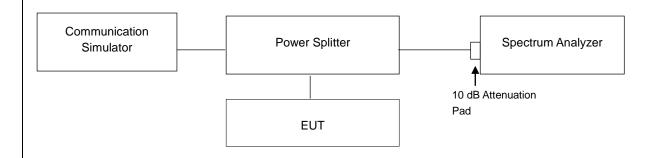


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.6.2 Test Setup



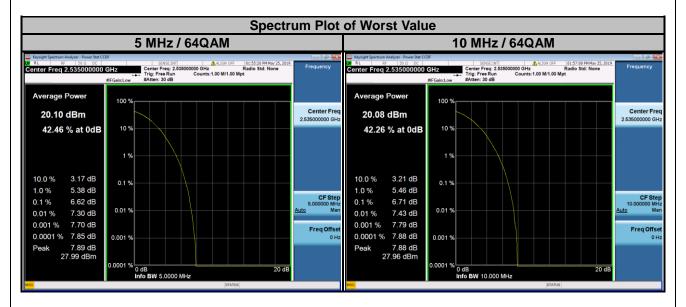
4.6.3 Test Procedures

- 1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1 %.



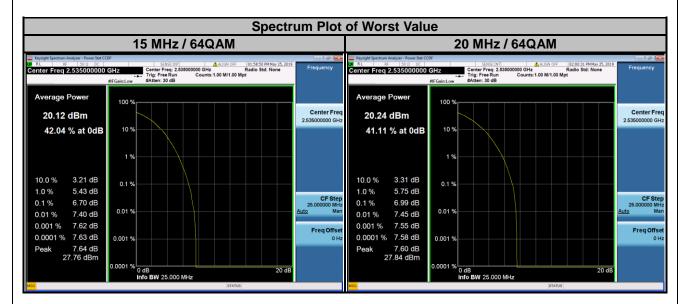
4.6.4 Test Results

LTE Band 7									
Channel Bandwidth: 5 MHz					C	Channel Band	width: 1	0 MHz	
Channel	Frequency	Peak to	o Averag (dB)	e Ratio	Channel	Frequency	Peak to Average Ratio (dB)		
	(MHz)	QPSK	16QAM	64QAM		(MHz)	QPSK	16QAM	64QAM
20775	2502.5	5.07	6.10	6.48	20800	2505.0	5.04	6.04	6.41
21100	2535.0	5.20	6.16	6.62	21100	2535.0	5.27	6.28	6.71
21425	2567.5	4.92	5.93	6.45	21400	2565.0	5.02	5.95	6.58



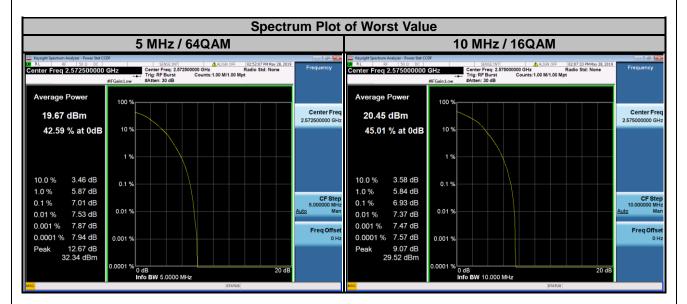


LTE Band 7									
C	hannel Band	C	hannel Band	width: 2	0 MHz				
Channel	Frequency (MHz)	Peak to	Peak to Average Ratio (dB)		Channel	Frequency	Peak to Average Ratio (dB)		
	(11172)	QPSK	16QAM	64QAM		(MHz)	QPSK	16QAM	64QAM
20825	2507.5	4.99	5.91	6.39	20850	2510.0	4.93	5.99	6.51
21100	2535.0	5.20	6.18	6.70	21100	2535.0	5.37	6.29	6.99
21375	2562.5	5.17	5.92	6.55	21350	2560.0	4.87	5.86	6.46



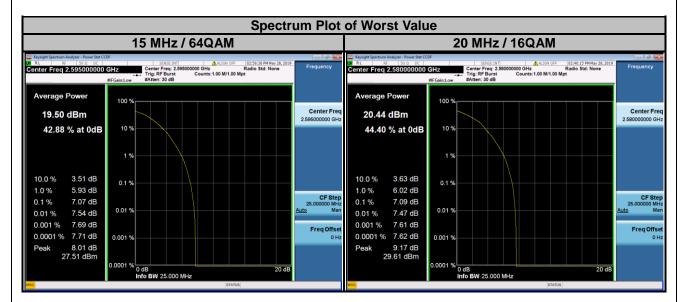


LTE Band 38									
(Channel Ban	C	Channel Band	width: 1	0 MHz				
Channel	Frequency (dB)		Channel	Frequency	Peak to Average Ratio (dB)				
	(MHz)	QPSK	16QAM	64QAM		(MHz)	QPSK	16QAM	64QAM
37775	2572.5	5.28	6.79	7.01	37800	2575.0	5.38	6.93	6.81
38000	2595.0	5.26	6.78	6.79	38000	2595.0	5.38	6.70	6.52
38225	2617.5	5.08	6.45	6.58	38200	2615.0	5.38	6.22	6.48



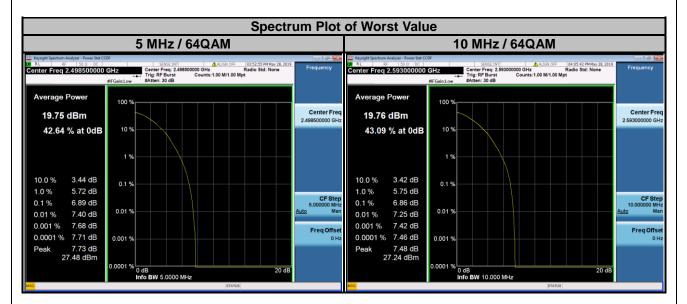


LTE Band 38									
C	hannel Band	C	hannel Band	width: 2	0 MHz				
Channel	Frequency (MHz)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)			
	(11172)	QPSK	16QAM	64QAM		(11172)	QPSK	16QAM	64QAM
37825	2577.5	5.11	6.86	6.67	37850	2580.0	5.41	7.09	6.77
38000	2595.0	6.28	6.86	7.07	38000	2595.0	6.28	6.51	6.85
38175	2612.5	5.74	6.39	6.68	38150	2610.0	5.85	6.59	6.57



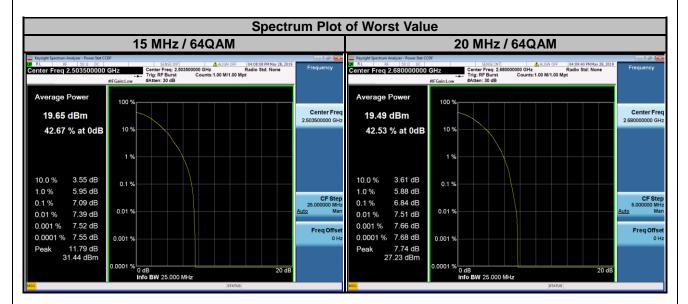


LTE Band 41									
(Channel Band	C	hannel Band	width: 1	0 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)			
	(1112)	QPSK	16QAM	64QAM		(11172)	QPSK	16QAM	64QAM
39675	2498.5	5.97	6.83	6.89	39700	2501.0	5.91	6.68	6.46
40620	2593.0	5.35	6.52	6.87	40620	2593.0	5.58	6.57	6.86
41565	2687.5	5.24	6.43	6.67	41540	2685.0	5.41	6.50	6.54





LTE Band 41									
C	hannel Band	C	hannel Band	width: 2	0 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency	Peak to Average Ratio (dB)			
		QPSK	16QAM	64QAM		(MHz)	QPSK	16QAM	64QAM
39725	2503.5	5.96	6.62	7.09	39750	2506.0	5.84	6.58	6.71
40620	2593.0	5.46	7.01	6.83	40620	2593.0	5.71	6.81	6.68
41515	2682.5	5.48	6.46	6.86	41490	2680.0	5.66	6.69	6.84



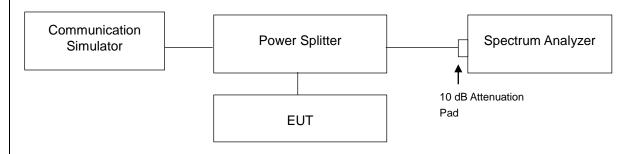


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 + 10 log (P) dB. The limit of emission is equal to -25 dBm.

4.7.2 Test Setup

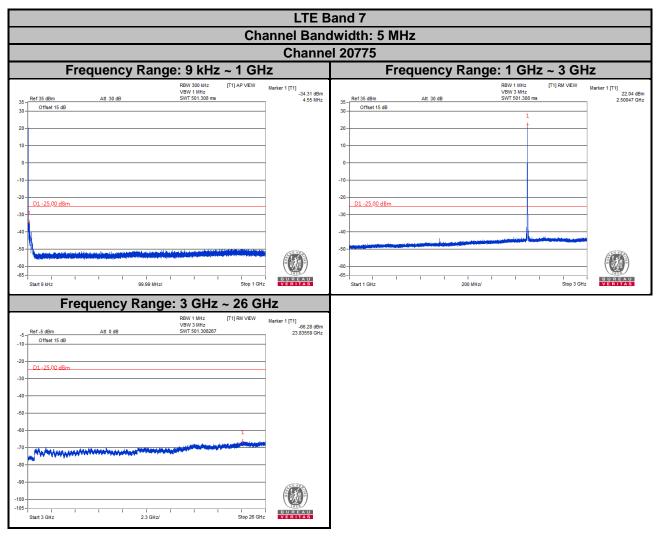


4.7.3 Test Procedure

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 3 GHz. 10 dB attenuation pad is connected with spectrum.
 RBW = 300 kHz and VBW = 1 MHz are used for conducted emission measurement.
- c. Measuring frequency range is from 3 GHz to 26 or 27 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz are used for conducted emission measurement.
- d. Spectrum RBW settings are referenced to ANSI 63.26 section 5.7.2.



