Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road,

Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

FCC PART 27 TEST REPORT

FCC Part 27

Report Reference No……..:	**GTS20191207005-1-1-7**
FCC ID.....	**2AURVDIGICELDL3PLUS**
Compiled by (position+printed name+signature)..	File administrators Jimmy Wang
Supervised by (position+printed name+signature)..	Test Engineer Aaron Tan
Approved by (position+printed name+signature)..	Manager Jason Hu
Date of issue.....	Dec.10, 2019

Testing Laboratory Name	**Shenzhen Global Test Service Co.,Ltd.**
Address.....	No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong
Applicant's name.....	**BOPEL MOBILE TECHNOLOGY CO., LIMITED**
Address.....	Room A205, 2nd Floor, R2-B Building, Hi-tech Industrial Park , Gaoxin south 7 road, Nanshan District, Shenzhen, China

Test specification	
Standard	**FCC CFR Title 47 Part 2, Part 27** **ASNI/TIA-603-E-2016** **KDB 971168 D01**

Test item description	Smart Phone
Trade Mark	Digicel
Manufacturer.....	**BOPEL MOBILE TECHNOLOGY CO., LIMITED**
Model/Type reference.....	DL3Plus
Listed Models	N/A
Modulation Type	QPSK, 16QAM
LTE Band 4.....	1710-1755MHz
ANT Gain	2.70dBi
Rating	DC 3.8V From Battery and DC 5V from USB
Hardware version	J517C_63_32EMB_D3EFV1.1
Software version	Digicel_DL3_V4.0_11222019
Result......:	**PASS**

T E S T R E P O R T

Test Report No. :	GTS20191207005-1-1-7	Dec.10,2019 Date of issue

Equipment under Test	:	Smart Phone
Model /Type	:	DL3Plus
Listed Models	:	N/A
Applicant	:	**BOPEL MOBILE TECHNOLOGY CO., LIMITED**
Address	:	Room A205, 2nd Floor, R2-B Building, Hi-tech Industrial Park , Gaoxin south 7 road, Nanshan District, Shenzhen, China
Manufacturer	:	**BOPEL MOBILE TECHNOLOGY CO., LIMITED**
Address	:	Room A205, 2nd Floor, R2-B Building, Hi-tech Industrial Park , Gaoxin south 7 road, Nanshan District, Shenzhen, China

Test result	Pass *

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

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1 SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:
FCC Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
ANSI/TIA-603-E-2016: 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
ANSI C63.26-2015: IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

1.2 Test Description

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

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.
No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

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 Global Test Service 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 Global Test Service 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 General Remarks

Date of receipt of test sample	:	Nov.25, 2019
Testing commenced on	:	Nov.25, 2019
Testing concluded on	:	Dec.10, 2019

2.2 Environmental conditions

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

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

2.3 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.

2.4 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.08	2019/09/20	2020/09/19
LISN	R&S	ESH2-Z5	893606/008	2019/09/20	2020/09/19
EMI Test Receiver	R&S	ESPI3	101841-cd	2019/09/20	2020/09/19
EMI Test Receiver	R&S	ESCI7	101102	2019/09/20	2020/09/19
Spectrum Analyzer	Agilent	N9020A	MY48010425	2019/09/20	2020/09/19
Spectrum Analyzer	R&S	FSV40	100019	2019/09/20	2020/09/19
Vector Signal generator	Agilent	N5181A	MY49060502	2019/09/20	2020/09/19
Signal generator	Agilent	E4421B	3610AO1069	2019/09/20	2020/09/19
Climate Chamber	ESPEC	EL-10KA	A20120523	2019/09/20	2020/09/19
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2019/09/23	2020/09/22
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2019/10/12	2020/10/11
Bilog Antenna	Schwarzbeck	VULB9163	000976	2019/05/26	2020/05/25
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2019/09/20	2020/09/19
Amplifier	Schwarzbeck	BBV 9743	#202	2019/09/20	2020/09/19
Amplifier	Schwarzbeck	BBV9179	9719-025	2019/09/20	2020/09/19
Amplifier	EMCI	EMC051845B	980355	2019/09/20	2020/09/19
Temperature/Humidity Meter	Gangxing	CTH-608	02	2019/09/20	2020/09/19
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2019/09/20	2020/09/19
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2019/09/20	2020/09/19
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2019/09/20	2020/09/19
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2019/09/20	2020/09/19
Data acquisition card	Agilent	U2531A	TW53323507	2019/09/20	2020/09/19
Power Sensor	Agilent	U2021XA	MY5365004	2019/09/20	2020/09/19
Test Control Unit	Tonscend	JS0806-1	178060067	2019/06/20	2020/06/19
Automated filter bank	Tonscend	JS0806-F	19F8060177	2019/06/20	2020/06/19
Universal Radio Communication	R&S	CMU200	114353	2019/09/20	2020/09/19
Wireless Commnunication Tester	R&S	CMW500	125408	2019/09/20	2020/09/19
EMI Test Software	Tonscend	JS1120-1	Ver 2.6.8.0518	/	/
EMI Test Software	Tonscend	JS1120-3	Ver 2.5.77.0418	/	/
EMI Test Software	Tonscend	JS32-CE	Ver 2.5	/	/
EMI Test Software	Tonscend	JS32-RE	Ver 2.5.1.8	/	/

2.5 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AURVDIGICELDL3PLUS filing to comply with of the FCC Part 24 Rules.

2.6 Modifications

No modifications were implemented to meet testing criteria.

3 TEST CONDITIONS AND RESULTS

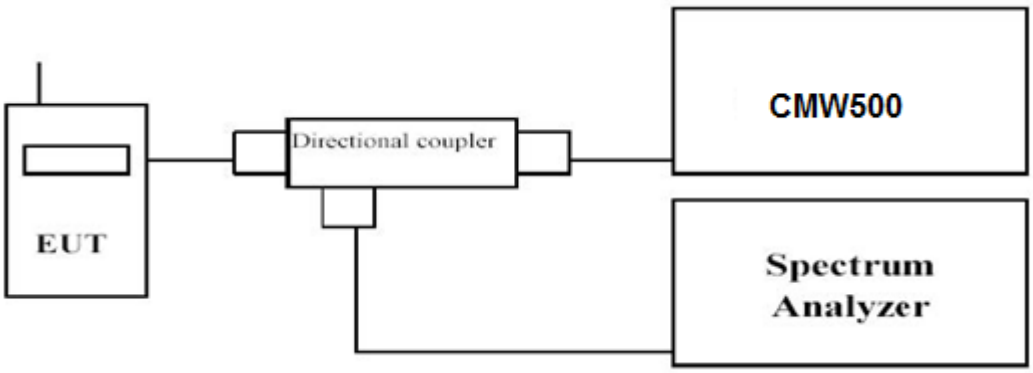
3.1 Output Power

LIMIT

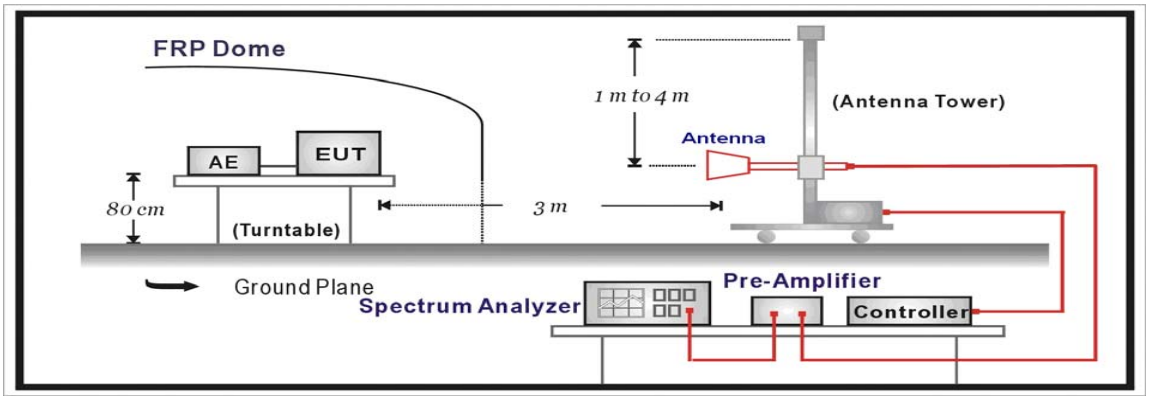
According to §27.50 (d) (4): Fixed, mobile, and portable (hand- held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

TEST CONFIGURATION

Conducted Power Measurement



Radiated Power Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Power Measurement:

a) Place the EUT on a bench and set it in transmitting mode.
b) 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.
l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
q. Test site anechoic chamber refer to ANSI C63.4.

