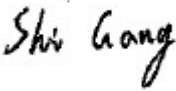
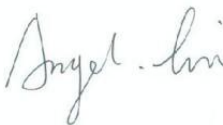
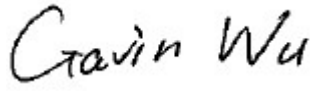




TEST REPORT

Report No.:	EM201100506-2	Application No.:	ZJ00012332
Client:	AirTies Wireless Networks		
Address:	Gulbahar Mah. Avni Dilligil sk. No:5 Celik Is Merkezi Mecidiyekoy Istanbul, Turkey		
Sample Description:	300 Mbps 802.11n Wireless USB Adapter		
Model:	Air 2411		
Test Location:	Guangzhou GRG Metrology and Test Co., Ltd.		
Test Specification:	FCC Part 15, Subpart C(Section 15.247)		
Issue Date:	2012-01-17		
Test Result:	Pass.		
Prepared By:	Reviewed By:	Approved By:	
Shi Gang/ Test Engineer	Angel Liu / Technical Assistance	Gavin Wu / Manager	
			
Date:2012-01-17	Date:2012-01-17	Date:2012-01-17	
Other Aspects:			
Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			

GRG Metrology and Test Technology Co., Ltd.

Address: 163, Pingyun Road, West of Huangpu Avenue, Guangzhou, Guangdong, P.R. China

Tel:+86-20-38699960

Fax:+86-20-38695185

Email: cert-center@grg.net.cn<http://www.grgtest.com>

Ver.:1.0 / 01.Jan.2011

DIRECTIONS OF TEST

1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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1. TEST RESULT SUMMARY

Section B of FCC Part 15.247:2010			
Standard	Item	Limit / Severity	Result
FCC Part 15, Subpart C (15.247)	Antenna Requirement	§15.203	PASS
	Conducted Emissions	§15.207 (a)	PASS
	Spurious Emissions at Antenna Port	§15.247(d)	PASS
	Restricted Bands	§15.205	PASS
	Spurious Emissions	§15.209, §15.205, §15.247(d)	PASS
	6 dB Bandwidth	§15.247 (a)(2)	PASS
	Maximum Peak Output Power	§15.247(b)(3)	PASS
	100kHz Bandwidth of Frequency Band Edge	§15.247(d)	PASS
	Power Spectral Density	§15.247(e)	PASS

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: AirTies Wireless Networks
Address: Gulbahar Mah. Avni Dilligil sk. No:5 Celik Is Merkezi Mecidiyekoy Istanbul, Turkey

2.2 MANUFACTURER

Name: Shenzhen Gongjin Electronics Co., Ltd.
Address: B116,B118;A211-A213,B201-B213;A311-313;B411-413, Nanshan Medical Instrument Industry Park, 1019# Nanhai RD,Shenzhen, P.R.China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: 300 Mbps 802.11n Wireless USB Adapter
Model No.: Air 2411

Adding Model /
Trade Name: AirTies
Power Supply: DC 5V(USB port)
Frequency Range 5180MHz~5240MHz; 5745MHz~5825MHz: 802.11n

Channel: 5 for 20MHz bandwidth; 2 for 40MHz bandwidth
Type of emission WIFI
Note: /

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by Guangzhou GRG Metrology and Test CO., LTD.

Add. : 163 Pingyun Rd, West of Huangpu Ave, Guangzhou, 510656, P. R. China

Telephone: +86-20-38699959, 38699960, 38699961

Fax : +86-20-38695185

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC Listed Lab (No. 688188)
China	CNAS (No.L0446)
China	DILAC (No.DL175)
Canada	Registration No.:8355A-1

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~1000MHz	4.2dB
		1GHz~26.5GHz	4.2dB
	Vertical	30MHz~1000MHz	4.4dB
		1GHz~26.5GHz	4.4dB
Conducted Emission		9kHz~30MHz	3.1 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

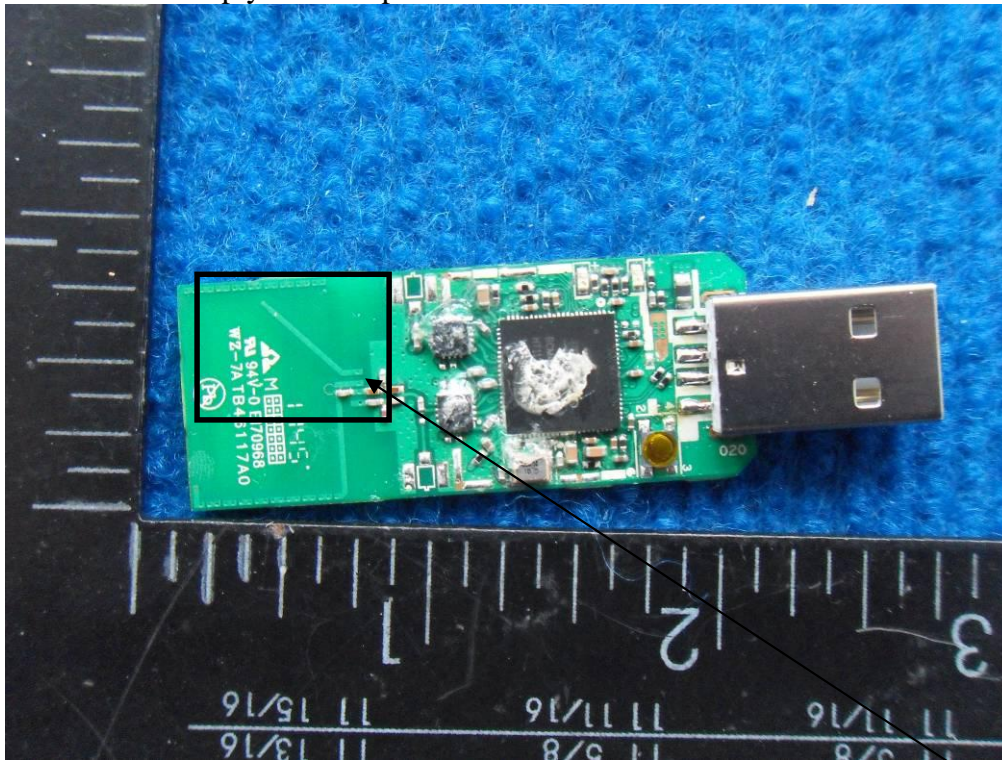
3.4 LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EMI Receiver	R&S	ESCI	100529	2012-06-16
L.I.S.N	SCHWARZBECK	NSLK 8127	8127450	2012-08-21
Spurious Emissions at Antenna Port				
Receiver	R&S	ESU40	100106	2012-09-26
Restricted Bands				
Receiver	R&S	ESU40	100106	2012-09-26
Spurious Emissions				
Receiver	R&S	ESU40	100106	2012-09-26
Receiver	R&S	ESU40	100106	2012-06-09
Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2	881058/28	2012-7-7
Biconical log-periodic antenna	ETS.LINDGREN	3142 C	00075971	2012-7-31
Horn antenna	SCHWARZBECK	BBHA9120D	D752	2013-10-14
6 dB Bandwidth				
Receiver	R&S	ESU40	100106	2012-09-26
Maximum Peak Output Power				
Receiver	R&S	ESU40	100106	2012-06-09
100kHz Bandwidth of Frequency Band Edge				
Receiver	R&S	ESU40	100106	2012-09-26
Power Spectral Density				
Receiver	R&S	ESU40	100106	2012-09-26

NOTE: The calibration interval of the above test instruments is 12 months.

4. ANTENNA REQUIREMENT

The EUT antenna is PCB Printed antenna. Antenna gain is 0dBi .which accordance 15.203.is considered sufficient to comply with the provisions of this section



Antenna

5. CONDUCTED EMISSION MEASUREMENT

5.1 LIMITS

Frequency range	Limits (dB μ V)	
	Quasi-peak	Average
150kHz \sim 0.5MHz	66 \sim 56	56 \sim 46
0.5 MHz \sim 5 MHz	56	46
5 MHz \sim 30 MHz	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 150 kHz to 0.5MHz.

5.2 TEST PROCEDURES

Procedure of Preliminary Test

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

- Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:

- 1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or

- 2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;

- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;

- The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;

- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.

- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

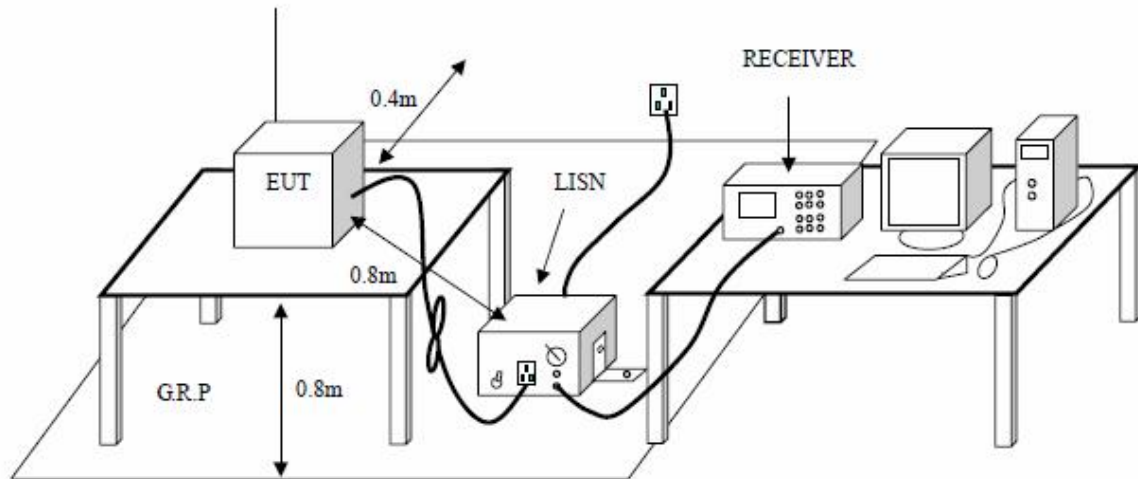
The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded

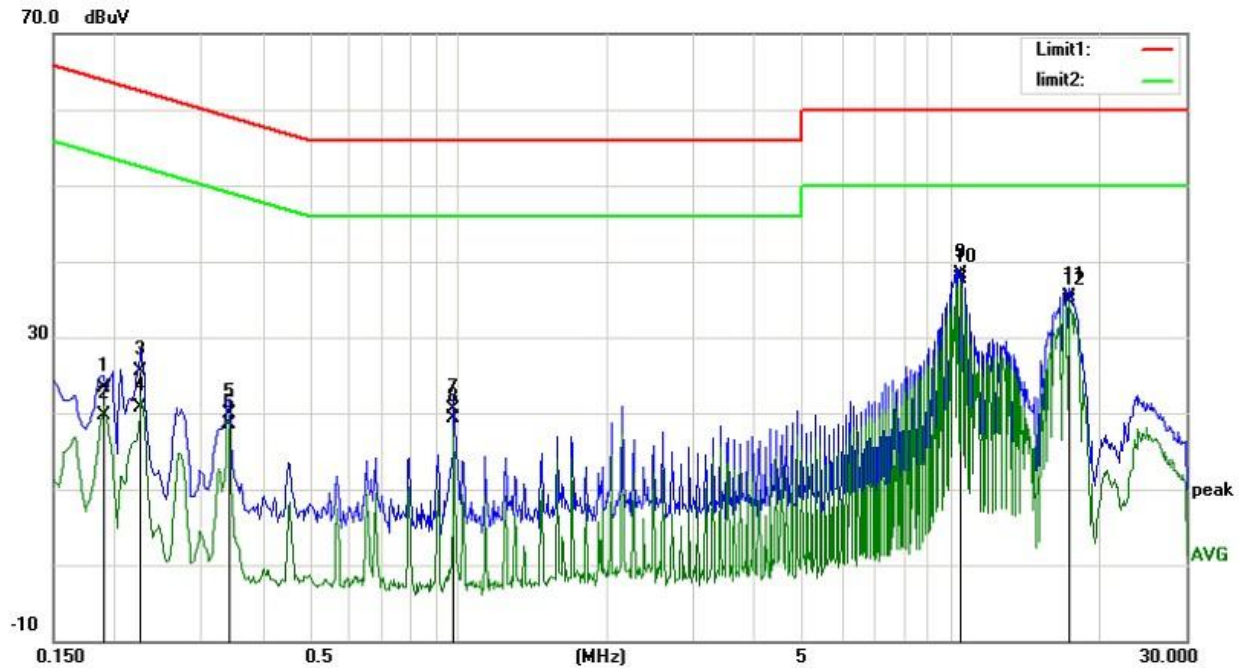
into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

5.3 TEST SETUP



5.4 TEST RESULTS

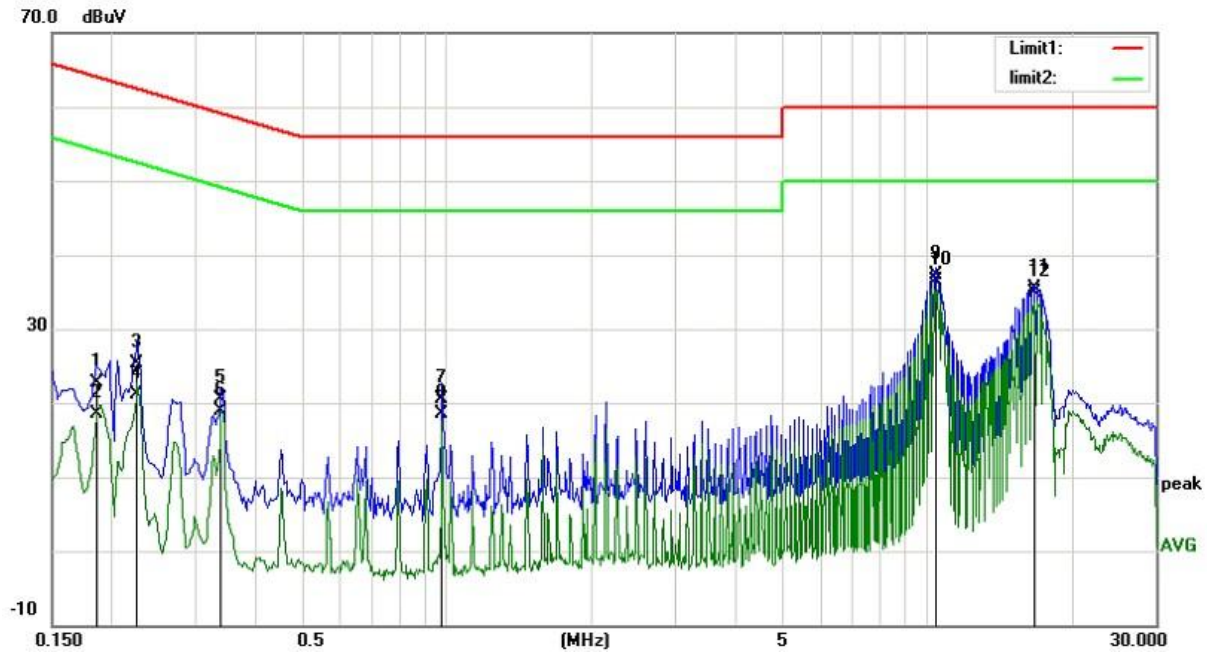
Test Result:	Pass	Probe:	L1
Standard:	(CE)FCC PART 15 class B_QP	Power Source:	AC 120V/60Hz
Test item:	Conduction Test	Date:	2012-1-9
Temp./Hum.(%RH):	25/57%RH	Time:	14:35:32
EUT:	300 Mbps 802.11n Wireless USB Adapter	Model:	Air 2411
Note:	Test the EUT in transmitting mode.		



QP and Average measure:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1900	22.12	1.28	23.40	64.03	-40.63	QP	
2		0.1900	18.52	1.28	19.80	54.03	-34.23	AVG	
3		0.2260	24.63	0.97	25.60	62.59	-36.99	QP	
4		0.2260	19.83	0.97	20.80	52.59	-31.79	AVG	
5		0.3420	19.07	0.83	19.90	59.15	-39.25	QP	
6		0.3420	17.77	0.83	18.60	49.15	-30.55	AVG	
7		0.9778	20.09	0.41	20.50	56.00	-35.50	QP	
8		0.9778	18.89	0.41	19.30	46.00	-26.70	AVG	
9		10.4098	37.51	0.79	38.30	60.00	-21.70	QP	
10	*	10.4098	37.01	0.79	37.80	50.00	-12.20	AVG	
11		17.3059	34.23	1.07	35.30	60.00	-24.70	QP	
12		17.3059	33.73	1.07	34.80	50.00	-15.20	AVG	

Test Result:	Pass	Probe:	N
Standard:	(CE)FCC PART 15 class B_QP	Power Source:	AC 120V/60Hz
Test item:	Conduction Test	Date:	2012-1-9
Temp./Hum.(%RH):	25/57%RH	Time:	14:40:38
EUT:	300 Mbps 802.11n Wireless USB Adapter	Model:	Air 2411
Note:	Test the EUT in transmitting mode.		



QP and Average measure:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1859	21.45	1.35	22.80	64.21	-41.41	QP	
2		0.1859	17.25	1.35	18.60	54.21	-35.61	AVG	
3		0.2260	24.33	0.97	25.30	62.59	-37.29	QP	
4		0.2260	20.13	0.97	21.10	52.59	-31.49	AVG	
5		0.3379	19.66	0.84	20.50	59.25	-38.75	QP	
6		0.3379	18.16	0.84	19.00	49.25	-30.25	AVG	
7		0.9779	20.19	0.41	20.60	56.00	-35.40	QP	
8		0.9779	18.19	0.41	18.60	46.00	-27.40	AVG	
9		10.3978	36.51	0.79	37.30	60.00	-22.70	QP	
10	*	10.3978	35.71	0.79	36.50	50.00	-13.50	AVG	
11		16.8338	34.65	0.95	35.60	60.00	-24.40	QP	
12		16.8338	34.05	0.95	35.00	50.00	-15.00	AVG	

6. RADIATED ELECTROMAGNETIC DISTURBANCE

6.1 LIMITS

Frequency (MHz)	Quasi-peak(dB μ V/m)
30 ~ 88	40
88~216	43.5
216 ~ 960	46
Above 960	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

Frequency (GHz)	Quasi-peak(dB μ V/m)
1 ~ 26.5	74
1~ 26.5	54

6.2 TEST PROCEDURES

Procedure of Preliminary Test

Radiated emission tests shall be made with the receive or transmit antenna located at a horizontal distance of 3 m plus half of the maximum width of the EUT being tested, measured from the centre of the EUT. The tests shall be performed with the equipment configured as closely as possible to its typical, practical operation. Unless stated otherwise, cables and wiring shall be as specified by the manufacturer and the equipment shall be in its housing (or cabinet) with all covers and access panels in place. Any deviation from normal EUT operating conditions shall be included in the test report.

The EUT (on a non-conductive support structure, where applicable) shall be placed on a remotely operated turntable, to allow the EUT to be rotated. The height of the EUT above the ground plane shall be according to the following requirements.