4.7.4 Test Results





LTE B	and 7								
Channel Banc	Channel Bandwidth: 5 MHz								
Channel 21100									
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz								
BBY 300 H/2 [T1] AP VEW Marker 1 [T1] -33.11 dBm -4.85 MHz -4.85 MHz -4.85 MHz -33.11 dBm -33.11 dBm -33.11 dBm -33.11 dBm -4.85 MHz -33.11 dBm -4.85 MHz -4.85 MHz -4.85 MHz -4.85 MHz -33.11 dBm -33.11 dBm -33.11 dBm -4.85 MHz -4.85 MHz -4.85 MHz -33.11 dBm -4.85 MHz -33.11 dBm -4.85 MHz -4.85 MHz <th>RBW1 Miz [T1] RW VEW Marker 1 [T1] 22.28 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 22.53277 GHz 30 Offset 15 dB 1 1 1 20 1 1 1 1 10 0 1 1 1</th>	RBW1 Miz [T1] RW VEW Marker 1 [T1] 22.28 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 22.53277 GHz 30 Offset 15 dB 1 1 1 20 1 1 1 1 10 0 1 1 1								
-10	-10 -20 D1 -25,00 dBm -30 -40								
Frequency Range: 3 GHz ~ 26 GHz									
Ref -5 dbm Att 0 dB SWT 501.30267 Marker 1 [T'] -68.38 dbm 25.47212 OHz -10 -0									
-90 -100 -105 -11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1									



LTE E	Band 7							
Channel Ban	dwidth: 5 MHz							
Channel 21425								
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz							
RBW 300 HHz [T1] AP VEW VBW 1 MHz Marker 1 [T1] -33.77 dBm 30	BBW 1 MHz VBW 3 MHz [T1] RM VEW VBW 3 MHz Marker 1 [T1] 22.34 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 22.56537 GHz 30							
20 D1-25.00 dBm -30	20 D1-25.00 dBm -30							
Sector Att 0 dB Clip Att 0 dB								
-100 -105								



LTE Ba	
Channel Bandv	
Channel	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 HHz [T1] AP VEW Marker 1 [T1] 3.3 49 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms -33 49 dBm -33 49 dBm -33 49 dBm -33 49 dBm -34 90 MHz -34 90 MHz -36 90 MHz	Ref 35 dBm Att 30 dB SWT 501 308 ms Marker 1 [T1] Marker 1 [T1] 22.46 dBm 2.50057 GHz 30 0 0 1 0 2.50057 GHz 2.50057 GHz 00 0
Start 9 KHz 99.99 MHz/ Stop 1 GHz VERITAE	Start 1 GHz 200 MHz/ Stop 3 GHz VERTIAS
RBW1 MH2 [T1] RM VEW Market 1 [T1] 0.05 cBm 5 Ref-5 dBm Att 0 dB SWT 501 302607 24 37151 GHz -10 -10 -10 -10 -10 -20 D1 -25.00 dBm -10 -10 -30 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -10 -100 -10 -10 -10 -100 -10 -10 -10 -100 -10 -10 -10	



	Band 7							
	sand 7 dwidth: 10 MHz							
Channel 21100								
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz							
RBW 300 HHz [T1] AP VEW Marker 1 [T1] VBW 1 MHz 35 - Ref 35 dBm Att 30 dB SWT 501.306 ms -34.88 dBm 30 - Coffset 15 dB	RBW 1 MHz [T'] RM VEW Marker 1 [T'] 22.60 dBm 35 Ref 35 dBm Att 30 dB SWT 501.306 ms 2.55067 GHz 2.55067 GHz 30							
0	0							
-40- -50- -60- -60- -55- -1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	40 -50 -66 -65 -51 -51 -51 -51 -51 -51 -51 -51 -51 -5							
Frequency Range: 3 GHz ~ 26 GHz								
BBW1 Miz [T1] RM VEW Marker 1 [T1] -68 27 dBm -68 27 dBm -68 27 dBm 23 55612 GHz 24 55612 GHz								
-80 -90 -100 -105 -5tart 3 OHz -107 -105 -107 -107 -107 -107 -107 -107 -107 -107								



	Band 7							
Channel Bandwidth: 10 MHz Channel 21400								
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz							
RBW 300 MHz [T1] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 5.00 MHz 30- Offset 15 dB	RBW 1 MM: [T1] RM VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.3.18 dBm 30 Offset 15 dB 1 2.56077 GHz 2.56077 GHz 20 1 1 1 1 1 10 1 1 1 1 1							
-10 	-20 - D1-25.00 dBm							
-40	-40 - -50 - -60 - -65 - -55 - -55 - -55 - -55 - -55 - -56 - 							
Frequency Range: 3 GHz ~ 26 GHz								
RBW 1 MHz USW 3 MHz [T1] RM VEW USW 3 MHz Marker 1 [T1] -80.11 dBm -80.11 dBm -5 Ref-5 dBm Att 0 dB SWT 501.308267 25.5357 GHz 25.5357 GHz -10								
-80 -90 -105 -105 -105 -105 -105 -105 -105 -10								



LTE B	
Channel Bandy Channel	
Frequency Range: 9 kHz ~ 1 GHz (1) AP VEW VIHIE VEW VIHIE SWT 501.300 ms Offset 15 dB Offset 10 dB <td< th=""><th>Frequency Range: 1 GHz ~ 3 GHz Rev 1 Mrz [T1] RM VEW VBW 3 Mrz [T1] RM VEW Start 30 dB SWT 501309 ms Offset 15 dB 1 Offset 15 dB 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1</th></td<>	Frequency Range: 1 GHz ~ 3 GHz Rev 1 Mrz [T1] RM VEW VBW 3 Mrz [T1] RM VEW Start 30 dB SWT 501309 ms Offset 15 dB 1 Offset 15 dB 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1 D 1
-80- -85- -85- -85- -85- -85- -85- -85-	-80
Ref -5 dBm At 0 dB SWT 501.30227 Marker 1 [T1] 66.09 dBm -0	



	and 7		
LTE Band 7 Channel Bandwidth: 15 MHz			
Channel 21100			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
RBM 300 HHz [T1] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 34.00 dBm 5.00 MHz 30 Offset 15 dB	RBV1 1MH2 [T1] RM VEW Marker 1[T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 22.43 dBm 22.43 dBm 22.52827 GHz 30 1 <td< th=""></td<>		
-10- -20- -01-25,00 d8m -30-1 +	-10		
-50 -50 -50 -50 -50 -50 -50 -50	-50		
Frequency Range: 3 GHz ~ 26 GHz			
RBV 11 Mrz [T1] RM VEW Marker 1 [T1] BBV 11 Mrz [T1] RM VEW Marker 1 [T1] -5 Ref. 5 dBm Att 0 dB SWT 501 308267 Att 0 40 QHz -60 65 dBm 24 01040 GHz -10 -0			
-80			



	TE Band 7	
Channel Bandwidth: 15 MHz Channel 21375		
Marker 1 [1]		
-10	-10 -20 D1-25,00 dBm -30 -40	
500 400 400 400 400 400 400 400	-50- -60- -65- -51- -1- -1- -1- -1- -1- -1-	
RBW 1 Mri: VBW 3 Mri: 10 Marker 1 [T1] -5 Ref-5 dBm Att 0 dB SWT 501.302/87 23.0 -10 Offset 15 dB SWT 501.302/87 23.0 -20 D1-25.00.dBm	-85 90 dBm 69183 GHz	
-/0		



LTE Band 7 Channel Bandwidth: 20 MHz Channel 20850 Frequency Range: 9 kHz ~ 1 GHz Frequency Range: 1 GHz ~ 3 GHz					
			20-		
Frequency Range: 9 kHz ~ 1 GHz RBW 300 kHz VBW 1 MHz VBW 1 MHz SWT 501.300 ms RBW 300 kHz VBW 1 MHz SWT 501.300 ms	er 1 [T1] -32.43 dBm 4.60 MHz	35-Ref 35 dBm		196: 1 GHZ ~ 3 (RBW 1 MHz VBW 3 MHz SWT 501.308 ms	
Offset 15 dB		30 - Offset 15 dB 20 -		1	
		0			_
		-10			_
D1-25,00 dBm		-30			
	BU REAU	-50 -			
	VERITAS	Start 1 GHz	200 MH	z/ Stop	3 GHz VERITAS
RBW 1 MHz [T1] RM VEW Marker VEW 3 MHz VEW 3 MHz VEW 3 MHz Offset 15 dB SWT 501.308267 VEW 3 MHz	er 1 [T1] -66.00 dBm 25.74813 GHz				
1					
······································					
Start 3 GHz 2.3 GHz/ Stop 26 GHz	BUREAU VERITAS				



	Pand 7		
LTE Band 7 Channel Bandwidth: 20 MHz			
Channel 21100			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
RBW 300 MHz [T1] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms -34 20 dBm 4 30 MHz 30	RB/95 dBm Att 30 dB SWT 501 308 ms 22.76 dBm 30 Offset 15 dB 2<52597 GHz 2<52597 GHz 20 1 1 1 10 1 1 1		
0- -10- -20- 	0		
-40- -50- -60- -65- -55-	-00 -50 -60 -65 -51 -51 -65 -51 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1		
Frequency Range: 3 GHz ~ 26 GHz			
BRW IM:z [T1] RM VEW Marker 1 [T1] -68.12 dBm -5 Ref-5 dB Att 0 dB SWT 501.308267 24.11045 GHz -10 Offset 15 dB - - 24.11045 GHz 24.11045 GHz -20 D1-25.00 dBm - <t< td=""><td></td></t<>			
-90- -100- -105- Start 3 GHz 2.3 GHz/ Stop 26 GHz			