TEST RESULTS

Conducted Measurement:

LTE FDD Band 4				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	Average Power [dBm]	
			QPSK	16QAM
1.4 MHz	1710.7	1 RB low	23.24	22.11
		1 RB Mid	23.13	22.00
		1 RB high	23.46	22.37
		50% RB Low	23.34	22.25
		50% RB mid	23.26	22.15
		50% RB high	23.41	22.30
		100% RB	22.36	21.18
	1732.5	1 RB low	23.16	22.24
		1 RB Mid	23.38	21.68
		1 RB high	23.33	22.39
		50% RB Low	23.58	22.26
		50% RB mid	23.35	22.24
		50% RB high	23.05	22.02
		100% RB	22.23	21.11
	1754.3	1 RB low	23.22	21.82
		1 RB Mid	22.85	22.10
		1 RB high	23.19	22.06
		50% RB Low	23.27	22.03
		50% RB mid	23.37	22.18
		50% RB high	22.97	21.86
		100% RB	22.21	21.16
3 MHz	1711.5	1 RB low	23.27	21.95
		1 RB Mid	22.92	21.86
		1 RB high	23.18	22.15
		50% RB Low	21.90	20.97
		50% RB mid	21.76	20.99
		50% RB high	21.90	20.98
		100% RB	21.11	20.21
	1732.5	1 RB low	23.10	21.80
		1 RB Mid	23.37	22.35
		1 RB high	23.00	21.65
		50% RB Low	22.33	21.50
		50% RB mid	22.55	21.61
		50% RB high	22.20	21.27
		100% RB	21.19	20.12
	1753.5	1 RB low	22.70	21.94

		1 RB Mid	22.49	21.69
		1 RB high	23.00	21.87
		50% RB Low	21.64	20.75
		50% RB mid	21.97	21.04
		50% RB high	21.54	20.54
		100% RB	21.00	20.32
5 MHz	1712.5	1 RB low	23.01	22.12
		1 RB Mid	23.03	22.20
		1 RB high	23.12	22.40
		50% RB Low	21.97	21.14
		50% RB mid	21.98	21.06
		50% RB high	22.14	21.21
		100% RB	21.04	20.01
	1732.5	1 RB low	22.81	21.52
		1 RB Mid	22.89	22.27
		1 RB high	22.91	21.44
		50% RB Low	21.93	21.00
		50% RB mid	21.92	20.99
		50% RB high	21.80	20.88
		100% RB	21.04	20.27
	1752.5	1 RB low	23.01	22.22
		1 RB Mid	22.84	21.87
		1 RB high	23.26	22.04
		50% RB Low	21.89	20.98
		50% RB mid	22.14	21.22
		50% RB high	21.91	20.98
		100% RB	21.11	20.49
10 MHz	1715.0	1 RB low	22.78	21.98
		1 RB Mid	22.79	21.97
		1 RB high	22.97	22.18
		50% RB Low	21.95	21.01
		50% RB mid	21.88	20.95
		50% RB high	22.02	21.12
		100% RB	20.93	20.04
	1732.5	1 RB low	22.45	21.65
		1 RB Mid	22.79	21.92
		1 RB high	22.43	21.56
		50% RB Low	21.77	20.87
		50% RB mid	21.77	20.85
		50% RB high	21.41	20.50
		100% RB	21.01	20.16
	1750	1 RB low	22.49	21.54
		1 RB Mid	22.43	21.44
		1 RB high	22.70	21.82
		50% RB Low	21.46	20.54
		50% RB mid	21.69	20.76
		50% RB high	21.40	20.48
		100% RB	21.09	20.43
15 MHz	1717.5	1 RB low	23.18	21.71
		1 RB Mid	23.26	21.66
		1 RB high	23.49	21.79
		50% RB Low	22.57	21.67
		50% RB mid	22.67	21.78
		50% RB high	22.64	21.76
		100% RB	21.74	20.72
	1732.5	1 RB low	23.05	22.34
		1 RB Mid	23.25	22.49
		1 RB high	22.87	22.07
		50% RB Low	22.57	21.60
		50% RB mid	22.40	21.53
		50% RB high	21.94	21.01
		100% RB	21.39	20.32

	1747.5	1 RB low	23.04	22.20
		1 RB Mid	22.94	22.05
		1 RB high	23.07	22.02
		50% RB Low	21.56	20.63
		50% RB mid	21.90	20.96
		50% RB high	21.67	20.75
		100% RB	20.88	20.02
20 MHz	1720.0	1 RB low	22.91	22.11
		1 RB Mid	23.20	22.45
		1 RB high	22.99	22.18
		50% RB Low	22.21	21.31
		50% RB mid	22.13	21.19
		50% RB high	22.33	21.44
		100% RB	21.45	20.32
	1732.5	1 RB low	22.80	21.89
		1 RB Mid	23.16	22.15
		1 RB high	22.46	21.42
		50% RB Low	22.13	21.16
		50% RB mid	22.09	21.20
		50% RB high	21.61	20.69
		100% RB	21.41	20.43
	1745.0	1 RB low	22.61	21.70
		1 RB Mid	22.83	21.71
		1 RB high	22.84	21.87
		50% RB Low	21.72	20.82
		50% RB mid	21.98	21.03
		50% RB high	21.58	20.67
		100% RB	20.86	20.04

Radiated Measurement:

Remark:

1. *We were tested all RB Configuration for the model DL3 the Mode 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 at the* H Polarization
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	-22.25	3.06	9.68	34.8	19.17	33.01	13.84	H
1732.5	-22.68	3.17	9.68	34.8	18.63	33.01	14.38	H
1754.3	-21.67	3.22	9.75	34.8	19.66	33.01	13.35	H

LTE FDD Band 4_Channel Bandwidth 3MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.5	-22.19	3.06	9.68	34.8	19.23	33.01	13.78	H
1732.5	-22.54	3.17	9.68	34.8	18.77	33.01	14.24	H
1753.5	-21.73	3.22	9.75	34.8	19.6	33.01	13.41	H

LTE FDD Band 4_Channel Bandwidth 5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.5	-22.35	3.06	9.68	34.8	19.07	33.01	13.94	H
1732.5	-22.62	3.17	9.68	34.8	18.69	33.01	14.32	H
1752.5	-21.69	3.22	9.75	34.8	19.64	33.01	13.37	H

LTE FDD Band 4_Channel Bandwidth 10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-22.16	3.06	9.68	34.8	19.26	33.01	13.75	H
1732.5	-22.35	3.17	9.68	34.8	18.96	33.01	14.05	H
1750.0	-21.25	3.22	9.75	34.8	20.08	33.01	12.93	H

LTE FDD Band 4_Channel Bandwidth 15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-22.35	3.06	9.68	34.8	19.07	33.01	13.94	H
1732.5	-22.46	3.17	9.68	34.8	18.85	33.01	14.16	H
1747.5	-21.37	3.22	9.75	34.8	19.96	33.01	13.05	H

LTE FDD Band 4_Channel Bandwidth 20MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-22.43	3.06	9.68	34.8	18.99	33.01	14.02	H
1732.5	-22.57	3.17	9.68	34.8	18.74	33.01	14.27	H
1745.0	-21.63	3.22	9.75	34.8	19.7	33.01	13.31	H

LTE FDD Band 4_Channel Bandwidth 1.4MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1710.7	-22.57	3.06	9.68	34.8	18.85	33.01	14.16	H
1732.5	-22.63	3.17	9.68	34.8	18.68	33.01	14.33	H
1754.3	-21.49	3.22	9.75	34.8	19.84	33.01	13.17	H

LTE FDD Band 4_Channel Bandwidth 3MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1711.5	-22.62	3.06	9.68	34.8	18.8	33.01	14.21	H
1732.5	-22.75	3.17	9.68	34.8	18.56	33.01	14.45	H
1753.5	-22.35	3.22	9.75	34.8	18.98	33.01	14.03	H

LTE FDD Band 4_Channel Bandwidth 5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1712.5	-22.85	3.06	9.68	34.8	18.57	33.01	14.44	H
1732.5	-22.91	3.17	9.68	34.8	18.4	33.01	14.61	H
1752.5	-22.65	3.22	9.75	34.8	18.68	33.01	14.33	H

LTE FDD Band 4_Channel Bandwidth 10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1715.0	-22.75	3.06	9.68	34.8	18.67	33.01	14.34	H
1732.5	-22.85	3.17	9.68	34.8	18.46	33.01	14.55	H
1750.0	-22.69	3.22	9.75	34.8	18.64	33.01	14.37	H

LTE FDD Band 4_Channel Bandwidth 15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1717.5	-21.68	3.06	9.68	34.8	19.74	33.01	13.27	H
1732.5	-21.62	3.17	9.68	34.8	19.69	33.01	13.32	H
1747.5	-21.73	3.22	9.75	34.8	19.6	33.01	13.41	H

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM

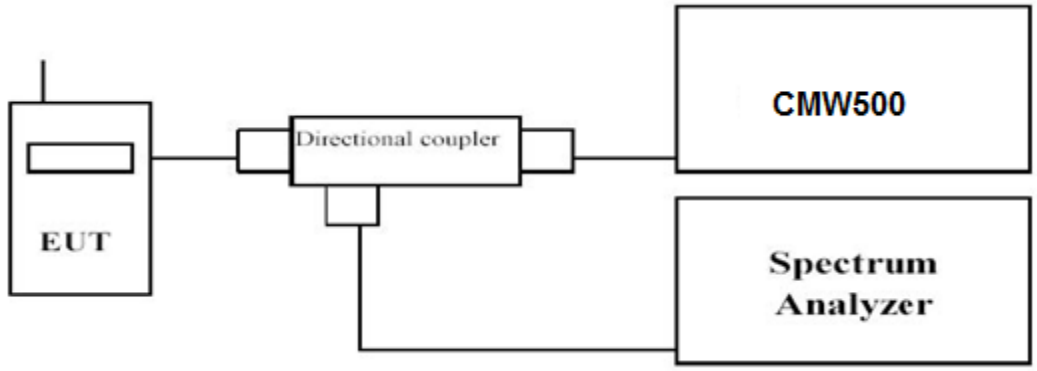
Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-21.95	3.06	9.68	34.8	19.47	33.01	13.54	H
1732.5	-22.06	3.17	9.68	34.8	19.25	33.01	13.76	H
1745.0	-22.11	3.22	9.75	34.8	19.22	33.01	13.79	H

