

FCC Test Report

Report Reference No......: HK2506263445-3E

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

Compiled by

(position+printed name+signature)..: Testing Engineer Len Liao

Supervised by

(position+printed name+signature)..: Technical Manager Sliver Wan

Approved by

(position+printed name+signature)..: Authorized Signatory 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 27**

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

Shenzhen HUAKE Testing Technology Co., Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAKE Testing Technology Co., Ltd. as copyright owner and source of the material. Shenzhen HUAKE Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

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**

Len Liao

Sliver Wan

Jason Zhou

TEST REPORT

Test Report No. :	HK2506263445-3E	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
--------------------	-------------

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>Summary</u>	5
1.1	Test Standards	5
1.2	Test Description	5
1.3	Information of The Test Laboratory	6
1.4	Statement of The Measurement Uncertainty	6
2	<u>General Information</u>	7
2.1	Environmental Conditions	7
2.2	Description of Test Modes	7
2.3	Test frequency list	7
2.4	Equipments Used During The Test	8
2.5	Related Submittal(s) / Grant (s)	9
2.6	Modifications	9
3	<u>Test Conditions and Results</u>	10
3.1	Output Power	10
3.2	Peak-to-Average Ratio (PAR)	18
3.3	Occupied Bandwidth and Emission Bandwidth	25
3.4	Band Edge Compliance	32
3.5	Spurious Emission	39
3.6	Frequency Stability Under Temperature & Voltage Variations	72
4	<u>Test Setup Photos of the EUT</u>	74
5	<u>Photos of the EUT</u>	76

**** Modified History ****

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

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:v03r01](#): 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 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.

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 HUAKE 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 HUAKE 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°C
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 Test frequency list

TX Channel Bandwidth	Frequency (MHz)	channel
1.4 MHz	1710.7	19957
	1732.5	20175
	1754.3	20393
3 MHz	1711.5	19965
	1732.5	20175
	1753.5	20385
5 MHz	1712.5	19975
	1732.5	20175
	1752.5	20375
10 MHz	1715.0	20000
	1732.5	20175
	1750.0	20350
15 MHz	1717.5	20025
	1732.5	20175
	1747.5	20325
20 MHz	1720.0	20050
	1732.5	20175
	1745.0	20300

2.4 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	/	/

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

2.5 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2BFCX-C10 filing to comply with of the FCC Part 27 Rules.

2.6 Modifications

No modifications were implemented to meet testing criteria.

3 Test Conditions and Results

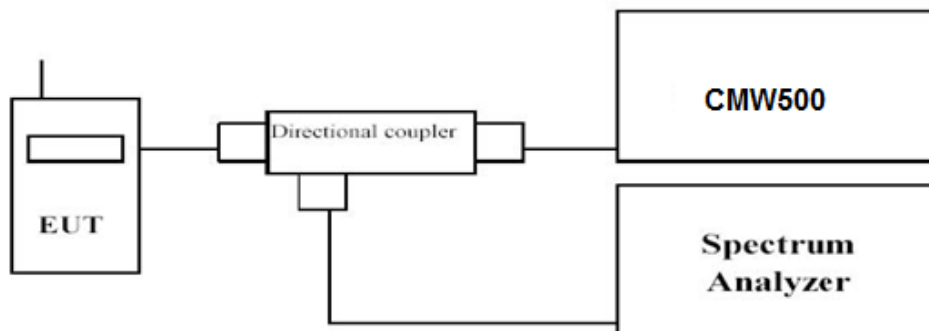
3.1 Output Power

LIMIT

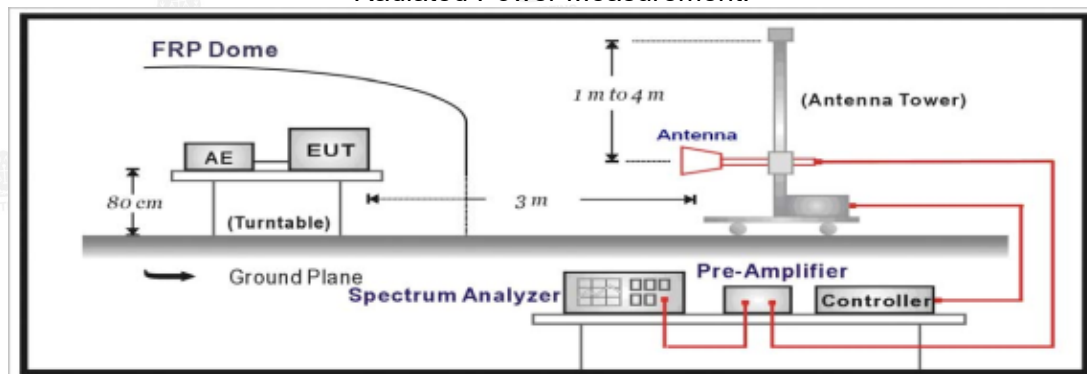
According to §27.50 (d) (4): Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

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:

Band	Bandwidth	Modulation	Channel	RB Configuration	Result (dBm)
Band4	1.4MHz	QPSK	19957	1RB#0	23.22
Band4	1.4MHz	QPSK	19957	1RB#2	23.02
Band4	1.4MHz	QPSK	19957	1RB#5	23.05
Band4	1.4MHz	QPSK	19957	3RB#0	23.33
Band4	1.4MHz	QPSK	19957	3RB#1	23.72
Band4	1.4MHz	QPSK	19957	3RB#3	23.72
Band4	1.4MHz	QPSK	19957	6RB#0	22.69
Band4	1.4MHz	16QAM	19957	1RB#0	22.07
Band4	1.4MHz	16QAM	19957	1RB#2	22.33
Band4	1.4MHz	16QAM	19957	1RB#5	23.83
Band4	1.4MHz	16QAM	19957	3RB#0	23.68
Band4	1.4MHz	16QAM	19957	3RB#1	23.73
Band4	1.4MHz	16QAM	19957	3RB#3	23.43
Band4	1.4MHz	16QAM	19957	6RB#0	22.67
Band4	1.4MHz	QPSK	20175	1RB#0	23.97
Band4	1.4MHz	QPSK	20175	1RB#2	23.68
Band4	1.4MHz	QPSK	20175	1RB#5	23.70
Band4	1.4MHz	QPSK	20175	3RB#0	23.44
Band4	1.4MHz	QPSK	20175	3RB#1	23.26
Band4	1.4MHz	QPSK	20175	3RB#3	23.27
Band4	1.4MHz	QPSK	20175	6RB#0	22.60
Band4	1.4MHz	16QAM	20175	1RB#0	22.87
Band4	1.4MHz	16QAM	20175	1RB#2	22.65
Band4	1.4MHz	16QAM	20175	1RB#5	22.78
Band4	1.4MHz	16QAM	20175	3RB#0	22.57
Band4	1.4MHz	16QAM	20175	3RB#1	22.44
Band4	1.4MHz	16QAM	20175	3RB#3	22.60
Band4	1.4MHz	16QAM	20175	6RB#0	21.89
Band4	1.4MHz	QPSK	20393	1RB#0	23.90
Band4	1.4MHz	QPSK	20393	1RB#2	23.81

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Band4	1.4MHz	QPSK	20393	1RB#5	23.74
Band4	1.4MHz	QPSK	20393	3RB#0	23.80
Band4	1.4MHz	QPSK	20393	3RB#1	23.80
Band4	1.4MHz	QPSK	20393	3RB#3	23.75
Band4	1.4MHz	QPSK	20393	6RB#0	22.59
Band4	1.4MHz	16QAM	20393	1RB#0	22.61
Band4	1.4MHz	16QAM	20393	1RB#2	22.44
Band4	1.4MHz	16QAM	20393	1RB#5	22.49
Band4	1.4MHz	16QAM	20393	3RB#0	22.39
Band4	1.4MHz	16QAM	20393	3RB#1	22.49
Band4	1.4MHz	16QAM	20393	3RB#3	22.33
Band4	1.4MHz	16QAM	20393	6RB#0	21.38
Band4	3MHz	QPSK	19965	1RB#0	23.93
Band4	3MHz	QPSK	19965	1RB#8	23.72
Band4	3MHz	QPSK	19965	1RB#14	23.42
Band4	3MHz	QPSK	19965	8RB#0	23.86
Band4	3MHz	QPSK	19965	8RB#4	23.81
Band4	3MHz	QPSK	19965	8RB#7	23.73
Band4	3MHz	QPSK	19965	15RB#0	23.80
Band4	3MHz	16QAM	19965	1RB#0	22.08
Band4	3MHz	16QAM	19965	1RB#8	23.76
Band4	3MHz	16QAM	19965	1RB#14	23.65
Band4	3MHz	16QAM	19965	8RB#0	21.00
Band4	3MHz	16QAM	19965	8RB#4	22.76
Band4	3MHz	16QAM	19965	8RB#7	22.86
Band4	3MHz	16QAM	19965	15RB#0	22.83
Band4	3MHz	QPSK	20175	1RB#0	23.58
Band4	3MHz	QPSK	20175	1RB#8	23.69
Band4	3MHz	QPSK	20175	1RB#14	23.47
Band4	3MHz	QPSK	20175	8RB#0	22.47
Band4	3MHz	QPSK	20175	8RB#4	22.67
Band4	3MHz	QPSK	20175	8RB#7	22.70
Band4	3MHz	QPSK	20175	15RB#0	22.69
Band4	3MHz	16QAM	20175	1RB#0	22.48
Band4	3MHz	16QAM	20175	1RB#8	23.07
Band4	3MHz	16QAM	20175	1RB#14	22.65
Band4	3MHz	16QAM	20175	8RB#0	21.86
Band4	3MHz	16QAM	20175	8RB#4	21.96
Band4	3MHz	16QAM	20175	8RB#7	22.09
Band4	3MHz	16QAM	20175	15RB#0	21.97
Band4	3MHz	QPSK	20385	1RB#0	23.64
Band4	3MHz	QPSK	20385	1RB#8	23.70
Band4	3MHz	QPSK	20385	1RB#14	23.49
Band4	3MHz	QPSK	20385	8RB#0	22.47
Band4	3MHz	QPSK	20385	8RB#4	22.58
Band4	3MHz	QPSK	20385	8RB#7	22.52
Band4	3MHz	QPSK	20385	15RB#0	22.26
Band4	3MHz	16QAM	20385	1RB#0	22.28
Band4	3MHz	16QAM	20385	1RB#8	22.26
Band4	3MHz	16QAM	20385	1RB#14	22.18
Band4	3MHz	16QAM	20385	8RB#0	21.38
Band4	3MHz	16QAM	20385	8RB#4	21.37
Band4	3MHz	16QAM	20385	8RB#7	21.38
Band4	3MHz	16QAM	20385	15RB#0	21.36
Band4	5MHz	QPSK	19975	1RB#0	23.44
Band4	5MHz	QPSK	19975	1RB#12	23.63
Band4	5MHz	QPSK	19975	1RB#24	23.77

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Band4	5MHz	QPSK	19975	12RB#0	23.95
Band4	5MHz	QPSK	19975	12RB#6	23.79
Band4	5MHz	QPSK	19975	12RB#13	23.52
Band4	5MHz	QPSK	19975	25RB#0	23.68
Band4	5MHz	16QAM	19975	1RB#0	22.12
Band4	5MHz	16QAM	19975	1RB#12	22.80
Band4	5MHz	16QAM	19975	1RB#24	23.02
Band4	5MHz	16QAM	19975	12RB#0	21.09
Band4	5MHz	16QAM	19975	12RB#6	22.30
Band4	5MHz	16QAM	19975	12RB#13	22.81
Band4	5MHz	16QAM	19975	25RB#0	22.86
Band4	5MHz	QPSK	20175	1RB#0	24.00
Band4	5MHz	QPSK	20175	1RB#12	23.52
Band4	5MHz	QPSK	20175	1RB#24	24.10
Band4	5MHz	QPSK	20175	12RB#0	22.54
Band4	5MHz	QPSK	20175	12RB#6	22.65
Band4	5MHz	QPSK	20175	12RB#13	22.95
Band4	5MHz	QPSK	20175	25RB#0	22.74
Band4	5MHz	16QAM	20175	1RB#0	23.13
Band4	5MHz	16QAM	20175	1RB#12	22.94
Band4	5MHz	16QAM	20175	1RB#24	23.48
Band4	5MHz	16QAM	20175	12RB#0	21.92
Band4	5MHz	16QAM	20175	12RB#6	21.93
Band4	5MHz	16QAM	20175	12RB#13	22.29
Band4	5MHz	16QAM	20175	25RB#0	21.95
Band4	5MHz	QPSK	20375	1RB#0	24.10
Band4	5MHz	QPSK	20375	1RB#12	23.82
Band4	5MHz	QPSK	20375	1RB#24	23.82
Band4	5MHz	QPSK	20375	12RB#0	22.58
Band4	5MHz	QPSK	20375	12RB#6	22.67
Band4	5MHz	QPSK	20375	12RB#13	22.62
Band4	5MHz	QPSK	20375	25RB#0	22.65
Band4	5MHz	16QAM	20375	1RB#0	22.66
Band4	5MHz	16QAM	20375	1RB#12	22.33
Band4	5MHz	16QAM	20375	1RB#24	22.51
Band4	5MHz	16QAM	20375	12RB#0	21.47
Band4	5MHz	16QAM	20375	12RB#6	21.48
Band4	5MHz	16QAM	20375	12RB#13	21.56
Band4	5MHz	16QAM	20375	25RB#0	21.48
Band4	10MHz	QPSK	20000	1RB#0	23.92
Band4	10MHz	QPSK	20000	1RB#24	23.88
Band4	10MHz	QPSK	20000	1RB#49	23.52
Band4	10MHz	QPSK	20000	25RB#0	22.50
Band4	10MHz	QPSK	20000	25RB#12	22.15
Band4	10MHz	QPSK	20000	25RB#25	22.98
Band4	10MHz	QPSK	20000	50RB#0	22.76
Band4	10MHz	16QAM	20000	1RB#0	23.09
Band4	10MHz	16QAM	20000	1RB#24	22.04
Band4	10MHz	16QAM	20000	1RB#49	22.02
Band4	10MHz	16QAM	20000	25RB#0	21.62
Band4	10MHz	16QAM	20000	25RB#12	21.23
Band4	10MHz	16QAM	20000	25RB#25	21.08
Band4	10MHz	QPSK	20175	1RB#0	23.61
Band4	10MHz	QPSK	20175	1RB#24	23.29
Band4	10MHz	QPSK	20175	1RB#49	24.34
Band4	10MHz	QPSK	20175	25RB#0	22.41
Band4	10MHz	QPSK	20175	25RB#12	22.68

