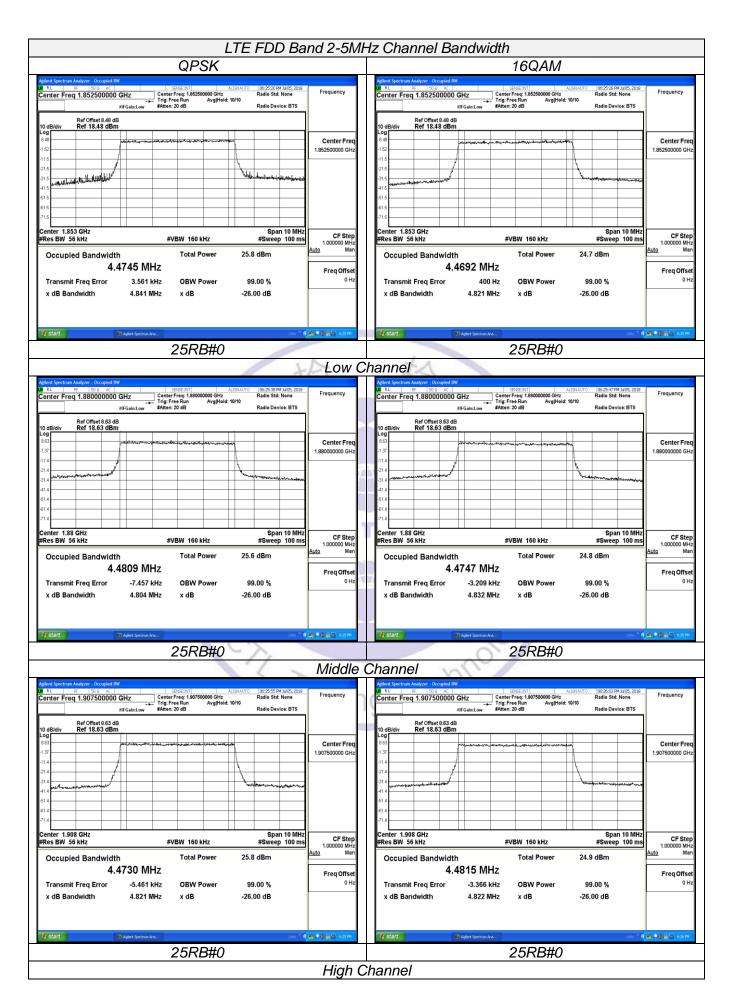


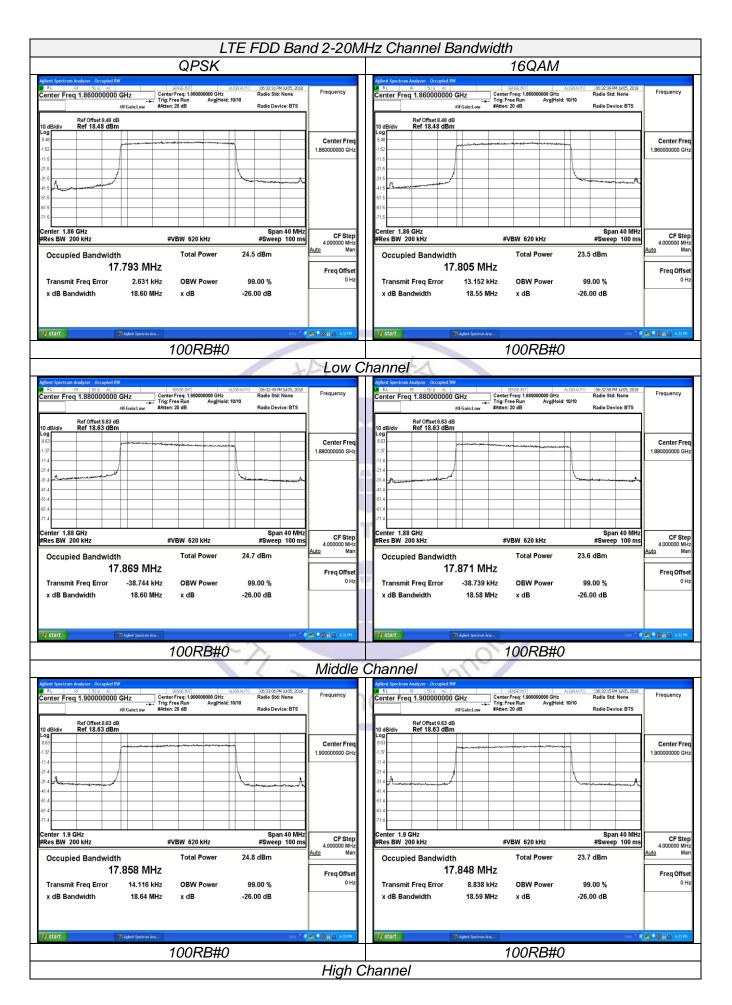
Page 26 of 64



LTE FDD Bar	nd 2-10M	IHz Channel Bandwidth
QPSK		16QAM
Addred Spectrum Analyzer - Occupied DW ISPOE 301 ALSHAUTO 06-26:14PM JdGs, 2018 If RL RF 500 a/C Center Freq: 1.855000000 GHz Radio Std: None Center Freq: 1.855000000 GHz Freq: 1.855000000 GHz Radio Std: None If Gaincl.ow Apten: 20 dB Radio Device: BTS Ref Offset 8.48 dB Log Log 8.6 Concervent rescue device: Provide device rescue device: Provide device: P	Frequency Center Freq	Addent Spectrum Andyrer / Occupied DW Allow Autor Decayated DW Allow Autor Decayated DW Frequency If R1 RF DS0.9 Action Autor Decayated DW Frequency Center Freq 1.8550000000 GHz Center Freq: 1.8550000000 GHz Radio Stat. None Frequency If Gainstow #Frequency Frequency Frequency Frequency 0 dB/div Ref Offset 8.48 dB Dodd/div Ref 18.48 dBm Center Freq 0.0g 0 Decayated DW Decayated DW Center Freq
152 115 215 315 315 515 515 515 515 515 5	1.85500000 GHz	112 135 135500000 GH 115 135500000 GH 135500000 GH 115 135 135500000 GH 115 135 135500000 GH 115 135500000 GH 1355000000 GH 115 1355000000 GH 1355000000 GH 115 13550000000 GH 135500000000000000000000000000000000000
Center 1.855 GHz Span 20 MHz Span 20 MHz #Res BW 110 kHz #VBW 330 kHz #Sweep 100 ms Occupied Bandwidth Total Power 25.1 dBm	CF Step 2.000000 MHz <u>Auto</u> Man	Center 1.855 GHz Span 20 MHz #Res BW 110 kHz #VBW 330 kHz #Sweep 100 ms 0ccupied Bandwidth Total Power 24.0 dBm
