TEST REPORT
FCC Part 27

Report Reference No.....:	HK1902190264-1E
FCC ID.....:	**2ALKI-P20L**
Compiled by (position+printed name+signature)..:	File administrators Gary Qian
Supervised by (position+printed name+signature)..:	Technique principal Eden Hu
Approved by (position+printed name+signature)..:	Manager Jason Zhou
Date of issue.....:	Mar. 20, 2019

Testing Laboratory Name .....:	**Shenzhen HUAK Testing Technology Co., Ltd.**
Address .....:	1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen,China
Applicant's name.....:	**Wuhan Tianyu Information Industry Co., Ltd.**
Address .....:	HUST Industry Park, East-Lake Development Zone, Wuhan 430223, Hubei, China
Test specification .....**:**	
Standard .....:	**FCC CFR Title 47 Part 2, Part 27** **EIA/TIA 603-D: 2010** **ANSI C63.26:2015** **KDB971168 D01: v03r01**
TRF Originator.....:	Shenzhen HUAK Testing Technology Co., Ltd.

Test item description .....:	Smart POS
Trade Mark .....:	N/A
Manufacturer.....:	**Wuhan Tianyu Information Industry Co., Ltd.**
Model/Type reference.....:	P20L
Listed Models .....:	N/A
Modulation Type .....:	QPSK, 16QAM
Rating .....:	DC 3.7V From Battery; DC5V/2A From USB
Hardware version .....:	RC-LS501 E2.1
Software version.....:	V1.00
Result.....:	**PASS**

TEST REPORT

Test Report No. :	HK1902190264-1E	Mar. 20, 2019 Date of issue

Equipment under Test	:	Smart POS
Model /Type	:	P20L
Listed Models	:	N/A
Applicant	:	**Wuhan Tianyu Information Industry Co., Ltd.**
Address	:	HUST Industry Park, East-Lake Development Zone, Wuhan 430223, Hubei, China
Manufacturer	:	**Wuhan Tianyu Information Industry Co., Ltd.**
Address	:	HUST Industry Park, East-Lake Development Zone, Wuhan 430223, Hubei, China

Test Result:	**PASS**

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

Revison History

Revision	Issue Date	Revisions	Revised By
V1.0	2019-03-20	Initial Issue	James Zhou

Contents

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.
FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
KDB971168 D01:v03r01
MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

ANSI C63.26:2015:American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	Feb.18, 2019
Testing commenced on	:	Feb. 18, 2019
Testing concluded on	:	Mar. 20, 2019

2.2 Product Description

The**Wuhan Tianyu Information Industry Co., Ltd.**'s Model:P20Lor the "EUT" as referred to in this report; more general information as follows,for more details, refer to the user's manual of the EUT.

Name of EUT	Smart POS
Model/Type reference:	P20L
List Model:	/
Power supply:	DC 3.7V From Battery
Adapter Information	DC5V/2A From USB
Modilation Type	QPSK,16QAM
Antenna Type	Internal Antenna
Antenna Gain	-1.01dBi
Operation Frequency Band	LTE Band 41
Operation frequency	LTE Band 41: 2557.5~2652.5 MHz
LTE Release	R8
Extreme temp. Tolerance	-30°C to +50°C
Extreme vol. Limits	3.40VDC to 4.20VDC (nominal: 3.70VDC)

2.3 Equipment under Test

Power supply system utilised

Power supply voltage	:	○	120V/ 60 Hz	○	115V/60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

DC 3.7V From Battery;
DC5V/2A From USB

2.4 Short description of the Equipment under Test (EUT)

2.4.1 GeneralDescription

P20L is subscriber equipment in the LTE system. LTE frequency band is band 41; The Smart POS implements such functions as RF signal receiving/transmitting, LTE protocol processing, voice, video MMS service,etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and SIM card interface.

2.5 Normal Accessory setting

Fully charged battery was used during the test.

2.6 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.7 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2ALKI-P20L** filing to comply with FCC Part 27, Rules.

2.8 Modifications

No modifications were implemented to meet testing criteria.

2.9 GeneralTest Conditions/Configurations

2.9.1 TestEnvironment

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.40V
	VN	3.70V
	VH	4.20V

NOTE:VL=lowerextreme testvoltage VN=nominalvoltage
VH=upperextreme testvoltage TN=normaltemperature

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address : 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

FCC designation number : CN1229

test firm registration number : 616276

3.2 Test Description

Test Item	FCCRuleNo.	Verdict
Effective(Isotropic)RadiatedOutputPower	Part 2.1046 27.50(h)(2)	Pass
Peak-AverageRatio	Part 2.1046	Pass
ModulationCharacteristics	§2.1047	N/A
Bandwidth	Part 2.1049	Pass
BandEdgesCompliance	Part 2.1051 27.53(m)	Pass
SpuriousEmissionatAntennaTerminals	Part 2.1051 27.53(m)	Pass
Field Strengthof Spurious Radiation	Part 2.1053 27.53(m)	Pass
Frequency Stability	Part 2.1055 27.54	Pass
NOTE 1:For the verdict, the“N/A”denotes“not applicable”, the“N/T”denotes “nottested”.		

Remark:
1. The measurement uncertainty is not included in the test result.

3.3 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	ENV216	R&S	HKE-059	2018/12/28	2019/12/27
LISN	R&S	ENV216	HKE-002	2018/12/28	2019/12/27
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	2018/12/28	2019/12/26
Receiver	R&S	ESCI 7	HKE-010	2018/12/28	2019/12/27
Spectrum analyzer	Agilent	N9020A	HKE-048	2018/12/28	2019/12/27
RF automatic control unit	Tonscend	JS0806-2	HKE-060	2018/12/28	2019/12/27
Horn antenna	Schwarzbeck	9120D	HKE-013	2018/12/28	2019/12/26
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	2018/12/28	2019/12/26
Preamplifier	EMCI	EMC051845SE	HKE-015	2018/12/28	2019/12/27
Preamplifier	Agilent	83051A	HKE-016	2018/12/28	2019/12/27
Temperature and humidity meter	Boyang	HTC-1	HKE-075	2018/12/28	2019/12/27
High pass filter unit	Tonscend	JS0806-F	HKE-055	2018/12/28	2019/12/27
RF cable	Times	1-40G	HKE-034	2018/12/28	2019/12/27
Power meter	Agilent	E4419B	HKE-085	2018/12/28	2019/12/27
Power Sensor	Agilent	E9300A	HKE-086	2018/12/28	2019/12/27
Wireless Communication Test Set	R&S	CMW500	HKE-026	2018/12/28	2019/12/27
DC source	HP	HP6674A	HKE-090	2018/12/28	2019/12/27
3 meters full anechoic	chamber Shiel Hong	9*6*6	HKE-009	2017/12/27	2019/12/26
Broadband antenna	Schwarzbeck	VULB 9163	HKE-111	2018/12/28	2019/12/26
Horn antenna	Schwarzbeck	9120D	HKE-112	2018/12/28	2019/12/26

4 TEST CONDITIONS AND RESULTS

4.1 Output Power

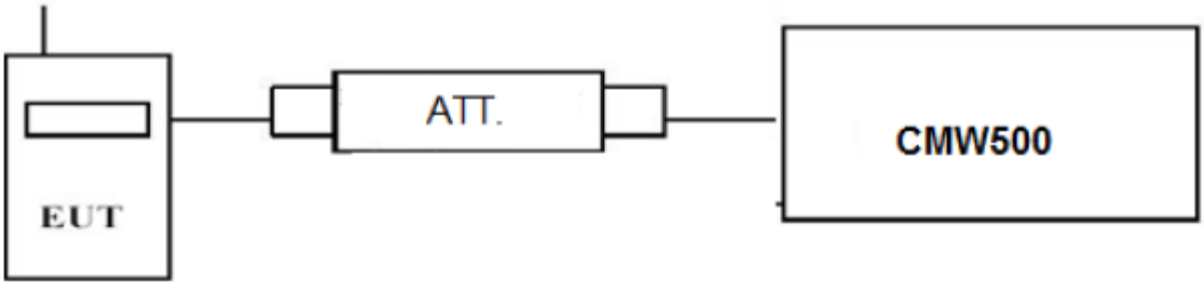
4.1.1 Coducted Output Power

TEST APPLICABLE

Part 27.50(h)(2) , during the process of testing, the EUT was controlled via R&S Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation. This result contains output power measurements for the EUT. In all cases, output power is within the specified limits.

TEST CONFIGURATION

Conducted Power Measurement:



TEST PROCEDURE

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 CMW500 by an Att.
c) EUT Communicate with CMW500 then selects a channel for testing.
d) Add a correction factor to the display CMW500, and then test.

