

FCC Test Report

Report Reference No......: HK2506263445-2E

FCC ID.....: 2BFCX-C10

Compiled by

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Jason Zhou

Date of issue.....: Aug. 26, 2025

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

Address: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park,
Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Applicant's name.....: **Shenzhen Shire Star Electronic Technology Co., Ltd.**

Address: 2nd Floor, Building F, Guanghao Industrial Park, Yunfeng Road,
Longhua District, Shenzhen, China

Test specification

Standard: **FCC CFR Title 47 Part 2, Part 24E**

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

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Test item description: Smart Pet Collar

Trade Mark: N/A

Manufacturer.....: **Shenzhen Shire Star Electronic Technology Co., Ltd.**

Model/Type reference.....: C10

Series Models: N/A

Modulation Type.....: QPSK, 16QAM

Rating: DC5V From Adapter with AC100-240V, 50/60Hz, 0.5A Max or
DC3.7V From Battery

Hardware version: V1.0

Software version.....: V1.0

Result.....: **PASS**

TEST REPORT

Test Report No. :	HK2506263445-2E	Aug. 26, 2025
		Date of issue

Equipment under Test : Smart Pet Collar

Model /Type : C10

Series Models : N/A

Applicant : **Shenzhen Shire Star Electronic Technology Co., Ltd.**

Address : 2nd Floor, Building F, Guanghao Industrial Park, Yunfeng Road, Longhua District, Shenzhen, China

Manufacturer : **Shenzhen Shire Star Electronic Technology Co., Ltd.**

Address : 2nd Floor, Building F, Guanghao Industrial Park, Yunfeng Road, Longhua District, Shenzhen, China

Test Result:	PASS
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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.

Contents

1	<u>Test Standards</u>	<u>5</u>
2	<u>Summary</u>	<u>6</u>
2.1	General Remarks	6
2.2	Product Description	6
2.3	Equipment Under Test	6
2.4	Short Description of The Equipment Under Test (EUT)	6
2.5	Test Frequency List	7
2.6	Normal Accessory Setting	7
2.7	EUT Configuration	7
2.8	Related Submittal(s) / Grant (s)	7
2.9	Modifications	7
2.10	General Test Conditions/Configurations	8
3	<u>Test Environment</u>	<u>9</u>
3.1	Information of The Test Laboratory	9
3.2	Environmental Conditions	9
3.3	Test Description	9
3.4	Equipments Used During The Test	10
4	<u>Test Conditions and Results</u>	<u>11</u>
4.1	Output Power	11
4.2	Peak-to-Average Ratio (PAR)	20
4.3	Occupied Bandwidth and Emission Bandwidth	27
4.4	Band Edge Compliance	34
4.5	Spurious Emssion on Antenna Port	41
4.6	Radiated Spurious Emssion	60
4.7	Frequency Stability	68
5	<u>Test Setup Photos of the EUT</u>	<u>70</u>
6	<u>Photos of the EUT</u>	<u>72</u>

**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Aug. 26, 2025	Jason Zhou

1 Test Standards

The tests were performed according to following standards:

[FCC Part 24](#): Public Mobile 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:v03r01](#): Measurement Guidance For Certification Of Licensed Digital Transmitters.

[ANSI C63.4:2014](#): Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2 Summary

2.1 General Remarks

Date of receipt of test sample	:	Jun. 26, 2025
Testing commenced on	:	Jun. 26, 2025
Testing concluded on	:	Aug. 26, 2025

2.2 Product Description

The **Shenzhen Shire Star Electronic Technology Co., Ltd.**'s Model: C10 or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

Name of EUT:	Smart Pet Collar
Model/Type reference:	C10
Series Models:	N/A
Model Difference:	N/A
Power supply:	DC5V From Adapter with AC100-240V, 50/60Hz, 0.5A Max or DC3.7V From Battery
Modulation Type:	QPSK, 16QAM
Antenna Type:	FPC Antenna
Antenna Gain:	2.56dBi
Operation Frequency Band:	LTE Band 2
Operation frequency:	LTE Band 2: 1850~1910 MHz(TX), 1930~1990 MHz(TX)
LTE Release:	R8
Extreme temp. Tolerance:	-30°C to +70°C
Extreme vol. Limits:	4.25VDC to 5.75VDC (nominal: 5.0VDC)

2.3 Equipment Under Test

Power supply system utilised

Power supply voltage	:	☐ 120V/ 60 Hz	☐ 115V/60Hz
		☐ 12 V DC	☐ 24 V DC
		☒ Other (specified in blank below)	

DC5V From Adapter with AC100-240V, 50/60Hz, 0.5A Max or DC3.7V From Battery

2.4 Short Description of The Equipment Under Test (EUT)

2.4.1 General Description

This is a Smart Pet Collar.

For more details, refer to the user's manual of the EUT.

2.5 Test Frequency List

TX Channel Bandwidth	Frequency (MHz)	channel
1.4 MHz	1850.7	18607
	1880.0	18900
	1909.3	19193
3 MHz	1851.5	18615
	1880.0	18900
	1908.5	19185
5 MHz	1852.5	18625
	1880.0	18900
	1907.5	19175
10 MHz	1855.0	18650
	1880.0	18900
	1905.0	19150
15 MHz	1857.5	18675
	1880.0	18900
	1902.5	19125
20 MHz	1860.0	18700
	1880.0	18900
	1900.0	19100

2.6 Normal Accessory Setting

Fully charged battery was used during the test.

2.7 EUT Configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

○ Power Cable	Length (m) :	/
	Shield :	/
	Detachable :	/ NO
○ Multimeter	Manufacturer :	/
	Model No. :	/

2.8 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2BFCX-C10** filing to comply with FCC Part 24, Rules.

2.9 Modifications

No modifications were implemented to meet testing criteria.

2.10 General Test Conditions/Configurations

2.10.1 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	4.25V
	VN	5.0V
	VH	5.75V

NOTE: VL = lower extreme test voltage VN = nominal voltage
VH = upper extreme test voltage TN = normal temperature

3 Test Environment

3.1 Information of The Test Laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization:

A2LA Accreditation Code is 4781.01.
FCC Designation Number is CN1229.
Canada IC CAB identifier is CN0045.
CNAS Registration Number is L9589.

3.2 Environmental Conditions

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

Temperature:	15-35 °C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.3 Test Description

PCSBand (1850-1915MHz pairedwith 1930-1995MHz)

Test Item	FCCRuleNo.	Requirements	Verdict
Effective (Isotropic) Radiated Output Power	Part§2.1046, Part§24.232	EIRP ≤ 2W	Pass
Peak-Average Ratio	Part§2.1046, Part§24.232	FCC: Limit≤13dB	Pass
Bandwidth	Part§2.1049 RSS-133	OBW: Nolimit. EBW: Nolimit.	Pass
Band Edges Compliance	Part§2.1051, Part§24.238	≤ -13dBm/1%*EBW, In 1MHz bands immediately outside and adjacent to The frequency block.	Pass
Spurious Emission at Antenna Terminals	Part§2.1051, Part§24.238	≤-13dBm/1MHz, from 9kHz to10th harmonics but outside authorized Operating frequency ranges.	Pass
Field Strength of Spurious Radiation	Part§2.1053, Part§24.238	≤ -13dBm/1MHz.	Pass
Frequency Stability	Part§2.1055, Part§24.235	FCC: within authorized frequency block.	Pass
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".			

Remark:

1. The measurement uncertainty is not included in the test result.

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3.4 Equipments Used During The Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	L.I.S.N.	R&S	ENV216	HKE-002	2025/02/19	2026/02/18
2	L.I.S.N.	R&S	ENV216	HKE-059	2025/02/19	2026/02/18
3	EMI Test Receiver	R&S	ESR	HKE-005	2025/02/19	2026/02/18
4	Spectrum analyzer	Agilent	N9020A	HKE-117	2025/02/19	2026/02/18
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2025/02/19	2026/02/18
6	Preamplifier	EMCI	EMC051845S	HKE-006	2025/02/19	2026/02/18
7	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2025/02/19	2026/02/18
8	Preamplifier	A.H. Systems	SAS-574	HKE-182	2025/02/19	2026/02/18
9	6dB Attenuator	Pasternack	6db	HKE-184	2025/02/19	2026/02/18
10	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2024/02/20	2025/02/19
11	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2026/02/20
12	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2026/02/20
13	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2026/02/20
14	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
15	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
16	RF Automatic control unit	Tonscend	JS0806-1	HKE-096	2025/02/19	2026/02/18
17	High pass filter unit	Tonscend	JS0806-F	HKE-055	2025/02/19	2026/02/18
18	Wireless Communication Test Set	R&S	CMU200	HKE-026	2025/02/19	2026/02/18
19	Wireless Communication Test Set	R&S	CMW500	HKE-027	2025/02/19	2026/02/18
20	High-low temperature chamber	Guangke	HT-80L	HKE-118	2025/06/09	2026/06/08
21	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2025/06/09	2026/06/08
22	RF Test Software	Tonscend	JS1120 Version 3.5.39	HKE-183	/	/
23	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

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4 Test Conditions and Results

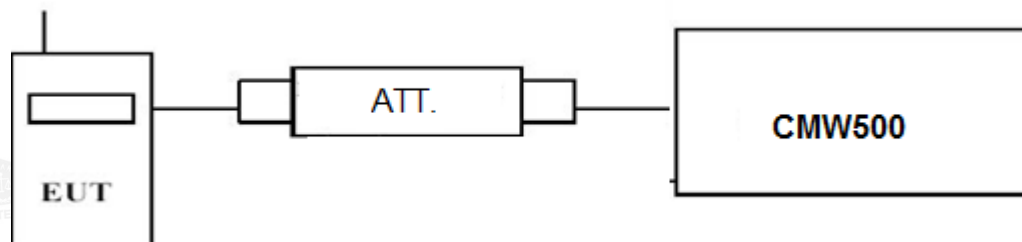
4.1 Output Power

4.1.1 Conducted Output Power

TEST APPLICABLE

During the process of testing, the EUT was controlled via R&S Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation. This result contains output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

TEST CONFIGURATION



TEST PROCEDURE

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 CMW500 by an Att.
- EUT Communicate with CMW500 then selects a channel for testing.
- Add a correction factor to the display CMW500, and then test.

TEST RESULTS

Remark:

- We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2;

Band	Bandwidth	Modulation	Channel	RB Configuration	Result (dBm)
Band2	1.4MHz	QPSK	18607	1RB#0	23.92
Band2	1.4MHz	QPSK	18607	1RB#2	23.89
Band2	1.4MHz	QPSK	18607	1RB#5	23.69
Band2	1.4MHz	QPSK	18607	3RB#0	23.81
Band2	1.4MHz	QPSK	18607	3RB#1	23.82
Band2	1.4MHz	QPSK	18607	3RB#3	23.72
Band2	1.4MHz	QPSK	18607	6RB#0	22.77
Band2	1.4MHz	16QAM	18607	1RB#0	23.09
Band2	1.4MHz	16QAM	18607	1RB#2	22.85
Band2	1.4MHz	16QAM	18607	1RB#5	22.89
Band2	1.4MHz	16QAM	18607	3RB#0	22.74
Band2	1.4MHz	16QAM	18607	3RB#1	22.81
Band2	1.4MHz	16QAM	18607	3RB#3	22.58
Band2	1.4MHz	16QAM	18607	6RB#0	21.76
Band2	1.4MHz	QPSK	18900	1RB#0	24.51
Band2	1.4MHz	QPSK	18900	1RB#2	24.34
Band2	1.4MHz	QPSK	18900	1RB#5	24.14
Band2	1.4MHz	QPSK	18900	3RB#0	24.19
Band2	1.4MHz	QPSK	18900	3RB#1	24.09
Band2	1.4MHz	QPSK	18900	3RB#3	24.59
Band2	1.4MHz	QPSK	18900	6RB#0	23.04
Band2	1.4MHz	16QAM	18900	1RB#0	23.36

