FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

Flastar Technology Co.,LTD.

3~4F,43 Building ,Baotian Industrial Zone, Xixiang Bao'an, ShenZhen, China

FCC ID: ZS7-TP714A

March 20, 2012

This Report Concerns: Original Report	Equipment Type: Tablet PC
Test Engineer:	Eric ma
Report No.:	BCTC2000101205WIFI
Receive EUT Date/Test Date:	March 03, 2012/ March 03-20, 2012
Reviewed By:	Jerkesu
Prepared By:	**Shenzhen BCTC Technology Co., Ltd.** B Building Room8518, Multiple Use Building of Economic Cooperative, Team one, Anle country, No. 44 of Xin'an Block, Bao'an Area, Shenzhen Tel: +86-755- 33865088 Fax: +86-755- 36933236

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Report information

1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BCTC approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BCTC in any way guarantees the later performance of the product/equipment.

1.1.2.The sample/s mentioned in this report is/are supplied by Applicant, BCTC therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BCTC, unless the applicant has authorized BCTC in writing to do so.

FACILITIES
World Standardization Certification & Testing CO., LTD.
Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District,
Shenzhen,Guangdong, China
FCC(The certificate registration number is 131628)

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Applicant	:	Flastar Technology Co.,LTD.
Address	:	3~4F,43 Building ,Baotian Industrial Zone, Xixiang Bao'an, ShenZhen, China
Manufacturer	:	Flastar Technology Co.,LTD.
Address	:	3~4F,43 Building ,Baotian Industrial Zone, Xixiang Bao'an, ShenZhen, China
EUT Description	:	Tablet PC
Modulation	:	OFDM
Frequency range	:	2412-2462MHz
Model Number	:	TP714A,TP701,TP702,TP703,TP704,TP705,TP706,TP707,TP708, TP709,TP710,TP711,TP712,TP713,TP714,TP715,TP716,TP717, TP718,TP719,TP720,TP721,TP722,TP723,TP724,TP725,TP726, TP727,TP728,TP729,TP730,TP805,TP806,TP807,TP808,TP809, TP810,TP811,TP812,TP813,TP814,TP815,TP816,TP817,TP818, TP819,TP820,TP9701,TP9702,TP9703,TP9704,TP9705,TP9706, TP9707,TP9708,TP9709,TP9710,TP9711,TP9712,TP9713,TP9714, TP9715,TP1003,TP1004,TP1005,TP1006,TP1007,TP1008,TP1009, TP1010,TP1011,TP1012,TP1013,TP1014,TP1015,TP501,TP502, TP503,TP504,TP505,TP506,TP507,TP508,TP509,TP510,TP511, TP512,TP513,TP514,TP515,TP516,TP517,TP518,TP519,TP520
Antenna connected	:	Soldered
Antenna gain	:	0dBi
Model difference	:	All models have the same constructions, circuit diagram and PCB layout. Only model name and color are different.

2.2. Block Diagram of EUT Configuration

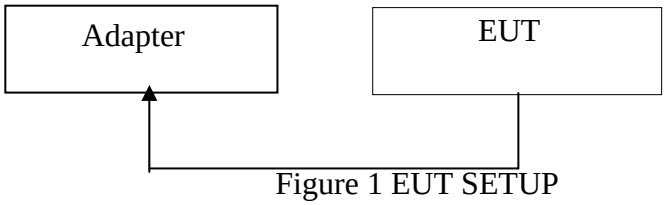


Figure 1 EUT SETUP

2.3. Support Equipment List

Table 2 Ancillary Equipment

Name	Model No	S/N	Manufacturer	Used "✓"
POWER ADAPTOR	JKY36-SP050 2000	/	Flastar Technology Co.,LTD.	✓

2.4. Test Conditions

Temperature: 23~25℃
Relative Humidity: 55~63 %

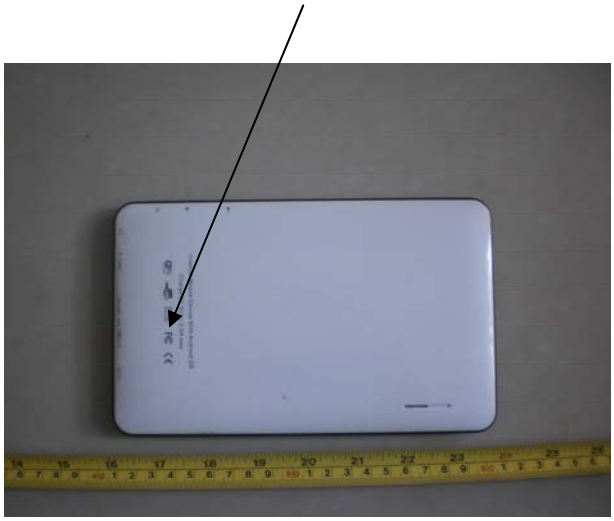
3. FCC ID LABEL

FCC ID: ZS7-TP714A

This device complies with Part 15 of the FCC Rules.Operation is subject to the following two conditions:
1. This device may not cause harmful interference, and
2. This device must accept any interference received,including interference that may cause undesired operation.

