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Report Template Version: V03

Report Template Revision Date: Mar.1st, 2017

Test Report

Report No. : CQASZ20190500014EX-09

Applicant: Speedata Group Ltd

Address of Applicant: Room 2-308, building No. 25, No. 9 Anningzhuang Road West, Haidian district, Beijing, China

Manufacturer: Speedata Group Ltd

Address of Manufacturer: Room 2-308, building No. 25, No. 9 Anningzhuang Road West, Haidian district, Beijing, China

Equipment Under Test (EUT):

Product: PDA

Test Model No.: SD60

All Model No.: SD60, SD35, T35, PG35, SD55, T55, SD55LG, SD55MD, SD55UHF, SD55PTT, T55UHF, T55PPT, PG55, T60, SD60LG, SD60RT, SD60PRT, T60RT, Bio60, SD50, SN50, SD50RT, T50, PG50

Brand Name: N/A

FCC ID: 2AJO5SD60

Standards: 47 CFR Part 2
47 CFR Part 27

Date of Test: Mar. 26, 2019 to Aug. 07, 2019

Date of Issue: Aug. 07, 2019

Test Result : PASS*

Tested By:

Daisy Qin

(Daisy Qin)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190500014EX-09	Rev.01	Initial report	Aug. 07, 2019

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2 SUMMARY

2.1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

EIA/TIA-603-E: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

FCC Part 2: FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

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

2.2 Test Description

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

2.3 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

2.4 Test Facility

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

- **CNAS (No. CNAS L5785)**

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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. Registration No.:522263

2.5 Statement of the measurement uncertainty

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	±5.12dB	(1)
2	Radiated Emission (Above 1GHz)	±4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	±3.34dB	(1)
4	Radio Frequency	3×10 ⁻⁸	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	time	0.6 %.	(1)
14	Frequency Error	5.5 Hz	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.6 Test Equipment

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2018/9/26	2019/9/25
Spectrum analyzer	R&S	FSU26	CQA-038	2018/10/28	2019/10/27
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2018/9/26	2019/9/25
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2018/11/2	2019/11/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2018/10/28	2020/10/27
Bilog Antenna	R&S	HL562	CQA-011	2018/9/26	2020/9/25
Horn Antenna	R&S	HF906	CQA-012	2018/9/26	2020/9/25
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2018/9/26	2020/9/25
Coaxial Cable (Above 1GHz)	CQA	N/A	C019	2018/9/26	2019/9/25
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2018/9/26	2019/9/25
Antenna Connector	CQA	RFC-01	CQA-080	2018/9/26	2019/9/25
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2018/9/26	2019/9/25
Spectrum analyzer	Agilent	E4440A	CQA-103	2018/10/28	2019/10/27
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2018/9/26	2019/9/25
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2018/9/26	2019/9/25
H & T Chamber	Auchno	OJN-9606	CQA-CB2	2018/9/26	2019/9/25

3 GENERAL INFORMATION

3.1 Client Information

Applicant:	Speedata Group Ltd
Address of Applicant:	1F Zhiyuan Building, NO.28, ShangDi 6th Street HaiDian District, Beijing, China
Manufacturer:	Speedata Group Ltd
Address of Manufacturer:	1F Zhiyuan Building, NO.28, ShangDi 6th Street HaiDian District, Beijing, China

3.2 Environmental conditions

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1001mbar	
Temperature	TN	25 °C
Voltage :	VL	3.5V
	VN	4.2V
	VH	4.5V

NOTE: VL= lower extreme test voltage
 VN= nominal voltage
 VH= upper extreme test voltage
 TN= normal temperature

3.3 General Description of EUT

Product Name:	PDA
All Model No.:	SD60, SD35, T35, PG35, SD55, T55, SD55LG, SD55MD, SD55UHF, SD55PTT, T55UHF, T55PPT, PG55, T60, SD60LG, SD60RT, SD60PRT, T60RT, Bio60, SD50, SN50, SD50RT, T50, PG50
Test Model No.:	SD60
Trade Mark:	N/A
Hardware Version:	8.1.0
Software Version:	V.SD60.2.1.20.2019041909
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Antenna Type:	Monopole antenna
Antenna Gain:	-4.1dBi.
EUT Power Supply:	DC 3.8V from Battery
Adapter Information:	Model: A138A-120150U-US2 Input: 100-240V-50/60Hz, 0.5A Output: 5V 2.5A/ 9V 2A/ 12V 1.5A

Note: 1. This report is only for FDD-LTE Band7.

2. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3. There are many products, Only the model SD60 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

3.4 Technical Specification

Characteristics	Description	
Radio System Type	☐ GSM ☐ UMTS ☒ LTE	
Supported Frequency Range	LTE BAND7	Uplink: 2500 to 2570 MHz
		Downlink: 2620 to 2690 MHz
Power Class	Class 3	
Supported Channel Bandwidth	LTE BAND7	☒ 5MHz ☒ 10MHz ☒ 15 MHz ☒ 20 MHz
Designation of Emissions (Note: the necessary bandwidth of which is the worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)	LTE BAND7:	5M QPSK modulation 5MHz 16QAM modulation 10M QPSK modulation 10MHz 16QAM modulation 15M QPSK modulation 15MHz 16QAM modulation 20M QPSK modulation 20MHz 16QAM modulation

3.5 Test Mode

Test Mode	Test Modes Description
FDD-LTE	FDD-LTE system, QPSK modulation
	FDD-LTE system, 16QAM modulation

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

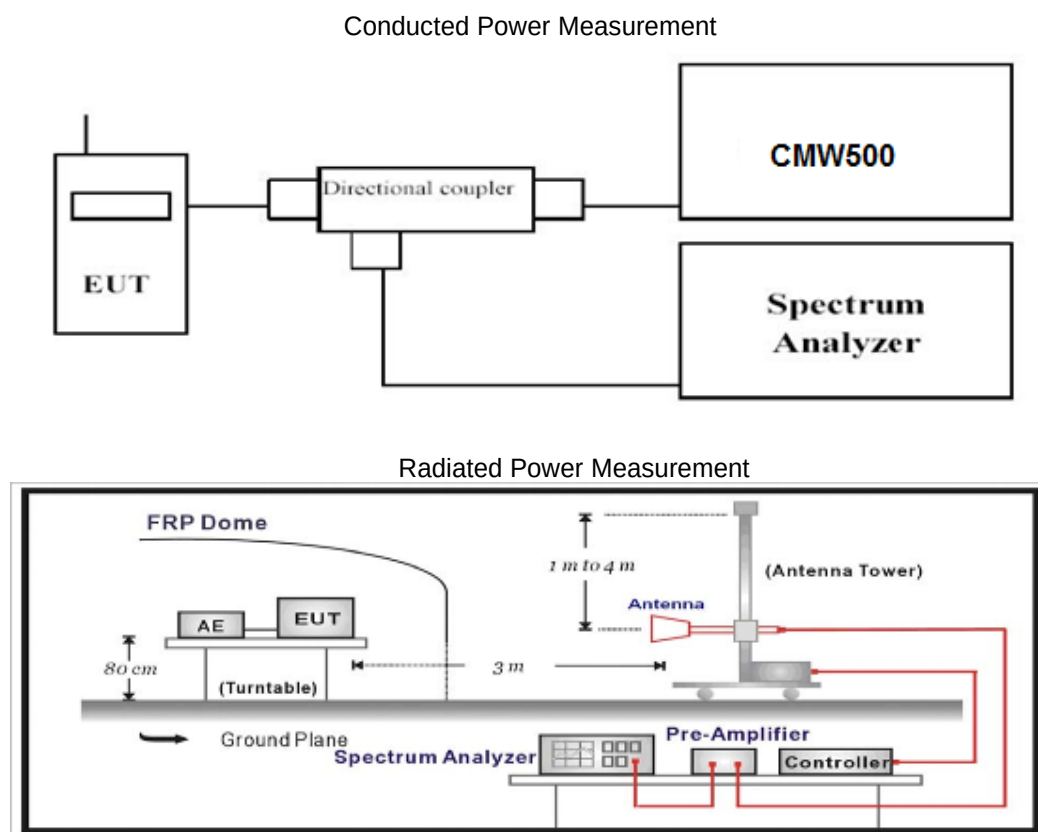
4 TEST CONDITIONS AND RESULTS

4.1 Output Power

LIMIT

≤1 watt EIRP.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603E

Conducted Power Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500 then selects a channel for testing.
- 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 7				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	Average Power [dBm]	
			QPSK	16QAM
5 MHz	2502.5	1 RB low	22.86	22.13
		1 RB high	22.36	21.87
		50% RB mid	21.63	21.01
		100% RB	21.98	21.29
	2535	1 RB low	22.65	21.90
		1 RB high	23.33	22.75
		50% RB mid	22.44	22.05
		100% RB	22.52	21.67
	2567.5	1 RB low	22.99	22.21

10 MHz	2505	1 RB high	22.70	22.34
		50% RB mid	21.55	21.19
		100% RB	21.81	21.20
		1 RB low	21.80	21.09
	2535	1 RB high	23.28	22.75
		50% RB mid	21.95	21.53
		100% RB	21.92	21.27
		1 RB low	22.50	21.77
	2565	1 RB high	21.50	21.04
		50% RB mid	22.64	22.14
		100% RB	22.94	22.50
		1 RB low	23.21	22.49
15 MHz	2507.5	1 RB high	22.55	21.72
		50% RB mid	22.77	22.28
		100% RB	21.95	21.57
		1 RB low	22.34	21.75
	2535	1 RB high	21.62	21.02
		50% RB mid	22.44	21.62
		100% RB	21.92	21.55
		1 RB low	21.75	21.20
	2562.5	1 RB high	21.78	20.99
		50% RB mid	23.11	22.56
		100% RB	22.02	21.39
		1 RB low	23.14	22.73
20 MHz	2510	1 RB high	21.64	21.14
		50% RB mid	23.45	23.03
		100% RB	22.39	22.00
		1 RB low	23.15	22.66
	2535	1 RB high	21.79	21.38
		50% RB mid	21.67	21.21
		100% RB	22.87	22.15
		1 RB low	22.58	22.05
		1 RB high	22.58	22.22
		50% RB mid	22.60	22.06
		100% RB	23.16	22.46

	2560	1 RB low	23.02	22.20
		1 RB high	22.58	21.83
		50% RB mid	22.63	21.83
		100% RB	22.31	21.86

Radiated Measurement:

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.
2. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$

LTE FDD Band 7_Channel Bandwidth 5MHz_QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dB)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2502.5	-19.93	3.06	9.68	34.8	21.49	30	8.51	V
2535	-18.75	3.17	9.68	34.8	22.56	30	7.44	V
2567.5	-20.01	3.22	9.75	34.8	21.32	30	8.68	V

LTE FDD Band 7_Channel Bandwidth 10MHz_QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dB)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2505	-19.96	3.06	9.68	34.8	21.46	30	8.54	V
2535	-18.15	3.17	9.68	34.8	23.16	30	6.84	V
2565	-18.76	3.22	9.75	34.8	22.57	30	7.43	V

LTE FDD Band 7_Channel Bandwidth 15MHz_QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dB)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2507.5	-19.96	3.06	9.68	34.8	21.46	30	8.54	V
2535	-18.44	3.17	9.68	34.8	22.87	30	7.13	V
2562.5	-20.02	3.22	9.75	34.8	21.31	30	8.69	V

LTE FDD Band 7_Channel Bandwidth 20MHz_QPSK

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dBi)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2510	-19.85	3.06	9.68	34.8	21.57	30	8.43	V
2535	-17.86	3.17	9.68	34.8	23.45	30	6.55	V
2560	-19.30	3.22	9.75	34.8	22.03	30	7.97	V

LTE FDD Band 7_Channel Bandwidth 5MHz_16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dBi)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2502.5	-20.74	3.06	9.68	34.8	20.68	30	9.32	V
2535	-19.75	3.17	9.68	34.8	21.56	30	8.44	V
2567.5	-20.82	3.22	9.75	34.8	20.51	30	9.49	V

LTE FDD Band 7_Channel Bandwidth 10MHz_16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dBi)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2505	-20.95	3.06	9.68	34.8	20.47	30	9.53	V
2535	-19.52	3.17	9.68	34.8	21.79	30	8.21	V
2565	-21.10	3.22	9.75	34.8	20.23	30	9.77	V

LTE FDD Band 7_Channel Bandwidth 15MHz_16QAM

Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dBi)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2507.5	-21.10	3.06	9.68	34.8	20.32	30	9.68	V
2535	-20.41	3.17	9.68	34.8	20.90	30	9.10	V
2562.5	-21.79	3.22	9.75	34.8	19.54	30	10.46	V