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Band4	10MHz	QPSK	20175	25RB#25	23.13
Band4	10MHz	QPSK	20175	50RB#0	23.60
Band4	10MHz	16QAM	20175	1RB#0	22.38
Band4	10MHz	16QAM	20175	1RB#24	22.91
Band4	10MHz	16QAM	20175	1RB#49	23.49
Band4	10MHz	16QAM	20175	25RB#0	21.67
Band4	10MHz	16QAM	20175	25RB#12	21.97
Band4	10MHz	16QAM	20175	25RB#25	22.35
Band4	10MHz	QPSK	20350	1RB#0	23.75
Band4	10MHz	QPSK	20350	1RB#24	23.59
Band4	10MHz	QPSK	20350	1RB#49	23.68
Band4	10MHz	QPSK	20350	25RB#0	22.82
Band4	10MHz	QPSK	20350	25RB#12	22.76
Band4	10MHz	QPSK	20350	25RB#25	22.74
Band4	10MHz	QPSK	20350	50RB#0	22.82
Band4	10MHz	16QAM	20350	1RB#0	22.31
Band4	10MHz	16QAM	20350	1RB#24	23.97
Band4	10MHz	16QAM	20350	1RB#49	23.27
Band4	10MHz	16QAM	20350	25RB#0	21.79
Band4	10MHz	16QAM	20350	25RB#12	21.65
Band4	10MHz	16QAM	20350	25RB#25	21.63
Band4	15MHz	QPSK	20025	1RB#0	23.99
Band4	15MHz	QPSK	20025	1RB#38	23.07
Band4	15MHz	QPSK	20025	1RB#74	23.52
Band4	15MHz	QPSK	20025	38RB#0	22.09
Band4	15MHz	QPSK	20025	38RB#18	22.23
Band4	15MHz	QPSK	20025	38RB#37	22.13
Band4	15MHz	QPSK	20025	75RB#0	22.92
Band4	15MHz	16QAM	20025	1RB#0	23.12
Band4	15MHz	16QAM	20025	1RB#38	22.11
Band4	15MHz	16QAM	20025	1RB#74	22.78
Band4	15MHz	16QAM	20025	38RB#0	22.11
Band4	15MHz	16QAM	20025	38RB#18	22.00
Band4	15MHz	16QAM	20025	38RB#37	22.14
Band4	15MHz	QPSK	20175	1RB#0	23.44
Band4	15MHz	QPSK	20175	1RB#38	23.69
Band4	15MHz	QPSK	20175	1RB#74	24.63
Band4	15MHz	QPSK	20175	38RB#0	22.87
Band4	15MHz	QPSK	20175	38RB#18	23.21
Band4	15MHz	QPSK	20175	38RB#37	23.11
Band4	15MHz	QPSK	20175	75RB#0	23.92
Band4	15MHz	16QAM	20175	1RB#0	22.56
Band4	15MHz	16QAM	20175	1RB#38	22.83
Band4	15MHz	16QAM	20175	1RB#74	23.91
Band4	15MHz	16QAM	20175	38RB#0	22.82
Band4	15MHz	16QAM	20175	38RB#18	22.00
Band4	15MHz	16QAM	20175	38RB#37	22.24
Band4	15MHz	QPSK	20325	1RB#0	23.36
Band4	15MHz	QPSK	20325	1RB#38	24.21
Band4	15MHz	QPSK	20325	1RB#74	24.29
Band4	15MHz	QPSK	20325	38RB#0	23.06
Band4	15MHz	QPSK	20325	38RB#18	23.38
Band4	15MHz	QPSK	20325	38RB#37	23.12
Band4	15MHz	QPSK	20325	75RB#0	23.84
Band4	15MHz	16QAM	20325	1RB#0	22.19
Band4	15MHz	16QAM	20325	1RB#38	22.93
Band4	15MHz	16QAM	20325	1RB#74	23.17

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Band4	15MHz	16QAM	20325	38RB#0	23.04
Band4	20MHz	QPSK	20050	1RB#0	23.94
Band4	20MHz	QPSK	20050	1RB#49	23.56
Band4	20MHz	QPSK	20050	1RB#99	23.62
Band4	20MHz	QPSK	20050	50RB#0	23.47
Band4	20MHz	QPSK	20050	50RB#50	23.09
Band4	20MHz	QPSK	20050	100RB#0	22.64
Band4	20MHz	16QAM	20050	1RB#0	22.93
Band4	20MHz	16QAM	20050	1RB#49	22.55
Band4	20MHz	16QAM	20050	1RB#99	22.67
Band4	20MHz	QPSK	20175	1RB#0	23.33
Band4	20MHz	QPSK	20175	1RB#49	23.35
Band4	20MHz	QPSK	20175	1RB#99	23.15
Band4	20MHz	QPSK	20175	50RB#0	23.99
Band4	20MHz	QPSK	20175	50RB#50	23.40
Band4	20MHz	QPSK	20175	100RB#0	23.34
Band4	20MHz	16QAM	20175	1RB#0	22.63
Band4	20MHz	16QAM	20175	1RB#49	22.66
Band4	20MHz	16QAM	20175	1RB#99	23.79
Band4	20MHz	QPSK	20300	1RB#0	23.64
Band4	20MHz	QPSK	20300	1RB#49	23.90
Band4	20MHz	QPSK	20300	1RB#99	24.05
Band4	20MHz	QPSK	20300	50RB#0	22.94
Band4	20MHz	QPSK	20300	50RB#50	23.01
Band4	20MHz	QPSK	20300	100RB#0	23.60
Band4	20MHz	16QAM	20300	1RB#0	23.59
Band4	20MHz	16QAM	20300	1RB#49	22.63
Band4	20MHz	16QAM	20300	1RB#99	23.32

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

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	-16.98	3.06	9.68	34.80	24.44	30.00	5.56	V
1732.5	-16.77	3.17	9.68	34.80	24.54	30.00	5.46	V
1754.3	-16.90	3.22	9.75	34.80	24.43	30.00	5.57	V

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	-16.73	3.06	9.68	34.80	24.69	30.00	5.31	V
1732.5	-17.33	3.17	9.68	34.80	23.98	30.00	6.02	V
1753.5	-15.72	3.22	9.75	34.80	25.61	30.00	4.39	V

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	-16.28	3.06	9.68	34.80	25.14	30.00	4.86	V
1732.5	-17.02	3.17	9.68	34.80	24.29	30.00	5.71	V
1752.5	-16.88	3.22	9.75	34.80	24.45	30.00	5.55	V

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	-17.08	3.06	9.68	34.80	24.34	30.00	5.66	V
1732.5	-18.10	3.17	9.68	34.80	23.21	30.00	6.79	V
1750.0	-17.12	3.22	9.75	34.80	24.21	30.00	5.79	V

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	-17.60	3.06	9.68	34.80	23.82	30.00	6.18	V
1732.5	-18.66	3.17	9.68	34.80	22.65	30.00	7.35	V
1747.5	-15.64	3.22	9.75	34.80	25.69	30.00	4.31	V

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	-17.66	3.06	9.68	34.80	23.76	30.00	6.24	V
1732.5	-16.78	3.17	9.68	34.80	24.53	30.00	5.47	V
1745.0	-14.75	3.22	9.75	34.80	26.58	30.00	3.42	V

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	-18.30	3.06	9.68	34.80	23.12	30.00	6.88	V
1732.5	-18.08	3.17	9.68	34.80	23.23	30.00	6.77	V
1754.3	-15.75	3.22	9.75	34.80	25.58	30.00	4.42	V

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	-17.19	3.06	9.68	34.80	24.23	30.00	5.77	V
1732.5	-17.30	3.17	9.68	34.80	24.01	30.00	5.99	V
1753.5	-16.95	3.22	9.75	34.80	24.38	30.00	5.62	V

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	-17.30	3.06	9.68	34.80	24.12	30.00	5.88	V
1732.5	-17.78	3.17	9.68	34.80	23.53	30.00	6.47	V
1752.5	-16.94	3.22	9.75	34.80	24.39	30.00	5.61	V

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	-16.35	3.06	9.68	34.80	25.07	30.00	4.93	V
1732.5	-17.88	3.17	9.68	34.80	23.43	30.00	6.57	V
1750.0	-16.37	3.22	9.75	34.80	24.96	30.00	5.04	V

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	-17.10	3.06	9.68	34.80	24.32	30.00	5.68	V
1732.5	-17.78	3.17	9.68	34.80	23.53	30.00	6.47	V
1747.5	-15.34	3.22	9.75	34.80	25.99	30.00	4.01	V

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM

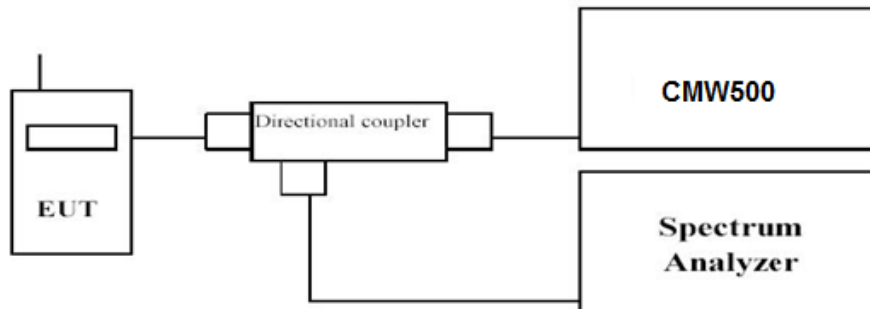
Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-17.17	3.06	9.68	34.80	24.25	30.00	5.75	V
1732.5	-18.61	3.17	9.68	34.80	22.70	30.00	7.30	V
1745.0	-14.54	3.22	9.75	34.80	26.79	30.00	3.21	V

3.2 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%.

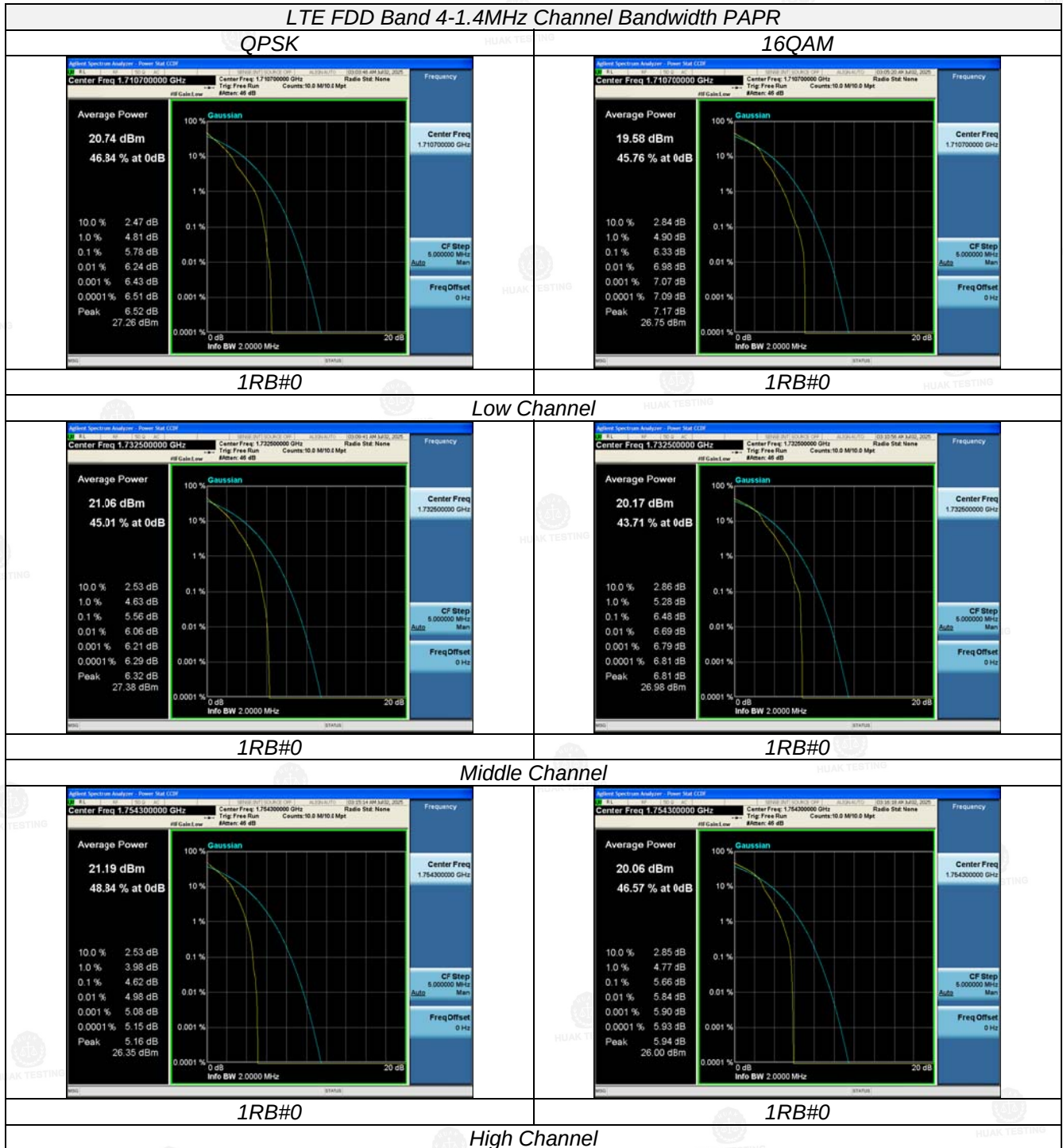
TEST RESULTS

Remark:

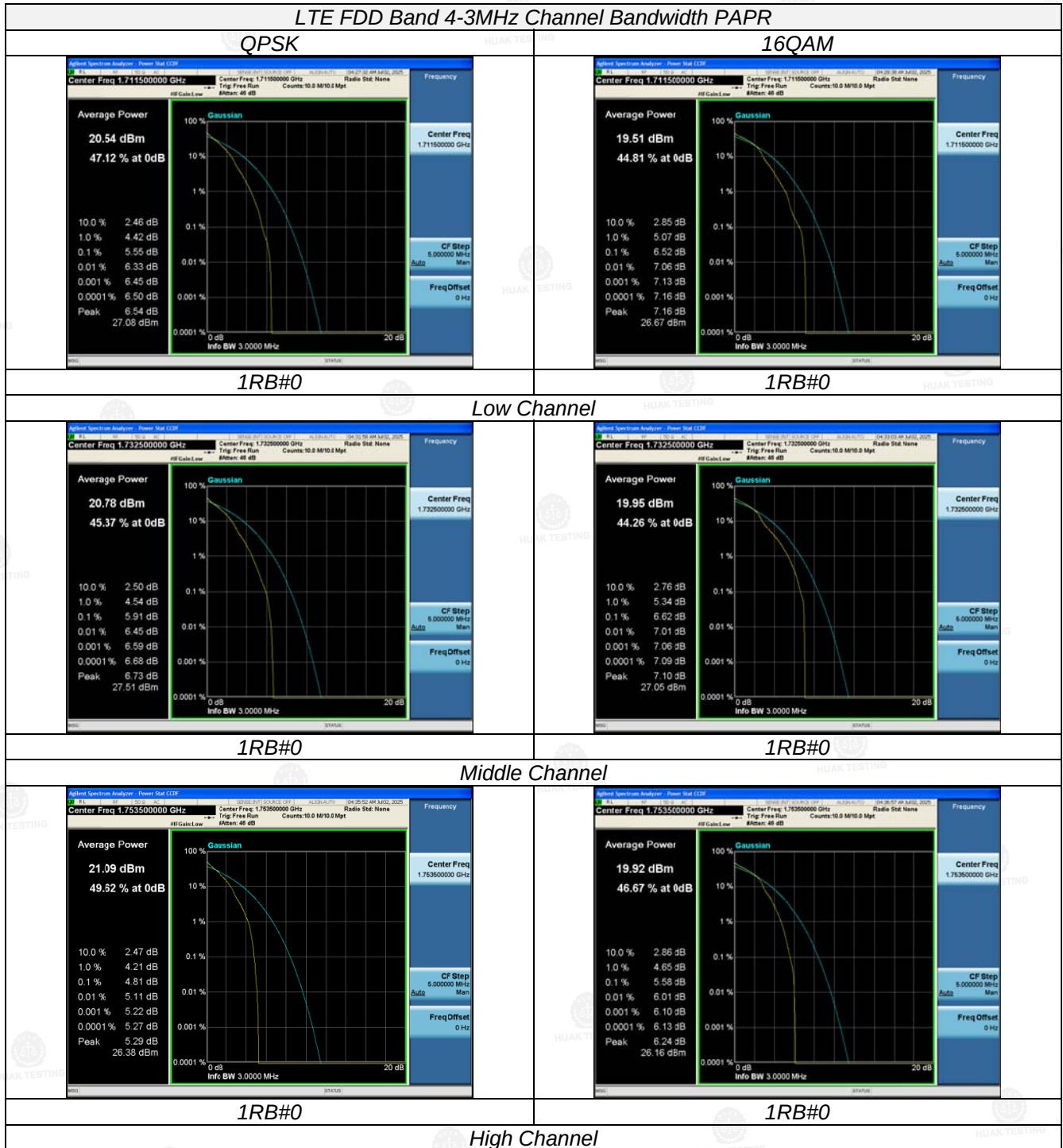
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.