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Band2	1.4MHz	16QAM	18900	1RB#2	23.05
Band2	1.4MHz	16QAM	18900	1RB#5	23.08
Band2	1.4MHz	16QAM	18900	3RB#0	22.87
Band2	1.4MHz	16QAM	18900	3RB#1	23.03
Band2	1.4MHz	16QAM	18900	3RB#3	22.76
Band2	1.4MHz	16QAM	18900	6RB#0	21.91
Band2	1.4MHz	QPSK	19193	1RB#0	24.82
Band2	1.4MHz	QPSK	19193	1RB#2	24.22
Band2	1.4MHz	QPSK	19193	1RB#5	24.46
Band2	1.4MHz	QPSK	19193	3RB#0	24.40
Band2	1.4MHz	QPSK	19193	3RB#1	24.13
Band2	1.4MHz	QPSK	19193	3RB#3	24.04
Band2	1.4MHz	QPSK	19193	6RB#0	23.41
Band2	1.4MHz	16QAM	19193	1RB#0	23.01
Band2	1.4MHz	16QAM	19193	1RB#2	23.05
Band2	1.4MHz	16QAM	19193	1RB#5	23.40
Band2	1.4MHz	16QAM	19193	3RB#0	23.21
Band2	1.4MHz	16QAM	19193	3RB#1	23.54
Band2	1.4MHz	16QAM	19193	3RB#3	23.47
Band2	1.4MHz	16QAM	19193	6RB#0	22.97
Band2	3MHz	QPSK	18615	1RB#0	23.50
Band2	3MHz	QPSK	18615	1RB#8	23.71
Band2	3MHz	QPSK	18615	1RB#14	23.31
Band2	3MHz	QPSK	18615	8RB#0	22.78
Band2	3MHz	QPSK	18615	8RB#4	22.76
Band2	3MHz	QPSK	18615	8RB#7	22.58
Band2	3MHz	QPSK	18615	15RB#0	22.61
Band2	3MHz	16QAM	18615	1RB#0	22.63
Band2	3MHz	16QAM	18615	1RB#8	22.98
Band2	3MHz	16QAM	18615	1RB#14	22.39
Band2	3MHz	16QAM	18615	8RB#0	21.94
Band2	3MHz	16QAM	18615	8RB#4	21.86
Band2	3MHz	16QAM	18615	8RB#7	21.81
Band2	3MHz	16QAM	18615	15RB#0	21.68
Band2	3MHz	QPSK	18900	1RB#0	24.43
Band2	3MHz	QPSK	18900	1RB#8	24.27
Band2	3MHz	QPSK	18900	1RB#14	23.79
Band2	3MHz	QPSK	18900	8RB#0	23.12
Band2	3MHz	QPSK	18900	8RB#4	23.09
Band2	3MHz	QPSK	18900	8RB#7	22.96
Band2	3MHz	QPSK	18900	15RB#0	23.00
Band2	3MHz	16QAM	18900	1RB#0	23.38
Band2	3MHz	16QAM	18900	1RB#8	23.05
Band2	3MHz	16QAM	18900	1RB#14	22.86
Band2	3MHz	16QAM	18900	8RB#0	22.19
Band2	3MHz	16QAM	18900	8RB#4	21.95
Band2	3MHz	16QAM	18900	8RB#7	21.99
Band2	3MHz	16QAM	18900	15RB#0	21.92
Band2	3MHz	QPSK	19185	1RB#0	24.06
Band2	3MHz	QPSK	19185	1RB#8	24.43
Band2	3MHz	QPSK	19185	1RB#14	23.91
Band2	3MHz	QPSK	19185	8RB#0	23.10
Band2	3MHz	QPSK	19185	8RB#4	23.14
Band2	3MHz	QPSK	19185	8RB#7	23.80
Band2	3MHz	QPSK	19185	15RB#0	23.25
Band2	3MHz	16QAM	19185	1RB#0	22.60
Band2	3MHz	16QAM	19185	1RB#8	23.56

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Band2	3MHz	16QAM	19185	1RB#14	23.12
Band2	3MHz	16QAM	19185	8RB#0	22.56
Band2	3MHz	16QAM	19185	8RB#4	22.96
Band2	3MHz	16QAM	19185	8RB#7	22.49
Band2	3MHz	16QAM	19185	15RB#0	22.57
Band2	5MHz	QPSK	18625	1RB#0	23.34
Band2	5MHz	QPSK	18625	1RB#12	23.46
Band2	5MHz	QPSK	18625	1RB#24	23.62
Band2	5MHz	QPSK	18625	12RB#0	23.87
Band2	5MHz	QPSK	18625	12RB#6	23.54
Band2	5MHz	QPSK	18625	12RB#13	23.74
Band2	5MHz	QPSK	18625	25RB#0	23.50
Band2	5MHz	16QAM	18625	1RB#0	23.41
Band2	5MHz	16QAM	18625	1RB#12	23.07
Band2	5MHz	16QAM	18625	1RB#24	23.31
Band2	5MHz	16QAM	18625	12RB#0	23.12
Band2	5MHz	16QAM	18625	12RB#6	23.14
Band2	5MHz	16QAM	18625	12RB#13	23.25
Band2	5MHz	16QAM	18625	25RB#0	23.10
Band2	5MHz	QPSK	18900	1RB#0	24.03
Band2	5MHz	QPSK	18900	1RB#12	24.10
Band2	5MHz	QPSK	18900	1RB#24	24.17
Band2	5MHz	QPSK	18900	12RB#0	22.79
Band2	5MHz	QPSK	18900	12RB#6	22.63
Band2	5MHz	QPSK	18900	12RB#13	22.59
Band2	5MHz	QPSK	18900	25RB#0	22.77
Band2	5MHz	16QAM	18900	1RB#0	22.82
Band2	5MHz	16QAM	18900	1RB#12	22.35
Band2	5MHz	16QAM	18900	1RB#24	22.95
Band2	5MHz	16QAM	18900	12RB#0	21.83
Band2	5MHz	16QAM	18900	12RB#6	21.53
Band2	5MHz	16QAM	18900	12RB#13	21.56
Band2	5MHz	16QAM	18900	25RB#0	21.63
Band2	5MHz	QPSK	19175	1RB#0	24.51
Band2	5MHz	QPSK	19175	1RB#12	24.29
Band2	5MHz	QPSK	19175	1RB#24	23.99
Band2	5MHz	QPSK	19175	12RB#0	22.37
Band2	5MHz	QPSK	19175	12RB#6	22.30
Band2	5MHz	QPSK	19175	12RB#13	22.98
Band2	5MHz	QPSK	19175	25RB#0	23.20
Band2	5MHz	16QAM	19175	1RB#0	22.54
Band2	5MHz	16QAM	19175	1RB#12	23.14
Band2	5MHz	16QAM	19175	1RB#24	23.42
Band2	5MHz	16QAM	19175	12RB#0	22.90
Band2	5MHz	16QAM	19175	12RB#6	23.10
Band2	5MHz	16QAM	19175	12RB#13	23.12
Band2	5MHz	16QAM	19175	25RB#0	23.21
Band2	10MHz	QPSK	18650	1RB#0	23.73
Band2	10MHz	QPSK	18650	1RB#24	23.98
Band2	10MHz	QPSK	18650	1RB#49	23.52
Band2	10MHz	QPSK	18650	25RB#0	22.59
Band2	10MHz	QPSK	18650	25RB#12	22.44
Band2	10MHz	QPSK	18650	25RB#25	22.65
Band2	10MHz	QPSK	18650	50RB#0	22.86
Band2	10MHz	16QAM	18650	1RB#0	23.14
Band2	10MHz	16QAM	18650	1RB#24	22.45
Band2	10MHz	16QAM	18650	1RB#49	23.13

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Band2	10MHz	16QAM	18650	25RB#0	21.90
Band2	10MHz	16QAM	18650	25RB#12	21.73
Band2	10MHz	16QAM	18650	25RB#25	21.96
Band2	10MHz	QPSK	18900	1RB#0	23.99
Band2	10MHz	QPSK	18900	1RB#24	24.16
Band2	10MHz	QPSK	18900	1RB#49	23.74
Band2	10MHz	QPSK	18900	25RB#0	23.02
Band2	10MHz	QPSK	18900	25RB#12	22.71
Band2	10MHz	QPSK	18900	25RB#25	22.52
Band2	10MHz	QPSK	18900	50RB#0	23.22
Band2	10MHz	16QAM	18900	1RB#0	23.45
Band2	10MHz	16QAM	18900	1RB#24	22.60
Band2	10MHz	16QAM	18900	1RB#49	22.98
Band2	10MHz	16QAM	18900	25RB#0	22.05
Band2	10MHz	16QAM	18900	25RB#12	21.66
Band2	10MHz	16QAM	18900	25RB#25	21.47
Band2	10MHz	QPSK	19150	1RB#0	24.25
Band2	10MHz	QPSK	19150	1RB#24	24.37
Band2	10MHz	QPSK	19150	1RB#49	24.58
Band2	10MHz	QPSK	19150	25RB#0	22.34
Band2	10MHz	QPSK	19150	25RB#12	22.54
Band2	10MHz	QPSK	19150	25RB#25	22.88
Band2	10MHz	QPSK	19150	50RB#0	22.78
Band2	10MHz	16QAM	19150	1RB#0	22.81
Band2	10MHz	16QAM	19150	1RB#24	23.01
Band2	10MHz	16QAM	19150	1RB#49	23.15
Band2	10MHz	16QAM	19150	25RB#0	22.99
Band2	10MHz	16QAM	19150	25RB#12	23.02
Band2	10MHz	16QAM	19150	25RB#25	23.05
Band2	15MHz	QPSK	18675	1RB#0	24.61
Band2	15MHz	QPSK	18675	1RB#38	24.48
Band2	15MHz	QPSK	18675	1RB#74	24.13
Band2	15MHz	QPSK	18675	38RB#0	23.44
Band2	15MHz	QPSK	18675	38RB#18	23.16
Band2	15MHz	QPSK	18675	38RB#37	23.13
Band2	15MHz	QPSK	18675	75RB#0	23.42
Band2	15MHz	16QAM	18675	1RB#0	23.80
Band2	15MHz	16QAM	18675	1RB#38	23.57
Band2	15MHz	16QAM	18675	1RB#74	24.28
Band2	15MHz	16QAM	18675	38RB#0	23.11
Band2	15MHz	16QAM	18675	38RB#18	23.00
Band2	15MHz	16QAM	18675	38RB#37	23.01
Band2	15MHz	QPSK	18900	1RB#0	25.14
Band2	15MHz	QPSK	18900	1RB#38	24.30
Band2	15MHz	QPSK	18900	1RB#74	23.35
Band2	15MHz	QPSK	18900	38RB#0	23.23
Band2	15MHz	QPSK	18900	38RB#18	23.34
Band2	15MHz	QPSK	18900	38RB#37	23.21
Band2	15MHz	QPSK	18900	75RB#0	23.47
Band2	15MHz	16QAM	18900	1RB#0	24.04
Band2	15MHz	16QAM	18900	1RB#38	23.11
Band2	15MHz	16QAM	18900	1RB#74	22.45
Band2	15MHz	16QAM	18900	38RB#0	23.19
Band2	15MHz	16QAM	18900	38RB#18	23.04
Band2	15MHz	QPSK	19125	1RB#0	23.48
Band2	15MHz	QPSK	19125	1RB#38	24.32
Band2	15MHz	QPSK	19125	1RB#74	24.01

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Band2	15MHz	QPSK	19125	38RB#0	22.41
Band2	15MHz	QPSK	19125	38RB#18	23.11
Band2	15MHz	QPSK	19125	38RB#37	22.58
Band2	15MHz	QPSK	19125	75RB#0	23.04
Band2	15MHz	16QAM	19125	1RB#0	23.07
Band2	15MHz	16QAM	19125	1RB#38	22.84
Band2	15MHz	16QAM	19125	1RB#74	23.64
Band2	15MHz	16QAM	19125	38RB#0	22.42
Band2	20MHz	QPSK	18700	1RB#0	23.47
Band2	20MHz	QPSK	18700	1RB#49	23.32
Band2	20MHz	QPSK	18700	1RB#99	24.51
Band2	20MHz	QPSK	18700	50RB#0	22.86
Band2	20MHz	QPSK	18700	50RB#25	22.71
Band2	20MHz	QPSK	18700	50RB#50	22.85
Band2	20MHz	QPSK	18700	100RB#0	22.36
Band2	20MHz	16QAM	18700	1RB#0	22.57
Band2	20MHz	16QAM	18700	1RB#49	22.33
Band2	20MHz	16QAM	18700	1RB#99	23.64
Band2	20MHz	QPSK	18900	1RB#0	24.62
Band2	20MHz	QPSK	18900	1RB#49	24.40
Band2	20MHz	QPSK	18900	1RB#99	24.26
Band2	20MHz	QPSK	18900	50RB#0	23.99
Band2	20MHz	QPSK	18900	50RB#25	24.00
Band2	20MHz	QPSK	18900	50RB#50	23.85
Band2	20MHz	QPSK	18900	100RB#0	23.74
Band2	20MHz	16QAM	18900	1RB#0	23.78
Band2	20MHz	16QAM	18900	1RB#49	22.78
Band2	20MHz	16QAM	18900	1RB#99	23.03
Band2	20MHz	QPSK	19100	1RB#0	23.65
Band2	20MHz	QPSK	19100	1RB#49	23.40
Band2	20MHz	QPSK	19100	1RB#99	23.60
Band2	20MHz	QPSK	19100	50RB#0	22.97
Band2	20MHz	QPSK	19100	50RB#50	23.15
Band2	20MHz	QPSK	19100	100RB#0	22.87
Band2	20MHz	16QAM	19100	1RB#0	23.23
Band2	20MHz	16QAM	19100	1RB#49	22.89
Band2	20MHz	16QAM	19100	1RB#99	23.41