3.3 Peak-to-Average Ratio (PAR)

LIMIT

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

TEST CONFIGURATION



TEST PROCEDURE

1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth ≥ 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*	*5.39*	*4.87*
	1732.5		*5.45*	*5.10*
	1754.3		*4.72*	*5.48*
3 MHz	1711.5	*1RB#0*	*5.19*	*5.83*
	1732.5		*5.07*	*5.88*
	1753.5		*5.25*	*6.03*
5 MHz	1712.5	*1RB#0*	*5.07*	*5.80*
	1732.5		*5.01*	*5.77*
	1752.5		*5.22*	*5.91*
10 MHz	1715.0	*1RB#0*	*5.13*	*5.97*
	1732.5		*5.10*	*5.86*
	1750.0		*5.30*	*6.00*
15 MHz	1717.5	*1RB#0*	*5.39*	*6.06*
	1732.5		*5.30*	*5.91*
	1747.5		*5.45*	*6.06*
20 MHz	1720.0	*1RB#0*	*5.25*	*6.06*
	1732.5		*8.46*	*5.94*
	1745.0		*8.46*	*6.00*

Band4-1.4MHz-QPSK-19957-1RB#0

Date: 4.DEC.2019 12:06:41

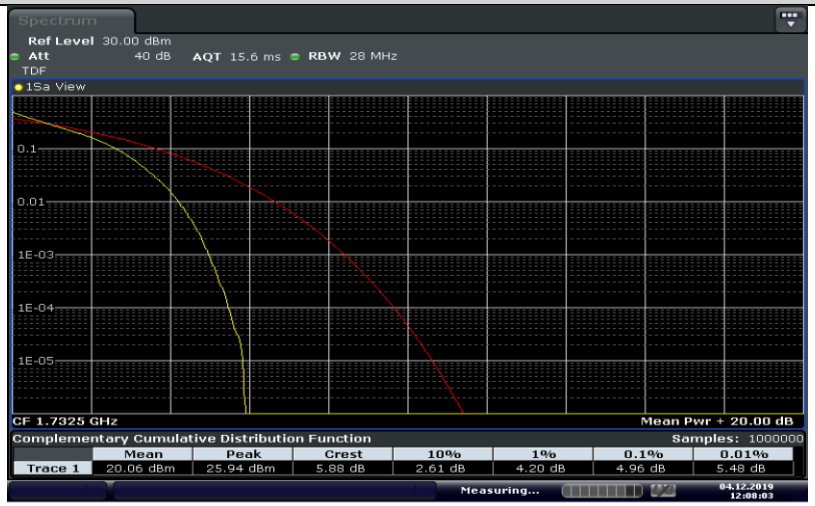
Band4-1.4MHz-QPSK-19957-6RB#0

Date: 4.DEC.2019 12:07:05

Band4-1.4MHz-QPSK-20175-1RB#0

Date: 4.DEC.2019 12:07:40

Band4-1.4MHz-QPSK-20175-6RB#0



Date: 4.DEC.2019 12:08:04

Band4-1.4MHz-QPSK-20393-1RB#0

Date: 4.DEC.2019 12:08:39

Band4-1.4MHz-QPSK-20393-6RB#0

Date: 4.DEC.2019 12:09:03

Band4-1.4MHz-16QAM-19957-1RB#0

Date: 4.DEC.2019 12:06:53

Band4-1.4MHz-16QAM-19957-6RB#0

Date: 4.DEC.2019 12:07:16

Band4-1.4MHz-16QAM-20175-1RB#0

Date: 4.DEC.2019 12:07:52

Band4-1.4MHz-16QAM-20175-6RB#0

Date: 4.DEC.2019 12:08:16

Band4-1.4MHz-16QAM-20393-1RB#0

Date: 4.DEC.2019 12:08:51

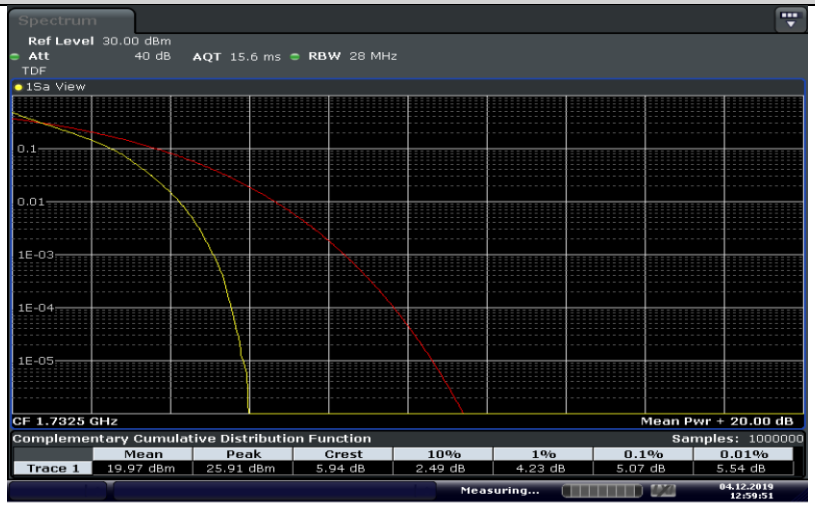
Band4-1.4MHz-16QAM-20393-6RB#0

Date: 4.DEC.2019 12:09:15

Band4-3MHz-QPSK-19965-15RB#0

Date: 4.DEC.2019 12:58:35

Band4-3MHz-QPSK-20175-15RB#0



Date: 4.DEC.2019 12:59:52

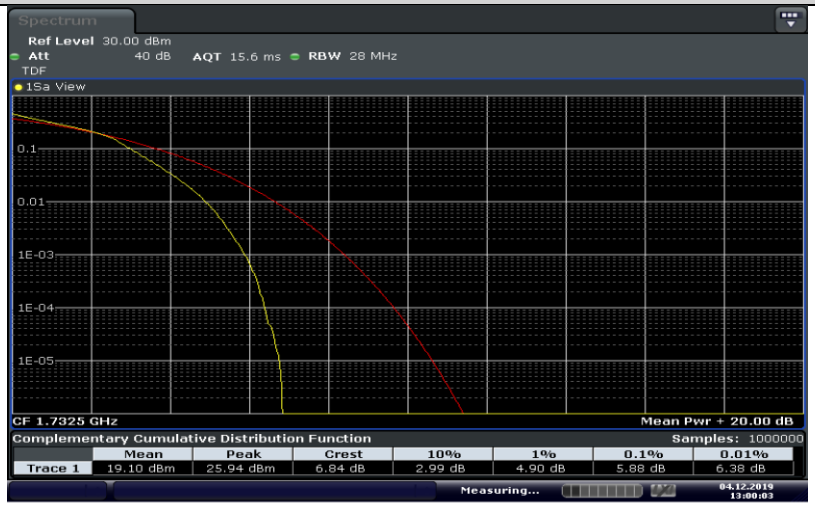
Band4-3MHz-QPSK-20385-15RB#0

Date: 4.DEC.2019 13:00:17

Band4-3MHz-16QAM-19965-15RB#0

Date: 4.DEC.2019 12:58:47

Band4-3MHz-16QAM-20175-15RB#0



Date: 4.DEC.2019 13:00:04

Band4-3MHz-16QAM-20385-15RB#0

Date: 4.DEC.2019 13:00:29

Band4-5MHz-QPSK-19975-25RB#0

