

TEST REPORT FCC Part 27

Report Reference No..... HK2110254033-9E FCC ID.....: 2A30E-GP08B

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Date of issue..... Nov. 05, 2021

Shenzhen HUAK Testing Technology Co., Ltd. Testing Laboratory Name .....

1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park,

Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, Address .....:

China

Applicant's name..... Shenzhen Zhumang Technology Co.,Ltd.

10th Floor, Financial Technology Tower, No.11, Keyuan Road, Address ....:

Science and Technology Park, Yuehai Subdistrict, Nanshan

District, Shenzhen, 518057, P.R.China

Test specification .....:

Standard ...... FCC CFR Title 47 Part 2, Part 27

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Test item description .....: Stackable sharing charging station with LED screen

ChargerGoGo @ Trade Mark ....:

Manufacturer..... Shenzhen Zhumang Technology Co.,Ltd.

Model/Type reference....: **GP08B A1B8** 

GP08B A1B1, GP08B A1B2, GP08B A1B3, GP08B A1B4, GP08B Listed Models .....:

A1B5, GP08B A1B6, GP08B A1B7

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

Rating .....: Input: 100-240V~50/60Hz 1.5A Max

Output: 5V == 2A Max (per. layer) Max. Total Output: 80W

Hardware version .....: Software version .....:

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## TEST REPORT

Test Repo	rt No :	HK2110254033-9E	Nov. 05, 2021
rest Kepo	II NO	11K2110254055-9L	Date of issue

Equipment under Test : Stackable sharing charging station with LED screen

Model /Type : GP08B A1B8

Listed Models : GP08B A1B1, GP08B A1B2, GP08B A1B3, GP08B A1B4,

GP08B A1B5, GP08B A1B6, GP08B A1B7

Applicant : Shenzhen Zhumang Technology Co.,Ltd.

Address : 10th Floor, Financial Technology Tower, No.11, Keyuan

Road, Science and Technology Park, Yuehai Subdistrict,

Report No.: HK2110254033-9E

Nanshan District, Shenzhen, 518057, P.R.China

Manufacturer Shenzhen Zhumang Technology Co.,Ltd.

Address : 10th Floor, Financial Technology Tower, No.11, Keyuan

Road, Science and Technology Park, Yuehai Subdistrict,

Nanshan District, Shenzhen, 518057, P.R.China

	C AU HUM		C ME HUM		0.0
TESTING	Test result		TESTING .	Pass (116)	
1 NK 12	UPLE	· ak	MAR	, ak	- MAR

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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## 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 ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND

**REG-ULATIONS** 

KDB971168 D01: v02r02 MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

## 1.2 Test Description

-61"	-61"	-10, 100
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 No O
Out of band emission, Band Edge	Part 2.1051 Part 27.53(h)	Pass
Frequency stability	Part 2.1055 Part 27.54	Pass

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## 1.3 Information of the Test Laboratory

Shenzhen HUAK 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 HUAK 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 HUAK Testing Technology Co., Ltd.is reported:

Test	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.

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# 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 resulton this report.
- 2. Test method and refer to 3GPP TS136521.

## 2.3 Test frequency list

	LAK TESTIN	
TX Channel Bandwidth	Frequency (MHz)	channel
5.	1710.7	131979
1.4 MHz	1745	132322
	1779.3	132665
	1711.5	131987
3 MHz	1745	132322
	1778.5	132657
HUAK HU	1712.5	131997
5 MHz	1745	132322
	1777.5	132647
	1715.0	132022
10 MHz	1745	132322
	1775.0	132622
	1717.5	132047
15 MHz	1745	132322
	1772.5	132597
HUARTE	1720.0	132072
20 MHz	1745	132322
	1770.0	132572
	A ADS VIII	A 100 Miles

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AFICATION



## 2.4 Equipments Used during the Test

	C CONTRACTOR	,Ca	Carlo Area		G GO H
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	ENV216	R&S	HKE-059	2020/12/10	2021/12/09
LISN	R&S	ENV216	HKE-002	2020/12/10	2021/12/09
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	2020/12/10	2021/12/09
Receiver	R&S	ESCI 7	HKE-010	2020/12/10	2021/12/09
Spectrum analyzer	Agilent	N9020A	HKE-048	2020/12/10	2021/12/09
RF automatic control unit	Tonscend	JS0806-2	HKE-060	2020/12/10	2021/12/09
Horn antenna	Schwarzbeck	9120D	HKE-013	2020/12/10	2021/12/09
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	2020/12/10	2021/12/09
Preamplifier	EMCI	EMC051845SE	HKE-015	2020/12/10	2021/12/09
Preamplifier	Agilent	83051A	HKE-016	2020/12/10	2021/12/09
Temperature and humidity meter	Boyang	HTC-1	HKE-075	2020/12/10	2021/12/09
High pass filter unit	Tonscend	JS0806-F	HKE-055	2020/12/10	2021/12/09
RF cable	Times	1-40G	HKE-034	2020/12/10	2021/12/09
Power meter	Agilent	E4419B	HKE-085	2020/12/10	2021/12/09
Power Sensor	Agilent	E9300A	HKE-086	2020/12/10	2021/12/09
Wireless Communication Test Set	R&S NUMBER	CMW500	HKE-026	2020/12/10	2021/12/09
Wireless Communication Test Set	R&S	CMU200	HKE-029	2020/12/10	2021/12/09
High gain antenna	Schwarzbeck	LB-180400KF	HKE-054	2020/12/10	2021/12/09
Horn antenna	Schwarzbeck	9120D	HKE-135	2020/12/10	2021/12/09
High gain antenna	Schwarzbeck	LB-180400KF	HKE-128	2020/12/10	2021/12/09
Broadband antenna	Schwarzbeck	VULB 9163	HKE-087	2020/12/10	2021/12/09
Signal generator	Agilent	E4433B	HKE-120	2020/12/10	2021/12/09
Signal generator	Agilent	E4421B	HKE-121	2020/12/10	2021/12/09

## 2.5 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2A3OE-GP08B filing to comply with of the FCC Part 27 Rules.

## 2.6 Modifications

No modifications were implemented to meet testing criteria.

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## B TEST CONDITIONS AND RESULTS

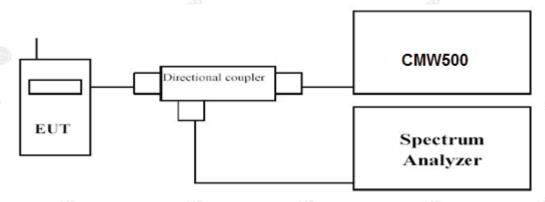
## 3.1 Output Power

## LIMIT

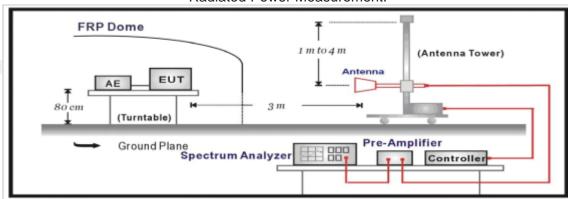
According to §27.50 (d) (4): Fixed, mobile, and portable (hand- held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

#### **TEST CONFIGURATION**

#### **Conducted Power Measurement**



#### Radiated Power Measurement:



## **TEST PROCEDURE**

The EUT was setup according to EIA/TIA 603D

#### **Conducted Power Measurement:**

- a) 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.
- c) EUT Communicate with CMW500, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.

#### **Radiated Power 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 thefrequency 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.
- I. 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.
- 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.
- g. Test site anechoic chamber refer to ANSI C63.4.

