

FCC Test Report

Report Reference No.: HK2601080047-1E

FCC ID: 2BBBN-RTB75T41

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Date of issue: Mar. 02, 2026

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Applicant's Name : Hangzhou Tanlink Technology Co.,Ltd.

Address : Room 701, South Building, Building 3, No.16, Longtan Road, Cangqian Street, Yuhang District, Hangzhou, Zhejiang, China

Test Specification

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

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

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Product Name : 4G LTE Battery Pack

Trade Mark : Redtiger

Manufacturer : Hangzhou Tanlink Technology Co.,Ltd.

Model Name : RTB75T41

Series Model(s) : RTB75N21, RTB32N11, RTB75T42, RTB75T43, RTB75T45

Modulation Type : QPSK, 16QAM

Rating : DC12V From DC Power or DC9.6V From Battery

Hardware Version : V1.0

Software Version : V1.0

Result : PASS

Len Liao

Sliver Wan

Jason Zhou



TEST REPORT

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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.

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**** Issued history ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	Mar. 02, 2026	Jason Zhou

1 Test Standards

The tests were performed according to following standards:

[FCC Part 24](#): Public Mobile Services.

[ANSI/TIA-603-E-2016](#): Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[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](#): 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	:	Jan. 08, 2026
Testing commenced on	:	Jan. 08, 2026
Testing concluded on	:	Mar. 02, 2026

2.2 Product Description

The **Hangzhou Tanlink Technology Co.,Ltd.**'s Model: RTB75T41 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.

Product Name:	4G LTE Battery Pack
Model Name	RTB75T41
Series Model(s):	RTB75N21, RTB32N11, RTB75T42, RTB75T43, RTB75T45
Model Difference:	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: RTB75T41.
Power Supply:	DC12V From DC Power or DC9.6V From Battery
Modulation Type:	QPSK, 16QAM
Antenna Type:	FPC Antenna
Antenna Gain:	2.9dBi
Operation Frequency Band:	LTE Band 2
Operation Frequency:	LTE Band 2: 1850~1910 MHz(TX), 1930~1990 MHz(RX)
LTE Release:	R8
Extreme Temp. Tolerance:	-30°C to +70°C
Extreme Vol. Limits:	10.2VDC to 13.8VDC (nominal: 12VDC)
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	

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)	

DC12V From DC Power or DC9.6V From Battery

2.4 Short Description of The Equipment Under Test (EUT)

2.4.1 General Description

This is a 4G LTE Battery Pack.

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 :	/
○ Multimeter	Manufacturer :	/
	Model No. :	/

2.8 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2BBBN-RTB75T41** 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	10.2V
	VN	12.0V
	VH	13.8V

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

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, In1MHz 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. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. The measurement uncertainty is not included in the test result.



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	2025/02/19	2026/02/18
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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Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2026/02/11	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2026/02/04	1 Year
3	EMI Test Receiver	R&S	ESR-7	HKE-005	2026/02/06	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2026/02/06	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-126	2026/02/06	1 Year
6	Preamplifier	EMCI	EMC051845SE	HKE-006	2026/02/04	1 Year
7	Preamplifier	Agilent	83051A	HKE-016	2026/02/04	1 Year
8	Preamplifier	A.H. Systems	SAS-574	HKE-182	2026/02/04	1 Year
9	6dB Attenuator	Pasternack	6db	HKE-007	2026/02/06	1 Year
10	EMI Test Receiver	R&S	ESR-7	HKE-010	2026/02/06	1 Year
11	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2026/02/06	2 Year
12	Loop Antenna	COM-POWER	AL-130R	HKE-014	2026/02/06	2 Year
13	Horn Antenna	Schwarzbeck	9120D	HKE-013	2026/02/06	2 Year
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-060	2026/02/06	1 Year
17	High pass filter unit	Tonscend	JS0806-F	HKE-055	2026/02/06	1 Year
18	Wireless Communication Test Set	R&S	CMW500	HKE-027	2026/02/06	1 Year
19	High-low temperature chamber	Guangke	HT-80L	HKE-118	2025/06/09	1 Year
20	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2025/06/09	1 Year
21	RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/



4 Test Conditions and Results

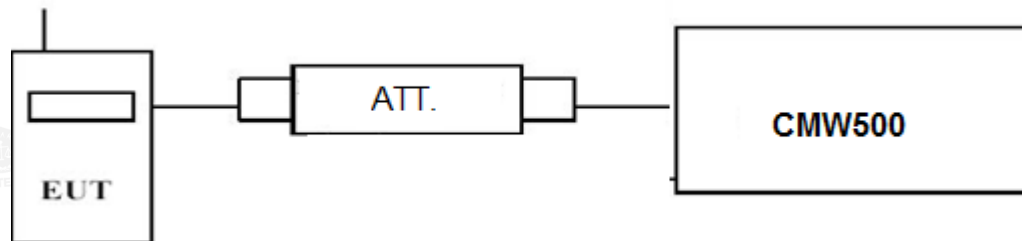
4.1 Output Power

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;

LTE FDD Band 2				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	Burst Average Power [dBm]	
			QPSK	16QAM
1.4 MHz	1850.7	1 RB low	23.41	22.71
		1 RB high	23.62	22.75
		50% RB mid	23.67	22.76
		100% RB	23.72	22.54
	1880.0	1 RB low	23.55	22.45
		1 RB high	23.60	23.40
		50% RB mid	23.56	22.47
		100% RB	23.48	22.26
	1909.3	1 RB low	23.05	22.14
		1 RB high	23.03	22.49
		50% RB mid	22.68	22.75
		100% RB	22.84	22.53
3 MHz	1851.5	1 RB low	23.13	22.00
		1 RB high	23.10	22.66
		50% RB mid	23.18	22.25
		100% RB	22.11	22.22



5 MHz	1880.0	1 RB low	23.14	22.10
		1 RB high	23.17	22.03
		50% RB mid	23.18	22.07
		100% RB	22.15	22.44
	1908.5	1 RB low	23.21	22.14
		1 RB high	23.23	22.07
		50% RB mid	23.10	22.12
		100% RB	22.02	22.06
	1852.5	1 RB low	23.17	22.05
		1 RB high	23.06	22.06
		50% RB mid	23.09	22.92
		100% RB	22.07	22.14
	1880.0	1 RB low	23.24	22.01
		1 RB high	23.05	22.05
		50% RB mid	23.05	22.95
		100% RB	22.20	22.26
	1907.5	1 RB low	23.14	22.07
		1 RB high	23.13	22.06
		50% RB mid	23.05	22.06
		100% RB	22.18	22.16
10 MHz	1855.0	1 RB low	23.40	22.21
		1 RB high	23.43	22.59
		50% RB mid	23.15	22.02
		100% RB	22.12	22.16
	1880.0	1 RB low	22.99	22.95
		1 RB high	23.32	22.63
		50% RB mid	22.98	22.96
		100% RB	22.20	22.23
	1905.0	1 RB low	23.03	22.96
		1 RB high	23.35	22.47
		50% RB mid	22.98	22.12
		100% RB	22.10	22.14
15 MHz	1857.5	1 RB low	23.36	22.19
		1 RB high	23.24	22.69
		50% RB mid	23.15	22.05
		100% RB	22.00	22.99
	1880.0	1 RB low	22.87	22.01
		1 RB high	23.31	22.42
		50% RB mid	22.69	22.88
		100% RB	22.11	22.12
	1902.5	1 RB low	22.92	22.93
		1 RB high	23.25	22.45
		50% RB mid	22.98	22.02
		100% RB	22.92	22.91
20 MHz	1860.0	1 RB low	23.06	22.10
		1 RB high	22.88	22.24
		50% RB mid	23.00	22.79
		100% RB	22.83	22.08
	1880.0	1 RB low	22.75	22.30
		1 RB high	23.13	22.95
		50% RB mid	22.72	22.31
		100% RB	22.93	22.03
	1900.0	1 RB low	23.94	22.05
		1 RB high	23.02	22.09
		50% RB mid	22.92	22.54
		100% RB	22.81	23.97

