BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	23035	701.5	QPSK	1	0	0	22.92
				1	12	0	22.93
				1	24	0	22.89
				12	0	1	21.91
				12	6	1	21.90
				12	13	1	21.90
				25	0	1	21.87
			16QAM	1	0	1	21.81
				1	12	1	21.79
				1	24	1	21.88
				12	0	2	20.91
				12	6	2	20.89
				12	13	2	20.87
				25	0	2	20.87
	23095	707.5	QPSK	1	0	0	22.92
				1	12	0	22.79
				1	24	0	22.75
				12	0	1	21.88
				12	6	1	21.87
				12	13	1	21.83
				25	0	1	21.89
			16QAM	1	0	1	21.87
				1	12	1	21.75
				1	24	1	21.81
				12	0	2	20.91
				12	6	2	20.91
				12	13	2	20.88
				25	0	2	20.83
	23155	713.5	QPSK	1	0	0	22.93
				1	12	0	22.88
				1	24	0	22.85
				12	0	1	21.86
				12	6	1	21.87
				12	13	1	21.85
				25	0	1	21.86
			16QAM	1	0	1	21.85
				1	12	1	21.79
				1	24	1	21.85
				12	0	2	20.91
				12	6	2	20.93
				12	13	2	20.86
				25	0	2	20.93

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
3MHz	23025	700.5	QPSK	1	0	0	22.86
				1	7	0	22.80
				1	14	0	22.80
				8	0	1	21.83
				8	4	1	21.85
				8	7	1	21.91
				15	0	1	21.87
			16QAM	1	0	1	21.78
				1	7	1	21.88
				1	14	1	21.87
				8	0	2	20.87
				8	4	2	20.80
				8	7	2	20.90
				15	0	2	20.85
	23095	707.5	QPSK	1	0	0	22.87
				1	7	0	22.76
				1	14	0	22.84
				8	0	1	21.77
				8	4	1	21.79
				8	7	1	21.75
				15	0	1	21.84
			16QAM	1	0	1	21.72
				1	7	1	21.63
				1	14	1	21.61
				8	0	2	20.75
				8	4	2	20.75
				8	7	2	20.76
				15	0	2	20.74
	23165	714.5	QPSK	1	0	0	22.87
				1	7	0	22.93
				1	14	0	22.81
				8	0	1	21.79
				8	4	1	21.80
				8	7	1	21.81
				15	0	1	21.85
			16QAM	1	0	1	21.76
				1	7	1	21.86
				1	14	1	21.69
				8	0	2	20.83
				8	4	2	20.84
				8	7	2	20.83
				15	0	2	20.68

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
1.4MHz	23017	699.7	QPSK	1	0	0	22.92
				1	2	0	22.73
				1	5	0	22.75
				3	0	0	22.80
				3	1	0	22.79
				3	2	0	22.64
				6	0	1	21.73
			16QAM	1	0	1	21.94
				1	2	1	21.69
				1	5	1	21.75
				3	0	1	21.63
				3	1	1	21.61
				3	2	1	21.54
				6	0	2	20.77
	23095	707.5	QPSK	1	0	0	22.69
				1	2	0	22.62
				1	5	0	22.60
				3	0	0	22.68
				3	1	0	22.68
				3	2	0	22.57
				6	0	1	21.82
			16QAM	1	0	1	21.72
				1	2	1	21.77
				1	5	1	21.59
				3	0	1	21.51
				3	1	1	21.49
				3	2	1	21.40
				6	0	2	20.79
	23173	715.3	QPSK	1	0	0	24.01
				1	2	0	24.10
				1	5	0	24.00
				3	0	0	24.01
				3	1	0	24.00
				3	2	0	23.96
				6	0	1	23.01
			16QAM	1	0	1	22.97
				1	2	1	23.08
				1	5	1	23.00
				3	0	1	22.83
				3	1	1	22.82
				3	2	1	22.90
				6	0	2	22.08

LTE Band 17

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
23.41	23780	709.0	QPSK	1	0	0	23.41
				1	24	0	23.25
				1	49	0	23.36
				25	0	1	22.29
				25	12	1	22.27
				25	25	1	22.08
				50	0	1	22.17
			16QAM	1	0	1	22.37
				1	24	1	22.19
				1	49	1	22.31
				25	0	2	21.22
				25	12	2	21.25
				25	25	2	21.05
				50	0	2	21.14
	23790	710	QPSK	1	0	0	23.37
				1	24	0	23.02
				1	49	0	23.11
				25	0	1	22.22
				25	12	1	22.18
				25	25	1	22.08
				50	0	1	22.15
			16QAM	1	0	1	22.31
				1	24	1	21.87
				1	49	1	22.01
				25	0	2	21.19
				25	12	2	21.23
				25	25	2	21.20
				50	0	2	21.06
	23800	711.0	QPSK	1	0	0	23.40
				1	24	0	23.02
				1	49	0	23.11
				25	0	1	22.17
				25	12	1	22.15
				25	25	1	22.10
				50	0	1	22.06
			16QAM	1	0	1	22.13
				1	24	1	21.80
				1	49	1	21.91
				25	0	2	21.21
				25	12	2	21.21
				25	25	2	21.08
				50	0	2	21.06

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)
5MHz	23755	706.5	QPSK	1	0	0	23.09
				1	12	0	23.14
				1	24	0	23.13
				12	0	1	22.13
				12	6	1	22.14
				12	13	1	22.05
				25	0	1	22.09
			16QAM	1	0	1	22.20
				1	12	1	22.22
				1	24	1	22.28
				12	0	2	21.11
				12	6	2	21.11
				12	13	2	21.14
				25	0	2	21.00
	23095	710.0	QPSK	1	0	0	23.16
				1	12	0	23.12
				1	24	0	23.04
				12	0	1	22.05
				12	6	1	22.06
				12	13	1	22.00
				25	0	1	22.02
			16QAM	1	0	1	22.16
				1	12	1	22.01
				1	24	1	22.00
				12	0	2	21.08
				12	6	2	21.08
				12	13	2	21.05
				25	0	2	21.05
	23825	712.6	QPSK	1	0	0	23.16
				1	12	0	23.21
				1	24	0	23.12
				12	0	1	22.14
				12	6	1	22.15
				12	13	1	22.13
				25	0	1	22.10
			16QAM	1	0	1	22.11
				1	12	1	22.13
				1	24	1	22.03
				12	0	2	21.15
				12	6	2	21.14
				12	13	2	21.09
				25	0	2	21.04

8. RADIATED OUTPUT POWER

8.1 PROVISIONS APPLICABLE

The radiation test is carried out in a semi-anechoic chamber.

According to the test, put the device under test on a non-conductive platform 3 meters away from the receiving antenna (ANSI/TIA-603-E-2016 Article 2.2.17).

The following rules are for the maximum radiated power limit requirements of the product:

Mode	Nominal Peak Power
LTE Band 2	< 2 Watts max. EIRP (33dBm)
LTE Band 4	< 1 Watts max. EIRP (30dBm)
LTE Band 5	< 7 Watts max. ERP (38.45dBm)
LTE Band 7	< 2 Watts max. EIRP (33dBm)
LTE Band 12	< 3 Watts max. ERP (34.77dBm)
LTE Band 17	< 3 Watts max. ERP (34.77dBm)

8.2 MEASUREMENT METHOD

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize.