LTE FDD Band 4				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR (dB)	
			QPSK	16QAM
1.4 MHz	1710.7	1RB#0	5.78	6.33
	1732.5		5.56	6.48
	1754.3		4.62	5.66
3 MHz	1711.5	1RB#0	5.55	6.52
	1732.5		5.91	6.62
	1753.5		4.81	5.58
5 MHz	1712.5	1RB#0	5.56	6.35
	1732.5		5.68	6.45
	1752.5		4.39	5.63
10 MHz	1715.0	1RB#0	5.56	6.26
	1732.5		5.91	6.51
	1750.0		4.78	5.84
15 MHz	1717.5	1RB#0	5.42	6.38
	1732.5		6.10	6.83
	1747.5		5.29	6.26
20 MHz	1720.0	1RB#0	5.58	5.97
	1732.5		6.21	5.81
	1745.0		5.37	5.53

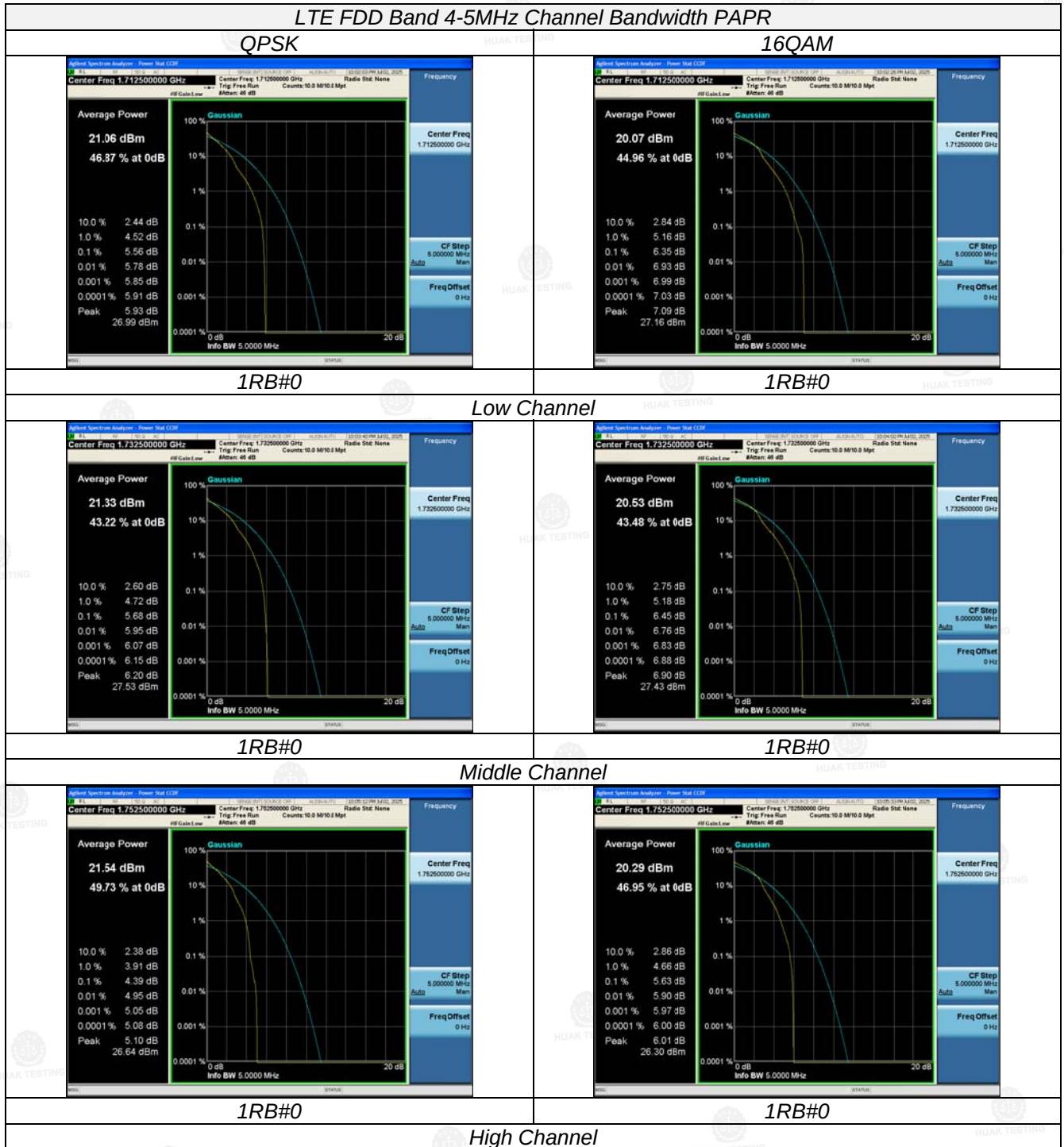
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



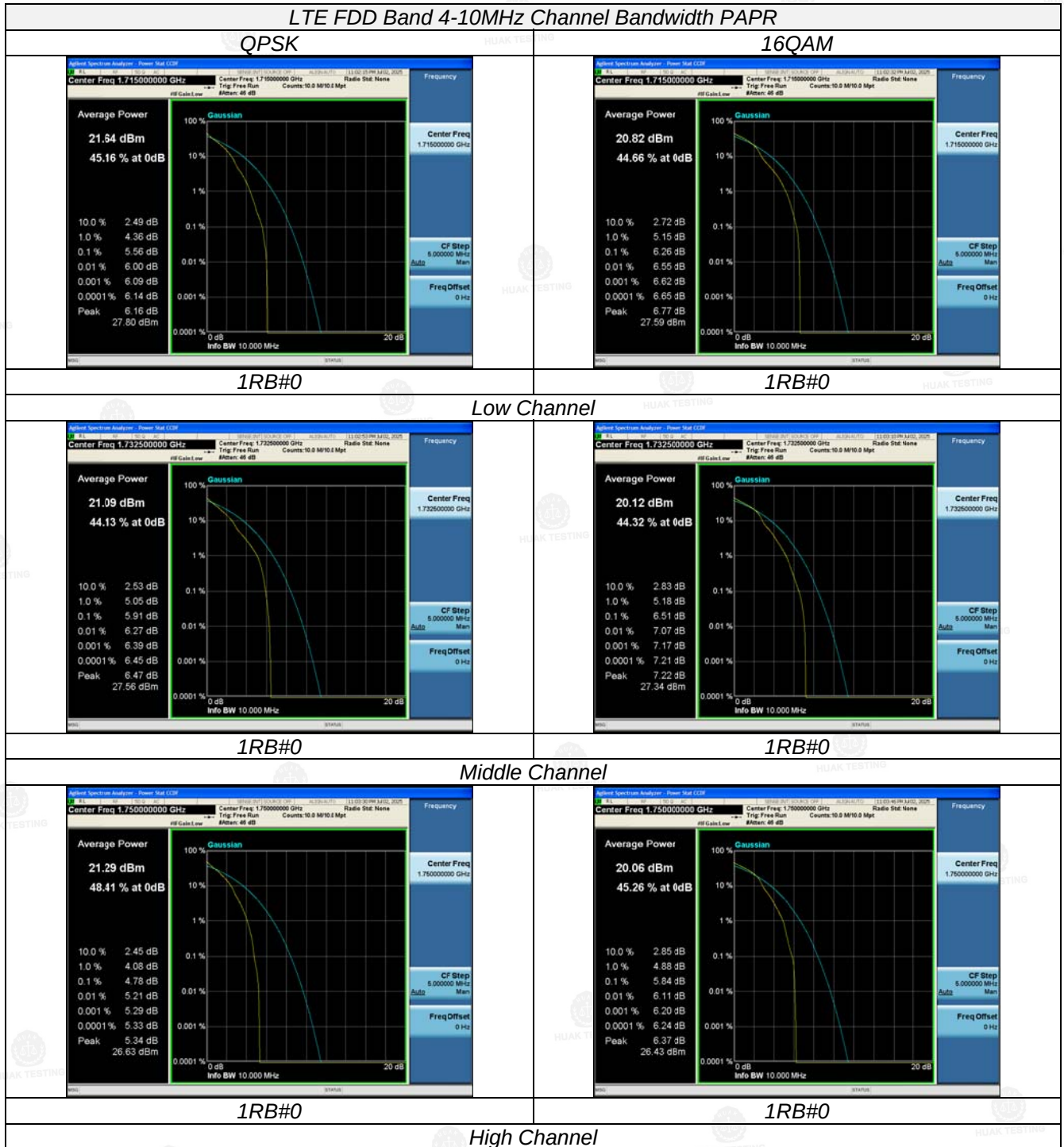
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