LTE Band 7 Channel Bandwidth: 20 MHz			
Channel 21350			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
RBW 300 kHz [T1] AP VEW VBW 1 MHz Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501.300 ms -34.57 dBm 30 Offset 15 dB 4.45 MHz -4.45 MHz 20	Ref 35 dBm Att 30 dB SWT 501 306 ms Marker 1 [71] 22.76 dBm 30 Offset 15 dB 1 2.55107 GHz 2.55107 GHz 20 1 1 1 1		
0	0 -10 -20 D1 -25,00 d8m -30 -40		
-50 -60 -65 -51 -51 -51 -51 -51 -51 -51 -51 -51 -5	-50 -60 -65 -51 -51 -51 -51 -51 -51 -51 -51 -51 -5		
Frequency Range: 3 GHz ~ 26 GHz Ref-5 dBm Att 0 dB (11) RM VEW VBW 3 MHz (11) RM VEW VBW 3 MHz Marker 1 [[11] 66.35 dBm			
-70 -80 -90 -100 -105 -105 -105 -107 -105 -107 -107 -107 -107 -107 -107 -107 -107			

	z 35 - Ref 35 dBm Att 30 dB SWT 501.308 ms 2.57017 GHz 30 - Offset 15 dB
Frequency Range: 9 kHz ~ 1 GHz BBW 300 MHz T(1) AP VEW VBW1 MHz (11) AP VEW Offset 15 dB Att 20 dB	Frequency Range: 1 GHz ~ 3 GHz Barrier 1 (11) (11) Barrier 1 (11) (11)
R8W 300 MHz [T1] AP VEW Marker 1 [T1] 49.74 dB VBW1 MHz 49.74 dB 500 ms 952.14 MH Offset 15 dB 952.14 MH 952.14 MH	RBW 1 MHz [T1] RM VEW Marker 1 [T1] 1 VBW 3 MHz VBW 3 MHz 22.84 dBm 35 Ref 35 dBm Att 30 dB SWT 501.300 ms 25.7017 GHz 30 Offset 15 dB
VBW1 MHz samer1 [11] 40 74 dB Ref 35 dB SWT 501.308 ms 952.14 MH Offset 15 dB	1 VBW 3 MHz VBW 3 MHz 22,84 dBm 23.5 Ref 35 dBm Att 30 dB SWT 501.308 ms 255017 GHz 30 Offset 15 dB
D1 -25,00 dBm	0 -10 -20 D1 -25,00 dBm
Start 9 WHz 99 99 WHz/ Stop 1 GHz Frequency Range: 3 GHz ~ 27 GHz	Start 1 GHz 200 MHz/ Stop 3 GHz VERTAS
RBW 1 Mitz [T1] RM VEW Marker 1 [T1] VBW 3 Mitz -65.39 dB Ref -5 dBm Att 0 dB SWT 501.300267 26.42037 GH Offset 15 dB	
D1-25.00 d8m	



LTE Band 38			
Channel Bandwidth: 5 MHz			
Channel 38000			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
Ref 35 dbm Aft 30 dB SWY 500 Hr2 [T1] AP VEW Marker 1 [T1] 49,49 30 Offset 15 dB SWT 501.300 ms 870.091 20	BBW 1 MHz [T1] RM \/EW Marker 1 [T1] 228 dBm MHz 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2 259 dBm 30 Offset 15 dB 1 2 259257 GHz 1 20 1 1 1 1 1 1 10 10 1 1 1 1 1 1		
0	0 -10 -20 		
40 - 1 50	-40 -50 -60 -65 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1		
Frequency Range: 3 GHz ~ 27 GHz			
RBW 1 MHz [T1] RM VEW Marker 1 [T1] 55 54 5 Ref-5 dBm Alt 0 dB SWT 501.308267 26 41557 10 Offset 15 dB D1 - 25.00 dBm 26 41557 26 41557 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0	đBm GHZ		
90			



LTE Band 38						
Channel Bandwidth: 5 MHz						
Channel 38225Frequency Range: 9 kHz ~ 1 GHzFrequency Range: 1 GHz ~ 3 GHz			11-			
Frequency F			Fre	equency Ra	RBW 1 MHz [T1] RM VIEW	
35 Ref 35 dBm Att 30 dB 30 Offset 15 dB	VBW 11Mz SWT 501.308 ms	Marker 1 [71] -49.19 dBm 899.99 MHz	35 - Ref 35 dBm 30 - Offset 15 dB 20 -	Att 30 dB	VBW 3 MHz [11] KW VEW SWT 501.308 ms	Marker 1 [T1] 23.32 dBm 2.61538 GHz
10			10			
-20			-20			
-40	n - / An da la barran ann an Anna an An 3 89 MHz/	1 L Stop 1 GHz	-40 -50 -60 -65 -65 -1	I I I 200 M	Hz/ Stop 3 G	BUREAU YERITAS
Frequency R	ange: 3 GHz ~	27 GHz				
-5 Ref-5 dBm Att 0 dB -10 Offset 15 dB -20 D1 -25.00 dBm -30) RM VEW Marker 1 [71] -05.80 dBm 24.14145 GHz				
-70						
-105-1111111111111111111111111111111111	I I I I 2.4 GHz/	BUREAU Stop 27 GHz VERITAS				



LTE Band 38			
Channel Bandwidth: 10 MHz Channel 37800			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
RBW 300 Mtz [T1] AP VEW VBW 1 Mtz Marter 1 [T1] -49.27 dBm sob 64 Mtz 30 ————————————————————————————————————	RBW 11 Miz VBW 31 Miz 00 W 5 Miz 20 (T1) RM VEW VBW 31 Miz 20 Marker 1 [T1] 2.3 13 dBm 2.57067 GHz 30 Offset 15 dB 1 1 30 0 1 2 10 1 1 2 10 1 1 1 20 1 1 1 10 1 1 1 20 1 1 1 10 1 1 1 20 1 1 1 10 1 1 1 1 20 1 1 1 1 20 1 1 1 1 20 1 1 1 1 20 1 1 1 1 1 30 1 1 1 1 1 1 30 1 1 1 1 1 1 1 30 1 1 1<		
Frequency Range: 3 GHz ~ 27 GHz RBW 1 MHz VBW 3 MHz SWT 501 300267 (1) RM VEW Offset 15 dB			



LTE Band 38			
Channel Bandwidth: 10 MHz			
Channel 38000			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
Ret 30 00 Htz [T1] AP VEW Market 1 [T1] 35 Ret 35 dBm Atl 30 dB SWT 501.308 ms 838.69 MHz 30 Offset 15 dB 30 35.69 MHz 838.69 MHz 20	RBW1 MM2 VBW3 MM2 [T1] RM VEW VBW3 MM2 Marker 1 [T1] 22.76 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.59077 GHz 30 1 1 2.59077 GHz 2.59077 GHz 20 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 1 0 1 1 1 1 1 1 0 1 1 1 1 1 1 0 1 1		
-30 -30 -40 -50 -50 -51 -51 -51 -51 -51 -51 -51 -51	-30 -40 -50 -50 -50 -55 -55 -55 -55 -55 -55 -5		
RBW 1 MHz [T1] RM VEW Marker 1 [T1] 65.53 dBm -0			
-90 -100 -105 -105 -105 -107 -107 -107 -107 -107 -107 -107 -107			



LTE Band 38			
Channel Bandwidth: 10 MHz			
Channel 38200			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
RB/W 300 HHz [T1] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 971.14 MHz 30 Offset 15 dB 971.14 MHz 971.14 MHz 20	RBV1 1MH2 [T1] RM VEW Marker 1 [T1] VBW 3 MH2 [T1] RM VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501308 ms 22.6108 g 30 0 1 1 1 20 1 1 1 1		
10	10		
-20 D1 -25.00 dBm	-20- D1-25.00 dBm -30- -40-		
-50	-50 -00 -05 -51art 1 GHz 200 MHz/ Stop 3 GHz URE AU Start 1 GHz 200 MHz/ Stop 3 GHz		
Frequency Range: 3 GHz ~ 27 GHz			
R8 W1 Mbz [T1] RM VEW Marker 1 [T1] 84 91 dBm 84 91 dBm 2-84 91 dB			
-80 -90 			



LTE Band 38			
Channel Bandwidth: 15 MHz Channel 37825			
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz		
Ref 35 dBm Att 30 dB SWr 10 Hz Marker 1 [T1] -49.76 dBn 30 Offset 15 dB	RBW 1 MHz [T1] RM VIEW Marker 1 [T1] VBW 3 MHz 22.93 dBm		
Frequency Range: 3 GHz ~ 27 GHz BBV 1 Miz VSW 3 Miz SW 501 300207 Contract 15 dB Contract			



LTE Ba	
Channel Bandy	
Channe	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
Ref 30 Cf1 AP VEW Marker 1 [T1] 43 79 dbm 35 Ref 25 dbm Att 30 dB SWT 501.308 ms 648 89 MHz 30 Offset 15 dB 648 89 MHz 648 89 MHz 20	RBW1 MMz [T1] RM VEW Marker 1 [T1] 22.87 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 258837 GHz 258837 GHz 30 Offset 15 dB 1 1 258837 GHz 258837 GHz 20 1
-50 -65 -51 -51 -51 -51 -51 -51 -51 -51 -51 -5	-50 -66 -65 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
RBW1 MHz [T1] RM VEW Marker 1 [T1] -5 Ref -5 dBm Att 0 dB SWT 501.30287 26.02675 GHz -10 -10 -10 -10 26.02675 GHz -20 D1 -25.00 dBm -10 -10 -10 -60 -10 -10 -10 -10	
-90	



	and 38						
	lwidth: 15 MHz						
Channel 38175							
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz						
RBW 300 Hrz [T1] AP VEW Marker 1 [T1] -49.14 dBm 35 - Ref 35 dBm Att 30 dB SWT 501.308 ms 887.04 MHz -49.14 dBm 30 - Offset 15 dB	RBW 1 MHz [T1] RM V/EW Marker 1 [T1] 22.81 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.80688 GHz 30						
0	10						
-10	-10 -20 D1-25.00 dBm -30						
-40 - 1 -50 - 1 -60	-40						
Start 9 MHz 99 99 MHz/ Stop 1 GHz VERNEXAS	Start 1 GHz 200 MHz/ Stop 3 GHz VERTRAS						
Sector Ref State Control Contr							
-50							
-90 -100 -105 -105 -105 -107 -107 -107 -107 -107 -107 -107 -107							



LTE Band 38								
Channel Bandwidth: 20 MHz Channel 37850								
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz							
Ref 35 dBm Marker 1 [T1] -49.59 dBm 30 Offset 15 dB -49.59 dBm -90.49 MHz -90.49 MHz 00	Ref 35 dBm Att 30 dB SWT 50 / 30 / ms Marker 1 [T1] 23 02 dBm 30 Offset 15 dB 1 1 2 2 2 1 2 2 2 1 2 2 2 0 1 2 2 0 1<							
Ref -5 dBm Att 0 dB VBW 1 Miz VBW 3 Miz SWT 501 303267 Marker 1 [T1] -4 4 97 dBm 26 39616 GHz -0								