RADIATION CONSTRUCTION METHOD:

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

   The power is calculated by the following formula:

   Pd(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dB)

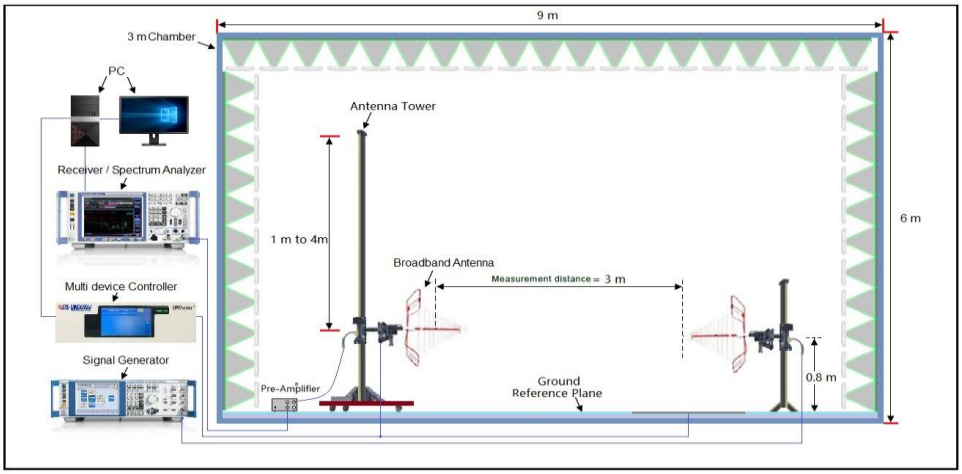
   Where: Pd is the dipole equivalent power and Pg is the generator output power into the substitution antenna.
3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate

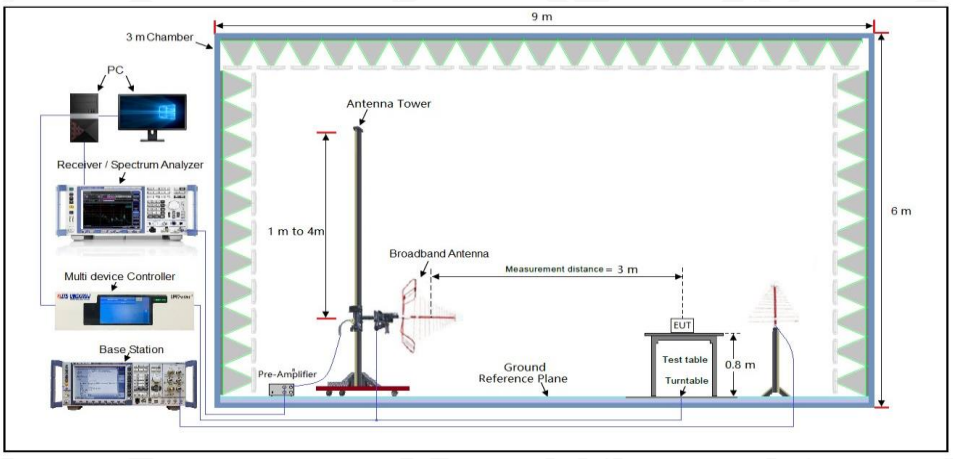
gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