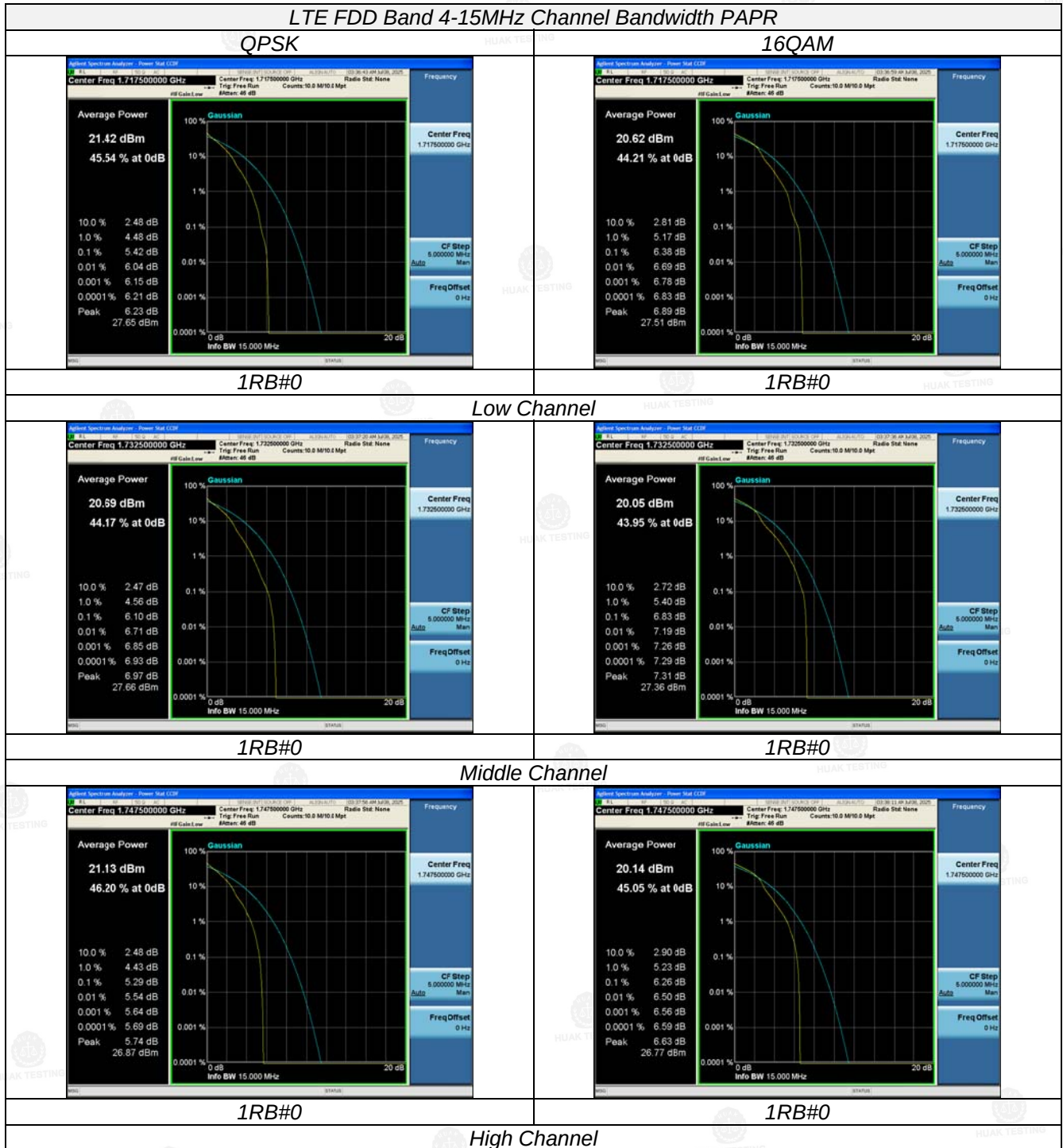


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

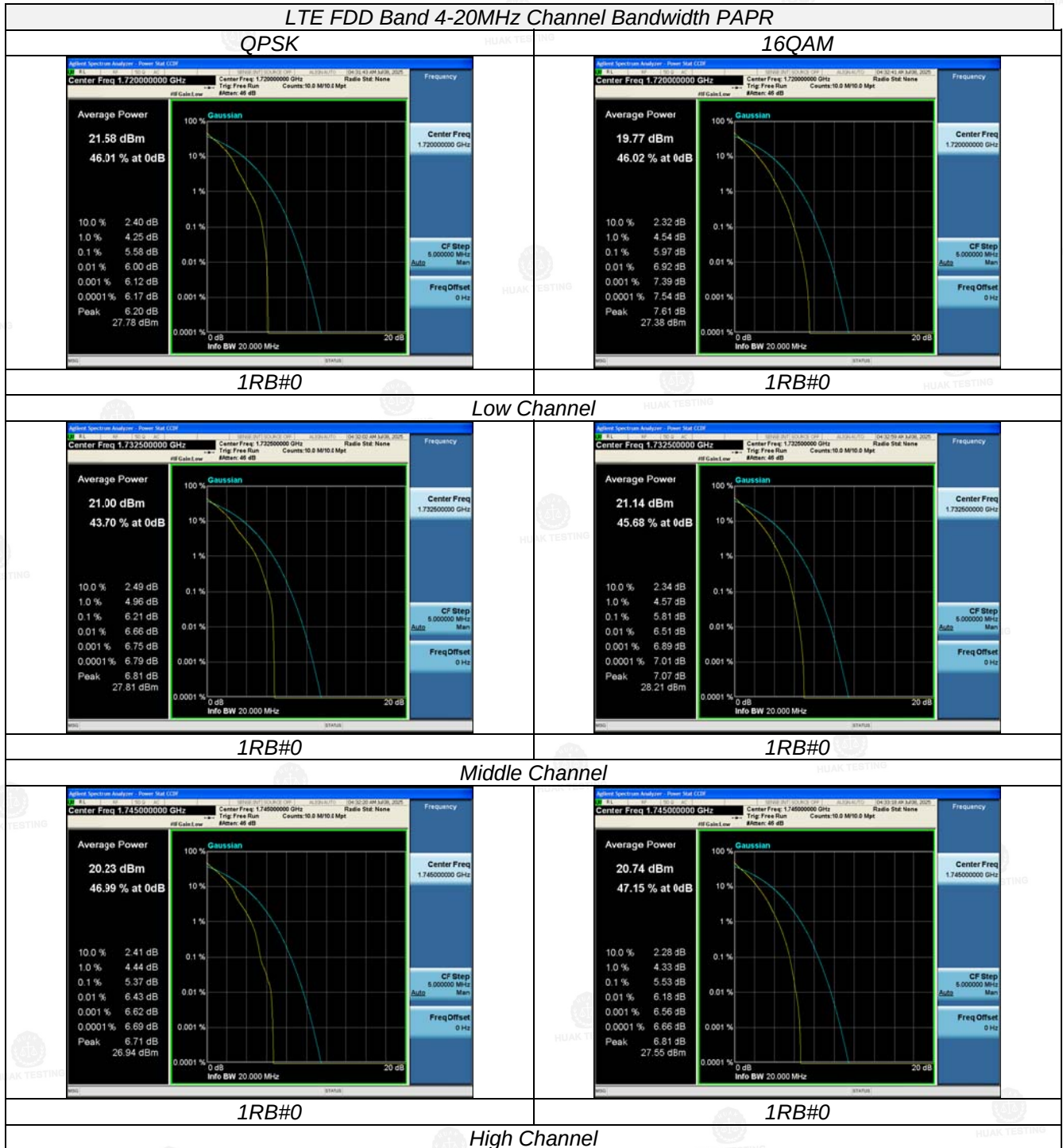


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.





The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



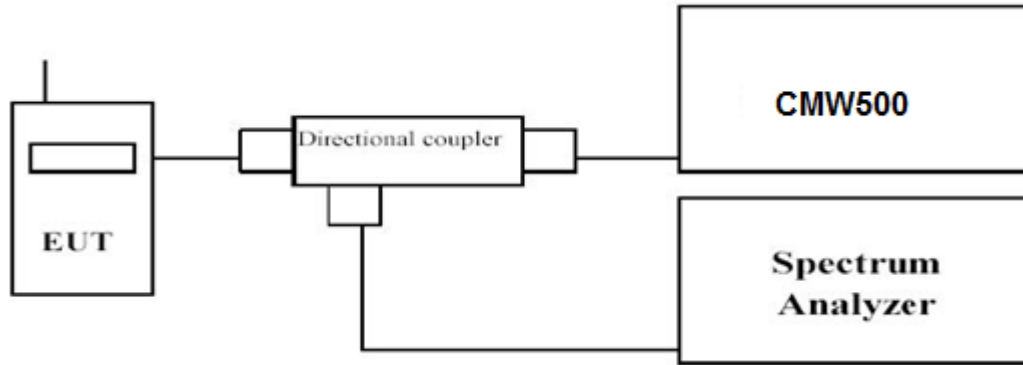
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

3.3 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.

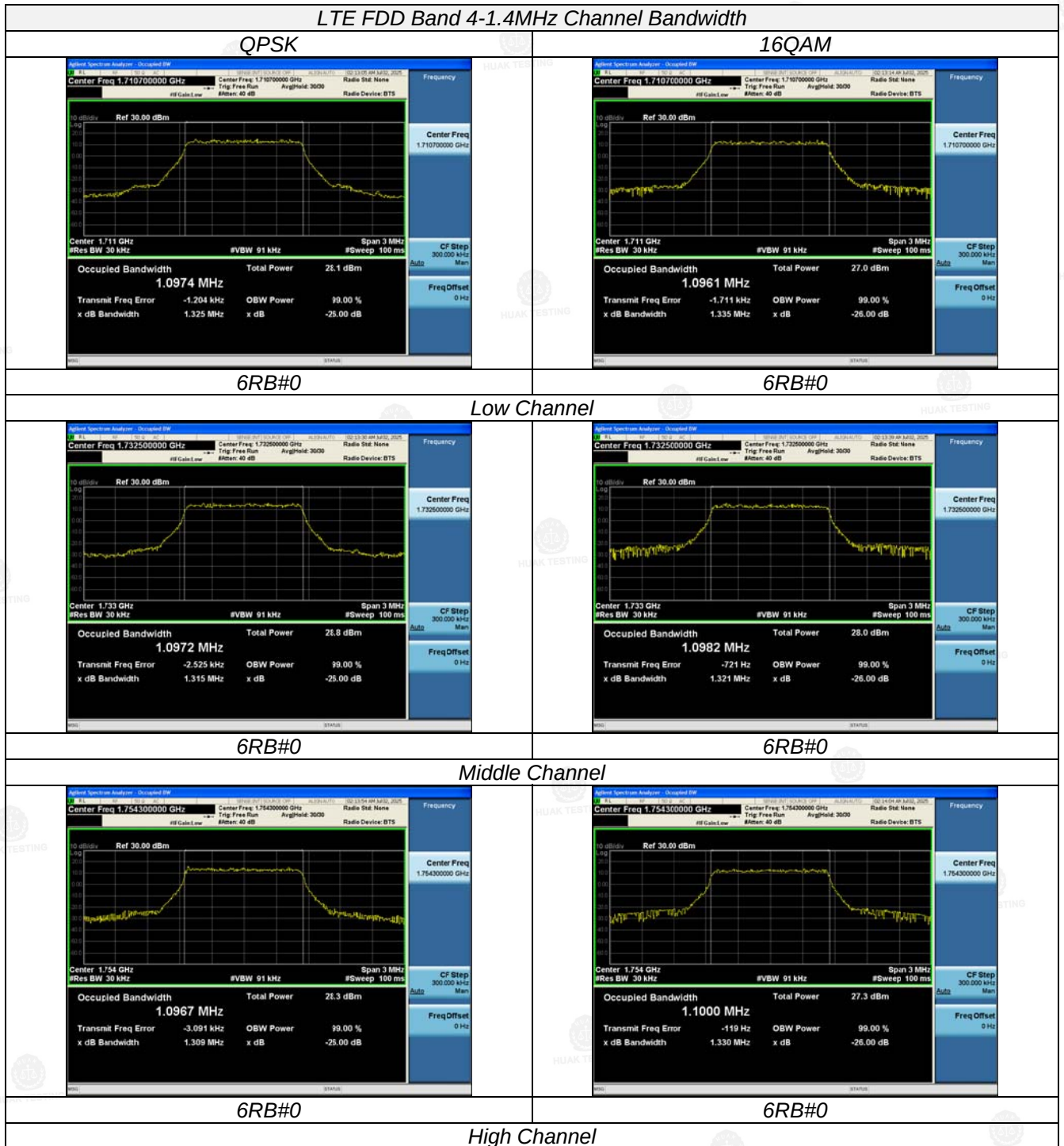
-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

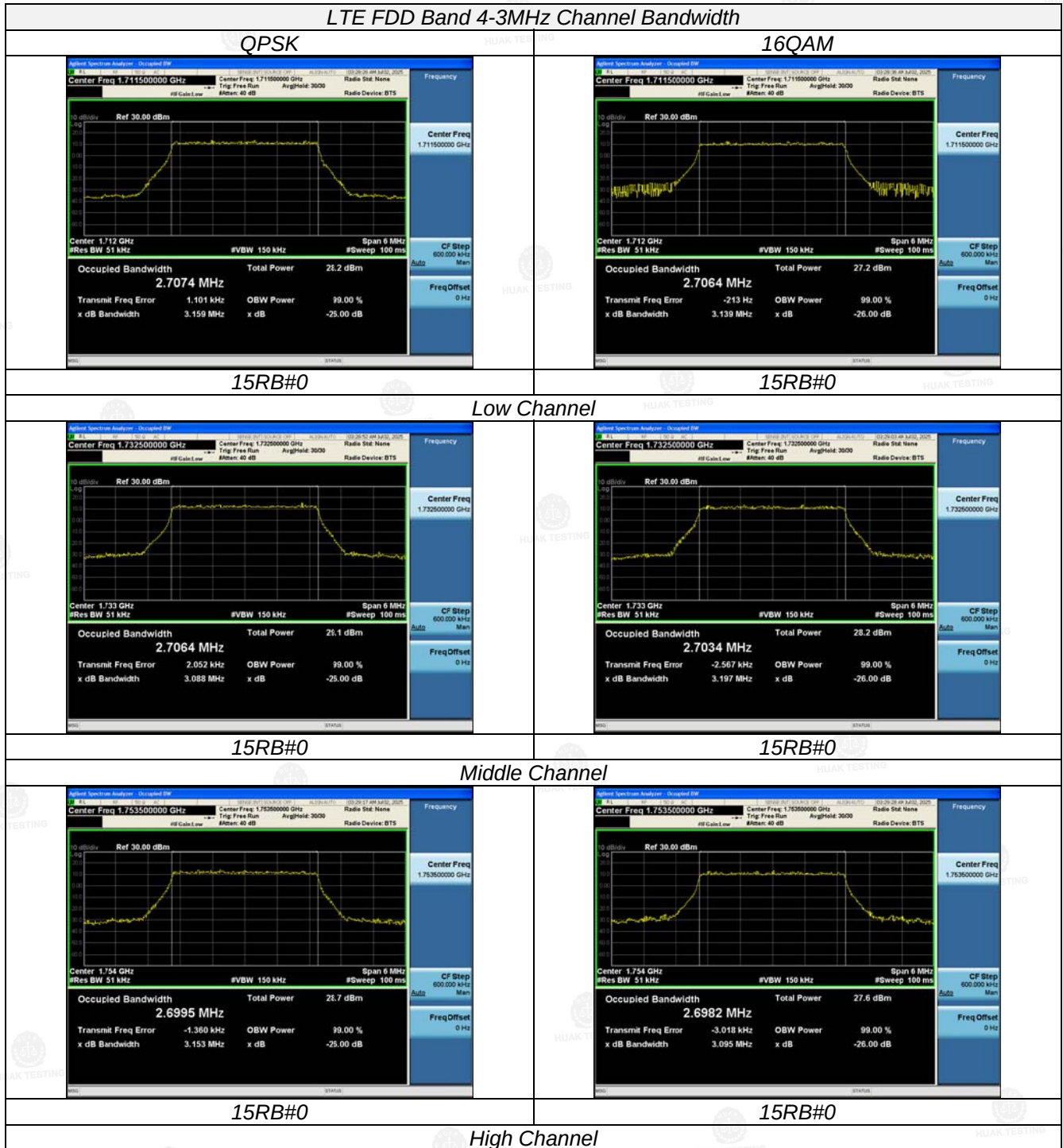
Remark:

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

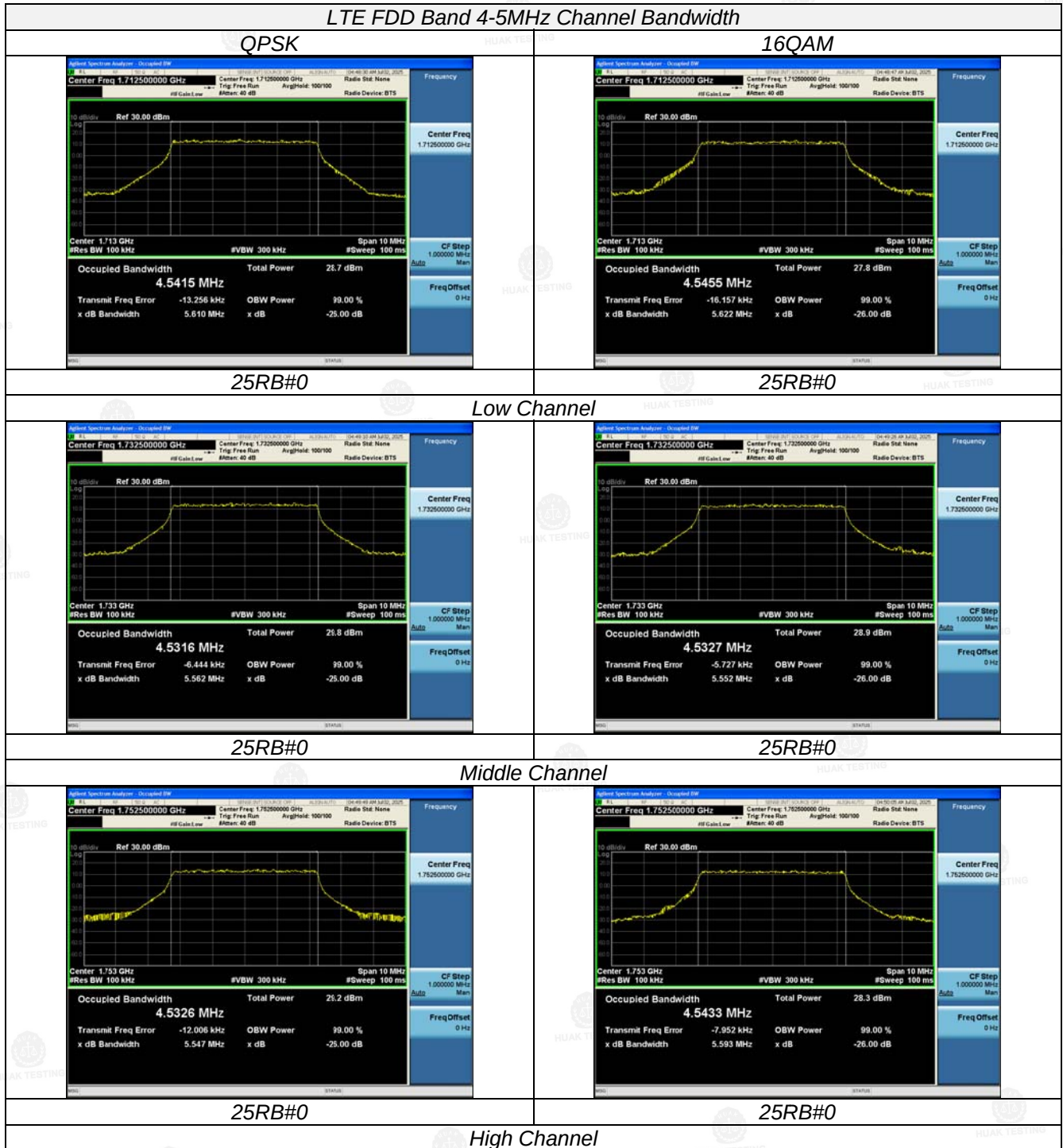
LTE FDD Band 4						
TX Channel Bandwidth	RB Size/Offset	Frequency (MHz)	-26dBc Emission bandwidth (MHz)		99% Occupied bandwidth (MHz)	
			QPSK	16QAM	QPSK	16QAM
1.4 MHz	6RB#0	1710.7	1.325	1.335	1.0974	1.0961
		1732.5	1.315	1.321	1.0972	1.0982
		1754.3	1.309	1.330	1.0967	1.1000
3 MHz	15RB#0	1711.5	3.159	3.139	2.7074	2.7064
		1732.5	3.088	3.197	2.7064	2.7034
		1753.5	3.153	3.095	2.6995	2.6982
5 MHz	25RB#0	1712.5	5.610	5.622	4.5415	4.5455
		1732.5	5.562	5.552	4.5316	4.5327
		1752.5	5.547	5.593	4.5326	4.5433
10 MHz	50RB#0(QPSK) 25RB#25 (16QAM)	1855.0	10.77	6.204	9.0387	4.7082
		1880.0	10.64	6.304	9.0250	4.7425
		1905.0	10.67	6.469	9.0233	4.7555
15 MHz	75RB#0(QPSK) 38RB#37(16QAM)	1857.5	16.36	9.640	13.560	6.8498
		1880.0	16.30	9.554	13.611	6.8484
		1902.5	16.01	9.71	13.541	6.8784
20 MHz	100RB#0(QPSK) 50RB#50(16QAM)	1860.0	21.01	12.25	18.056	9.3107
		1880.0	20.68	12.10	18.046	9.4135
		1900.0	20.72	12.08	18.043	9.3216



