



2.7 Transmitter Radiated Power (EIRP/ERP)

2.7.1 Requirement

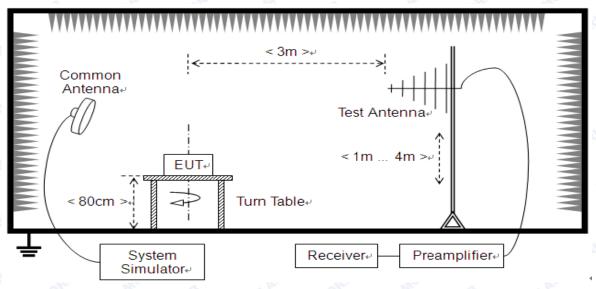
According to FCC section 27.50 (d), fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat EIRP.

According to FCC section 22.913, in 824-849MHz band must not exceed 7Watts, and FCC section 24.232, in1850-1910MHz band are limited to 2 Watts e.i.r.p. peak power.

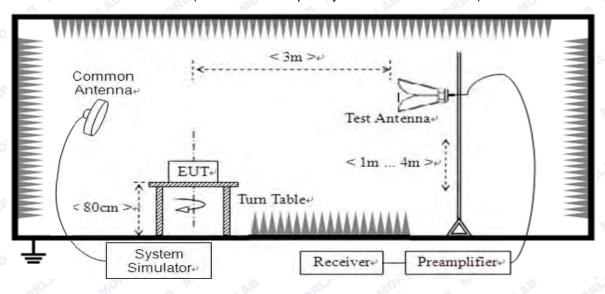
Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts ERP.

2.7.2 Test Description

Test Setup:



(For the test frequency from 30MHz to1GHz)



(For the test frequency above 1GHz)





The EUT, which is powered by the PC, 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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Rohde& Schwarz	CMW500	1201.0002k50/ 124534/wk	2016.03.02	2017.03.01
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2016.03.02	2017.03.01
Spectrum Analyzer	Agilent	E4445A	MY44200685	2016.03.02	2017.03.01
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2016.03.02	2017.03.01
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2016.03.02	2017.03.01
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2016.03.02	2017.03.01

2.7.3 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_{SUBST} = P_{SUBST_TX} - P_{SUBST_RX} - L_{SUBST_CABLES} + G_{SUBST_TX_ANT}

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





Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

G_{SUBST_TX_ANT} is substitution antenna gain.

A_{TOT} 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} .

Dond	Band Band Width	Channal	(_/\	Madulation	RB Cor	figuration	EIRP
Danu	Band width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
4	, AB	-RL	MOR	QPSK	19	0	23.48
alab Jorli	To.	1860	QPSK	100	0	22.36	
	Dir. B. M.	18700	1000	16-QAM	1	0	22.85
	MOE	N N	AB	16-QAM	100	0	21.22
Mo	AB M	QLAB.	"OBT"	QPSK	. 1	0	22.89
LTE	ORLAN	M	1880	Qr SK	100	0	22.41
	20MHz	18900	1880	16-QAM	1	0	22.35
Band 2	"OLITE HO,	W.O.	20	10-QAIVI	100	0	21.88
	e u	XP	ORLIN	QPSK	1	0	23.14
	CEL AL MORI	H	1900	QF 5R	100	0	22.54
	OB .	19100	1900	16-QAM	<u> </u>	0	22.14
NB .	OPLIN	O		10-QAW	100	0	21.58
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Danu	Danu widin			Modulation	RB Size	RB Offset	(dBm)
	9 -01	A	1057.5	QPSK	1.01.0	0	23.21
	Wo.	L		QPSK	75	0	22.89
	AB	18675	1857.5	46.0414	AB 1	0	22.68
	ORL		9 0	16-QAM	75	0	22.47
	2LAB	10RL	Mo.	QPSK	1	0	23.56
LTE	Mora	M	1880	QF 5K	75	0	22.57
	15MHz	18900	1000	16-QAM	1.01.0	0	22.94
Band 2	.6	al Alb	I O-Q/AIVI	75	0	22.14	
	H 19125	ORLA	MOL	QPSK	AB 1	0	22.96
		H	1902.5	QI OIL	75	0 💉	22.21
		19125	1302.3	16-QAM	1	0	22.09
	MO.	S M.	AB	IO-QAIVI	75	0	22.15



Donal	D = == 1 \\/:=14 =	Channel	Frog (MHz)	Madulatian	RB Con	figuration	EIRP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	TLAE TOPLAE	. 6	LAB	QPSK	10	0	22.58
I We		CEI L	1855	QFSK	5 0	0	22.57
Alb		18650	1000	16-QAM	1 👭	0	22.47
. 6		ORL	ORL MOR	10-QAIVI	50	0	22.19
RLA		М	1880	QPSK	10 ^R 1	0	22.87
LTE	9 0				50	0	22.68
ORL	10MHz	18900			10	0	22.58
Band 2	AB	-QLA	MORE		50	0	22.69
Alb	ORL	Vo.	9 0	QPSK	1 1	0	22.96
.6	E WE ALAE	Hal	1905	QF3K	50	0	22.58
RLAD	19150	1905	16-QAM	10 ^R 1	0	22.69	
MO	E III	A.V	ORL	10-QAIVI	50	0	22.28

Band	Davad Width	Channal	(NALL=)	Madulation	RB Cor	figuration	EIRP
Danu	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
AB	ORLA	MOL	e lu	QPSK	AR 1	0	23.44
NORTH	MIC	₿ L	1852.5	QFSK	25	0	22.54
21	AD TORI	18625	1032.3	16-QAM	10 P.L.	0	23.31
MOL	S In	AE	QRL. I	10-QAIVI	25	0	22.36
oB. TE	-RLA	OR	MIC	QPSK	1	0	23.14
LTE	0.	М	1880	QFSR	25	0	22.58
LAB	5MHz	18900	1000	16-QAM	1	0	22.47
Band 2	MIC		alar	10-QAIVI	25	0	22.36
21	ID TOPL	4	, A	QPSK	10,000	0	23.69
MOL	S In	HB	1907.5	QFSR	25	. 0	22.57
A.B	RLA	19175	1907.5	16-QAM	1	0	23.14
· N					25	0	22.48
Donal	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Band	Band width			Modulation	RB Size	RB Offset	(dBm)
ORL	MOL	0 0	AB	QPSK	1	0	22.58
M	OB.	RILE	1851.5	QIOI	15	0	22.36
Ab	ORL	18615	1031.3	16-QAM	1 11	0	23.14
0 11	AB	RLI	Mole	10-QAIVI	15	0	22.48
ARLA T	MORE	MIC	N.B	QPSK	OR 1	0	23.51
LTE	6	M	1880	QFSK	15	0	22.58
ORL	3MHz	18900	1000	16-QAM	1	0	22.69
Band 2	Band 2	QLA!	MORIE	10-QAIVI	15	0	21.96
Ab	ORL	0.	8 1	QPSK	1 11	0	22.88
0 1/1		H	1908.5	QF SN	15	0	22.15
RLAN		19185	1900.5	16-QAM	OR 1	0	22.19
No.	6		ORL	10-QAM	15	0	20.33



Donal	D = == 1 \\/:=14 =	Channel	From (MALLE)	Madulatian	RB Cor	figuration	EIRP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	MOL	. 6	LAB	QPSK	10	0	22.39
M	18607	PIL	1850.7	QFSK	∞ 6	0	22.48
Ale		18607	1650.7	16-QAM	1 👭	0	22.36
. 6		ORL	MOL	10-QAIVI	6	0	22.45
RLA		M	1880	1880 QPSK -	1 1	0	23.55
LTE	9 0	Alb			6	0	31.69
ORL	1.4MHz	18900			1	0	22.18
Band 2	AB	-RIA	MORE		6	0	21.33
All	ORL	No.	9 0	QPSK	1 👭	0	22.18
.0	B N. S. A.B	Hel	1909.3	QF3K	6	0	21.99
RLAL	19193	1909.3	16-QAM	10 ^{FE} 1	0	22.36	
MO	E III		ORL	10-QAIVI	6	0	21.66

