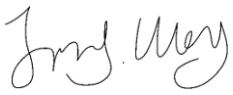
Shenzhen Global Test Service Co.,Ltd.
No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street, Longgang District,Shenzhen,Guangdong,China

TEST REPORT

FCC Part 27

Report Reference No.....:	**GTS20190726008-1-3-4**	
FCC ID.....:	**S8U-IDD-213LA**	
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.....:	Aug.12, 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,Pinghu Street, Longgang District,Shenzhen,Guangdong,China
Applicant's name.....:	**Sinocastel Co.,Ltd.**
Address .....:	5/F,5th Building,Software Park ,No. 2 Gaoxin C. 3rd RoadHi-Tech. Industrial Park,Shenzhen, China
Test specification .....:	
Standard .....:	**FCC CFR Title 47 Part 2, Part 24E** **ANSI/TIA-603-E-2016** **KDB 971168 D01**

Test item description.....:	OBD Vehicle Tracking Device
Trade Mark .....:	OBD-Smart
Manufacturer.....:	**Sinocastel Co.,Ltd.**
Model/Type reference.....:	IDD-213LA
Listed Models .....:	IDD-213LA-L
Ratings .....:	DC 9-36V
Modulation .....:	QPSK
Hardware version .....:	IDD-213L MAIN-V2.2
Software version .....:	V1.0
Frequency.....	E-UTRA FDD Band II, IV, XII
Result.....:	**PASS**

TEST REPORT

Test Report No. :	**GTS20190726008-1-3-4**	Aug.12, 2019
		Date of issue

Equipment under Test	:	OBD Vehicle Tracking Device
Model /Type	:	IDD-213LA
Listed Models	:	IDD-213LA-L
Applicant	:	**Sinocastel Co.,Ltd.**
Address	:	5/F,5th Building,Software Park ,No. 2 Gaoxin C. 3rd RoadHi-Tech. Industrial Park,Shenzhen, China
Manufacturer	:	**Sinocastel Co.,Ltd.**
Address	:	5/F,5th Building,Software Park ,No. 2 Gaoxin C. 3rd RoadHi-Tech. Industrial Park,Shenzhen, China

Test result	**Pass ***

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

Contents

1 SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:
FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
FCC Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
ANSI/TIA-603-E-2016: Land Mobile FM or PM Communications Equipment Measurement and Performance
Standards.
ANSI C63.26-2015: IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio
Services
FCCKDB971168D01 Power Meas License Digital Systems

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 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

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

1.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 165725

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

A2LA-Lab Cert. No.: 4758.01

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2024.

1.5 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 TR-100028-01”Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 1”and TR-100028-02 “Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2 “ 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	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occupied Bandwidth	9KHz~40GHz	-	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

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 General Description of EUT

Product Name:	OBD Vehicle Tracking Device
Model/Type reference:	IDD-213LA
Power supply:	DC 12.0V from battery
LTE	
Operation Band:	FDD-LTE: Band 2/4/12
Modulation Type:	QPSK, 16QAM
Release Version:	Release 9
Category:	Cat 4
Antenna Type:	FPC antenna

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

2.3 Description of Test Modes and Test Frequency

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.

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	2018/09/20	2019/09/19
LISN	R&S	ESH2-Z5	893606/008	2018/09/20	2019/09/19
Bilog Antenna	Schwarzbeck	VULB9163	976	2018/09/20	2019/09/19
Bilog Antenna	Schwarzbeck	VULB9163	979	2018/09/20	2019/09/19
EMI Test Receiver	R&S	ESCI7	101102	2018/09/20	2019/09/19
Spectrum Analyzer	Agilent	N9020A	MY48010425	2018/09/20	2019/09/19
Spectrum Analyzer	R&S	FSP40	100019	2018/06/05	2019/06/04
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2018/09/20	2019/09/19
Horn Antenna	Schwarzbeck	BBHA 9120D	01652	2018/09/20	2019/09/19
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2018/09/20	2019/09/19
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	971	2018/09/20	2019/09/19
Amplifier	Schwarzbeck	BBV 9743	#202	2018/09/20	2019/09/19
Amplifier	EMCI	EMC051845B	980355	2018/09/20	2019/09/19
Temperature/Humidity Meter	Gangxing	CTH-608	02	2018/09/20	2019/09/19
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2018/09/20	2019/09/19
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2018/09/20	2019/09/19
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2018/09/20	2019/09/19
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2018/09/20	2019/09/19
Data acquisition card	Agilent	U2531A	TW53323507	2018/09/20	2019/09/19
Power Sensor	Agilent	U2021XA	MY5365004	2018/09/20	2019/09/19
EMI Test Software	R&S	ES-K1	V1.7.1	2018/09/20	2019/09/19
EMI Test Software	JS Tonscend	JS32-RE	2.0.1.5	2018/09/20	2019/09/19
EMI Test Software	Audix	E3	2..1.1	2018/09/20	2019/09/19

2.5 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: S8U-IDD-213LA 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

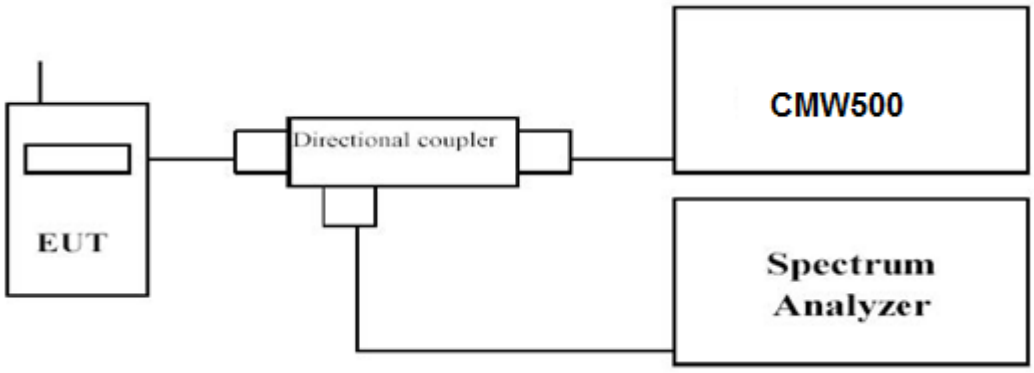
3.1 Output Power

LIMIT

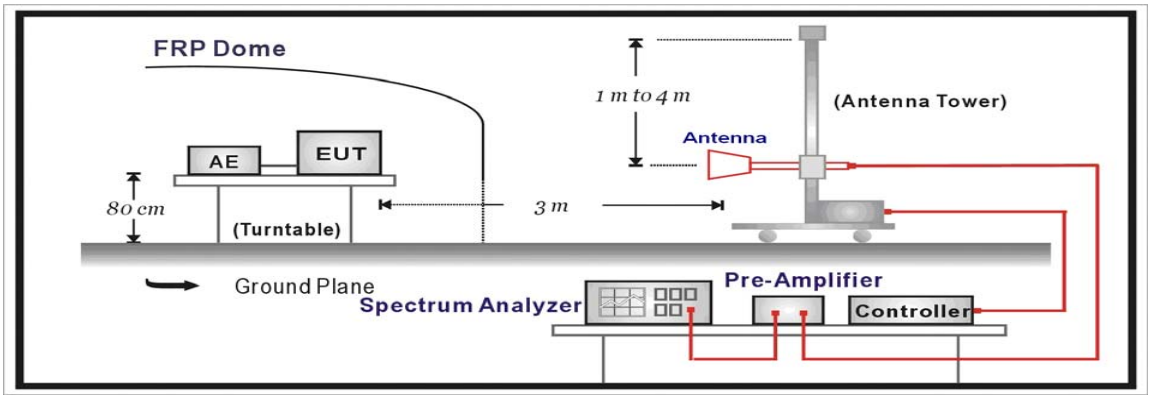
According to §27.50 (d) (4): Fixed, mobile, and portable (hand- held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

TEST CONFIGURATION

Conducted Power Measurement



Radiated Power Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Power Measurement:

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 selects 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 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) 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	22.14	21.37
		1 RB high	22.76	22.23
		50% RB mid	21.93	21.33
		100% RB	22.22	21.69
	1732.5	1 RB low	23.04	22.67
		1 RB high	22.94	22.18
		50% RB mid	21.86	21.43
		100% RB	22.50	21.85
	1754.3	1 RB low	23.12	22.76
		1 RB high	21.72	21.24
		50% RB mid	23.23	22.41
		100% RB	22.70	22.10
3 MHz	1711.5	1 RB low	22.41	21.67
		1 RB high	23.08	22.59
		50% RB mid	23.48	23.12
		100% RB	22.06	21.31
	1732.5	1 RB low	22.19	21.36
		1 RB high	21.55	20.91
		50% RB mid	22.09	21.40
		100% RB	21.59	21.05
	1753.5	1 RB low	22.33	21.54
		1 RB high	22.44	21.84
		50% RB mid	22.06	21.44
		100% RB	21.56	21.04
5 MHz	1712.5	1 RB low	22.79	22.14
		1 RB high	22.85	22.47
		50% RB mid	21.88	21.42
		100% RB	23.21	22.40
	1732.5	1 RB low	22.73	22.34
		1 RB high	23.30	22.85
		50% RB mid	21.65	21.20
		100% RB	23.04	22.28
	1752.5	1 RB low	23.28	22.64
		1 RB high	23.02	22.64
		50% RB mid	22.36	21.83
		100% RB	23.43	22.73
10 MHz	1715.0	1 RB low	23.46	22.72
		1 RB high	22.96	22.45
		50% RB mid	22.66	22.11
		100% RB	23.07	22.37
	1732.5	1 RB low	21.98	21.47
		1 RB high	21.56	20.88
		50% RB mid	22.10	21.55
		100% RB	23.20	22.75
	1750.0	1 RB low	23.06	22.58
		1 RB high	23.14	22.44
		50% RB mid	21.82	20.97
		100% RB	23.41	22.66
15 MHz	1717.5	1 RB low	22.72	22.17
		1 RB high	22.85	22.33
		50% RB mid	22.72	22.00

		100% RB	21.59	20.85
	1732.5	1 RB low	23.06	22.35
		1 RB high	22.64	22.21
		50% RB mid	23.18	22.67
		100% RB	23.24	22.45
	1747.5	1 RB low	23.07	22.32
		1 RB high	23.45	22.81
		50% RB mid	22.60	21.79
		100% RB	23.09	22.32
20 MHz	1720.0	1 RB low	22.57	21.98
		1 RB high	22.76	22.33
		50% RB mid	21.76	21.00
		100% RB	23.30	22.59
	1732.5	1 RB low	23.10	22.63
		1 RB high	21.66	21.31
		50% RB mid	22.51	21.66
		100% RB	22.38	21.99
	1745.0	1 RB low	22.46	21.99
		1 RB high	22.31	21.91
		50% RB mid	23.42	22.60
		100% RB	23.49	22.98

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	-19.52	2.75	8.98	35.70	22.41	30.00	7.59	V
1732.5	-19.39	2.81	9.15	35.70	22.65	30.00	7.35	V
1754.3	-20.35	2.85	9.47	35.70	21.97	30.00	8.03	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	-20.39	2.75	8.98	35.70	21.54	30.00	8.46	V
1732.5	-19.39	2.81	9.15	35.70	22.65	30.00	7.35	V
1753.5	-20.90	2.85	9.47	35.70	21.42	30.00	8.58	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	-19.88	2.75	8.98	35.70	22.05	30.00	7.95	V
1732.5	-19.68	2.81	9.15	35.70	22.36	30.00	7.64	V
1752.5	-20.54	2.85	9.47	35.70	21.78	30.00	8.22	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	-19.52	2.75	8.98	35.70	22.41	30.00	7.59	V
1732.5	-19.35	2.81	9.15	35.70	22.69	30.00	7.31	V
1750.0	-20.45	2.85	9.47	35.70	21.87	30.00	8.13	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	-20.38	2.75	8.98	35.70	21.55	30.00	8.45	V
1732.5	-19.98	2.81	9.15	35.70	22.06	30.00	7.94	V
1747.5	-20.45	2.85	9.47	35.70	21.87	30.00	8.13	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	-19.52	2.75	8.98	35.70	22.41	30.00	7.59	V
1732.5	-19.48	2.81	9.15	35.70	22.56	30.00	7.44	V
1745.0	-19.87	2.85	9.47	35.70	22.45	30.00	7.55	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	-20.35	2.75	8.98	35.70	21.58	30.00	8.42	V
1732.5	-20.81	2.81	9.15	35.70	21.23	30.00	8.77	V
1754.3	-21.99	2.85	9.47	35.70	20.33	30.00	9.67	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	-21.69	2.75	8.98	35.70	20.24	30.00	9.76	V
1732.5	-20.68	2.81	9.15	35.70	21.36	30.00	8.64	V
1753.5	-20.87	2.85	9.47	35.70	21.45	30.00	8.55	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	-20.41	2.75	8.98	35.70	21.52	30.00	8.48	V
1732.5	-21.27	2.81	9.15	35.70	20.77	30.00	9.23	V
1752.5	-20.74	2.85	9.47	35.70	21.58	30.00	8.42	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	-21.27	2.75	8.98	35.70	20.66	30.00	9.34	V
1732.5	-20.72	2.81	9.15	35.70	21.32	30.00	8.68	V
1750.0	-20.90	2.85	9.47	35.70	21.42	30.00	8.58	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	-20.45	2.75	8.98	35.70	21.48	30.00	8.52	V
1732.5	-19.99	2.81	9.15	35.70	22.05	30.00	7.95	V
1747.5	-20.69	2.85	9.47	35.70	21.63	30.00	8.37	V