TEST RESULTS

EUT：	Smart POS	Test Date:	Feb. 22, 2019
Temperature:	25^{0}C	Tested by:	Gary Qian
Humidity:	55 % RH	Test Voltage	Normal Voltage
Operation Mode:	Normal Voltage- Tx Mode		

Remark:
1. *We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE Band 41;*

LTE Band 41				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	Burst Average Power [dBm]	
			QPSK	16QAM
5 MHz	2557.5	1 RB low	22.50	21.66
		1 RB mid	22.58	21.53
		1 RB high	22.82	21.99
		50% RB low	21.57	20.75
		50% RB mid	21.66	20.60
		50% RB high	21.62	20.36
		100% RB	21.37	20.38
	2600.0	1 RB low	22.81	21.89
		1 RB mid	22.64	21.71
		1 RB high	22.56	21.67
		50% RB low	22.52	21.27
		50% RB mid	22.63	21.68
		50% RB high	22.35	21.64
		100% RB	22.64	21.62
	2652.5	1 RB low	22.72	21.17
		1 RB mid	22.54	21.11
		1 RB high	22.95	21.03
		50% RB low	22.01	20.96
		50% RB mid	22.13	21.07
		50% RB high	22.08	21.02
		100% RB	21.99	21.07
10 MHz	2560.0	1 RB low	22.61	21.99
		1 RB mid	22.36	21.86
		1 RB high	22.73	21.71
		50% RB low	22.57	20.52
		50% RB mid	22.65	20.75
		50% RB high	22.43	20.61
		100% RB	21.86	20.76
	2600.0	1 RB low	22.76	21.52
		1 RB mid	22.35	21.25
		1 RB high	22.56	21.42
		50% RB low	22.15	21.14
		50% RB mid	22.43	21.24
		50% RB high	22.24	21.06
		100% RB	22.24	21.42
	2650.0	1 RB low	22.38	21.63
		1 RB mid	22.16	21.14
		1 RB high	22.10	21.38
		50% RB low	21.64	21.06
		50% RB mid	21.84	21.18
		50% RB high	21.36	21.11
		100% RB	21.48	20.56
15 MHz	2562.5	1 RB low	21.59	20.63
		1 RB mid	21.41	20.62
		1 RB high	21.72	20.68
		50% RB low	21.68	20.58
		50% RB mid	22.00	20.98

		50% RB high	21.59	20.67
		100% RB	21.83	20.78
	2600.0	1 RB low	22.73	21.41
		1 RB mid	22.18	21.06
		1 RB high	22.49	21.23
		50% RB low	22.20	21.00
		50% RB mid	22.25	21.03
		50% RB high	22.13	20.99
		100% RB	22.02	21.24
	2647.5	1 RB low	21.29	20.53
		1 RB mid	21.25	20.26
		1 RB high	21.45	20.30
		50% RB low	21.03	20.31
		50% RB mid	21.30	20.44
		50% RB high	21.10	20.27
		100% RB	21.32	20.41
20 MHz	2570.0	1 RB low	23.06	21.93
		1 RB mid	22.56	22.13
		1 RB high	22.23	22.34
		50% RB low	22.36	22.36
		50% RB mid	22.54	22.71
		50% RB high	22.25	22.54
		100% RB	22.26	20.83
	2600.0	1 RB low	23.02	22.54
		1 RB mid	22.68	22.31
		1 RB high	22.56	22.27
		50% RB low	22.12	21.36
		50% RB mid	22.35	21.67
		50% RB high	22.20	21.52
		100% RB	22.13	21.36
	2640.0	1 RB low	22.82	22.16
		1 RB mid	22.26	21.96
		1 RB high	22.49	21.80
		50% RB low	22.00	21.03
		50% RB mid	22.01	21.28
		50% RB high	21.86	21.12
		100% RB	21.94	21.13

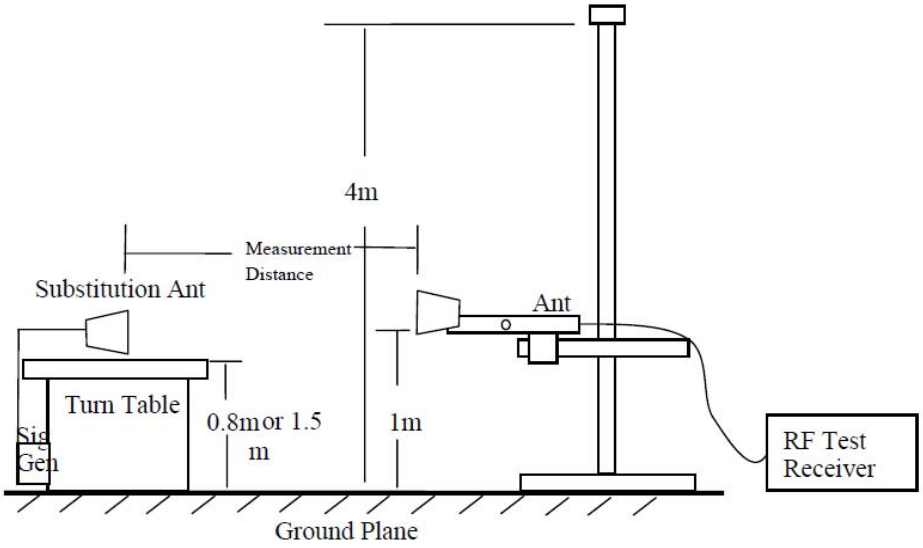
4.1.2. Radiated Output Power

LIMIT

This is the test for the maximum radiated power from the EUT.

TEST CONFIGURATION

Radiated Power Measurement:
remark : 0.8m for below 1GHz, 1.5m for above 1GHz



TEST PROCEDURE
The EUT was setup according to EIA/TIA 603D

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

EUT：	Smart POS	Test Date:	Feb. 19, 2019
Temperature:	25^{0}C	Tested by:	Gary Qian
Humidity:	55 % RH	Test Voltage	Normal Voltage
Operation Mode:	Normal Voltage- Tx Mode		

Radiated Measurement:

Remark:

1. *We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE Band 41; recorded worst case for each Channel Bandwidth of LTE Band 41.*
2. *EIRP=P_s(dBm)-P_{cl}(dB)+G_a(dBi)*
3. *We measured both Horizontal and Vertical direction, recorded worst case direction.*

LTE Band 41_Channel Bandwidth 5MHz_QPSK_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2557.5	7.63	3.41	15.12	19.34	33.01	13.67	V
2600.0	7.69	3.49	15.12	19.32	33.01	13.69	V
2652.5	7.33	3.55	15.12	18.9	33.01	14.11	V

LTE Band 41_Channel Bandwidth 10MHz_QPSK_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2560.0	7.66	3.41	15.12	19.37	33.01	13.64	V
2600.0	7.81	3.49	15.12	19.44	33.01	13.57	V
2650.0	7.27	3.55	15.12	18.84	33.01	14.17	V

LTE Band 41_Channel Bandwidth 15MHz_QPSK_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2562.5	7.61	3.41	15.12	19.32	33.01	13.69	V
2600.0	7.86	3.49	15.12	19.49	33.01	13.52	V
2647.5	7.39	3.55	15.12	18.96	33.01	14.05	V

LTE Band 41_Channel Bandwidth 20MHz_QPSK_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2570.0	7.76	3.41	15.12	19.47	33.01	13.54	V
2600.0	7.86	3.49	15.12	19.49	33.01	13.52	V
2640.0	7.16	3.55	15.12	18.73	33.01	14.28	V

LTE Band 41_Channel Bandwidth 5MHz_16QAM_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2557.5	7.50	3.41	15.12	19.21	33.01	13.8	V
2600.0	7.80	3.49	15.12	19.43	33.01	13.58	V
2652.5	7.50	3.55	15.12	19.07	33.01	13.94	V

LTE Band 41_Channel Bandwidth 10MHz_16QAM_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2560.0	7.65	3.41	15.12	19.36	33.01	13.65	V
2600.0	7.81	3.49	15.12	19.44	33.01	13.57	V
2650.0	7.42	3.55	15.12	18.99	33.01	14.02	V

LTE Band 41_Channel Bandwidth 15MHz_16QAM_1RB#0

Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2562.5	7.63	3.41	15.12	19.34	33.01	13.67	V
2600.0	7.86	3.49	15.12	19.49	33.01	13.52	V
2647.5	7.36	3.55	15.12	18.93	33.01	14.08	V

LTE Band 41_Channel Bandwidth 20MHz_16QAM_1RB#0

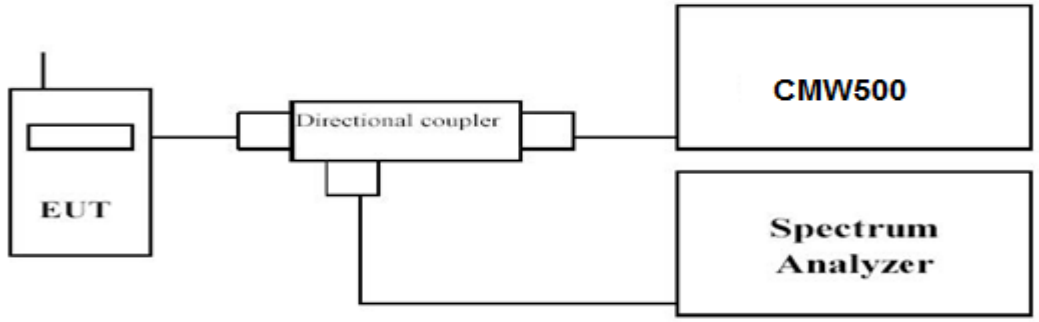
Frequency (MHz)	P_s (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Burst Average EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2570.0	7.8	3.41	15.12	19.51	33.01	13.5	V
2600.0	7.62	3.49	15.12	19.25	33.01	13.76	V
2640.0	7.38	3.55	15.12	18.95	33.01	14.06	V