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



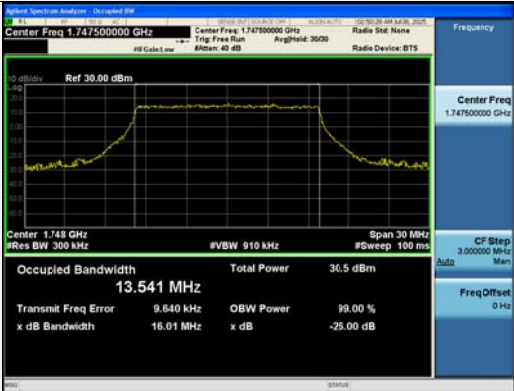
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



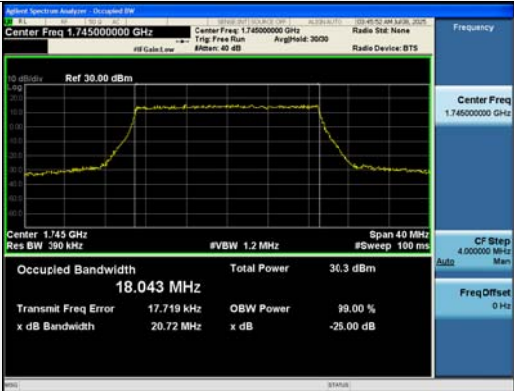
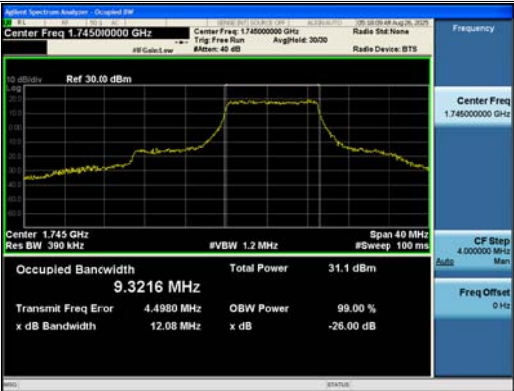
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

LTE FDD Band 4-10MHz Channel Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.715000000 GHz Center Freq 1.715000000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.715 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 9.0387 MHz Total Power 25.4 dBm Transmit Freq Error 6.142 kHz OBW Power 99.00 % x dB Bandwidth 10.77 MHz x dB -25.00 dB Freq Offset 0 Hz	 Center Freq 1.715000000 GHz Center Freq 1.715000000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.715 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 4.7082 MHz Total Power 23.7 dBm Transmit Freq Error 2.2414 MHz OBW Power 99.00 % x dB Bandwidth 6.204 MHz x dB -26.00 dB Freq Offset 0 Hz
50RB#0	25RB#25
Middle Channel	
 Center Freq 1.732500000 GHz Center Freq 1.732500000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.733 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 9.0250 MHz Total Power 30.1 dBm Transmit Freq Error -7.047 kHz OBW Power 99.00 % x dB Bandwidth 10.64 MHz x dB -25.00 dB Freq Offset 0 Hz	 Center Freq 1.732500000 GHz Center Freq 1.732500000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.733 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 4.7425 MHz Total Power 24.6 dBm Transmit Freq Error 2.2533 MHz OBW Power 99.00 % x dB Bandwidth 6.304 MHz x dB -26.00 dB Freq Offset 0 Hz
50RB#0	25RB#25
High Channel	
 Center Freq 1.750000000 GHz Center Freq 1.750000000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.75 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 9.0233 MHz Total Power 25.5 dBm Transmit Freq Error 3.599 kHz OBW Power 99.00 % x dB Bandwidth 10.67 MHz x dB -25.00 dB Freq Offset 0 Hz	 Center Freq 1.750000000 GHz Center Freq 1.750000000 GHz Radio Stat None Frequency Ref 30.00 dBm Center 1.75 GHz #Res BW 200 kHz #VBW 620 kHz Span 20 MHz #Sweep 100 ms CF Step 2.000000 MHz Occupied Bandwidth 4.7555 MHz Total Power 24.3 dBm Transmit Freq Error 2.2623 MHz OBW Power 99.00 % x dB Bandwidth 6.489 MHz x dB -26.00 dB Freq Offset 0 Hz
50RB#0	25RB#25

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

LTE FDD Band 4-15MHz Channel Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.717500000 GHz Center Freq 1.717500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.718 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 13.560 MHz Total Power 25.6 dBm Transmit Freq Error -17.538 kHz OBW Power 99.00 % x dB Bandwidth 16.36 MHz x dB -25.00 dB	 Center Freq 1.717500000 GHz Center Freq 1.717500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.718 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 6.8498 MHz Total Power 27.9 dBm Transmit Freq Error 3.4898 MHz OBW Power 99.00 % x dB Bandwidth 9.640 MHz x dB -26.00 dB
75RB#0	38RB#37
Middle Channel	
 Center Freq 1.732500000 GHz Center Freq 1.732500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.733 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 13.611 MHz Total Power 36.5 dBm Transmit Freq Error 45.673 kHz OBW Power 99.00 % x dB Bandwidth 16.30 MHz x dB -25.00 dB	 Center Freq 1.732500000 GHz Center Freq 1.732500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.733 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 6.8484 MHz Total Power 30.2 dBm Transmit Freq Error 3.5084 MHz OBW Power 99.00 % x dB Bandwidth 9.554 MHz x dB -26.00 dB
75RB#0	38RB#37
High Channel	
 Center Freq 1.747500000 GHz Center Freq 1.747500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.748 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 13.541 MHz Total Power 36.5 dBm Transmit Freq Error 9.640 kHz OBW Power 99.00 % x dB Bandwidth 16.01 MHz x dB -25.00 dB	 Center Freq 1.747500000 GHz Center Freq 1.747500000 GHz Radio Std: None Radio Device: BTS Center Freq 1.748 GHz Res BW 300 kHz Span 30 MHz #VBW 910 kHz #Sweep 100 ms CF Step 3.000000 MHz Occupied Bandwidth 6.8784 MHz Total Power 31.3 dBm Transmit Freq Error 3.4910 MHz OBW Power 99.00 % x dB Bandwidth 9.710 MHz x dB -26.00 dB
75RB#0	38RB#37

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

LTE FDD Band 4-20MHz Channel Bandwidth	
QPSK	16QAM
Low Channel	
 Center Freq 1.72000000 GHz Occupied Bandwidth 18.056 MHz Total Power 25.3 dBm Transmit Freq Error -12.286 kHz x dB Bandwidth 21.01 MHz	 Center Freq 1.72000000 GHz Occupied Bandwidth 9.3107 MHz Total Power 27.9 dBm Transmit Freq Error 4.4581 MHz x dB Bandwidth 12.25 MHz
100RB#0	50RB#50
Middle Channel	
 Center Freq 1.73250000 GHz Occupied Bandwidth 18.046 MHz Total Power 36.5 dBm Transmit Freq Error 34.437 kHz x dB Bandwidth 20.68 MHz	 Center Freq 1.73250000 GHz Occupied Bandwidth 9.4135 MHz Total Power 30.2 dBm Transmit Freq Error 4.5594 MHz x dB Bandwidth 12.10 MHz
100RB#0	50RB#50
High Channel	
 Center Freq 1.74500000 GHz Occupied Bandwidth 18.043 MHz Total Power 36.3 dBm Transmit Freq Error 17.719 kHz x dB Bandwidth 20.72 MHz	 Center Freq 1.74500000 GHz Occupied Bandwidth 9.3216 MHz Total Power 31.1 dBm Transmit Freq Error 4.4980 MHz x dB Bandwidth 12.08 MHz
100RB#0	50RB#50

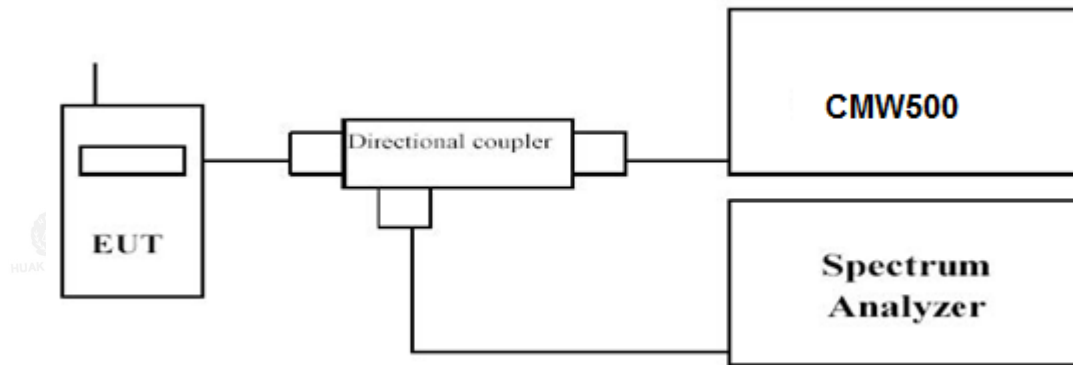
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