Label Location on EUT

EUT Bottom View/ FCC ID Label Location



4. TEST RESULTS SUMMARY

FCC 15 Subpart C,Paragraph 15.247

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247 (i) , §1.1307 (b) (1), §2.1093	RF Exposure	Pass
§15.203	Antenna Requirement	Pass
§15.207 (a)	Conducted Emissions	Pass
§15.247(d)	Spurious Emissions at Antenna Port	Pass
§15.209, §15.205, 1§15.247(d)	Spurious Emissions	Pass
§15.247 (a)(2)	6 dB Bandwidth	Pass
§15.247(b)(3)	Maximum Peak Output Power	Pass
§15.247(d)	Band Edge Restricted Bands	Pass
§15.247(e)	Power Spectral Density	Pass

Modifications

No modification was made.

5. TEST EQUIPMENT USED

EQUIPMENT/FACILITIES	MANUFACTURER	MODEL #	SERIAL NO.	DATE OF CAL.	CAL. INTERVAL
Cable	Resenberger	N/A	NO.1	Mar 10，2012	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar 10，2012	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar 10，2012	1 Year
LISN	Rohde＆Schwarz	ESH3-Z5	100305	Mar 10，2012	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar 10, 2012	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESP13	100180	Oct.18,2011	1 Year
Spectrum Analyzer	Rohde＆Schwarz	FSP40	100273	Sep.10,2011	1 Year
3m Semi-Anechoic Chamber	Albatross Projects	9m×6m×6m	N/A	Feb.20,2012	1 Year
Signal Generator	FLUKE	PM5418 + Y/C	LO747012	Feb.20,2012	1 Year
Signal Generator	FLUKE	PM5418TX	LO738007	Feb.20,2012	1 Year
Loop Antenna	SCHWARZBECK	FMZB1516	113	Jan.30,2012	1 Year
Trilog-Super Broadband Antenna	SCHWARZBECK	VULB9161	9161-4079	Sep.22,2011	1 Year
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-564	Sep.22,2011	1 Year
Double-Ridged waveguide Horn	ETS	3116B	100110	June.15,2011	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100196	Oct.11,2011	1 Year
AMN	Rohde＆Schwarz	ESH3-Z5	100197	Oct.11,2011	1 Year
Pulse Limiter	Rohde＆Schwarz	ESH3-Z2	N/A	N/A	N/A
Power Meter	Rohde＆Schwarz	NRVD	100041	Feb.20,2012	1 Year
EMI Test Receiver	Rohde＆Schwarz	ESCS30	100003	Feb.20,2012	1 Year
Coaxial Cable with N-connectors	SCHWARZBECK	AK9515H	95549	Sep.22,2011	1 Year
Radio Communication Test Set	Rohde＆Schwarz	CMS 54	846621/024	Feb.20,2012	1 Year
Modulation Analyzer	Hewlett-Packard	8901B	2303A00362	Feb.20,2012	1 Year
Absorbing clamp	Rohde＆Schwarz	MDS-21	N/A	Oct.29,2011	1 Year

6. §15.247 (I) AND §1.1307 (B) (1), §2.1093 – RF EXPOSURE

6.1. Standard Applicable

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for General Population/Uncontrolled Exposure

According to FCC Exclusion list, In the following table, f_{GHz} is mid-band frequency in GHz, and d is the distance to a person'sbody, excluding hands, wrists, feet, and ankles.

Exposure category	low threshold	high threshold
general population	$(60/f_{GHz})$ mW, $d < 2.5$ cm $(120/f_{GHz})$ mW, $d \geq 2.5$ cm	$(900/f_{GHz})$ mW, $d < 20$ cm
occupational	$(375/f_{GHz})$ mW, $d < 2.5$ cm $(900/f_{GHz})$ mW, $d \geq 2.5$ cm	$(2250/f_{GHz})$ mW, $d < 20$ cm

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

6.2. Test Result

Measurement Result:

The Max peak output power is 16.75 mW<24.9mW.

The SAR measurement is not required.

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7. §15.203 - ANTENNA REQUIREMENT

7.1. Standard Applicable

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.2. Antenna Connector Construction

The EUT uses a solded antenna. The Antenna gain is 0dBi.please refer to the EUT internal photos.

8. §15.207 - CONDUCTED EMISSIONS

8.1. Applicable Standard

The specification used was with the FCC Part 15.207 limits.

