

## 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 Part 15.205, 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 Part 15.205, 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 ( $\mu\text{V}/\text{m}$ )	Field Strength ( $\text{dB}\mu\text{V}/\text{m}$ )	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log ( $\mu\text{V}/\text{m}$ )	300
0.490~1.705	2400/F(KHz)	20 log ( $\mu\text{V}/\text{m}$ )	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  $\text{dB}\mu\text{V}/\text{m} = 20 \log (\mu\text{V}/\text{m})$

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. Distance extrapolation factor =  $40 \log (\text{Specific distance} / \text{test distance})$  (dB);

Limit line = Specific limits (dB $\mu\text{V}$ ) + 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  $\text{RBWCF} [\text{dB}] = 10 \cdot \lg (100 [\text{kHz}] / \text{narrower RBW} [\text{kHz}])$ . , 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  $\geq$  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  $\geq$  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  $20\log(\text{dwell time}/100 \text{ ms})$ , 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

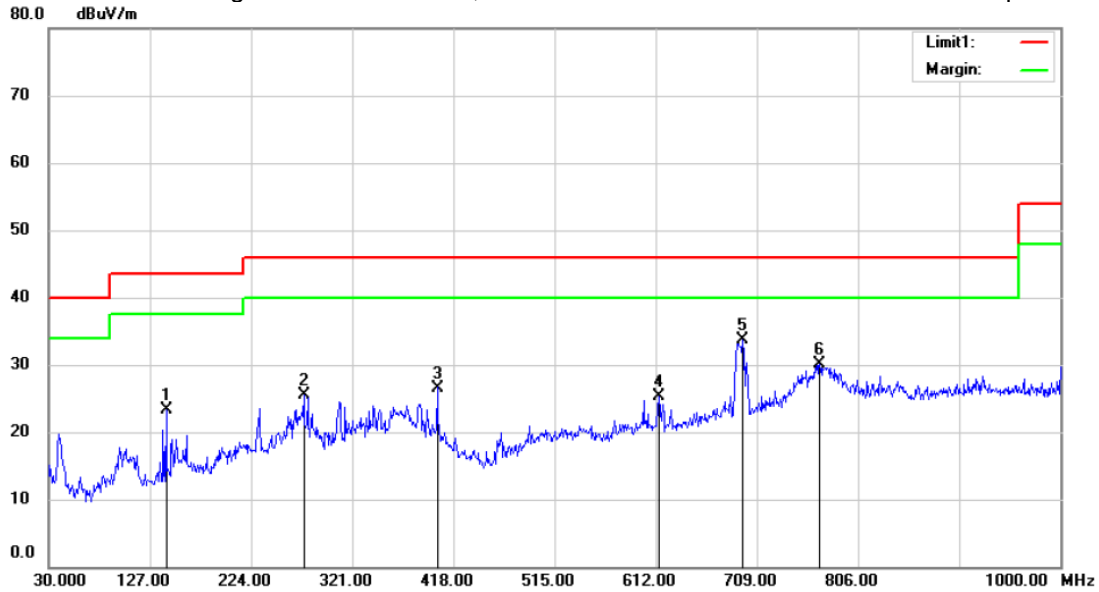
■ Spurious Emission below 30MHz (9KHz to 30MHz)

Test mode: TX Mode

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

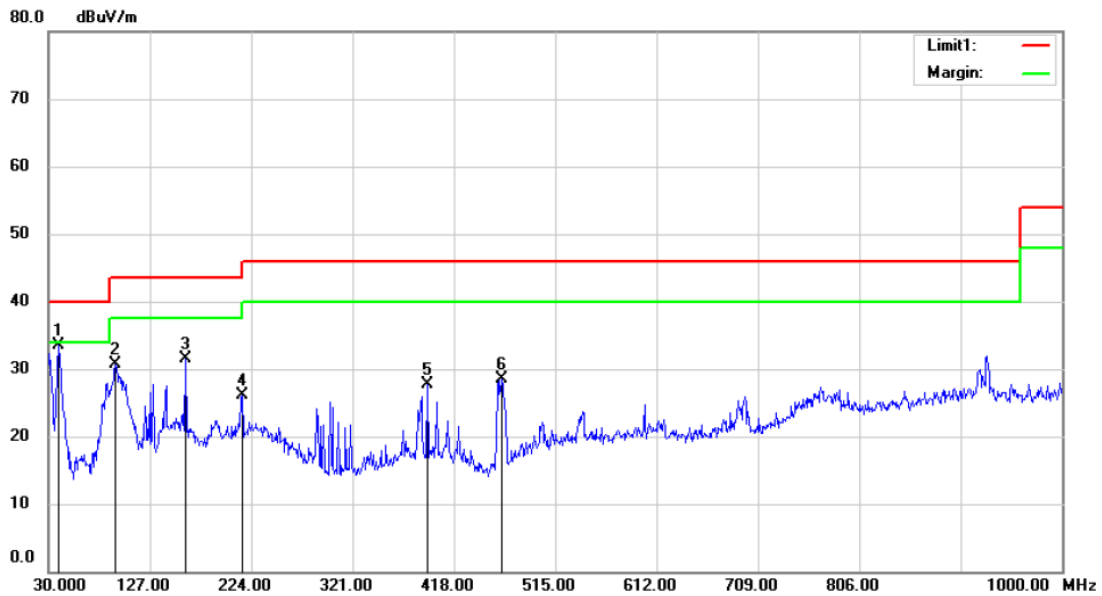


Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode: 11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		142.5200	41.21	-17.86	23.35	43.50	-20.15	QP		
2		274.4400	38.06	-12.63	25.43	46.00	-20.57	QP		
3		402.4800	35.53	-8.93	26.60	46.00	-19.40	QP		
4		614.9100	32.08	-6.85	25.23	46.00	-20.77	QP		
5	*	695.4200	39.77	-6.02	33.75	46.00	-12.25	QP		
6		769.1400	33.86	-3.82	30.04	46.00	-15.96	QP		

\*: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: 11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	39.7000	46.46	-13.03	33.43	40.00	-6.57	QP		
2		94.0200	46.12	-15.45	30.67	43.50	-12.83	QP		
3		160.9500	50.20	-18.79	31.41	43.50	-12.09	QP		
4		215.2700	42.43	-16.38	26.05	43.50	-17.45	QP		
5		392.7800	37.06	-9.28	27.78	46.00	-18.22	QP		
6		463.5900	39.61	-11.04	28.57	46.00	-17.43	QP		

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

Operator: KK

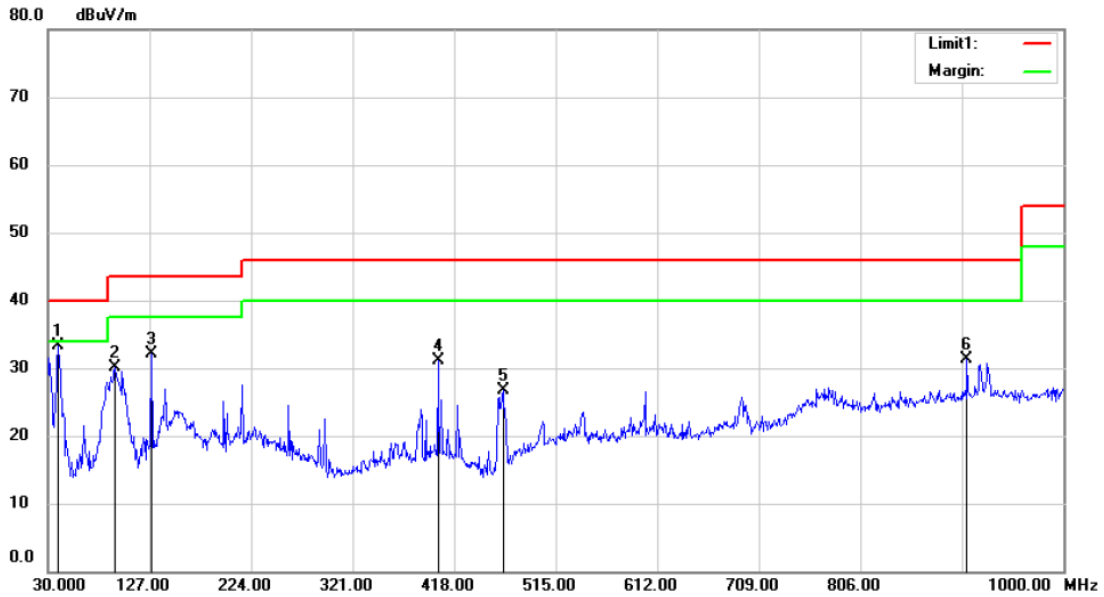


Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11B 2437  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		123.1200	43.73	-16.62	27.11	43.50	-16.39	QP		
2		259.8900	46.51	-12.81	33.70	46.00	-12.30	QP		
3		309.3600	42.16	-13.68	28.48	46.00	-17.52	QP		
4		386.9600	34.27	-9.61	24.66	46.00	-21.34	QP		
5	*	696.3900	41.59	-6.02	35.57	46.00	-10.43	QP		
6		767.2000	34.52	-3.89	30.63	46.00	-15.37	QP		

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

Operator: KK

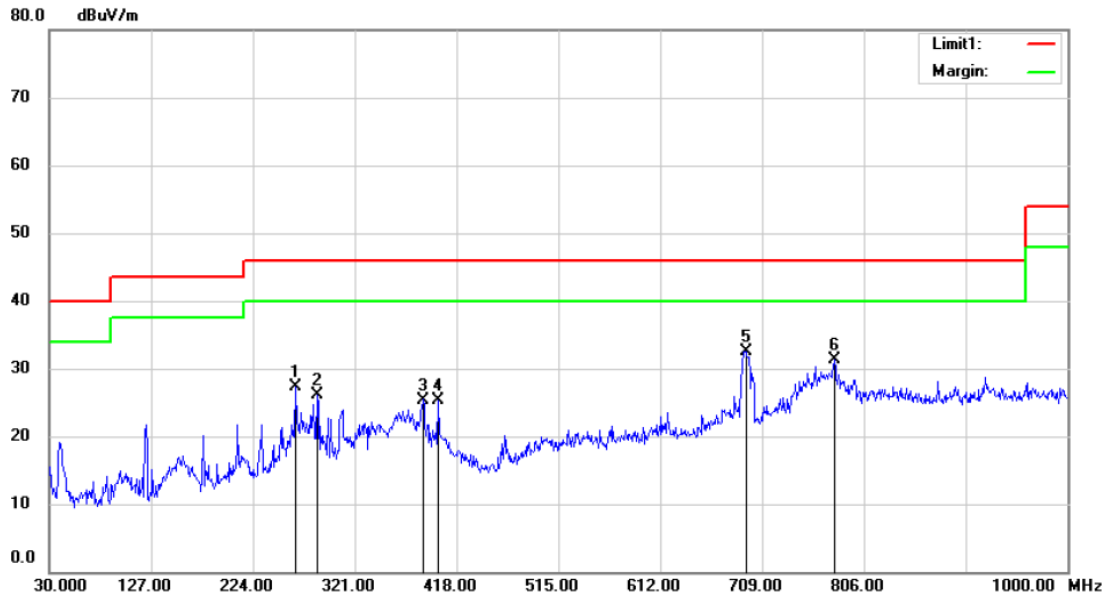


Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C  
 Limit: ( RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode: 11B 2437  
 Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	dBuV	Factor	ment	dBuV/m	dB	Height	Degree	Comment
					dBuV/m	dBuV/m		cm	degree	
1	*	39.7000	46.26	-13.03	33.23	40.00	-6.77	QP		
2		94.0200	45.50	-15.45	30.05	43.50	-13.45	QP		
3		128.9400	49.21	-17.16	32.05	43.50	-11.45	QP		
4		402.4800	39.98	-8.93	31.05	46.00	-14.95	QP		
5		464.5600	37.69	-10.95	26.74	46.00	-19.26	QP		
6		907.8500	31.88	-0.64	31.24	46.00	-14.76	QP		