4.2 Peak-to-Average Ratio (PAR)

LIMIT

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

TEST CONFIGURATION



TEST PROCEDURE

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

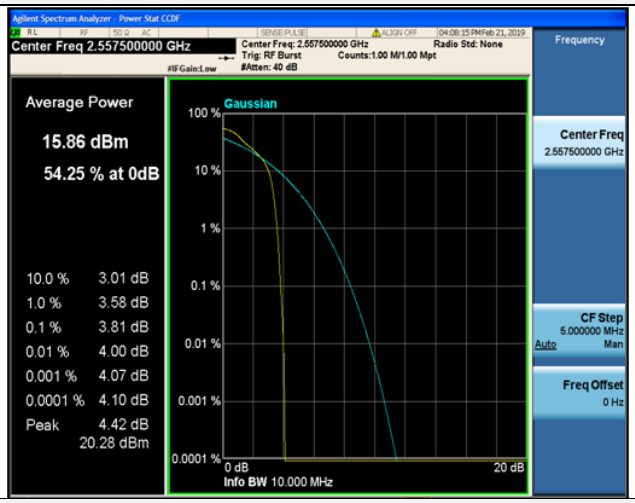
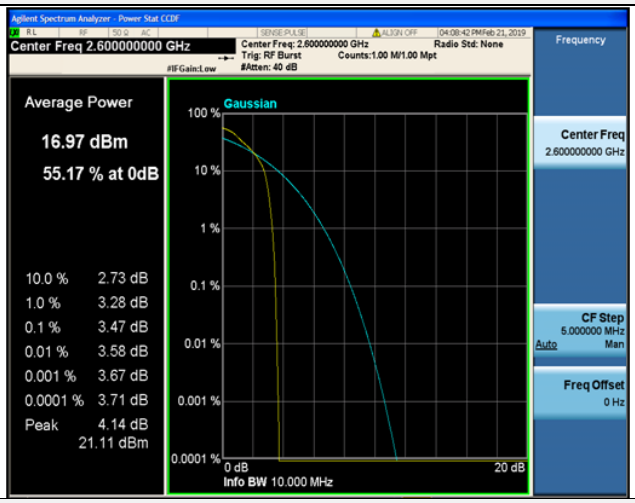
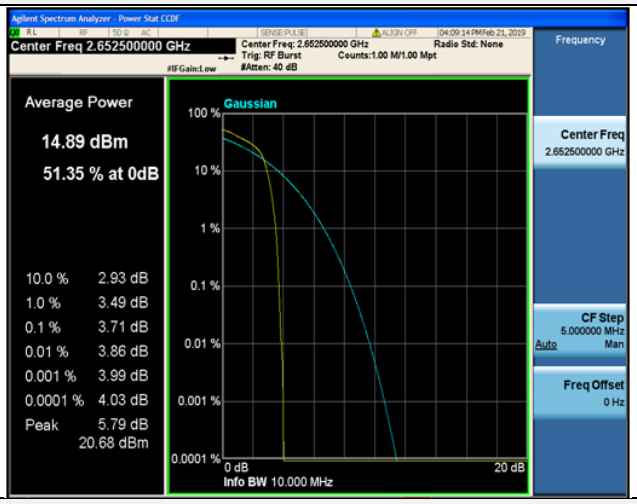
TEST RESULTS

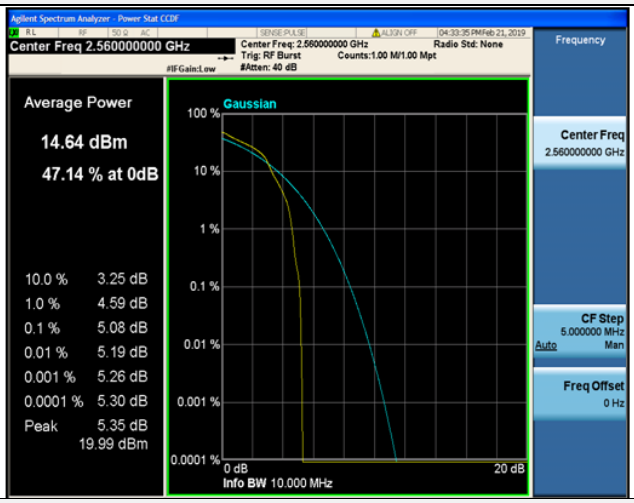
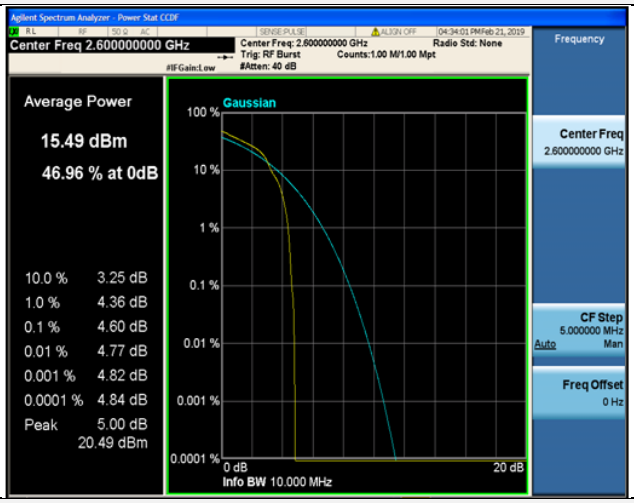
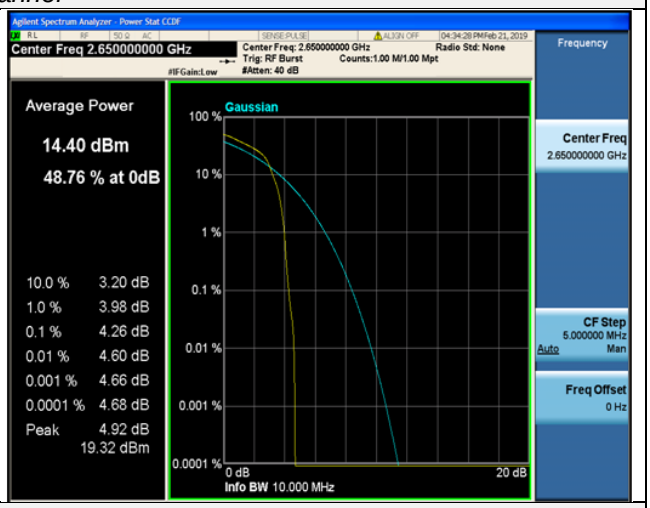
EUT：	Smart POS	Test Date:	Feb. 22, 2019
Temperature:	25^{0}C	Tested by:	Gary Qian
Humidity:	55 % RH	Test Voltage	Normal Voltage
Operation Mode:	Normal Voltage- Tx Mode		