8.9326 MHz Transmit Freq Error 13.670 kHz OBW Power 99.00 % x dB Bandwidth 9.494 MHz x dB -26.00 dB	Freq Offset 0 Hz	8.9308 MHz Transmit Freq Error 11.579 kHz OBW Power 99.00 % x dB Bandwidth 9.481 MHz x dB -26.00 dB
	A P 🛛 🔒 🖸 626 PH	🛃 start 👘 Agler Spectrum Ara Unis 🔍 🖗 🎝 🖉 🖓 🖄 🖓 🖓 🖓 🖓 🖓
50RB#0	~	50RB#0
to	Low C	Channel
Allinet Spectrum Analyzer Social Science Allinet Spectrum Allinet Spectrum Allinet Spectrum Allinet Spectrum Social Science Social Science Radio Std: None Center Freq 1.880000000 GHz Tig Free Rum AvgiHold: 10/10 Radio Std: None Radio Std: None Bit Genet Comparison #IF Genet Low #Alter: 20 dB Radio Device: BTS Ref Offset 8.63 dB Ref Radio Device: BTS Radio Device: BTS	Frequency	Allow Syschim Andyrer, Decayled DW 1 65 90 ex SUBJECT AllOWATIO (0628+007M M/05, 2038) Center Freq 1.880000000 GHz Center Freq 1.88000000 GHz Center Freq 1.88000000 GHz Trig: Free Nam Avg Hold: 10/10 Radio Std: None #FGainz.ew #Atten: 20 dB Radio Device: BTS Radio Device: BTS
10 dBldiv Ref 18.63 dBm	Center Freq 1.88000000 GHz	ID debloiv Ref 18.63 dBm Log Center Fre 653
Center 1.88 GHz Span 20 MHz #Res BW 110 kHz #VBW 330 kHz #Sweep 100 ms Occupied Bandwidth Total Power 24.9 dBm	CF Step 2.000000 MHz Auto Man	Center 1.88 GHz Span 20 MHz CF Ste #Res BW 110 kHz #VBW 330 kHz #Sweep 100 ms 2.000000 MH Occupied Bandwidth Total Power 24.1 dBm
8.9312 MHz Transmit Freq Error -21.262 kHz OBW Power 99.00 % x dB Bandwidth 9.455 MHz x dB -26.00 dB	Freq Offset 0 Hz	8.9361 MHz Freq Offs: Transmit Freq Error -20.152 kHz OBW Power 99.00 % 01 x dB Bandwidth 9.549 MHz x dB -26.00 dB
