



2.7 Transmitter Radiated Power (EIRP/ERP)

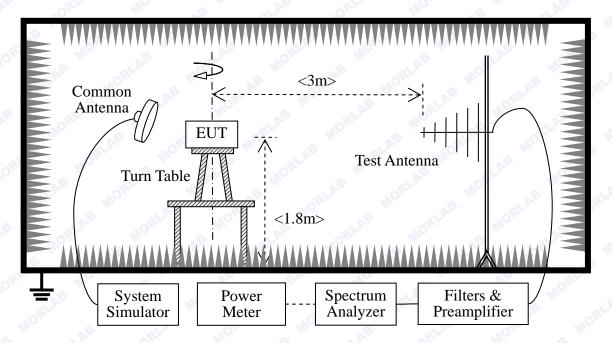
2.7.1 Requirement

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

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

2.7.2 Test Description

Test Setup:



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.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. 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	2015.02.26	2016.02.25
Spectrum Analyzer	Rohde& Schwarz	FSL	10246	2015.02.26	2016.02.25
Spectrum Analyzer	Agilent	E4445A	MY44200685	2015.02.26	2016.02.25
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2015.02.26	2016.02.25
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2015.02.26	2016.02.25
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2015.02.26	2016.02.25

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} .



V			40 ^{FC}	Min	.0	J.A.	*Off.			
Band Band Width	Dand Width	Channal	Eroa (MILI-)	Modulation	RB Cor	figuration	EIRP			
	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)				
ORL	More	0	AB	ODCK	10	0	24.15			
MIC	Q.B	Cal Land	1860	QPSK	100	0	23.27			
Ab	ORL	18700	1000	16 OAM	1 👭	0	23.30			
0. 1	AB	ORL	Mor	16-QAM	100	0	22.54			
RLA	MORE	M	Q.B	QPSK	10R-1	0	24.26			
LTE	9 0	M	1880	QF3K	100	0	23.71			
ORL	20MHz	18900	1000	16-QAM	1	0	23.52			
Band 2	AB	-QLA	MORE	10-QAW	100	0	22.37			
Alb	ORL	No.	9 0	QPSK	1 👭	0	24.16			
.0	LAB	Hel	1900	QPSK	100	0	23.66			
RLA	MORE	19100	1900	16-QAM	1	0	24.22			
W.	9 1	A.E.	ORL	10-QAIVI	100	0	22.81			
ъ .	D 1347.12	01	F (1411)		RB Cor	figuration	EIRP			
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)			
· .	0,	L 18675	S (2)	QPSK	1.	0 🔊	24.33			
, B	ZLAB		1857.5		75	0	23.18			
ORLA	MOIN			16-QAM	1 1	0	23.54			
	15 CI		OR		75	0 0	23.27			
MORL	Mo		2LA	ODOK	1	0	24.19			
LTE	LAB	M	1000	1880	QPSK	75	0	23.72		
A	15MHz	18900	18900	1880	16-QAM	1.	0	23.84		
Band 2	QLAB		MO	16-QAIVI	75	0	23.15			
ORL	MOL	0	4	0	9	aLAB	QPSK	1	0	24.52
	E OPI	H 19125	1902.5	16-QAM	75	0	23.88			
MORI	Mo				1	© 0	23.76			
6	LAB				75	0	23.47			
					RB Cor	figuration	EIRP			
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)			
0,	O PI	NB .	RLL	ODCICA	1	0	23.36			
21.5	. ORL	L d	4055	QPSK	50	0	23.31			
MOF	O Un	18650	1855	40.0414	<u>a</u> 1	0	23.74			
B	RLA	OR	du du	16-QAM	50	0	22.48			
4		218	, OR	OBOL	10	0	24.37			
LTE	M	М	4000	QPSK	50	0	23.62			
Ok	10MHz	A ()	1880	16 0 11	1	0	23.75			
Band 2	10	.0	16-QAM	50	0	22.51				
MOL	· B Un.	LAB	ORL	ODCK	<u>. 1</u>	0	24.28			
XB	RLA	H	4005	QPSK	50	0	23.64			
11	.3	19150	1905	40.0444	10	0	22.87			
AB	ORLA	Mole	S W	16-QAM	50	0	22.69			