4. The EUT was tested in three orthogonal planes (X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

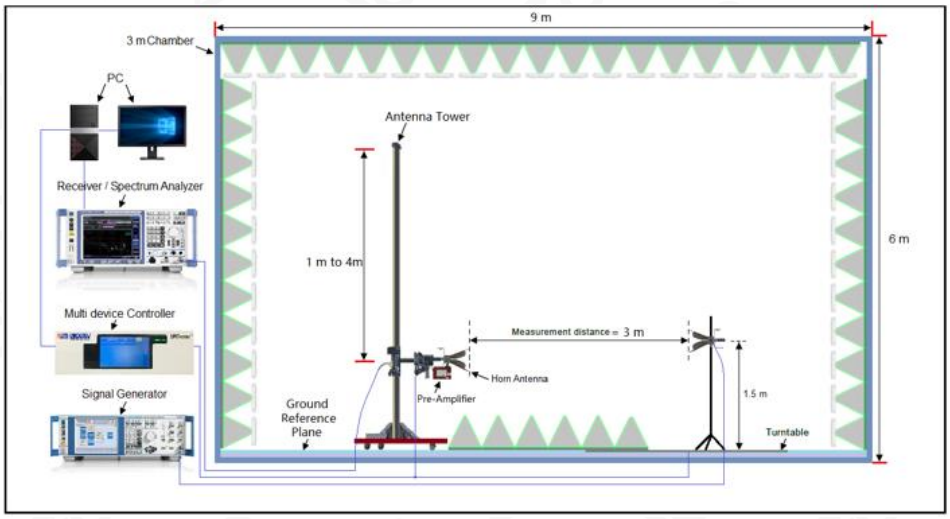
8.3 MEASUREMENT SETUP

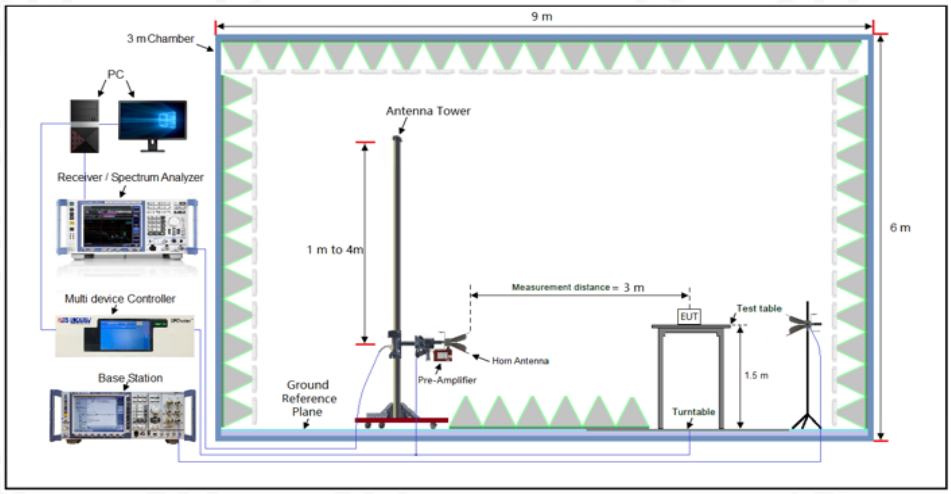
Radiated Power 30MHz to 1GHz Test setup





Radiated Power Above 1GHz Test setup





8.4 MEASUREMENT RESULT

EIRP for LTE Band 2

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
1850.7	1.4	QPSK	1/0	12.88	V	7.95	0.79	20.04	33
1880.0	1.4	QPSK	1/0	13.63	V	7.95	0.79	20.79	33
1909.3	1.4	QPSK	1/0	13.35	V	7.95	0.79	20.51	33
1850.7	1.4	QPSK	1/0	14.01	H	7.95	0.79	21.17	33
1880.0	1.4	QPSK	1/0	14.59	H	7.95	0.79	21.75	33
1909.3	1.4	QPSK	1/0	14.35	H	7.95	0.79	21.51	33
1850.7	1.4	16-QAM	1/5	13.74	V	7.95	0.79	20.90	33
1880.0	1.4	16-QAM	1/0	13.57	V	7.95	0.79	20.73	33
1909.3	1.4	16-QAM	1/0	13.81	V	7.95	0.79	20.97	33
1850.7	1.4	16-QAM	1/5	14.63	H	7.95	0.79	21.79	33
1880.0	1.4	16-QAM	1/0	14.53	H	7.95	0.79	21.69	33
1909.3	1.4	16-QAM	1/0	14.09	H	7.95	0.79	21.25	33
1851.5	3	QPSK	1/0	13.86	V	7.95	0.79	21.02	33
1880.0	3	QPSK	1/0	13.96	V	7.95	0.79	21.12	33
1908.5	3	QPSK	1/0	13.89	V	7.95	0.79	21.05	33
1851.5	3	QPSK	1/0	14.87	H	7.95	0.79	22.03	33
1880.0	3	QPSK	1/0	14.87	H	7.95	0.79	22.03	33
1908.5	3	QPSK	1/0	14.78	H	7.95	0.79	21.94	33
1851.5	3	16-QAM	1/0	13.90	V	7.95	0.79	21.06	33
1880.0	3	16-QAM	1/0	13.94	V	7.95	0.79	21.10	33
1908.5	3	16-QAM	1/0	13.88	V	7.95	0.79	21.04	33
1851.5	3	16-QAM	1/0	14.94	H	7.95	0.79	22.10	33
1880.0	3	16-QAM	1/0	14.84	H	7.95	0.79	22.00	33
1908.5	3	16-QAM	1/0	14.83	H	7.95	0.79	21.99	33
1852.5	5	QPSK	1/0	13.90	V	7.95	0.79	21.06	33
1880.0	5	QPSK	1/0	13.88	V	7.95	0.79	21.04	33
1907.5	5	QPSK	1/24	13.88	V	7.95	0.79	21.04	33
1852.5	5	QPSK	1/0	15.04	H	7.95	0.79	22.20	33
1880.0	5	QPSK	1/0	14.85	H	7.95	0.79	22.01	33
1907.5	5	QPSK	1/24	14.83	H	7.95	0.79	21.99	33
1852.5	5	16-QAM	1/0	12.84	V	7.95	0.79	20.00	33
1880.0	5	16-QAM	1/0	12.81	V	7.95	0.79	19.97	33

1907.5	5	16-QAM	1/24	14.66	V	7.95	0.79	21.82	33
1852.5	5	16-QAM	1/0	14.56	H	7.95	0.79	21.72	33
1880.0	5	16-QAM	1/0	14.76	H	7.95	0.79	21.92	33
1907.5	5	16-QAM	1/24	14.71	H	7.95	0.79	21.87	33
1855	10	QPSK	1/0	10.63	V	7.95	0.79	17.79	33
1880	10	QPSK	1/49	10.43	V	7.95	0.79	17.59	33
1905	10	QPSK	1/0	10.50	V	7.95	0.79	17.66	33
1855	10	QPSK	1/0	11.10	H	7.95	0.79	18.26	33
1880	10	QPSK	1/49	11.14	H	7.95	0.79	18.30	33
1905	10	QPSK	1/0	11.53	H	7.95	0.79	18.69	33
1855	10	16-QAM	1/0	9.67	V	7.95	0.79	16.83	33
1880	10	16-QAM	1/49	9.52	V	7.95	0.79	16.68	33
1905	10	16-QAM	1/0	9.47	V	7.95	0.79	16.63	33
1855	10	16-QAM	1/0	10.08	H	7.95	0.79	17.24	33
1880	10	16-QAM	1/49	10.80	H	7.95	0.79	17.96	33
1905	10	16-QAM	1/0	11.21	H	7.95	0.79	18.37	33
1857.5	15	QPSK	1/0	14.03	V	7.95	0.79	21.19	33
1880	15	QPSK	1/74	13.71	V	7.95	0.79	20.87	33
1902.5	15	QPSK	1/0	14.50	V	7.95	0.79	21.66	33
1857.5	15	QPSK	1/0	15.23	H	7.95	0.79	22.39	33
1880	15	QPSK	1/74	14.80	H	7.95	0.79	21.96	33
1902.5	15	QPSK	1/0	15.04	H	7.95	0.79	22.20	33
1857.5	15	16-QAM	1/0	13.69	V	7.95	0.79	20.85	33
1880	15	16-QAM	1/74	12.68	V	7.95	0.79	19.84	33
1902.5	15	16-QAM	1/0	13.82	V	7.95	0.79	20.98	33
1857.5	15	16-QAM	1/0	14.27	H	7.95	0.79	21.43	33
1880	15	16-QAM	1/74	13.88	H	7.95	0.79	21.04	33
1902.5	15	16-QAM	1/0	14.01	H	7.95	0.79	21.17	33
1860	20	QPSK	1/99	13.61	V	7.95	0.79	20.77	33
1880	20	QPSK	1/99	13.44	V	7.95	0.79	20.60	33
1900	20	QPSK	1/0	13.44	V	7.95	0.79	20.60	33
1860	20	QPSK	1/99	14.69	H	7.95	0.79	21.85	33
1880	20	QPSK	1/99	14.53	H	7.95	0.79	21.69	33
1900	20	QPSK	1/0	14.49	H	7.95	0.79	21.65	33
1860	20	16-QAM	1/99	12.76	V	7.95	0.79	19.92	33
1880	20	16-QAM	1/99	12.77	V	7.95	0.79	19.93	33

1900	20	16-QAM	1/0	12.82	V	7.95	0.79	19.98	33
1860	20	16-QAM	1/99	14.04	H	7.95	0.79	21.20	33
1880	20	16-QAM	1/99	13.89	H	7.95	0.79	21.05	33
1900	20	16-QAM	1/0	13.66	H	7.95	0.79	20.82	33

EIRP for LTE Band 4

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
1710.7	1.4	QPSK	1/0	16.14	V	7.95	0.79	23.30	30
1732.5	1.4	QPSK	1/0	16.17	V	7.95	0.79	23.33	30
1754.3	1.4	QPSK	1/0	16.05	V	7.95	0.79	23.21	30
1710.7	1.4	QPSK	1/0	16.08	H	7.95	0.79	23.24	30
1732.5	1.4	QPSK	1/0	16.15	H	7.95	0.79	23.31	30
1754.3	1.4	QPSK	1/0	16.02	H	7.95	0.79	23.18	30
1710.7	1.4	16-QAM	1/5	14.96	V	7.95	0.79	22.12	30
1732.5	1.4	16-QAM	1/0	14.84	V	7.95	0.79	22.00	30
1754.3	1.4	16-QAM	1/0	14.88	V	7.95	0.79	22.04	30
1710.7	1.4	16-QAM	1/5	15.05	H	7.95	0.79	22.21	30
1732.5	1.4	16-QAM	1/0	15.05	H	7.95	0.79	22.21	30
1754.3	1.4	16-QAM	1/0	14.94	H	7.95	0.79	22.10	30
1711.5	3	QPSK	1/0	15.05	V	7.95	0.79	22.21	30
1732.5	3	QPSK	1/0	15.06	V	7.95	0.79	22.22	30
1753.5	3	QPSK	1/0	15.06	V	7.95	0.79	22.22	30
1711.5	3	QPSK	1/0	16.21	H	7.95	0.79	23.37	30
1732.5	3	QPSK	1/0	16.30	H	7.95	0.79	23.46	30
1753.5	3	QPSK	1/0	16.19	H	7.95	0.79	23.35	30
1711.5	3	16-QAM	1/0	15.19	V	7.95	0.79	22.35	30
1732.5	3	16-QAM	1/0	14.06	V	7.95	0.79	21.22	30
1753.5	3	16-QAM	1/0	14.08	V	7.95	0.79	21.24	30
1711.5	3	16-QAM	1/0	15.04	H	7.95	0.79	22.20	30
1732.5	3	16-QAM	1/0	15.27	H	7.95	0.79	22.43	30
1753.5	3	16-QAM	1/0	15.17	H	7.95	0.79	22.33	30
1712.5	5	QPSK	1/0	15.06	V	7.95	0.79	22.22	30
1732.5	5	QPSK	1/0	15.06	V	7.95	0.79	22.22	30
1752.5	5	QPSK	1/24	15.00	V	7.95	0.79	22.16	30
1712.5	5	QPSK	1/0	16.20	H	7.95	0.79	23.36	30
1732.5	5	QPSK	1/0	16.19	H	7.95	0.79	23.35	30
1752.5	5	QPSK	1/24	16.03	H	7.95	0.79	23.19	30
1712.5	5	16-QAM	1/0	15.19	V	7.95	0.79	22.35	30
1732.5	5	16-QAM	1/0	14.09	V	7.95	0.79	21.25	30
1752.5	5	16-QAM	1/24	14.10	V	7.95	0.79	21.26	30
1712.5	5	16-QAM	1/0	15.11	H	7.95	0.79	22.27	30
1732.5	5	16-QAM	1/0	15.28	H	7.95	0.79	22.44	30
1752.5	5	16-QAM	1/24	15.42	H	7.95	0.79	22.58	30