Start Di Aglert Spectrum Ara Unis **	▲ P @ @ @ 626 PH	🕴 Start 🛛 T. Aglert Spectrum An Unis 🖹 🗲 📥 🖏 🖓 🔔 626 Mi
50RB#0		50RB#0
	Middle	Channel
Algend Spectrum Analyser - Concepted BW State - Free 1.365000000 GHz AL32(AUTO 05:02:04 Mid 56; 2018 Center Free 1.905000000 GHz Center Free; 1.365000000 GHz Radio Std; None #IF GaincLow #Atten: 20 dB Radio Device: BTS Ref Offset 8.63 dB Radio Std; None Radio Device: BTS	Frequency	Allow Spectrum Audyor, Dicupied IW SEISE28/11 AllOVAUTO (0626570413/05,2038) Relic Set Spectrum Center Freq. 1.905000000 GHz Center Freq. 1.905000000 GHz Radio Std: None Vie File File Set Spectrum Arg Hold: 10/10 Radio Device: BTS Ref Offset 8.63 dB Ref Generation Radio Device: BTS
10 dBdiv Ref 18.63 dBm	Center Freq 1.90500000 GHz	In dellativ Ref 18.63 dBm Log Center Fre 137 Center Fre 137 Center Fre 138 Center Fre 134 Center Fre 134 Center Fre 134 Center Fre 134 Center Fre 144 Center Fre
71.4 Span 20 MHz Center 1.905 GHz Span 20 MHz #Res BW 110 kHz #VBW 330 kHz ØCcupied Bandwidth Total Power 25.1 dBm	CF Step 2.000000 MHz Auto Man	71.4 Center 1.905 GHz Span 20 MHz #Res BW 110 kHz #VBW 330 kHz #Sweep 100 ms Occupied Bandwidth Total Power 24.2 dBm
8.9261 MHz Transmit Freq Error 4.192 kHz OBW Power 99.00 % x dB Bandwidth 9.478 MHz x dB -26.00 dB	Freq Offset 0 Hz	8.9358 MHz Transmit Freq Error -3.824 kHz OBW Power 99.00 % 0 ⊨ x dB Bandwidth 9.398 MHz x dB -26.00 dB
		H start MAder Spectrum Ara (nu * € ▲ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●
50RB#0	11:-1 6	50RB#0
	High C	Channel