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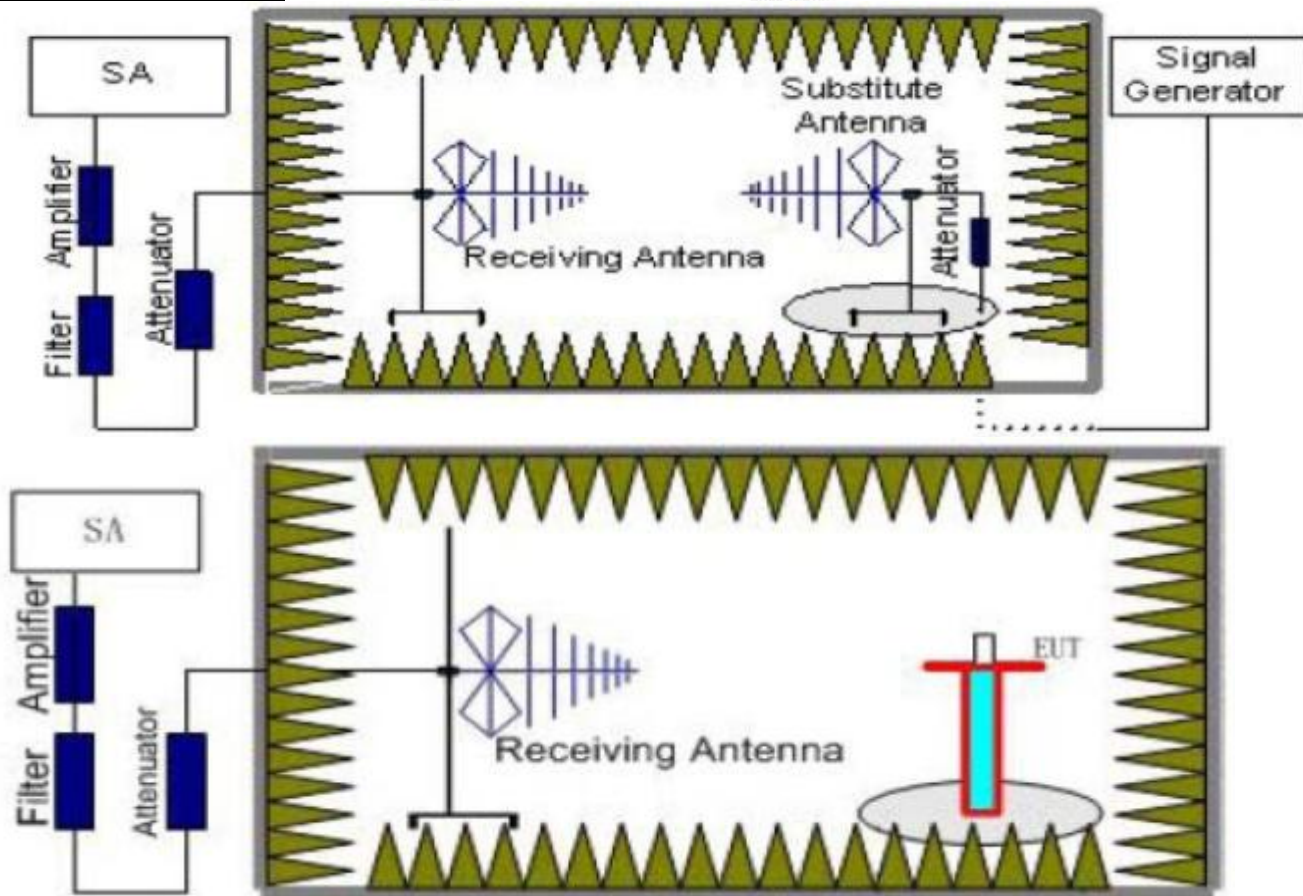
4.1.2. Radiated Output Power

LIMIT

This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p.

TEST CONFIGURATION



TEST PROCEDURE

1. EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna.

5. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.
The measurement results are obtained as described below:
 $Power(EIRP) = P_{Mea} - P_{cl} + G_a$
We used SMF100A micowave signal generator which signal level can up to 33dBm, so we not used power Amplifier for substitution test; The measurement results are amend as described below:
 $Power(EIRP) = P_{Mea} - P_{cl} + G_a$
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
8. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dBi$.

TEST RESULTS

Radiated Measurement:

Remark:

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

LTE FDD Band 2_Channel Bandwidth 1.4MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1850.7	-15.15	3.41	10.24	33.6	25.28	33.01	7.73	V
1880.0	-15.98	3.49	10.24	33.6	24.37	33.01	8.64	V
1909.3	-16.65	3.55	10.23	33.6	23.63	33.01	9.38	V

LTE FDD Band 2_Channel Bandwidth 3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1851.5	-15.32	3.41	10.24	33.6	25.11	33.01	7.90	V
1880.0	-14.92	3.49	10.24	33.6	25.43	33.01	7.58	V
1908.5	-15.24	3.55	10.23	33.6	25.04	33.01	7.97	V

LTE FDD Band 2_Channel Bandwidth 5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.5	-14.82	3.41	10.24	33.6	25.61	33.01	7.40	V
1880.0	-14.61	3.49	10.24	33.6	25.74	33.01	7.27	V
1907.5	-16.66	3.55	10.23	33.6	23.62	33.01	9.39	V

LTE FDD Band 2_Channel Bandwidth 10MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1855.0	-13.76	3.41	10.24	33.60	26.67	33.01	6.34	V
1880.0	-15.40	3.49	10.24	33.60	24.95	33.01	8.06	V
1905.0	-15.93	3.55	10.23	33.60	24.35	33.01	8.66	V

LTE FDD Band 2_Channel Bandwidth 15MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1857.5	-14.47	3.41	10.24	33.60	25.96	33.01	7.05	V
1880.0	-13.89	3.49	10.24	33.60	26.46	33.01	6.55	V
1902.5	-15.12	3.55	10.23	33.60	25.16	33.01	7.85	V

LTE FDD Band 2_Channel Bandwidth 20MHz_QPSK

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1860.0	-14.39	3.41	10.24	33.60	26.04	33.01	6.97	V
1880.0	-13.42	3.49	10.24	33.60	26.93	33.01	6.08	V
1900.0	-15.31	3.55	10.23	33.60	24.97	33.01	8.04	V

LTE FDD Band 2_Channel Bandwidth 1.4MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1850.7	-15.53	3.41	10.24	33.60	24.90	33.01	8.11	V
1880.0	-14.13	3.49	10.24	33.60	26.22	33.01	6.79	V
1909.3	-15.80	3.55	10.23	33.60	24.48	33.01	8.53	V

LTE FDD Band 2_Channel Bandwidth 3MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1851.5	-14.47	3.41	10.24	33.60	25.96	33.01	7.05	V
1880.0	-14.00	3.49	10.24	33.60	26.35	33.01	6.66	V
1908.5	-16.02	3.55	10.23	33.60	24.26	33.01	8.75	V

LTE FDD Band 2_Channel Bandwidth 5MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.5	-15.87	3.41	10.24	33.60	24.56	33.01	8.45	V
1880.0	-14.48	3.49	10.24	33.60	25.87	33.01	7.14	V
1907.5	-15.77	3.55	10.23	33.60	24.51	33.01	8.50	V

LTE FDD Band 2_Channel Bandwidth 10MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1855.0	-14.01	3.41	10.24	33.60	26.42	33.01	6.59	V
1880.0	-15.01	3.49	10.24	33.60	25.34	33.01	7.67	V
1905.0	-14.98	3.55	10.23	33.60	25.30	33.01	7.71	V

LTE FDD Band 2_Channel Bandwidth 15MHz_16QAM

Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1857.5	-15.77	3.41	10.24	33.60	24.66	33.01	8.35	V
1880.0	-14.76	3.49	10.24	33.60	25.59	33.01	7.42	V
1902.5	-15.72	3.55	10.23	33.60	24.56	33.01	8.45	V

LTE FDD Band 2_Channel Bandwidth 20MHz_16QAM

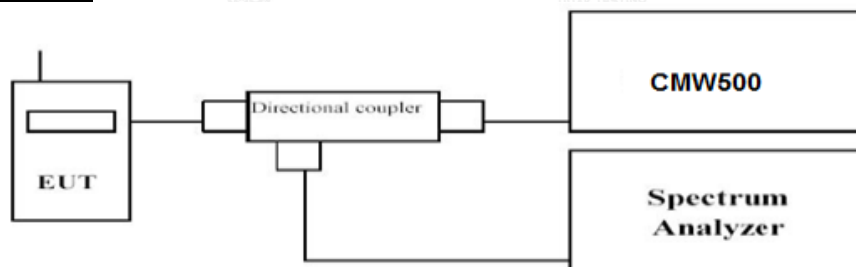
Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Aq} (dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1860.0	-14.68	3.41	10.24	33.60	25.75	33.01	7.26	V
1880.0	-15.85	3.49	10.24	33.60	24.50	33.01	8.51	V
1900.0	-13.37	3.55	10.23	33.60	26.91	33.01	6.10	V

4.2 Peak-to-Average Ratio (PAR)

LIMIT

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

TEST CONFIGURATION



TEST PROCEDURE

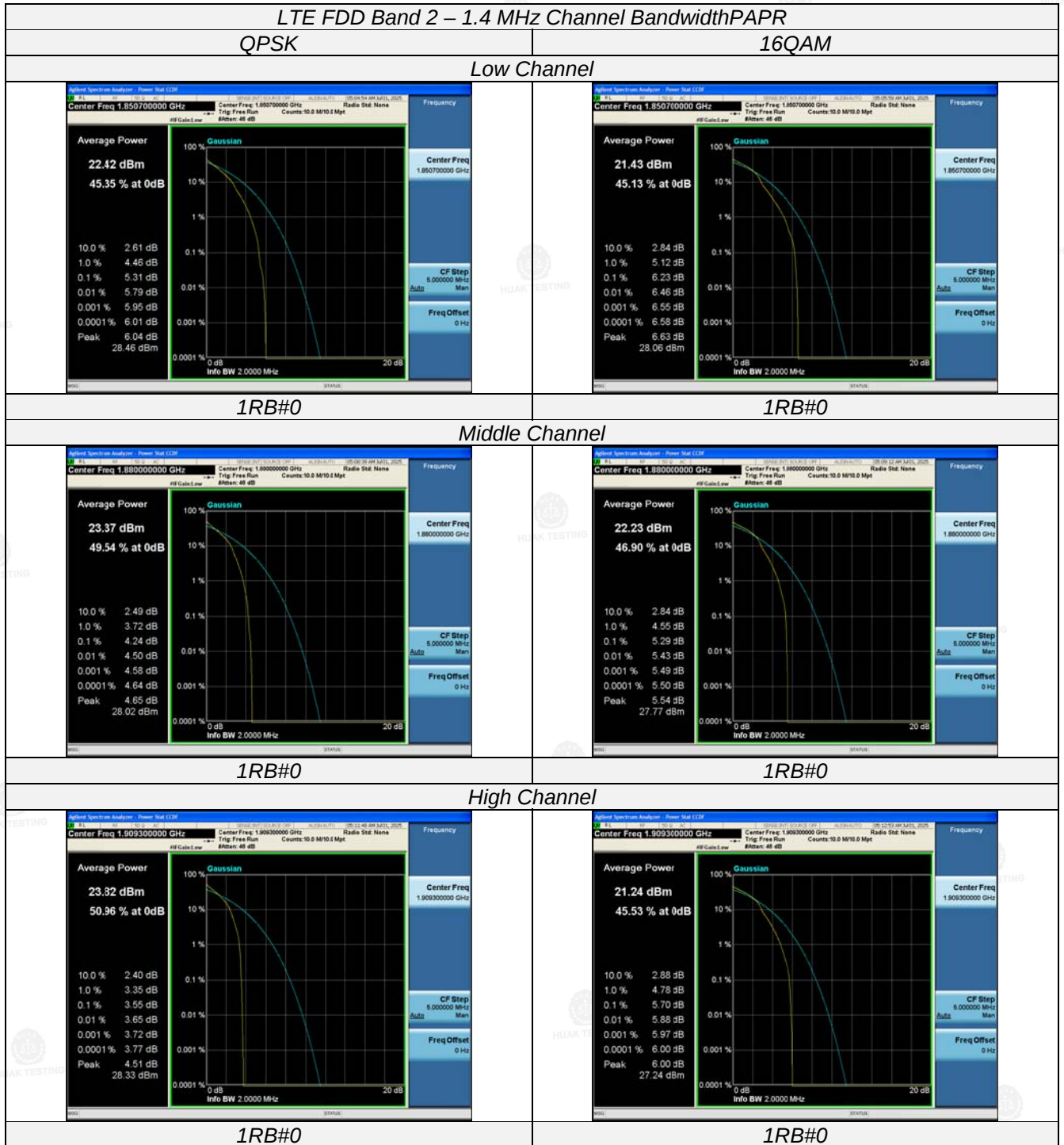
1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval 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