1715	10	QPSK	1/0	15.02	V	7.95	0.79	22.18	30
1732.5	10	QPSK	1/49	15.02	V	7.95	0.79	22.18	30
1750	10	QPSK	1/0	15.01	V	7.95	0.79	22.17	30
1715	10	QPSK	1/0	16.41	H	7.95	0.79	23.57	30
1732.5	10	QPSK	1/49	16.07	H	7.95	0.79	23.23	30
1750	10	QPSK	1/0	16.22	H	7.95	0.79	23.38	30
1715	10	16-QAM	1/0	15.27	V	7.95	0.79	22.43	30
1732.5	10	16-QAM	1/49	14.00	V	7.95	0.79	21.16	30
1750	10	16-QAM	1/0	14.06	V	7.95	0.79	21.22	30
1715	10	16-QAM	1/0	14.98	H	7.95	0.79	22.14	30
1732.5	10	16-QAM	1/49	15.33	H	7.95	0.79	22.49	30
1750	10	16-QAM	1/0	14.97	H	7.95	0.79	22.13	30
1717.5	15	QPSK	1/0	15.08	V	7.95	0.79	22.24	30
1732.5	15	QPSK	1/74	15.09	V	7.95	0.79	22.25	30
1747.5	15	QPSK	1/0	14.57	V	7.95	0.79	21.73	30
1717.5	15	QPSK	1/0	15.91	H	7.95	0.79	23.07	30
1732.5	15	QPSK	1/74	15.87	H	7.95	0.79	23.03	30
1747.5	15	QPSK	1/0	15.41	H	7.95	0.79	22.57	30
1717.5	15	16-QAM	1/0	14.68	V	7.95	0.79	21.84	30
1732.5	15	16-QAM	1/74	15.10	V	7.95	0.79	22.26	30
1747.5	15	16-QAM	1/0	15.08	V	7.95	0.79	22.24	30
1717.5	15	16-QAM	1/0	14.53	H	7.95	0.79	21.69	30
1732.5	15	16-QAM	1/74	15.10	H	7.95	0.79	22.26	30
1747.5	15	16-QAM	1/0	15.13	H	7.95	0.79	22.29	30
1720	20	QPSK	1/99	14.73	V	7.95	0.79	21.89	30
1732.5	20	QPSK	1/99	14.70	V	7.95	0.79	21.86	30
1745	20	QPSK	1/0	14.38	V	7.95	0.79	21.54	30
1720	20	QPSK	1/99	15.81	H	7.95	0.79	22.97	30
1732.5	20	QPSK	1/99	15.36	H	7.95	0.79	22.52	30
1745	20	QPSK	1/0	15.30	H	7.95	0.79	22.46	30
1720	20	16-QAM	1/99	14.73	V	7.95	0.79	21.89	30
1732.5	20	16-QAM	1/99	13.74	V	7.95	0.79	20.90	30
1745	20	16-QAM	1/0	13.74	V	7.95	0.79	20.90	30
1720	20	16-QAM	1/99	14.41	H	7.95	0.79	21.57	30
1732.5	20	16-QAM	1/99	15.34	H	7.95	0.79	22.50	30
1745	20	16-QAM	1/0	15.27	H	7.95	0.79	22.43	30

ERP for LTE Band 5

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
824.7	1.4	QPSK	1/0	12.42	V	6.7	0.49	18.63	38.45
836.5	1.4	QPSK	1/0	12.36	V	6.7	0.49	18.57	38.45
848.3	1.4	QPSK	1/0	12.27	V	6.7	0.49	18.48	38.45
824.7	1.4	QPSK	1/0	12.39	H	6.7	0.49	18.60	38.45
836.5	1.4	QPSK	1/0	12.35	H	6.7	0.49	18.56	38.45
848.3	1.4	QPSK	1/0	12.28	H	6.7	0.49	18.49	38.45
824.7	1.4	16-QAM	1/0	11.43	V	6.7	0.49	17.64	38.45
836.5	1.4	16-QAM	1/0	11.40	V	6.7	0.49	17.61	38.45
848.3	1.4	16-QAM	1/0	11.39	V	6.7	0.49	17.60	38.45
824.7	1.4	16-QAM	1/0	11.25	H	6.7	0.49	17.46	38.45
836.5	1.4	16-QAM	1/0	11.16	H	6.7	0.49	17.37	38.45
848.3	1.4	16-QAM	1/0	11.24	H	6.7	0.49	17.45	38.45
825.5	3	QPSK	1/0	11.19	V	6.7	0.49	17.40	38.45
836.5	3	QPSK	1/0	10.44	V	6.7	0.49	16.65	38.45
847.5	3	QPSK	1/0	12.45	V	6.7	0.49	18.66	38.45
825.5	3	QPSK	1/0	12.46	H	6.7	0.49	18.67	38.45
836.5	3	QPSK	1/0	12.27	H	6.7	0.49	18.48	38.45
847.5	3	QPSK	1/0	11.36	H	6.7	0.49	17.57	38.45
825.5	3	16-QAM	1/0	11.35	V	6.7	0.49	17.56	38.45
836.5	3	16-QAM	1/0	11.31	V	6.7	0.49	17.52	38.45
847.5	3	16-QAM	1/0	11.39	V	6.7	0.49	17.60	38.45
825.5	3	16-QAM	1/0	11.45	H	6.7	0.49	17.66	38.45
836.5	3	16-QAM	1/0	11.38	H	6.7	0.49	17.59	38.45
847.5	3	16-QAM	1/0	11.37	H	6.7	0.49	17.58	38.45
826.5	5	QPSK	1/0	12.50	V	6.7	0.49	18.71	38.45
836.5	5	QPSK	1/0	12.42	V	6.7	0.49	18.63	38.45
846.5	5	QPSK	1/0	12.30	V	6.7	0.49	18.51	38.45
826.5	5	QPSK	1/0	11.40	H	6.7	0.49	17.61	38.45
836.5	5	QPSK	1/0	11.36	H	6.7	0.49	17.57	38.45
846.5	5	QPSK	1/0	11.29	H	6.7	0.49	17.50	38.45
826.5	5	16-QAM	1/0	11.34	V	6.7	0.49	17.55	38.45
836.5	5	16-QAM	1/0	11.37	V	6.7	0.49	17.58	38.45
846.5	5	16-QAM	1/0	11.27	V	6.7	0.49	17.48	38.45
826.5	5	16-QAM	1/0	11.24	H	6.7	0.49	17.45	38.45
836.5	5	16-QAM	1/0	10.37	H	6.7	0.49	16.58	38.45
846.5	5	16-QAM	1/0	10.37	H	6.7	0.49	16.58	38.45

