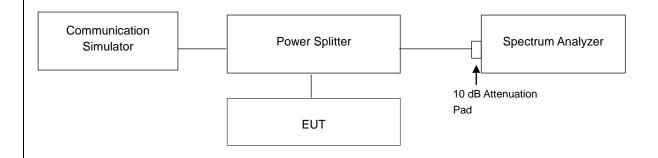


4.6 Peak to Average Ratio

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



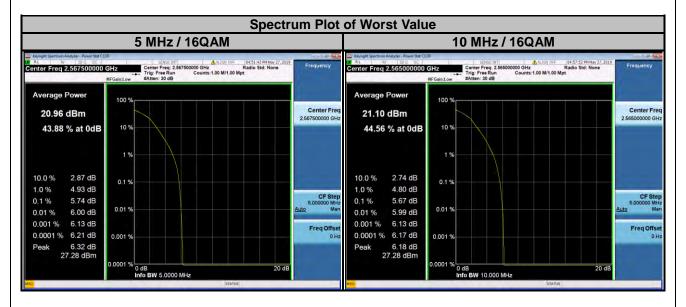
4.6.3 Test Procedures

- 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			Channel Bandwidth: 10 MHz			
Channel	Frequency		Peak to Average Ratio (dB)		Frequency	Peak to Average Ratio (dB)	
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM
20775	2502.5	4.75	5.05	20800	2505.0	4.74	5.12
21100	2535.0	4.84	5.70	21100	2535.0	4.85	5.65
21425	2567.5	5.04	5.74	21400	2565.0	5.03	5.67





LTE Band 7							
C	Channel Bandwidth: 15 MHz				hannel Band	width: 20 MH	z
Channel	Frequency (MHz)		erage Ratio B)	Channel	Frequency	Peak to Average Ratio (dB)	
	(11172)	QPSK	16QAM		(MHz)	QPSK	16QAM
20825	2507.5	4.72	5.23	20850	2510.0	4.72	5.26
21100	2535.0	5.01	5.83	21100	2535.0	5.11	5.72
21375	2562.5	4.98	5.74	21350	2560.0	4.97	5.75

	Spectr	rum Plot	of Worst Valu	e		
	15 MHz / 16QAM		20 MHz / 16QAM			
RL RF 50 000000000000000000000000000000000	SENSE INT ALIGN OFF 05:04:11 PM May 27, 201	Frequency	Keynght Spectrum Analyzer-Powler Stat CO Keynght RF 150.0 DC Center Freq 2.5600000000	SENSE:INT ALIGN OFF 05:10:11 PM May 27, 2019	Frequency	
Average Power 20.69 dBm 42.21 % at 0dB	100 %	Center Freq 2,535000000 GHz	Average Power 21.24 dBm 43.86 % at 0dB	100 %	Center Fr 2,56000000 G	
10.0 % 2.96 dB 1.0 % 5.06 dB 0.1 % 5.83 dB	0.1%	CF Step	10.0 % 2.83 dB 1.0 % 4.84 dB 0.1 % 5.75 dB	1 % 0.1 %	CFS	
0.01 % 6.29 dB 0.001 % 6.49 dB 0.0001 % 6.56 dB Peak 6.56 dB 27.25 dBm	0.01 %	25.000000 MHz Auto Man Freq Offset 0 Hz	0.01 % 6.22 dB 0.001 % 6.29 dB 0.0001 % 6.32 dB Peak 6.35 dB 27.59 dBm	0.01 %	5.000000 M Auto	
27.25 dBm	0.0001 % 0 dB 20 dB 20 dB		27.59 dBm	0.0001 % 0 dB 20 dB Info BW 25.000 MHz		



LTE Band 38							
Channel Bandwidth: 5 MHz				C	hannel Band	width: 10 MH	z
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency	Peak to Average Ratio (dB)	
	(1112)	QPSK	16QAM		(MHz)	QPSK	16QAM
37775	2572.5	5.29	6.10	37800	2575.0	5.16	5.94
38000	2595.0	5.20	6.08	38000	2595.0	5.22	6.03
38225	2617.5	5.60	6.20	38200	2615.0	5.38	6.59

	Spectrum Plot	of Worst Value			
5 MHz / 16QAM		10 MHz / 16QAM			
Excepts Section Address Power Sect CCB* Address Press 247500000 GHz Center Freq 2.6175500000 GHz Efficiency Section 24750000 GHz Efficiency Section 247500000 GHz Efficiency Section 2475000000 GHz Efficiency Section 247500000 GHz Efficiency Section 247500000 GHz Efficiency Section 247500000 GHz Efficiency Section 247500000 GHz Efficiency Section 2475000000 GHz Efficiency Section 2475000000 GHz Efficiency Section 2475000000 GHz Efficiency Section 2475000000000000000000000000000000000000	Radio Std: None Mpt			11:17:45 PM May 27,2019 Radio Std: None t	
Average Power		Average Power 100 %			
21.48 dBm	Center Freq 2.617500000 GHz	21.02 dBm		Center Fr 2.615000000 G	
10 %		44.80 % at 0dB			
10.0 % 3.30 dB 0.1 %		10.0 % 3.68 dB 0.1 %			
0.1 % 6.20 dB 0.01 % 6.44 dB 0.01 %	CF Step 5.000000 MHz <u>Auto</u> Man	0.1 % 6.59 dB 0.01 % 6.72 dB ^{0.01 %}		CF St 5.00000 M <u>Auto</u> N	
0.001 % 6.53 dB 0.0001 % 6.59 dB 0.001 % Peak 6.75 dB	Freq Offset 0 Hz	0.001 % 6.79 dB 0.0001 % 6.82 dB 0.001 % Peak 7.68 dB		Freq Off	
28.23 dBm 0.0001 % 0 dB Info BW 5.0000 MHz	20 dB	28.70 dBm 0.0001 % 0 dB	BW 10.000 MHz	20 dB	



LTE Band 38							
Channel Bandwidth: 15 MHz				C	hannel Band	width: 20 MH	z
Channel	Frequency (MHz)		erage Ratio B)	Channel	Frequency	Peak to Average Ratio (dB)	
		QPSK	16QAM		(MHz)	QPSK	16QAM
37825	2577.5	5.42	6.13	37850	2580.0	5.33	5.60
38000	2595.0	5.42	5.93	38000	2595.0	5.87	5.84
38175	2612.5	5.11	6.29	38150	2610.0	4.97	6.01

	Spect	trum Plot	of Worst Valu	le		
	15 MHz / 16QAM		20 MHz / 16QAM			
Keynight Spectrum Analyzer - Power Stat CC RL RF 59 B DC Center Freq 2.612500000	SENSE:INT ALIGN OFF 11:24:12 PM May 27, 20	019 Frequency	Keysight Spectrum Analyzer - Power Stat CO RL RF 50 IZ DC Center Freq 2.610000000	SENSE:INT ALIGN OFF 11:30:34 PM May 27, 2019	Frequency	
Average Power 21.28 dBm	100 %	Center Freq	Average Power 21.45 dBm	100 %	Center Fre	
45.27 % at 0dB	10 %	2.612500000 GHz	44.57 % at 0dB	10 %	2.61000000 GF	
10.0 % 3.33 dB 1.0 % 5.70 dB 0.1 % 6.29 dB	0.1 %	CF Step	10.0 % 3.23 dB 1.0 % 5.54 dB 0.1 % 6.01 dB	0.1 %	CF Ste 5.000000 Mi	
0.01 % 6.52 dB 0.001 % 6.64 dB	0.01 %	Auto Man Freg Offset	0.01 % 6.16 dB 0.001 % 6.23 dB	0.01 %	Auto Ma	
0.0001 % 6.67 dB Peak 11.15 dB 32.43 dBm	0.001 %	0 Hz	0.0001 % 6.27 dB Peak 6.83 dB 28.28 dBm	0.001 %	01	
	0.0001 % 0 dB 20 d Info BW 25.000 MHz	JB		0.0001 % 0 dB 20 dB Info BW 25.000 MHz		



LTE Band 41							
Channel Bandwidth: 5 MHz				C	hannel Band	width: 10 MH	z
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency	Peak to Average Ratio (dB)	
	(1112)	QPSK	16QAM		(MHz)	QPSK	16QAM
39675	2498.5	5.44	5.92	39700	2501.0	5.39	5.73
40620	2593.0	5.53	6.12	40620	2593.0	5.64	6.06
41565	2687.5	5.17	6.32	41540	2685.0	5.22	6.33

	Spe	ctrum Plot	of Worst Value			
	5 MHz / 16QAM		10 MHz / 16QAM			
RL RF 59 DC C	SENSE INT ALIGN OFF 11:43:49 PM May		keysght Spectnam Analyzer - Power Stat CCD R.L. RF 50 B DC Center Freq 2.685000000 G	SENSE:INT ALIGN OFF 11:47:59 PM May 27, 201	9 Frequency	
Average Power	100 %	<u></u>	Average Power	100 %	ļ	
20.85 dBm 44.01 % at 0dB	10 %	Center Freq 2.687500000 GHz	20.86 dBm 44.42 % at 0dB	10 %	Center Fr 2.685000000 G	
	1%			1 %		
10.0 % 3.71 dB 1.0 % 5.61 dB	0.1 %	CF Step	10.0 % 3.58 dB 1.0 % 5.60 dB	0.1 %	CFS	
0.1 % 6.32 dB 0.01 % 6.57 dB 0.001 % 6.65 dB	0.01 %	5.000000 MHz Auto Man Freg Offset	0.1 % 6.33 dB 0.01 % 6.63 dB 0.001 % 6.73 dB	0.01 %	5.000000 N Auto M	
0.0001 % 6.69 dB Peak 11.29 dB 32.14 dBm	0.001 %	0 Hz	0.0001 % 6.76 dB Peak 11.35 dB 32.21 dBm	0.001 %	Freq Off 0	
OL. IT GOIN	0.0001 % 0 dB 2 Info BW 5.0000 MHz	20 dB		0.0001 % 0 dB 20 dE Info BW 10.000 MHz		