model: Number of	LTE FDD Bai	nd 2-15M	IHz Channel Bandwidth
Entropy of the second of th	QPSK		16QAM
International and the set of the se	■ RL RF 50.0 AC SPIKEINT ALIGNAUTO 05:2707 PM Jul05, 2019 Center Freq 1.857500000 GHz Center Freq: 1.857500000 GHz Radio Std: None Trig: Free Run Avg Hold: 10/10	Frequency	Dir R.L FF ISD 9. #C SPISE BHT ALIGHAUTO (06:27:15FM Jul05, 2019) Center Freq 1.857500000 GHz Center Freq: 1.857500000 GHz Radio Std: None Frequency
Image: State <	10 dB/div Ref 18.48 dBm		Ito deladiv Ref 18.48 dBm Log
TSRB#0 TSRB#0 CourceAnnel. Transmit Freq 13000000 000 000 000 0000 0000 0000 00	#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms Occupied Bandwidth Total Power 24.8 dBm 13.391 MHz Transmit Freq Error 14.814 kHz OBW Power 99.00 %	Auto Man Freq Offset	Center 1.858 GHz #VBW 470 kHz Span 30 MHz #Res BW 160 kHz #VBW 470 kHz \$
Production and product an		K ▲ ● ● ● ● © 627 PH	
The rest is all block Concepted Bandwidth Total Power 24.0 dB Total Power 23.0 dB Concepted Bandwidth Total Power 24.0 dB Total Power 23.0 dB Tamenté Freq Libbordon Total Power 24.0 dB Total Power 23.0 dB Tamenté Freq Libbordon Total Power 24.0 dB Total Power 23.0 dB Tamenté Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB Tamenté Freq Freq Libbordon Total Power 24.0 dB Total Power 24.0 dB	t	Low C	Channel
Coccupied Bandwidth Total Power 24.7 dBm 13.428 MHz Transmit Freq Error 30.335 Mt 2 0BW Power 99.00 % x dB Bandwidth 14.13 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 30.248 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 8.250 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.539 Mtz 0BW Power 99.00 % x dB Bandwidth 14.03 Mtz x dB 28.00 dB Transmit Freq Error 9.53	Bit RF 309 AC 309 AC 309 AC 309 AC 309 AC 300 AC 300	Center Freq 1.88000000 GHz CF Step	B R. RF Stop AC Stop BRE BIT AUX/AUTO DR2733PH MIS.2005 Frequency Center Freq 1.880000000 0FHZ Frig Free Run AvgHold: 10/10 Radio Set: None Frig Inter Sec: None Radio Set: None Frequency If Gainci Aw Affan: 20 dB Radio Set: None Radio Set: None Frequency Id Bidity Ref Offset 8.63 dB Radio Device: BTS Radio Device: BTS Frequency 10 dBidity Ref 18.63 dB Radio Device: BTS Radio Device: BTS Radio Device: BTS 114 Ref 18.63 dB Radio Device: BTS Radio Device: BTS Radio Device: BTS 133 Ref 18.63 dB Radio Device: BTS Radio Device: BTS Radio Device: BTS 144 Ref 18.63 dB Radio Device: BTS Radio Device: BTS Radio Device: BTS 144 Ref 18.63 dB 21.4 Ref 18.63 dB 21.4 Ref 18.64 Ref 18.64 <t< td=""></t<>
