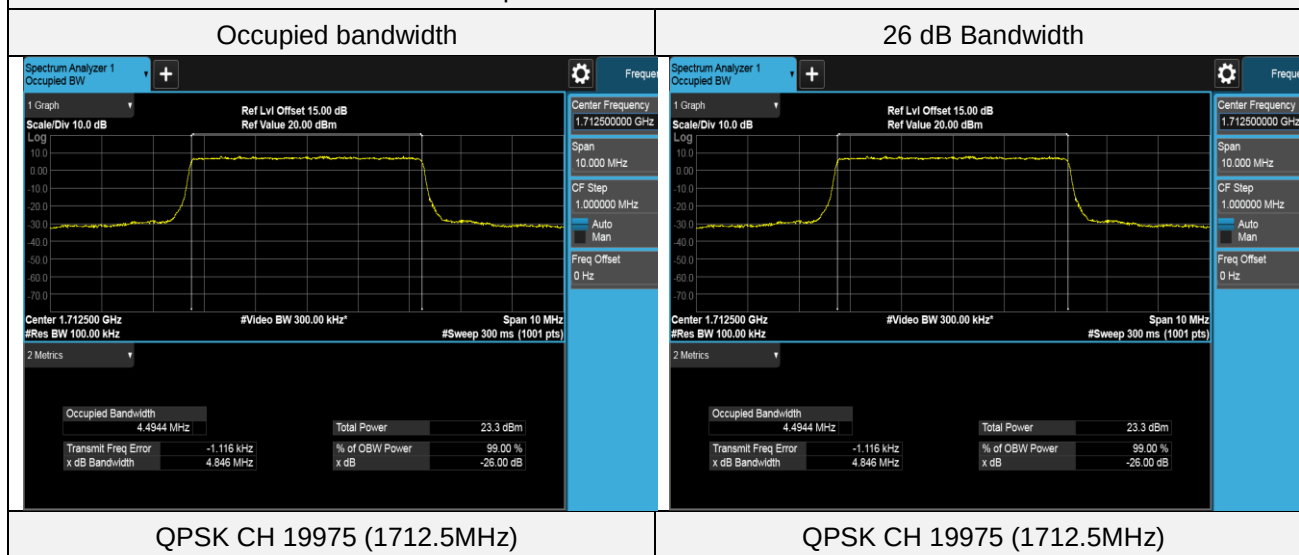


16QAM CH 19965 (1711.5MHz)

LTE Band 4 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	19975	1712.5	4.4944	4.846
QPSK	20175	1732.5	4.4925	4.827
QPSK	20375	1752.5	4.4901	4.824
16QAM	19975	1712.5	4.4922	4.822
16QAM	20175	1732.5	4.4907	4.818
16QAM	20375	1752.5	4.4921	4.825

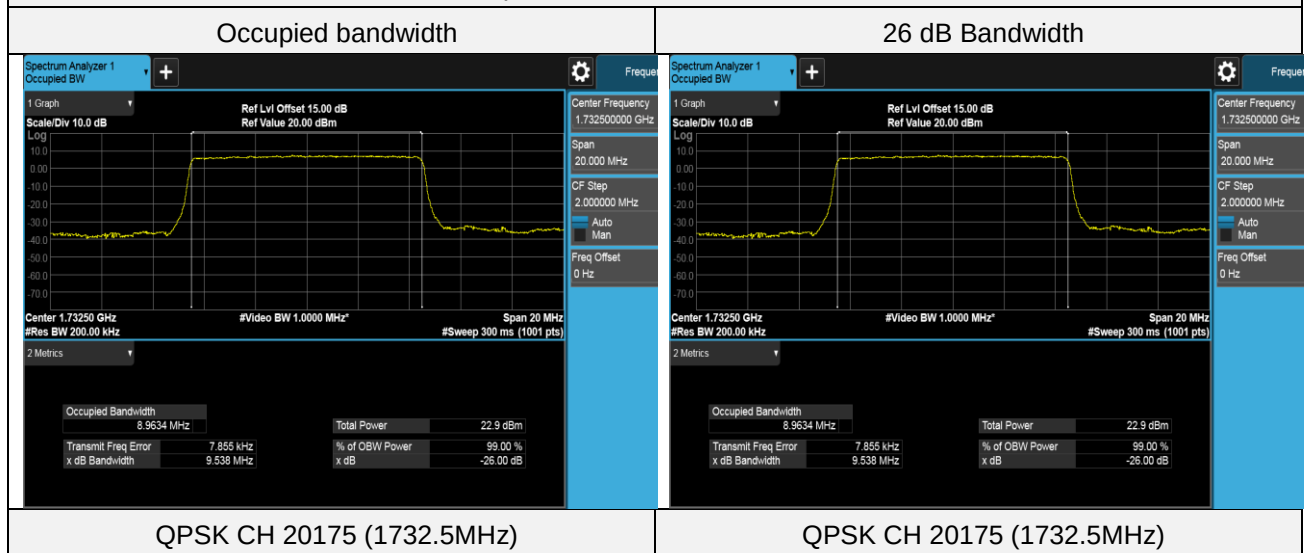
Spectrum Plot of Worst Value



LTE Band 4 (Channel Bandwidth 10 MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20000	1715	8.9516	9.505
QPSK	20175	1732.5	8.9634	9.538
QPSK	20350	1750	8.9496	9.496
16QAM	20000	1715	8.9446	9.506
16QAM	20175	1732.5	8.9603	9.519
16QAM	20350	1750	8.9469	9.493