#### **TEST RESULTS**

#### **Conducted Measurement:**

	LT	E FDD Band 66	AKTEST	a)G
TX Channel Frequency		RB Size/Offset	Average Po	
Bandwidth	(MHz)	NB Size/Offset	QPSK	16QAM
	PANT.	1 RB low	23.52	22.09
	1710.7	1 RB high	23.25	22.09
-1G1	WE WITH 10.7	50% RB mid	23.31	22.16
TESTINE	SI	100% RB	22.26	21.43
JAIL HOL	HUPA	1 RB low	23.45	22.47
1.4 MHz	1745	1 RB high	23.43	22.50
	1745	50% RB mid	23.40	22.15
		100% RB	23.67	22.30
STING	TSTING TSTING	1 RB low	23.26	22.43
A AN	1770.2	1 RB high	23.38	22.40
(a)	1779.3	50% RB mid	23.45	22.38
G.	16	100% RB	23.54	22.35
	TESTING	1 RB low	22.39	21.47
ESTAV	1711.5	1 RB high	22.40	21.29
HUAKIL	1711.5	50% RB mid	22.25	21.42
(III)	-6	100% RB	22.41	21.51
	TESTING	1 RB low	23.69	22.74
2 MU-	1745	1 RB high	23.42	22.60
3 MHz	1/45	50% RB mid	23.49	22.49
JAK TE HUAL	- HURK TE	100% RB	22.78	21.78
(6)	(a)	1 RB low	23.30	22.48
	1778.5	1 RB high	23.32	22.13
	1//8.5	50% RB mid	23.21	22.10
TING	DIN DIN	100% RB	22.52	21.42
ES.	TES	1 RB low	22.32	21.38
E MUT MAN	1710 F	1 RB high	22.32	21.38
5 MHz	1712.5	50% RB mid	22.24	21.17
NG	STNG	100% RB	22.23	21.58

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HUAK TESTI	NG			
	ESTING	1 RB low	23.65	22.60
	1745	1 RB high	23.62	22.39
CTING	1745	50% RB mid	23.39	22.43
AK TES		100% RB	22.61	21.77
	(D)	1 RB low	23.34	22.20
	4777 5	1 RB high	23.36	21.52
	1777.5	50% RB mid	23.21	21.30
, NG		100% RB	22.54	21.28
ESTI	EST	1 RB low	22.49	21.54
HUA.	4745.0	1 RB high	22.40	21.45
	1715.0	50% RB mid	22.37	21.42
G		100% RB	22.44	21.40
n/G	JAKTES	1 RB low	23.66	22.80
40 MH=	4745	1 RB high	23.45	22.75
10 MHz	1745	50% RB mid	23.18	22.38
		100% RB	22.66	21.59
	LAK TES	1 RB low	23.01	21.94
,nJG	1111G 1 HD	1 RB high	23.65	22.86
K TESTING	1775.0	50% RB mid	23.29	22.03
ALC:		100% RB	22.40	21.49
		1 RB low	23.00	22.42
	4747.5	1 RB high	22.46	22.45
	1717.5	50% RB mid	22.61	22.60
STING		100% RB	22.52	21.56
AL HIVAL	HUAR	1 RB low	23.61	22.79
45 MH-	4745	1 RB high	23.38	22.87
15 MHz	1745	50% RB mid	23.03	22.25
		100% RB	22.87	22.86
TESTING	HUAL	1 RB low	23.15	22.18
HUAK	4770 5	1 RB high	23.17	22.44
	1772.5	50% RB mid	23.18	22.27
		100% RB	22.25	22.17
	ING MILITARY	1 RB low	22.53	21.61
TESTING	4700.0	1 RB high	22.54	21.61
AK . HUA	1720.0	50% RB mid	22.75	21.83
		100% RB	22.53	21.58
		1 RB low	23.82	22.88
20 MH-	1745	1 RB high	23.81	23.06
20 MHz	1745	50% RB mid	23.26	22.44
MAKT		100% RB	22.86	21.93
		1 RB low	23.18	22.80
	4770.0	1 RB high	23.36	23.10
in the second	1770.0	50% RB mid	23.36	22.90
CING		100% RB	22.17	21.38

Remark:

Report No.: HK2110254033-9E

- We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 66; recorded worst case for each Channel Bandwidth of LTE FDD Band 66.
- 2.  $EIRP=P_{Mea}(dBm)-P_{cl}(dB)+P_{Ag}(dB)+G_a(dBi)$

LTE FDD Band 66\_Channel Bandwidth 1.4MHz\_QPSK

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.7	-16.26	3.06	9.68	34.80	25.16	30.00	4.84	V
1745	-16.56	3.17	9.68	34.80	24.75	30.00	5.25	V
1779.3	-16.87	3.22	9.75	34.80	24.46	30.00	5.54	V
1710.7	-16.46	3.06	9.68	34.80	24.96	30.00	5.04	STIME H
1745	-17.31	3.17	9.68	34.80	24	30.00	6	Н
1779.3	-17.73	3.22	9.75	34.80	23.6	30.00	6.4	Н

LTE FDD Band 66\_Channel Bandwidth 3MHz\_QPSK

	Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
	1711.5	-16.58	3.06	9.68	34.80	24.84	30.00	5.16	V
Ī	1745	-17.43	3.17	9.68	34.80	23.88	30.00	6.12	V
	1778.5	-17.05	3.22	9.75	34.80	24.28	30.00	5.72	VG
	1711.5	-17.06	3.06	9.68	34.80	24.36	30.00	5.64	LAKTESH
41/	1745	-17.3	3.17	9.68	34.80	24.01	30.00	5.99	Н
	1778.5	-17.79	3.22	9.75	34.80	23.54	30.00	6.46	Н

LTE FDD Band 66 Channel Bandwidth 5MHz QPSK

	aria co_cria	mor Banavi	attroiviriz_ \	21 011		17/71		-1114
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.5	-16.67	3.06	9.68	34.80	24.75	30.00	5.25	V
1745	-17.33	3.17	9.68	34.80	23.98	30.00	6.02	V D
1777.5	-17.76	3.22	9.75	34.80	23.57	30.00	6.43	AK TES V
1712.5	-16.66	3.06	9.68	34.80	24.76	30.00	5.24	Н
1745	-16.83	3.17	9.68	34.80	24.48	30.00	5.52	Н
1777.5	-18.09	3.22	9.75	34.80	23.24	30.00	6.76	Н

LTE FDD Band 66 Channel Bandwidth 10MHz QPSK

	ana co_ona	mior Bamam	aa	, w. O. t		. 750		. 7000
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-16.75	3.06	9.68	34.80	24.67	30.00	5.33	V
1745	-16.99	3.17	9.68	34.80	24.32	30.00	5.68	V V
1775.0	-16.95	3.22	9.75	34.80	24.38	30.00	5.62	V
1715.0	-16.99	3.06	9.68	34.80	24.43	30.00	5.57	Н
1745	-16.99	3.17	9.68	34.80	24.32	30.00	5.68	Н
1775.0	-17.74	3.22	9.75	34.80	23.59	30.00	6.41	H M

LTE FDD Band 66\_Channel Bandwidth 15MHz\_QPSK

<u> </u>	ATT 0 0 0 _ 0 TT 0.	miloi Banawi	<u>-</u>	~. · · ·		ATTIME MAY	District 1	
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-16.55	3.06	9.68	34.80	24.87	30.00	5.13	V
1745	-16.82	3.17	9.68	34.80	24.49	30.00	5.51	V TES V
1772.5	-17.07	3.22	9.75	34.80	24.26	30.00	5.74	V
1717.5	-16.57	3.06	9.68	34.80	24.85	30.00	5.15	Н
1745	-16.77	3.17	9.68	34.80	24.54	30.00	5.46	Н
1772.5	-17.94	3.22	9.75	34.80	23.39	30.00	6.61	TING H