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

Operator: KK

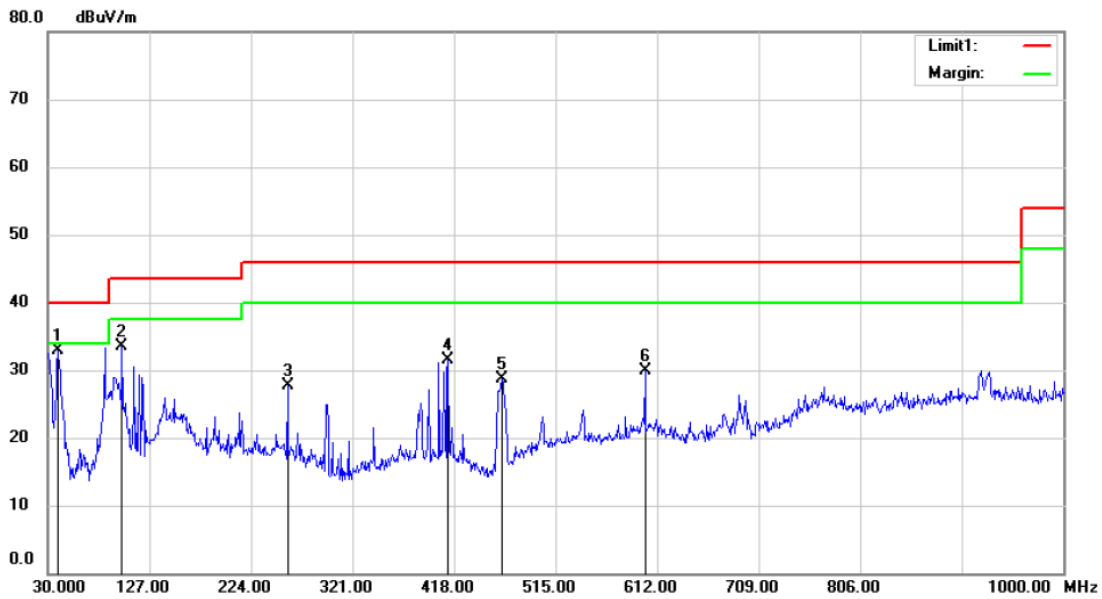


Site: 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2462  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		264.7400	39.97	-12.74	27.23	46.00	-18.77	QP		
2		285.1100	38.96	-12.88	26.08	46.00	-19.92	QP		
3		385.9900	35.06	-9.66	25.40	46.00	-20.60	QP		
4		400.5400	34.23	-8.89	25.34	46.00	-20.66	QP		
5	*	693.4800	38.57	-6.05	32.52	46.00	-13.48	QP		
6		777.8700	34.88	-3.56	31.32	46.00	-14.68	QP		

\*: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: 11B 2462  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1	*	39.7000	46.01	-13.03	32.98	40.00	-7.02			QP	
2		100.8100	47.49	-14.02	33.47	43.50	-10.03			QP	
3		258.9200	40.60	-12.85	27.75	46.00	-18.25			QP	
4		412.1800	40.68	-9.22	31.46	46.00	-14.54			QP	
5		463.5900	39.77	-11.04	28.73	46.00	-17.27			QP	
6		600.3600	36.95	-6.99	29.96	46.00	-16.04			QP	

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

Operator: KK



■ 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°C                      Test Date: July 21, 1015  
Humidity: 53 %                         Test By: KING KONG  
Test mode: 802.11b                    Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
11285.00	V	47.43	32.69	74.00	54.00	-26.57	-21.31
13750.00	V	49.18	34.62	74.00	54.00	-24.82	-19.38
16436.00	V	51.21	36.39	74.00	54.00	-22.79	-17.61
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12271.00	H	47.60	32.82	74.00	54.00	-26.40	-21.18
14770.00	H	50.08	35.61	74.00	54.00	-23.92	-18.39
16436.00	H	51.77	36.83	74.00	54.00	-22.23	-17.17

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

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
11285.00	V	47.24	32.57	74.00	54.00	-26.76	-21.43
13733.00	V	49.65	35.29	74.00	54.00	-24.35	-18.71
15892.00	V	49.98	34.73	74.00	54.00	-24.02	-19.27
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
11506.00	H	46.74	31.64	74.00	54.00	-27.26	-22.36
14770.00	H	49.42	34.62	74.00	54.00	-24.58	-19.38
16844.00	H	52.58	36.13	74.00	54.00	-21.42	-17.87

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

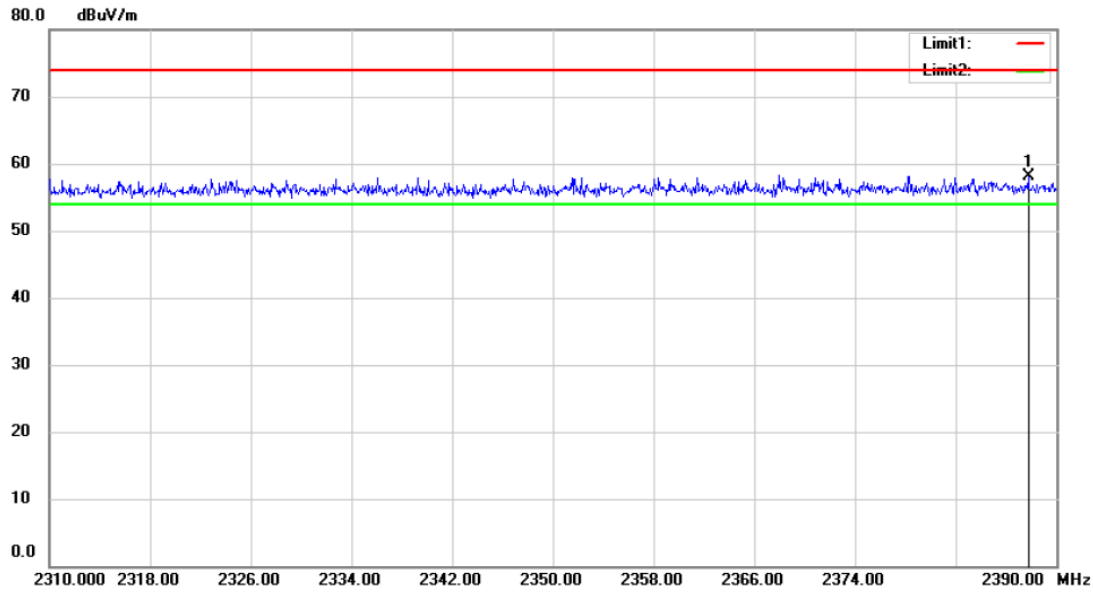
Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
11166.00	V	47.95	33.25	74.00	54.00	-26.05	-20.75
13920.00	V	49.87	35.34	74.00	54.00	-24.13	-18.66
16504.00	V	52.30	37.58	74.00	54.00	-21.70	-16.42
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
10979.00	H	47.48	33.58	74.00	54.00	-26.52	-20.42
15348.00	H	51.70	36.83	74.00	54.00	-22.30	-17.17
17660.00	H	52.13	37.43	74.00	54.00	-21.87	-16.57

**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

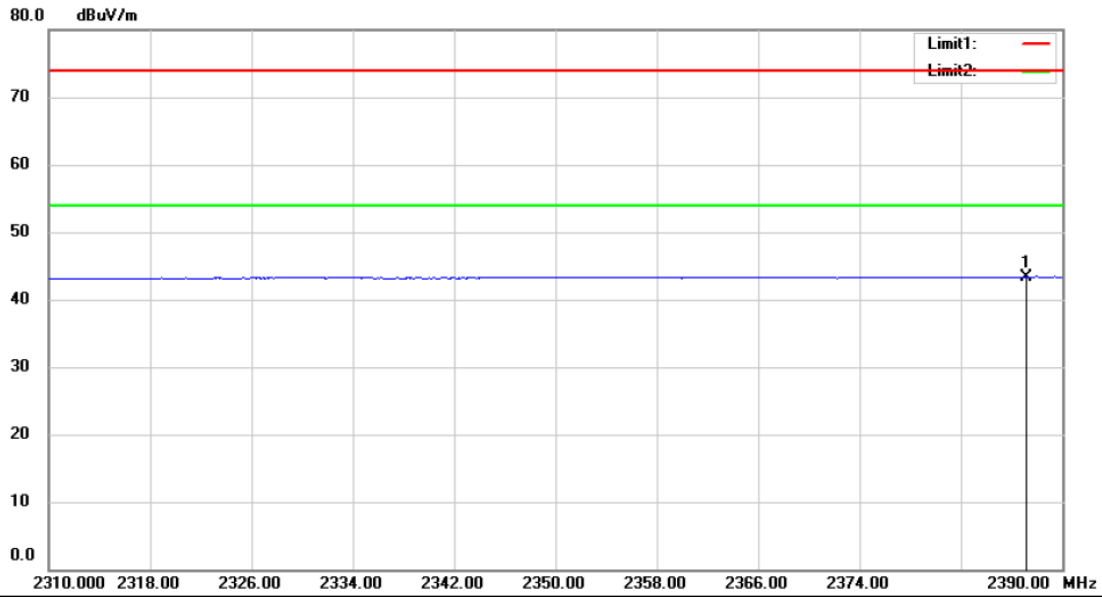


Site 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode:11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2387.760	27.76	30.27	58.03	74.00	-15.97	peak		

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

Operator: KK

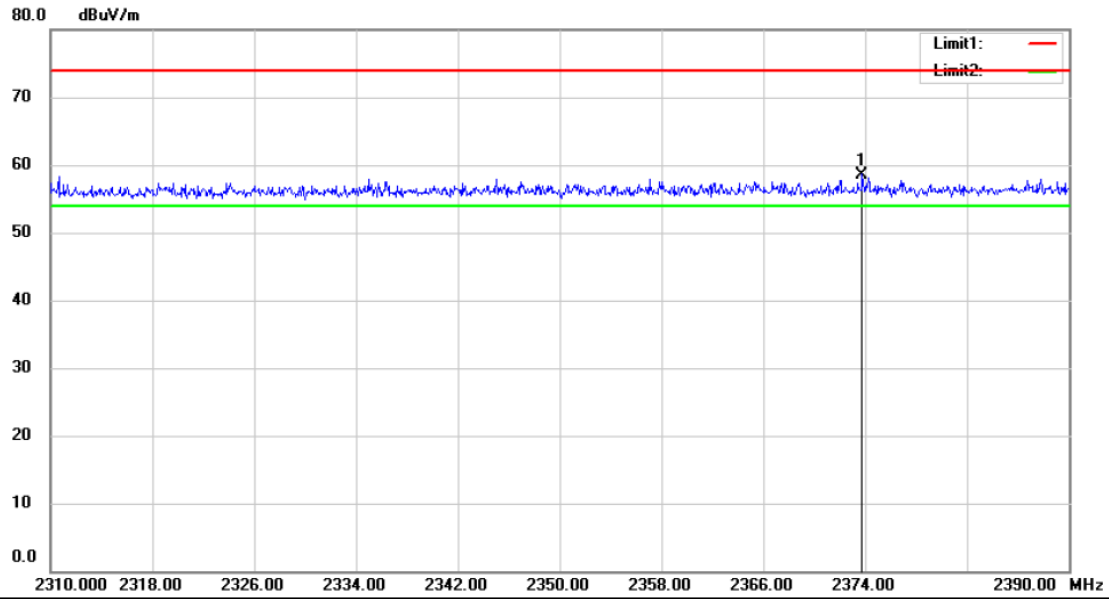


Site: 3m Chamber #3      Polarization: **Horizontal**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2387.120	13.13	30.27	43.40	54.00	-10.60	AVG		

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

Operator: KK

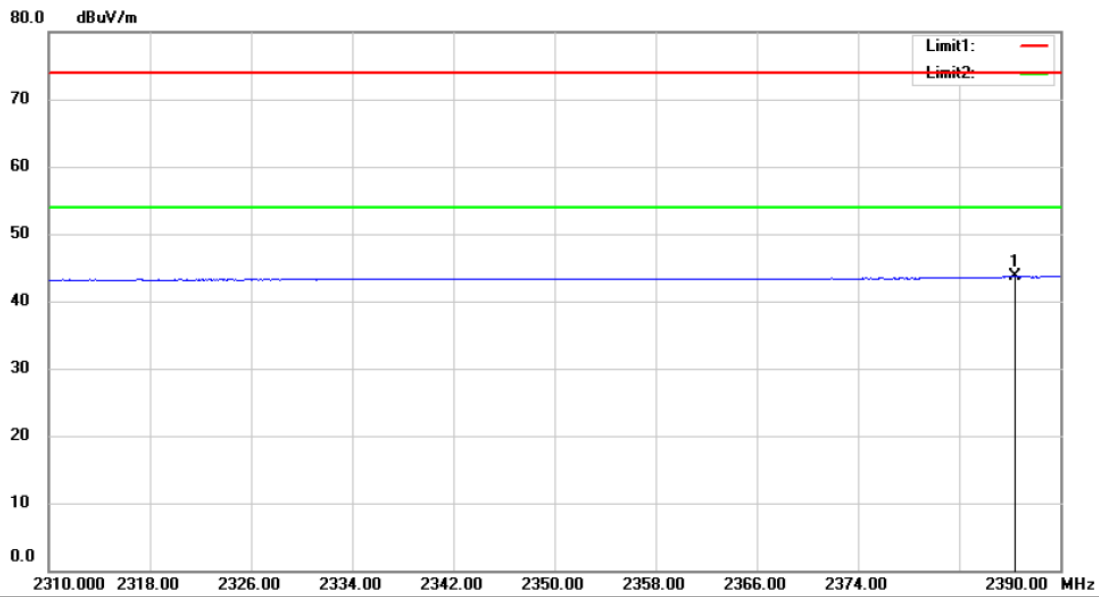


Site: 3m Chamber #3      Polarization: *Vertical*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2373.760	28.40	30.20	58.60	74.00	-15.40	peak		