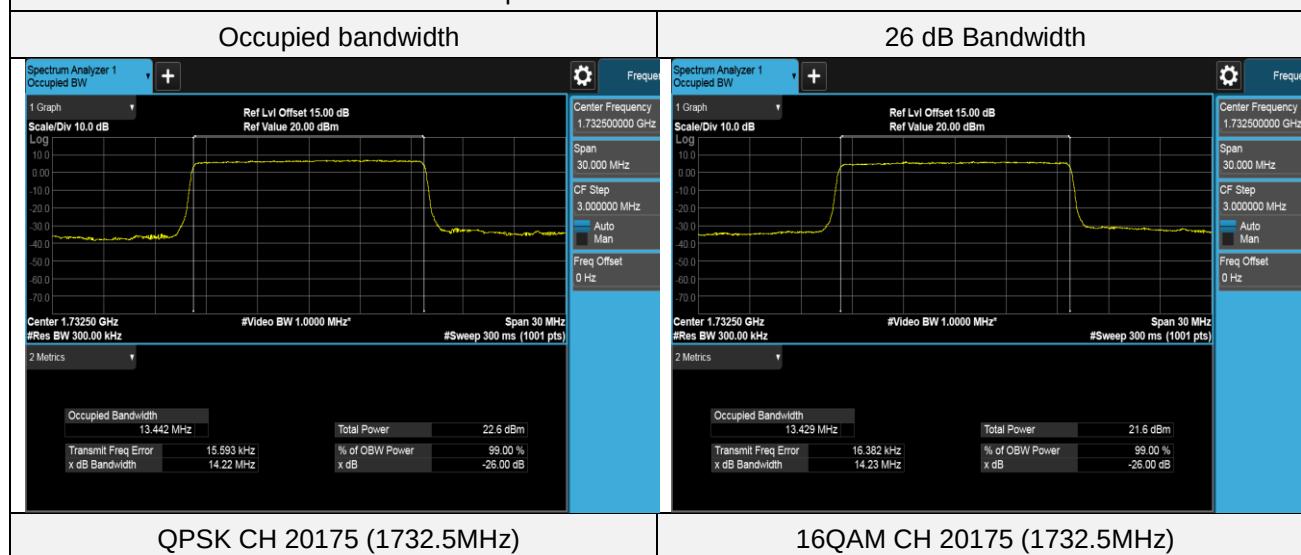
Spectrum Plot of Worst Value



LTE Band 4 (Channel Bandwidth 15MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20025	1717.5	13.4227	14.216
QPSK	20175	1732.5	13.4417	14.224
QPSK	20325	1747.5	13.4156	14.216
16QAM	20025	1717.5	13.4162	14.206
16QAM	20175	1732.5	13.4286	14.225
16QAM	20325	1747.5	13.4022	14.224

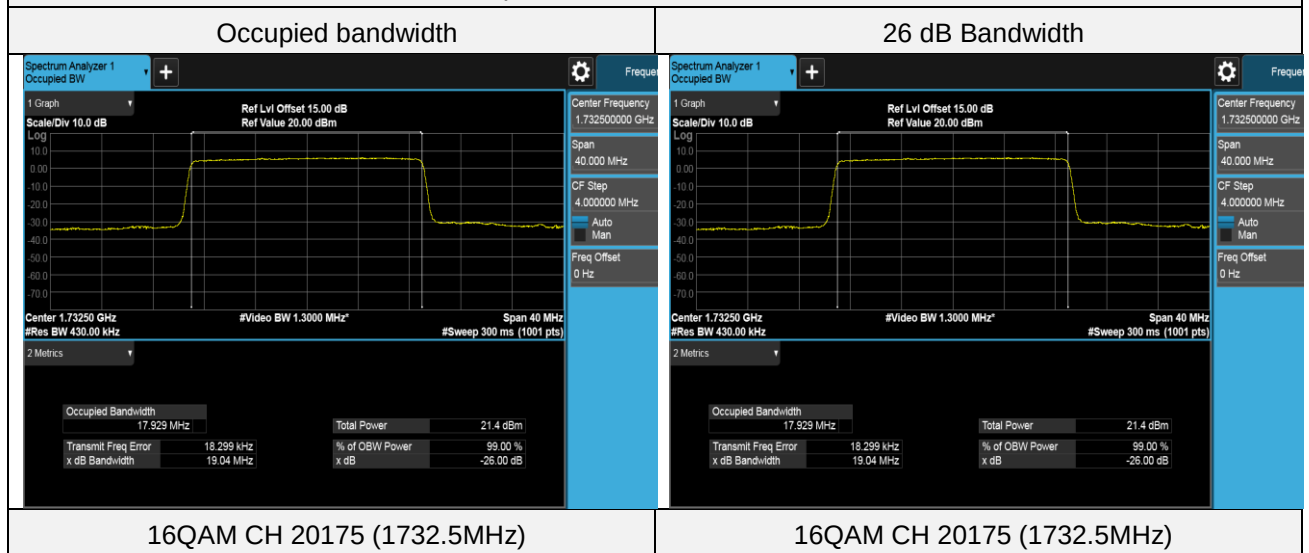
Spectrum Plot of Worst Value



LTE Band 4 (Channel Bandwidth 20MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20050	1720	17.8903	19.009
QPSK	20175	1732.5	17.9102	19.019
QPSK	20300	1745	17.8598	18.999
16QAM	20050	1720	17.9052	19.007
16QAM	20175	1732.5	17.9287	19.042
16QAM	20300	1745	17.8742	18.990

Spectrum Plot of Worst Value

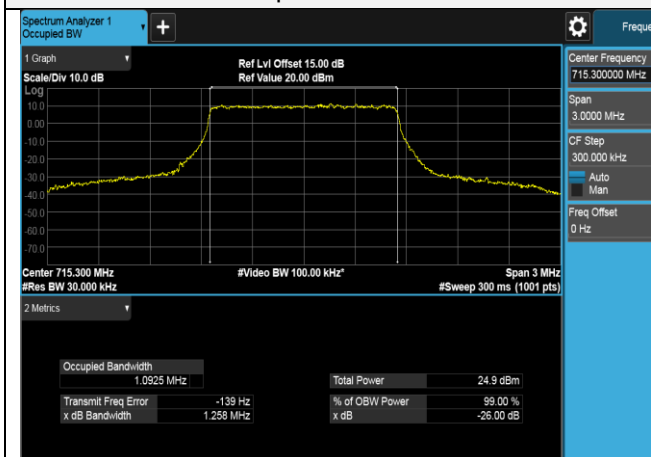


LTE Band 12 (Channel Bandwidth 1.4MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23017	699.7	1.0889	1.262
QPSK	23095	707.5	1.0914	1.261
QPSK	23173	715.3	1.0925	1.258
16QAM	23017	699.7	1.0896	1.253
16QAM	23095	707.5	1.0890	1.247
16QAM	23173	715.3	1.0892	1.252