			401	M.	_0	al.h.	*0 _{je}		
Bond	Rand Width	Channal	Frog (MUT)	Modulation	RB Cor	figuration	EIRP		
Band Band Width	Band width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)		
ORL	MOL	0	AB	ODOK	10	0	24.46		
ME	o.B	al Late	4050.5	QPSK	25	0	23.27		
AB	ORL	18625	1852.5	40.0014	1 🐠	0	24.22		
0.1	AB	ORL	MOR	16-QAM	25	0	22.39		
RLAL	MORL	W	0B	ODCK	10 ^{ft} 1	0	24.29		
LTE	9 01	M	4000	QPSK	25	0	23.52		
ORL	5MHz	18900	1880	16-QAM	10	0	23.21		
Band 2	Q.B	RLAI	MORL	16-QAIVI	25	0	22.58		
AB	ORL	Vo.	9 1	ODCK	1 👭	0	23.69		
0 1	AB	Hall	1007.5	QPSK	25	0	22.41		
RLAI	MORL	19175	1907.5	40 0014	10 ^(R) 1	0	23.72		
Mo.	6 1	ATO .	ORL	16-QAM	25	0	22.67		
					RB Cor	figuration	EIRP		
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)		
	0, 1	L 18615	9 (1)	QPSK	1.	0 🔊	24.22		
NB Y	ZLAB		1851.5		15	0	23.34		
ORLA	MOL			082000	1	0	23.69		
Me	(P) (R)		ORT	16-QAM	15	0.0	22.51		
MORL	MO	M 18900	1880	OPOK	1	0	23.78		
LTE	LAB			1880	1880	QPSK	15	0	23.41
, A	3MHz					40.0414	1.	0	23.74
Band 2	ZLAE		MORL	MORE	MORI	Mo	16-QAM	15	0
ORLE	MOL	0	LAB	ODOK	1	0	24.47		
W.	E OPI	H 19185	1908.5	QPSK 16-QAM	15	0.0	23.49		
MORL	MO				1	0	23.17		
~ Q	TLAB	ORLA			15	0	22.67		
					RB Cor	figuration	EIRP		
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)		
NO.	J. U.	XB	RLA	O DOLL	1	0	24.22		
21.0	P ORL	L 🕬	40=0=0	QPSK	6	0	24.17		
MOL	D III	18607	1850.7	Mor	<u>. 1</u>	0	23.76		
AB .	PLAN	ORE	ul.	16-QAM	6	0	22.38		
N.	, S	21.0	,0R		10	0	24.37		
LTE	LTE 1.4MHz	MOLE	4000	QPSK	6	0	23.61		
NORE		18900	1880	40.0414	1 . 5	0	23.74		
Band 2	ORL	47	20	16-QAM	6	0	23.49		
MOL	· · · · · · · · · · · · · · · · · · ·	LAB	ORLA	OPOV	<u> </u>	0	23.56		
AB	RLA	Н	4000.0	QPSK	6	0	23.68		
W		19193	1909.3	40.0414	10	0	23.58		
AB	ORLA	MOLE	S W	16-QAM	6	0	22.89		



			10 ^{FC}	Min	.0	al.A.	*Of**								
Band Band Width	Dand Midtle	Channal	Eroa (MILI-)	Madulation	RB Cor	figuration	ERP								
	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)									
ORL	More	0	LAB	OPOK	10	0	24.61								
Me		all Day	000	QPSK	5 0	0	23.80								
Ab		20450	829	16 OAM	1 👭	0	24.22								
0.0		ORL	Mor	16-QAM	50	0	22.87								
RLAN		W.	Q.B	QPSK	10 ^R 1	0	24.69								
LTE		M	836.5	QPSK	50	0	23.71								
ORL	10MHz	20525	030.3	16-QAM	10	0	23.74								
Band 5		-Cl-Ar	MORE	16-QAIVI	5 0	0	22.73								
Alb		Vo.	9 0	QPSK	1 👭	0	24.56								
.0		Hall	844	QPSK	50	0	23.47								
RLA		20600	044	16-QAM	1	0	23.29								
W.	9 1	A.P.	ORL	10-QAIVI	50	0	22.61								
	D 1347.10		F (1411)	NA 1.1.0	RB Cor	figuration	ERP								
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)								
y	io,	L 20425 826.5	S (2)	QPSK	1.	0 🔊	24.62								
,B			826.5		25	0	23.73								
ORLA				326.5 16-QAM	1 1	0	24.77								
. 1	S CI		ORT		25	0	22.51								
MORL		.0	926 F	ODOK	1	0	23.44								
LTE		M		926 E	QPSK	25	0	22.69							
Pr.	5MHz	20525	20525	20525	836.5	836.5	836.5	836.5	836.5	836.5	25 836.5	40.0414	1.	0 🔊	23.27
Band 5			MIC	16-QAM	25	0	22.85								
ORLE		0	CLAR	ODSK	1	0	24.69								
. 1		H 20625	0.40.5	QPSK	25	0	23.81								
MORL			846.5	16-QAM	1	0	24.17								
B					25	0	22.74								
_	_		_			figuration	ERP								
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)								
OF	V.	,B	PLIM	OPOK	1 .	0	24.79								
24.8		L 📢	005.5	QPSK	15	0	23.95								
MOF		20415	825.5	40.0414	<u>. 1</u>	0	24.28								
,B		OR	a me	16-QAM	15	0	22.77								
48		21.0	, OP	ODOL	10	0	24.56								
LTE		М	000.5	QPSK	15	0	23.67								
OR	3MHz	20525	836.5	40.0414	1	0	23.44								
Band 5	47	20	16-QAM	15	0	22.69									
MOL		LAB	ORLA	ODOL	1	0	24.74								
,B		Н	0.47.5	QPSK	15	0	23.64								
40		20635	847.5	40.0414	10	0	23.54								
AB		MOL	S W	16-QAM	15	0	22.69								