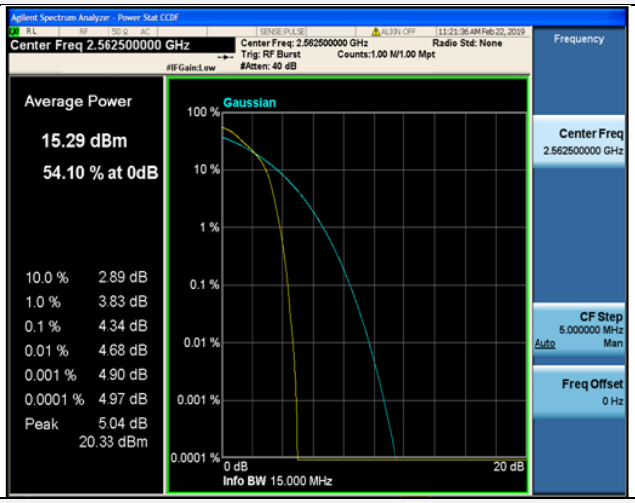
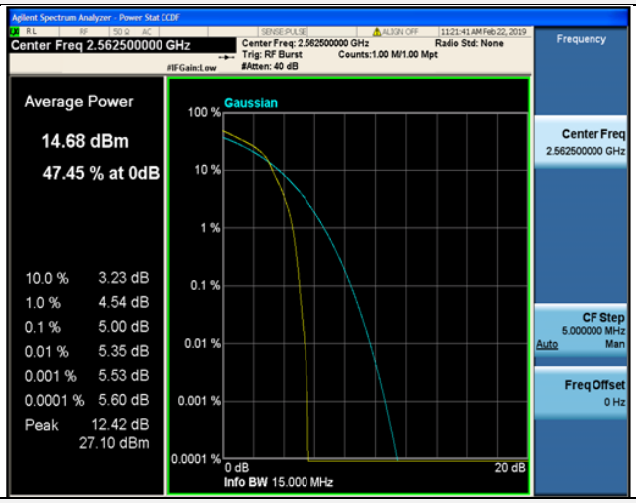
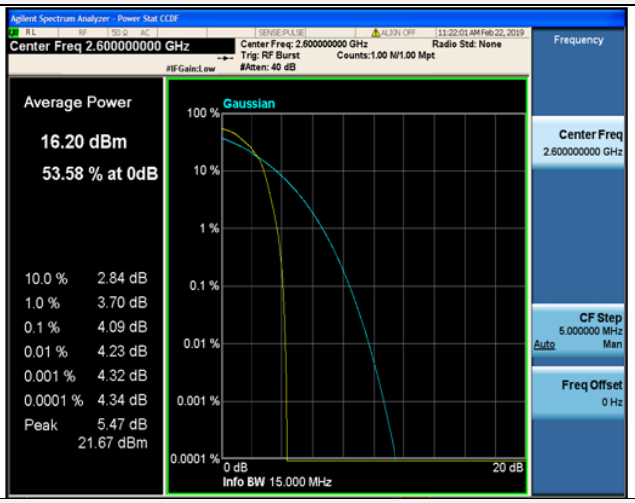
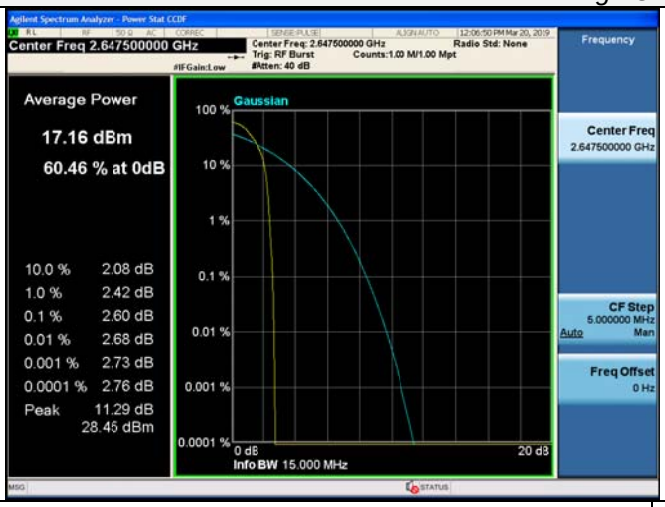
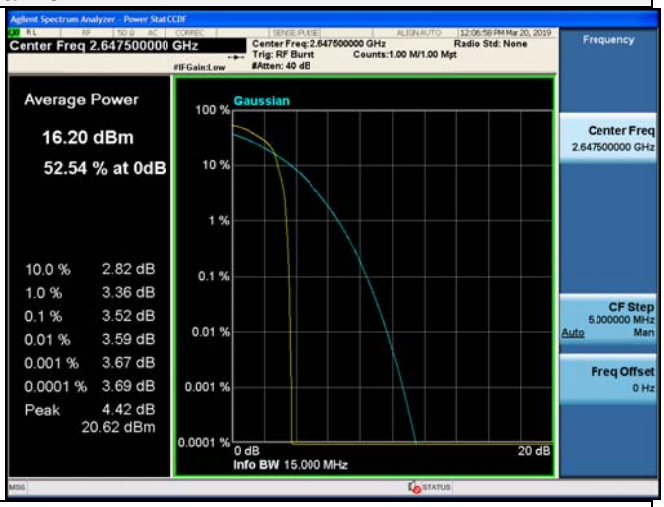
Remark:

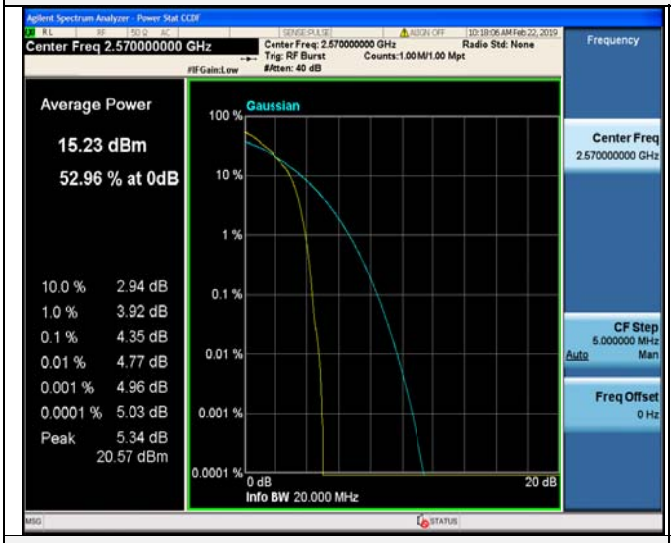
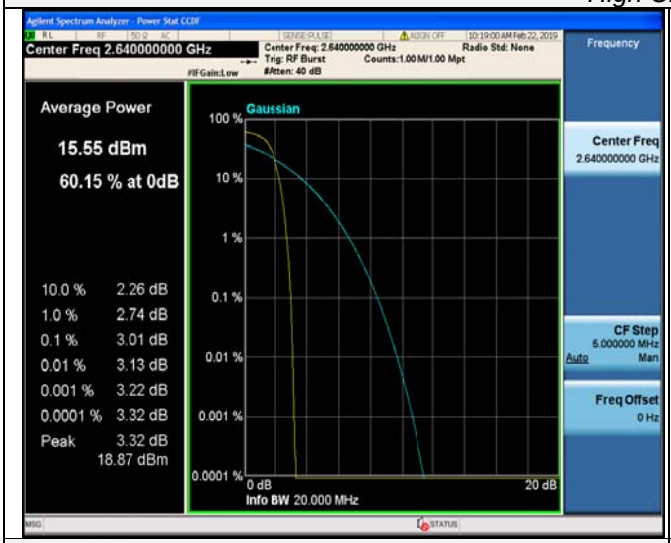
1. *We measured all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE Band 41; recorded worst case for each Channel Bandwidth of LTE Band 41.*

LTE Band 41				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR(dB)	
			QPSK	16QAM
5 MHz	2557.5	*1RB#0*	3.81	4.56
	2600.0		3.47	4.37
	2652.5		3.02	3.71
10 MHz	2560.0	*1RB#0*	4.08	5.08
	2600.0		3.86	4.60
	2650.0		3.00	4.26
15 MHz	2562.5	*1RB#0*	4.34	5.00
	2600.0		4.09	4.62
	2647.5		2.60	3.52
20 MHz	2570.0	*1RB#0*	4.35	4.77
	2600.0		3.43	3.97
	2640.0		3.01	3.30

LTE Band 41–5MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
	
1RB#0	1RB#0
Middle Channel	
	
1RB#0	1RB#0
High Channel	
	
1RB#0	1RB#0

LTE Band 41–10MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
	
1RB#0	1RB#0
Middle Channel	
	
1RB#0	1RB#0
High Channel	
	
1RB#0	1RB#0

LTE Band 41– 15 MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
	
1RB#0	1RB#0
Middle Channel	
	
1RB#0	1RB#0
High Channel	
	
1RB#0	1RB#0

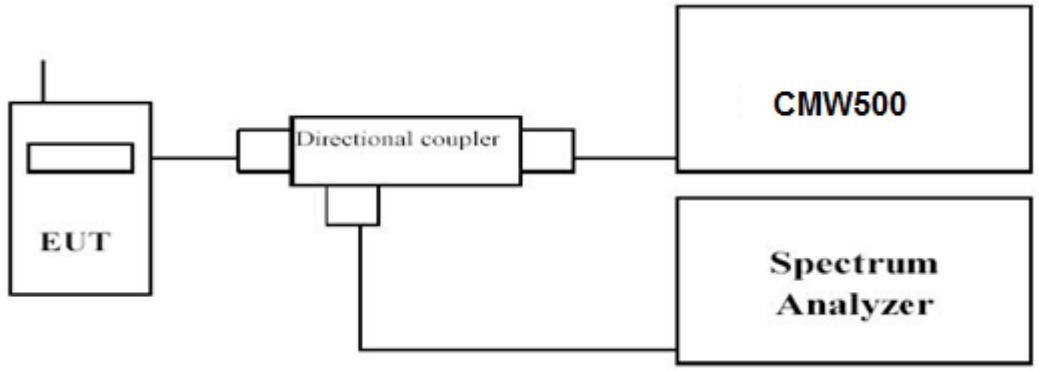
LTE Band 41–20MHz Channel BandwidthPAPR	
QPSK	16QAM
Low Channel	
	
1RB#0	1RB#0
Middle Channel	
	
1RB#0	1RB#0
High Channel	
	
1RB#0	1RB#0

4.3 Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and recorded. Set RBWwas 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 isthe delta frequency between the two points where the display line intersects the signal trace.