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

Operator: KK

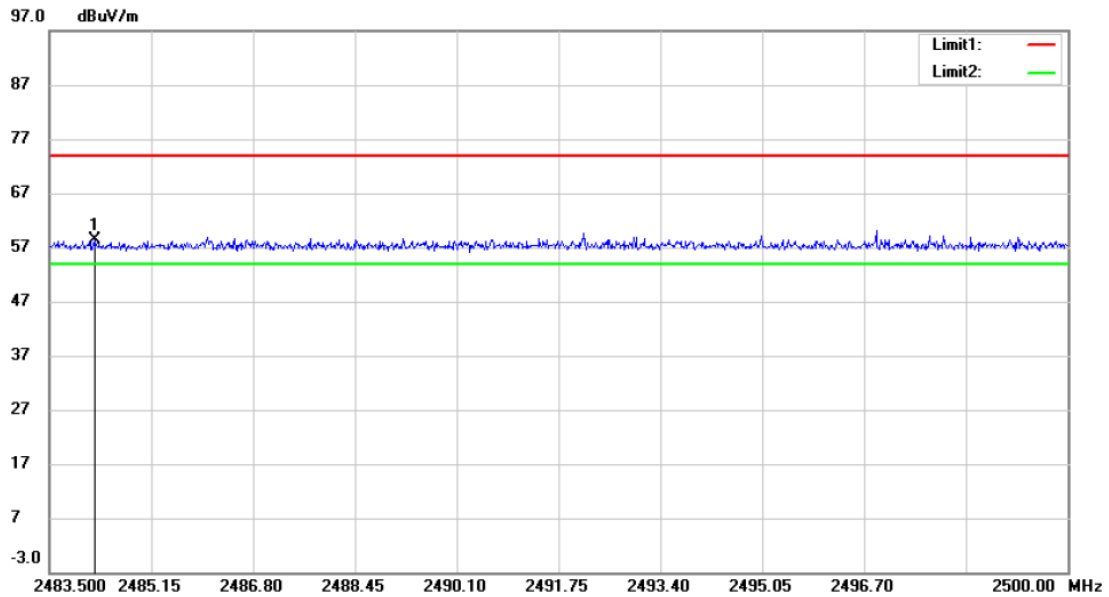


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2386.400	13.41	30.26	43.67	54.00	-10.33	AVG		Comment

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

Operator: KK

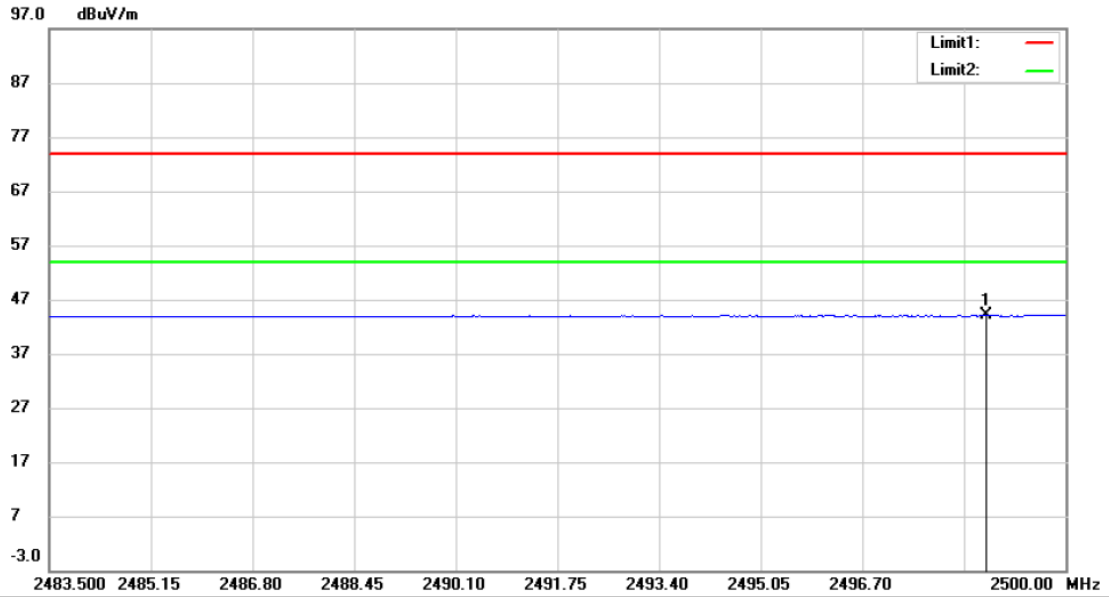


Site: 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.242	27.77	30.71	58.48	74.00	-15.52	peak		

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

Operator: KK

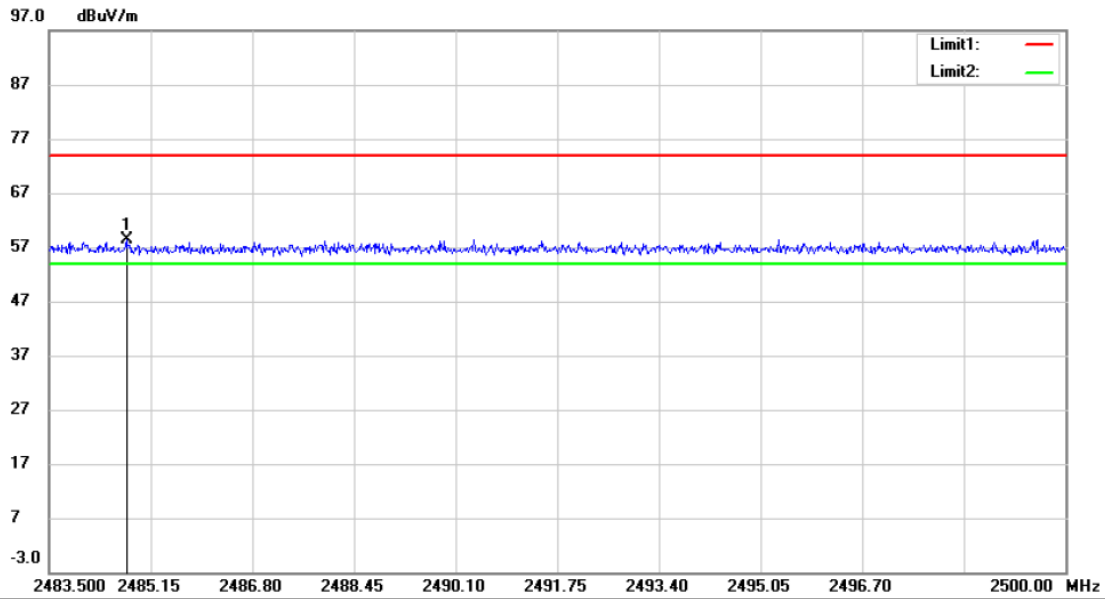


Site 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode:11B 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2498.713	13.27	30.78	44.05	54.00	-9.95	AVG		

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

Operator: KK



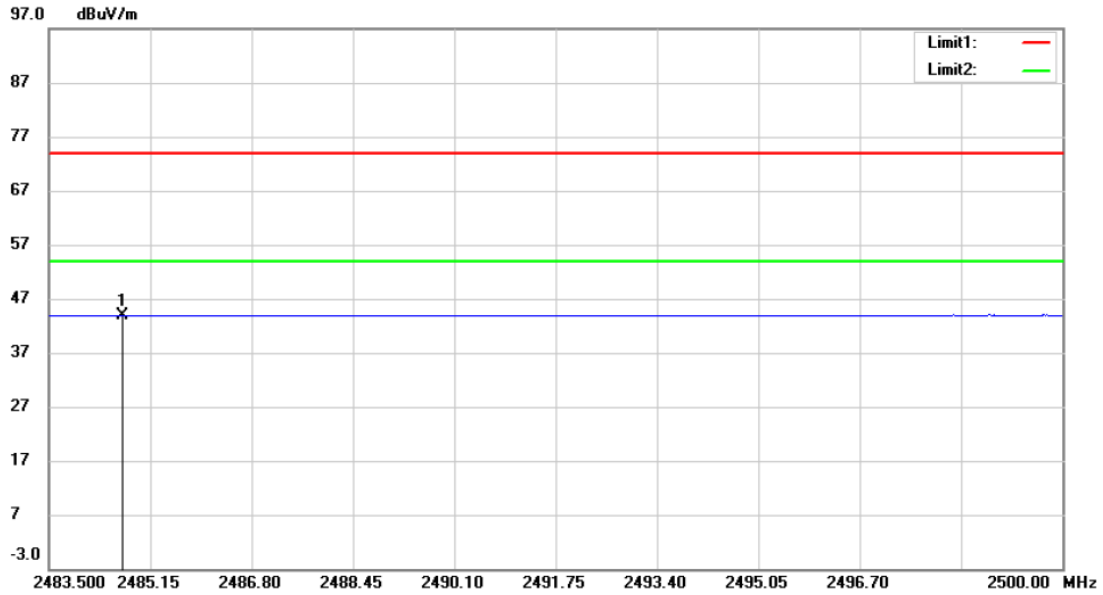
Site: 3m Chamber #3      Polarization: *Vertical*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11B 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2484.754	27.57	30.71	58.28	74.00	-15.72	peak		

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

Operator: KK



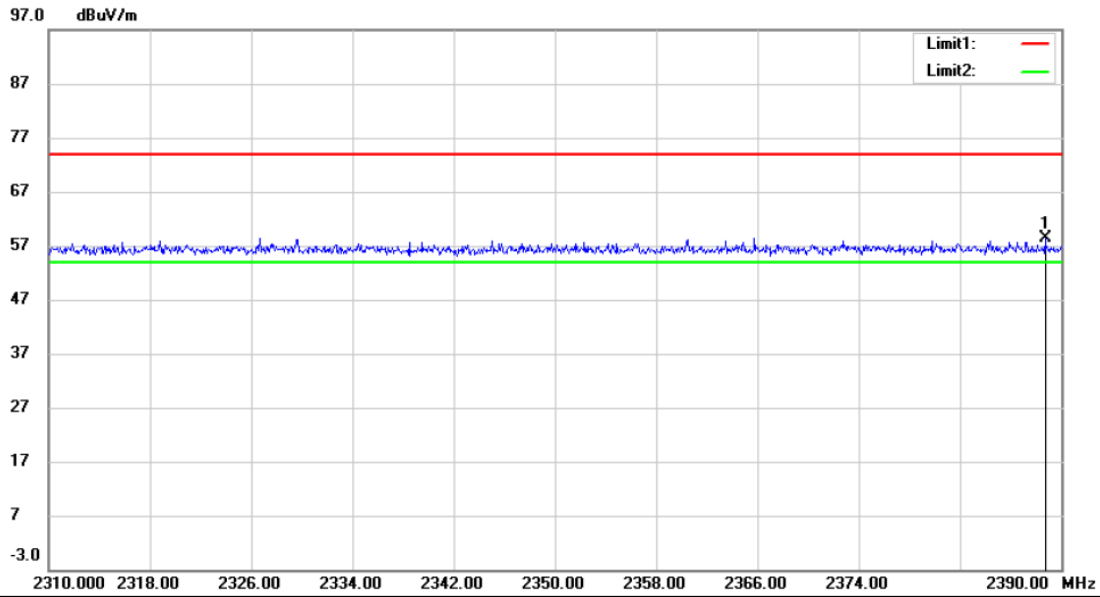


Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11B 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2484.688	13.23	30.71	43.94	54.00	-10.06	AVG			

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

Operator: KK

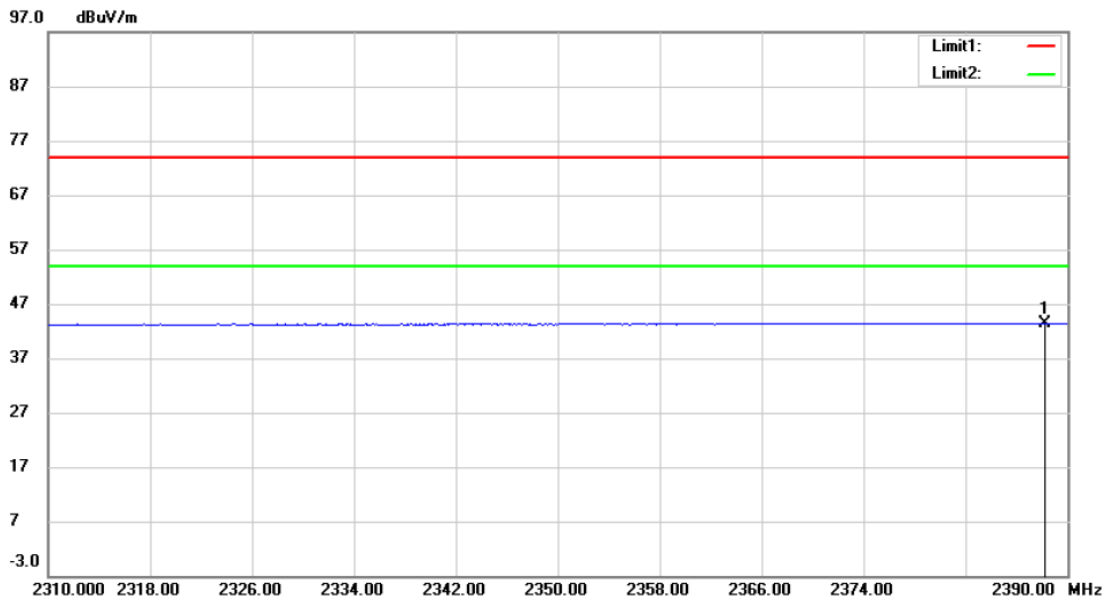


Site: 3m Chamber #3      Polarization: **Horizontal**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2388.720	28.11	30.27	58.38	74.00	-15.62	peak		