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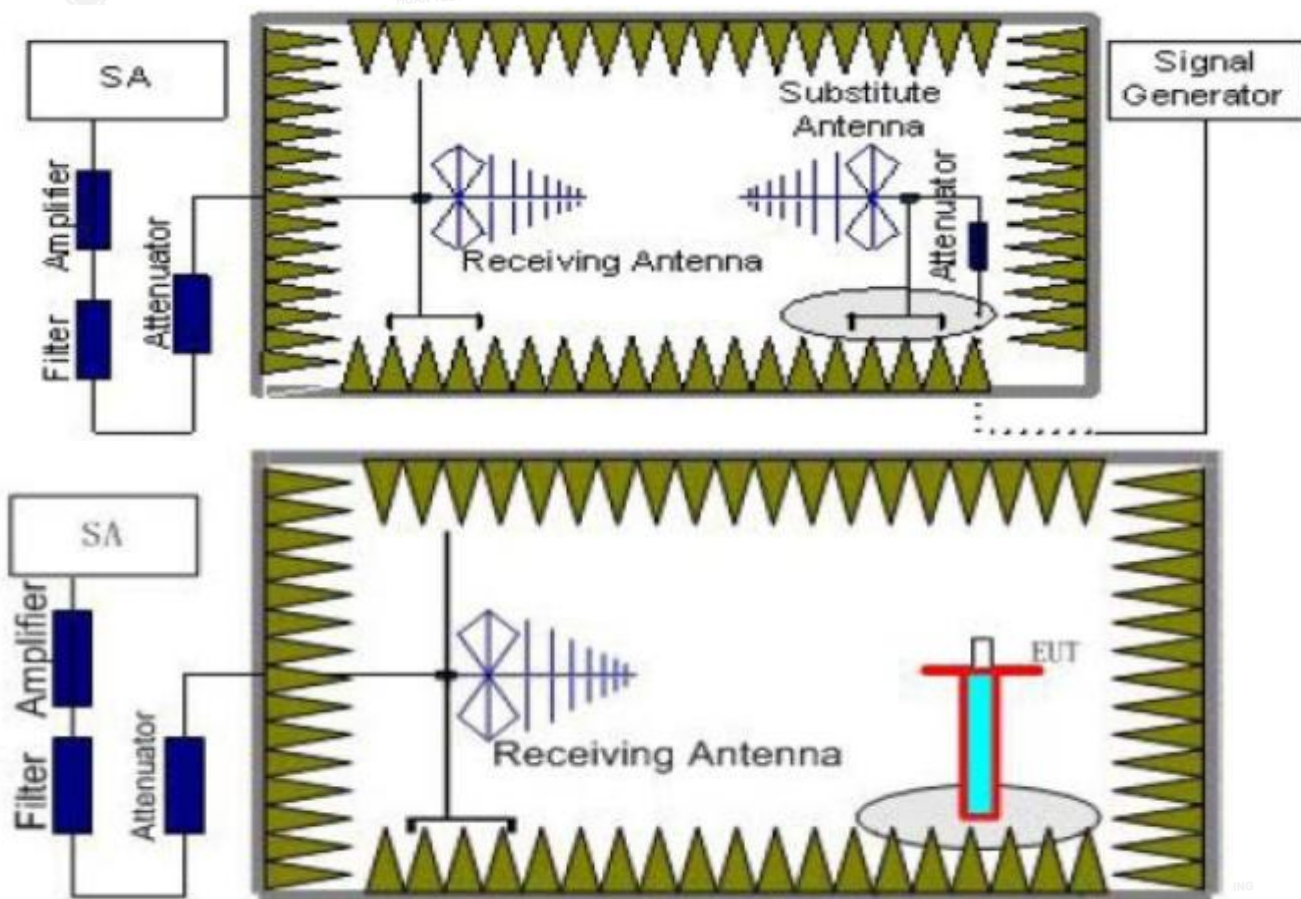
4.1.2. Radiated Output Power

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 1.5 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 1.5m. 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).



- The EUT shall be replaced by a substitution antenna. In the chamber, a 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.
- 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.
- An 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:
 $Power(EIRP) = P_{Mea} - G_a + P_{cl} - P_{Ag}$
We used SMF100A microwave 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:
 $Power(EIRP) = P_{Mea} - P_{cl} + G_a$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dBi$.

TEST RESULTS

Radiated Measurement:

Remark:

- 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.
- $EIRP = P_{Mea}(dBm) - G_a(dBi) + P_{cl}(dB) - P_{Ag}(dB)$
- 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	66.63	3.41	10.24	33.60	26.20	33.01	6.81	V
1880.0	65.67	3.49	10.24	33.60	25.32	33.01	7.69	V
1909.3	65.85	3.55	10.23	33.60	25.57	33.01	7.44	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	66.21	3.41	10.24	33.60	25.78	33.01	7.23	V
1880.0	65.98	3.49	10.24	33.60	25.63	33.01	7.38	V
1908.5	65.57	3.55	10.23	33.60	25.29	33.01	7.72	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	66.58	3.41	10.24	33.60	26.15	33.01	6.86	V
1880.0	65.81	3.49	10.24	33.60	25.46	33.01	7.55	V
1907.5	65.64	3.55	10.23	33.60	25.36	33.01	7.65	V

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**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	65.77	3.41	10.24	33.60	25.34	33.01	7.67	V
1880.0	65.77	3.49	10.24	33.60	25.42	33.01	7.59	V
1905.0	66.99	3.55	10.23	33.60	26.71	33.01	6.30	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	66.22	3.41	10.24	33.60	25.79	33.01	7.22	V
1880.0	65.89	3.49	10.24	33.60	25.54	33.01	7.47	V
1902.5	65.64	3.55	10.23	33.60	25.36	33.01	7.65	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	66.07	3.41	10.24	33.60	25.64	33.01	7.37	V
1880.0	66.18	3.49	10.24	33.60	25.83	33.01	7.18	V
1900.0	67.03	3.55	10.23	33.60	26.75	33.01	6.26	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	66.08	3.41	10.24	33.60	25.65	33.01	7.36	V
1880.0	66.18	3.49	10.24	33.60	25.83	33.01	7.18	V
1909.3	66.53	3.55	10.23	33.60	26.25	33.01	6.76	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	67.11	3.41	10.24	33.60	26.68	33.01	6.33	V
1880.0	65.36	3.49	10.24	33.60	25.01	33.01	8.00	V
1908.5	65.78	3.55	10.23	33.60	25.50	33.01	7.51	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	65.95	3.41	10.24	33.60	25.52	33.01	7.49	V
1880.0	65.62	3.49	10.24	33.60	25.27	33.01	7.74	V
1907.5	66.58	3.55	10.23	33.60	26.30	33.01	6.71	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	66.36	3.41	10.24	33.60	25.93	33.01	7.08	V
1880.0	66.28	3.49	10.24	33.60	25.93	33.01	7.08	V
1905.0	66.67	3.55	10.23	33.60	26.39	33.01	6.62	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	65.76	3.41	10.24	33.60	25.33	33.01	7.68	V
1880.0	66.64	3.49	10.24	33.60	26.29	33.01	6.72	V
1902.5	65.83	3.55	10.23	33.60	25.55	33.01	7.46	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	66.44	3.41	10.24	33.60	26.01	33.01	7.00	V
1880.0	67.87	3.49	10.24	33.60	27.52	33.01	5.49	V
1900.0	66.01	3.55	10.23	33.60	25.73	33.01	7.28	V

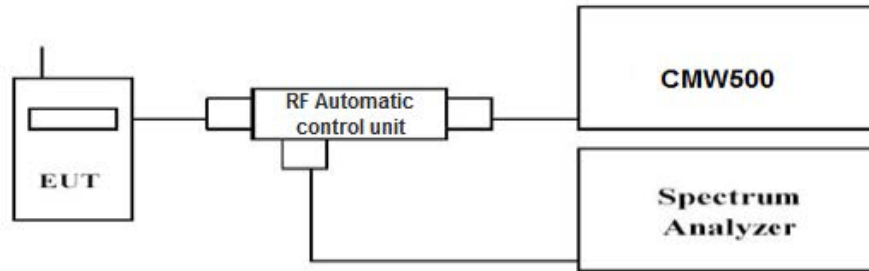


4.2 Peak-to-Average Ratio (PAR)

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%.