829	10	QPSK	1/0	11.92	V	6.7	0.49	18.13	38.45
836.5	10	QPSK	1/0	11.57	V	6.7	0.49	17.78	38.45
844	10	QPSK	1/0	12.00	V	6.7	0.49	18.21	38.45
829	10	QPSK	1/0	10.64	H	6.7	0.49	16.85	38.45
836.5	10	QPSK	1/0	10.62	H	6.7	0.49	16.83	38.45
844	10	QPSK	1/0	10.56	H	6.7	0.49	16.77	38.45
829	10	16-QAM	1/0	10.62	V	6.7	0.49	16.83	38.45
836.5	10	16-QAM	1/0	10.91	V	6.7	0.49	17.12	38.45
844	10	16-QAM	1/0	10.51	V	6.7	0.49	16.72	38.45
829	10	16-QAM	1/0	10.89	H	6.7	0.49	17.10	38.45
836.5	10	16-QAM	1/0	9.66	H	6.7	0.49	15.87	38.45
844	10	16-QAM	1/0	9.61	H	6.7	0.49	15.82	38.45

EIRP for LTE Band 7

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
2502.5	5	QPSK	1/0	15.47	V	8.23	1.12	22.58	33
2535	5	QPSK	1/0	14.82	V	8.23	1.12	21.93	33
2567.5	5	QPSK	1/24	15.32	V	8.23	1.12	22.43	33
2502.5	5	QPSK	1/0	16.48	H	8.23	1.12	23.59	33
2535	5	QPSK	1/0	16.03	H	8.23	1.12	23.14	33
2567.5	5	QPSK	1/24	16.43	H	8.23	1.12	23.54	33
2502.5	5	16-QAM	1/0	14.20	V	8.23	1.12	21.31	33
2535	5	16-QAM	1/0	14.03	V	8.23	1.12	21.14	33
2567.5	5	16-QAM	1/24	14.24	V	8.23	1.12	21.35	33
2502.5	5	16-QAM	1/0	15.43	H	8.23	1.12	22.54	33
2535	5	16-QAM	1/0	15.17	H	8.23	1.12	22.28	33
2567.5	5	16-QAM	1/24	15.44	H	8.23	1.12	22.55	33
2505	10	QPSK	1/0	15.34	V	8.23	1.12	22.45	33
2535	10	QPSK	1/49	14.51	V	8.23	1.12	21.62	33
2565	10	QPSK	1/0	14.69	V	8.23	1.12	21.80	33
2505	10	QPSK	1/0	16.39	H	8.23	1.12	23.50	33
2535	10	QPSK	1/49	15.66	H	8.23	1.12	22.77	33
2565	10	QPSK	1/0	15.92	H	8.23	1.12	23.03	33
2505	10	16-QAM	1/0	15.03	V	8.23	1.12	22.14	33
2535	10	16-QAM	1/49	14.39	V	8.23	1.12	21.50	33
2565	10	16-QAM	1/0	14.37	V	8.23	1.12	21.48	33
2505	10	16-QAM	1/0	16.05	H	8.23	1.12	23.16	33
2535	10	16-QAM	1/49	15.43	H	8.23	1.12	22.54	33
2565	10	16-QAM	1/0	15.67	H	8.23	1.12	22.78	33
2507.5	15	QPSK	1/0	13.81	V	8.23	1.12	20.92	33
2535	15	QPSK	1/74	13.75	V	8.23	1.12	20.86	33
2562.5	15	QPSK	1/0	13.41	V	8.23	1.12	20.52	33
2507.5	15	QPSK	1/0	14.92	H	8.23	1.12	22.03	33
2535	15	QPSK	1/74	15.22	H	8.23	1.12	22.33	33
2562.5	15	QPSK	1/0	14.87	H	8.23	1.12	21.98	33
2507.5	15	16-QAM	1/0	13.85	V	8.23	1.12	20.96	33
2535	15	16-QAM	1/74	12.80	V	8.23	1.12	19.91	33
2562.5	15	16-QAM	1/0	13.16	V	8.23	1.12	20.27	33
2507.5	15	16-QAM	1/0	14.87	H	8.23	1.12	21.98	33
2535	15	16-QAM	1/74	14.16	H	8.23	1.12	21.27	33
2562.5	15	16-QAM	1/0	14.30	H	8.23	1.12	21.41	33

2510	20	QPSK	1/99	13.33	V	8.23	1.12	20.44	33
2535	20	QPSK	1/99	13.04	V	8.23	1.12	20.15	33
2560	20	QPSK	1/0	11.78	V	8.23	1.12	18.89	33
2510	20	QPSK	1/99	14.35	H	8.23	1.12	21.46	33
2535	20	QPSK	1/99	14.31	H	8.23	1.12	21.42	33
2560	20	QPSK	1/0	13.14	H	8.23	1.12	20.25	33
2510	20	16-QAM	1/99	15.13	V	8.23	1.12	22.24	33
2535	20	16-QAM	1/99	15.10	V	8.23	1.12	22.21	33
2560	20	16-QAM	1/0	13.74	V	8.23	1.12	20.85	33
2510	20	16-QAM	1/99	16.36	H	8.23	1.12	23.47	33
2535	20	16-QAM	1/99	16.50	H	8.23	1.12	23.61	33
2560	20	16-QAM	1/0	15.10	H	8.23	1.12	22.21	33