- Table-top equipment is placed on a non-conductive set-up table with height 0,8 m \pm 0,01 m, ANSI C63.4 specifies the method to determine the impact of the non-conductive set-up table on test results.
- Floor-standing equipment is placed on a non-conductive support, as specified in the applicable product standard. If there are no EUT height placement requirements in the product standard, the EUT shall be placed on a non-conductive support at a height of 5 cm to 15 cm above the ground plane.

Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. Where there are multiple interface ports of the same type, a typical number of these devices shall be connected to devices or loads. It is sufficient to connect only one of the loads, provided that it can be shown, for example by preliminary testing, that the connection of further ports would not significantly increase the level of disturbance (that is, more than 2 dB) or significantly degrade the immunity level.

The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

EUT and support equipment were set up on the turntable as per the configuration with highest

emission level in the preliminary test. The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level. Record at least six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only QP reading is presented. The test data of the worst-case condition(s) was recorded.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

6.3 TEST SETUP

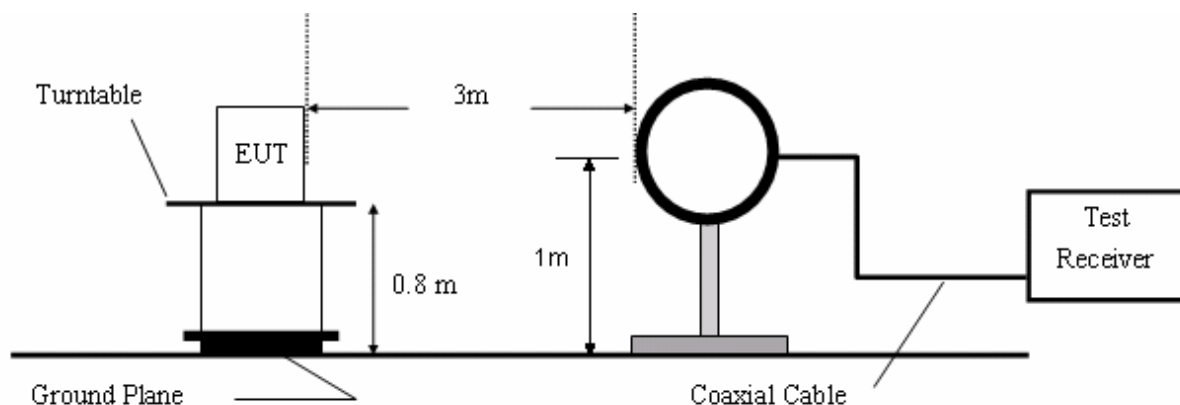


Figure 1. 9KHz to 30MHz radiated emissions test configuration

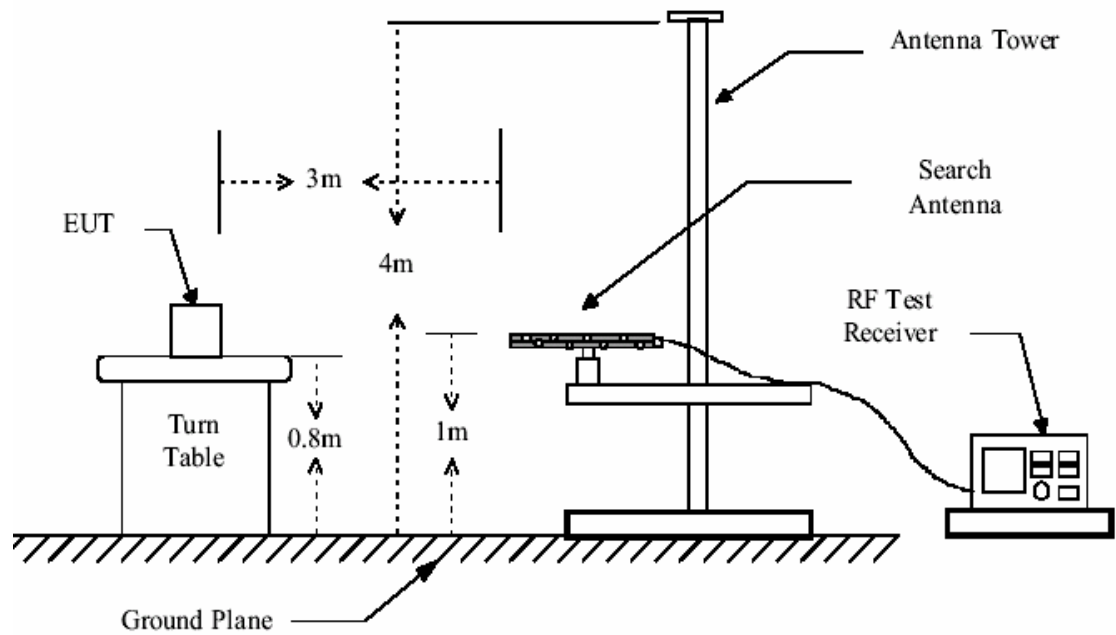


Figure 2. 30MHz to 1GHz radiated emissions test configuration

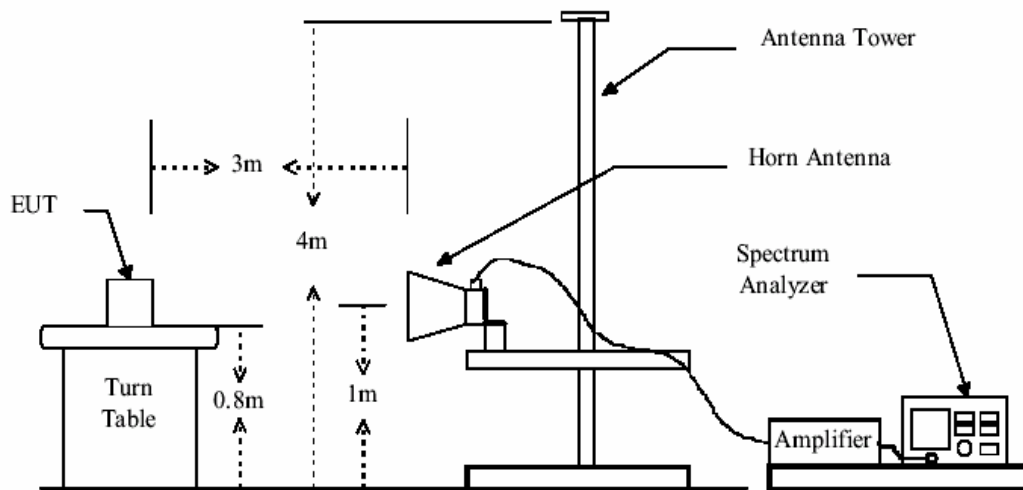
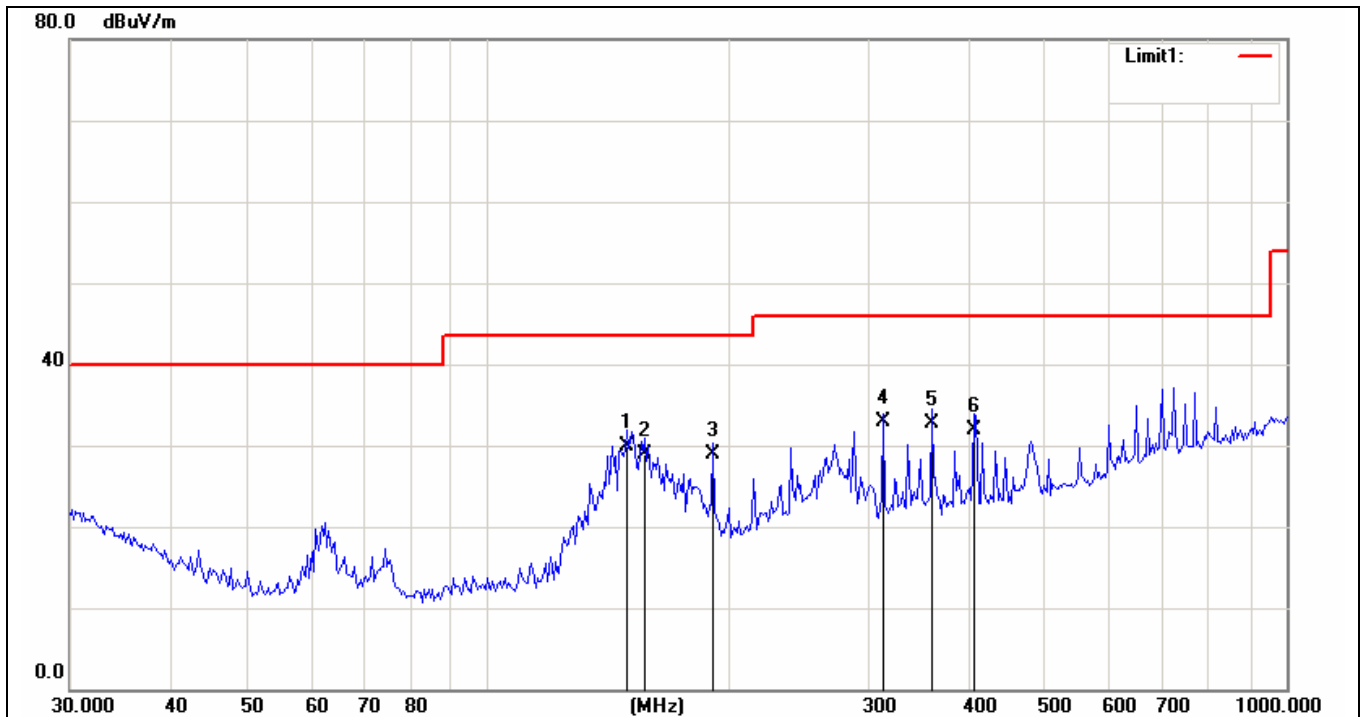


Figure 3. Above 1GHz radiated emissions test configuration

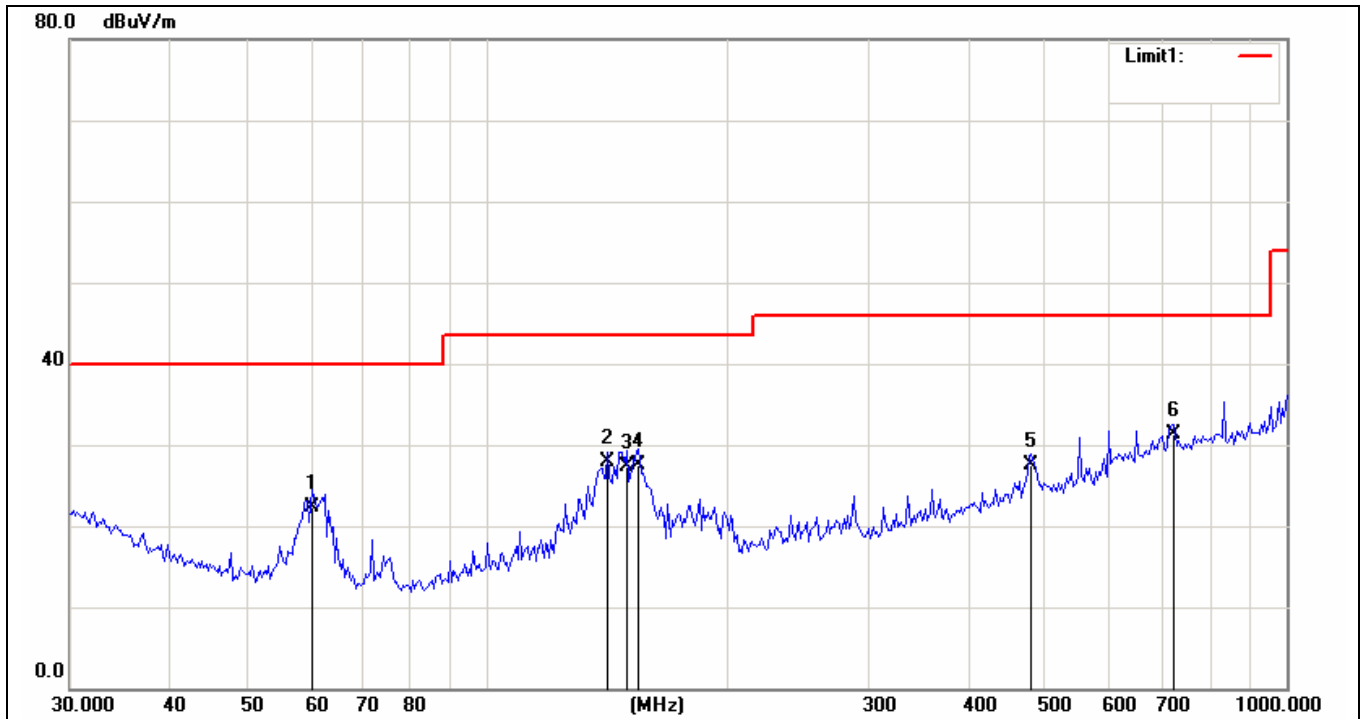
6.4 TEST RESULTS

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 lowest channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	149.6606	19.75	10.10	29.85	43.50	-13.65	QP
2	157.4244	18.26	10.56	28.82	43.50	-14.68	QP
3	191.6416	17.50	11.45	28.95	43.50	-14.55	QP
4	312.4743	17.20	15.78	32.98	46.00	-13.02	QP
5	359.6061	15.20	17.44	32.64	46.00	-13.36	QP
6	406.9287	13.67	18.24	31.91	46.00	-14.09	QP

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 Lowest channel		

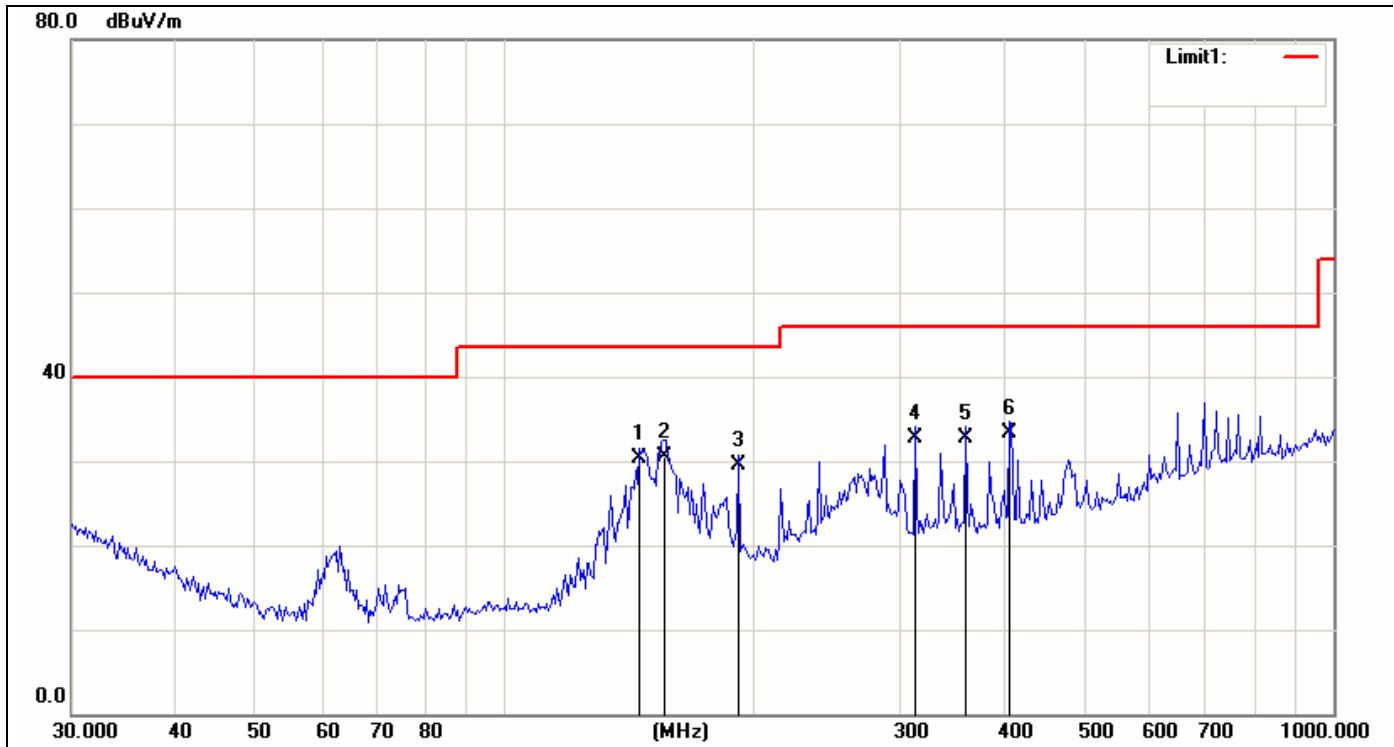


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	60.2205	14.20	8.01	22.21	40.00	-17.79	QP
2	141.4823	18.60	9.32	27.92	43.50	-15.58	QP
3	149.6606	17.20	10.10	27.30	43.50	-16.20	QP
4	154.7927	17.11	10.40	27.51	43.50	-15.99	QP
5	478.9532	7.50	20.00	27.50	46.00	-18.50	QP
6	721.8557	7.10	24.24	31.34	46.00	-14.66	QP

Emission above 1GHz:

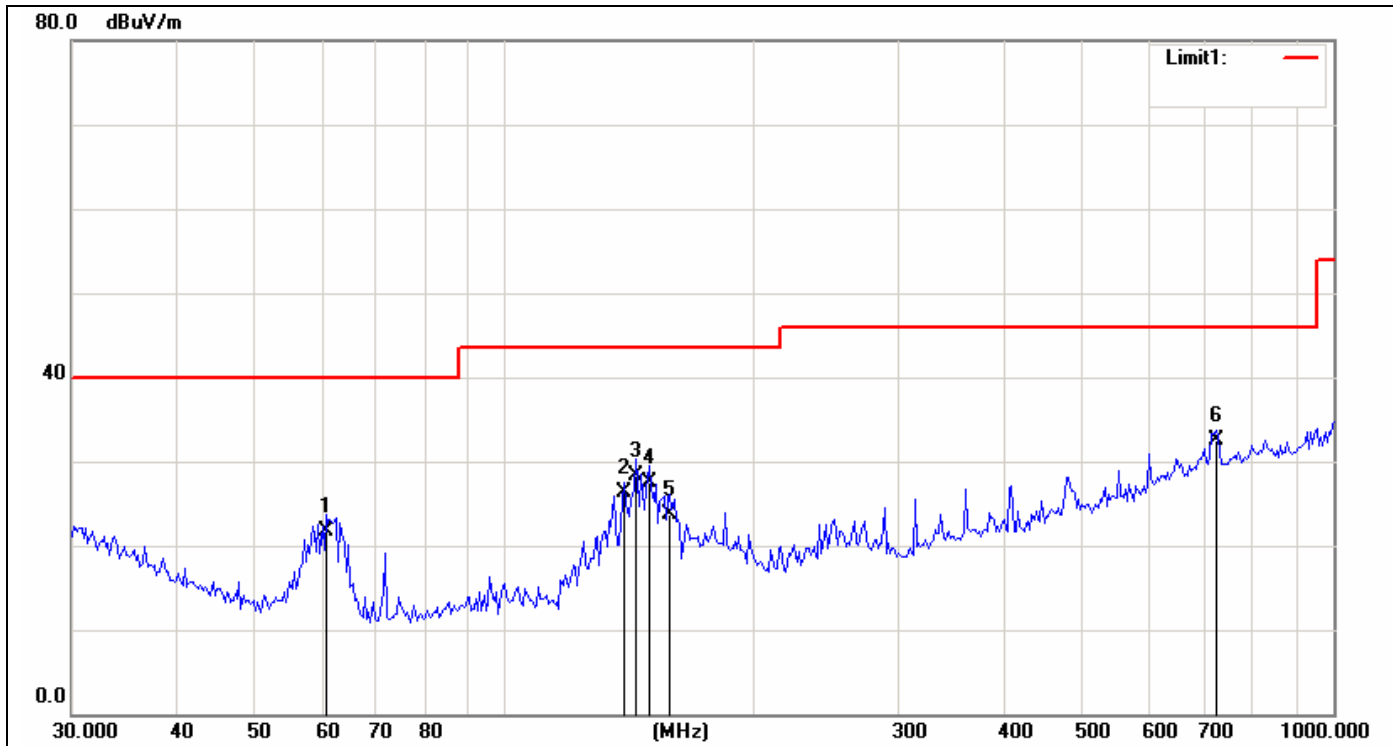
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4824	Horizontal	PK	48.73	74	Pass
4824	Horizontal	AV	44.12	54	Pass
7236	Horizontal	PK	44.80	74	Pass
7236	Horizontal	AV	40.95	54	Pass
4824	Vertical	PK	54.18	74	Pass
4824	Vertical	AV	49.77	54	Pass
7236	Vertical	PK	45.24	74	Pass
7236	Vertical	AV	41.69	54	Pass

