



## LTE Band 12 Channel Bandwidth: 3MHz Channel 23025 RB Size 1 RB Offset 0 23025 RB Size 15 RB Offset 0 Channel Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 6/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm More 1 of 2 More 1 of 2 Channel Bandwidth: 3MHz 23165 Channel RB Size 1 RB Offset 14 Channel 23165 RB Size 15 RB Offset 0 Marker 1 716.000000000 MHz Marker 1 716.000000000 MHz Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg[Hold: 13/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Norma More 1 of 2 More 1 of 2



### LTE Band 12 Channel Bandwidth: 5MHz Channel 23035 RB Size 1 RB Offset 0 23035 RB Size 25 RB Offset 0 Channel Marker 1 699,0000000000 MHz PNO: Wilde PRO: Wilde Atten: 22 dB Avg Type: RMS Avg|Hold: 5/100 Avg Type: RMS Avg|Hold: 3/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Clear Write Min Hold View Blank Trace On More 1 of 2 Channel Bandwidth: 5MHz 23155 Channel RB Size 1 RB Offset 24 Channel 23155 RB Size 25 RB Offset 0 Marker 1 716.000000000 MHz Marker 1 716.000000000 MHz Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 4/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Norma More 1 of 2 More 1 of 2



## LTE Band 12 Channel Bandwidth: 10MHz Channel 23060 RB Size 1 RB Offset 0 23060 RB Size 50 RB Offset 0 Channel Marker 1 699,0000000000 MHz PNO: Wilde PRO: Wilde Atten: 22 dB Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 12/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm More 1 of 2 Channel Bandwidth: 10MHz RB Size 1 23130 Channel RB Offset 49 Channel 23130 RB Size 50 RB Offset 0 Marker 1 716.000000000 MHz Marker 1 716.000000000 MHz Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 15/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Norma More 1 of 2 More 1 of 2



### LTE Band 17 Channel Bandwidth: 5MHz Channel 23755 RB Size 1 RB Offset 0 23755 RB Size 25 RB Offset 0 Channel Marker 1 704,000000000 MHz PNO: Wildn PNO: Free Run Attent: 22 dB Avg Type: RMS Avg|Hold: 4/100 Avg Type: RMS Avg|Hold: 6/100 Ref Offset 18 dB Ref 30.00 dBm -16,114 dB Ref Offset 18 dB Ref 30.00 dBm More 1 of 2 Channel Bandwidth: 5MHz 23825 Channel RB Size 1 RB Offset 24 Channel 23825 RB Size 25 RB Offset 0 Marker 1 716.000000000 MHz Marker 1 716.000000000 MHz Avg Type: RMS Avg|Hold: 2/100 Avg Type: RMS Avg|Hold: 7/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Norma More 1 of 2 More 1 of 2



## LTE Band 17 Channel Bandwidth: 10MHz Channel 23780 RB Size 1 RB Offset 0 23780 RB Size 50 RB Offset 0 Channel Marker 1 704,000000000 MHz PNO: Wildn PNO: Free Run Attent: 22 dB Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 3/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm More 1 of 2 Channel Bandwidth: 10MHz RB Size 1 23800 Channel RB Offset 49 Channel 23800 RB Size 50 RB Offset 0 Marker 1 716.000000000 MHz Marker 1 716.000000000 MHz Avg Type: RMS Avg|Hold: 1/100 Avg Type: RMS Avg|Hold: 5/100 Ref Offset 18 dB Ref 30.00 dBm Ref Offset 18 dB Ref 30.00 dBm Norma More 1 of 2



## 2.7. Transmitter Radiated Power (EIRP/ERP)

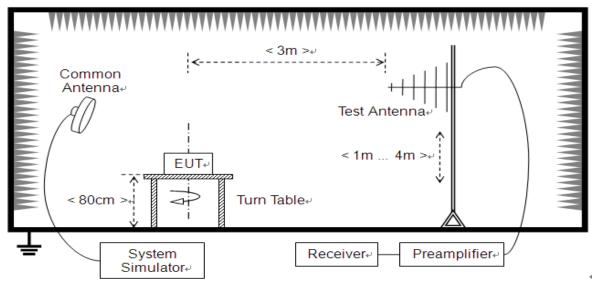
#### 2.7.1. Requirement

According to FCC section 24.232 (c) for LTE Band 2, Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50 (d) for LTE Band 4, fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

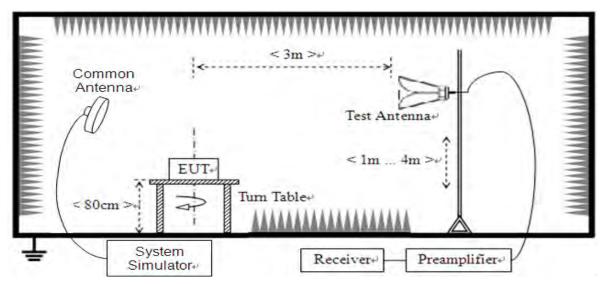
According to FCC section 27.50 (h) for LTE Band 7, Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power. According to FCC section 27.50 (c) for LTE Band 12/17, Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

#### 2.7.2. Test Description



(For the test frequency from 30MHz to1GHz)





(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

#### 2.7.3. Test procedure

KDB 971168 D01v03 Section 51&5.2 and ANSI/TIA-603-E-2016.



#### 2.7.4. Test Result

The EUT was verified under all configurations (RB size and offset) and the worst case radiated power reported for each modulation/channel bandwidth.

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

 $A_{\text{SUBST}} = P_{\text{SUBST\_TX}} - P_{\text{SUBST\_RX}} - L_{\text{SUBST\_CABLES}} + G_{\text{SUBST\_TX\_ANT}}$ 

 $A_{TOT} = L_{CABLES} + A_{SUBST}$ 

Where A<sub>SUBST</sub> is the final substitution correction including receive antenna gain.

P<sub>SUBST\_TX</sub> is signal generator level,

P<sub>SUBST RX</sub> is receiver level,

L<sub>SUBST CABLES</sub> is cable losses including TX cable,

G<sub>SUBST\_TX\_ANT</sub> is substitution antenna gain.

A<sub>TOT</sub> is total correction factor including cable loss and substitution correction

During the test, the data of  $A_{TOT}$  was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of  $A_{TOT}$ .

**Note:** Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.





Dand	Donal Windsh	Chamal	Fra 7 (MILE)	Madulation	RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	22.41
		L	1860	QFSK	100	0	22.66
		18700	1000	40 0 4 14	1	0	21.42
			16-QAM	100	0	20.37	
				QPSK	1	0	21.20
LTE		M	1880	QF3K	100	0	20.46
	20MHz	18900	1880	16-QAM	1	0	20.83
Band 2				10-QAIVI	100	0	20.03
				QPSK	1	0	21.43
		Н	1900	QFSK	100	0	20.35
		19100	1900	16-QAM	1	0	21.66
				16-QAIVI	100	0	21.05
			_		RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L 18675	4057.5	0.0014	1	0	21.43
				QPSK	75	0	20.97
			1857.5	40.0414	1 0		
				16-QAM	75	0	22.24 20.59
			1880	QPSK	1	0	22.67
LTE	E	M 18900			75	0	20.95
	15MHz			16-QAM	1	0	21.79
Band 2				10-AVIN	75	0	20.39
			1902.5	QPSK	1	0	22.07
		Н			75	0	20.98
		19125		16-QAM	1	0	22.06
					75	0	20.22
Donal	D =l \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	01	(\A  )	NA - de de 45 - c	RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	20.44
		L	1855	QF3K	50	0	20.01
		18650	1655	16-QAM	1	0	20.98
				10-QAIVI	50	0	19.89
,				QPSK	1	0	21.73
LſĒ	LTE 10MHz	M	1880	QF3N	50	0	20.03
		18900	1000	16-0414	1	0	20.42
Band 2				16-QAM	50	0	20.42
				QPSK	1	0	20.35
		Н	1905	QF UN	50	0	20.58
		19150	1900	16-QAM	1	0	19.87
				10-QAIVI	50	0	20.24