8.2. Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

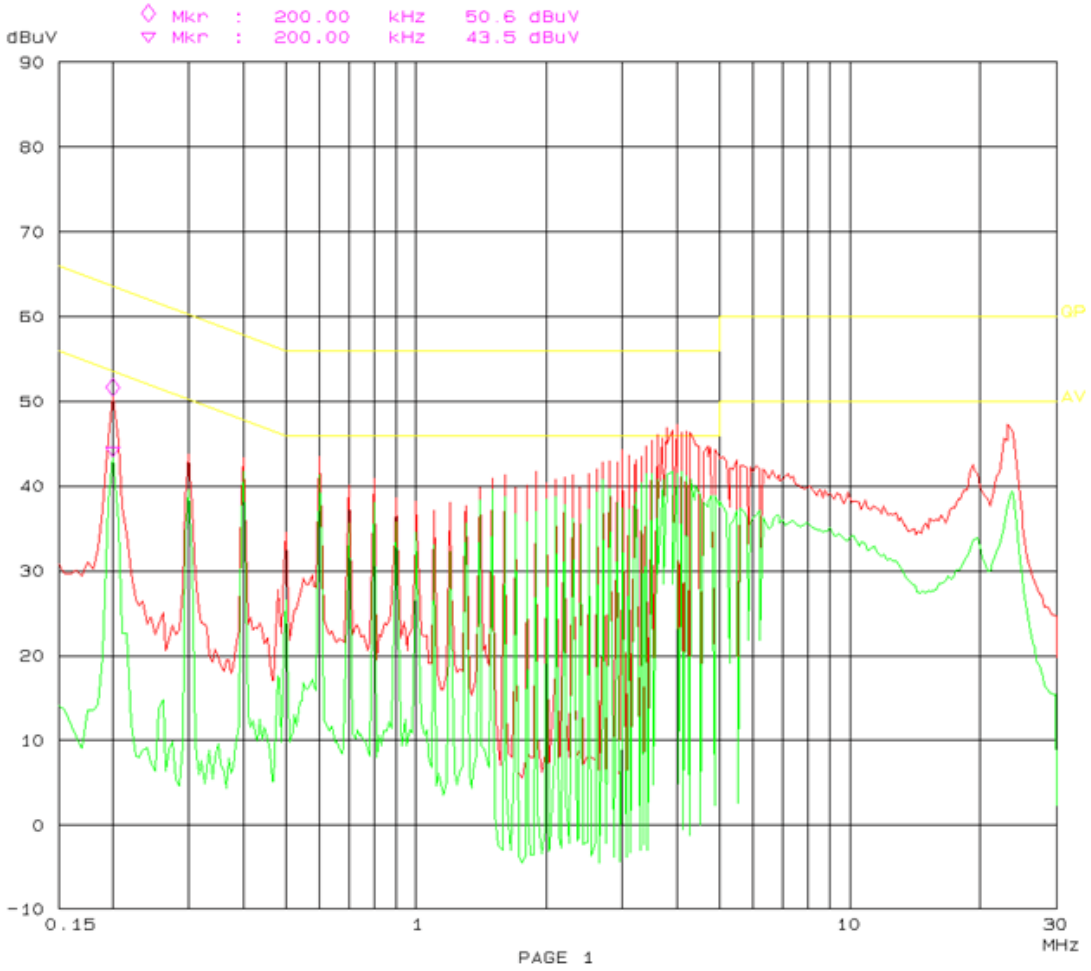
Test Result

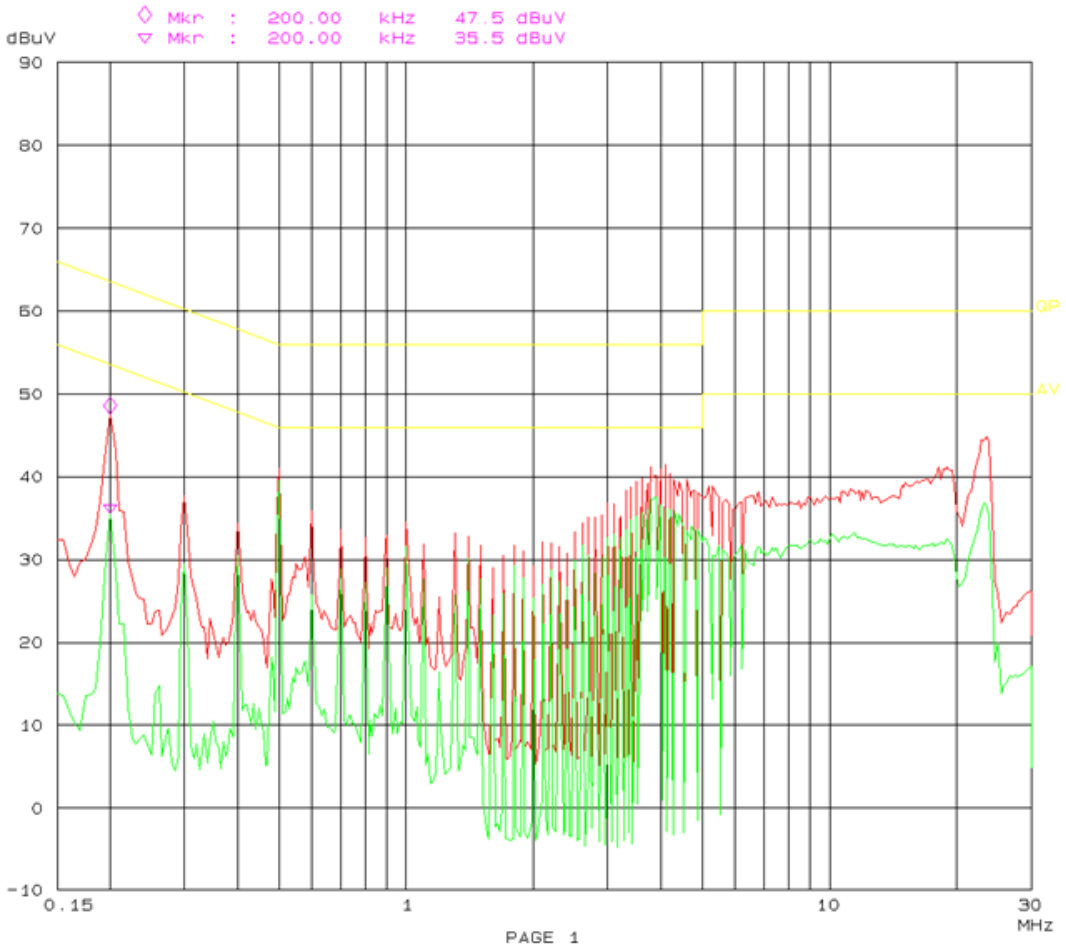
Test Mode: Transmitting

Line Conducted Emissions				FCC Part 15.207	
Frequency (MHz)	**Amplitude (dBμV)**	**Detector (QP/AV)**	**Conductor (Hot/Neutral)**	**Limit (dBμV)**	**Margin (dB)**
3.800	41.20	AV	Hot	46.00	4.80
0.400	41.80	AV	Hot	47.85	6.05
1.500	39.50	AV	Hot	46.00	6.50
3.800	37.20	AV	Neutral	46.00	8.80
0.200	43.50	AV	Hot	53.61	10.11
23.590	39.40	AV	Hot	50.00	10.60
3.800	45.00	QP	Hot	56.00	11.00
0.200	50.60	QP	Hot	63.61	13.01
23.390	36.70	AV	Neutral	50.00	13.30
23.580	46.60	QP	Hot	60.00	13.40
0.200	39.50	AV	Neutral	53.61	14.11
7.490	35.70	AV	Hot	50.00	14.30