LTE FDD Band 4_Channel Bandwidth 20MHz_16QAM

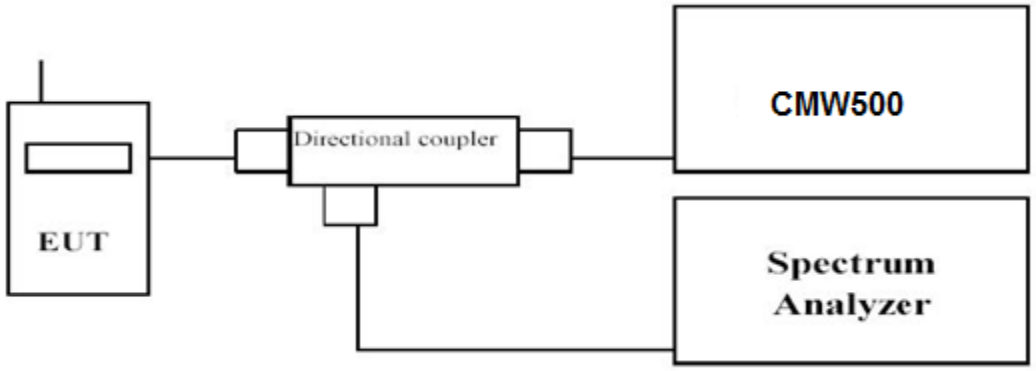
Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1720.0	-19.52	2.75	8.98	35.70	22.41	30.00	7.59	V
1732.5	-19.68	2.81	9.15	35.70	22.36	30.00	7.64	V
1745.0	-20.74	2.85	9.47	35.70	21.58	30.00	8.42	V

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

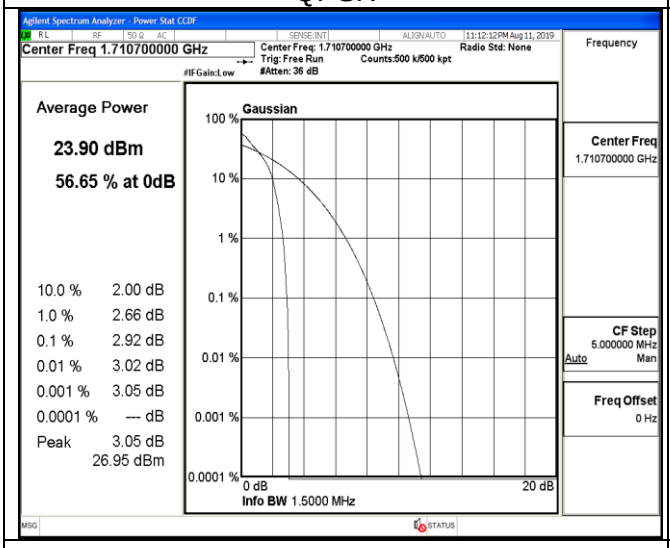
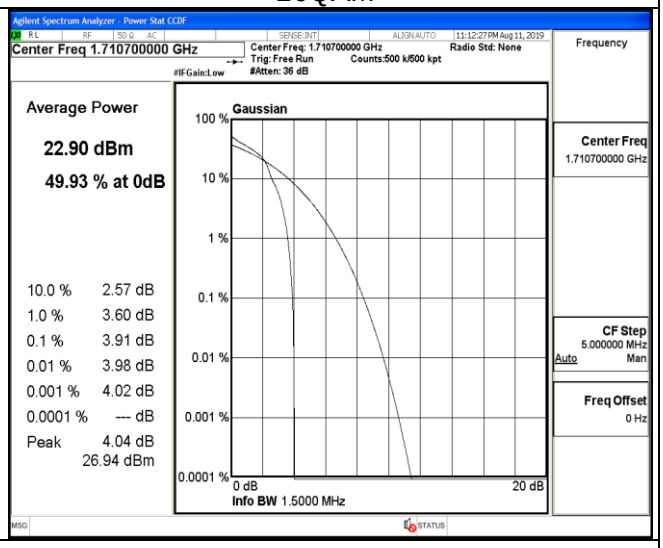
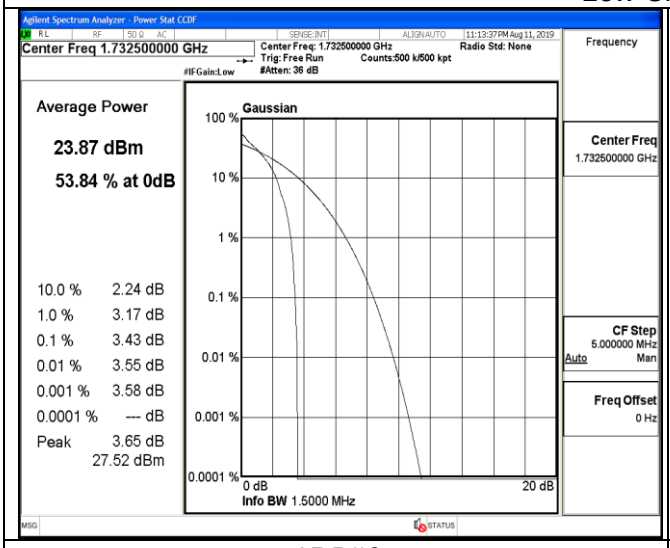
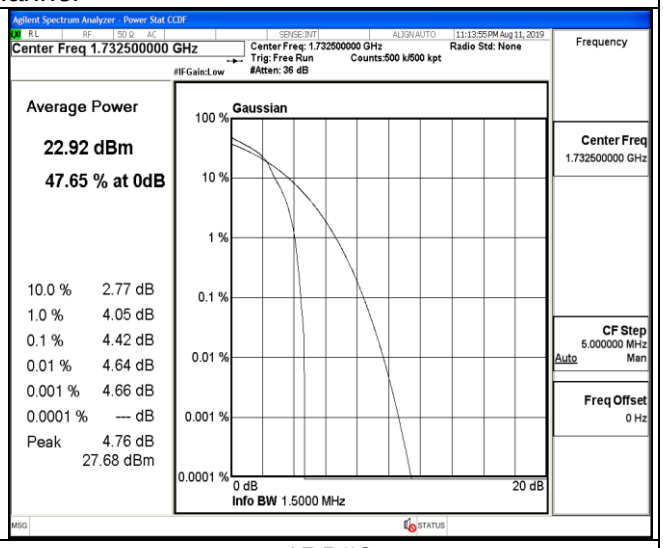
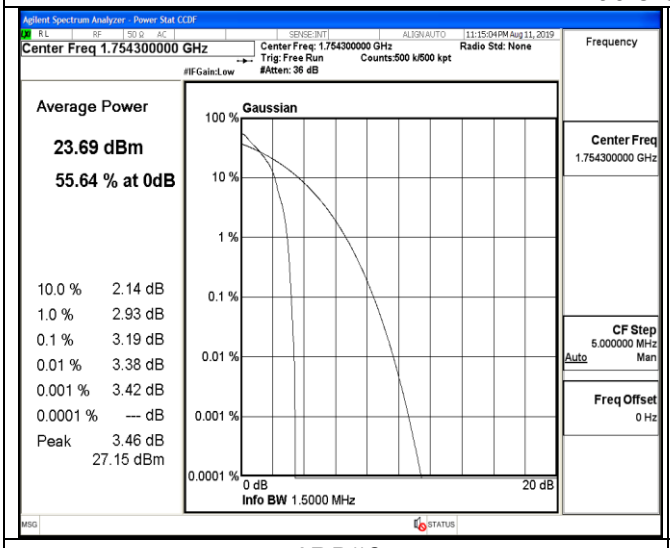
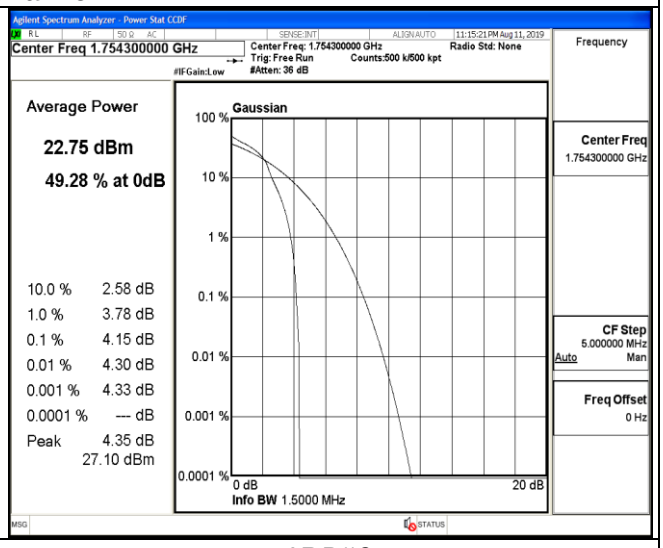
1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as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

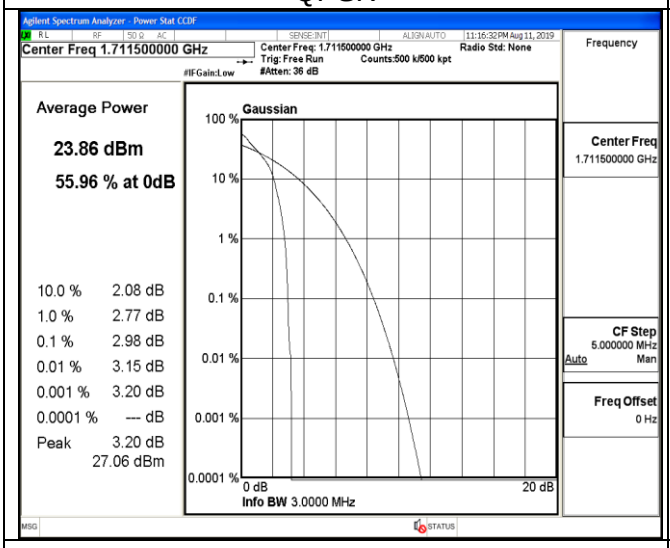
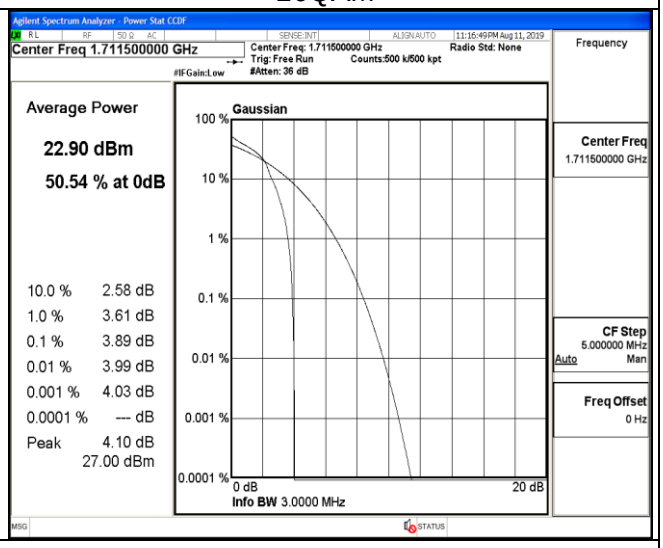
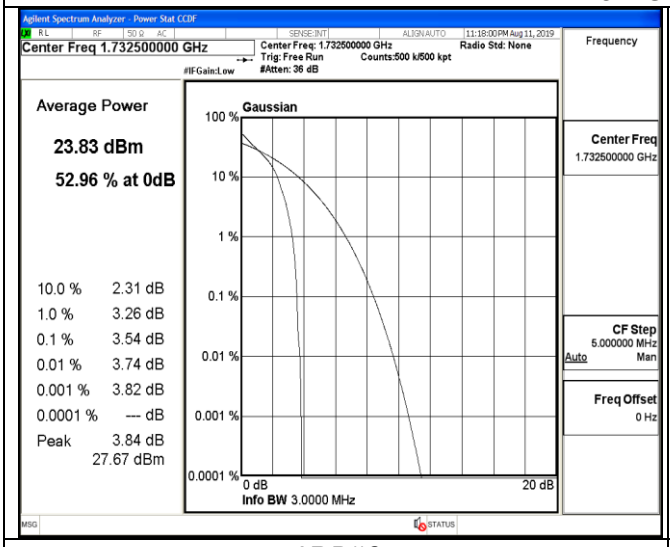
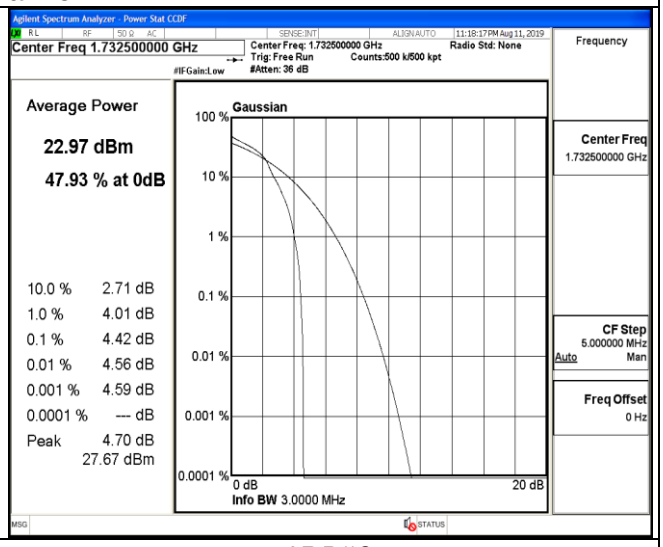
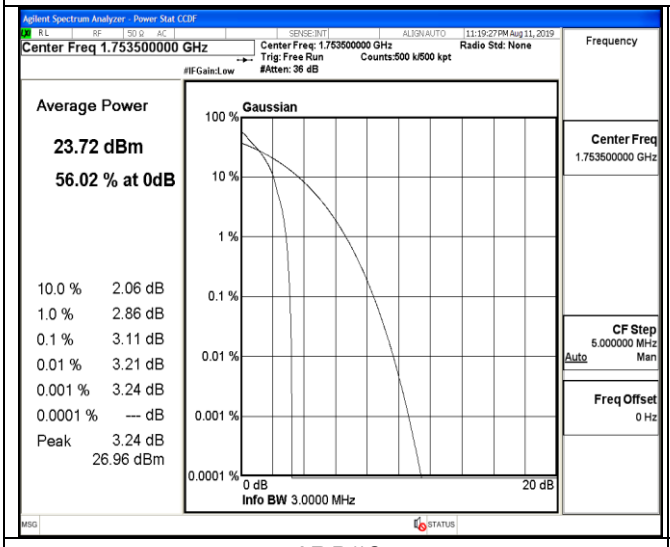
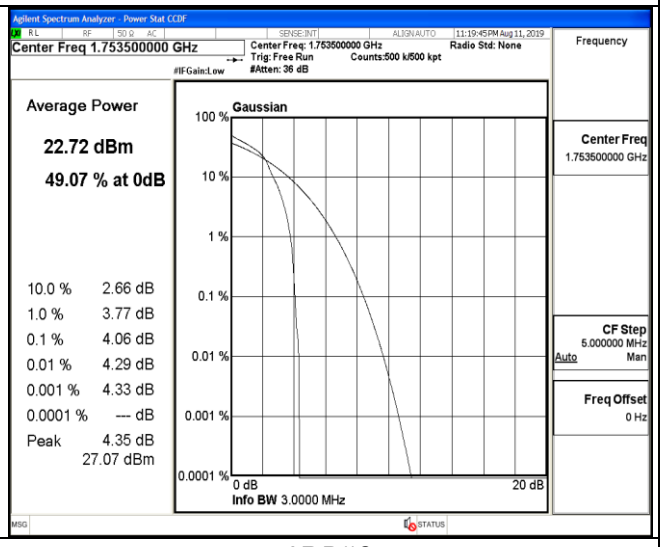
TEST RESULTS

