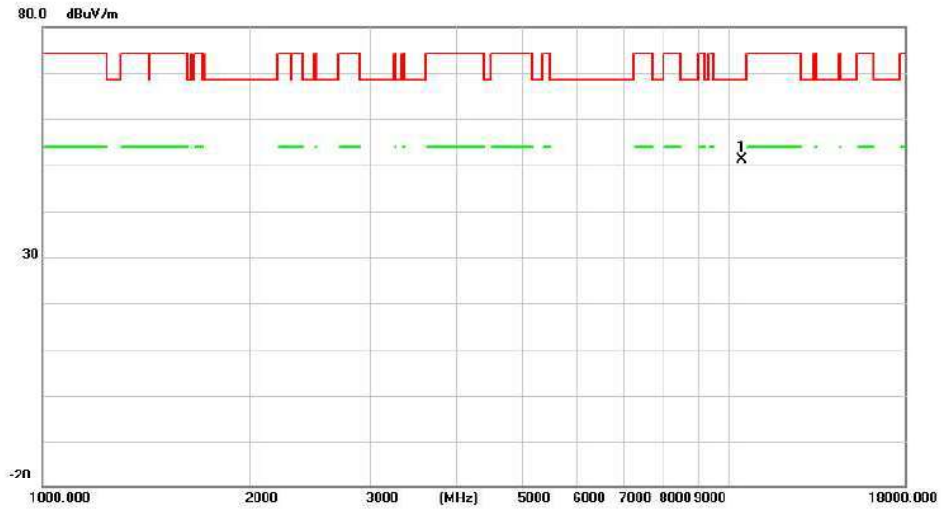
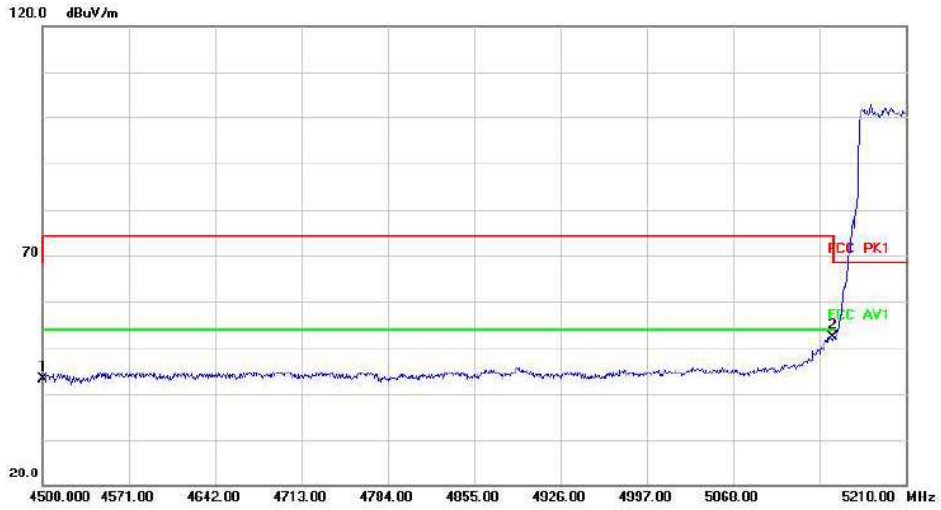
Above 1G (1GHz~18GHz)	Test mode: 11AC80	Test Channel:42

VERTICAL



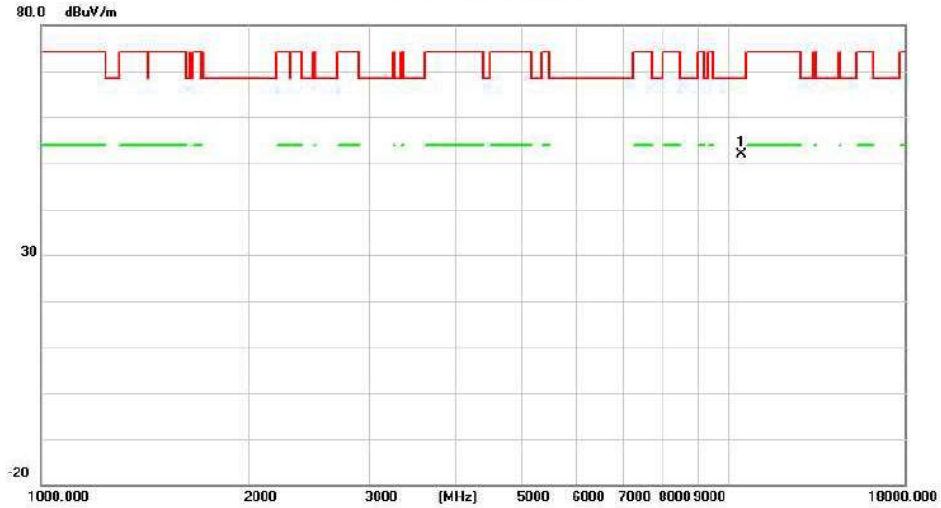
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10420.000	34.58	16.54	51.12	68.20	-17.08	peak			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	29.16	13.85	43.01	68.20	-25.19	peak			
2	*	5150.000	36.82	15.62	52.44	68.20	-15.76	peak			

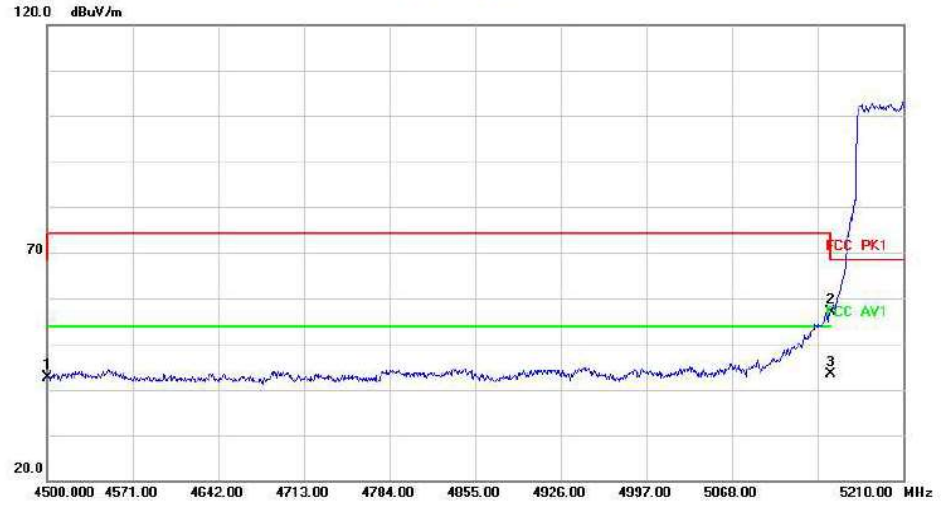
HORIZONTA

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10420.000	35.30	16.54	51.84	68.20	-16.36	peak			

