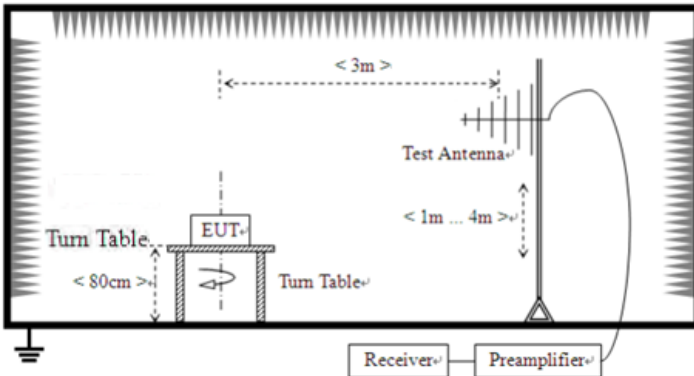
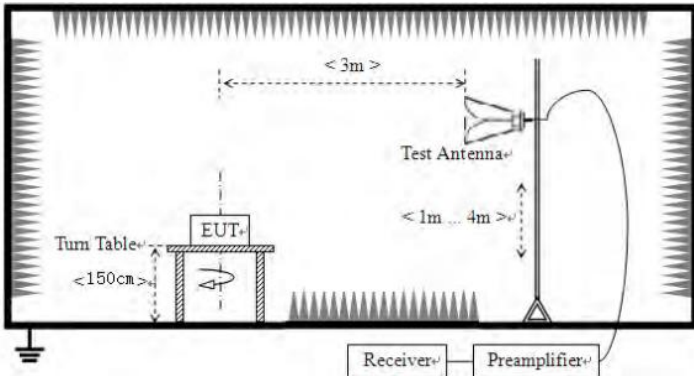
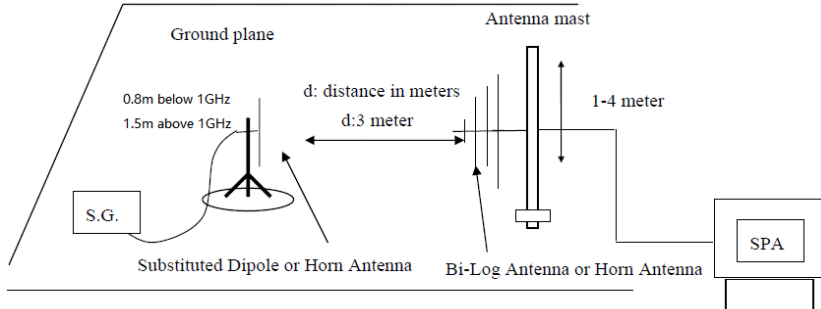


EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
Band 17 (5MHz)	Lowest	H	V	22.48	34.77	Pass
			H	20.41		
		E1	V	22.37		
			H	19.91		
		E2	V	21.71		
			H	18.92		
	Middle	H	V	22.80	34.77	Pass
			H	20.28		
		E1	V	22.55		
			H	20.15		
		E2	V	22.29		
			H	19.20		
	Highest	H	V	22.54	34.77	Pass
			H	20.35		
		E1	V	22.44		
			H	20.14		
		E2	V	21.97		
			H	19.44		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
Band 17 (10MHz)	Lowest	H	V	22.42	34.77	Pass
			H	20.31		
		E1	V	22.35		
			H	19.83		
		E2	V	21.69		
			H	18.88		
	Middle	H	V	22.79	34.77	Pass
			H	20.28		
		E1	V	22.55		
			H	20.13		
		E2	V	22.26		
			H	19.16		
	Highest	H	V	22.54	34.77	Pass
			H	20.36		
		E1	V	22.45		
			H	20.12		
		E2	V	21.96		
			H	19.42		

