

TEST REPORT

FCC Part 27

Report Reference No......: UNIA20111736ER-09

FCC ID.....: 2A12O-OL737

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Date of issue: Jun. 25, 2021

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Applicant's name: **Shenzhen Omni Intelligent Technology Co., Ltd.**

Address.....: 11th Floor Block 31, Lianchuang Technical Zone, Bulan Road,
Longgang District, Shenzhen, P.R. China

Testing Laboratory Name: **Shenzhen United Testing Technology Co., Ltd.**

Address.....: 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd,
Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

Test specification.....:

Standard: **FCC CFR Title 47 Part 2, Part 27**

TRF Originator.....: Shenzhen United Testing Technology Co., Ltd.

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Test item description: Smart parking lock

Trade Mark: OMNI

Manufacturer.....: **Shenzhen Omni Intelligent Technology Co., Ltd.**

Model/Type reference.....: OT305BL

Listed Models: N/A

Modulation Type: QPSK, 16QAM

Rating: DC 6V

Hardware version: V2.0

Software version: V2.0

Result: **PASS**

TEST REPORT

Test Report No. :	UNIA20111736ER-09	Jun. 25, 2021 Date of issue
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Equipment under Test : Smart parking lock

Model /Type : OT305BL

Listed Models : N/A

Applicant : **Shenzhen Omni Intelligent Technology Co., Ltd.**

Address : 11th Floor Block 31, Lianchuang Technical Zone, Bulan Road, Longgang District, Shenzhen, P.R. China

Manufacturer : **Shenzhen Omni Intelligent Technology Co., Ltd.**

Address : 11th Floor Block 31, Lianchuang Technical Zone, Bulan Road, Longgang District, Shenzhen, P.R. China

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified page 4.

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	description	Revised By
V1.0	Jun. 25, 2021	Initial Issue	Kahn yang

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1 SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 27](#) : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

[TIA/EIA 603 D June 2010](#):Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

47 CFR FCC Part 15 Subpart B: - Unintentional Radiators

[FCC Part 2](#): FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

[KDB971168 D01: v02r02](#) MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

1.2 Test Description

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 27.50(d)(4)	Pass
Peak-to-Average Ratio	Part 27.50(d)(4)	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(h)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53(h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 27.53(h)	Pass
Out of band emission, Band Edge	Part 2.1051 Part 27.53(h)	Pass
Frequency stability	Part 2.1055 Part 27.54	Pass

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen United Testing Technology Co., Ltd.
2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

1.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen United Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen United Testing Technology Co., Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	Above 1GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25℃
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 Description of Test Modes

The EUT has been tested under typical operating condition. The CMW500 used to control the EUT staying in continuous transmitting and receiving mode for testing. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

Note:

1. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst result on this report.
2. Test method and refer to 3GPP TS136521.

2.3 Equipments Used during the Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
Conduction Emissions Measurement					
1	Conducted Emission Test Software	EZ-EMC	Ver.CCS-3A1-CE	N/A	N/A
2	AMN	Schwarzbeck	NNLK8121	8121370	2021.10.12
3	AAN	TESEQ	T8-Cat6	38888	2021.10.12
4	Pulse Limiter	CYBRTEK	EM5010	E115010056	2022.05.17
5	EMI Test Receiver	Rohde&Schwarz	ESCI	101210	2021.10.12
Radiated Emissions Measurement					
1	Radiated Emission Test Software	EZ-EMC	Ver.CCS-03A1	N/A	N/A
2	Horn Antenna	Sunol	DRH-118	A101415	2021.10.18
3	Broadband Hybrid Antenna	Sunol	JB1	A090215	2022.03.01
4	PREAMP	HP	8449B	3008A00160	2021.10.18
5	PREAMP	HP	8447D	2944A07999	2022.05.17
6	EMI TEST RECEIVER	Rohde&Schwarz	ESR3	101891	2021.10.12
7	VECTOR Signal Generator	Rohde&Schwarz	SMU200A	101521	2021.10.12
8	Signal Generator	Agilent	E4421B	MY4335105	2021.11.11
9	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2021.10.12
10	MXA Signal Analyzer	Keysight	N9020A	MY51110104	2021.10.12
11	RF Power sensor	DARE	RPR3006W	15I00041SNO88	2022.05.17
12	RF Power sensor	DARE	RPR3006W	15I00041SNO89	2022.05.17
13	RF power divider	Anritsu	K241B	992289	2021.10.12
14	Wideband radio communication tester	Rohde&Schwarz	CMW500	154987	2021.10.12
15	Active Loop Antenna	Com-Power	AL-130R	10160009	2022.05.17
16	Broadband Hybrid Antennas	Schwarzbeck	VULB9163	VULB9163#958	2022.05.17
17	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2022.05.17
18	Horn Antenna	A-INFOMW	LB-180400-KF	J211060660	2021.11.04
19	Microwave Broadband Preamp	Schwarzbeck	BBV 9721	100472	2022.05.17
20	Signal Generator	Agilent	N5183A	MY47420153	2022.05.17
21	Spectrum Analyzer	Rohde&Schwarz	FSP 40	100501	2022.05.17
22	Power Meter	KEYSIGHT	N1911A	MY50520168	2022.05.17
23	Frequency Meter	VICTOR	VC2000	997406086	2022.05.17
24	DC Power Source	HYELEC	HY5020E	055161818	2022.05.17

2.4 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2A12O-OL737** filing to comply with of the FCC Part 27 Rules.

2.5 Modifications

No modifications were implemented to meet testing criteria.

3 TEST CONDITIONS AND RESULTS

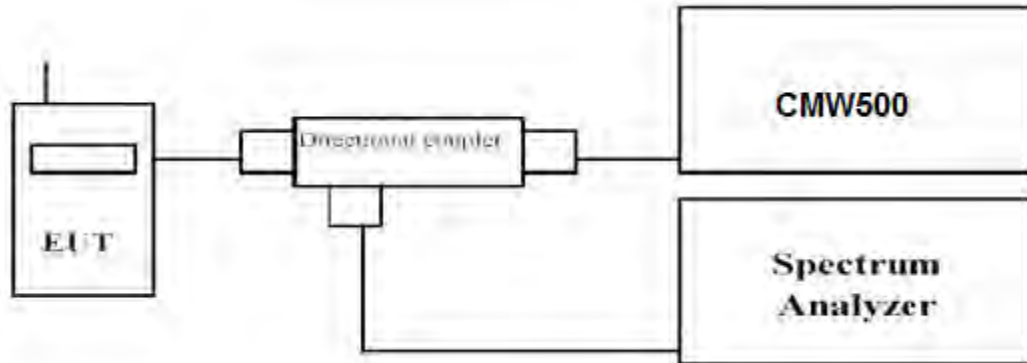
3.1 Output Power

LIMIT

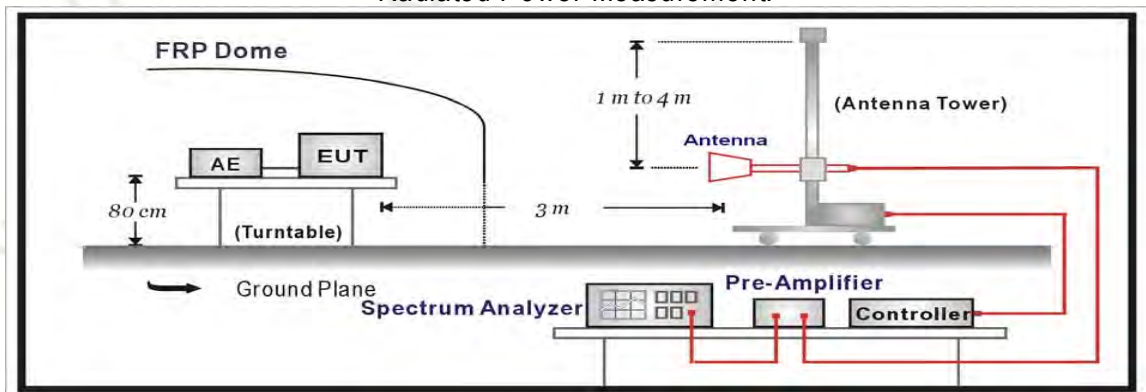
According to §27.50 (d) (4): Fixed, mobile, and portable (hand- held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

TEST CONFIGURATION

Conducted Power Measurement



Radiated Power Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Power Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500, then select a channel for testing.
- Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- The output of the test antenna shall be connected to the measuring receiver.
- The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

- f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h. The maximum signal level detected by the measuring receiver shall be noted.
- i. The transmitter shall be replaced by a substitution antenna.
- j. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k. The substitution antenna shall be connected to a calibrated signal generator.
- l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- q. Test site anechoic chamber refer to ANSI C63.4.