LTE Band 41							
Channel Bandwidth: 15 MHz				C	hannel Band	width: 20 MF	Iz
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency	Peak to Average Ratio (dB)	
	(1112)	QPSK	16QAM		(MHz)	QPSK	16QAM
39725	2503.5	5.44	6.69	39750	2506.0	5.54	6.10
40620	2593.0	5.25	6.76	40620	2593.0	5.58	5.93
41515	2682.5	5.20	6.76	41490	2680.0	4.95	6.31

			of Worst Valu			
	15 MHz / QPSK		20 MHz / 16QAM			
Revealed Spectrum Analyzer Power Stat C(RL INF 50 B DC Center Freq 2.593000000	SENSE:INT ALIGN OFF 11:51:42 PM May 27, 20	19 Frequency	Keynght Spectrum Analyze- Power Stat C R RL RF 50.0 DC Center Freq 2.680000000	SENSE INT ALIGN OFF 11:55:13 PM May 27, 201	Frequency	
Average Power	100 %		Average Power	100 %		
20.12 dBm	10 %	Center Freq 2.593000000 GHz	21.16 dBm	10 %	Center Fre 2.680000000 GH	
42.42 % at 0dB	1%		44.30 % at 0dB	1%		
10.0 % 4.09 dB	0.1 %		10.0 % 3.39 dB	0.1 %		
0.1 % 6.76 dB 0.01 % 6.91 dB	0.01 %	CF Step 25.000000 MHz Auto Man	0.1 % 6.31 dB 0.01 % 6.57 dB	0.01 %	CF St 5.000000 M Auto M	
0.001 % 6.96 dB 0.0001 % 6.98 dB	0.001 %	Freq Offset	0.001 % 6.62 dB 0.0001 % 6.64 dB	0.001 %	Freq Offs	
Peak 11.30 dB 31.42 dBm			Peak 6.75 dB 27.91 dBm			
	0.0001 % dB 20 d Info BW 25.000 MHz	IB		0.0001 % 0 dB 20 dB Info BW 25.000 MHz		

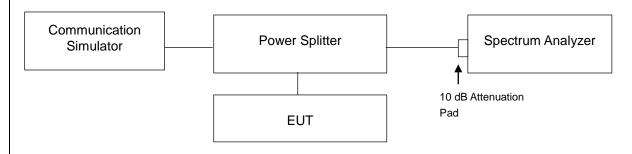


4.7 Conducted Spurious Emissions

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

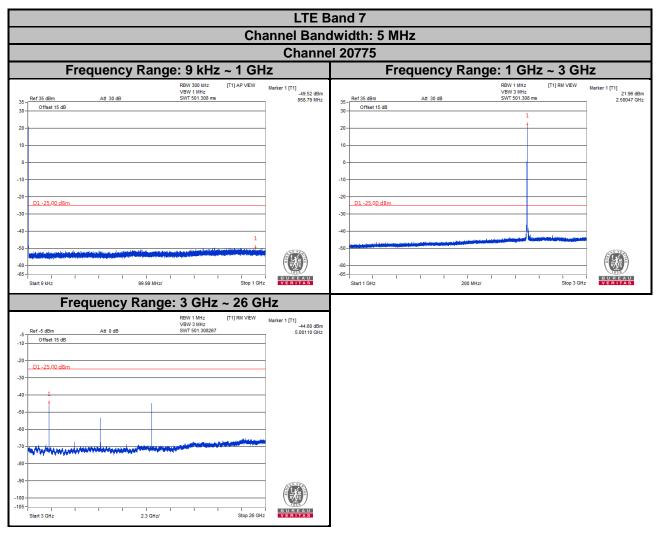


4.7.3 Test Procedure

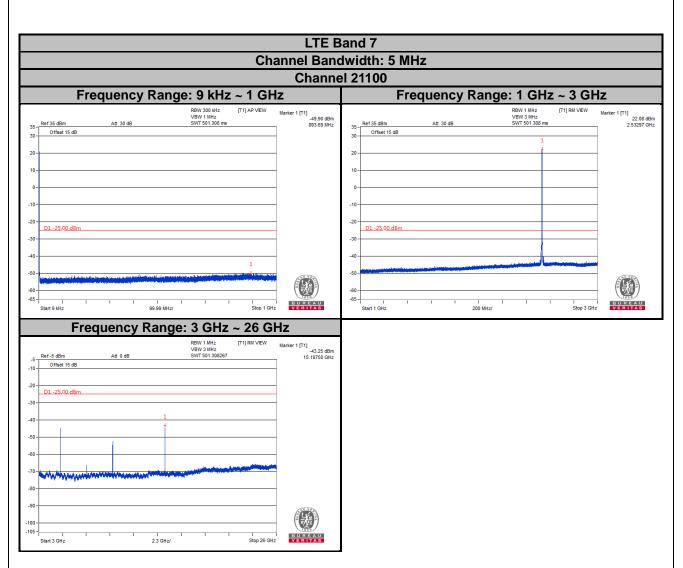
- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 3 GHz. 10 dB attenuation pad is connected with spectrum.
 RBW = 300 kHz and VBW = 1 MHz are used for conducted emission 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.



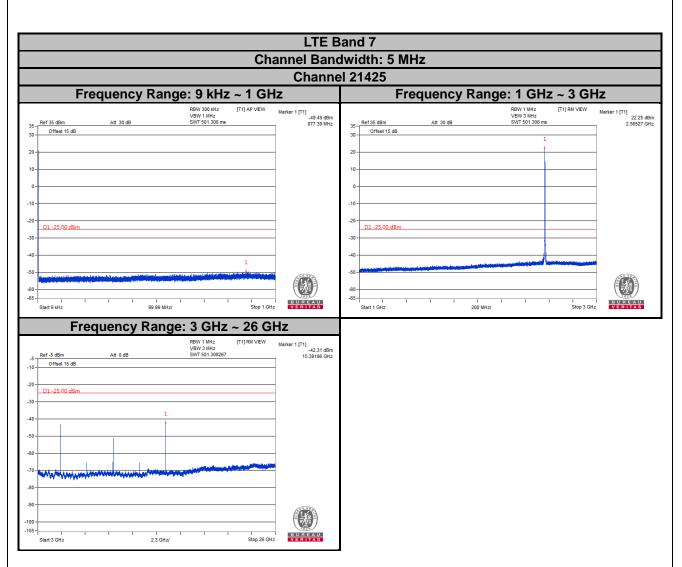
4.7.4 Test Results



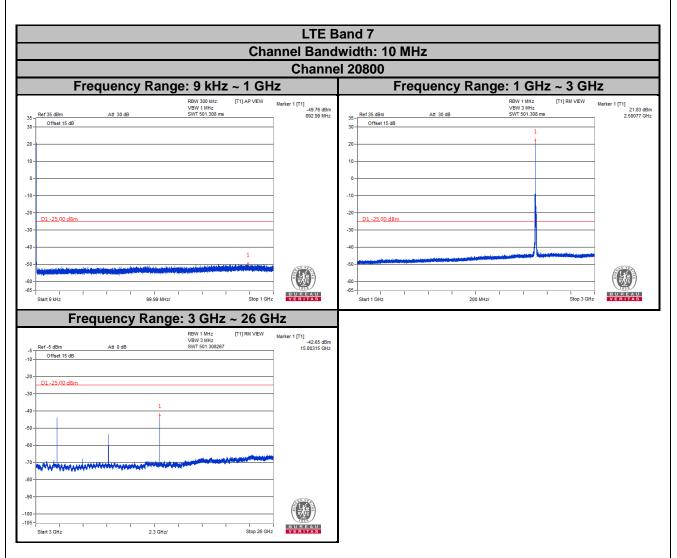








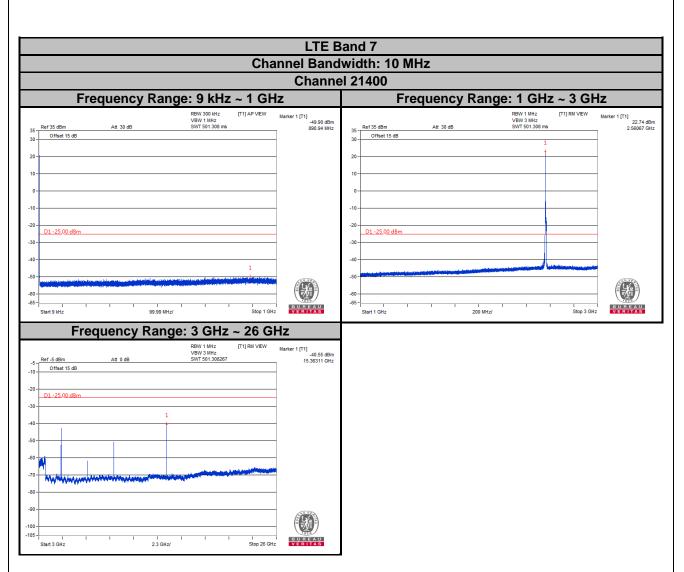




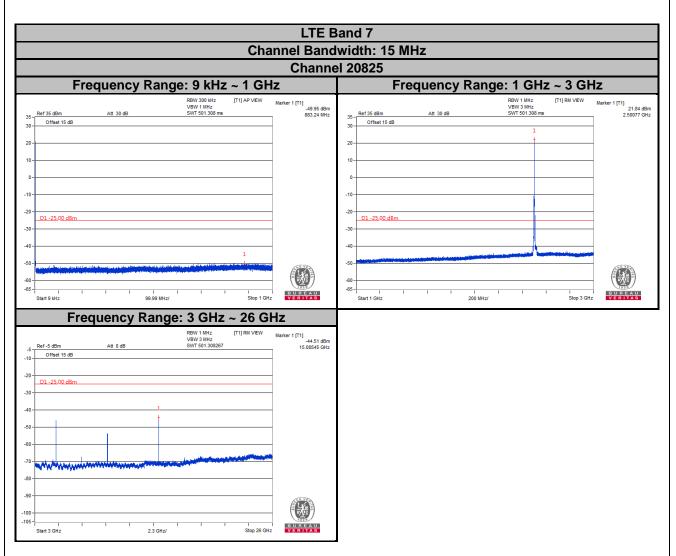


	ΓΕ Band 7 andwidth: 10 MHz
	annel 21100
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 MHz (T1) AP VEW VBW 1 MHz 49 36 Aft 30 dB SWT 501.306 ms 855 20	RBW 1 MH: [T1] RM VEW VBW 3 Mit: Marker 1 [T1] 22.66 dBr Marker 1 [T1] 22.66 dBr 22.66 dBr 30 Offset 15 dB 1 2 2 2 2 2 3 1
20 D1-25.00 dBm	-20- D1-25.00.08m -30- -40- -50- -50- -50- -50- -50- -50- -5
Start 9 HHz Stop 1 GHz Stop 1 GHZ	
RBW 1 MHz [T1] RM VIEW Marker 1 [T1] VBW 3 MHz -40	1.41 dBm 570 GHz
00 90 90 90 90 90 90 90 90 90 90 90 90 9	