LTE FDD Band 7_Channel Bandwidth 20MHz_16QAM

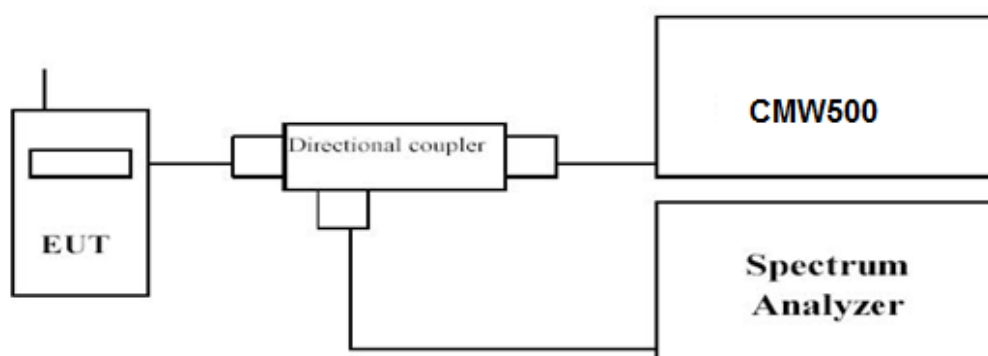
Frequency (MHz)	PMea (dBm)	Pcl (dB)	Ga Antenna Gain(dBi)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
2510	-20.99	3.06	9.68	34.8	20.43	30	9.57	V
2535	-19.99	3.17	9.68	34.8	21.32	30	8.68	V
2560	-21.06	3.22	9.75	34.8	20.27	30	9.73	V

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 $\geq$ signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as follows:
 - 1). for continuous transmissions, set to 1 ms,
 - 2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

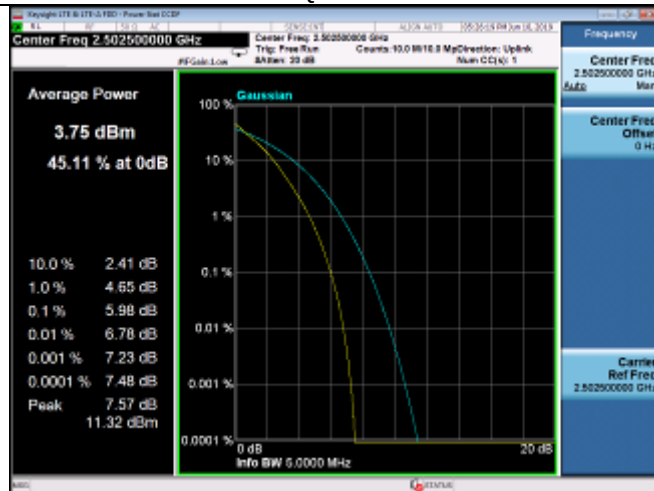
Remark:

We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

LTE FDD Band 7				
TX Channel Bandwidth	Frequency (MHz)	RB Size/Offset	PAPR (dB)	
			QPSK	16QAM
5 MHz	2502.5	1RB#0	5.98	5.97
	2535		6.10	6.10
	2567.5		6.05	5.88
10 MHz	2505	1RB#0	5.95	5.94
	2535		5.96	5.97
	2565		5.84	5.84
15 MHz	2507.5	1RB#0	5.53	5.51
	2535		5.68	5.70
	2562.5		5.64	5.64
20 MHz	2510	1RB#0	9.34	9.75
	2535		7.16	9.29
	2560		9.47	9.05

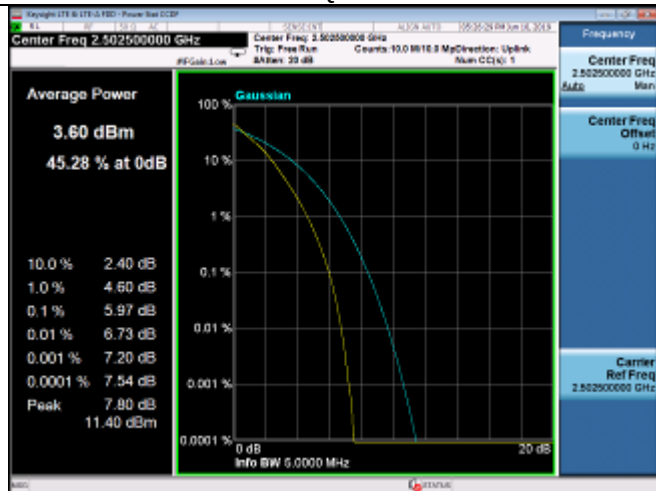
LTE FDD Band 7-5MHz Channel Bandwidth PAPR

QPSK



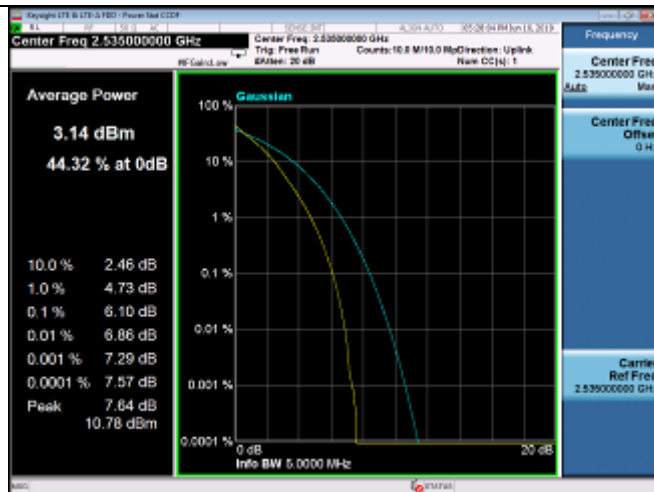
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16QAM

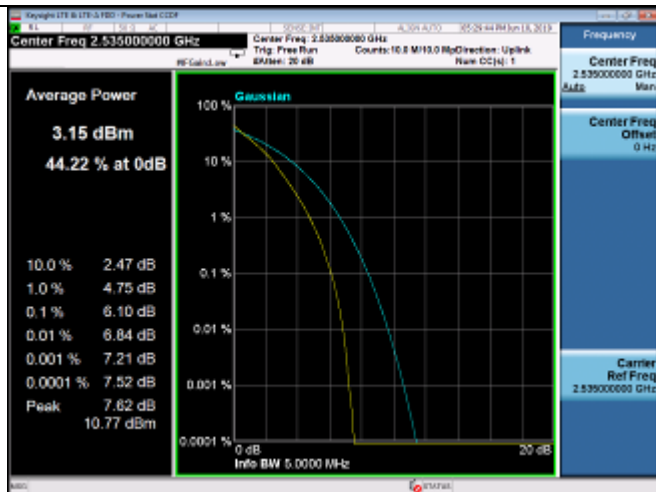


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Low Channel

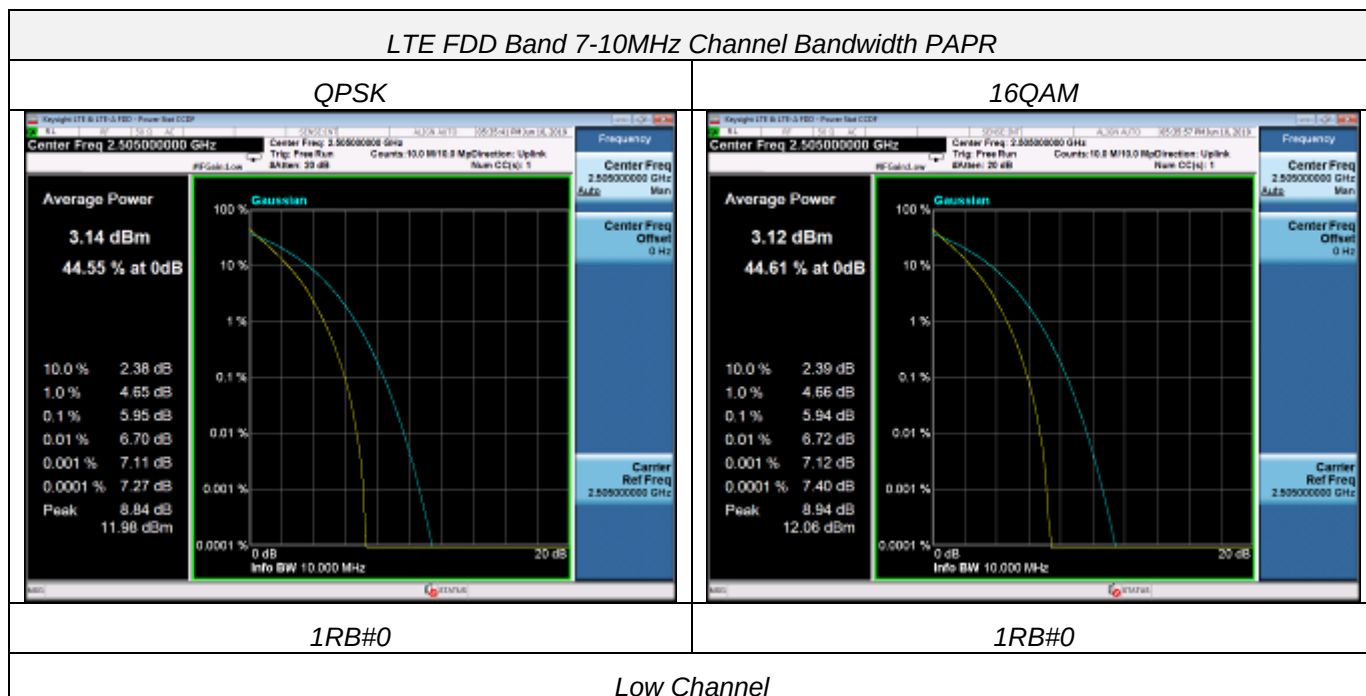
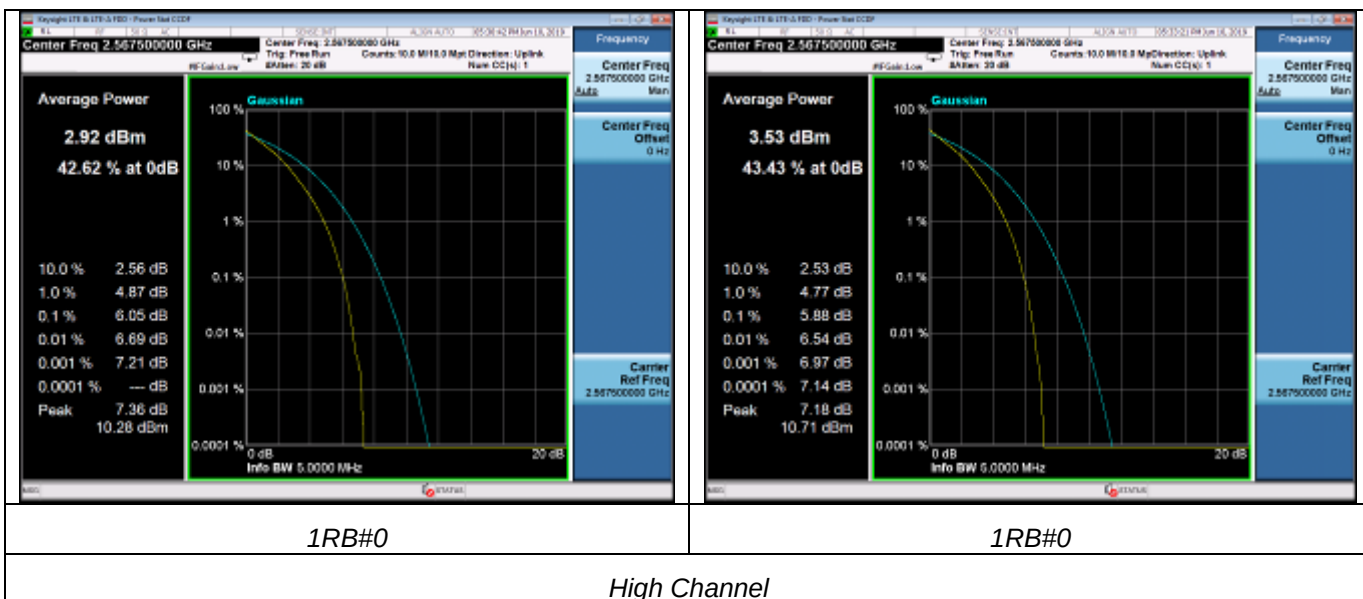