TEST RESULTS

Conducted Measurement:

LTE FDD Band 4				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	Average Power [dBm]	
			QPSK	16QAM
1.4 MHz	1710.7	1 RB low	22.26	21.12
		1 RB high	22.37	21.36
		50% RB mid	22.26	21.20
		100% RB	22.35	21.21
	1732.5	1 RB low	22.33	21.20
		1 RB high	22.33	21.20
		50% RB mid	21.40	20.35
		100% RB	22.34	21.19
	1754.3	1 RB low	22.47	21.38
		1 RB high	22.32	21.17
		50% RB mid	22.37	21.15
		100% RB	22.33	21.13
3 MHz	1711.5	1 RB low	21.91	21.89
		1 RB high	21.92	21.83
		50% RB mid	21.91	21.77
		100% RB	20.95	20.75
	1732.5	1 RB low	20.97	20.73
		1 RB high	21.00	20.74
		50% RB mid	20.93	20.80
		100% RB	21.95	21.72
	1753.5	1 RB low	21.90	21.83
		1 RB high	21.92	21.72
		50% RB mid	20.99	20.69
		100% RB	21.23	20.71
5 MHz	1712.	1 RB low	22.48	22.36
		1 RB high	22.68	22.06
		50% RB mid	22.21	21.54
		100% RB	22.23	20.68
	1732.5	1 RB low	22.12	21.82
		1 RB high	23.46	21.45
		50% RB mid	22.30	20.82
		100% RB	21.79	20.67

	1752.5	1 RB low	21.66	21.42
		1 RB high	22.27	21.72
		50% RB mid	22.05	20.80
		100% RB	20.72	21.18
10 MHz	1715.0	1 RB low	21.75	20.65
		1 RB high	21.87	21.62
		50% RB mid	21.89	21.69
		100% RB	20.79	21.51
	1732.5	1 RB low	20.77	20.47
		1 RB high	20.93	20.46
		50% RB mid	20.85	20.39
		100% RB	21.74	20.41
	1750.0	1 RB low	21.85	20.65
		1 RB high	21.66	20.85
		50% RB mid	20.73	20.91
		100% RB	20.73	21.13
15 MHz	1717.5	1 RB low	21.92	20.71
		1 RB high	22.13	21.05
		50% RB mid	22.18	21.80
		100% RB	20.90	21.78
	1732.5	1 RB low	21.11	21.62
		1 RB high	21.06	20.75
		50% RB mid	21.23	20.77
		100% RB	21.95	20.68
	1747.5	1 RB low	22.03	20.97
		1 RB high	21.87	20.91
		50% RB mid	20.96	21.09
		100% RB	20.93	21.10
20 MHz	1720.0	1 RB low	22.24	21.45
		1 RB high	22.55	21.41
		50% RB mid	22.11	21.42
		100% RB	21.24	21.34
	1732.5	1 RB low	21.11	21.08
		1 RB high	21.29	21.35
		50% RB mid	21.14	21.95
		100% RB	21.93	20.84
	1745.0	1 RB low	22.16	21.54
		1 RB high	21.74	21.42
		50% RB mid	21.04	21.02
		100% RB	21.17	21.35

Radiated Measurement:

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.
2. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$

LTE FDD Band 4 Channel Bandwidth 1.4MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.7	-16.95	3.06	9.68	34.80	24.47	30.00	5.53	V
1732.5	-16.79	3.17	9.68	34.80	24.52	30.00	5.48	V
1754.3	-16.82	3.22	9.75	34.80	24.51	30.00	5.49	V
1710.7	-16.51	3.06	9.68	34.80	24.91	30.00	5.09	H
1732.5	-16.64	3.17	9.68	34.80	24.67	30.00	5.33	H
1754.3	-17.1	3.22	9.75	34.80	24.23	30.00	5.77	H

LTE FDD Band 4 Channel Bandwidth 3MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.5	-17.06	3.06	9.68	34.80	24.36	30.00	5.64	V
1732.5	-17.55	3.17	9.68	34.80	23.76	30.00	6.24	V
1753.5	-16.7	3.22	9.75	34.80	24.63	30.00	5.37	V
1711.5	-16.93	3.06	9.68	34.80	24.49	30.00	5.51	H
1732.5	-16.23	3.17	9.68	34.80	25.08	30.00	4.92	H
1753.5	-16.56	3.22	9.75	34.80	24.77	30.00	5.23	H

LTE FDD Band 4 Channel Bandwidth 5MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.5	-17.03	3.06	9.68	34.80	24.39	30.00	5.61	V
1732.5	-17.68	3.17	9.68	34.80	23.63	30.00	6.37	V
1752.5	-17.12	3.22	9.75	34.80	24.21	30.00	5.79	V
1712.5	-16.91	3.06	9.68	34.80	24.51	30.00	5.49	H
1732.5	-16.53	3.17	9.68	34.80	24.78	30.00	5.22	H
1752.5	-16.45	3.22	9.75	34.80	24.88	30.00	5.12	H

LTE FDD Band 4 Channel Bandwidth 10MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-17.58	3.06	9.68	34.80	23.84	30.00	6.16	V
1732.5	-16.98	3.17	9.68	34.80	24.33	30.00	5.67	V
1750.0	-16.99	3.22	9.75	34.80	24.34	30.00	5.66	V
1715.0	-16.38	3.06	9.68	34.80	25.04	30.00	4.96	H
1732.5	-16.54	3.17	9.68	34.80	24.77	30.00	5.23	H
1750.0	-17.19	3.22	9.75	34.80	24.14	30.00	5.86	H

LTE FDD Band 4 Channel Bandwidth 15MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-17.14	3.06	9.68	34.80	24.28	30.00	5.72	V
1732.5	-17.64	3.17	9.68	34.80	23.67	30.00	6.33	V
1747.5	-16.72	3.22	9.75	34.80	24.61	30.00	5.39	V
1717.5	-16.82	3.06	9.68	34.80	24.60	30.00	5.40	H
1732.5	-16.14	3.17	9.68	34.80	25.17	30.00	4.83	H
1747.5	-16.59	3.22	9.75	34.80	24.74	30.00	5.26	H

LTE FDD Band 4_Channel Bandwidth 20MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-16.74	3.06	9.68	34.80	24.68	30.00	5.32	V
1732.5	-17.09	3.17	9.68	34.80	24.22	30.00	5.78	V
1745.0	-16.88	3.22	9.75	34.80	24.45	30.00	5.55	V
1720.0	-16.85	3.06	9.68	34.80	24.57	30.00	5.43	H
1732.5	-15.76	3.17	9.68	34.80	25.55	30.00	4.45	H
1745.0	-16.78	3.22	9.75	34.80	24.55	30.00	5.45	H

LTE FDD Band 4_Channel Bandwidth 1.4MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.7	-17.13	3.06	9.68	34.80	24.29	30.00	5.71	V
1732.5	-16.94	3.17	9.68	34.80	24.37	30.00	5.63	V
1754.3	-16.64	3.22	9.75	34.80	24.69	30.00	5.31	V
1710.7	-16.34	3.06	9.68	34.80	25.08	30.00	4.92	H
1732.5	-16.37	3.17	9.68	34.80	24.94	30.00	5.06	H
1754.3	-16.67	3.22	9.75	34.80	24.66	30.00	5.34	H

