

10. Radiated Spurious Emissions

10.1 Standard Applicable

According to §15.407(b)(6), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.

According to §15.407(b), The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

As below table:

Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.850 GHz	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Test procedure used is 789033 D02 General UNII Test Procedures New Rules v01r04

If radiated measurements are performed, field strength is then converted to EIRP as follows:

$$\text{EIRP} = ((E^*d)^2) / 30$$

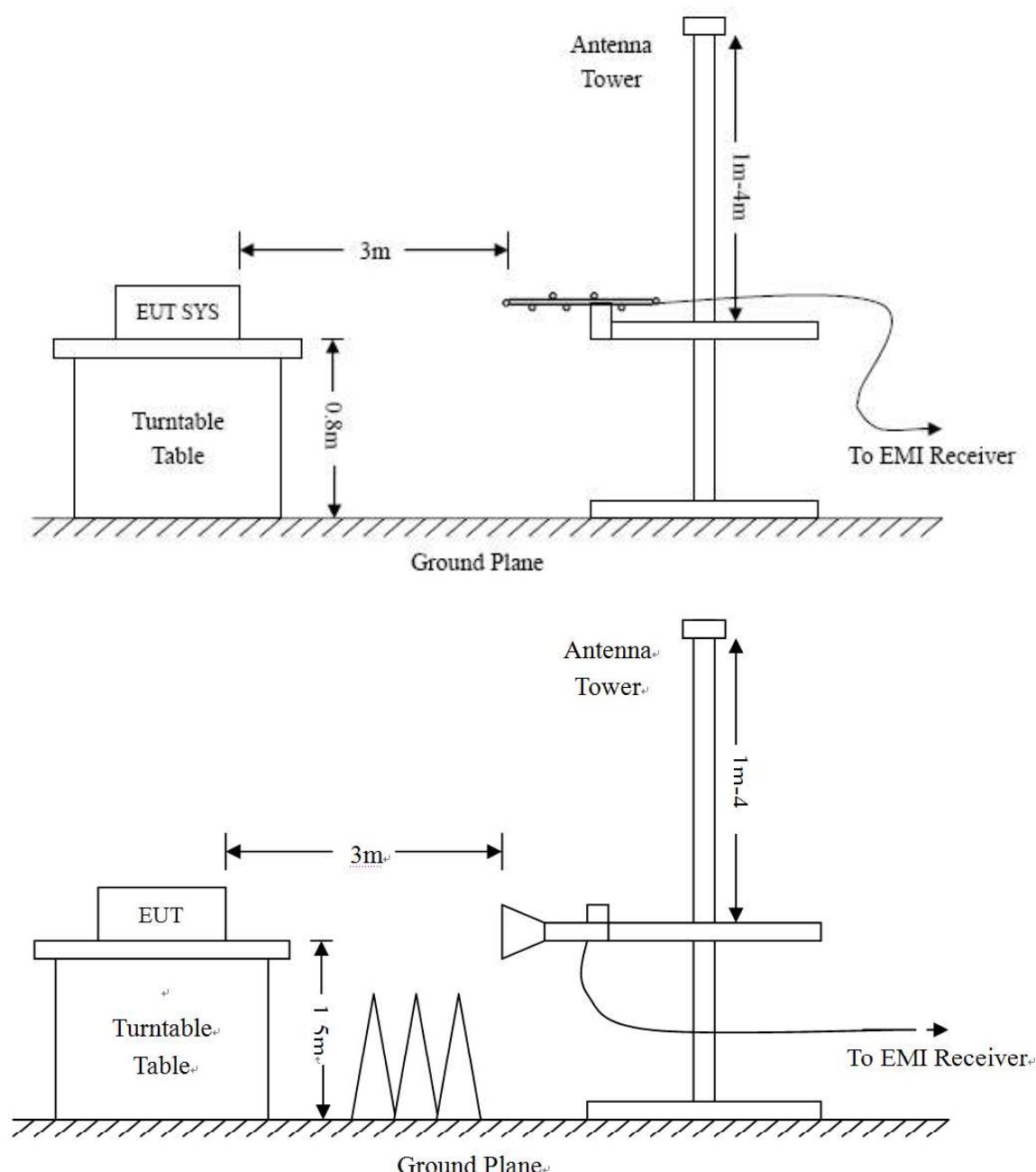
where:

- E is the field strength in V/m;
- d is the measurement distance in meters;
- EIRP is the equivalent isotropically radiated power in watts.

10.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.407(b)(6) and FCC Part 15.209 Limit..

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



10.3 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

10.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

10.5 Environmental Conditions

Temperature:	22° C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

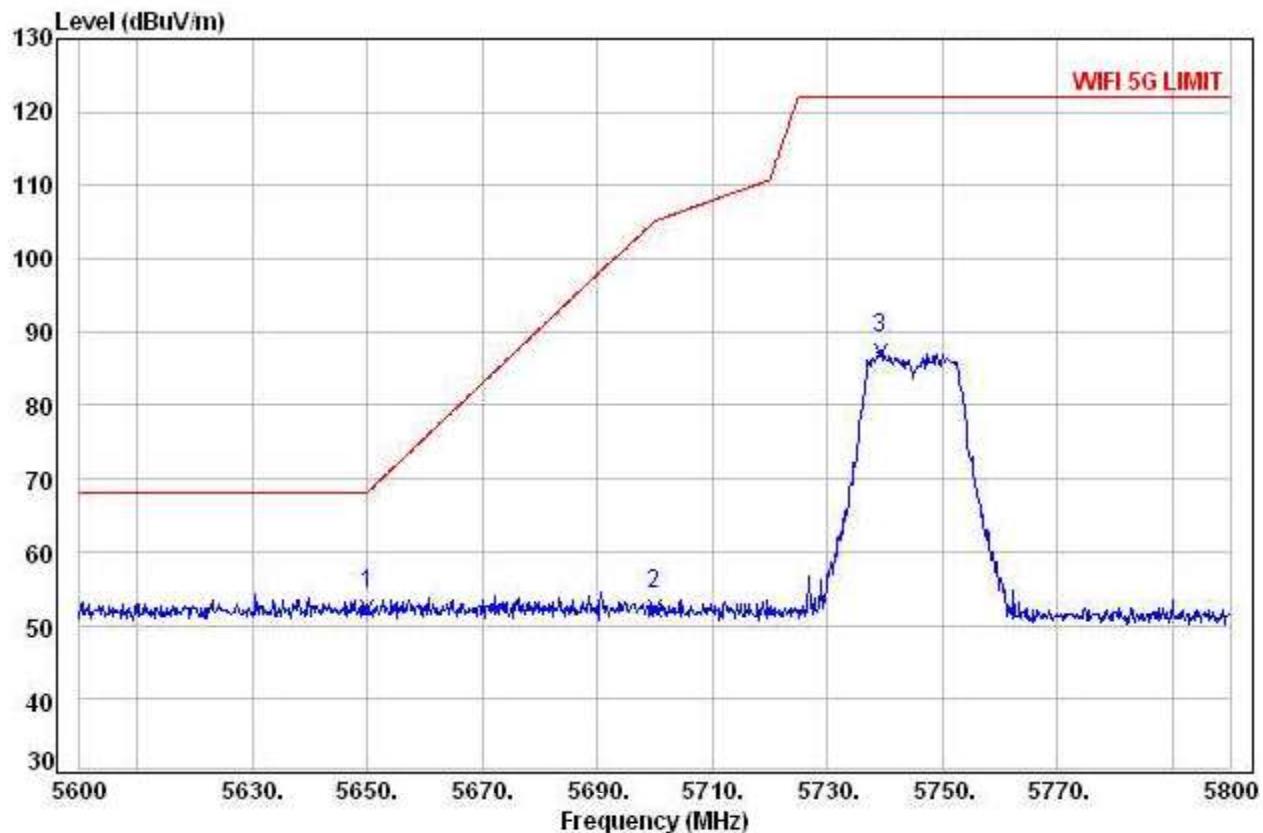
10.6 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.407(b) standards, and had the worst margin of:

Test Plots: Radiated Undesirable Emissions and Band Edge for 5.725-5.850GHz

Channel 149: 5745MHz @ 802.11a mode

Polarization: Horizontal



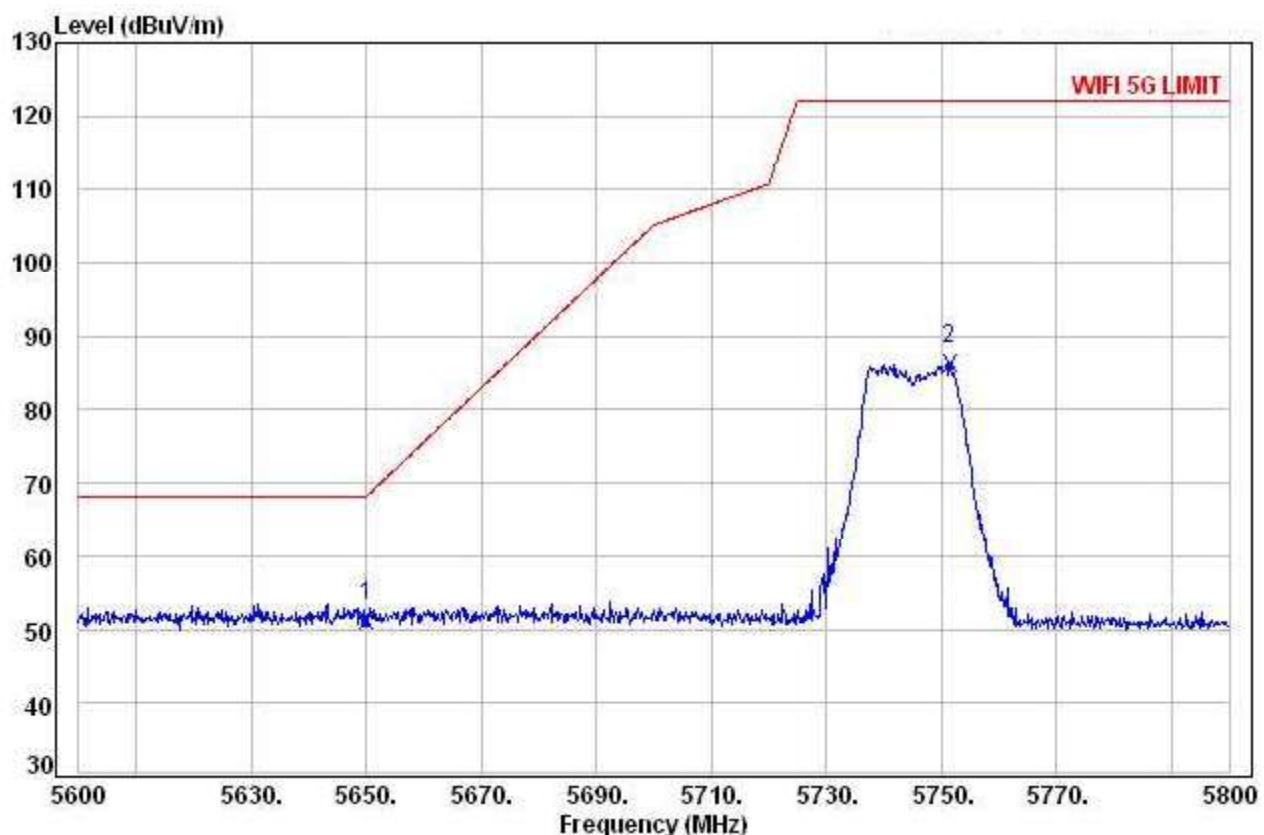
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5650	47.85	4.35	52.20	68.20	-16.00	25	150	QP
2	5700	47.62	4.65	52.27	105.20	-52.93	183	150	QP
3	5739	82.15	4.95	87.10	122.20	-35.10	175	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 149: 5745MHz @ 802.11a mode

Polarization: Vertical



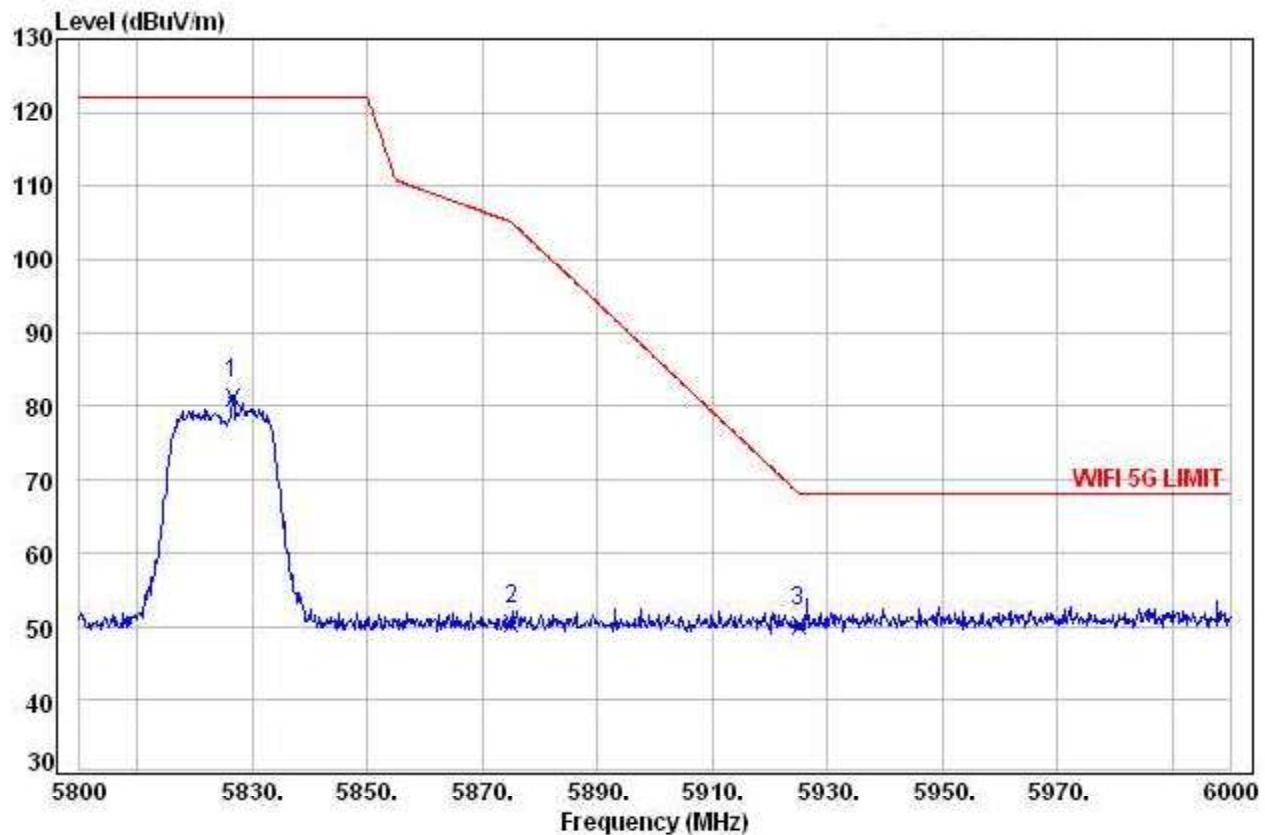
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5650	46.74	4.35	51.09	68.20	-17.11	256	150	QP
2	5750	81.22	4.95	86.17	122.20	-36.03	67	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 165: 5825MHz @ 802.11a mode

