8.5 RADIATED SPURIOUS EMISSION

8.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and KDB 558074 DTS 01 Meas. Guidance v03r02

8.5.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

According to FCC Part15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	2400/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remark:1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.
for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

8.5.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

8.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:
For Above 1GHz:
The EUT was placed on a turn table which is 1.5m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz
VBW ≥ RBW for peak measurement
VBW = 10Hz for Average measurement
Sweep = auto
Detector function = peak
Trace = max hold
For Below 1GHz:
The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured
RBW = 100 kHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.
Repeat above procedures until all frequency measured was complete.

8.5.5 Test Results

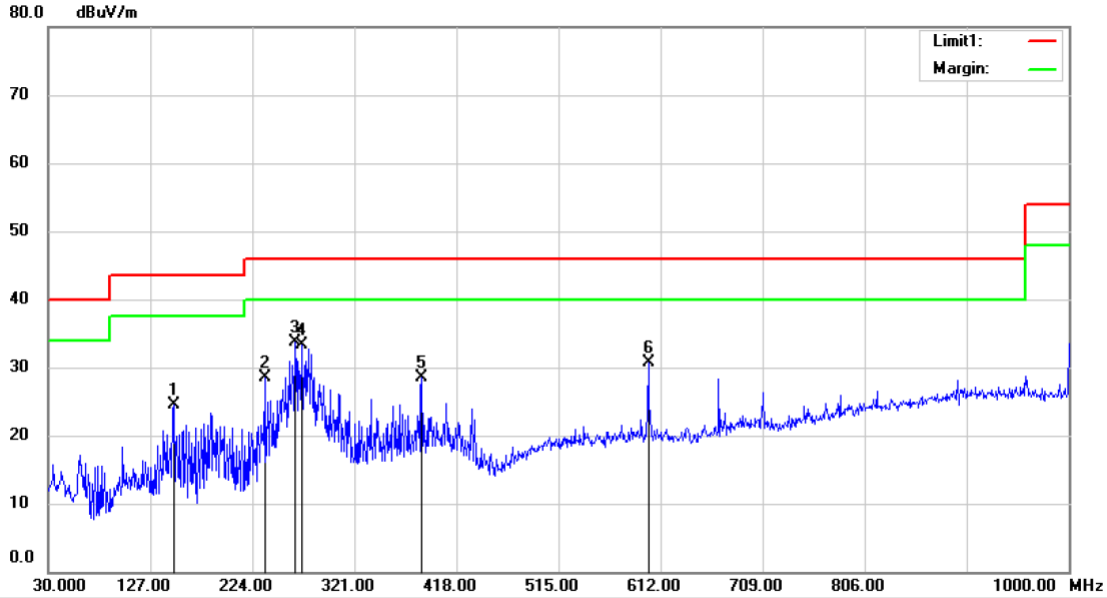
All the modulation modes were tested the data of the worst mode are recorded as below.

■ Spurious Emission below 30MHz (9KHz to 30MHz)
Test mode: TX Mode

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

■ Spurious Emission Below 1GHz (30MHz to 1GHz)

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

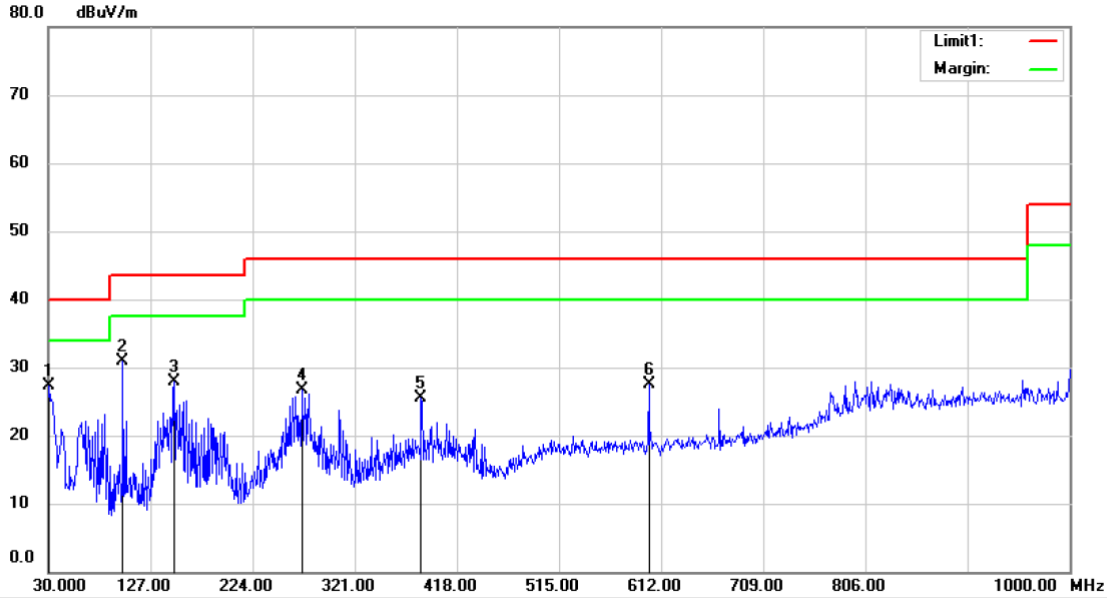
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		149.3100	42.57	-18.08	24.49	43.50	-19.01	QP			
2		235.6400	42.90	-14.39	28.51	46.00	-17.49	QP			
3	*	264.7400	46.54	-12.74	33.80	46.00	-12.20	QP			
4		271.5300	46.06	-12.67	33.39	46.00	-12.61	QP			
5		385.0200	38.19	-9.71	28.48	46.00	-17.52	QP			
6		600.3600	37.69	-6.99	30.70	46.00	-15.30	QP			

*:Maximum data x:Over limit !:over margin Operator:



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

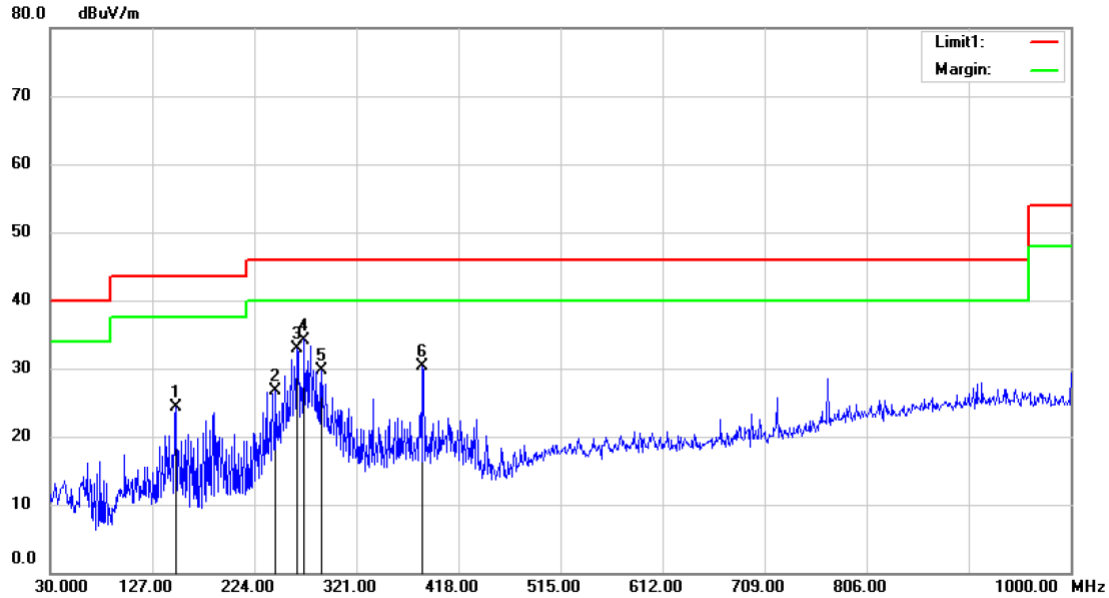
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.9700	43.36	-16.13	27.23	40.00	-12.77	QP			
2	*	100.8100	44.83	-14.02	30.81	43.50	-12.69	QP			
3		149.3100	45.93	-18.08	27.85	43.50	-15.65	QP			
4		271.5300	39.42	-12.67	26.75	46.00	-19.25	QP			
5		384.0500	35.33	-9.77	25.56	46.00	-20.44	QP			
6		600.3600	34.55	-6.99	27.56	46.00	-18.44	QP			

*:Maximum data x:Over limit !:over margin Operator:



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

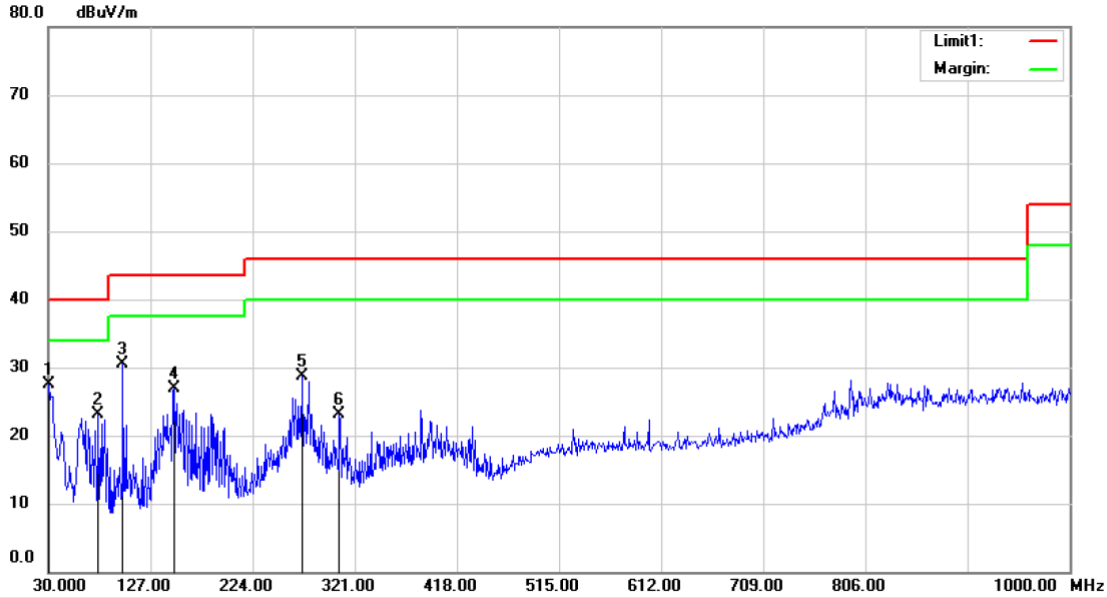
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel6

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		149.3100	42.43	-18.08	24.35	43.50	-19.15	QP			
2		244.3700	40.27	-13.61	26.66	46.00	-19.34	QP			
3		264.7400	45.72	-12.74	32.98	46.00	-13.02	QP			
4	*	271.5300	46.87	-12.67	34.20	46.00	-11.80	QP			
5		288.0200	42.73	-13.07	29.66	46.00	-16.34	QP			
6		384.0500	40.16	-9.77	30.39	46.00	-15.61	QP			

*:Maximum data x:Over limit !:over margin Operator:



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

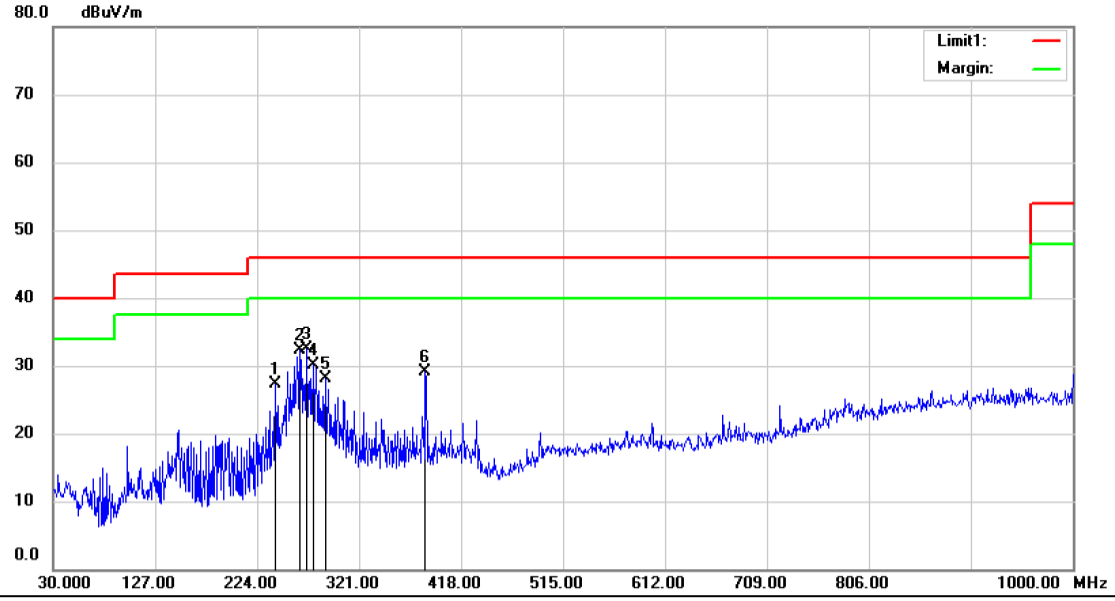
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel6

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	30.9700	43.56	-16.13	27.43	40.00	-12.57	QP			
2		77.5300	42.53	-19.46	23.07	40.00	-16.93	QP			
3		100.8100	44.58	-14.02	30.56	43.50	-12.94	QP			
4		149.3100	44.93	-18.08	26.85	43.50	-16.65	QP			
5		270.5600	41.34	-12.68	28.66	46.00	-17.34	QP			
6		306.4500	36.80	-13.72	23.08	46.00	-22.92	QP			

*:Maximum data x:Over limit !:over margin Operator:



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

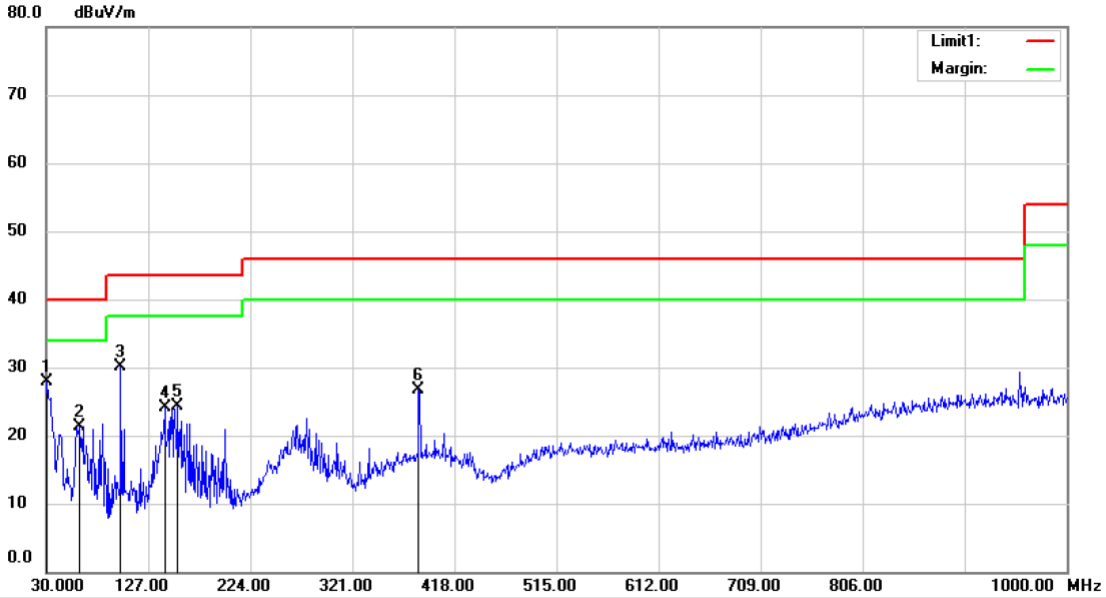
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		241.4600	40.99	-13.76	27.23	46.00	-18.77	QP			
2		264.7400	45.09	-12.74	32.35	46.00	-13.65	QP			
3	*	271.5300	45.10	-12.67	32.43	46.00	-13.57	QP			
4		277.3500	42.80	-12.60	30.20	46.00	-15.80	QP			
5		288.9900	41.31	-13.13	28.18	46.00	-17.82	QP			
6		384.0500	38.87	-9.77	29.10	46.00	-16.90	QP			

*:Maximum data x:Over limit !:over margin Operator:



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	30.9700	43.95	-16.13	27.82	40.00	-12.18	QP			
2		61.0400	37.19	-15.82	21.37	40.00	-18.63	QP			
3		100.8100	44.18	-14.02	30.16	43.50	-13.34	QP			
4		142.5200	41.87	-17.86	24.01	43.50	-19.49	QP			
5		155.1300	42.72	-18.42	24.30	43.50	-19.20	QP			
6		384.0500	36.38	-9.77	26.61	46.00	-19.39	QP			

*:Maximum data x:Over limit !:over margin Operator:

■ Spurious Emission Above 1GHz (1GHz to 25GHz)

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:

Temperature: 24℃ Test Date: September 24, 2015
Humidity: 53 % Test By: KING KONG
Test mode: 802.11b Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
14481.00	V	49.69	33.95	74.00	54.00	-24.31	-20.05
15620.00	V	50.96	33.46	74.00	54.00	-23.04	-20.54
16725.00	V	51.76	34.89	74.00	54.00	-22.24	-19.11
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
14039.00	H	49.63	34.26	74.00	54.00	-24.37	-19.74
15331.00	H	50.40	34.95	74.00	54.00	-23.60	-19.05
16759.00	H	52.06	36.21	74.00	54.00	-21.94	-17.79

Test mode: 802.11b Frequency: Channel 6: 2437MHz

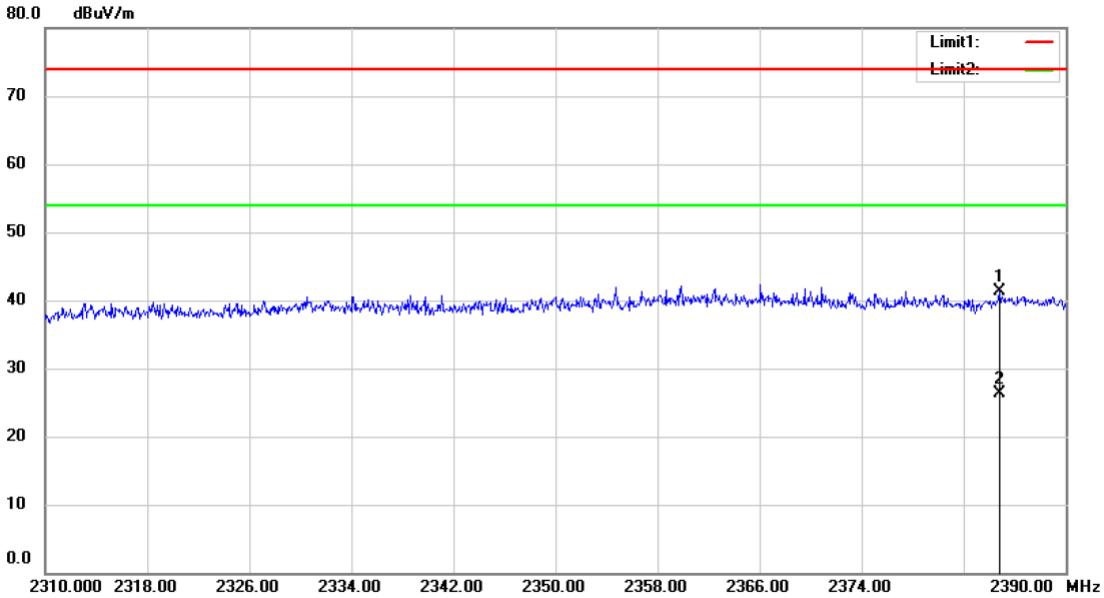
Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
14872.00	V	51.38	35.76	74.00	54.00	-22.62	-18.24
16164.00	V	51.66	35.49	74.00	54.00	-22.34	-18.51
16742.00	V	52.28	37.39	74.00	54.00	-21.72	-16.61
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
13767.00	H	49.98	33.59	74.00	54.00	-24.02	-20.41
14753.00	H	51.46	35.16	74.00	54.00	-22.54	-18.84
17745.00	H	52.81	37.41	74.00	54.00	-21.19	-16.59

Test mode: 802.11b Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
15280.00	V	50.93	35.28	74.00	54.00	-23.07	-18.72
16045.00	V	51.74	36.17	74.00	54.00	-22.26	-17.83
16980.00	V	52.03	37.34	74.00	54.00	-21.97	-16.66
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
15314.00	H	51.14	35.49	74.00	54.00	-22.86	-18.51
16181.00	H	51.31	35.37	74.00	54.00	-22.69	-18.63
17286.00	H	52.34	36.48	74.00	54.00	-21.66	-17.52

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

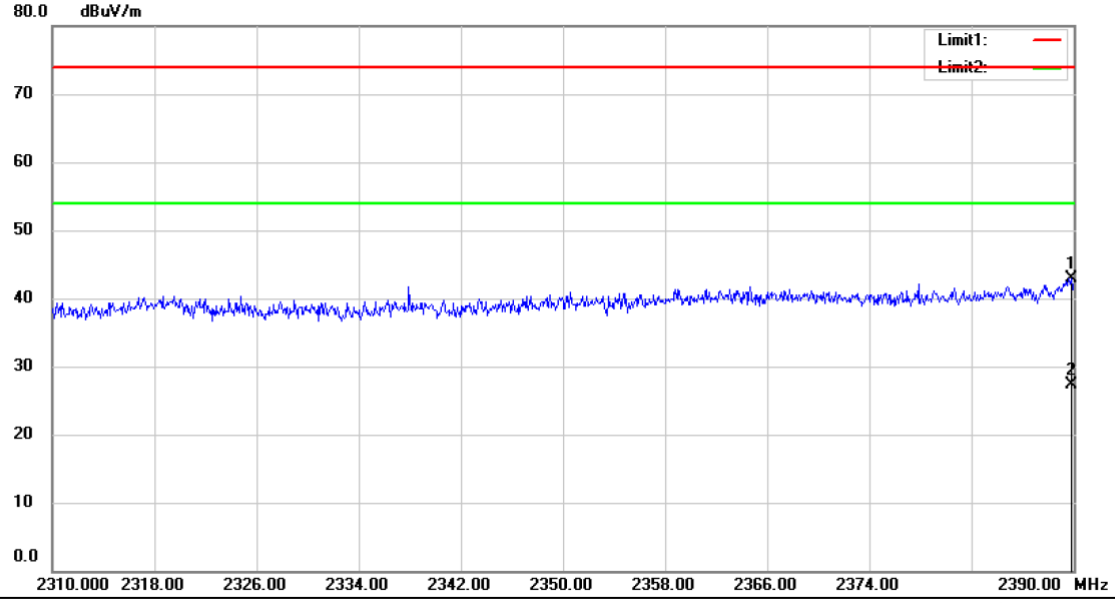
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2384.800	65.04	-23.74	41.30	74.00	-32.70	peak			
2	*	2384.800	49.95	-23.74	26.21	54.00	-27.79	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

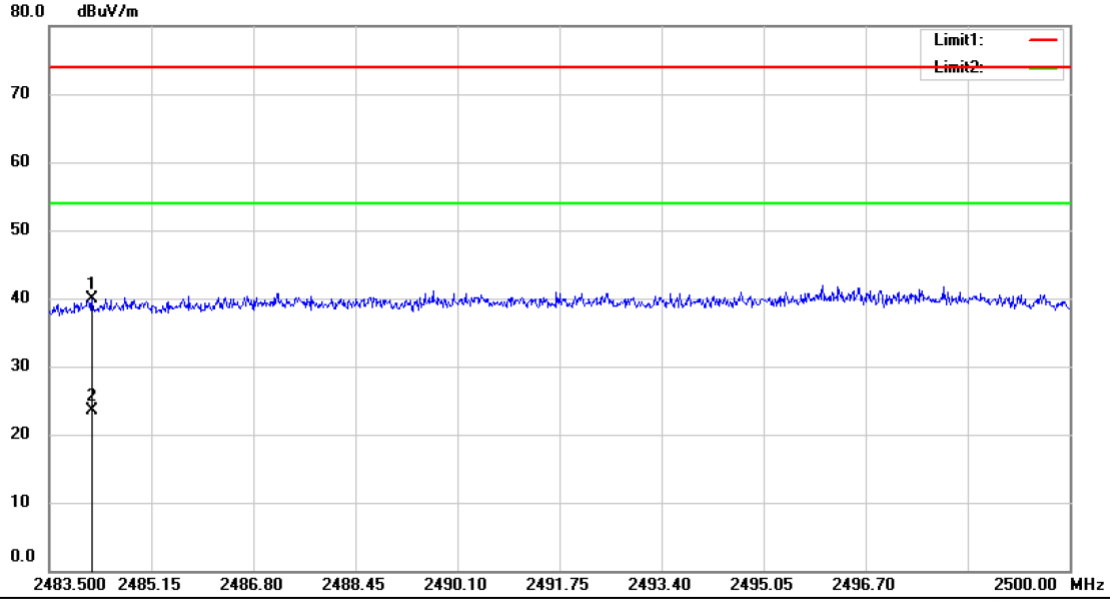
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2389.840	66.60	-23.72	42.88	74.00	-31.12	peak			
2	*	2389.840	50.95	-23.72	27.23	54.00	-26.77	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