LTE FDD Band 4_Channel Bandwidth 3MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.5	-16.91	3.06	9.68	34.80	24.51	30.00	5.49	V
1732.5	-16.99	3.17	9.68	34.80	24.32	30.00	5.68	V
1753.5	-16.88	3.22	9.75	34.80	24.45	30.00	5.55	V
1711.5	-16.57	3.06	9.68	34.80	24.85	30.00	5.15	H
1732.5	-16.51	3.17	9.68	34.80	24.80	30.00	5.20	H
1753.5	-16.73	3.22	9.75	34.80	24.60	30.00	5.40	H

LTE FDD Band 4_Channel Bandwidth 5MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.5	-16.81	3.06	9.68	34.80	24.61	30.00	5.39	V
1732.5	-17.34	3.17	9.68	34.80	23.97	30.00	6.03	V
1752.5	-16.72	3.22	9.75	34.80	24.61	30.00	5.39	V
1712.5	-17.06	3.06	9.68	34.80	24.36	30.00	5.64	H
1732.5	-16.8	3.17	9.68	34.80	24.51	30.00	5.49	H
1752.5	-16.47	3.22	9.75	34.80	24.86	30.00	5.14	H

LTE FDD Band 4_Channel Bandwidth 10MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-17.71	3.06	9.68	34.80	23.71	30.00	6.29	V
1732.5	-17.51	3.17	9.68	34.80	23.80	30.00	6.20	V
1750.0	-16.74	3.22	9.75	34.80	24.59	30.00	5.41	V
1715.0	-17.18	3.06	9.68	34.80	24.24	30.00	5.76	H
1732.5	-16.65	3.17	9.68	34.80	24.66	30.00	5.34	H
1750.0	-17.22	3.22	9.75	34.80	24.11	30.00	5.89	H

LTE FDD Band 4_Channel Bandwidth 15MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-17.34	3.06	9.68	34.80	24.08	30.00	5.92	V
1732.5	-17.27	3.17	9.68	34.80	24.04	30.00	5.96	V
1747.5	-17.16	3.22	9.75	34.80	24.17	30.00	5.83	V
1717.5	-16.39	3.06	9.68	34.80	25.03	30.00	4.97	H
1732.5	-16.67	3.17	9.68	34.80	24.64	30.00	5.36	H
1747.5	-17.23	3.22	9.75	34.80	24.10	30.00	5.90	H

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM

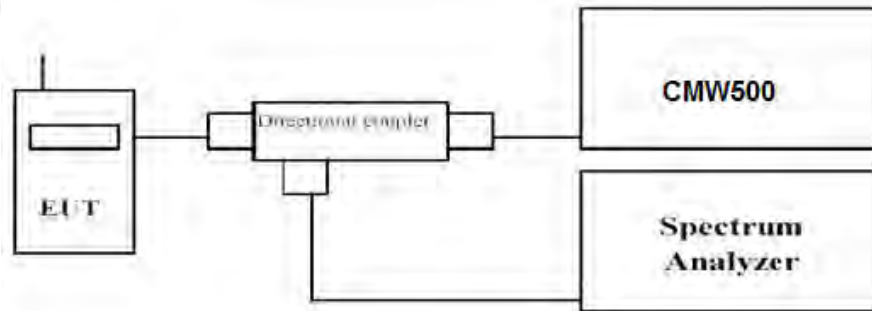
Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-17.25	3.06	9.68	34.80	24.17	30.00	5.83	V
1732.5	-17.56	3.17	9.68	34.80	23.75	30.00	6.25	V
1745.0	-17.1	3.22	9.75	34.80	24.23	30.00	5.77	V
1720.0	-16.77	3.06	9.68	34.80	24.65	30.00	5.35	H
1732.5	-16.44	3.17	9.68	34.80	24.87	30.00	5.13	H
1745.0	-16.53	3.22	9.75	34.80	24.80	30.00	5.20	H

3.3 Peak-to-Average Ratio (PAR)

LIMIT

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as follows:
 - 1). for continuous transmissions, set to 1 ms,
 - 2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

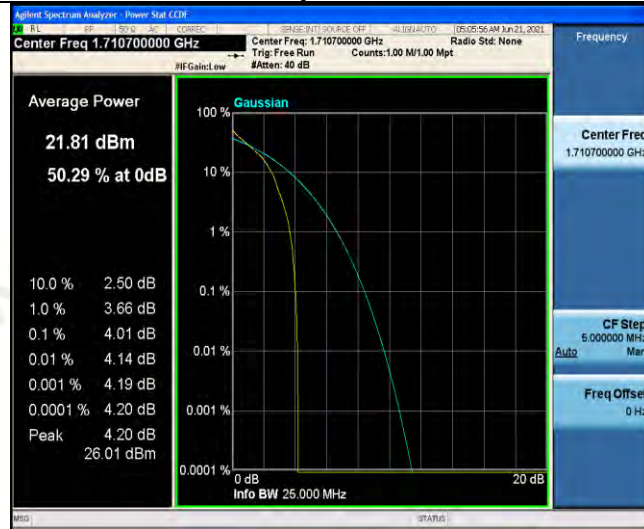
Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.

LTE FDD Band 4				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR (dB)	
			QPSK	16QAM
1.4 MHz	1710.7	1RB#0	4.01	5.17
	1732.5		3.52	4.78
	1754.3		3.37	4.46
3 MHz	1711.5	1RB#0	3.92	4.84
	1732.5		3.55	4.55
	1753.5		3.11	4.20
5 MHz	1712.5	1RB#0	3.98	4.79
	1732.5		3.48	4.47
	1752.5		2.97	4.01
10 MHz	1715.0	1RB#0	3.99	4.93
	1732.5		4.08	5.06
	1750.0		2.77	3.95
15 MHz	1717.5	1RB#0	4.07	5.00
	1732.5		4.45	5.37
	1747.5		2.94	3.98
20 MHz	1720.0	1RB#0	4.20	4.99
	1732.5		4.26	5.15
	1745.0		3.09	4.28