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LTE FDD Band 66\_Channel Bandwidth 20MHz\_QPSK

	aria oo_oriai	IIIOI Ballavi	atti Zoivii iZ_	Q1 O1		160'		
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-16.07	3.06	9.68	34.80	25.35	30.00	4.65	V
1745	-17.31	3.17	9.68	34.80	24	30.00	6	V
1770.0	-17.06	3.22	9.75	34.80	24.27	30.00	5.73	V
1720.0	-16.97	3.06	9.68	34.80	24.45	30.00	5.55	HG
1745	-17.65	3.17	9.68	34.80	23.66	30.00	6.34	TESH .
1770.0	-17.27	3.22	9.75	34.80	24.06	30.00	5.94	H H

LTE FDD Band 66\_Channel Bandwidth 1.4MHz\_16QAM

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.7	-16.3	3.06	9.68	34.80	25.12	30.00	4.88	V
1745	-17.45	3.17	9.68	34.80	23.86	30.00	6.14	V
1779.3	-17.39	3.22	9.75	34.80	23.94	30.00	6.06	V M
1710.7	-17.14	3.06	9.68	34.80	24.28	30.00	5.72	AKTEST H
1745	-17.46	3.17	9.68	34.80	23.85	30.00	6.15	Н
1779.3	-17.93	3.22	9.75	34.80	23.4	30.00	6.6	Н

LTE FDD Band 66\_Channel Bandwidth 3MHz\_16QAM

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.5	-16.15	3.06	9.68	34.80	25.27	30.00	4.73	V
1745	-16.58	3.17	9.68	34.80	24.73	30.00	5.27	V
1778.5	-16.95	3.22	9.75	34.80	24.38	30.00	5.62	TING V
1711.5	-16.84	3.06	9.68	34.80	24.58	30.00	5.42	Н
1745	-16.92	3.17	9.68	34.80	24.39	30.00	5.61	Н
1778.5	-17.48	3.22	9.75	34.80	23.85	30.00	6.15	Н

LTE FDD Band 66 Channel Bandwidth 5MHz 16QAM

	LILIDDD	arra co_cria	mor Banawi	attroiviriz_r	0 47 1171	,		-CTIII-	700.
100	Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
	1712.5	-16.62	3.06	9.68	34.80	24.8	30.00	5.2	V
	1745	-17.09	3.17	9.68	34.80	24.22	30.00	5.78	V
	1777.5	-17.17	3.22	9.75	34.80	24.16	30.00	5.84	TESV
11,	1712.5	-16.92	3.06	9.68	34.80	24.5	30.00	5.5	All H
	1745	-16.92	3.17	9.68	34.80	24.39	30.00	5.61	Н
	1777.5	-17.78	3.22	9.75	34.80	23.55	30.00	6.45	Н

LIE FDD B	and 66_Cha	nnel Bandwi	ath 10MHz_	_16QAM		9	w.T	
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-16.92	3.06	9.68	34.80	24.5	30.00	5.5	V MH
1745	-17.23	3.17	9.68	34.80	24.08	30.00	5.92	KTES V
1775.0	-17.55	3.22	9.75	34.80	23.78	30.00	6.22	V
1715.0	-16.45	3.06	9.68	34.80	24.97	30.00	5.03	Н
1745	-17.28	3.17	9.68	34.80	24.03	30.00	5.97	Н
1775.0	-17.46	3.22	9.75	34.80	23.87	30.00	6.13	Н



LTE FDD Band 66\_Channel Bandwidth 15MHz\_16QAM

	arra oo_orra							
Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-17.03	3.06	9.68	34.80	24.39	30.00	5.61	V
1745	-17.39	3.17	9.68	34.80	23.92	30.00	6.08	V
1772.5	-17.68	3.22	9.75	34.80	23.65	30.00	6.35	V
1717.5	-17.06	3.06	9.68	34.80	24.36	30.00	5.64	TESH
1745	-16.93	3.17	9.68	34.80	24.38	30.00	5.62	AUAIC H
1772.5	-17.32	3.22	9.75	34.80	24.01	30.00	5.99	Н

LTE FDD Band 66\_Channel Bandwidth 20MHz\_16QAM

Frequency (MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)	G <sub>a</sub> Antenna Gain(dB)	P <sub>Ag</sub> (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-16.17	3.06	9.68	34.80	25.25	30.00	4.75	V
1745	-16.82	3.17	9.68	34.80	24.49	30.00	5.51	V m
1770.0	-16.82	3.22	9.75	34.80	24.51	30.00	5.49	W.TESTAV
1720.0	-16.29	3.06	9.68	34.80	25.13	30.00	4.87	Н
1745	-16.85	3.17	9.68	34.80	24.46	30.00	5.54	Н
1770.0	-18.05	3.22	9.75	34.80	23.28	30.00	6.72	Н

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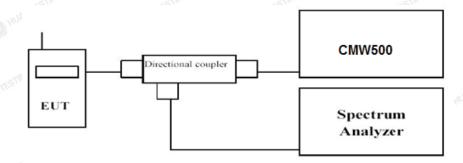
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1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

## 3.3 Peak-to-Average Ratio (PAR)

#### LIMIT

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

## **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- Set resolution/measurement bandwidth ≥ 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**

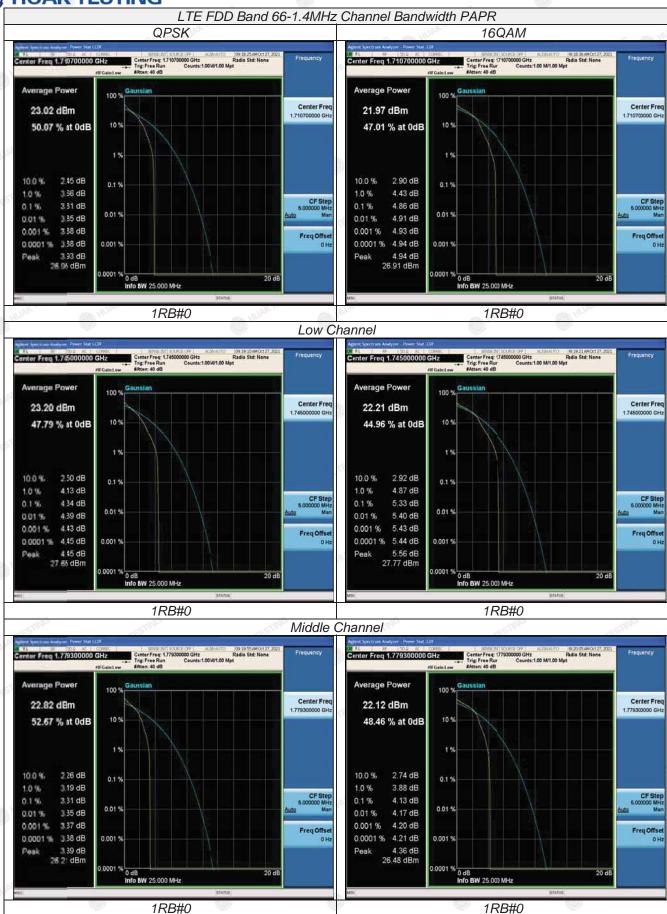
#### Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 66; recorded worst case for each Channel Bandwidth of LTE FDD Band 66.