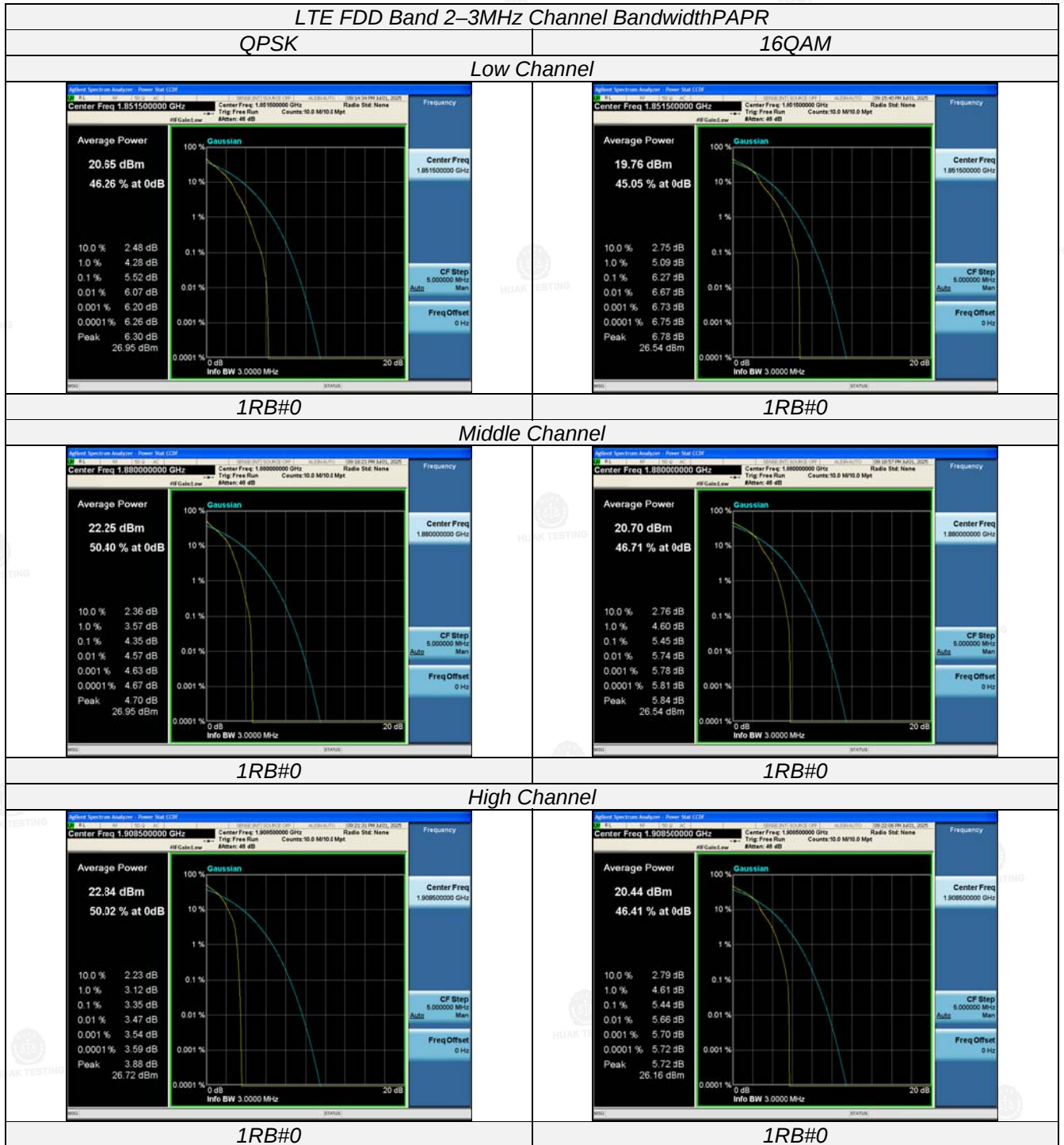
Remark:

1. We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

LTE FDD Band 2				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR(dB)	
			QPSK	16QAM
1.4 MHz	1850.7	1RB#0	5.31	6.23
	1880.0		4.24	5.29
	1909.3		3.55	5.70
3 MHz	1851.5	1RB#0	5.52	6.27
	1880.0		4.35	5.45
	1908.5		3.35	5.44
5 MHz	1852.5	1RB#0	5.21	5.98
	1880.0		3.90	5.08
	1907.5		2.91	4.95
10 MHz	1855.0	1RB#0	5.10	5.67
	1880.0		3.80	4.92
	1905.0		3.46	5.58
15 MHz	1857.5	1RB#0	5.33	6.01
	1880.0		3.84	5.10
	1902.5		5.72	6.58
20 MHz	1860.0	1RB#0	5.04	5.66
	1880.0		4.18	5.49
	1900.0		5.33	5.55

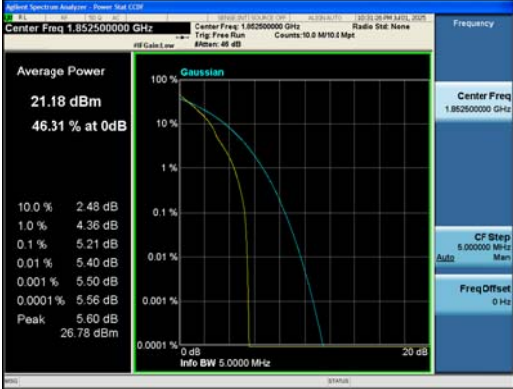
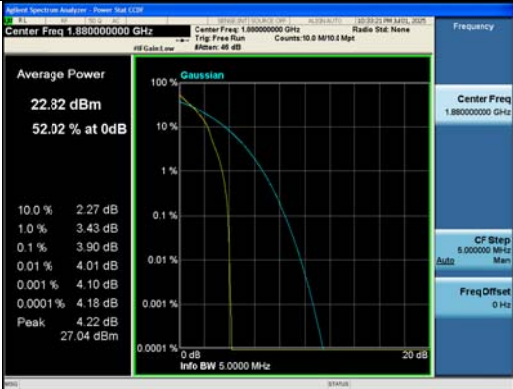
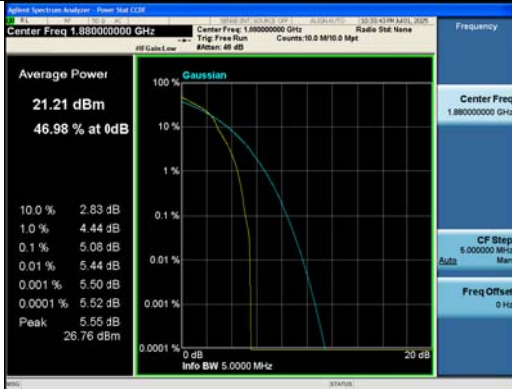


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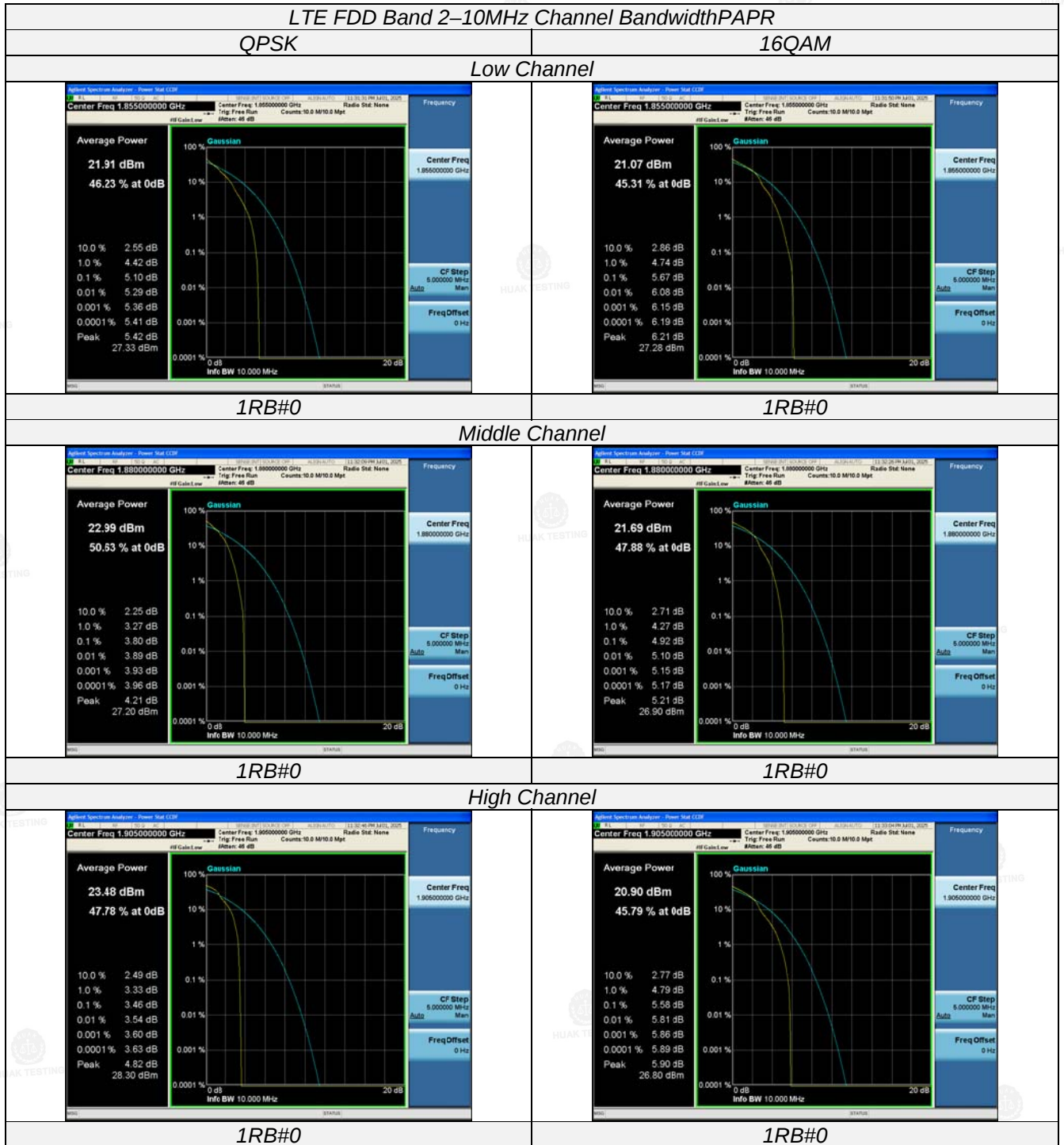