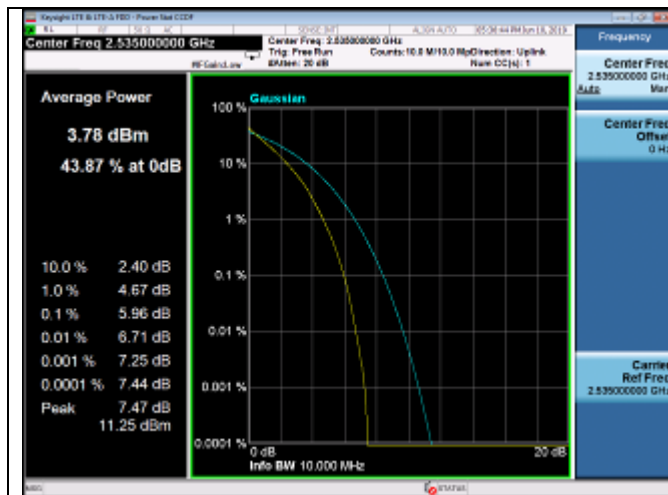
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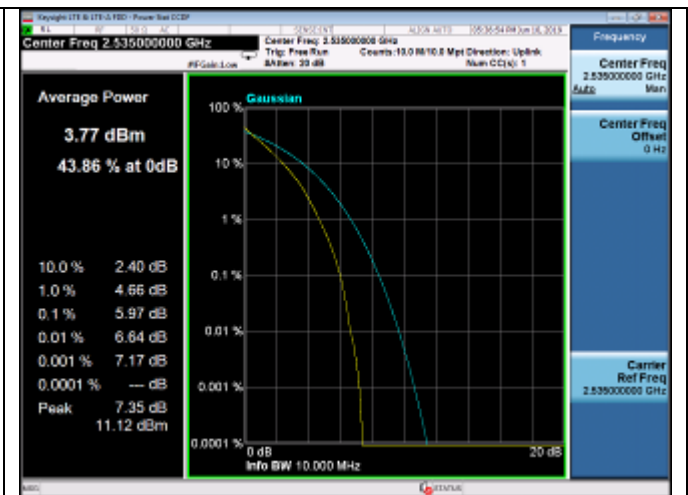
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Middle Channel



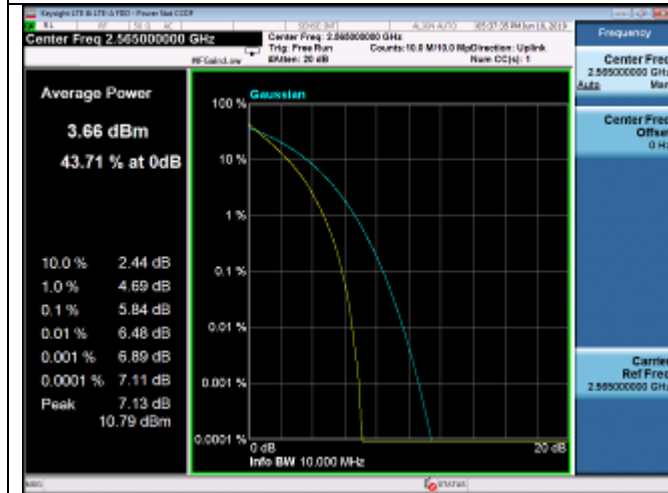


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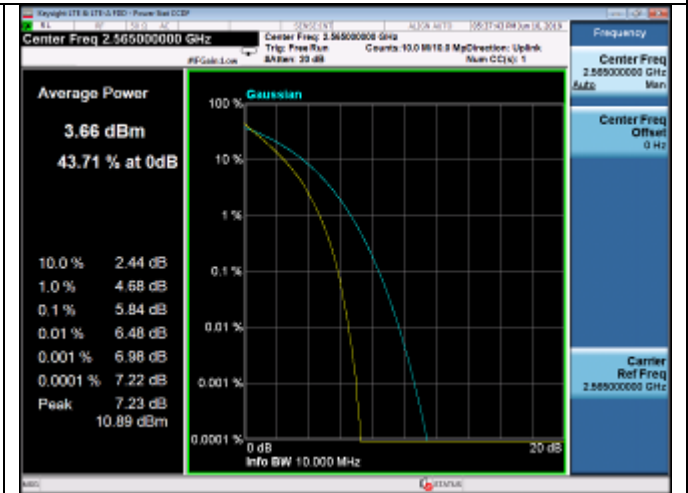


1RB#0

Middle Channel



1RB#0

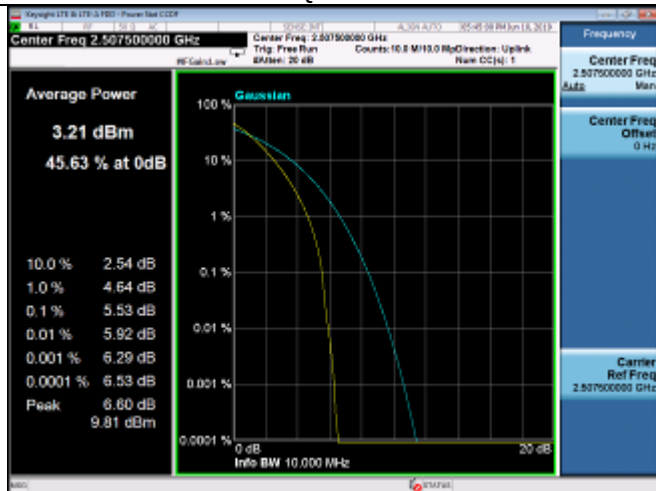


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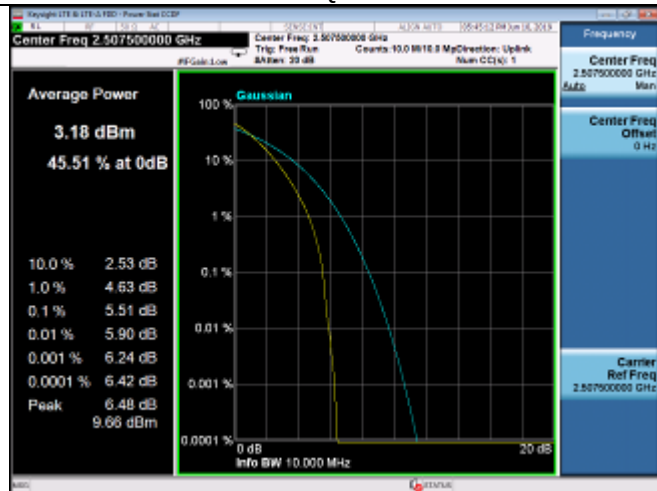
High Channel

LTE FDD Band 7-15MHz Channel Bandwidth PAPR

QPSK



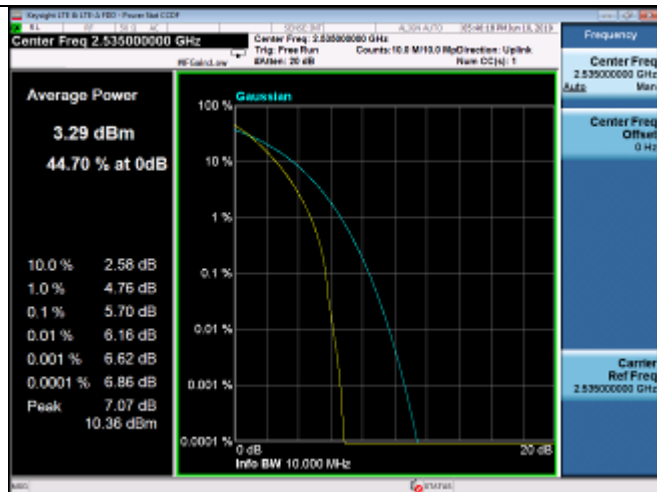
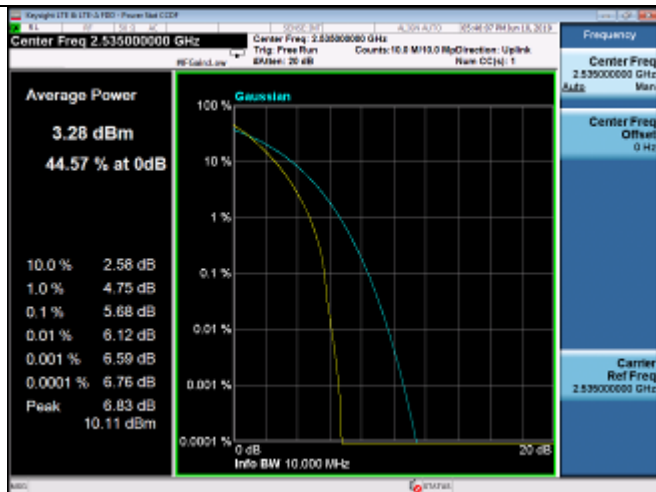
16QAM



1RB#0

1RB#0

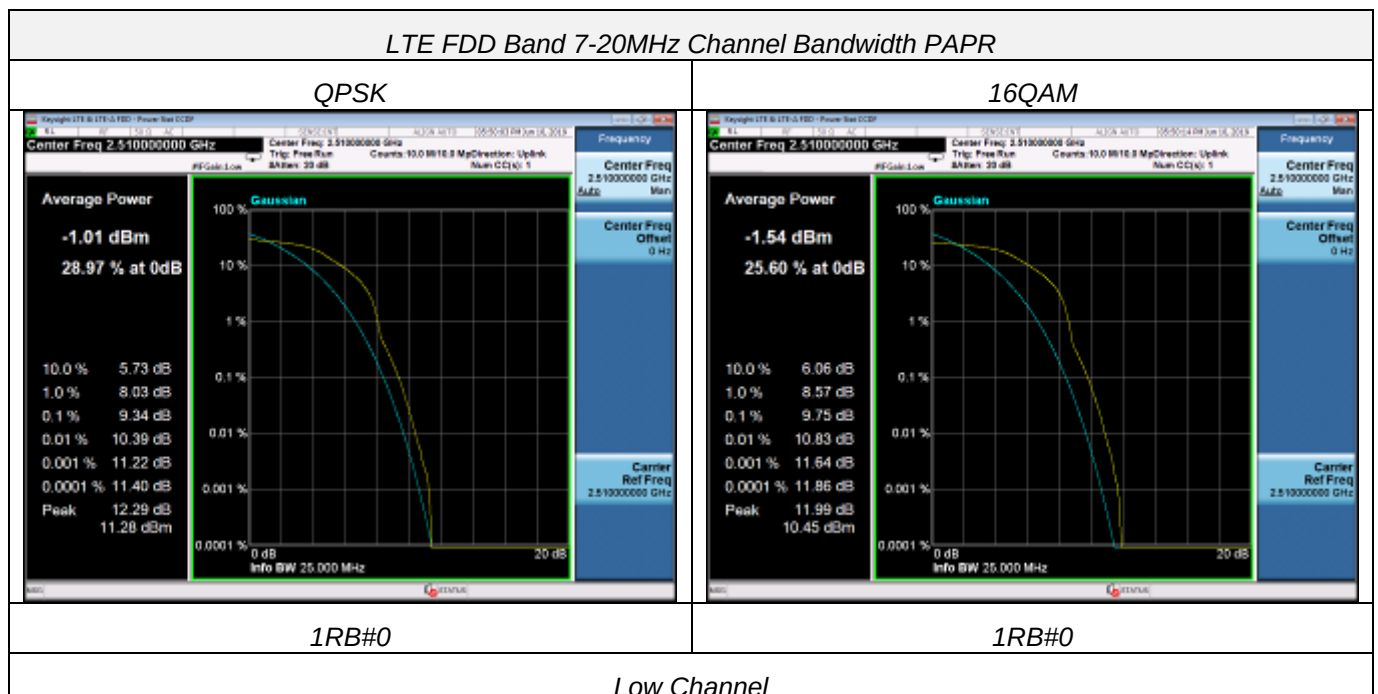
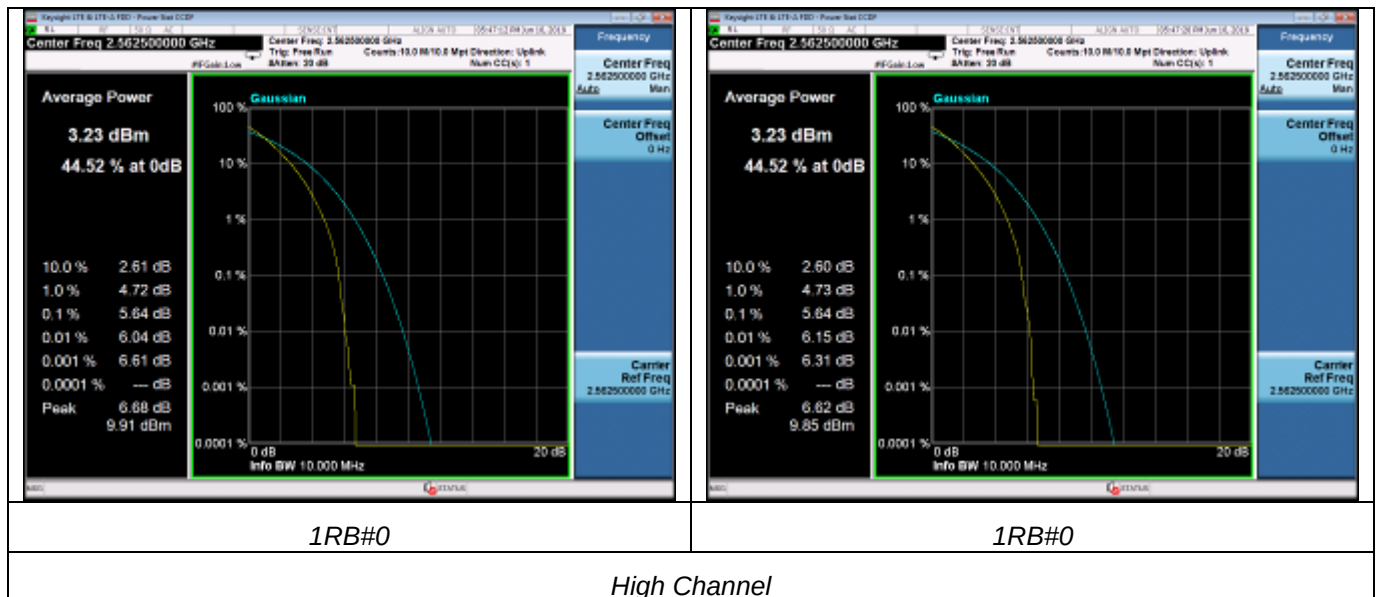
Low Channel