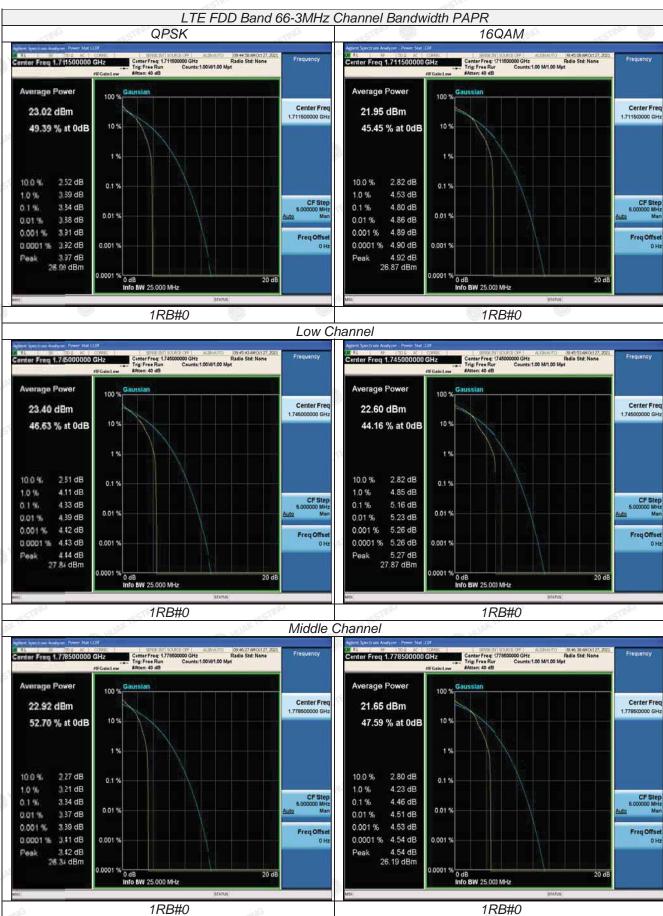
G	.16	LTE FDD Band 66	.,(2	
TX Channel	Frequency	RB Size/Offset	PAF	PR (dB)
Bandwidth	(MHz)	RB Size/Offset	QPSK	16QAM
	1710.7	-	3.81	4.86
1.4 MHz	1745	√ 1RB#0	4.34	5.33
91,	1779.3	. Ola	3.31	4.13
V TESTIN	1711.5	V TESTING	3.84	4.80
3 MHz	1745	1RB#0	4.33	5.16
	1778.5		3.34	4.46
	1712.5	. 60	3.89	4.77
5 MHz	1745	1RB#0	4.33	5.23
TESTINE	1777.5	TESTINE ON TESTI	3.33	4.07
HI AIL	1715.0	Abov.	3.80	4.69
10 MHz	1745	1RB#0	4.28	5.21
	1775.0		3.78	4.89
	1717.5		3.93	4.64
15 MHz	1745	1RB#0	4.41	5.22
IK TEE	1772.5	THE	4.09	5.03
	1720.0	(a)	3.78	4.65
20 MHz	1745	1RB#0	4.35	5.16
TIME	1770.0	Vin	4.26	5.04

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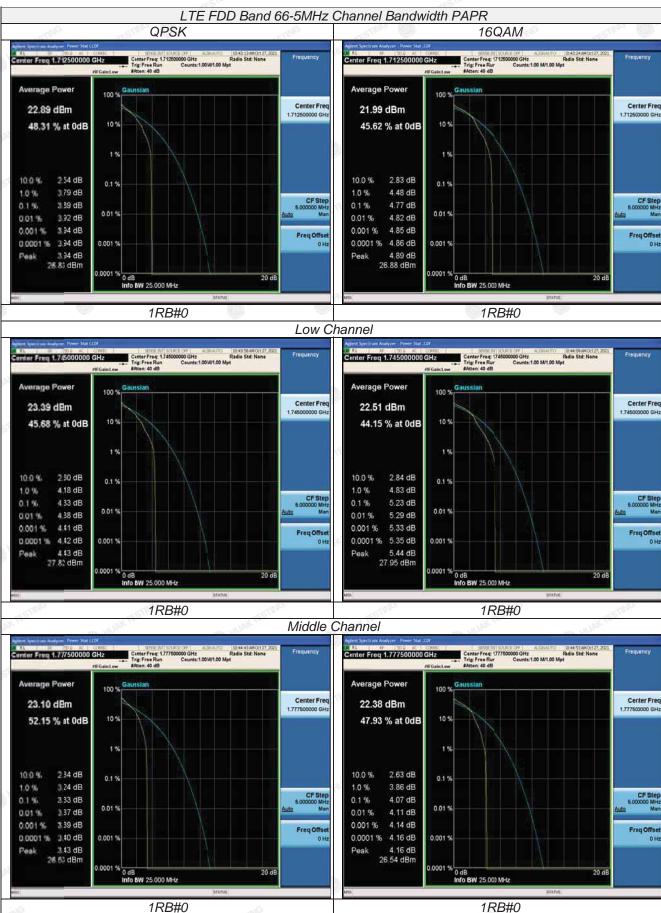
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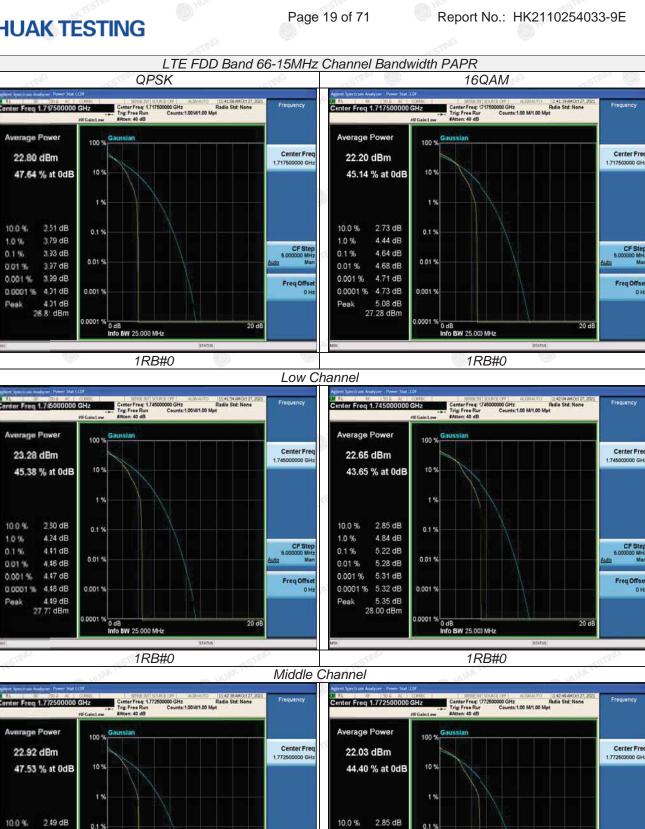
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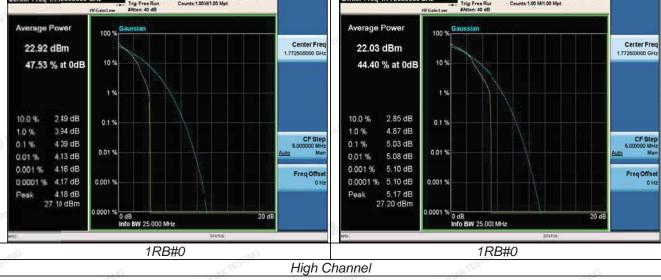