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 Middle channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	145.5140	20.70	9.70	30.40	43.50	-13.10	QP
2	155.6649	20.08	10.46	30.54	43.50	-12.96	QP
3	191.6416	18.02	11.45	29.47	43.50	-14.03	QP
4	312.4743	17.00	15.78	32.78	46.00	-13.22	QP
5	359.6061	15.20	17.44	32.64	46.00	-13.36	QP
6	406.9287	15.10	18.24	33.34	46.00	-12.66	QP

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 Middle channel		

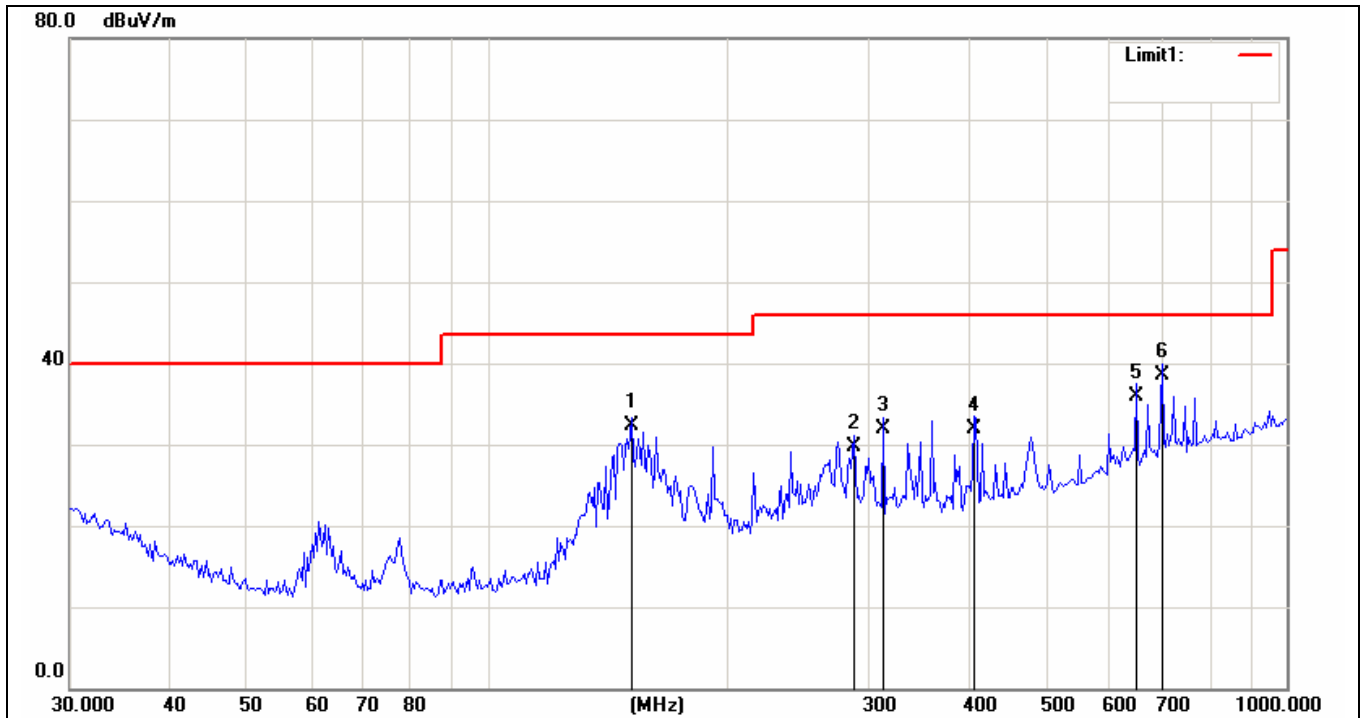


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	60.9012	13.78	7.99	21.77	40.00	-18.23	QP
2	139.1172	17.10	9.15	26.25	43.50	-17.25	QP
3	143.8877	18.78	9.55	28.33	43.50	-15.17	QP
4	149.6606	17.40	10.10	27.50	43.50	-16.00	QP
5	158.3115	13.20	10.60	23.80	43.50	-19.70	QP
6	721.8557	8.20	24.24	32.44	46.00	-13.56	QP

Emission above 1GHz:

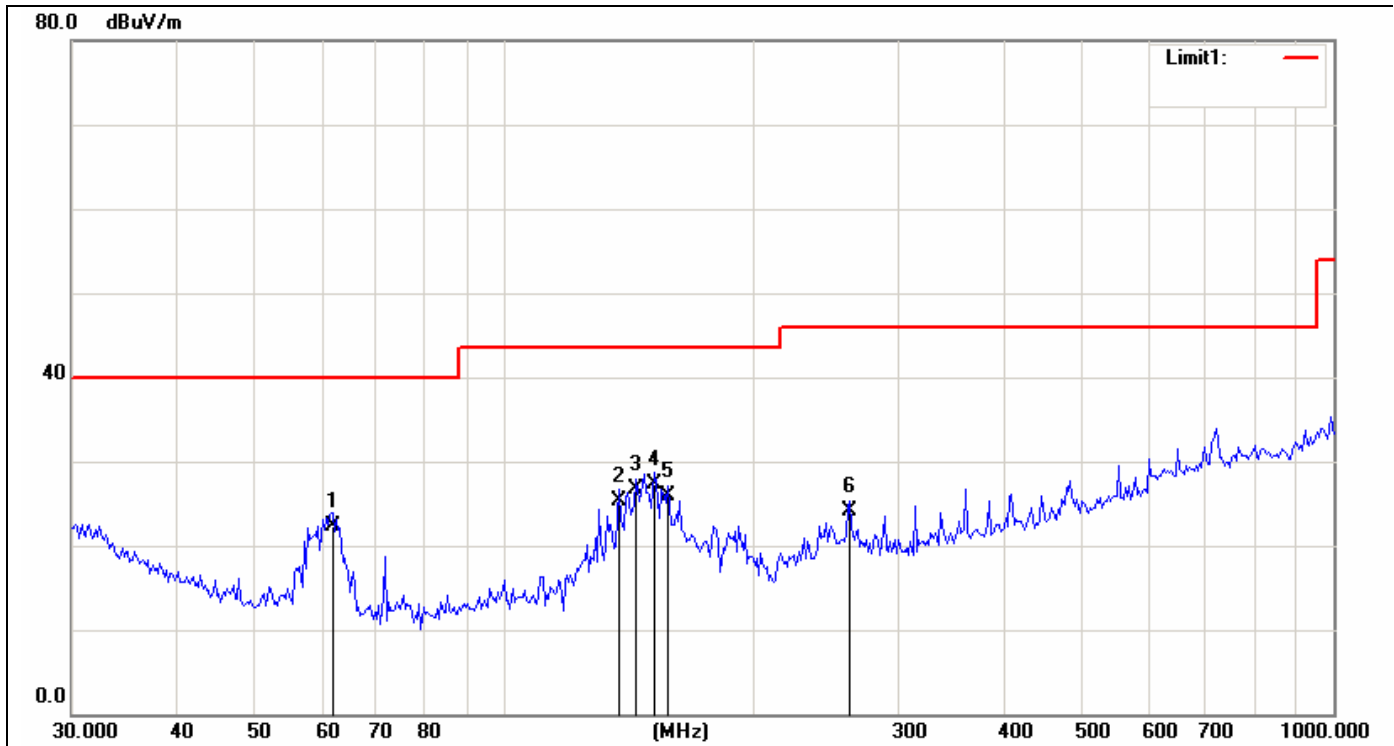
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4874	Horizontal	PK	52.62	74	Pass
4874	Horizontal	AV	48.70	54	Pass
7311	Horizontal	PK	44.88	74	Pass
7311	Horizontal	AV	41.45	54	Pass
4874	Vertical	PK	54.19	74	Pass
4874	Vertical	AV	50.12	54	Pass
7311	Vertical	PK	45.33	74	Pass
7311	Vertical	AV	41.04	54	Pass

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 Highest channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	151.3521	22.00	10.22	32.22	43.50	-11.28	QP
2	287.2147	15.00	14.67	29.67	46.00	-16.33	QP
3	312.4743	16.20	15.78	31.98	46.00	-14.02	QP
4	406.9287	13.60	18.24	31.84	46.00	-14.16	QP
5	648.7549	13.20	22.79	35.99	46.00	-10.01	QP
6	697.9227	14.20	24.24	38.44	46.00	-7.56	QP

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n20 Highest channel		

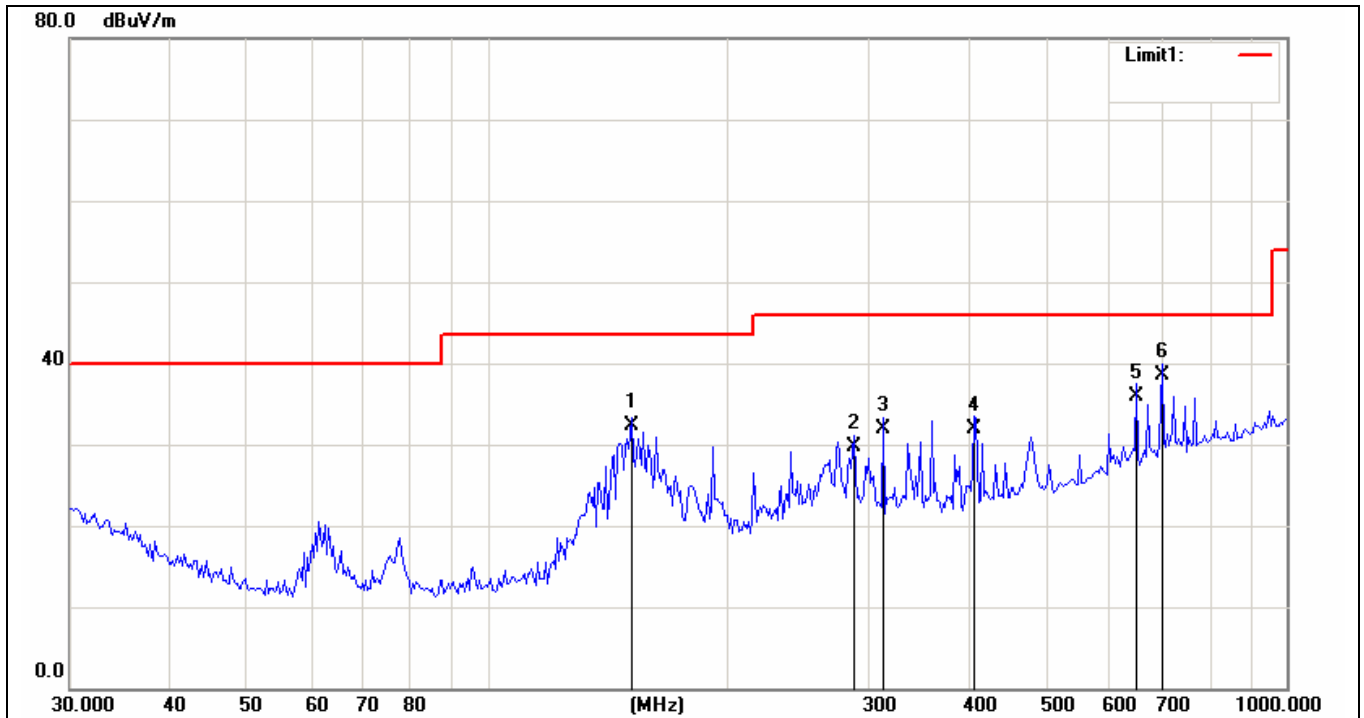


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	61.9366	14.30	7.96	22.26	40.00	-17.74	QP
2	137.5624	16.30	9.06	25.36	43.50	-18.14	QP
3	143.8877	17.20	9.55	26.75	43.50	-16.75	QP
4	151.3521	17.10	10.22	27.32	43.50	-16.18	QP
5	157.4244	15.31	10.56	25.87	43.50	-17.63	QP
6	261.0465	10.20	13.95	24.15	46.00	-21.85	QP

Emission above 1GHz:

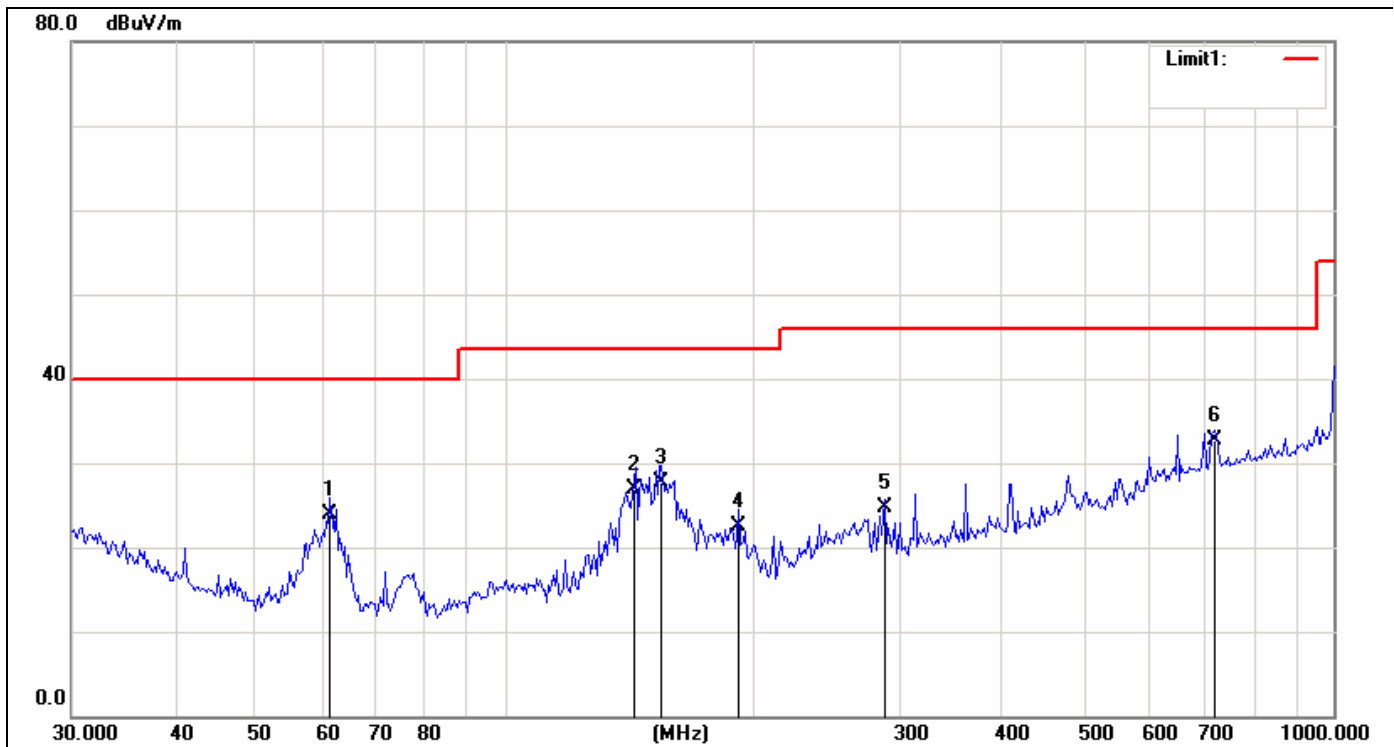
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4924	Horizontal	PK	53.33	74	Pass
4924	Horizontal	AV	48.20	54	Pass
7386	Horizontal	PK	45.09	74	Pass
7386	Horizontal	AV	40.92	54	Pass
4924	Vertical	PK	54.12	74	Pass
4924	Vertical	AV	49.87	54	Pass
7386	Vertical	PK	45.13	74	Pass
7386	Vertical	AV	41.05	54	Pass

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n40 Lowest channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	151.3521	22.00	10.22	32.22	43.50	-11.28	QP
2	287.2147	15.00	14.67	29.67	46.00	-16.33	QP
3	312.4743	16.20	15.78	31.98	46.00	-14.02	QP
4	406.9287	13.60	18.24	31.84	46.00	-14.16	QP
5	648.7549	13.20	22.79	35.99	46.00	-10.01	QP
6	697.9227	14.20	24.24	38.44	46.00	-7.56	QP