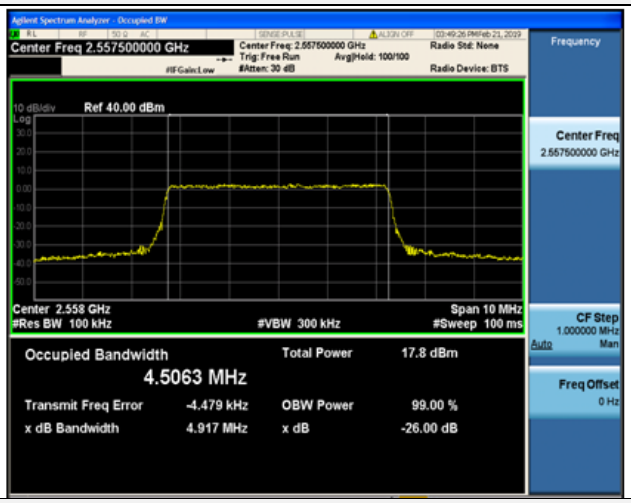
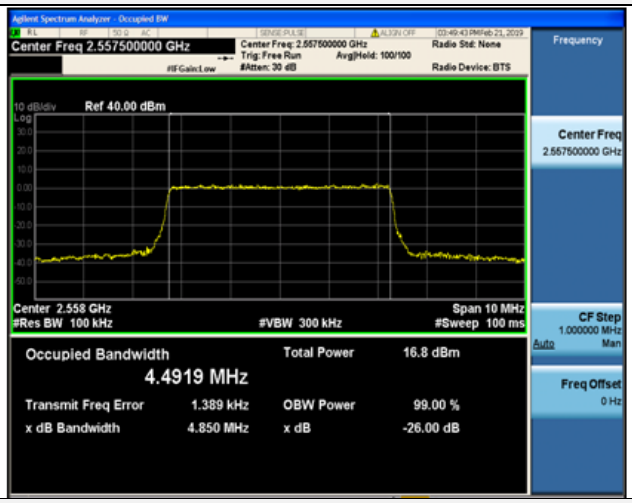
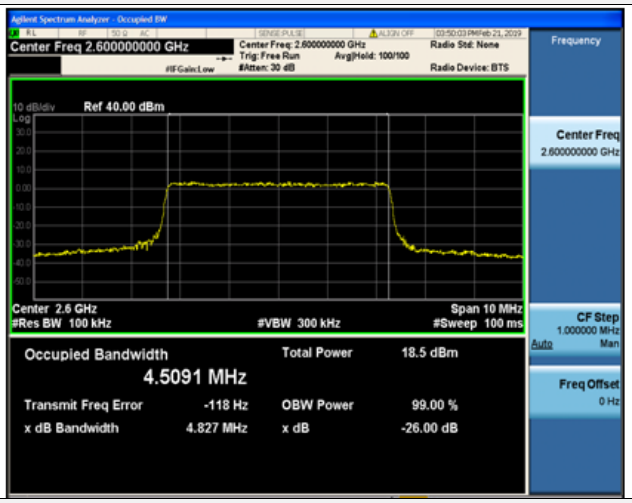
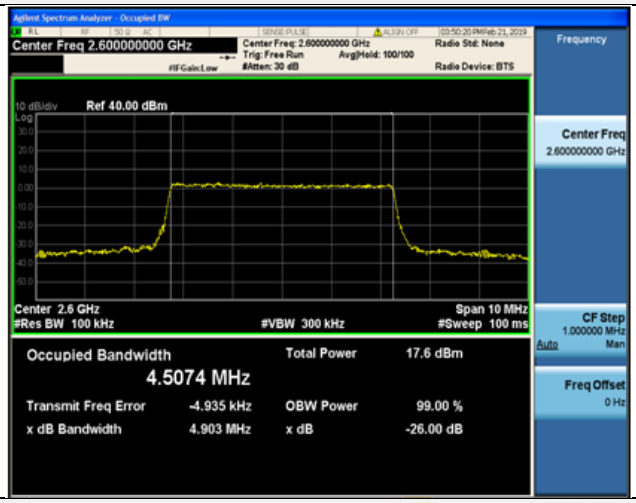
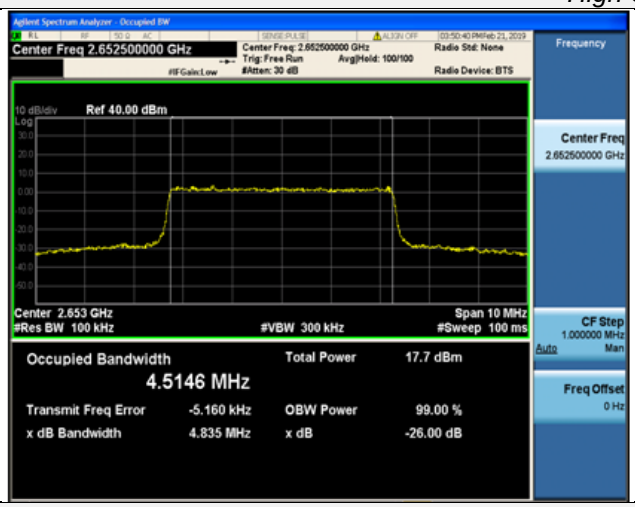
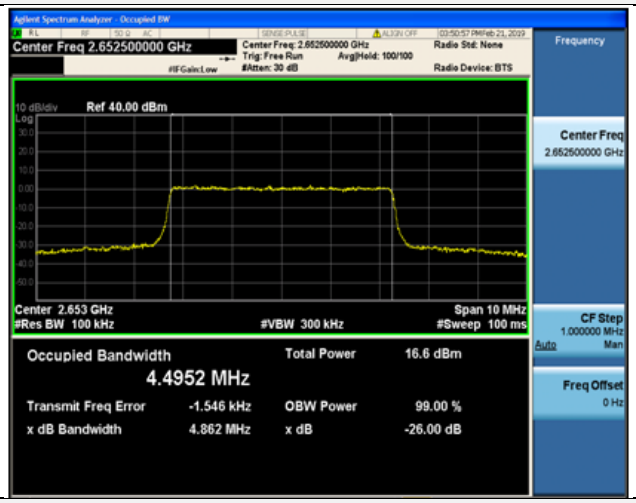
TEST RESULTS

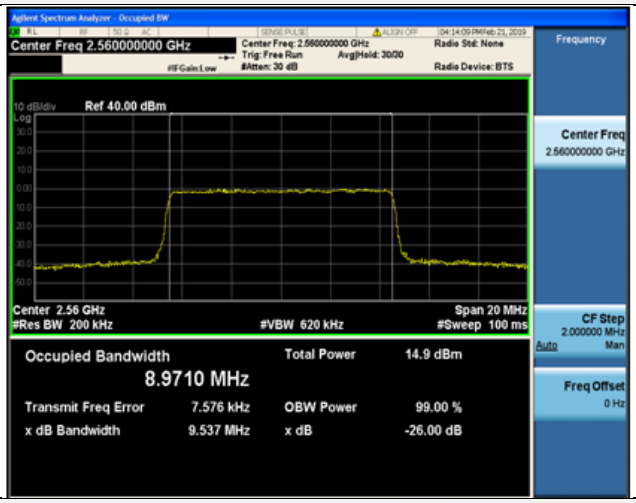
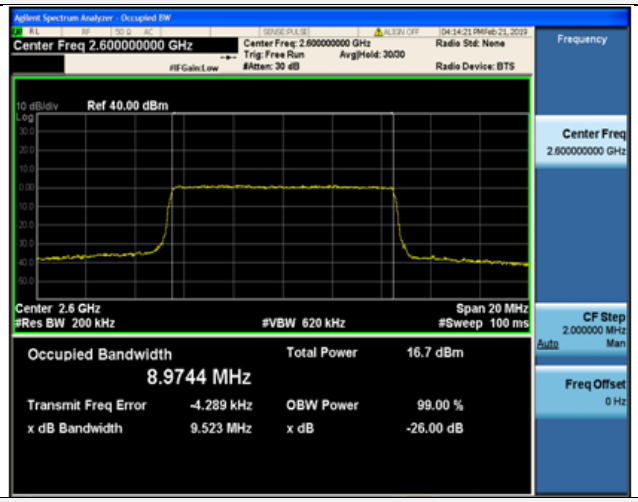
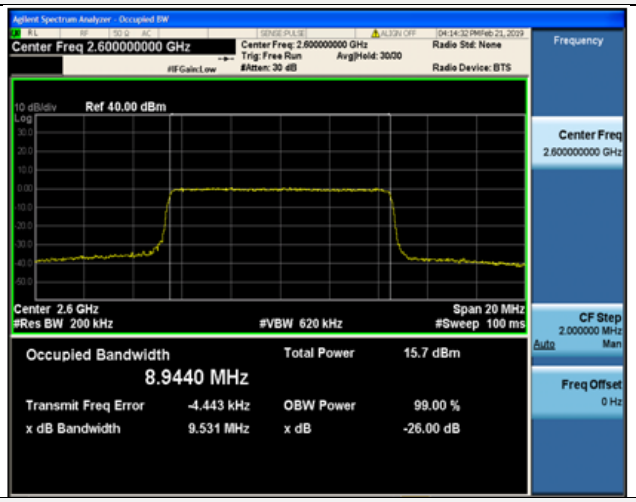
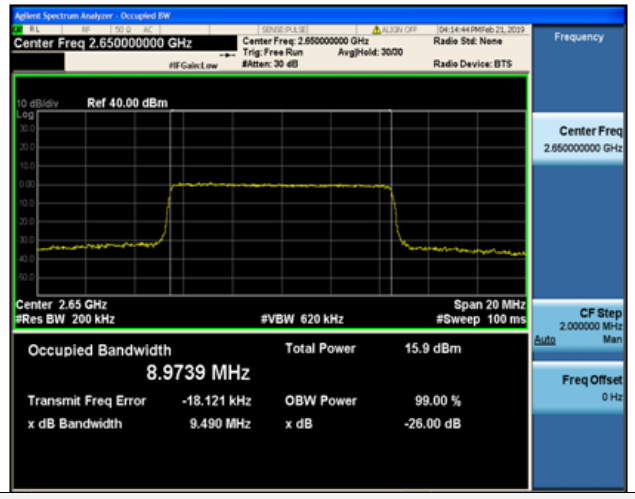
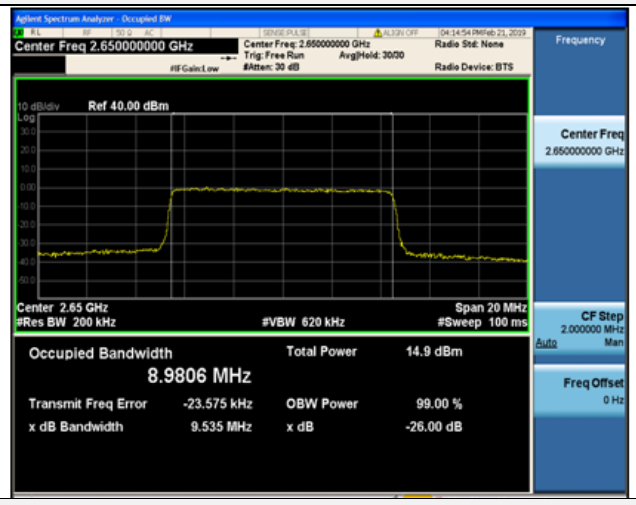
EUT：	Smart POS	Test Date:	Feb. 21, 2019
Temperature:	25^{0}C	Tested by:	Gary Qian
Humidity:	55 % RH	Test Voltage	Normal Voltage
Operation Mode:	Normal Voltage- Tx Mode		