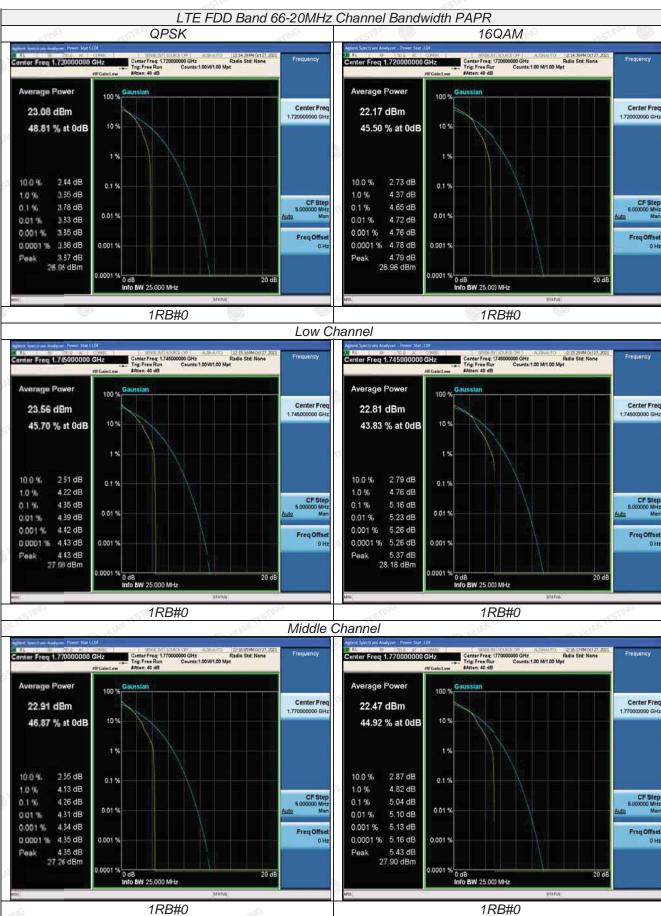
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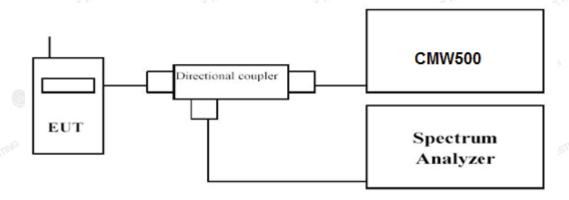


## 3.4 Occupied Bandwidth and Emission Bandwidth

#### LIMIT

N/A

#### **TEST CONFIGURATION**



## **TEST PROCEDURE**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and recorded. Set RBW was set to about 1% of emission BW, VBW≥3 times RBW.

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

## **TEST RESULTS**

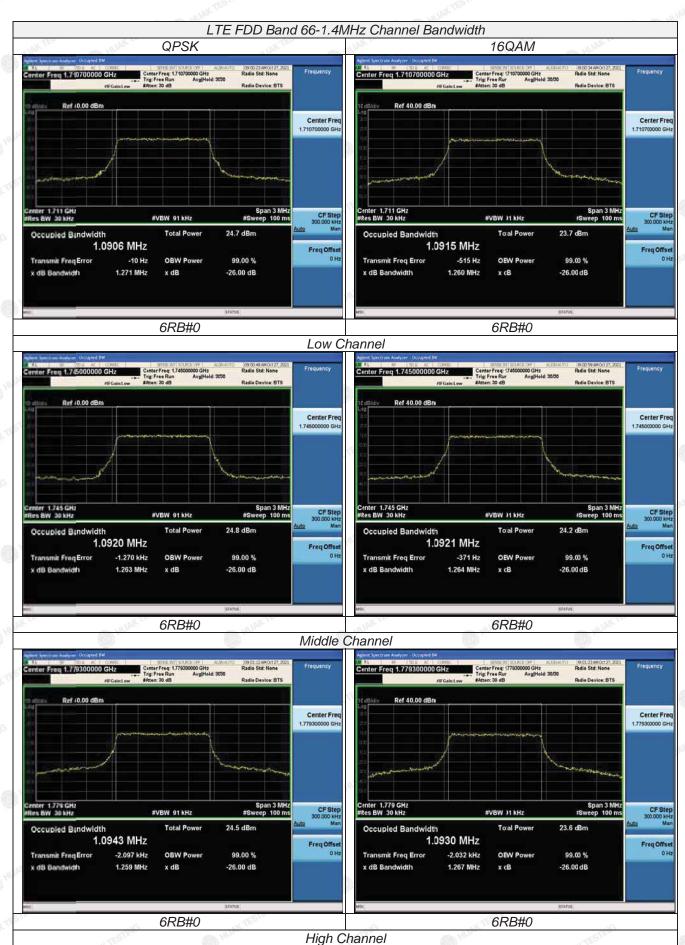
Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 66; recorded worst case for each Channel Bandwidth of LTE FDD Band 66.

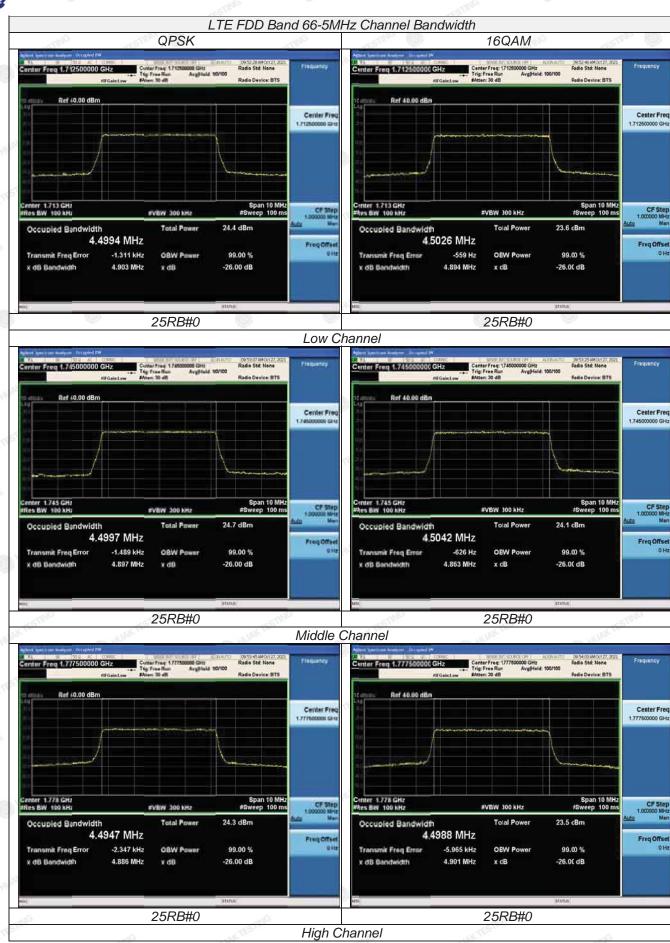
		LTE FDD	Band 66				
TX Channel	RB Size/Offset	Frequency		Emission hth (MHz)	99% Occupied bandwidth (MHz)		
Bandwidth		(MHz)	QPSK	16QAM	QPSK	16QAM	
		1710.7	1.271	1.260	1.0906	1.0915	
1.4 MHz	6RB#0	5 1745	1.263	1.264	1.0920	1.0921	
Sim	Y TEST	1779.3	1.259	1.267	1.0943	1.0930	
	TESTING	1711.5	2.906	2.899	2.6953	2.6919	
3 MHz	15RB#0	1745	2.902	2.925	2.6961	2.6884	
(3)	-a/G	1778.5	2.937	2.908	2.6962	2.6938	
	Y TEST	1712.5	4.903	4.894	4.4994	4.5026	
5 MHz	25RB#0	1745	4.897	4.863	4.4997	4.5042	
TESTING	W.TESTILL	1777.5	4.886	4.901	4.4947	4.4988	
HUAR	HOLE	1715.0	9.554	9.546	8.9555	8.9465	
10 MHz	50RB#0	1745	9.559	9.524	8.9626	8.9529	
		1775.0	9.533	9.516	8.9493	8.9539	
		1717.5	14.31	14.28	13.447	13.423	
15 MHz	75RB#0	1745	14.25	14.25	13.435	13.424	
AK TES	MAKTES	1772.5	14.29	14.25	13.406	13.417	
		1720.0	18.93	18.94	17.902	17.896	
20 MHz	100RB#0	1745	18.95	18.93	17.887	17.871	
STING	TEST	1770.0	18.97	18.94	17.869	17.881	
	100		1016	10%		3016	