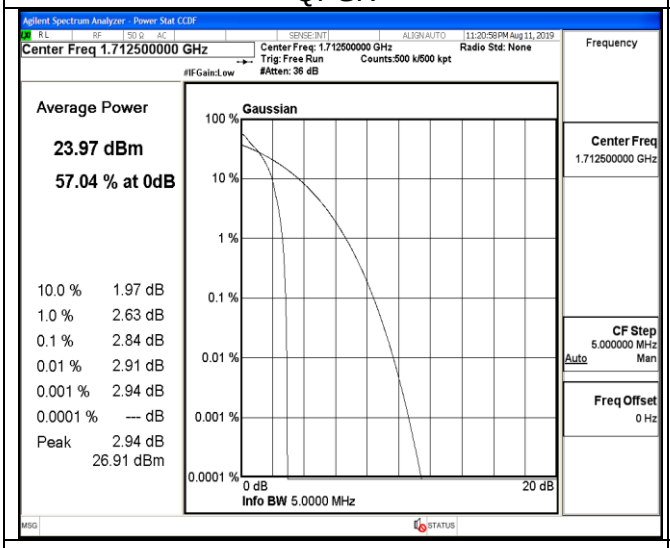
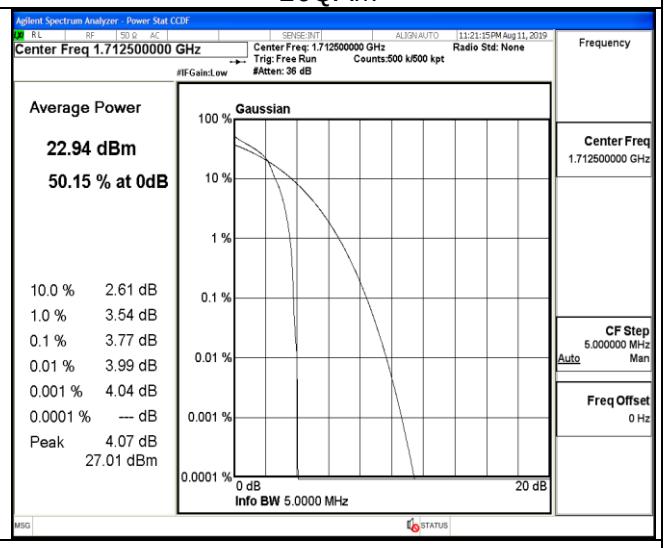
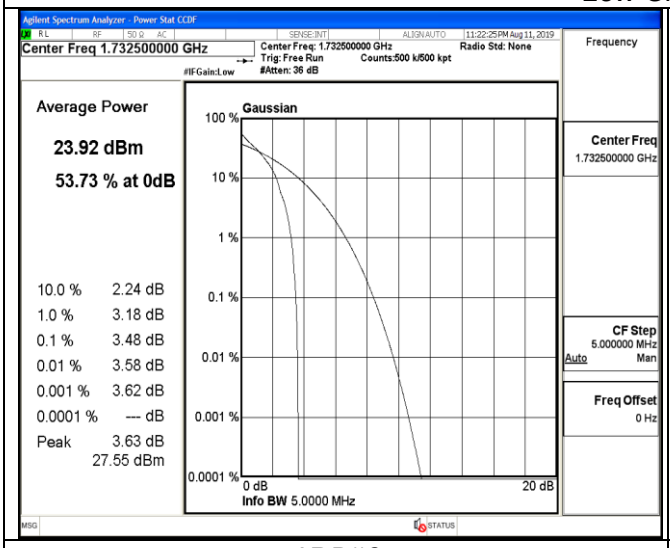
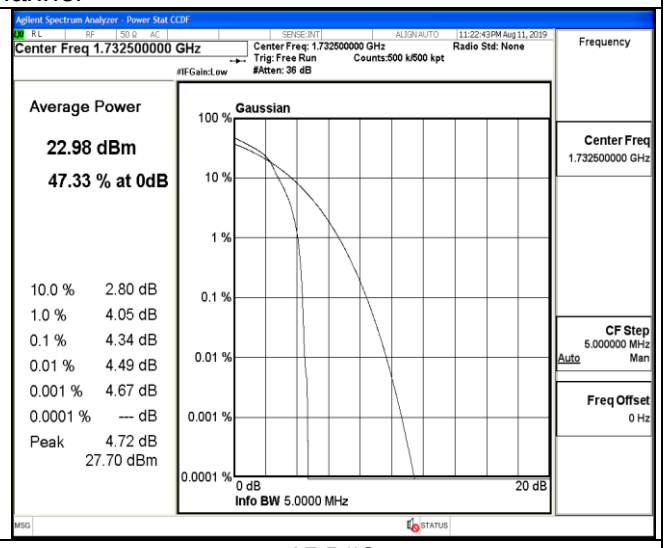
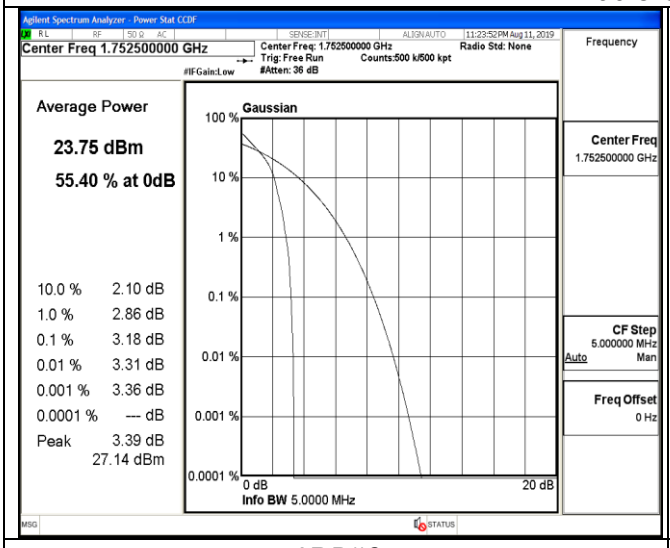
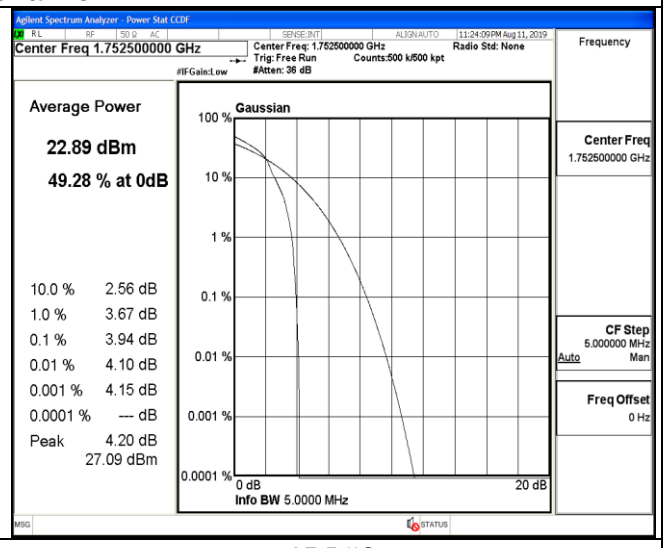
Remark:

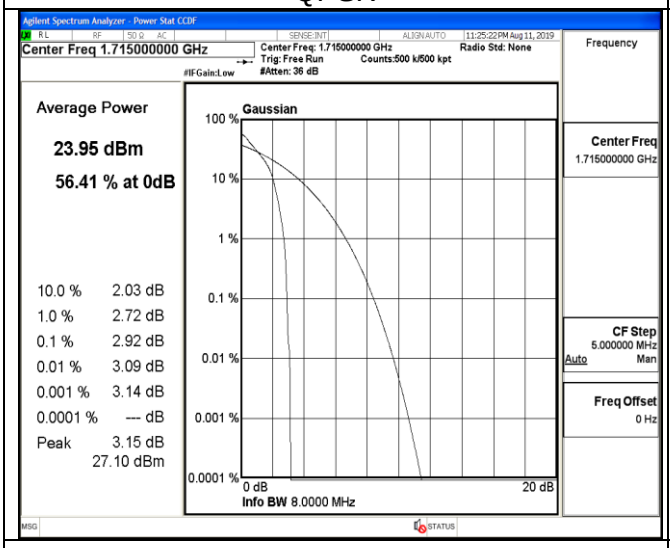
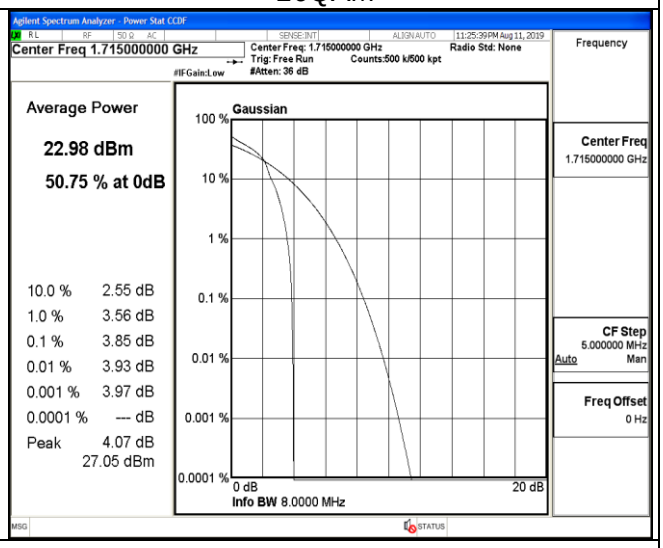
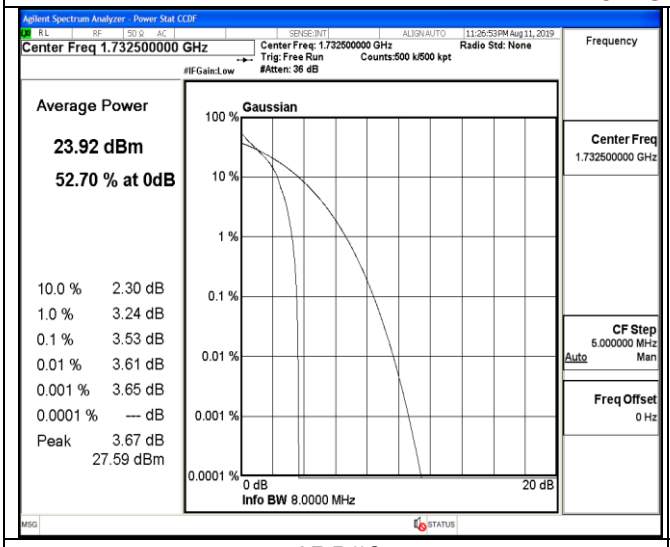
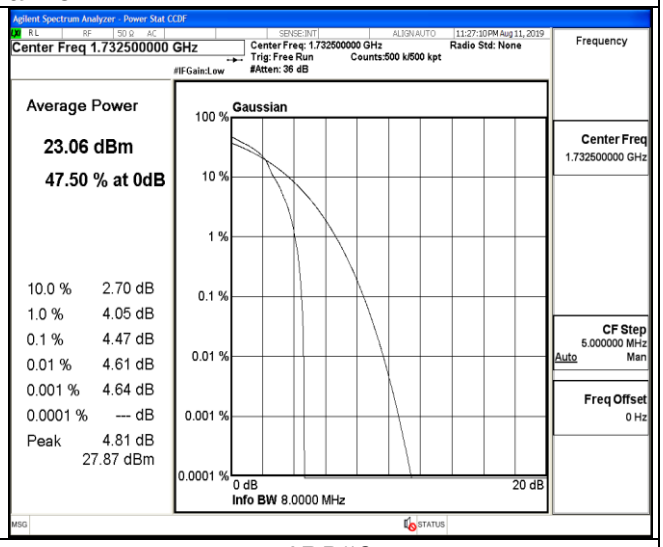
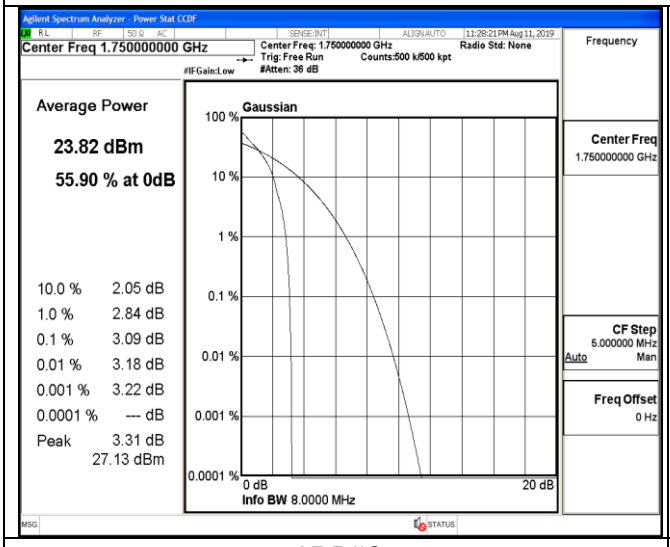
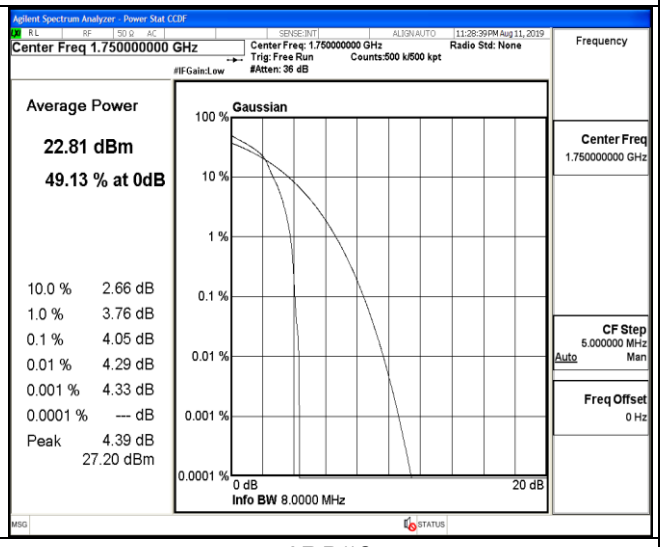
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.*

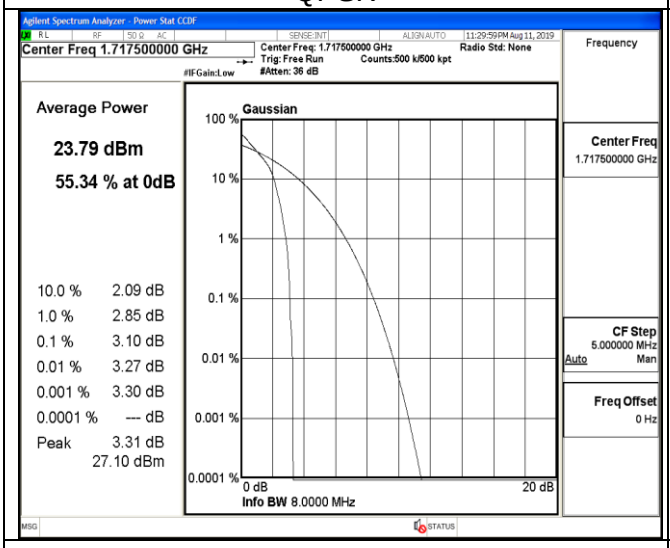
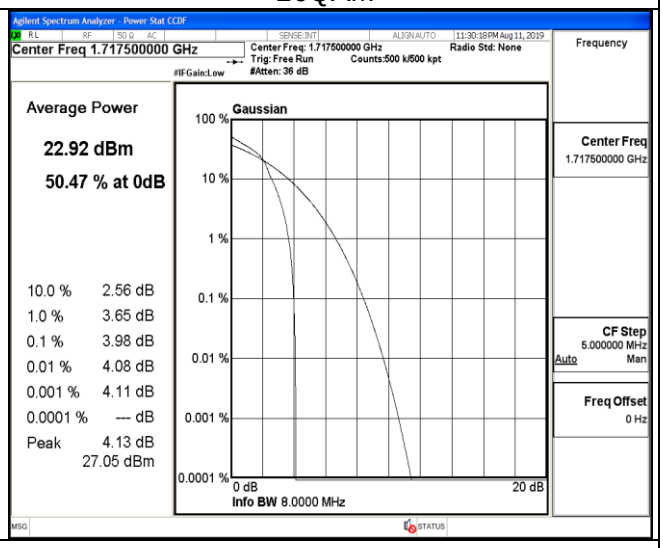
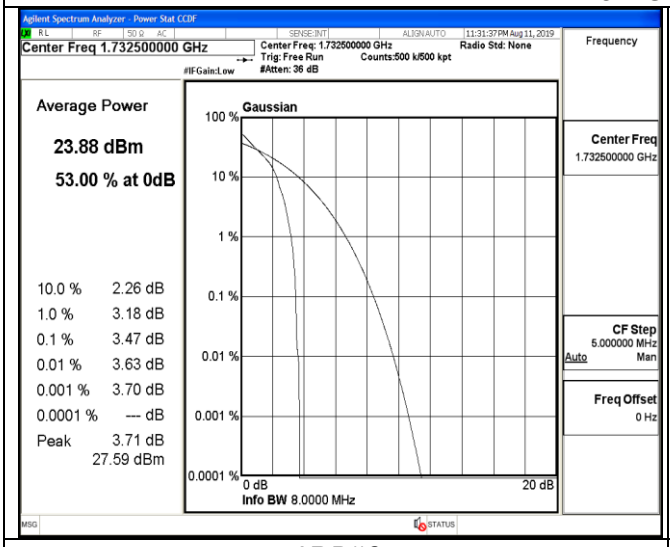
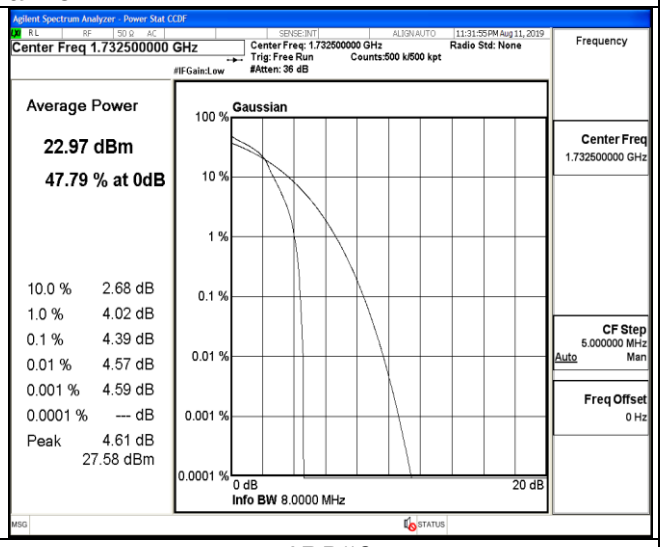
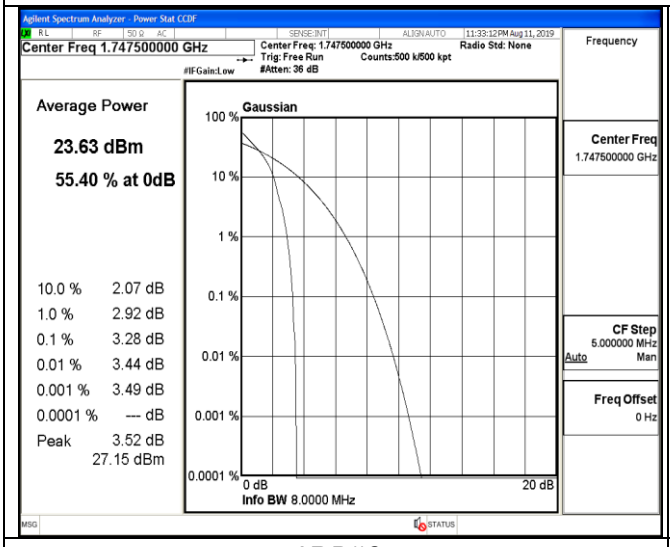
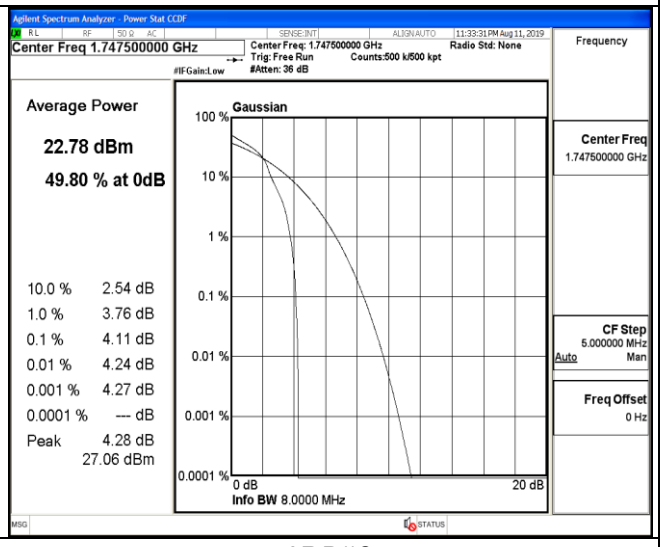
LTE FDD Band 4				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR (dB)	
			QPSK	16QAM
1.4 MHz	1710.7	*1RB#0*	2.92	3.91
	1732.5		3.43	4.42
	1754.3		3.19	4.15
3 MHz	1711.5	*1RB#0*	2.77	3.61
	1732.5		3.54	4.42
	1753.5		3.11	4.06
5 MHz	1712.5	*1RB#0*	2.84	3.77
	1732.5		3.48	4.34
	1752.5		3.18	3.94
10 MHz	1715.0	*1RB#0*	2.92	3.85
	1732.5		3.53	4.47
	1750.0		3.09	4.05
15 MHz	1717.5	*1RB#0*	3.10	3.98
	1732.5		3.47	3.39
	1747.5		3.28	4.11
20 MHz	1720.0	*1RB#0*	3.16	3.89
	1732.5		3.45	4.31
	1745.0		3.23	4.00