LTE FDD Band 4-1.4MHz Channel Bandwidth PAPR

QPSK



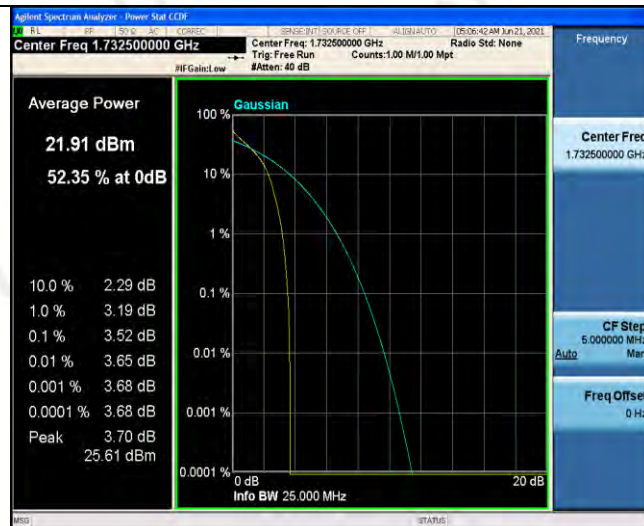
1RB#0

16QAM



1RB#0

Low Channel

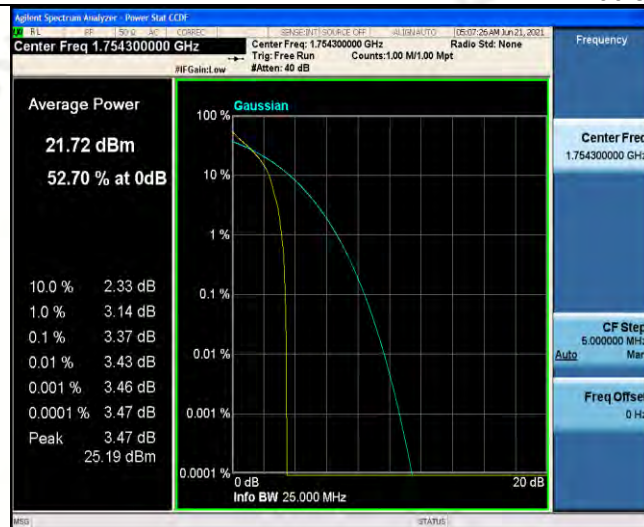


1RB#0

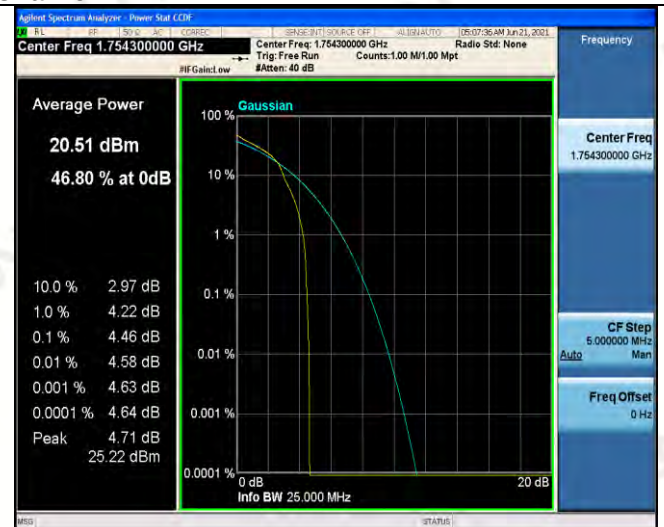


1RB#0

Middle Channel



1RB#0

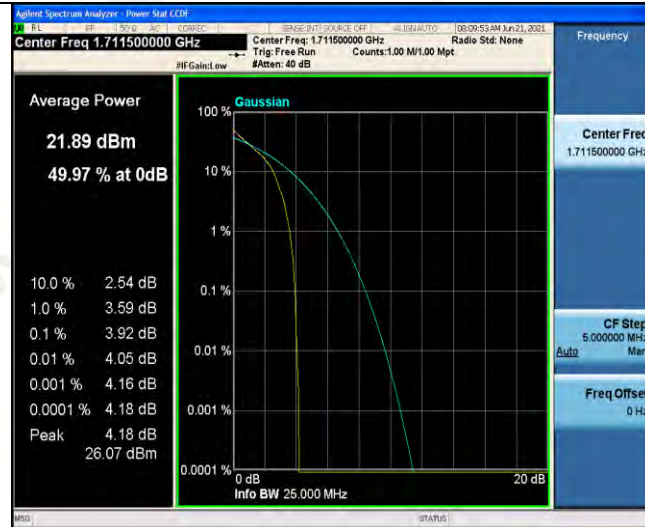


1RB#0

High Channel

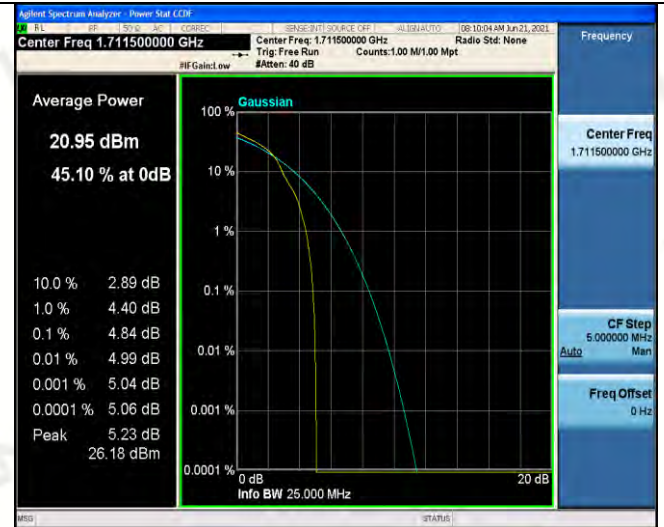
LTE FDD Band 4-3MHz Channel Bandwidth PAPR