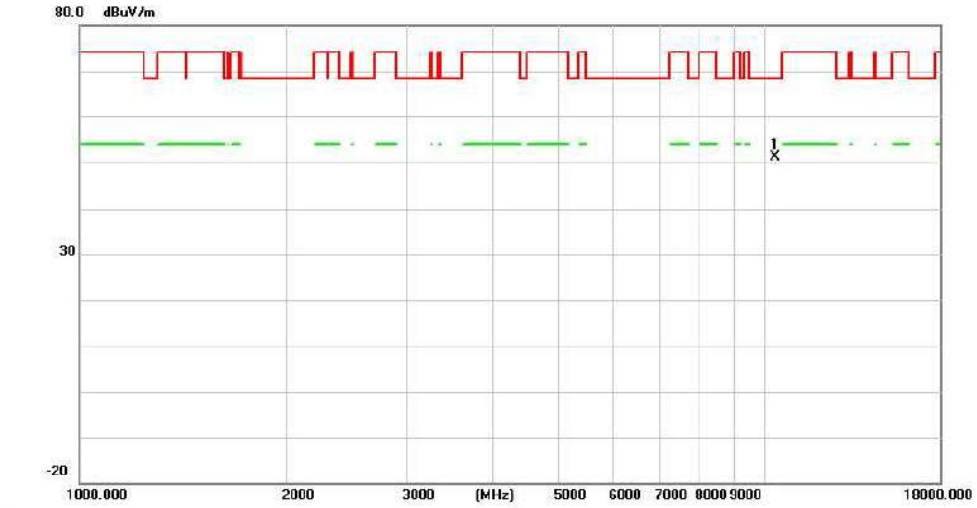
Radiated Emission



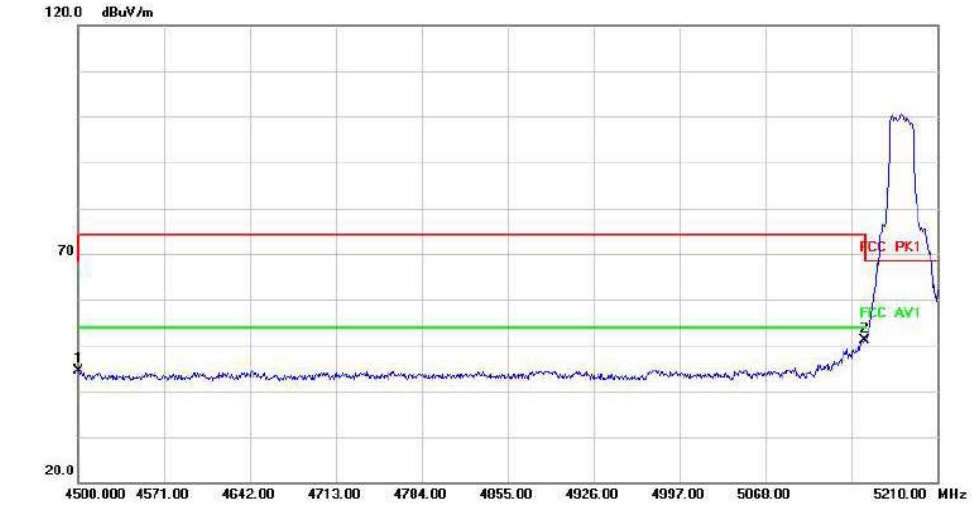
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	28.79	13.85	42.64	68.20	-25.56	peak			
2		5150.000	41.42	15.62	57.04	68.20	-11.16	peak			
3	*	5150.000	27.64	15.62	43.26	54.00	-10.74	AVG			

Above 1G (1GHz~18GHz)	Test mode: 11AX20	Test Channel:36

VERTICAL



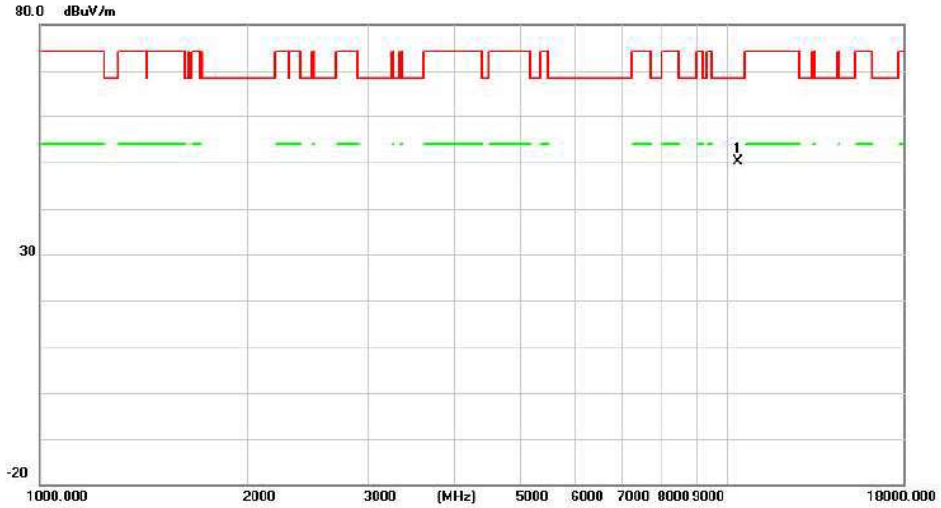
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10360.000	44.02	7.05	51.07	68.20	-17.13	peak			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	30.64	13.85	44.49	68.20	-23.71	peak			
2	*	5150.000	35.59	15.62	51.21	68.20	-16.99	peak			

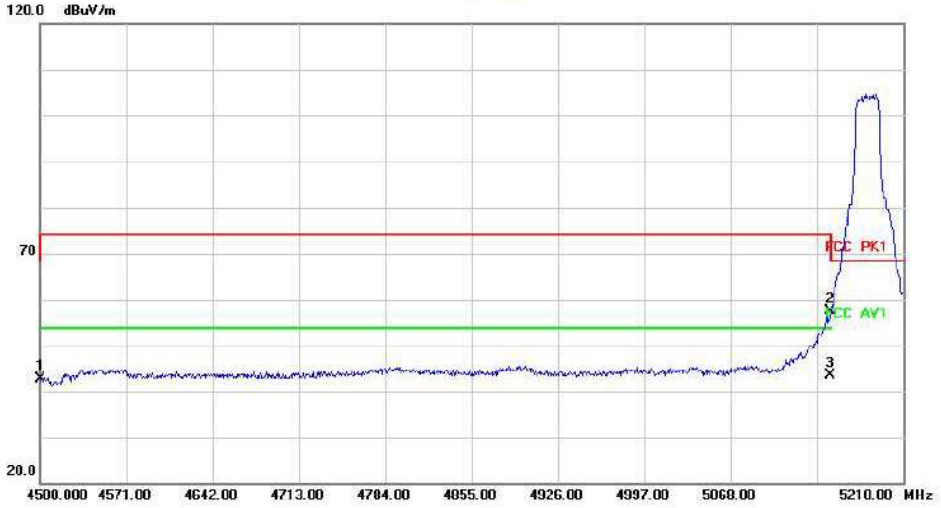
HORIZONTA

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10360.000	43.07	7.05	50.12	68.20	-18.08	peak			