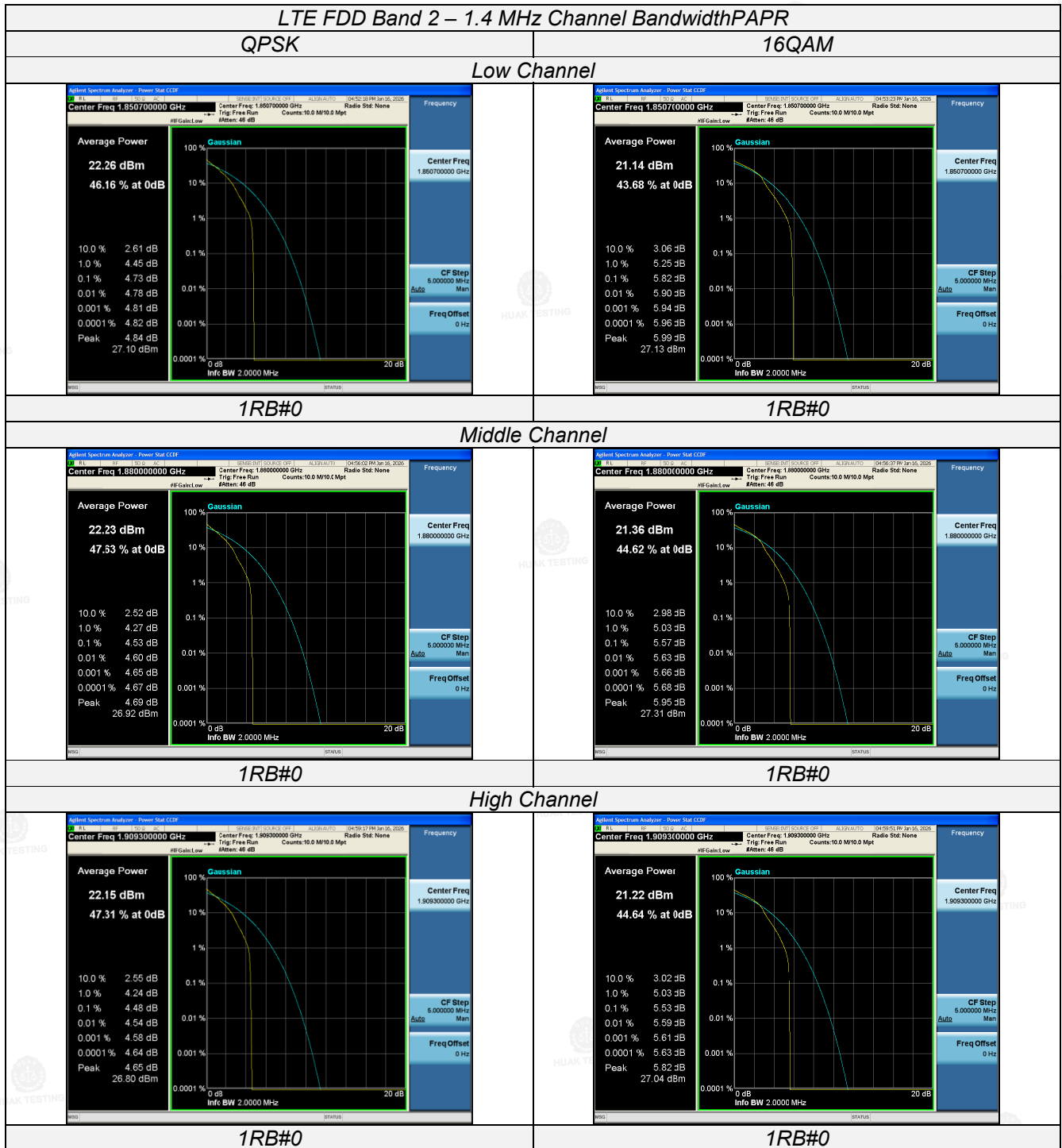
TEST RESULTS

Remark:

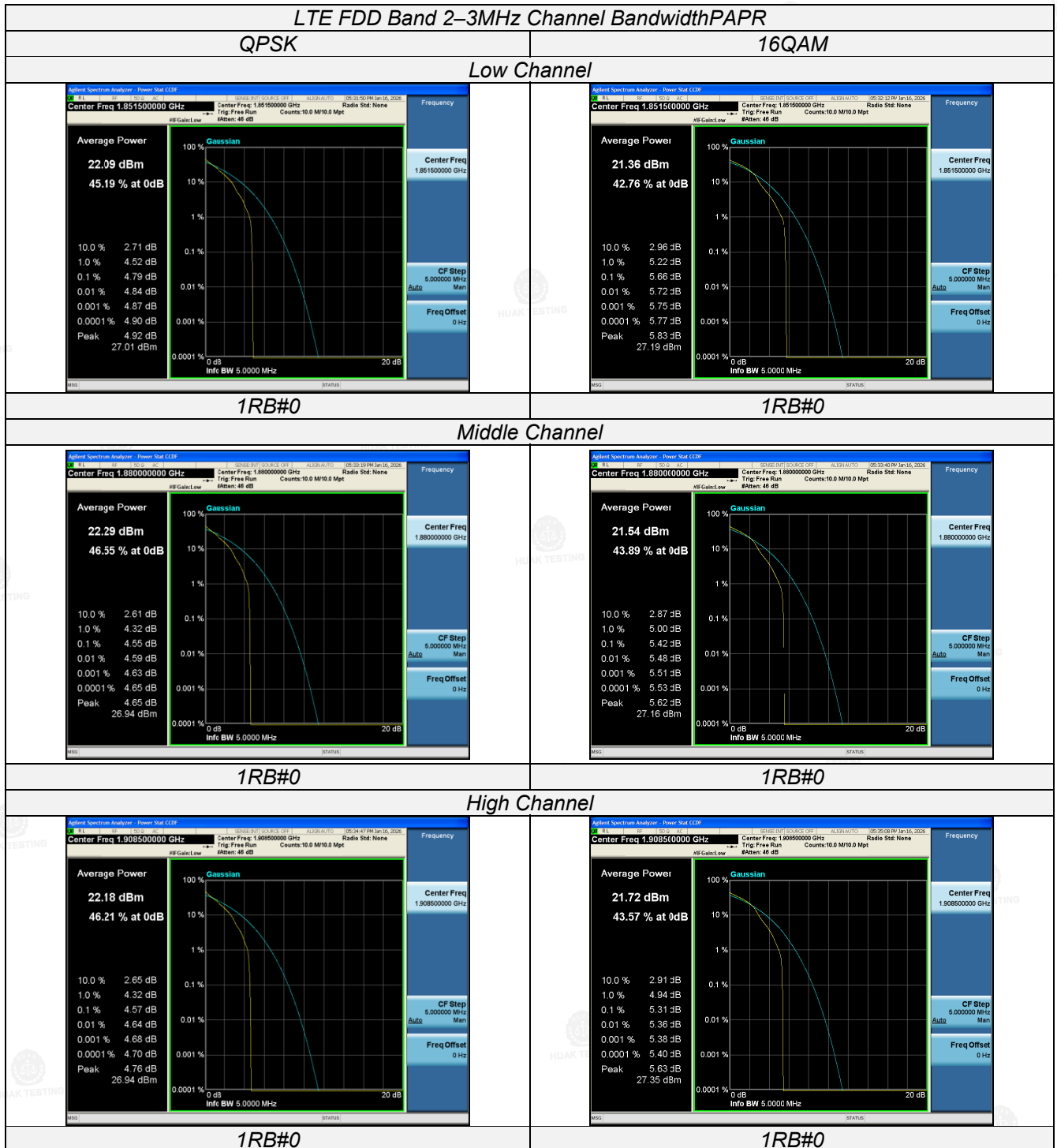
1. We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

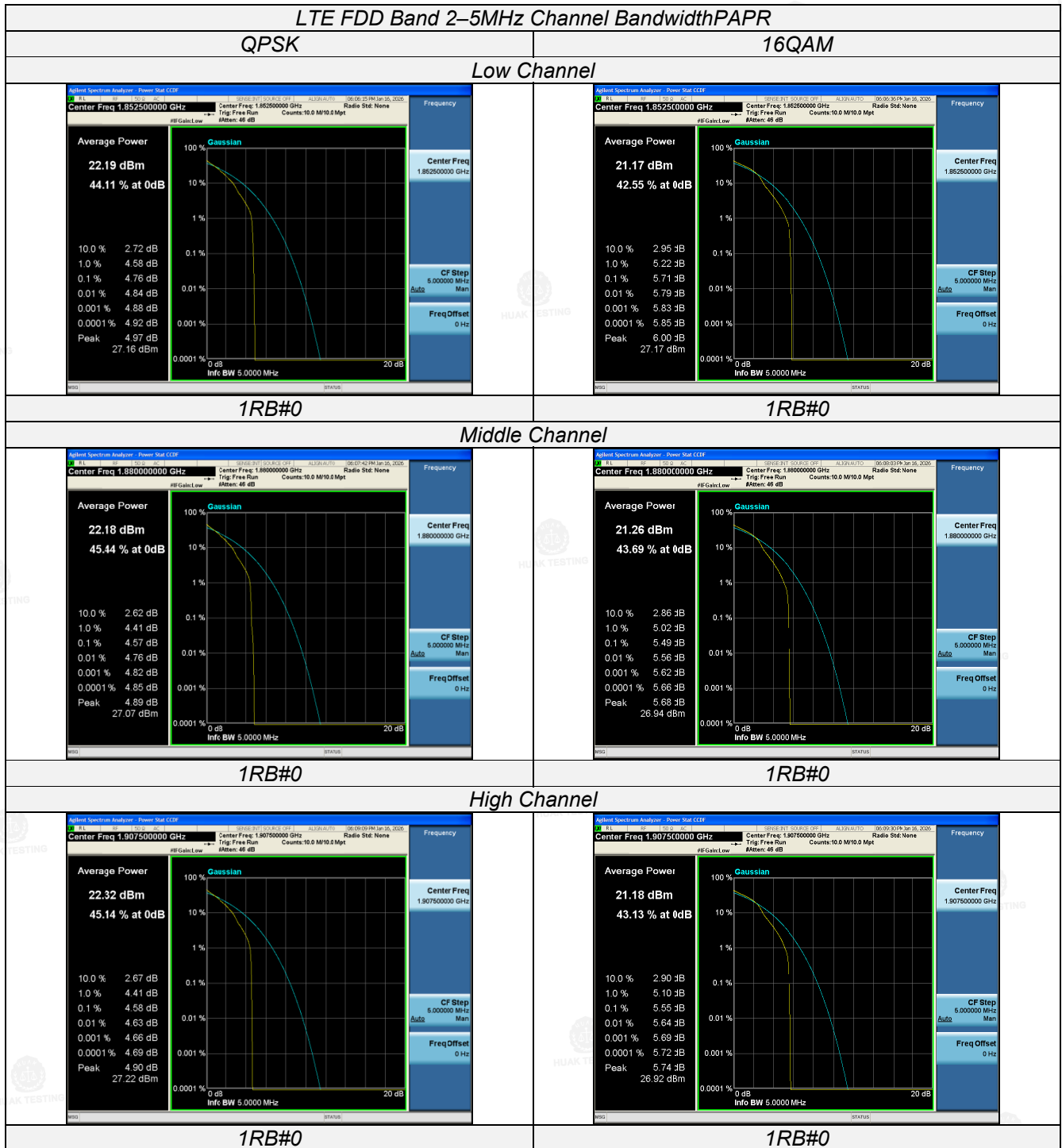
LTE FDD Band 2				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR(dB)	
			QPSK	16QAM
1.4 MHz	1850.7	1RB#0	4.73	5.82
	1880.0		4.53	5.57
	1909.3		4.48	5.53
3 MHz	1851.5	1RB#0	4.79	5.66
	1880.0		4.55	5.42
	1908.5		4.57	5.31
5 MHz	1852.5	1RB#0	4.76	5.71
	1880.0		4.57	5.49
	1907.5		4.58	5.55
10 MHz	1855.0	1RB#0	4.70	5.65
	1880.0		4.54	5.47
	1905.0		4.74	5.62
15 MHz	1857.5	1RB#0	4.67	5.58
	1880.0		4.58	5.46
	1902.5		4.77	5.67
20 MHz	1860.0	1RB#0	4.71	5.60
	1880.0		4.69	5.65
	1900.0		4.68	5.58