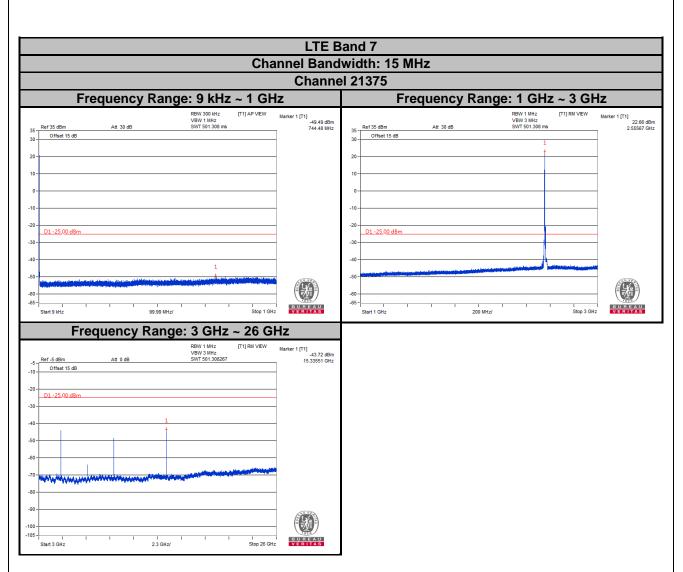




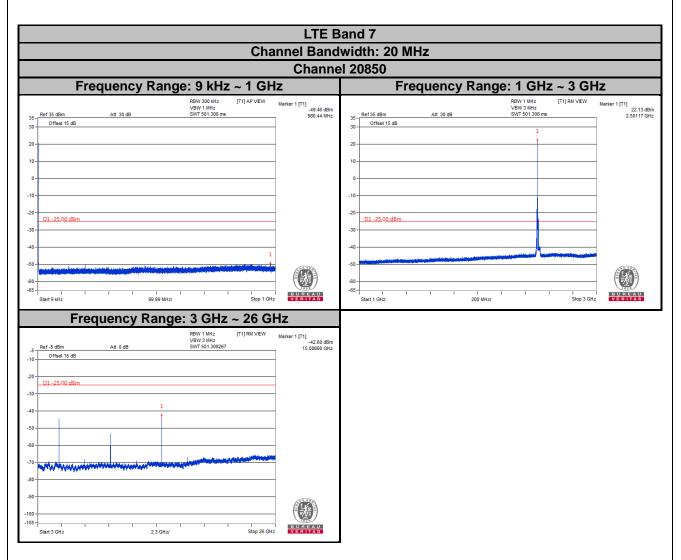


	Band 7 dwidth: 15 MHz
	el 21100
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 MHz [T1] AP VEW Marker 1 [T1] -49.41 dBm 36 Offset 15 dB -49.41 dBm 793.59 MHz 20 Offset 15 dB - - - 10 - - - - - - - - - - - - - -	RBV 1 Milt: [T1] RM VEW VBW 3 Milt: Marker 1 [T1] 22.60 dBm 30 Offset 15 dB 1 2 2 2 2 2 2 3 2 2 2 3 2 2 3 2 2 3<
Start 9 KHz 99 99 MHz/ Stop 1 GHZ VER BTAXES	Start 1 GHz 200 MHz/ Stop 3 GHz VERTIXAS
RBW 1 Mit: [T1] RM VEW Marker 1 [T1] -5 Ref -5 dBm Att 0 dB SWT 501.302.67 15.16990 GHz -10 Offset 15 dB 0 15.16990 GHz 15.16990 GHz -20	
-90 	





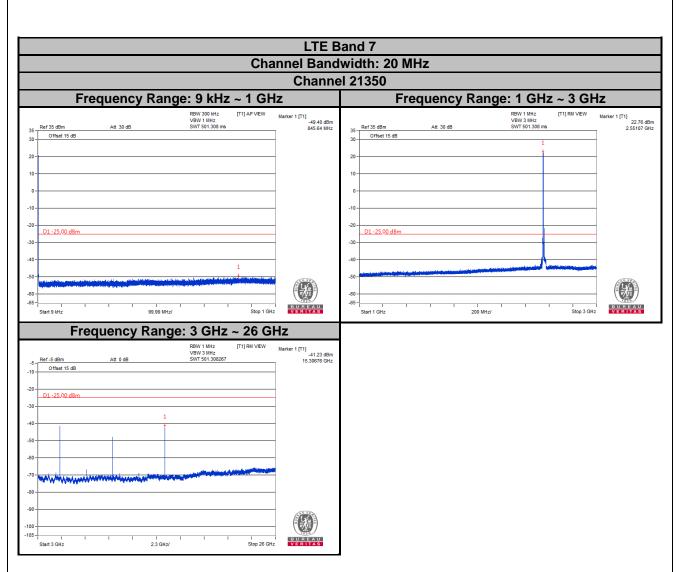


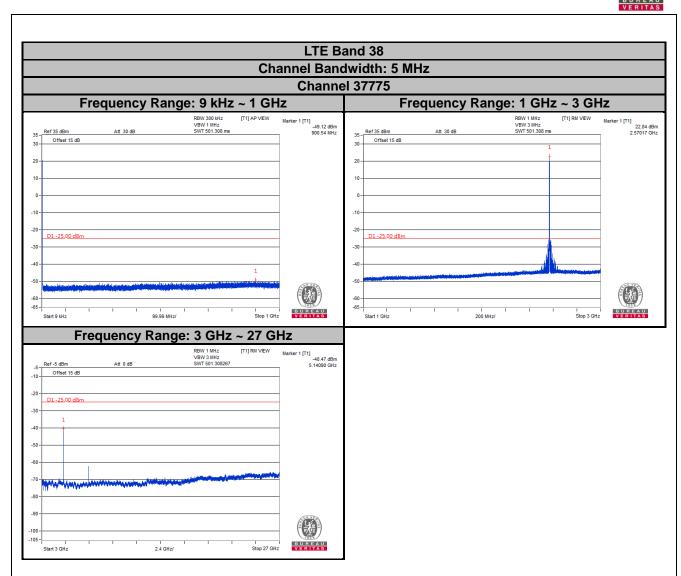




	.TE Band 7 Bandwidth: 20 MHz
	annel 21100
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 kHz [T1] AP VIEW Marker 1 [T1] VBW 1 MHz	49.56 dBm 97.84 MHz 197.84 MHz 10 0 10 10 10 10 10 10
-10	-10- -20- -20- -20- -20- -20- -20- -20-
Start 9 KHz 99 99 MHz/ Stop 1 GHz	
RBW 1 MHz [T1] RM VIEW Marker 1 [T1] VBW 3 MHz	-11 99 dBm 56810 GHz
100- 100- 100- Start 3 GHz 2.3 GHz/ Stop 26 GHz	





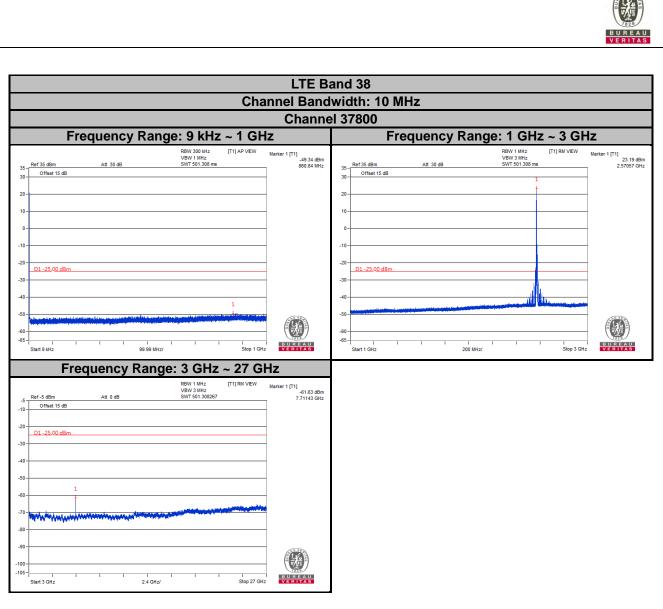




	LTE Ba				
Cha	nnel Band Channe	width: 5 MF	z		
Frequency Range: 9 kHz ~ 1 GHz	Z	Fre	quency Rar	nge: 1 GHz ~ 3 GI	Hz
Ref 35 dBm Att. 30 dB SWT 501 308 ms 30 Offset 15 dB SWT 501 308 ms 20	Marker 1 (T1) -49.59 dBm 907.69 MHz	35 - Ref 35 dBm 30 - Offset 15 dB 20 -	Att 30 dB	RBW1 MHz [T1] RM VEW VBW3 MHz SWT 501 308 ms 1	Marker 1 [T1] 22.45 dBm 2.59297 GHz
10		10			-
		-30 - -40 - -50 - balance de la companya de la -60 - companya de la companya de 	dentificants into any opinion star biotectu		
as start 9 HHz Frequency Range: 3 GHz ~ 27 GH		-65- Start 1 GHz	I I I 200 MH;	z/ I I I I z/ Stop 3 Gł	HZ VERITAS
VBW 3 IHH: -5 Ref-5 dBm Att 0 dB SWT 501 308267 -0 Offset 15 dB -20 U1-25.00 dBm	Marker 1 [T1] -41.79 dBm 5.18530 GHz				
50					
000					



LTE Ba	
Channel Band	
Channe	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 Htz [11] AP VEW Marker 1 [11] -49.55 dBm 35 Ref 35 dBm Att 30 dB SWT 501.300 ms 673.09 MHz 0 Offset 15 dB 673.09 MHz 673.09 MHz 673.09 MHz 20	BBY 1 Mrz [T1] RU VEW Marker 1 [T1] 2.215 dBm 35< Ref 35 dBm Att 30 dB SWT 501 308 ms 2.61536 GHz 30 0 1 1 2.61536 GHz 2.61536 GHz 20 1 1 1 1 2.61536 GHz 2.61536 GHz 20 1 <td1< th=""></td1<>
50 60 65 51 51 51 51 51 51 51 51 51 5	-50
VBW 3 Miz Lander 1 [1] 39.09 dBm -5 Ref.5 dBm Att 0 dB SWT 501.308267 \$ 23091 GHz -10 Offset 15 dB	
-90 -90 100 105 1 1 1 1 1 1 1 1 1 Start 3 GHz 2.4 GHz/ Stop 27 GHz	

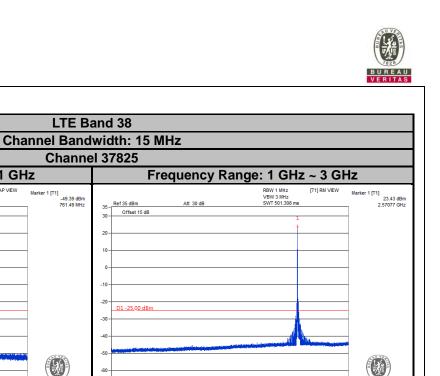




LTE Ba		
	width: 10 MHz	
Channel 38000		
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz	
New 300 km2 [11] AP VEW Marter 11 [11] -49.06 dBm 839.09 MHz 30 Offset 15 dB SWT 501.300 ms 839.09 MHz 839.09 MHz 30 Offset 15 dB 1 1 1 1 -0	UBW 3 M/z market 1/1 2 240 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 2 50057 GHz 30 1 1 1 1 1 10 1 1 1 1 1 1 10 1	
-05- Start 9 Mtz 99 99 Mtz/ Step 1 GHz	-85	
Ref 5 dBm Att 0 dB SWT 501.30227 Marker 1 [T1] -42.41 dBm 5.10050 GHz -0		
-90 -100 -105 Start 3 GHz 2 4 GHz/ Stop 27 GHz		