Б	5 1145 61		[[] [] [] [] [] [] [] [] [] [RB Cor	figuration	EIRP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
AB	ORLA	Mor	Q UII	QPSK	R11	0	23.99
MORT	MIC	B L	1720.0	QFSK	100	0	22.58
21	RLAD MORL	20050	1720.0	16-QAM	10 P.L.	0	22.96
MOL	HOP IN	AB	QRL.III	10-QAIVI	100	0	21.69
AB . TE	RLAN	OF	HILL	QPSK	1	0	23.66
LTE		M	1732.5	QFSK	100	0	22.69
LAB	20MHz	^{1z} 20175	1732.3	16-QAM	1	0	22.85
Band 4	MIC		QLA!	10-QAIVI	100	0 🔊	21.92
21	IP TORI	4	0,	QPSK	10	0	22.68
MOL	S PIL	HB	1745.0	QFSK	100	0	22.66
A.B	RLAN	20300	1745.0	16-QAM	1	0	23.09
N.	,	المام	. OP)	10-QAW	100	0	21.53
Donal	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Band	Band width				RB Size	RB Offset	(dBm)
QRL!	MOL	2 4	, AB	QPSK	10	0	23.88
Mo	- B	al PB	1717.5	QPSK	9 75	0	23.04
	ORL	20025	1717.5	16-QAM	1 1	0	22.96
0 1/1	, AB	QRL.	MOL	16-QAIVI	75	0	22.53
ARLA.	MORL	MIC	60	QPSK	OR 1	0	23.68
LTE	6	M	1732.5	QF SK	75	0	22.66
	15MHz	20175	1732.3	16-QAM	1	0	23.74
Band 4	AB	QLA!	MORIE	10-QAM	75	0	21.99
Ab	ORL	0.	8	QPSK	1 11	0	22.79
A NIC AB	H	1747.5	QFSN	75	0	23.34	
RLAL	QLAE MORLE	20325	1747.5	16-QAM	OP**1	0	23.38
No.	0	No.	ORL	10-QAM	75	0	22.63



Donal	Donal Wielth	Channal	From (MIII-)	Madulatian	RB Cor	figuration	EIRP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	MOL	. 6	LAB	QPSK	10	0	23.89
- Mar	20000	PIL	1715.0	QFSK	5 0	0	23.52
LA D		17 15.0	16-QAM	1 📢	0 💉	22.77	
.6		Mole	10-QAW	50	0	22.17	
QRLA.		A.B.	AB .	1732.5 QPSK -	1 1	0	22.68
LTE	9 0	M	M 20175 1732.5		50	0 .04	22.69
ORL	10MHz	20175			1	0	22.98
Band 4	AB	-RLA	MORE		5 0	0	22.09
Ab	ORL	Vo.	9 0	QPSK	1 👭	0 💉	23.54
TRIAE NO MORIAE	H	1750.0	QF3N	50	0	23.55	
	20350	1730.0	1750.0 16-QAM	10 ^R 1	0	23.24	
Mo	9 1		ORL	10-QAIVI	50	0	22.69

- 40				70,			40
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Danu	Dana Wiatri	Channel	rieq.(IVIDZ)	Modulation	RB Size	RB Offset	(dBm)
LAB	ORLA	Mor	O Mu	QPSK	1	0	23.66
West West	ß L	1712.5	QPSK	25	0	23.51	
		19975	1712.5	16-QAM	10 P.L.	0	24.01
MOL		, AB	QRL.M.	10-QAW	25	0	22.54
,B,		ORE	MIC	QPSK	1	0	23.63
LTE		М	1732.5	QFSK	25	0	22.35
LAB	5MHz	20175	1732.3	16-QAM	1	0	22.58
Band 4		B	QLA!	10-QAW	25	0	21.66
21.8		4	0,	QPSK	10 Pl	0	23.67
Mor		H 20375	1752.5	QFSK	25	0	23.24
B			1752.5	16-QAM	1	0	22.99
4	20,	الم		10-QAW	25	0	22.31
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	EIRP
Danu	Dana Wiatri			Modulation	RB Size	RB Offset	(dBm)
QRL!	Mole	A N	1711.5	QPSK	1	0	23.75
Mo		ALLE B		QPSK	15	0	23.66
N. D.		19965		16-QAM	1 👭	0	22.85
0 10		QRL.	MOL	10-QAW	15	0	22.63
QLA!		Me	OB.	QPSK	OR 1	0	24.08
LTE		M	1732.5	QF SIX	15	0	23.17
ORL	3MHz	20175	1732.3	16-QAM	1	0	23.24
Band 4	QLAI	-NORTH	10-QAIVI	15	0	22.59	
A CO		0.	8 4	QPSK	1 11	0	24.38
A W	HRL	1753.5	QFSN	15	0	23.07	
RLAL		20385	1755.5	16-QAM	OF 1	0	22.58
Vo.	3	N. Co	ORL	10-QAIVI	15	0	23.07



Donal	D = == 1 \\/:=14 =	Channel	From (MUIT)	Madulatian	RB Con	figuration	EIRP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	TLAE TOPLAE	. 6	LAB	QPSK	10	0	24.09
I We		CEI L	1710.7	QFSK	6	0	23.08
Ale		19957	17 10.7	16-QAM	1 👭	0	23.09
.0		ORL	MOL	10-QAW	6	0	22.59
QRLA.		M	1732.5	732.5 QPSK -	1 1	0	23.34
LTE	9 0				6	0	22.86
ORL	1.4MHz	20175			10	0	22.93
Band 4	AB	-QLA	MORE		6	0	21.99
Alb	ORL	Vo.	9 0	QPSK	1 1	0	22.38
.0	A N. AB	Hel	1754.3	QFSK	6	0	22.09
RLAD	20393	1734.3	16-QAM	10 ^R 1	0	22.39	
MO	A III	All Control	ORL	10-QAM	6	0	22.87

Band	Donal Wielth	Channal	(\A)	Madulation	RB Cor	figuration	ERP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
AB	OPLA	Mor	O Mu	QPSK	1	0	22.53
MORE	ME	L 829	QFSK	50	0	22.69	
21.	AD RI	20450	629	16-QAM	10 P.L.	0	22.69
MOL	S M	, AB	ORL M.	10-QAIVI	50	0	22.58
AB. TE	RLAI	ORE	MIC	QPSK	1	0	23.69
LTE		М	836.5	QFSR	50	0	22.99
LAB	10MHz	20525	030.5	16-QAM	1	0	23.35
Band 5	MILL	B	al.Al	10-QAIVI	50	0	22.36
21.5	AD RI	4	, A	QPSK	108	0	23.69
More	e bu	HB	844	QFSK	50	0	23.66
OB	RLA	20600	S JOHN	16-QAM	1	0	22.58
M		- 1		75 25 1110	50	0	22.58
Donal	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	figuration	ERP
Band	bana wiain			iviodulation	RB Size	RB Offset	(dBm)
ORL	Mor	9 41	AB	QPSK	.10	0	22.58
M	AB.	PILE	826.5	16-QAM	25	0	22.38
Ab	ORL	20425	020.5		1 11	0	23.68
0 1/1	AB	aRL.	MOLE	10-QAIVI	25	0	22.58
agl.A.	MORL	ME	60	QPSK	ORL 1	0	23.54
LTE	8 2	M	836.5	QI OIL	25	0	22.58
ORL	5MHz	20525	030.5	16-QAM	1	0	23.14
Band 5	Band 5	QLA!	-110 R.L.	10-QAIVI	25	0	22.58
Ab	ORL. N	0.	8 1	QPSK	1 11	0	23.69
. O N	RLAB NO MORLAB	Hall	846.5	QFOR	25	0	23.58
RLAN		20625	040.5	16-QAM	OR 1	0	22.58
Wo.	6 1		ORL'	10-QAM	25	0	23.58



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Dand	Dand Width	Channal	Frog (MUz)	Madulation	RB Configuration		ERP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	MOL	. 6	LAB	QPSK	10	0	23.66
M	20415	al Land	825.5	QF3K	15	0	22.58
Alb		20415	023.3	16-QAM	1	0 💉	22.87
.0		ORL	Mole	10-QAIVI	15	0	22.89
ORLA"		M	836.5	QPSK	(OFE 1	0	22.68
LTE	9 0				15	0 🔗	22.85
ORL	3MHz	20525			1	0	22.64
Band 5	A.B	-QLA	MOKE		15	0	22.47
All	ORL	VO.	9 0	QPSK	1 👭	0	23.57
TRLAS WORLAS	Hall	847.5	QFSK	15	0	22.54	
	20635	047.5	16-QAM	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	22.89	
Mo	9 1	A.V	ORL	10-QAIVI	15	0	22.74