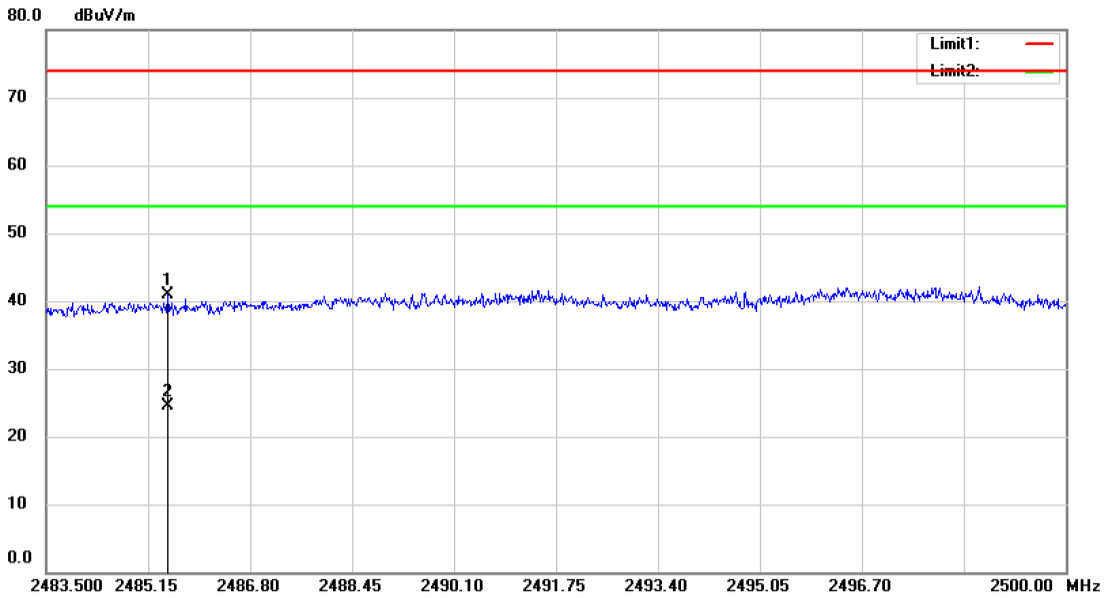
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2484.193	63.02	-23.18	39.84	74.00	-34.16	peak			
2	*	2484.193	46.77	-23.18	23.59	54.00	-30.41	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

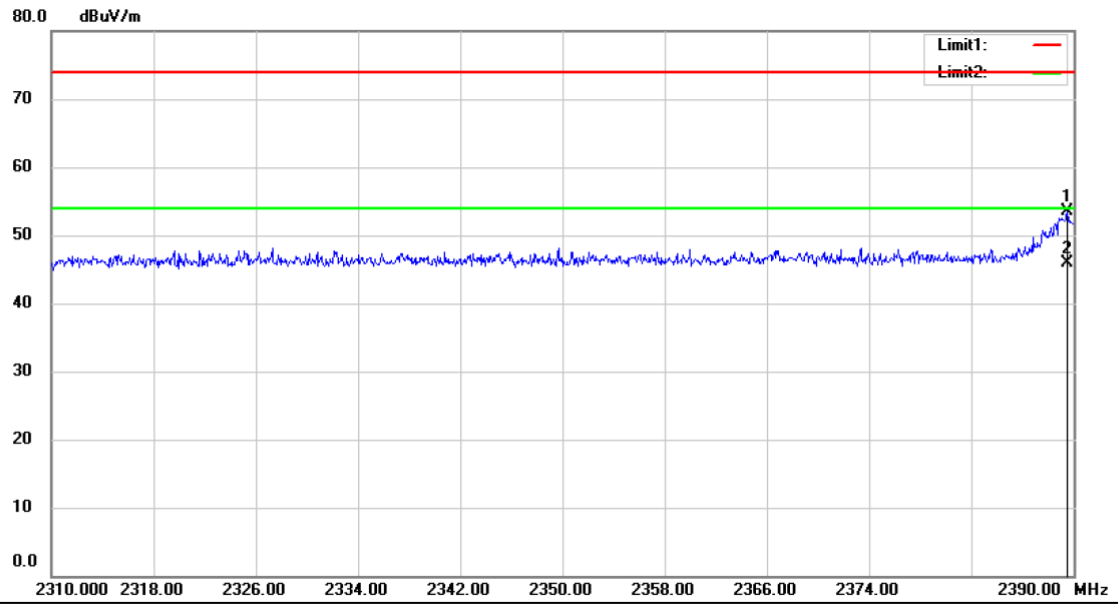
Limit: (RE)FCC PART 15.247 Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11b TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2485.463	64.07	-23.18	40.89	74.00	-33.11	peak			
2	*	2485.463	47.74	-23.18	24.56	54.00	-29.44	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

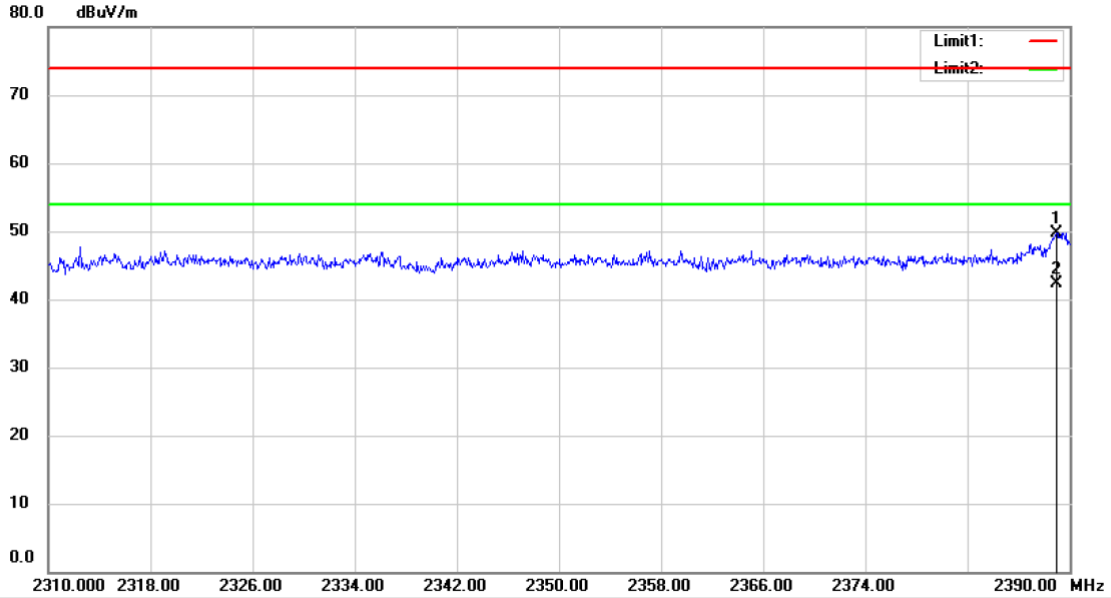
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11g TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2389.512	23.15	30.27	53.42	74.00	-20.58	peak			
2	*	2389.512	15.73	30.27	46.00	54.00	-8.00	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

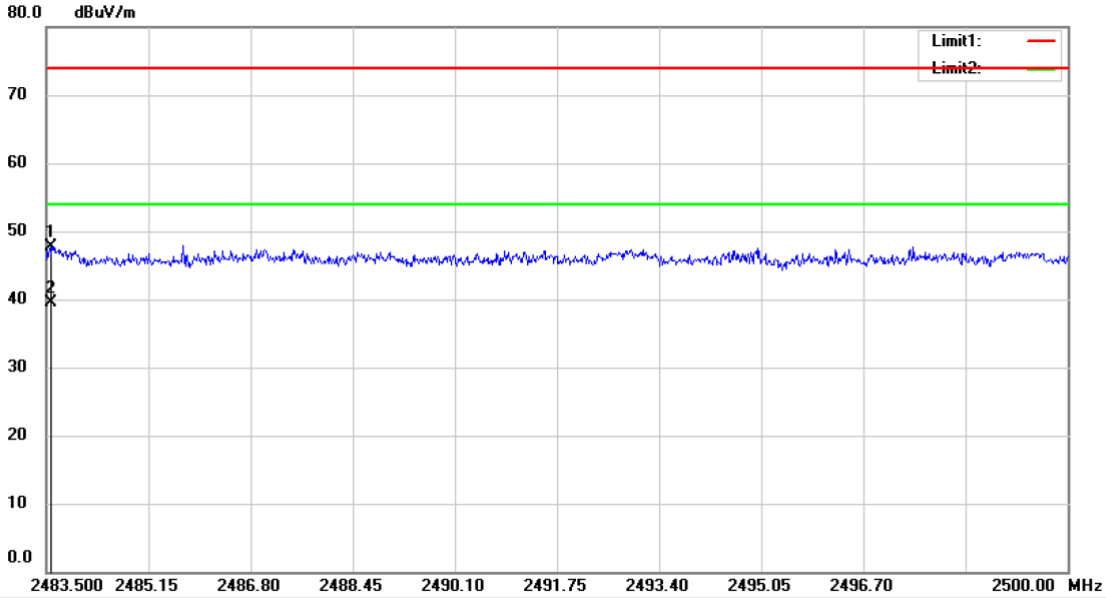
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11g TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2388.942	19.48	30.27	49.75	74.00	-24.25	peak			
2	*	2388.942	12.03	30.27	42.30	54.00	-11.70	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