7.9 Field strength of spurious radiation measurement

Test Requirement:	Part 24.238 (a); FCC Part 27.53(h)/(g)
Test Method:	FCC part 2.1053 and ANSI C63.26:2015
Limit:	Band 2/4/5/7/12/17:-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	Band 2 (1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3701.40	Vertical	-36.05	-13.00	Pass
5552.10	V	-38.78		
7402.80	V	-41.04		
9253.50	V	-43.20		
11104.20	V	---		
3701.40	Horizontal	-41.28	-13.00	Pass
5552.10	H	-45.14		
7402.80	H	-46.71		
9253.50	H	-49.44		
11104.20	H	---		
Test mode:	Band 2 (1.4MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-37.42	-13.00	Pass
5640.00	V	-39.69		
7520.00	V	-41.58		
9400.00	V	-43.38		
11280.00	V	---		
3760.00	Horizontal	-41.78	-13.00	Pass
5640.00	H	-45.00		
7520.00	H	-46.30		
9400.00	H	-48.58		
11280.00	H	---		
Test mode:	Band 2 (1.4MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3818.60	Vertical	-37.74	-13.00	Pass
5727.90	V	-39.76		
7637.20	V	-41.42		
9546.50	V	-43.03		
11455.80	V	---		
3818.60	Horizontal	-41.61	-13.00	Pass
5727.90	H	-44.47		
7637.20	H	-45.62		
9546.50	H	-47.64		
11455.80	H	---		

Test mode:	Band 4 (1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3421.40	Vertical	-37.16	-13.00	Pass
5132.10	V	-39.53		
6842.80	V	-41.50		
8553.50	V	-43.39		
10264.20	V	---		
3421.40	Horizontal	-41.72	-13.00	Pass
5132.10	H	-45.09		
6842.80	H	-46.43		
8553.50	H	-48.80		
10264.20	H	---		
Test mode:	Band 4 (1.4MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3465.00	Vertical	-35.02	-13.00	Pass
5197.50	V	-37.47		
6930.00	V	-39.49		
8662.50	V	-41.46		
10395.00	V	---		
3465.00	Horizontal	-39.74	-13.00	Pass
5197.50	H	-43.20		
6930.00	H	-44.60		
8662.50	H	-47.04		
10395.00	H	---		
Test mode:	Band 4 (1.4MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3508.60	Vertical	-35.80	-13.00	Pass
5262.90	V	-38.19		
7017.20	V	-40.17		
8771.50	V	-42.07		
10525.80	V	---		
3508.60	Horizontal	-40.39	-13.00	Pass
5262.90	H	-43.78		
7017.20	H	-45.14		
8771.50	H	-47.53		
10525.80	H	---		

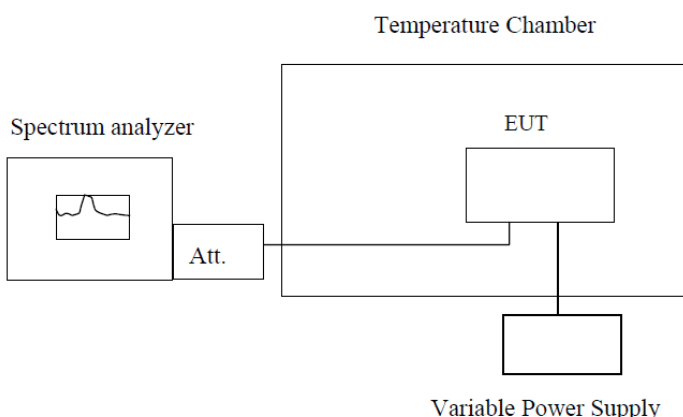
Test mode:	Band 5 (1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1649.40	Vertical	-40.16	-13.00	Pass
2474.10	V	-40.86		
3298.80	V	-42.23		
4123.50	V	-44.38		
4948.20	V	---		
1649.40	Horizontal	-43.06	-13.00	Pass
2474.10	H	-45.18		
3298.80	H	-46.65		
4123.50	H	-49.07		
4948.20	H	---		
Test mode:	Band 5 (1.4MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-41.08	-13.00	Pass
2509.50	V	-43.02		
3346.00	V	-44.23		
4182.50	V	-48.12		
5019.00	V	---		
1673.00	Horizontal	-44.36	-13.00	Pass
2509.50	H	-44.88		
3346.00	H	-47.06		
4182.50	H	-50.39		
5019.00	H	---		
Test mode:	Band 5 (1.4MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1696.60	Vertical	-38.65	-13.00	Pass
2544.90	V	-40.29		
3393.20	V	-42.22		
4241.50	V	-43.15		
5089.80	V	---		
1696.60	Horizontal	-44.50	-13.00	Pass
2544.90	H	-48.18		
3393.20	H	-50.48		
4241.50	H	-53.53		
5089.80	H	---		