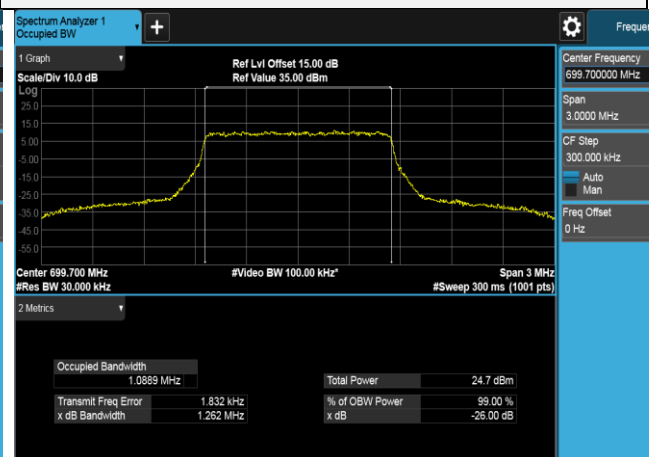
Spectrum Plot of Worst Value

Occupied bandwidth



QPSK CH 23173 (715.3MHz)

26 dB Bandwidth

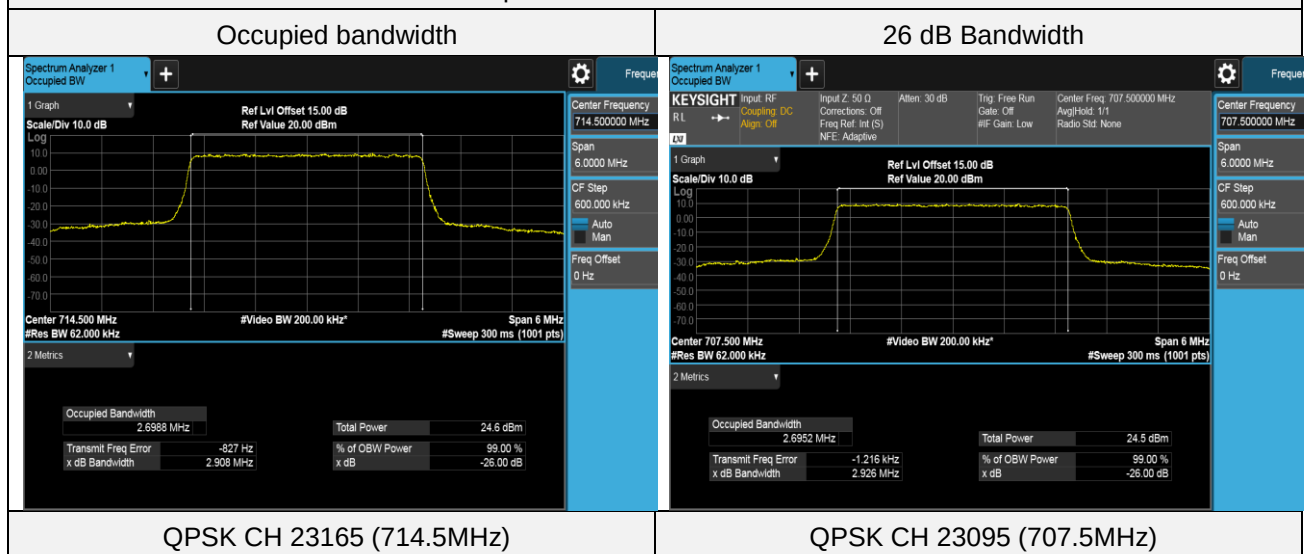


QPSK CH 23017 (699.7MHz)

LTE Band 12 (Channel Bandwidth 3MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23025	700.5	2.6974	2.911
QPSK	23095	707.5	2.6952	2.926
QPSK	23165	714.5	2.6988	2.908
16QAM	23025	700.5	2.6977	2.918
16QAM	23095	707.5	2.6975	2.916
16QAM	23165	714.5	2.6979	2.918

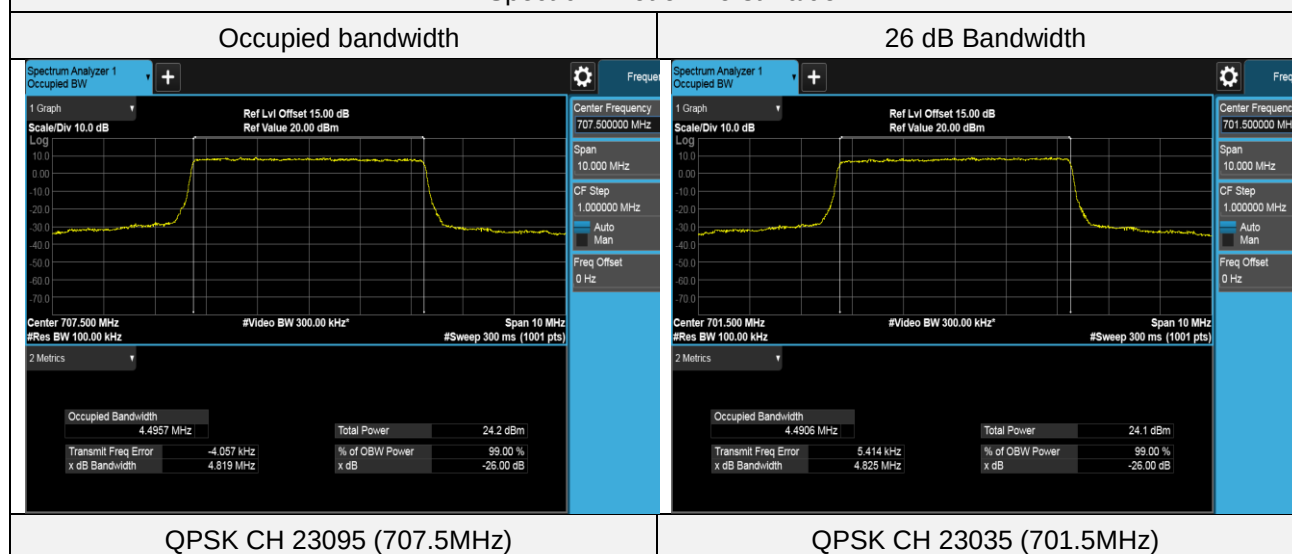
Spectrum Plot of Worst Value



LTE Band 12 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23035	701.5	4.4906	4.825
QPSK	23095	707.5	4.4957	4.819
QPSK	23155	713.5	4.4907	4.820
16QAM	23035	701.5	4.4876	4.808
16QAM	23095	707.5	4.4900	4.822
16QAM	23155	713.5	4.4909	4.806