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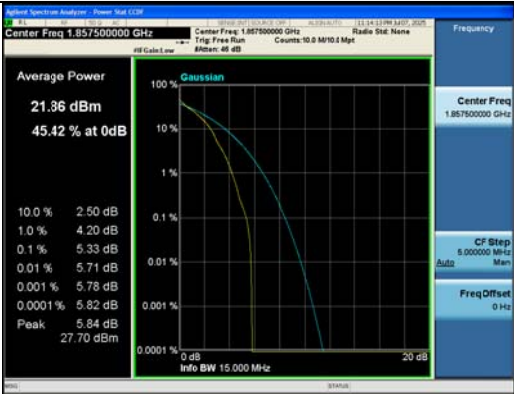
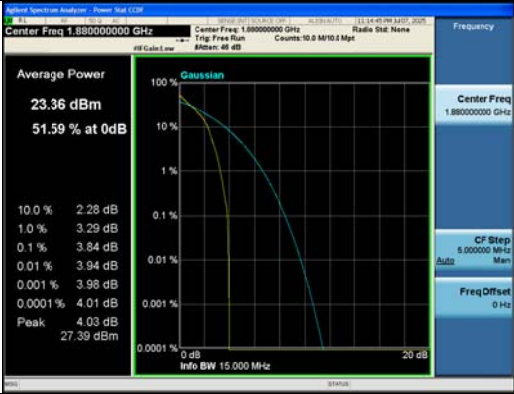
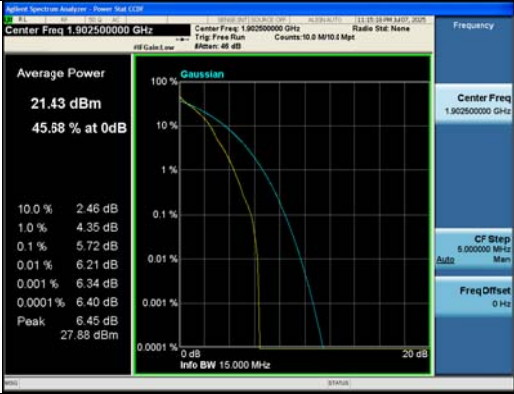
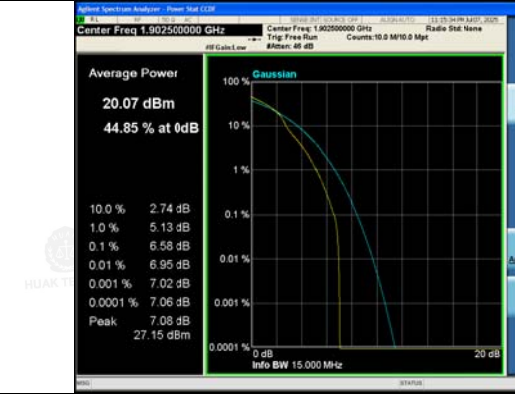
LTE FDD Band 2-5MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
 Average Power: 21.18 dBm 46.31 % at 0dB 10.0 % 2.48 dB 1.0 % 4.36 dB 0.1 % 5.21 dB 0.01 % 5.40 dB 0.001 % 5.56 dB Peak 26.78 dBm Center Freq: 1.852500000 GHz Info BW: 5.0000 MHz	 Average Power: 20.25 dBm 44.91 % at 0dB 10.0 % 2.85 dB 1.0 % 5.05 dB 0.1 % 5.98 dB 0.01 % 6.51 dB 0.001 % 6.58 dB Peak 26.87 dBm Center Freq: 1.852500000 GHz Info BW: 5.0000 MHz
1RB#0	1RB#0
Middle Channel	
 Average Power: 22.82 dBm 52.02 % at 0dB 10.0 % 2.27 dB 1.0 % 3.43 dB 0.1 % 3.90 dB 0.01 % 4.01 dB 0.001 % 4.10 dB Peak 27.04 dBm Center Freq: 1.880000000 GHz Info BW: 5.0000 MHz	 Average Power: 21.21 dBm 46.98 % at 0dB 10.0 % 2.83 dB 1.0 % 4.44 dB 0.1 % 5.08 dB 0.01 % 5.44 dB 0.001 % 5.50 dB Peak 26.76 dBm Center Freq: 1.880000000 GHz Info BW: 5.0000 MHz
1RB#0	1RB#0
High Channel	
 Average Power: 23.39 dBm 55.57 % at 0dB 10.0 % 2.05 dB 1.0 % 2.79 dB 0.1 % 2.91 dB 0.01 % 2.99 dB 0.001 % 3.16 dB Peak 26.64 dBm Center Freq: 1.907500000 GHz Info BW: 5.0000 MHz	 Average Power: 21.04 dBm 47.01 % at 0dB 10.0 % 2.83 dB 1.0 % 4.36 dB 0.1 % 4.95 dB 0.01 % 5.23 dB 0.001 % 5.27 dB Peak 26.39 dBm Center Freq: 1.907500000 GHz Info BW: 5.0000 MHz
1RB#0	1RB#0

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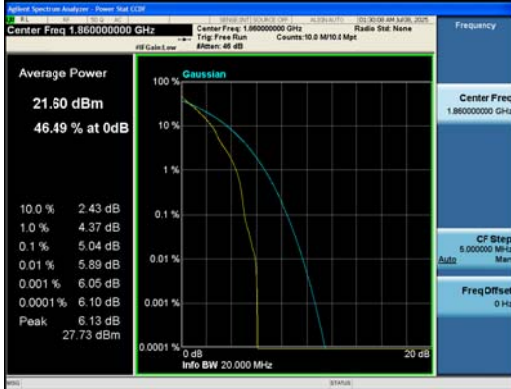
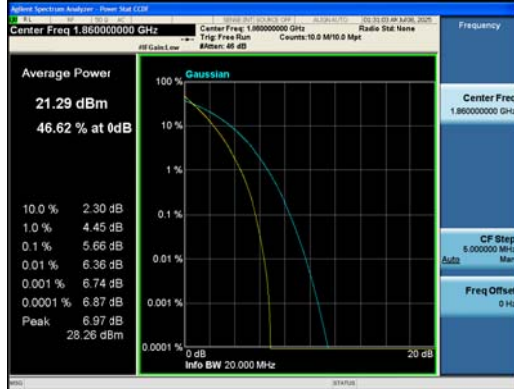
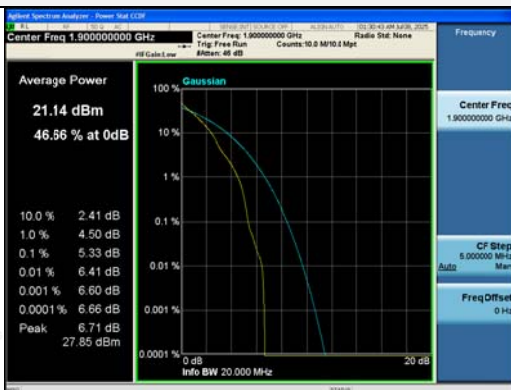
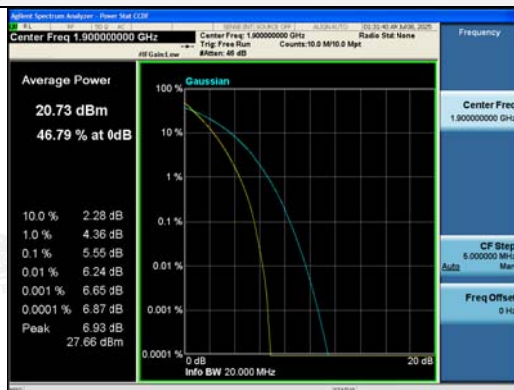


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LTE FDD Band 2- 15 MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
 Average Power 21.36 dBm 45.42 % at 0dB 10.0 % 2.50 dB 1.0 % 4.20 dB 0.1 % 5.33 dB 0.01 % 5.71 dB 0.001 % 5.78 dB Peak 5.84 dB 27.70 dBm Center Freq 1.857500000 GHz Info BW 15.000 MHz	 Average Power 21.19 dBm 44.78 % at 0dB 10.0 % 2.76 dB 1.0 % 5.00 dB 0.1 % 6.01 dB 0.01 % 6.29 dB 0.001 % 6.35 dB 0.0001 % 6.38 dB Peak 6.50 dB 27.69 dBm Center Freq 1.857500000 GHz Info BW 15.000 MHz
1RB#0	1RB#0
Middle Channel	
 Average Power 23.36 dBm 51.59 % at 0dB 10.0 % 2.28 dB 1.0 % 3.29 dB 0.1 % 3.84 dB 0.01 % 3.94 dB 0.001 % 3.98 dB 0.0001 % 4.01 dB Peak 4.03 dB 27.39 dBm Center Freq 1.880000000 GHz Info BW 15.000 MHz	 Average Power 21.82 dBm 47.26 % at 0dB 10.0 % 2.73 dB 1.0 % 4.41 dB 0.1 % 5.10 dB 0.01 % 5.28 dB 0.001 % 5.33 dB 0.0001 % 5.35 dB Peak 5.43 dB 27.25 dBm Center Freq 1.880000000 GHz Info BW 15.000 MHz
1RB#0	1RB#0
High Channel	
 Average Power 21.43 dBm 45.58 % at 0dB 10.0 % 2.46 dB 1.0 % 4.35 dB 0.1 % 5.72 dB 0.01 % 6.21 dB 0.001 % 6.34 dB 0.0001 % 6.40 dB Peak 6.45 dB 27.88 dBm Center Freq 1.902500000 GHz Info BW 15.000 MHz	 Average Power 20.07 dBm 44.85 % at 0dB 10.0 % 2.74 dB 1.0 % 5.13 dB 0.1 % 6.58 dB 0.01 % 6.95 dB 0.001 % 7.02 dB 0.0001 % 7.06 dB Peak 7.08 dB 27.15 dBm Center Freq 1.902500000 GHz Info BW 15.000 MHz
1RB#0	1RB#0

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LTE FDD Band 2–20MHz Channel BandwidthPAPR			
QPSK		16QAM	
Low Channel			
			
1RB#0		1RB#0	
Middle Channel			
			
1RB#0		1RB#0	
High Channel			
			
1RB#0		1RB#0	

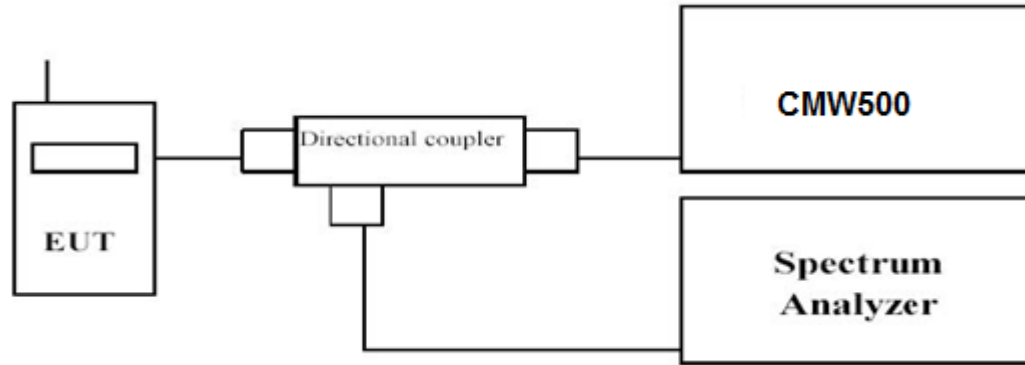
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4.3 Occupied Bandwidth and Emission Bandwidth

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.