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Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)	
ORL	MOL	. 6	LAB	QPSK	10	0	24.74	
M	AB	PIL	824.7	QFSK	6	0	23.81	
Ab	ORL	20407	024.7	16-QAM	1 👭	0	24.08	
.0	N. A.B	ORL	MOL	10-QAIVI	6	0	22.65	
ORLA.	MORE	M	926 E	QPSK	1 1	0	24.59	
NO LTE	9 0			926 5	926 5	836.5	Qr SK	6
ORL	1.4MHz	20525	630.5	16-QAM	1	0	23.81	
Band 5	AB	RLA	10-QAIVI	∞ 6	0	22.61		
Ab	ORL	H 20643 848.3	9 0	QPSK	1	0	24.61	
MORLAE NORLAE	LAB		848 3		6	0	23.76	
	MORE		040.3		1 1	0	23.49	
		ORL	TO-QAIVI	6	0	22.60		

Band Band Wi	Band Width	Channel	(\A)	eg.(MHz) Modulation -	RB Cor	figuration	EIRP			
Danu	Dana wiain	Channel Freq.(MHz)		IVIOGUIATION	RB Size	RB Offset	(dBm)			
AB	ORLA	Nor	e lu	QPSK	AR 1	0	24.83			
NORTH	MIC	B	2510	QFSK	100	0	23.08			
21	AD RI	00050	2310	16-QAM	10 P.L.	0	22.74			
MOL	S In	20850	ORL.h.	10-QAIVI	100	0	22.14			
AB . TE	-RLA	M	MIC	QPSK	1	0	23.70			
LTE	0.	- III	2535	QFSR	100	0	22.74			
LAB	20MHz	04400	2333	16-QAM	1	0	22.94			
Band 7	MILE	21100	al.Al	10-QAIVI	100	0	22.17			
21	ID TOPL	н. 🖠	, A	QPSK	10,000	0	23.54			
MOL	S PIL	LAB	2560	QFSR	100	0	22.84			
OB.	AB CLAI	04050	350	16-QAM	1	0	22.51			
- 4		21350		TO-QAIVI	100	0	22.49			
Band	Band Width	Width Channel	Freq.(MHz)	Modulation	RB Configuration		EIRP			
Danu	Dana wiain			IVIOGUIATION	RB Size	RB Offset	(dBm)			
ORL	MOL	al LE	AB	QPSK	1	0	24.15			
M	AB .		2507.5	2507.5 16-QAM	9 75	0	23.27			
Ab	ORL	20825	2307.3		1 11	0	23.33			
9 10	AB	aRL.	MOIL		75	0	22.29			
al-A	MORI	ME	60	QPSK	OR 1	0	23.57			
LTE	6	M	2535	QFSK	75	0	23.08			
ORL	15MHz and 7	15MHz 21100	2000	2555) 2555	1100	16-QAM	1	0	22.74
Band 7		QLA!	-110 R.L.	10-QAIVI	75	0	22.17			
Alb	ORL	0.	8 1	QPSK	1 11	0	24.87			
. 6	LAB	Hall	2562.5	QF OIL	75	0	23.10			
RLAN	MORE	21375	2002.0	16-QAM	O ^R 1	0	22.37			
No.	6		ORL	10-QAM	75	0	22.12			