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n40 Lowest channel		

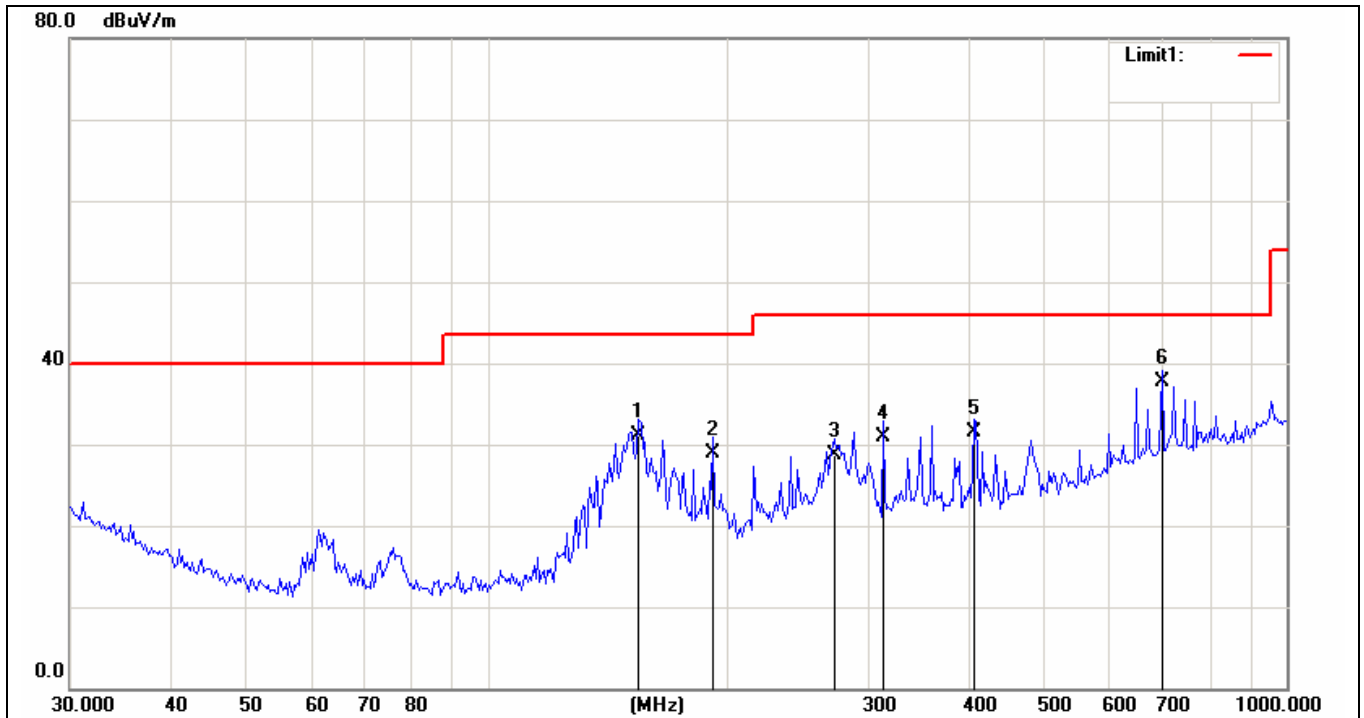


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	61.5895	15.84	7.97	23.81	40.00	-16.19	QP
2	143.0814	17.48	9.47	26.95	43.50	-16.55	QP
3	154.7927	17.40	10.40	27.80	43.50	-15.70	QP
4	191.6416	11.12	11.45	22.57	43.50	-20.93	QP
5	287.2147	9.95	14.67	24.62	46.00	-21.38	QP
6	717.8106	8.50	24.24	32.74	46.00	-13.26	QP

Emission above 1GHz:

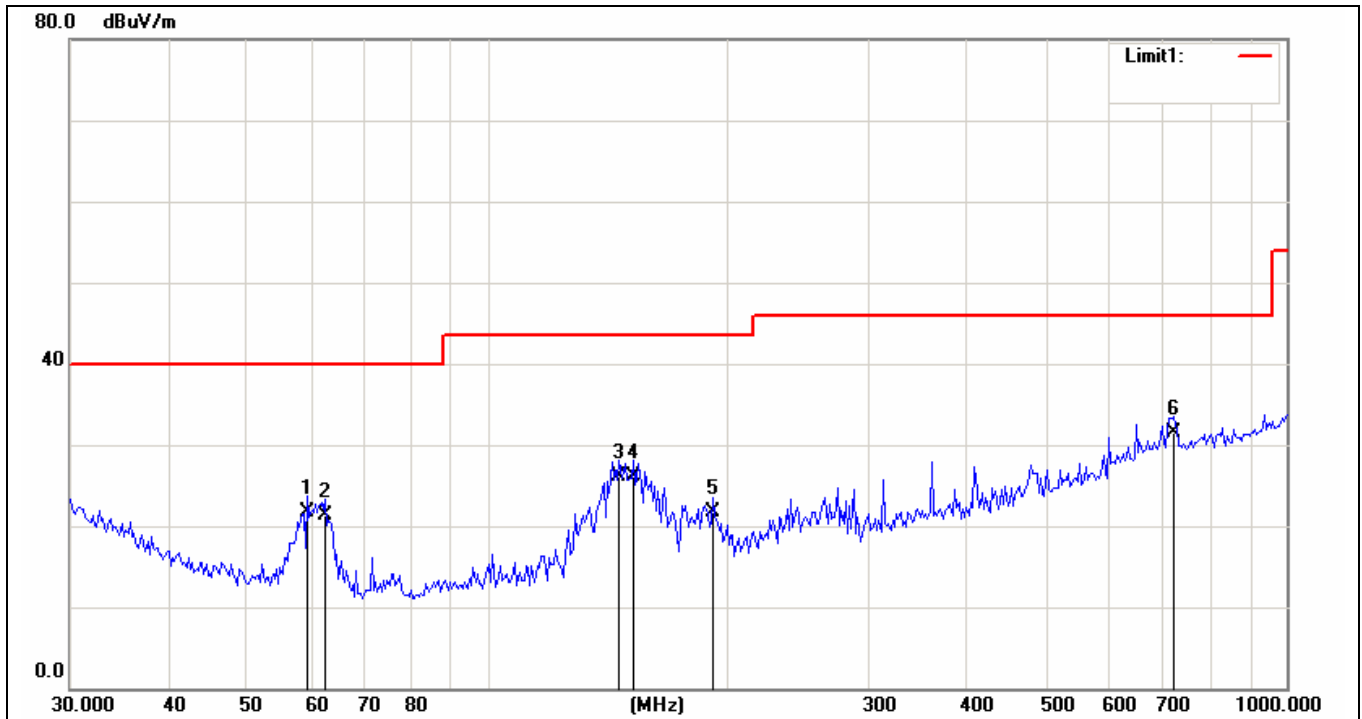
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4824	Horizontal	PK	47.15	74	Pass
4824	Horizontal	AV	43.51	54	Pass
7236	Horizontal	PK	44.24	74	Pass
7236	Horizontal	AV	40.19	54	Pass
4824	Vertical	PK	53.91	74	Pass
4824	Vertical	AV	49.15	54	Pass
7236	Vertical	PK	45.60	74	Pass
7236	Vertical	AV	40.78	54	Pass

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n40 Highest channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	154.7927	20.61	10.40	31.01	43.50	-12.49	QP
2	191.6416	17.44	11.45	28.89	43.50	-14.61	QP
3	271.5198	14.53	14.19	28.72	46.00	-17.28	QP
4	312.4743	15.04	15.78	30.82	46.00	-15.18	QP
5	406.9287	13.20	18.24	31.44	46.00	-14.56	QP
6	697.9227	13.50	24.24	37.74	46.00	-8.26	QP

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2011-12-15
Temp./Hum.(%RH):	26/60%RH	Model:	AIR 2411
EUT:	300 MBPS 802.11N WIRELESS USB ADAPTER		
Note:	Test mode: 802.11n40 Highest channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	59.5475	13.69	8.09	21.78	40.00	-18.22	QP
2	62.6366	13.28	7.94	21.22	40.00	-18.78	QP
3	146.3340	16.32	9.78	26.10	43.50	-17.40	QP
4	152.2050	15.80	10.26	26.06	43.50	-17.44	QP
5	191.6416	10.20	11.45	21.65	43.50	-21.85	QP
6	721.8557	7.20	24.24	31.44	46.00	-14.56	QP

Emission above 1GHz:

Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4874	Horizontal	PK	52.32	74	Pass
4874	Horizontal	AV	47.15	54	Pass
7311	Horizontal	PK	44.92	74	Pass
7311	Horizontal	AV	40.88	54	Pass
4874	Vertical	PK	52.25	74	Pass
4874	Vertical	AV	48.37	54	Pass
7311	Vertical	PK	45.61	74	Pass
7311	Vertical	AV	40.18	54	Pass

Note: Below 30MHz, since the radiated emission of the EUT is too weak to be detected.

7. Spurious Emissions at Antenna Port

7.1 LIMITS

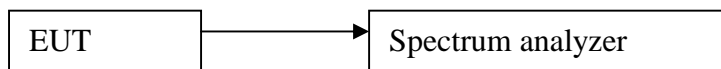
At least 15 channels frequency

7.2 TEST PROCEDURES

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

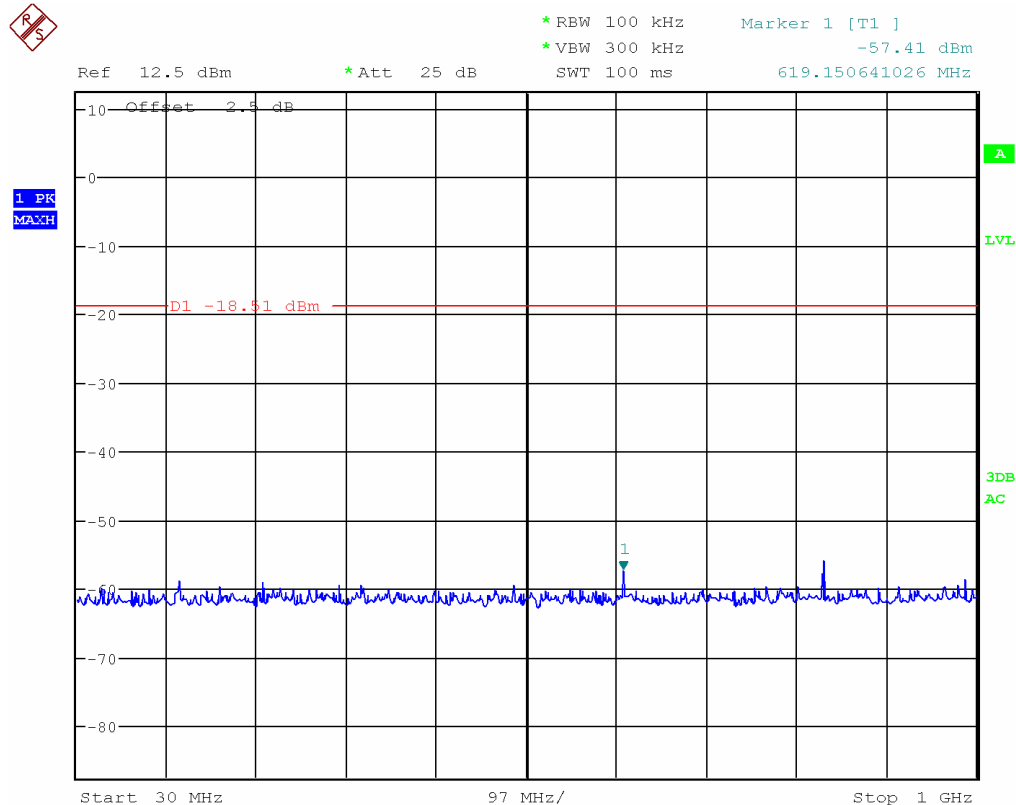
Below 1GHz Set the spectrum analyzer: RBW =100KHz VBW >= RBW , Span = enough to captch the trace. Sweep = auto; Detector Function = Peak. Trace = Max,hold.

7.3 TEST SETUP

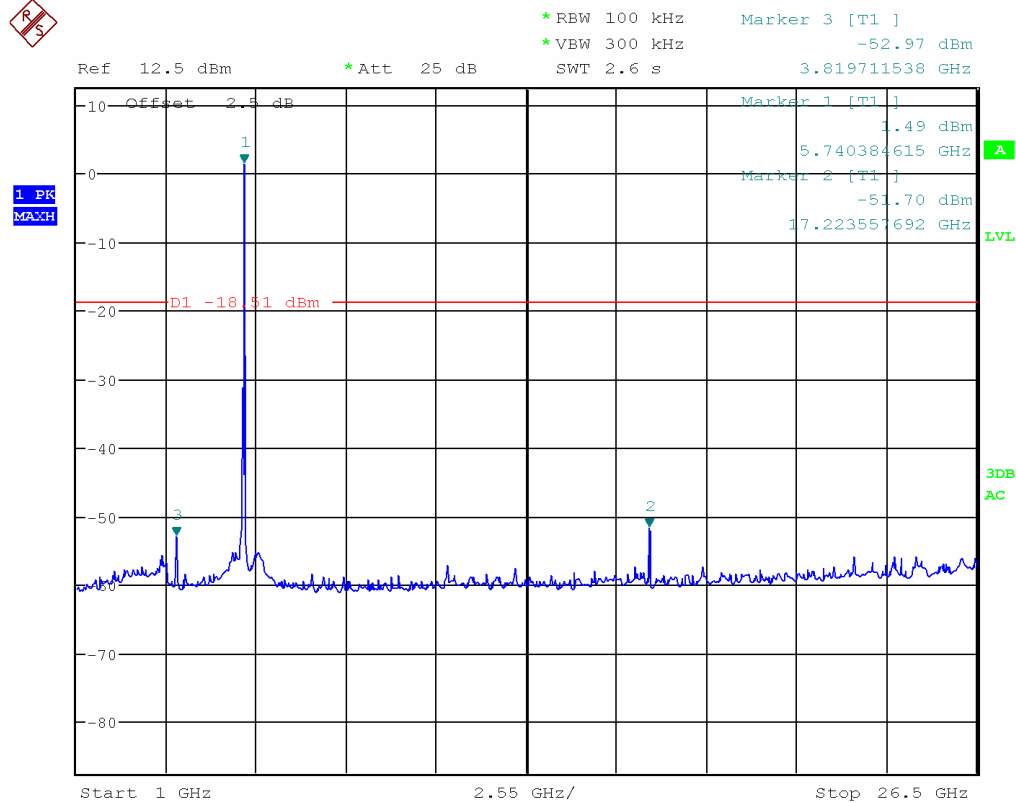


7.4 TEST RESULTS

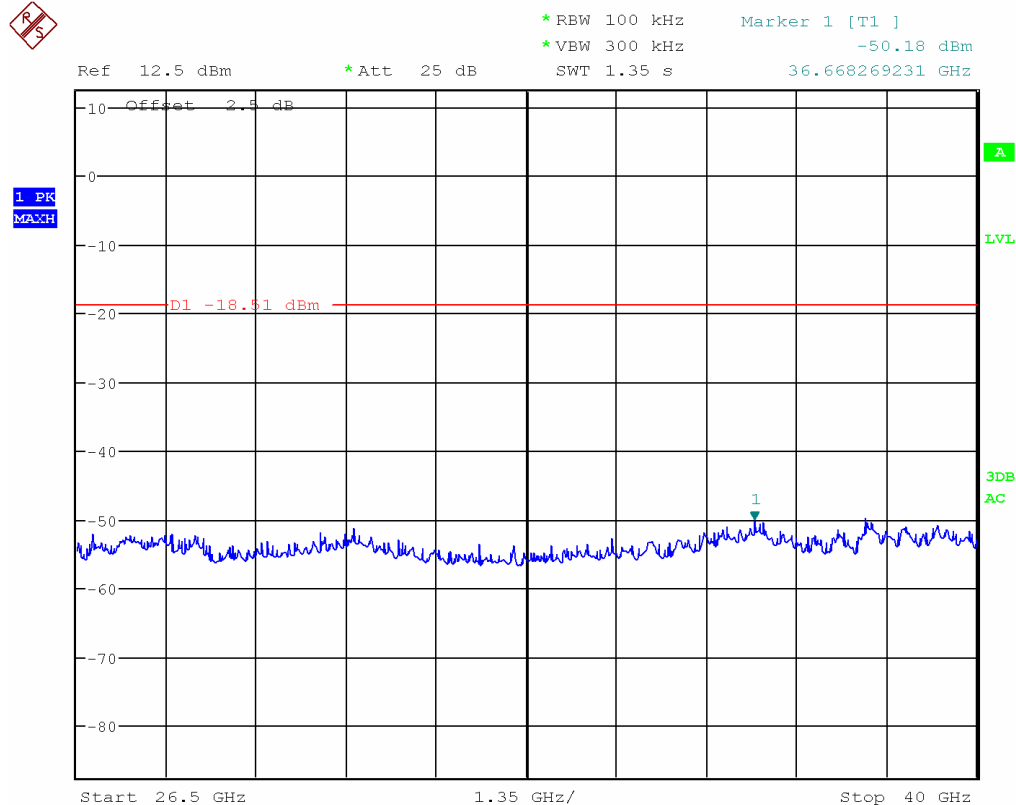
802.11n mode:
Channel 5745MHz
30MHz~1GHz