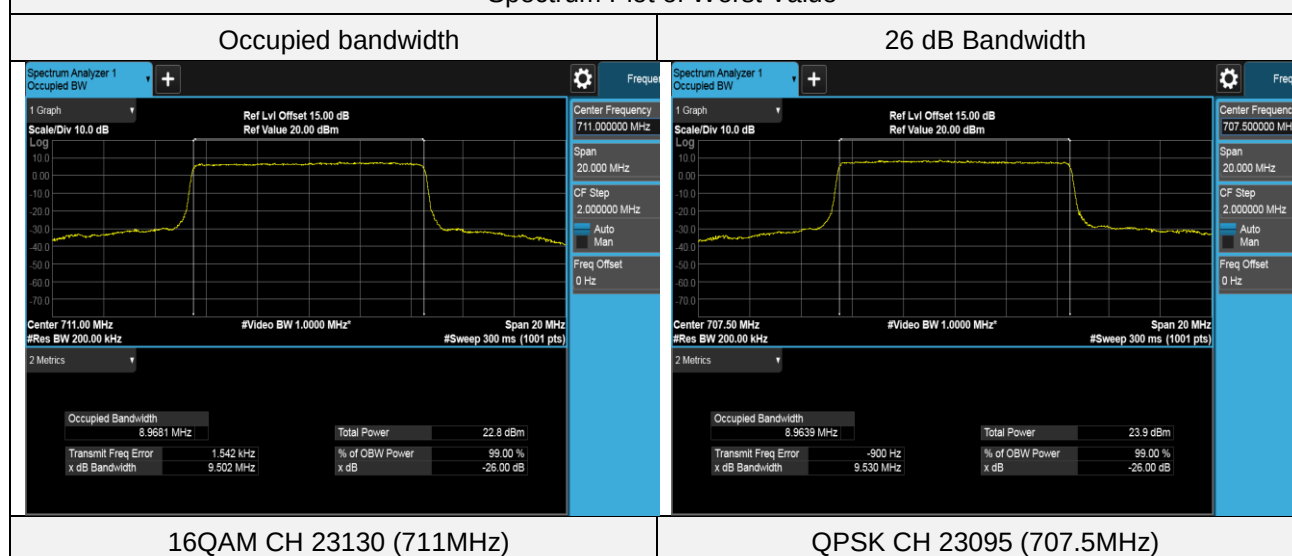
Spectrum Plot of Worst Value



LTE Band 12 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23060	704	8.9352	9.502
QPSK	23095	707.5	8.9639	9.530
QPSK	23130	711	8.9655	9.515
16QAM	23060	704	8.9361	9.500
16QAM	23095	707.5	8.9595	9.512
16QAM	23130	711	8.9681	9.502

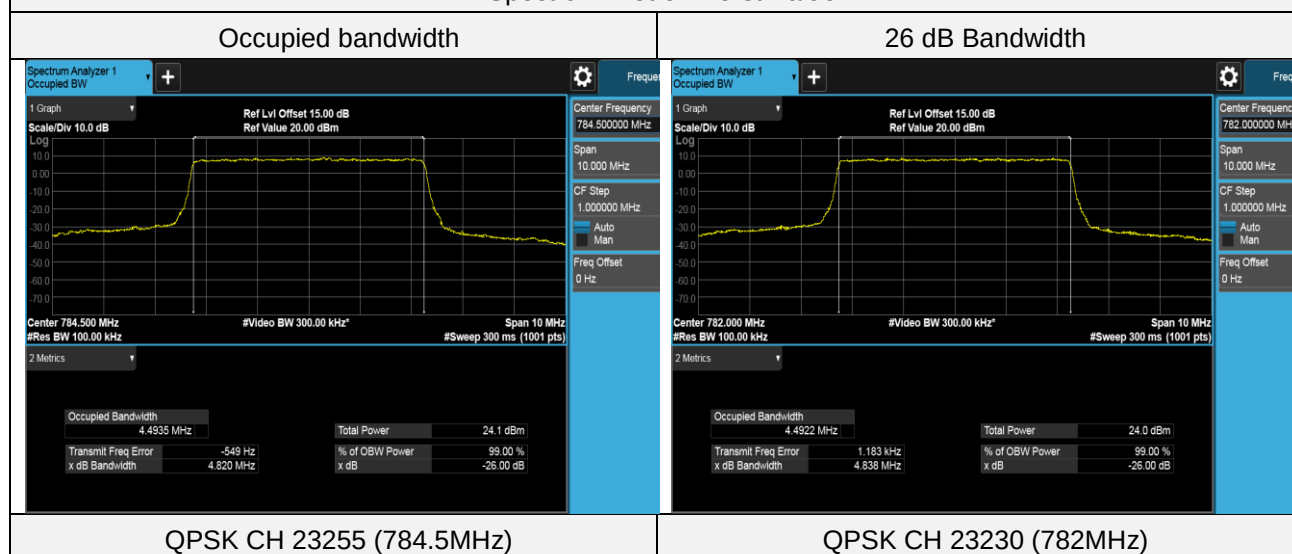
Spectrum Plot of Worst Value



LTE Band 13 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23205	779.5	4.4875	4.816
QPSK	23230	782	4.4922	4.838
QPSK	23255	784.5	4.4935	4.820
16QAM	23205	779.5	4.4879	4.814
16QAM	23230	782	4.4903	4.819
16QAM	23255	784.5	4.4880	4.804