ERP for LTE Band 12

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
699.7	1.4	QPSK	1/0	14.28	V	6.6	0.47	20.41	34.77
707.5	1.4	QPSK	1/0	13.96	V	6.6	0.47	20.09	34.77
715.3	1.4	QPSK	1/24	14.00	V	6.6	0.47	20.126	34.77
699.7	1.4	QPSK	1/0	15.51	H	6.6	0.47	21.64	34.77
707.5	1.4	QPSK	1/0	15.22	H	6.6	0.47	21.35	34.77
715.3	1.4	QPSK	1/24	15.34	H	6.6	0.47	21.47	34.77
699.7	1.4	16-QAM	1/0	13.09	V	6.6	0.47	19.22	34.77
707.5	1.4	16-QAM	1/0	13.37	V	6.6	0.47	19.50	34.77
715.3	1.4	16-QAM	1/24	12.96	V	6.6	0.47	19.09	34.77
699.7	1.4	16-QAM	1/0	14.34	H	6.6	0.47	20.47	34.77
707.5	1.4	16-QAM	1/0	14.59	H	6.6	0.47	20.72	34.77
715.3	1.4	16-QAM	1/24	14.30	H	6.6	0.47	20.43	34.77
700.5	3	QPSK	1/0	14.11	V	6.6	0.47	20.24	34.77
707.5	3	QPSK	1/49	13.87	V	6.6	0.47	20.00	34.77
714.5	3	QPSK	1/0	13.91	V	6.6	0.47	20.04	34.77
700.5	3	QPSK	1/0	15.57	H	6.6	0.47	21.7	34.77
707.5	3	QPSK	1/49	15.23	H	6.6	0.47	21.36	34.77
714.5	3	QPSK	1/0	15.32	H	6.6	0.47	21.45	34.77
700.5	3	16-QAM	1/0	13.14	V	6.6	0.47	19.27	34.77
707.5	3	16-QAM	1/49	12.97	V	6.6	0.47	19.1	34.77
714.5	3	16-QAM	1/0	13.09	V	6.6	0.47	19.22	34.77
700.5	3	16-QAM	1/0	14.34	H	6.6	0.47	20.47	34.77
707.5	3	16-QAM	1/49	14.33	H	6.6	0.47	20.46	34.77
714.5	3	16-QAM	1/0	14.23	H	6.6	0.47	20.36	34.77
701.5	5	QPSK	1/0	11.81	V	6.6	0.47	17.94	34.77
707.5	5	QPSK	1/74	14.56	V	6.6	0.47	20.69	34.77
713.5	5	QPSK	1/0	13.69	V	6.6	0.47	19.82	34.77
701.5	5	QPSK	1/0	13.22	H	6.6	0.47	19.35	34.77
707.5	5	QPSK	1/74	15.58	H	6.6	0.47	21.71	34.77
713.5	5	QPSK	1/0	15.22	H	6.6	0.47	21.35	34.77
701.5	5	16-QAM	1/0	13.24	V	6.6	0.47	19.37	34.77
707.5	5	16-QAM	1/74	13.25	V	6.6	0.47	19.38	34.77
713.5	5	16-QAM	1/0	13.29	V	6.6	0.47	19.42	34.77
701.5	5	16-QAM	1/0	14.26	H	6.6	0.47	20.39	34.77
707.5	5	16-QAM	1/74	14.27	H	6.6	0.47	20.40	34.77
713.5	5	16-QAM	1/0	14.40	H	6.6	0.47	20.53	34.77

704.0	10	QPSK	1/99	12.97	V	6.6	0.47	19.10	34.77
707.5	10	QPSK	1/99	13.25	V	6.6	0.47	19.38	34.77
711.0	10	QPSK	1/0	13.05	V	6.6	0.47	19.18	34.77
704.0	10	QPSK	1/99	14.00	H	6.6	0.47	20.13	34.77
707.5	10	QPSK	1/99	14.26	H	6.6	0.47	20.39	34.77
711.0	10	QPSK	1/0	13.41	H	6.6	0.47	19.54	34.77
704.0	10	16-QAM	1/99	14.44	V	6.6	0.47	20.57	34.77
707.5	10	16-QAM	1/99	14.26	V	6.6	0.47	20.39	34.77
711.0	10	16-QAM	1/0	14.53	V	6.6	0.47	20.66	34.77
704.0	10	16-QAM	1/99	15.67	H	6.6	0.47	21.80	34.77
707.5	10	16-QAM	1/99	15.61	H	6.6	0.47	21.74	34.77
711.0	10	16-QAM	1/0	15.54	H	6.6	0.47	21.67	34.77

ERP for LTE Band 17

Frequency	Channel Bandwidth	Mode.	RB	Substituted level	Antenna Polarization	Antenna Gain correction	Cable Loss	Absolute Level	Limit (dBm)
706.5	5	QPSK	1/0	14.63	V	6.6	0.47	20.76	34.77
710.0	5	QPSK	1/74	14.44	V	6.6	0.47	20.57	34.77
713.5	5	QPSK	1/0	14.47	V	6.6	0.47	20.60	34.77
706.5	5	QPSK	1/0	15.86	H	6.6	0.47	21.99	34.77
710.0	5	QPSK	1/74	15.70	H	6.6	0.47	21.83	34.77
713.5	5	QPSK	1/0	15.81	H	6.6	0.47	21.94	34.77
706.5	5	16-QAM	1/0	13.37	V	6.6	0.47	19.50	34.77
710.0	5	16-QAM	1/74	13.60	V	6.6	0.47	19.73	34.77
713.5	5	16-QAM	1/0	13.30	V	6.6	0.47	19.43	34.77
706.5	5	16-QAM	1/0	14.62	H	6.6	0.47	20.75	34.77
710.0	5	16-QAM	1/74	14.82	H	6.6	0.47	20.95	34.77
713.5	5	16-QAM	1/0	14.64	H	6.6	0.47	20.77	34.77
709.0	10	QPSK	1/99	14.36	V	6.6	0.47	20.49	34.77
710.0	10	QPSK	1/99	14.11	V	6.6	0.47	20.24	34.77
711.0	10	QPSK	1/0	14.15	V	6.6	0.47	20.28	34.77
709.0	10	QPSK	1/99	15.82	H	6.6	0.47	21.95	34.77
710.0	10	QPSK	1/99	15.47	H	6.6	0.47	21.60	34.77
711.0	10	QPSK	1/0	15.56	H	6.6	0.47	21.69	34.77
709.0	10	16-QAM	1/99	13.43	V	6.6	0.47	19.56	34.77
710.0	10	16-QAM	1/99	13.17	V	6.6	0.47	19.30	34.77
711.0	10	16-QAM	1/0	13.46	V	6.6	0.47	19.59	34.77
709.0	10	16-QAM	1/99	14.63	H	6.6	0.47	20.76	34.77
710.0	10	16-QAM	1/99	14.53	H	6.6	0.47	20.66	34.77
711.0	10	16-QAM	1/0	14.60	H	6.6	0.47	20.73	34.77

Note: Above is the worst mode data.

9. PEAK-TO-AVERAGE RATIO

9.1 PROVISIONS APPLICABLE

① CCDF Procedure for PAPR :

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. Set the measurement interval as follows:

-for continuous transmissions, set to 1 ms,

-or burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time
that is less than or equal to the burst duration.

4. Record the maximum PAPR level associated with a probability of 0.1%.

② Alternate Procedure for PAPR:

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{Pk}. Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and recordas PAvg. Determine the P.A.R. from:

P.A.R(dB) = PPk (dBm) – PAvg (dBm) (PAvg = Average Power + Duty cycle Factor)

9.2 MEASUREMENT METHOD

Test Settings(Peak Power):

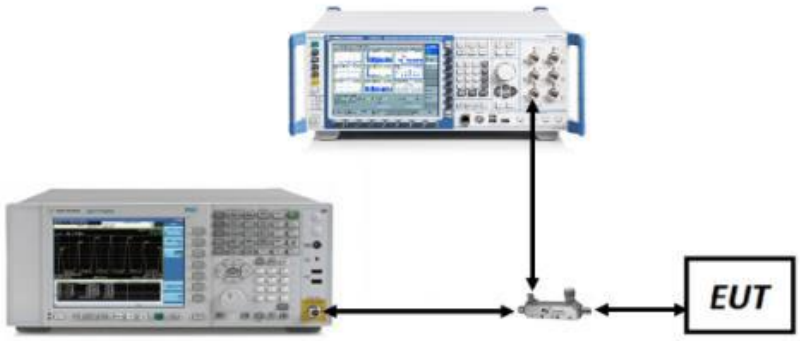
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time: Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25%.