	Observat	Fro c. (MIII-)	Madulatian	RB Cor	nfiguration	EIRP	
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
ORL	Mor	0	LAB	QPSK	10	0	24.17
MIC	Q.B	RIL	2505	QPSK	5 0	0	23.09
A.D.	ORL	20800	2505	16-QAM	1 11	0	23.46
. 6	LAB	ORL	MOL	16-QAIVI	50	0	22.37
RLA	MORE	M	A.B	QPSK	1 P	0	23.52
LTE	B 0	M	2535	QF SK	50	0	22.75
ORL	10MHz	21100	2333	16-QAM	1	0	22.86
Band 7	AB	RLA	MORE	10-QAW	5 0	0	21.71
	ORL	No.	9 0	QPSK	1 1	0	23.92
. 6	LAB	H	2565	QFSK	50	0	22.96
RLAN	21400	2303	16-QAM	1 PORT	0	22.98	
9	9 4	Altr	ORL	TO-QAIVI	50	0	22.11
Donal	D = 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Channel	Freq.(MHz)	Madulatian	RB Cor	RB Configuration	
Band	Band Width			Modulation	RB Size	RB Offset	(dBm)
4	0,	L 20775	2502.5	QPSK	1	0	24.14
AB	RLAN			QFSK	25	0	23.10
ORL	MO		2502.5	16-QAM	1	0	23.34
	E ORI		O. C.	10-QAW	25	0	22.29
. TOPE	M	AB.	RLAN	QPSK	1	0	23.71
LTE	al Alb	M	2535	QI OIL	25	0	22.74
4	5MHz	21100	2000	16-QAM	1.	0	22.52
Band 7	S HORLAN S H	W	10-QAM	25	0	22.41	
ORL		S	QLAB	QPSK	1	0	24.24
		H	2567.5	QF OR	25	0	23.20
MORE	IN.	21425	2007.0	16-QAM	1	0	22.74
8	LAB	ORL	W.	10-QAW	25	0	22.13

			70,	-			40°
Band Band Width	Channal	(NALL_)	Modulation	RB Con	figuration	ERP	
Band	Danu wiuin	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
ORL	MOL	9 4	AB	QPSK	10	0	24.62
MIC	60	A.L.	709	QF 5K	50	0	23.71
AB	ORL	23780	709	16-QAM	1 1	0	23.92
0 1/1	AB	aRL.	ORL MORE	10-QAIVI	50	0	23.07
ARLA.	MORL	10MHz M 23790	710	QPSK	ORL'1	0	24.62
LTE	6			Qr SK	50	0	23.70
ORLA	10MHz			16-QAM	1011	0	23.75
Band 17	AB .			10-QAIV	10-QAW	50	0
AB	ORL.	40.	8	QPSK	1 11	0	24.73
A.B	H	711	QF 5K	50	0	23.82	
RLAR	MORE	23800	NB I	16-QAM	OR 1	0	23.59
NO.	AP OF	JRL.	10-QAIVI	50	0	22.80	



			40.				70,
Dond	D D 1347 H	01 1	C (NALL=)	(NALL-) NA	RB Cor	figuration	ERP
Band	Band Width	Channel	Freq.(MHz)	Modulation	RB Size	RB Offset	(dBm)
ORL	MOL	. 6	LAB	QPSK	10	0	23.75
M	AB.	PIL	706.5	QF3K	25	0	23.64
AL	ORL	23755	700.5	16-QAM	1 👭	0	23.84
. 6	, AB	ORL	MOL	16-QAIVI	25	0	23.63
RIA	MORE	M	QB.	QPSK	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	24.66
NO LTE	9 0	M	710	QF 5K	25	0	23.59
ORL	5MHz	23790		16-QAM	1	0	23.62
Band 17	A.B	RLA	MORE	10-QAIVI	25	0	22.71
Alb	ORL	H 23825 713.5	9 0	QPSK	1 👭	0	24.68
B N JAB	LAB		712.5	QF3K	25	0	23.64
RLA	MORE		713.5	713.5 16-QAM	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	23.48
MC.	0,	AP		10-QAIVI	25	0	22.61



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. 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. 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.