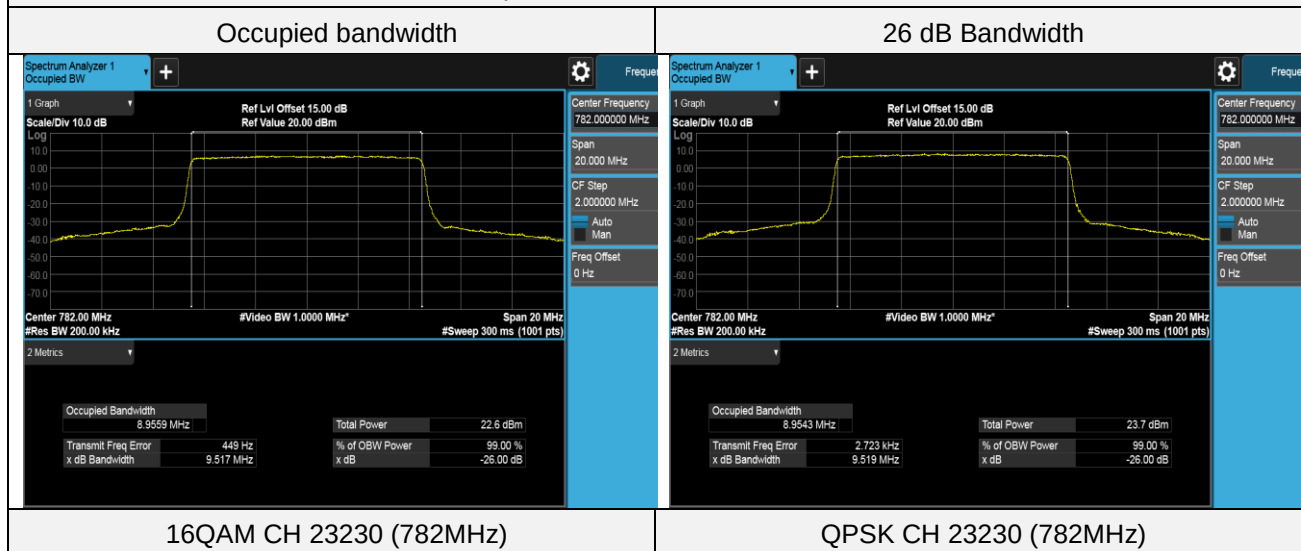
Spectrum Plot of Worst Value



LTE Band 13 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23230	782	8.9543	9.519
16QAM	23230	782	8.9559	9.517

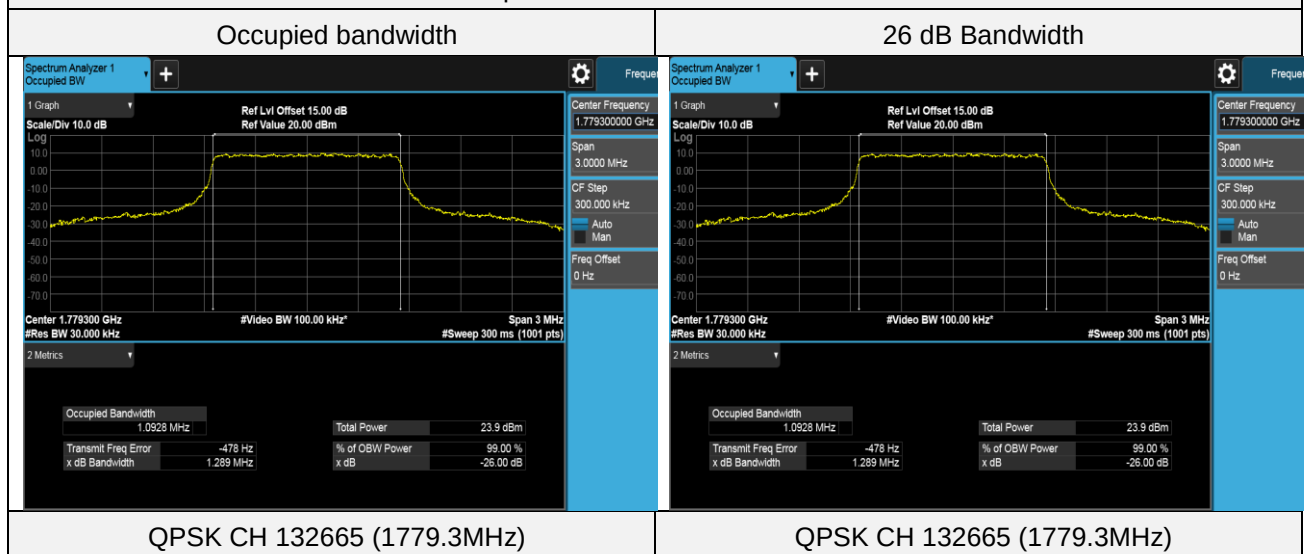
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 1.4MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131979	1710.7	1.0900	1.263
QPSK	132322	1745	1.0914	1.259
QPSK	132665	1779.3	1.0928	1.289
16QAM	131979	1710.7	1.0892	1.253
16QAM	132322	1745	1.0881	1.252
16QAM	132665	1779.3	1.0898	1.254

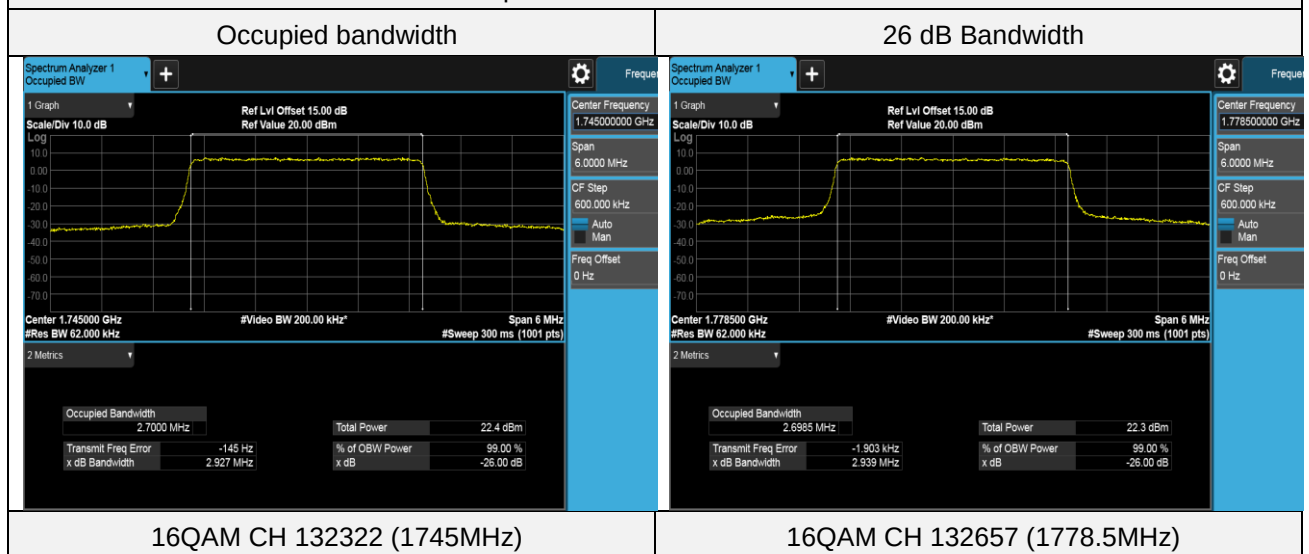
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 3MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131987	1711.5	2.6986	2.926
QPSK	132322	1745	2.6983	2.898
QPSK	132657	1778.5	2.6987	2.935
16QAM	131987	1711.5	2.6982	2.931
16QAM	132322	1745	2.7000	2.927
16QAM	132657	1778.5	2.6985	2.939