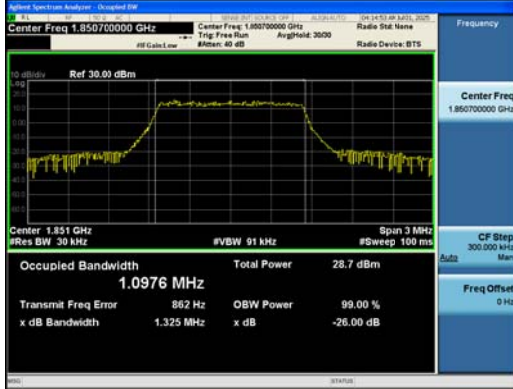
-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

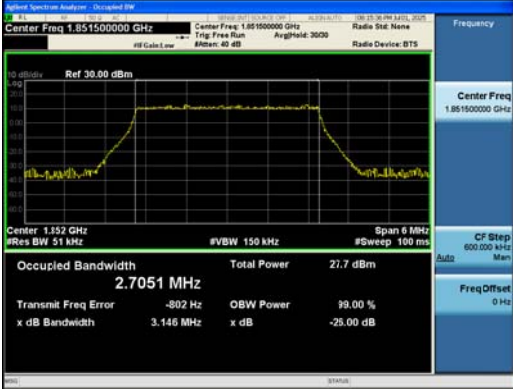
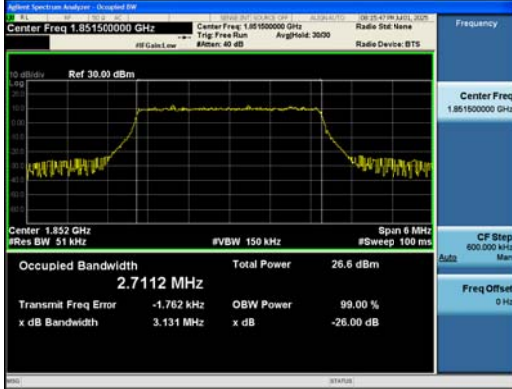
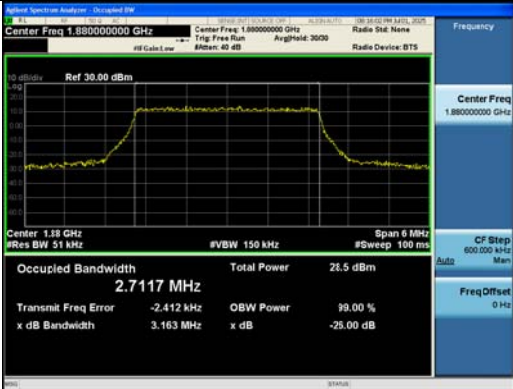
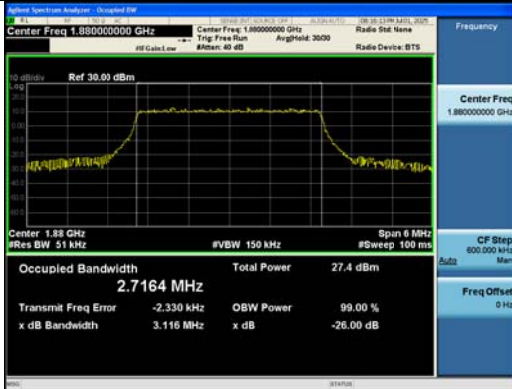
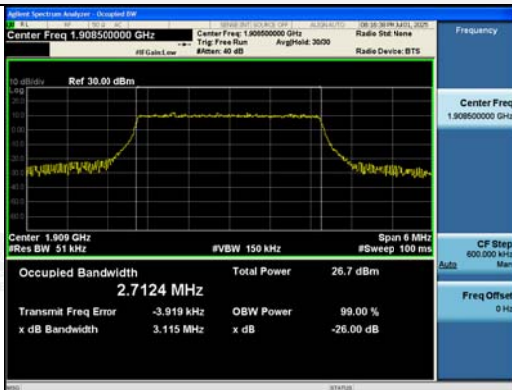
Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

LTE FDD Band 2						
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	1850.7	1.334	1.325	1.0948	1.0976
		1880.0	1.325	1.325	1.0949	1.0938
		1909.3	1.333	1.327	1.0970	1.0990
3 MHz	15RB#0	1851.5	3.146	3.131	2.7051	2.7112
		1880.0	3.163	3.116	2.7117	2.7164
		1908.5	3.176	3.115	2.7080	2.7124
5 MHz	25RB#0	1852.5	5.597	5.660	4.5415	4.5407
		1880.0	5.634	5.648	4.5405	4.5469
		1907.5	5.664	5.669	4.5467	4.5445
10 MHz	50RB#0(QPSK) 25RB#25 (16QAM)	1855.0	10.68	6.073	9.0324	4.7313
		1880.0	10.75	6.275	9.0225	4.7291
		1905.0	10.58	6.355	9.0301	4.7189
15 MHz	75RB#0(QPSK) 38RB#37(16QAM)	1857.5	16.23	9.568	13.562	6.8711
		1880.0	16.43	10.07	13.571	6.9494
		1902.5	16.11	9.684	13.533	6.8823
20 MHz	100RB#0(QPSK) 50RB#50(16QAM)	1860.0	20.78	12.04	18.030	9.3064
		1880.0	20.63	12.24	18.034	9.3960
		1900.0	20.76	12.15	18.009	9.3090

LTE FDD Band 2 – 1.4 MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.850700000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0948 MHz Total Power 25.5 dBm Transmit Freq Error -1.921 kHz x dB Bandwidth 1.334 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.850700000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0976 MHz Total Power 28.7 dBm Transmit Freq Error 862 Hz x dB Bandwidth 1.325 MHz OBW Power 99.00 % x dB -25.00 dB
6RB#0	6RB#0
Middle Channel	
 Center Freq 1.880000000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0949 MHz Total Power 30.3 dBm Transmit Freq Error -3.927 kHz x dB Bandwidth 1.325 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.880000000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0938 MHz Total Power 29.5 dBm Transmit Freq Error 22 Hz x dB Bandwidth 1.325 MHz OBW Power 99.00 % x dB -25.00 dB
6RB#0	6RB#0
High Channel	
 Center Freq 1.909300000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0970 MHz Total Power 25.5 dBm Transmit Freq Error -3.588 kHz x dB Bandwidth 1.333 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.909300000 GHz #Res BW 30 kHz #VBW 91 kHz #Sweep 100 ms Span 3 MHz CF Step 300.000 kHz Radio Device: BTS Occupied Bandwidth 1.0990 MHz Total Power 28.3 dBm Transmit Freq Error -406 Hz x dB Bandwidth 1.327 MHz OBW Power 99.00 % x dB -25.00 dB
6RB#0	6RB#0

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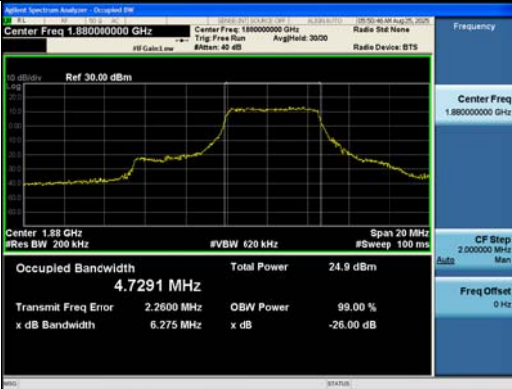
LTE FDD Band 2-3MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.851500000 GHz Occupied Bandwidth: 2.7051 MHz Total Power: 27.7 dBm Transmit Freq Error: -802 Hz x dB Bandwidth: 3.146 MHz OBW Power: 99.00 % x dB: -25.00 dB	 Center Freq 1.851500000 GHz Occupied Bandwidth: 2.7112 MHz Total Power: 26.6 dBm Transmit Freq Error: -1.762 kHz x dB Bandwidth: 3.131 MHz OBW Power: 99.00 % x dB: -26.00 dB
Middle Channel	
 Center Freq 1.880000000 GHz Occupied Bandwidth: 2.7117 MHz Total Power: 25.5 dBm Transmit Freq Error: -2.412 kHz x dB Bandwidth: 3.163 MHz OBW Power: 99.00 % x dB: -25.00 dB	 Center Freq 1.880000000 GHz Occupied Bandwidth: 2.7164 MHz Total Power: 27.4 dBm Transmit Freq Error: -2.330 kHz x dB Bandwidth: 3.116 MHz OBW Power: 99.00 % x dB: -26.00 dB
High Channel	
 Center Freq 1.908500000 GHz Occupied Bandwidth: 2.7080 MHz Total Power: 28.0 dBm Transmit Freq Error: -4.402 kHz x dB Bandwidth: 3.176 MHz OBW Power: 99.00 % x dB: -25.00 dB	 Center Freq 1.908500000 GHz Occupied Bandwidth: 2.7124 MHz Total Power: 26.7 dBm Transmit Freq Error: -3.919 kHz x dB Bandwidth: 3.115 MHz OBW Power: 99.00 % x dB: -26.00 dB

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LTE FDD Band 2-5MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.852500000 GHz Occupied Bandwidth 4.5415 MHz Total Power 25.1 dBm Transmit Freq Error -6.190 kHz x dB Bandwidth 5.597 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.852500000 GHz Occupied Bandwidth 4.5407 MHz Total Power 28.5 dBm Transmit Freq Error -9.007 kHz x dB Bandwidth 5.660 MHz OBW Power 99.00 % x dB -26.00 dB
25RB#0	25RB#0
Middle Channel	
 Center Freq 1.880000000 GHz Occupied Bandwidth 4.5405 MHz Total Power 30.1 dBm Transmit Freq Error -13.446 kHz x dB Bandwidth 5.634 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.880000000 GHz Occupied Bandwidth 4.5469 MHz Total Power 29.2 dBm Transmit Freq Error -14.571 kHz x dB Bandwidth 5.648 MHz OBW Power 99.00 % x dB -26.00 dB
25RB#0	25RB#0
High Channel	
 Center Freq 1.907500000 GHz Occupied Bandwidth 4.5467 MHz Total Power 28.8 dBm Transmit Freq Error -21.649 kHz x dB Bandwidth 5.064 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.907500000 GHz Occupied Bandwidth 4.5445 MHz Total Power 28.8 dBm Transmit Freq Error -20.771 kHz x dB Bandwidth 5.669 MHz OBW Power 99.00 % x dB -26.00 dB
25RB#0	25RB#0

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LTE FDD Band 2-10MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.855000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 9.0324 MHz Total Power 36.2 dBm Transmit Freq Error -16.055 kHz OBW Power 99.00 % x dB Bandwidth 10.68 MHz x dB -25.00 dB	 Center Freq 1.855000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 4.7313 MHz Total Power 25.4 dBm Transmit Freq Error 2.2687 MHz OBW Power 99.00 % x dB Bandwidth 6.073 MHz x dB -26.00 dB
50RB#0	25RB#25
Middle Channel	
 Center Freq 1.880000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 9.0225 MHz Total Power 36.5 dBm Transmit Freq Error -30.188 kHz OBW Power 99.00 % x dB Bandwidth 10.75 MHz x dB -25.00 dB	 Center Freq 1.880000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 4.7291 MHz Total Power 24.9 dBm Transmit Freq Error 2.2600 MHz OBW Power 99.00 % x dB Bandwidth 6.275 MHz x dB -26.00 dB
50RB#0	25RB#25
High Channel	
 Center Freq 1.905000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 9.0301 MHz Total Power 36.0 dBm Transmit Freq Error -48.417 kHz OBW Power 99.00 % x dB Bandwidth 10.58 MHz x dB -25.00 dB	 Center Freq 1.905000000 GHz #Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms Span 20 MHz CF Step 2.000000 MHz Freq Offset 0 Hz Occupied Bandwidth 4.7189 MHz Total Power 24.7 dBm Transmit Freq Error 2.2465 MHz OBW Power 99.00 % x dB Bandwidth 6.355 MHz x dB -26.00 dB
50RB#0	25RB#25

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LTE FDD Band 2-15MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.857500000 GHz Ref 30.00 dBm Occupied Bandwidth 13.562 MHz Total Power 31.2 dBm Transmit Freq Error 34.482 kHz x dB Bandwidth 16.23 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.857500000 GHz Ref 30.00 dBm Occupied Bandwidth 6.8711 MHz Total Power 30.9 dBm Transmit Freq Error 3.5089 MHz x dB Bandwidth 9.568 MHz OBW Power 99.00 % x dB -26.00 dB
75RB#0	38RB#37
Middle Channel	
 Center Freq 1.880000000 GHz Ref 30.00 dBm Occupied Bandwidth 13.571 MHz Total Power 31.1 dBm Transmit Freq Error 5.310 kHz x dB Bandwidth 16.43 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.880000000 GHz Ref 30.00 dBm Occupied Bandwidth 6.9494 MHz Total Power 30.7 dBm Transmit Freq Error 3.5432 MHz x dB Bandwidth 10.07 MHz OBW Power 99.00 % x dB -26.00 dB
75RB#0	38RB#37
High Channel	
 Center Freq 1.902500000 GHz Ref 30.00 dBm Occupied Bandwidth 13.533 MHz Total Power 36.5 dBm Transmit Freq Error -10.450 kHz x dB Bandwidth 16.11 MHz OBW Power 99.00 % x dB -25.00 dB	 Center Freq 1.902500000 GHz Ref 30.00 dBm Occupied Bandwidth 6.8823 MHz Total Power 29.8 dBm Transmit Freq Error 3.4584 MHz x dB Bandwidth 9.684 MHz OBW Power 99.00 % x dB -26.00 dB
75RB#0	38RB#37