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

Operator: KK

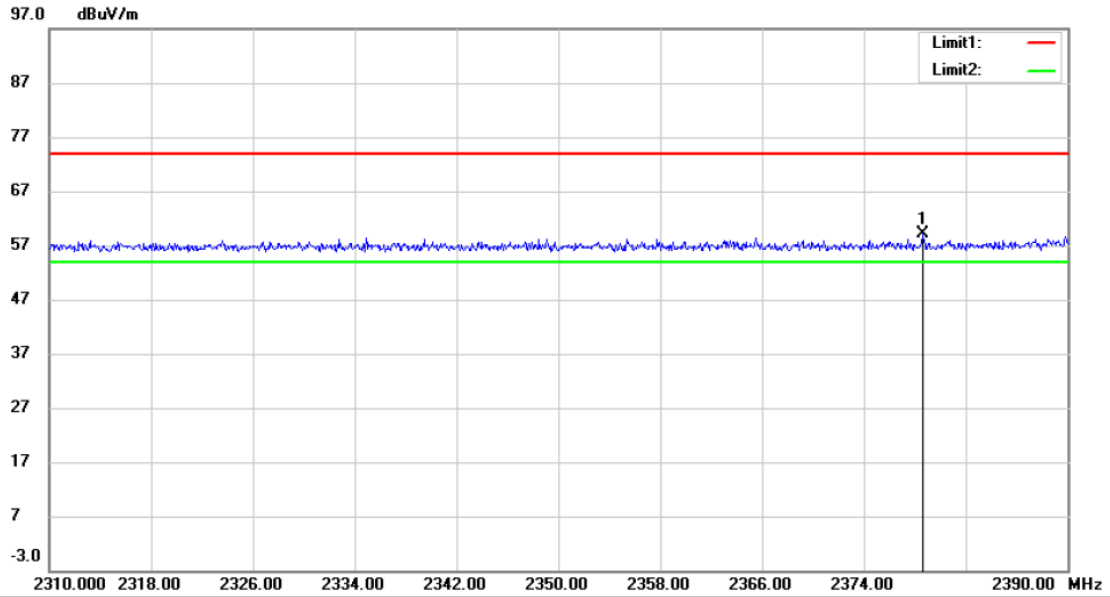


Site: 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2388.240	13.18	30.27	43.45	54.00	-10.55	AVG		

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

Operator: KK

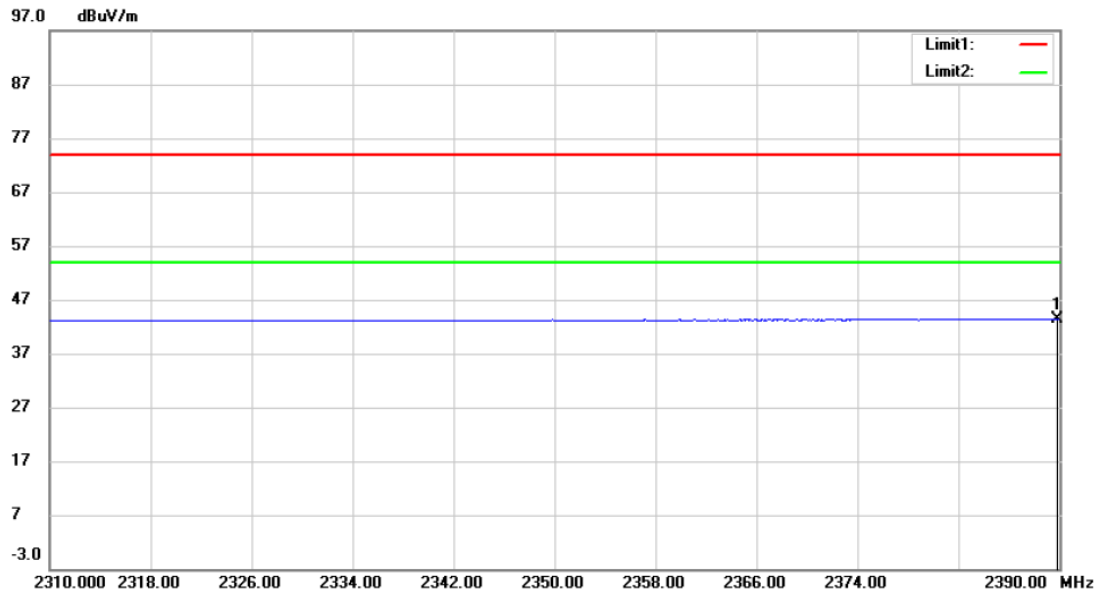


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2378.640	28.88	30.23	59.11	74.00	-14.89	peak		

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

Operator: KK

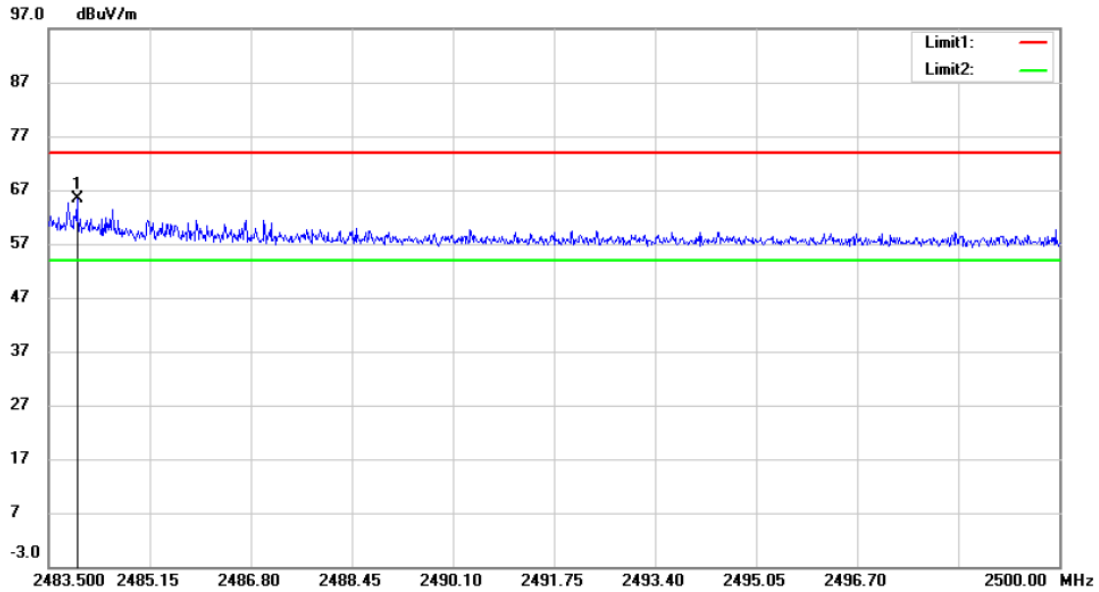


Site 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode:11G 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2389.840	13.10	30.28	43.38	54.00	-10.62	AVG		Comment

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

Operator: KK

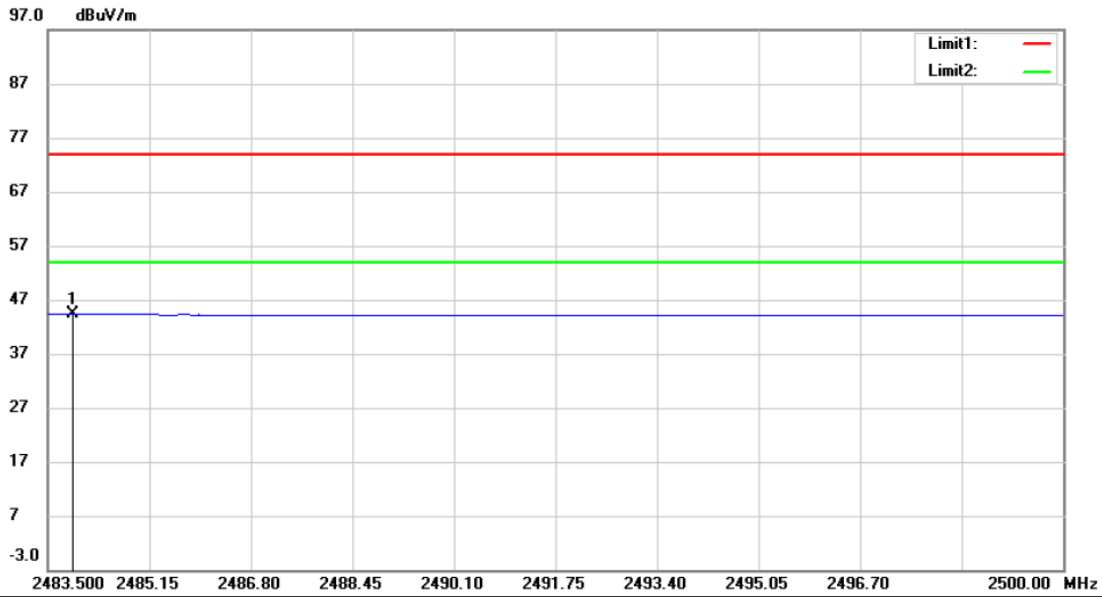


Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11G 2462  
 Note:

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
1	*	2483.962	34.56	30.71	65.27	74.00	-8.73	peak		Comment

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

Operator: KK

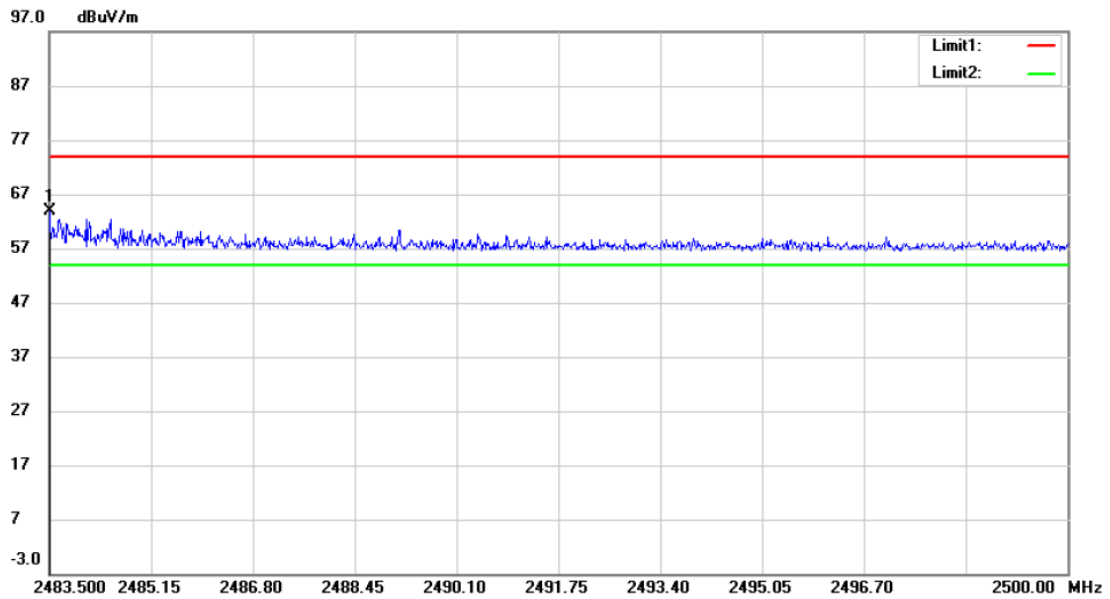


Site: 3m Chamber #3      Polarization: **Horizontal**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2483.896	13.74	30.71	44.45	54.00	-9.55	AVG		