				20	W.		~\rangle \(\sqrt{0} \).
Band	Donal Wielth	Channal	Гиан (NALIE)	Madulatian	RB Cor	figuration	ERP
Band Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
AB	OPLIA	Mor	e lu	QPSK	A-1	0	23.66
MORE	MIC	, L	824.7	QFSK	6	0 📣	22.54
27	ID RI	20407	024.7	16-QAM	10 ^{RL}	0	22.67
MOL	S M		QRL.A.	16-QAM	6	0	22.85
AB	RLAL		836.5	QPSK 16-QAM	1	0	23.65
LTE	, ~	М			6	0	22.58
AB	1.4MHz	20525	830.5		ari 1	0	22.39
Band 5	MIC	.0	QLA!		6	0 🔊	22.38
21.5	P ORL	4	0.	QPSK	1081	0	22.38
MOL	Ball	H	848.3	QF3K	6	0	22.37
O.B	RLA	20643	040.3	16-QAM	1	0	22.58
W.	, s	الم	.P .oRl	10-QAIVI	6	0	22.37



7	· B		40/2	bur	20	al his	*0k
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Cor	RB Configuration	
					RB Size	RB Offset	(dBm)
LTE Band 17	10MHz	L 23780	709	QPSK	1000	0	24.88
					5 0	0	23.68
				16-QAM	1 🖷	0 💉	24.12
					50	0	23.22
		M 23790	710	QPSK	1 P	0	23.88
					50	0 .60	23.22
				16-QAM	10	0	23.11
					5 0	0	22.58
AD NORLAE	S HORLAS	H 23800	711	QPSK	1 1	0	23.63
					50	0	23.66
				16-QAM	1 1 10 m	0	23.62
					50	0 .0	23.96
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Configuration		ERP
					RB Size	RB Offset	(dBm)
LTE	T L 23755 M 23790 H 23825	11/2	706.5	QPSK	1	0	24.88
					25	0	23.66
				16-QAM	1	0	23.55
					25	0	22.99
		NO.	710	QPSK	1	0	23.66
					25	0	23.85
				16-QAM	1.	0	22.85
Band 17					25	0	22.85
ORL		4	713.5	QPSK	1	0	23.65
TE MORL		H			25	0	22.68
		23825		16-QAM	1	0	23.62
		ORL			25	0	23.65



2.8 Radiated Spurious Emissions

2.8.1 Requirement

According to FCC section 2.1053 and section 27.53(g), 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.

2.8.2 Test Description

See section 2.7.2 of this report.

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 Result

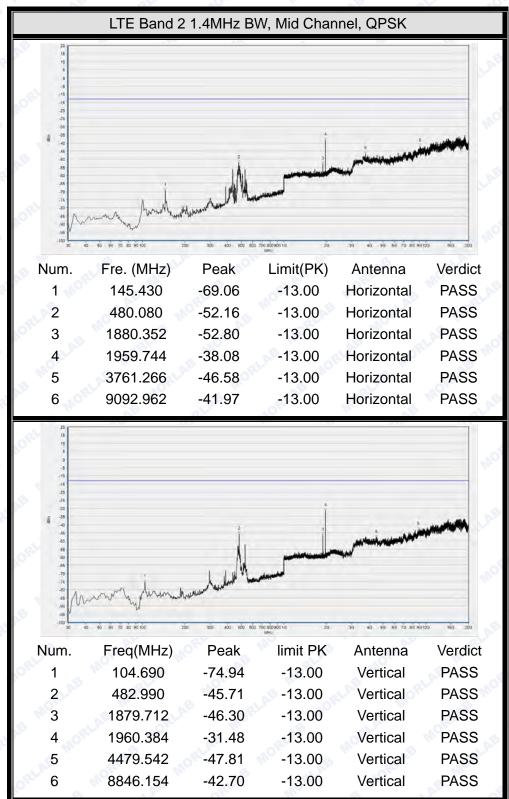
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. Test Antenna height is varied from 1m to 4m above the ground, and the Turn Table is actuated to turn from 0° to 360°, both horizontal and vertical polarizations of the Test Antenna are used to find the maximum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

Test Plots for the Whole Measurement Frequency Range:

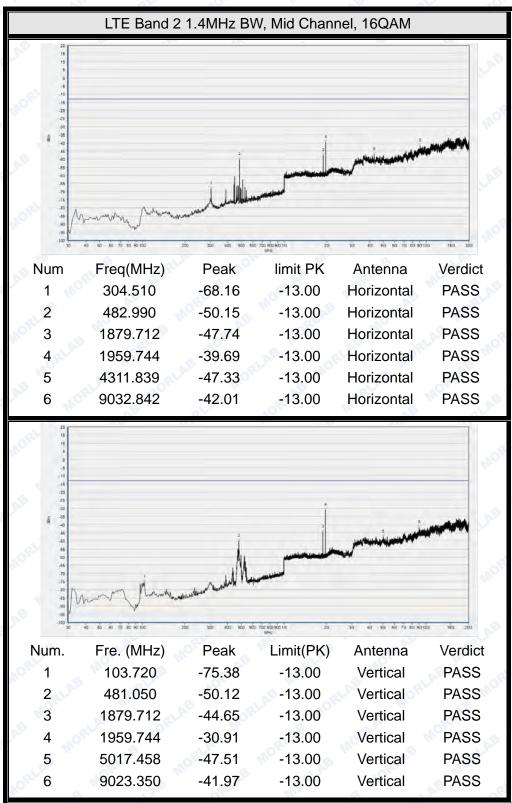
Note1: the power of the EUT transmitting frequency should be ignored.

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.