Channel 5745MHz
1GHz~26.5GHz

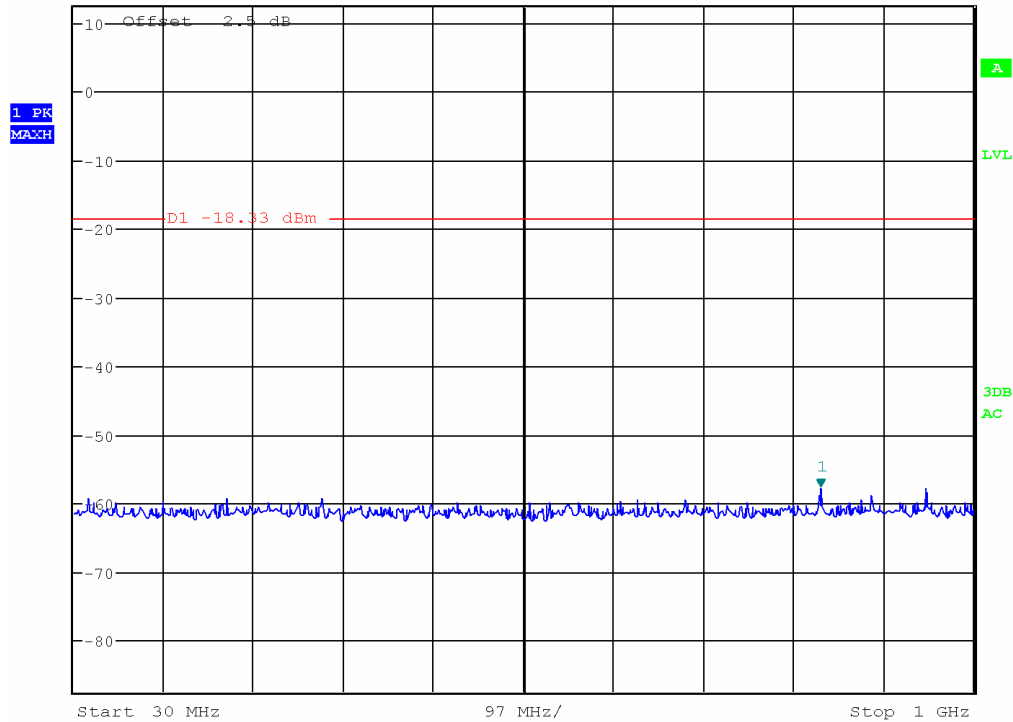


Channel 5745MHz
26.5GHz~40GHz

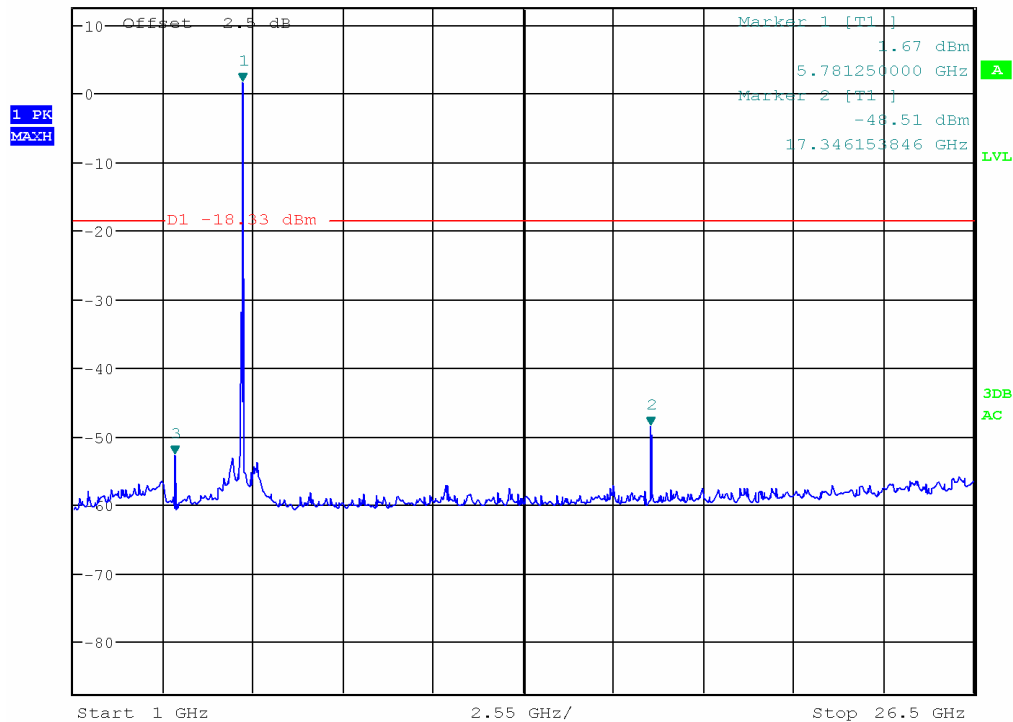


Channel 5785MHz
30MHz~1GHz

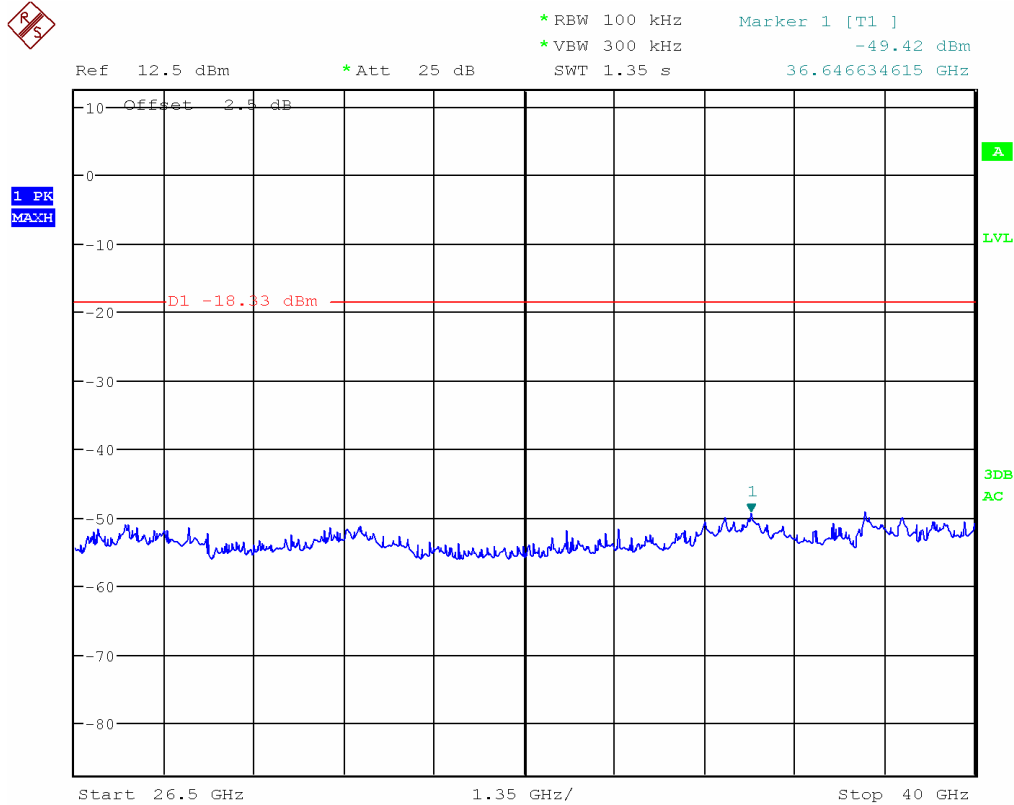
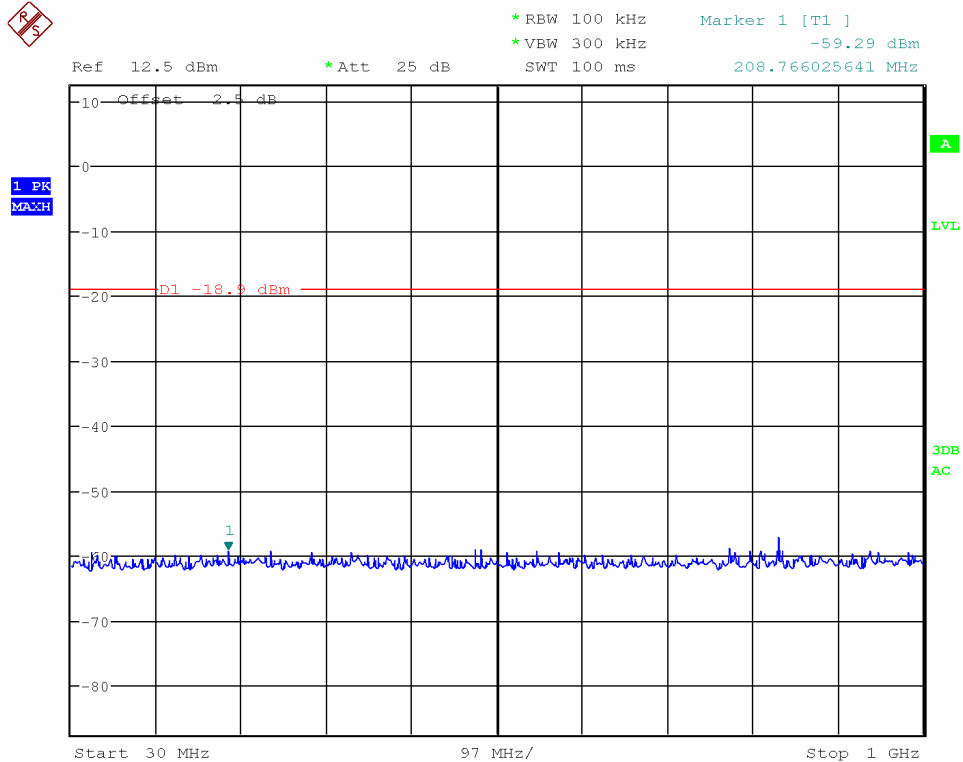
Ref 12.5 dBm *Att 25 dB *RBW 100 kHz Marker 1 [T1] -57.75 dBm
*VBW 300 kHz 835.224358974 MHz
SWT 100 ms

Channel 5785MHz
1GHz~26.5GHz

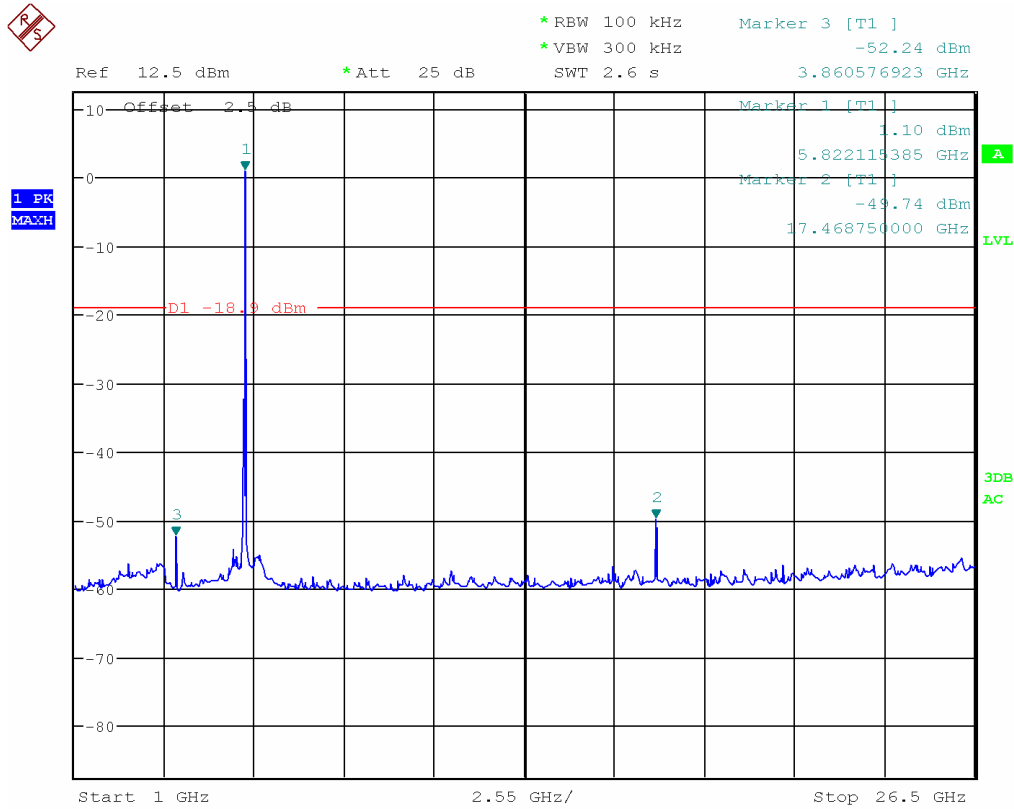
Ref 12.5 dBm *Att 25 dB *RBW 100 kHz Marker 3 [T1] -52.70 dBm
*VBW 300 kHz 3.860576923 GHz
SWT 2.6 s



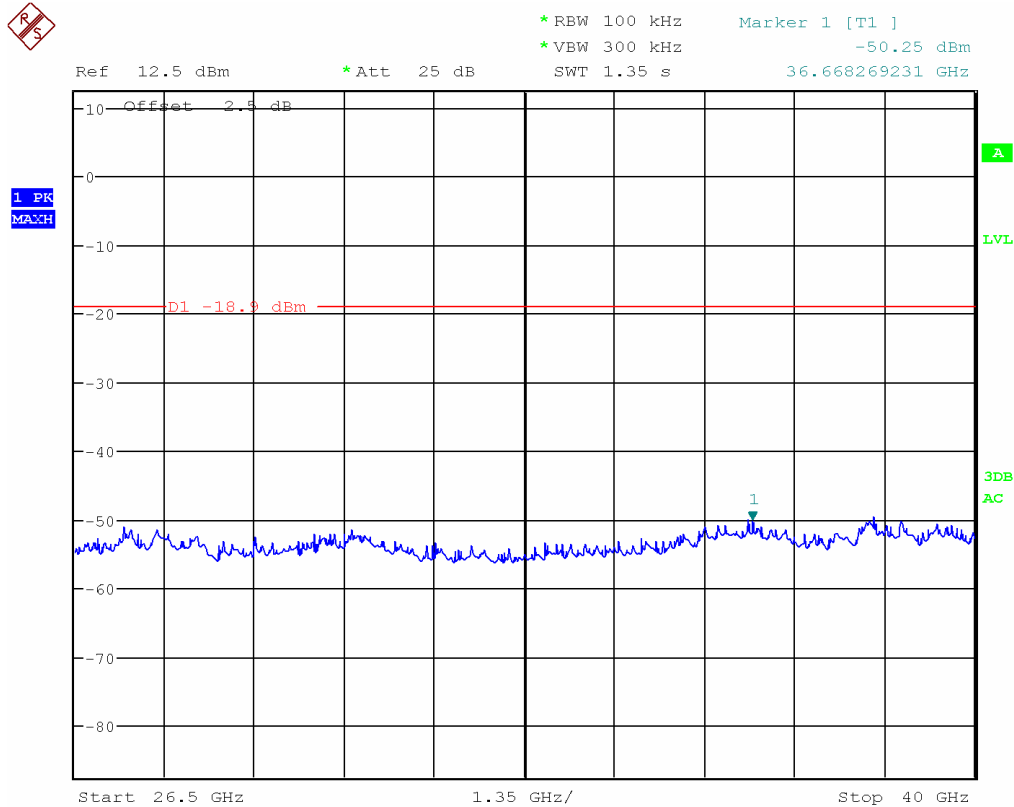
26.5GHz~40GHz

802.11n mode:
Channel 5785MHz
30MHz~1GHz

1GHz~26.5GHz



26.5GHz~40GHz



8. 6dB BANDWIDTH TESTING

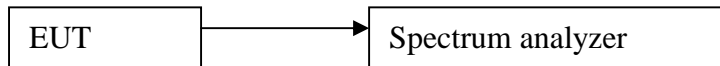
8.1 LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2 TEST PROCEDURES

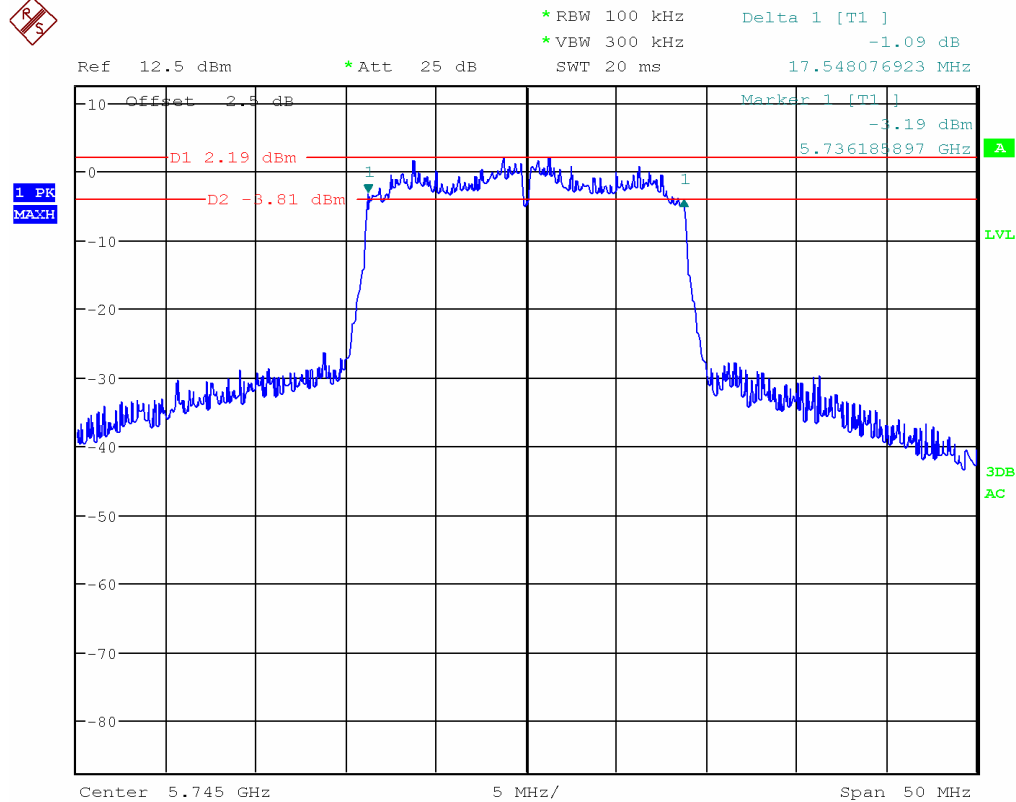
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

8.3 TEST SETUP

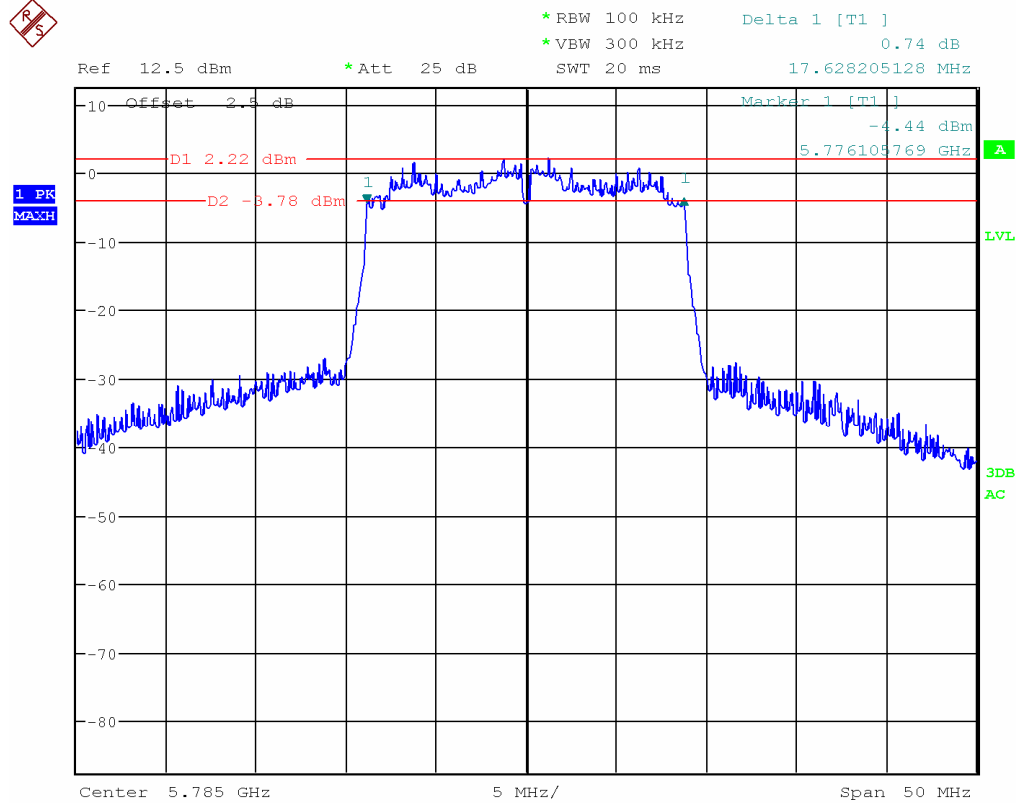


8.4 TEST RESULTS

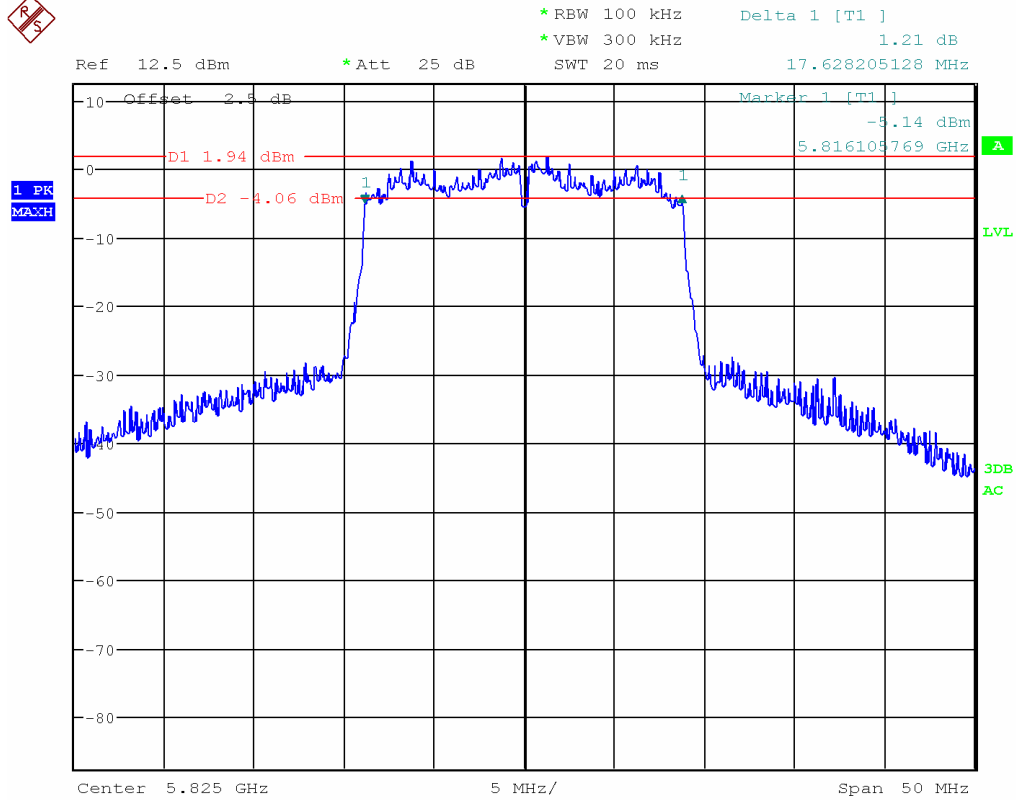
Channel	Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (MHz)	Limit (kHz)
802.11n Mode (HT20)				
Low Channel	5745	54	17.5481	> 500
Middle Channel	5785	54	17.6282	> 500
High Channel	5825	54	17.6282	> 500