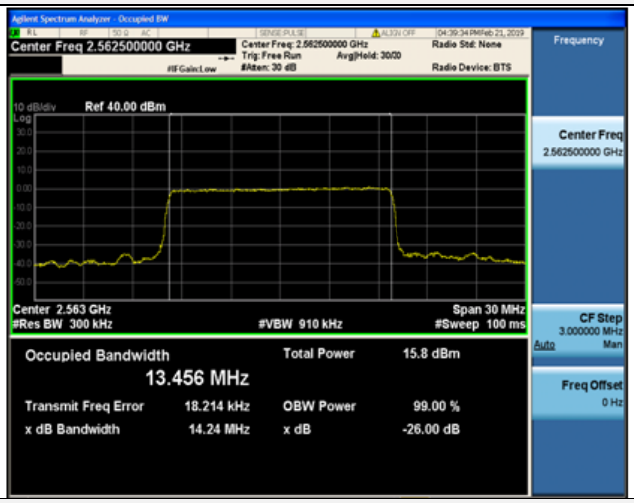
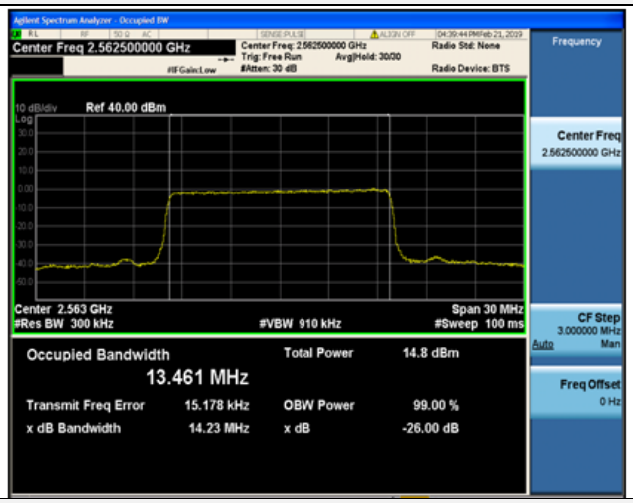
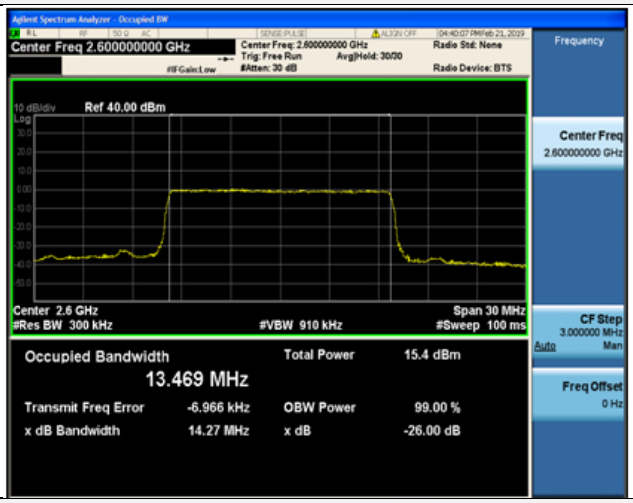
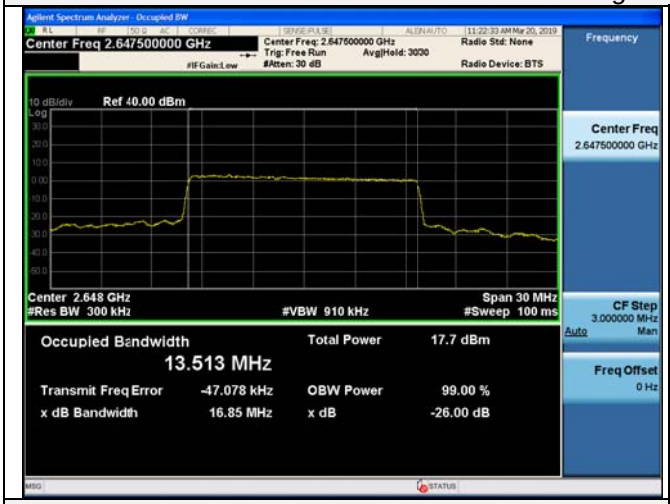
Remark:

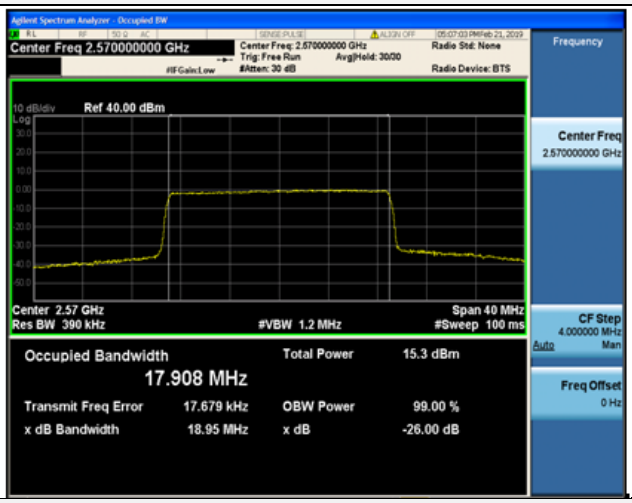
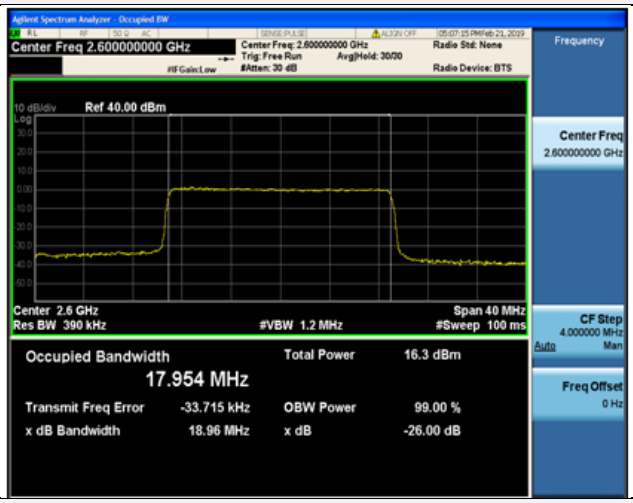
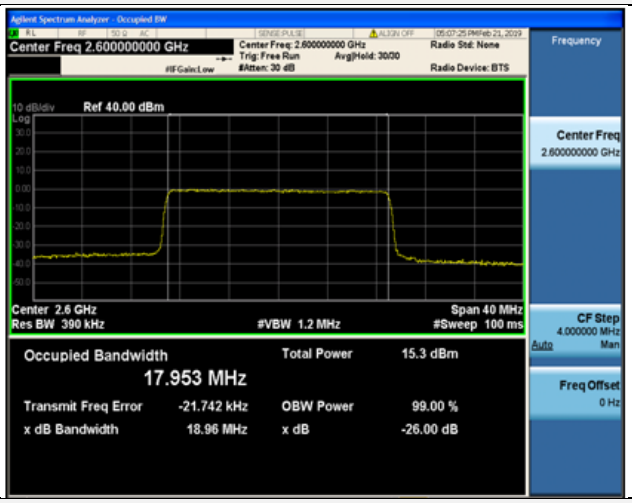
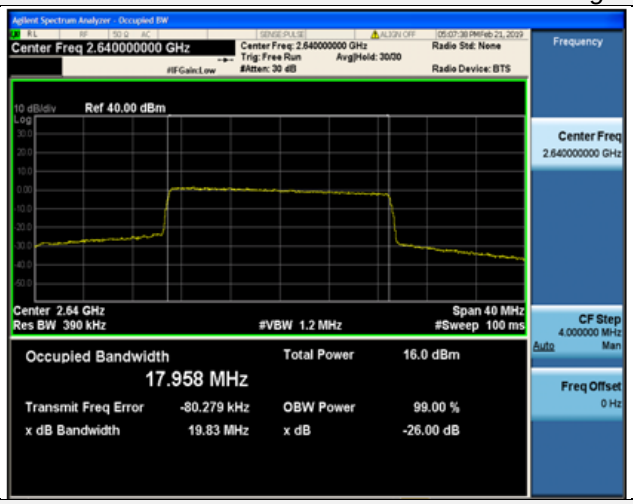
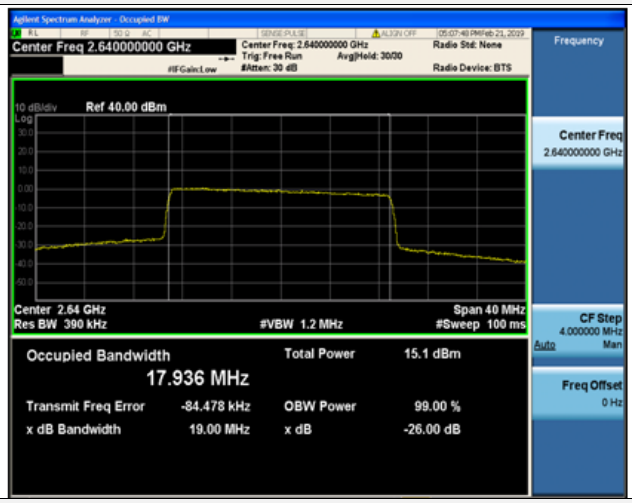
1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE Band 41; recorded worst case for each Channel Bandwidth of LTE Band 41.*