	LTE Band 38	
	el Bandwidth: 10 MHz	
Channel 38200		
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz	
Keiv 30 m2 (1) AP VEW Marker 1 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 30 Offset 15 dB Image: SWT 501 308 ms Image: SWT 501 308 ms 20 Image: SWT 501 308 ms Image: SWT 501 308 ms Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms 20 Image: SWT 501 308 ms Image: SWT 501 308 ms Image: SWT 501 308 ms	1[11] Harry 1 Mirz [11] Mi VEW Marker 1 [11] 48 72 dBm 35 Ref 35 dBm Att 30 dB SWT 501 396 ms 22 99 dB 30 0 1 1 1 1 1 1 10 1	
-50 -50 -50 -55 -51 -51 -51 -51 -51 -51 -51 -51 -51		
RBW 1 MH:: [T1] RM VEW Marker 1 -5 Ref-5 dBm Att 0 dB SWT 501 306267 -10 -0 -0 -0 -20 D1-25 00 dBm -0 -0 -30 1 -0 -0 -60 -0 -0 -0 -70 -0 -0 -0 -00 -0 -0 -0	1 [T1] 5 22131 GHz	



I 200 MHz/

BUREAU VERITAS

I Stop 3 GHz

ł	Fraguancy					
	requeilcy	Range	: 3 GHz	~ 27 G	Hz	
-5 - Ref -5 dBm -10 - Offset 15 d	Att 0 dB		RBW 1 MHz VBW 3 MHz SWT 501.308267	[T1] RM VIEW	Marker 1 [T1] -40.12 dBm 5.14210 GHz	
-20 - D1 -25.00 df	3m				-	
-40 -					-	
-60 -					_	
-80-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				-	
-90 -					BUREAU	

Frequency Range: 9 kHz ~ 1 GHz

Ref 35 dBm Offset 15 dB

D1 -25.00 dB

35-

30

2

-20

-30

Att 30 di

RBW 300 kHz VBW 1 MHz SWT 501.308 r

[T1] AP VIEW



LTE Ba		
Channel Bandy		
Channel 38000		
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz	
Hellw 300 Hrz [11] AP VEW Marker I [T1] -43 97 dbm -43 97 dbm -43 97 dbm	BEW1 MHz [T1] RM VEW Marker 1 [T1] 22.86 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 258837 GHz 30 Offset 15 dB 1 258837 GHz 258837 GHz 10 1 1 1 1 1 20 1 1 1 1 1 1 10 1	
Start 9 kHz Start 9 k	-00 -65 -1 Start 1 GHz Start 1 GHz 200 MHz/ Stop 3 GHz COURCEAU	
Heller I Mile [1] FAN VEW Marker I [T1] -42.27 dbm -5 Ref-5 dBm Att 0 dB SWT 501.302267 -42.27 dbm 5.17890 GHz -10		
-100 -105 -105 -11 -12 -13 -1 -12 -12 -12 -12 -12 -12 -12 -12 -12 -		



LTE Ba Channel Bandy	
Channel	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 kHz [T1] AP VEW Marker 1 [T1] 40.02 dBm 35 Ref 35 dBm Att 30 dB SWT 501.305 ms 897.94 MHz 30 Offset 15 dB 907.94 MHz 997.94 MHz 94.02 dBm 10 10 10 10 10 10	RBW 1 MHz [T1] RW VEW Marker 1 [T1] 23.00 dBm 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 20.00 dBm 2.00588 GHz 30 Offset 15 dB 1 1 1 1 1 10 1
0	0
50 400 400 400 400 400 400 400 4	-50 -60 -65 -55 -51art 1 GHz 200 MHz/ Stop 3 GHz 000 HHz/
Set - 5 dbm Att 0 db SWT 501 300267 Marker 1 ['1] Marker 1 ['1] -0.02 dbm -5 Offset 15 db -	
-70- 	



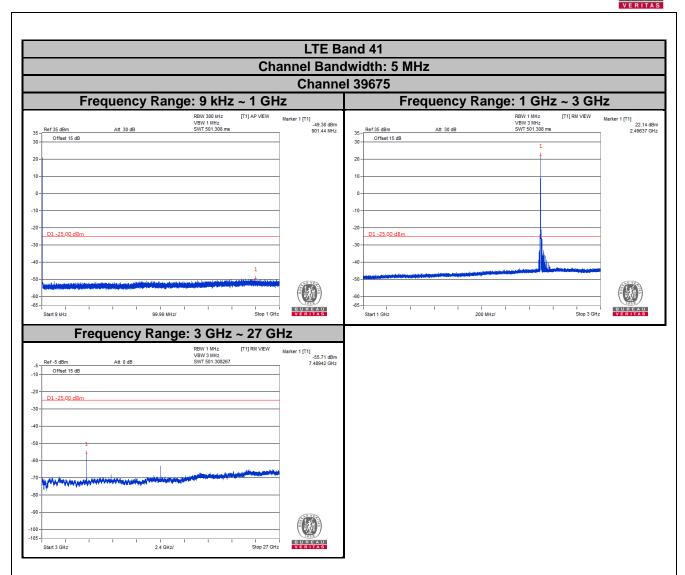
	and 38
	width: 20 MHz
	el 37850
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 kHz [T1] AP VEW Marker 1 [T1] 49.48 dBm 43.8 dBm 955.39 MHz 49.8 dBm 30 Offset 15 dB 5WT 501.308 ms 955.39 MHz 30 Offset 15 dB 955.39 MHz 955.39 MHz 30 Offset 15 dB 955.39 MHz 955.39 MHz 10 0 0 0 0 -10 0 0 0 0 -10 0 0 0 0 -10 0 0 0 0 -10 0 0 0 0 -20 D1 -25.00 dBm 0 0 0 -30 0 0 0 0 0 -40 0 0 0 0 0 0 -60 0 0 0 0 0 0 -60 0 0 0 0 0 0 0 -61 0 0 0 0	RBW 1 MHz (T1) RM VEW Market 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501306 ms 22.35 dBm 30 Offset 15 dB 1 1 1 2.57087 GHz 20 1 1 1 1 1 1 10 1
Frequency Range: 3 GHz ~ 27 GHz Ref-5 dBm At 0 dB (11) RM VEW VBW 3 MHz (11) RM VEW TWILL SWT 501.30267 10 Offset 15 dB 10 D1 -25.00 dBm 30 1	



	and 38 Iwidth: 20 MHz
	el 38000
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
RBW 300 HHz [T1] AP VEW Marker 1 [T1] 36 Ref 35 dBm Att 30 dB SWT 501 308 ms 884 99 MHz 30 Offset 15 dB 884 99 MHz 884 99 MHz 10	Ref 35 dBm Att 30 dB SWT 501.308 ms Marker 1 [T1] 23.28 dBn 35 Coffset 15 dB 1 2.56597 GH: 2.56597 GH: 20 1 1 1 1 10 1 1 1 1
0	0 -10 -20 -20 -20 -20 -20 -20 -20 -20 -20 -2
50 60 65 51 51 51 51 51 51 51 51 51 5	-50 -60 -65 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
Ref -5 dBm Att 0 dB SWT 501308267 Marker 1 [T1] -40.01 dBm -5 Offset 15 dB SWT 501308267 5.17210 GHz 5.17210 GHz -0 -1	



		and 38	
		lwidth: 20 MHz	
Channel 38150			
Frequency Range		Frequency Range: 1 GHz ~ 3 GHz	
35 - Ref 35 dBm Att 30 dB 30 - Offset 15 dB 20	RBW 300 MHz [T1] AP VEW Marker 1 [T1] -49.96 dBm SWY 501.308 ms 948.09 MHz 948.09 MHz	RBW1 MHz [T1] RM VEW Marker 1 [T1] 35 Ref 30 dBm Att 30 dB SWT 501 308 ms 2.80108 GHz 30 Offset 15 dB 1 1 2.00108 GHz 20 1 1 1 1 10 1 1 1 1 20 1 1 1 1 10 1 1 1 1 10 1 1 1 1 20 1 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 20 1 1 1 1 20 1 25,00 dBm 1 1	
-40- -50- -60- -51art 9 kHz 99.99 MHz/ Frequency Range:		-40 -50 -65 -65 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	
-5 - Ref. 5 dBm Att 0 dB -10 - Offset 15 dB -20 - D1 -25,00 dBm -30 - 1 -40 - 1 -50	Heary 1 Mirz [11] KM VEW Marker 1 [71] -40.94 dBm SWT 501.306267 -5.20211 GHz -5.20211 GHz		





LTE Band 41 Channel Bandwidth: 5 MHz Channel 40620				
			Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz
			Ref 35 dBm Att 30 dB SWT 501.308 ms 941.29 Mrz 30 Offset 15 dB Offset 15 dB 941.29 Mrz 20 - - - 10 - - -	Rev 1 IML [T1] RM VEW Marker 1 [T1] 2.2 07 dBn 35 - - - 2.2 07 dBn 2.2 07 dBn 2.5 9007 GHz 1 - - - - - 1 - - - - - - - 1 -
0	0			
-40 - 1 -50 - 1 -50	-40 -50 -60 -65 -51art 1 GHz 200 MHz/ Stop 3 GHz			
Frequency Range: 3 GHz ~ 27 GHz				
RBV 1 MIL: VBW 3 MIL: VBW 3 MIL: -5 Marker 1 [T1] -41.62 dBm -5 Ref-5 dBm -41.62 dBm -41.62 dBm -5 -5 5				
-90				



LTE Band 41 Channel Bandwidth: 5 MHz Channel 41565				
			Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz I[T1] RBW11Miz TT] RM VEW Marter 1 [T1]
			VBW 1 MHz VBW 1	VBW 3 Mitz VBW 3 Mitz Market F111 2 756 64 Mitz 35 - - - - 2 2 - - - 2 2 -
Start 9 MHz 99.99 MHz/ Stop 1 GHz VI Frequency Range: 3 GHz ~ 27 GHz RBW 1 MHz (T1) RM VEW Marker 1 VBW 3 MHz (T1) RM VEW Marker 1	-37.60 dBm			
-5 - Ref -5 dBm Att 0 dB SWT 501308267 -10 Offset 15 dB -20 D1 -25.00 dBm -30 1 -40	5.37131 GHz			