802.11n mode:
Channel 5745MHz

Channel 5785MHz

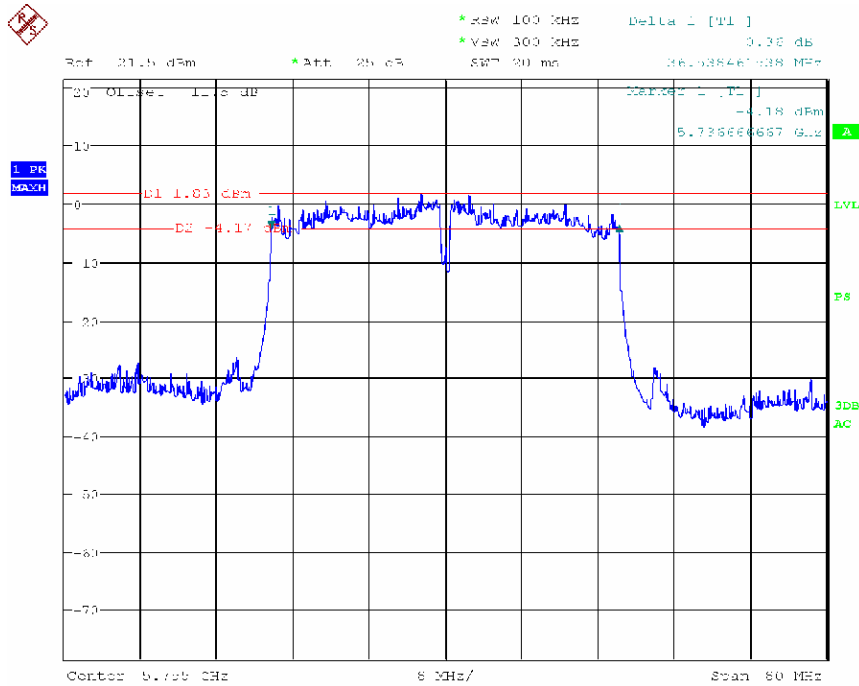


Channel 5825MHz

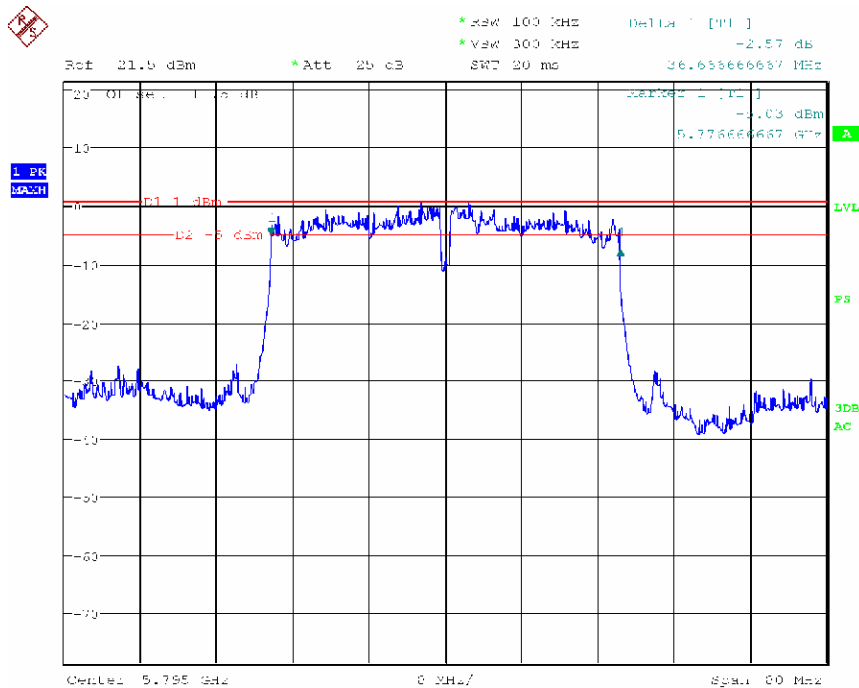


Channel	Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (MHz)	Limit (kHz)
802.11n Mode (HT40)				
Low Channel	5755	MCS15	36.5	>500
High Channel	5795	MCS15	36.6	>500

Channel 5755MHz:



Channel 5795MHz:



9. Maximum Peak Output Power

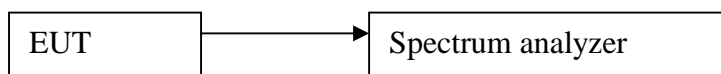
9.1 LIMITS

The maximum Peak output power measurement is 1W

9.2 TEST PROCEDURES

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.

9.3 TEST SETUP



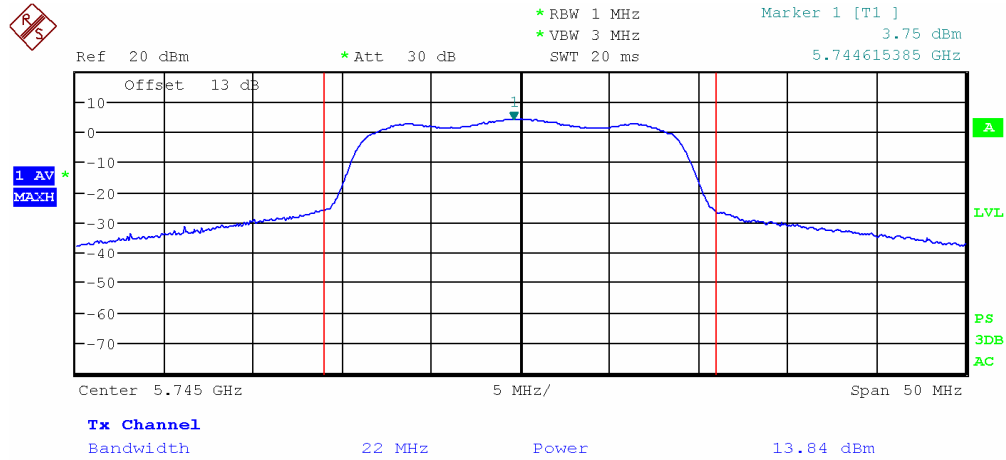
9.4 TEST RESULTS

802.11n Mode (HT20):

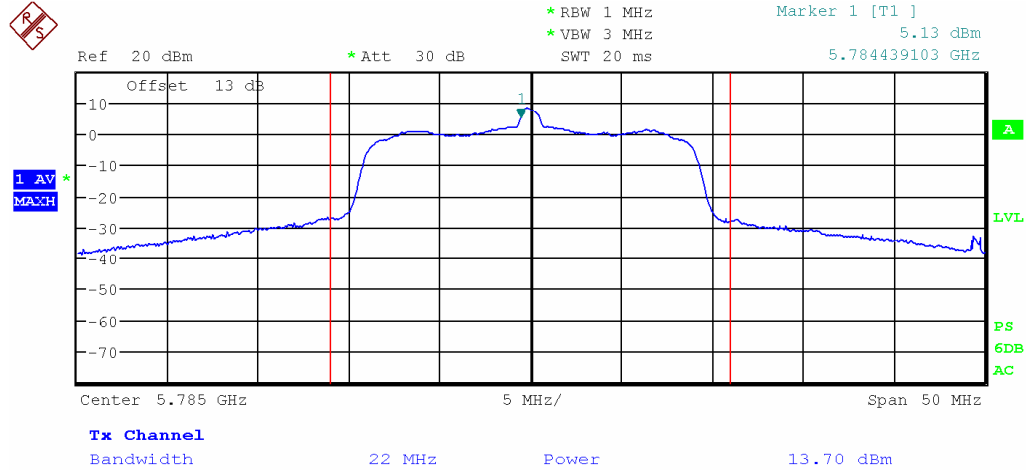
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
149	5745	802.11n (HT20)	MCS15	13.84	1W(30dbm)	Pass
157	5785			13.70		Pass
165	5825			13.41		Pass
149	5745		MCS14	13.79		Pass
157	5785			13.66		Pass
165	5825			13.35		Pass
149	5745		MCS13	13.74		Pass
157	5785			13.62		Pass
165	5825			13.30		Pass
149	5745		MCS12	13.69		Pass
157	5785			13.58		Pass
165	5825			13.36		Pass
149	5745		MCS11	13.63		Pass
157	5785			13.52		Pass
165	5825			13.33		Pass
149	5745		MCS10	13.59		Pass
157	5785			13.49		Pass
165	5825			13.29		Pass
149	5745		MCS09	13.55		Pass
157	5785			13.46		Pass
165	5825			13.27		Pass
149	5745		MCS08	13.51		Pass
157	5785			13.42		Pass
165	5825			13.25		Pass

802.11n mode (HT20):

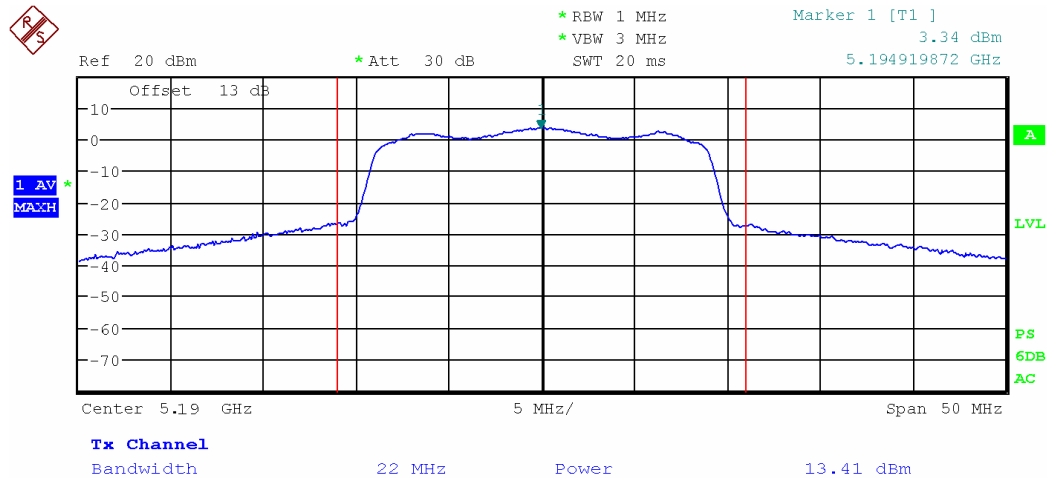
Channel 5745MHz



Channel 5785MHz



Channel 5825MHz

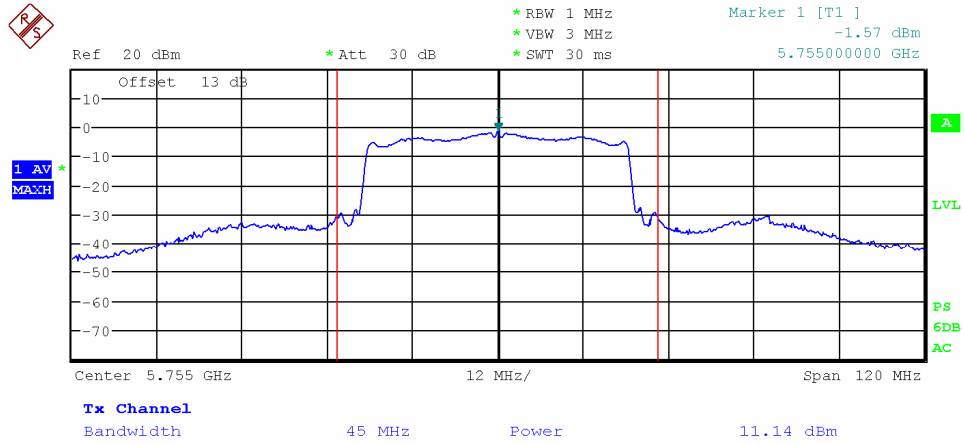


802.11n Mode (HT40):

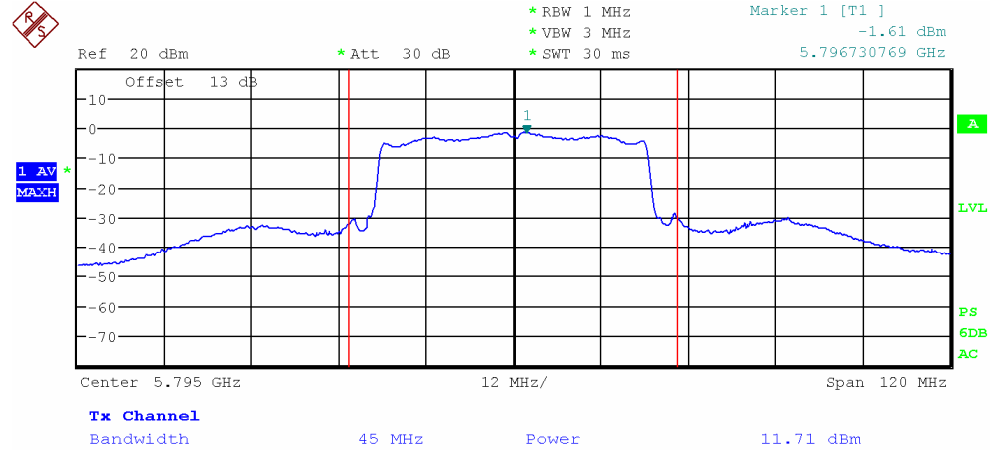
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Channel Power (dBm)	Limit	Result
153	5755	802.11n (HT40)	MCS15	11.14	1W(30dbm)	Pass
161	5795			11.71		Pass
153	5755		MCS14	11.12		Pass
161	5795			11.69		Pass
153	5755		MCS13	11.09		Pass
161	5795			11.67		Pass
153	5755		MCS12	11.06		Pass
161	5795			11.66		Pass
153	5755		MCS11	11.03		Pass
161	5795			11.64		Pass
153	5755		MCS10	11.02		Pass
161	5795			11.62		Pass
153	5755		MCS09	10.98		Pass
161	5795			11.59		Pass
153	5755		MCS08	10.97		Pass
161	5795			11.55		Pass

802.11n mode (HT40):

Channel 5755MHz



Channel 5795MHz



10. 100 kHz Bandwidth of Frequency Band Edge

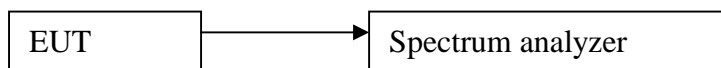
10.1 LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, 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)).