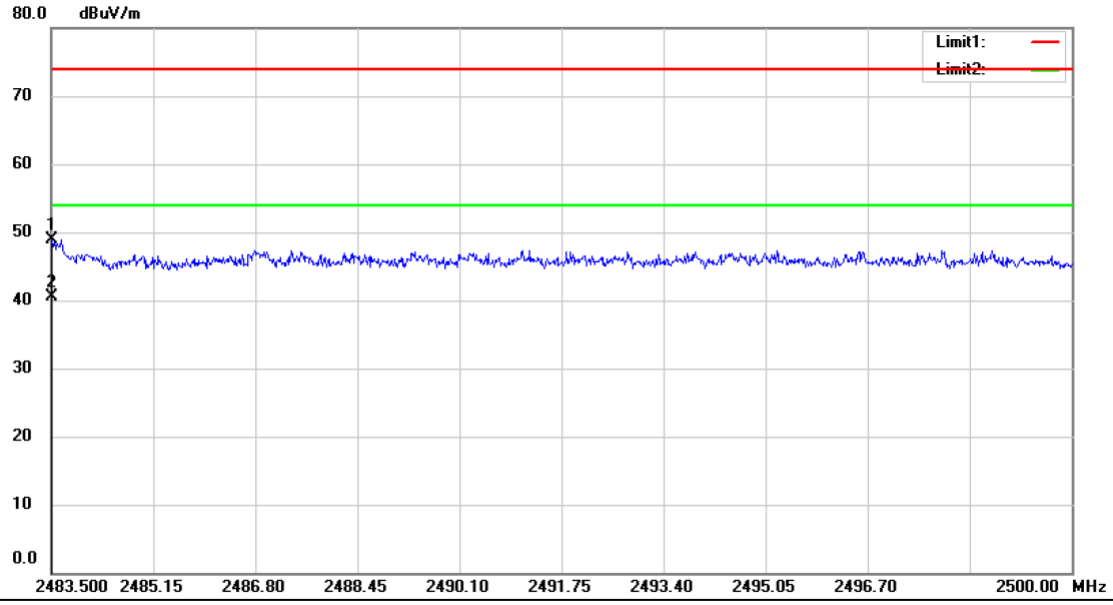
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11g TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.566	17.08	30.70	47.78	74.00	-26.22	peak			
2	*	2483.566	8.90	30.70	39.60	54.00	-14.40	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

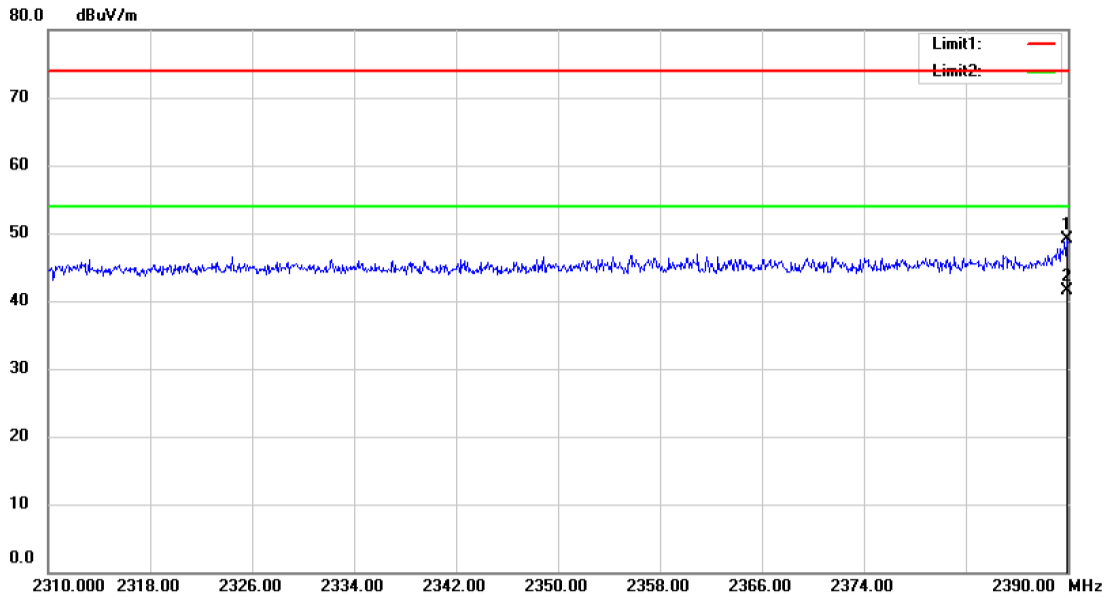
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11g TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.516	18.27	30.70	48.97	74.00	-25.03	peak			
2	*	2483.516	9.90	30.70	40.60	54.00	-13.40	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

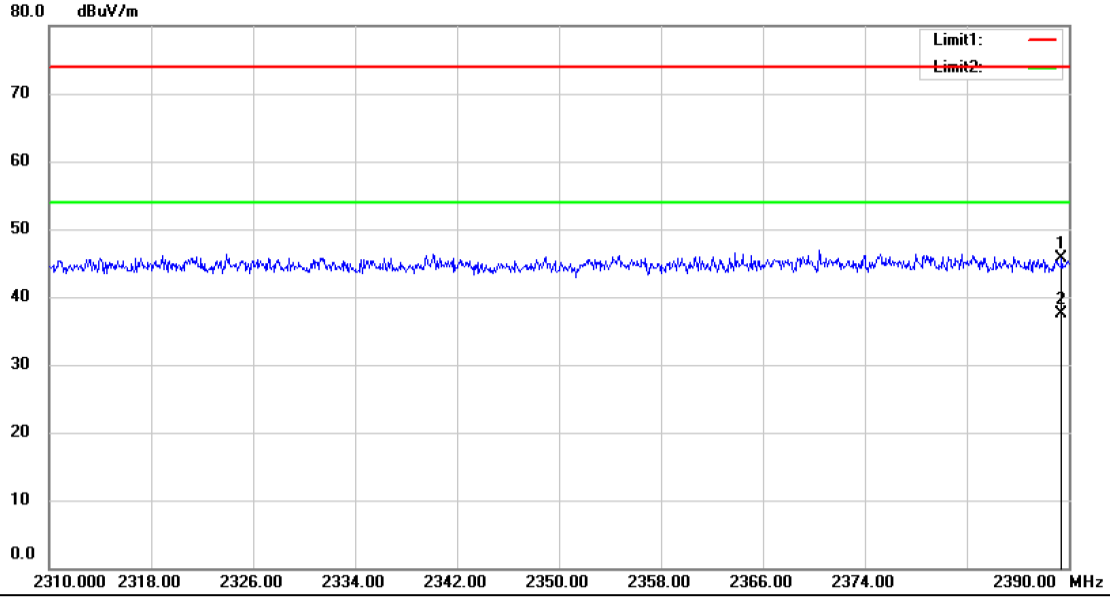
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT20 TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2389.919	18.89	30.28	49.17	74.00	-24.83	peak			
2	*	2389.919	11.32	30.28	41.60	54.00	-12.40	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

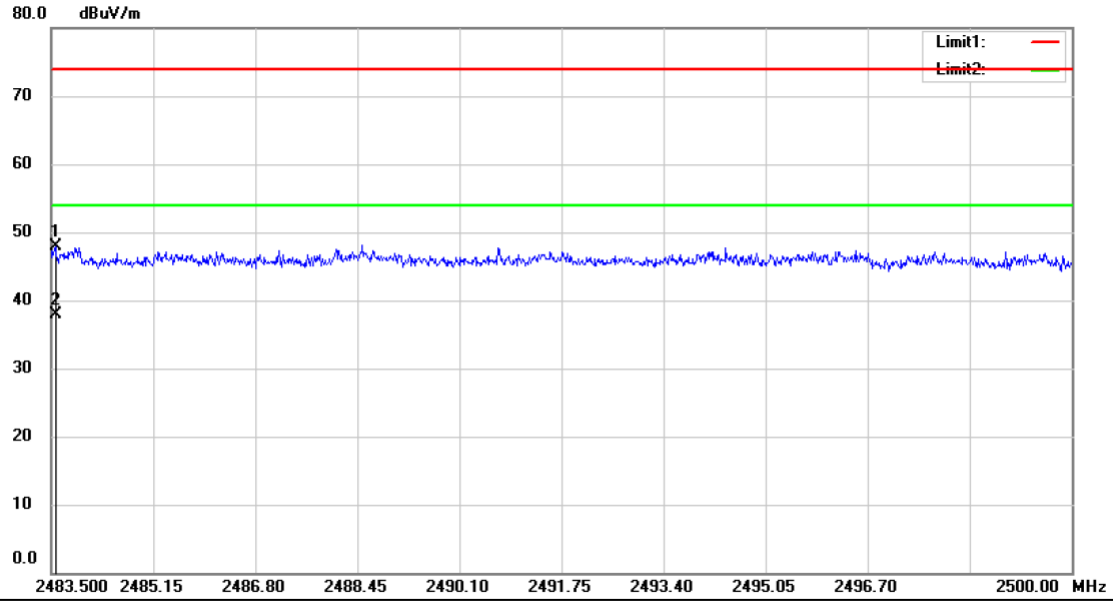
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT20 TX Channel1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2389.430	15.41	30.27	45.68	74.00	-28.32	peak			
2	*	2389.430	7.23	30.27	37.50	54.00	-16.50	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