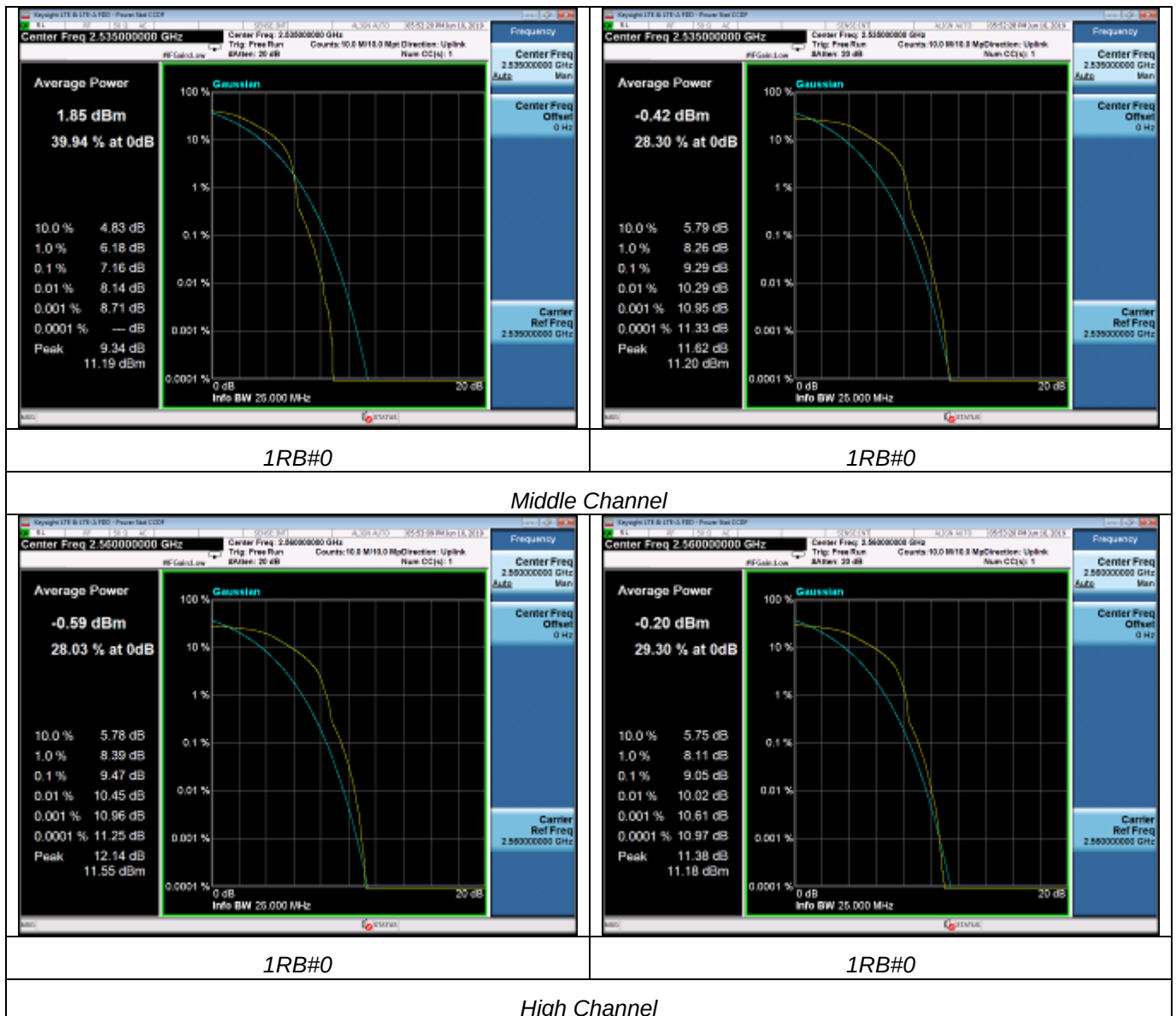


1RB#0

1RB#0

Middle Channel



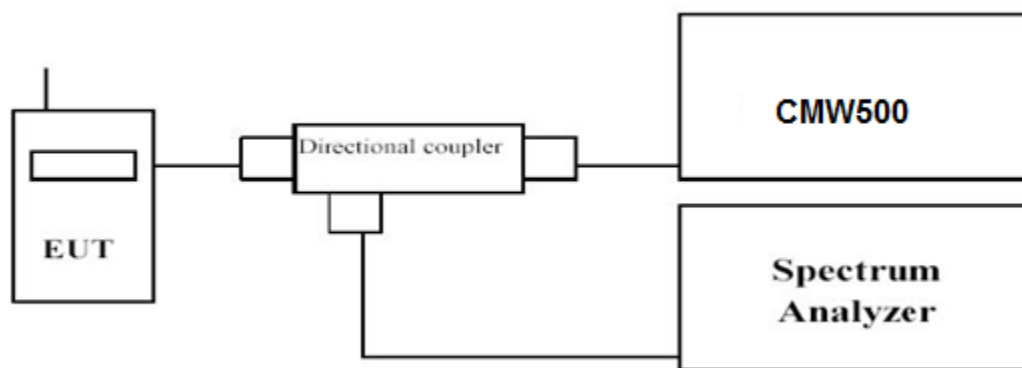


4.3 Occupied Bandwidth and Emission Bandwidth

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 RBW was set to about 1% of emission BW, VBW $\geq$ 3 times RBW.

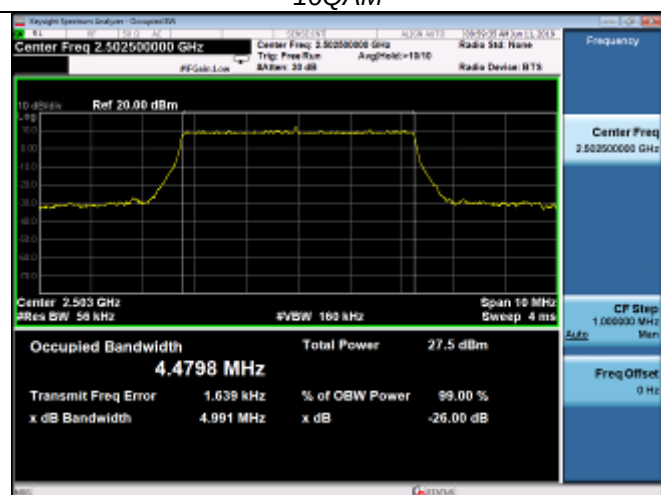
-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

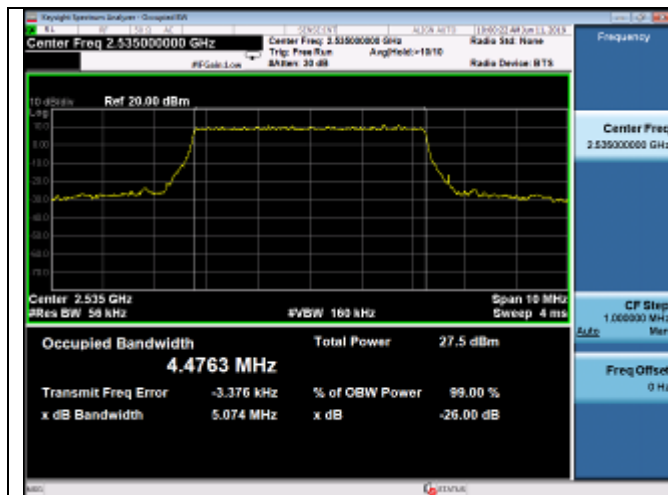
TEST RESULTS

Remark:

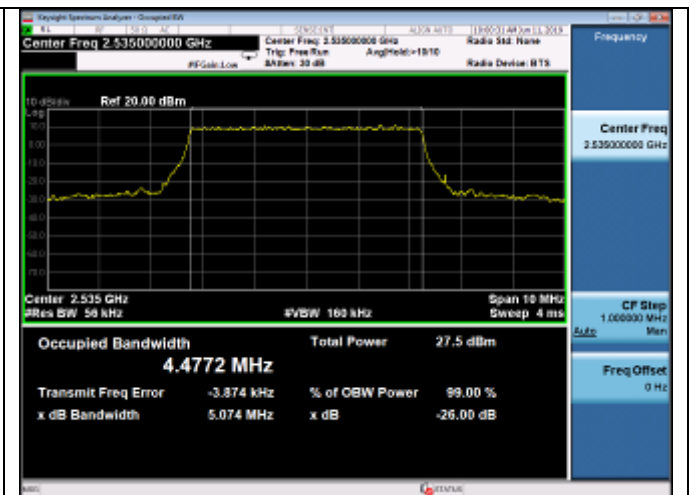
We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

LTE FDD Band 7						
TX Channel Bandwidth	RB Size/Offset	Frequency (MHz)	-26dBc Emission bandwidth (MHz)		99% Occupied bandwidth (MHz)	
			QPSK	16QAM	QPSK	16QAM
5 MHz	25RB#0	2502.5	4.986	4.991	4.4802	4.4798
		2535	5.074	5.074	4.4763	4.4772
		2567.5	5.114	5.127	4.5042	4.5040
10 MHz	50RB#0	2505	10.33	10.33	8.9585	8.9579
		2535	9.938	9.943	8.9620	8.9629
		2565	9.805	9.855	8.9538	8.9581
15 MHz	75RB#0	2507.5	14.74	14.74	13.411	13.410
		2535	14.70	14.70	13.451	13.448
		2562.5	13.92	13.92	13.424	13.425
20 MHz	100RB#0	2510	18.39	18.39	17.695	17.694
		2535	18.36	18.36	17.716	17.717
		2560	18.38	18.38	17.616	17.618

LTE FDD Band 7-5MHz Channel Bandwidth	
QPSK  Center Freq 2.502500000 GHz #Res BW 50 kHz #VBW 180 kHz Span 10 MHz Sweep 4 ms CP Step 1.00000 MHz FREQ Step 0 Hz Occupied Bandwidth 4.4802 MHz Total Power 27.4 dBm Transmit Freq Error 1.693 kHz % of OBW Power 99.00 % x dB Bandwidth 4.986 MHz x dB -26.00 dB	16QAM  Center Freq 2.502500000 GHz #Res BW 50 kHz #VBW 180 kHz Span 10 MHz Sweep 4 ms CP Step 1.00000 MHz FREQ Step 0 Hz Occupied Bandwidth 4.4798 MHz Total Power 27.5 dBm Transmit Freq Error 1.639 kHz % of OBW Power 99.00 % x dB Bandwidth 4.991 MHz x dB -26.00 dB
25RB#0	25RB#0
Low Channel	