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High Channel

50RB#0

50RB#0



NG



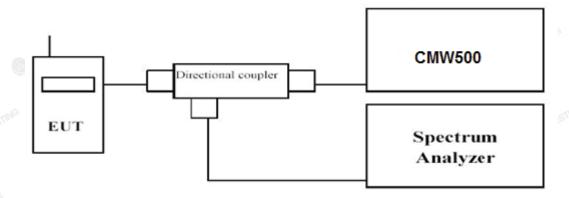
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## 3.5 Band Edge compliance

## LIMIT

According to §27.53 (h): For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

## **TEST CONFIGURATION**



## **TEST PROCEDURE**

- 1. The transmitter output port was connected to base station.
- 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

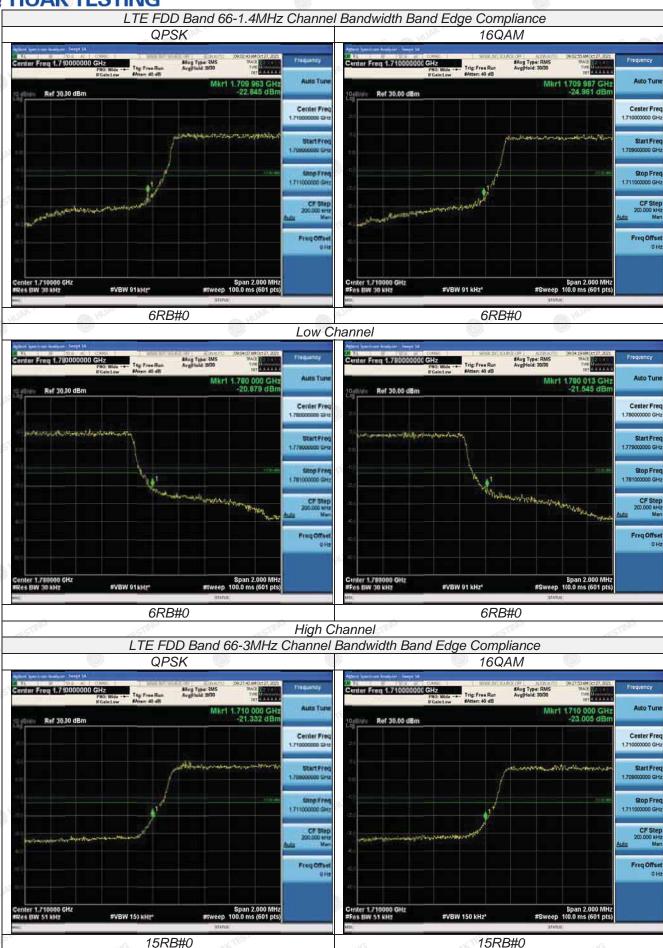
#### **TEST RESULTS**

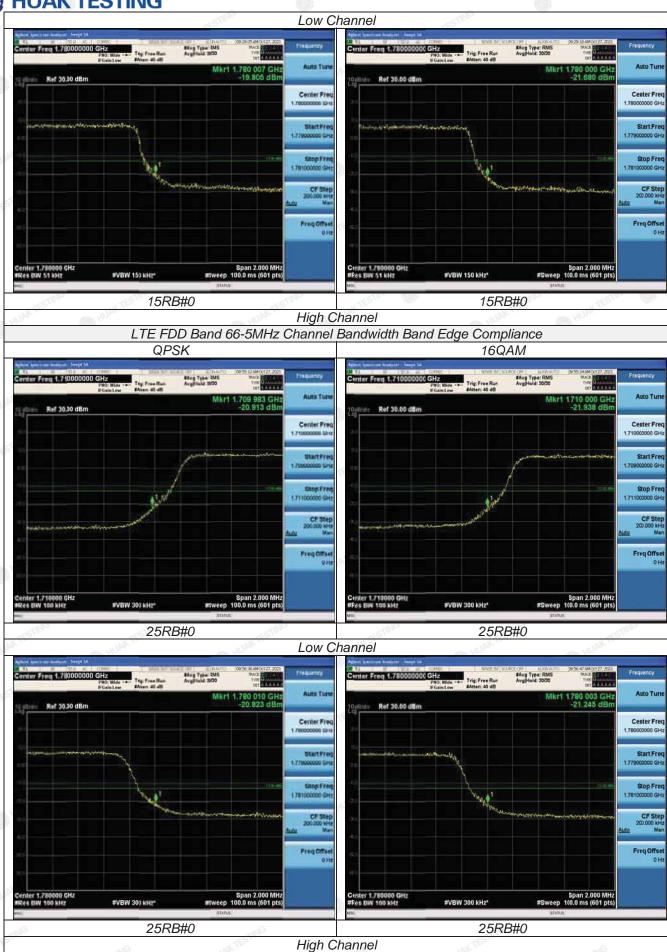
#### Remark:

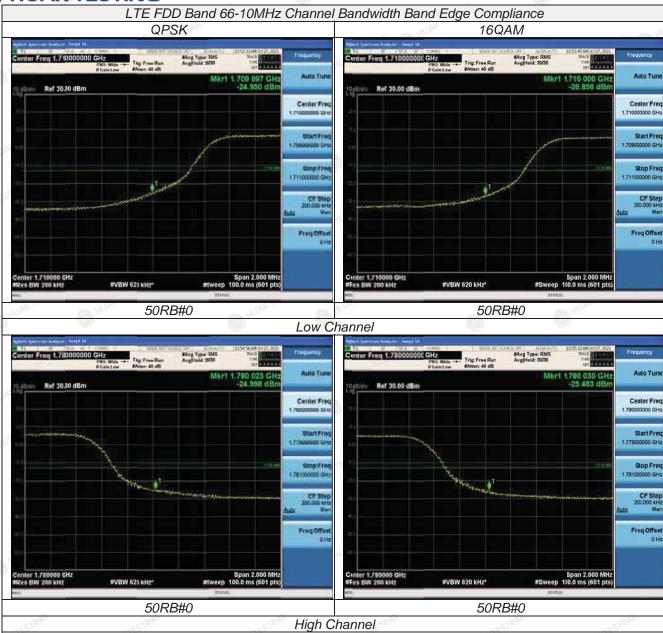
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 66; recorded worst case for each Channel Bandwidth of LTE FDD Band 66.