1.000	31.50	AV	Neutral	46.00	14.50
0.400	43.30	QP	Hot	57.85	14.55
0.500	41.10	QP	Neutral	56.00	14.90
1.500	40.90	QP	Hot	56.00	15.10
23.480	44.80	QP	Neutral	60.00	15.20
3.800	40.00	QP	Neutral	56.00	16.00
0.200	47.50	QP	Neutral	63.61	16.11
2.200	28.70	AV	Neutral	46.00	17.30
0.200	35.50	AV	Neutral	53.61	18.11
7.490	40.30	QP	Hot	60.00	19.70
1.000	34.60	QP	Neutral	56.00	21.40
2.200	32.00	QP	Neutral	56.00	24.00

8.3. Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.




Mkr : 200.00 kHz 47.5 dBuV
Mkr : 200.00 kHz 35.5 dBuV
dBuV
90
80
70
60
50
40
30
20
10
0
-10
0.15
1
10
30
MHz
QP
AV
PAGE 1

9. §15.209, §15.205, §15.247(D) - Spurious Emissions

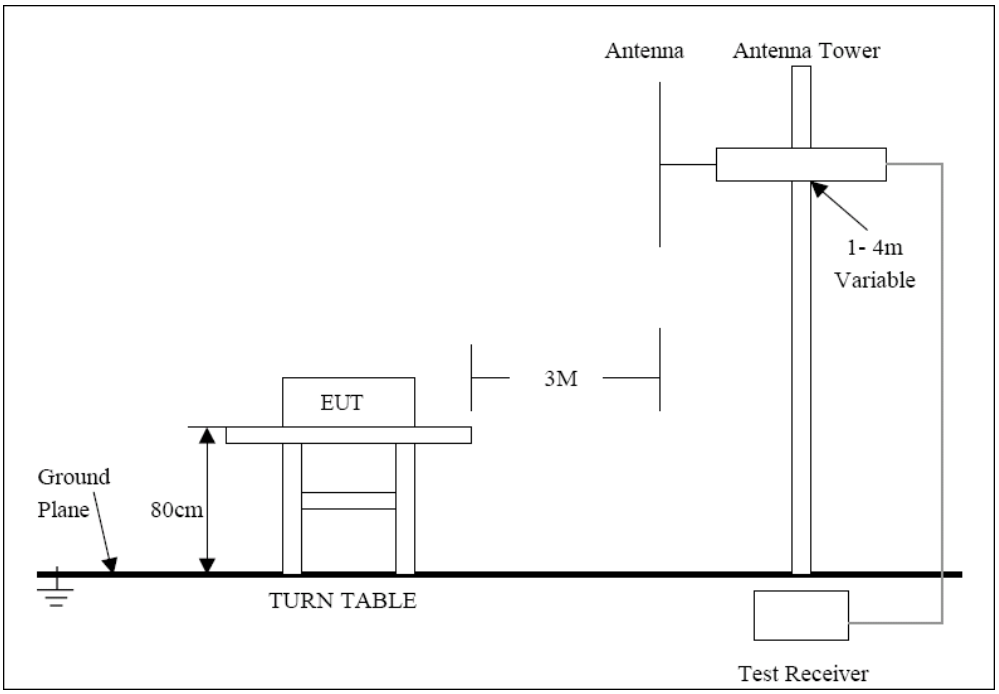
9.1. Test Equipment

Please refer to section 4 this report.