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

Operator: KK



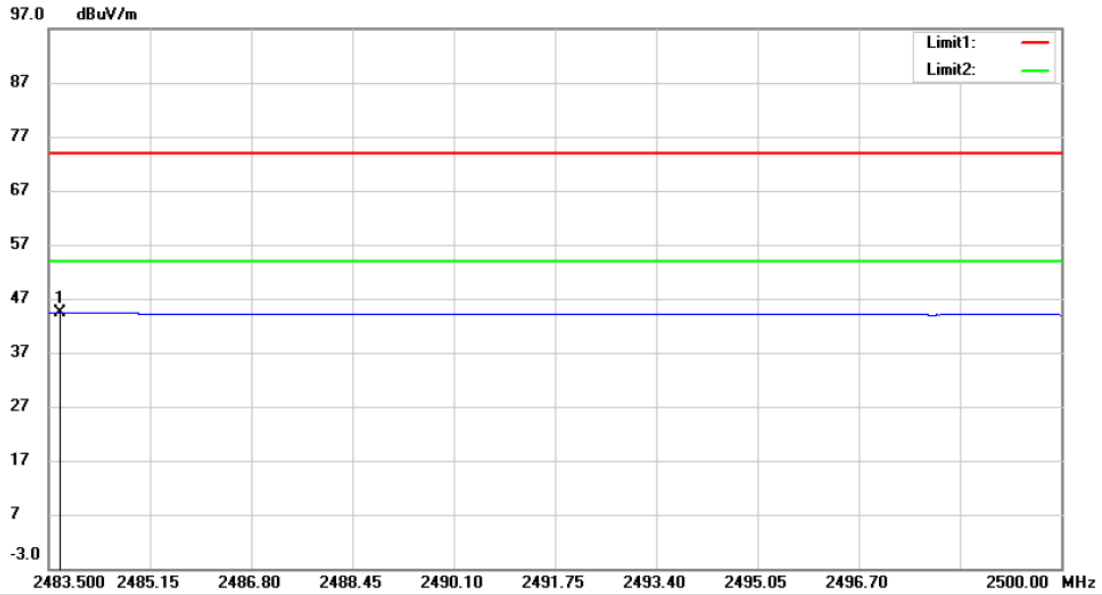
Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2483.500	33.30	30.70	64.00	74.00	-10.00	peak		

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

Operator: KK



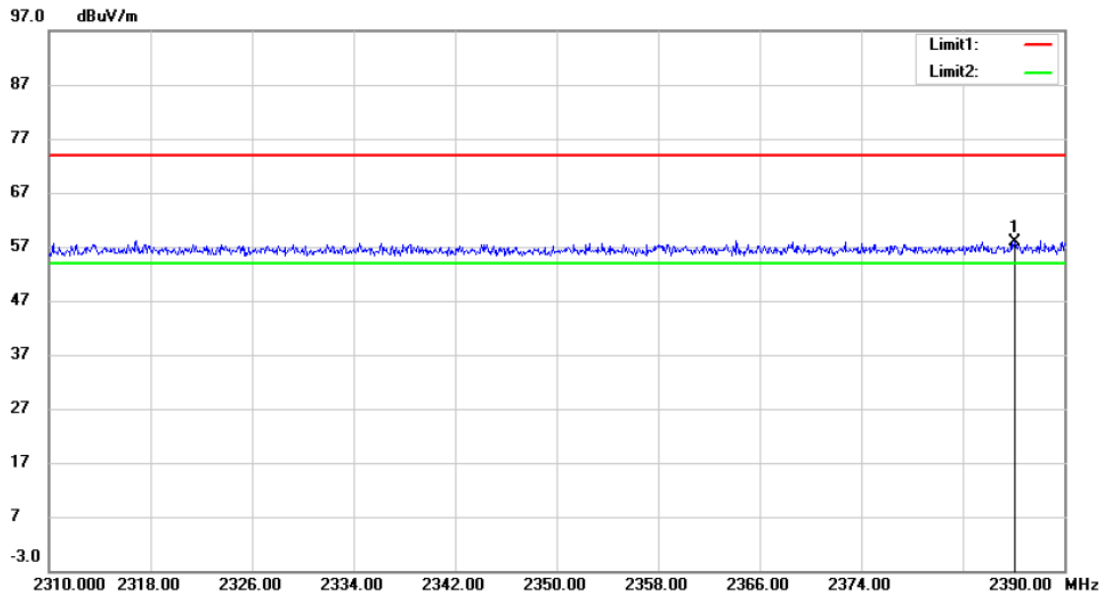


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11G 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	2483.682	13.75	30.70	44.45	54.00	-9.55	AVG			

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

Operator: KK

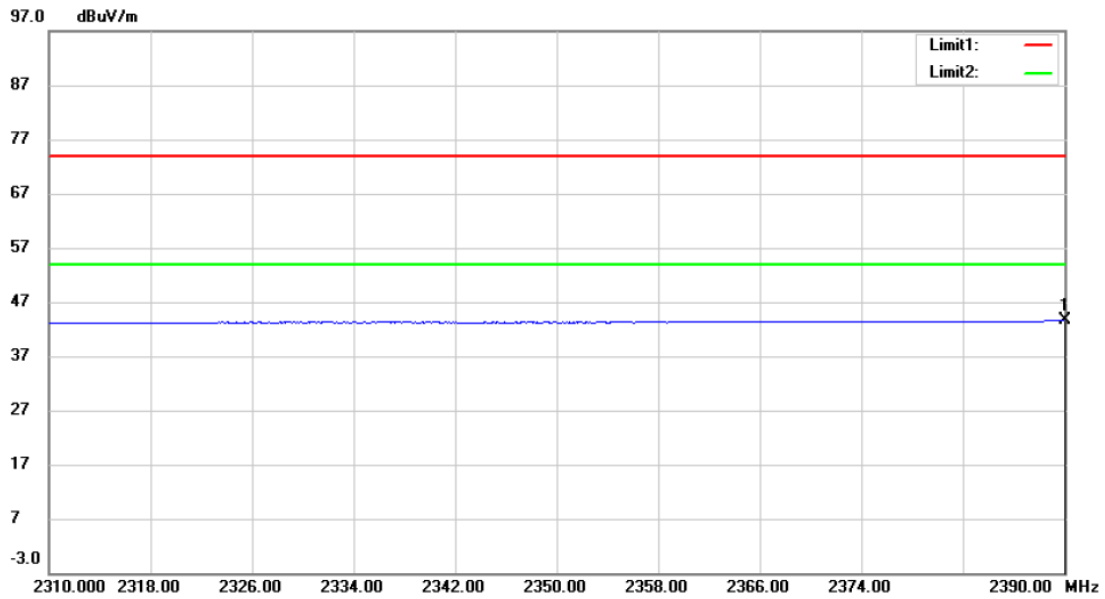


Site 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N20M 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2386.080	27.69	30.26	57.95	74.00	-16.05	peak		

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

Operator: KK

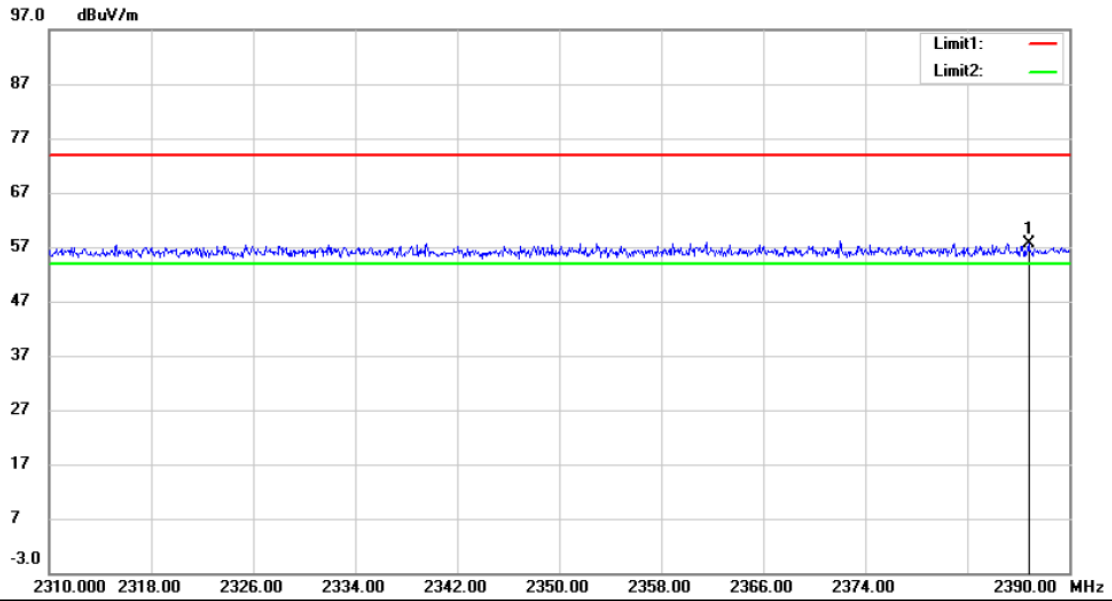


Site: 3m Chamber #3      Polarization: **Horizontal**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N20M 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2390.000	13.34	30.28	43.62	54.00	-10.38	AVG		

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

Operator: KK

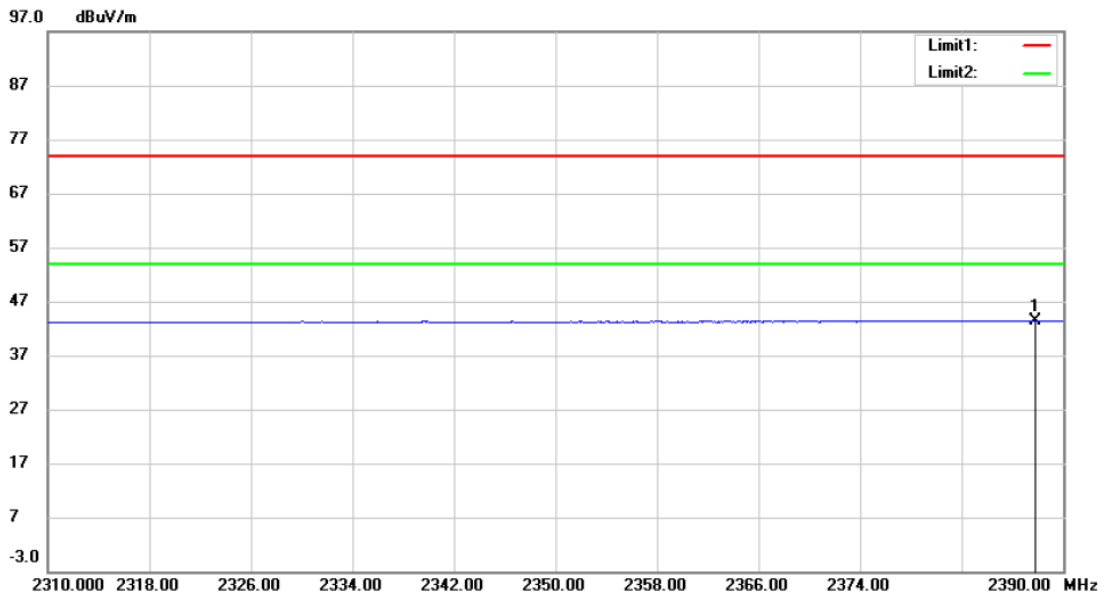


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N20M 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2386.800	27.46	30.27	57.73	74.00	-16.27	peak		

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

Operator: KK

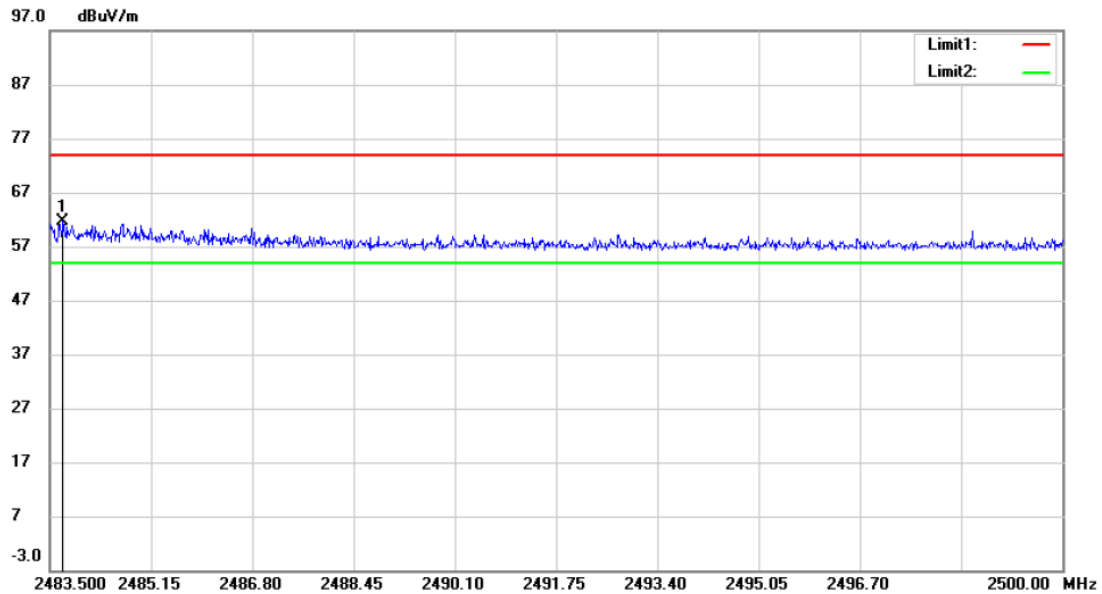


Site: 3m Chamber #3      Polarization: *Vertical*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N20M 2412  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2387.840	13.17	30.27	43.44	54.00	-10.56	AVG		