			_		RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				ODSK	1	0	21.33
		L	1050 5	QPSK	25	0	20.46
		18625	1852.5	16-QAM	1	0	21.02
					25	0	20.92
				ODCK	1	0	21.94
LTE	M	M	1880	QPSK	25	0	20.73
	5MHz	18900	1000	16-QAM	1	0	21.22
Band 2				16-QAIVI	25	0	20.32
				QPSK	1	0	21.51
		Н	1907.5	QF3K	25	0	20.49
		19175	1907.5	16-QAM	1	0	21.71
				10-QAIVI	25	0	19.95
Б	5 134 <i>6</i> 14		- 441		RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L 18615	1851.5	QPSK	1	0	20.94
				QI OIX	15	0	19.67
				16-QAM	1	0	21.40
					15	0	20.97
1.75	.		M 3900 1880	1880 QPSK 16-QAM	1	0	22.10
LTE		M			15	0	20.49
	3MHz	18900			1	0	21.18
Band 2					15	0	20.12
			1908.5	QPSK	1	0	21.49
		Н			15	0	20.06
		19185		16-QAM	1	0	21.77
					15	0	20.55
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Baria	Dana Watii	Chamilei	1 164.(101112)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	20.60
		L	1850.7	QFSK	6	0	19.89
		18607	1650.7	16-QAM	1	0	21.19
				16-QAIVI	6	0	20.07
				QPSK	1	0	21.53
LIE	LTE 1.4MHz 1		1880	QF SIN	6	0	20.81
		18900	1000	16-QAM	1	0	20.72
Band 2				10-QAIVI	6	0	20.45
				QPSK	1	0	21.91
		Н	1909.3	QF3N	6	0	20.83
		19193	1909.3	16-OAM	1	0	21.40
				16-QAM	6	0	20.43



	5 1345.61		- (411)		RB Cor	nfiguration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	21.96
		L	1720.0	QFSK	100	0	20.53
	LTE M 20175 Band 4	20050	1720.0	16-QAM	1	0	21.87
				16-QAIVI	100	0	20.94
				QPSK	1	0	22.29
LTE		М	1732.5	QFSK	100	0	21.36
		1732.3	16-QAM	1	0	22.26	
Band 4				10-QAW	100	0	21.02
				QPSK	1	0	21.86
		Н	1745.0	QFSK	100	0	20.47
		20300	1745.0	16-QAM	1	0	22.38
				10-QAIVI	100	0	21.30
	5 1345 14		- (111)		RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	22.25
		L	1717.5		75	0	21.06
		20025	1717.5	16-QAM	1	0	22.48
					75	0	20.23
LTE		М	1732.5 1747.5	QPSK	1	0	22.12
LIE				Qi Oit	75	0	21.44
	15MHz	20175		16-QAM	1	0	22.66
Band 4					75	0	21.01
				QPSK	1	0	22.17
		Н			75	0	20.97
		20325		16-QAM	1	0	21.85
				10 0,7 1171	75	0	21.32
Band	Band Width	Channal	From (MUIT)	Modulation	RB Cor	nfiguration	EIRP
Danu	Danu Wiuin	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	21.05
		L	1715.0	QFSK	50	0	20.55
		20000	1715.0	16-QAM	1	0	21.76
				10-QAW	50	0	21.08
1.75				QPSK	1	0	22.02
LIE	LTE	1732.5	QI OIN	50	0	20.80	
		1732.3	16-QAM	1	0	21.07	
Band 4				10-QAM	50	0	20.44
				QPSK	1	0	21.25
		Н	1750.0	QF3N	50	0	20.87
		20350		16.0014	1	0	21.93
				16-QAM	50	0	20.97



					RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	21.78
		L	4740.5	QI OIN	25	0	20.58
		19975	1712.5	16-QAM	1	0	21.58
					25	0	20.43
				ODOK	1	0	22.06
LTE		5MHz M 20175	4700 5	QPSK	25	0	21.74
	5MHz		1732.5	40.001	1	0	22.11
Band 4				16-QAM	25	0	21.25
				QPSK	1	0	21.92
		Н	1752.5	QFSK	25	0	20.05
		20375	1752.5	16 OAM	1	0	22.75
				16-QAM	25	0	21.76
	_ ,				RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L 19965	65 1711.5	QPSK	1	0	21.46
					15	0	21.08
				16-QAM	1	0	22.08
					15	0	20.22
		M 20175 1732.5	M 1732 5	QPSK -	1	0	22.28
LTE					15	0	20.88
	3MHz		16-QAM	1	0	21.46	
Band 4				15	0	20.91	
			1753.5	QPSK	1	0	21.27
		Н			15	0	20.55
		20385		16-QAM	1	0	22.03
					15	0	20.92
Band	Band Width	Channal	(\_/\	Modulation	RB Cor	figuration	EIRP
Danu	band widin	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	21.92
		L	1710.7	QFSK	6	0	20.98
		19957	17 10.7	16-QAM	1	0	21.23
				I U-WAIVI	6	0	20.95
1.75				QPSK	1	0	22.23
LTE	_	М	1732.5	QI OIX	6	0	21.51
	1.4MHz 20175	5   1/32.5	16-QAM	1	0	21.82	
Band 4				io scrivi	6	0	20.50
				QPSK	1	0	21.16
		Н	1754.3	Qi Oit	6	0	20.89
		20393	393	16-QAM	1	0	22.72
				io QAIVI	6	0	21.49



					RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L		QPSK	1	0	20.45
		_	2510	QFSR	100	0	20.11
		00050	2510	16 OAM	1	0	22.50
	LTE	20850		16-QAM	100	0	20.68
		М		QPSK	1	0	22.91
LTE			2535	QFSK	100	0	21.54
	20MHz	04400	2333	16-QAM	1	0	21.51
Band 7		21100		10-QAIVI	100	0	20.01
		Н		QPSK	1	0	22.31
			2560	QI OIX	100	0	20.90
		04050	2300	16-QAM	1	0	22.44
		21350		10-QAIVI	100	0	21.15
Daniel	D 1347 141		- (141)	N4 1 1 2	RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L 20825	2507.5	QPSK	1	0	21.62
					75	0	20.75
				16-QAM	1	0	23.18
					75	0	21.64
LTE		21100 H		QPSK 16-QAM	1	0	22.71
LTE			2535		75	0	21.52
	15MHz		2000		1	0	21.28
Band 7					75	0	20.73
			2562.5	QPSK	1	0	23.05
					75	0	21.47
				16-QAM	1	0	22.98
				10 97 (17)	75	0	21.61
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Dana	Dana Widin	Onamer	1 16q.(WII 12)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	20.25
		L	2505	QI OIL	50	0	19.72
		20800	2303	16-QAM	1	0	21.99
				TO QAIVI	50	0	20.46
1.75				QPSK	1	0	22.05
LTE	10MHz 2	M	2535	QI UIV	50	0	21.03
		21100	2000	16-QAM	1	0	20.99
Band 7				10 QAM	50	0	19.72
				QPSK	1	0	21.75
		Н	2565	QI OIN	50	0	20.81
		21400	2000	16-QAM	1	0	21.60
				IO QAIVI	50	0	21.21





Dond	Donal Minish	Channal	Erog (MUz)	Madulation	RB Configuration		EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	20.99
		L	2502.5	QF 5K	25	0	20.32
		20775	2302.3	16-QAM	1	0	22.64
				10-QAM	25	0	21.39
			M 2535	QPSK	1	0	22.18
LTE		М		· ·	25	0	21.63
	5MHz	21100		16-QAM -	1	0	20.90
Band 7					25	0	19.78
				QPSK	1	0	21.96
		Н	2567.5	QF 5K	25	0	21.40
	2142	21425	21425	16-QAM	1	0	23.16
					25	0	21.76