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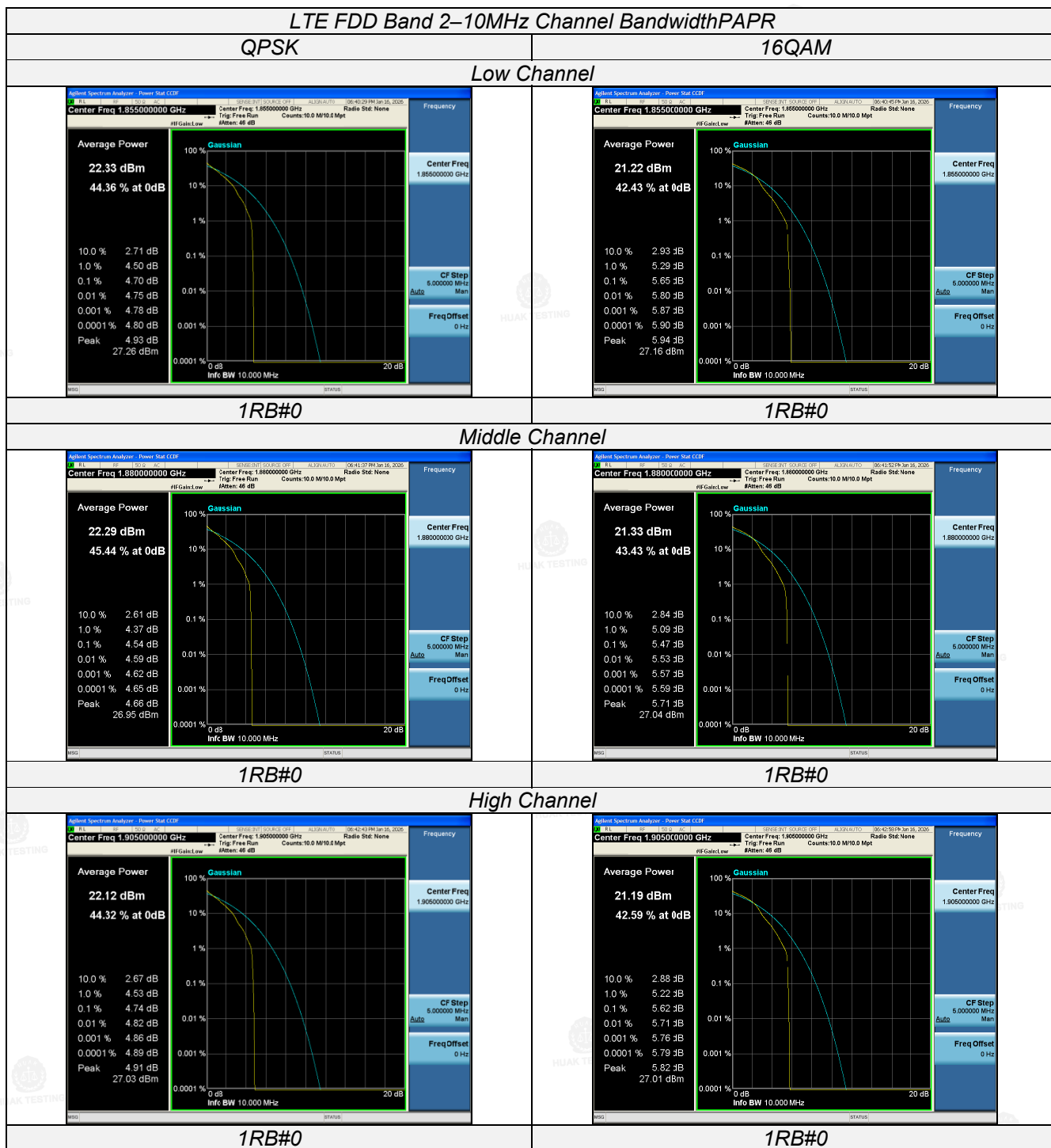


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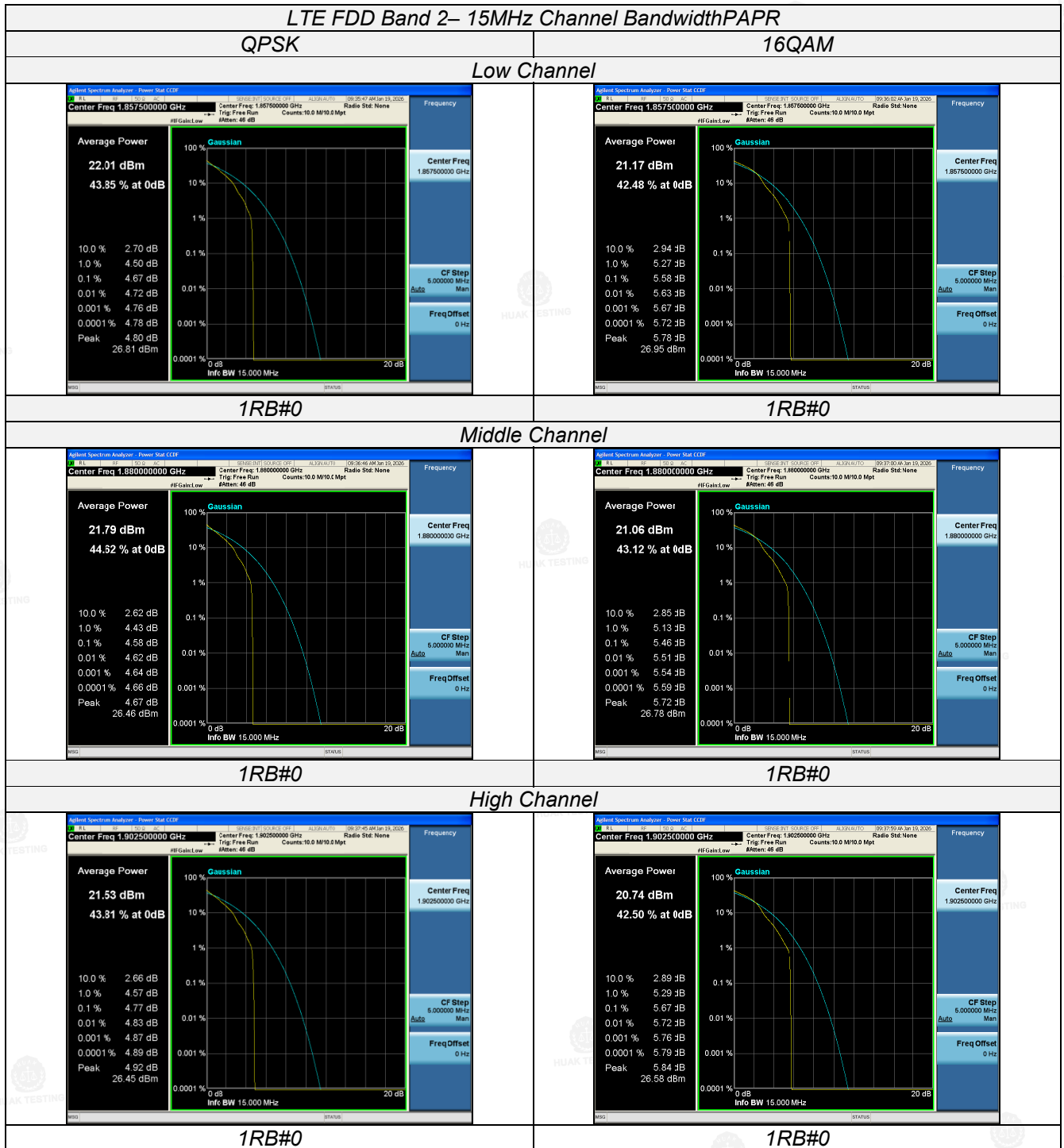