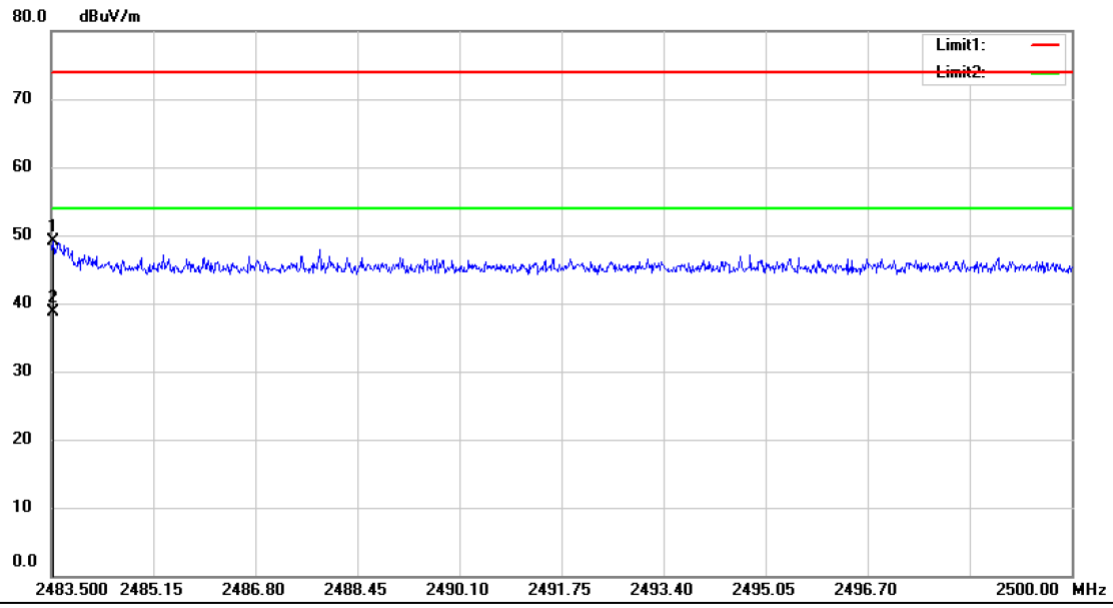
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT20 TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.566	17.20	30.70	47.90	74.00	-26.10	peak			
2	*	2483.566	7.20	30.70	37.90	54.00	-16.10	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

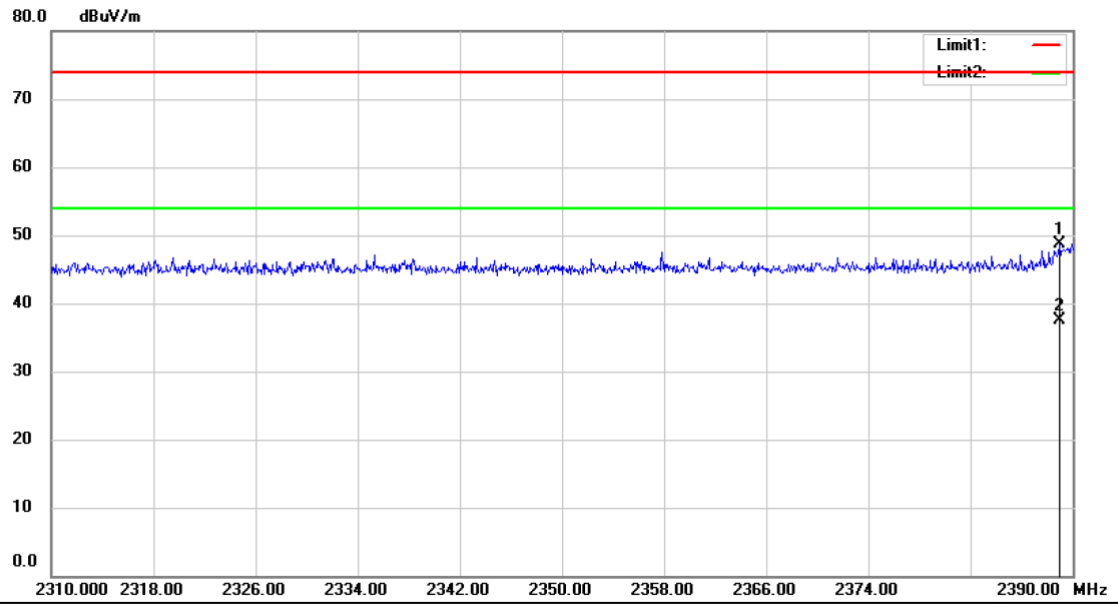
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT20 TX Channel11

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.533	18.38	30.70	49.08	74.00	-24.92	peak			
2	*	2483.533	7.92	30.70	38.62	54.00	-15.38	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

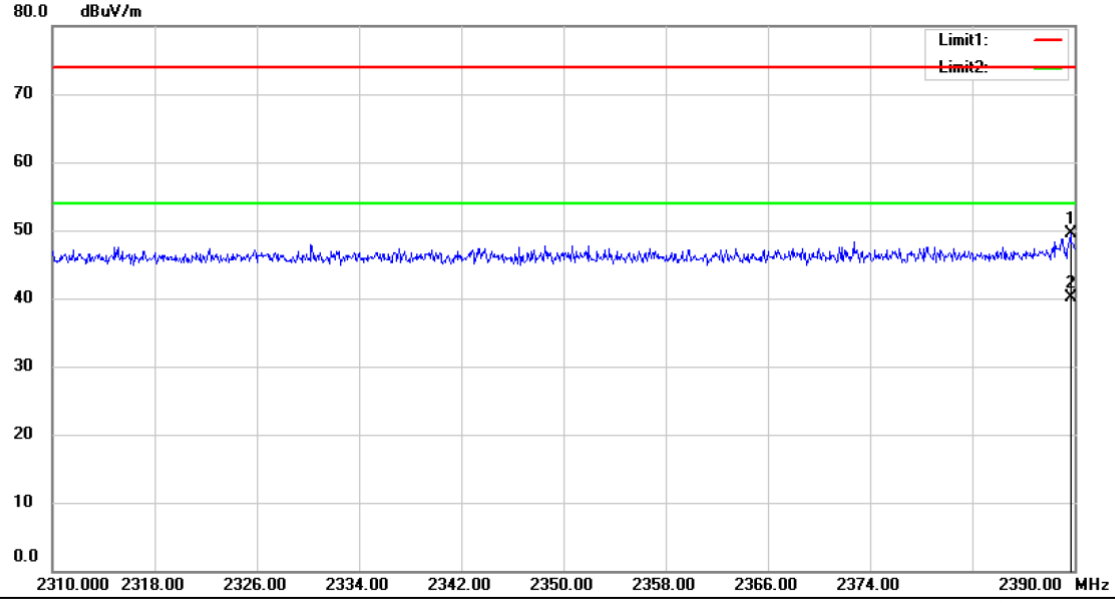
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT40 TX Channel3

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2388.942	18.48	30.27	48.75	74.00	-25.25	peak			
2	*	2388.942	7.33	30.27	37.60	54.00	-16.40	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Vertical*** Temperature: 24 C