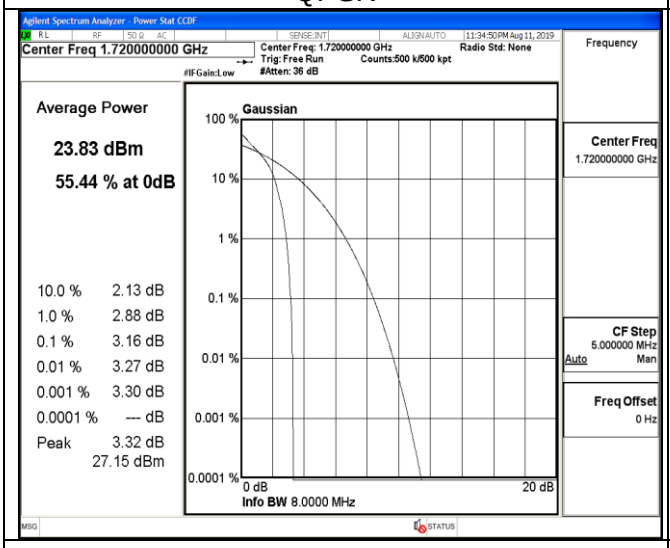
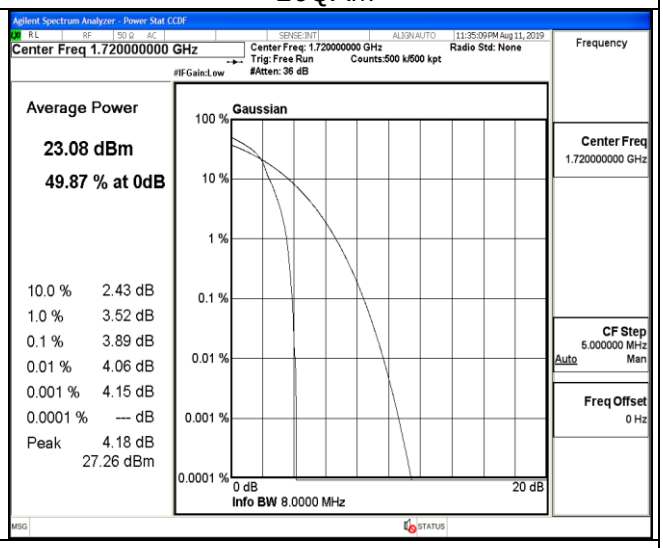
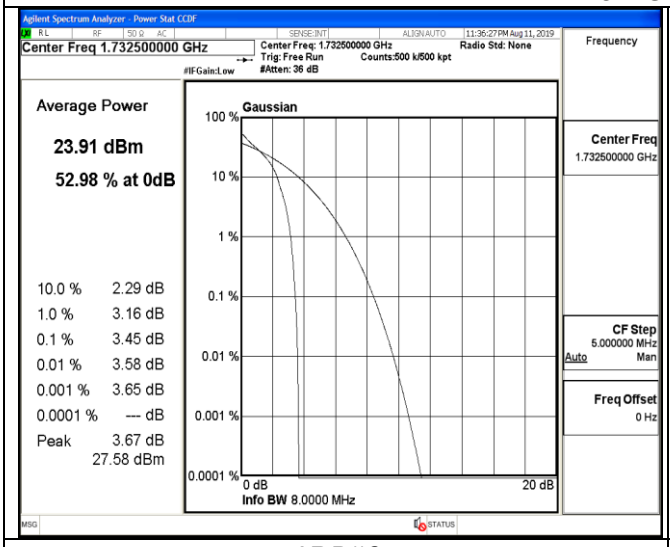
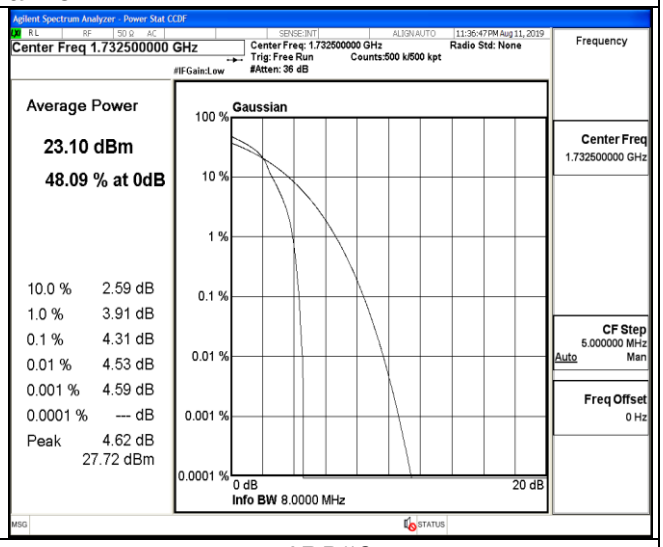
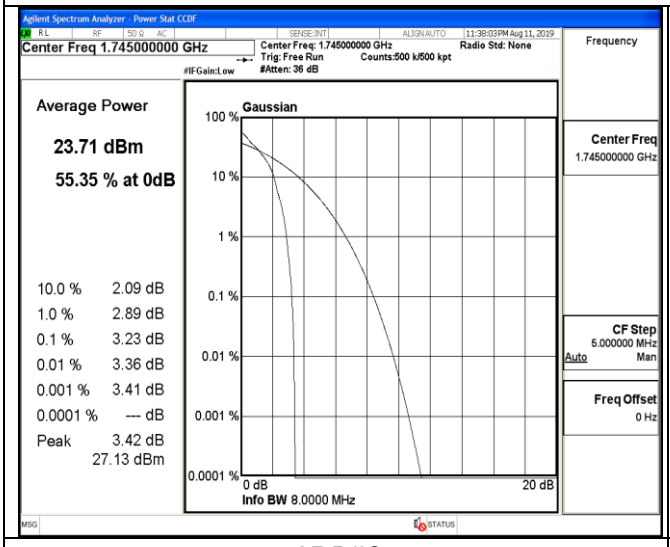
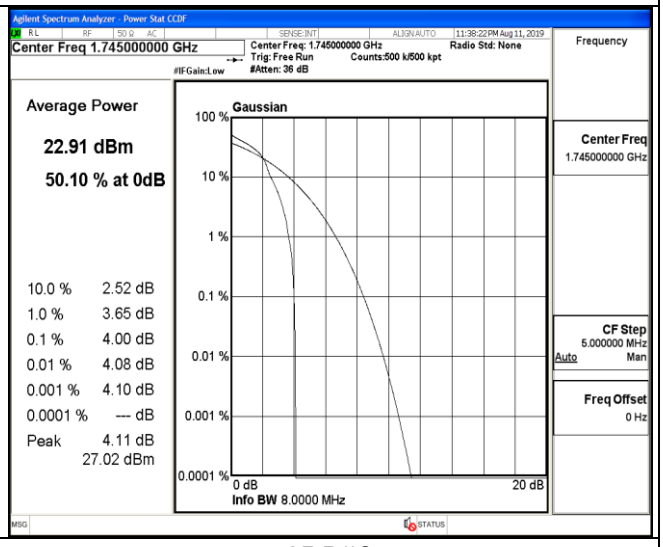
LTE FDD Band 4-1.4MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

LTE FDD Band 4-3MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

LTE FDD Band 4-5MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

LTE FDD Band 4-10MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

LTE FDD Band 4-15MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

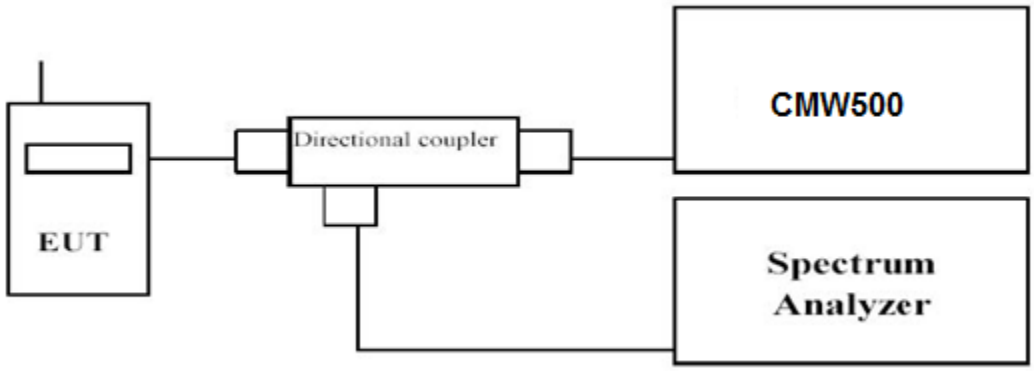
LTE FDD Band 4-20MHz Channel Bandwidth PAPR	
QPSK	*16QAM*
	
1RB#0	*1RB#0*
Low Channel	
	
1RB#0	*1RB#0*
Middle Channel	
	
1RB#0	*1RB#0*
High Channel	

3.3 Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



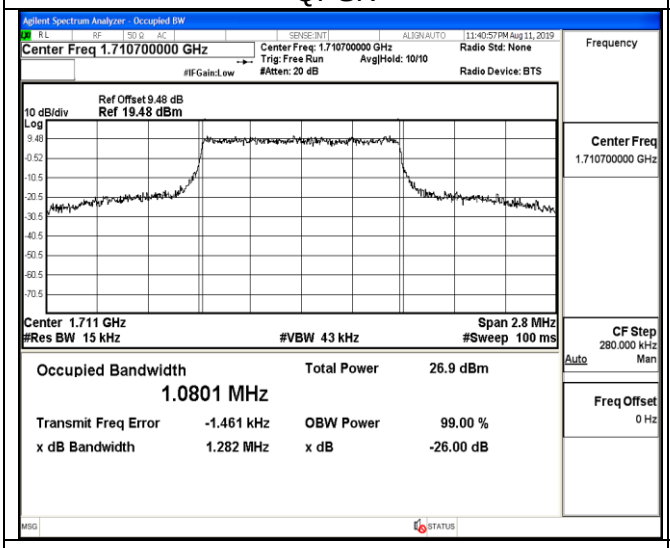
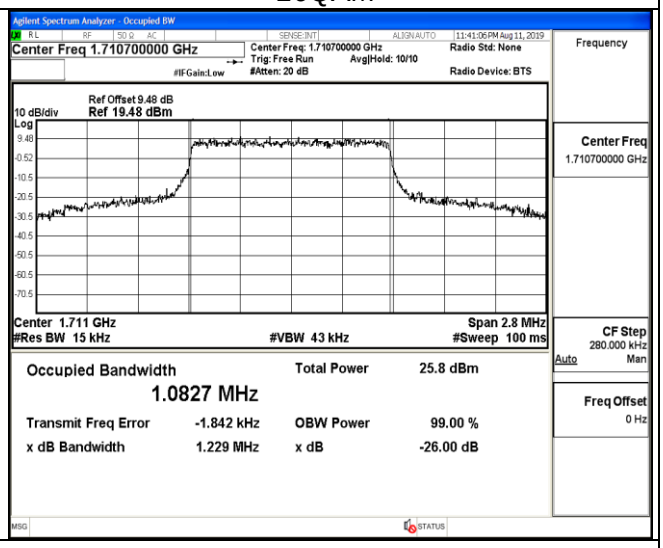
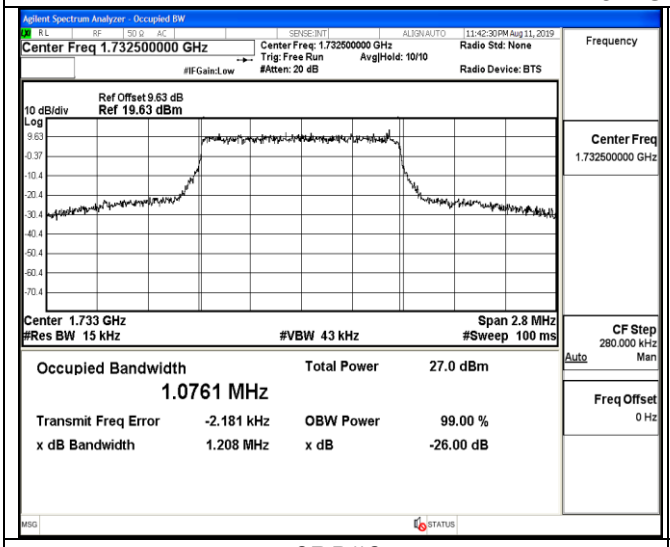
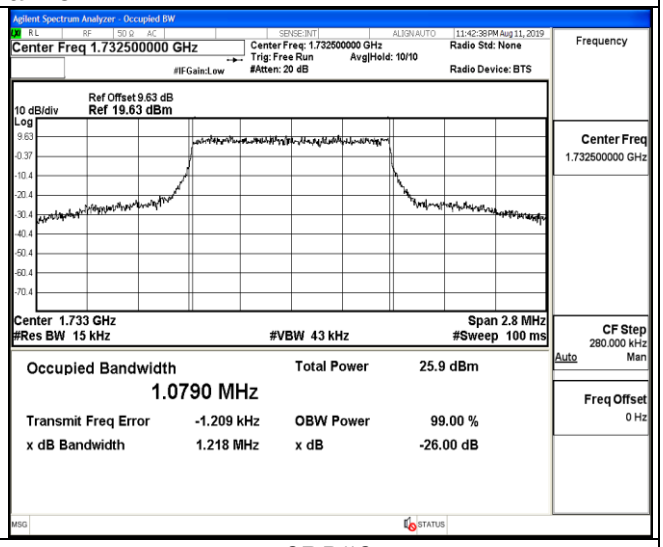
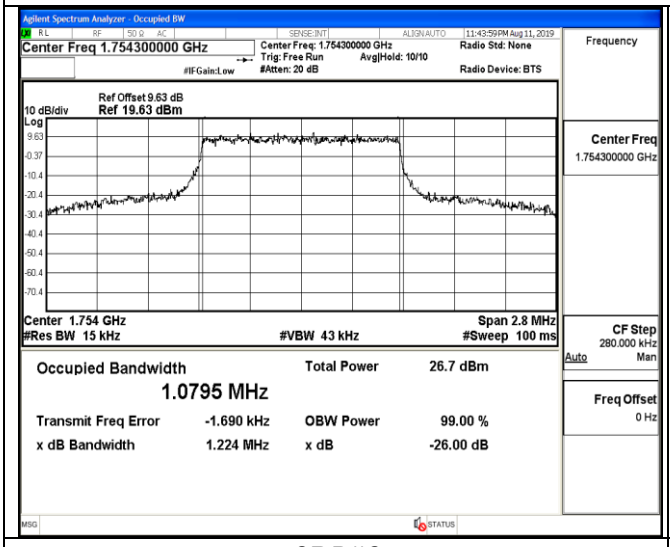
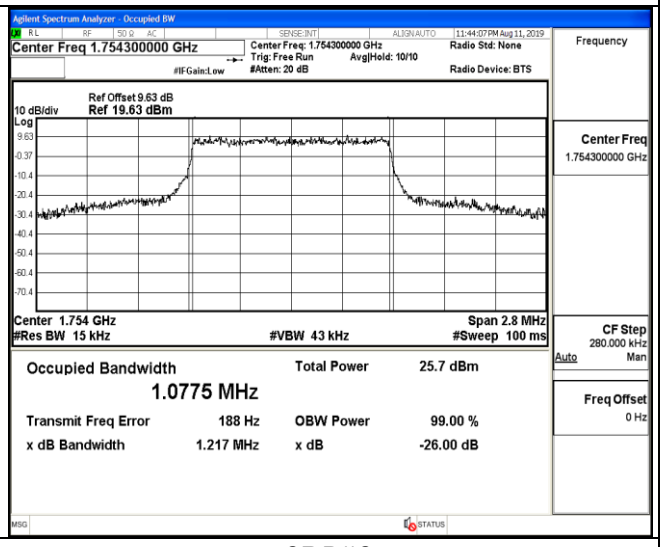
TEST PROCEDURE