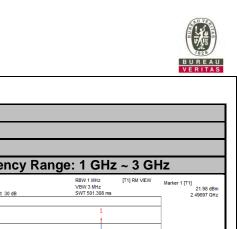
LTE Band 41 Channel Bandwidth: 10 MHz Channel 39700 Frequency Range: 9 kHz ~ 1 GHz Frequency Range: 1 GHz ~ 3 GHz				
			RBW 300 MHz (T1) AP VEW VBW 1 MHz -49.30 dBm 35< Ref 35 dBm Att. 30 dB SWT 501.300 ms -49.30 dBm 30 Offset 15 dB 938.59 MHz -938.59 MHz -938.59 MHz 20	RBW 1 MHz [T1] RM VEW Marker 1 [T1] 22.06 dBm 36 Ref 35 dBm Att 30 dB SWT 501.30 ms 2.49637 GHz 2.49637 GHz 30 Offset 15 dB 1 2.49637 GHz 2.49637 GHz 2.49637 GHz 20 1 - <td< th=""></td<>
			0 -10 -20 -01-25,00 dBm -30 -40-	0
-50 -60 -65 -55 -55 -55 -55 -55 -55 -55 -55 -55	-50 -60 -65 -51 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			
Frequency Range: 3 GHz ~ 27 GHz Ref 5 dBm Att 0 dB Contrast 15 dB 10 D1 -25,00 dBm -00 10 10 10 D1 -25,00 dBm -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00 -00				
-100 -105 -105 -105 -105 -105 -107 -105 -107 -107 -107 -107 -107 -107 -107 -107				



LTE Ba	and 41	
Channel Bandy		
Channel 40620		
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz	
Ref 30 of Miz [T1] AP VEW Marker 1 [T1] 40 20 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 887.19 MHz 30 Offset 15 dB 687.19 MHz 687.19 MHz 20	RBW1 IM12 [T1] RM VEW Marker 1 [T1] 22.75 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.58857 GHz 30 Offset 15 dB 1 2.58857 GHz 2.58857 GHz 20 1 1 1 1 1 10 1 1 1 1 1 1 10 1	
-20 D1 -25,00 dBm -30 - -40 - -50	20 D1-25.00 d8m -30 - -40 - -50 -	
Frequency Range: 3 GHz ~ 27 GHz Range: 3 GHz ~ 27 GHz Marker 1 [T1] -5 Ref-5 dBm Att 0 dB SVT 501.00267 Marker 1 [T1] -45.71 dBm -0		
-90 -100 -105 -105 -105 -105 -105 -107 -107 -107 -107 -107 -107 -107 -107		



LTE Band 41		
Channel Bandwidth: 10 MHz Channel 41540		
	RBW 1 Mitz [T] RM VEW Market 1 [T] 22.73 dBm 2.23 dBm 2.204 GHz 30 Offset 15 dB 1 20 1 1 20 1 1 10 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 10 1 1 <	
-80- -50-	-60 - -65 - -65 - -51 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
Ref. 5 dBm Att 0 dB SWY 1 Mrz [T1] RM VEW Marker 1 [T1] 34 5.380 -5 Ref. 5 dBm Att 0 dB SWY 501.305267 5.380 5.380 -0	.46 dfm D51 GHz	



LTE Band 41			
Channel Bandwidth: 15 MHz Channel 39725			
Frequency Range: 9 kHz ~ 1 GHz BW 300 MHz VBW (1) AP VEW VBW 1 MHz VBW 300 MHz VBW (1) AP VEW VBW 1 MHz Offset 15 dB Offset 10 dB Offset 10 dB <td col<="" td=""><td>Frequency Range: 1 GHz ~ 3 GHz RBW 1 MHz VBW 3 MHz [T1] RIV VEW VBW 3 MHz 30 0ffset 15 dB 1 1 20 1 1 1 20 1 1 1 20</td></td>	<td>Frequency Range: 1 GHz ~ 3 GHz RBW 1 MHz VBW 3 MHz [T1] RIV VEW VBW 3 MHz 30 0ffset 15 dB 1 1 20 1 1 1 20 1 1 1 20</td>	Frequency Range: 1 GHz ~ 3 GHz RBW 1 MHz VBW 3 MHz [T1] RIV VEW VBW 3 MHz 30 0ffset 15 dB 1 1 20 1 1 1 20 1 1 1 20	
Frequency Range: 3 GHz ~ 27 GHz RBW1 MMz [T1] RM VEW Marker 1 [T1] -5 Offset 15 dB -41 0 dB SWT 501 308287 -0 -0 -0 -43 3 dBm -0 -0 -0 -43 3 dBm -0 -0 -0 -43 3 dBm -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0			



LTE B	and 41	
Channel Bandwidth: 15 MHz Channel 40620		
Ref 35 dBm Att 30 dB SWY 501 308 ms Marker 1 [71] Marker 1 [71] Marker 1 [71] Add 50 dBm 812 59 MHz 30 Offset 15 dB 0	Hall's Tahra (11) MM YEW Marker 1 [T1] VBW'S MARK 22.00 dBm 35 Ref 35 dBm Att 30 dB SWT 501.300 ms 2.56837 GHz 30 1 <	
Start 9 Mtz 99 99 Mtz Stop 1 GHz ~ 27 GHz	-50 -60 -65 -55 -55 -55 -55 -55 -55 -55 -55 -55	
RBW 1 IM:: [T1] RM VEW Marker 1 [T1] -5 Ref-5 dBm Att 0 dB SWT 50130267 Att 0 dB SWT 50130267 -10 01fset 15 dB 5 F210 GHz 5 5 5 -20 D1-25.00 dBm -		



LTE Band 41		
Channel Bandwidth: 15 MHz Channel 41515		
Headward Itil J.AP. YEW Marker I [T1] VBW1 MMz -49.47 dBm -49.47 dBm 35- Offset 15 dB -49.47 dBm 851.44 MHz 20-	RBV1 M/12 [T1] RM VEW Marker 1 [T1] 20.03 dBm 35 Ref 35 dBm Att 30 dB SWT 501.308 ms 2.03 dBm 2.03 dBm 2.05 dBm	
	-30 -40 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	
BBW 1 Miz [T1] RM VEW Marker 1 [T1] -5 Ref -5 dBm Att 0 dB SWT 501305267 S8 61 dBm -0 Offset 15 dB		
-90 		



LTE Band 41		
Channel Bandwidth: 20 MHz Channel 39750		
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 3 GHz	
Ref 35 dBm Att 30 dB SWT 501 300 ms [T] J AP VEW VBW 1 MHz Marker 1 [T1] 36 Ref 35 dBm Att 30 dB SWT 501 300 ms 915 29 MHz 30 Offset 15 dB SWT 501 300 ms 915 29 MHz 915 29 MHz 20 Image: SWT 501 300 ms 915 29 MHz 915 29 MHz 915 29 MHz 20 Image: SWT 501 300 ms Image: SWT 501 300 ms 915 29 MHz 915 29 MHz 20 Image: SWT 501 300 ms Image: SWT 501 300 ms 915 29 MHz Image: SWT 501 300 ms 915 29 MHz 20 Image: SWT 501 300 ms Image: SWT 501 300 ms Image: SWT 501 300 ms 915 29 MHz Image: SWT 501 300 ms 915 29 MHz 20 Image: SWT 501 300 ms Image: SWT 501 300 ms Image: SWT 501 300 ms 915 29 MHz Image: SWT 501 300 ms Ima	Ref 35 dBm Att 30 dB SWT 501.300 ms Marker 1 [T1] 21.51 dBm 36 Offset 15 dB 1 2.49707 GHz 2.49707 GHz 20 1 1 1 1 1 20 1	
Frequency Range: 3 GHz ~ 27 GHz		



LTE Band 41		
Channel Bandwidth: 20 MHz Channel 40620		
RBW 300 Hrz [T1] AP VEW Marker 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501.308 ms Marker 1 [T1] 30 Offset 15 dB 0 0 0 0 10 0 <td< th=""><th>RBV1 IM12 [T1] RM VEW Market 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 21.59 dBm 2.56407 GHz 30 0 1 1 2.56407 GHz 2.56407 GHz 20 1 1 1 1 1 1 1 20 1</th></td<>	RBV1 IM12 [T1] RM VEW Market 1 [T1] 35 Ref 35 dBm Att 30 dB SWT 501 308 ms 21.59 dBm 2.56407 GHz 30 0 1 1 2.56407 GHz 2.56407 GHz 20 1 1 1 1 1 1 1 20 1	
40 -50 -50 -50 -55 -51 -51 -51 -51 -51 -51 -51 -51 -51	-40 -50 -65 -65 -50 -65 -50 -50 -50 -50 -50 -50 -50 -50 -50 -5	
RBW 1 MHz [T1] RM VEW Market 1 [T1] -5 Ref-5 dBm Att 0 dB SWT 501.305.267 Market 1 [T1] -5 Offset 15 dB		
-90		



LTE Band 41		
Channel Bandwidth: 20 MHz Channel 41490		
Her 30 dir 12 (11) AP VEW Marker 1 [[11]	Ref 35 dBm Att 30 dB SWT 501.500 ms Marker 1 [71] 22.86 dBm 22.86 dBm 22.86 dBm 26.7098 GHz <	
-20 D1-25.00 d8m -30 -40 -50 -1 -50 -0 -50 -0 -0 -50 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0 -0	-20	
Start 9 KHz 99.99 KHz Stop 1 GHz Stop 1 GHz Frequency Range: 3 GHz ~ 27 GHz 27 GHz 10 Hz 10	Start 1 GHz 200 MHz/ Stop 3 GHz VER TAS	
BRI J. Miz [T] PM VEW Marker 1 [T] 77.56 dBm -5 Bef -5 dBm -37.56 dBm		
-80 -90 -100 -105 -105 -107 -105 -107 -107 -107 -107 -107 -107 -107 -107		



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.

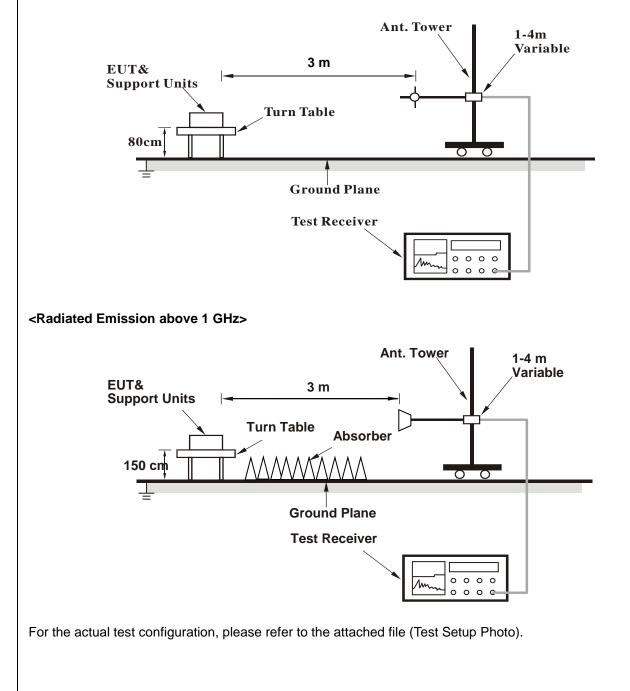
4.8.3 Deviation from Test Standard

No deviation.