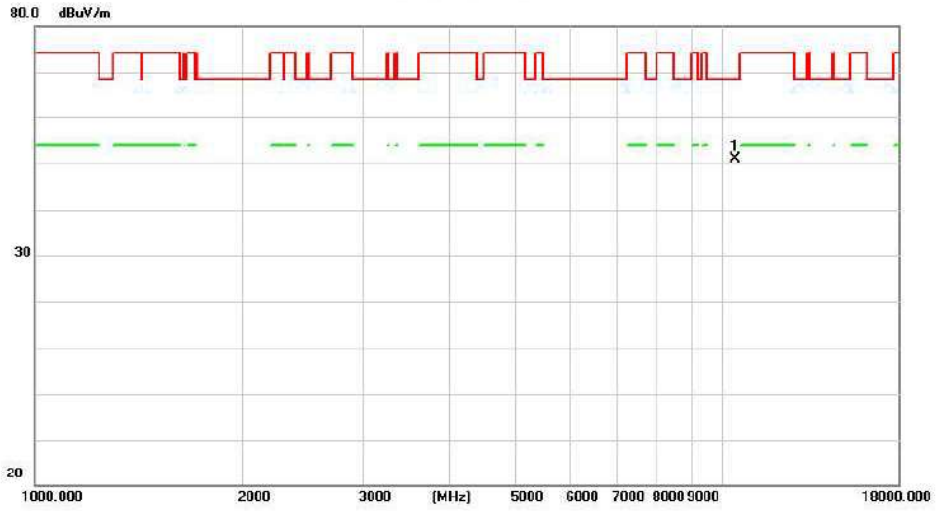
Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	28.74	13.85	42.59	68.20	-25.61	peak			
2	*	5150.000	42.04	15.62	57.66	68.20	-10.54	peak			
3		5150.000	27.66	15.62	43.28	54.00	-10.72	AVG			

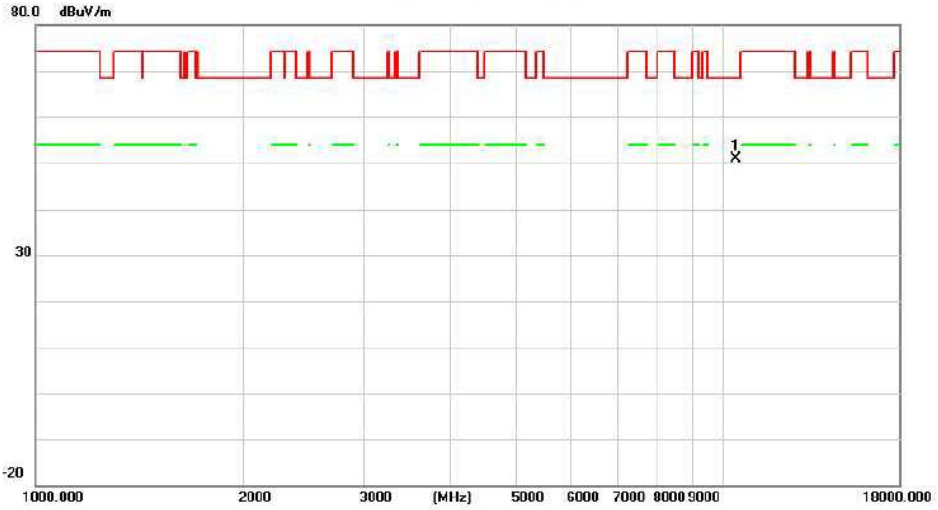
Above 1G (1GHz~18GHz)	Test mode: 11AX20	Test Channel:40

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10400.000	44.40	6.55	50.95	68.20	-17.25	peak			

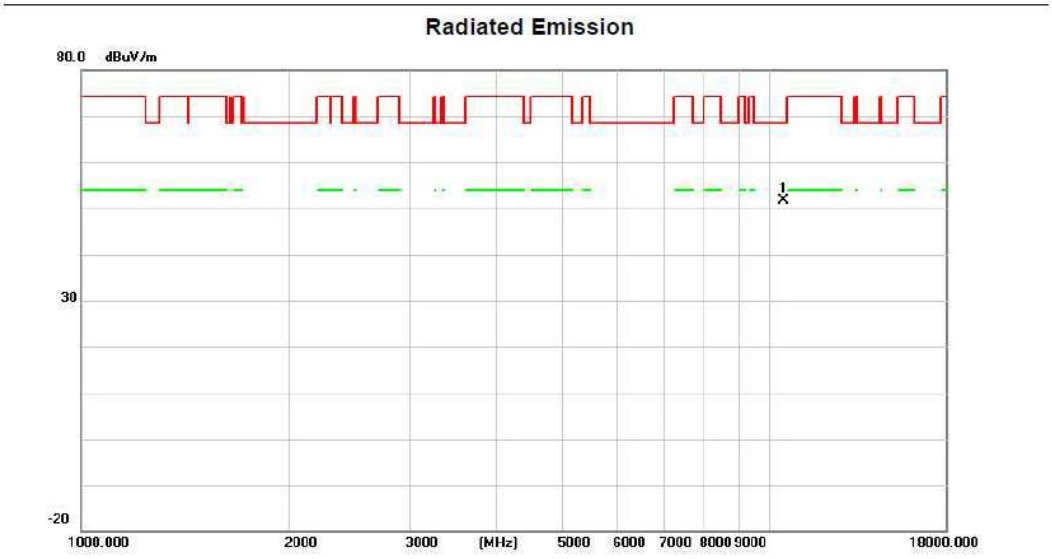
HORIZONTA



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10400.000	44.34	6.55	50.89	68.20	-17.31	peak			