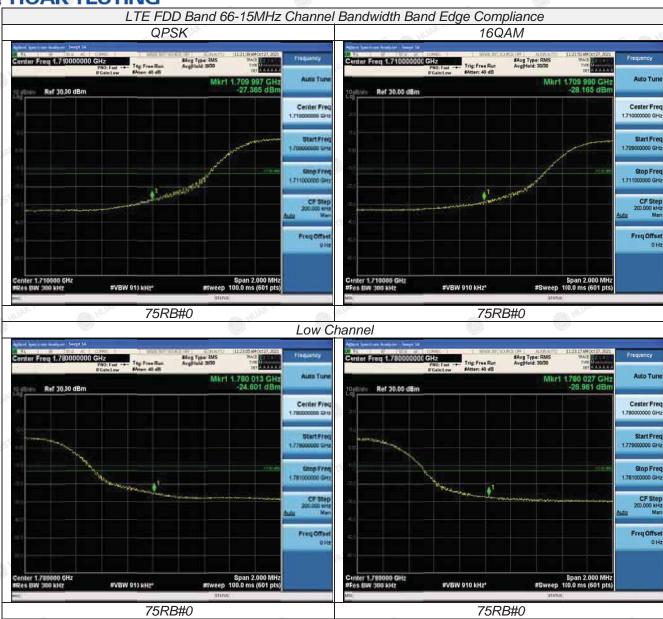
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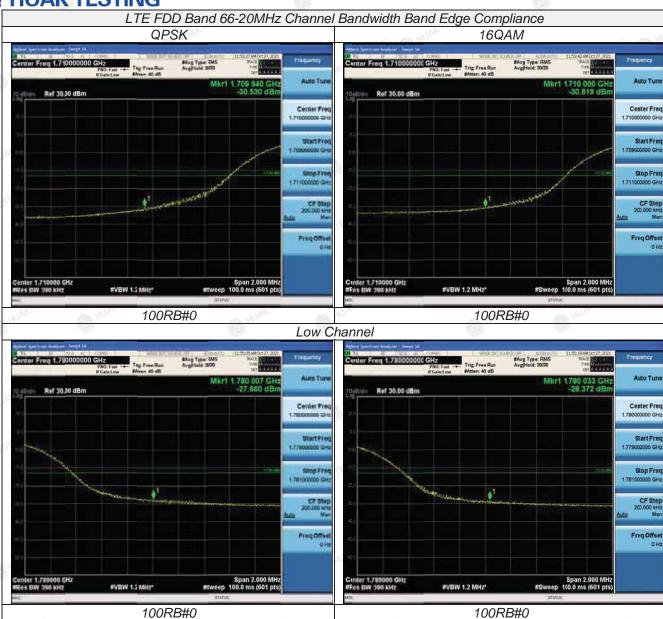








High Channel



High Channel



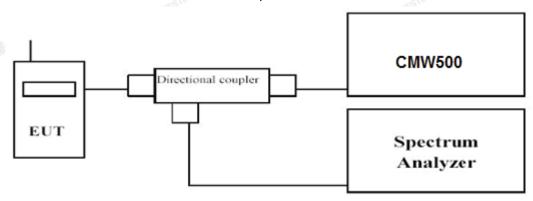
## 3.6 Spurious Emission

## LIMIT

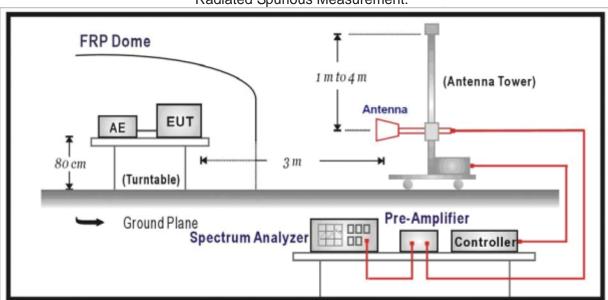
According to §27.53 (h): For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

## **TEST CONFIGURATION**

## Conducted Spurious Measurement:



## Radiated Spurious Measurement:



## **TEST PROCEDURE**

The EUT was setup according to EIA/TIA 603D

#### **Conducted Spurious Measurement:**

- a. 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.
- c. EUT Communicate with CMW500, then select a channel for testing.
- d. Add a correction factor to the display of spectrum, and then test.
- e. The resolution bandwidth of the spectrum analyzer was set sufficient scans were taken to show the out of band Emission if any up to10<sup>th</sup> harmonic.

f. Please refer to following tables for test antenna conducted emissions.

Working Frequency	Sub range (GHz)	RBW	VBW	Sweep time (s)
LTE FDD Band 66	0.000009~0.000015	1KHz	3KHz	Auto
	0.000015~0.03	10KHz	30KHz	Auto
	0.03~26.5	1 MHz	3 MHz	Auto

#### **Radiated Spurious 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.
- 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.
- I. 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.
- 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 66; recorded worst case for each Channel Bandwidth of LTE FDD Band 66.

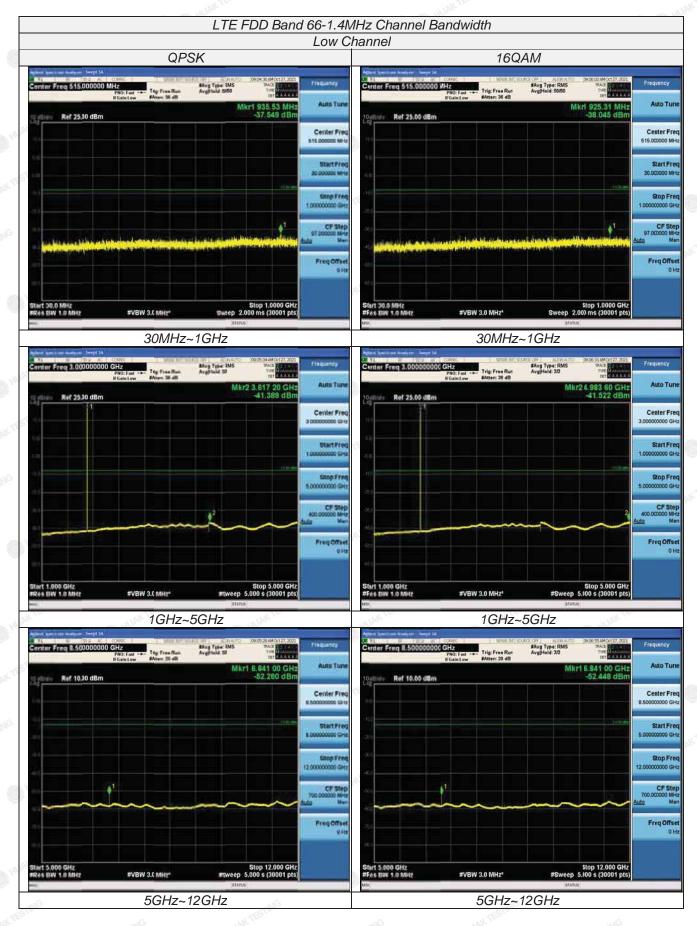
#### Conducted Measurement:

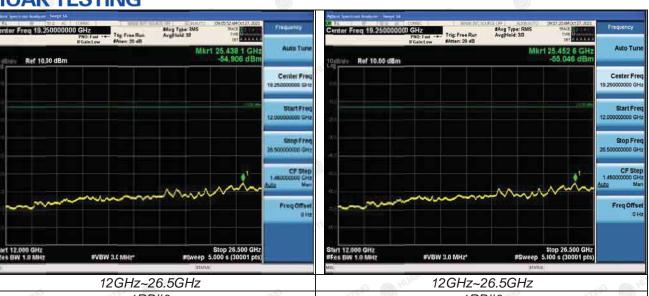
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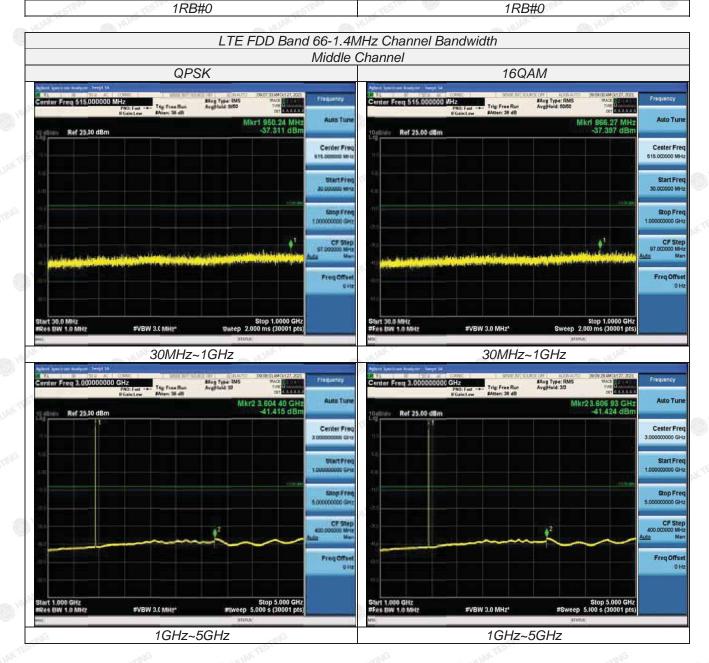
HUAK Testing Lab TEL: +86-755 2302 9901 FAX: +86-755 2302 9901 E-mail: service@cer-mark.com