Donal	D =! \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Ob a same al	Frog (MHz) Modulation		RB Configuration		ERP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK 1 50	1	0	20.53
		L	704		50	0	19.83
		23060	704	16-QAM	1	0	20.49
				10-QAIVI	50	0	19.36
1.75				QPSK	1	0	20.32
LTE		М	707.5	QI OIX	50	0	19.61
	10MHz	23095	707.5	16-QAM	1	0	20.88
Band 12				10 Q/NV	50	0	19.30
				QPSK	1	0	21.07
		H 23130	711	QI OIX	50	0	19.19
			711	16-QAM	1	0	19.82
					50	0	19.14
Band	Band Width	Channel F	Freq.(MHz)	Modulation	RB Con	figuration	ERP
Danu	bana wiain				RB Size	RB Offset	(dBm)
				QPSK	1	0	21.47
		L	701.5		25	0	20.48
		23035	701.5	16-QAM	1	0	21.22
				10 Q/NV	25	0	20.00
1.75				QPSK	1	0	20.49
LTE		М	707.5	QI OIT	25	0	19.49
	5MHz	23095	707.5	16-QAM	1	0	21.23
Band 12				10 30 (17)	25	0	20.41
				QPSK	1	0	21.01
		Н	713.5	Qi Oit	25	0	19.87
		23155	7 10.0	16-QAM	1	0	20.34
				10 00/11/1	25	0	19.58





					RB Con	ifiguration	ERP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
		L		ODOK	1	0	20.97
		_	700 5	QPSK	15	0	19.61
			700.5	16-QAM	1	0	20.84
		23025		16-QAIVI	15	0	19.25
		М		QPSK	1	0	20.42
LTE			707.5	QFSK	15	0	18.89
	3MHz	00005	707.5	16-QAM	1	0	21.37
Band 12		23095		16-QAIVI	15	0	19.55
		Н	H 714.5	QPSK	1	0	20.81
				QFSK	15	0	19.44
			7 14.5	16-QAM	1	0	19.34
		23165			15	0	18.85
Band	D a in al 11/1 alth	dth Channel	Freq.(MHz)	Modulation	RB Con	figuration	ERP
Danu	Band Width				RB Size	RB Offset	(dBm)
			699.7	QPSK	1	0	20.88
		L			6	0	20.29
		23017	699.7	16-QAM	1	0	21.05
				10-QAIVI	6	19.46	
				QPSK	1	0	20.07
LTE		М	707.5	QI SIX	6	0	19.38
	1.4MHz	23095	101.3	16-QAM	1	0	20.96
Band 12				10-QAIVI	6	0	20.36
				QPSK	1	0	21.10
		H 23173	715.3	ζι 5l\	6	0	19.93
			110.0	16-QAM	1	0	20.62
				10 QAW	6	0	18.97

Band E	Band Width	Channel	Eroa (MUz)	Modulation	RB Configuration		ERP
Danu	Band Width	Channel	Freq.(MHz)	iviodulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	21.33
		L	709	QFSK	50	0	21.65
		23780	709	16-QAM	1	0	20.12
				10-QAIVI	50	0	19.38
		M Hz 23790	710	QPSK	1	0	20.68
LTE				QF 5K	50	0	19.19
	10MHz			16-QAM	1	0	20.48
Band 17				10-QAIVI	50	0	19.13
		H 23800 711		QPSK	1	0	21.65
			711	QF3K	50	0	19.27
			/ 11		1	0	19.40
			16-QAM	50	0	19.34	





Dond	Donal Midth	Channal	Frog (MUz)	Madulatian	RB Configuration		ERP
Band	Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
				QPSK	1	0	22.44
		L	706.5	QFSK	25	0	20.03
		23755	700.5	16-QAM	1	0	20.14
				10-QAIVI	25	0	19.73
		M 23790	710	QPSK	1	0	19.96
LTE				QF 5K	25	0	19.99
	5MHz			16-QAM	1	0	19.58
Band 17				10-QAIVI	25	0	20.19
				QPSK	1	0	20.10
		Н	713.5	QF3K	25	0	20.18
	23825	23825	113.3		1	0	20.23
			16-QAM	25	0	19.20	





## 2.8. Radiated Spurious Emissions

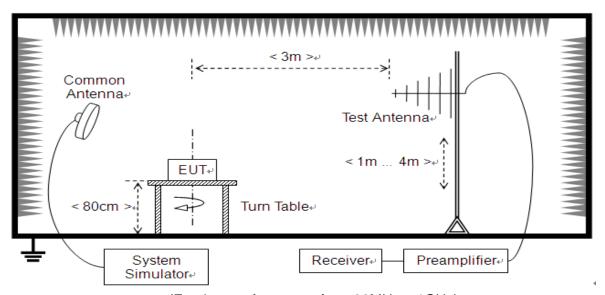
#### 2.8.1. Requirement

According to FCC section 2.1051, 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+10\*log(P)dB. This calculated to be -13dBm.

#### Additional requirement for LTE Band 7:

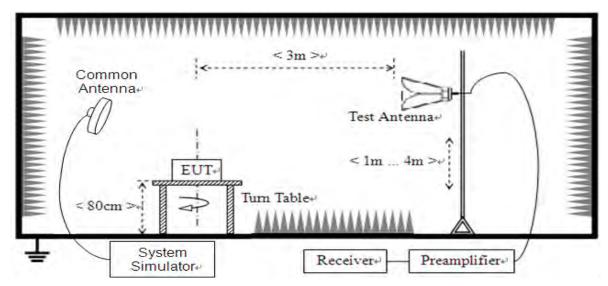
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB. This calculated to be -25dBm.

#### 2.8.2. Test Description



(For the test frequency from 30MHz to1GHz)





(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading. A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

**Note:** when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

#### 2.8.3. Test procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.





2.8.4. Test Result

# REPORT No.: SZ18050200W08

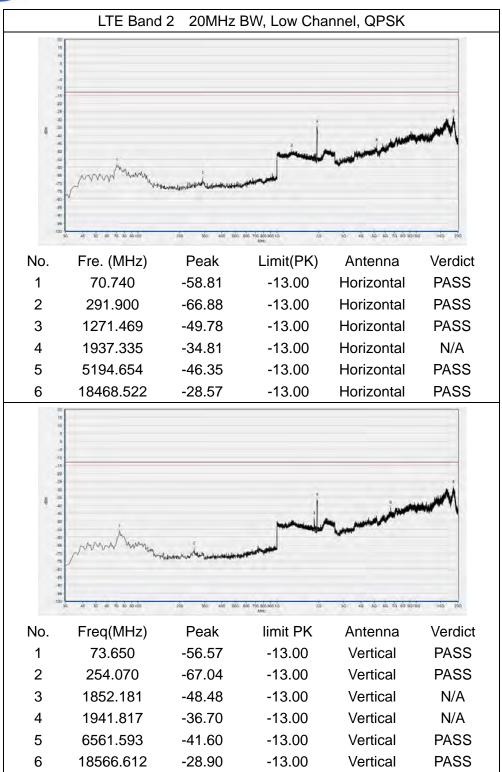
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. Test Antenna height is varied from 1m to 4m above the ground, and the Turn Table is actuated to turn from 0° to 360°, both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

**Note1:** The power of the EUT transmitting frequency should be ignored.

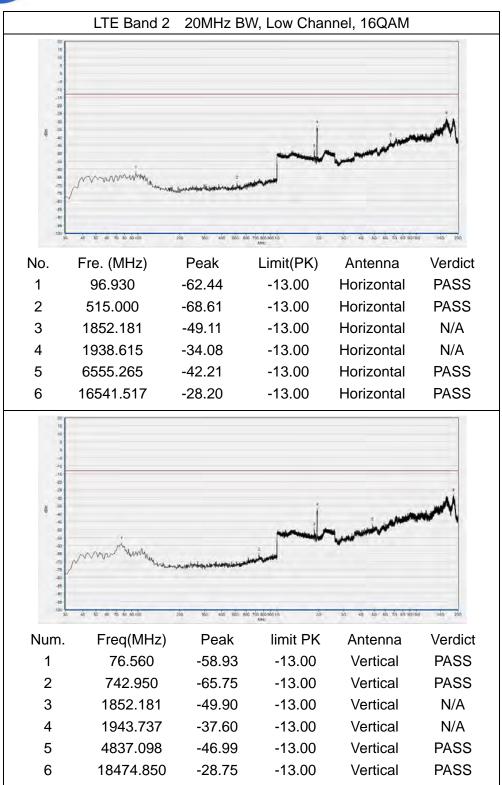
**Note2:** All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

**Note3:** All bandwidth and test channel were considered and evaluated respectively by performing full test for each band, only the worst cases were recorded in this test report.