9.2. Test Procedure

The out of band emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part Subpart C limits.

9.3. Radiated Test Setup



For the accrual test configuration,pleas refer to the related items-photos of Testing.

The system was investigated from 30 MHz to 25 GHz.
During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	PK

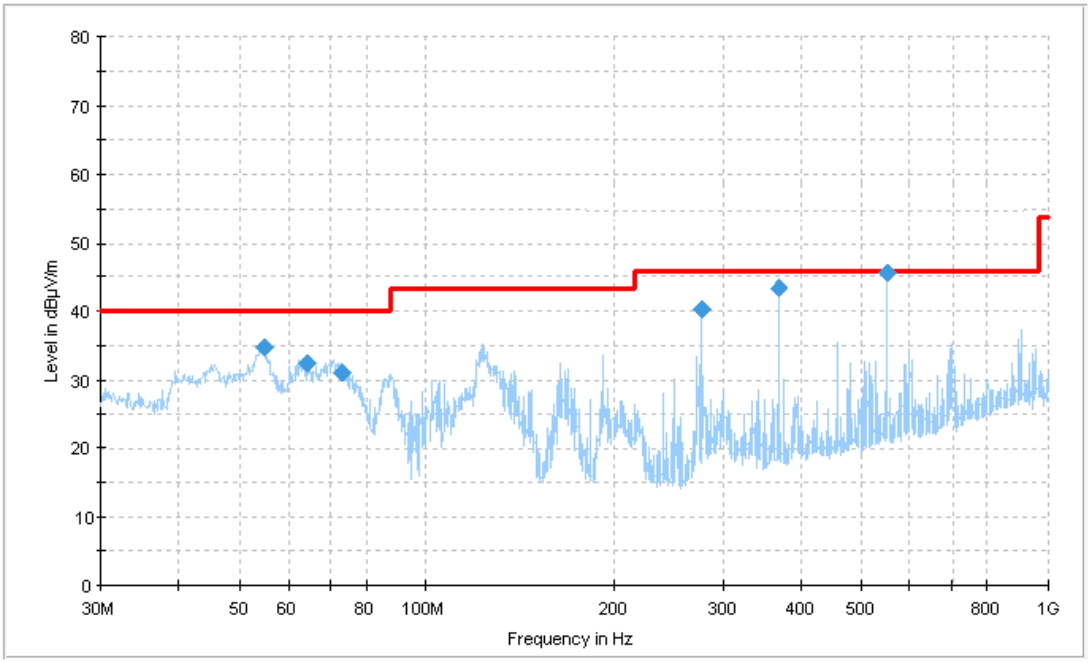
9.4. Radiated Emission Limit

CARRIER FREQUENCY WILL NOT EXCEEDS 48.0 dBuV/m AT 3M. OUT-OF-BAND EMISSIONS SHALL NOT EXCEED:

Frequency (MHz)	Distance (m)	Field Strength (dBuV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
ABOVE 960	3	54.0

9.5. Radiated Emission Test Result

Test Mode: WiFi Transmitting



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity (H/V)	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
551.995425	44.6	178.0	H	2.0	-5.8	46.0	1.4*
368.002200	43.3	105.0	H	269.0	-9.2	46.0	2.7*
54.949375	34.6	105.0	V	147.0	-17.7	40.0	5.4
276.007250	40.2	106.0	H	243.0	-11.1	46.0	5.8
64.167150	32.5	104.0	V	125.0	-17.1	40.0	7.5
73.188575	31.1	103.0	V	0.0	-16.9	40.0	8.9

Above 1GHz:
802.11b

Indicated		result (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (2412MHz)											
7236	37.5	AV	360	1.5	V	35.4	4.51	33.7	43.71	54	10.29
4824	39.3	AV	250	1.2	V	31.3	4.64	33.4	41.84	54	12.16
7236	35.2	AV	45	1.4	H	35.4	4.51	33.7	41.41	54	12.59
4824	38.6	AV	60	1.6	H	31.3	4.64	33.4	41.14	54	12.86
4824	53.6	PK	180	1.3	V	31.3	4.64	33.4	56.14	74	17.86
7236	48.6	PK	300	1.5	V	35.4	4.51	33.7	54.81	74	19.19
7236	47.7	PK	100	1.5	H	35.4	4.51	33.7	53.91	74	20.09
4824	49.9	PK	210	1.1	H	31.3	4.64	33.4	52.44	74	21.56
Middle Channel (2437MHz)											
7311	40.6	AV	180	1.5	V	35.4	4.75	33.7	47.05	54	6.95
7311	39.1	AV	185	1.3	H	35.4	4.75	33.7	45.55	54	8.45
4874	41.7	AV	200	1.5	V	31.3	4.64	33.4	44.24	54	9.76
4874	40.5	AV	360	1.5	H	31.3	4.64	33.4	43.04	54	10.96
7311	53.8	PK	120	1.2	V	35.4	4.75	33.7	60.25	74	13.75
4874	55.6	PK	75	1.5	V	31.3	4.64	33.4	58.14	74	15.86
7311	50.4	PK	220	1.4	H	35.4	4.75	33.7	56.85	74	17.15
4874	52.6	PK	0	1.1	H	31.3	4.64	33.4	55.14	74	18.86
HighChannel (2462MHz)											
7386	42.0	AV	160	1.3	V	35.3	4.75	33.7	48.35	54	5.65
7386	41.9	AV	245	1.4	H	35.3	4.75	33.7	48.25	54	5.75
4924	43.8	AV	360	1.5	V	32.0	4.64	33.4	47.04	54	6.96
4924	42.4	AV	45	1.5	H	32.0	4.64	33.4	45.64	54	8.36
7386	52.2	PK	90	1.2	V	35.3	4.75	33.7	58.55	74	15.45
4924	55.1	PK	0	1.4	V	32.0	4.64	33.4	58.34	74	15.66
4924	54.6	PK	200	1.4	H	32.0	4.64	33.4	57.84	74	16.16
7386	51.3	PK	180	1.2	H	35.3	4.75	33.7	57.65	74	16.35