10.2 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
Note: For Restricted Band
RBW=100 kHz
VBW=300 kHz
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

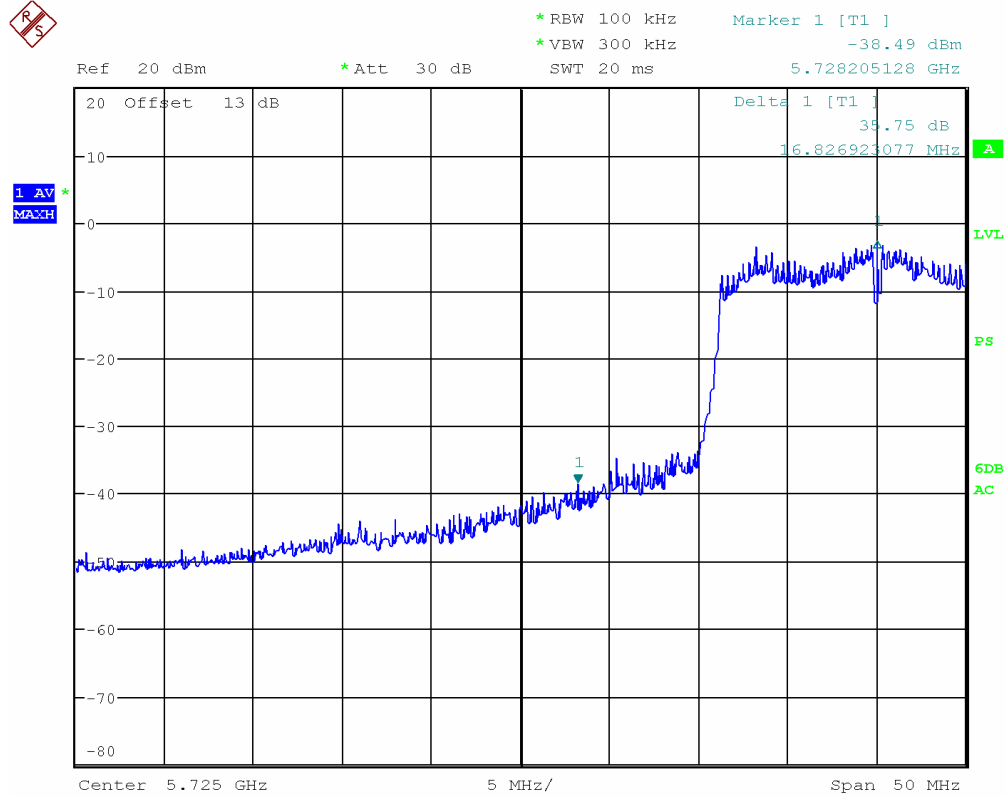
10.3 TEST SETUP



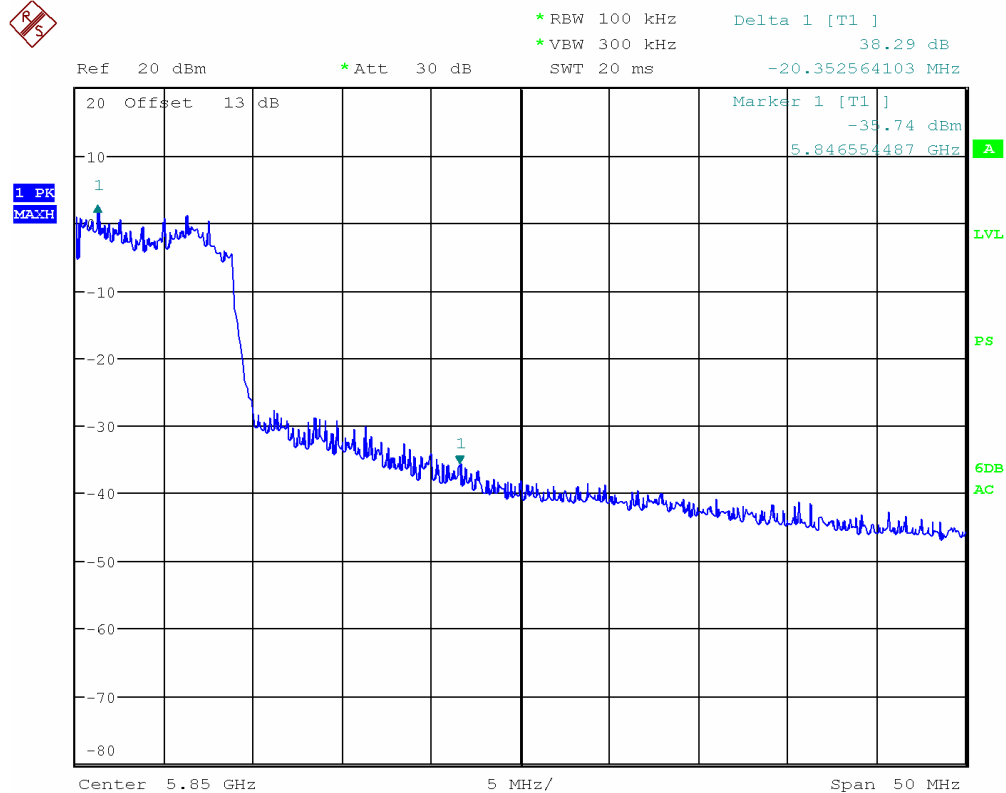
10.4 TEST RESULTS

802.11n mode (HT20):

Channel 5745MHz

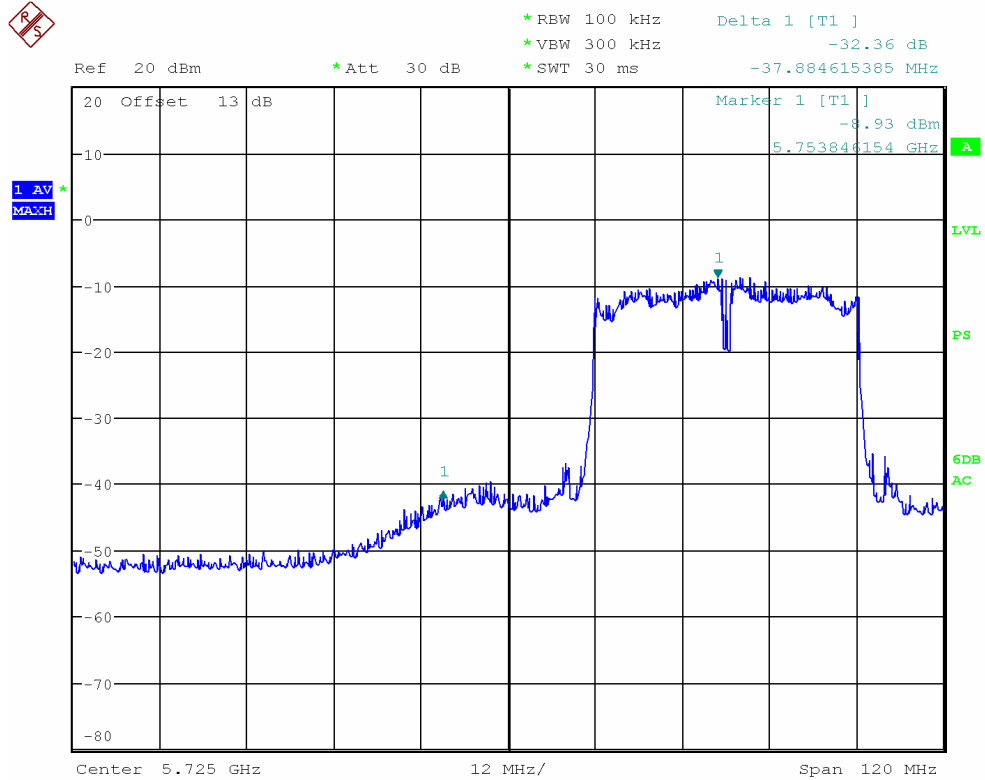


Channel 5785MHz

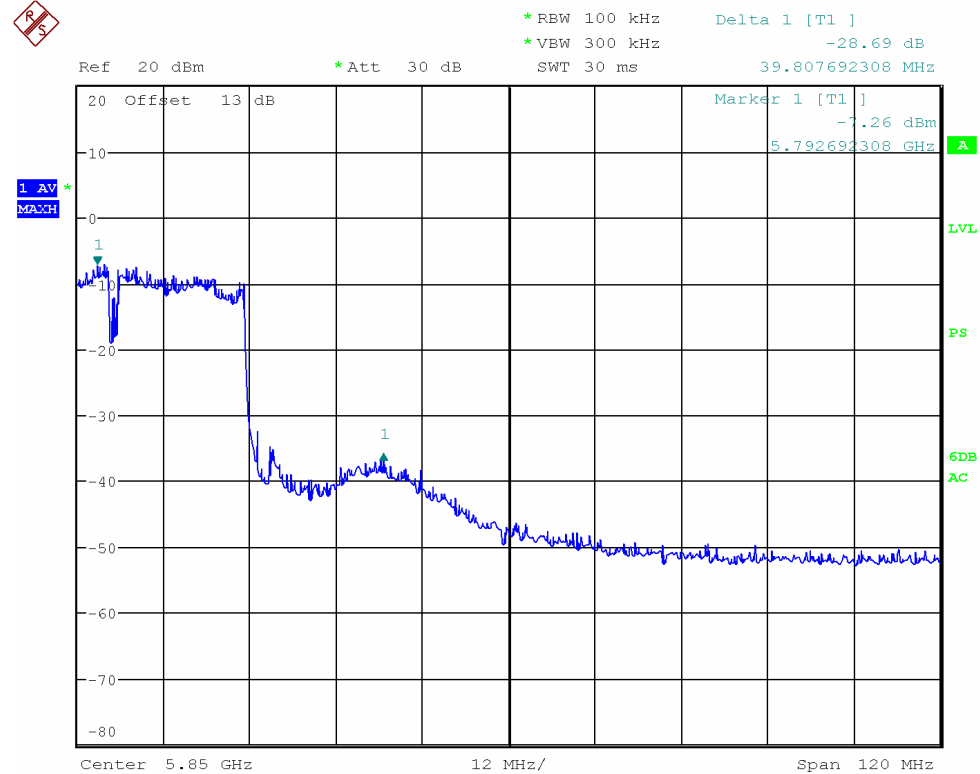


802.11n mode (HT40):

Channel 5755 MHz:



Channel 5795 MHz:



11. Power Spectral Density

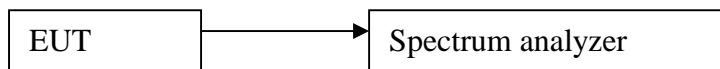
11.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

11.2 TEST PROCEDURES

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 1.5MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

11.3 TEST SETUP

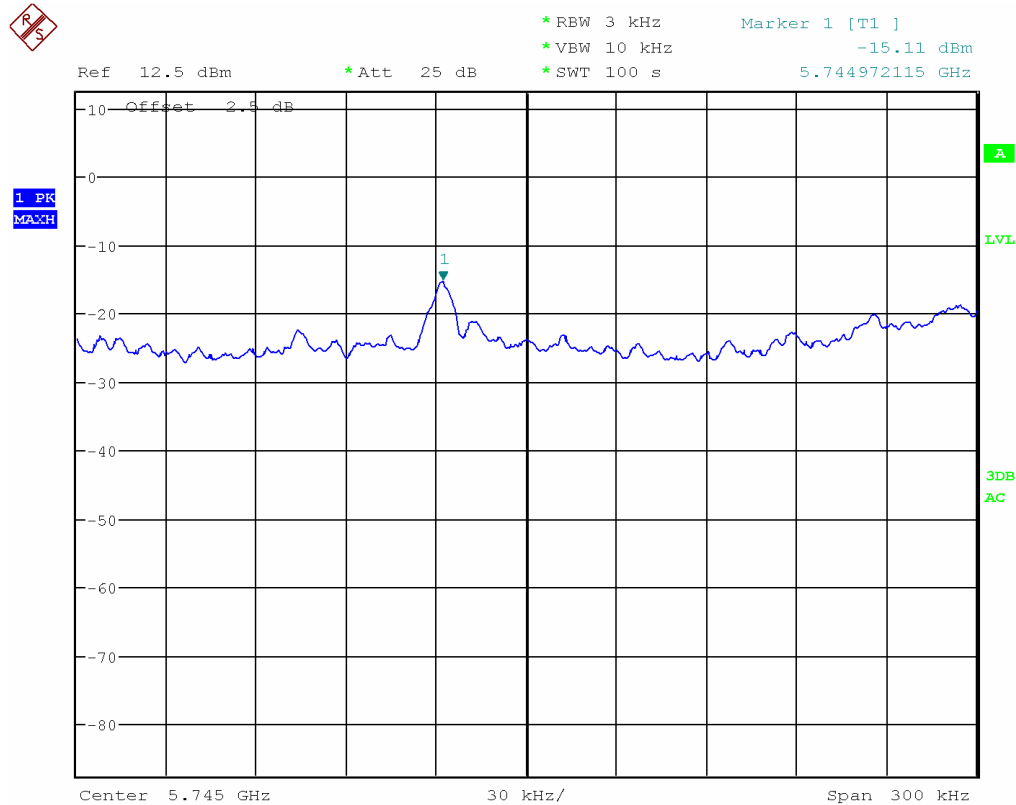


11.4 TEST RESULTS

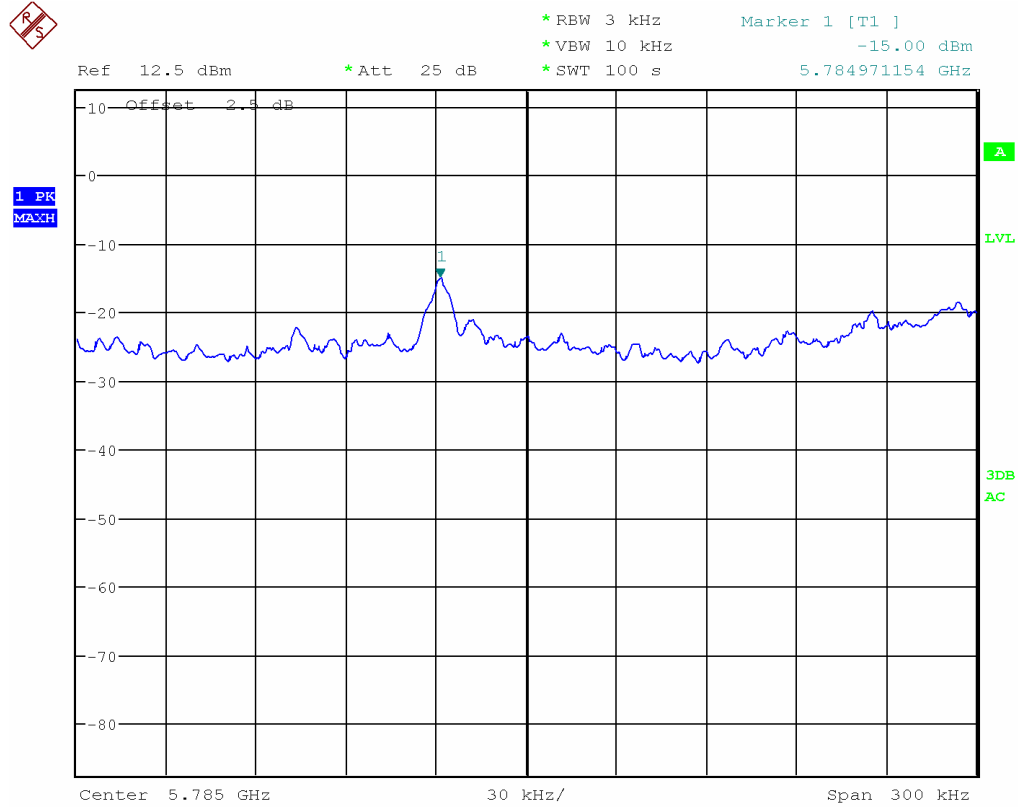
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
149	5745	802.11n (HT20)	MCS15	-15.11	8dBm/3KHz	Pass
157	5785			-15.00		Pass
165	5825			-17.93		Pass

802.11n mode (HT20):

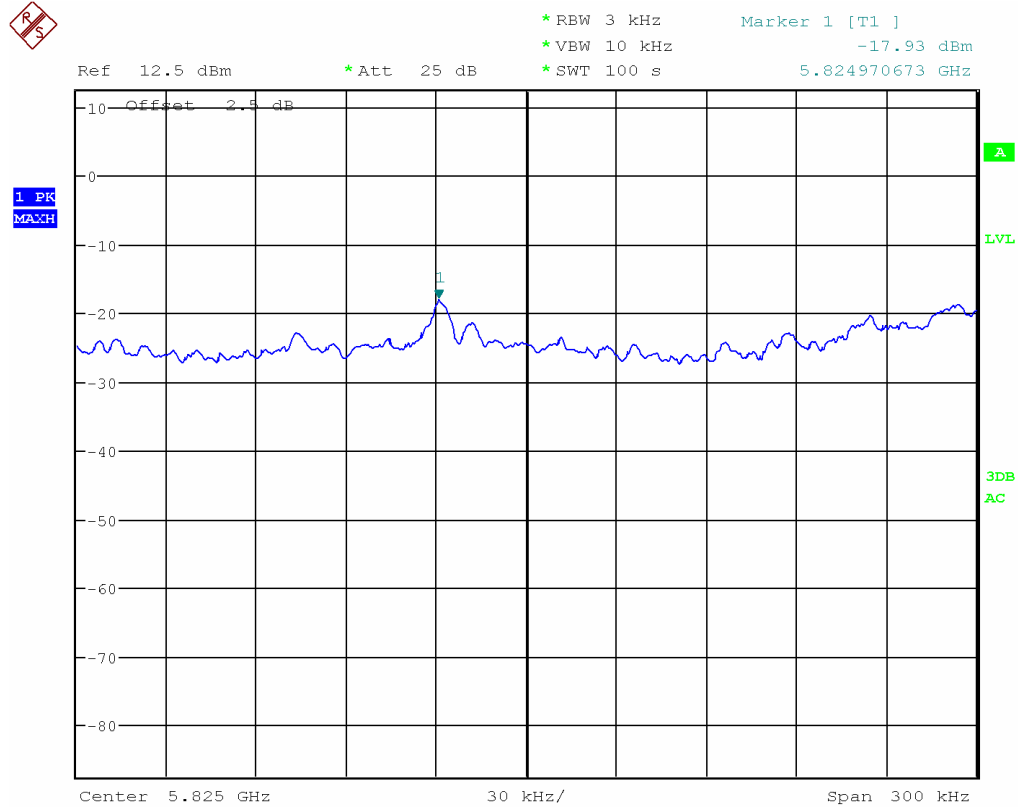
Channel 5745MHz



Channel 5785MHz



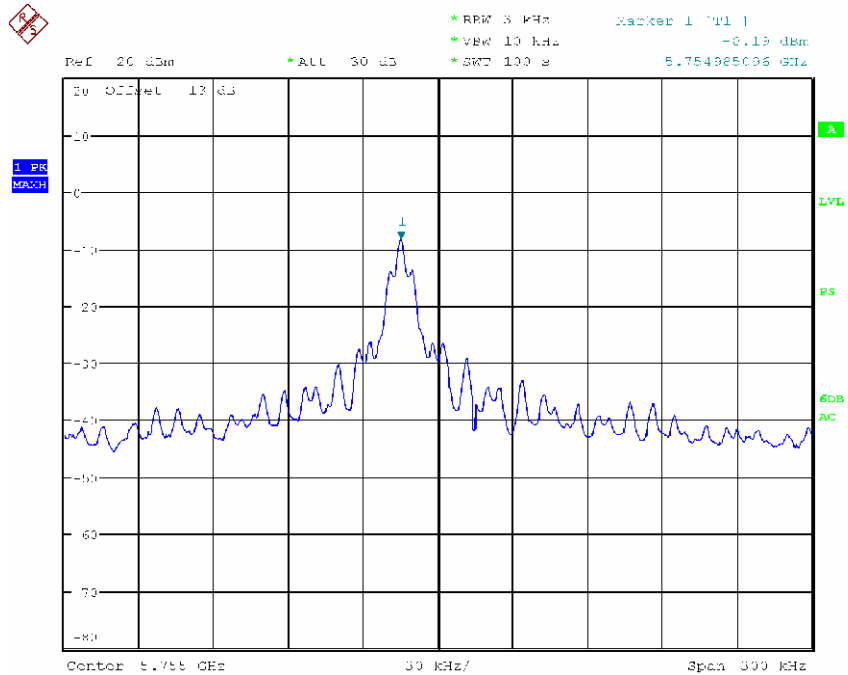
Channel 5825MHz



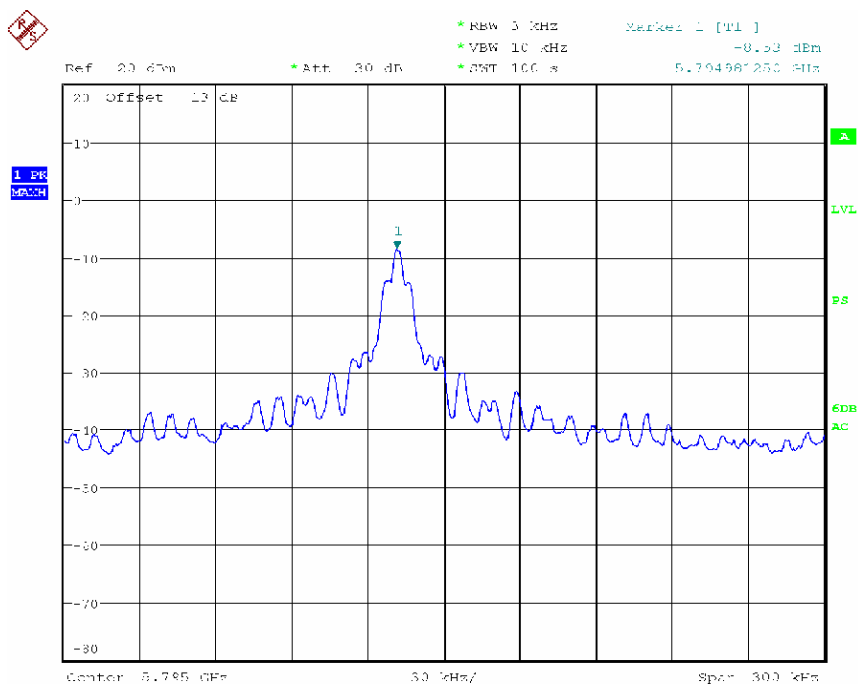
Channel No.	Frequency (MHz)	Mode	Data Rate	Measured Peak Power Spectral Density (dBm/3KHz)	Limit	Result
153	5755	802.11n (HT40)	MCS15	-8.19	8dBm/3KHz	Pass
161	5795			-8.53		Pass