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

Operator: KK

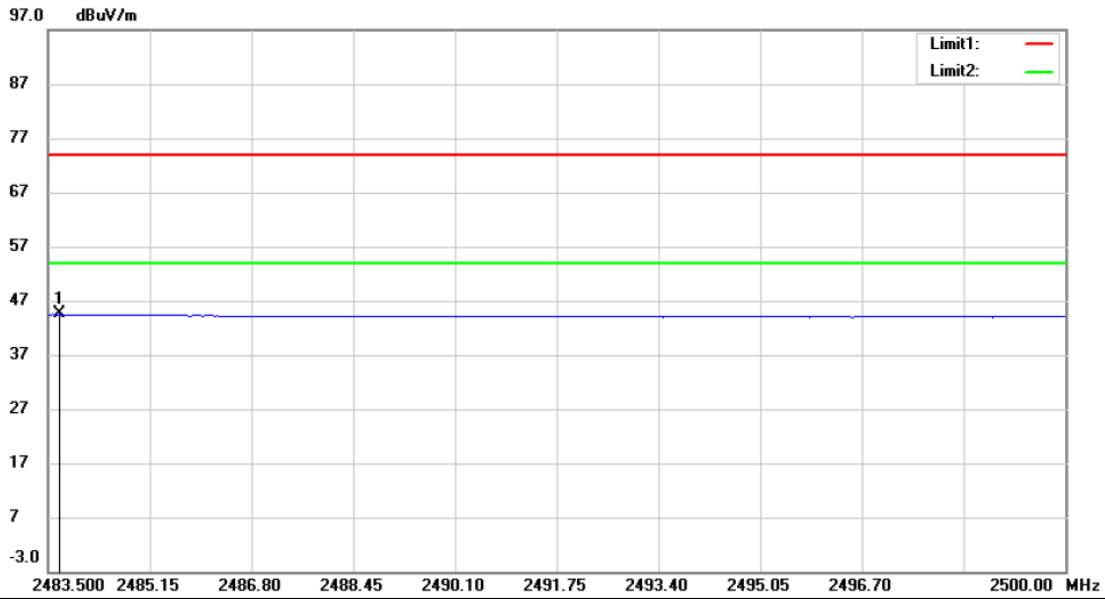


Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11N20M 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2483.715	30.89	30.70	61.59	74.00	-12.41	peak		

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

Operator: KK

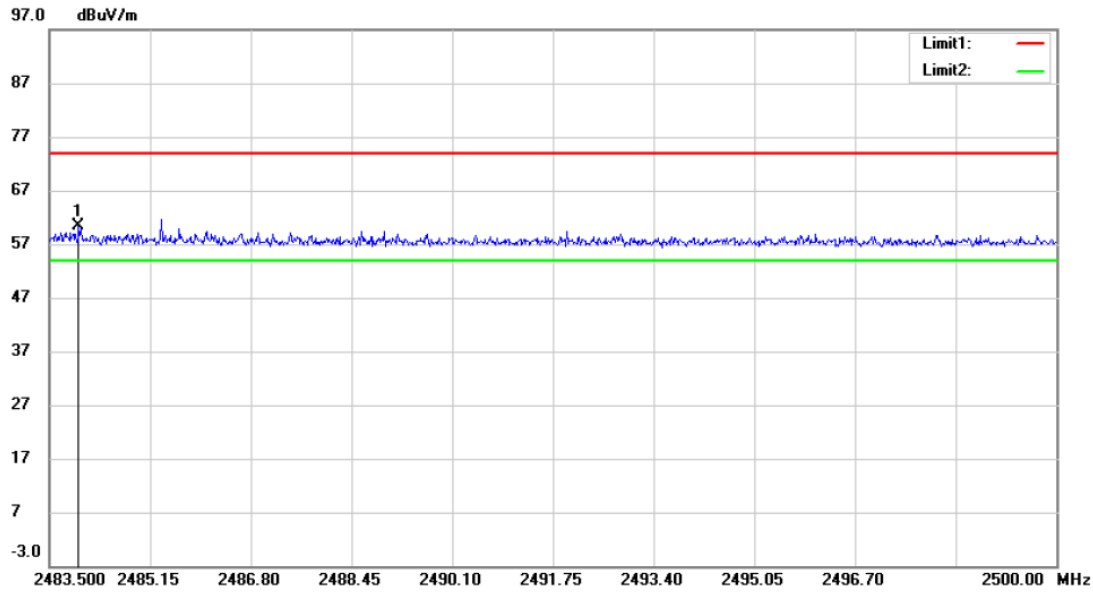


Site: 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: ( RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N20M 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2483.682	13.81	30.70	44.51	54.00	-9.49	AVG		Comment

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

Operator: KK



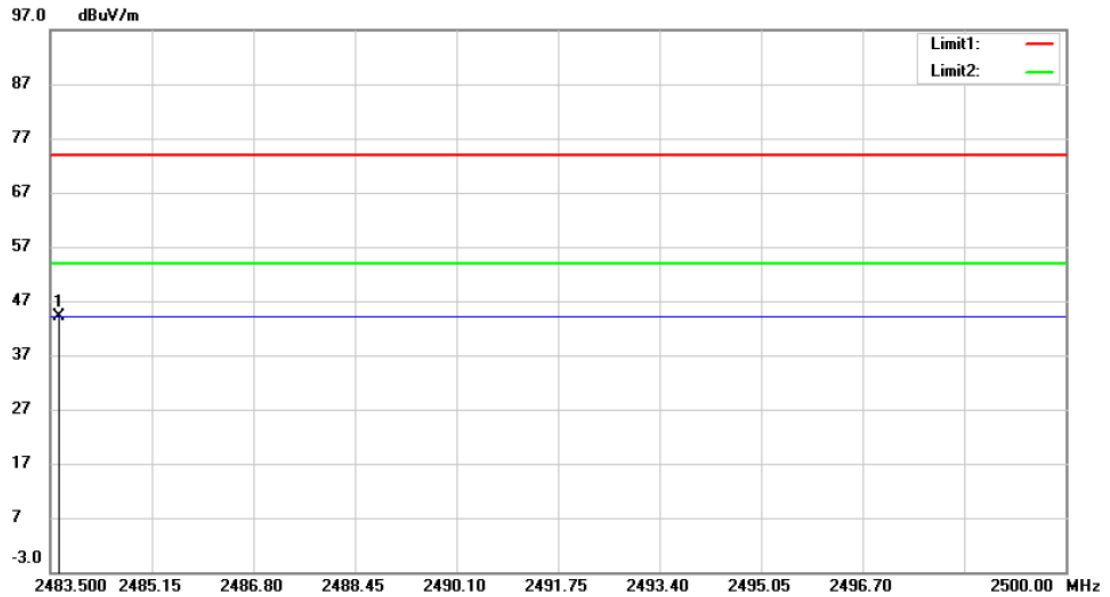
Site 3m Chamber #3 Polarization: *Vertical* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11N20M 2462  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2483.979	29.56	30.71	60.27	74.00	-13.73	peak		

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

Operator: KK



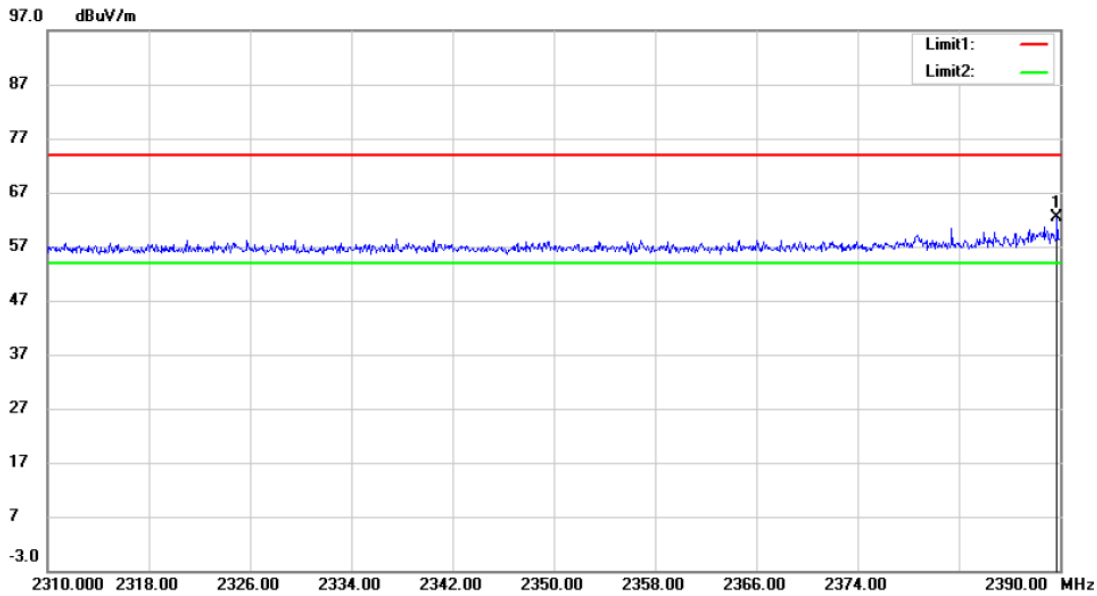


Site 3m Chamber #3	Polarization: <i>Vertical</i>	Temperature: 24 C
Limit: ( RE)FCC PART 15 CLASS B	Power: AC 120V/60Hz	Humidity: 53 %
Mode: 11N20M 2462		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2483.648	13.55	30.70	44.25	54.00	-9.75	AVG		Comment

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

Operator: KK

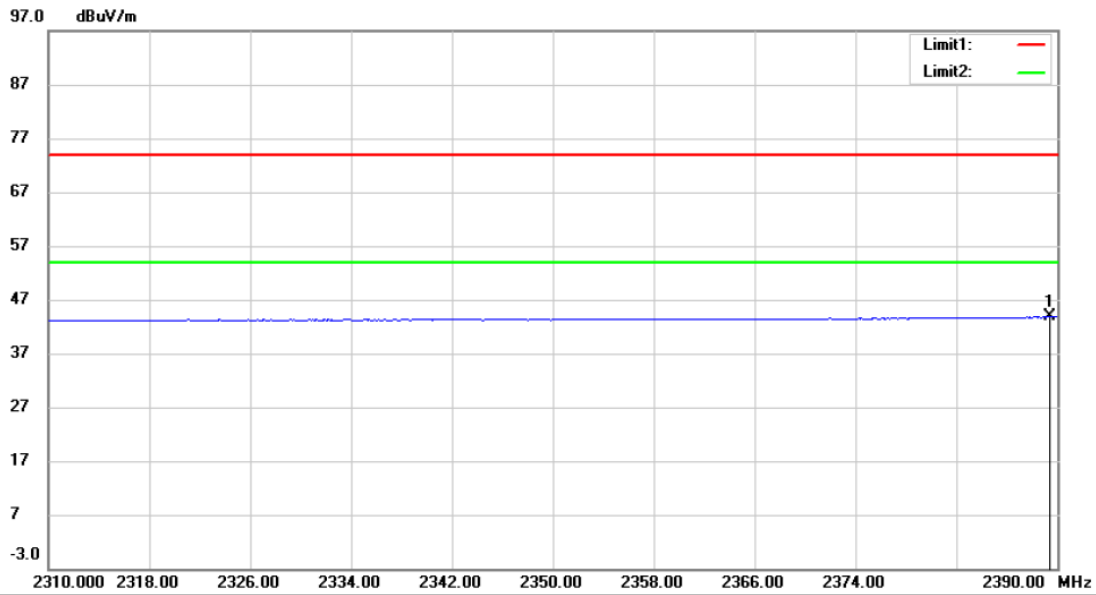


Site 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2422  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2389.760	32.18	30.28	62.46	74.00	-11.54	peak		

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

Operator: KK

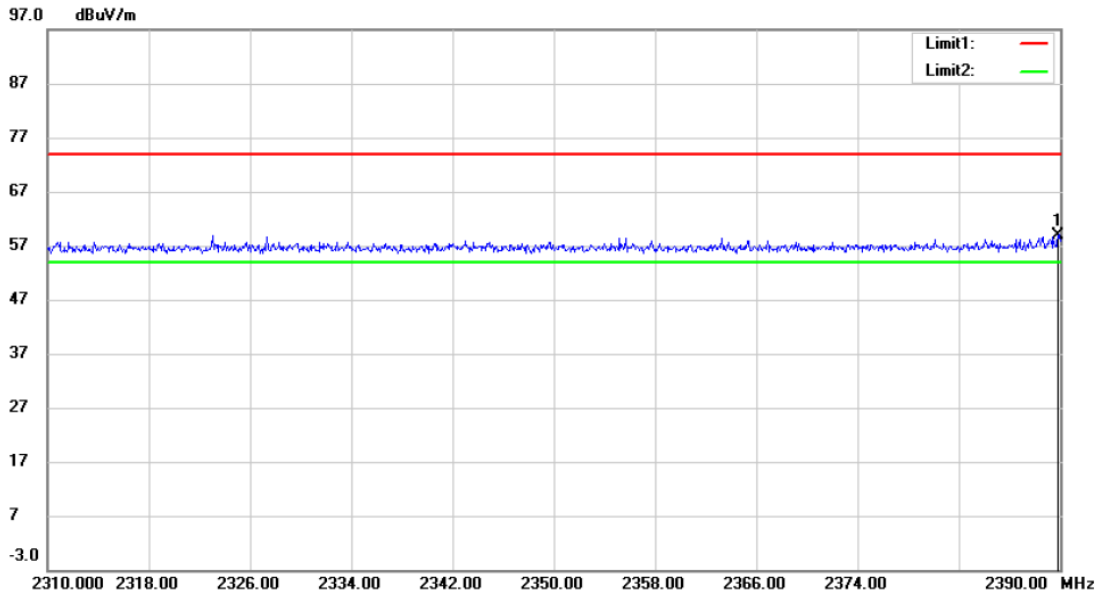


Site 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2422  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1	*	2389.360	13.55	30.27	43.82	54.00	-10.18	AVG		