LTE Band 38 Channel Bandwidth: 20 MHz									
Channel 38000									
Frequency Range: 9 kHz ~ 1 GHz Frequency Range: 1 GHz ~ 3 GHz									
RBIV 300 M/z [T1] AP VEW VBW 11 MHz Marker 1 [T1] -49 63 dBm 35- Ref 35 dBm Att 30 dB SWT 501.306 ms 921.64 MHz 30-	RBW 1 MH2 [T1] RM VEW VBW 3 MH2 Marker 1 [T1] 22.06 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.56617 GH2 30								
-10	-10								
-80- -85- Start 9 M/z 99.99 M/z/ Stop 1 GHz VICE ALL AS	-30 -60 -65 -55 -51art 1 GHz -200 MHz/ Stop 3 GHz -00 -00 -00 -00 -00 -00 -00 -00 -00 -0								
Frequency Range: 3 GHz ~ 27 GHz Ref.5 dBm Att 0 dB Cliptical State SWT 1MHz VBW 3 MHz SWT 10 VBW 3 MHz SSWT 10 VBW 3 MHz SSWT 501 303267 SSWT 501 303267 SWT 501 30227									
-90 -100 -105 -105 -105 -105 -107 -105 -107 -107 -107 -107 -107 -107 -107 -107									



	and 20							
LTE Band 38 Channel Bandwidth: 20 MHz Channel 38150								
BBW 300 Mtz [T1] AP VEW Marter 1 [T1] 48.99 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 663.89 MHz 30 Offset 15 dB 663.89 MHz 663.89 MHz 663.89 MHz 20 10 0 0 0 0	RBW 1 Mitz [T1] RM VEW Marker 1 [T1] 22.82 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.80088 GHz 30 Offset 15 dB 1 2.80088 GHz 2.80088 GHz 20 1 1 1 1 10 1 1 1 1 0 1 1 1 1							
-10 -20 -20 -20 -20 -20 -40 -40 -1	-10 -20 - D1-25.00 dBm 							
-50 -60 -65 -51 -51 -51 -51 -51 -51 -51 -51 -51 -5	-50 -60 -65 -55 -55 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5							
Frequency Range: 3 GHz ~ 27 GHz								
RBW1 IMF2 [T1] RW VEW Marker 1 [T1] -5 Ref - 5 dBm Att 0 dB SWT 501.308267 26.72 dBm -10 Offset 15 dB 0 20.10715 GHz 28.10715 GHz -20 D1-25.00 dBm 0 0 0 -30 0 0 0 0 -40 0 0 0 0 -50 0 0 0 0 -70 0 0 0 0								
-80 -90 -100 -105 - Slart 3 OHz 2 4 GHz/ Slop 27 GHz								

LTE Ba	and 41						
Channel Banc	lwidth: 5 MHz						
Channel 39675							
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz						
Hold With Control [11] AP VEW Marker 1 [11] VEW 1 IML -49.40 dBm -49.40 dBm 30 Offset 15 dB - - 20 - - - 10 - - - 0 - - -	RBV 1 M/z [T1] RM VEW Marker 1 [T1] Marker 1 [T1] 22.70 dBm 36 Ref 35 dBm Att 30 dB SWT 501.300 ms 2.49617 GHz 30 0 1 1 1 20 1 1 1 1 10 1 1 1 1						
-10- -20 <u>D1-25,00 d8m</u> -30- -40-	-10						
-50- -60- -65- -54- -55- -54- -55- -54- -55- -54- -55- -54-	-50 -50 -50 -50 -50 -50 -50 -50 -50 -50						
Frequency Range: 3 GHz ~ 27 GHz							
Ref S dBm Att 0 dB SWT 501.302267 Marker 1 [T1] -65.27 dBm -50 -01-25.00 dBm -01-25.00							
-90- -100- -105- -105- -105- -105- -105- -105- -105- -105- -106- -							



	LTE B	and 41							
Channel Bandwidth: 5 MHz									
	Channel 40620								
Frequency Range: 9 kHz ~ 1 (GHz	Frequency Range: 1 GHz ~ 3 GHz							
RBW 300 kH: [T1] AP VI VBW 1 HM: 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 30 Offset 15 dB	W Marker 1 [T1] -49.39 dBm 931.19 MHz	35 - Ref 35 dBm 30 - Offset 15 dB	Att 30 dB	RBW 1 MHz [T1] RM VIEW VBW 3 MHz SWT 501.308 ms 1	Marker 1 [T1] 23.05 dBm 2.59097 GHz				
20	_	20		+	_				
-10-		-10-			_				
-20		-20- <u>D1 -25.00 dBm</u> -30-			_				
-40- 		-40							
-80 -85	BUREAU VERITAS	-60 - -65 - 1 I Start 1 GHz	I I I 200 MH	z/ Stop 3 Gł	B U R E A U VERITAS				
Frequency Range: 3 GHz ~ 27	GHz								
RBW 1 MHz [T1] RM VI -5 Ref -5 dBm Att 0 dB SWT 501 308267 -10 Offset 15 dB -10	EW Marker 1 [T1] -85.36 dBm 26.11795 GHz								
-20- 									
-40- -50- -60-									
-70 -70- -80-									
-90									
-105	27 GHz VERITAS								



LTE Band 41									
	0	Channel Band		Hz					
Channel 41565 Frequency Range: 9 kHz ~ 1 GHz Frequency Range: 1 GHz ~ 3 GHz									
Frequency Ra		Frequency Range: 1 GHz ~ 3 GHz							
35 Ref 35 dBm Att 30 dB 30 Offset 15 dB 20 -	RBW 300 MHz [T1] AP VE VBW 1 MHz SWT 501.308 ms	W Marker 1 [T1] -49.61 dBm 853.89 MHz	35 - Ref 35 dBm 30 - Offset 15 dB 20 -	Att 30 dB	VBW 3 MHz SWT 501.308 ms	Marker 1 [T1] 23.38 dBm 2.68528 GHz			
10			10- 0- -10- -20- <u>D1 -25,00 d8m</u>			-			
-30	1 Strand Automatican Standard Market Standard		-30 - -40 - -50 - -60 -						
Frequency Ra	nge: 3 GHz ~ 27		-65- Start 1 GHz	I I I 200 МН	z/ Stop 3 G	U REAU U REAU VERITAS			
-5- -10- -20- -5 dBm Att 0 dB -10- -10- -20-	RBW 1 MHz [T1] RM VE VBW 3 MHz SWT 501.308267	W Marker 1 [T1] -65.54 dBm 26.11435 GHz							
_00									
-50									
-80 -									
-100 -105 Start 3 GHz 2.4 C	1 1 1 1 3Hz/ Stop 2								

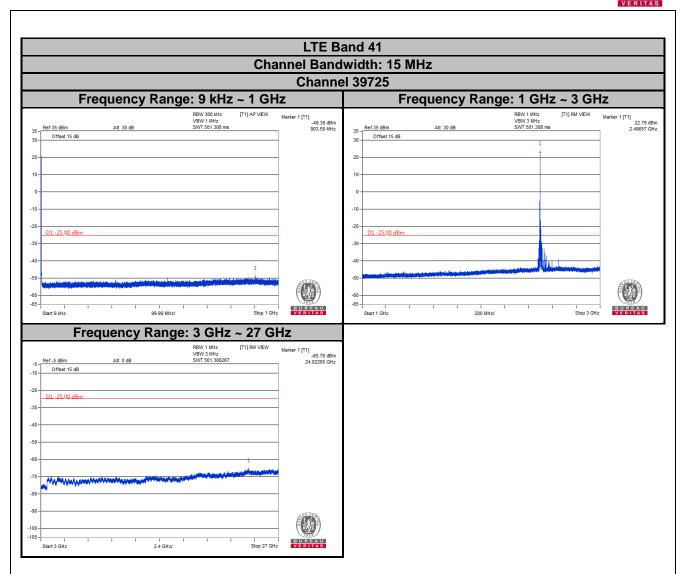
LTE Band 41									
			Cha		width: 10 M	Hz			
					el 39700				
Fre	equency Ran	-	~ 1 GH	Z	Fre	quency Rai	-	2 ~ 3 Gł	lz
35 - Ref 35 dBm 30 - Offset 15 dB 20 -	Att 30 dB	RBW 300 kHz VBW 1 MHz SWT 501.308 ms	[T1] AP VIEW	Marker 1 [T1] -49.49 dBm 917.24 MHz	35 - <mark>Ref 35 dBm 30 - Offset 15 dB 20</mark>	Att 30 dB	RBW 1 MHz VBW 3 MHz SWT 501.308 ms	(T1) RM VIEW	Marker 1 [T1] 23.01 dBm 2.49647 GHz
10					10				-
40 - 50 - 60 - 65 - 51 - 51 - 51 - 51 - 51 - 51 - 51 - 5	d of descent of the second s		1 Stop 1 GHz	BUREAU VERITAS	-40		z/	I I Stop 3 GH	
Free	quency Rang	e: 3 GHz	~ 27 GH	Ηz					
-5 - Ref -5 dBm -10 - Offset 15 dB -20 - D1 - 25.00 dBm -30	Att 0 dB	RBW 1 MHz VBW 3 MHZ SWT 501.308267	[T1] RM VEW	Marker 1 [71] -85.61 dBm 26.12875 GHz					
-90	1 1 1 2.4 GHz/	1 1 1	Stop 27 GHz	B U R E A U V E R I T A S					



LTE Band 41 Channel Bandwidth: 10 MHz					
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz				
RBW 300 Hrz [T1] AP VEW Marker 1 [T1] 45 50 dbm 35 Ref 35 dbm Att 30 dB SWT 501.308 ms 45 50 dbm 650 59 Mhz 30 Offset 15 dB Offset 15 dB 650 59 Mhz 650 59 Mhz 650 59 Mhz 20 0	RBW1 IM12 [T1] RM VEW Marker 1 [T1] 22.99 dBm 36 Att 30 dB SWT 501 308 ms 2.59857 GHz 2.59857 GHz 30 Offset 15 dB 1 1 2.59857 GHz 2.59857 GHz 20 1 1 1 1 1 1 1 0 1				
40- 50- 60- 65- 510	-40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5				
S Ref - 5 dBm Att 0 dB SWT 501.308.267 28.04955 GHz -10 Offset 15 dB					
-90					