LTE Band 41						
TX Channel Bandwidth	RB Size/Offset	Frequency (MHz)	99% Occupied bandwidth (MHz)		-26dBc Emission bandwidth (MHz)	
			QPSK	16QAM	QPSK	16QAM
5 MHz	*25RB#0*	2557.5	4.5063	4.4919	4.917	4.850
		2600.0	4.5091	4.5074	4.827	4.903
		2652.5	4.5146	4.4952	4.835	4.862
10 MHz	*50RB#0*	2560.0	8.9818	8.9710	9.557	9.537
		2600.0	8.9744	8.9440	9.523	9.531
		2650.0	8.9739	8.9806	9.490	9.535
15 MHz	*75RB#0*	2562.5	13.456	13.461	14.24	14.23
		2600.0	13.479	13.469	14.26	14.27
		2647.5	13.513	13.485	16.85	14.35
20 MHz	*100RB#0*	2570.0	17.928	17.908	18.96	18.95
		2600.0	17.954	17.953	18.96	18.96
		2640.0	17.958	17.936	19.83	19.00

LTE Band 41–5MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	*16QAM*
Low Channel	
	
25RB#0	*25RB#0*
Middle Channel	
	
25RB#0	*25RB#0*
High Channel	
	
25RB#0	*25RB#0*

LTE Band 41–10MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
	
50RB#0	50RB#0
Middle Channel	
	
50RB#0	50RB#0
High Channel	
	
50RB#0	50RB#0

LTE Band 41–15MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
	
75RB#0	75RB#0
Middle Channel	
	
75RB#0	75RB#0
High Channel	
	
75RB#0	75RB#0

LTE Band 41–20MHz Channel Bandwidth Occupied Bandwidth and Emission Bandwidth	
QPSK	16QAM
Low Channel	
	
100RB#0	100RB#0
Middle Channel	
	
100RB#0	100RB#0
High Channel	
	
100RB#0	100RB#0

4.4 Band Edge compliance

LIMIT

the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 40 + 10 log P dB (−10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge, 43 + 10 log P dB (−13 dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge, and 55 + 10 log P dB (−25 dBm, 3 nW) on all frequencies more than 20 MHz from the channel edge, where X MHz is the greater of 6 MHz or the actual emission bandwidth (26 dB).

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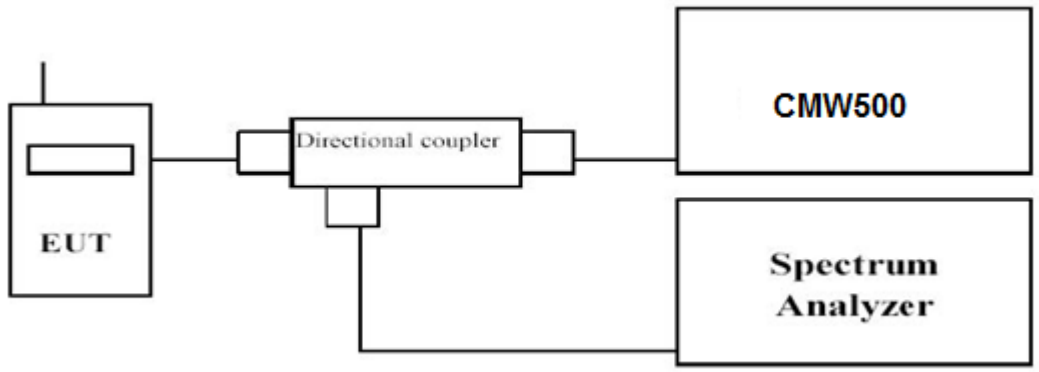
TEST CONFIGURATION



TEST PROCEDURE

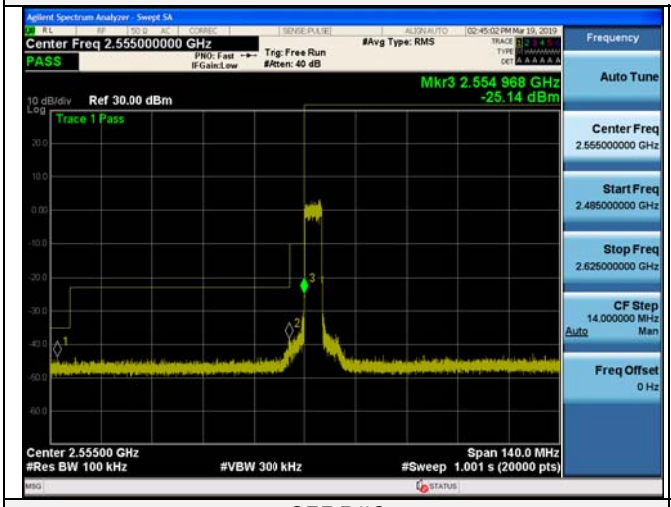
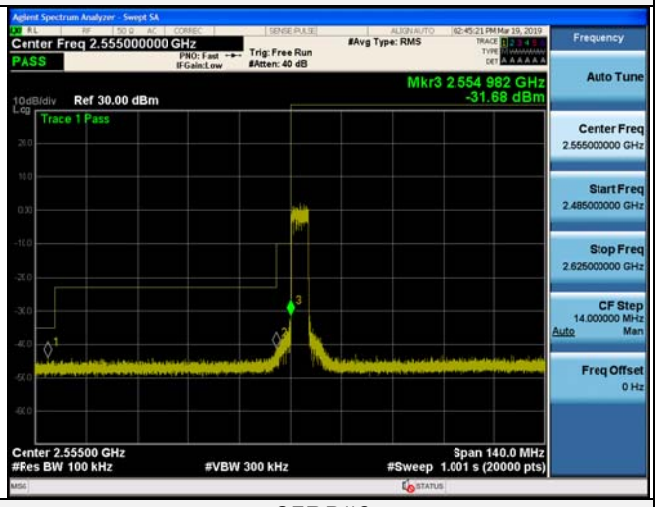
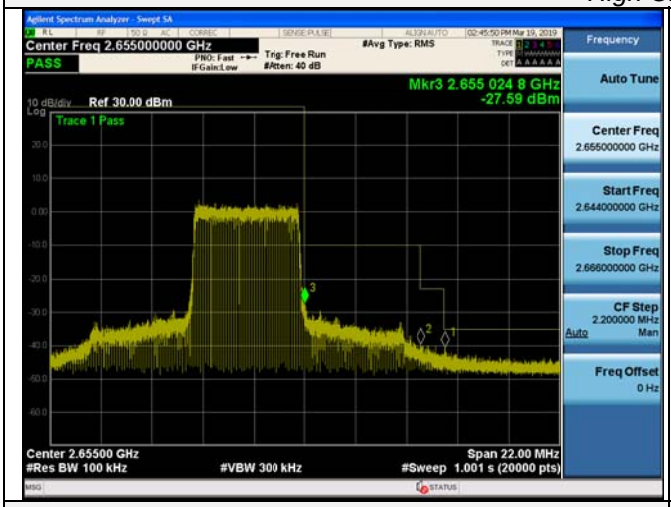
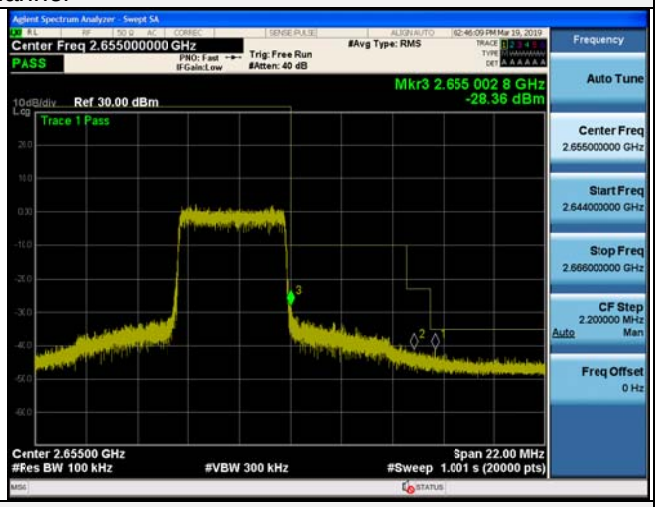
1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowestand highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum
6. Set RBW = 100 kHz, VBW=300 kHz, Span=50MHz Peak Detector.