802.11n mode (HT40):

Channel 5755 MHz:



Channel 5795 MHz:

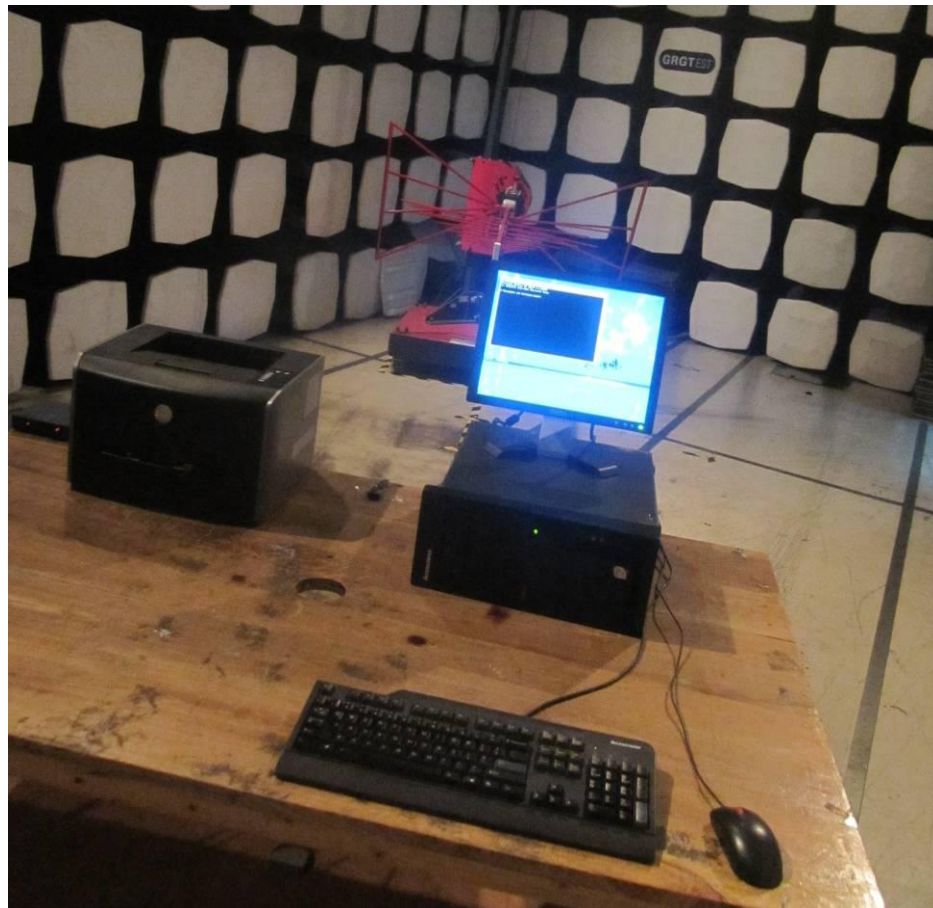


APPENDIX A: PHOTOGRAPH OF THE TEST ARRANGEMENT

RE (Below 1GHz)



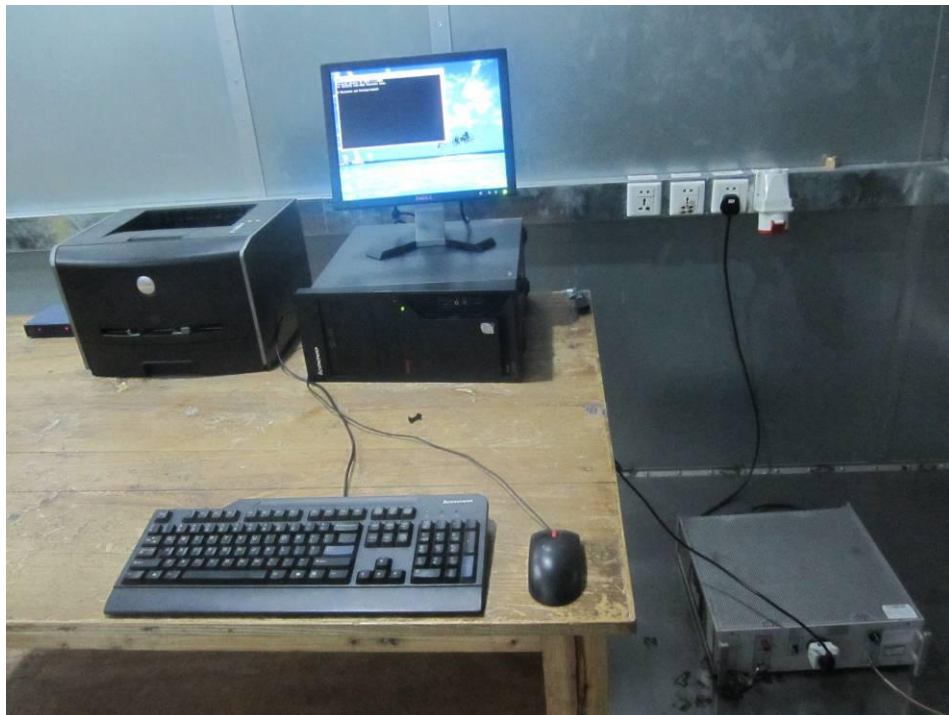
RE (Below 1GHz)

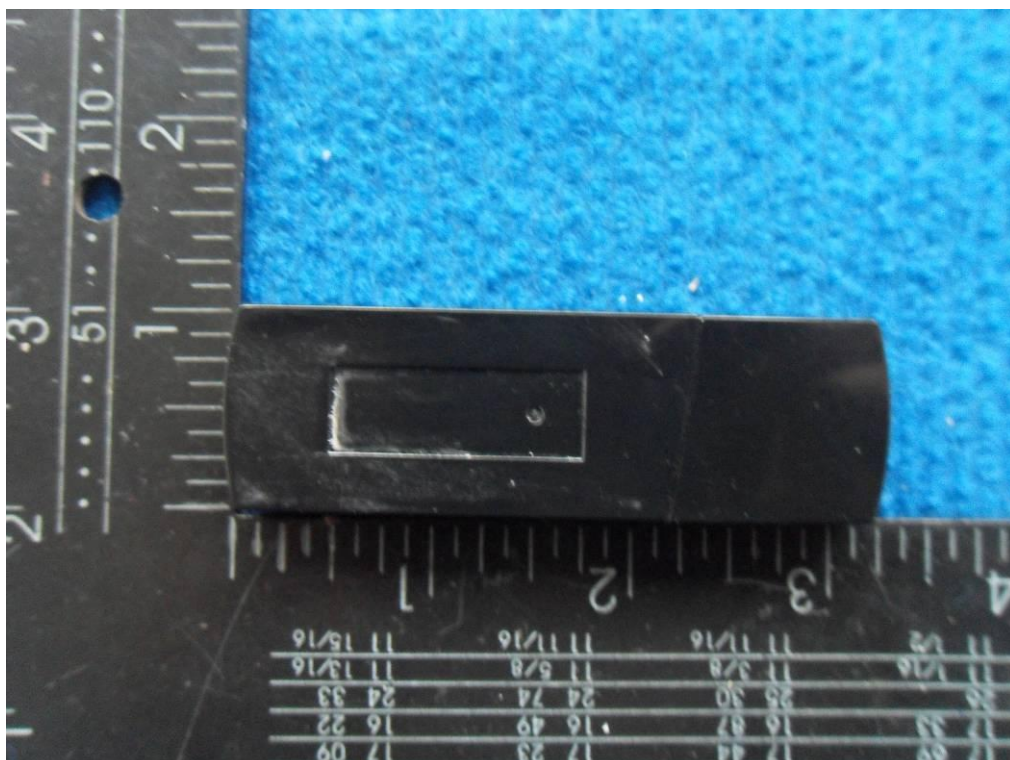


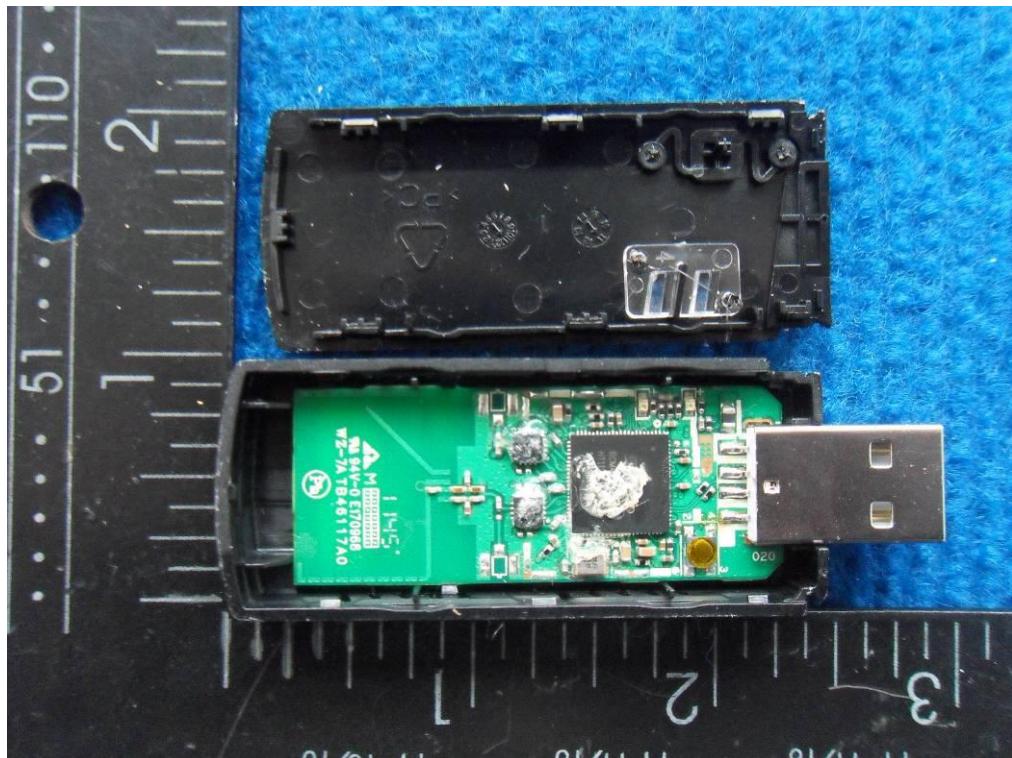
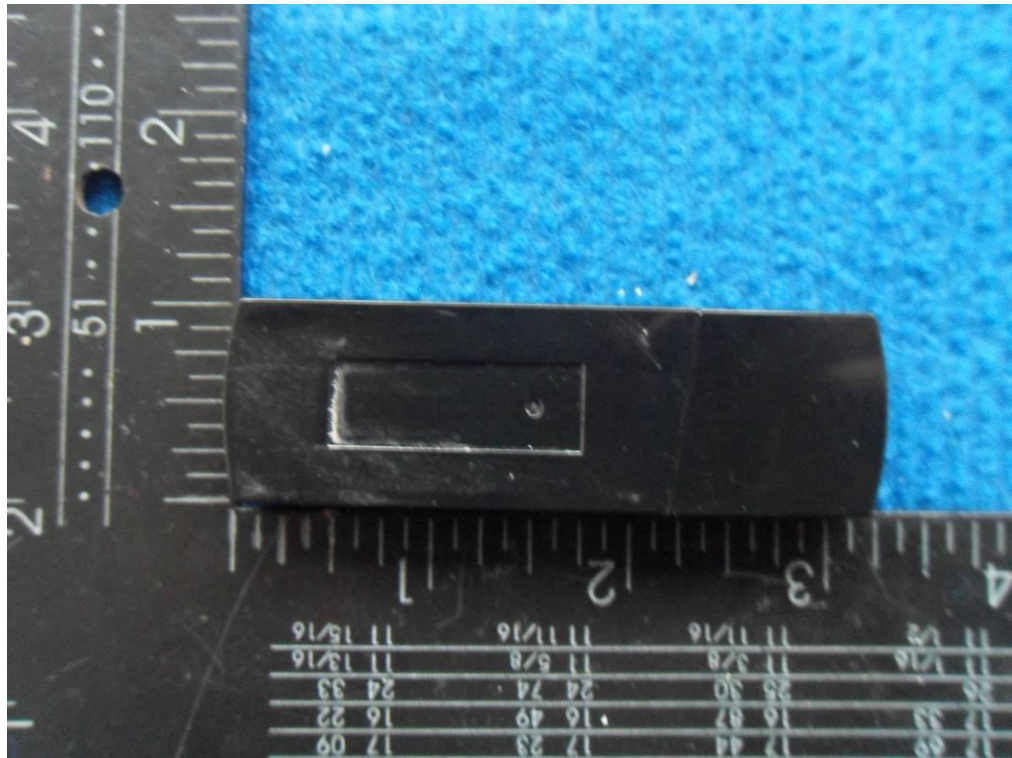
RE (Above 1GHz)

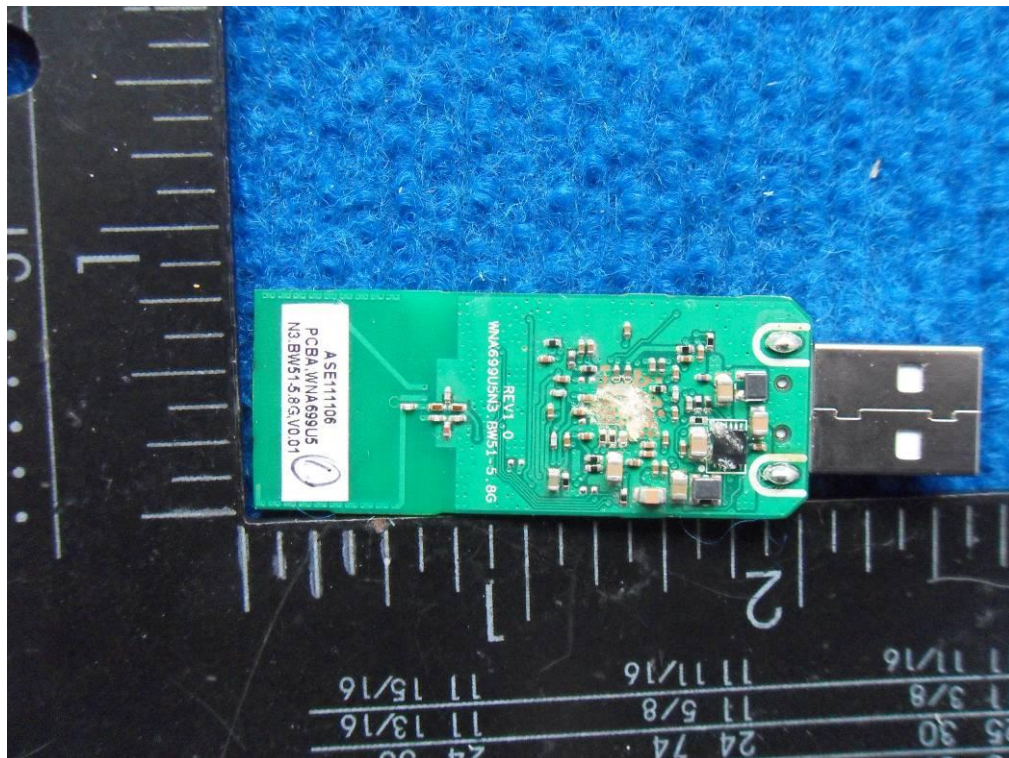
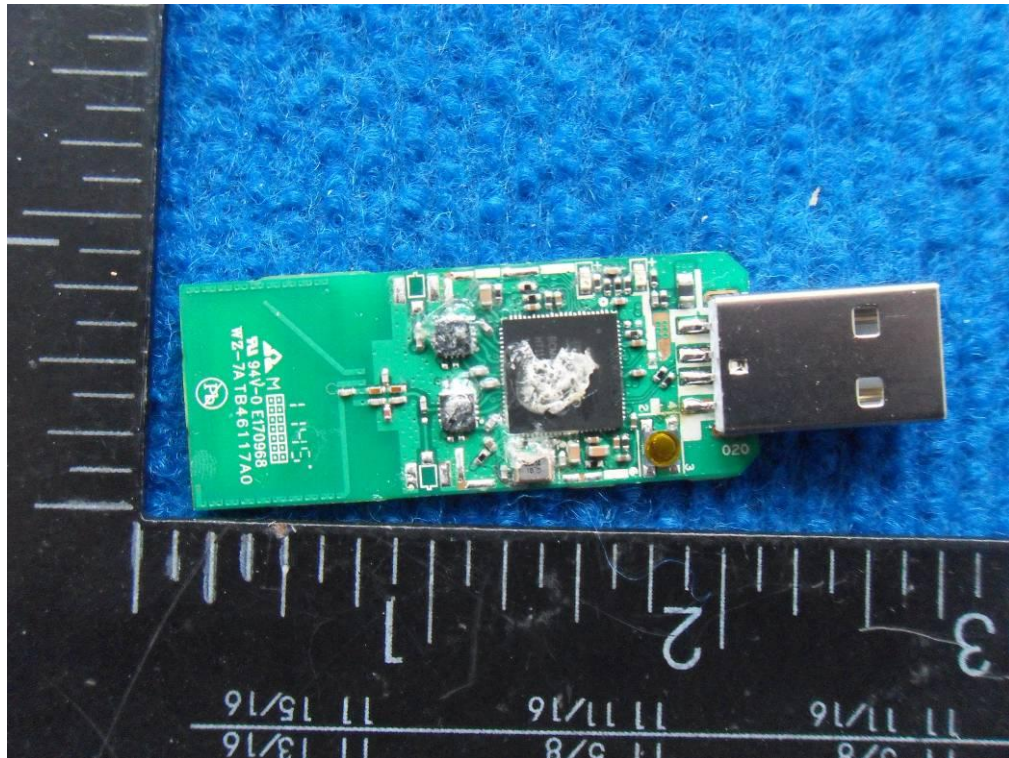


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APPENDIX B: PHOTOGRAPH OF THE EUT





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