LTE Band 41 Channel Bandwidth: 10 MHz					
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz				
RBW 300 MHz [T1] AP VEW Marker 1 [T1] -49.01 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 602.74 MHz 30 Offset 15 dB 602.74 MHz 602.74 MHz 20	RBW1 MHz [T1] RM VEW Marker 1 [T1] 22.81 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 22.804B GHz 22.804B GHz 22.804B GHz 22.804B GHz 22.804B GHz 20.804B GHz 20.804B GHz 20.804B GHz 1				
-10	-10				
Frequency Range: 3 GHz ~ 27 GHz	50- 60- 65- 51art 1 GHz 200 MHz/ Stop 3 GHz UR CAU				
Bit VI Miz [T1] RM VEW Marker 1 [T1] -64.80 dBm -44.80 dBm -64.80 dBm -00 -01 -01.500267 28.09515 GHz -01 -01 -01 -01 -01 -01 -01 -01 -01 -01 -00 -01 -01 -01 -01 -00 -01 -01 -01 -01					
-70 -70 -90 -105 -105 -105 -107 -105 -107 -107 -107 -107 -107 -107 -107 -107					

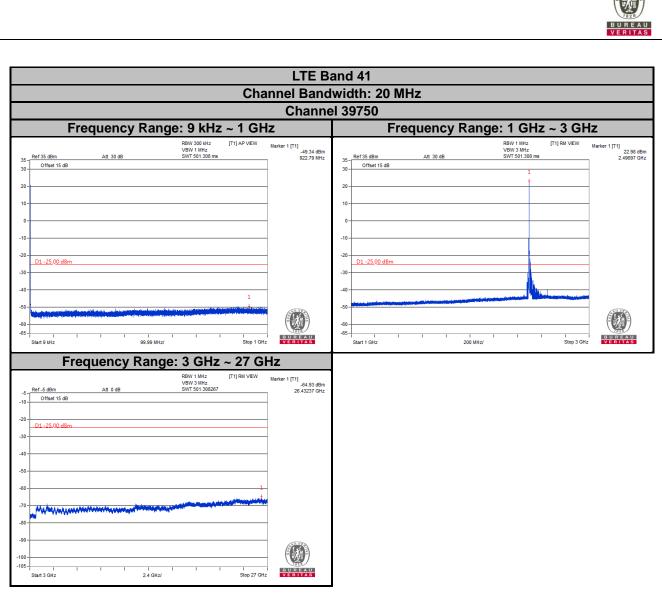




LTE Ba	and 41					
Channel Bandy						
Channe	Channel 40620					
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz					
BBW 300 Miz [T1] AP VEW Marker 1 [T1] 35 -Ref 35 dBm Att 30 dB -49 30 dBm 30 Offset 15 dB -69 30 dBm 857.79 MHz 20	RBW 1 MHz [T1] RM VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 22 36 dBm 30 Offset 15 dB 1 2.56637 GHz 2.56637 GHz 20 1 1 1 1 1					
10	10					
Start 9 MHZ 99 99 MHZ/ Stop 1 GHZ VERTICAS	Start 1 GHz 200 MHz/ Stop 3 GHz VERTAG					
Requeries y Realinge: S of Dirac ~ 27 OFL2 Rest and the original of the original origina origina oris original original original original original origin						
-80						



LTE Band 41 Channel Bandwidth: 15 MHz Channel 41515					
RBW 300 H/2 [T1] AP VEW VBW 1 M/z 49.41 dBm 712.93 M/z 36 Offset 15 dB 712.93 M/z 712.93 M/z 20 0 0 0 0	RBW 1 MHz [T1] RN VEW Marker 1 [T1] 22.73 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 267578 GHz 30 Offset 15 dB 1 2 267578 GHz 20 1 1 1 10 1 1 1				
0	0				
1 -50 -60 -65 -51 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	-50 -50 -50 -50 -50 -50 -50 -50 -50 -50				
Frequency Range: 3 GHz ~ 27 GHz Image: Start and Star					
-00 -70 -70 -90 -90 -90 -105 -101 -105 -101 -105 -101 -105 -101 -105 -101 -105 -101 -105 -101 -105 -101 -105 -101 -101					





LTE Band 41 Channel Bandwidth: 20 MHz						
	Channel 40620					
Frequency Rar	nge: 9 kHz ~ 1 G	Hz	Fre	quency Rar	nge: 1 GHz ~ 3 G	Hz
35 - Ref 35 dBm Att 30 dB 30 - Offset 15 dB	RBW 300 kHz [T1] AP VEW VBW 1 MHz SWT 501.308 ms	Marker 1 [T1] -49.63 dBm 987.39 MHz	35 - Ref 35 dBm 30 - Offset 15 dB	Att 30 dB	RBW 1 MHz [T1] RM VEW VBW 3 MHz SWT 501.308 ms	Marker 1 [T1] 23.39 dBm 2.58397 GHz
20			20		T	_
-10			0			_
-30						
-50	Line ka ang katalan ka	BUREAU SHZ VERITAS	-50 - -60 - -65 - - 1 -			BUREAU VERITAS
Frequency Ran	qe: 3 GHz ~ 27 (GHz				
-5 Ref -5 dBm Att 0 dB -10 Offset 15 dB	RBW 1 MHz [T1] RM VIEW VBW 3 MHz SWT 501.308267					
_D1-25.00.dBm -30		_				
-50						
-70						
-100	y Stop 27	B U R E A U BHZ V E R I T A S				



LTE Band 41 Channel Bandwidth: 20 MHz					
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz				
NBM 300 Mr2 [11] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 871.54 MHz 30 Offset 15 dB SWT 501 308 ms 871.54 MHz 20	VBW 3 MHz VBW 3 MHz 22.57 dBm 22.57 dBm 22.57 dBm 267126 GHz 267126 GHz 267126 GHz 10				
-10	0				
-so -so -so -so -start 9 Mrz - Start 9 Mrz -	-50 -60 -65 -51 -51 -11 -11 -11 -11 -11 -11 -11 -1				
Ref-5 dBm Alt 0 dB SWT 501:308257 Marker 1 [T1] -65:54 dBm -0					
-80					



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 + 10 log (P) dB. The limit of emission is equal to -25 dBm.

4.8.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- c. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power 2.15 dB.

NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

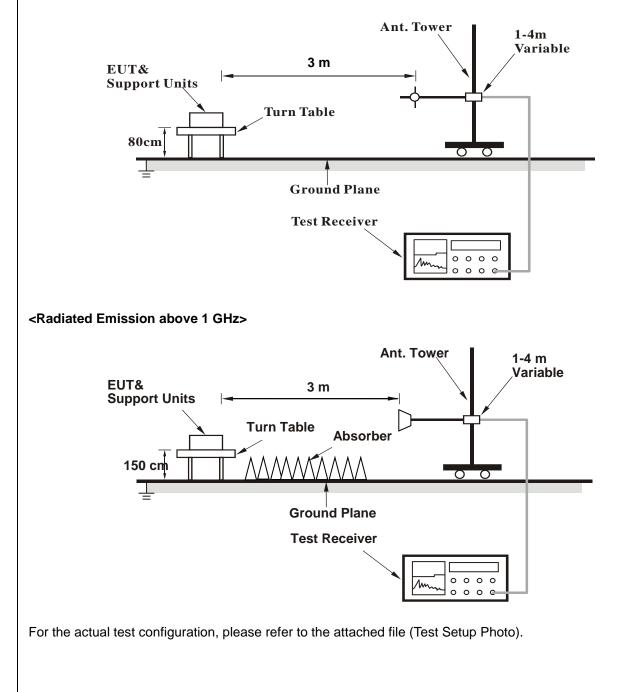
4.8.3 Deviation from Test Standard

No deviation.



4.8.4 Test Setup

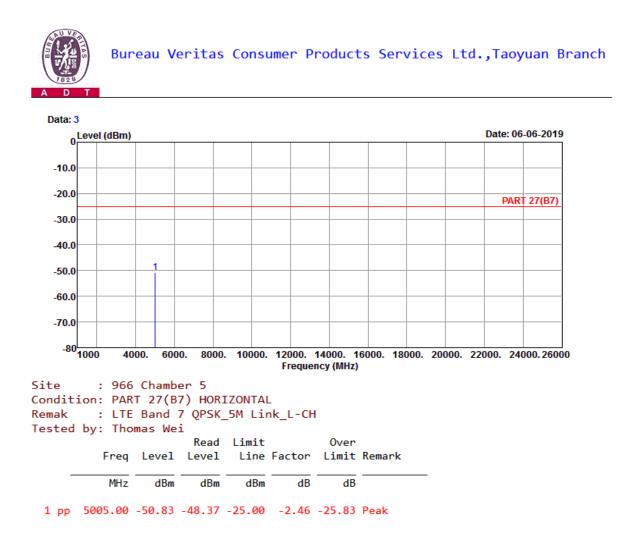
<Radiated Emission below or equal 1 GHz>