Date: 4.DEC.2019 13:10:11

Band4-5MHz-QPSK-20175-25RB#0

Date: 4.DEC.2019 13:10:36

Band4-5MHz-QPSK-20375-25RB#0

Date: 4.DEC.2019 13:11:02

Band4-5MHz-16QAM-19975-25RB#0

Date: 4.DEC.2019 13:10:23

Band4-5MHz-16QAM-20175-25RB#0

Date: 4.DEC.2019 13:10:48

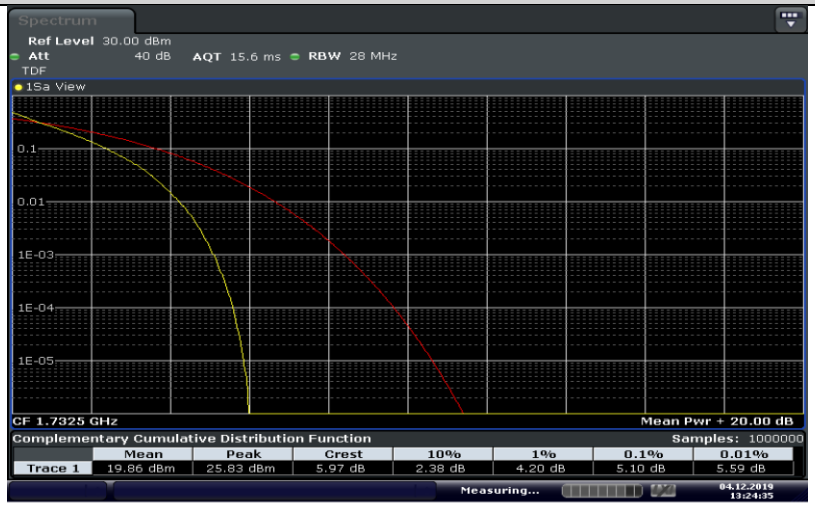
Band4-5MHz-16QAM-20375-25RB#0

Date: 4.DEC.2019 13:11:13

Band4-10MHz-QPSK-20000-50RB#0

Date: 4.DEC.2019 13:24:10

Band4-10MHz-QPSK-20175-50RB#0



Date: 4.DEC.2019 13:24:36

Band4-10MHz-QPSK-20350-50RB#0

Date: 4.DEC.2019 13:25:02

Band4-10MHz-16QAM-20000-50RB#0

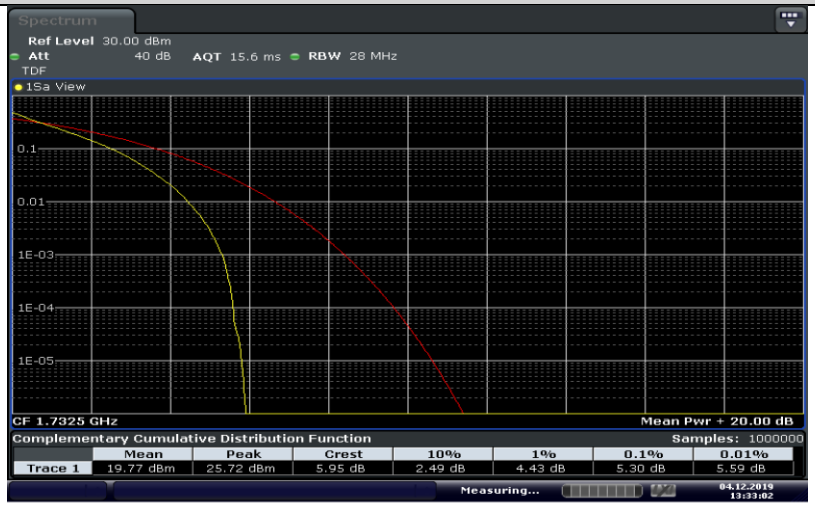
Date: 4.DEC.2019 13:24:23

Band4-10MHz-16QAM-20175-50RB#0

Date: 4.DEC.2019 13:24:47

Band4-10MHz-16QAM-20350-50RB#0

Date: 4.DEC.2019 13:25:14

Band4-15MHz-QPSK-20025-75RB#0
 Date: 4.DEC.2019 13:32:37
Band4-15MHz-QPSK-20175-75RB#0
 Date: 4.DEC.2019 13:33:02
Band4-15MHz-QPSK-20325-75RB#0
 Date: 4.DEC.2019 13:33:27

Band4-15MHz-16QAM-20025-75RB#0
 Date: 4.DEC.2019 13:32:49
Band4-15MHz-16QAM-20175-75RB#0
 Date: 4.DEC.2019 13:33:14
Band4-15MHz-16QAM-20325-75RB#0
 Date: 4.DEC.2019 13:33:39

Band4-20MHz-QPSK-20050-100RB#0

Date: 4.DEC.2019 14:00:28

Band4-20MHz-QPSK-20175-100RB#0

Date: 4.DEC.2019 14:02:14

Band4-20MHz-QPSK-20300-100RB#0

Date: 4.DEC.2019 14:03:42

Band4-20MHz-16QAM-20050-100RB#0

Date: 4.DEC.2019 14:01:21

Band4-20MHz-16QAM-20175-100RB#0

Date: 4.DEC.2019 14:02:48

Band4-20MHz-16QAM-20300-100RB#0

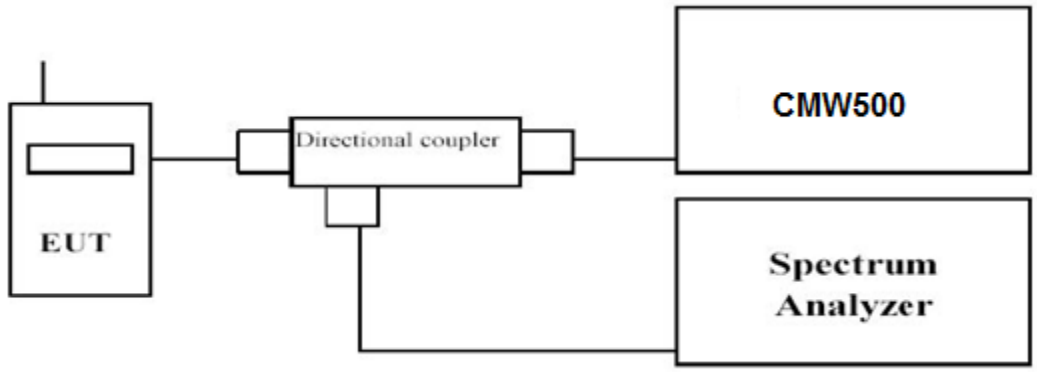
Date: 4.DEC.2019 14:04:18

3.4 Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

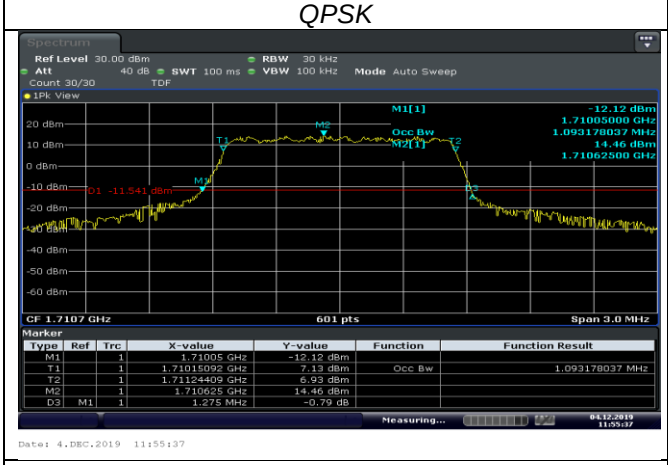
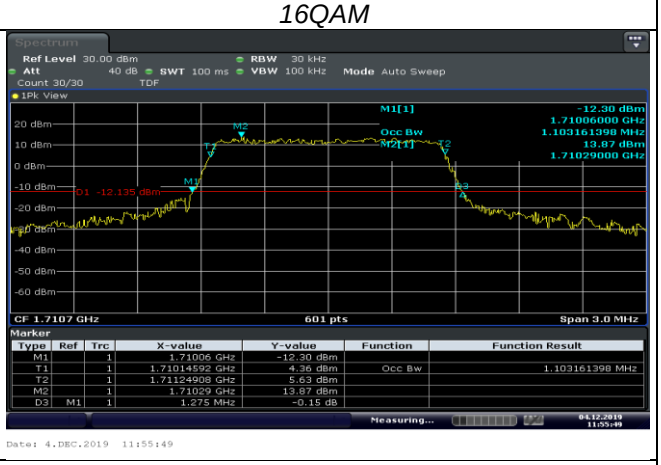
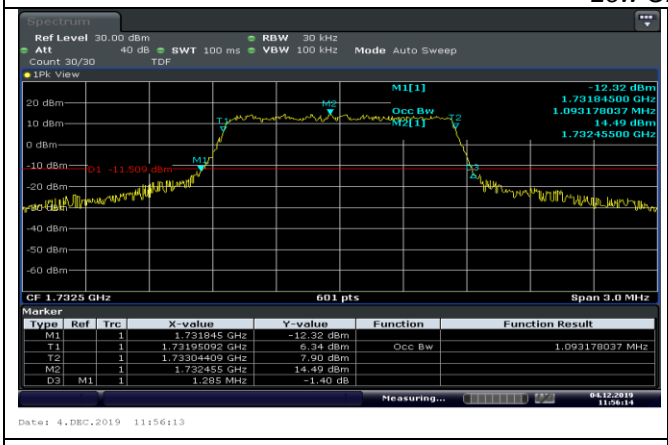
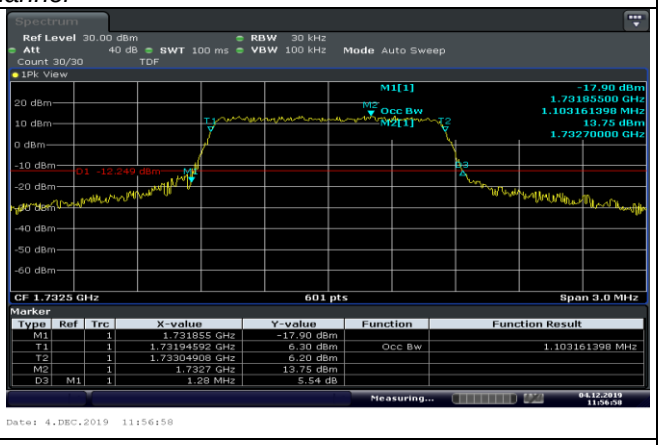
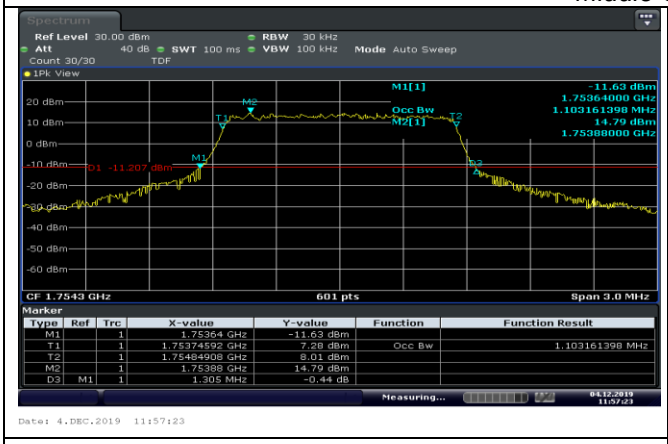
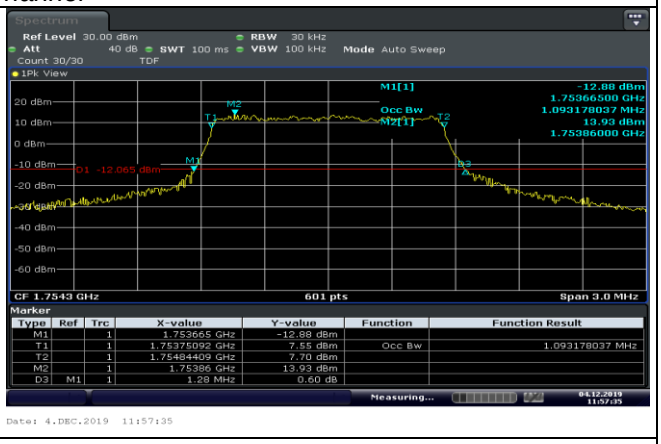
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and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