4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>





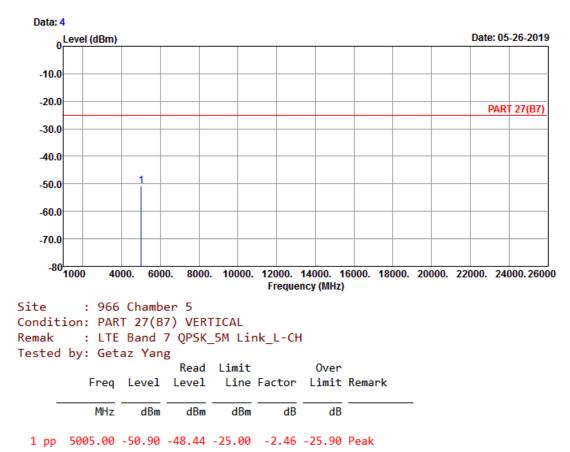
4.8.5 Test Results

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





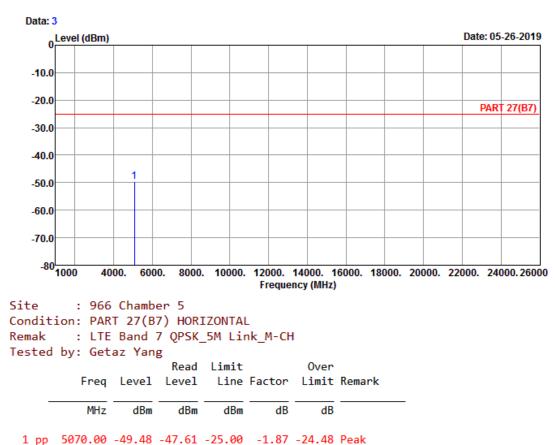






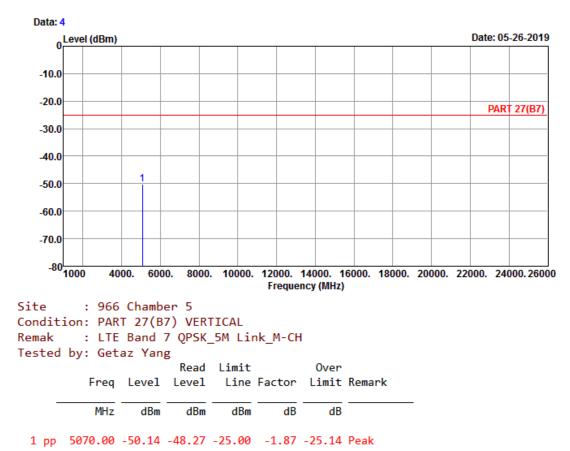
Middle Channel







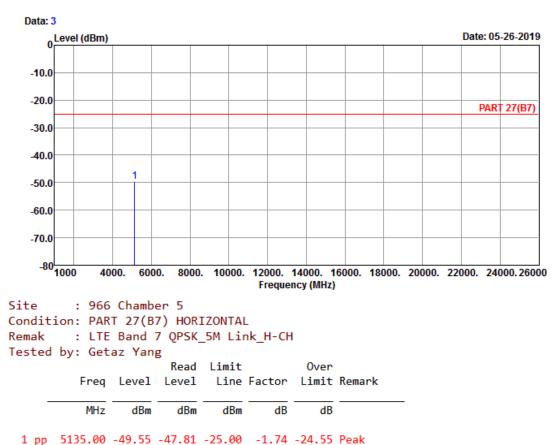






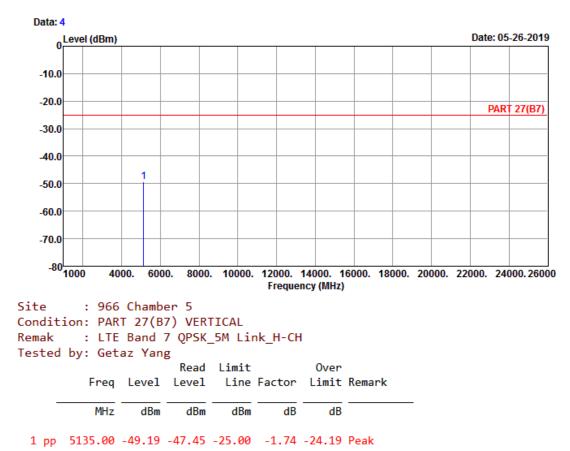
High Channel





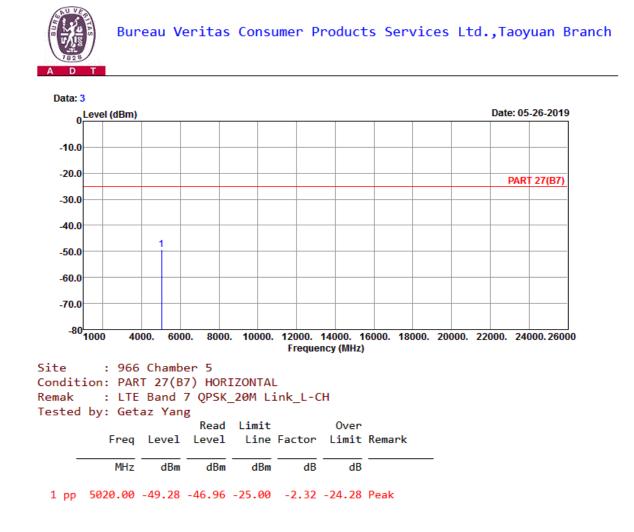






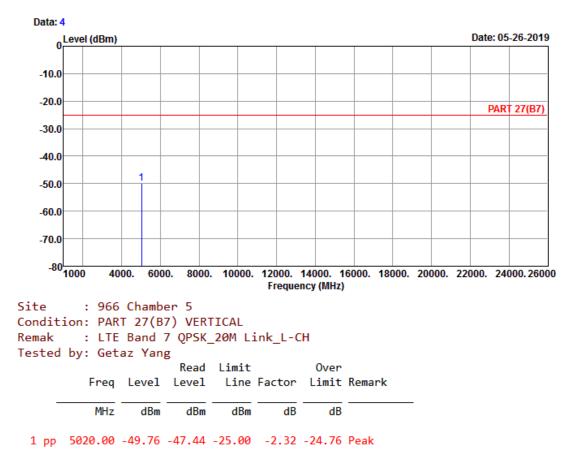


Channel Bandwidth: 20 MHz / QPSK Low Channel





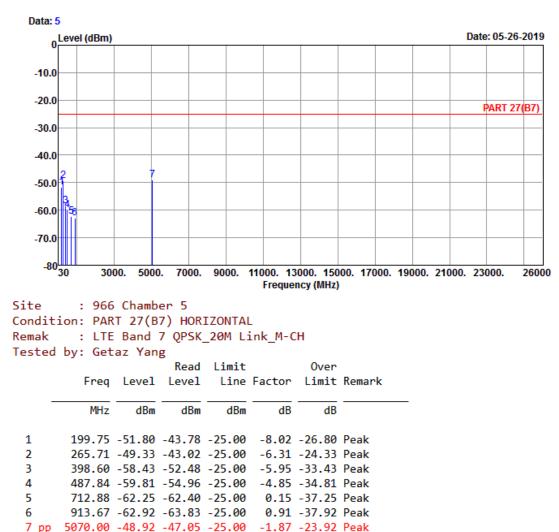






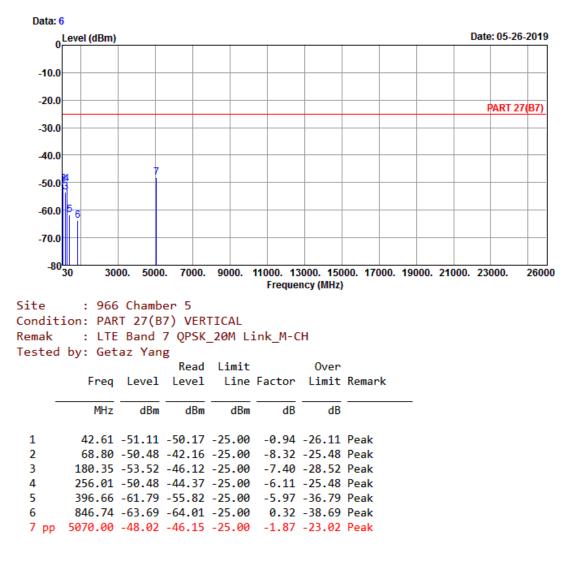
Middle Channel







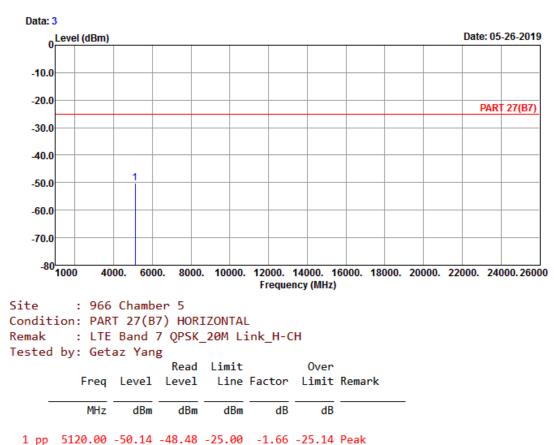






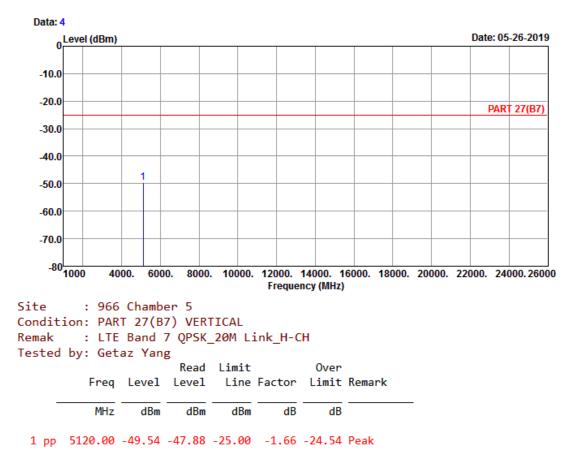
High Channel





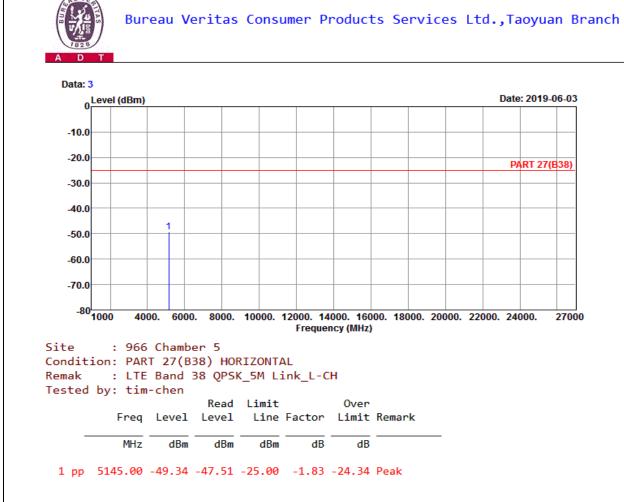






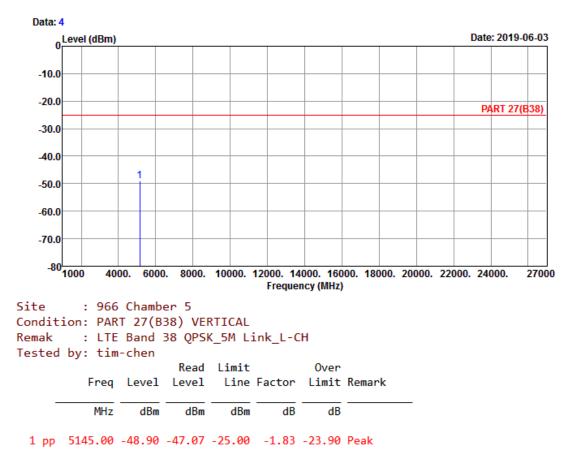


LTE Band 38 Channel Bandwidth: 5 MHz / QPSK Low Channel





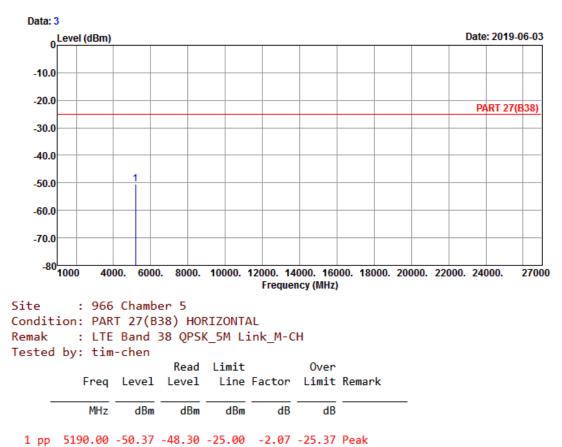






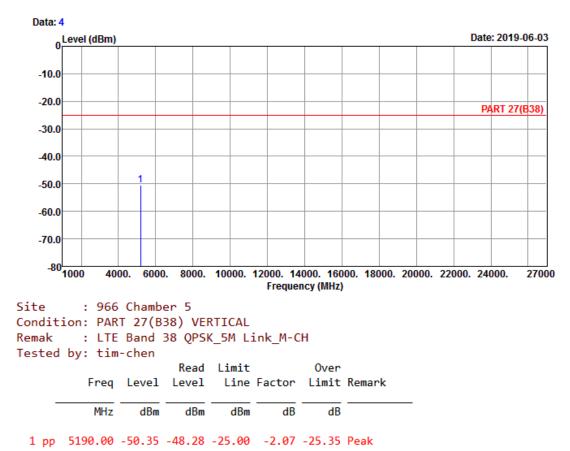
Middle Channel