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

Operator: KK

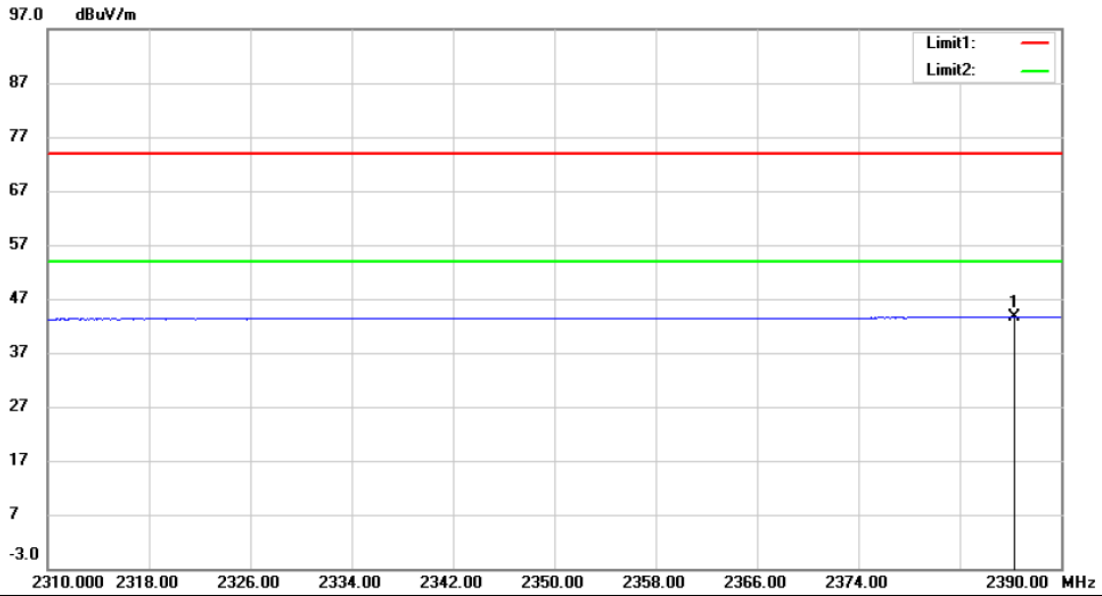


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2422  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	
1	*	2389.840	28.52	30.28	58.80	74.00	-15.20	peak		

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

Operator: KK

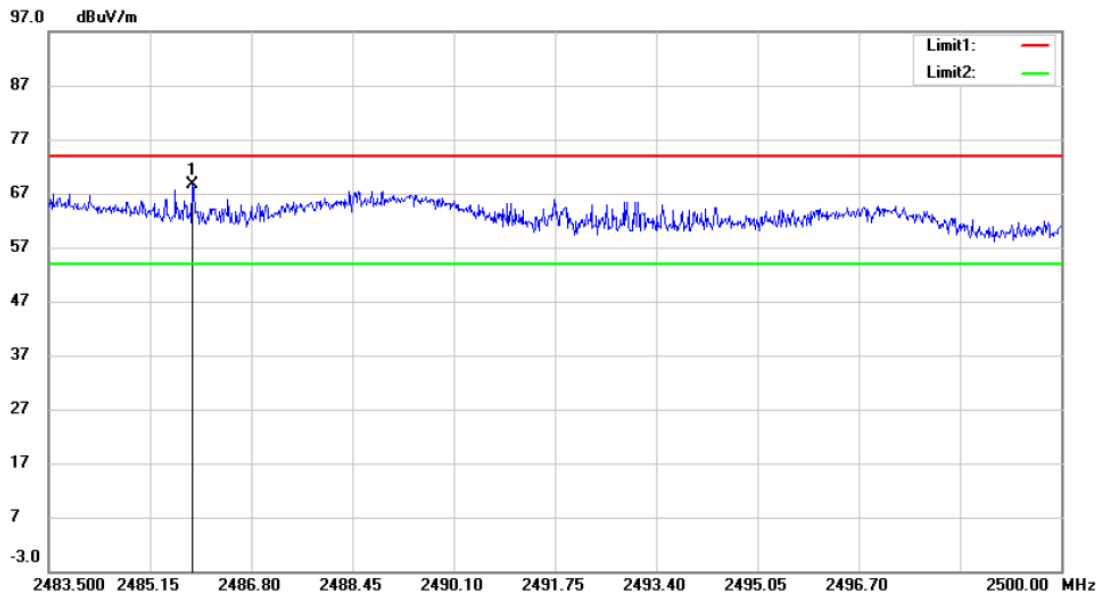


Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2422  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2386.320	13.39	30.26	43.65	54.00	-10.35	AVG		

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

Operator: KK

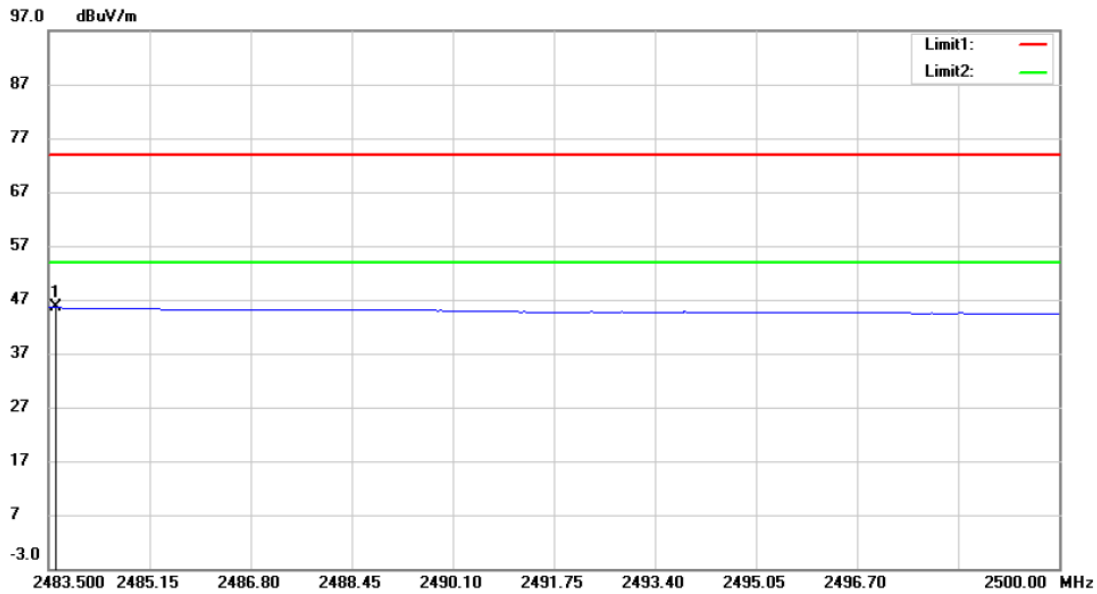


Site: 3m Chamber #3      Polarization: *Horizontal*      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2452  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2485.843	37.80	30.71	68.51	74.00	-5.49	peak		

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

Operator: KK

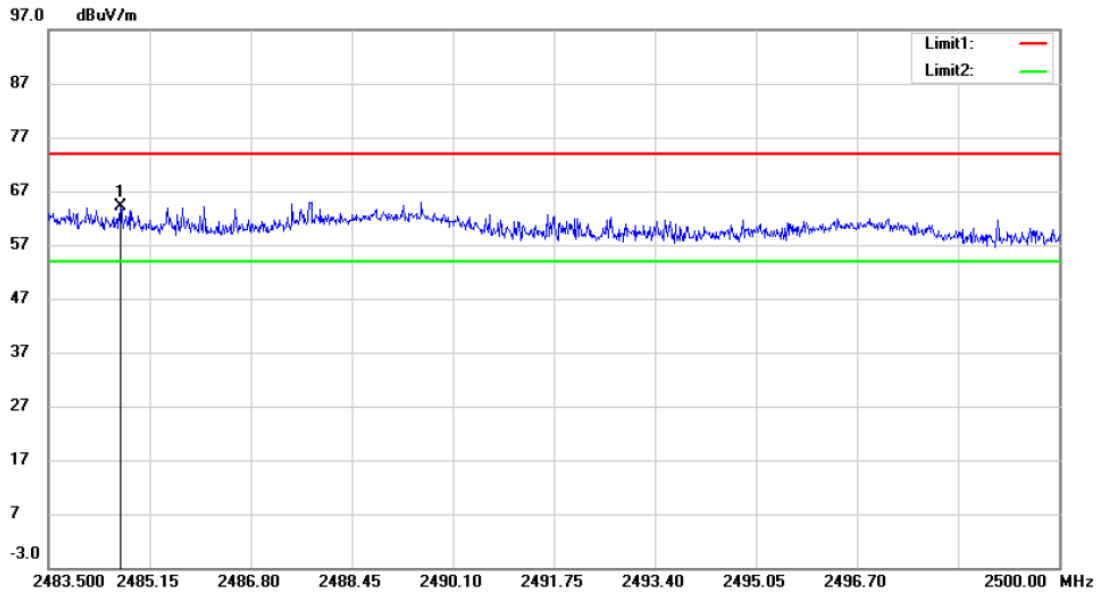


Site 3m Chamber #3 Polarization: *Horizontal* Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 53 %  
 Mode:11N40M 2452  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2483.615	14.91	30.70	45.61	54.00	-8.39	AVG		

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

Operator: KK



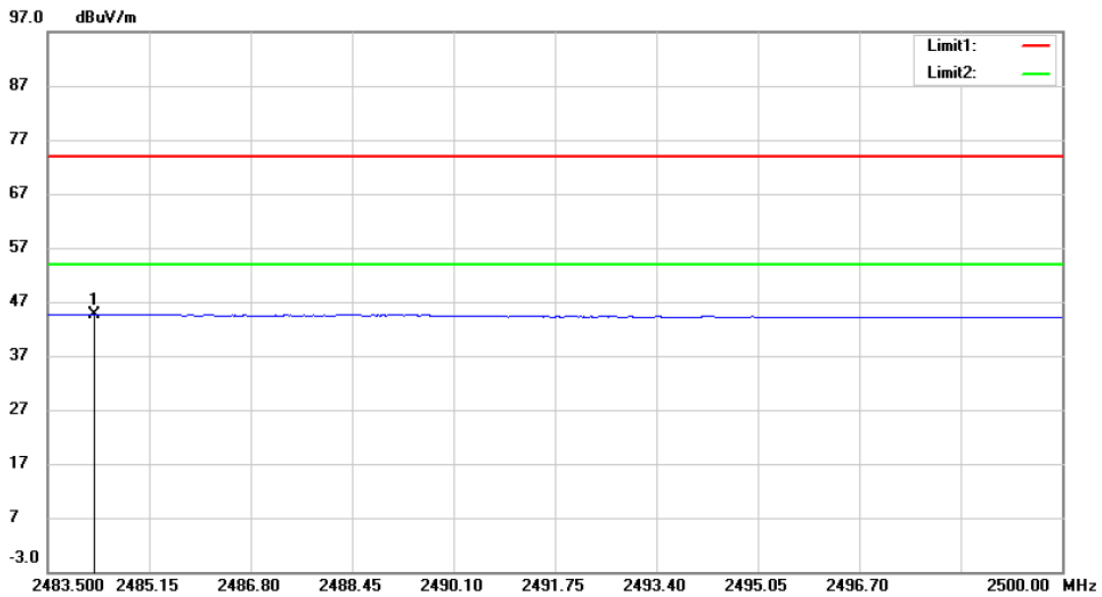
Site: 3m Chamber #3      Polarization: **Vertical**      Temperature: 24 C  
 Limit: (RE)FCC PART 15 CLASS B      Power: AC 120V/60Hz      Humidity: 53 %  
 Mode: 11N40M 2452  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	2484.671	33.48	30.71	64.19	74.00	-9.81	peak		Comment

\*: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: 11N40M 2452  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	2484.259	13.94	30.71	44.65	54.00	-9.35	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