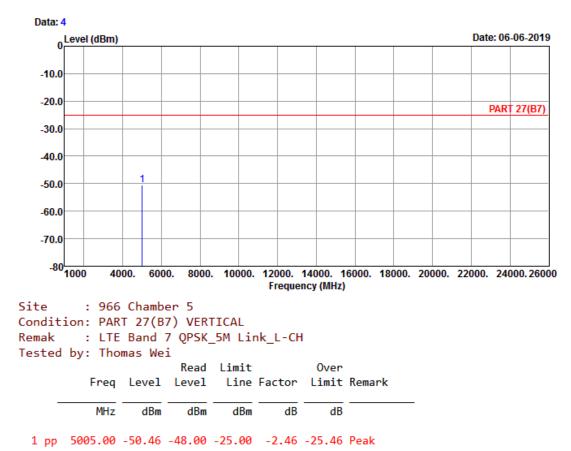
4.8.5 Test Results

LTE Band 7 Channel Bandwidth: 5 MHz / QPSK Low Channel





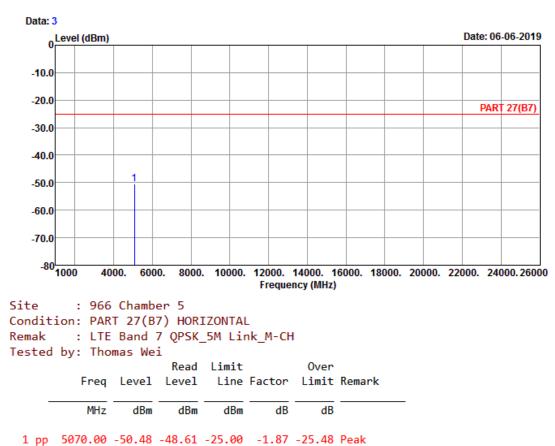






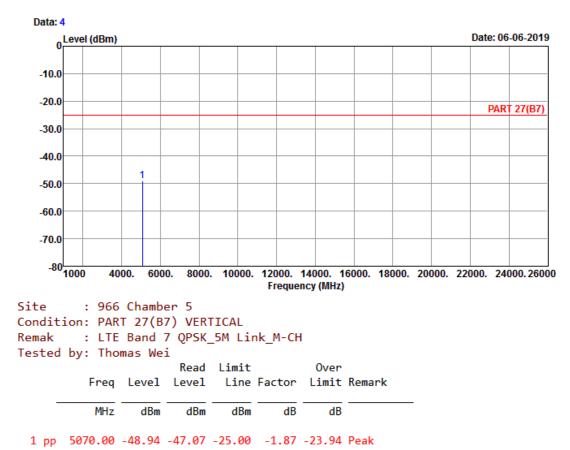
Middle Channel







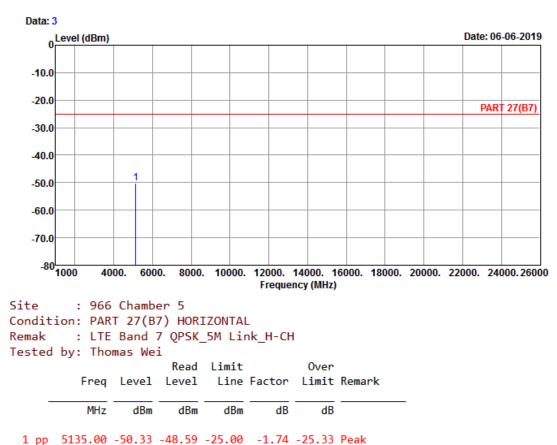






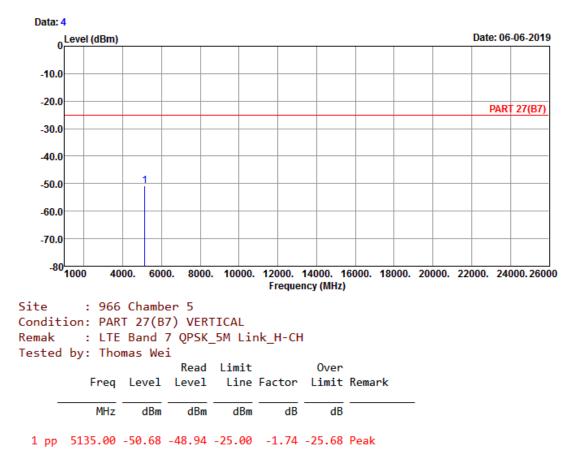
High Channel





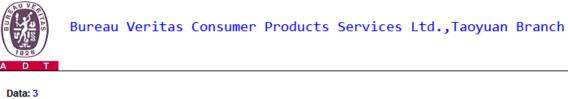


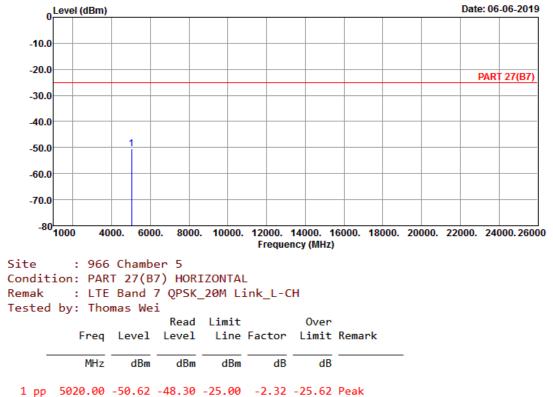






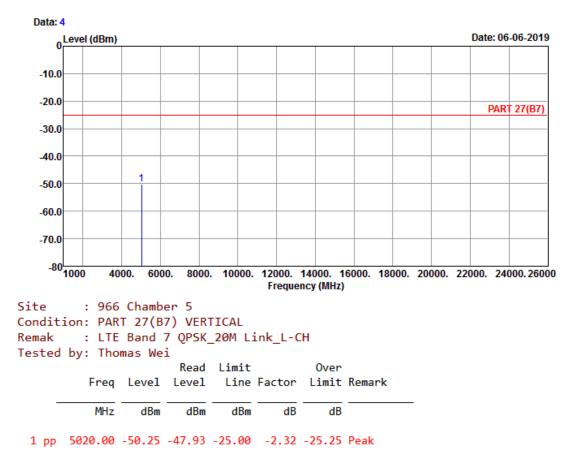
Channel Bandwidth: 20 MHz / QPSK Low Channel