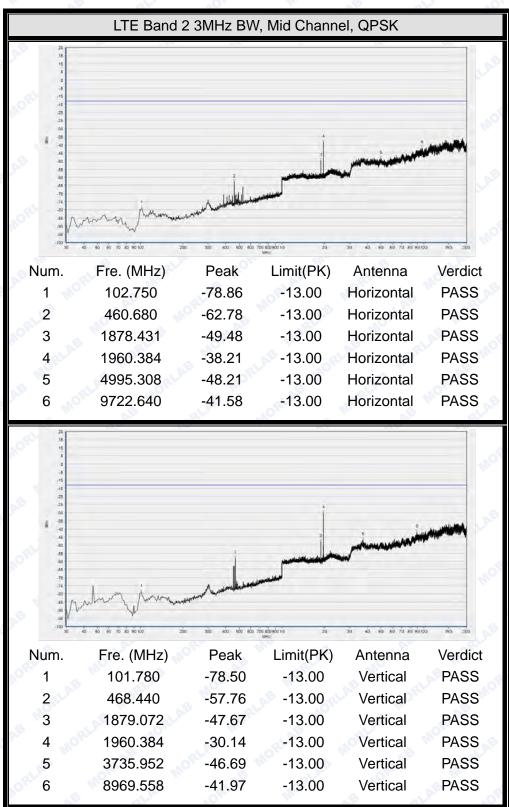




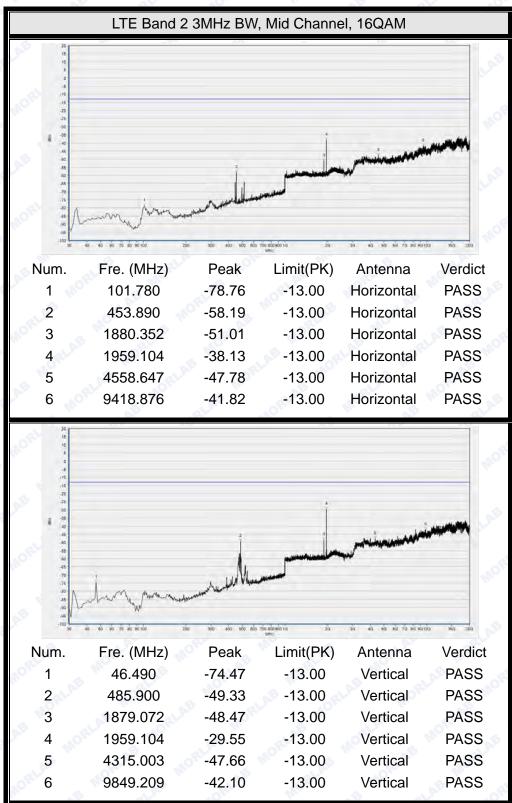




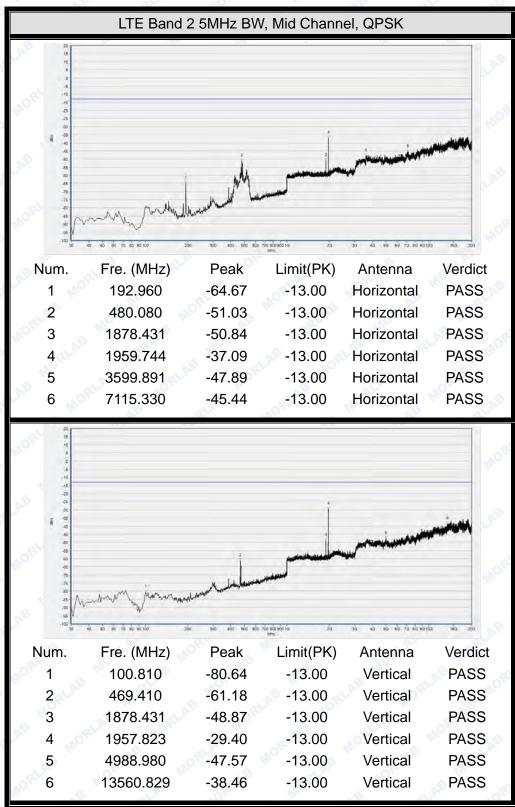




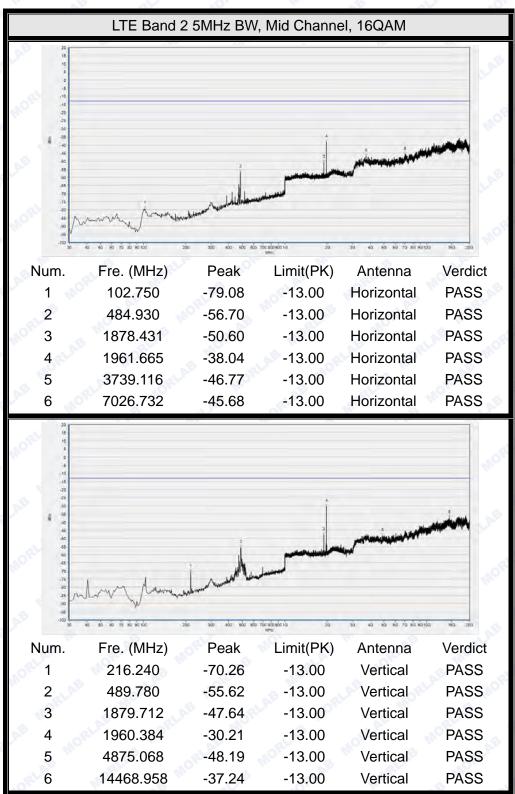




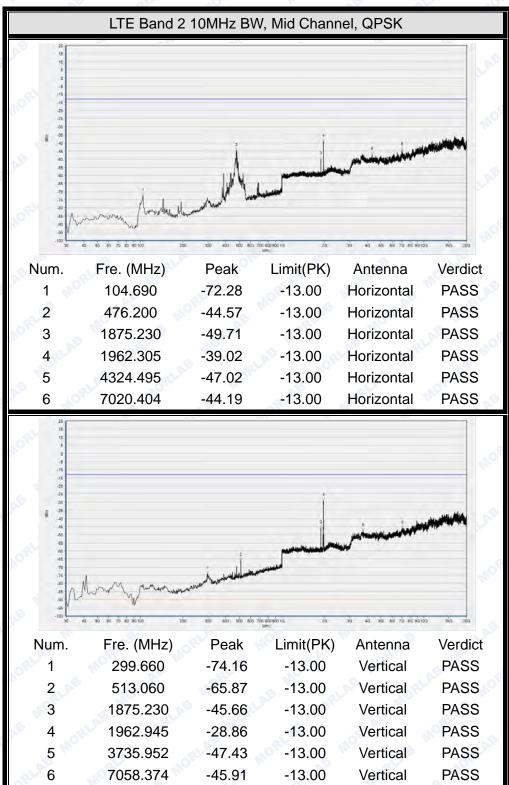




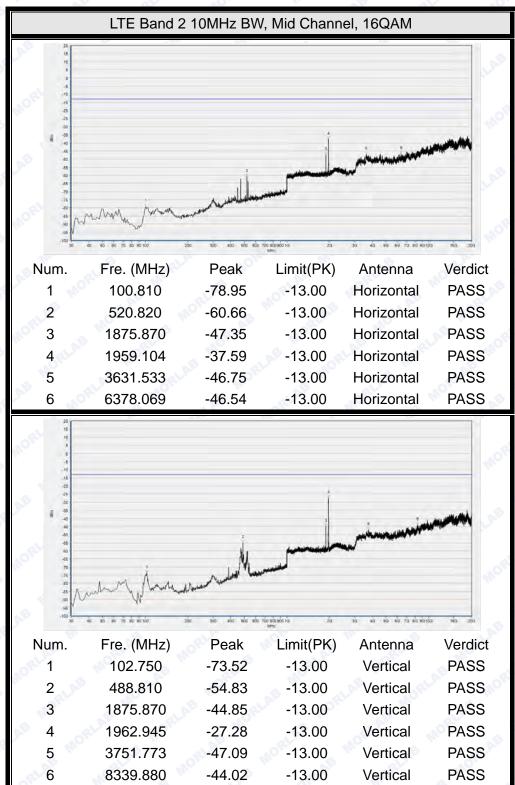




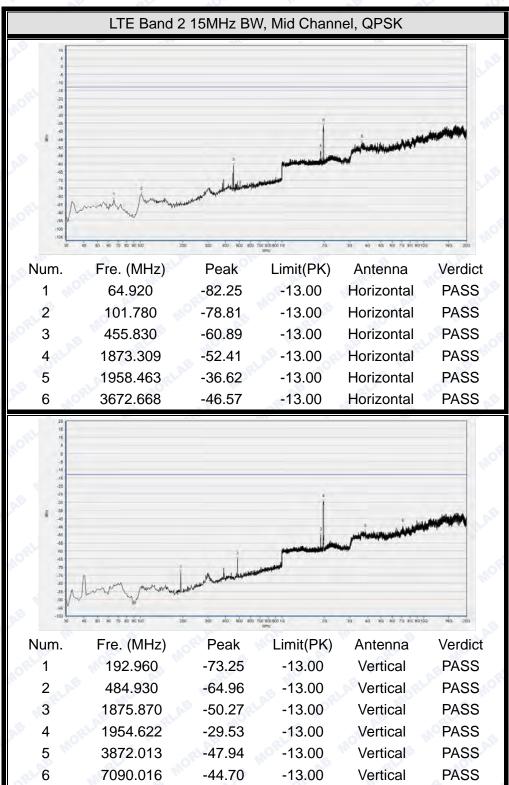