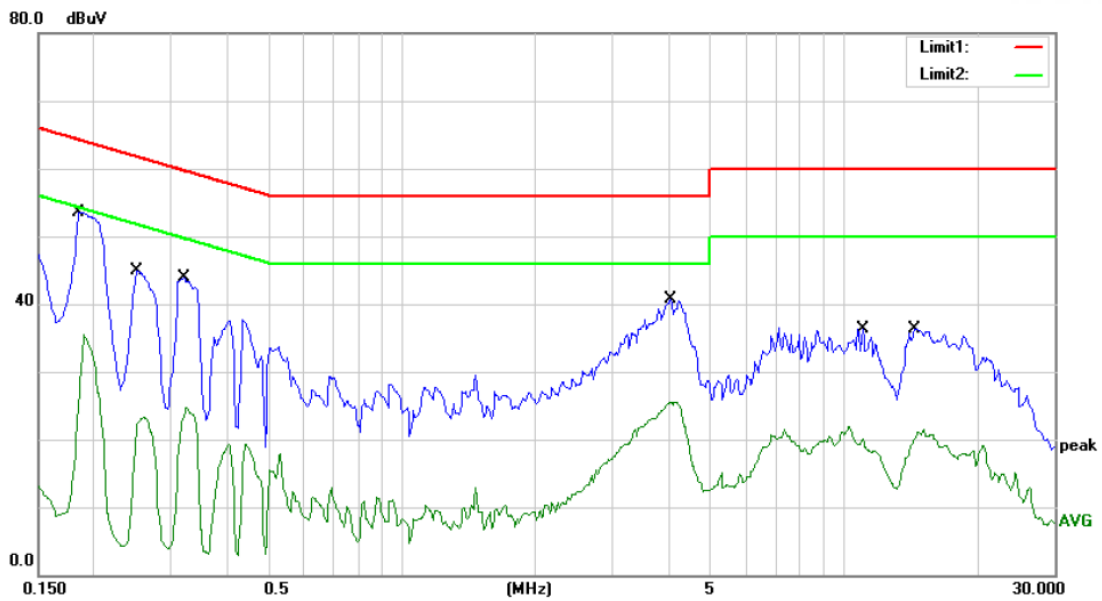
Test according to clause 7.3 conducted emission test setup

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

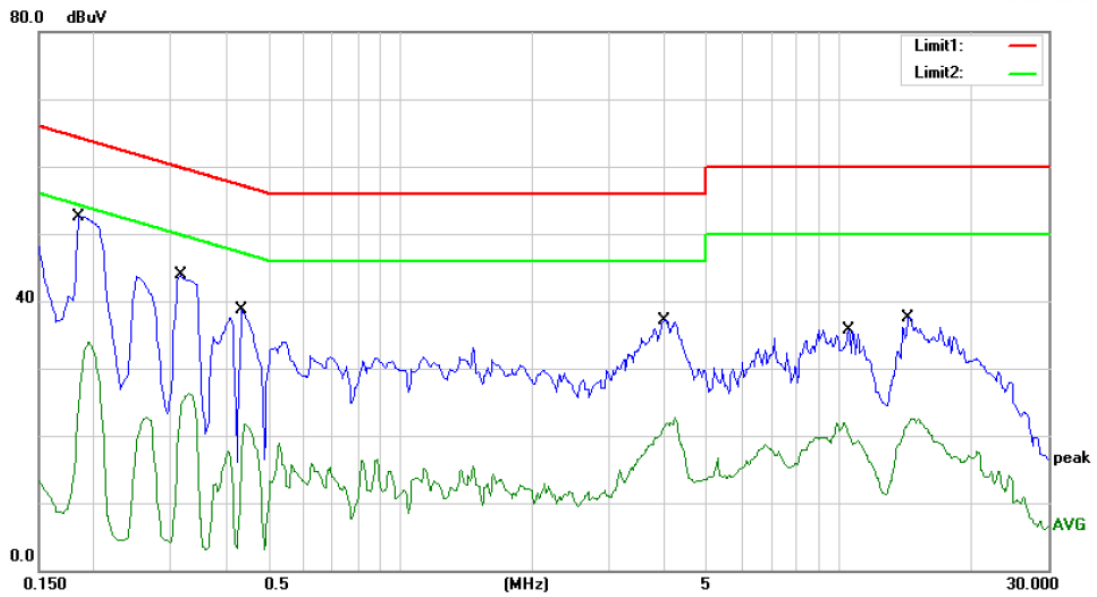
PASS.



Site Conduction #1 Phase: **L1** Temperature: 24  
 Limit: (CE)FCC PART 15 class B\_QP Power: AC 120V/60Hz Humidity: 53 %  
 Mode: ON  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1850	53.52	0.00	53.52	64.26	-10.74	QP	
2		0.1850	35.43	0.00	35.43	54.26	-18.83	AVG	
3		0.2500	44.90	0.00	44.90	61.76	-16.86	QP	
4		0.2500	23.35	0.00	23.35	51.76	-28.41	AVG	
5		0.3200	43.82	0.00	43.82	59.71	-15.89	QP	
6		0.3200	24.77	0.00	24.77	49.71	-24.94	AVG	
7		4.0550	40.63	0.00	40.63	56.00	-15.37	QP	
8		4.0550	25.57	0.00	25.57	46.00	-20.43	AVG	
9		11.0250	36.38	0.00	36.38	60.00	-23.62	QP	
10		11.0250	22.00	0.00	22.00	50.00	-28.00	AVG	
11		14.5000	36.31	0.00	36.31	60.00	-23.69	QP	
12		14.5000	21.47	0.00	21.47	50.00	-28.53	AVG	

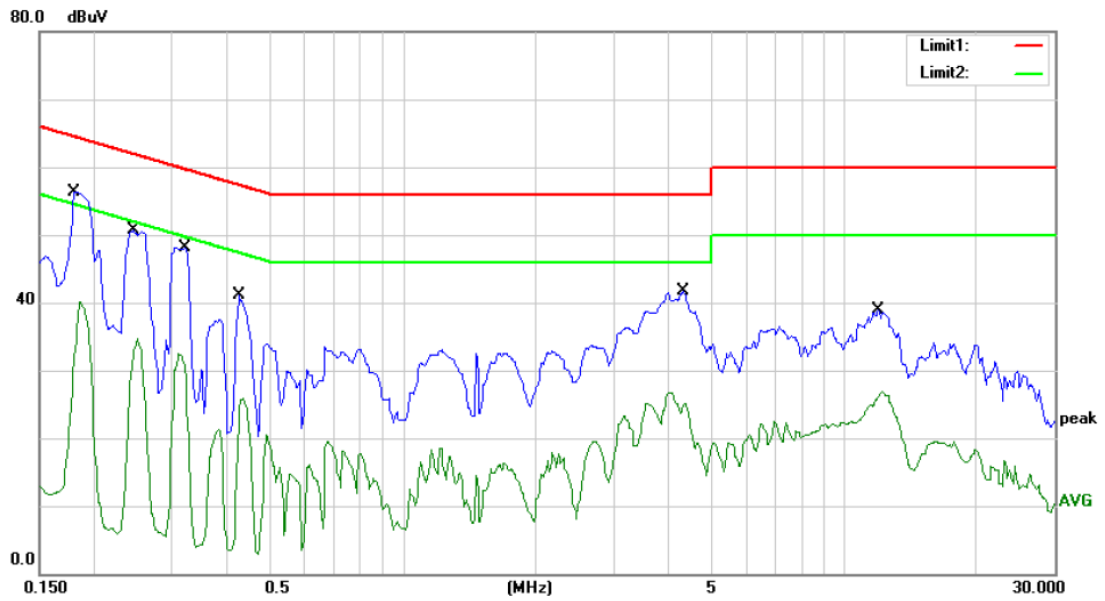
\*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: DK



Site Conduction #1 Phase: **N** Temperature: 24  
 Limit: (CE)FCC PART 15 class B\_QP Power: AC 120V/60Hz Humidity: 53 %  
 Mode: ON  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1850	52.56	0.00	52.56	64.26	-11.70	QP	
2		0.1850	33.94	0.00	33.94	54.26	-20.32	AVG	
3		0.3150	43.88	0.00	43.88	59.84	-15.96	QP	
4		0.3150	26.24	0.00	26.24	49.84	-23.60	AVG	
5		0.4350	38.67	0.00	38.67	57.16	-18.49	QP	
6		0.4350	21.60	0.00	21.60	47.16	-25.56	AVG	
7		3.9850	37.19	0.00	37.19	56.00	-18.81	QP	
8		3.9850	22.70	0.00	22.70	46.00	-23.30	AVG	
9		10.5250	35.69	0.00	35.69	60.00	-24.31	QP	
10		10.5250	21.92	0.00	21.92	50.00	-28.08	AVG	
11		14.3250	37.51	0.00	37.51	60.00	-22.49	QP	
12		14.3250	22.52	0.00	22.52	50.00	-27.48	AVG	

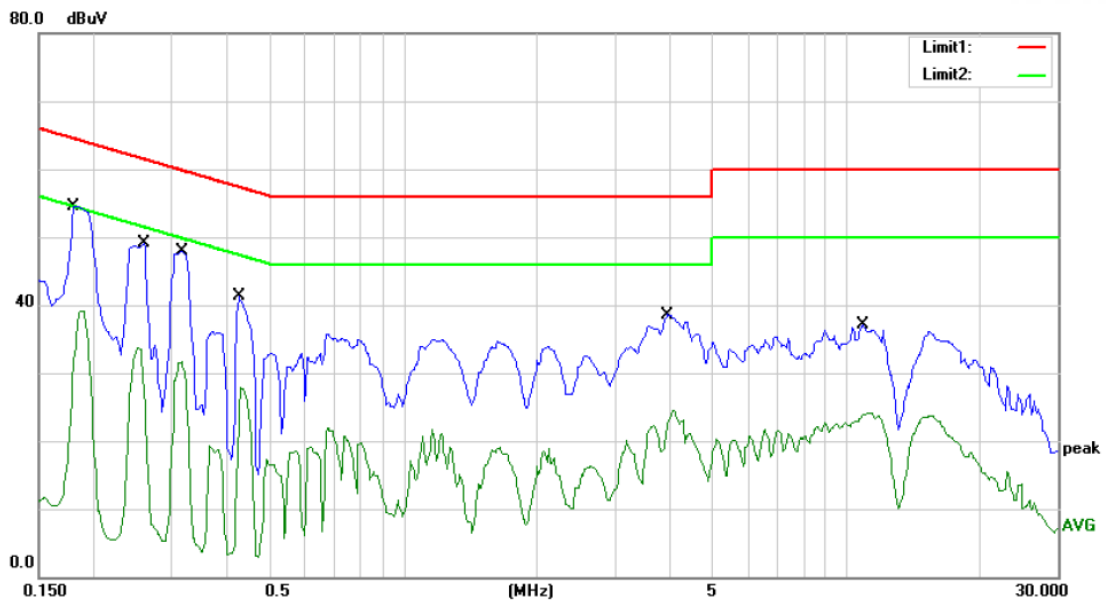
\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: DK



Site: Conduction #1 Phase: **L1** Temperature: 24  
 Limit: (CE)FCC PART 15 class B\_QP Power: AC 240V/50Hz Humidity: 53 %  
 Mode: ON  
 Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1	*	0.1800	56.38	0.00	56.38	64.49	-8.11	QP	
2		0.1800	40.11	0.00	40.11	54.49	-14.38	AVG	
3		0.2450	50.61	0.00	50.61	61.92	-11.31	QP	
4		0.2450	34.69	0.00	34.69	51.92	-17.23	AVG	
5		0.3200	48.04	0.00	48.04	59.71	-11.67	QP	
6		0.3200	32.47	0.00	32.47	49.71	-17.24	AVG	
7		0.4250	41.07	0.00	41.07	57.35	-16.28	QP	
8		0.4250	25.88	0.00	25.88	47.35	-21.47	AVG	
9		4.3350	41.70	0.00	41.70	56.00	-14.30	QP	
10		4.3350	26.73	0.00	26.73	46.00	-19.27	AVG	
11		11.9750	38.95	0.00	38.95	60.00	-21.05	QP	
12		11.9750	26.80	0.00	26.80	50.00	-23.20	AVG	

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



Site Conduction #1 Phase: **N** Temperature: 24  
 Limit: (CE)FCC PART 15 class B\_QP Power: AC 240V/50Hz Humidity: 53 %  
 Mode: ON  
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1800	54.53	0.00	54.53	64.49	-9.96	QP	
2		0.1800	39.14	0.00	39.14	54.49	-15.35	AVG	
3		0.2600	49.06	0.00	49.06	61.43	-12.37	QP	
4		0.2600	33.72	0.00	33.72	51.43	-17.71	AVG	
5		0.3150	48.00	0.00	48.00	59.84	-11.84	QP	
6		0.3150	31.61	0.00	31.61	49.84	-18.23	AVG	
7		0.4250	41.25	0.00	41.25	57.35	-16.10	QP	
8		0.4250	27.80	0.00	27.80	47.35	-19.55	AVG	
9		3.9550	38.60	0.00	38.60	56.00	-17.40	QP	
10		3.9550	24.56	0.00	24.56	46.00	-21.44	AVG	
11		10.8750	37.13	0.00	37.13	60.00	-22.87	QP	
12		10.8750	24.17	0.00	24.17	50.00	-25.83	AVG	

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

## 8.7 ANTENNA APPLICATION

### 8.7.1 Antenna Requirement

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.

For intentional device, according to IC RSS-Gen 8.3, testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.9 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

### 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 1.89dBi and meets the requirement.

END OF REPORT