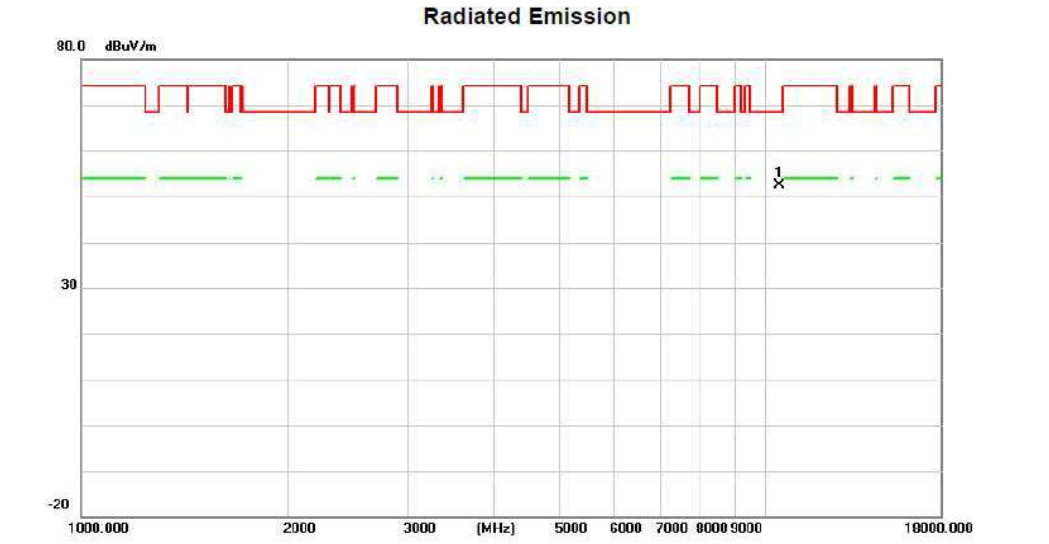
Above 1G (1GHz~18GHz)	Test mode: 11AX20	Test Channel:48

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10480.000	45.21	6.47	51.68	68.20	-16.52	peak			

HORIZONTA

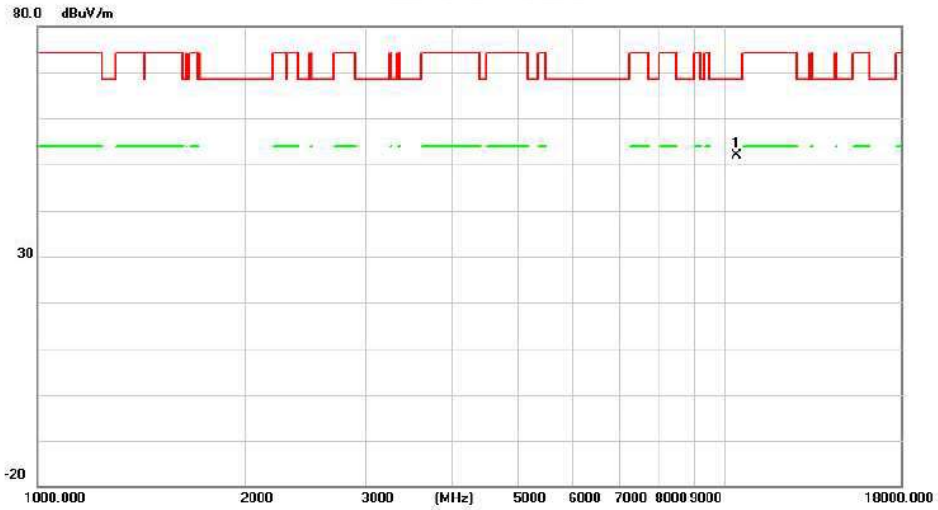


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10480.000	45.87	6.47	52.34	68.20	-15.86	peak			

Above 1G (1GHz~18GHz)	Test mode: 11AX40	Test Channel:38

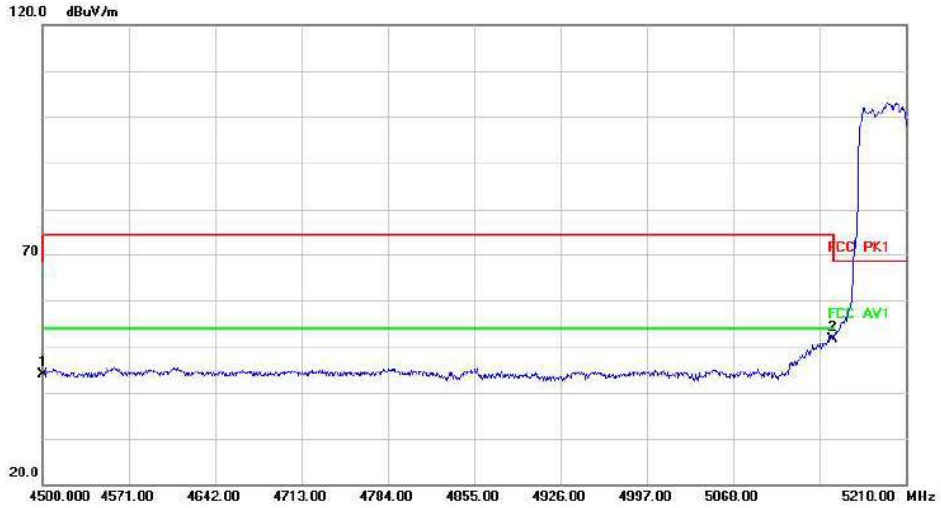
VERTICAL

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10380.000	35.05	16.80	51.85	68.20	-16.35	peak			

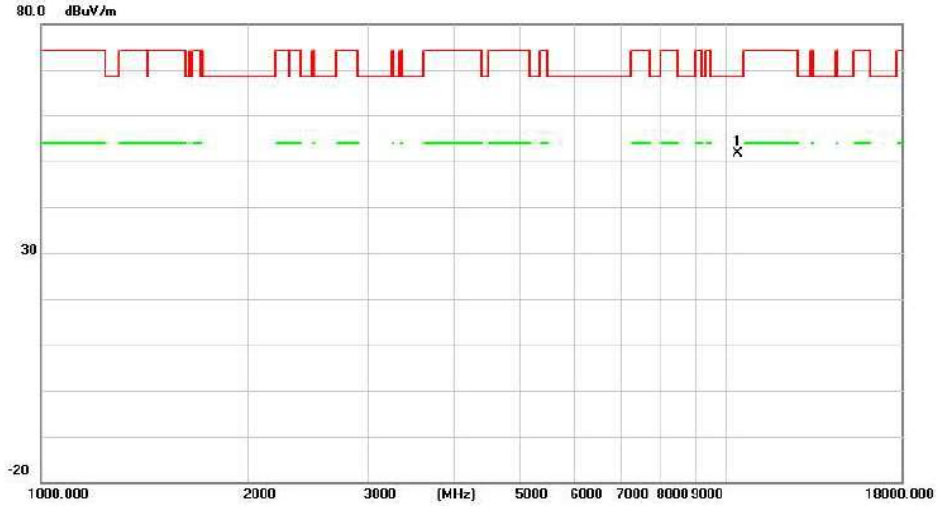
Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	29.96	13.85	43.81	68.20	-24.39	peak			
2	*	5150.000	36.06	15.62	51.68	68.20	-16.52	peak			