x dB Bandwidth 14.13 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.06 MHz x dB 26.00 dB x dB andwidth 14.03 MHz x dB 26	Occupied Bandwidth Total Power 24.7 dBm 13.428 MHz	Auto Man Freq Offset	Occupied Bandwidth Total Power 23.7 dBm Auto Man 13.408 MHz Freq Offset
No. Linescol </td <td>1 Start: 7 Adert Spectrum Ans Loss ** 75RB#0</td> <td></td> <td>If start ™ Ader Species Arts. Loss ○ ④ ● ⑤ ၍ ○ 627/8 75RB#0 Channel</td>	1 Start: 7 Adert Spectrum Ans Loss ** 75RB#0		If start ™ Ader Species Arts. Loss ○ ④ ● ⑤ ၍ ○ 627/8 75RB#0 Channel
Leg Image: Center Freq Image: Center Image: Center Freq	BIL RF 500 AC SDRESHT AUXANTO D052741 DH AU55.2002 Center Freq 1.902500000 GHz Center Freq 1.90250000 GHz Radio Std: None #IF Gainct.ow #IF Gainct.ow #Atten: 20 dB Radio Device: BTS Ref Offset 8.63 dB B Radio Device: BTS Radio Device: BTS	Frequency	00 R t 197 130 a AC SPREERT AUXPAUTO 10627350 M M/05 2018 Center Freq 1.902500000 GHz Genter Freq 1.90220000 GHz Radio Sk Nene Frequency Trig. Free Run AvgHold: 10/10 #Rdien: 20 dB Radio Device: BTS Ref Offset 8.83 dB
#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms #Sweep 100 ms 0.0000 kHz CF step 0.0000 kHz #Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms 0.0000 kHz CF step 0.0000 kHz Occupied Bandwidth 13.386 MHz Total Power 24.9 dBm Auto Man Total Power 24.0 dBm Auto Man Transmit Freq Error 8.472 kHz OBW Power 99.00 % 0 Hz Transmit Freq Error 9.589 kHz OBW Power 99.00 % 0 Hz x dB Bandwidth 14.03 MHz x dB -26.00 dB Image: Complex Co	137 114 214 214 114 114 114 114 114	1.902500000 GHz	Log Center Freq 137
Transmit Freq Error 8.472 kHz OBW Power 99.00 % 0 Hz x dB Bandwidth 14.03 MHz x dB -26.00 dB 0 Hz x dB Bandwidth 14.03 MHz x dB -26.00 dB 0 Hz */ start ** def Second Re 0 Hz */ start ** def Second Re ** def Second Re </td <td>#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms Occupied Bandwidth Total Power 24.9 dBm</td> <td>3.00000 MHz Auto Man</td> <td>#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms CF Step 3,000000 MHz Occupied Bandwidth Total Power 24.0 dBm Auto Man 12, 200 MLL_7</td>	#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms Occupied Bandwidth Total Power 24.9 dBm	3.00000 MHz Auto Man	#Res BW 160 kHz #VBW 470 kHz #Sweep 100 ms CF Step 3,000000 MHz Occupied Bandwidth Total Power 24.0 dBm Auto Man 12, 200 MLL_7
75RB#0 75RB#0	Transmit Freq Error 8.472 kHz OBW Power 99.00 %		Transmit Freq Error 9.589 kHz OBW Power 99.00 %
		0 ≜.₽©⊜ ⊡ 627™	
	/5RB#0	11:-1 6	