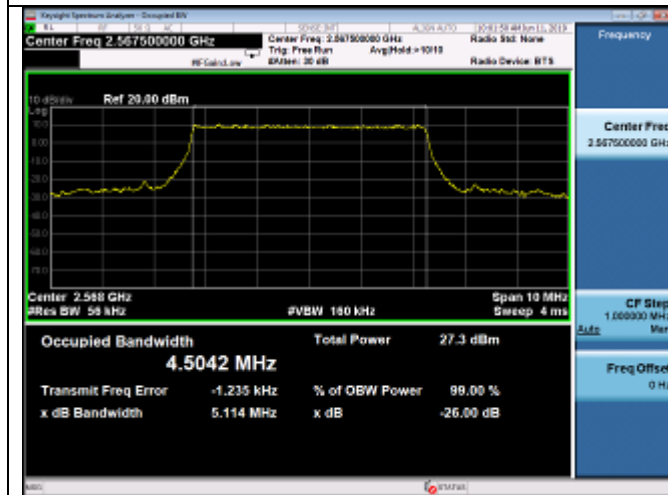


25RB#0

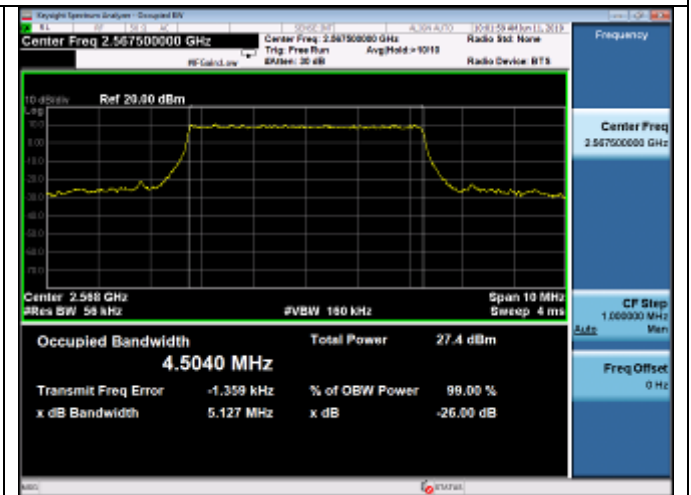


25RB#0

Middle Channel



25RB#0

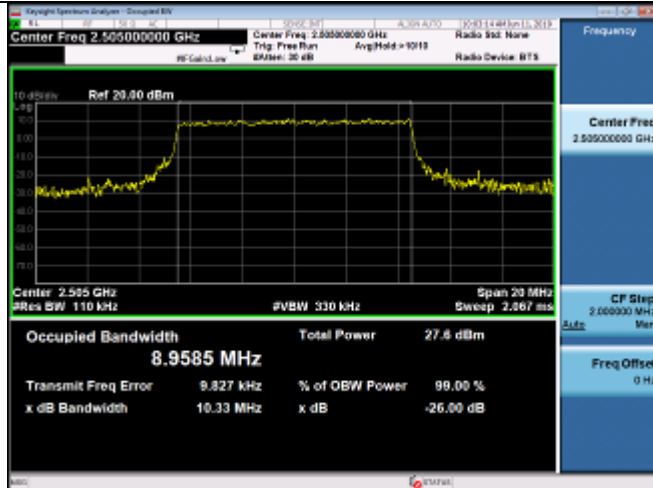


25RB#0

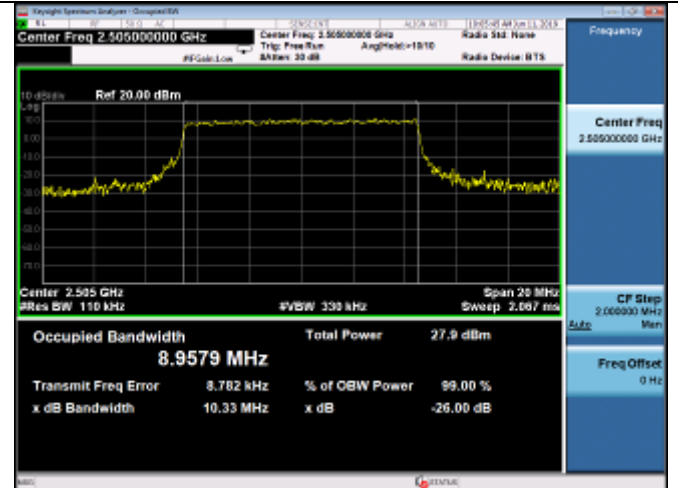
High Channel

LTE FDD Band 7-10MHz Channel Bandwidth

QPSK



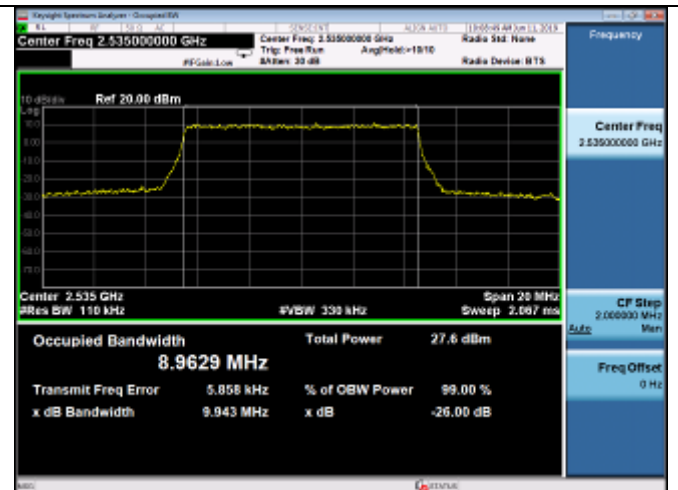
16QAM



50RB#0

50RB#0

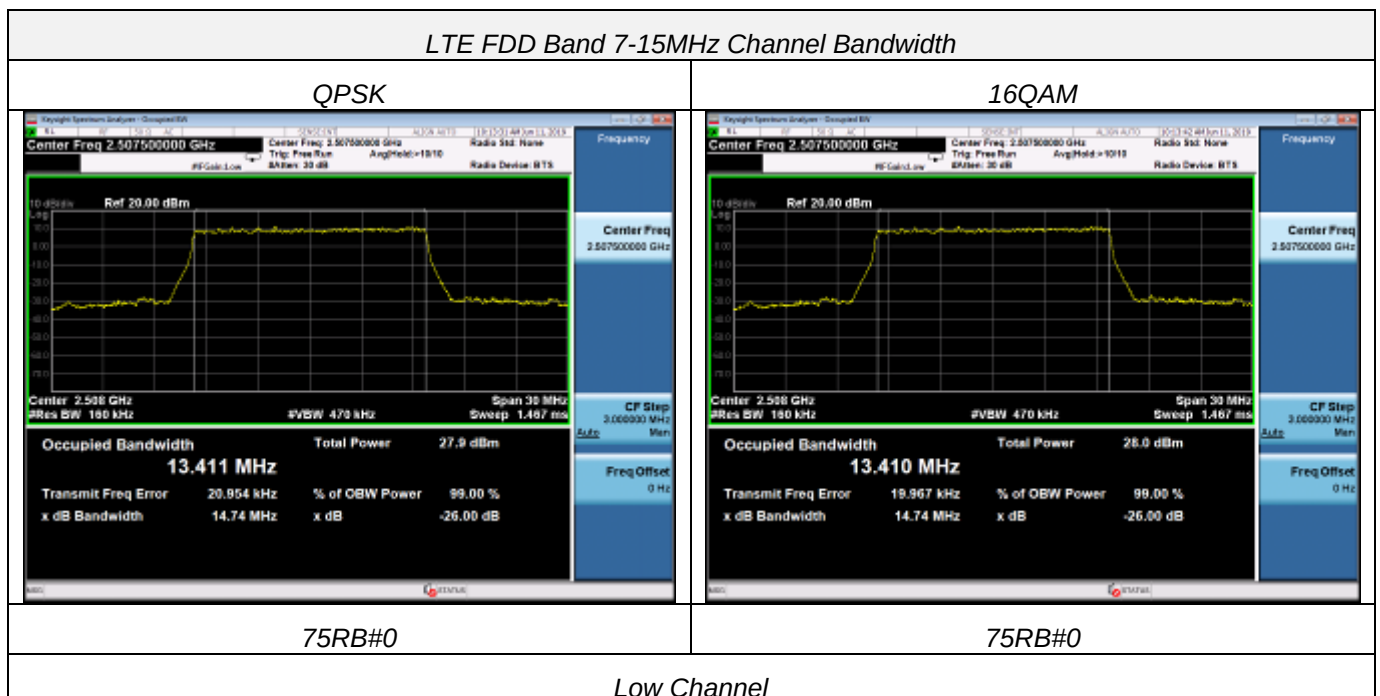
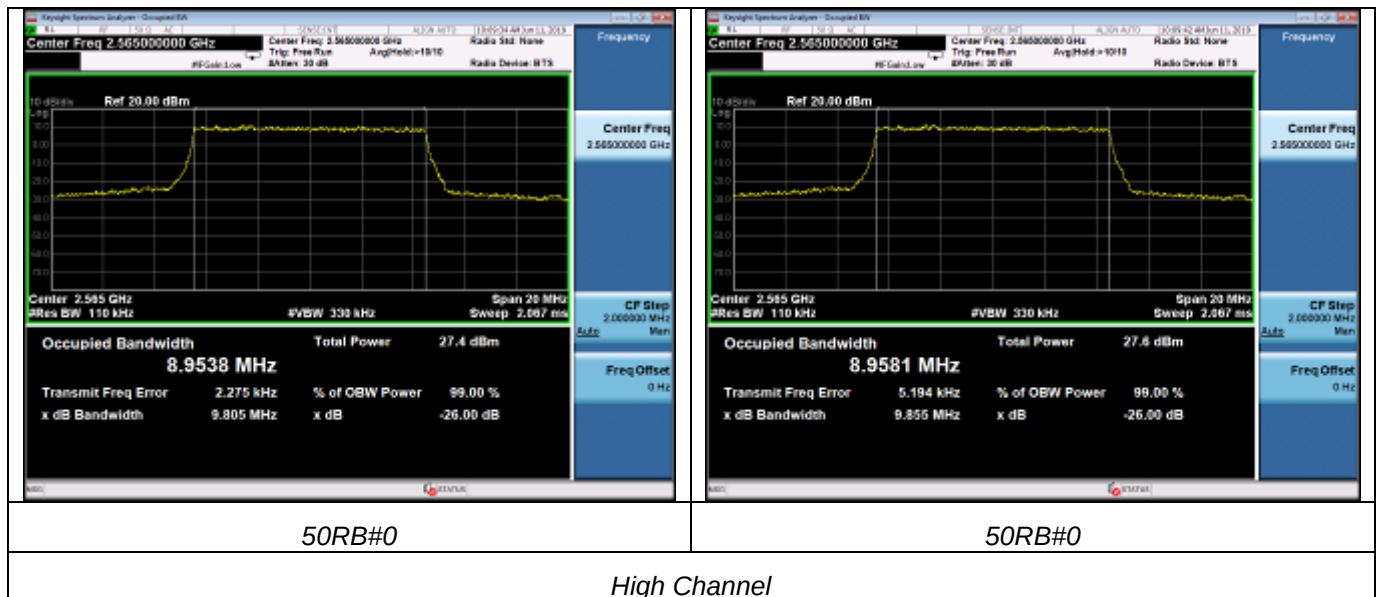
Low Channel