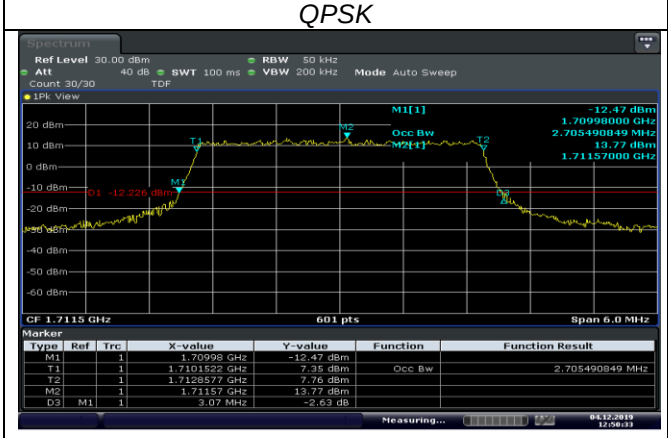
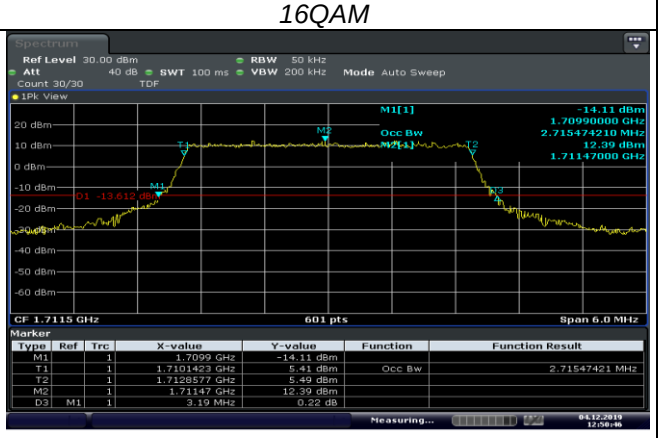
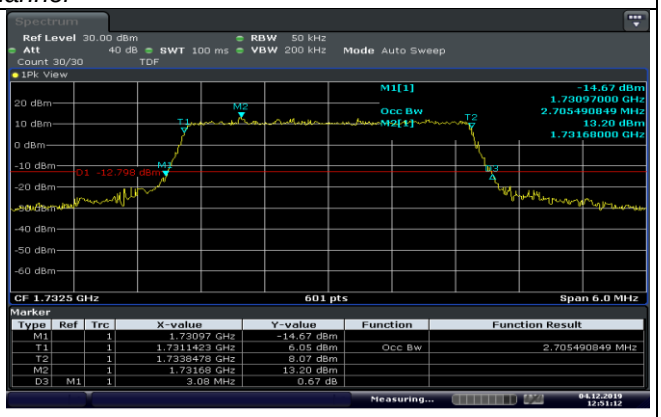
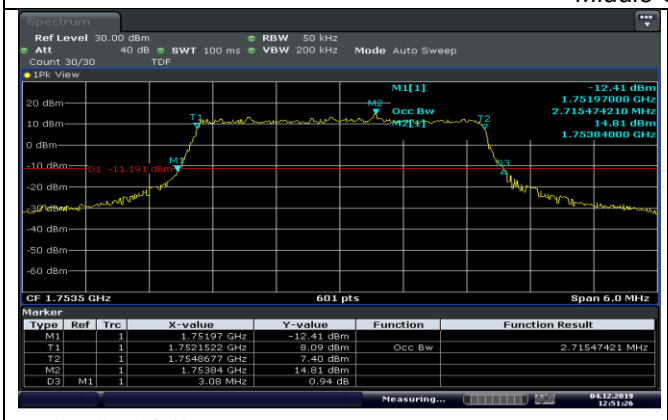
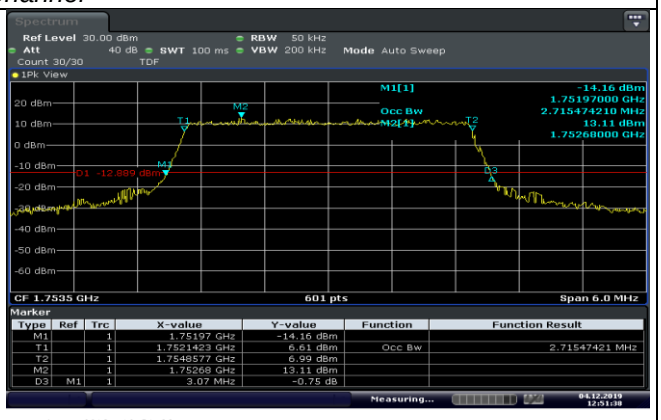
TEST RESULTS

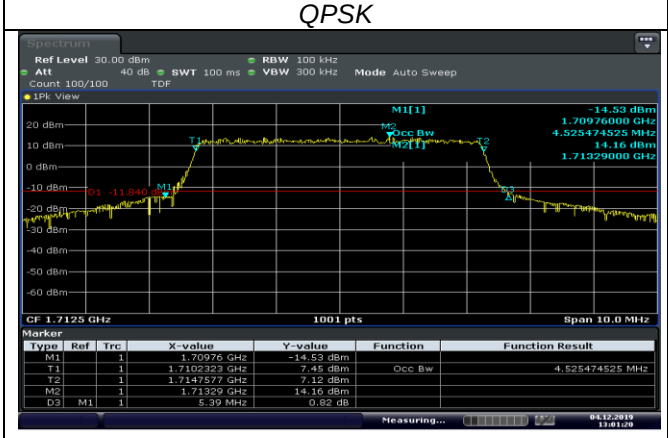
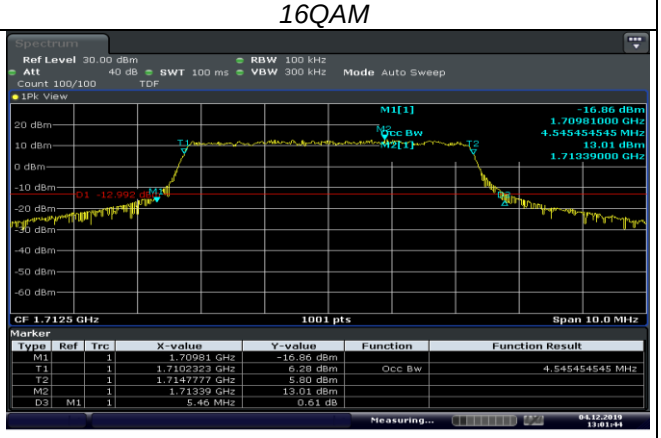
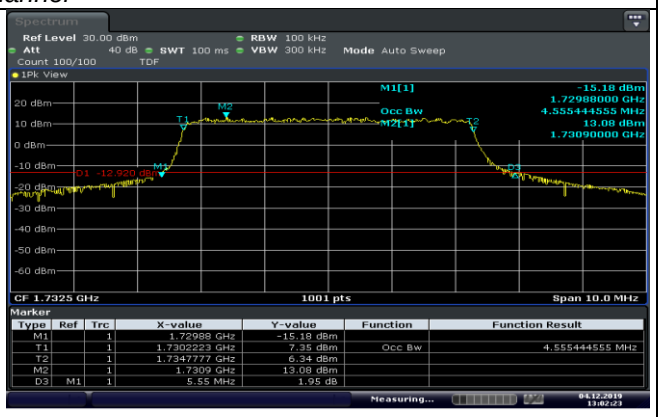
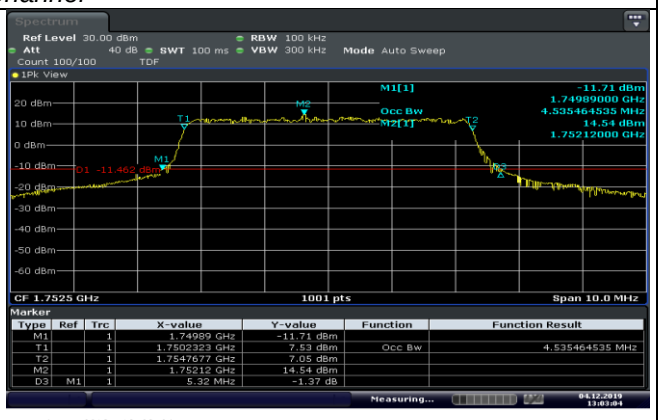
Remark:

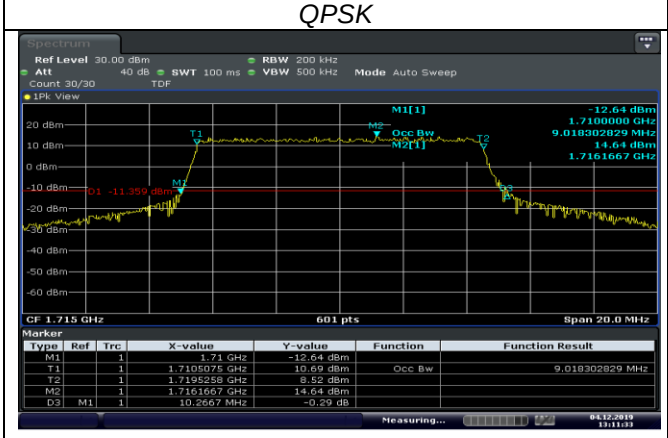
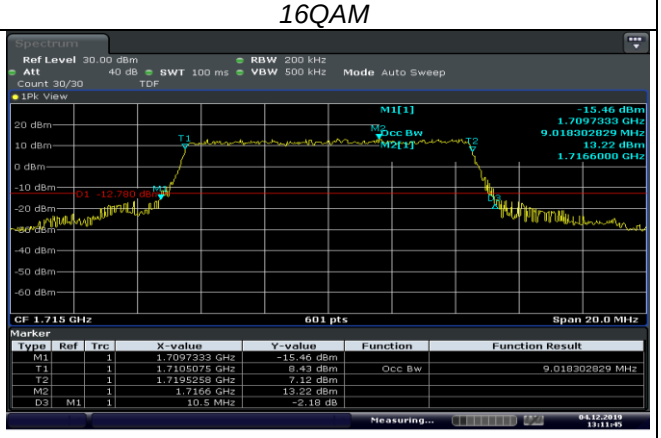
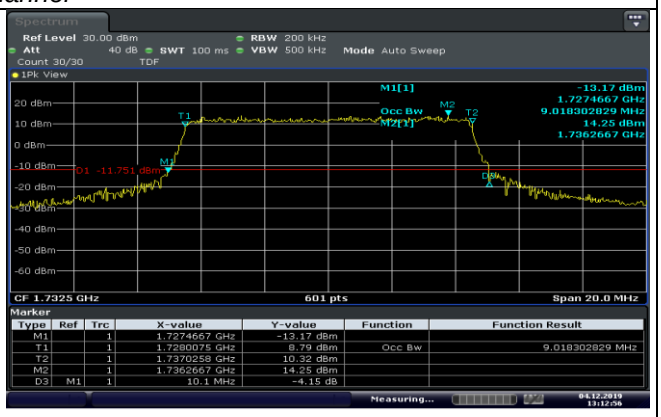
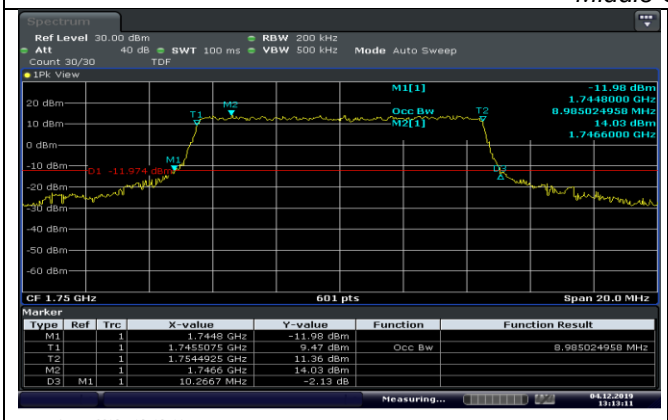
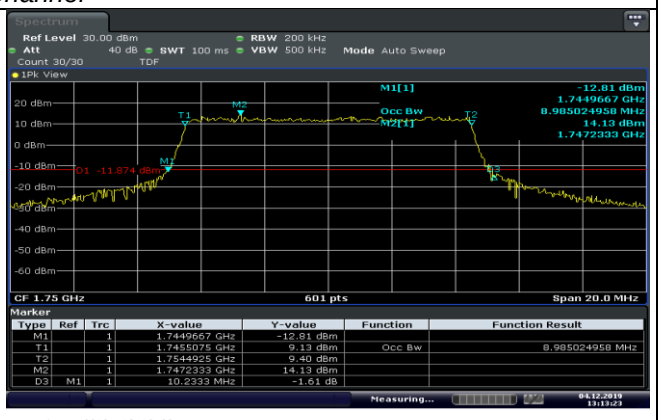
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.*

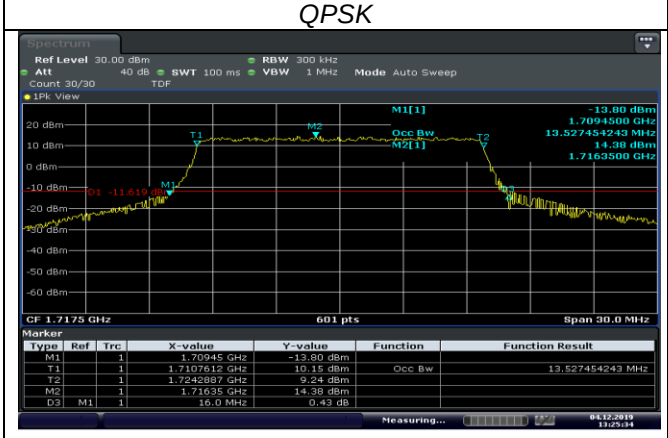
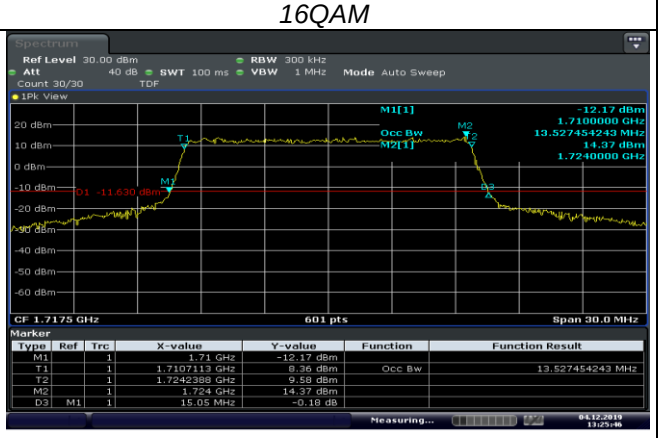
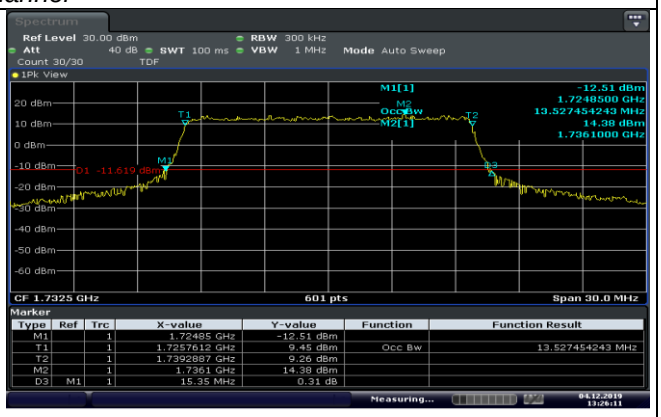
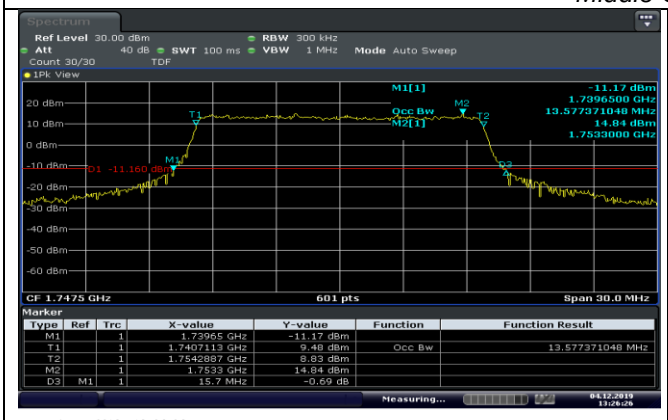
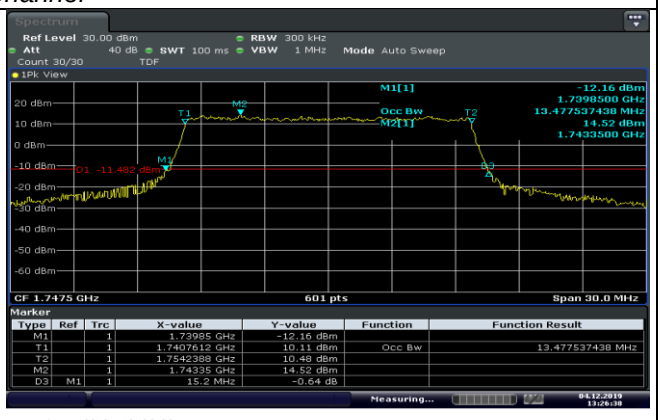
LTE FDD Band 4						
TX Channel Bandwidth	RB Size/Offset	Frequency (MHz)	-26dBc Emission bandwidth (MHz)		99% Occupied bandwidth (MHz)	
			QPSK	16QAM	QPSK	16QAM
1.4 MHz	*6RB#0*	1710.7	1.275	1.275	1.093	1.103
		1732.5	1.285	1.280	1.093	1.103
		1754.3	1.305	1.280	1.103	1.093
3 MHz	*15RB#0*	1711.5	3.070	3.190	2.705	2.715
		1732.5	3.060	3.080	2.715	2.705
		1753.5	3.080	3.070	2.715	2.715
5 MHz	*25RB#0*	1712.5	5.390	5.460	4.525	4.545
		1732.5	5.280	5.550	4.525	4.555
		1752.5	5.370	5.320	4.525	4.535
10 MHz	*50RB#0*	1715.0	10.267	10.500	9.018	9.018
		1732.5	10.200	10.100	9.018	9.018
		1750.0	10.267	10.233	8.985	8.985
15 MHz	*75RB#0*	1717.5	16.000	15.050	13.527	13.527
		1732.5	15.550	15.350	13.478	13.527
		1747.5	15.700	15.200	13.577	13.478
20 MHz	*100RB#0*	1720.0	20.867	20.867	18.103	18.103
		1732.5	20.667	20.400	18.103	18.103
		1745.0	20.867	20.667	18.170	18.103