Polarization: Horizontal



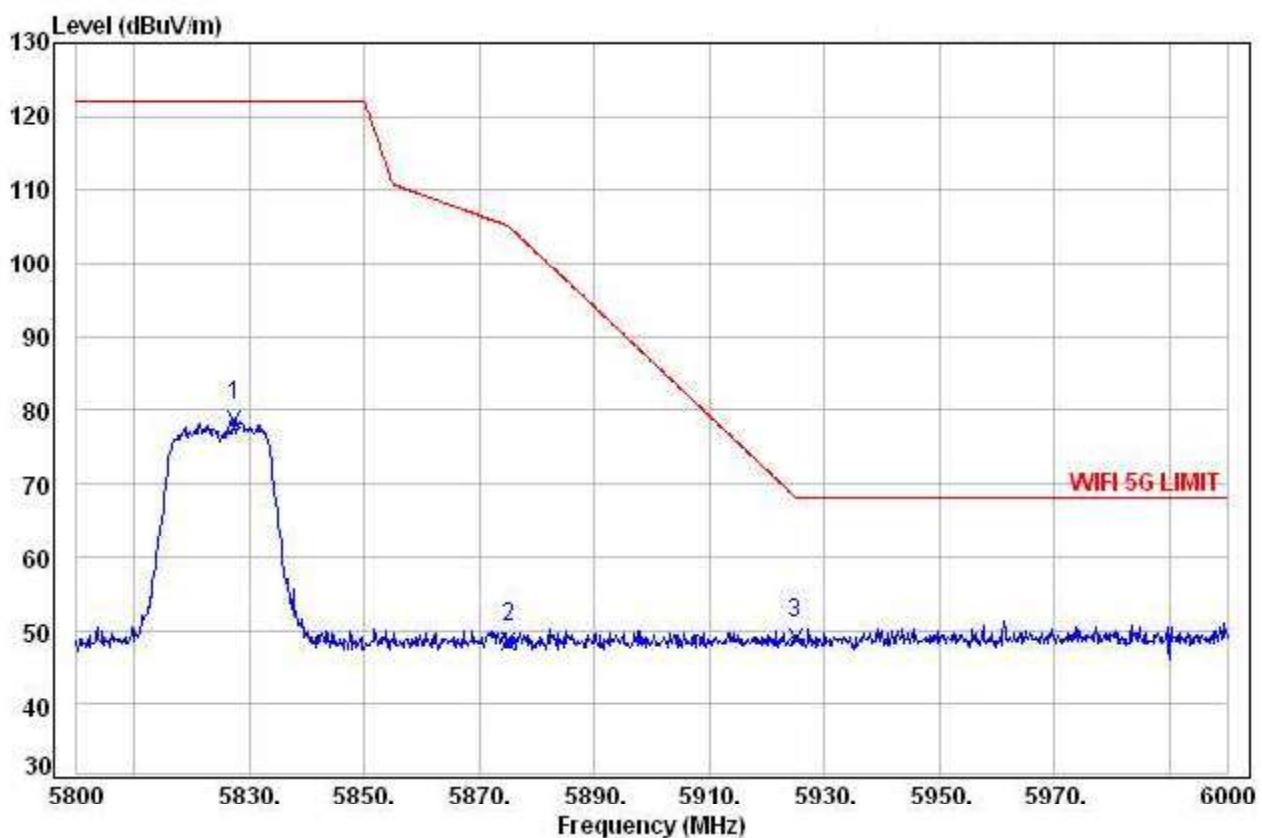
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5825	75.76	5.35	81.11	122.2	-41.09	68	150	QP
2	5875	44.77	5.65	50.42	105.2	-54.78	169	150	QP
3	5925	44.16	5.95	50.11	68.2	-18.09	244	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 165: 5825MHz @ 802.11a mode

Polarization: Vertical



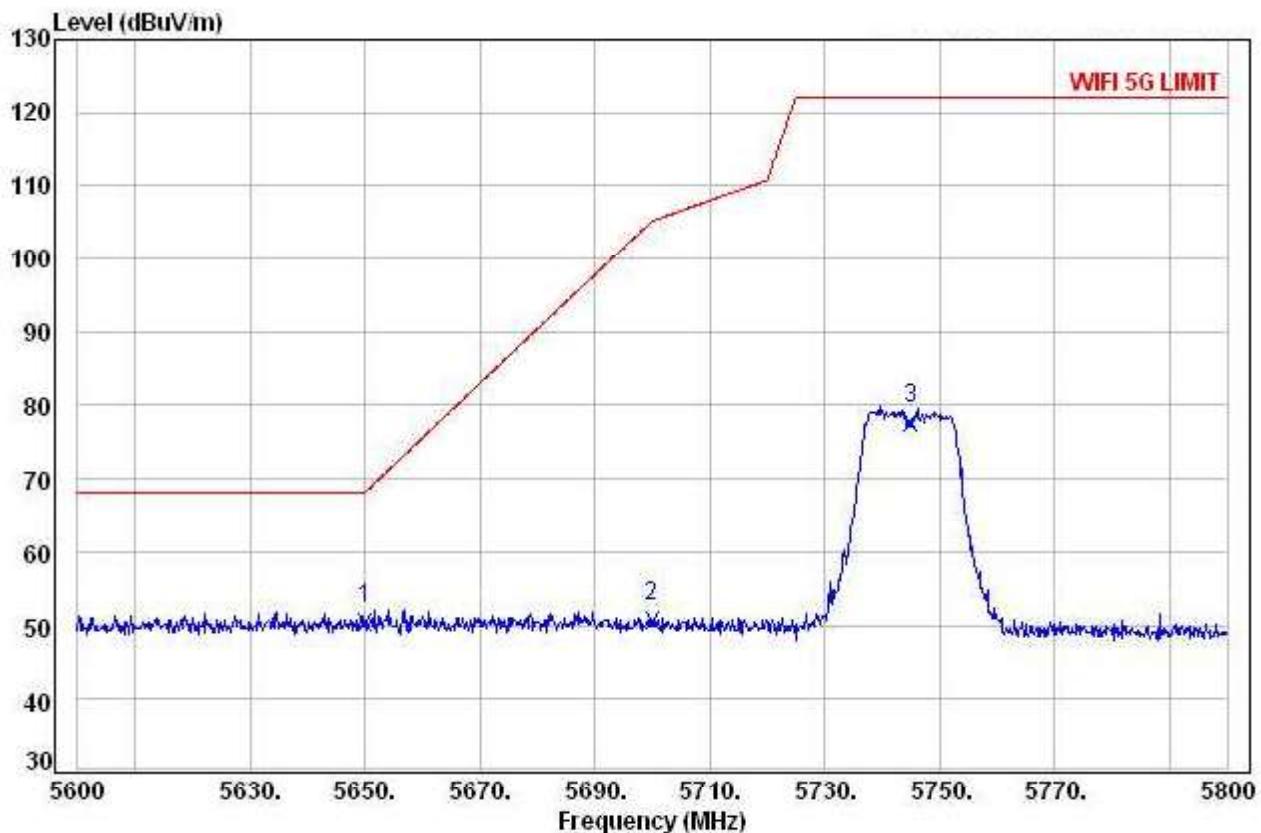
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5825	73.23	5.35	78.58	122.2	-43.62	36	150	QP
2	5875	42.73	5.65	48.38	105.2	-56.82	115	150	QP
3	5925	43.01	5.95	48.96	68.2	-19.24	168	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 149: 5745MHz @ 802.11n (HT20) mode

Polarization: Horizontal



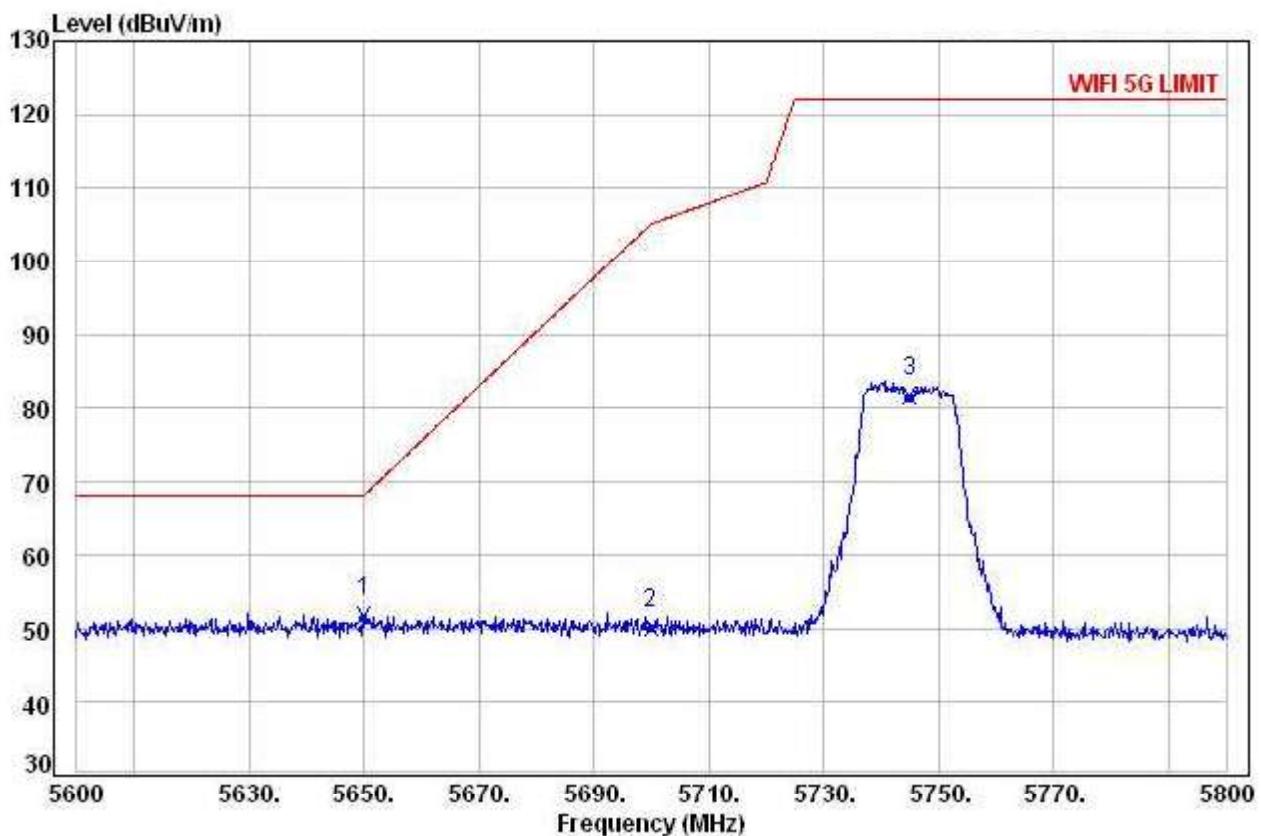
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5650	46.04	4.35	50.39	68.20	-17.81	205	150	QP
2	5700	45.91	4.65	50.56	105.20	-54.64	175	150	QP
3	5745	72.66	4.95	77.61	122.20	-44.59	68	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 149: 5745MHz @ 802.11n (HT20) mode