Page 29 of 64

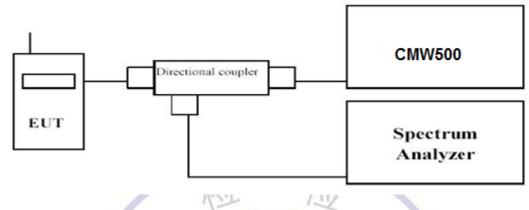


3.4. Band Edge compliance

<u>LIMIT</u>

Per FCC 24.238 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 43 + 10log(P) dB.

TEST CONFIGURATION



TEST PROCEDURE

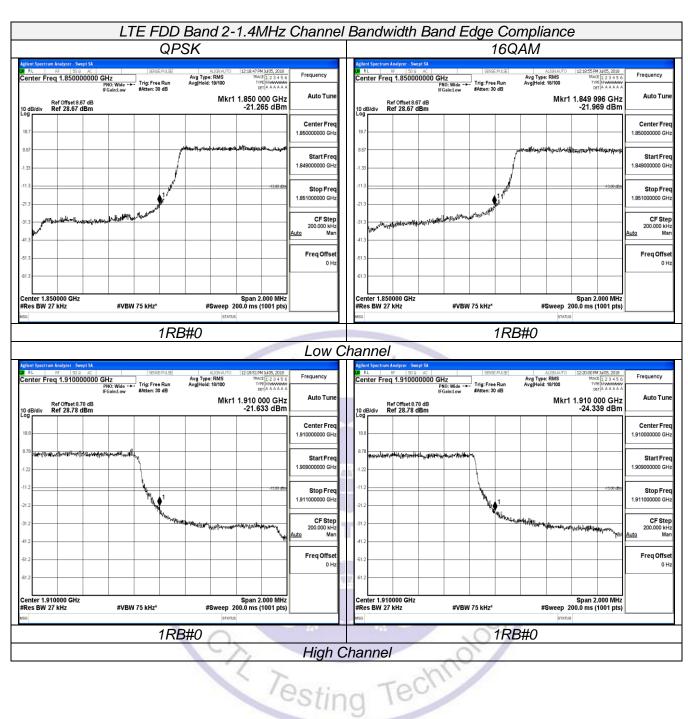
- 1. The transmitter output port was connected to base station.
- 2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
- 3. Set EUT at maximum power through base station.
- 4. Select lowest and highest channels for each band and different modulation.
- 5. Measure Band edge using RMS (Average) detector by spectrum

TEST RESULTS

Remark:

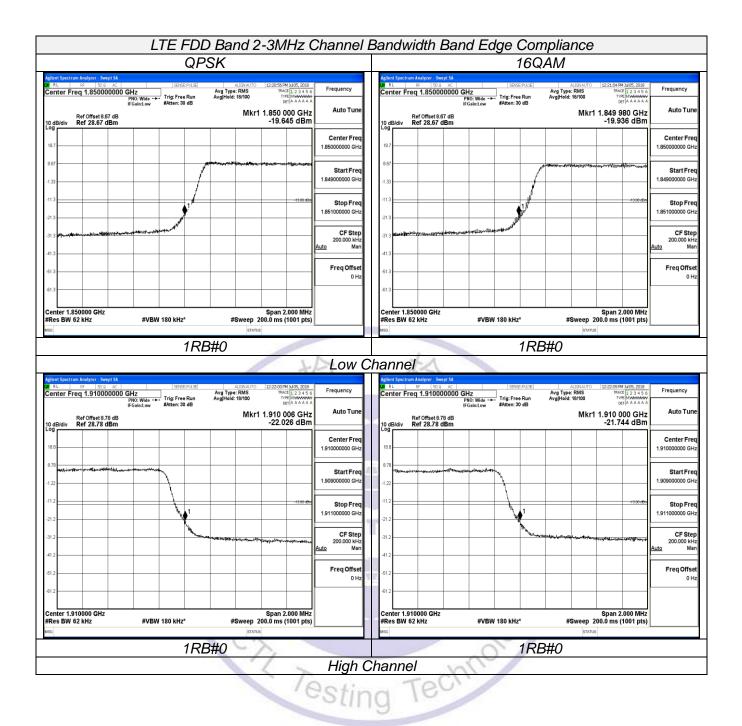
1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