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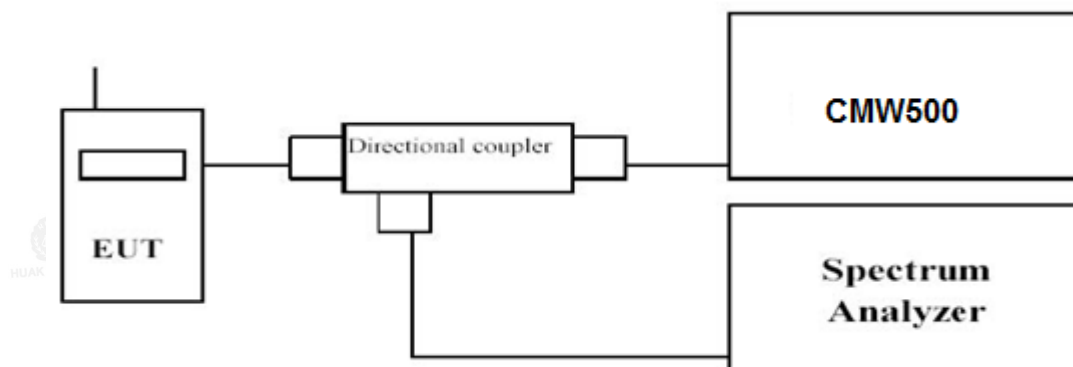


4.4 Band Edge Compliance

LIMIT

Per FCC §24.238 the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

TEST CONFIGURATION



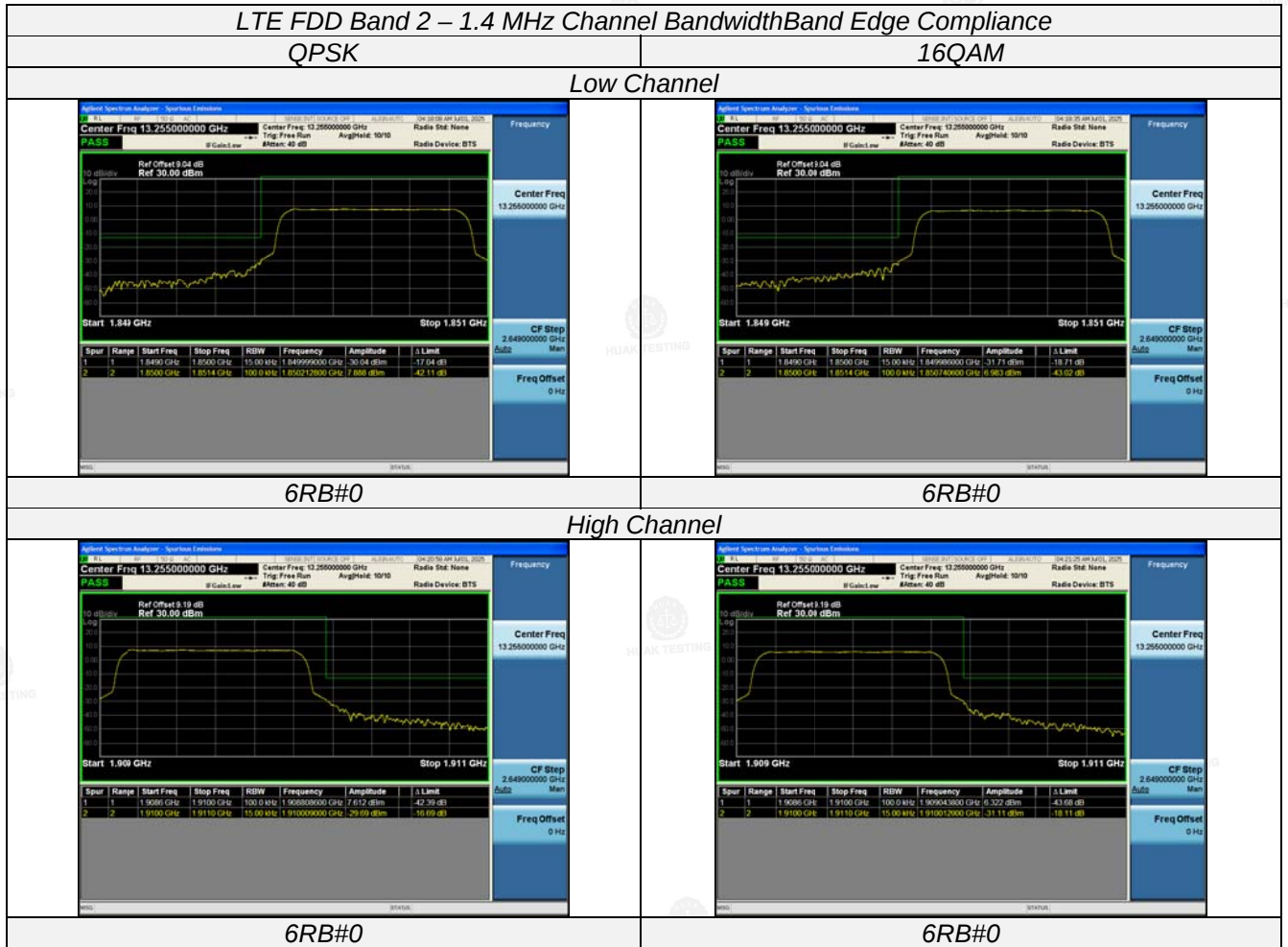
TEST PROCEDURE

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.