3.4 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



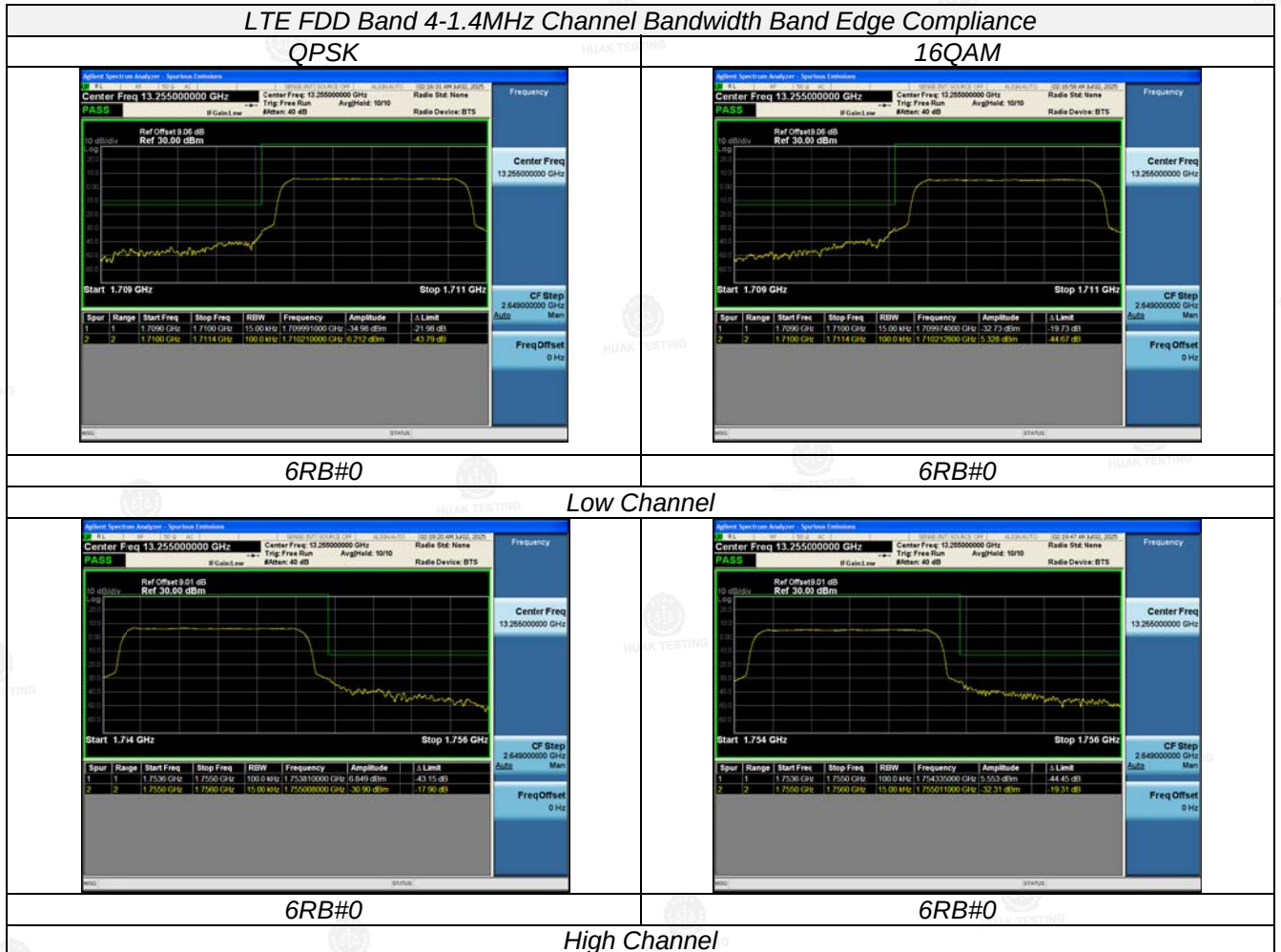
TEST PROCEDURE

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

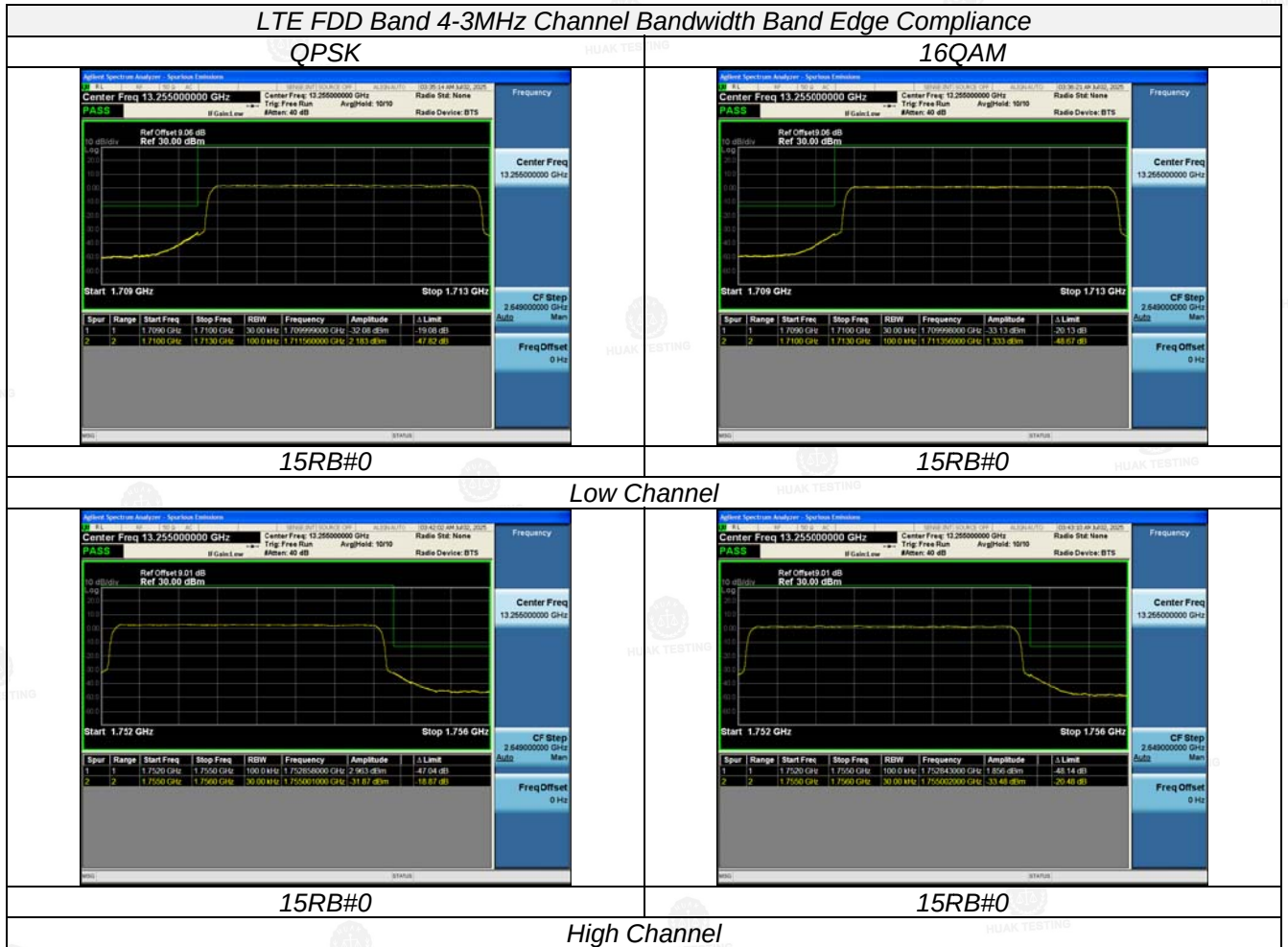
Remark:

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.



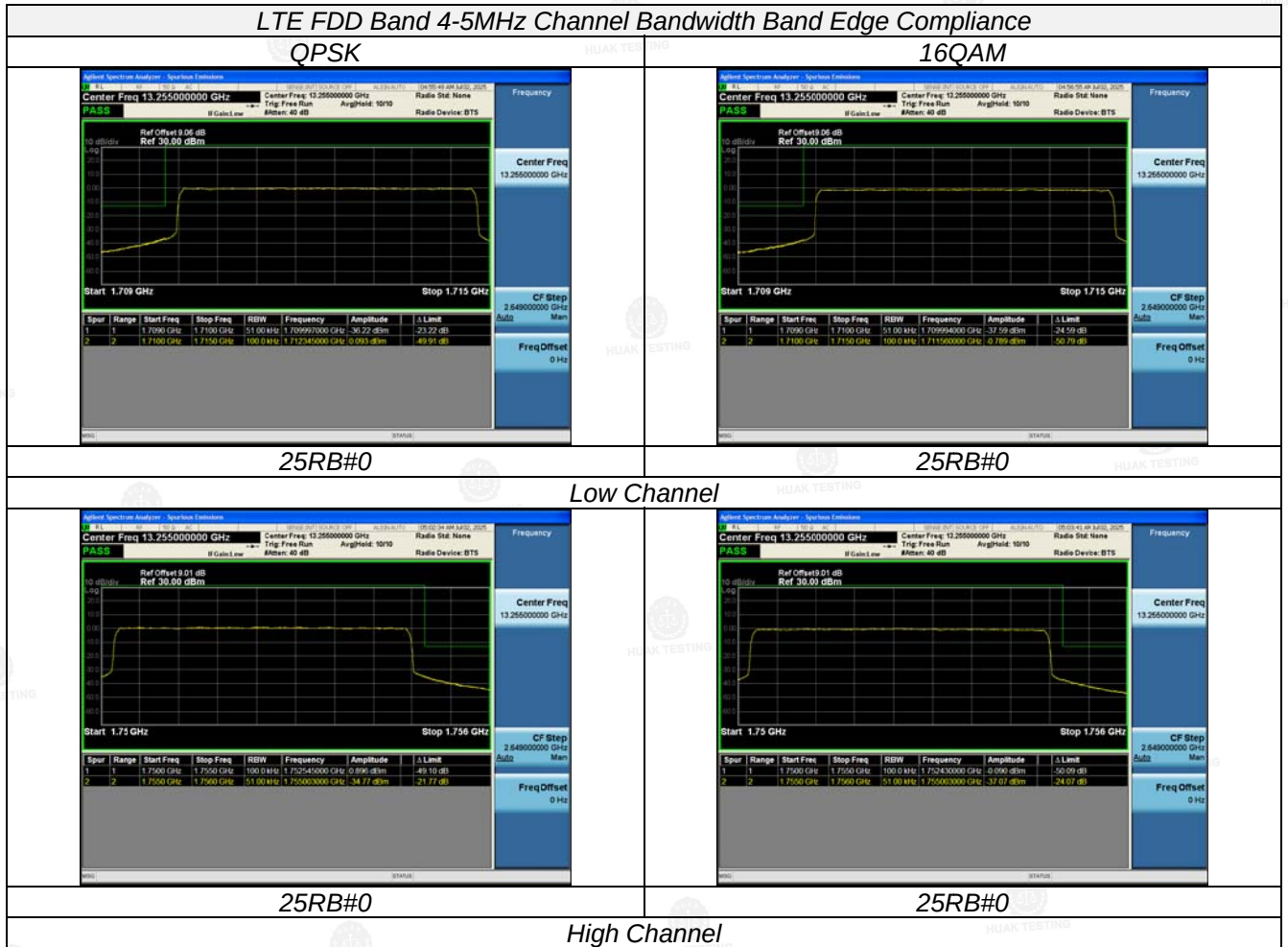
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



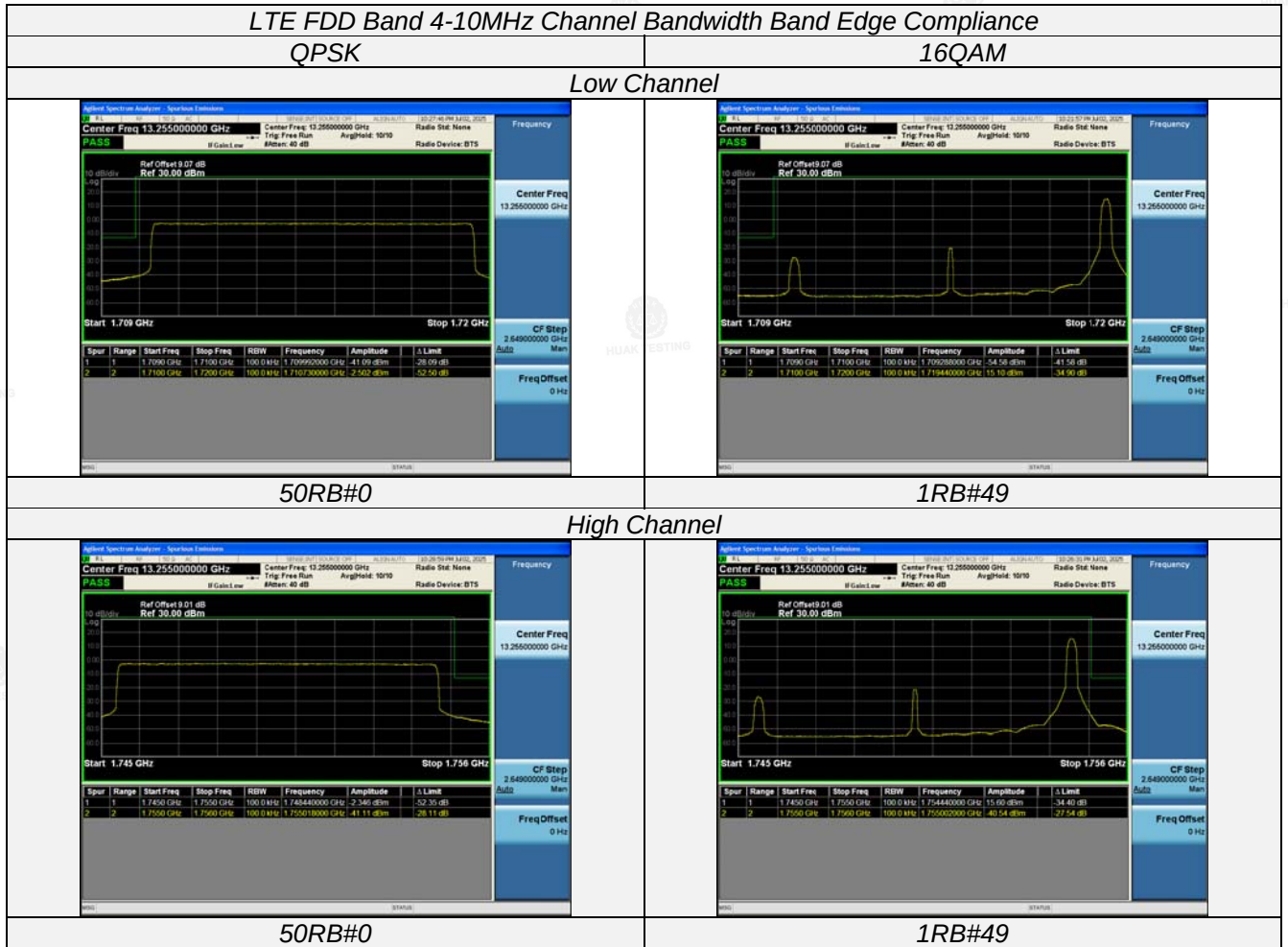
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



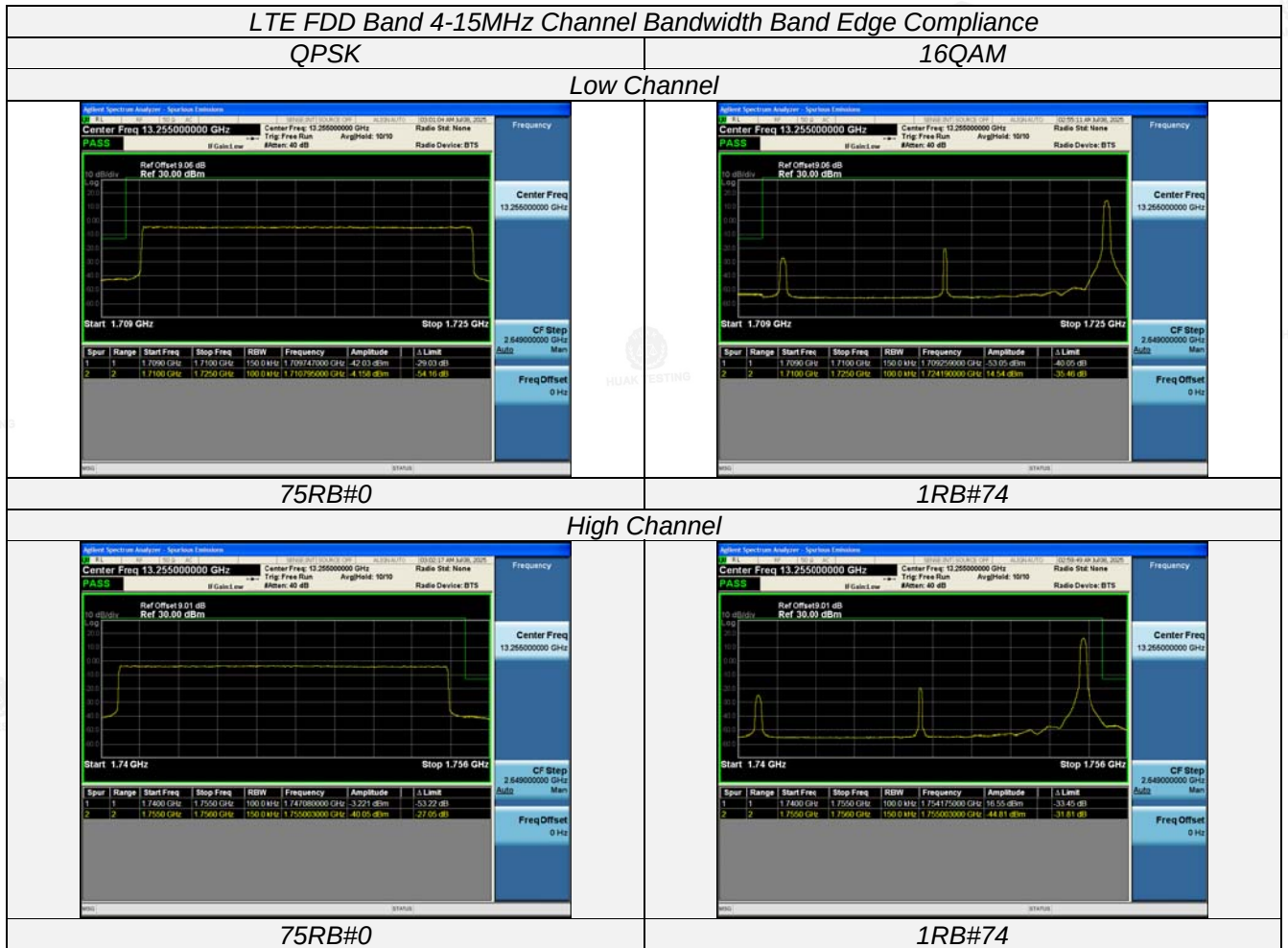
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