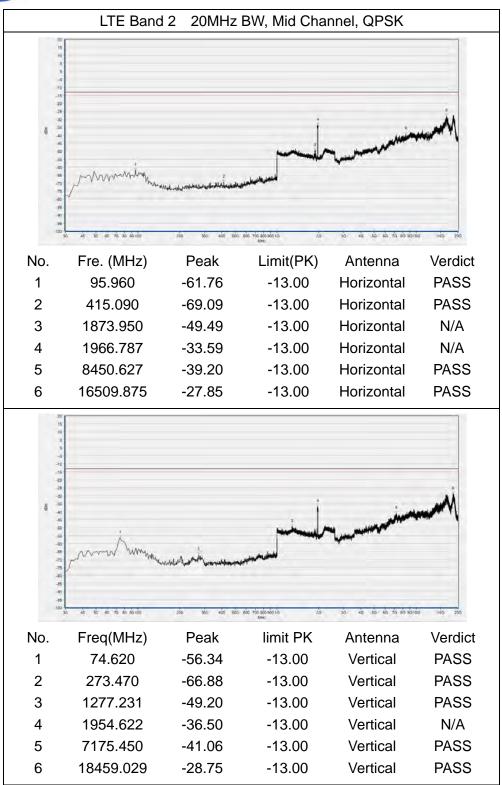








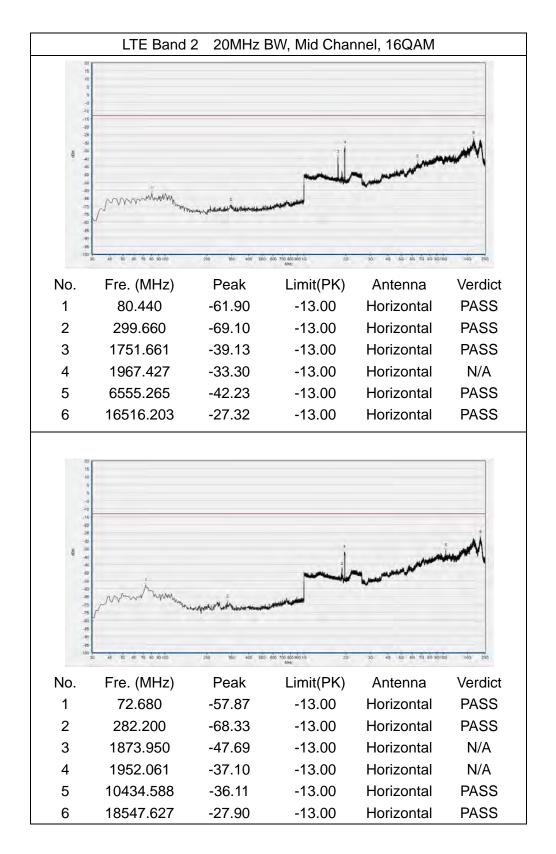






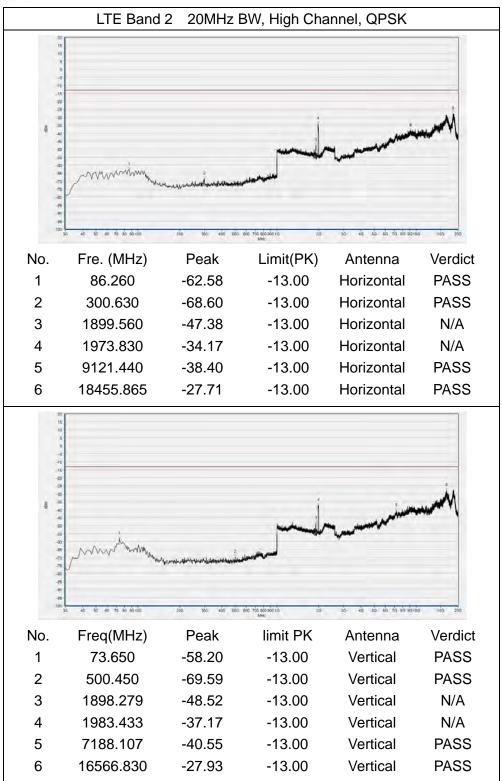








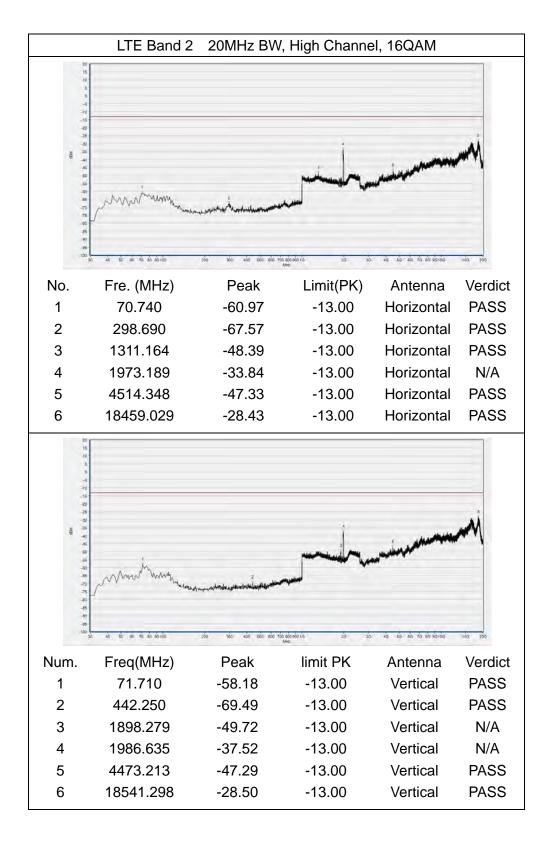




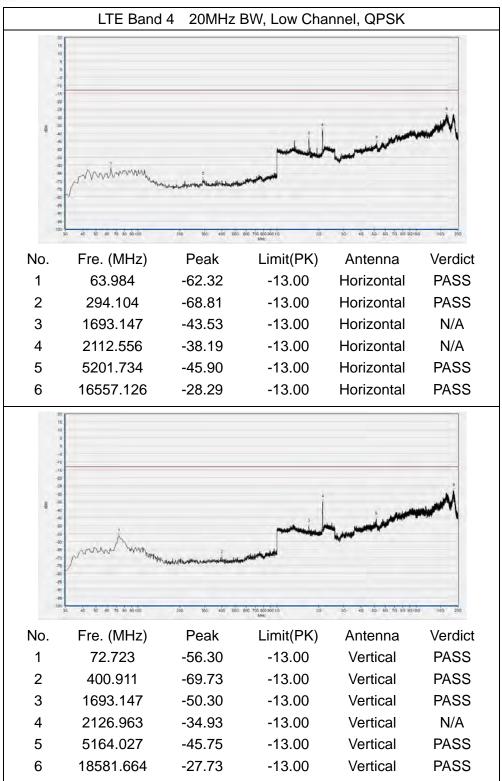






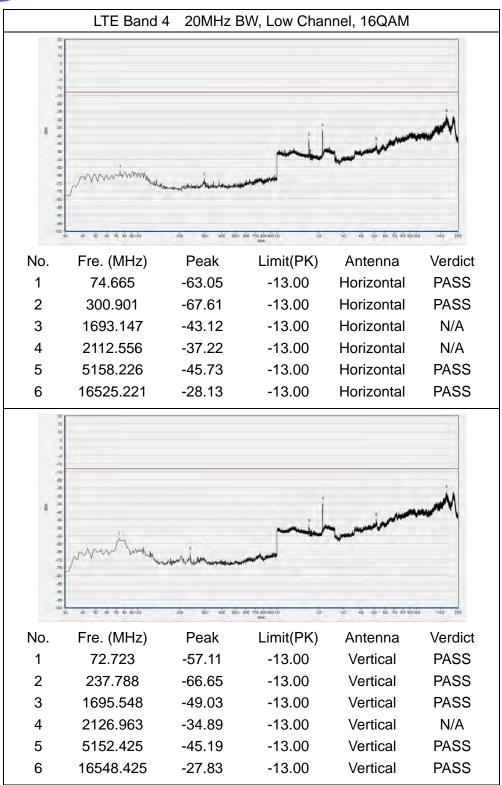






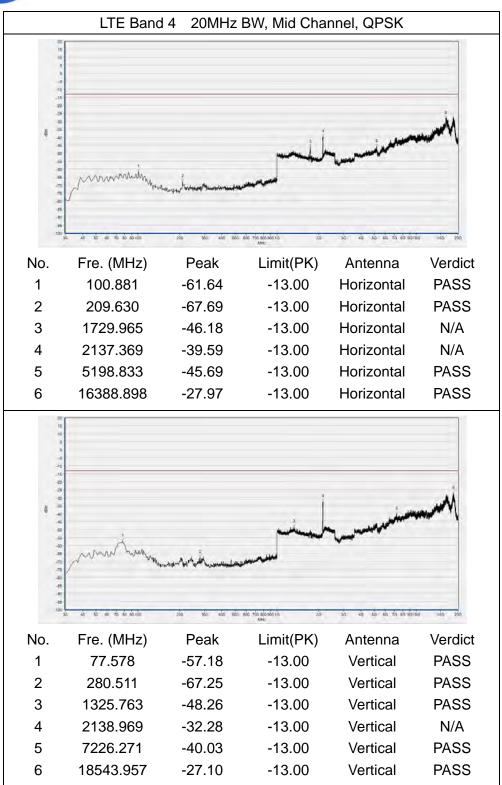




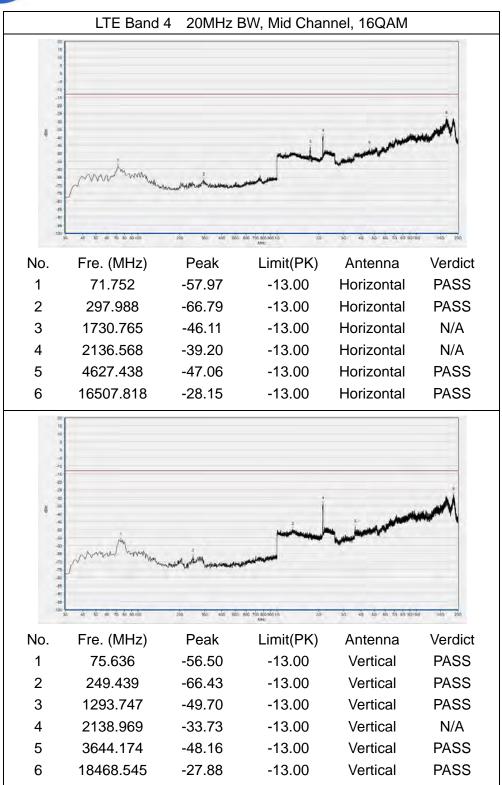




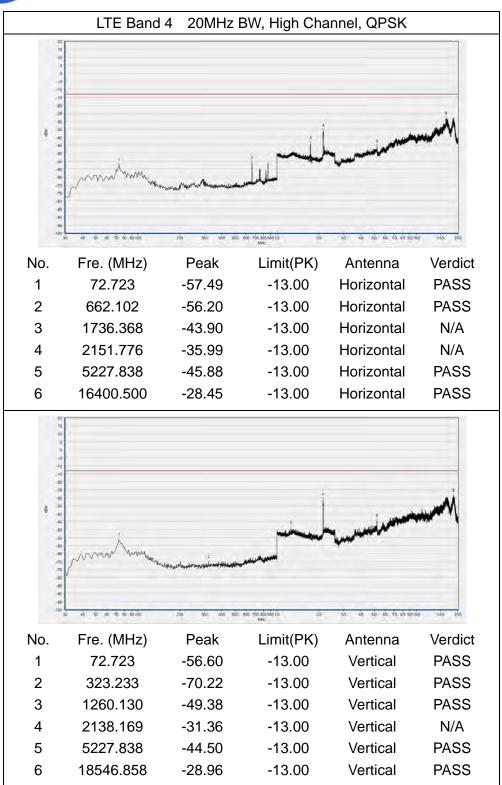




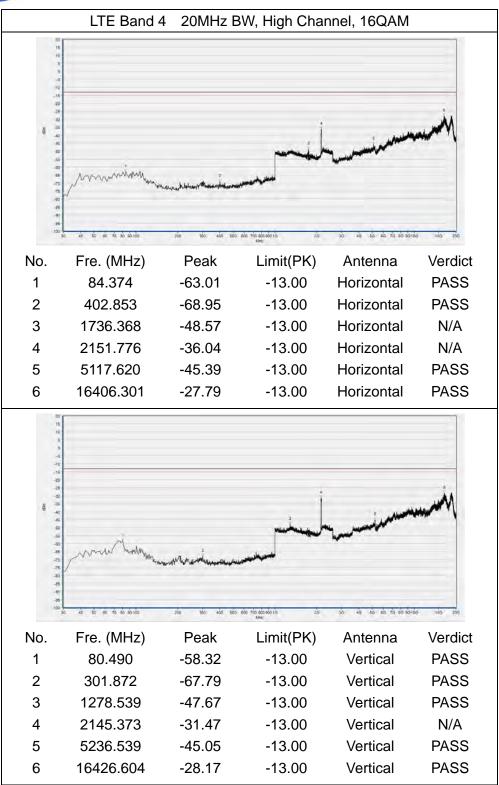






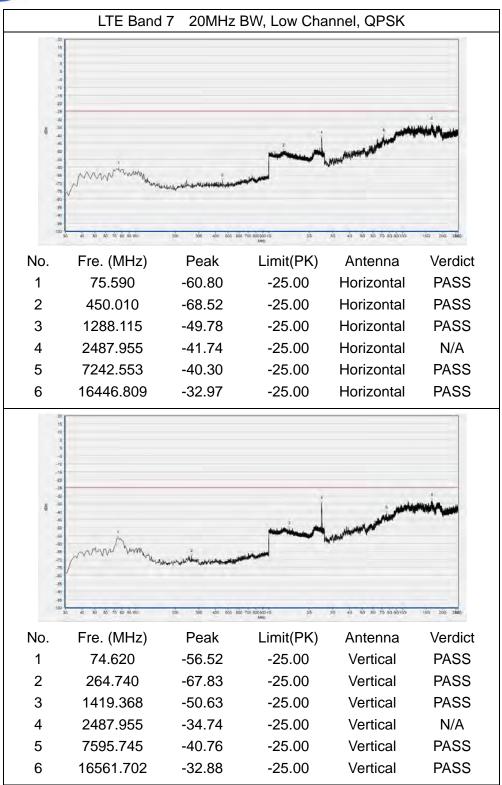




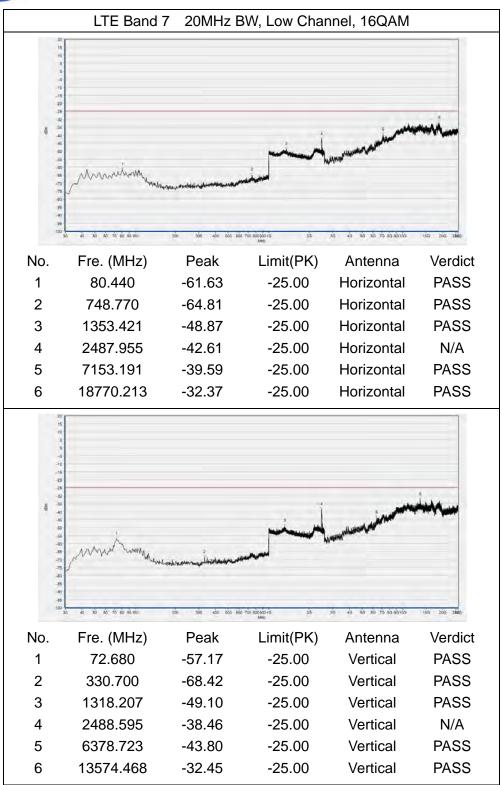




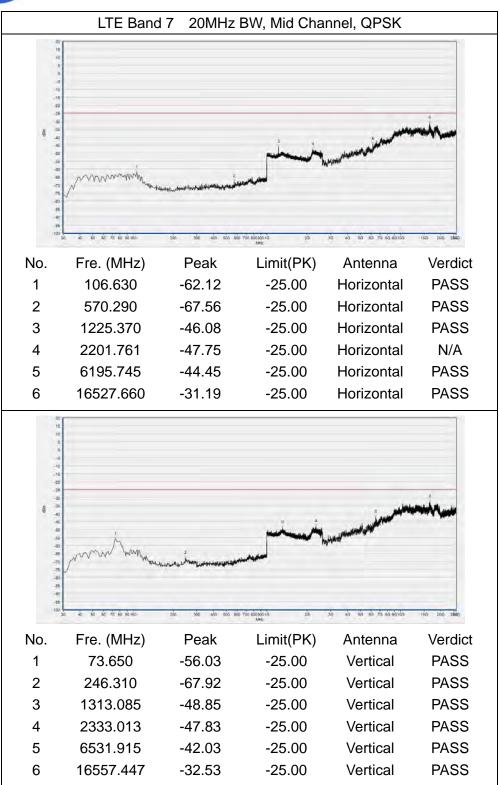




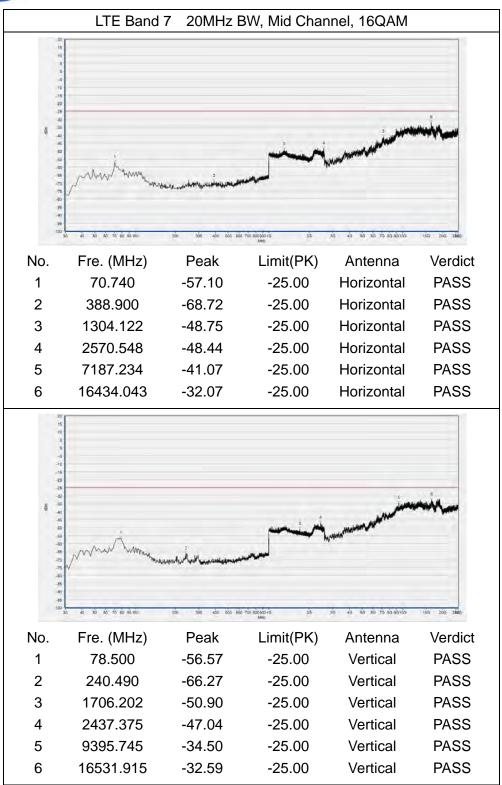




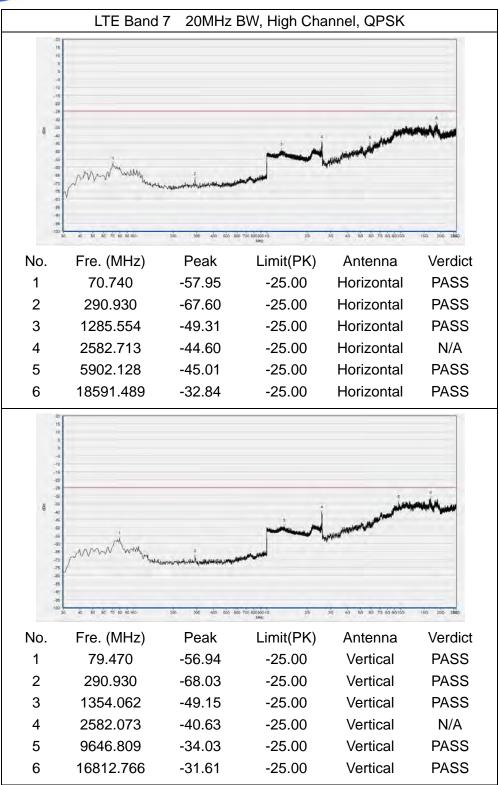






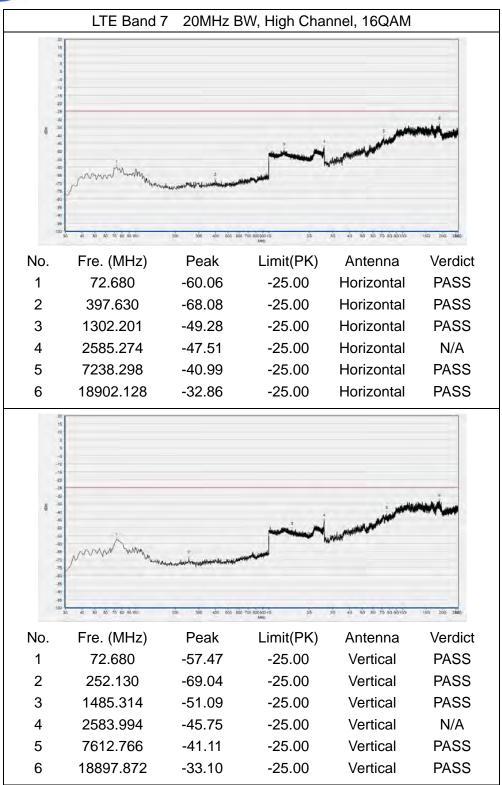




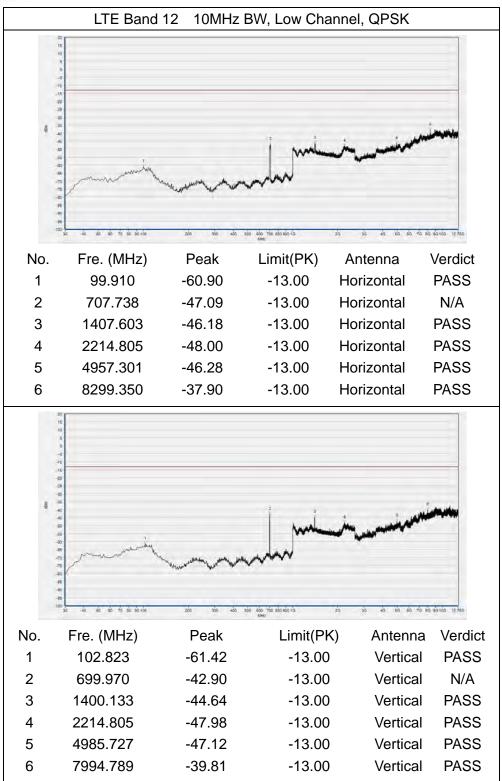