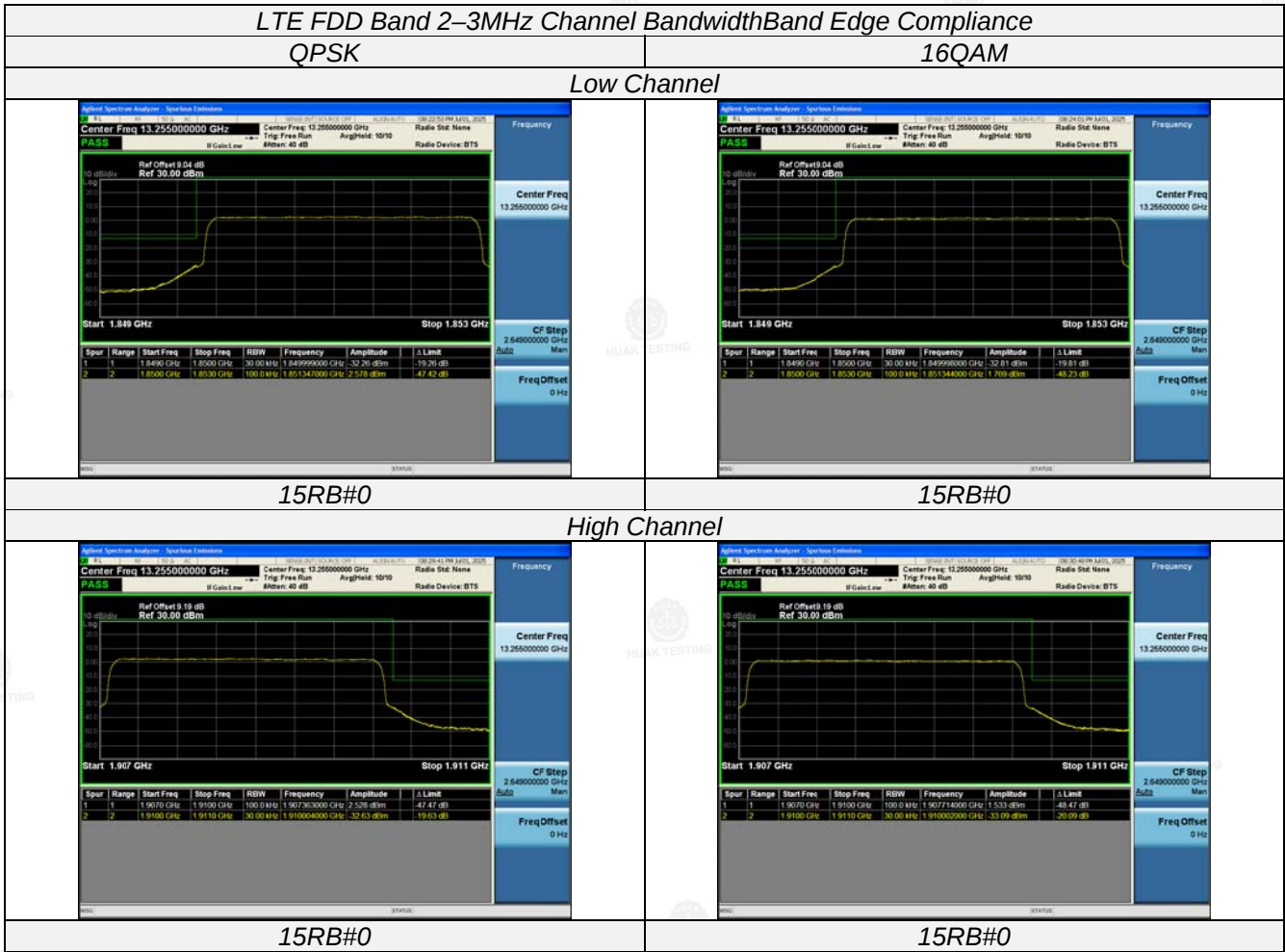
TEST RESULTS

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

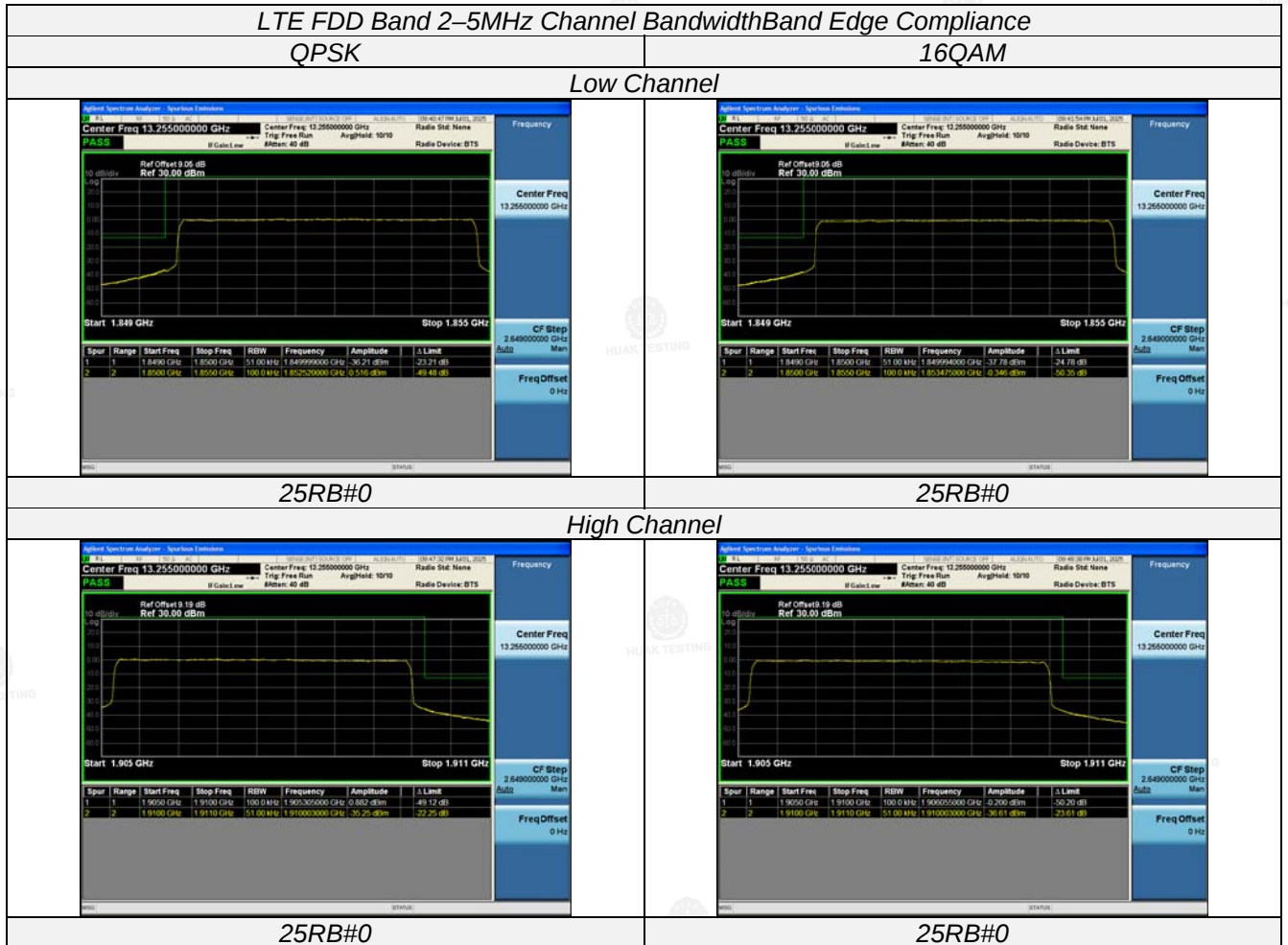


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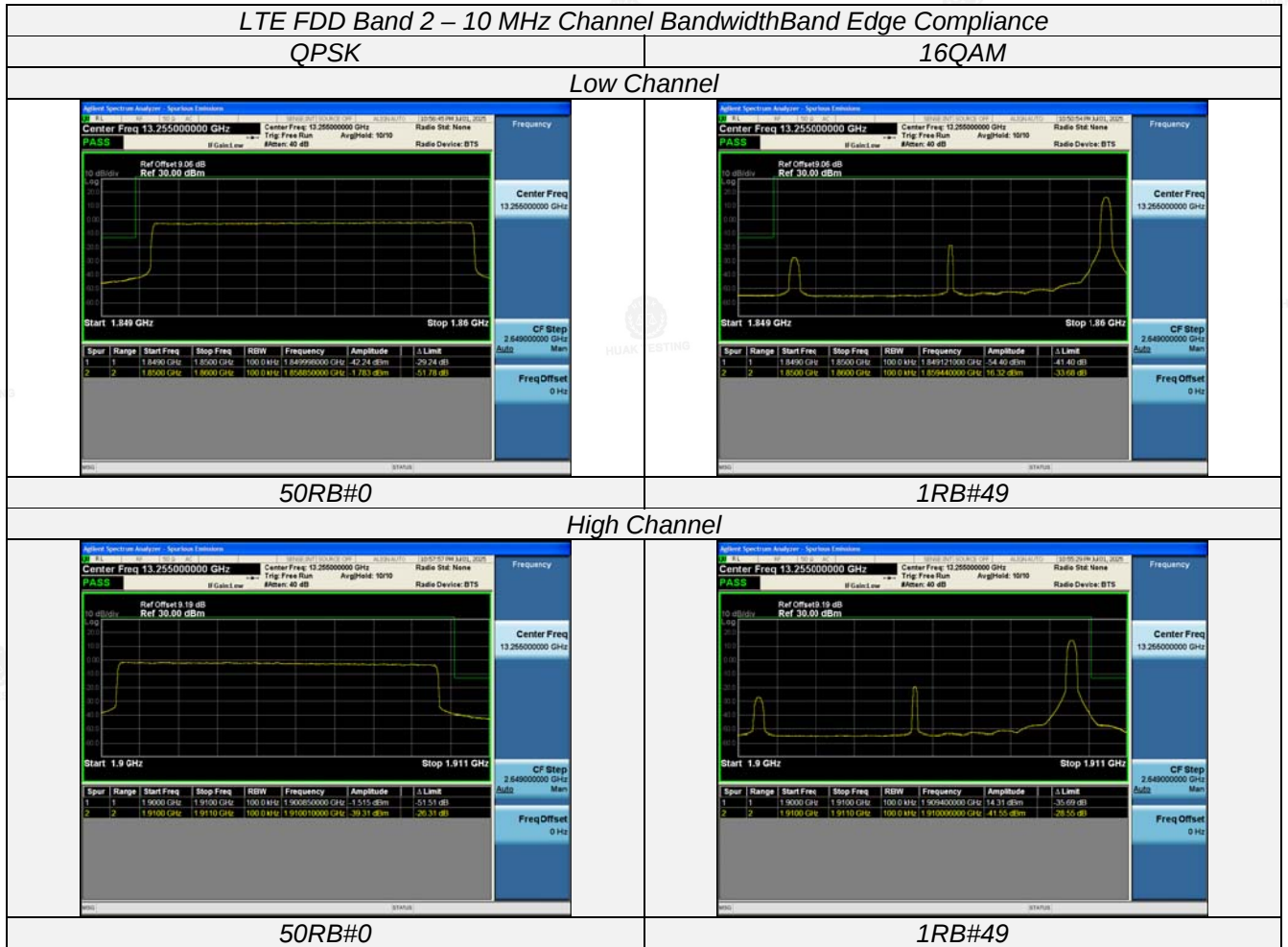
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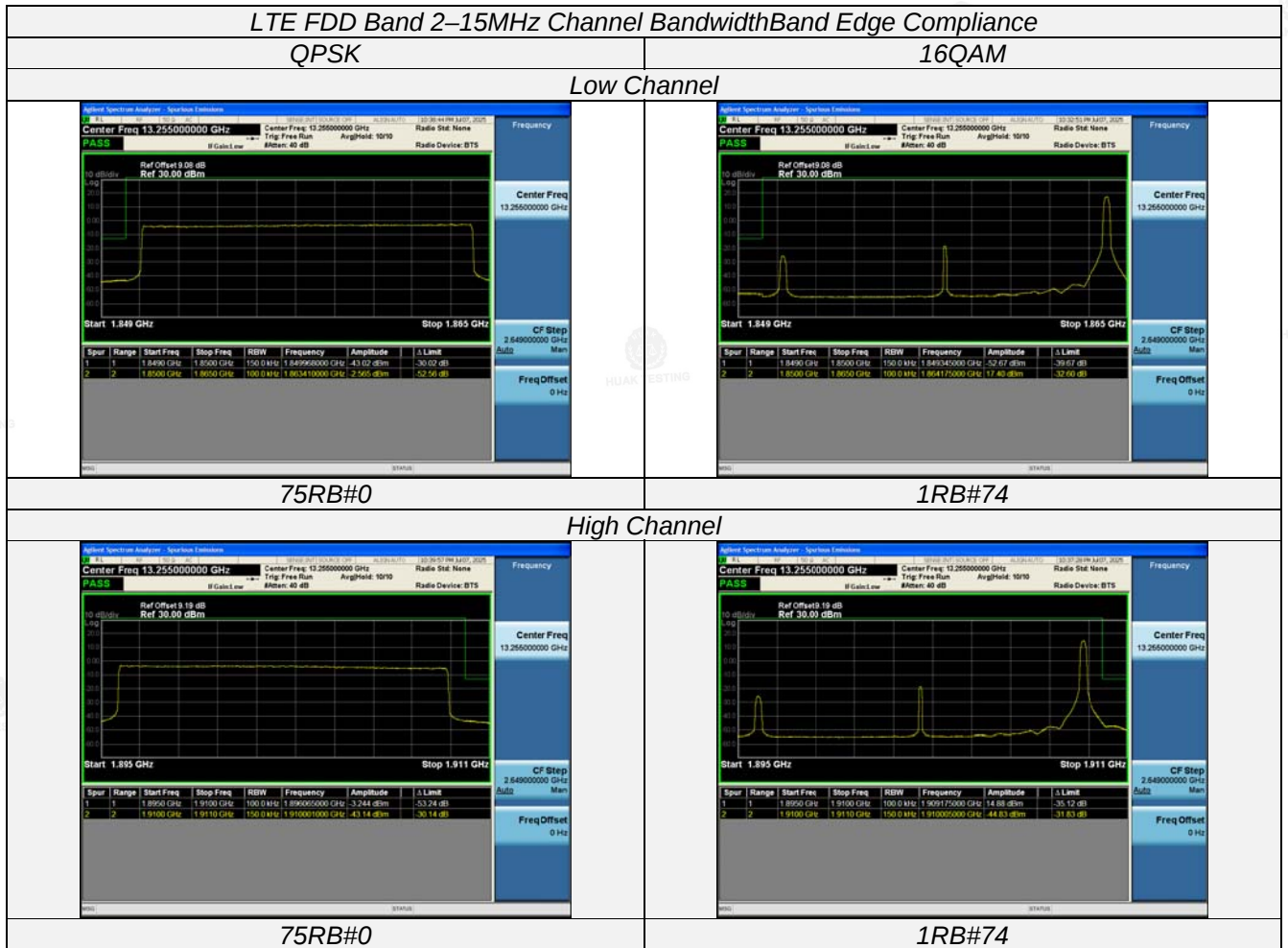
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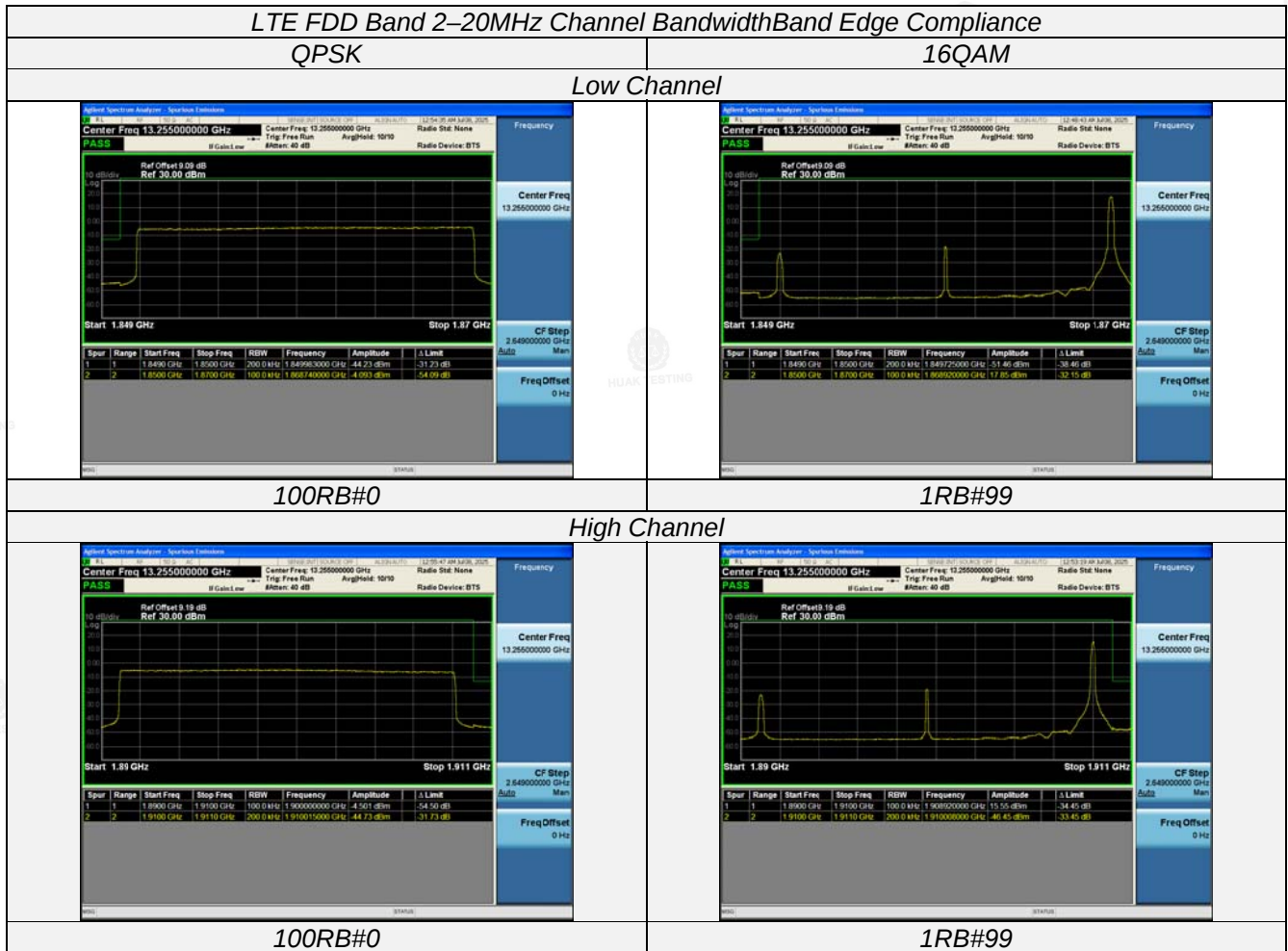
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