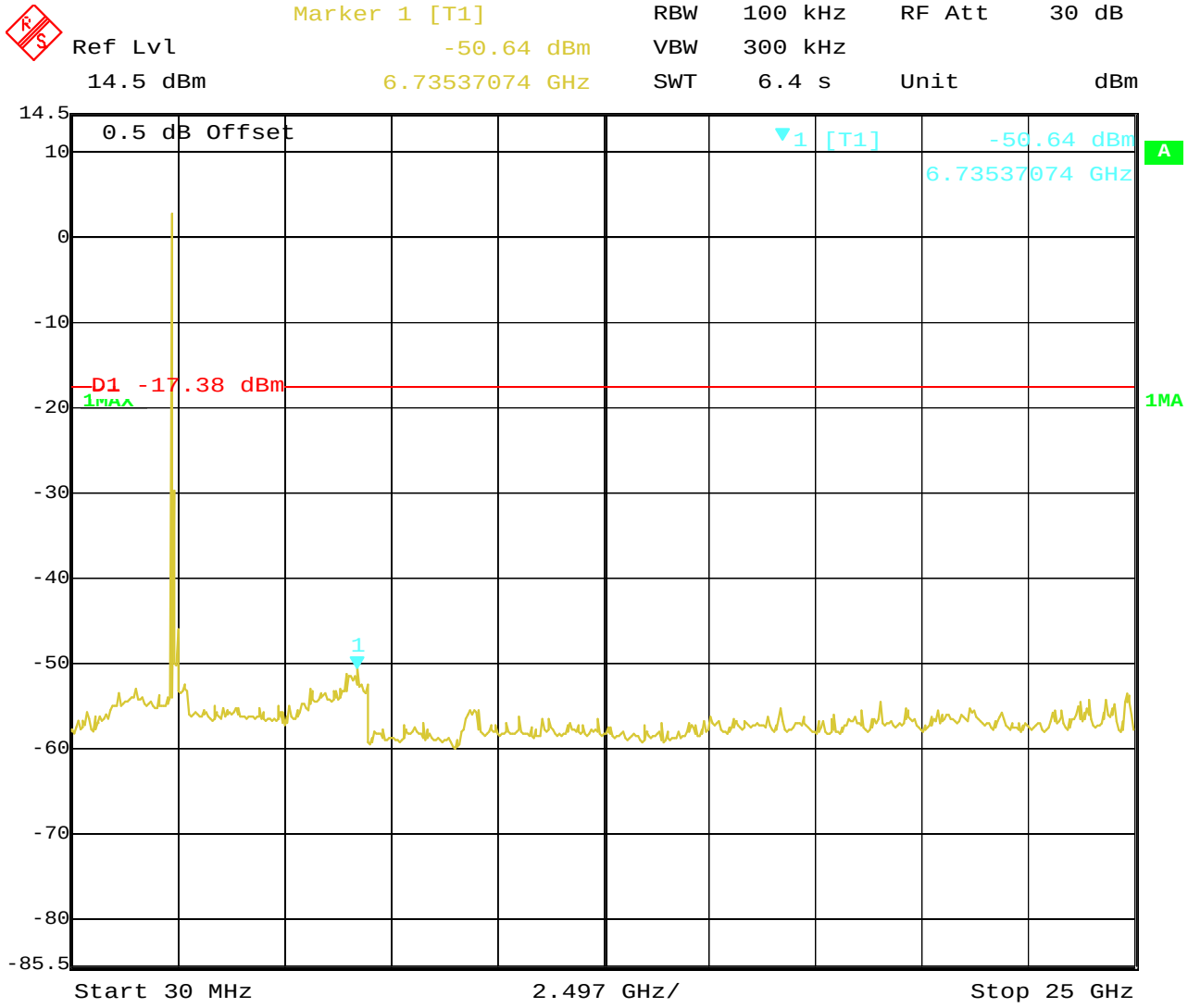
802.11g

Indicated		result (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (2412MHz)											
7236	38.6	AV	220	1.3	V	35.4	4.51	33.7	44.81	54	9.19
7236	37.8	AV	200	1.4	H	35.4	4.51	33.7	44.01	54	9.99
4824	40.7	AV	90	1.5	V	31.3	4.64	33.4	43.24	54	10.76
4824	39.1	AV	45	1.5	H	31.3	4.64	33.4	41.64	54	12.36
7236	46.5	PK	165	1.4	V	35.4	4.51	33.7	52.71	74	21.29
4824	49.8	PK	320	1.2	V	31.3	4.64	33.4	52.34	74	21.66
4824	47.5	PK	0	1.5	H	31.3	4.64	33.4	50.04	74	23.96
7236	42.7	PK	120	1.2	H	35.4	4.51	33.7	48.91	74	25.09
Middle Channel (2437MHz)											
7311	38.6	AV	200	1.5	H	35.4	4.75	33.7	45.05	54	8.95
4874	40.5	AV	120	1.4	H	31.3	4.64	33.4	43.04	54	10.96
7311	35.9	AV	320	1.3	V	35.4	4.75	33.7	42.35	54	11.65