Test mode:	Band 7 (5MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5005.00	Vertical	-38.58	-13.00	Pass
7507.50	V	-41.67		
10010.00	V	-44.23		
12512.50	V	-46.69		
15015.00	V	---		
5005.00	Horizontal	-44.51	-13.00	Pass
7507.50	H	-48.88		
10010.00	H	-50.65		
12512.50	H	-53.73		
15015.00	H	---		
Test mode:	Band 7 (5MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5070.00	Vertical	-39.03	-13.00	Pass
7605.00	V	-41.98		
10140.00	V	-44.41		
12675.00	V	-46.75		
15210.00	V	---		
5070.00	Horizontal	-44.68	-13.00	Pass
7605.00	H	-48.85		
10140.00	H	-50.53		
12675.00	H	-53.47		
15210.00	H	---		
Test mode:	Band 7 (5MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5135.00	Vertical	-38.27	-13.00	Pass
7702.50	V	-41.02		
10270.00	V	-43.29		
12837.50	V	-45.48		
15405.00	V	---		
5135.00	Horizontal	-43.54	-13.00	Pass
7702.50	H	-47.43		
10270.00	H	-49.00		
12837.50	H	-51.74		
15405.00	H	---		

Test mode:	Band 12 (1.4MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1399.40	Vertical	-37.50	-13.00	Pass
2099.10	V	-41.24		
2798.80	V	-43.97		
3498.50	V	-41.50		
4198.20	V	---		
1399.40	Horizontal	-40.30	-13.00	Pass
2099.10	H	-42.98		
2798.80	H	-48.39		
3498.50	H	-52.01		
4198.20	H	---		
Test mode:	Band 12 (1.4MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1415.00	Vertical	-39.69	-13.00	Pass
2122.50	V	-40.99		
2830.00	V	-44.60		
3537.50	V	-47.06		
4245.00	V	---		
1415.00	Horizontal	-42.13	-13.00	Pass
2122.50	H	-44.02		
2830.00	H	-48.69		
3537.50	H	-51.06		
4245.00	H	---		
Test mode:	Band 12 (1.4MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1430.60	Vertical	-37.96	-13.00	Pass
2145.90	V	-40.39		
2861.20	V	-43.02		
3576.50	V	-45.91		
4291.80	V	---		
1430.60	Horizontal	-41.30	-13.00	Pass
2145.90	H	-43.72		
2861.20	H	-45.09		
3576.50	H	-51.28		
4291.80	H	---		