QPSK



1RB#0

16QAM

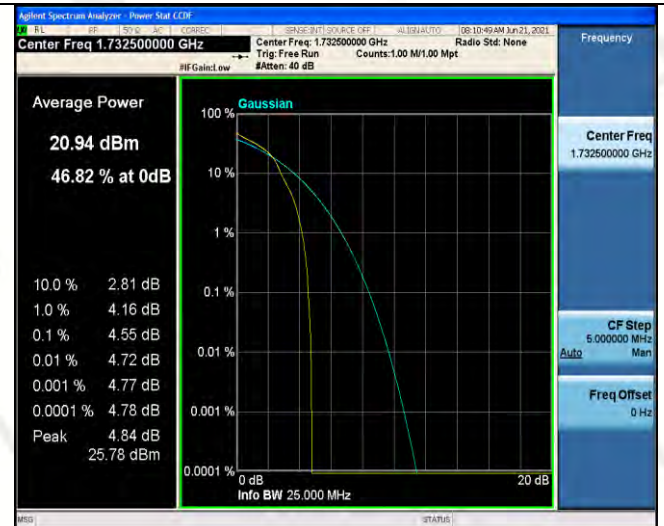


1RB#0

Low Channel



1RB#0



1RB#0

Middle Channel



1RB#0

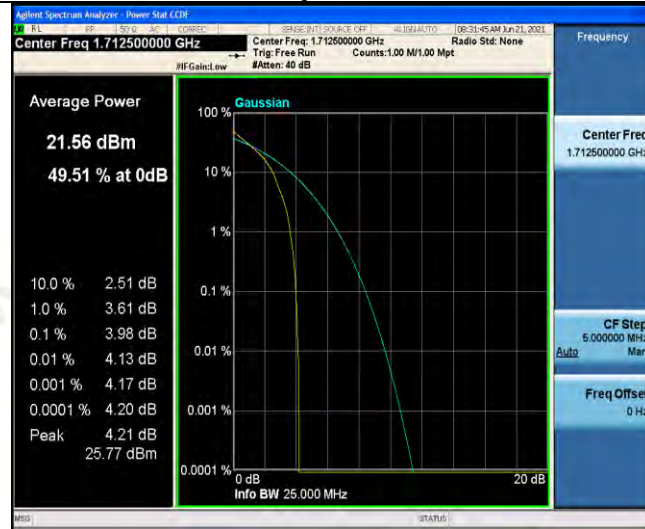


1RB#0

High Channel

LTE FDD Band 4-5MHz Channel Bandwidth PAPR

QPSK



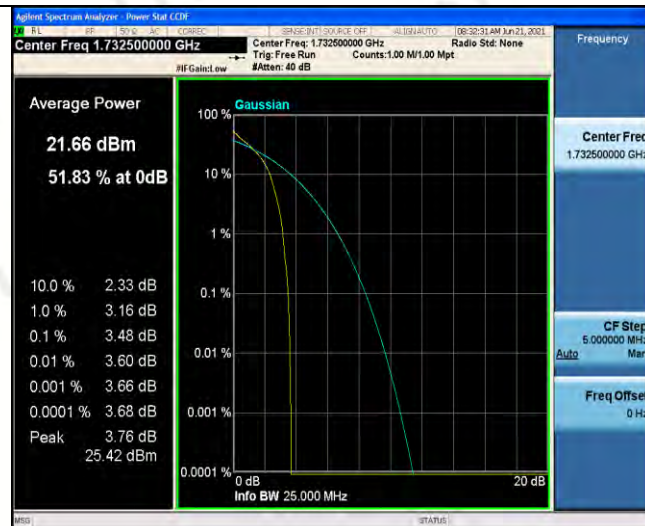
1RB#0

16QAM



1RB#0

Low Channel



1RB#0

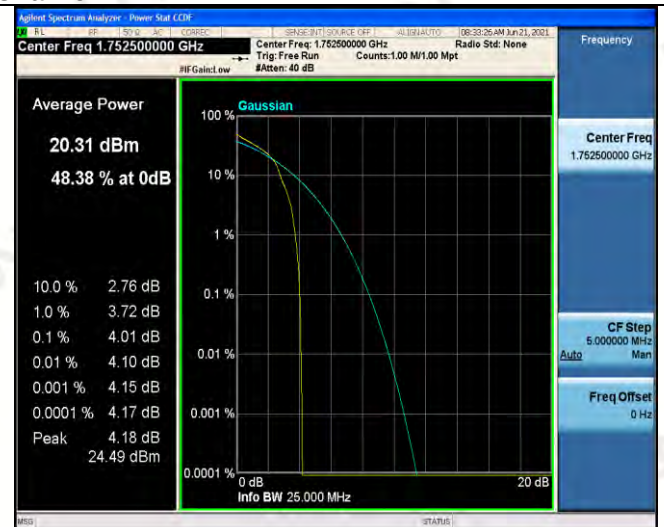


1RB#0

Middle Channel



1RB#0



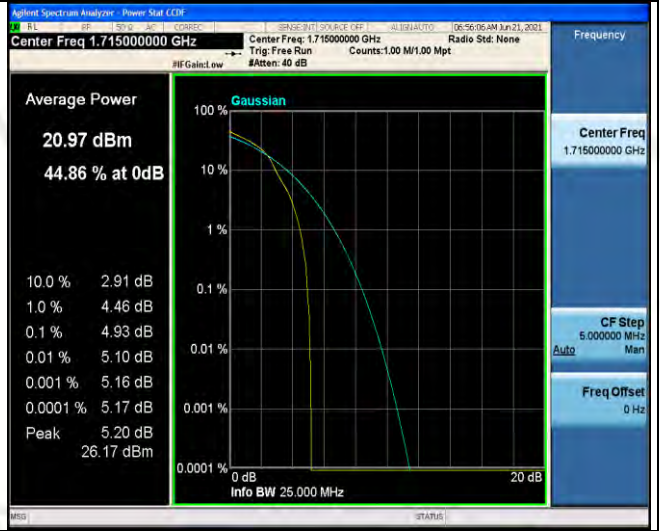
1RB#0

High Channel

LTE FDD Band 4-10MHz Channel Bandwidth PAPR

QPSK

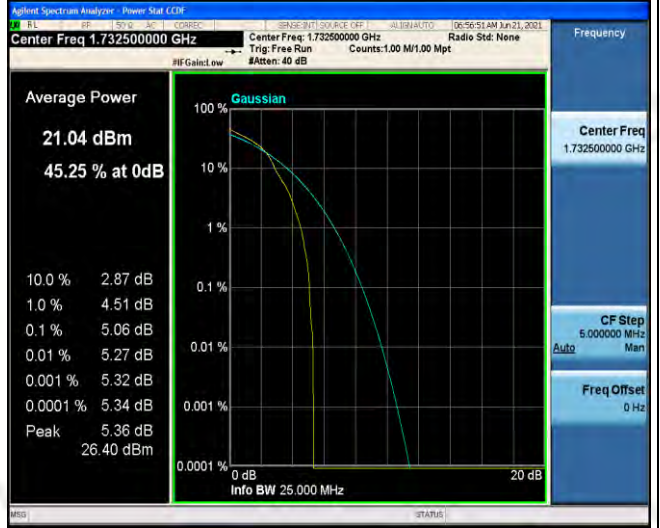
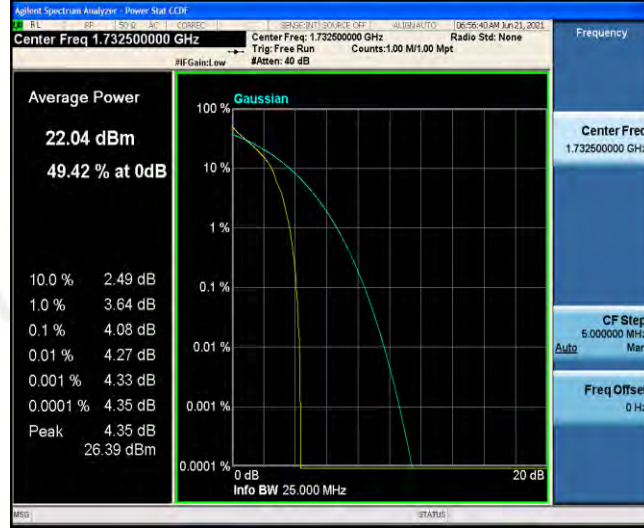
16QAM



1RB#0

1RB#0

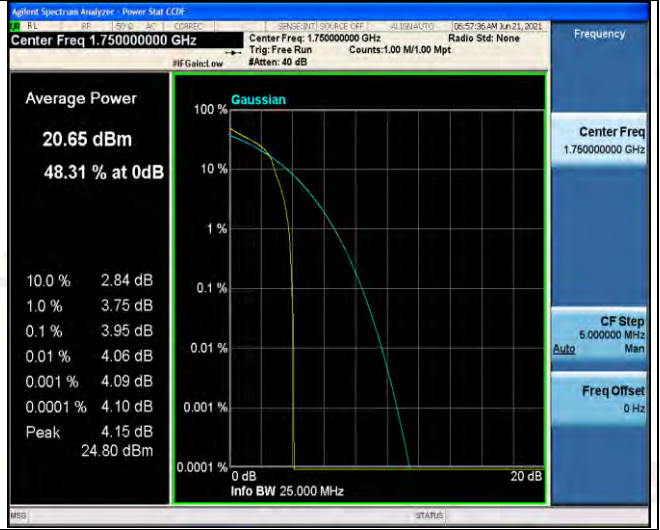
Low Channel



1RB#0

1RB#0

Middle Channel



1RB#0

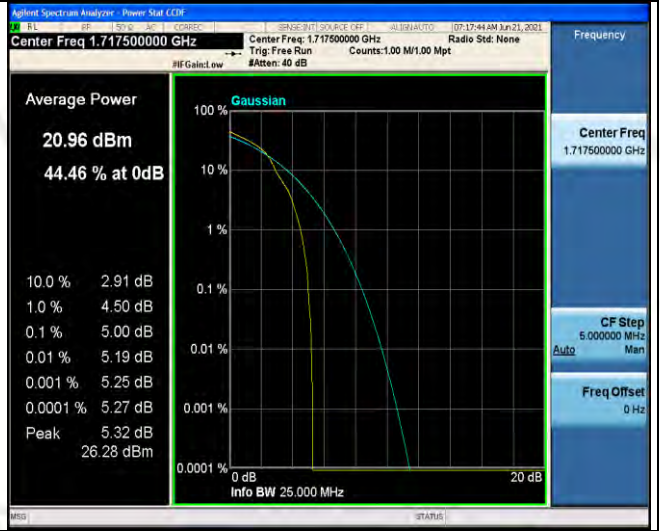
1RB#0

High Channel

LTE FDD Band 4-15MHz Channel Bandwidth PAPR

QPSK

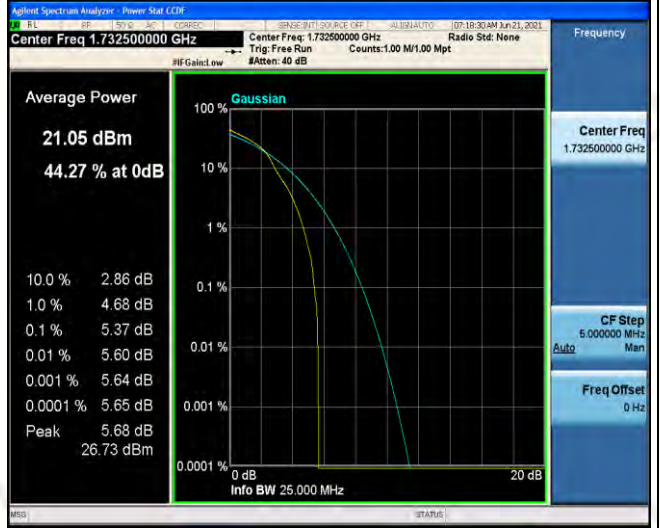
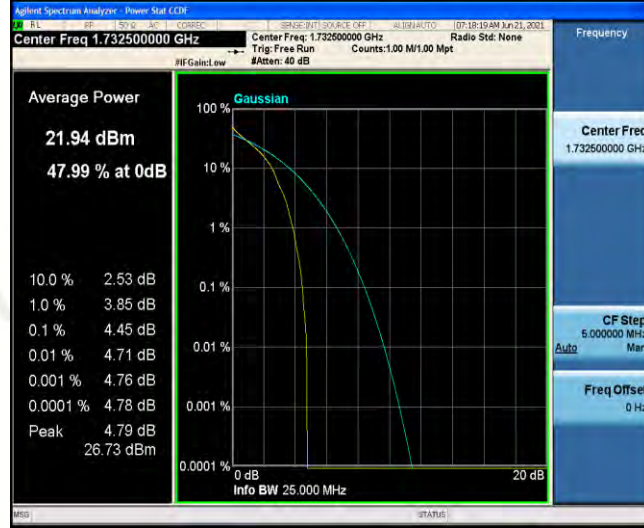
16QAM