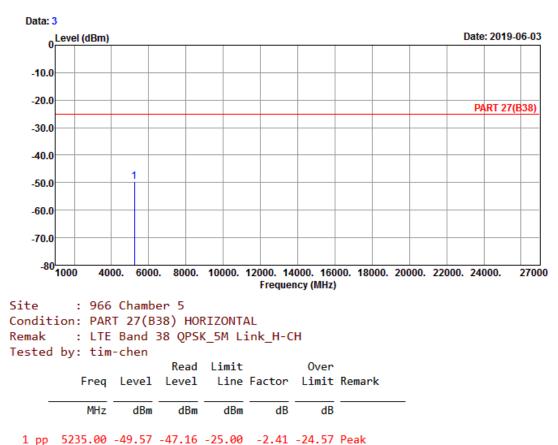






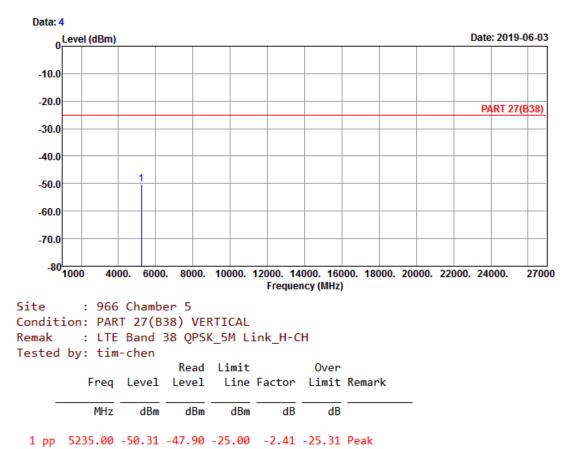
High Channel





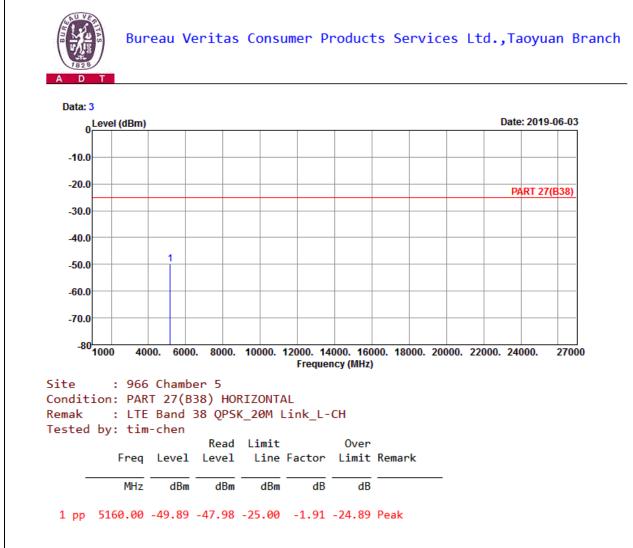






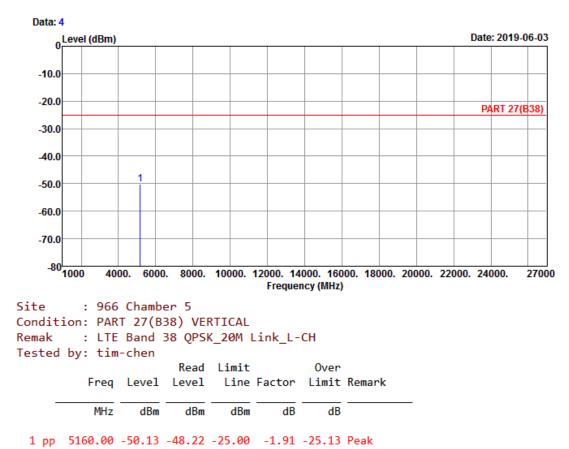


Channel Bandwidth: 20 MHz / QPSK Low Channel





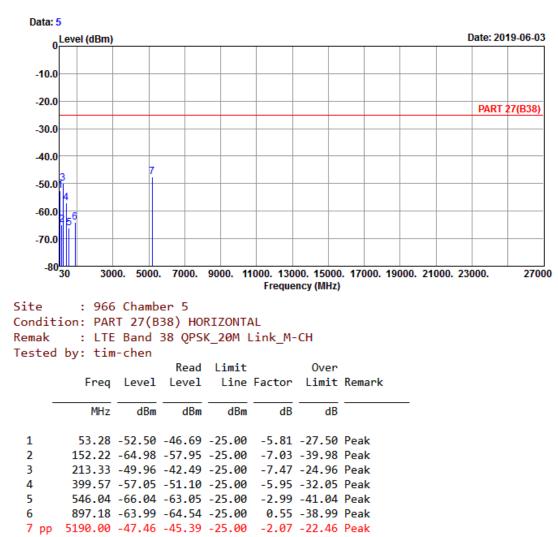






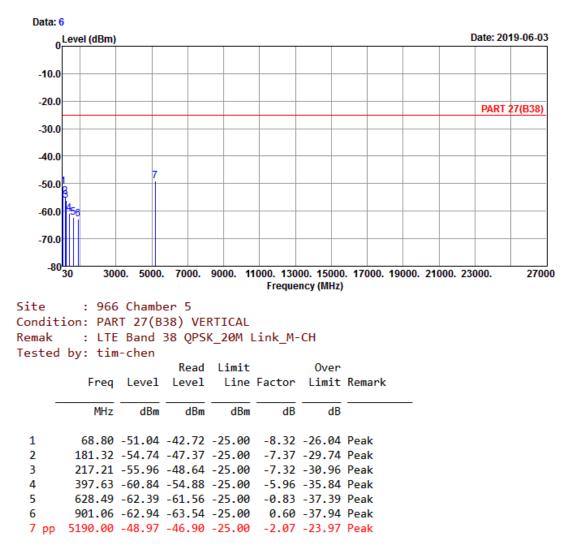
Middle Channel







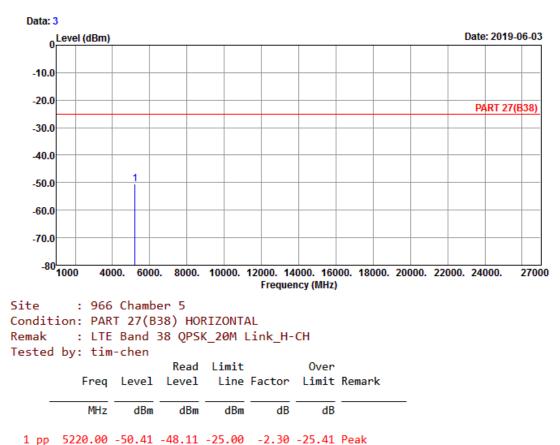






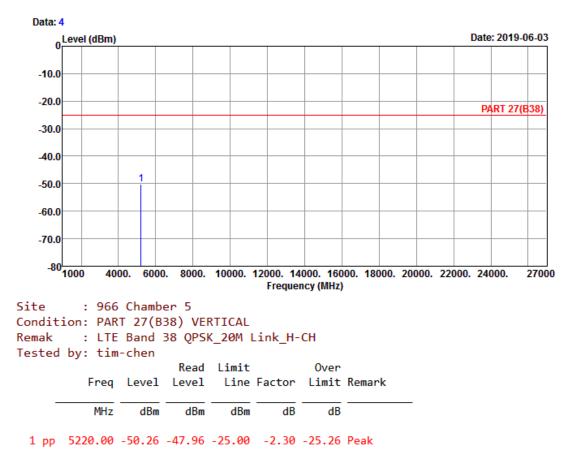
High Channel











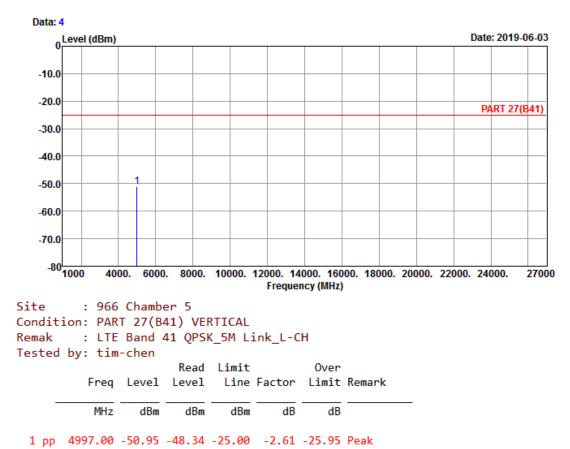


LTE Band 41 Channel Bandwidth: 5 MHz / QPSK Low Channel

Data: 3 0 Level (dBm) Date: 2019-06-03 -10.0 -20.0 PART 27(B41) -30.0 -40.0 -50.0 -60.0 -70.0 -80¹1000 4000. 6000. 8000. 10000. 12000. 14000. 16000. 18000. 20000. 22000. 24000. 27000 Frequency (MHz) Site : 966 Chamber 5 Condition: PART 27(B41) HORIZONTAL Remak : LTE Band 41 QPSK_5M Link_L-CH Tested by: tim-chen 0ver Read Limit Freq Level Level Line Factor Limit Remark dB MHz dBm dBm dBm dB 1 pp 4997.00 -50.61 -48.00 -25.00 -2.61 -25.61 Peak