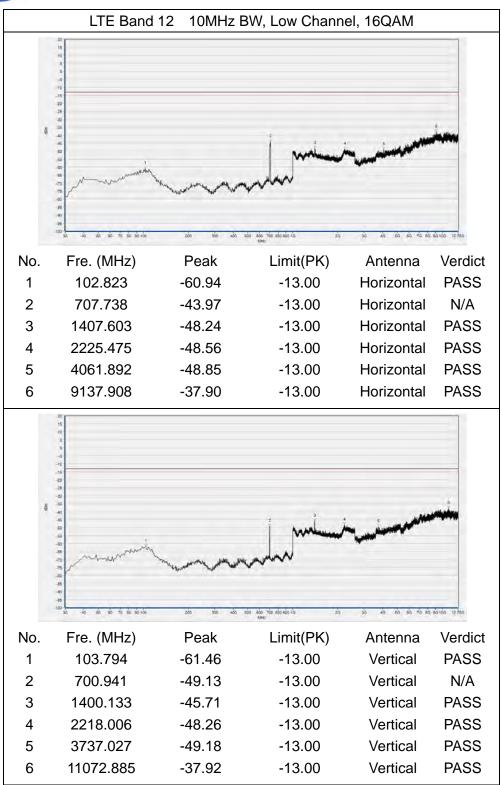




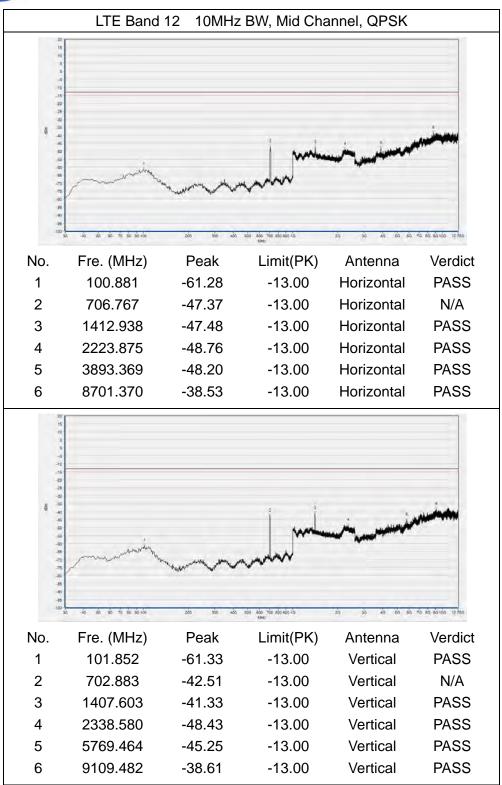






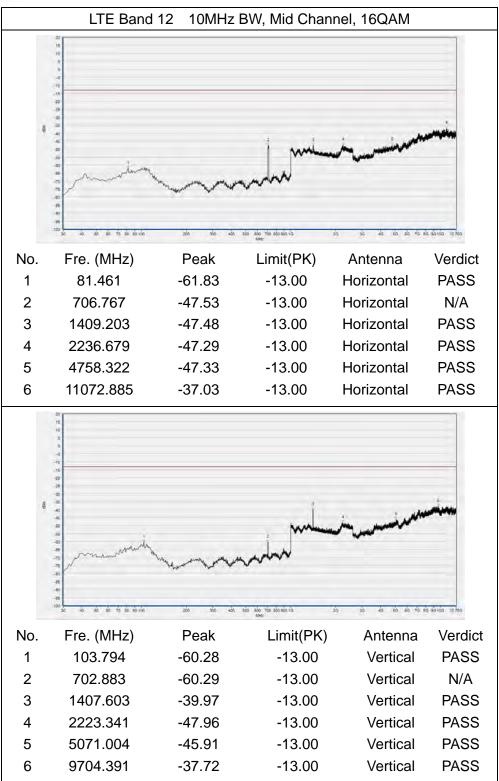






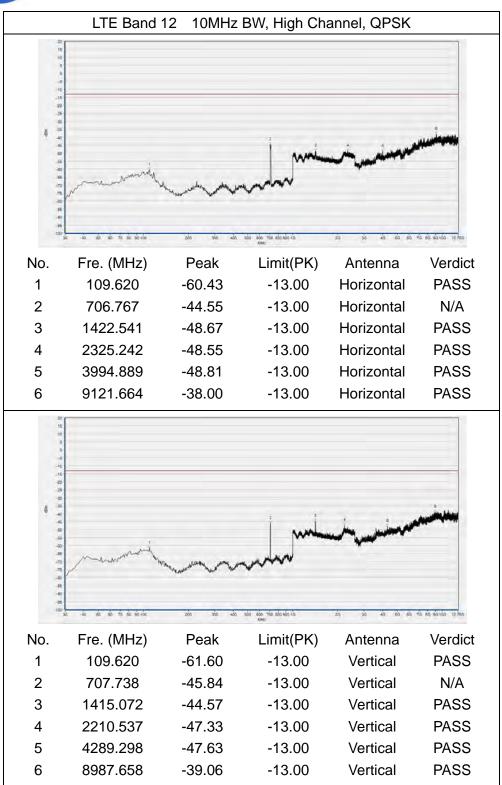




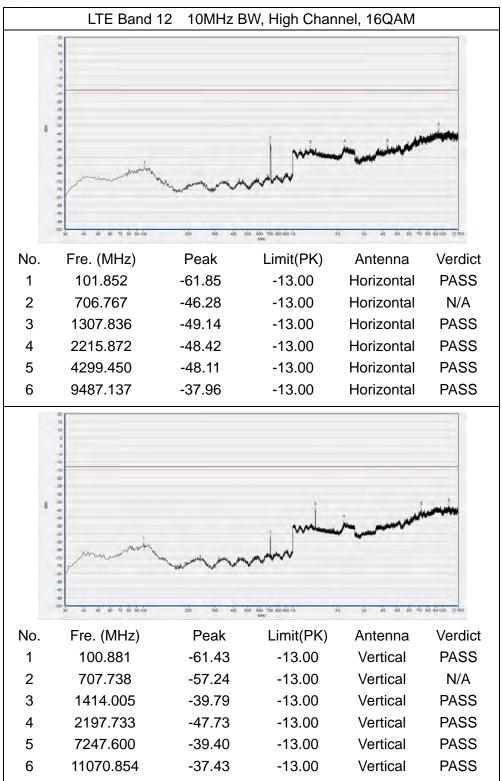






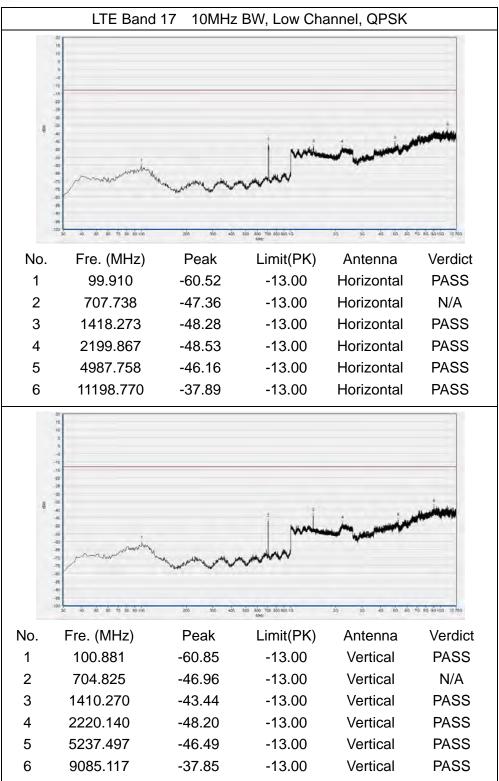






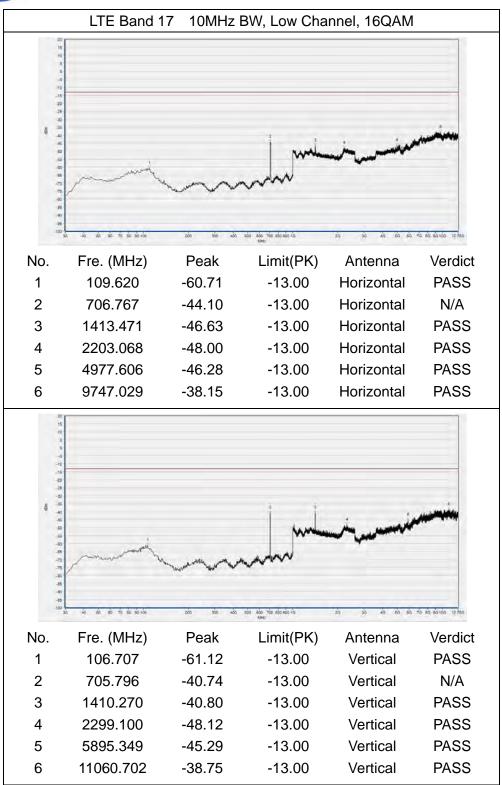




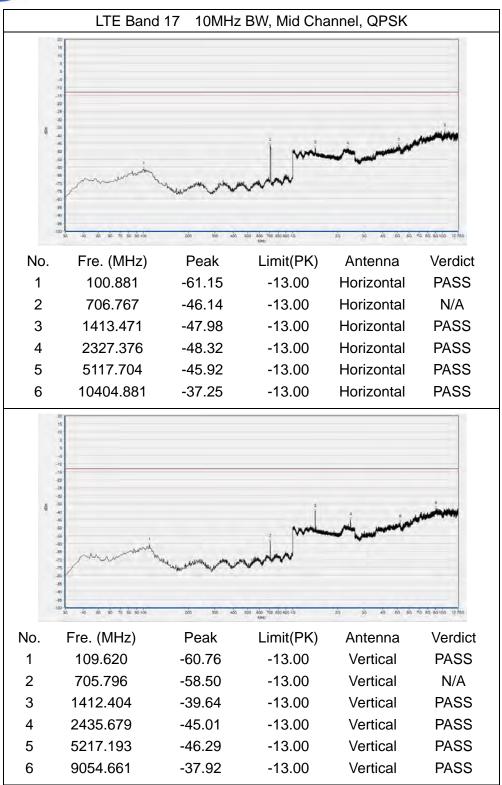






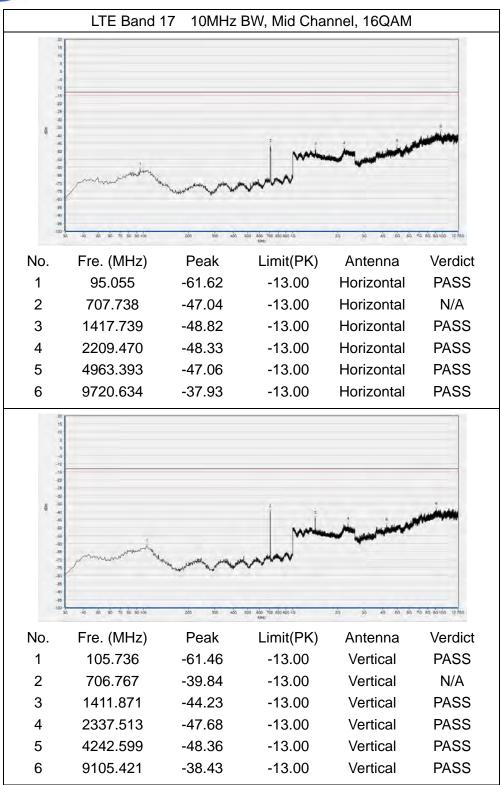




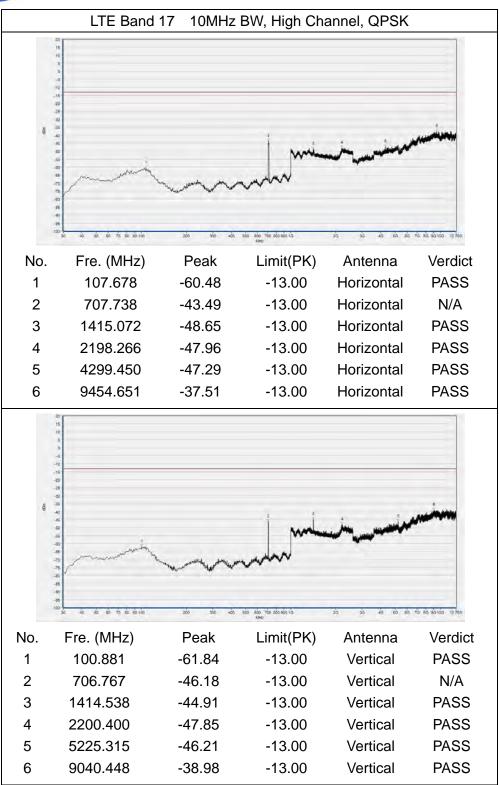






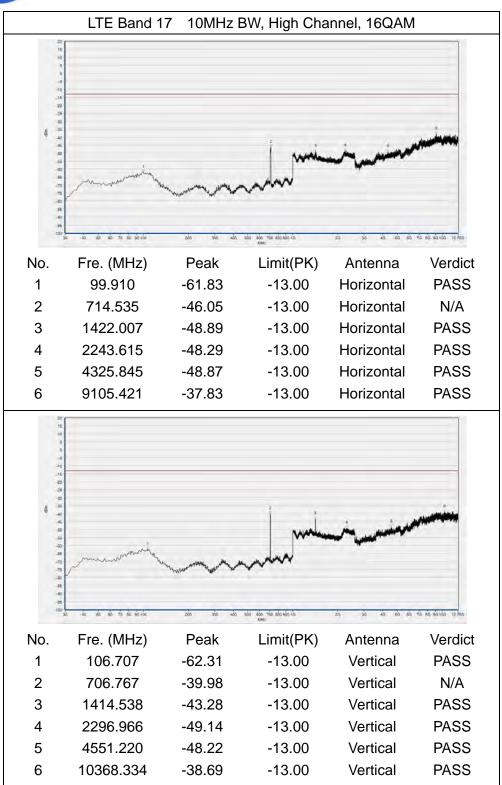














# **Annex A Test Uncertainty**

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

<u> </u>	
Test items	Uncertainty
Output Power	±2.22 dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Band Edge	±2.77 dB
Equivalent Isotropic Radiated Power	±2.22 dB