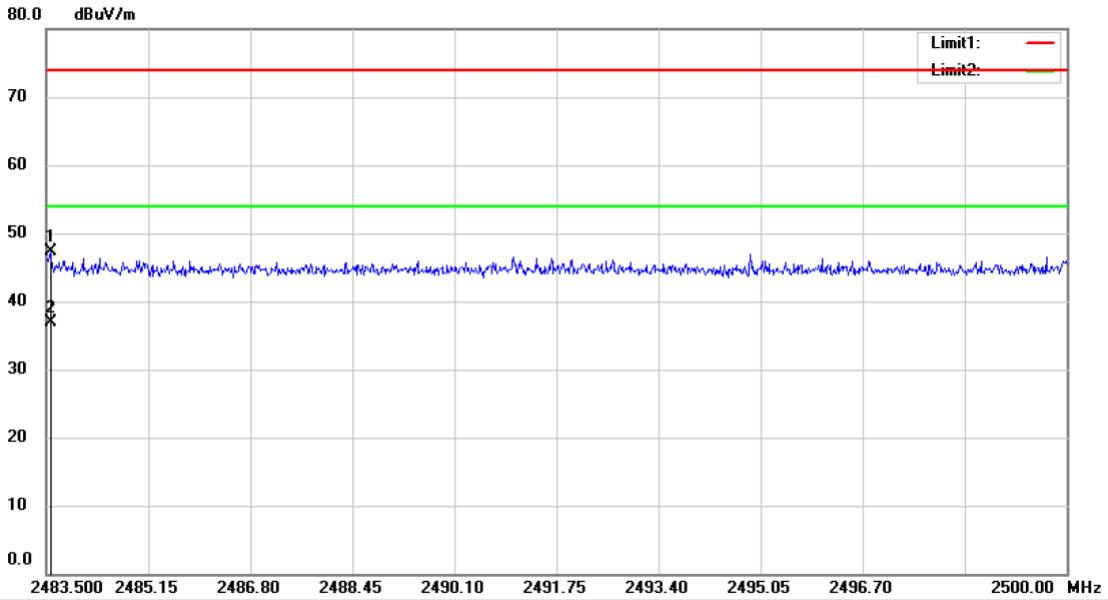
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT40 TX Channel3

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2389.675	19.29	30.27	49.56	74.00	-24.44	peak			
2	*	2389.675	9.93	30.27	40.20	54.00	-13.80	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: ***Horizontal*** Temperature: 24 C

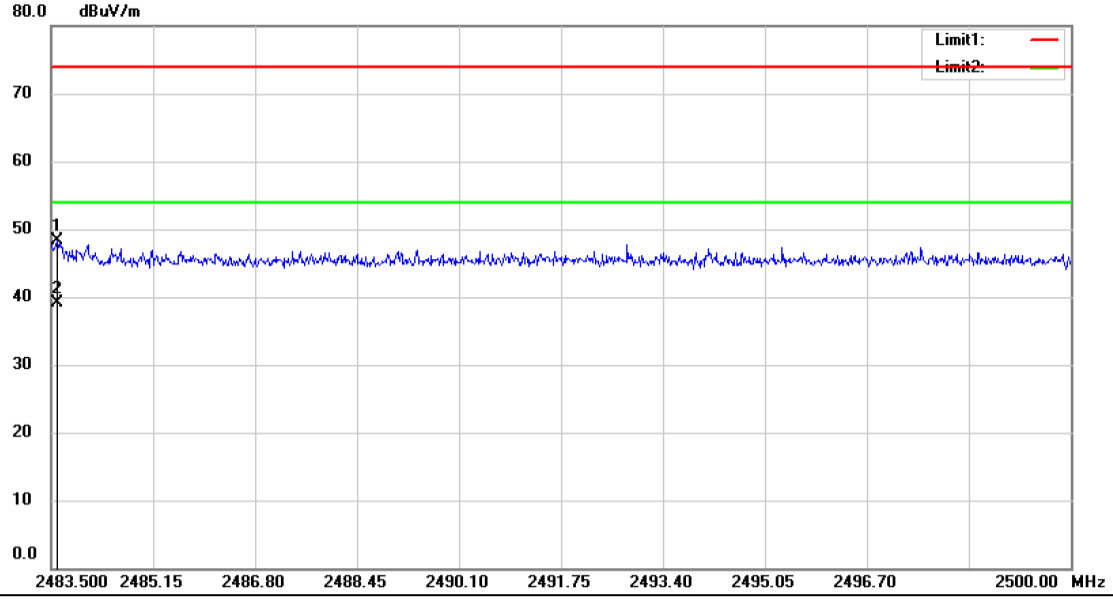
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT40 TX Channel9

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.566	16.55	30.70	47.25	74.00	-26.75	peak			
2	*	2483.566	6.20	30.70	36.90	54.00	-17.10	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK



Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C

Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %

Mode:802.11n HT40 TX Channel9

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2483.599	17.62	30.70	48.32	74.00	-25.68	peak			
2	*	2483.599	8.50	30.70	39.20	54.00	-14.80	AVG			

*:Maximum data x:Over limit !:over margin Operator: KK

8.6 CONDUCTED EMISSION TEST

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Conducted Emission Limit		
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50
Note: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.		

8.6.3 Test Configuration

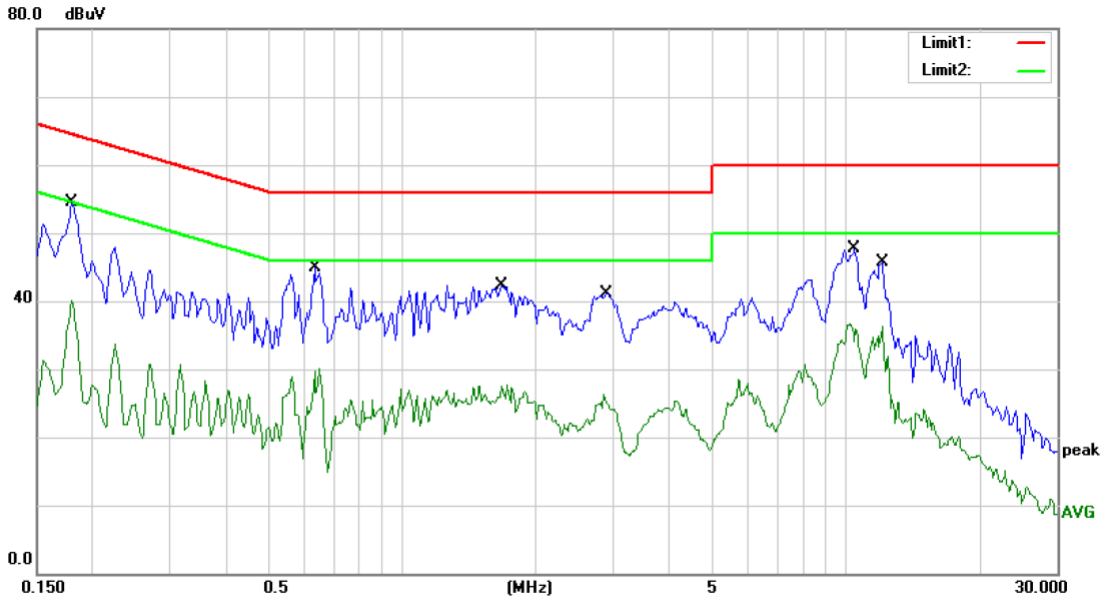
Test according to clause 7.3 conducted emission test setup

8.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

8.6.5 Test Results

PASS.



Site Conduction #1 Phase: *L1* Temperature: 22

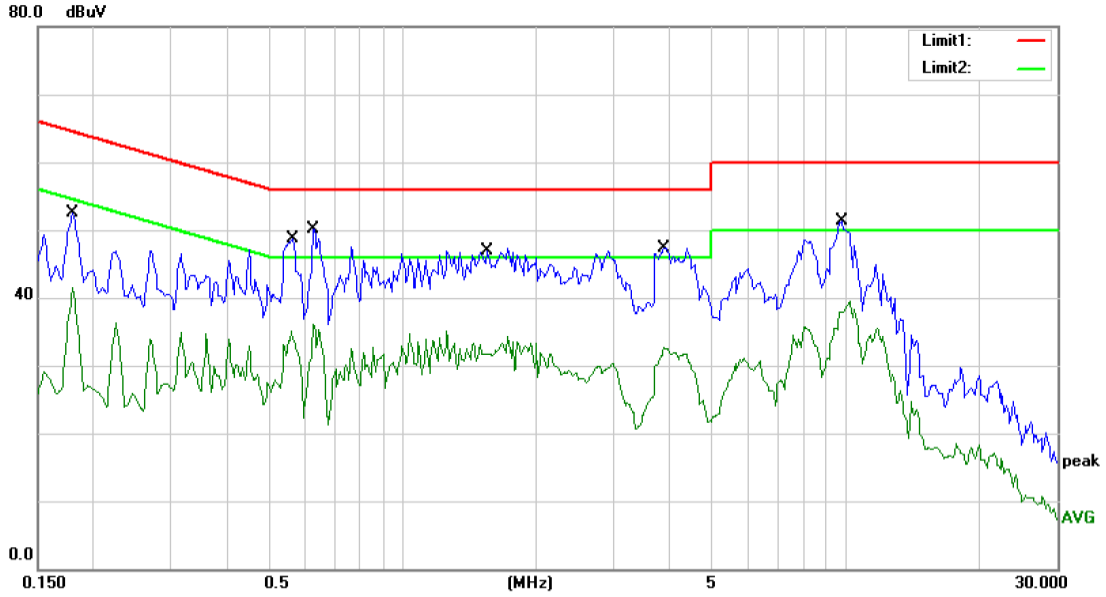
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