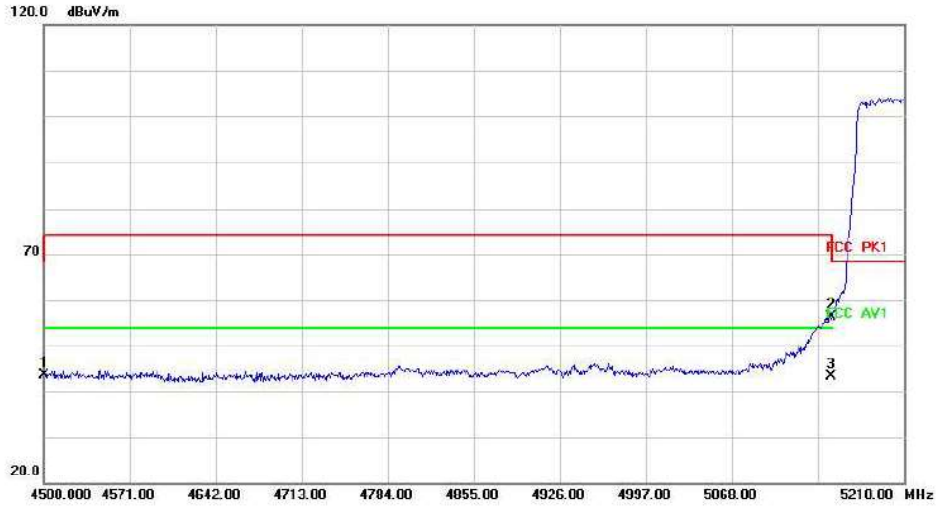
HORIZONTA

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10380.000	34.87	16.80	51.67	68.20	-16.53	peak			

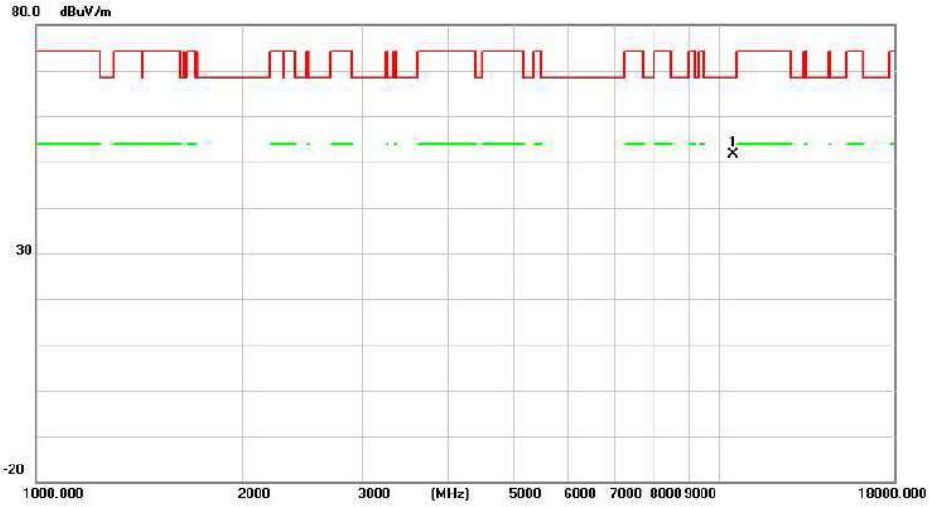
Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	29.61	13.85	43.46	68.20	-24.74	peak			
2		5150.000	40.74	15.62	56.36	68.20	-11.84	peak			
3	*	5150.000	27.59	15.62	43.21	54.00	-10.79	AVG			

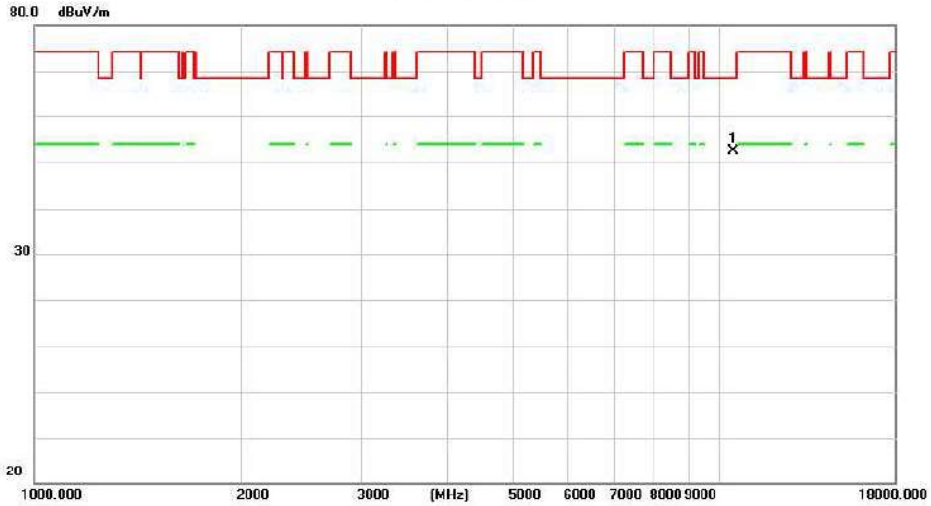
Above 1G (1GHz~18GHz)	Test mode: 11AX40	Test Channel:46

VERTICAL



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10460.000	35.07	16.49	51.56	68.20	-16.64	peak			