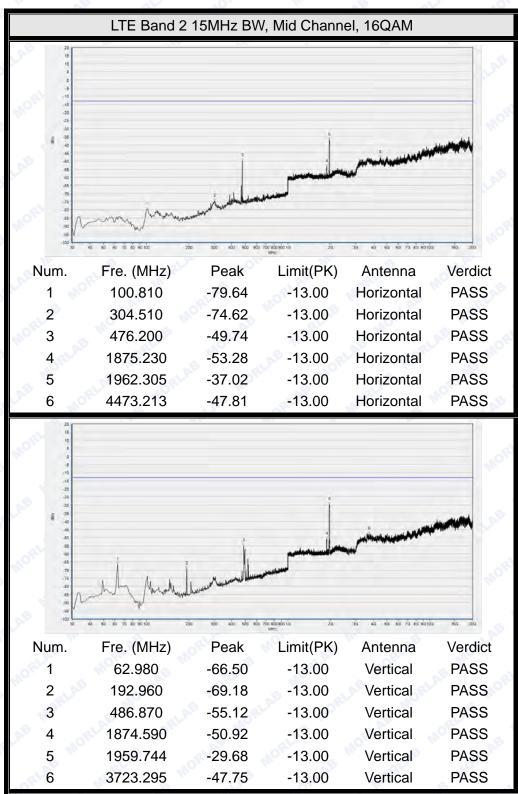




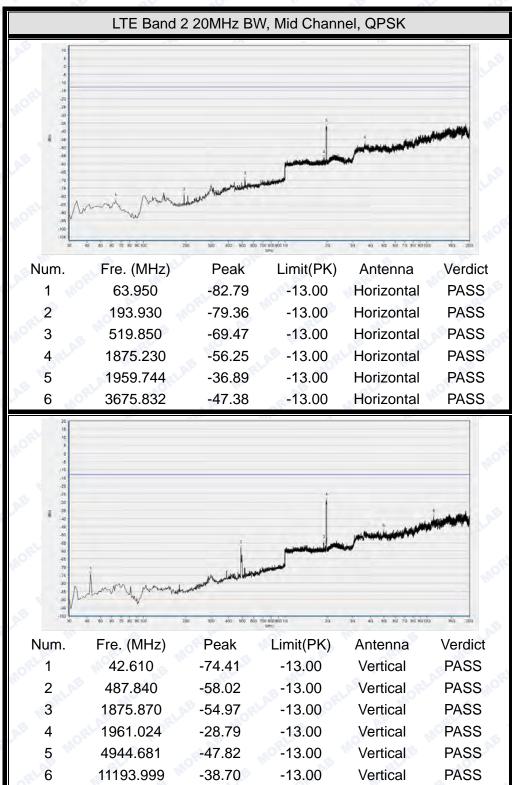




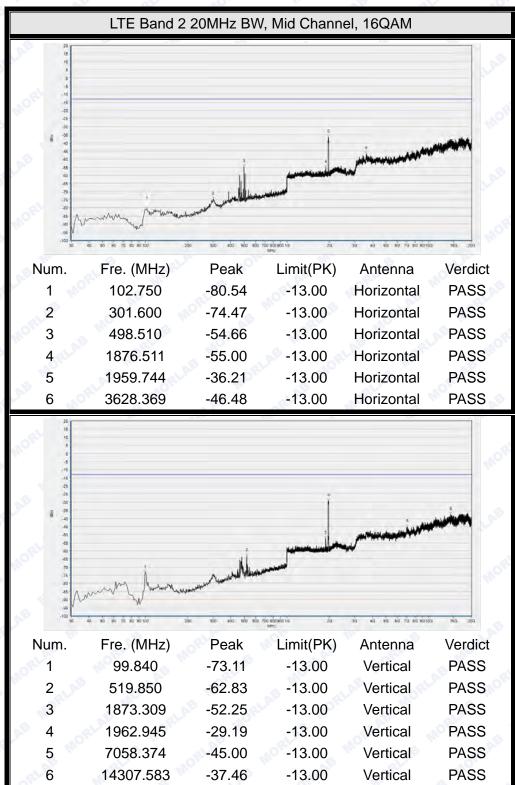




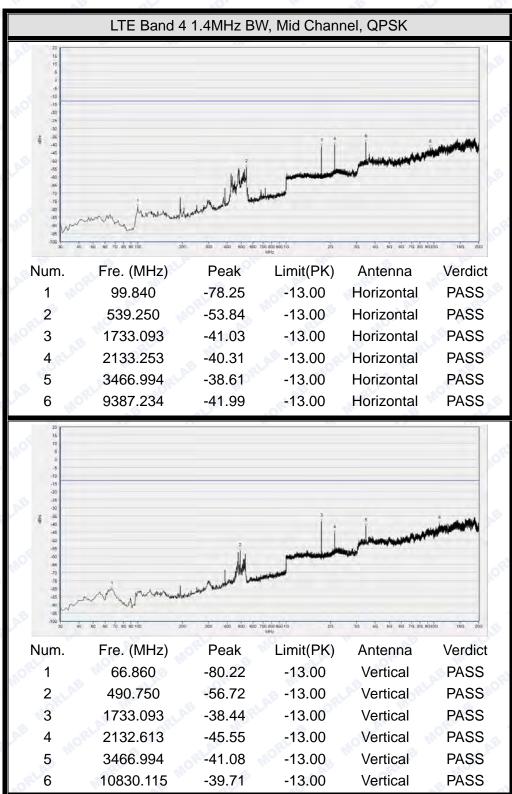




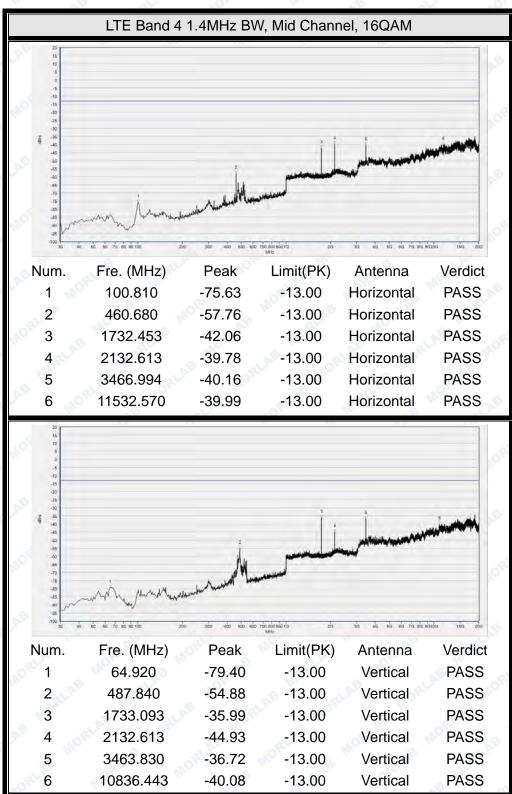




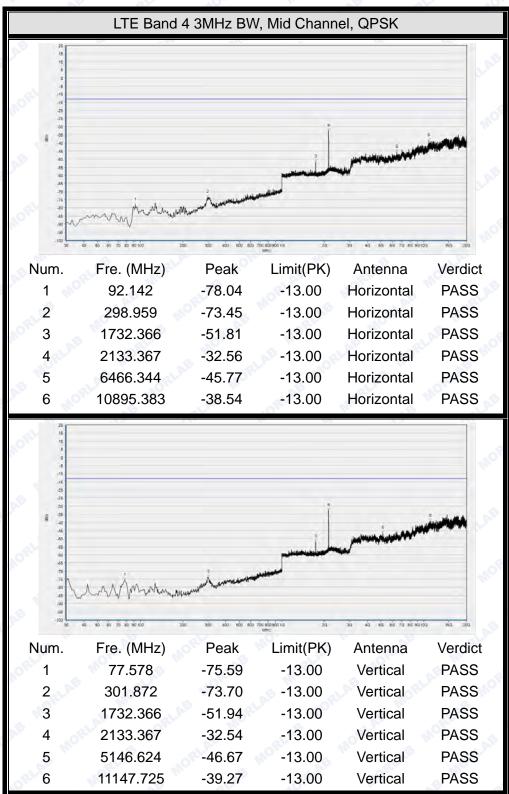




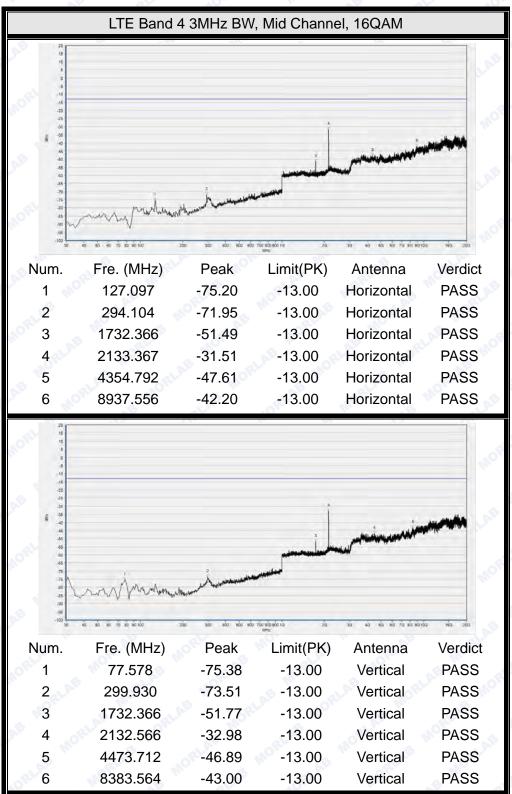