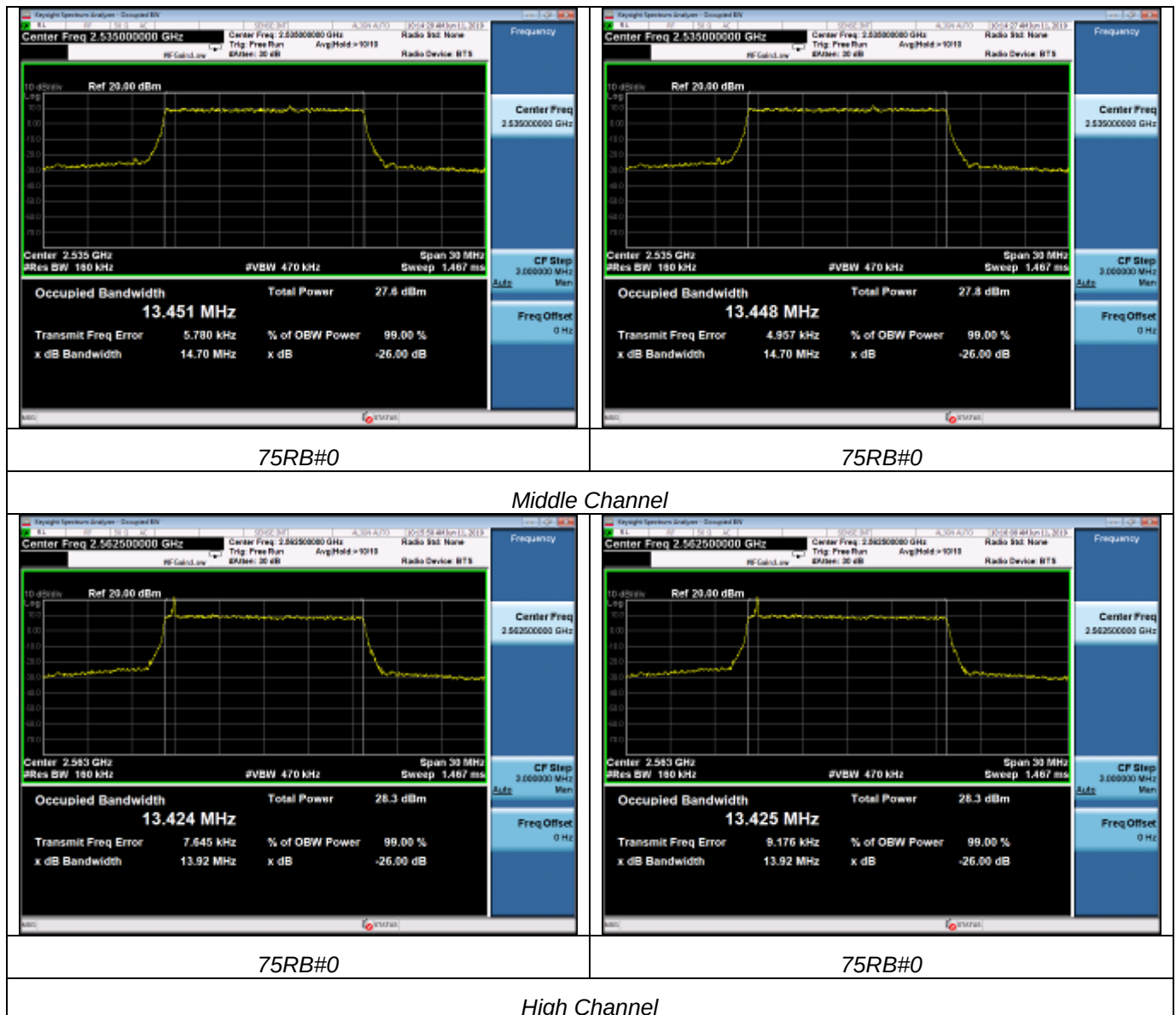


50RB#0

50RB#0

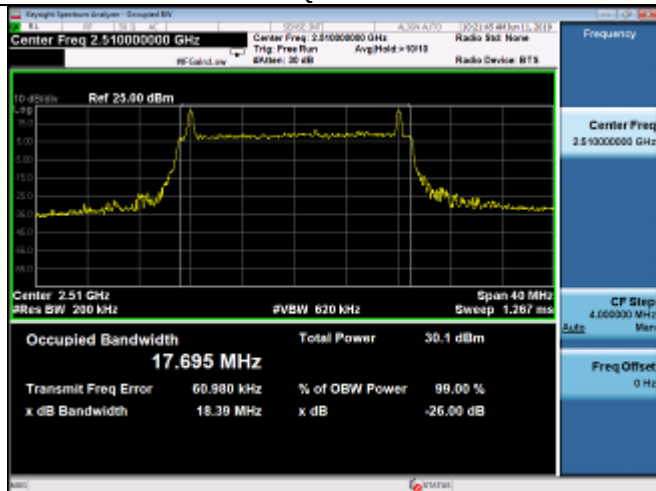
Middle Channel



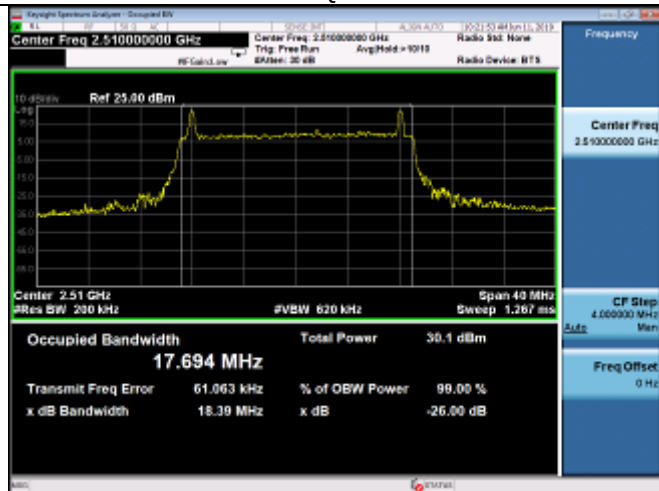


LTE FDD Band 7-20MHz Channel Bandwidth

QPSK



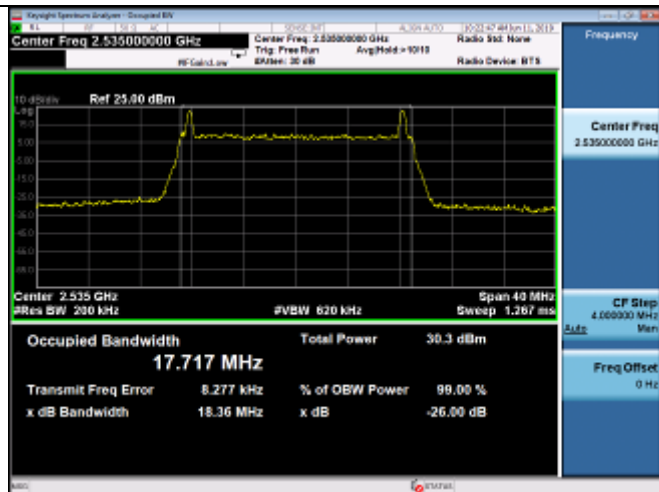
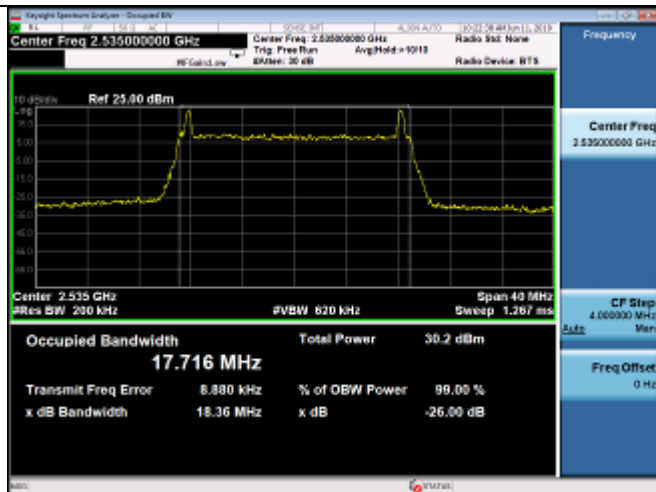
16QAM



100RB#0

100RB#0

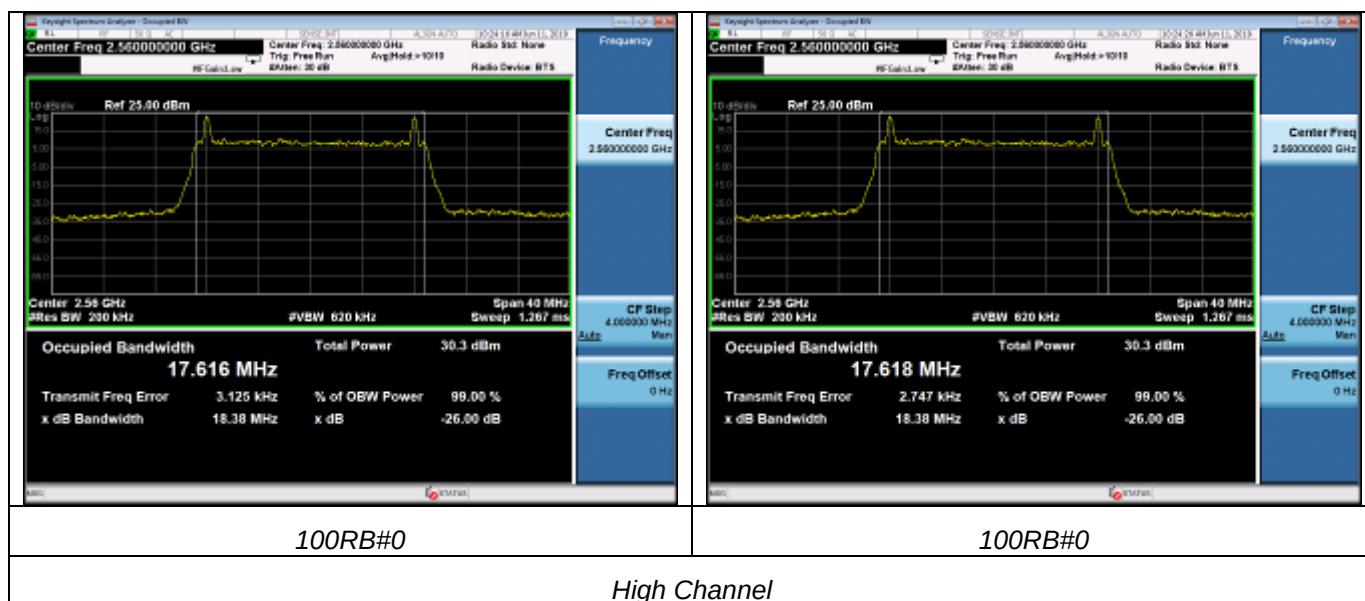
Low Channel



100RB#0

100RB#0

Middle Channel

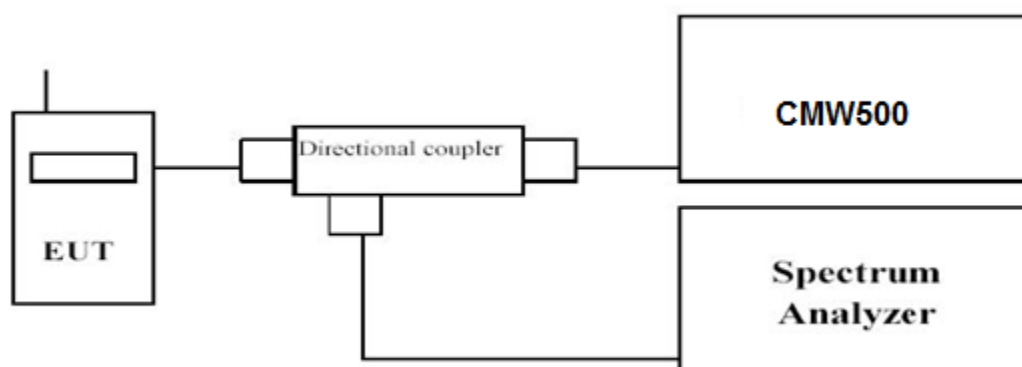


4.4 Emission Mask

LIMIT

According to §27.53 (m) (4): For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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

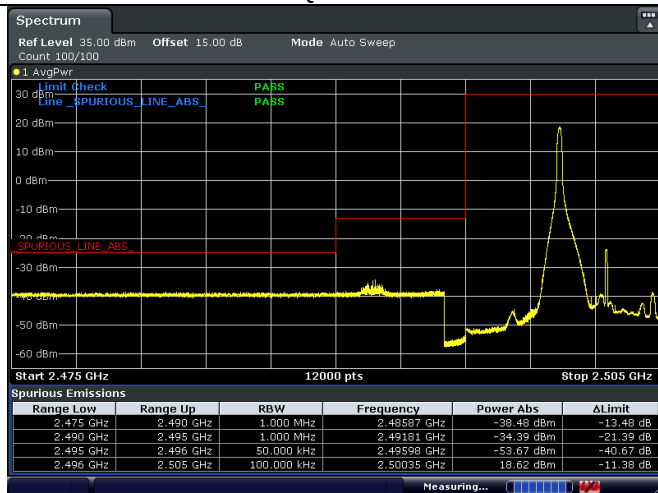
TEST RESULTS

Remark:

We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 7; recorded worst case for each Channel Bandwidth of LTE FDD Band 7.