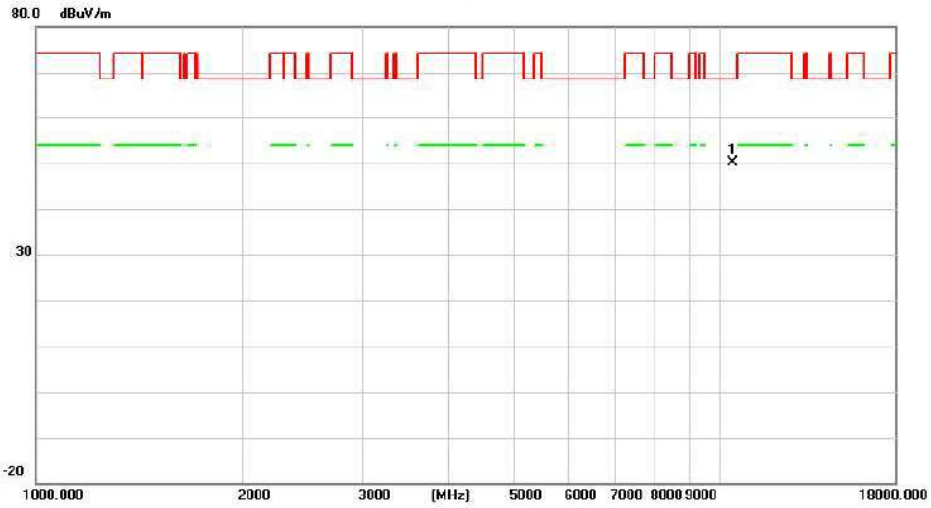
HORIZONTA



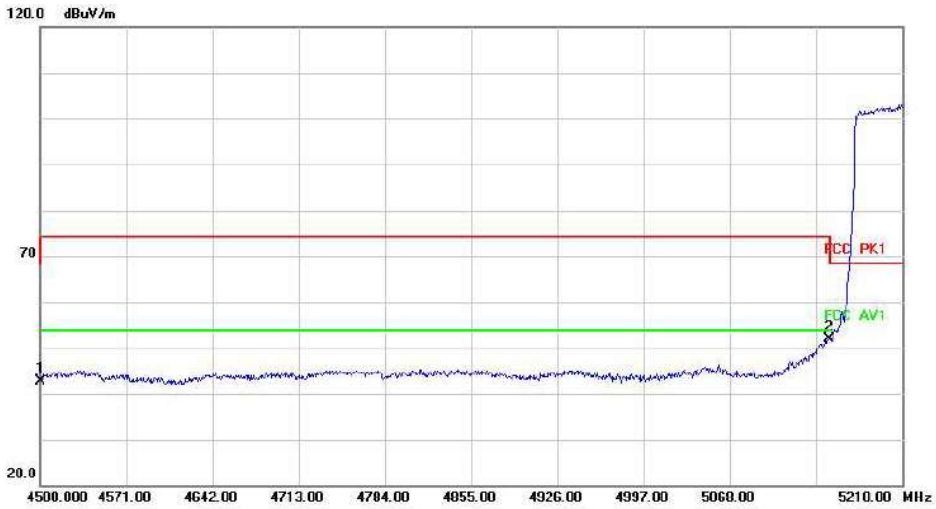
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10460.000	35.92	16.49	52.41	68.20	-15.79	peak			

Above 1G (1GHz~18GHz)	Test mode: 11AX80	Test Channel:42

VERTICAL

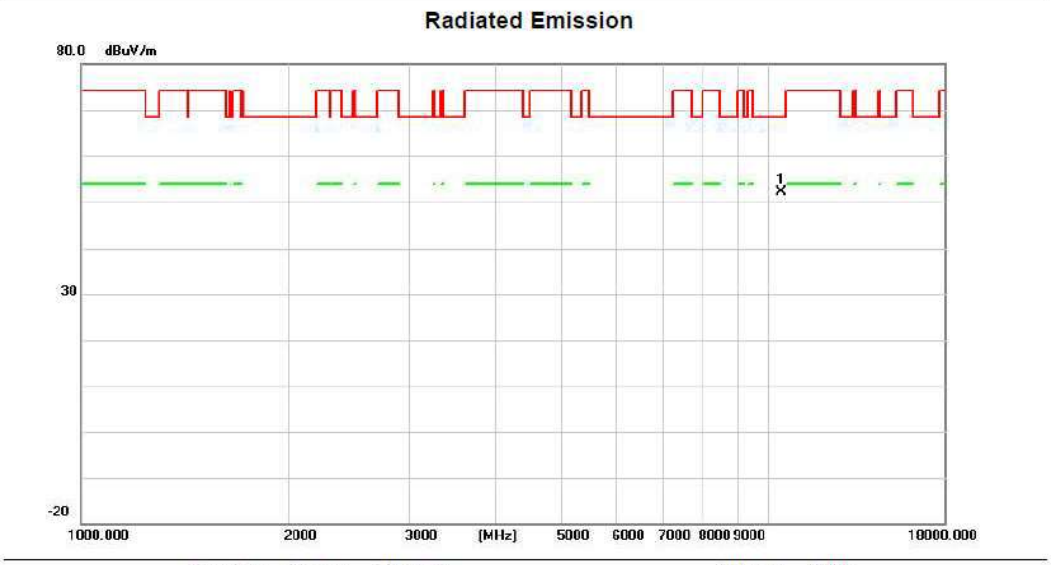


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10420.000	33.71	16.54	50.25	68.20	-17.95	peak			

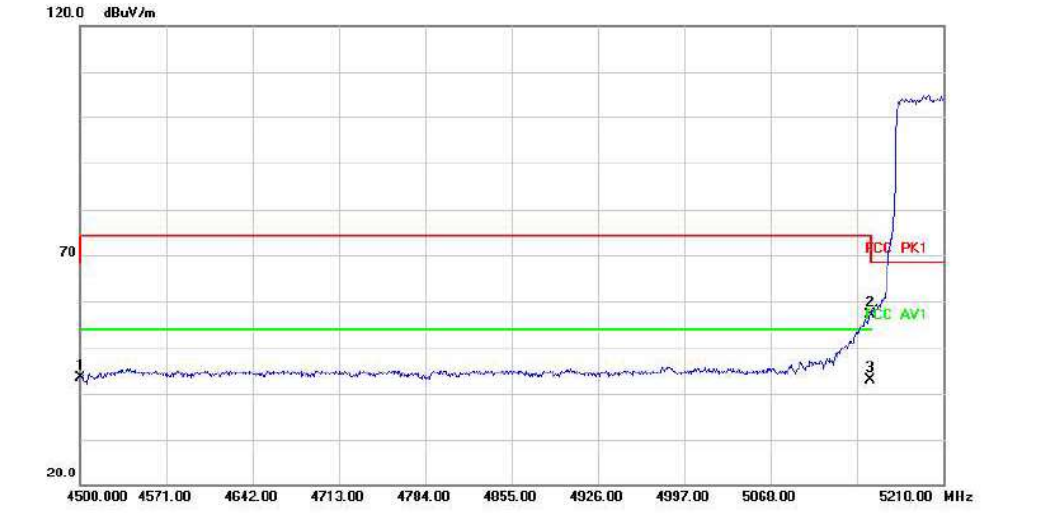


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	28.71	13.85	42.56	68.20	-25.64	peak			
2	*	5150.000	36.63	15.62	52.25	68.20	-15.95	peak			

HORIZONTA



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	10420.000	35.48	16.54	52.02	68.20	-16.18	peak			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		4500.000	29.64	13.85	43.49	68.20	-24.71	peak			
2	*	5150.000	41.60	15.62	57.22	68.20	-10.98	peak			
3		5150.000	27.27	15.62	42.89	54.00	-11.11	AVG			

Note: The high frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

3.3 Spectrum Bandwidth

3.3.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a) 15.407(e)	26 dB Bandwidth	-	5150-5250
	26 dB Bandwidth	-	5250-5350
	26 dB Bandwidth	-	5470-5725
	26 dB Bandwidth	-	5725-5850
	6 dB Bandwidth	Minimum 500 kHz	5725-5850

3.3.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below.

b) the spectrum analyser is set as follow:

For 26 dB Bandwidth

Centre Frequency	The centre frequency of the channel under test
RBW	≥1% x Nominal Channel Bandwidth
VBW	≥3 x RBW
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