Test mode:	Band 17 (5MHz)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1413.00	Vertical	-40.27	-13.00	Pass
2119.50	V	-40.96		
2826.00	V	-42.37		
3532.50	V	-44.60		
4239.00	V	---		
1413.00	Horizontal	-43.44	-13.00	Pass
2119.50	H	-45.08		
2826.00	H	-46.00		
3532.50	H	-48.91		
4239.00	H	---		
Test mode:	Band 17 (5MHz)		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1420.00	Vertical	-40.66	-13.00	Pass
2130.00	V	-42.78		
2840.00	V	-44.36		
3550.00	V	-48.45		
4260.00	V	---		
1420.00	Horizontal	-43.85	-13.00	Pass
2130.00	H	-44.72		
2840.00	H	-46.96		
3550.00	H	-50.02		
4260.00	H	---		
Test mode:	Band 17 (5MHz)		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1427.00	Vertical	-38.58	-13.00	Pass
2140.50	V	-40.00		
2854.00	V	-42.06		
3567.50	V	-43.14		
4281.00	V	---		
1427.00	Horizontal	-44.38	-13.00	Pass
2140.50	H	-48.21		
2854.00	H	-50.30		
3567.50	H	-53.29		
4281.00	H	---		

7.10 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part2.1055(a)(1)(b)
Test Method:	FCC Part2.1055(a)(1)(b)
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data

Modulation Mode: QPSK Mode

Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	47	0.0248	2.5	Pass
	-20	52	0.0275		
	-10	45	0.0238		
	0	38	0.0202		
	10	43	0.0229		
	20	38	0.0202		
	30	59	0.0312		
	40	53	0.0284		
	50	52	0.0275		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	52	0.0299	2.5	Pass
	-20	57	0.0326		
	-10	49	0.0285		
	0	45	0.0258		
	10	47	0.0272		
	20	42	0.0244		
	30	68	0.0395		
	40	59	0.0340		
	50	57	0.0326		
Reference Frequency: LTE Band 5 Middle channel=20525 channel=836.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	49	0.0582	2.5	Pass
	-20	56	0.0665		
	-10	47	0.0565		
	0	42	0.0498		
	10	46	0.0552		
	20	41	0.0487		
	30	66	0.0787		
	40	58	0.0692		
	50	55	0.0658		

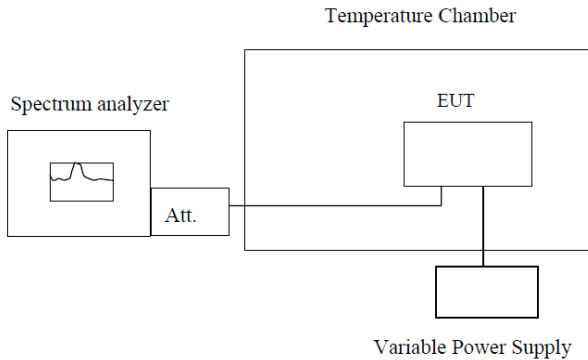
Reference Frequency: LTE Band 7 Middle channel=21100 channel=2535MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	38	0.0148	2.5	Pass
	-20	45	0.0177		
	-10	35	0.0137		
	0	28	0.0109		
	10	36	0.0143		
	20	28	0.0109		
	30	52	0.0205		
	40	42	0.0165		
	50	45	0.0177		
Reference Frequency: LTE Band 12 Middle channel=23095 channel=707.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	32	0.0448	2.5	Pass
	-20	39	0.0547		
	-10	32	0.0448		
	0	26	0.0365		
	10	32	0.0448		
	20	27	0.0381		
	30	47	0.0663		
	40	40	0.0563		
	50	38	0.0530		
Reference Frequency: LTE Band 17 Middle channel=23790 channel=710MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	29	0.0412	2.5	Pass
	-20	35	0.0495		
	-10	27	0.0378		
	0	21	0.0295		
	10	28	0.0395		
	20	21	0.0295		
	30	41	0.0578		
	40	33	0.0461		
	50	35	0.0495		