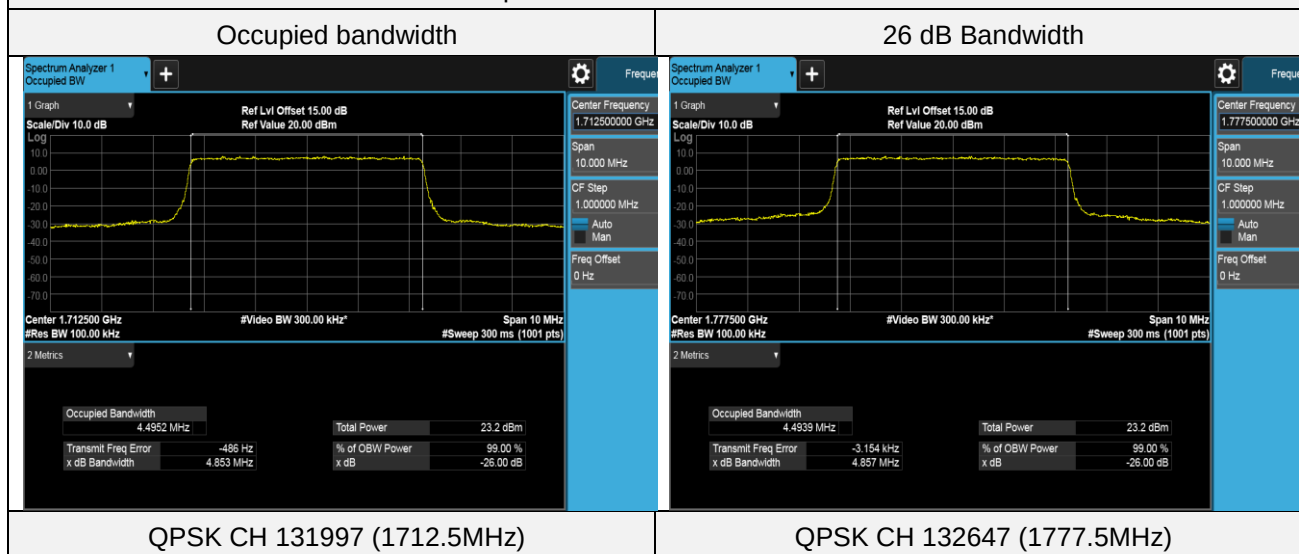
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131997	1712.5	4.4952	4.853
QPSK	132322	1745	4.4941	4.830
QPSK	132647	1777.5	4.4939	4.857
16QAM	131997	1712.5	4.4914	4.838
16QAM	132322	1745	4.4923	4.819
16QAM	132647	1777.5	4.4916	4.848

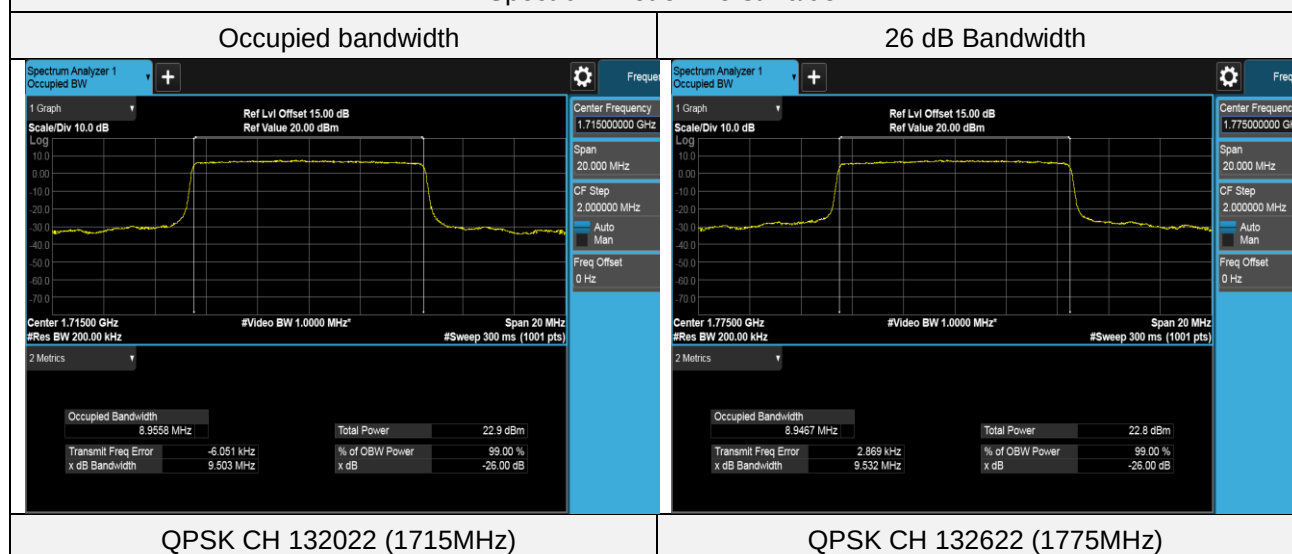
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132022	1715	8.9558	9.503
QPSK	132322	1745	8.9508	9.513
QPSK	132622	1775	8.9467	9.532
16QAM	132022	1715	8.9491	9.515
16QAM	132322	1745	8.9517	9.511
16QAM	132622	1775	8.9499	9.506