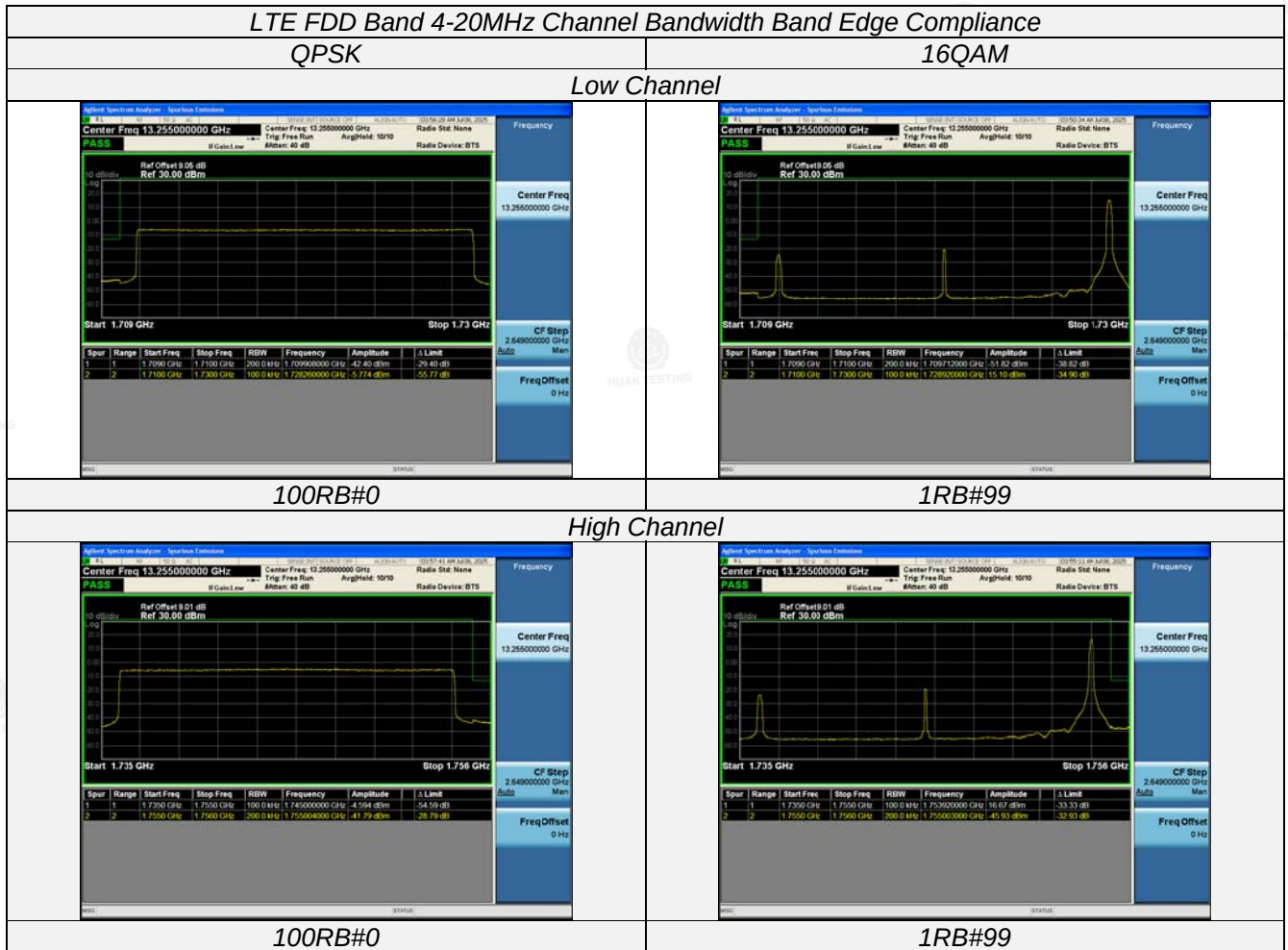


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
 Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

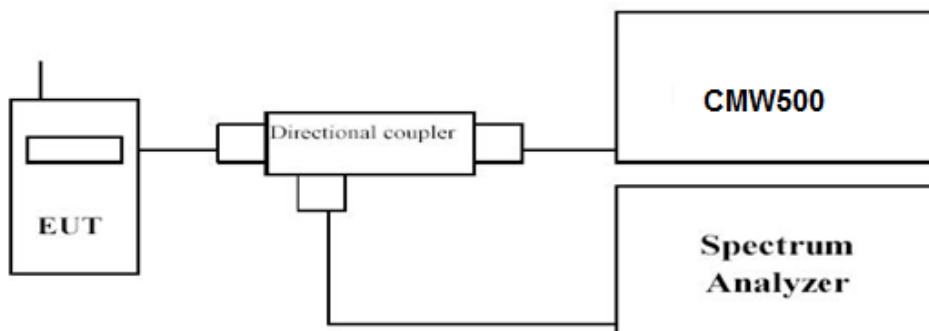
3.5 Spurious Emission

LIMIT

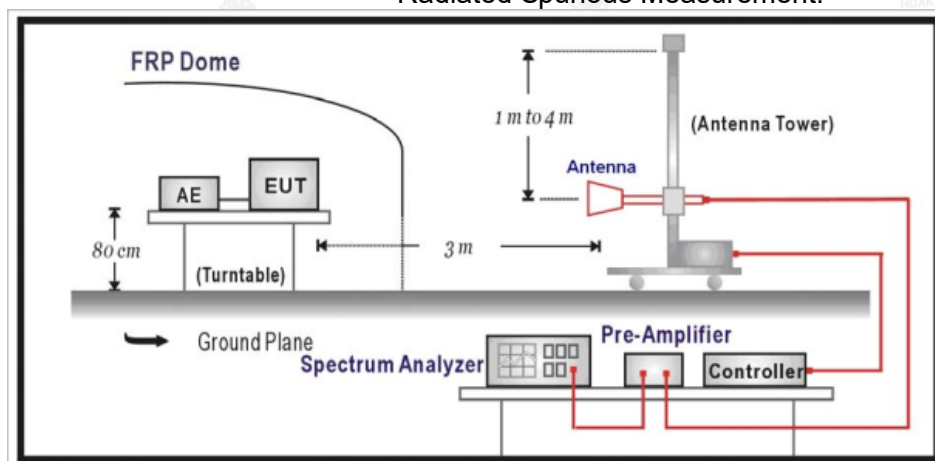
According to §27.53 (h): For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST CONFIGURATION

Conducted Spurious Measurement:



Radiated Spurious Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D.

Conducted Spurious 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.
- The resolution bandwidth of the spectrum analyzer was set sufficient scans were taken to show the out of band Emission if any up to 10^{th} harmonic.
- Please refer to following tables for test antenna conducted emissions.
-

Working Frequency	Sub range (GHz)	RBW	VBW	Sweep time (s)
LTE FDD Band 4	0.000015~0.03	10KHz	30KHz	Auto
	0.03~1	100KHz	300KHz	Auto
	1~20	1 MHz	3 MHz	Auto

Radiated Spurious Measurement:

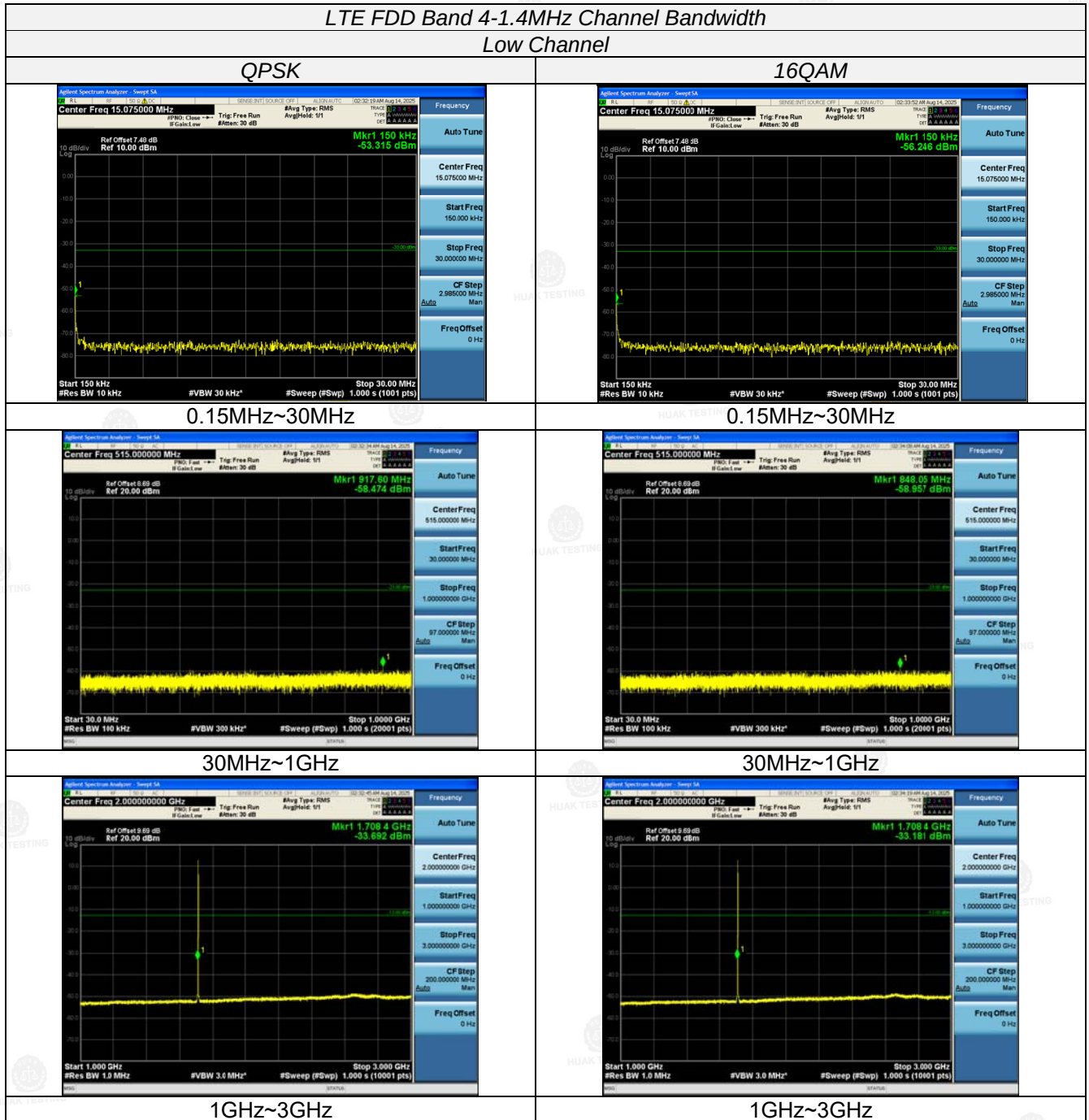
- a. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.
- c. The output of the test antenna shall be connected to the measuring receiver.
- d. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e. 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. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for Part 22 and 1MHz for Part 24. The frequency range was checked up to 10th harmonic.
- r. Test site anechoic chamber refer to ANSI C63.

TEST RESULTS

Remark:

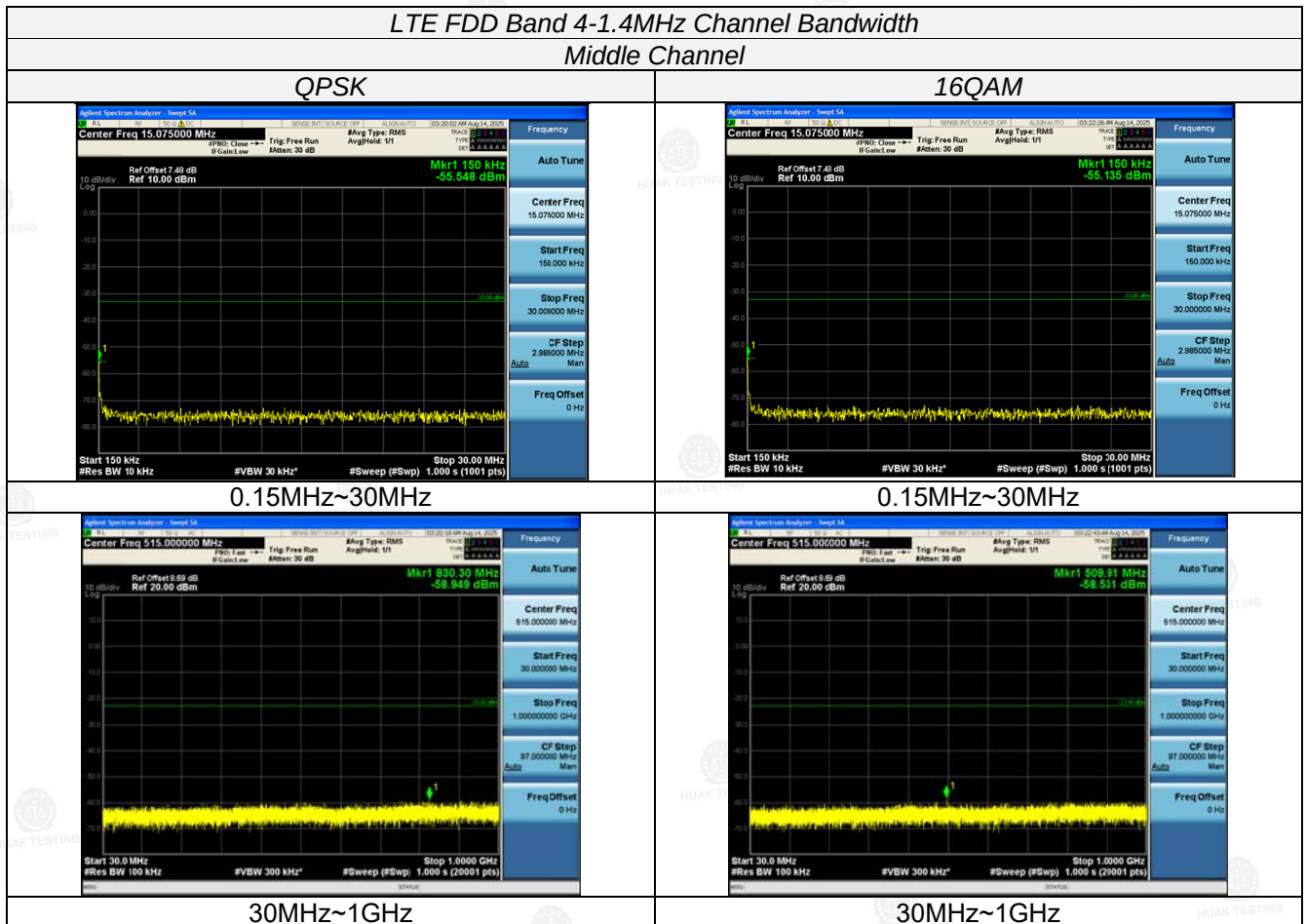
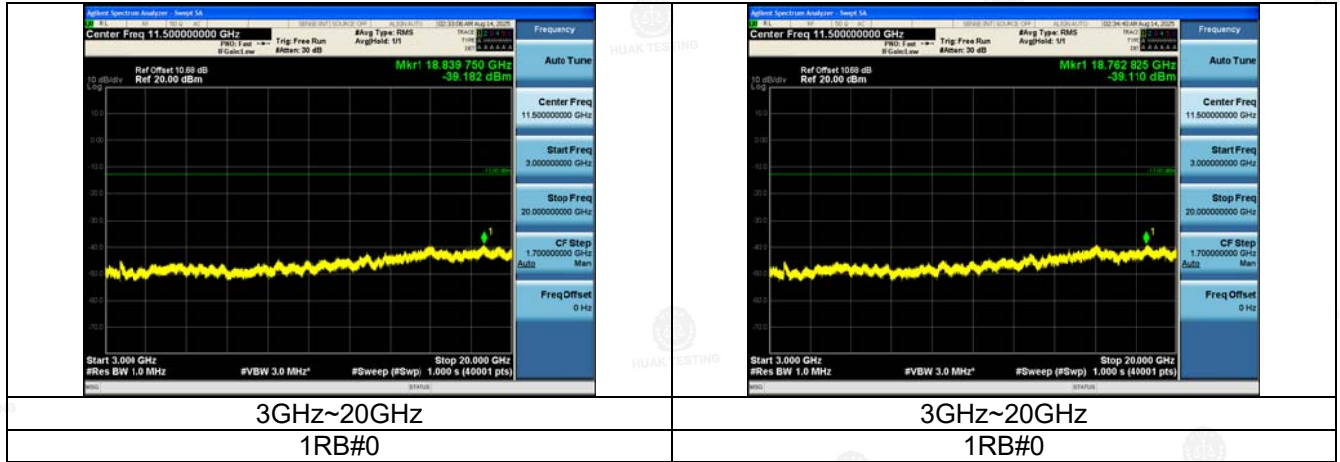
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.*