Testing Techno

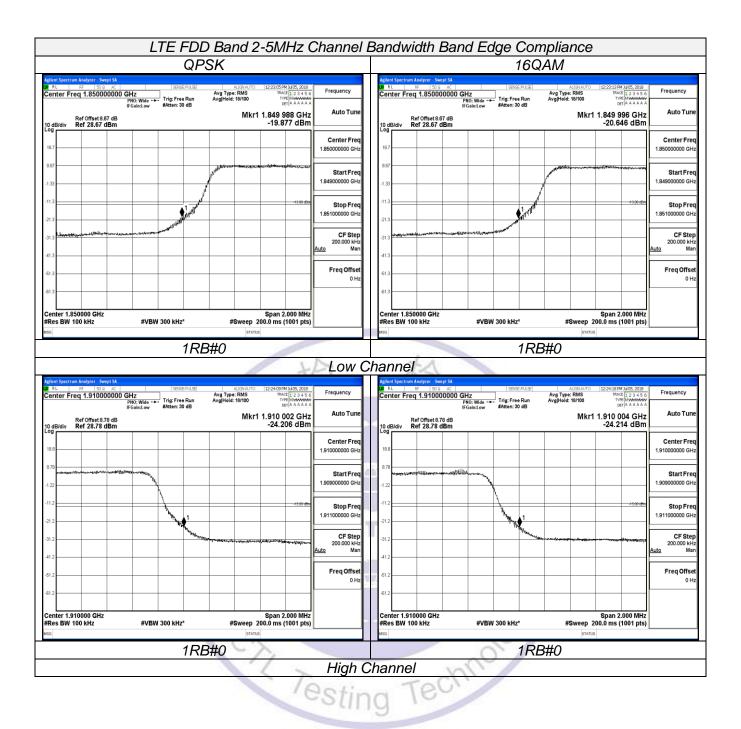


Report No.: CTL1806216041-WF02

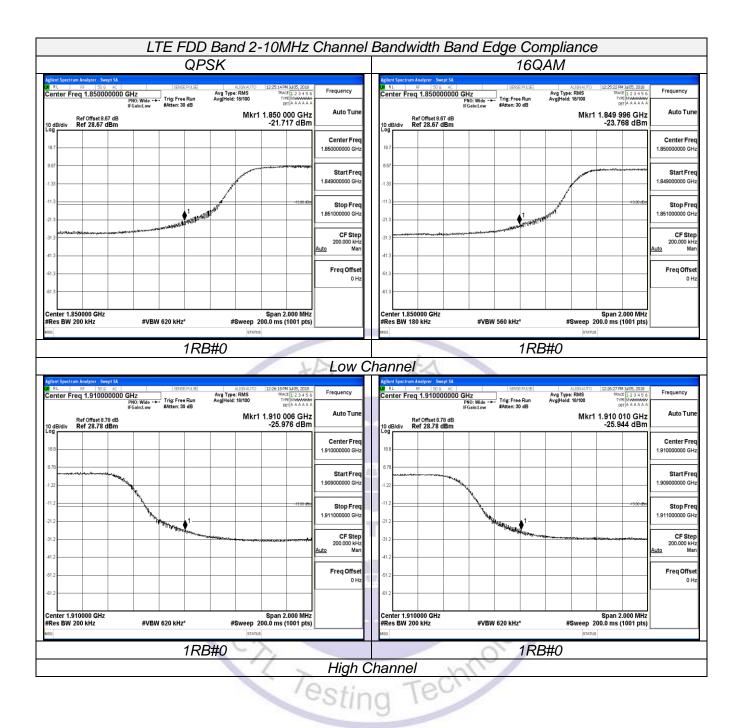
Page 32 of 64



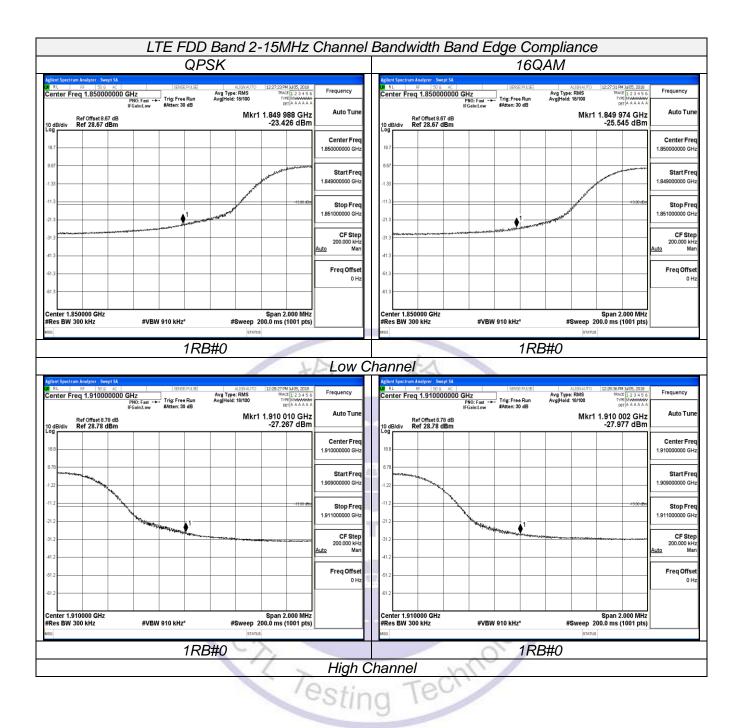
Page 33 of 64

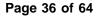


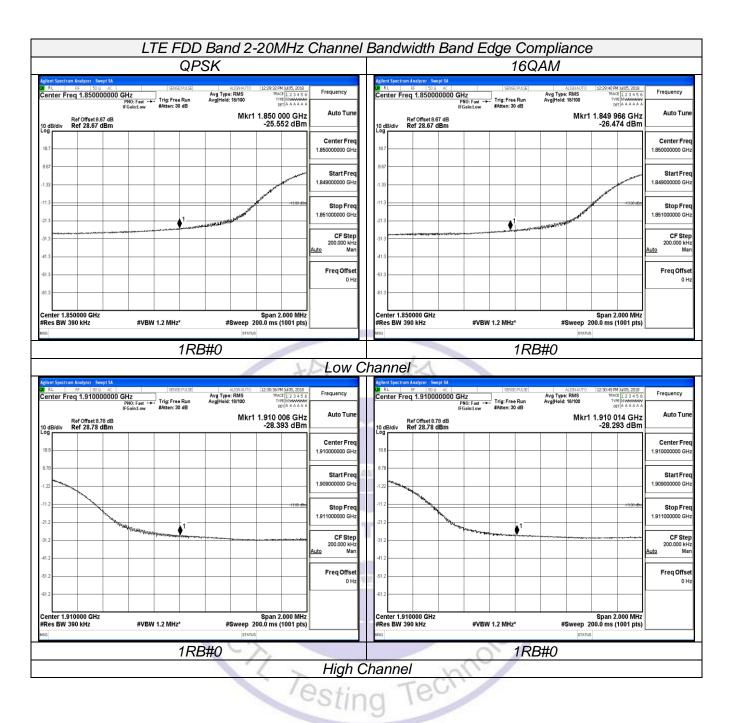
Page 34 of 64



Page 35 of 64





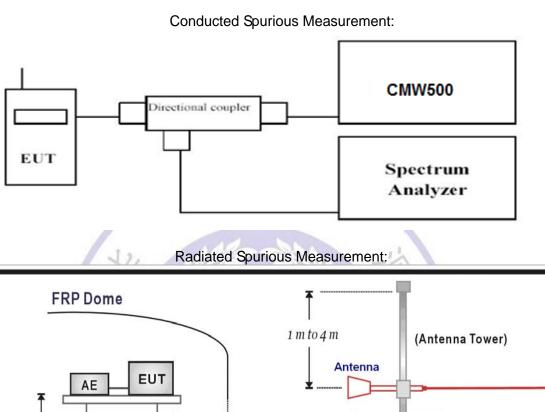


3.5. Spurious Emission

<u>LIMIT</u>

Per FCC §24.238, 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 43 + 10log(P) dB.

TEST CONFIGURATION



3 m

Spectrum Analyzer

Pre-Amplifier

Controller

TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Spurious Measurement:

80 cm

a. Place the EUT on a bench and set it in transmitting mode.

(Turntable)

Ground Plane

- 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.
- e. The resolution bandwidth of the spectrum analyzer was set sufficient scans were taken to show the out of band Emission if any up to10th harmonic.

Radiated Spurious 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.
- I. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- 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. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for Part 22 and 1MHz for Part 24. The frequency range was checked up to 10th harmonic.
- r. Test site anechoic chamber refer to ANSI C63.

TEST RESULTS

Remark:

1. We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 2; recorded worst case for each Channel Bandwidth of LTE FDD Band 2.