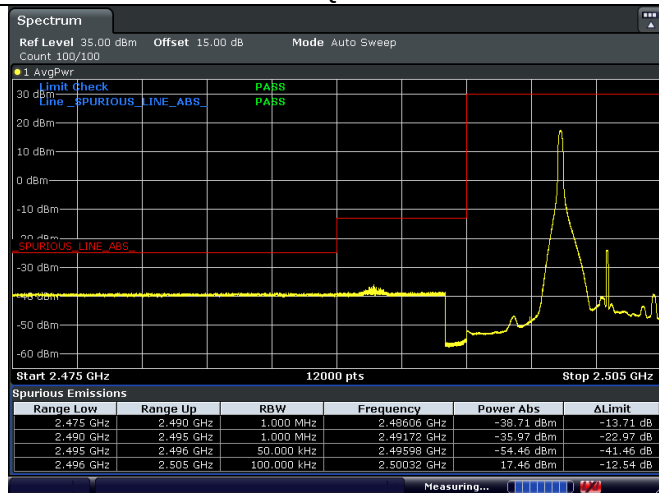
LTE FDD Band 7-5MHz Channel Bandwidth Band Edge Compliance

QPSK



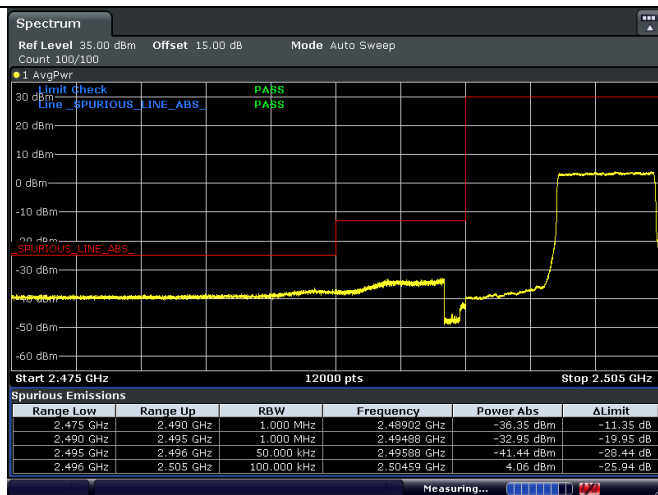
Date: 6 AUG 2019 09:53:27

16QAM



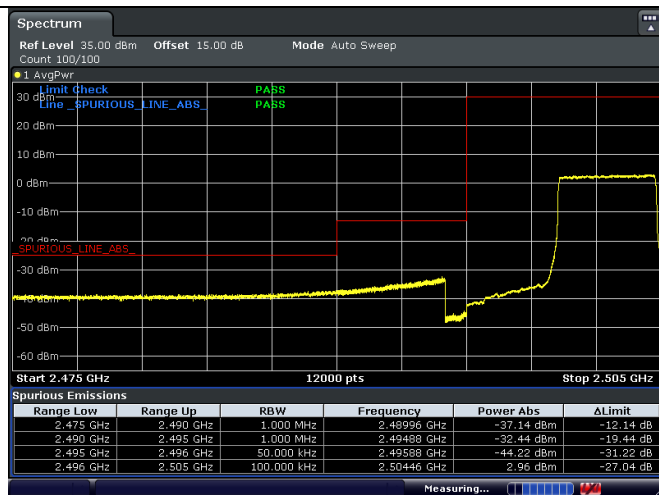
Date: 6 AUG 2019 09:51:49

1RB



Date: 6 AUG 2019 09:54:27

1RB

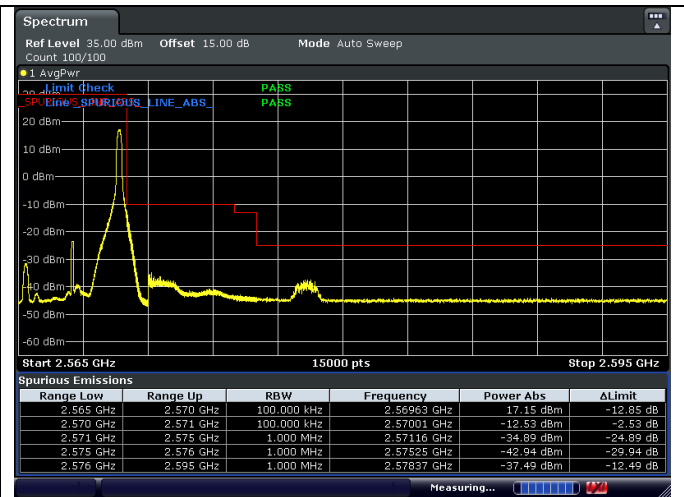
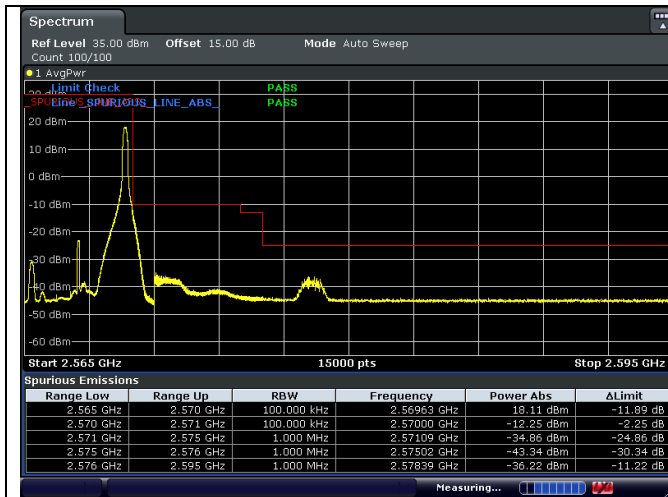


Date: 6 AUG 2019 09:55:46

25RB

25RB

LCH



1RB



25RB

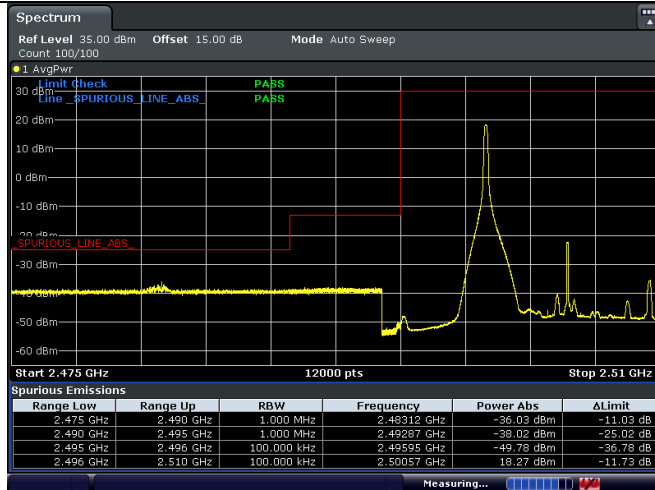


25RB

HCH

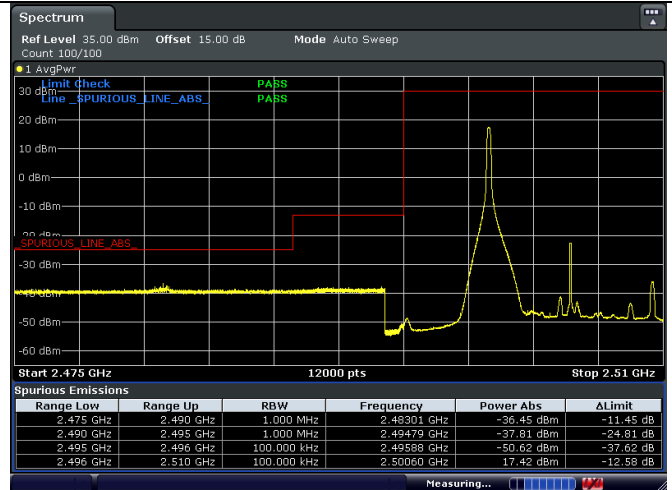
LTE FDD Band 7-10MHz Channel Bandwidth Band Edge Compliance

QPSK



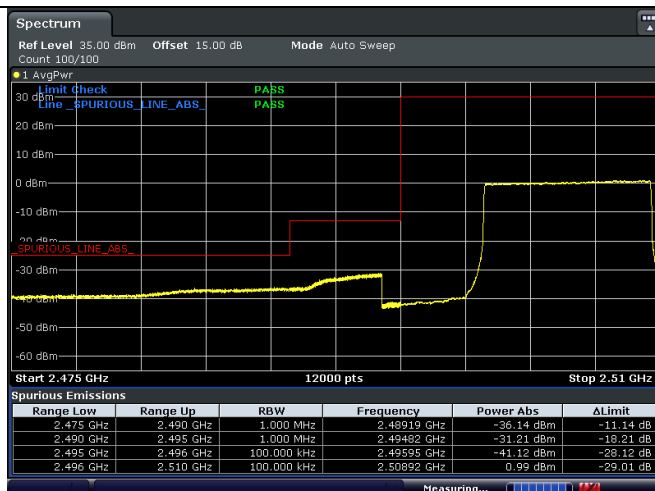
Date: 6 AUG 2019 09:48:32

16QAM



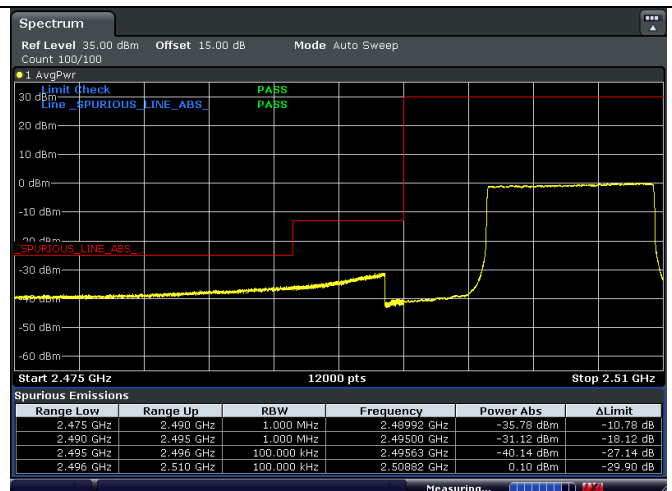
Date: 6 AUG 2019 09:46:55

1RB



Date: 6 AUG 2019 09:23:34

1RB

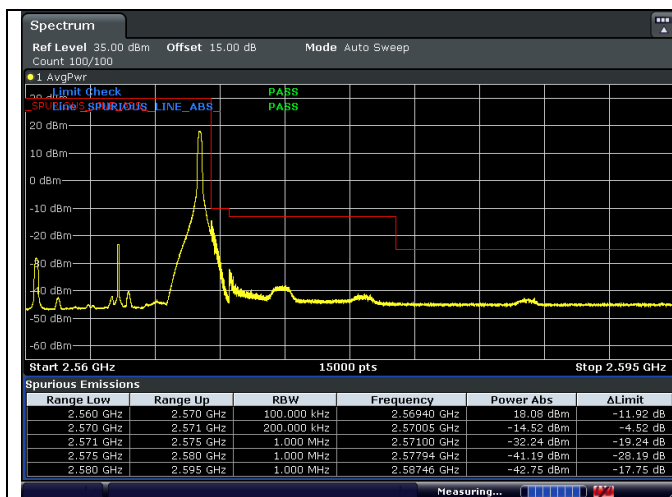


Date: 6 AUG 2019 09:25:18

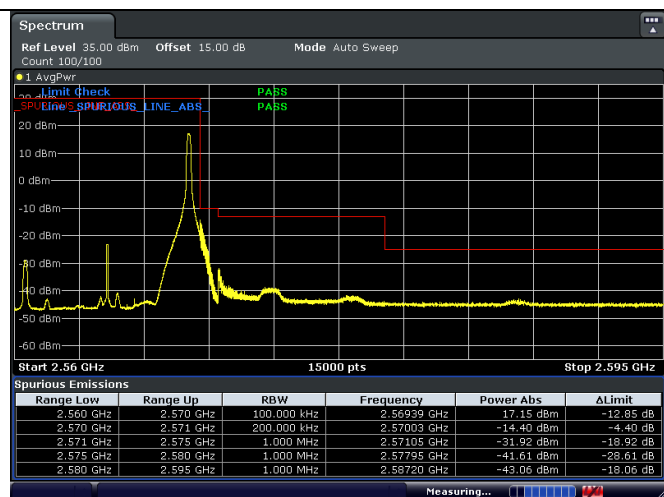
50RB

50RB

LCH



Date: 6.AUG.2019 09:43:01



Date: 6.AUG.2019 09:44:28

1RB



Date: 6.AUG.2019 09:38:42



Date: 6.AUG.2019 09:35:26

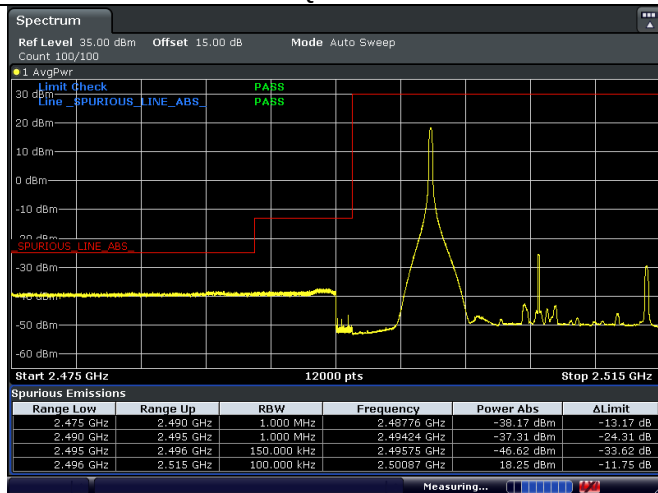
50RB

50RB

HCH

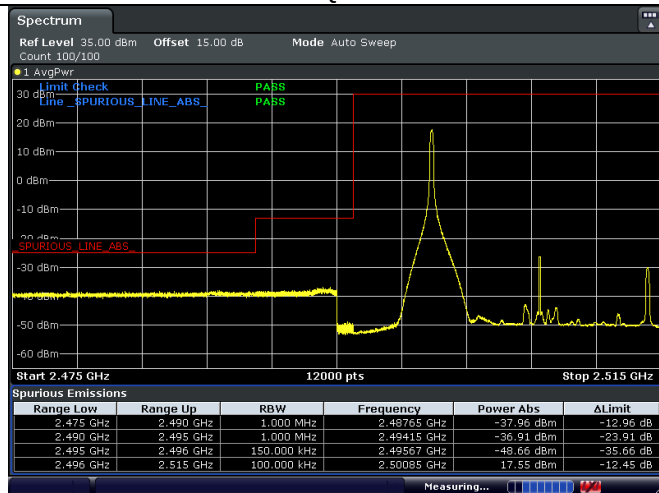
LTE FDD Band 7-15MHz Channel Bandwidth Band Edge Compliance