Polarization: Vertical



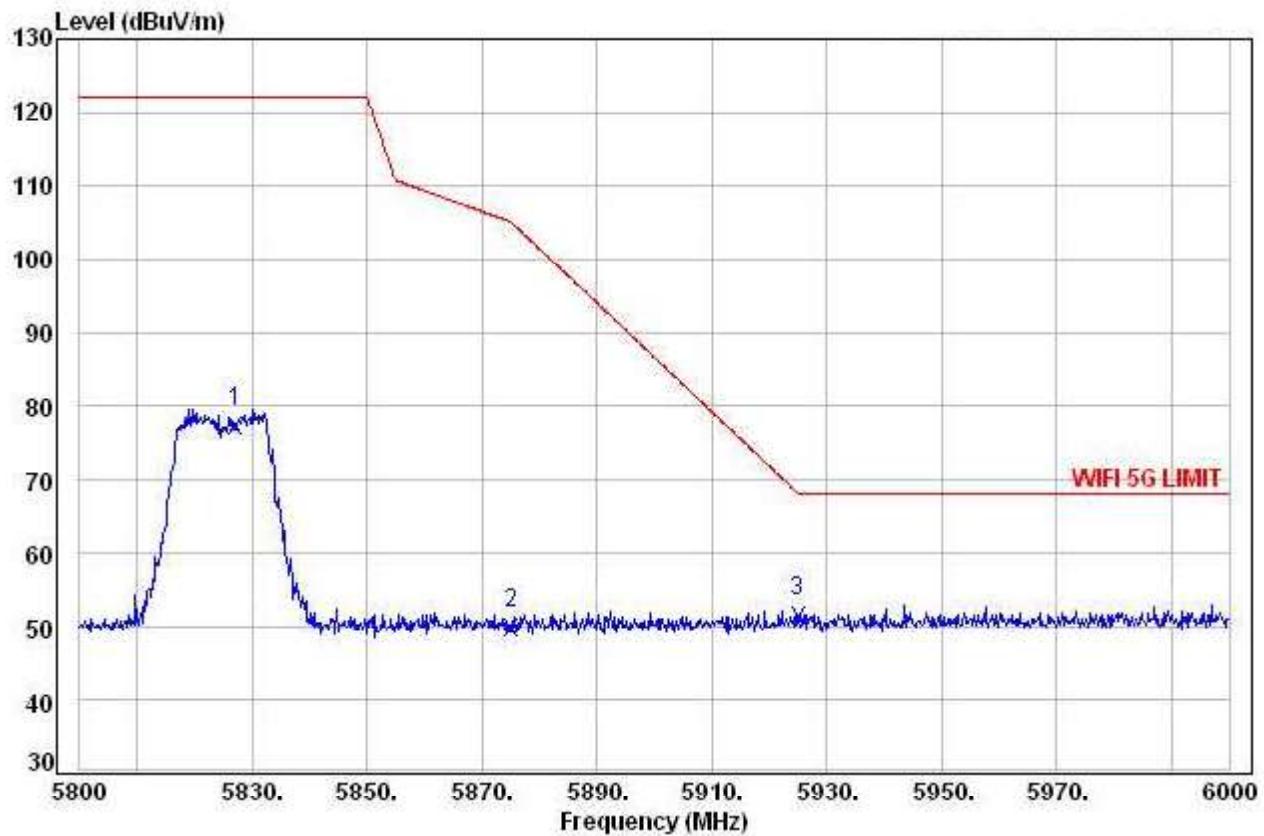
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5650	47.28	4.35	51.63	68.20	-16.57	256	150	QP
2	5700	45.45	4.65	50.10	105.20	-55.1	189	150	QP
3	5745	76.59	4.95	81.54	122.20	-40.66	304	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 165: 5825MHz @ 802.11n (HT20) mode

Polarization: Horizontal



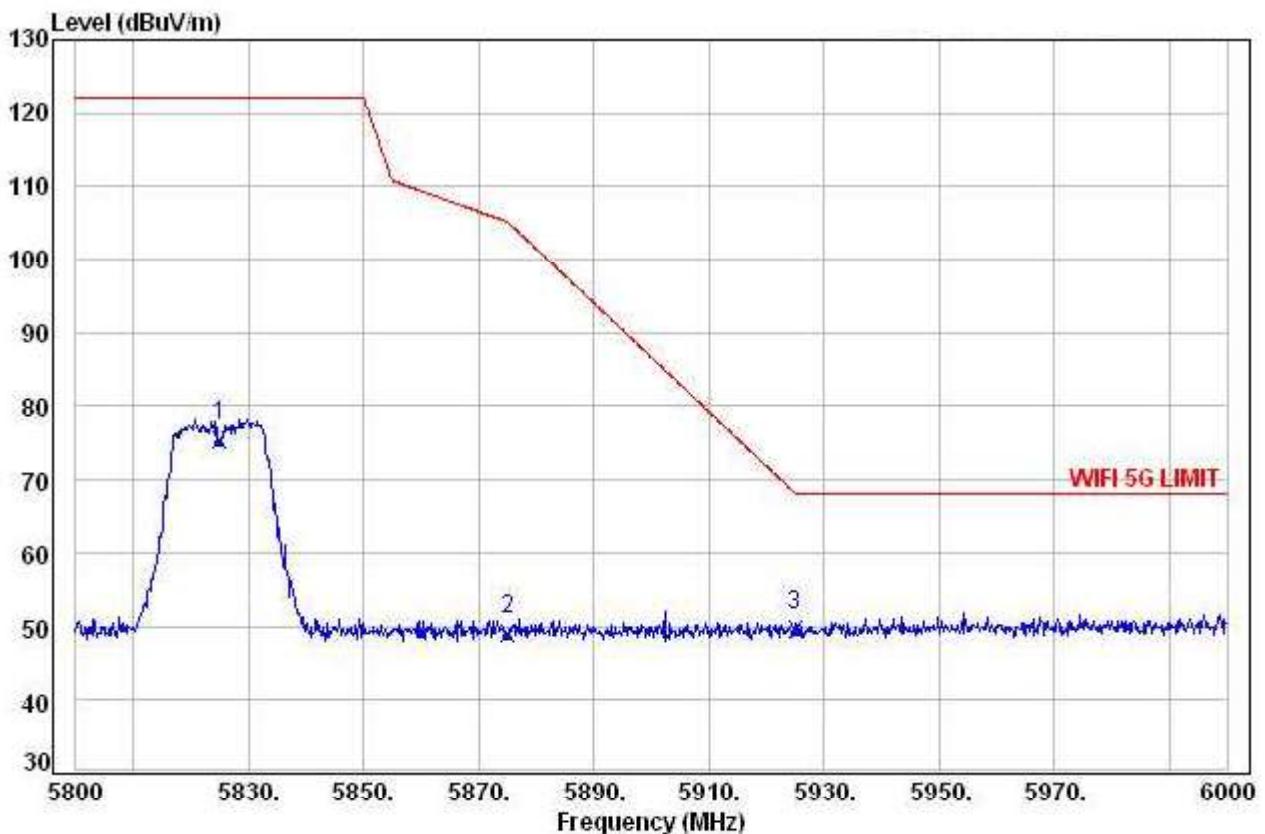
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5825	71.97	5.35	77.32	122.2	-44.88	142	150	QP
2	5875	44.15	5.65	49.80	105.2	-55.40	86	150	QP
3	5925	45.39	5.95	51.34	68.2	-16.86	275	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Channel 165: 5825MHz @ 802.11n (HT20) mode

Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	5825	69.90	5.35	75.25	122.2	-46.95	65	150	QP
2	5875	43.25	5.65	48.90	105.2	-56.3	125	150	QP
3	5925	43.48	5.95	49.43	68.2	-18.77	241	150	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

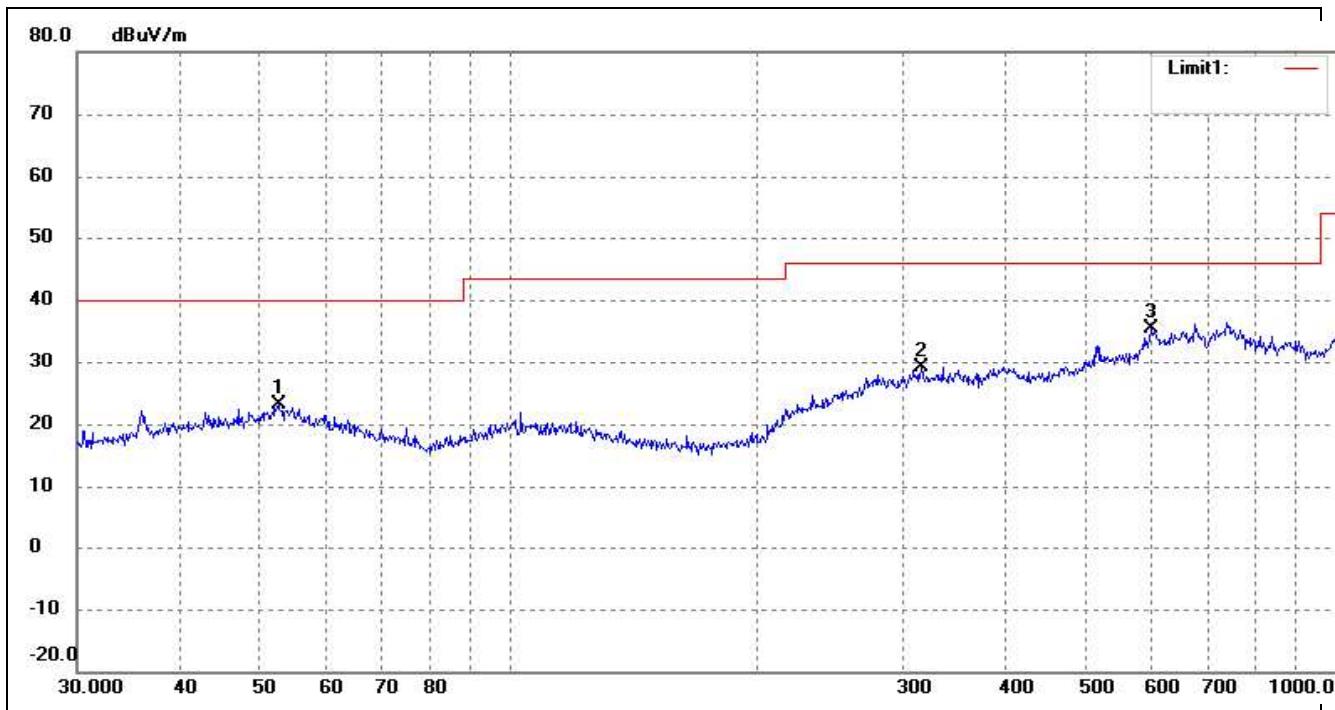
Radiated Undesirable Emissions (Below 1GHz)

Note:

We test all modes, and only the worst case (802.11a mode, Low, Middle, High) data presented in the report.

Worst case of Channel 165: 5745MHz @ 802.11a mode

Polarization: Vertical



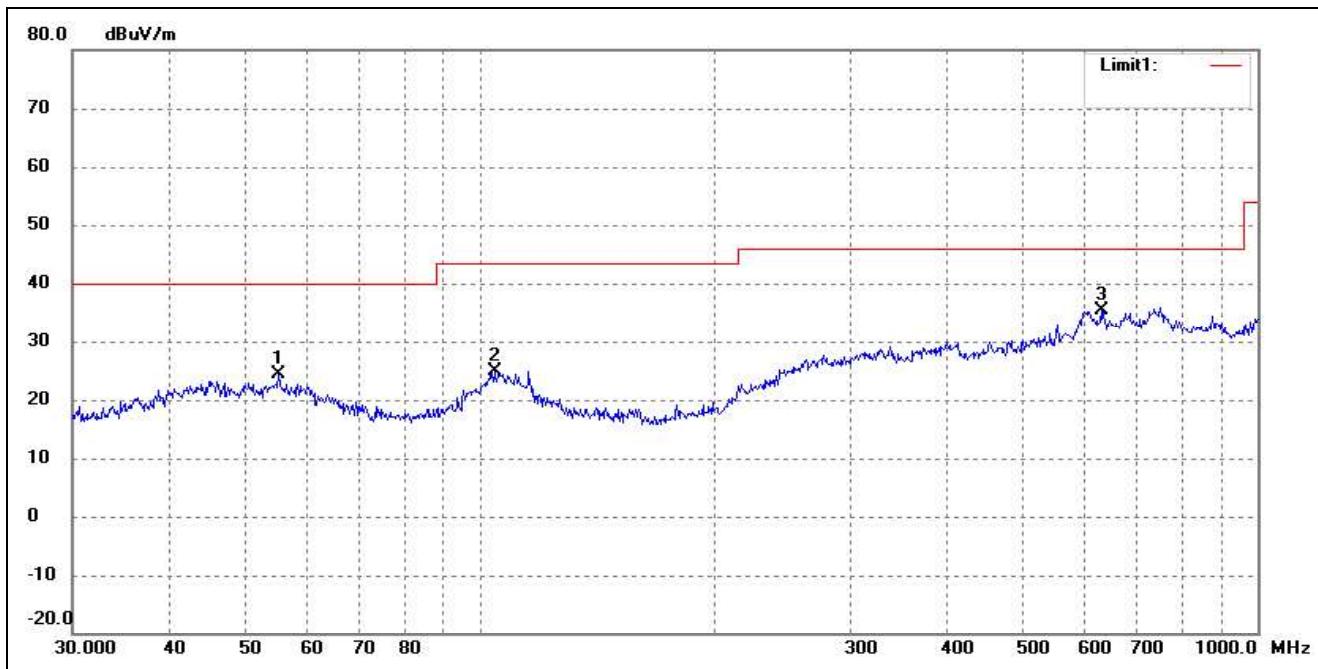
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	52.5752	17.88	5.30	23.18	40.00	-16.82	250	100	QP
2	315.4807	16.89	12.27	29.16	46.00	-16.84	287	100	QP
3	599.3212	16.07	19.19	35.26	46.00	-10.74	168	100	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Channel 165: 5745MHz @ 802.11a mode