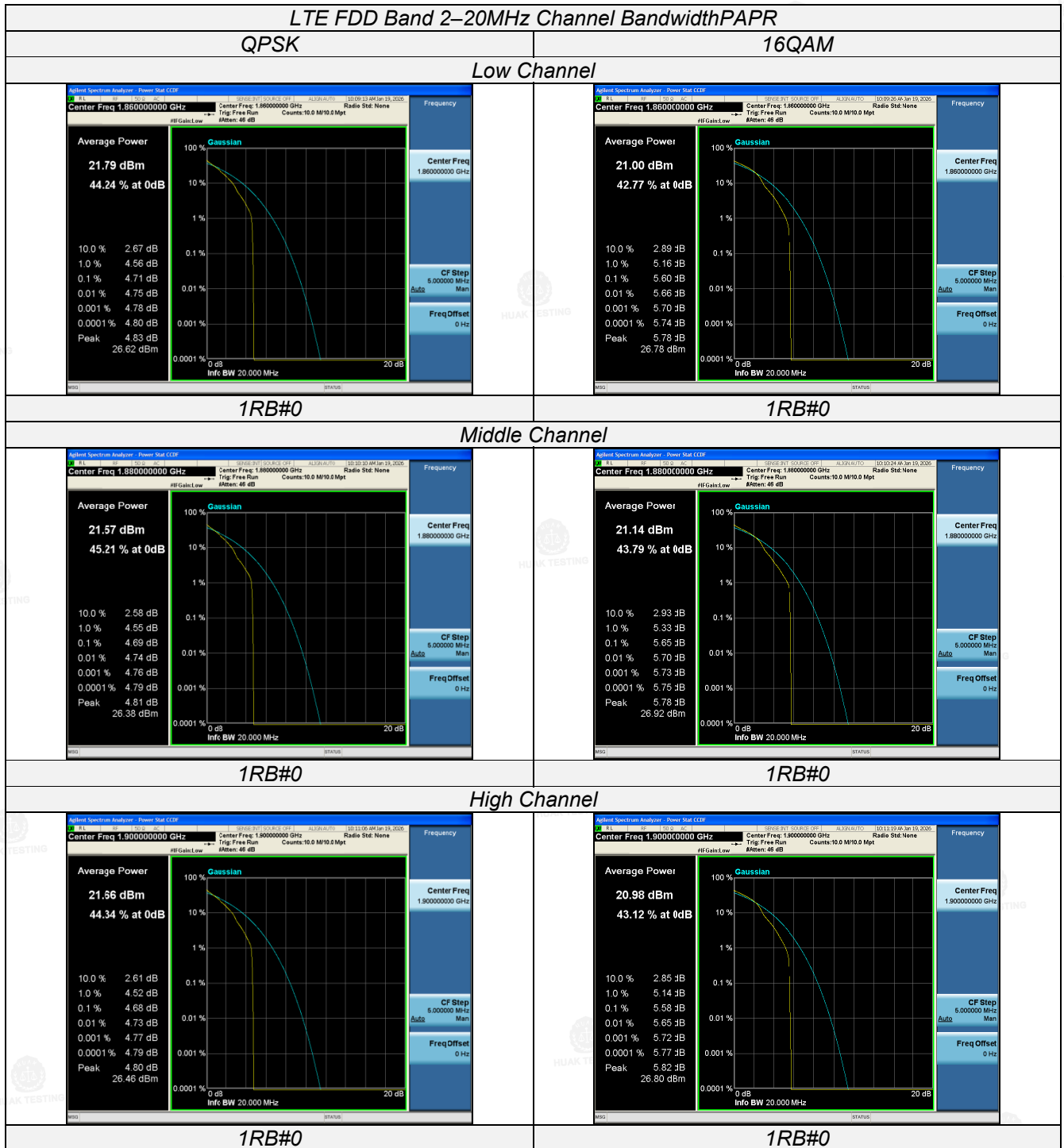
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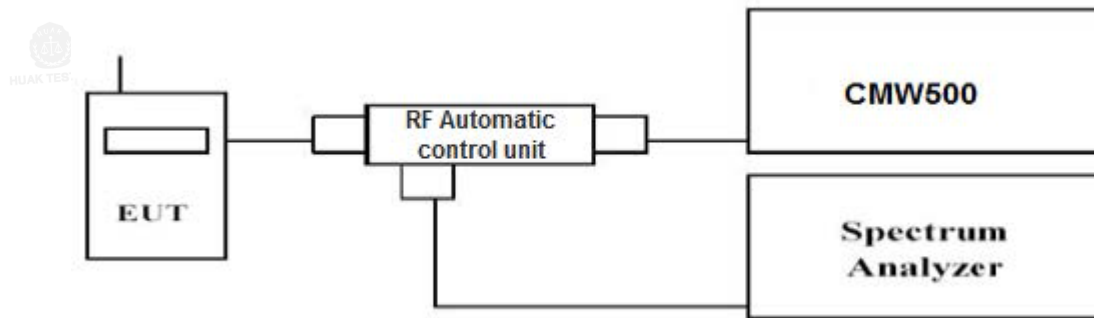


4.3 Occupied Bandwidth and Emission Bandwidth

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:

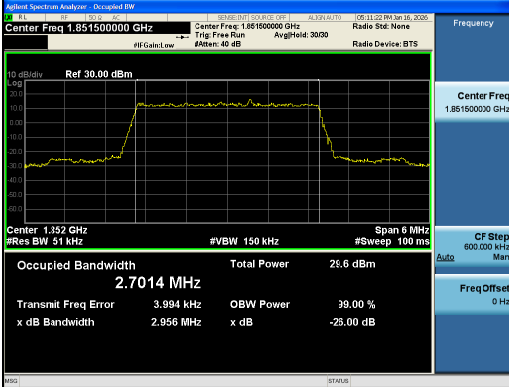
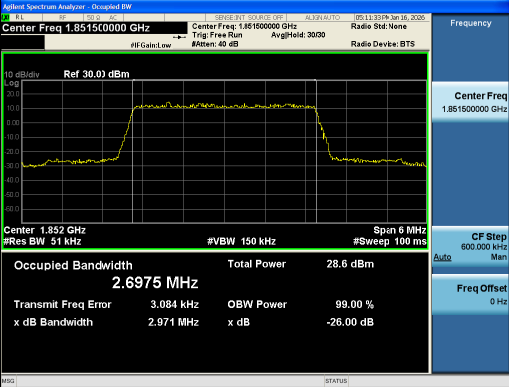
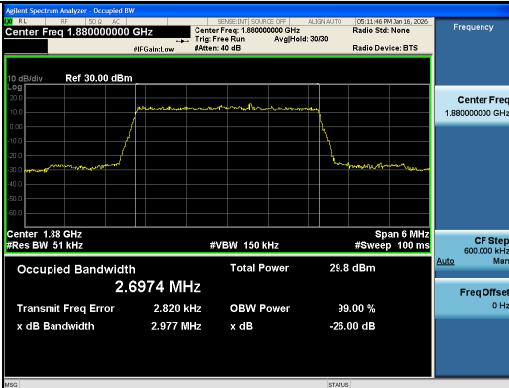
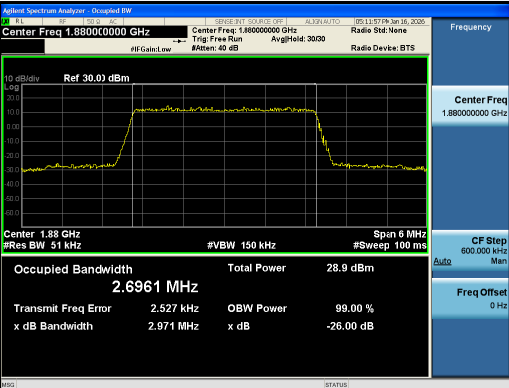
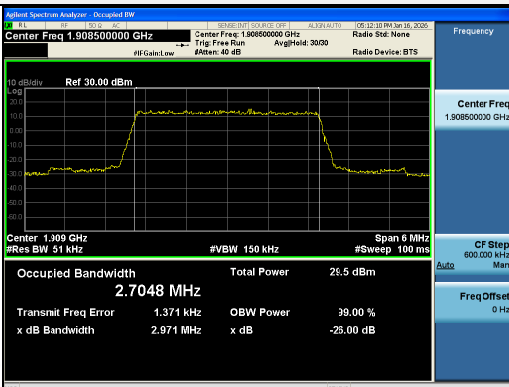
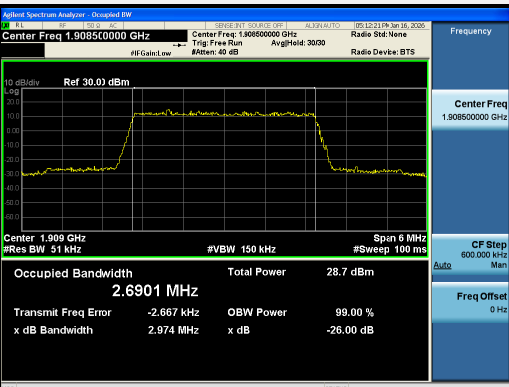
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