Radiated Spurious Emissions	±6 dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2





## **Annex B Testing Laboratory Information**

### 1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.			
Department:	Morlab Laboratory			
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong			
	Province, P. R. China			
Responsible Test Lab Manager:	Mr. Su Feng			
Telephone:	+86 755 36698555			
Facsimile:	+86 755 36698525			

### 2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.		
Name.	Morlab Laboratory		
	FL.3, Building A, FeiYang Science Park, No.8 LongChang		
Address:	Road, Block 67, BaoAn District, ShenZhen, GuangDong		
	Province, P. R. China		

#### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI/TIA-603-E-2016 and CISPR Publication 22; the FCC designation number is CN1192.





## 4. Test Equipments Utilized

## **4.1 Conducted Test Equipments**

<b>Equipment Name</b>	Serial No.	Туре	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2018.04.17	2018.04.16
Attenuator 1	(N/A.)	10dB	Resnet	2018.04.17	2018.04.16
Attenuator 2	(N/A.)	3dB	Resnet	2018.04.17	2018.04.16
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2017.12.03	2018.12.02
USB Power Sensor	MY54210011	U2021XA	Agilent	2018.04.17	2018.04.16
System Simulator	152038	CMW500	R&S	2018.04.17	2018.04.16
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	(N/A)	HUT705P	CHONGQING HANBA EXPERIMENTAL EQUIPMENT CO.,LTD	2018.04.17	2018.04.16

## **4.2Auxiliary Test Equipment**

<b>Equipment Name</b>	Model No.	Brand Name	Manufacturer	Cal.Date	Cal. Due
Computer	T430i	Think Pad	Lenovo	N/A	N/A



## 4.3 Radiated Test Equipments

Equipment Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal. Due
System Simulator	152038	CMW500	R&S	2018.05.08	2019.05.07
Receiver	MY54130016	N9038A	Agilent	2018.05.08	2019.05.07
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2018.05.08	2019.05.07
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2017.09.13	2018.09.12
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2017.09.13	2018.09.12
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2018.05.08	2019.05.07
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2018.05.08	2019.05.07
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

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