Polarization: Horizontal



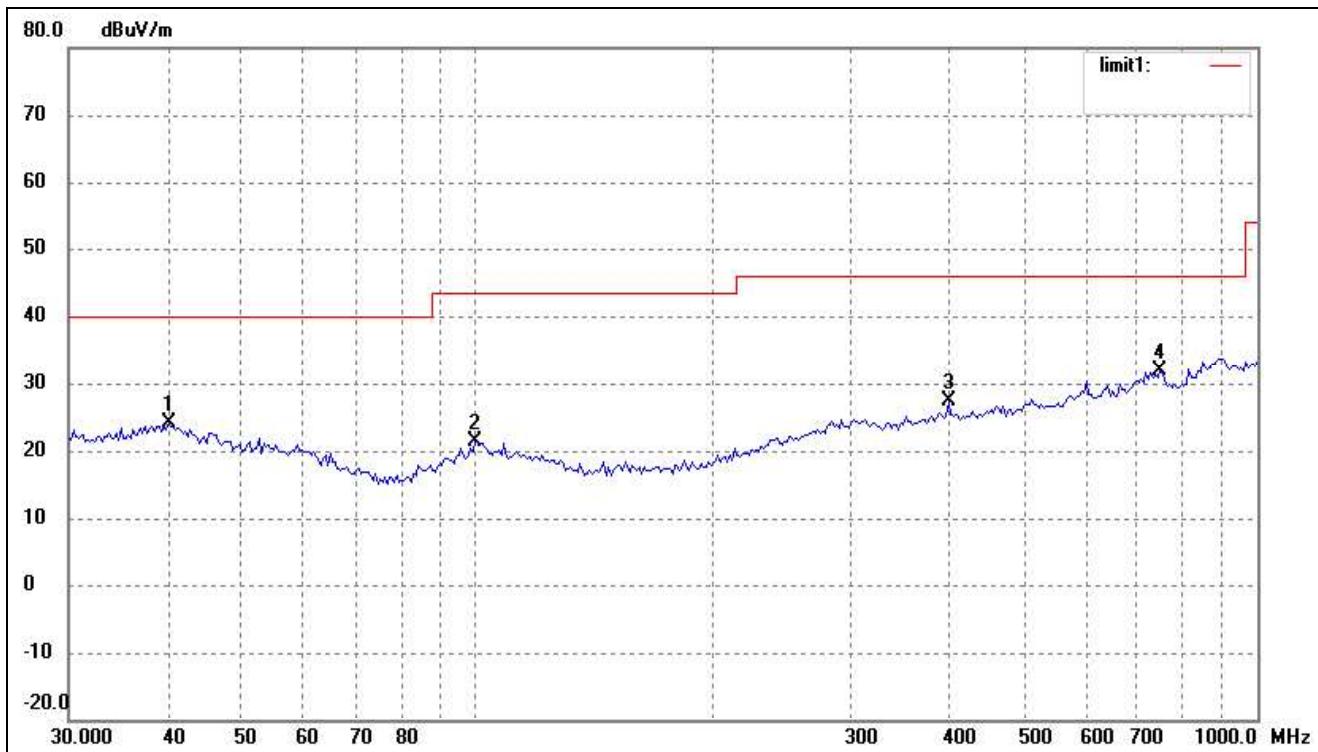
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	55.2207	19.14	5.32	24.46	40.00	-15.54	100	100	QP
2	104.5361	19.72	5.10	24.82	43.50	-18.68	136	100	QP
3	629.4772	17.05	18.25	35.30	46.00	-10.70	284	100	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Channel 165: 5785MHz @ 802.11a mode

Polarization: Vertical



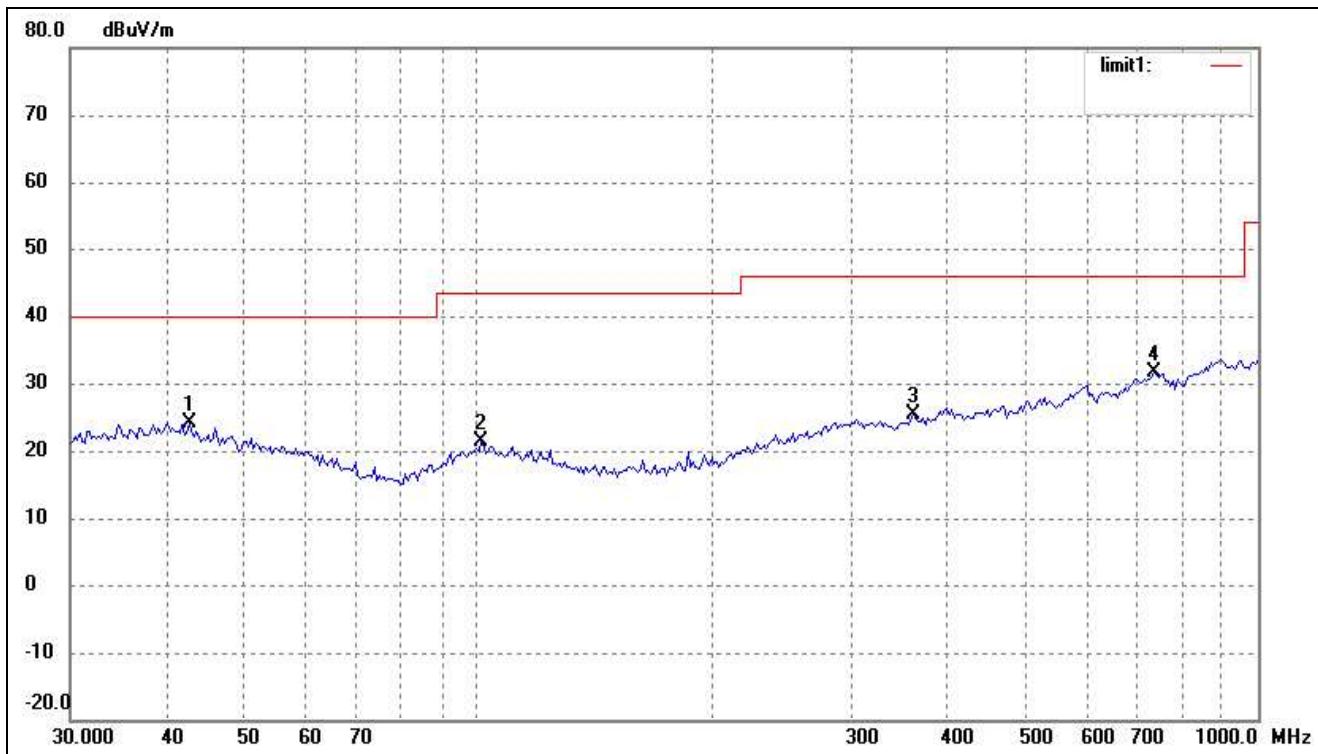
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	40.2757	14.85	9.17	24.02	40.00	-15.98	178	100	QP
2	99.5281	15.34	6.01	21.35	43.50	-22.15	224	300	QP
3	401.8385	17.34	10.06	27.40	46.00	-18.60	160	100	QP
4	750.1083	16.70	15.09	31.79	46.00	-14.21	290	300	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Channel 165: 5785MHz @ 802.11a mode

Polarization: Horizontal



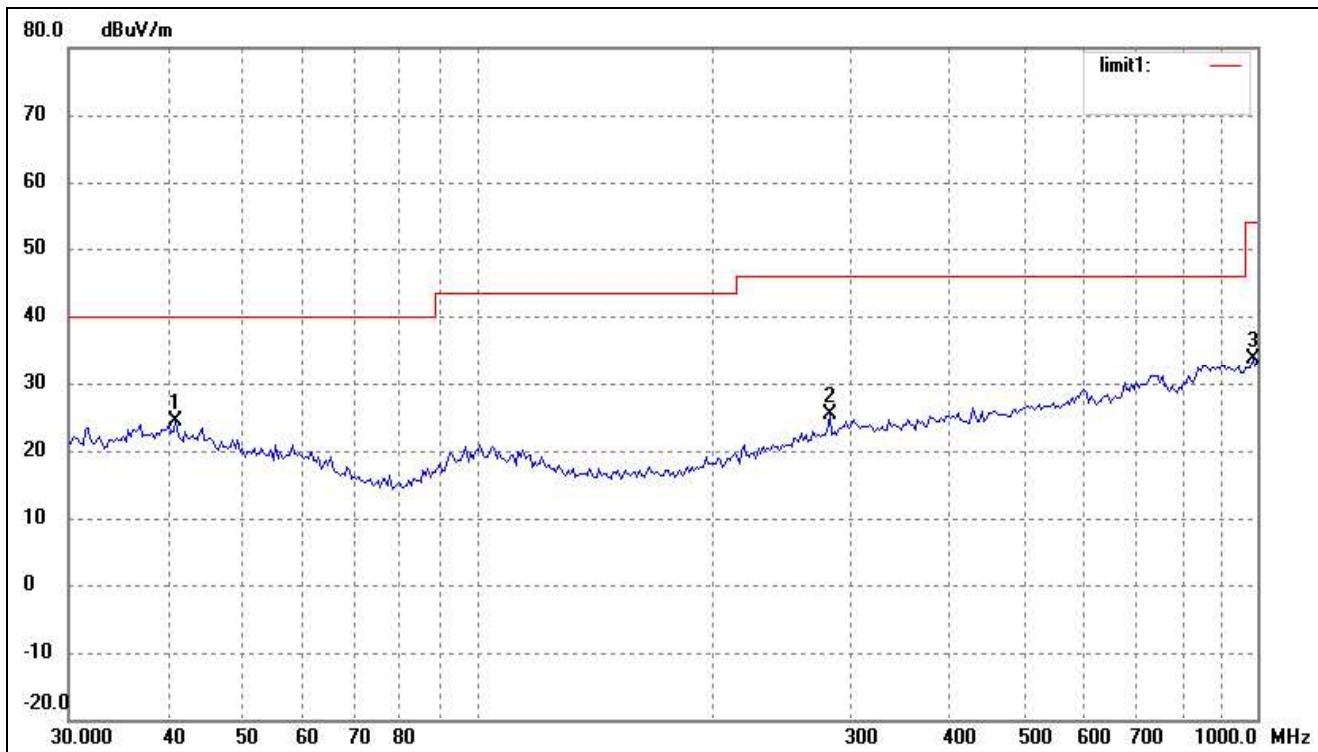
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	42.6000	15.76	8.47	24.23	40.00	-15.77	256	300	QP
2	100.9339	15.43	6.03	21.46	43.50	-22.04	360	100	QP
3	361.7139	16.18	9.24	25.42	46.00	-20.58	360	300	QP
4	734.4913	16.40	15.22	31.62	46.00	-14.38	360	100	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Channel 165: 5825MHz @ 802.11a mode