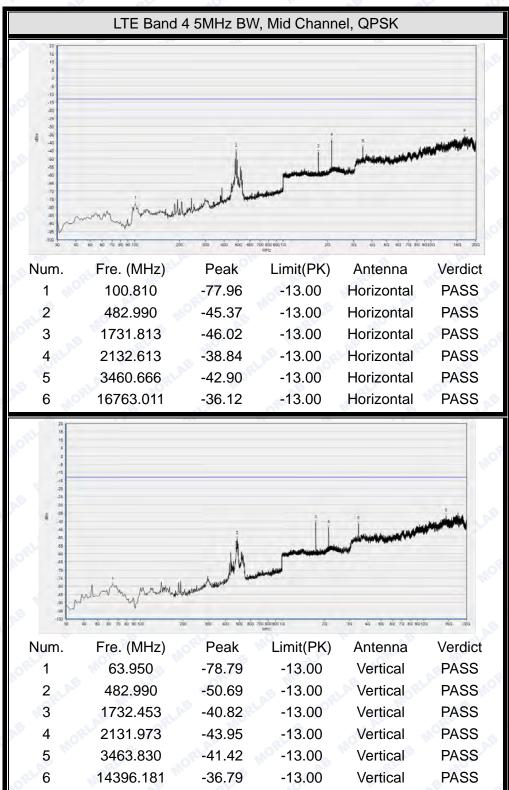




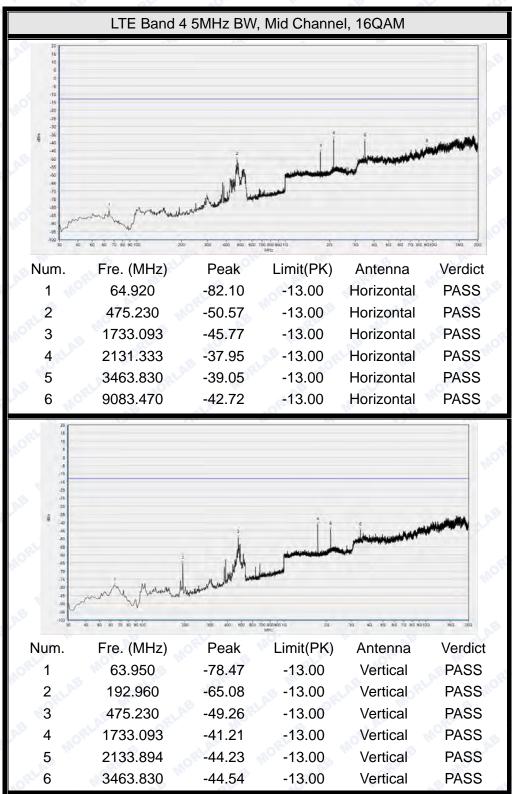




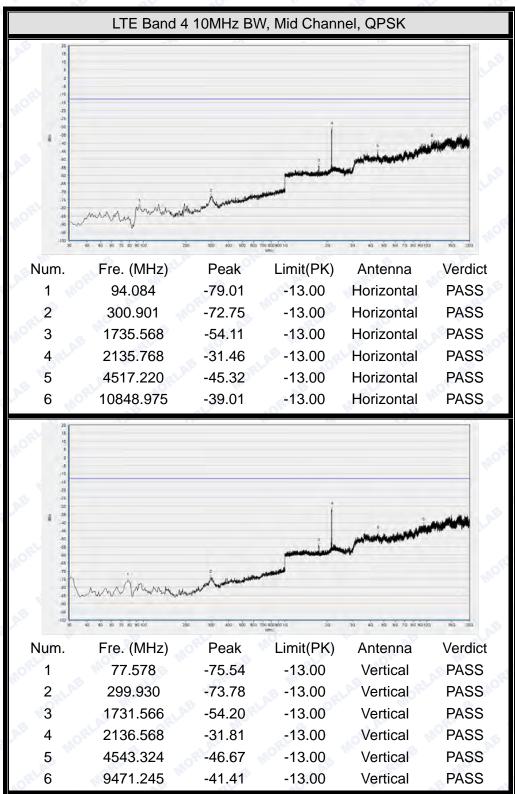




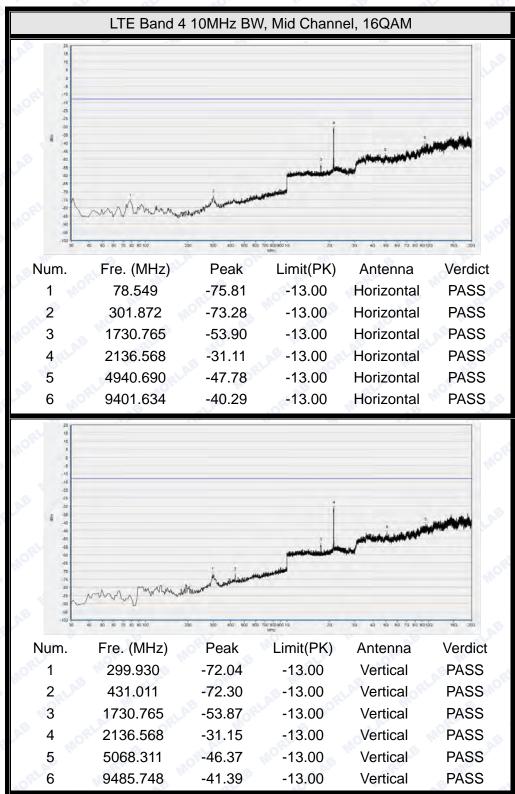




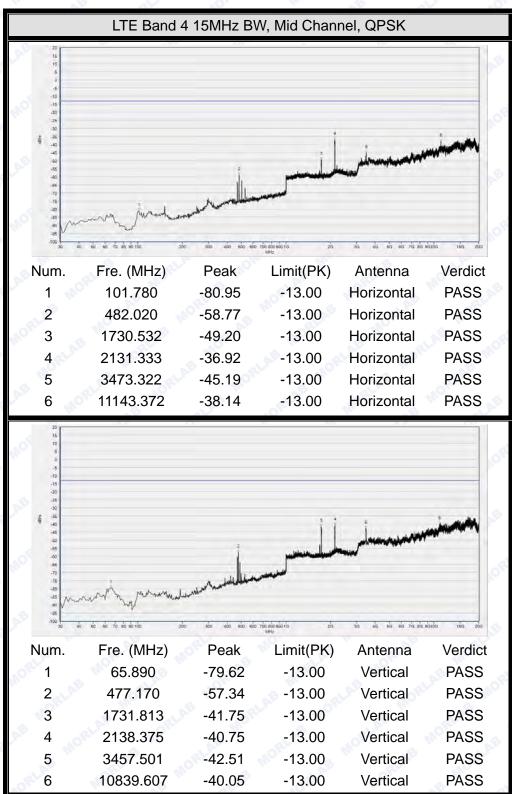




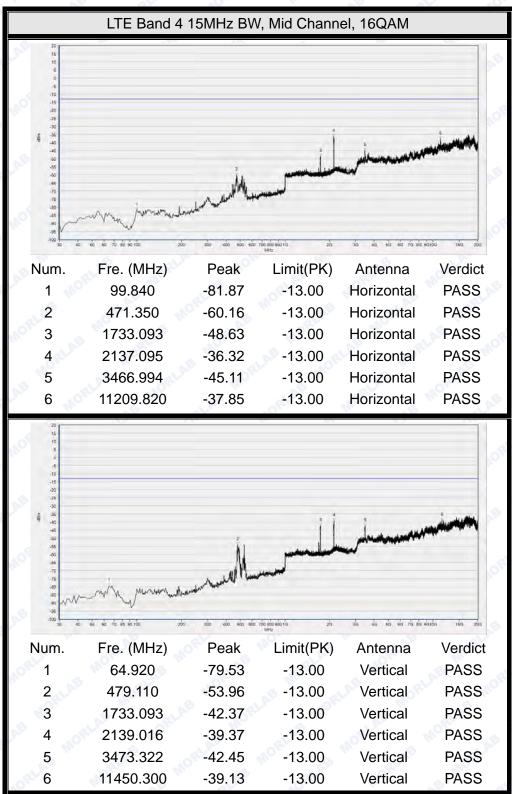




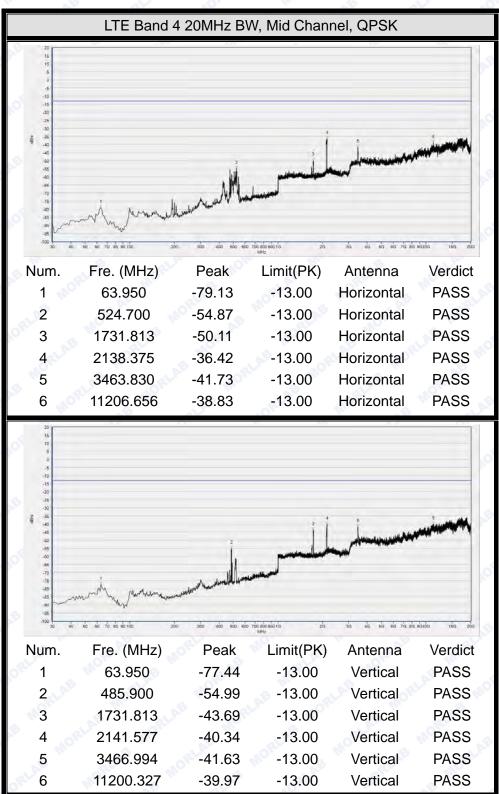