1RB#0

1RB#0

Low Channel



1RB#0

1RB#0

Middle Channel



1RB#0

1RB#0

High Channel

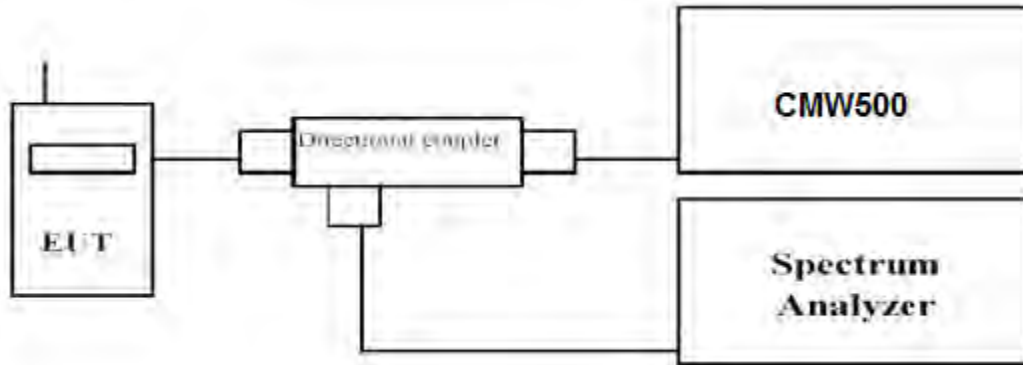


3.4 Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

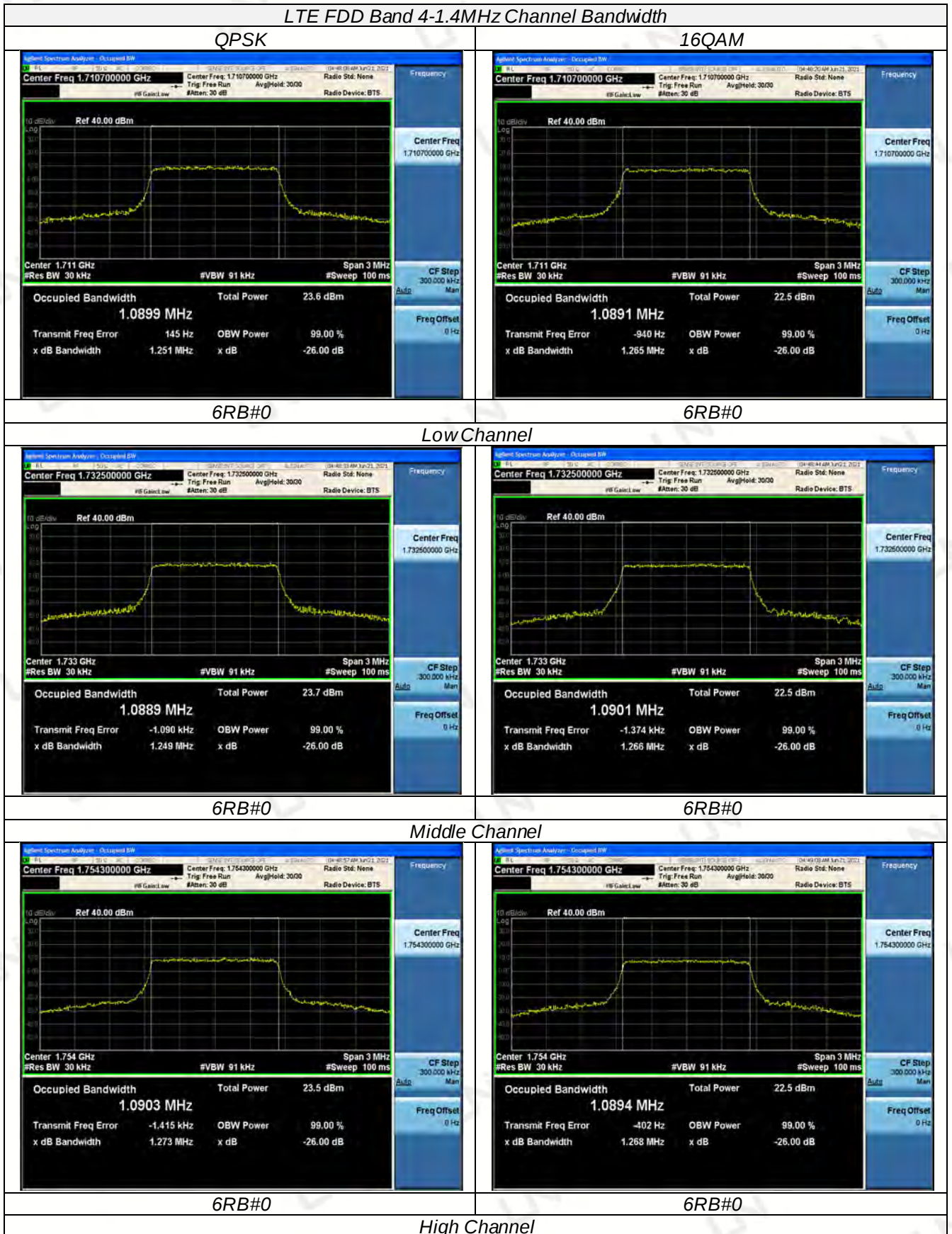
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and recorded. Set RBW was set to about 1% of emission BW, VBW≥3 times RBW. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