4874	36.7	AV	190	1.3	V	31.3	4.64	33.4	39.24	54	14.76
7311	44.2	PK	45	1.5	H	35.4	4.75	33.7	50.65	74	23.35
7311	43.2	PK	360	1.4	V	35.4	4.75	33.7	49.65	74	24.35
4874	46.8	PK	0	1.4	V	31.3	4.64	33.4	49.34	74	24.66
4874	45.3	PK	60	1.2	H	31.3	4.64	33.4	47.84	74	26.16
HighChannel (2462MHz)											
7386	38.2	AV	160	1.3	V	35.3	4.75	33.7	44.55	54	9.45
4924	41.3	AV	360	1.5	V	32.0	4.55	33.4	44.45	54	9.55
4924	40.5	AV	45	1.5	H	32.0	4.55	33.4	43.65	54	10.35
7386	37.1	AV	245	1.4	H	35.3	4.75	33.7	43.45	54	10.55
4924	54.7	PK	0	1.4	V	32.0	4.55	33.4	57.85	74	16.15
7386	50.6	PK	90	1.2	V	35.3	4.75	33.7	56.95	74	17.05
7386	47.6	PK	180	1.2	H	35.3	4.75	33.7	53.95	74	20.05
4924	49.4	PK	200	1.4	H	32.0	4.55	33.4	52.55	74	21.45

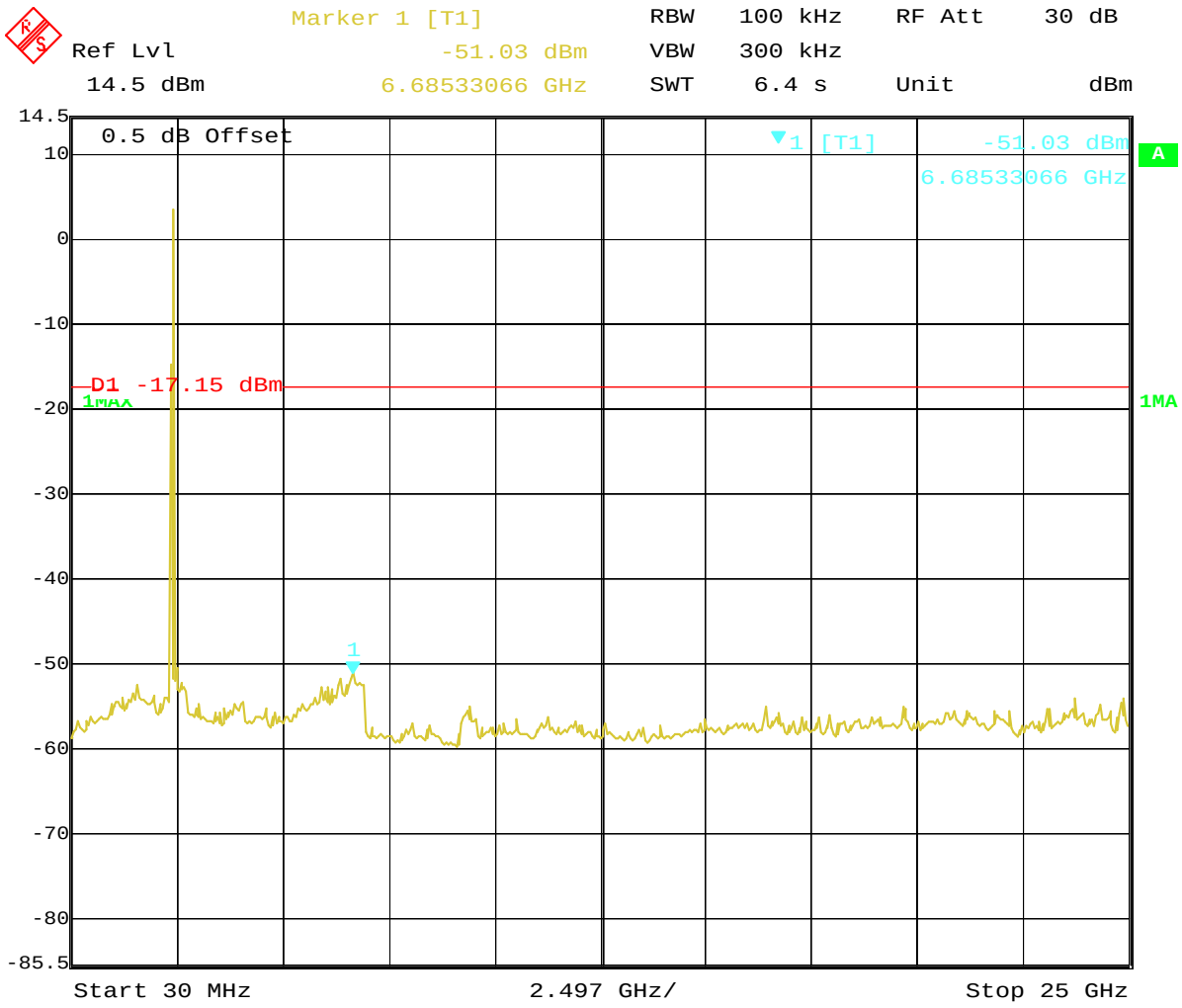
Antenna port conducted spurious emissions