9.3 MEASUREMENT SETUP



9.4 MEASUREMENT RESULT

LTE Band 2

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	1.4MHz	QPSK	18607	6RB#0	5.03	13	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	5.29	13	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	5.06	13	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	5.95	13	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	6.21	13	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	5.95	13	PASS
Band2	3MHz	QPSK	18615	15RB#0	4.81	13	PASS
Band2	3MHz	QPSK	18900	15RB#0	5.00	13	PASS
Band2	3MHz	QPSK	19185	15RB#0	4.45	13	PASS
Band2	3MHz	16QAM	18615	15RB#0	5.77	13	PASS
Band2	3MHz	16QAM	18900	15RB#0	5.85	13	PASS
Band2	3MHz	16QAM	19185	15RB#0	5.25	13	PASS
Band2	5MHz	QPSK	18625	25RB#0	4.97	13	PASS
Band2	5MHz	QPSK	18900	25RB#0	5.35	13	PASS
Band2	5MHz	QPSK	19175	25RB#0	5.23	13	PASS
Band2	5MHz	16QAM	18625	25RB#0	5.84	13	PASS
Band2	5MHz	16QAM	18900	25RB#0	6.24	13	PASS
Band2	5MHz	16QAM	19175	25RB#0	6.09	13	PASS
Band2	10MHz	QPSK	18650	50RB#0	4.26	13	PASS
Band2	10MHz	QPSK	18900	50RB#0	4.68	13	PASS
Band2	10MHz	QPSK	19150	50RB#0	4.20	13	PASS
Band2	10MHz	16QAM	18650	50RB#0	8.43	13	PASS
Band2	10MHz	16QAM	18900	50RB#0	5.58	13	PASS
Band2	10MHz	16QAM	19150	50RB#0	5.06	13	PASS
Band2	15MHz	QPSK	18675	75RB#0	5.03	13	PASS
Band2	15MHz	QPSK	18900	75RB#0	5.58	13	PASS
Band2	15MHz	QPSK	19125	75RB#0	5.35	13	PASS
Band2	15MHz	16QAM	18675	75RB#0	5.79	13	PASS
Band2	15MHz	16QAM	18900	75RB#0	6.34	13	PASS
Band2	15MHz	16QAM	19125	75RB#0	6.11	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	4.81	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	5.46	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	5.14	13	PASS
Band2	20MHz	16QAM	18700	100RB#0	5.74	13	PASS
Band2	20MHz	16QAM	18900	100RB#0	6.28	13	PASS
Band2	20MHz	16QAM	19100	100RB#0	5.97	13	PASS

LTE Band 4

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band4	1.4MHz	QPSK	19957	6RB#0	4.84	13	PASS
Band4	1.4MHz	QPSK	20175	6RB#0	5.16	13	PASS
Band4	1.4MHz	QPSK	20393	6RB#0	4.99	13	PASS
Band4	1.4MHz	16QAM	19957	6RB#0	5.76	13	PASS
Band4	1.4MHz	16QAM	20175	6RB#0	6.07	13	PASS
Band4	1.4MHz	16QAM	20393	6RB#0	5.89	13	PASS
Band4	3MHz	QPSK	19965	15RB#0	4.90	13	PASS
Band4	3MHz	QPSK	20175	15RB#0	5.22	13	PASS
Band4	3MHz	QPSK	20385	15RB#0	5.04	13	PASS
Band4	3MHz	16QAM	19965	15RB#0	5.78	13	PASS
Band4	3MHz	16QAM	20175	15RB#0	6.08	13	PASS
Band4	3MHz	16QAM	20385	15RB#0	5.93	13	PASS
Band4	5MHz	QPSK	19975	25RB#0	4.88	13	PASS
Band4	5MHz	QPSK	20175	25RB#0	5.17	13	PASS
Band4	5MHz	QPSK	20375	25RB#0	4.90	13	PASS
Band4	5MHz	16QAM	19975	25RB#0	5.75	13	PASS
Band4	5MHz	16QAM	20175	25RB#0	6.04	13	PASS
Band4	5MHz	16QAM	20375	25RB#0	5.81	13	PASS
Band4	10MHz	QPSK	20000	50RB#0	4.92	13	PASS
Band4	10MHz	QPSK	20175	50RB#0	5.08	13	PASS
Band4	10MHz	QPSK	20350	50RB#0	4.94	13	PASS
Band4	10MHz	16QAM	20000	50RB#0	5.84	13	PASS
Band4	10MHz	16QAM	20175	50RB#0	5.99	13	PASS
Band4	10MHz	16QAM	20350	50RB#0	5.86	13	PASS
Band4	15MHz	QPSK	20025	75RB#0	5.38	13	PASS
Band4	15MHz	QPSK	20175	75RB#0	5.28	13	PASS
Band4	15MHz	QPSK	20325	75RB#0	5.22	13	PASS
Band4	15MHz	16QAM	20025	75RB#0	6.13	13	PASS
Band4	15MHz	16QAM	20175	75RB#0	6.09	13	PASS
Band4	15MHz	16QAM	20325	75RB#0	6.02	13	PASS
Band4	20MHz	QPSK	20050	100RB#0	5.40	13	PASS
Band4	20MHz	QPSK	20175	100RB#0	5.12	13	PASS
Band4	20MHz	QPSK	20300	100RB#0	5.23	13	PASS
Band4	20MHz	16QAM	20050	100RB#0	6.19	13	PASS
Band4	20MHz	16QAM	20175	100RB#0	6.02	13	PASS
Band4	20MHz	16QAM	20300	100RB#0	6.05	13	PASS

LTE BAND 5

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	5.10	13	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	5.11	13	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	4.80	13	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	6.00	13	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	6.02	13	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	5.75	13	PASS
Band5	3MHz	QPSK	20415	15RB#0	5.18	13	PASS
Band5	3MHz	QPSK	20525	15RB#0	5.14	13	PASS
Band5	3MHz	QPSK	20635	15RB#0	5.03	13	PASS
Band5	3MHz	16QAM	20415	15RB#0	6.07	13	PASS
Band5	3MHz	16QAM	20525	15RB#0	6.07	13	PASS
Band5	3MHz	16QAM	20635	15RB#0	5.94	13	PASS
Band5	5MHz	QPSK	20425	25RB#0	5.16	13	PASS
Band5	5MHz	QPSK	20525	25RB#0	5.10	13	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.99	13	PASS
Band5	5MHz	16QAM	20425	25RB#0	6.01	13	PASS
Band5	5MHz	16QAM	20525	25RB#0	6.00	13	PASS
Band5	5MHz	16QAM	20625	25RB#0	5.87	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	5.19	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	5.08	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	5.03	13	PASS
Band5	10MHz	16QAM	20450	50RB#0	6.02	13	PASS
Band5	10MHz	16QAM	20525	50RB#0	5.94	13	PASS
Band5	10MHz	16QAM	20600	50RB#0	5.93	13	PASS