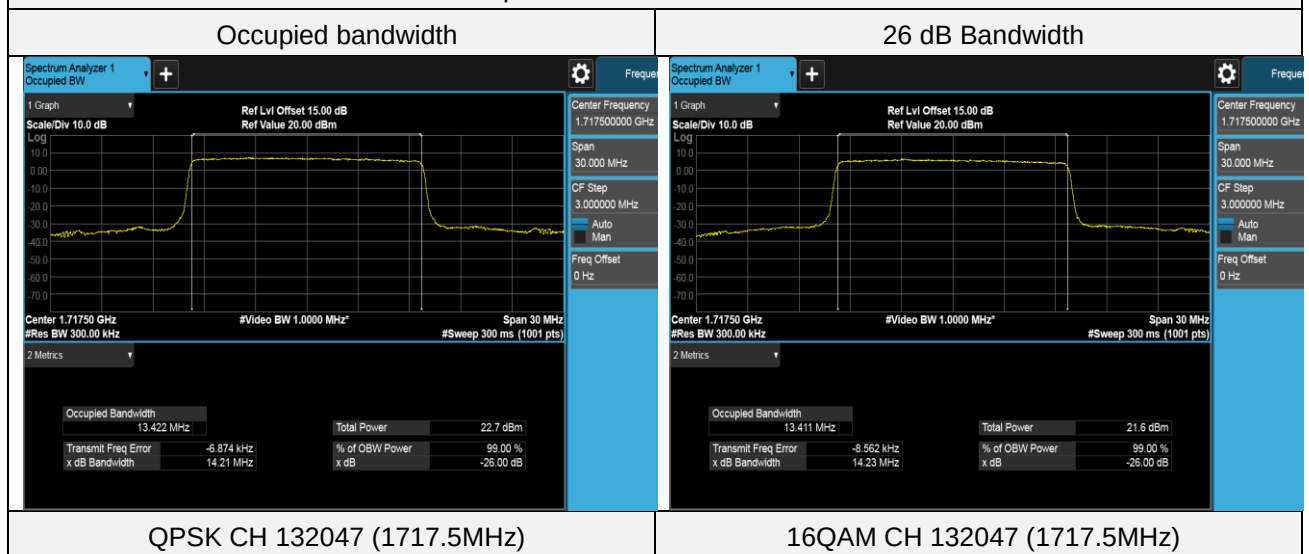
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 15MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132047	1717.5	13.4218	14.214
QPSK	132322	1745	13.4175	14.225
QPSK	132597	1772.5	13.4088	14.224
16QAM	132047	1717.5	13.4107	14.228
16QAM	132322	1745	13.4051	14.221
16QAM	132597	1772.5	13.4051	14.215

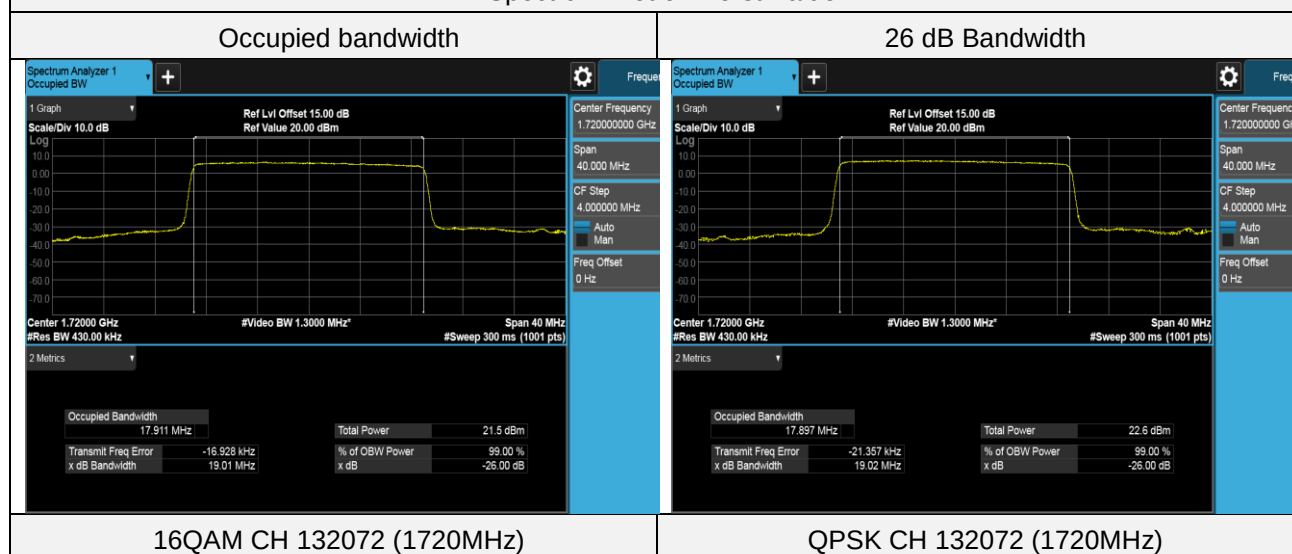
Spectrum Plot of Worst Value



LTE Band 66 (Channel Bandwidth 20MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132072	1720	17.8969	19.023
QPSK	132322	1745	17.8621	18.995
QPSK	132572	1770	17.8879	19.010
16QAM	132072	1720	17.9110	19.006
16QAM	132322	1745	17.8814	18.997
16QAM	132572	1770	17.8970	19.010

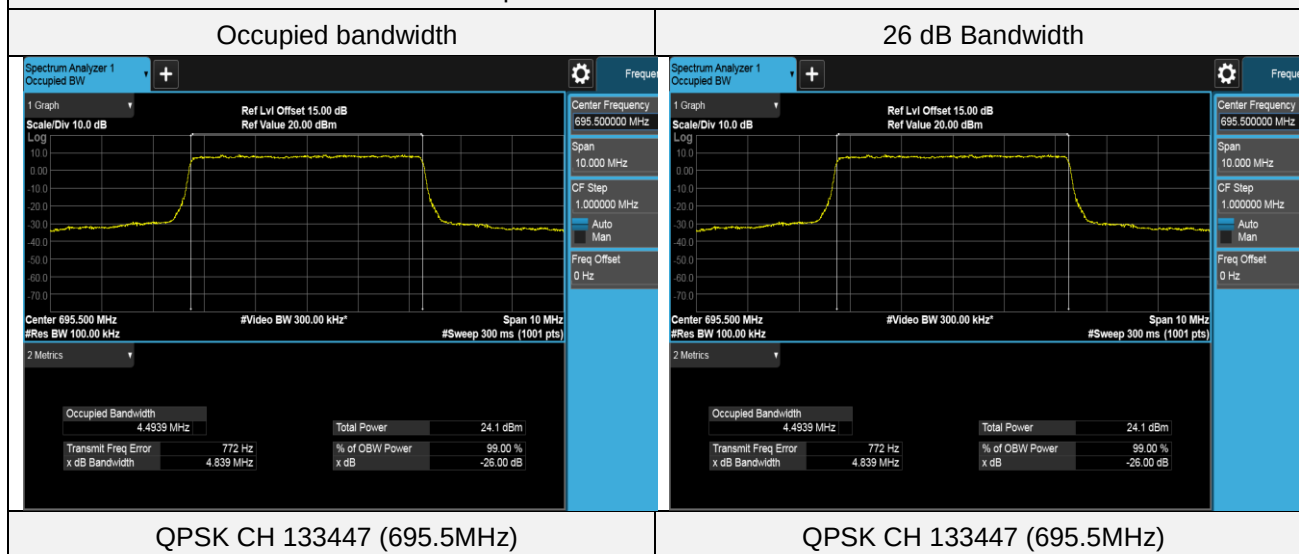
Spectrum Plot of Worst Value



LTE Band 71 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	133147	665.5	4.4869	4.819
QPSK	133297	680.5	4.4930	4.816
QPSK	133447	695.5	4.4939	4.839
16QAM	133147	665.5	4.4895	4.810
16QAM	133297	680.5	4.4881	4.811
16QAM	133447	695.5	4.4892	4.802