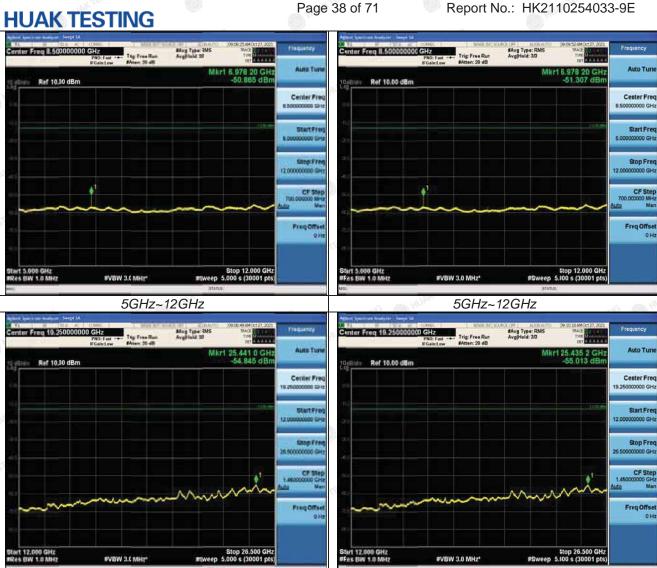


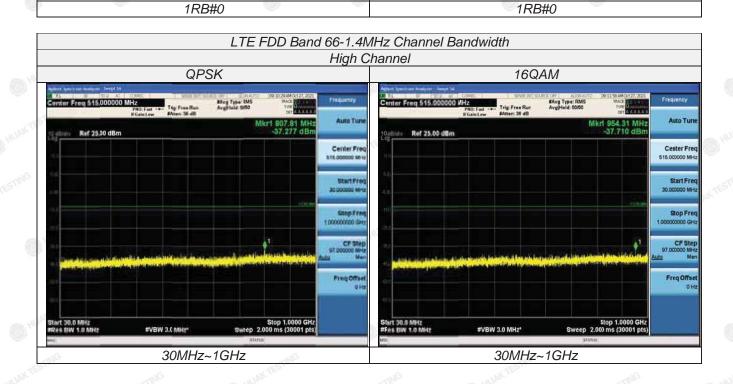








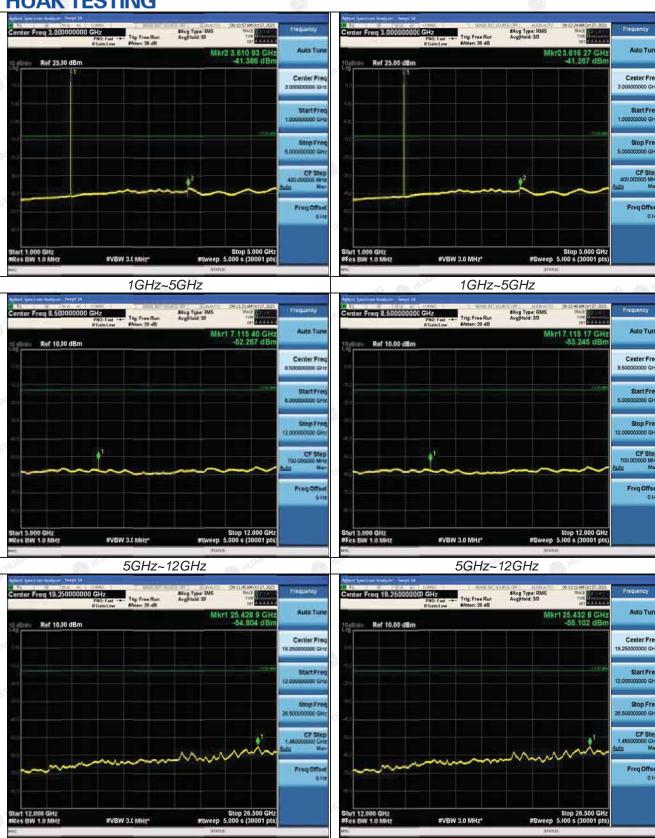




12GHz~26.5GHz

12GHz~26.5GHz

1RB#0



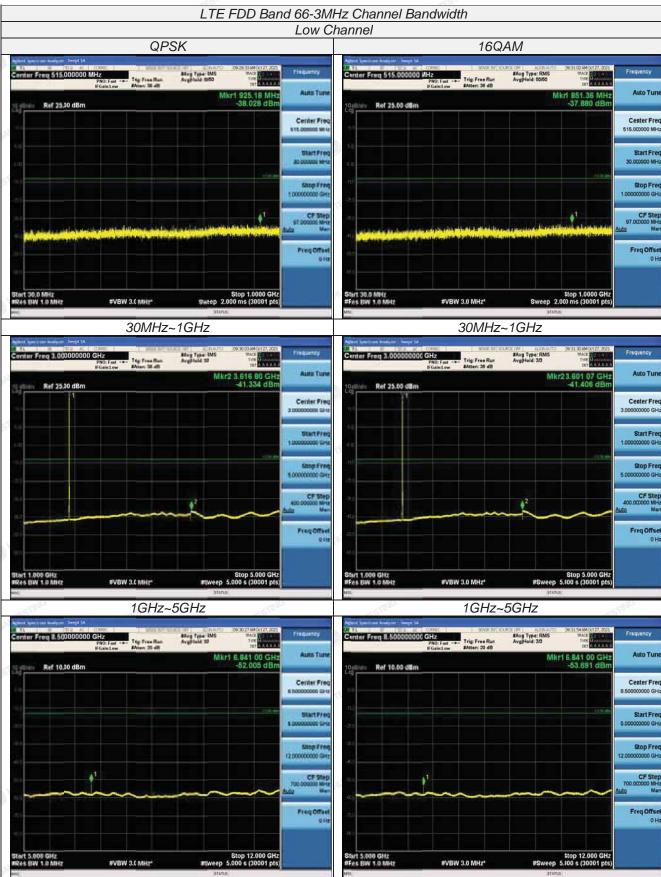
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12GHz~26.5GHz

1RB#0

12GHz~26.5GHz

1RB#0

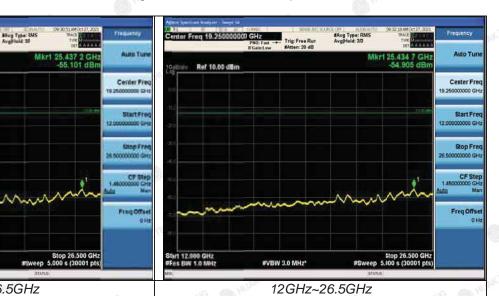


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5GHz~12GHz

5GHz~12GHz

art 12,000 GHz tes EW 1.0 MHz



Report No.: HK2110254033-9E