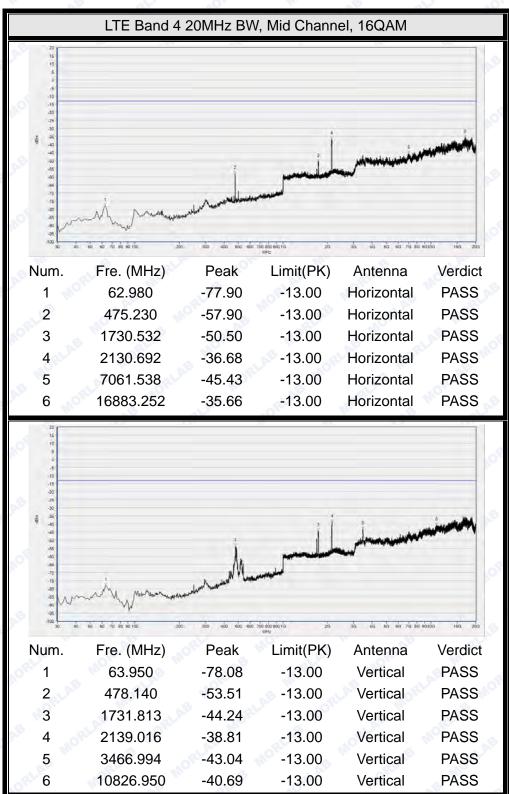




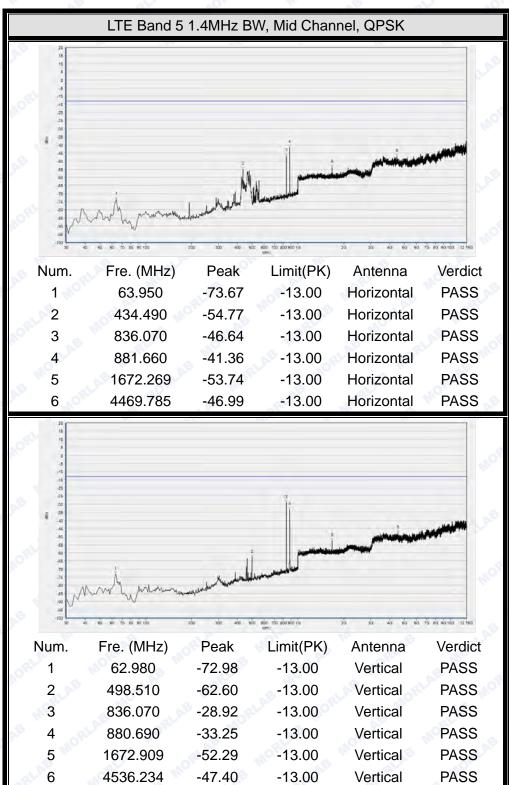




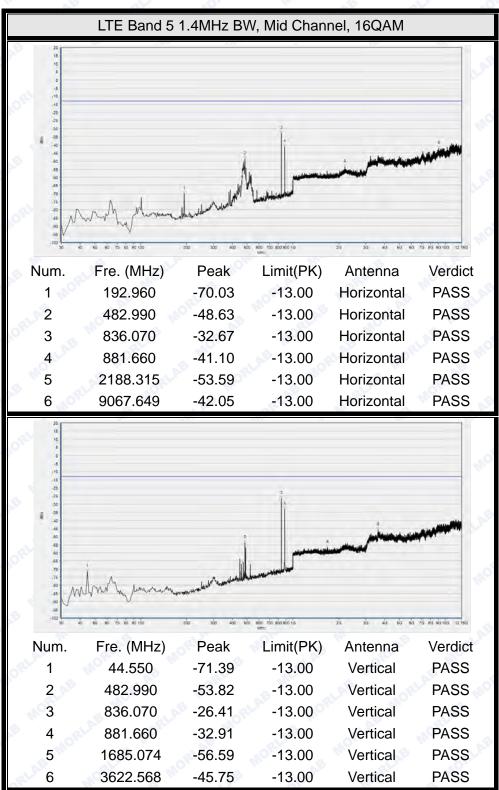




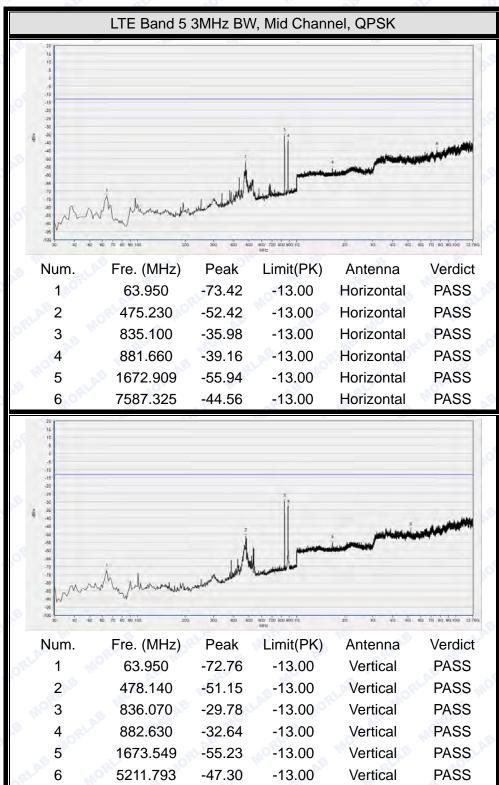




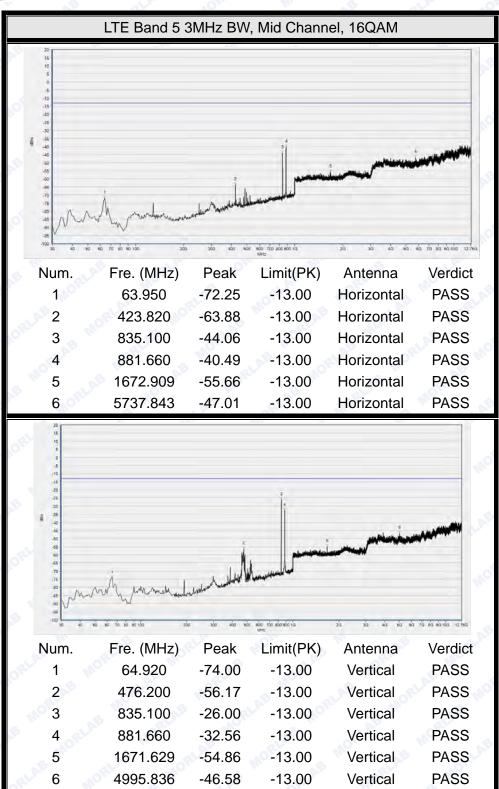




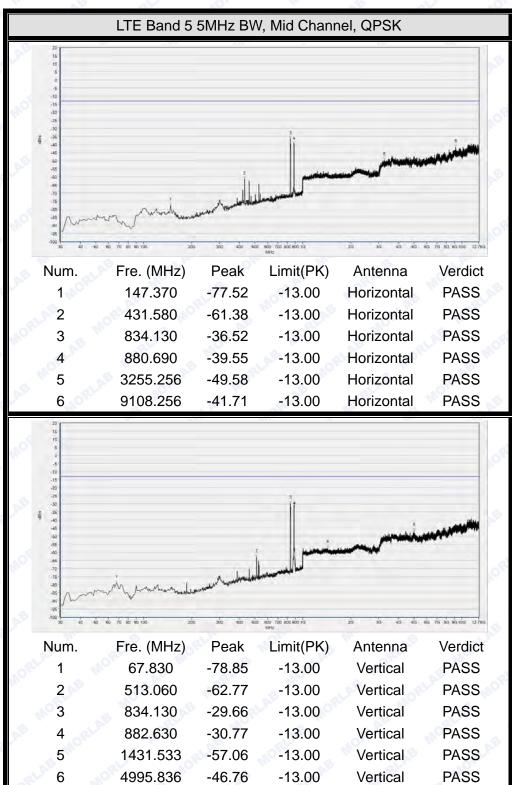




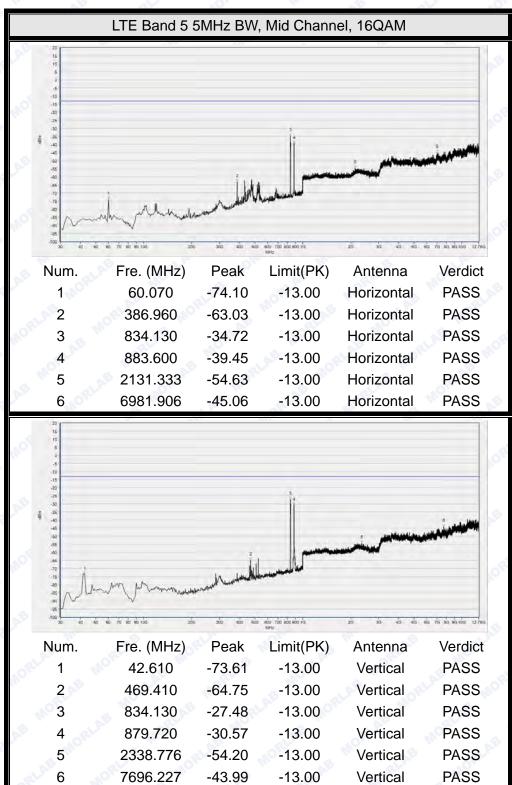