QPSK



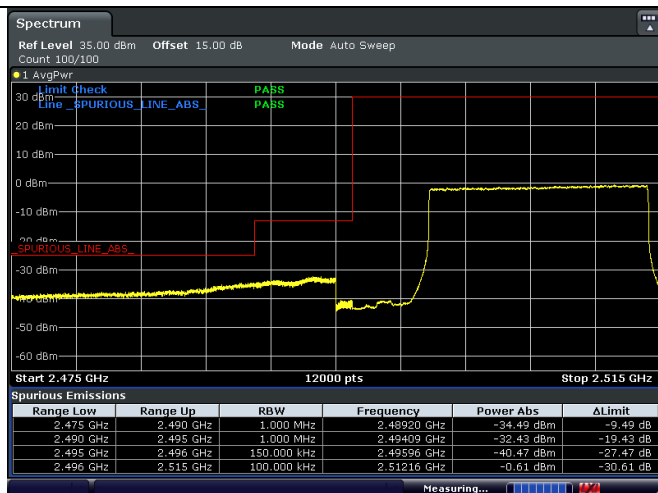
Date: 6 AUG 2019 09:13:42

16QAM



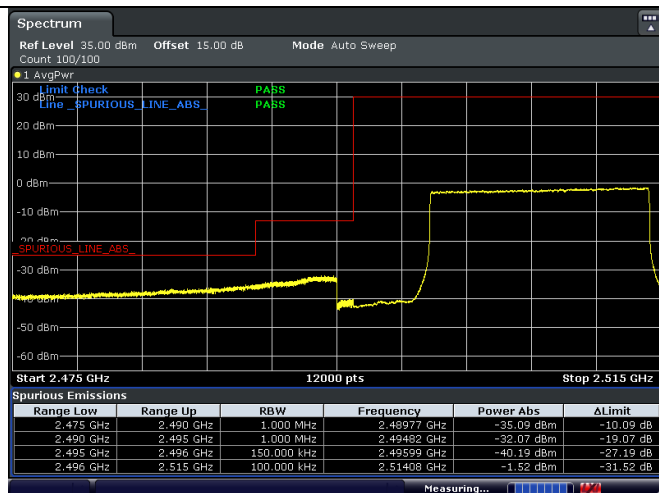
Date: 6 AUG 2019 09:14:57

1RB



Date: 6 AUG 2019 09:17:05

1RB

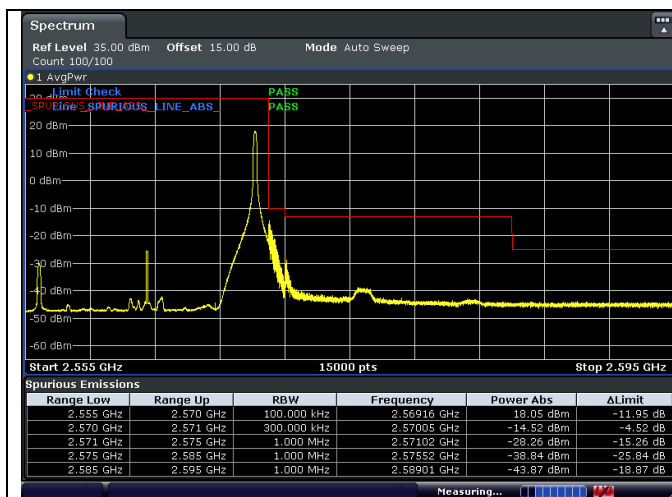


Date: 6 AUG 2019 09:16:00

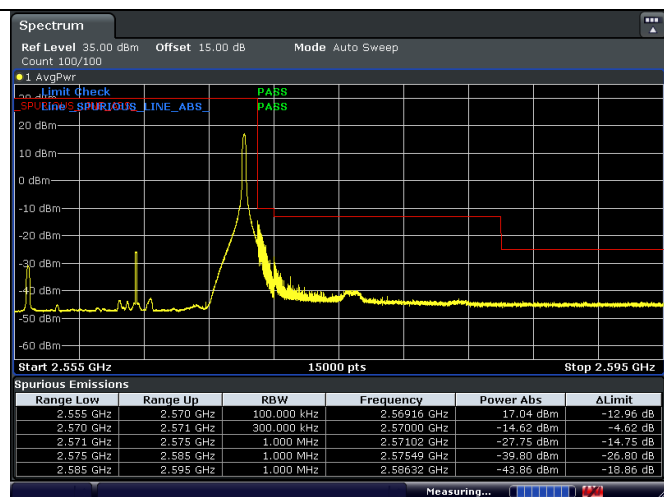
75RB

75RB

LCH



Date: 6 AUG 2019 09:00:24



Date: 6 AUG 2019 09:09:30

1RB



Date: 6 AUG 2019 09:07:02



Date: 6 AUG 2019 09:08:26

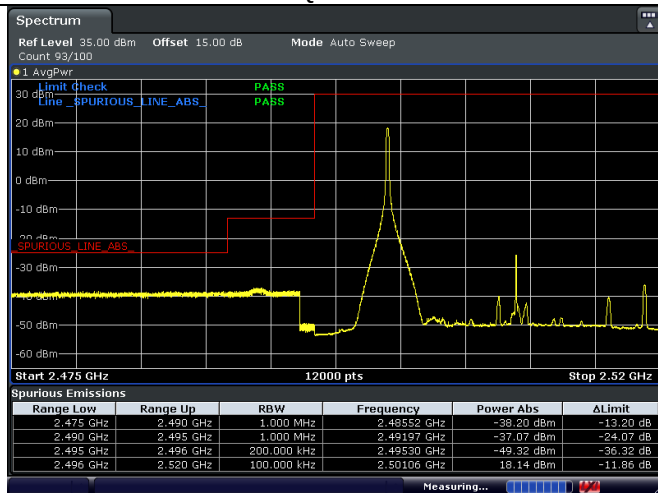
75RB

75RB

HCH

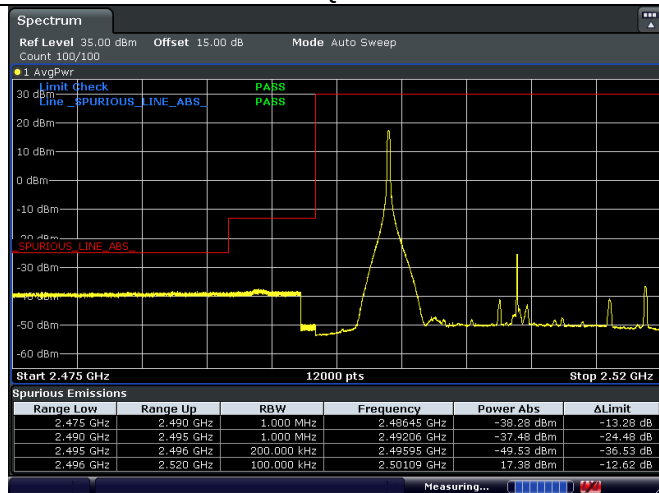
LTE FDD Band 7-20MHz Channel Bandwidth Band Edge Compliance

QPSK



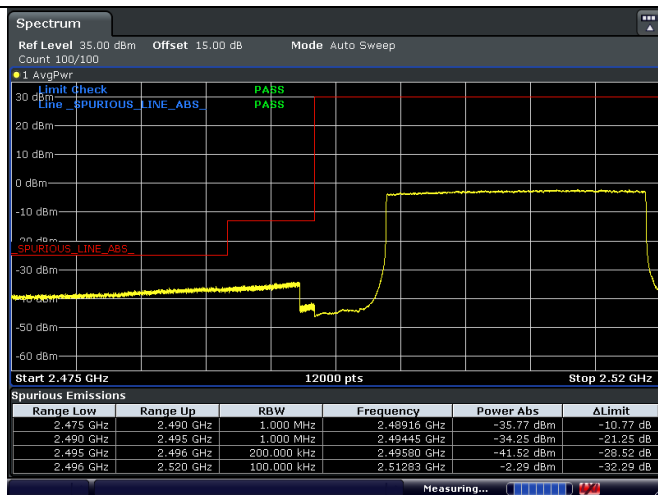
Date: 6 AUG 2019 10:11:56

16QAM



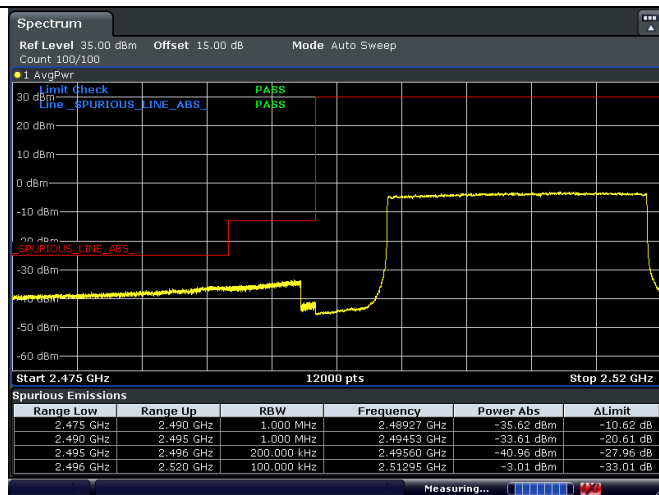
Date: 6 AUG 2019 10:13:56

1RB



Date: 6 AUG 2019 10:17:01

1RB

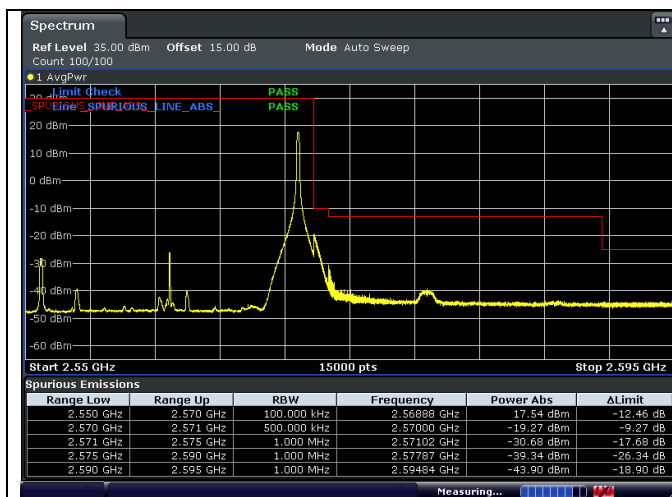


Date: 6 AUG 2019 10:15:34

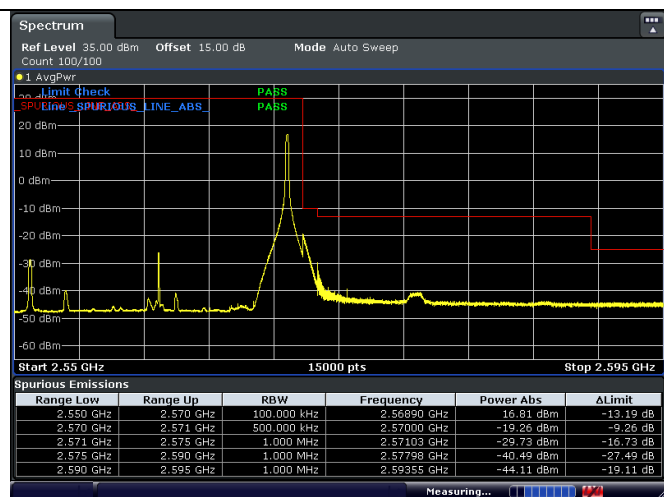
100RB

100RB

LCH



Date: 6 AUG 2019 10:21:50



Date: 6 AUG 2019 10:25:16

1RB

1RB



Date: 6 AUG 2019 10:21:25



Date: 6 AUG 2019 10:23:09

100RB

100RB

HCH