For 6 dB Bandwidth

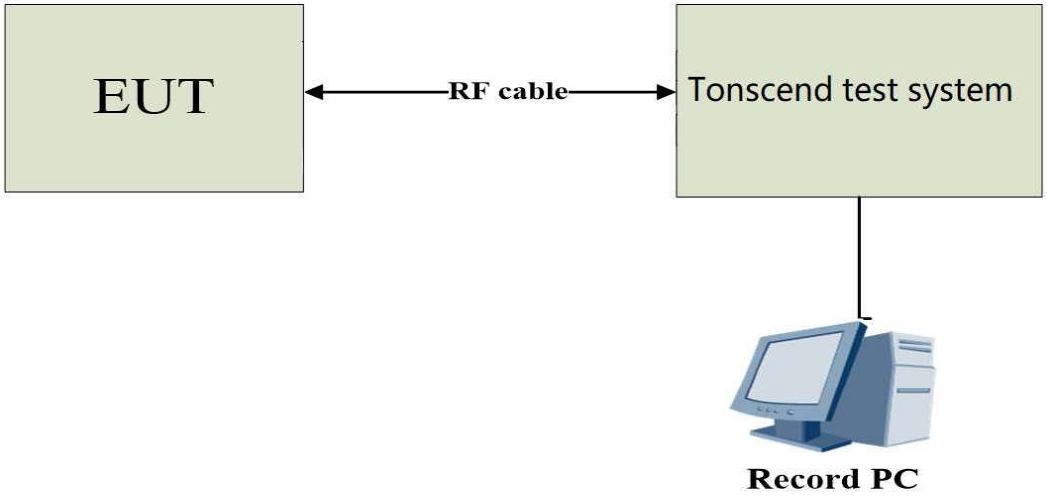
Centre Frequency	The centre frequency of the channel under test
RBW	100 kHz
VBW	300 kHz
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	Peak
Trace Mode	Max Hold
Sweep Time	Auto Couple

c) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

d) Use the -26/-6dB bandwidth function of the spectrum analyser to measure the -26/-6dB Bandwidth of the EUT. This value shall be recorded.

e) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

3.3.3 Test Setup



3.3.4 Test Result

26 dB Bandwidth

Test Mode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	18.640	5170.560	5189.200	---	---
		5200	18.680	5190.600	5209.280	---	---
		5240	18.680	5230.840	5249.520	---	---
11N20SISO	Ant1	5180	19.640	5170.120	5189.760	---	---
		5200	19.640	5190.160	5209.800	---	---
		5240	19.680	5229.920	5249.600	---	---
11N40SISO	Ant1	5190	39.360	5170.160	5209.520	---	---
		5230	51.440	5198.160	5249.600	---	---
11AC20SISO	Ant1	5180	19.280	5170.360	5189.640	---	---
		5200	19.880	5190.120	5210.000	---	---
		5240	19.360	5230.240	5249.600	---	---
11AC40SISO	Ant1	5190	39.440	5170.240	5209.680	---	---
		5230	39.200	5210.320	5249.520	---	---
11AC80SISO	Ant1	5210	85.440	5166.800	5252.240	---	---
11AX20SISO	Ant1	5180	20.240	5169.680	5189.920	---	---
		5200	20.000	5189.920	5209.920	---	---
		5240	20.240	5229.800	5250.040	---	---
11AX40SISO	Ant1	5190	38.880	5170.720	5209.600	---	---
		5230	38.960	5210.720	5249.680	---	---
11AX80SISO	Ant1	5210	83.680	5166.640	5250.320	---	---

11A_Ant1_5180

11A_Ant1_5200


11A_Ant1_5240

11N20SISO_Ant1_5180


11N20SISO_Ant1_5200

11N20SISO_Ant1_5240


11N40SISO_Ant1_5190

11N40SISO_Ant1_5230


11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200


11AC20SISO_Ant1_5240

11AC40SISO_Ant1_5190


11AC40SISO_Ant1_5230

11AC80SISO_Ant1_5210


11AX20SISO_Ant1_5180

11AX20SISO_Ant1_5200


11AX20SISO_Ant1_5240

11AX40SISO_Ant1_5190


11AX40SISO_Ant1_5230

11AX80SISO_Ant1_5210


Occupied channel bandwidth

Test Mode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	16.551	5171.6735	5188.2245	---	---
		5200	16.553	5191.6818	5208.2348	---	---
		5240	16.539	5231.6844	5248.2234	---	---
11N20SISO	Ant1	5180	17.669	5171.1098	5188.7788	---	---
		5200	17.675	5191.1117	5208.7867	---	---
		5240	17.652	5231.1232	5248.7752	---	---
11N40SISO	Ant1	5190	36.329	5171.7169	5208.0459	---	---
		5230	36.270	5211.7616	5248.0316	---	---
11AC20SISO	Ant1	5180	17.642	5171.1225	5188.7645	---	---
		5200	17.640	5191.1354	5208.7754	---	---
		5240	17.643	5231.1228	5248.7658	---	---
11AC40SISO	Ant1	5190	36.273	5171.7852	5208.0582	---	---
		5230	36.273	5211.7911	5248.0641	---	---
11AC80SISO	Ant1	5210	76.870	5171.5649	5248.4349	---	---
11AX20SISO	Ant1	5180	18.961	5170.4923	5189.4533	---	---
		5200	18.998	5190.4784	5209.4764	---	---
		5240	18.965	5230.4911	5249.4561	---	---
11AX40SISO	Ant1	5190	36.324	5171.7459	5208.0699	---	---
		5230	36.287	5211.7434	5248.0304	---	---
11AX80SISO	Ant1	5210	77.900	5171.0608	5248.9608	---	---

11A_Ant1_5180

11A_Ant1_5200


11A_Ant1_5240

11N20SISO_Ant1_5180


11N20SISO_Ant1_5200

11N20SISO_Ant1_5240


11N40SISO_Ant1_5190

11N40SISO_Ant1_5230


11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200


11AC20SISO_Ant1_5240

11AC40SISO_Ant1_5190


11AC40SISO_Ant1_5230

11AC80SISO_Ant1_5210


11AX20SISO_Ant1_5180

11AX20SISO_Ant1_5200


11AX20SISO_Ant1_5240

11AX40SISO_Ant1_5190


11AX40SISO_Ant1_5230

11AX80SISO_Ant1_5210


3.4 Conducted Output Power

3.4.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Conducted Output Power	Master device: 1 Watt (30 dBm) Client device: 250 mW (23.98 dBm)	5150-5250
		250 mW (23.98 dBm)	5250-5350
		250 mW (23.98 dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

a. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

b. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

3.4.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.