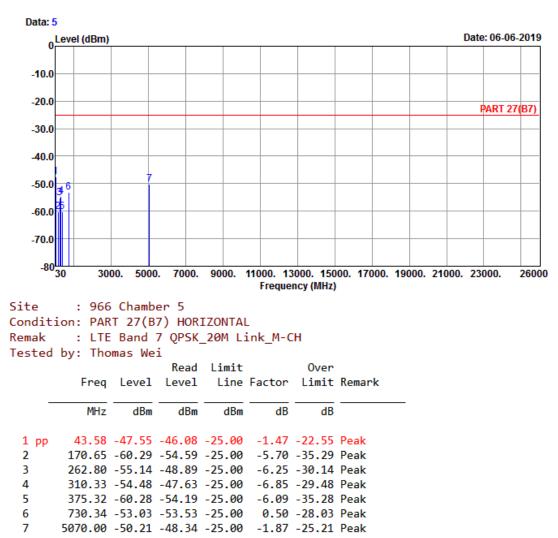






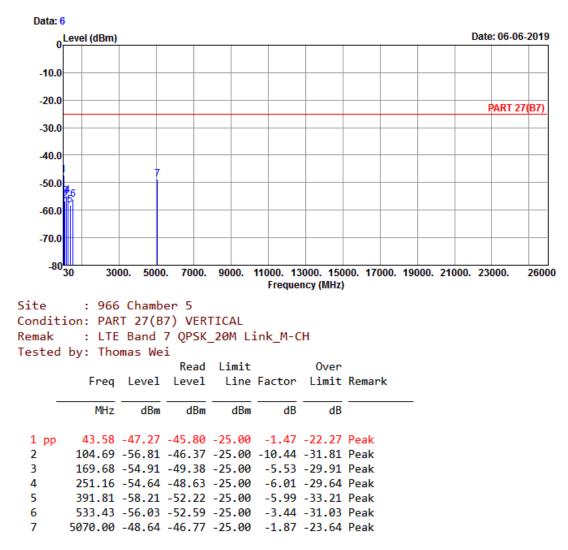
Middle Channel







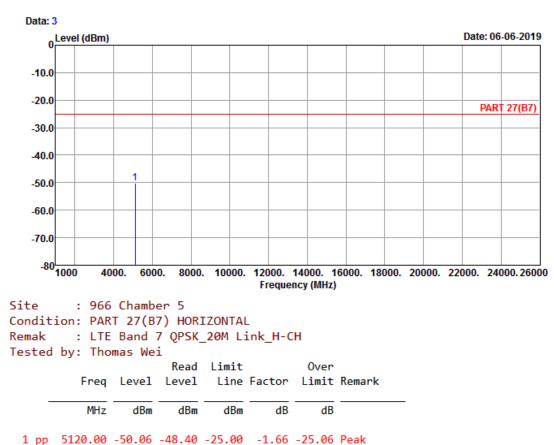






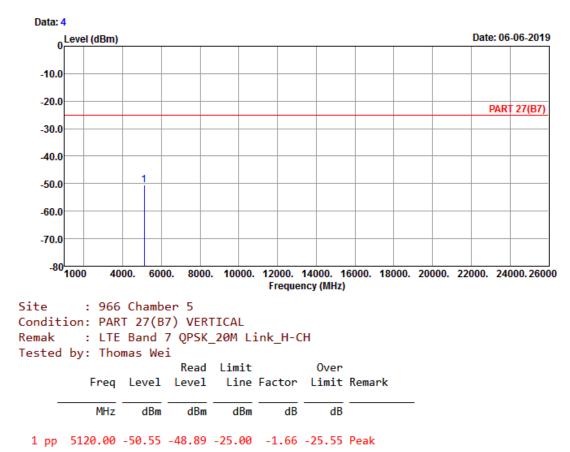
High Channel





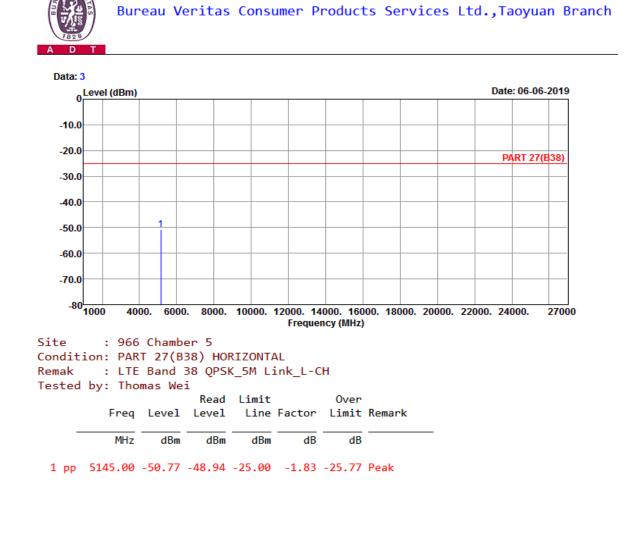






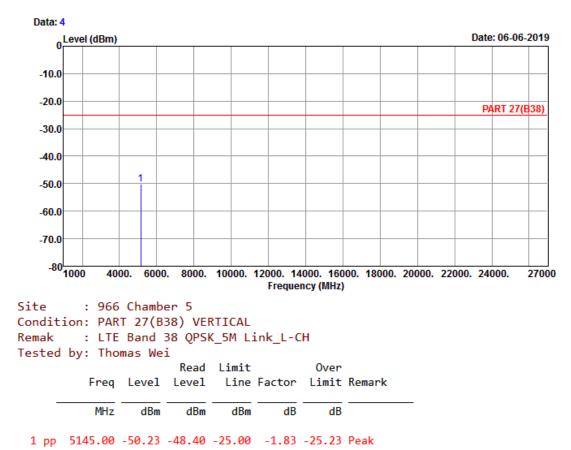


LTE Band 38 Channel Bandwidth: 5 MHz / QPSK Low Channel





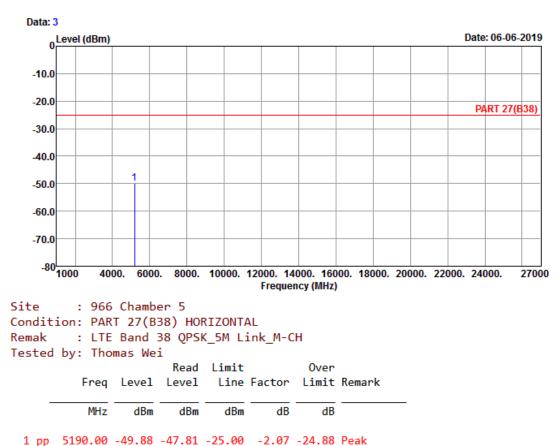






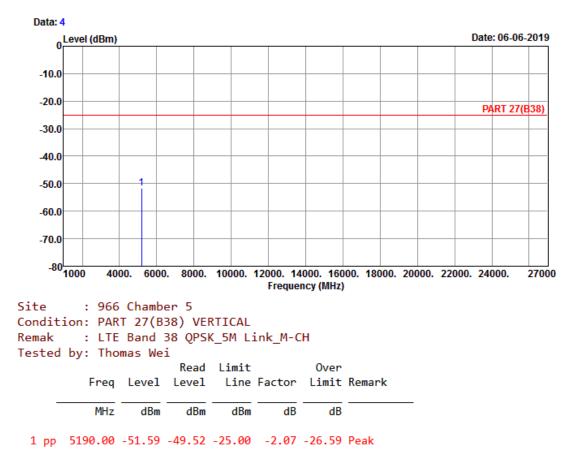
Middle Channel







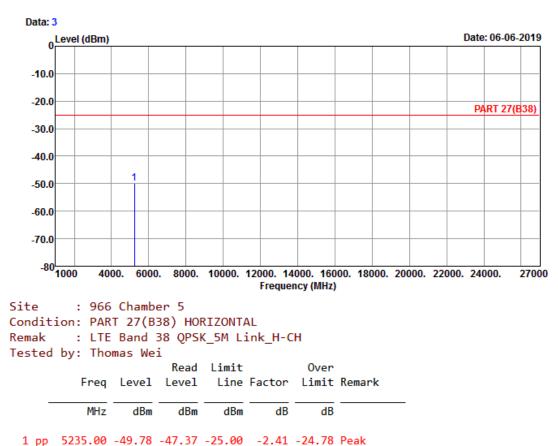






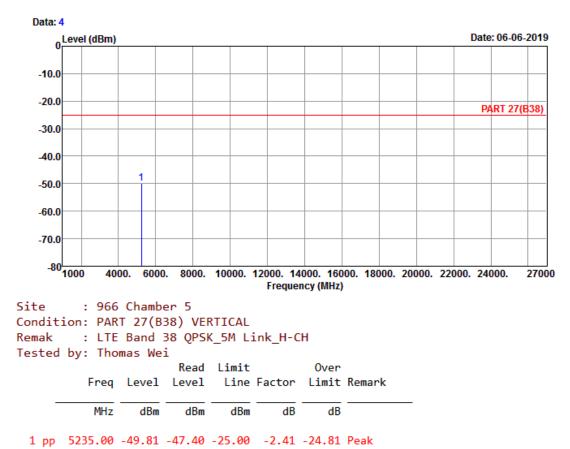
High Channel





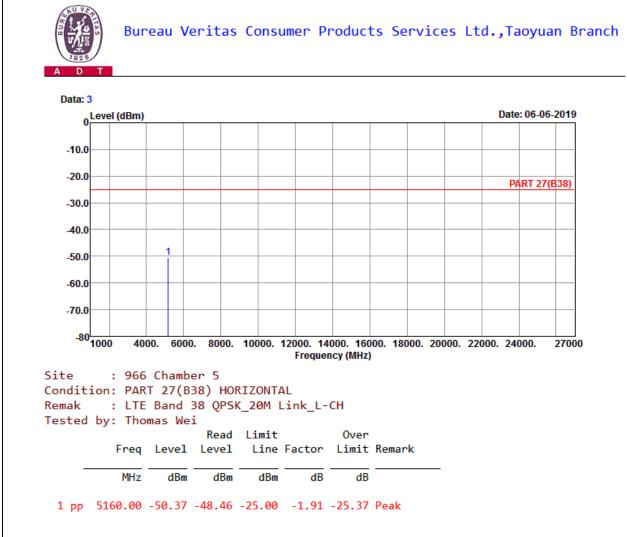






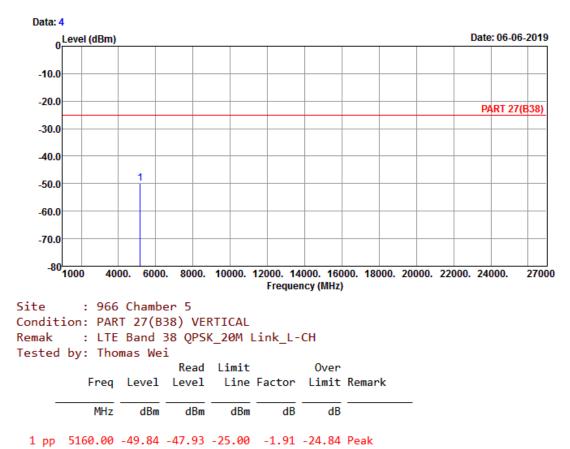


Channel Bandwidth: 20 MHz / QPSK Low Channel





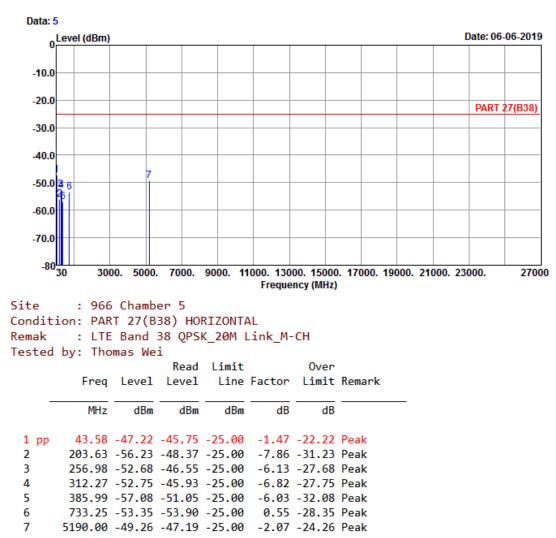






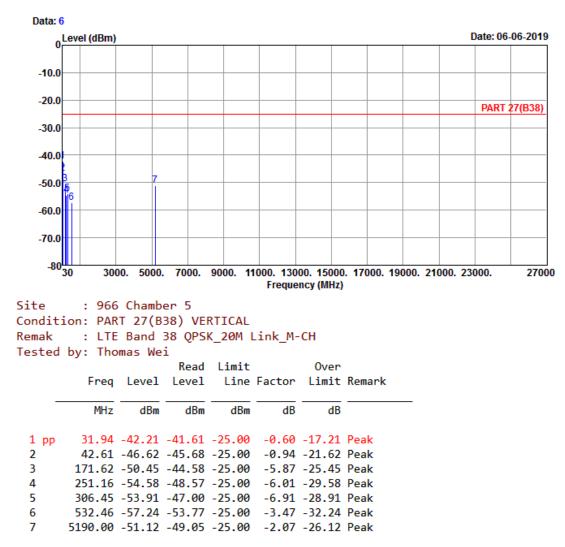
Middle Channel







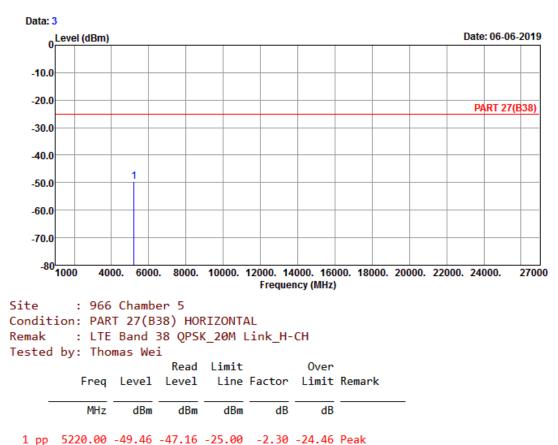






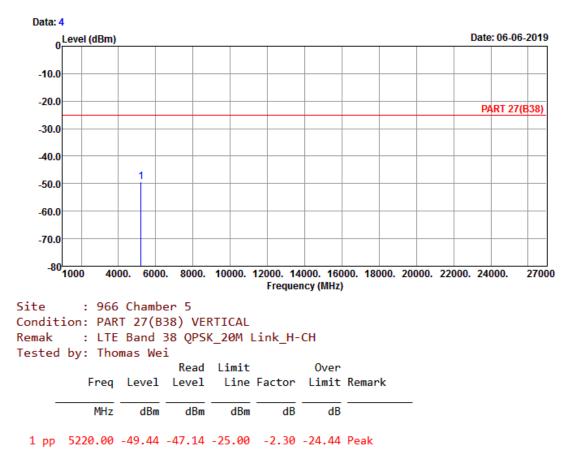
High Channel





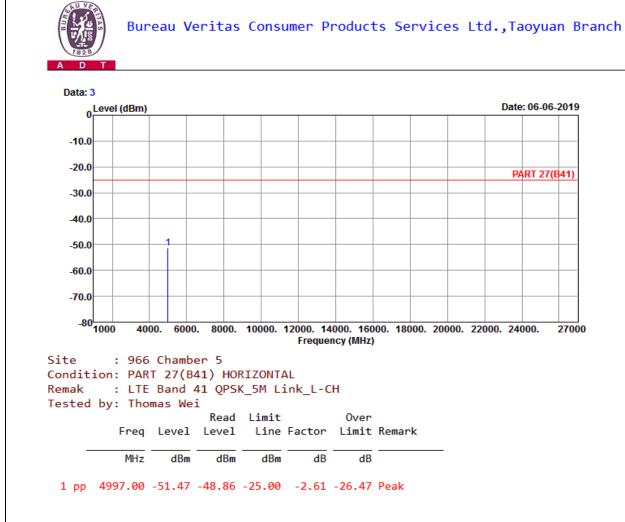






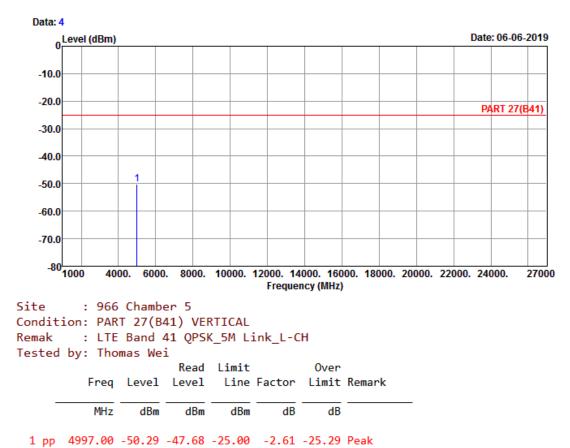