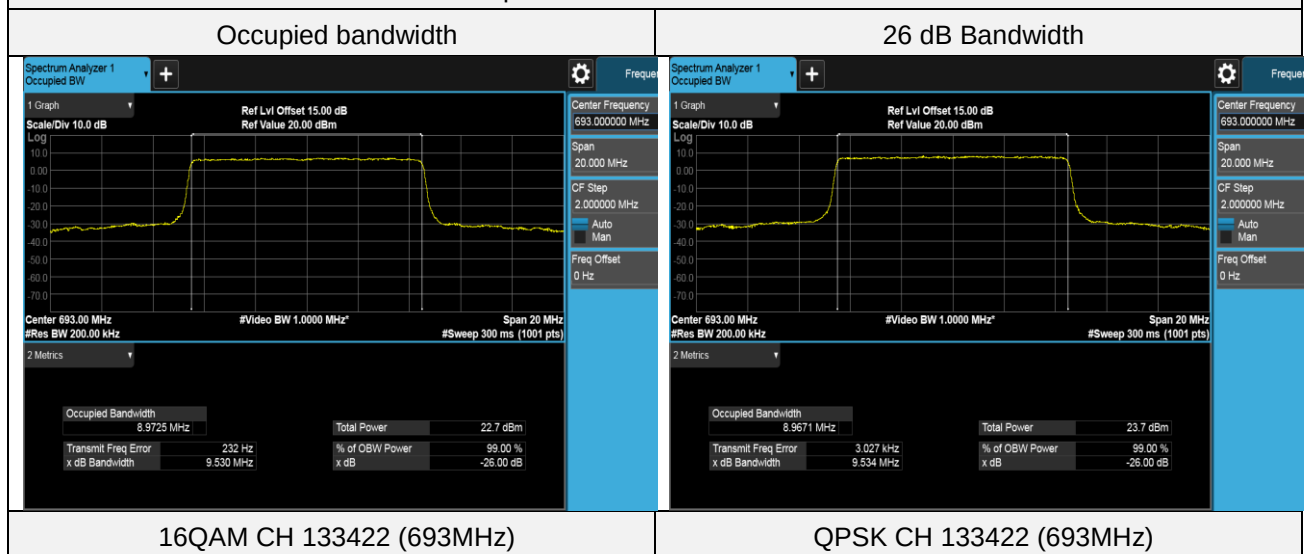
Spectrum Plot of Worst Value



LTE Band 71 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	133172	668	8.9314	9.505
QPSK	133297	680.5	8.9405	9.500
QPSK	133422	693	8.9671	9.534
16QAM	133172	668	8.9355	9.487
16QAM	133297	680.5	8.9354	9.497
16QAM	133422	693	8.9725	9.530

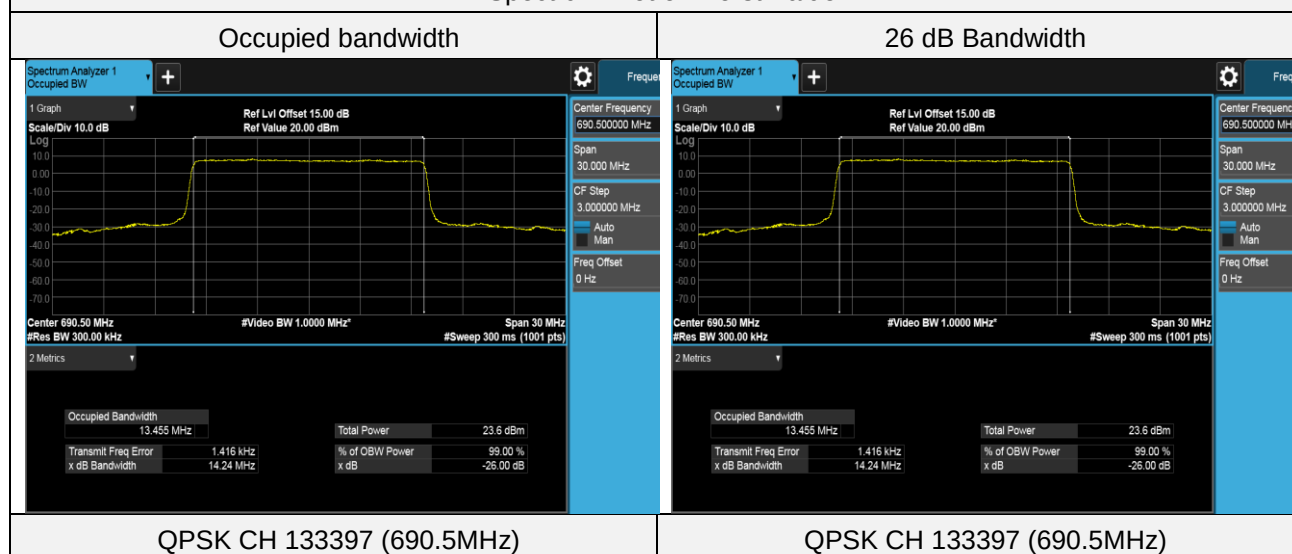
Spectrum Plot of Worst Value



LTE Band 71 (Channel Bandwidth 15MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	133197	670.5	13.4179	14.215
QPSK	133297	680.5	13.4109	14.221
QPSK	133397	690.5	13.4553	14.237
16QAM	133197	670.5	13.4090	14.212
16QAM	133297	680.5	13.3977	14.223
16QAM	133397	690.5	13.4396	14.228

Spectrum Plot of Worst Value



LTE Band 71 (Channel Bandwidth 20MHz)

Test Condition	Channel	Frequency (MHz)	Occupied bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	133222	673	17.8737	19.012
QPSK	133297	680.5	17.8581	18.970
QPSK	133372	688	17.8862	18.999
16QAM	133222	673	17.8891	19.018
16QAM	133297	680.5	17.8635	18.968
16QAM	133372	688	17.8908	19.004

Spectrum Plot of Worst Value