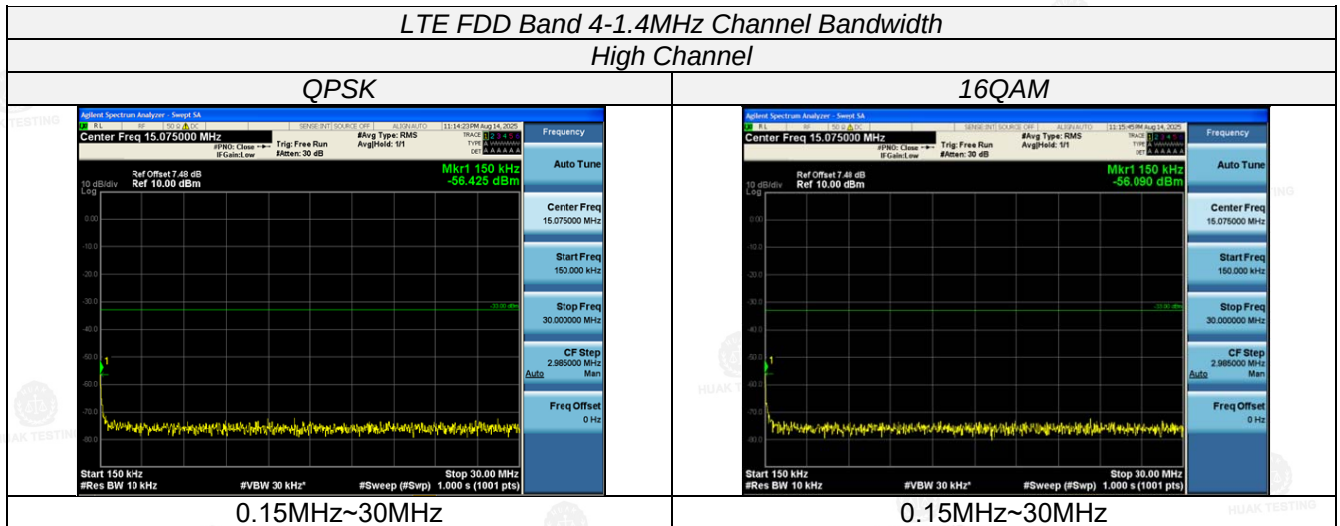
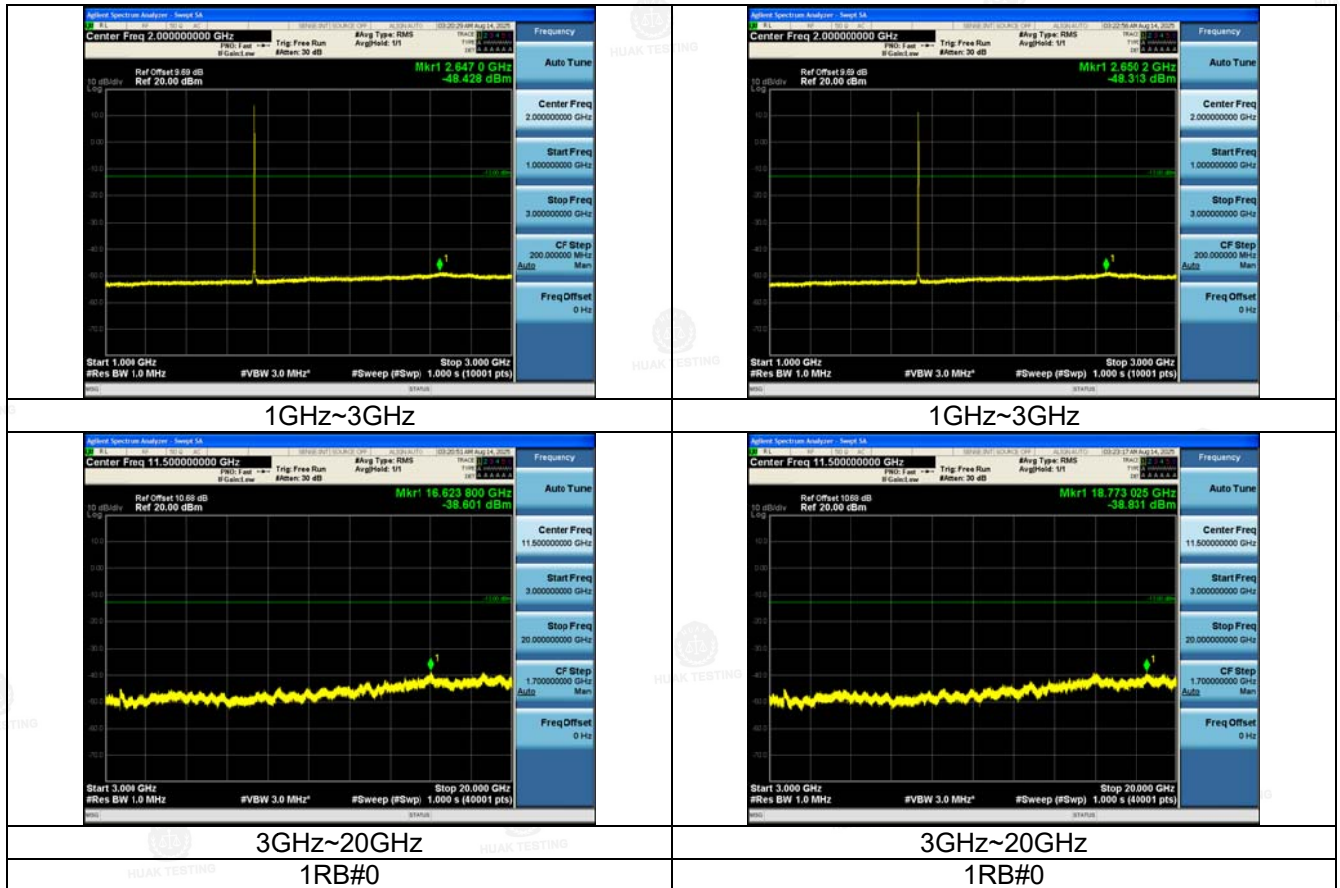
Conducted Measurement:

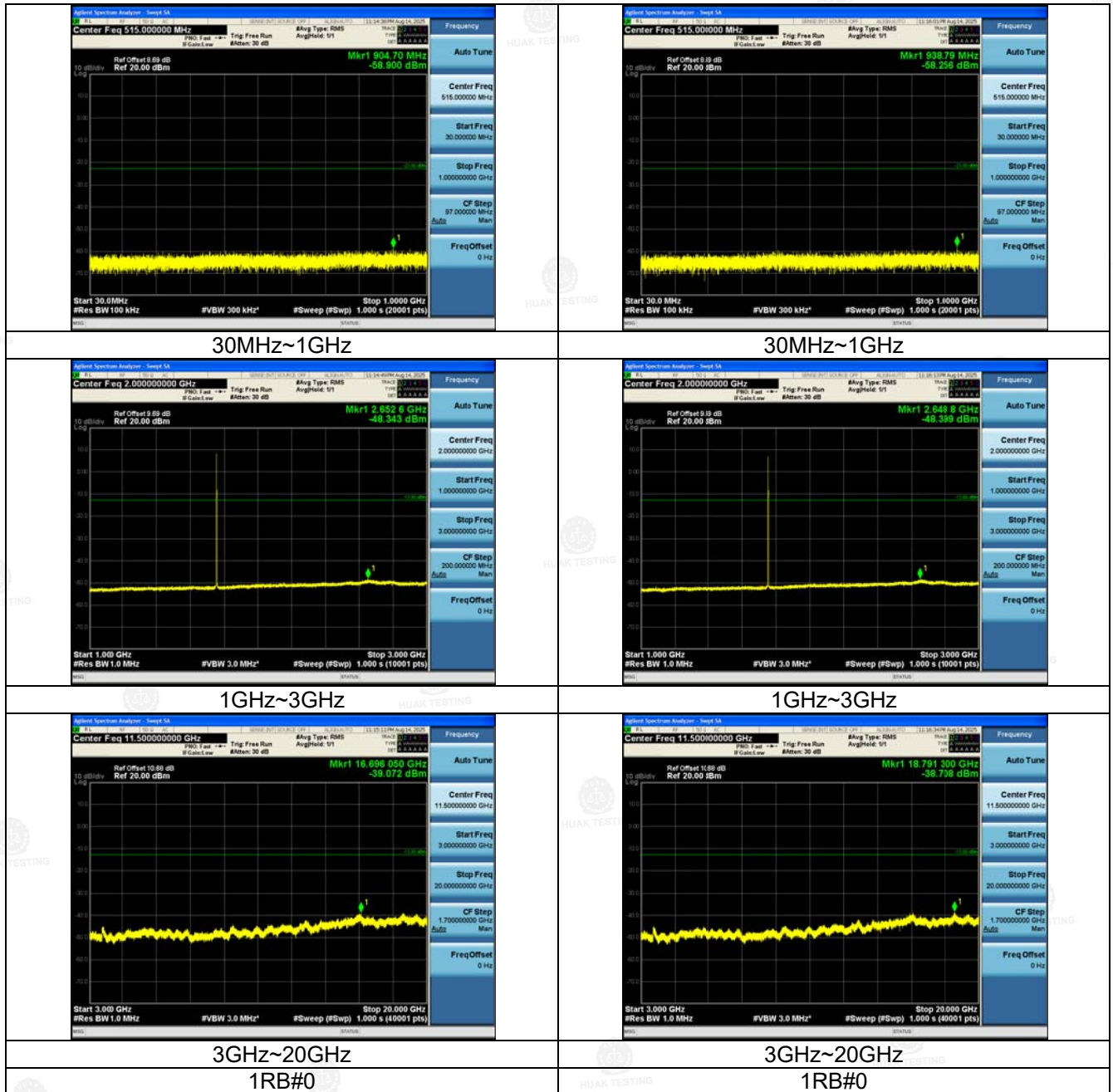


The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

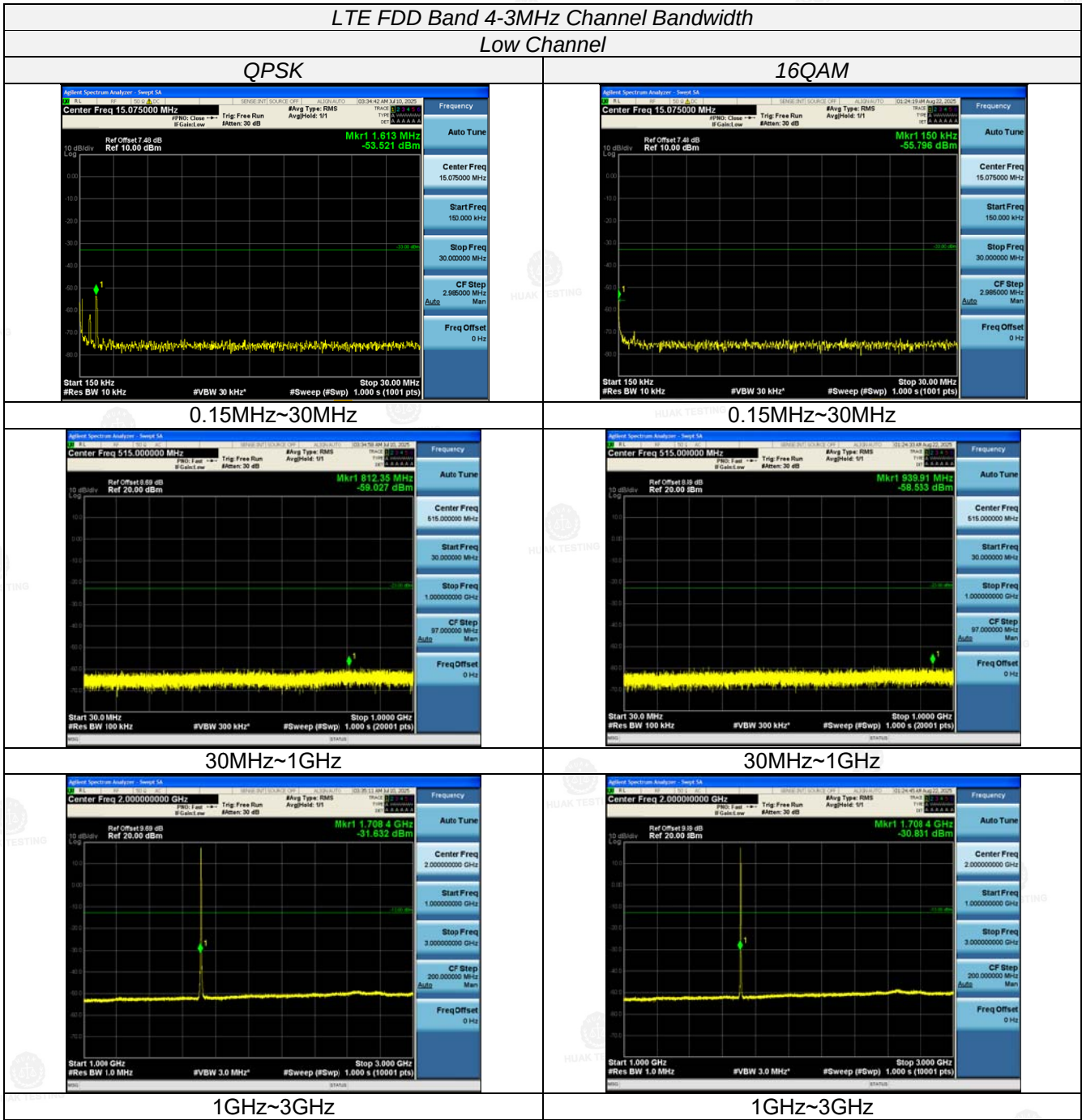
Shenzhen HUAKE Testing Technology Co., Ltd. Tel.: +86-0755-2302 9901 E-mail: info@huak.com Web.: www.huak.com
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China







The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 15 days only. The document is issued by Shenzhen HUAKE Testing Technology Co., Ltd., this document cannot be reproduced except in full with our prior written permission.