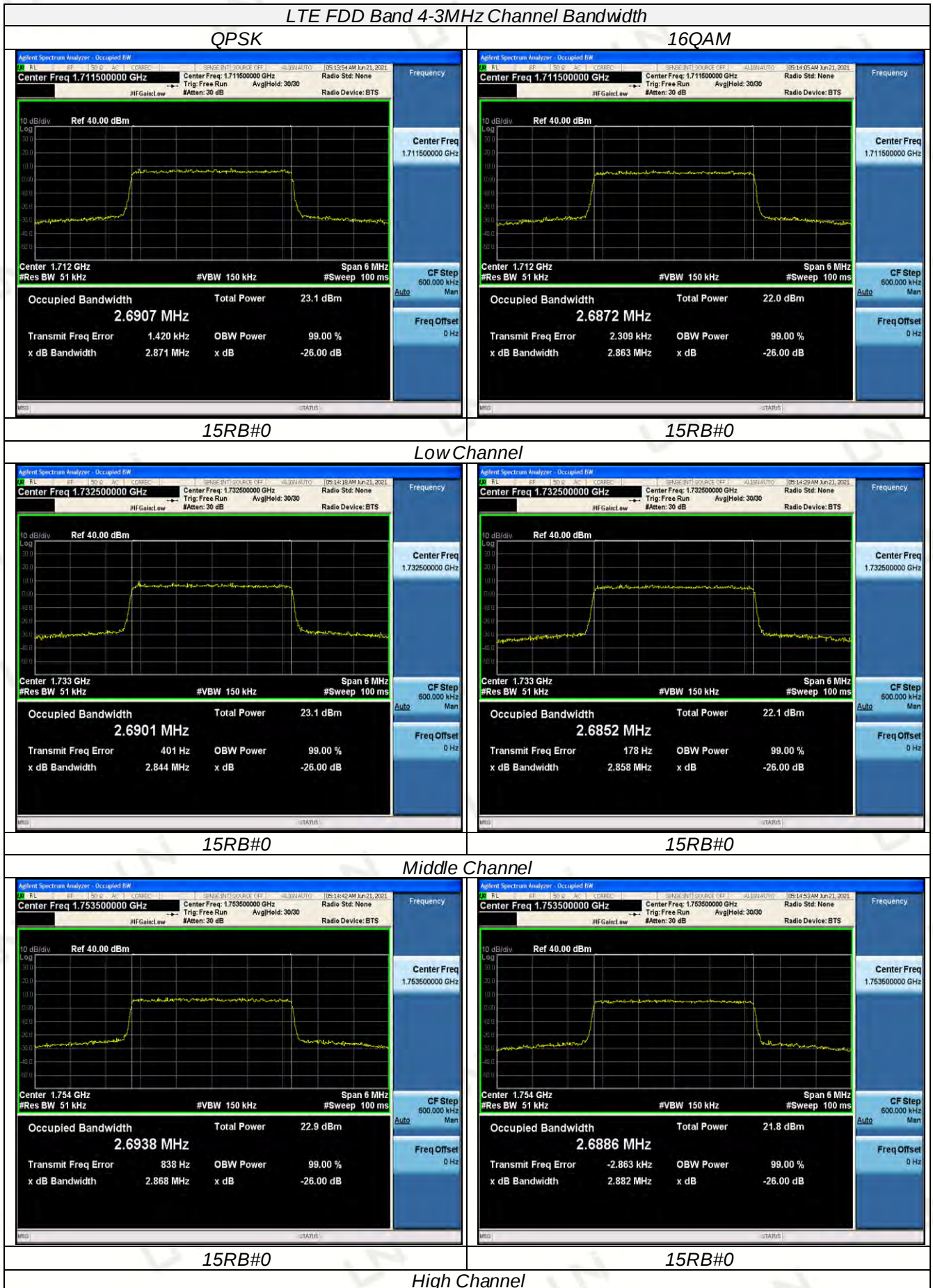
TEST RESULTS

Remark:

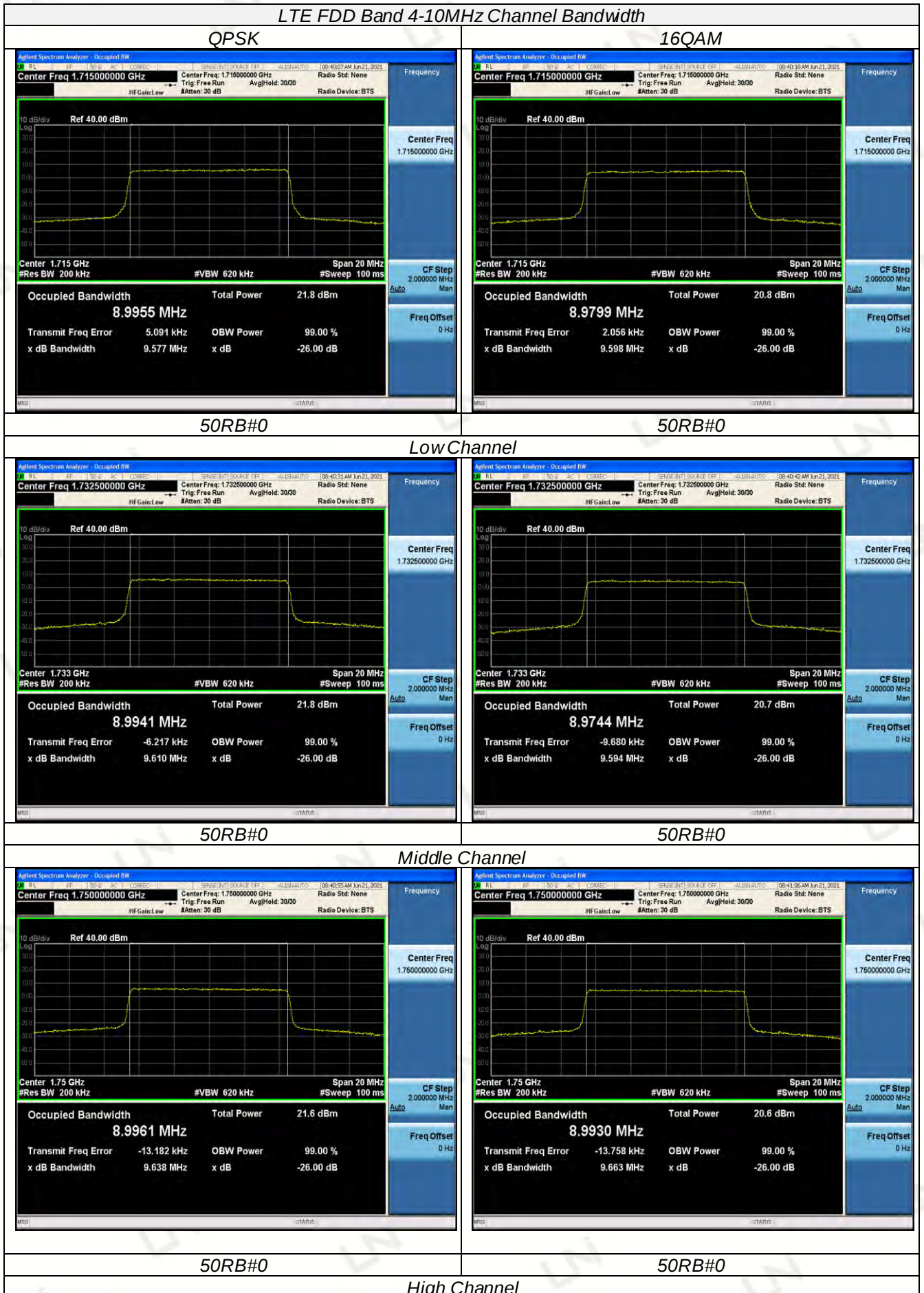
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.