Mode: ON

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1800	54.53	0.00	54.53	64.49	-9.96	QP	
2		0.1800	40.03	0.00	40.03	54.49	-14.46	AVG	
3		0.6350	44.94	0.00	44.94	56.00	-11.06	QP	
4		0.6350	30.20	0.00	30.20	46.00	-15.80	AVG	
5		1.6750	42.26	0.00	42.26	56.00	-13.74	QP	
6		1.6750	27.77	0.00	27.77	46.00	-18.23	AVG	
7		2.8950	41.19	0.00	41.19	56.00	-14.81	QP	
8		2.8950	26.30	0.00	26.30	46.00	-19.70	AVG	
9		10.5000	47.62	0.00	47.62	60.00	-12.38	QP	
10		10.5000	36.61	0.00	36.61	50.00	-13.39	AVG	
11		12.1000	45.67	0.00	45.67	60.00	-14.33	QP	
12		12.1000	36.22	0.00	36.22	50.00	-13.78	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK



Site Conduction #1 Phase: *N* Temperature: 22

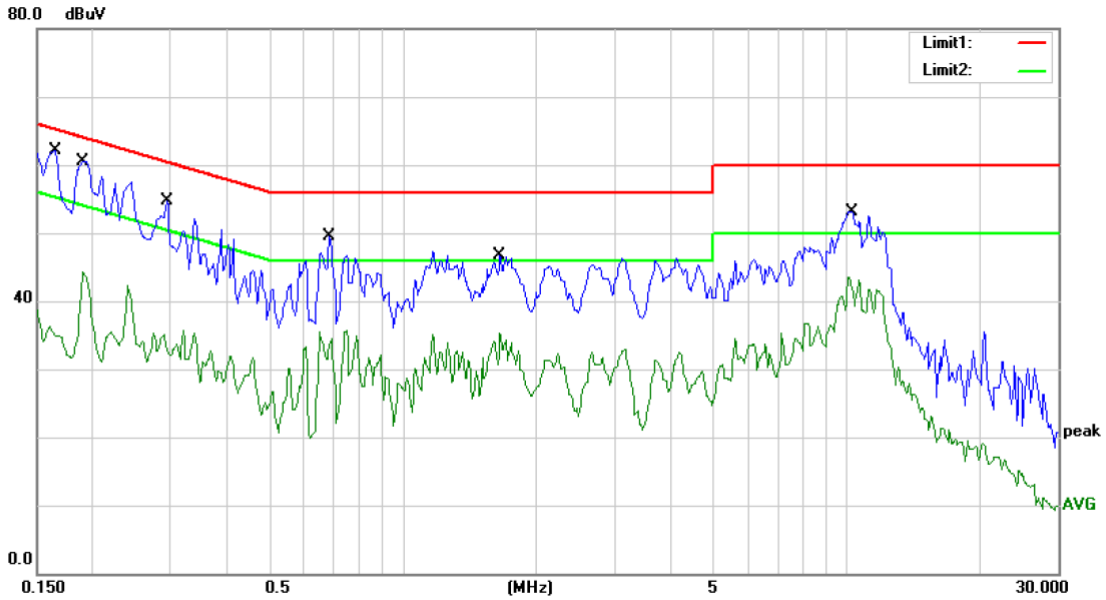
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %

Mode: ON

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1800	52.52	0.00	52.52	64.49	-11.97	QP	
2		0.1800	41.48	0.00	41.48	54.49	-13.01	AVG	
3		0.5650	48.67	0.00	48.67	56.00	-7.33	QP	
4		0.5650	35.01	0.00	35.01	46.00	-10.99	AVG	
5	*	0.6300	50.19	0.00	50.19	56.00	-5.81	QP	
6		0.6300	36.14	0.00	36.14	46.00	-9.86	AVG	
7		1.5500	46.83	0.00	46.83	56.00	-9.17	QP	
8		1.5500	34.23	0.00	34.23	46.00	-11.77	AVG	
9		3.9000	47.35	0.00	47.35	56.00	-8.65	QP	
10		3.9000	32.60	0.00	32.60	46.00	-13.40	AVG	
11		9.7900	51.34	0.00	51.34	60.00	-8.66	QP	
12		9.7900	39.54	0.00	39.54	50.00	-10.46	AVG	

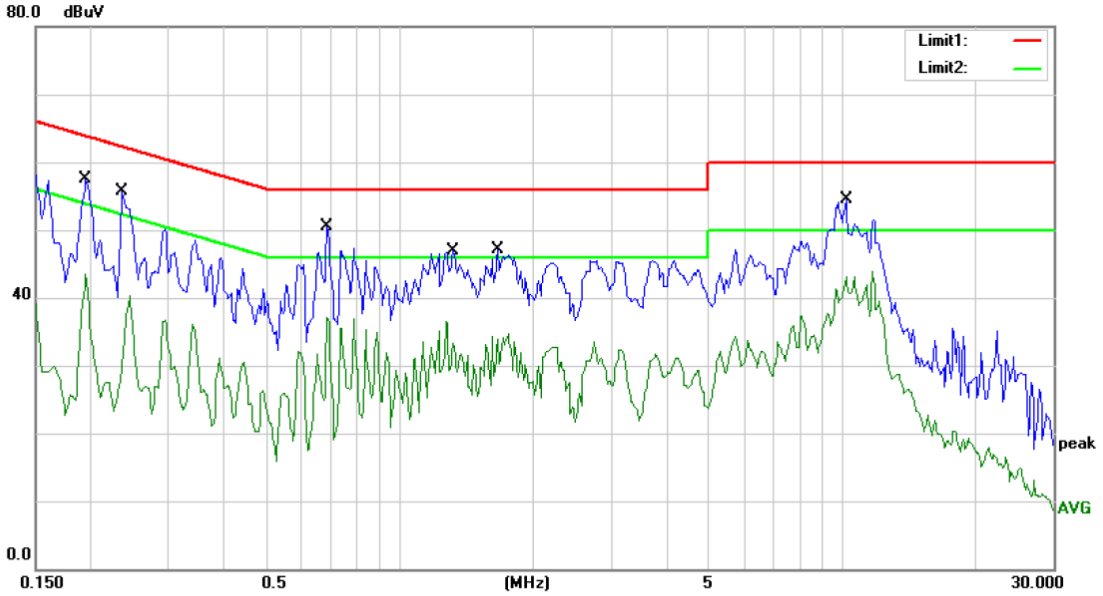
*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK



Site Conduction #1 Phase: *L1* Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 240V/50Hz Humidity: 50 %
Mode: ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1650	62.19	0.00	62.19	65.21	-3.02	QP	
2		0.1650	38.78	0.00	38.78	55.21	-16.43	AVG	
3		0.1900	60.48	0.00	60.48	64.04	-3.56	QP	
4		0.1900	44.38	0.00	44.38	54.04	-9.66	AVG	
5		0.2950	54.76	0.00	54.76	60.38	-5.62	QP	
6		0.2950	35.69	0.00	35.69	50.38	-14.69	AVG	
7		0.6850	49.44	0.00	49.44	56.00	-6.56	QP	
8		0.6850	35.64	0.00	35.64	46.00	-10.36	AVG	
9		1.6600	46.70	0.00	46.70	56.00	-9.30	QP	
10		1.6600	35.35	0.00	35.35	46.00	-10.65	AVG	
11		10.3250	53.18	0.00	53.18	60.00	-6.82	QP	
12		10.3250	43.53	0.00	43.53	50.00	-6.47	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK



Site Conduction #1 Phase: *N* Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 240V/50Hz Humidity: 50 %
Mode: ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1950	57.50	0.00	57.50	63.82	-6.32	QP	
2		0.1950	43.53	0.00	43.53	53.82	-10.29	AVG	
3		0.2350	55.70	0.00	55.70	62.27	-6.57	QP	
4		0.2350	40.29	0.00	40.29	52.27	-11.98	AVG	
5		0.6850	50.43	0.00	50.43	56.00	-5.57	QP	
6		0.6850	37.06	0.00	37.06	46.00	-8.94	AVG	
7		1.3200	46.85	0.00	46.85	56.00	-9.15	QP	
8		1.3200	36.59	0.00	36.59	46.00	-9.41	AVG	
9		1.6650	47.04	0.00	47.04	56.00	-8.96	QP	
10		1.6650	34.63	0.00	34.63	46.00	-11.37	AVG	
11	*	10.2000	54.44	0.00	54.44	60.00	-5.56	QP	
12		10.2000	43.88	0.00	43.88	50.00	-6.12	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: KK

8.7 ANTENNA APPLICATION

8.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.7.2 Result

The EUT'S antenna is PIFA antenna, and the antenna can't be replaced by the user, which in accordance to section 15.203, please refer to the internal photos. The antenna's gain is 2dBi and meets the requirement.

END OF REPORT