b) Test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

3.4.3 Test Setup

3.4.4 Table of Parameters of Text Software Setting

UNII-1			
Test Software Version	DRTU		
Frequency (MHz)	5180	5200	5240
IEEE 802.11a	13	13	13
IEEE 802.11n20	13	13	13
IEEE 802.11ac20	13	13	13
IEEE 802.11ax20	13	13	13
Frequency (MHz)	5190	5230	
IEEE 802.11n40	15	15	
IEEE 802.11ac40	15	15	
IEEE 802.11ax40	15	15	
Frequency (MHz)	5210		
IEEE 802.11ac80	17		
IEEE 802.11ax80	17		

3.4.5 The Result

Test Mode	Antenna	Freq(MHz)	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	8.63	≤23.98	PASS
		5200	8.71	≤23.98	PASS
		5240	7.82	≤23.98	PASS
11N20SISO	Ant1	5180	8.73	≤23.98	PASS
		5200	8.85	≤23.98	PASS
		5240	8.37	≤23.98	PASS
11N40SISO	Ant1	5190	11.12	≤23.98	PASS
		5230	11.05	≤23.98	PASS
11AC20SISO	Ant1	5180	9.13	≤23.98	PASS
		5200	9.11	≤23.98	PASS
		5240	8.53	≤23.98	PASS
11AC40SISO	Ant1	5190	11.70	≤23.98	PASS
		5230	11.33	≤23.98	PASS
11AC80SISO	Ant1	5210	14.04	≤23.98	PASS
11AX20SISO	Ant1	5180	9.43	≤23.98	PASS
		5200	9.12	≤23.98	PASS
		5240	8.39	≤23.98	PASS
11AX40SISO	Ant1	5190	11.62	≤23.98	PASS
		5230	11.11	≤23.98	PASS
11AX80SISO	Ant1	5210	13.65	≤23.98	PASS

Note: The duty cycle factor and line loss are compensated in the average conducted output power.

3.5 Power Spectral Density

3.5.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	Master device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

Note:

1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add 10 log (500 kHz/300 kHz) to the measured result, i.e. 2.22 dB.
2. During the test of U-NII 3 PSD, the measurement result with RBW=300kHz has been added 2.22 dB by compensating offset, offset=cable loss+duty factor+10log(500kHz/300kHz).

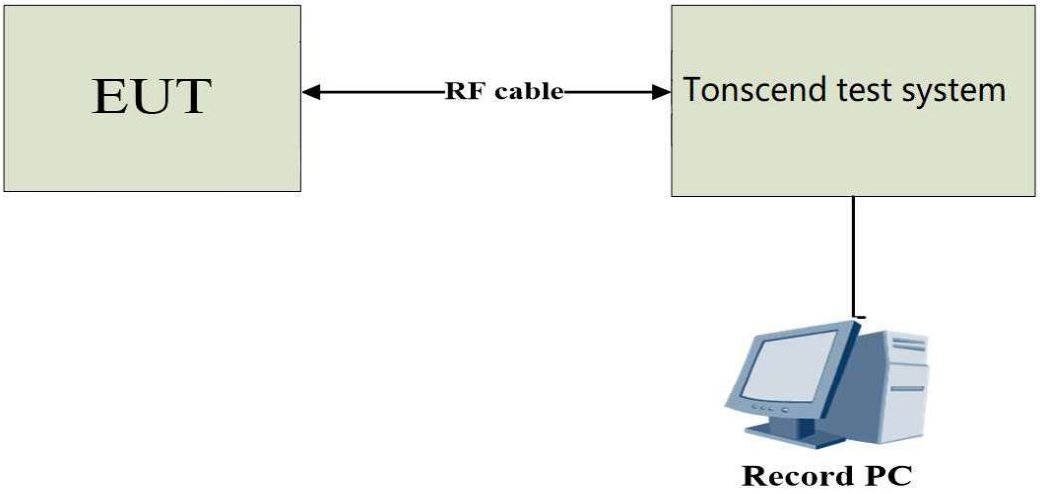
3.5.2 Test Procedure

Test Method	
●Conducted Measurement	○Radiated Measurement
Test Channels	
●Lowest, Middle and Highest Channel	○ Lowest and Highest Channel
Environmental conditions	
●Normal	○Normal and Extreme
Note:●:Test ○:No Test	

a) The EUT was directly connected to the tonscend test system and antenna output port as show in the block diagram below. Spectrum analyser settings as following:

Centre Frequency	The centre frequency of the channel under test
RBW	= 1 MHz (Band1/2/3); = 300kHz (Band4)
VBW	≥3 x RBW
Frequency span	2 x Nominal Channel Bandwidth
Detector Mode	Average
Trace Mode	Max Hold
Sweep Time	Auto Couple

3.5.3 Test Setup



3.5.4 The Result

Test Mode	Antenna	Freq(MHz)	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-2.40	≤11.00	PASS
		5200	-4.26	≤11.00	PASS
		5240	-2.45	≤11.00	PASS
11N20SISO	Ant1	5180	-1.84	≤11.00	PASS
		5200	-0.26	≤11.00	PASS
		5240	-1.21	≤11.00	PASS
11N40SISO	Ant1	5190	-1.77	≤11.00	PASS
		5230	-3.86	≤11.00	PASS
11AC20SISO	Ant1	5180	-0.94	≤11.00	PASS
		5200	-0.90	≤11.00	PASS
		5240	-0.59	≤11.00	PASS
11AC40SISO	Ant1	5190	-1.90	≤11.00	PASS
		5230	-3.15	≤11.00	PASS
11AC80SISO	Ant1	5210	-1.28	≤11.00	PASS
11AX20SISO	Ant1	5180	-1.42	≤11.00	PASS
		5200	-1.44	≤11.00	PASS
		5240	-1.30	≤11.00	PASS
11AX40SISO	Ant1	5190	-1.59	≤11.00	PASS
		5230	-1.84	≤11.00	PASS
11AX80SISO	Ant1	5210	-0.63	≤11.00	PASS

Note: The Duty Cycle Factor and line loss are compensated in the test system

11A_Ant1_5180

11A_Ant1_5200


11A_Ant1_5240

11N20SISO_Ant1_5180


11N20SISO_Ant1_5200

11N20SISO_Ant1_5240


11N40SISO_Ant1_5190

11N40SISO_Ant1_5230


11AC20SISO_Ant1_5180

11AC20SISO_Ant1_5200


11AC20SISO_Ant1_5240

11AC40SISO_Ant1_5190


11AC40SISO_Ant1_5230

11AC80SISO_Ant1_5210


11AX20SISO_Ant1_5180

11AX20SISO_Ant1_5200


11AX20SISO_Ant1_5240

11AX40SISO_Ant1_5190


11AX40SISO_Ant1_5230

11AX80SISO_Ant1_5210


Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technology Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technology Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

Tel: 0755-26024411

Email: service@hy-lab.cn

(END OF REPORT)