LTE Band 41 Channel Bandwidth: 5 MHz / QPSK Low Channel





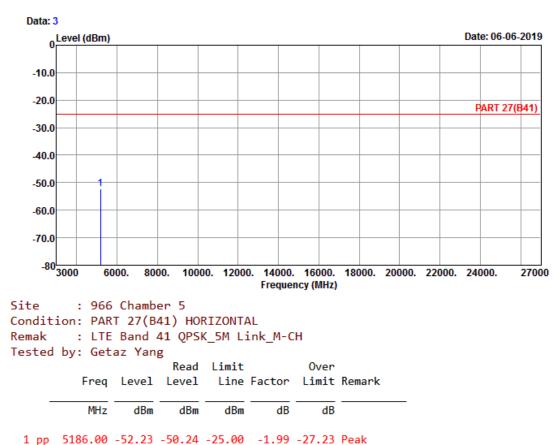






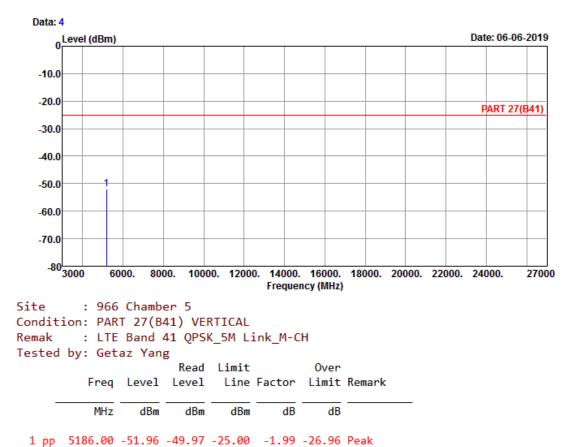
Middle Channel







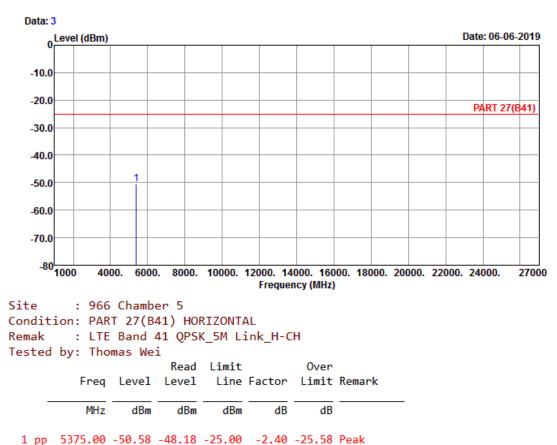






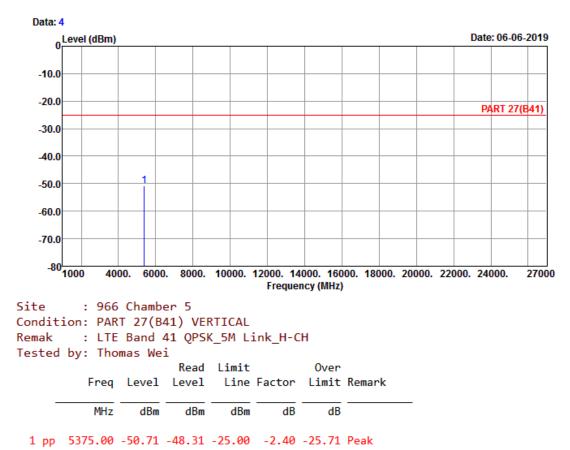
High Channel





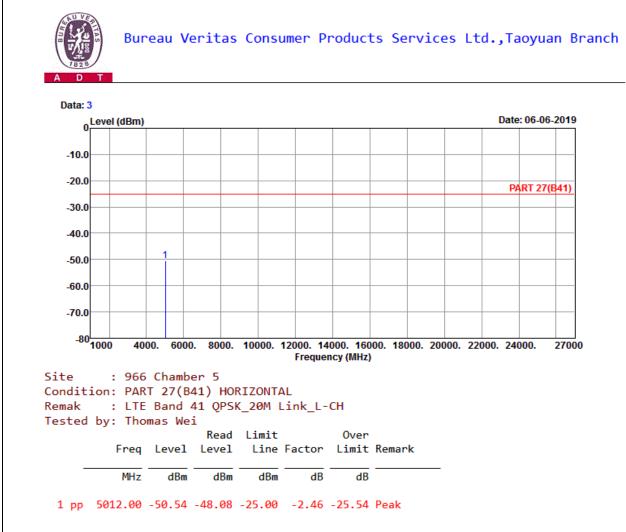






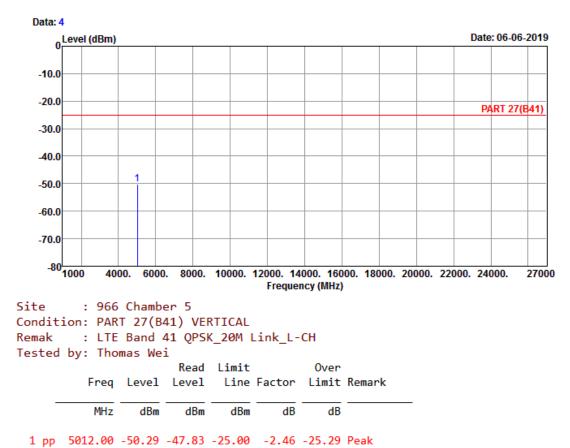


Channel Bandwidth: 20 MHz / QPSK Low Channel





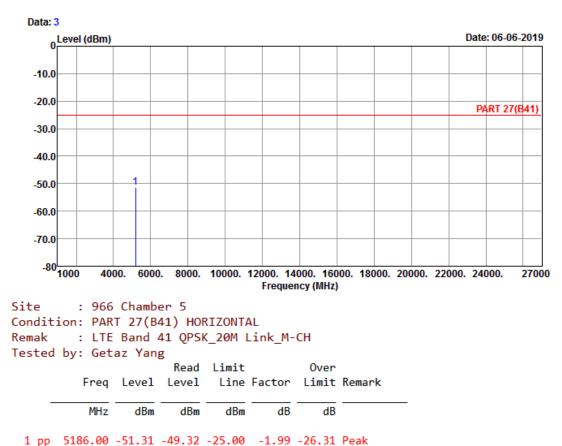






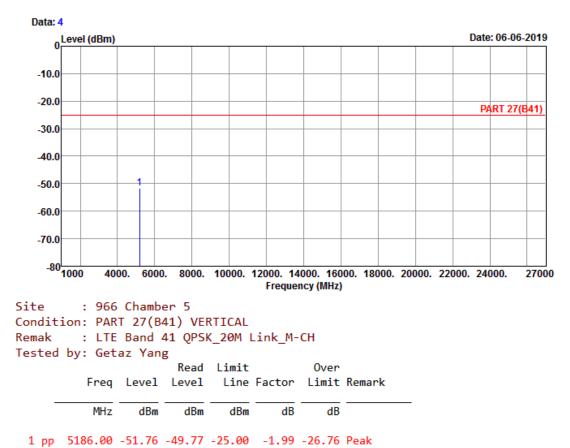
Middle Channel







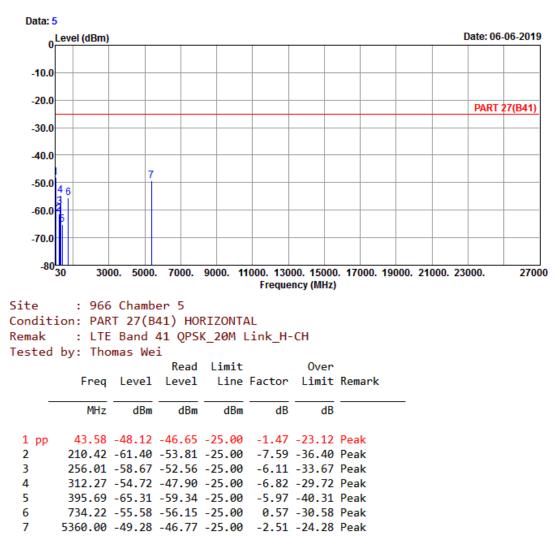






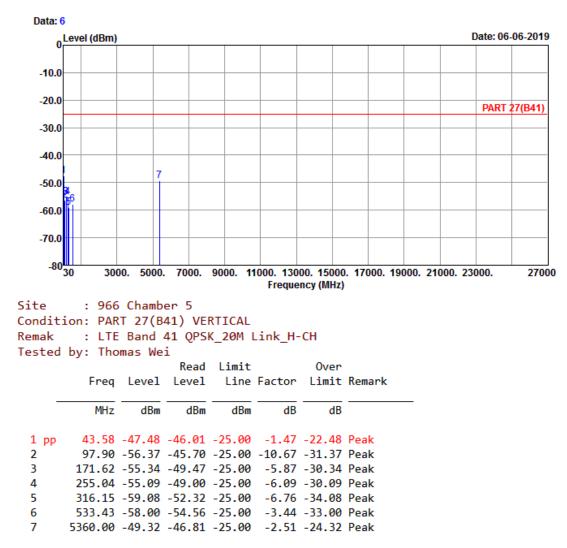
High Channel













5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab Tel: 886-2-26052180 Fax: 886-2-26051924 Hsin Chu EMC/RF/Telecom Lab Tel: 886-3-6668565 Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <u>service.adt@tw.bureauveritas.com</u> Web Site: <u>www.bureauveritas-adt.com</u>

The address and road map of all our labs can be found in our web site also.

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