Modulation Mode: 16QAM Mode

Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	45	0.0240	2.5	Pass
	-20	50	0.0268		
	-10	43	0.0231		
	0	37	0.0194		
	10	42	0.0222		
	20	37	0.0194		
	30	57	0.0304		
	40	52	0.0277		
	50	50	0.0268		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	51	0.0291	2.5	Pass
	-20	55	0.0319		
	-10	48	0.0278		
	0	43	0.0251		
	10	46	0.0264		
	20	41	0.0237		
	30	67	0.0386		
	40	58	0.0332		
	50	55	0.0319		
Reference Frequency: LTE Band 5 Middle channel=20525 channel=836.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	50	0.0597	2.5	Pass
	-20	57	0.0682		
	-10	48	0.0579		
	0	43	0.0510		
	10	47	0.0565		
	20	42	0.0499		
	30	68	0.0807		
	40	59	0.0710		
	50	56	0.0674		

Reference Frequency: LTE Band 7 Middle channel=21100 channel=2535MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	32	0.0128	2.5	Pass
	-20	39	0.0154		
	-10	30	0.0118		
	0	23	0.0092		
	10	31	0.0123		
	20	23	0.0092		
	30	46	0.0180		
	40	36	0.0144		
	50	39	0.0154		
Reference Frequency: LTE Band 12 Middle channel=23095 channel=707.5MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	31	0.0437	2.5	Pass
	-20	38	0.0535		
	-10	31	0.0437		
	0	25	0.0355		
	10	31	0.0437		
	20	26	0.0371		
	30	46	0.0650		
	40	39	0.0551		
	50	37	0.0519		
Reference Frequency: LTE Band 17 Middle channel=23790 channel=710MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
3.70	-30	43	0.0609	2.5	Pass
	-20	51	0.0721		
	-10	40	0.0565		
	0	32	0.0454		
	10	42	0.0587		
	20	32	0.0454		
	30	59	0.0832		
	40	48	0.0676		
	50	51	0.0721		

7.11 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055(d)(1)(2)
Test Method:	FCC Part2.1055(d)(1)(2)
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement Data

Modulation Mode: QPSK Mode

Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	25	0.0131	2.5	Pass
	3.70	27	0.0146		
	3.15	30	0.0160		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	32	0.0184	2.5	Pass
	3.70	24	0.0141		
	3.15	27	0.0155		
Reference Frequency: LTE Band 5 Middle channel=20525 channel=836.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	38	0.0460	2.5	Pass
	3.70	43	0.0512		
	3.15	47	0.0564		
Reference Frequency: LTE Band 7 Middle channel=21100 channel=2535MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	62	0.0243	2.5	Pass
	3.70	47	0.0186		
	3.15	50	0.0197		
Reference Frequency: LTE Band 12 Middle channel=23095 channel=707.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	33	0.0462	2.5	Pass
	3.70	40	0.0560		
	3.15	40	0.0560		
Reference Frequency: LTE Band 17 Middle channel=23790 channel=710MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	55	0.0777	2.5	Pass
	3.70	42	0.0587		
	3.15	44	0.0625		

Modulation Mode: 16QAM Mode

Reference Frequency: LTE Band 2 Middle channel=18900 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	22	0.0116	2.5	Pass
	3.70	24	0.0129		
	3.15	27	0.0142		
Reference Frequency: LTE Band 4 Middle channel=20175 channel=1732.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	34	0.0198	2.5	Pass
	3.70	26	0.0150		
	3.15	29	0.0166		
Reference Frequency: LTE Band 5 Middle channel=20525 channel=836.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	41	0.0493	2.5	Pass
	3.70	47	0.0557		
	3.15	52	0.0619		
Reference Frequency: LTE Band 7 Middle channel=21100 channel=2535MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	56	0.0220	2.5	Pass
	3.70	42	0.0167		
	3.15	45	0.0178		
Reference Frequency: LTE Band 12 Middle channel=23095 channel=707.5MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	33	0.0465	2.5	Pass
	3.70	39	0.0558		
	3.15	39	0.0558		
Reference Frequency: LTE Band 17 Middle channel=23790 channel=710MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.23	54	0.0761	2.5	Pass
	3.70	41	0.0575		
	3.15	43	0.0612		

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----