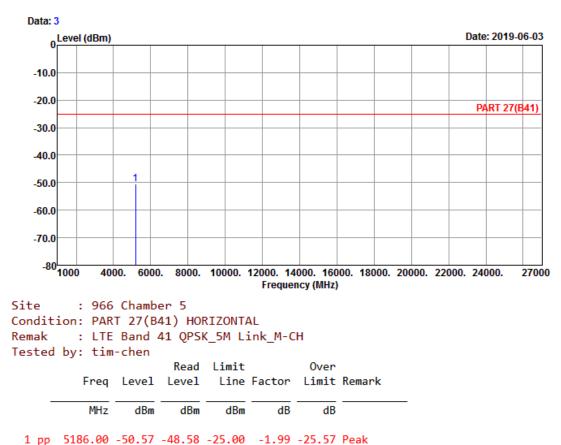






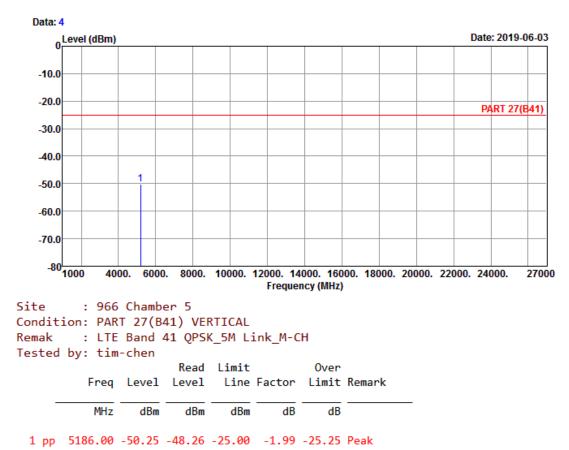
Middle Channel







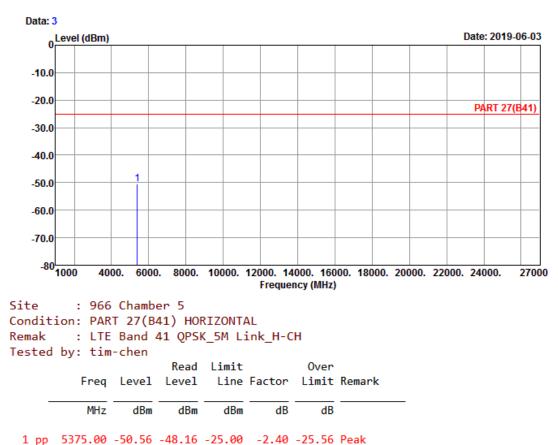






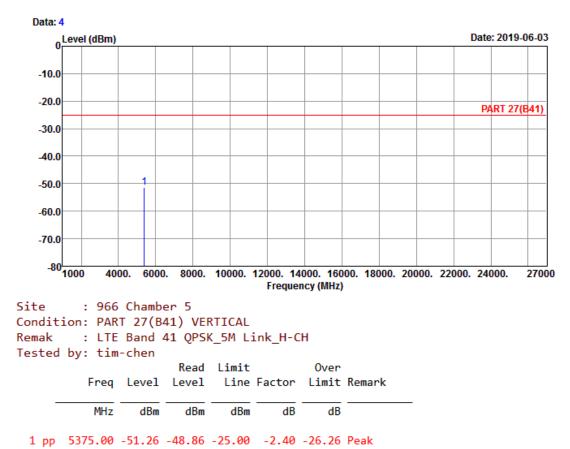
High Channel





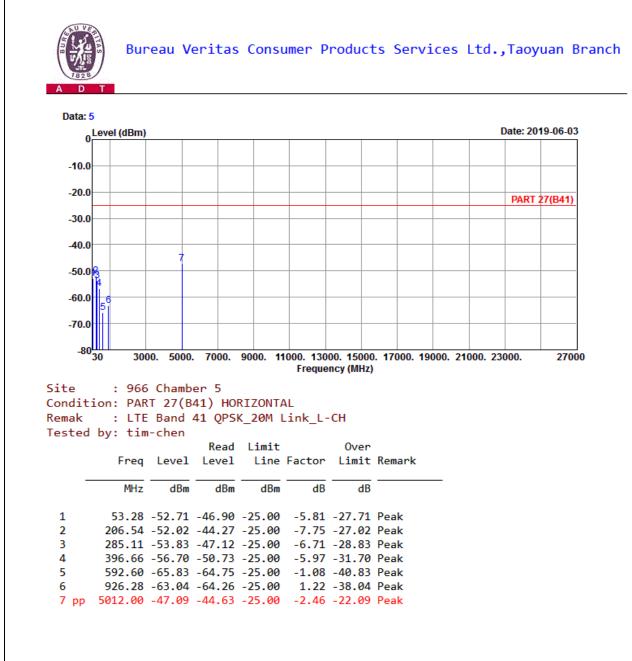






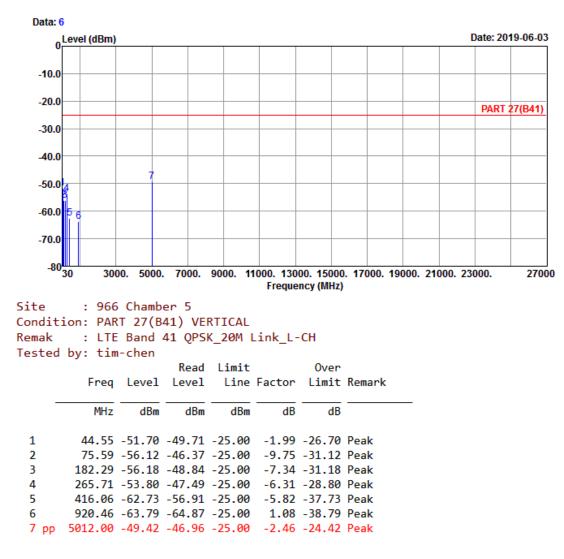


Channel Bandwidth: 20 MHz / QPSK Low Channel





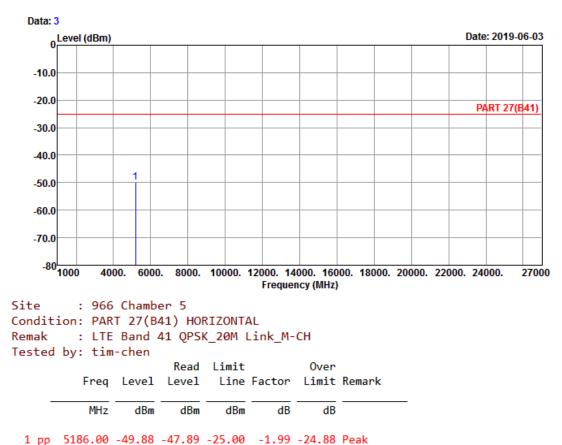






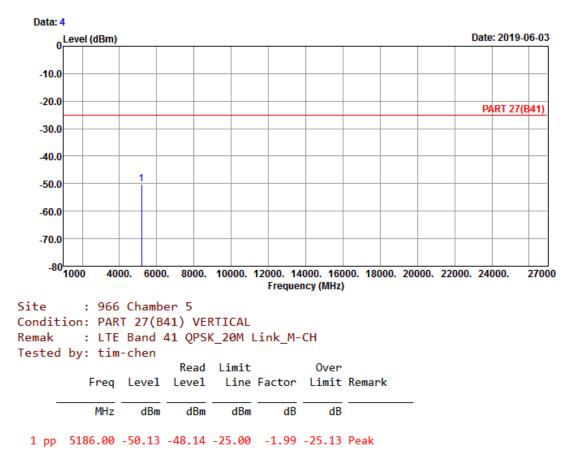
Middle Channel







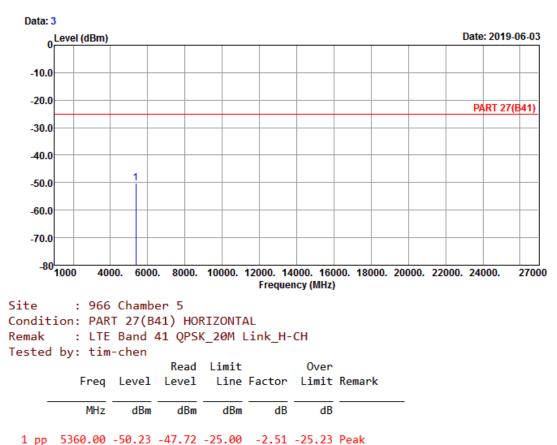






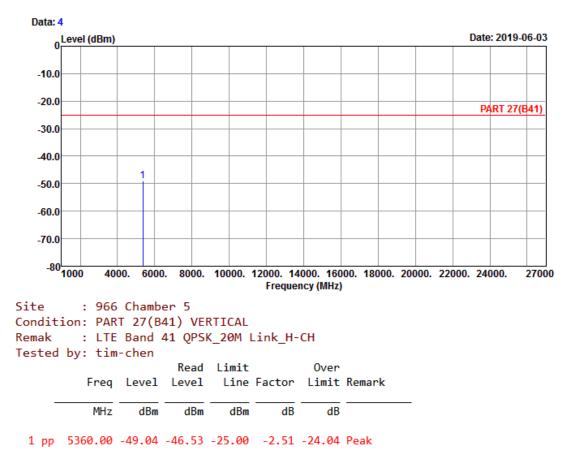
High Channel













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.

--- END ---