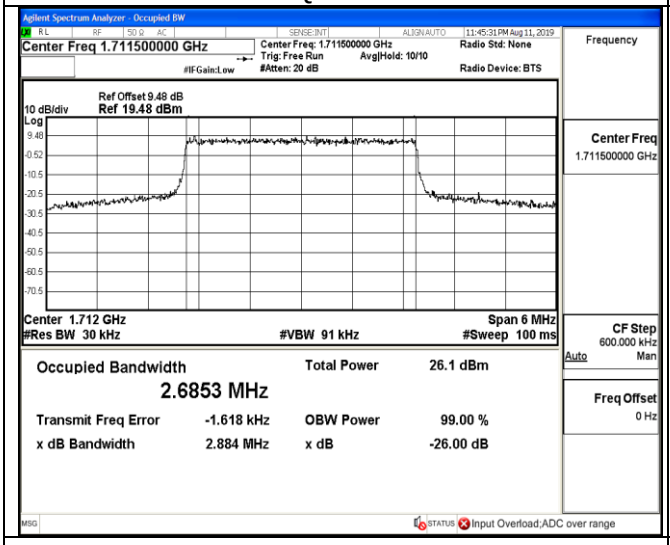
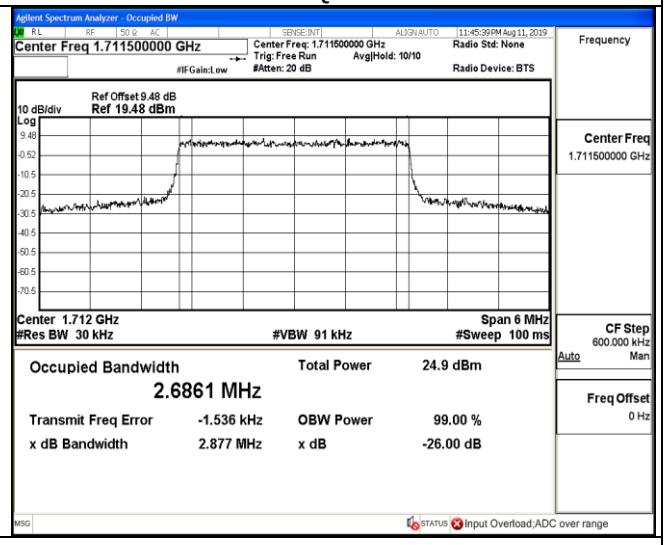
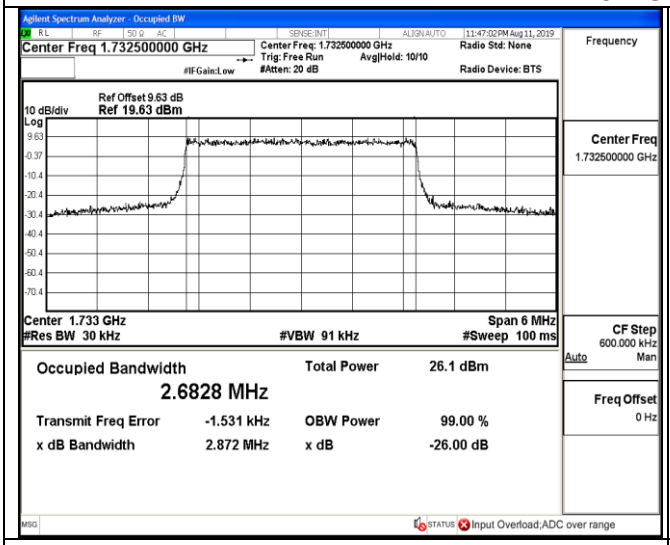
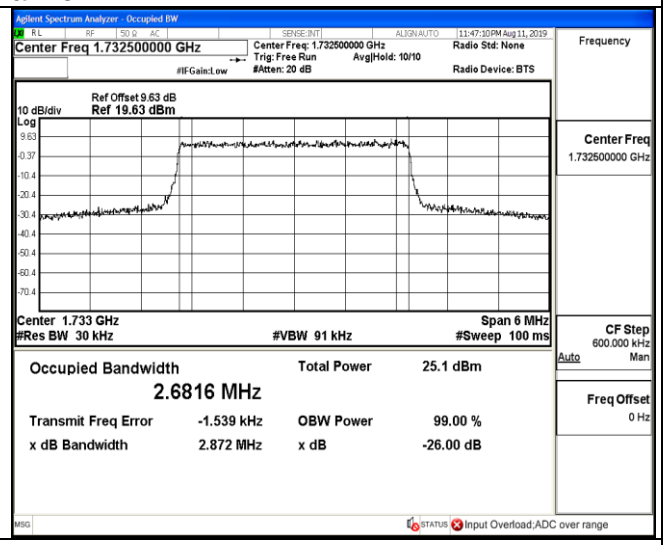
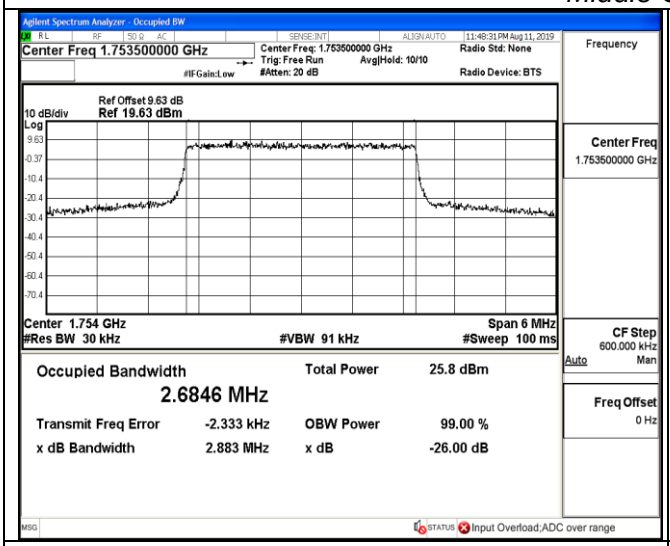
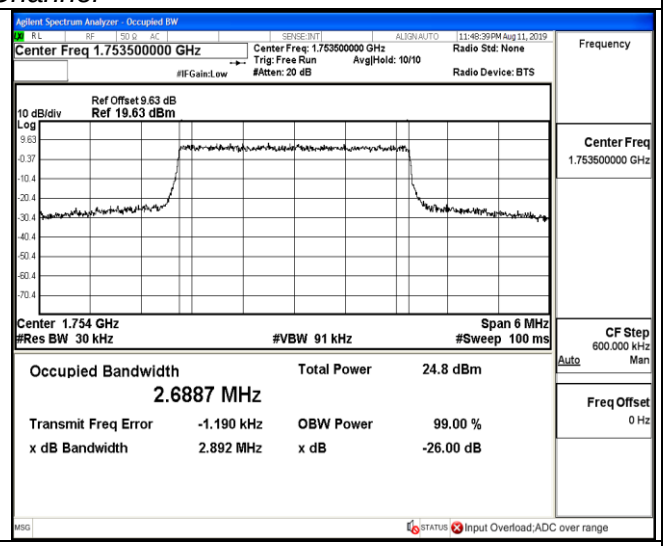
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and 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.

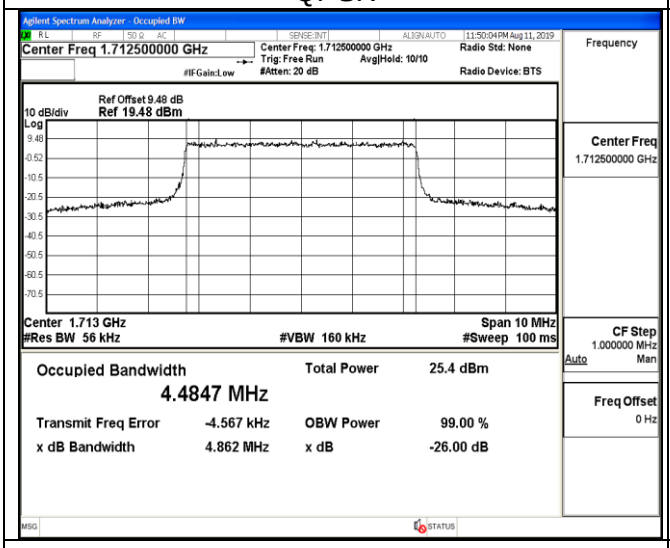
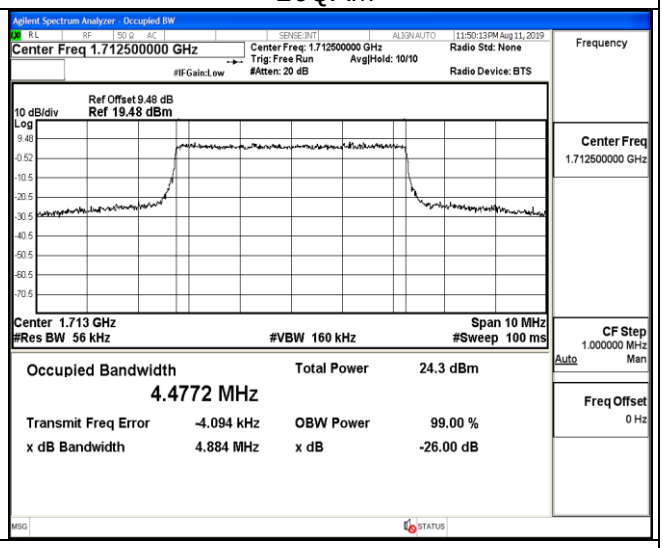
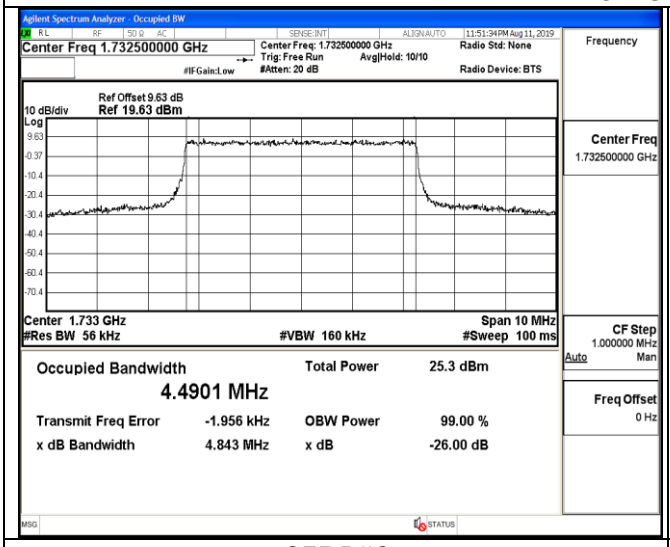
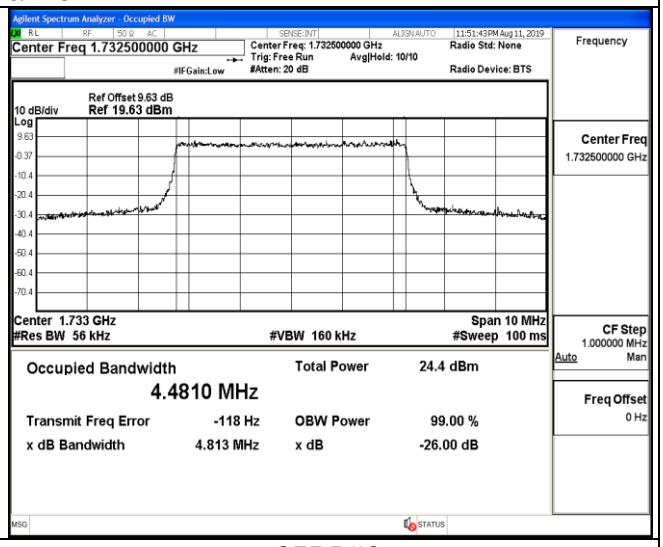
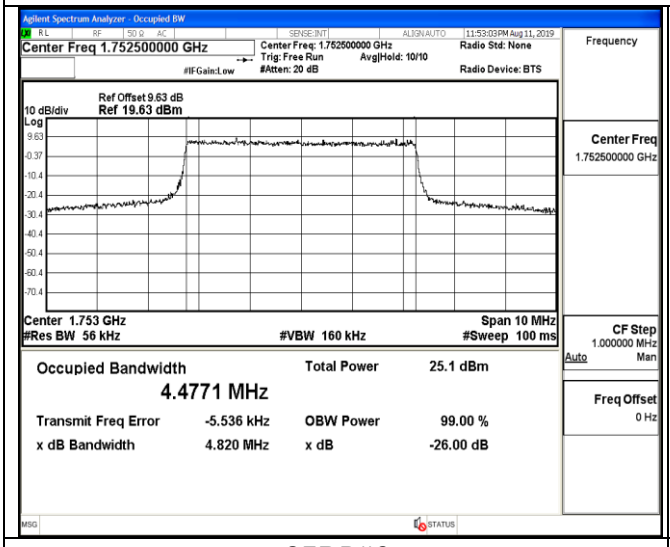
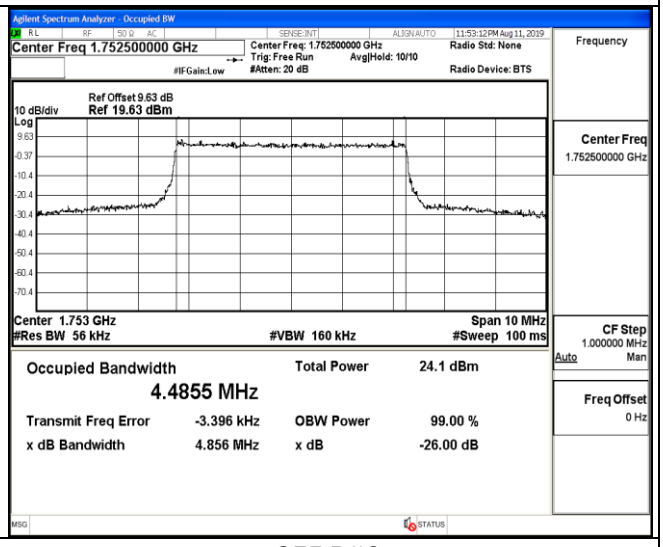
TEST RESULTS