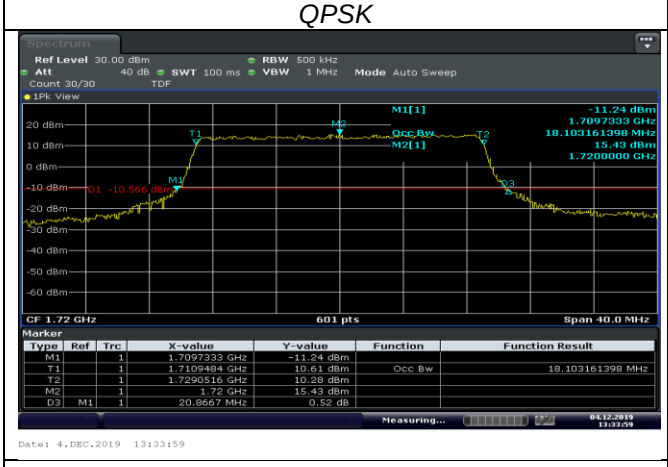
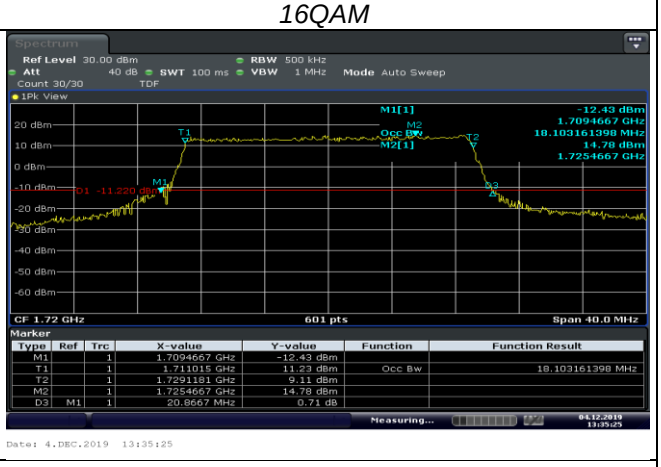
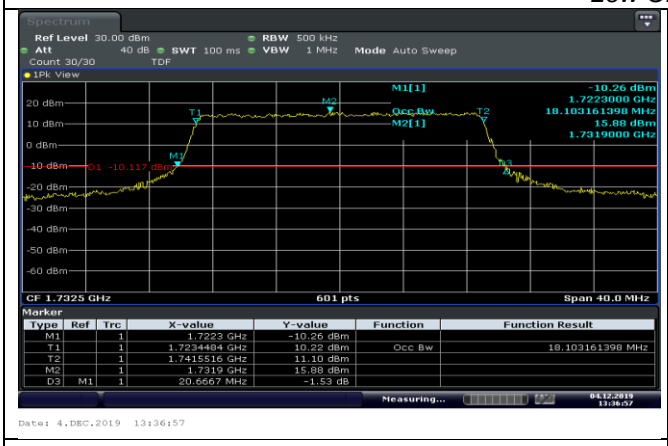
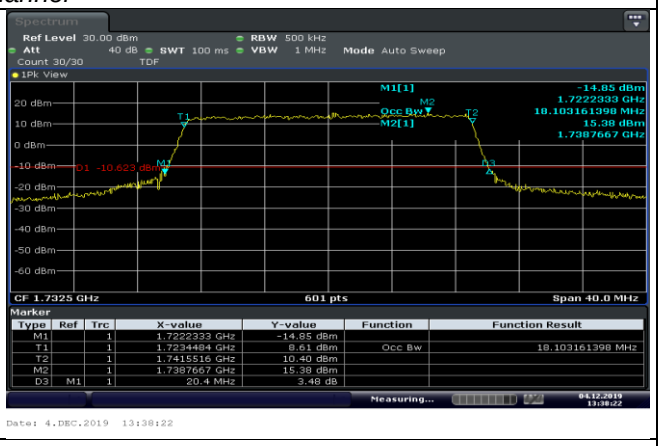
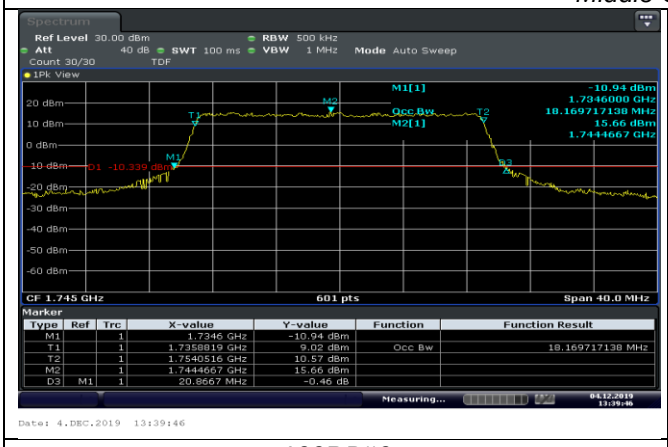
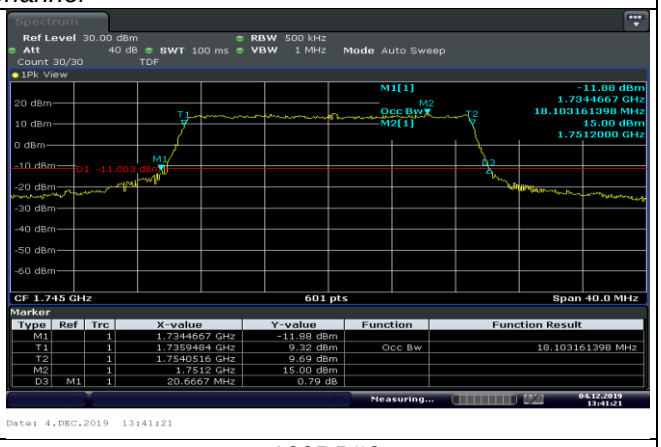
LTE FDD Band 4-1.4MHz Channel Bandwidth	
QPSK	*16QAM*
	
6RB#0	*6RB#0*
Low Channel	
	
6RB#0	*6RB#0*
Middle Channel	
	
6RB#0	*6RB#0*
High Channel	

LTE FDD Band 4-3MHz Channel Bandwidth	
QPSK	16QAM
	
15RB#0	15RB#0
Low Channel	
	
15RB#0	15RB#0
Middle Channel	
	
15RB#0	15RB#0
High Channel	

LTE FDD Band 4-5MHz Channel Bandwidth	
QPSK	16QAM
	
25RB#0	25RB#0
Low Channel	
	
25RB#0	25RB#0
Middle Channel	
	
25RB#0	25RB#0
High Channel	

LTE FDD Band 4-10MHz Channel Bandwidth	
QPSK	16QAM
	
50RB#0	50RB#0
Low Channel	
	
50RB#0	50RB#0
Middle Channel	
	
50RB#0	50RB#0
High Channel	

LTE FDD Band 4-15MHz Channel Bandwidth	
QPSK	16QAM
	
75RB#0	75RB#0
Low Channel	
	
75RB#0	75RB#0
Middle Channel	
	
75RB#0	75RB#0
High Channel	

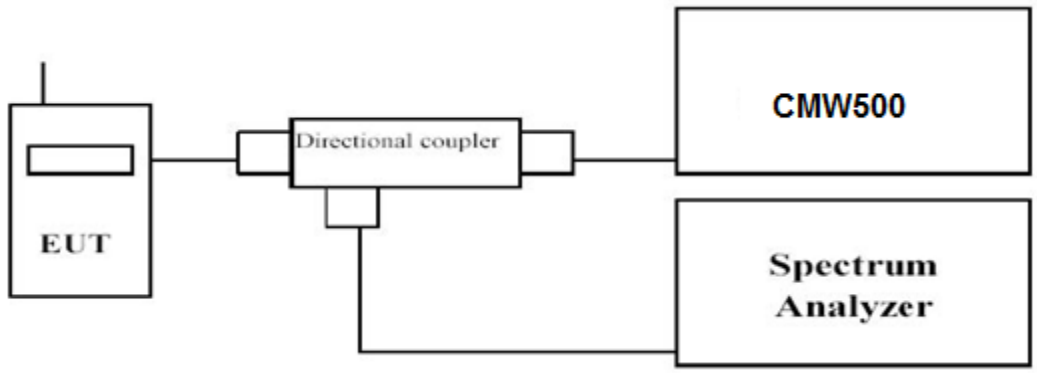
LTE FDD Band 4-20MHz Channel Bandwidth	
QPSK	16QAM
	