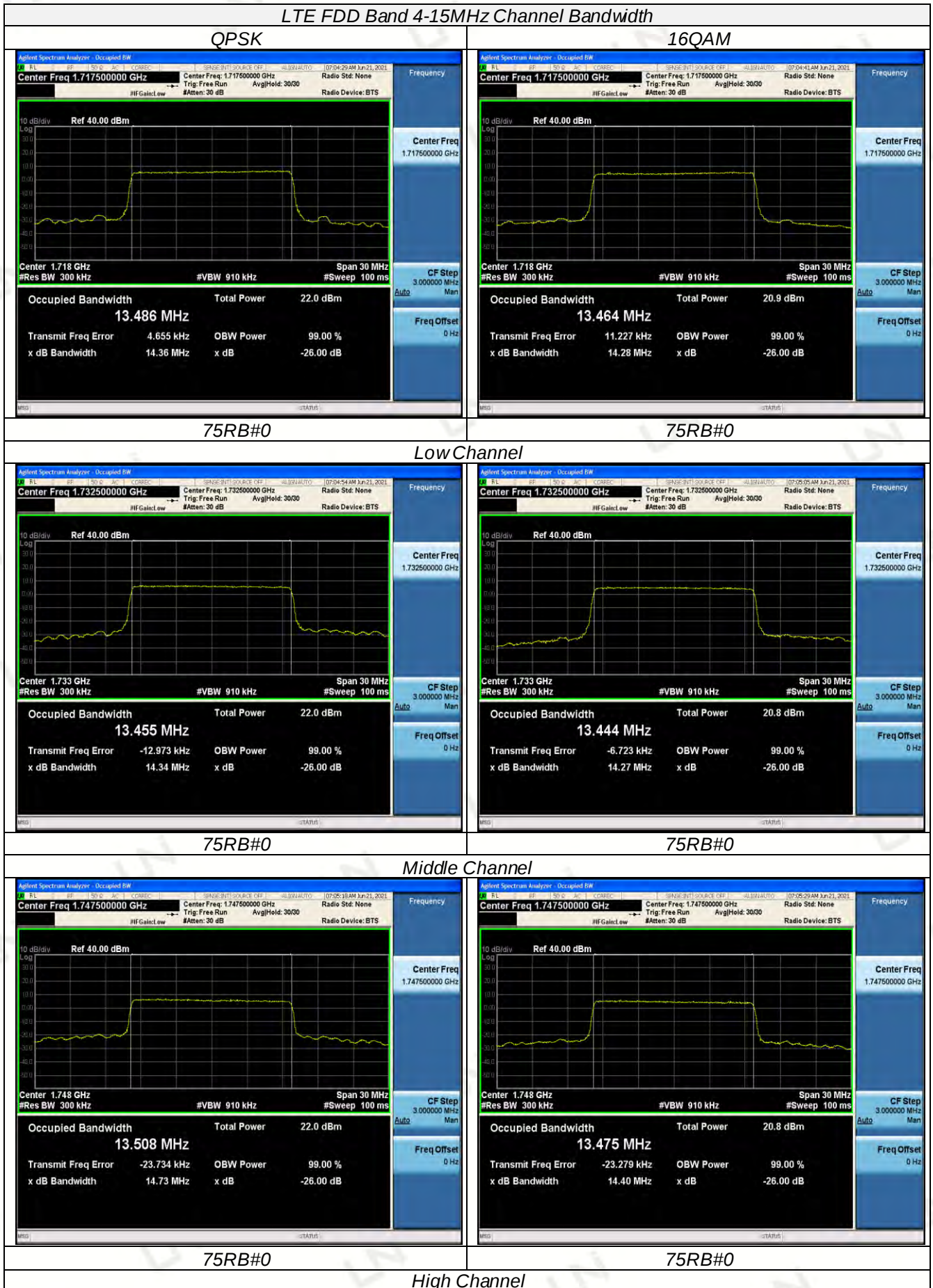
LTE FDD Band 4						
TX Channel Bandwidth	RB Size/Offset	Frequency (MHz)	-26dBc Emission bandwidth (MHz)		99% Occupied bandwidth (MHz)	
			QPSK	16QAM	QPSK	16QAM
1.4 MHz	6RB#0	1710.7	1.251	1.265	1.0899	1.0891
		1732.5	1.249	1.266	1.0889	1.0901
		1754.3	1.273	1.268	1.0903	1.0894
3 MHz	15RB#0	1711.5	2.871	2.863	2.6907	2.6872
		1732.5	2.844	2.858	2.6901	2.6852
		1753.5	2.868	2.882	2.6938	2.6886
5 MHz	25RB#0	1712.5	4.998	4.926	4.5079	4.5073
		1732.5	4.992	4.979	4.5094	4.5117
		1752.5	4.979	5.045	4.5074	4.5063
10 MHz	50RB#0	1715.0	9.577	9.598	8.9955	8.9799
		1732.5	9.610	9.594	8.9941	8.9744
		1750.0	9.638	9.663	8.9961	8.9930
15 MHz	75RB#0	1717.5	14.36	14.28	13.486	13.464
		1732.5	14.34	14.27	13.455	13.444
		1747.5	14.73	14.40	13.508	13.475
20 MHz	100RB#0	1720.0	18.98	18.99	17.960	17.964
		1732.5	18.99	18.99	17.934	17.930
		1745.0	19.10	19.03	17.985	17.987

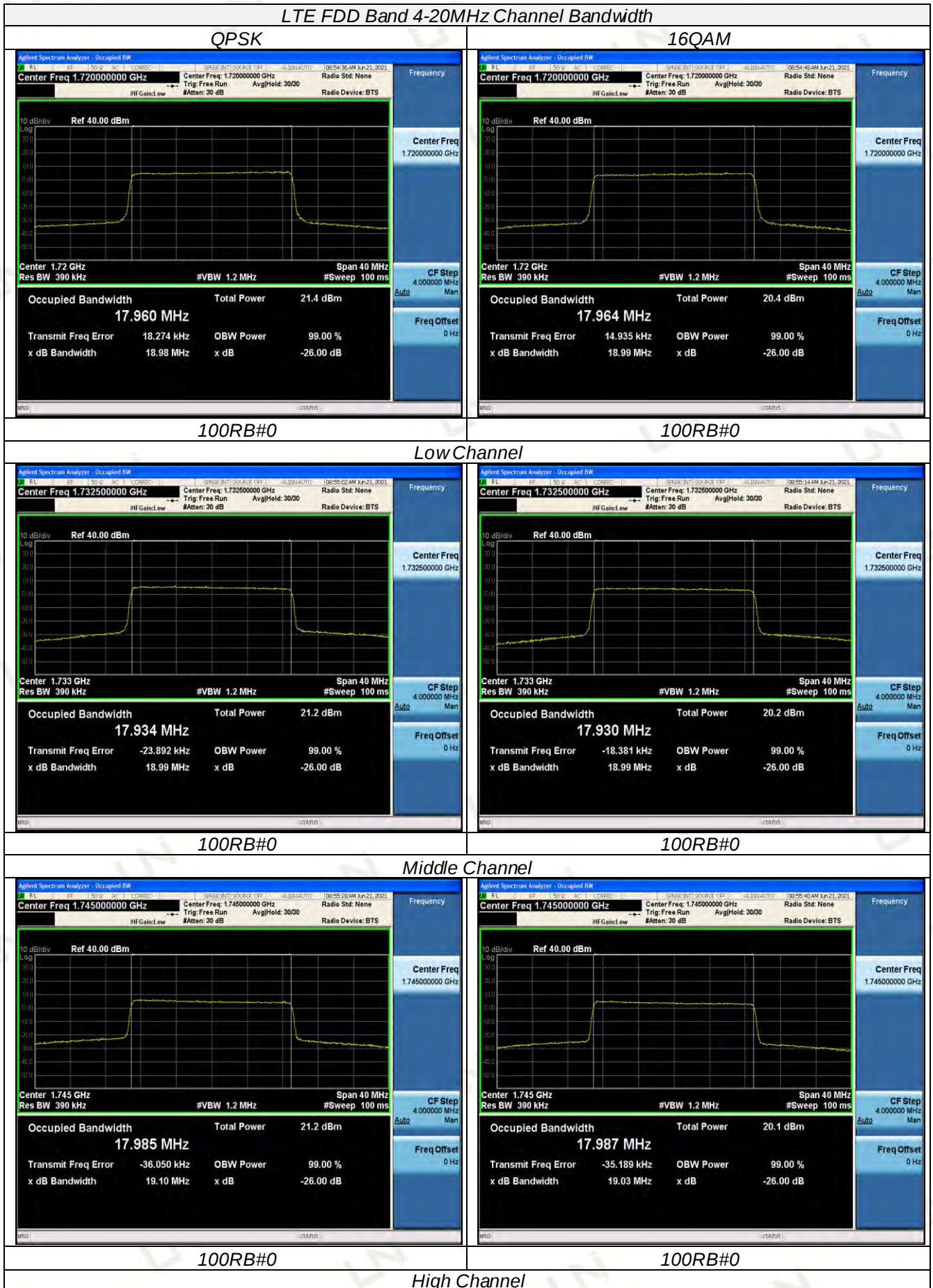










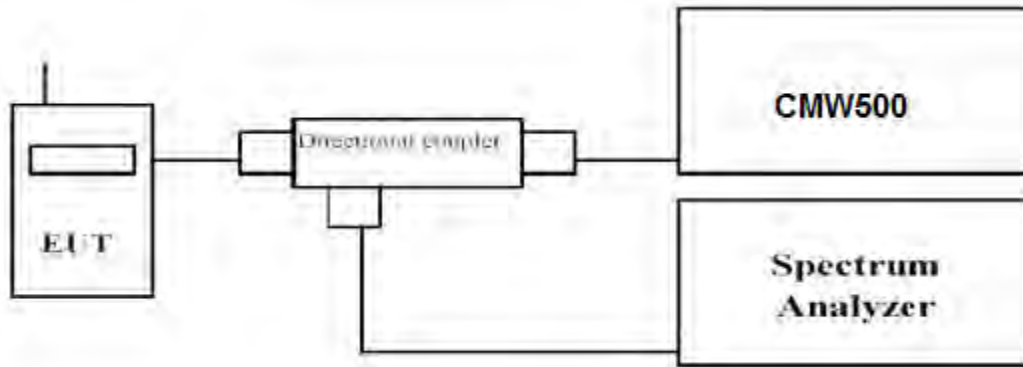


3.5 Band Edge compliance

LIMIT

According to §27.53 (h): For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum

TEST RESULTS

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.