LTE BAND 7

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band7	5MHz	QPSK	20775	25RB#0	4.92	13	PASS
Band7	5MHz	QPSK	21100	25RB#0	4.93	13	PASS
Band7	5MHz	QPSK	21425	25RB#0	4.66	13	PASS
Band7	5MHz	16QAM	20775	25RB#0	5.80	13	PASS
Band7	5MHz	16QAM	21100	25RB#0	5.80	13	PASS
Band7	5MHz	16QAM	21425	25RB#0	5.56	13	PASS
Band7	10MHz	QPSK	20800	50RB#0	4.94	13	PASS
Band7	10MHz	QPSK	21100	50RB#0	4.83	13	PASS
Band7	10MHz	QPSK	21400	50RB#0	4.68	13	PASS
Band7	10MHz	16QAM	20800	50RB#0	5.87	13	PASS
Band7	10MHz	16QAM	21100	50RB#0	5.78	13	PASS
Band7	10MHz	16QAM	21400	50RB#0	5.66	13	PASS
Band7	15MHz	QPSK	20825	75RB#0	5.08	13	PASS
Band7	15MHz	QPSK	21100	75RB#0	4.87	13	PASS
Band7	15MHz	QPSK	21375	75RB#0	4.74	13	PASS
Band7	15MHz	16QAM	20825	75RB#0	5.88	13	PASS
Band7	15MHz	16QAM	21100	75RB#0	5.68	13	PASS
Band7	15MHz	16QAM	21375	75RB#0	5.63	13	PASS
Band7	20MHz	QPSK	20850	100RB#0	4.87	13	PASS
Band7	20MHz	QPSK	21100	100RB#0	4.93	13	PASS
Band7	20MHz	QPSK	21350	100RB#0	4.69	13	PASS
Band7	20MHz	16QAM	20850	100RB#0	5.82	13	PASS
Band7	20MHz	16QAM	21100	100RB#0	5.80	13	PASS
Band7	20MHz	16QAM	21350	100RB#0	5.66	13	PASS

LTE Band 12

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band12	1.4MHz	QPSK	23017	6RB#0	5.12	13	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	5.25	13	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	5.03	13	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	6.02	13	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	6.15	13	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	5.94	13	PASS
Band12	3MHz	QPSK	23025	15RB#0	5.14	13	PASS
Band12	3MHz	QPSK	23095	15RB#0	5.27	13	PASS
Band12	3MHz	QPSK	23165	15RB#0	5.10	13	PASS
Band12	3MHz	16QAM	23025	15RB#0	6.05	13	PASS
Band12	3MHz	16QAM	23095	15RB#0	6.15	13	PASS
Band12	3MHz	16QAM	23165	15RB#0	5.95	13	PASS
Band12	5MHz	QPSK	23035	25RB#0	5.14	13	PASS
Band12	5MHz	QPSK	23095	25RB#0	5.13	13	PASS
Band12	5MHz	QPSK	23155	25RB#0	4.95	13	PASS
Band12	5MHz	16QAM	23035	25RB#0	6.00	13	PASS
Band12	5MHz	16QAM	23095	25RB#0	6.05	13	PASS
Band12	5MHz	16QAM	23155	25RB#0	5.85	13	PASS
Band12	10MHz	QPSK	23060	50RB#0	5.05	13	PASS
Band12	10MHz	QPSK	23095	50RB#0	5.08	13	PASS
Band12	10MHz	QPSK	23130	50RB#0	5.02	13	PASS
Band12	10MHz	16QAM	23060	50RB#0	5.97	13	PASS
Band12	10MHz	16QAM	23095	50RB#0	5.96	13	PASS
Band12	10MHz	16QAM	23130	50RB#0	5.95	13	PASS

LTE BAND 17

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band17	5MHz	QPSK	23755	25RB#0	5.04	13	PASS
Band17	5MHz	QPSK	23790	25RB#0	4.95	13	PASS
Band17	5MHz	QPSK	23825	25RB#0	4.80	13	PASS
Band17	5MHz	16QAM	23755	25RB#0	5.93	13	PASS
Band17	5MHz	16QAM	23790	25RB#0	5.82	13	PASS
Band17	5MHz	16QAM	23825	25RB#0	5.70	13	PASS
Band17	10MHz	QPSK	23780	50RB#0	4.95	13	PASS
Band17	10MHz	QPSK	23790	50RB#0	4.96	13	PASS
Band17	10MHz	QPSK	23800	50RB#0	4.92	13	PASS
Band17	10MHz	16QAM	23780	50RB#0	5.82	13	PASS
Band17	10MHz	16QAM	23790	50RB#0	5.81	13	PASS
Band17	10MHz	16QAM	23800	50RB#0	5.82	13	PASS

10. SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

10.1 PROVISIONS APPLICABLE

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

10.2 MEASUREMENT METHOD

For Band 2/Band 4/Band 5/Band 7/Band 12/ Band 17/ Band 25/Band 26/Band 38 /Band 41:
The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.
For Band 7:
(i) 40 + 10 log10 p from the channel edges to 5 MHz away
(ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and
(iii) 55 + 10 log10 p at X MHz and beyond from the channel edges
For Band 14:
On all frequencies between 769-775 MHz and 799-805 MHz:< 65 + 10log10 (P[Watts])
For Band 38/41:
1.The attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. 55 + 10 log (P) dB at or below 2490.5 MHz.
6. X is the greater of 6MHz or the actual emission bandwidth.

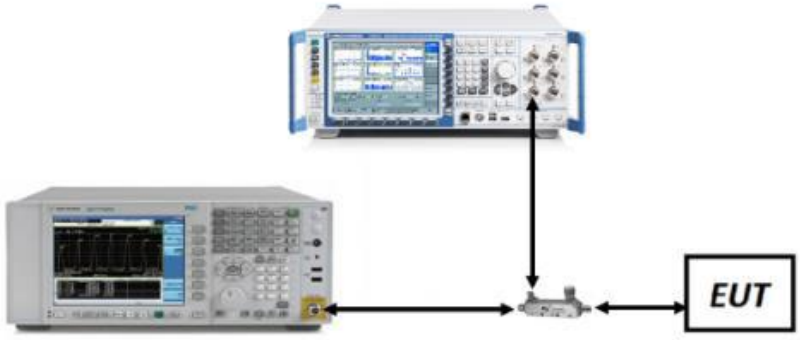
Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = RMS
4. Trace Mode = Average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 * Span / RBW

Test Note

Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

10.3 MEASUREMENT SETUP



10.4 MEASUREMENT RESULT

Please refer to: appendix a test plots for spurious and harmonic emissions at antenna terminal

Note: 1. No transmission signal is found in standby or receiving mode, and the default value is lower than the limit of 20dB, which is not recorded in this report.

11. RADIATED SPURIOUS EMISSION

11.1 PROVISIONS APPLICABLE

(A) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm.

At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

(B) For specific criteria, please refer to the description in section 9.2 of the report for corresponding evaluation.

11.2 MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.

9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.
11. For spurious emissions above 1GHz, a horn antenna is substituted in place of the EUT.
The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
The spurious emissions is calculated by the following formula;

Result(dBm) = Pg(dBm) +Factor(dB)

Factor(dB) = Ant Gain(dB)-Cable Loss(dB) + Power Splitter(dB) (Above 1GHz)

Factor(dB) = Ant Gain(dB)-Cable Loss(dB) (Below 1GHz)

Where: Pgis the generator output power into the substitution antenna.
If the fundalmatal frequency is below 1GHz, RF output power has been converted to EIRP.

EIRP(dBm) = ERP(dBm) + 2.15

12. Examples of Factor parameters for testing radiation spurious:

Frequency Range(MHz)	Factor(dB)
30-500	6.18
500-1000	9.37
1000-1500	27.56
1500-2000	28.27
2000-3000	29.45
3000-5000	30.15
5000-10000	31.26
10000-15000	32.78
15000-20000	33.99
Above 20GHz	35.04