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	1.290	1.287	1.0945	1.0961
		1880.0	1.303	1.300	1.0937	1.1018
		1909.3	1.289	1.305	1.0928	1.0997
3 MHz	15RB#0	1851.5	2.956	2.971	2.7014	2.6975
		1880.0	2.977	2.971	2.6974	2.6961
		1908.5	2.971	2.974	2.7048	2.6901
5 MHz	25RB#0	1852.5	5.039	4.997	4.5166	4.5109
		1880.0	5.046	4.991	4.5168	4.5053
		1907.5	5.029	4.979	4.5095	4.5016
10 MHz	50RB#0	1855.0	9.931	9.902	8.9802	8.9862
		1880.0	9.907	9.836	8.9666	8.9593
		1905.0	9.898	9.824	8.9560	8.9625
15 MHz	75RB#0	1857.5	14.74	14.72	13.470	13.471
		1880.0	14.75	14.68	13.451	13.439
		1902.5	14.87	14.69	13.434	13.418
20 MHz	100RB#0	1860.0	19.41	19.45	17.911	17.927
		1880.0	19.49	19.36	17.881	17.858
		1900.0	19.41	19.49	17.909	17.953

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LTE FDD Band 2-3MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.851500000 GHz Ref 30.00 dBm Center 1.852 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.7014 MHz Total Power 25.6 dBm Transmit Freq Error 3.994 kHz OBW Power 39.00 % x dB Bandwidth 2.956 MHz x dB -25.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.851500000 GHz Ref 30.00 dBm Center 1.852 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.6975 MHz Total Power 28.6 dBm Transmit Freq Error 3.084 kHz OBW Power 99.00 % x dB Bandwidth 2.971 MHz x dB -26.00 dB
15RB#0	15RB#0
Middle Channel	
 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.880000000 GHz Ref 30.00 dBm Center 1.88 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.6974 MHz Total Power 25.8 dBm Transmit Freq Error 2.820 kHz OBW Power 39.00 % x dB Bandwidth 2.977 MHz x dB -25.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.880000000 GHz Ref 30.00 dBm Center 1.88 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.6961 MHz Total Power 28.9 dBm Transmit Freq Error 2.527 kHz OBW Power 99.00 % x dB Bandwidth 2.971 MHz x dB -26.00 dB
15RB#0	15RB#0
High Channel	
 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.908500000 GHz Ref 30.00 dBm Center 1.909 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.7048 MHz Total Power 25.5 dBm Transmit Freq Error 1.371 kHz OBW Power 39.00 % x dB Bandwidth 2.971 MHz x dB -25.00 dB	 Agilent Spectrum Analyzer - Occupied BW Center Freq 1.908500000 GHz Ref 30.00 dBm Center 1.909 GHz Res BW 51 kHz #VBW 150 kHz Span 6 MHz CF Step 600.000 kHz Man Occupied Bandwidth 2.6901 MHz Total Power 28.7 dBm Transmit Freq Error -2.667 kHz OBW Power 99.00 % x dB Bandwidth 2.974 MHz x dB -26.00 dB
15RB#0	15RB#0

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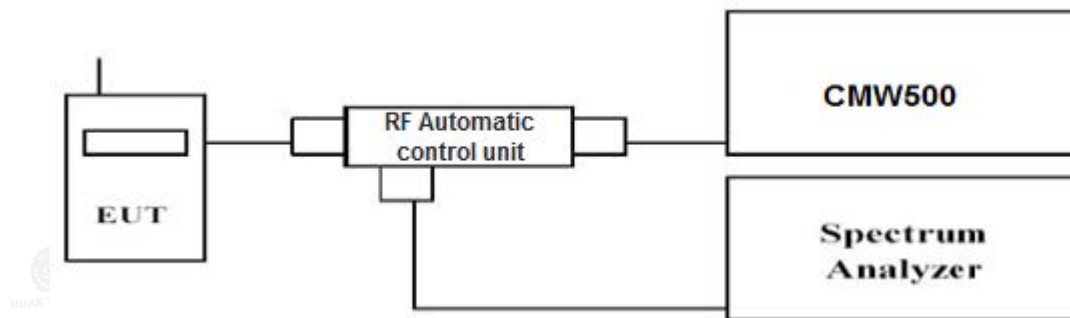


4.4 Band Edge Compliance

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:

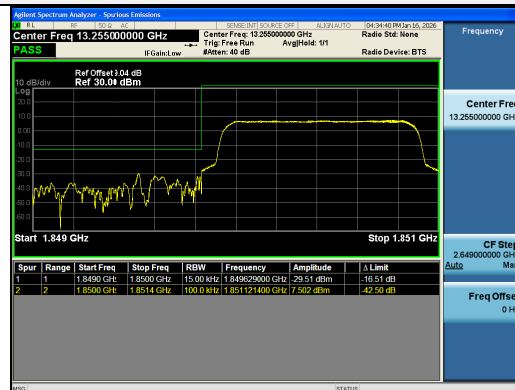
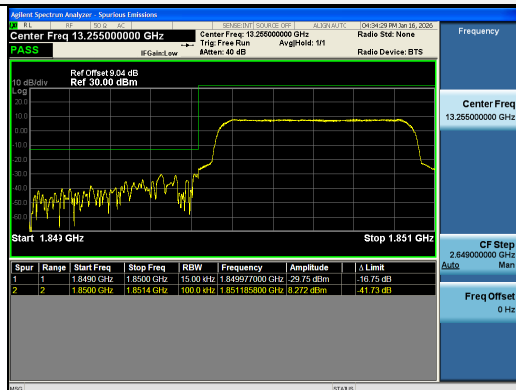
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

LTE FDD Band 2 – 1.4 MHz Channel Bandwidth Band Edge Compliance

QPSK

16QAM

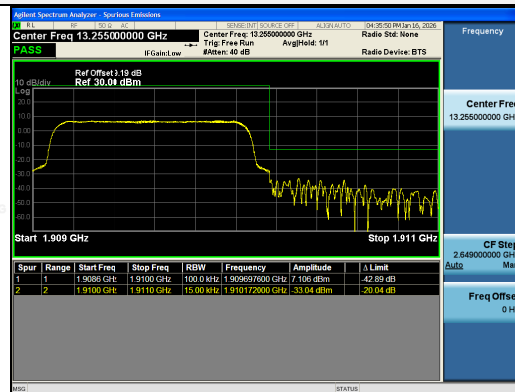
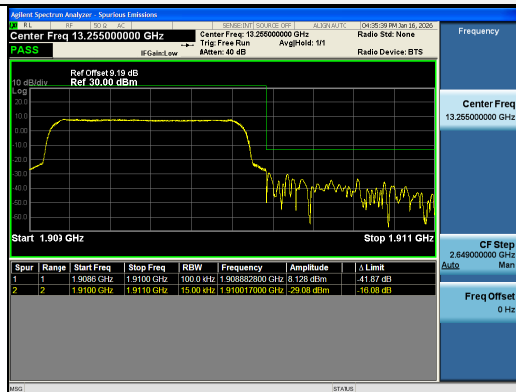
Low Channel