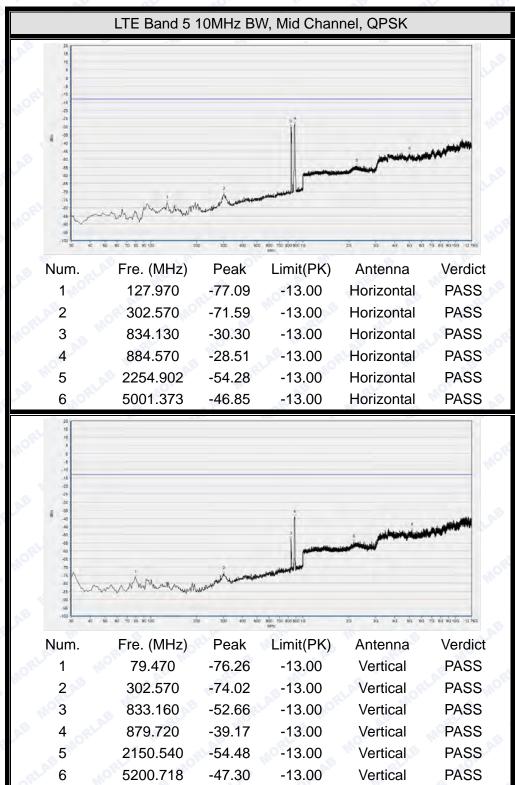




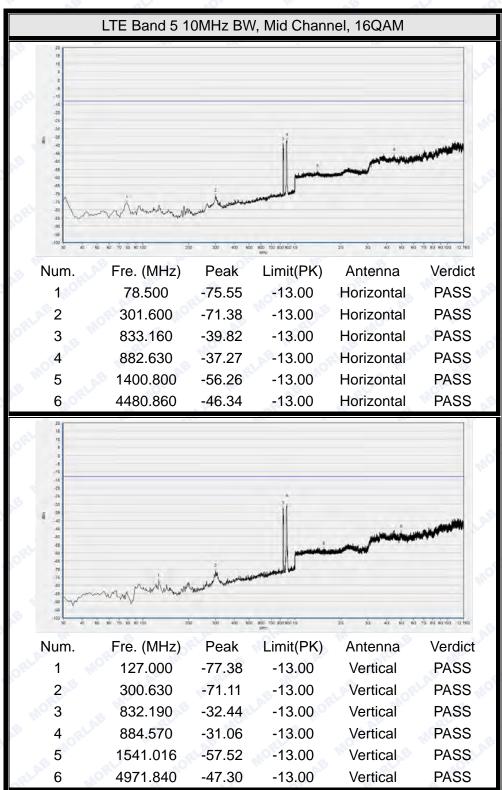




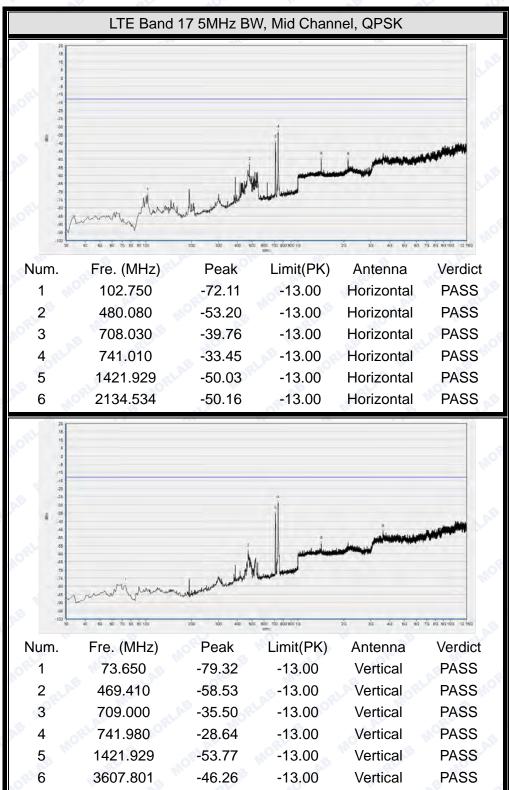




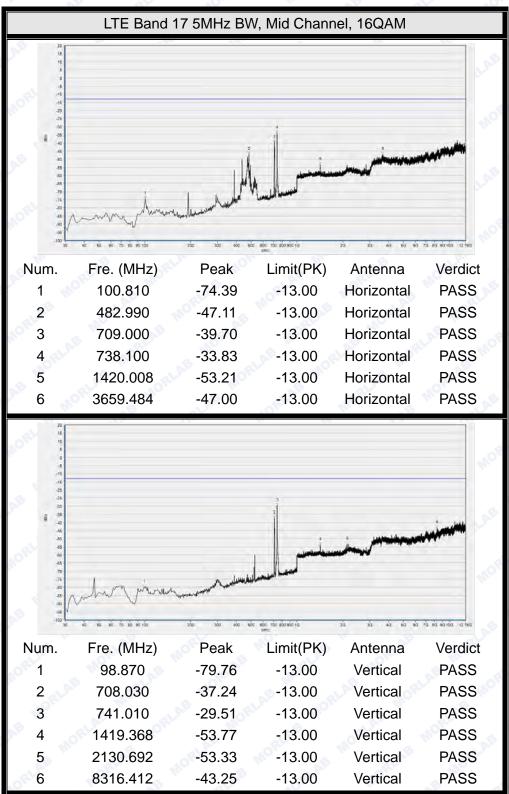




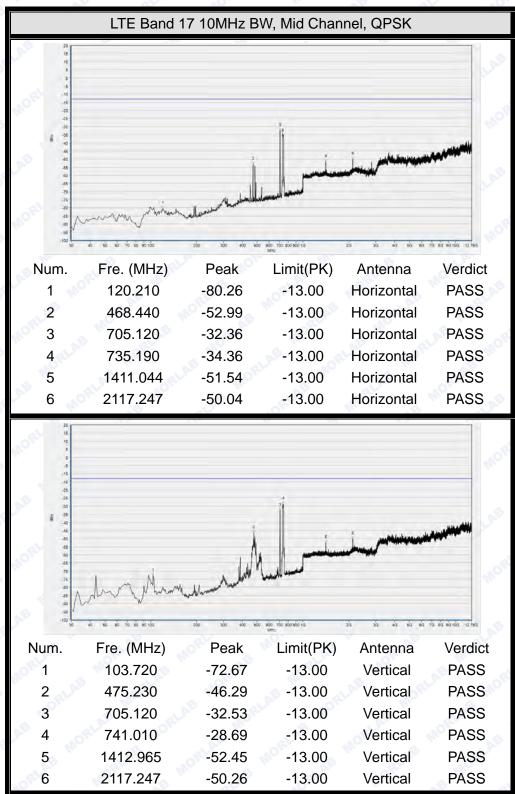




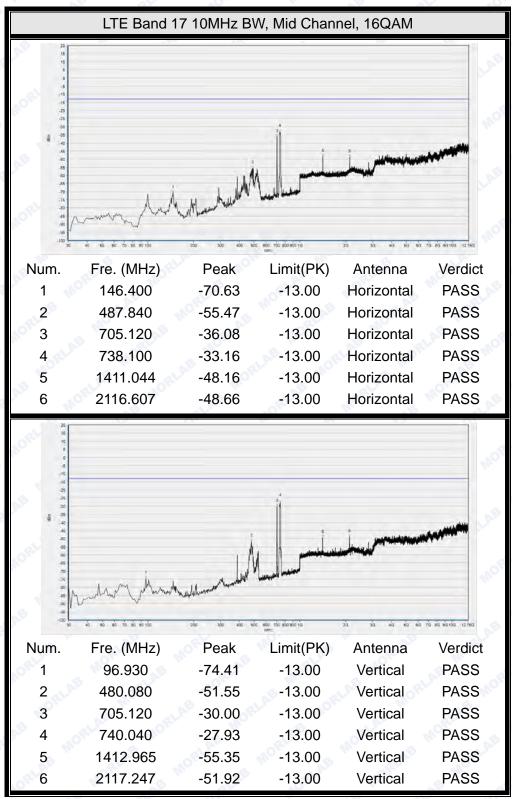












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