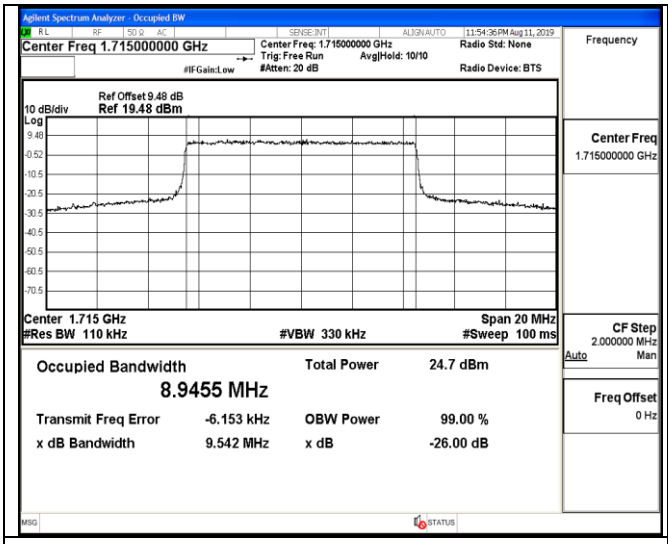
Remark:
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 4; recorded worst case for each Channel Bandwidth of LTE FDD Band 4.*

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	1.282	1.229	1.0801	1.0827
		1732.5	1.208	1.218	1.0761	1.0790
		1754.3	1.224	1.217	1.0795	10.775
3 MHz	*15RB#0*	1711.5	2.884	2.877	2.6853	2.6861
		1732.5	2.872	2.872	2.6828	2.6816
		1753.5	2.883	2.892	2.6846	2.6887
5 MHz	*25RB#0*	1712.5	4.862	4.886	4.4847	4.4772
		1732.5	4.843	4.813	4.4901	4.4810
		1752.5	4.820	4.856	4.4771	4.4855
10 MHz	*50RB#0*	1715.0	9.542	9.483	8.9455	8.9423
		1732.5	9.523	7.472	8.9483	8.9391
		1750.0	9.566	9.444	8.9390	8.9415
15 MHz	*75RB#0*	1717.5	14.35	14.11	13.424	13.415
		1732.5	14.10	14.14	13.413	13.406
		1747.5	14.32	14.13	13.420	13.417
20 MHz	*100RB#0*	1720.0	18.73	18.67	17.888	17.878
		1732.5	18.72	18.60	17.873	17.877
		1745.0	18.80	18.64	17.881	17.849

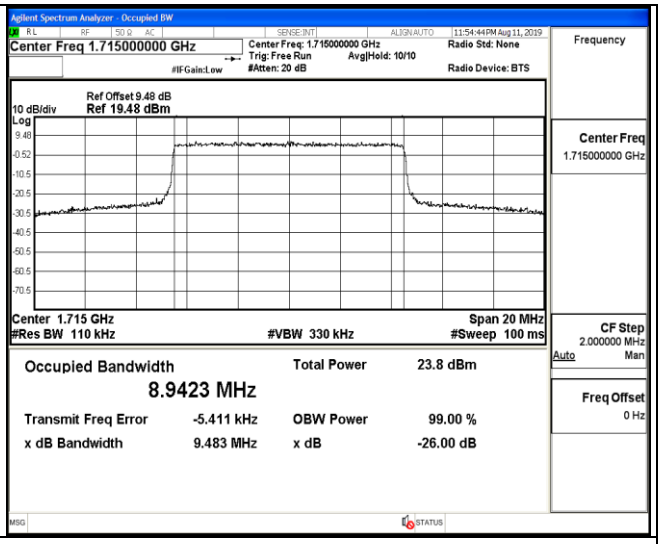
LTE FDD Band 4-1.4MHz Channel Bandwidth	
QPSK	*16QAM*
	