6RB#0

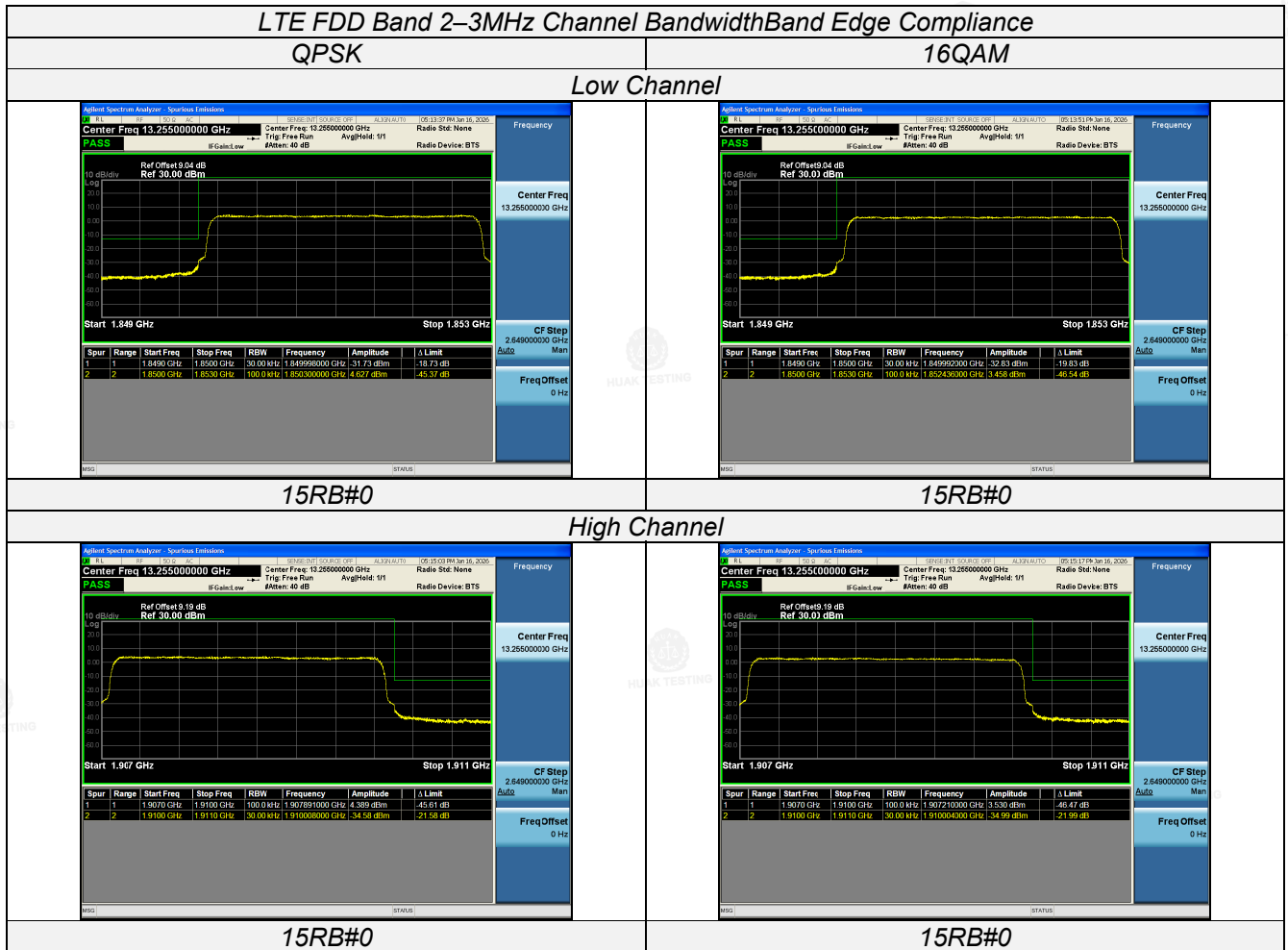
6RB#0

High Channel

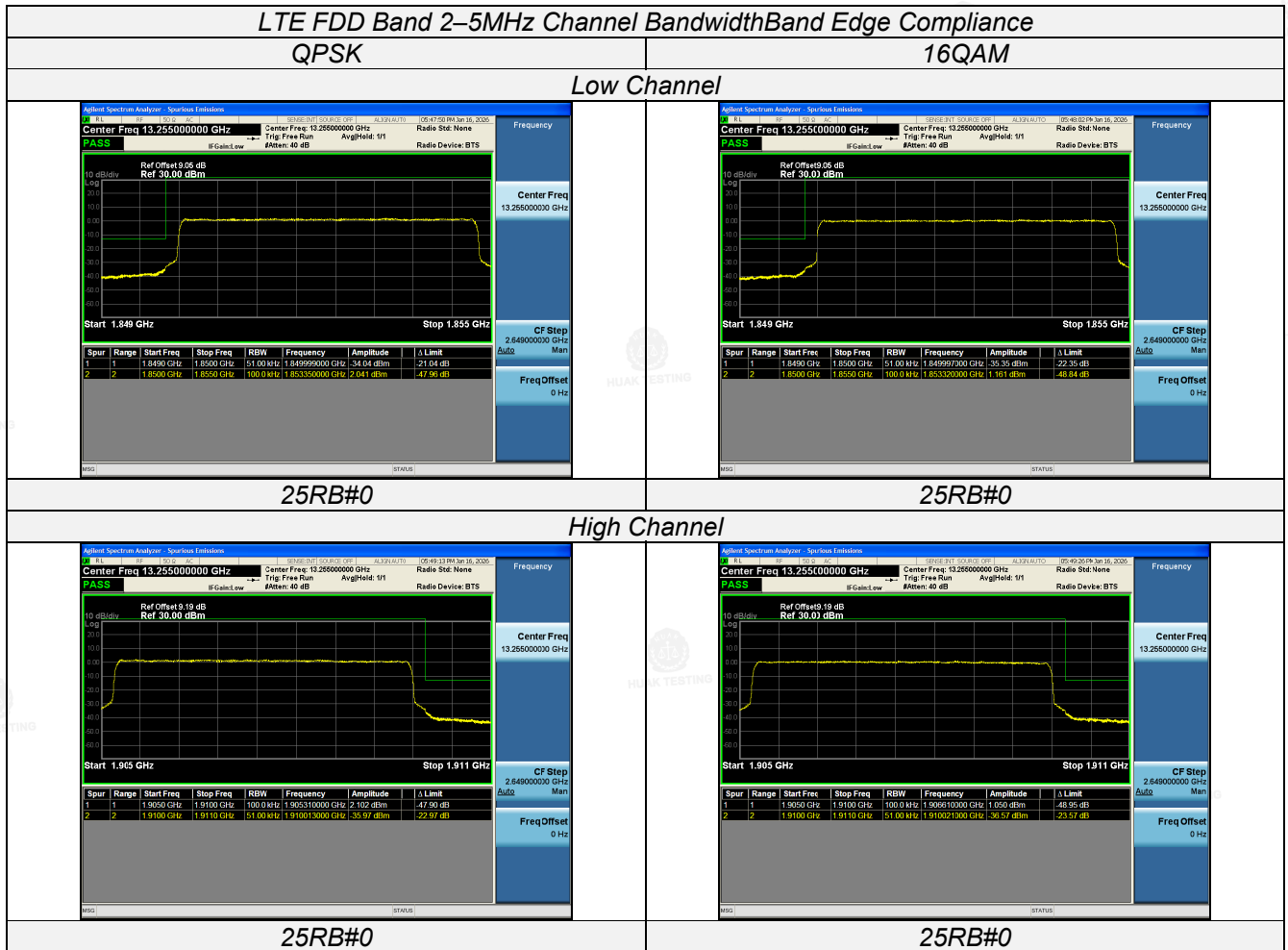


6RB#0

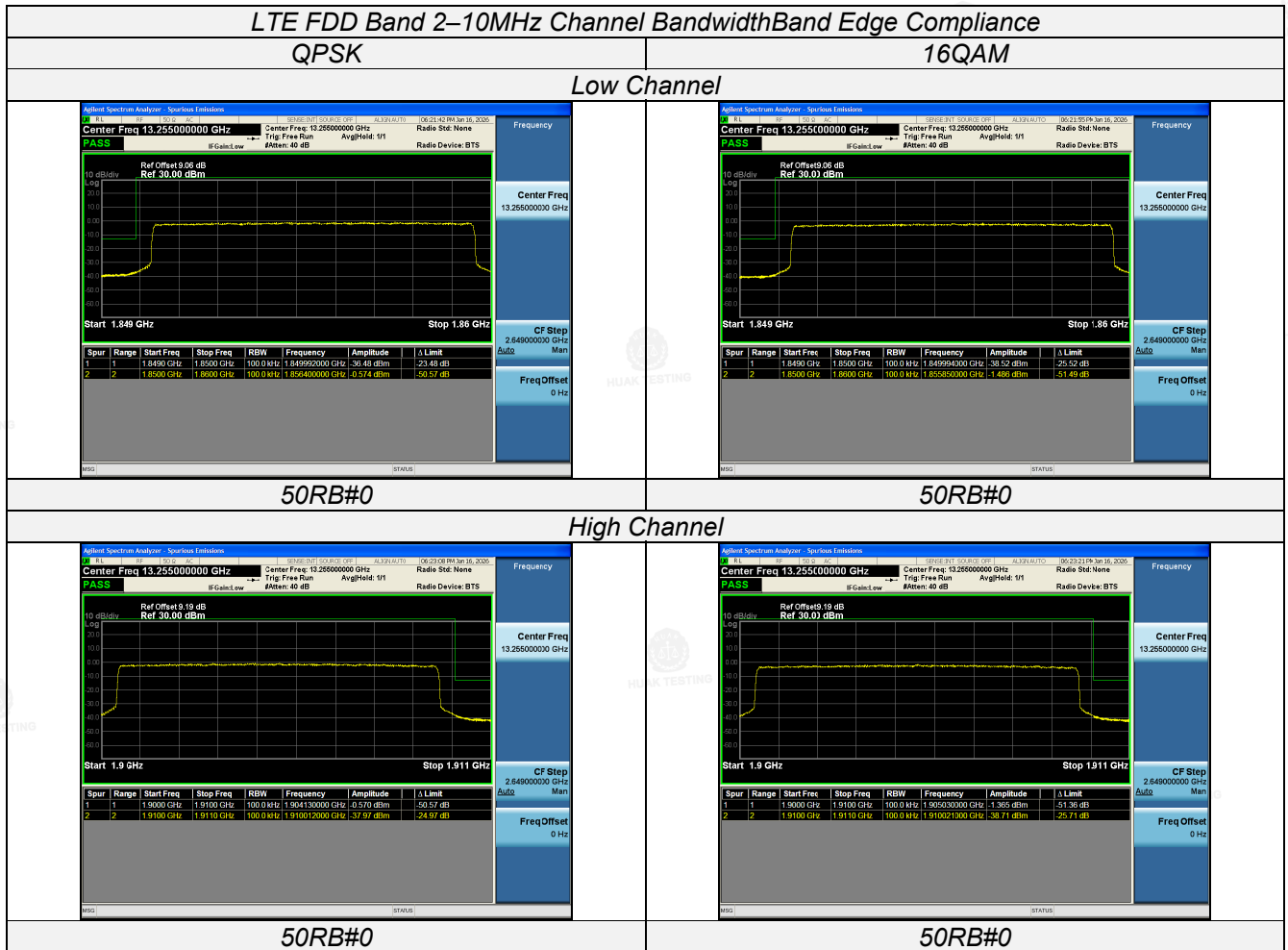
6RB#0