100RB#0	100RB#0
Low Channel	
	
100RB#0	100RB#0
Middle Channel	
	
100RB#0	100RB#0
High Channel	

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



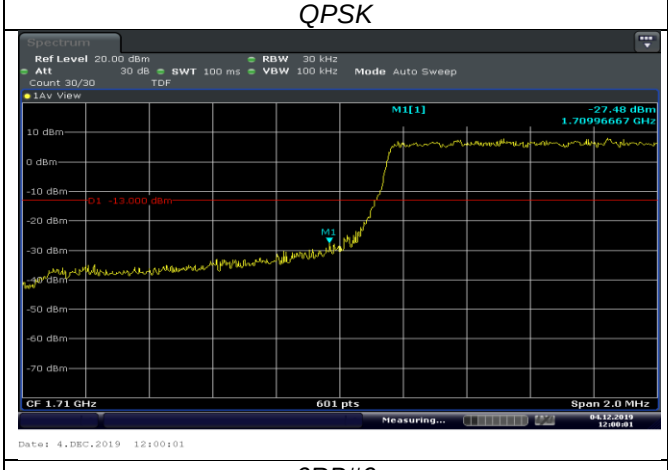
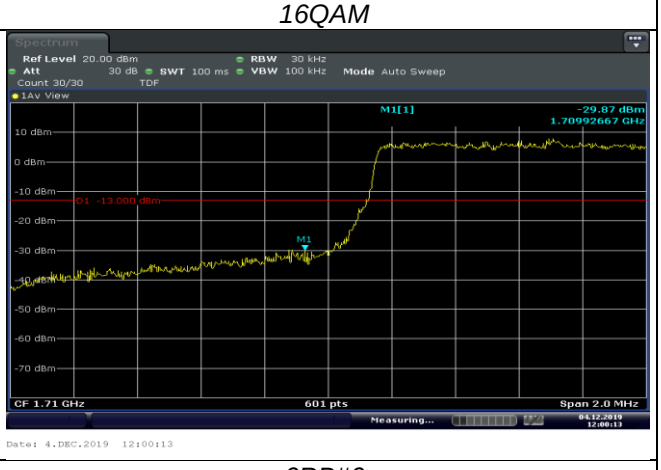
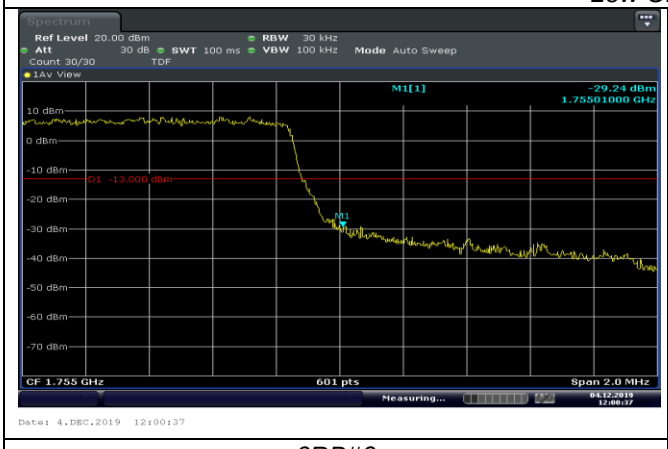
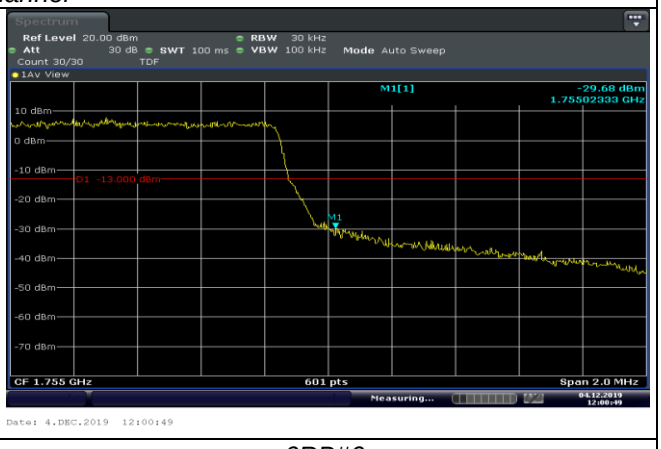
TEST PROCEDURE

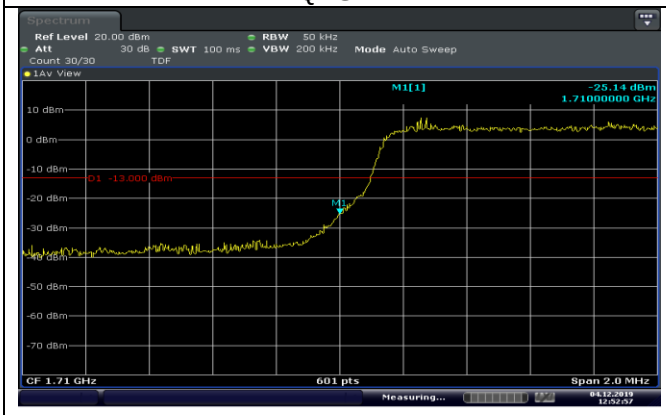
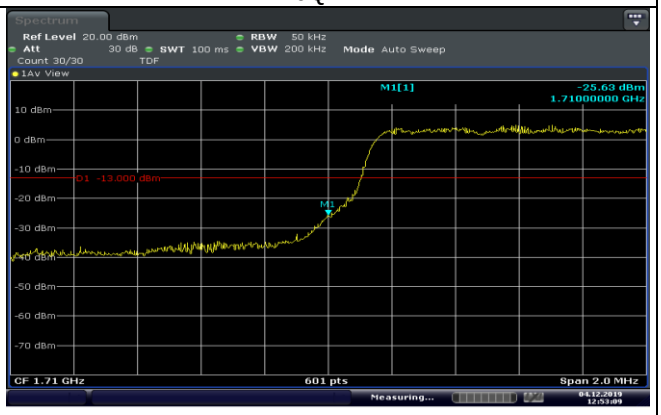
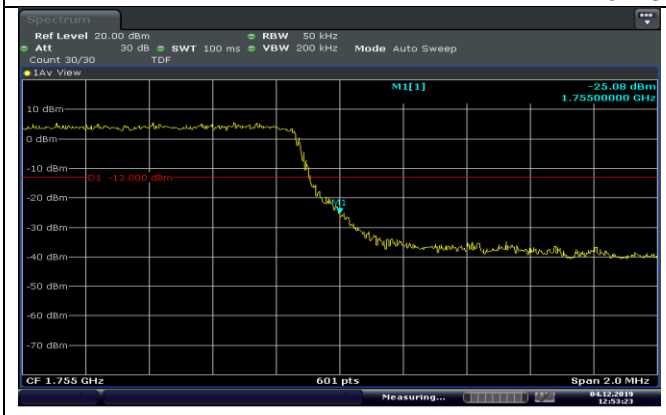
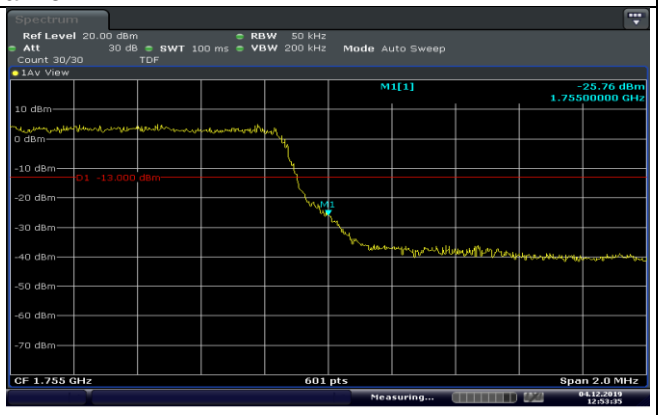
1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels 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.*

LTE FDD Band 4-1.4MHz Channel Bandwidth Band Edge Compliance	
QPSK	16QAM
	
6RB#0	6RB#0
Low Channel	
	
6RB#0	6RB#0
High Channel	

LTE FDD Band 4-3MHz Channel Bandwidth Band Edge Compliance	
QPSK	16QAM
	
15RB#0	15RB#0
Low Channel	
	
15RB#0	15RB#0
High Channel	