6RB#0	*6RB#0*
Low Channel	
	
6RB#0	*6RB#0*
Middle Channel	
	
6RB#0	*6RB#0*
High Channel	

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*

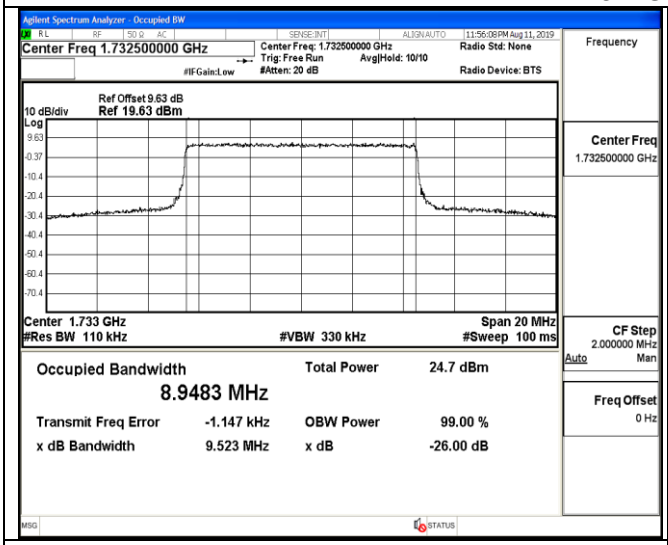


50RB#0

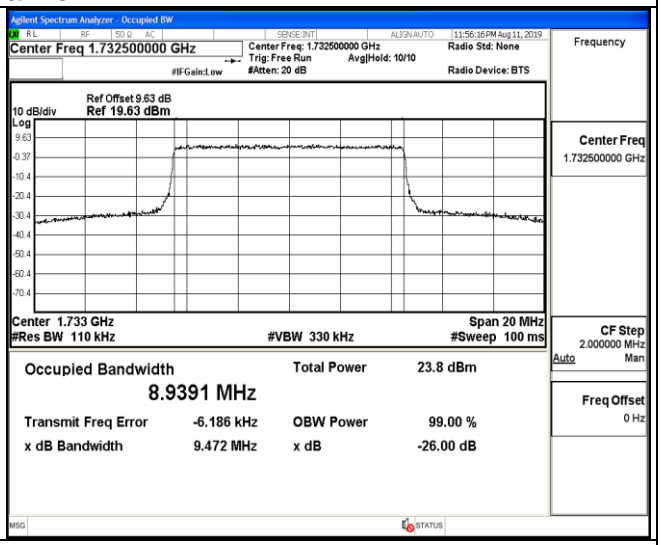


50RB#0

Low Channel

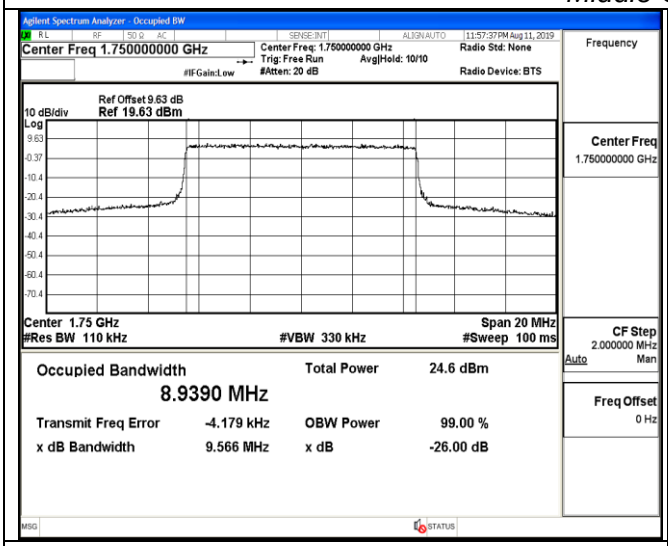


50RB#0

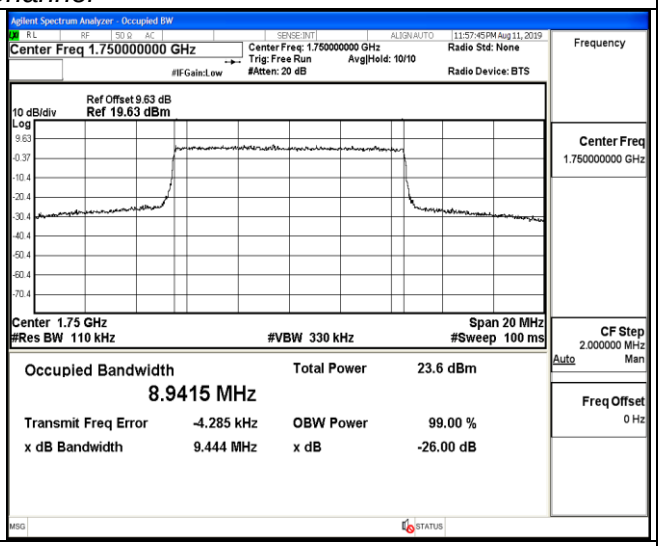


50RB#0

Middle Channel

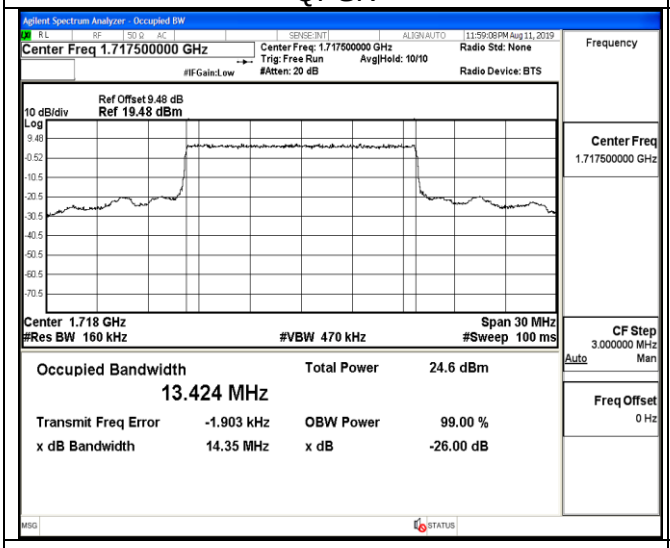
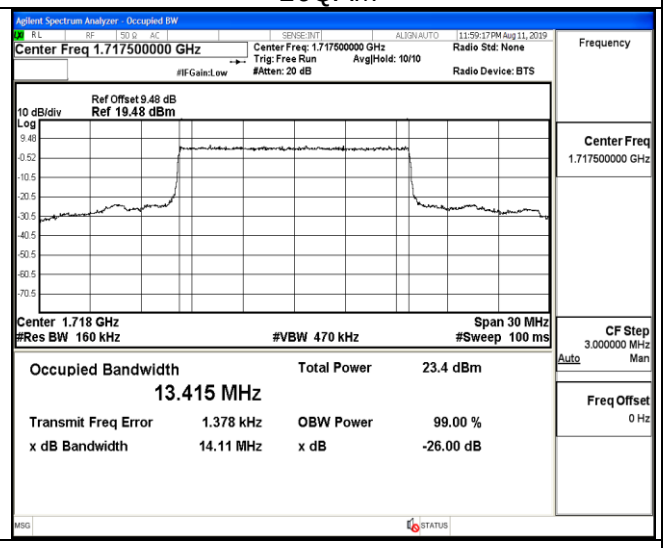
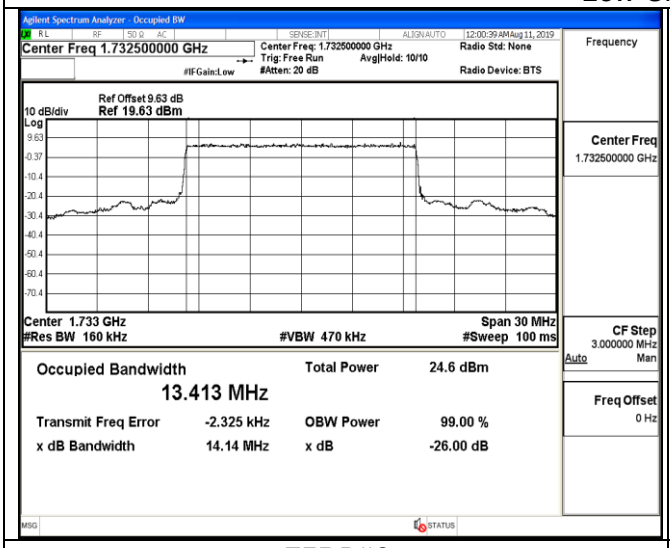
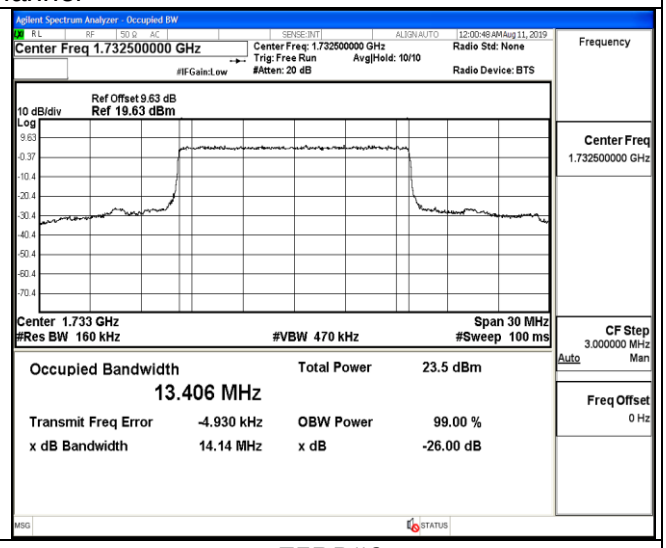
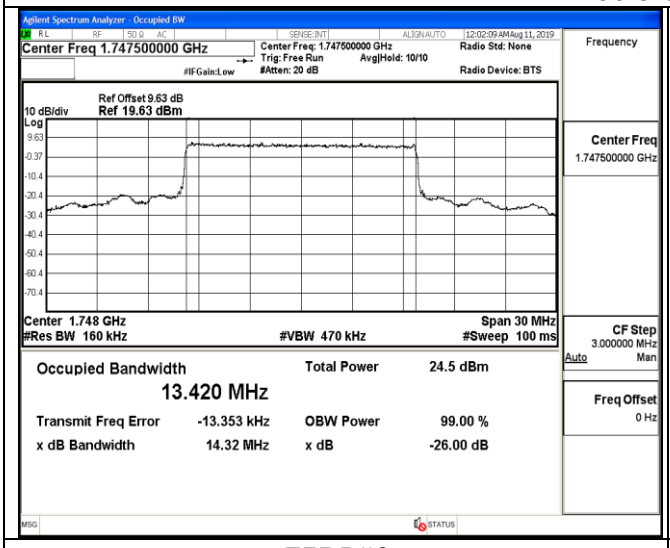
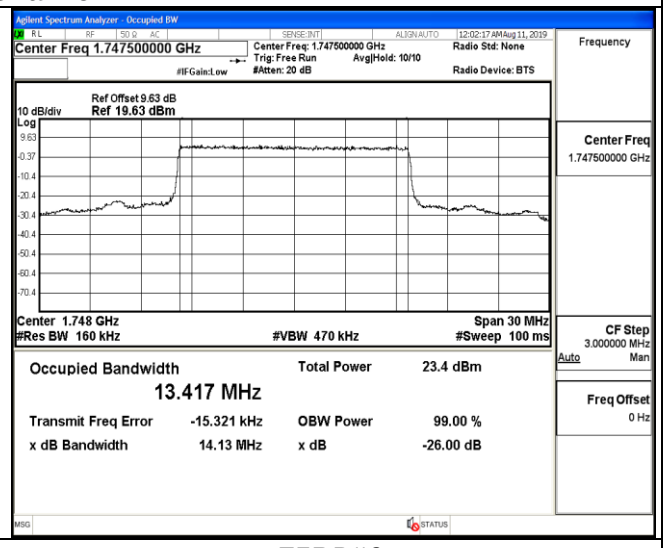


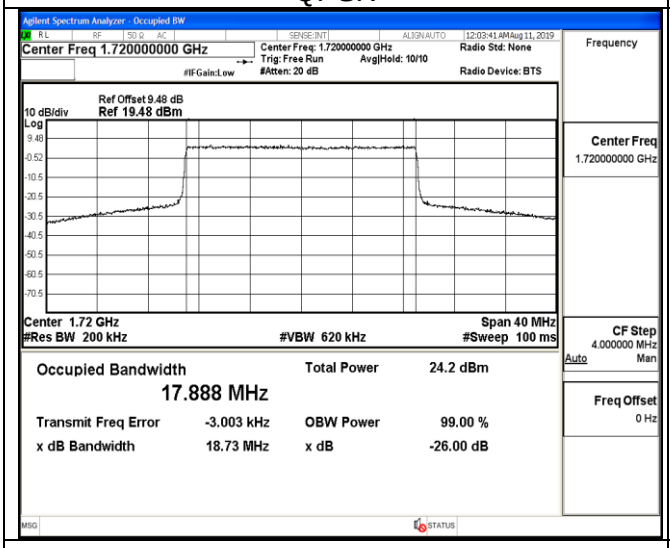
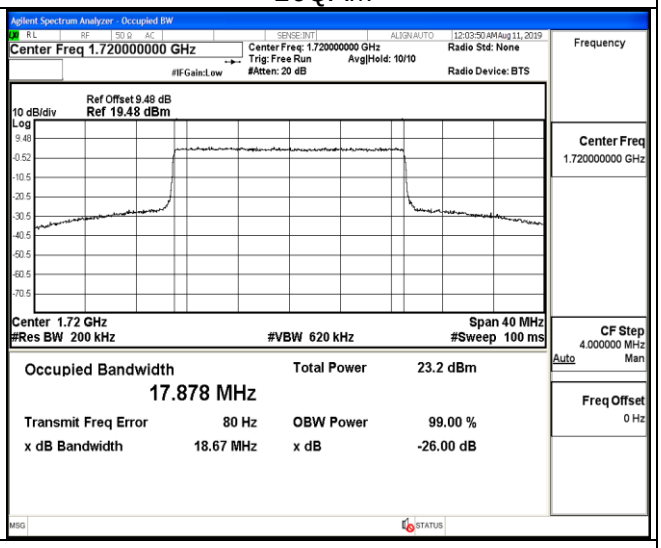
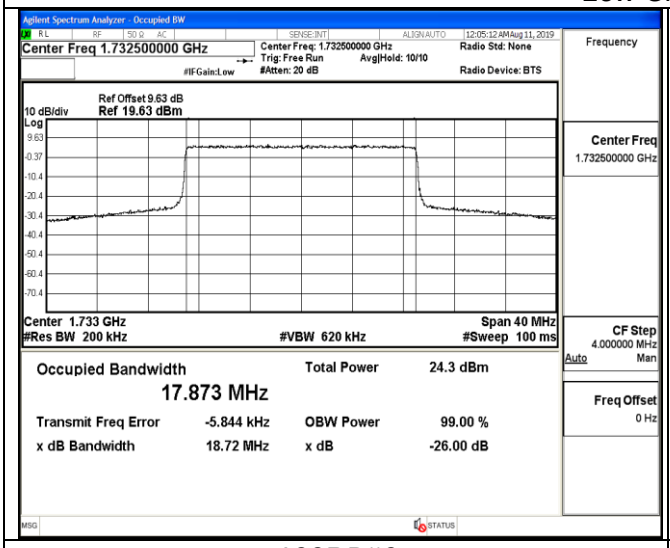
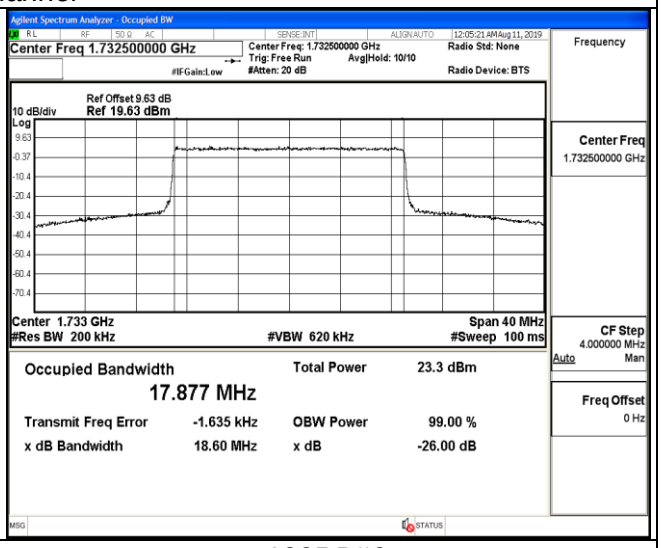
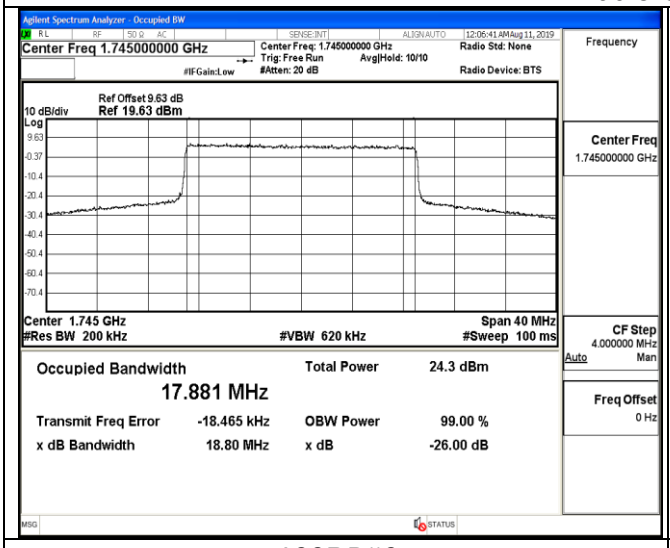
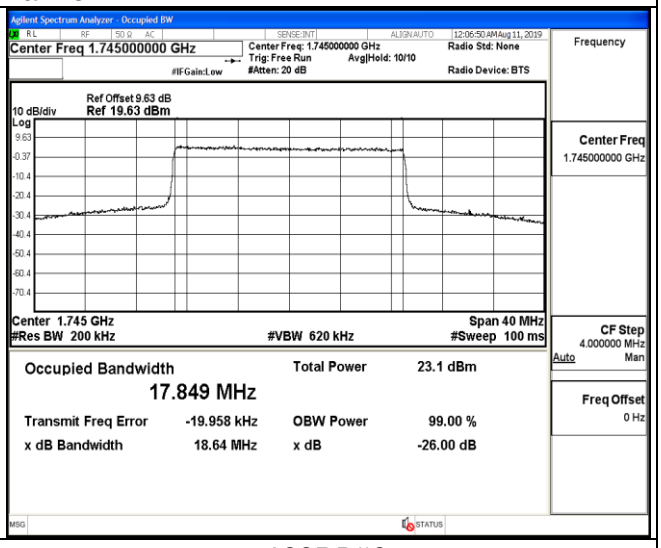
50RB#0



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	