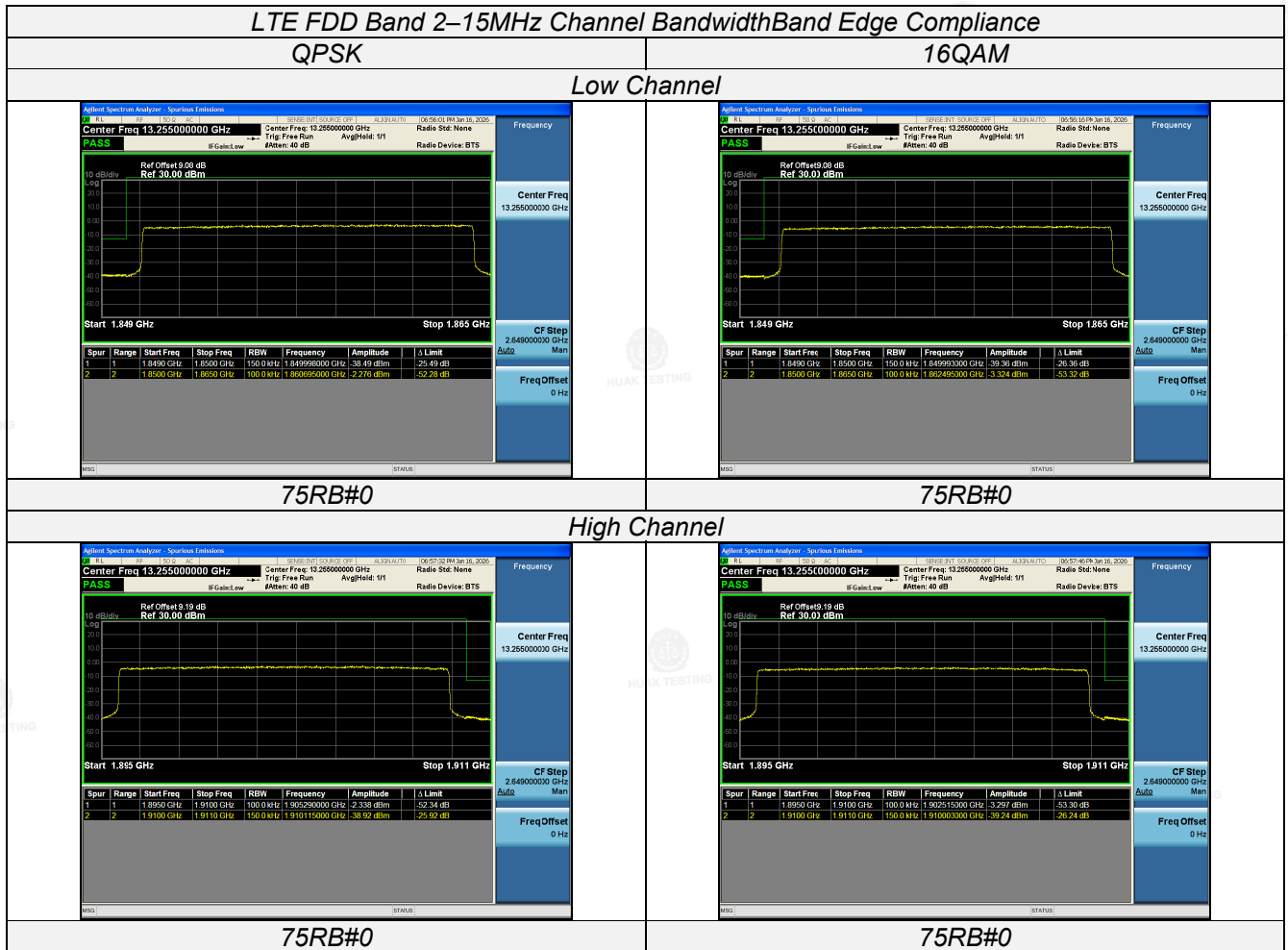


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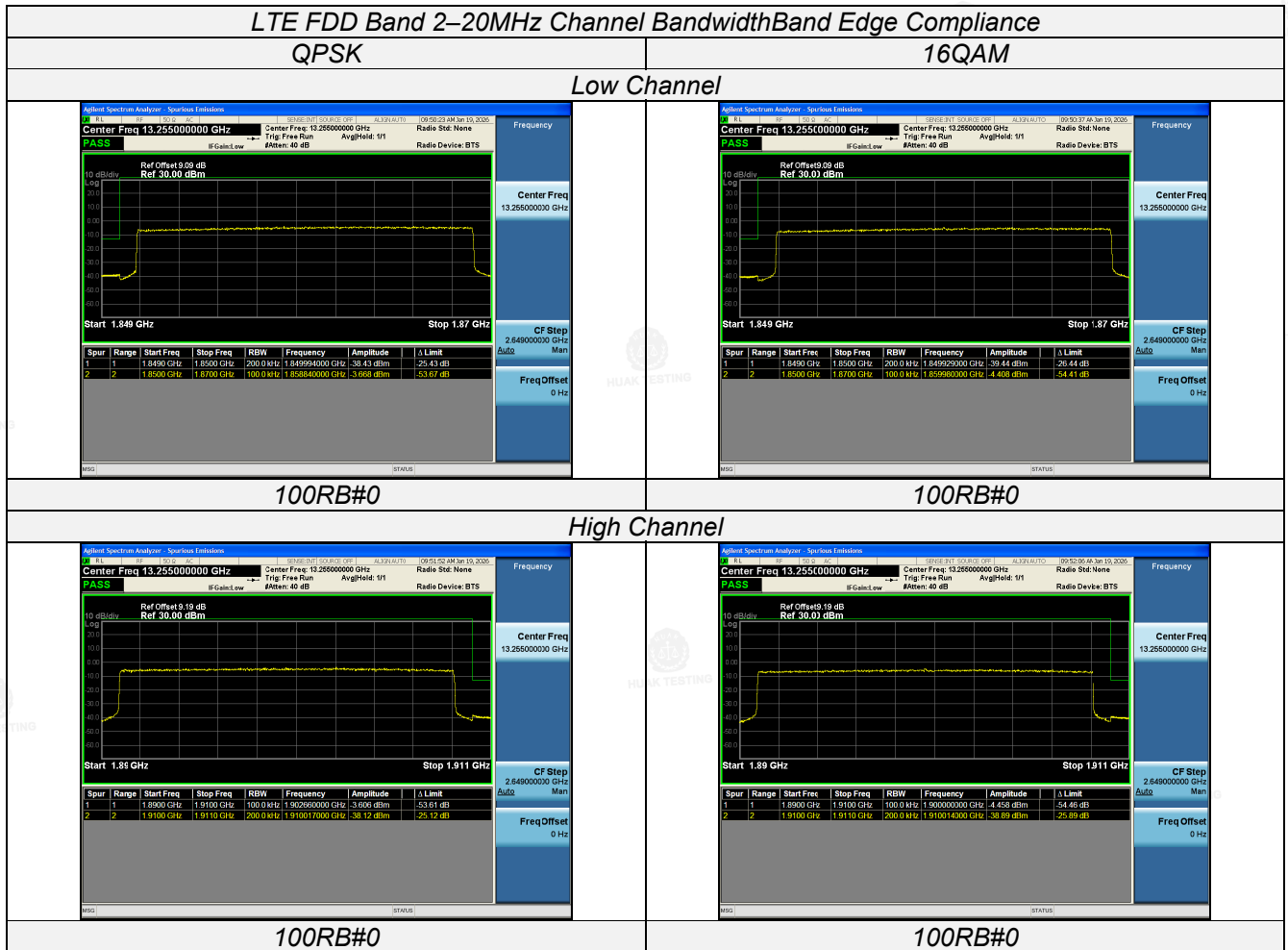


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