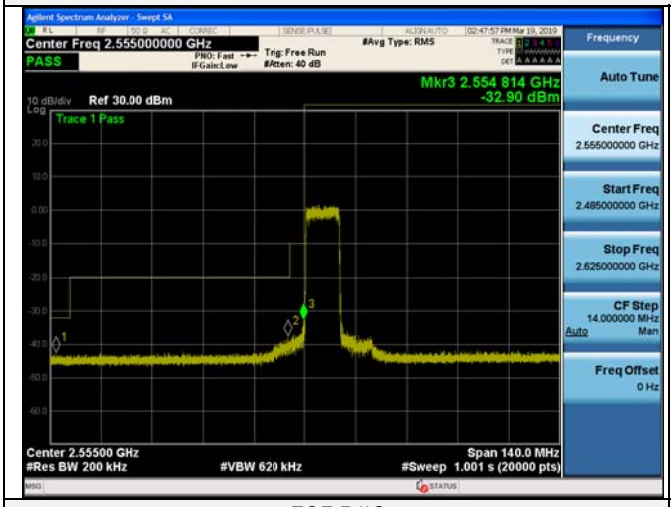
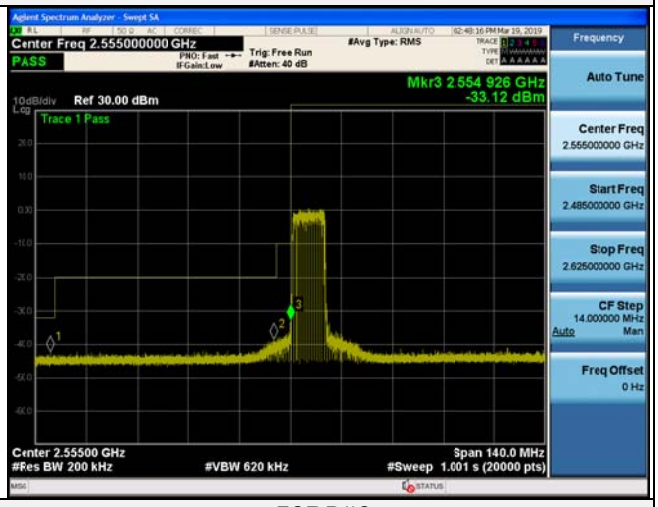
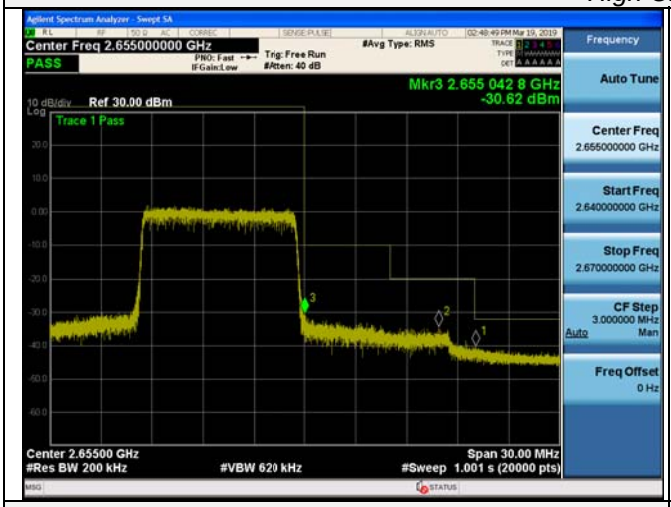
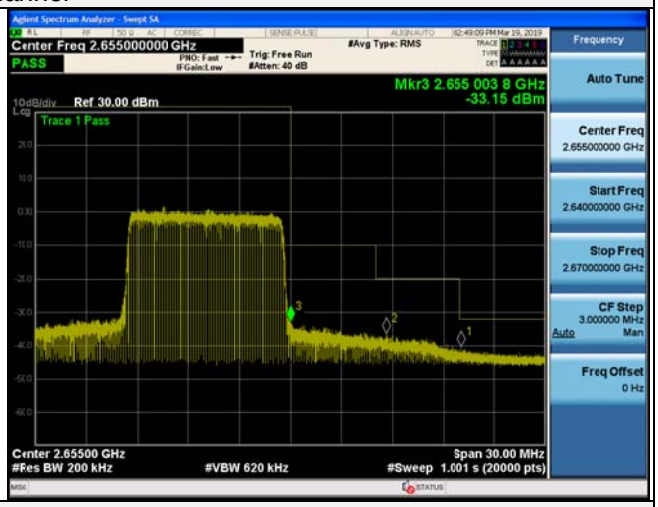
TEST RESULTS

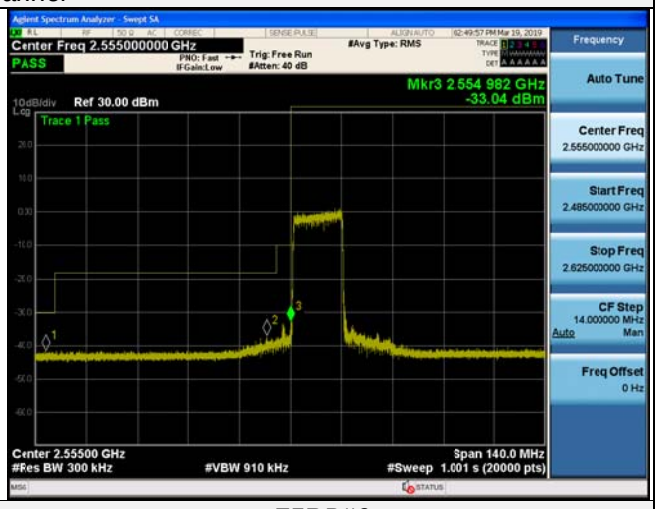
EUT：	Smart POS	Test Date:	Mar. 20, 2019
Temperature:	25^{0}C	Tested by:	Gary Qian
Humidity:	55 % RH	Test Voltage	Normal Voltage
Operation Mode:	Normal Voltage- Tx Mode		

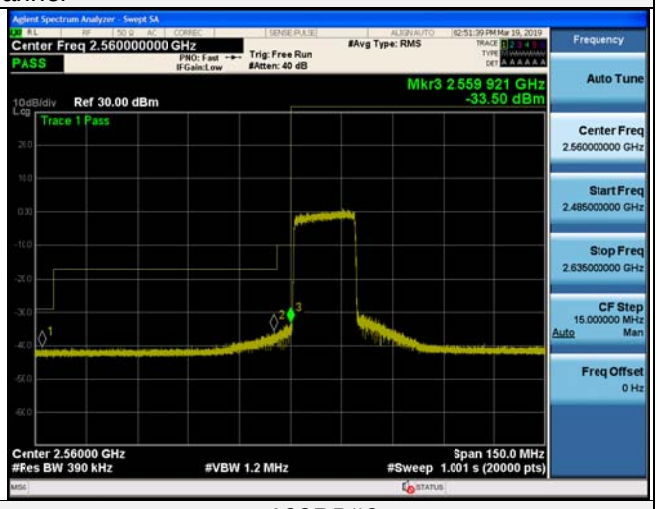
Remark:

1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE Band 41; recorded worst case for each Channel Bandwidth of LTE Band 41.*

LTE Band 41–5MHz Channel BandwidthBand Edge Compliance	
QPSK	16QAM
Low Channel	
	
25RB#0	25RB#0
High Channel	
	
25RB#0	25RB#0

LTE Band 41 – 10 MHz Channel BandwidthBand Edge Compliance	
QPSK	16QAM
Low Channel	
	
50RB#0	50RB#0
High Channel	
	
50RB#0	50RB#0

LTE Band 41–15MHz Channel BandwidthBand Edge Compliance	
QPSK	16QAM
Low Channel	
	
75RB#0	75RB#0
High Channel	
	
75RB#0	75RB#0

LTE Band 41–20MHz Channel BandwidthBand Edge Compliance	
QPSK	*16QAM*
Low Channel	
	
100RB#0	*100RB#0*
High Channel	
	
100RB#0	*100RB#0*