Polarization: Vertical



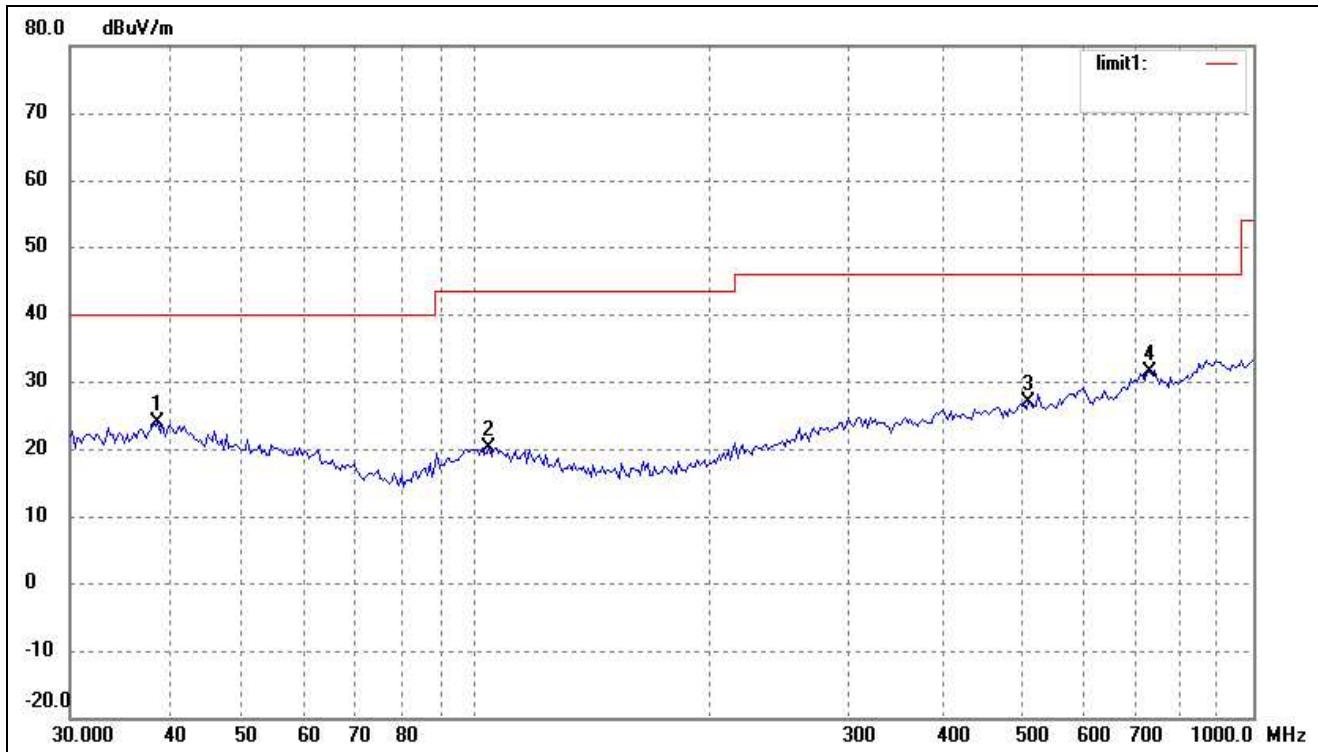
No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	41.1320	15.58	8.91	24.49	40.00	-15.51	360	100	QP
2	282.9852	16.87	8.51	25.38	46.00	-20.62	225	300	QP
3	986.0717	16.79	16.90	33.69	54.00	-20.31	160	100	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Channel 165: 5825MHz @ 802.11a mode

Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	38.8879	14.75	9.06	23.81	40.00	-16.19	177	100	QP
2	103.8055	14.46	5.73	20.19	43.50	-23.31	90	300	QP
3	513.6331	15.58	11.21	26.79	46.00	-19.21	336	100	QP
4	734.4913	16.04	15.22	31.26	46.00	-14.74	360	300	QP

Remark:

1. Margin = Emission level - Limit value
2. “---“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

*Radiated Undesirable Emissions (Above 1GHz)**Worst case of Hormonics And Spurious Emissions for the frequency band 5.150-5.250GHz (802.11a)*

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
10360	PK	55.36	360	V	38.9	9.8	40.5	63.56	74	-10.44
10360	PK	54.68	360	H	38.9	9.8	40.5	62.88	74	-11.12
10360	AV	38.64	360	V	38.9	9.8	40.5	46.84	54	-7.16
10360	AV	37.92	360	H	38.9	9.8	40.5	46.12	54	-7.88
15540	PK	50.80	360	V	40.7	10.9	39.6	62.40	74	-11.60
15540	PK	49.40	360	H	40.7	10.9	39.6	61.30	74	-12.70
15540	AV	35.60	360	V	40.7	10.9	39.6	47.20	54	-6.80
15540	AV	34.70	360	H	40.7	10.9	39.6	46.10	54	-7.90
20720	--	--	--	--	--	--	--	--	--	--
25900	--	--	--	--	--	--	--	--	--	--
31080	--	--	--	--	--	--	--	--	--	--
36260	--	--	--	--	--	--	--	--	--	--
High Channel (5240MHz)										
10480	PK	54.26	360	V	38.9	9.8	40.5	62.46	74	-11.54
10480	PK	53.65	360	H	38.9	9.8	40.5	61.85	74	-12.15
10480	AV	36.58	360	V	38.9	9.8	40.5	44.78	54	-9.22
10480	AV	35.14	360	H	38.9	9.8	40.5	43.34	54	-10.66
15720	PK	50.20	360	V	40.7	10.9	39.6	62.20	74	-11.80
15720	PK	49.65	360	H	40.7	10.9	39.6	61.65	74	-12.35
15720	AV	36.42	360	V	40.7	10.9	39.6	48.42	54	-5.58
15720	AV	35.18	360	H	40.7	10.9	39.6	47.18	54	-6.82
20960	--	--	--	--	--	--	--	--	--	--
26200	--	--	--	--	--	--	--	--	--	--
31440	--	--	--	--	--	--	--	--	--	--
36680	--	--	--	--	--	--	--	--	--	--

Remark:

1. Margin = Emission level - Limit value
2. “--“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Harmonics And Spurious Emissions for the frequency band 5.725-5.850GHz (802.11a)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5745MHz)										
11490	PK	53.58	360	V	39.1	10.1	40.2	62.58	74	-11.42
11490	PK	52.97	360	H	39.1	10.1	40.2	61.97	74	-12.03
11490	AV	35.90	360	V	39.1	10.1	40.2	44.90	54	-9.10
11490	AV	34.46	360	H	39.1	10.1	40.2	43.46	54	-10.54
17235	PK	49.52	360	V	41.3	11.2	39.4	62.62	74	-11.38
17235	PK	48.97	360	H	41.3	11.2	39.4	62.07	74	-11.93
17235	AV	35.74	360	V	41.3	11.2	39.4	48.84	54	-5.16
17235	AV	34.50	360	H	41.3	11.2	39.4	47.60	54	-6.40
22980	--	--	--	--	--	--	--	--	--	--
28725	--	--	--	--	--	--	--	--	--	--
34470	--	--	--	--	--	--	--	--	--	--
40000	--	--	--	--	--	--	--	--	--	--
High Channel (5825MHz)										
11650	PK	53.32	360	V	39.1	10.1	40.2	62.32	74	-11.68
11650	PK	52.71	360	H	39.1	10.1	40.2	61.71	74	-12.29
11650	AV	35.64	360	V	39.1	10.1	40.2	44.64	54	-9.36
11650	AV	34.20	360	H	39.1	10.1	40.2	43.20	54	-10.80
17475	PK	49.26	360	V	41.3	11.2	39.4	62.36	74	-11.64
17475	PK	48.71	360	H	41.3	11.2	39.4	61.81	74	-12.19
17475	AV	35.48	360	V	41.3	11.2	39.4	48.58	54	-5.42
17475	AV	34.24	360	H	41.3	11.2	39.4	47.34	54	-6.66
23300	--	--	--	--	--	--	--	--	--	--
29125	--	--	--	--	--	--	--	--	--	--
34950	--	--	--	--	--	--	--	--	--	--
40000	--	--	--	--	--	--	--	--	--	--

Remark:

1. Margin = Emission level - Limit value
2. “--“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured

Worst case of Hormonics And Spurious Emissions for the frequency band 5.150-5.250GHz (802.11n HT20)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5180MHz)										
10360	PK	53.91	360	V	38.9	9.8	40.5	62.11	74	-11.89
10360	PK	53.30	360	H	38.9	9.8	40.5	61.50	74	-12.50
10360	AV	36.23	360	V	38.9	9.8	40.5	44.43	54	-9.57
10360	AV	34.79	360	H	38.9	9.8	40.5	42.99	54	-11.01
15540	PK	49.85	360	V	40.7	10.9	39.6	61.85	74	-12.15
15540	PK	49.30	360	H	40.7	10.9	39.6	61.30	74	-12.70
15540	AV	36.07	360	V	40.7	10.9	39.6	48.07	54	-5.93
15540	AV	34.83	360	H	40.7	10.9	39.6	46.83	54	-7.17
20720	--	--	--	--	--	--	--	--	--	--
25900	--	--	--	--	--	--	--	--	--	--
31080	--	--	--	--	--	--	--	--	--	--
36260	--	--	--	--	--	--	--	--	--	--
High Channel (5240MHz)										
10480	PK	54.88	360	V	38.9	9.8	40.5	63.08	74	-10.92
10480	PK	54.27	360	H	38.9	9.8	40.5	62.47	74	-11.53
10480	AV	37.20	360	V	38.9	9.8	40.5	45.40	54	-8.60
10480	AV	35.76	360	H	38.9	9.8	40.5	43.96	54	-10.04
15720	PK	50.82	360	V	40.7	10.9	39.6	62.82	74	-11.18
15720	PK	50.27	360	H	40.7	10.9	39.6	62.27	74	-11.73
15720	AV	37.04	360	V	40.7	10.9	39.6	49.04	54	-4.96
15720	AV	35.80	360	H	40.7	10.9	39.6	47.80	54	-6.20
20960	--	--	--	--	--	--	--	--	--	--
26200	--	--	--	--	--	--	--	--	--	--
31440	--	--	--	--	--	--	--	--	--	--
36680	--	--	--	--	--	--	--	--	--	--

Remark:

1. Margin = Emission level - Limit value
2. “--“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Worst case of Harmonics And Spurious Emissions for the frequency band 5.725-5.850GHz (802.11n HT20)

Frequency MHz	Detector	Meter Reading dBuV	Direction Degree	Polar H / V	Antenna Loss dB	Cable loss dB	Amplifier dB	Correction Amplitude dBuV/m	Limit dBuV/m	Margin dB
Low Channel (5745MHz)										
11490	PK	54.16	360	V	39.1	10.1	40.2	63.16	74	-10.84
11490	PK	53.55	360	H	39.1	10.1	40.2	62.55	74	-11.45
11490	AV	36.48	360	V	39.1	10.1	40.2	45.48	54	-8.52
11490	AV	35.04	360	H	39.1	10.1	40.2	44.04	54	-9.96
17235	PK	50.10	360	V	41.3	11.2	39.4	63.20	74	-10.80
17235	PK	49.55	360	H	41.3	11.2	39.4	62.65	74	-11.35
17235	AV	36.32	360	V	41.3	11.2	39.4	49.42	54	-4.58
17235	AV	35.08	360	H	41.3	11.2	39.4	48.18	54	-5.82
22980	--	--	--	--	--	--	--	--	--	--
28725	--	--	--	--	--	--	--	--	--	--
34470	--	--	--	--	--	--	--	--	--	--
40000	--	--	--	--	--	--	--	--	--	--
High Channel (5825MHz)										
11650	PK	54.65	360	V	39.1	10.1	40.2	63.65	74	-10.35
11650	PK	54.04	360	H	39.1	10.1	40.2	63.04	74	-10.96
11650	AV	36.97	360	V	39.1	10.1	40.2	45.97	54	-8.03
11650	AV	35.53	360	H	39.1	10.1	40.2	44.53	54	-9.47
17475	PK	50.59	360	V	41.3	11.2	39.4	63.69	74	-10.31
17475	PK	50.04	360	H	41.3	11.2	39.4	63.14	74	-10.86
17475	AV	36.81	360	V	41.3	11.2	39.4	49.91	54	-4.09
17475	AV	35.57	360	H	41.3	11.2	39.4	48.67	54	-5.33
23300	--	--	--	--	--	--	--	--	--	--
29125	--	--	--	--	--	--	--	--	--	--
34950	--	--	--	--	--	--	--	--	--	--
40000	--	--	--	--	--	--	--	--	--	--

Remark:

1. Margin = Emission level - Limit value
2. “--“ states emission level at least lower than limit 20dB, so without recorded any values;
3. Result Level = Reading Level + Correct factor (Antenna Factor + Cable loss - PRM Factor).
4. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.
5. Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

11. Frequency Stability

11.1 Standard Applicable

According to §15.407(g), Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

11.2 Test Procedure

According to §2.1055, the following test procedure was performed.

The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

Temperature:	Supply Voltage
20°C	85-115% of declared nominal voltage
-30°C to +50°C	Normal

11.3 Environmental Conditions

Temperature:	20°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

11.4 Summary of Test Results/Plots

5150-5250MHz, Worst case @ 802.11a mode:

801.11a : 5200 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5199.9938
120	5199.9966
118	5199.9974
Max. Deviation (MHz)	0.0074
Max. Deviation (ppm)	1.19
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5199.9938
10	5199.9957
20	5199.9976
30	5199.9963
40	5199.9988
50	5199.9978
Max. Deviation (MHz)	0.0072
Max. Deviation (ppm)	1.19

801.11a : 5200 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5199.9925
120	5199.9955
118	5199.9976
Max. Deviation (MHz)	0.0075
Max. Deviation (ppm)	1.44
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5199.9923
10	5199.9946
20	5199.9963
30	5199.9975
40	5199.9972
50	5199.9987
Max. Deviation (MHz)	0.0072
Max. Deviation (ppm)	1.48

5725-5850MHz, Worst case @ 802.11n HT20 mode:

802.11n HT20 : 5745 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5745.0087
120	5745.0093
118	5745.0099
Max. Deviation (MHz)	0.0098
Max. Deviation (ppm)	1.72
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5745.0024
10	5745.0017
20	5745.0019
30	5745.0025
40	5745.0034
50	5745.0069
Max. Deviation (MHz)	0.0069
Max. Deviation (ppm)	1.20

802.11n HT20 : 5745 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5745.0086
120	5745.0092
118	5745.0098
Max. Deviation (MHz)	0.0098
Max. Deviation (ppm)	1.71
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5745.0023
10	5745.0016
20	5745.0018
30	5745.0026
40	5745.0033
50	5745.0088
Max. Deviation (MHz)	0.0068
Max. Deviation (ppm)	1.53

***** END OF REPORT *****