802.11b mode:

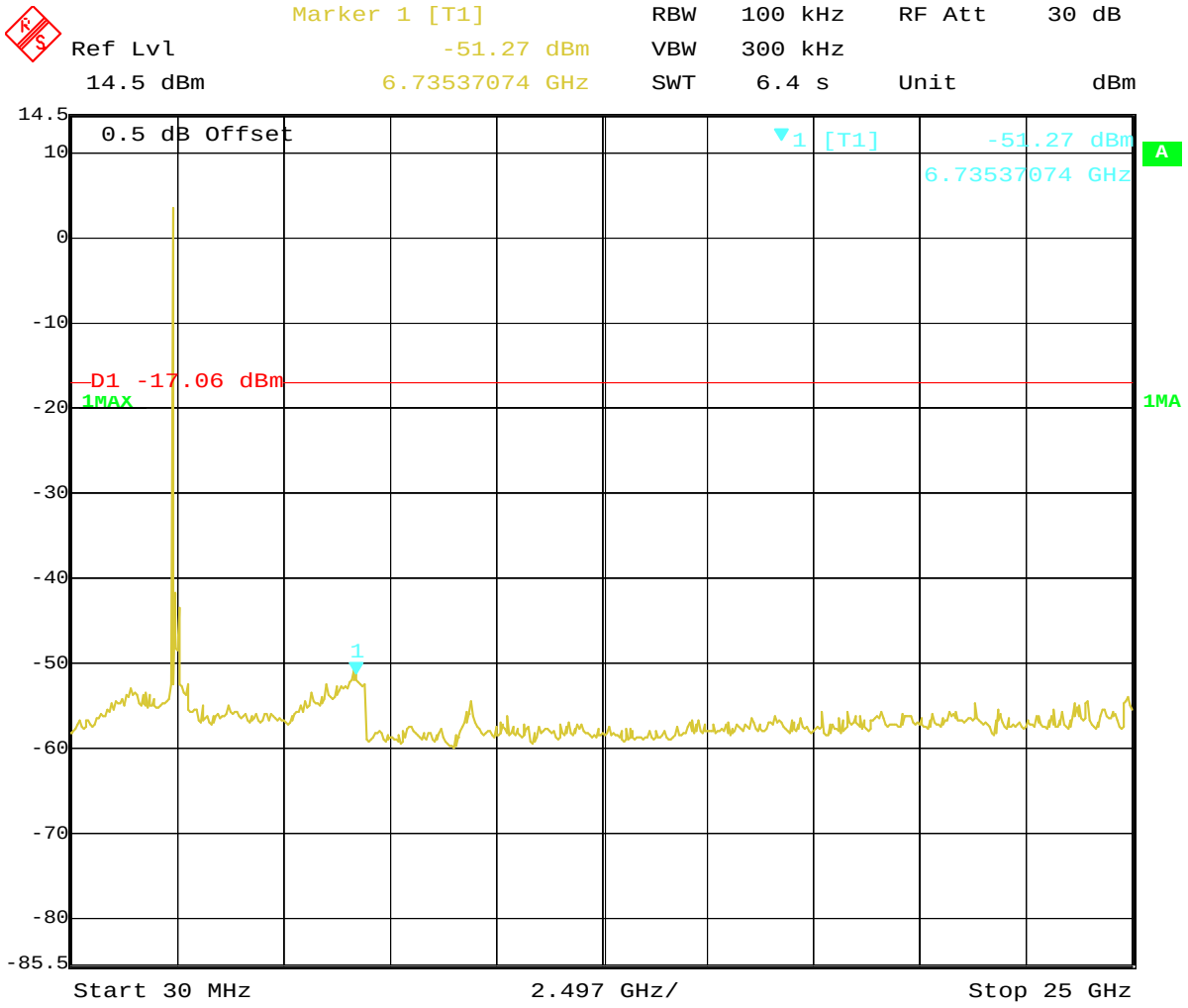
Low channel



Middle channel

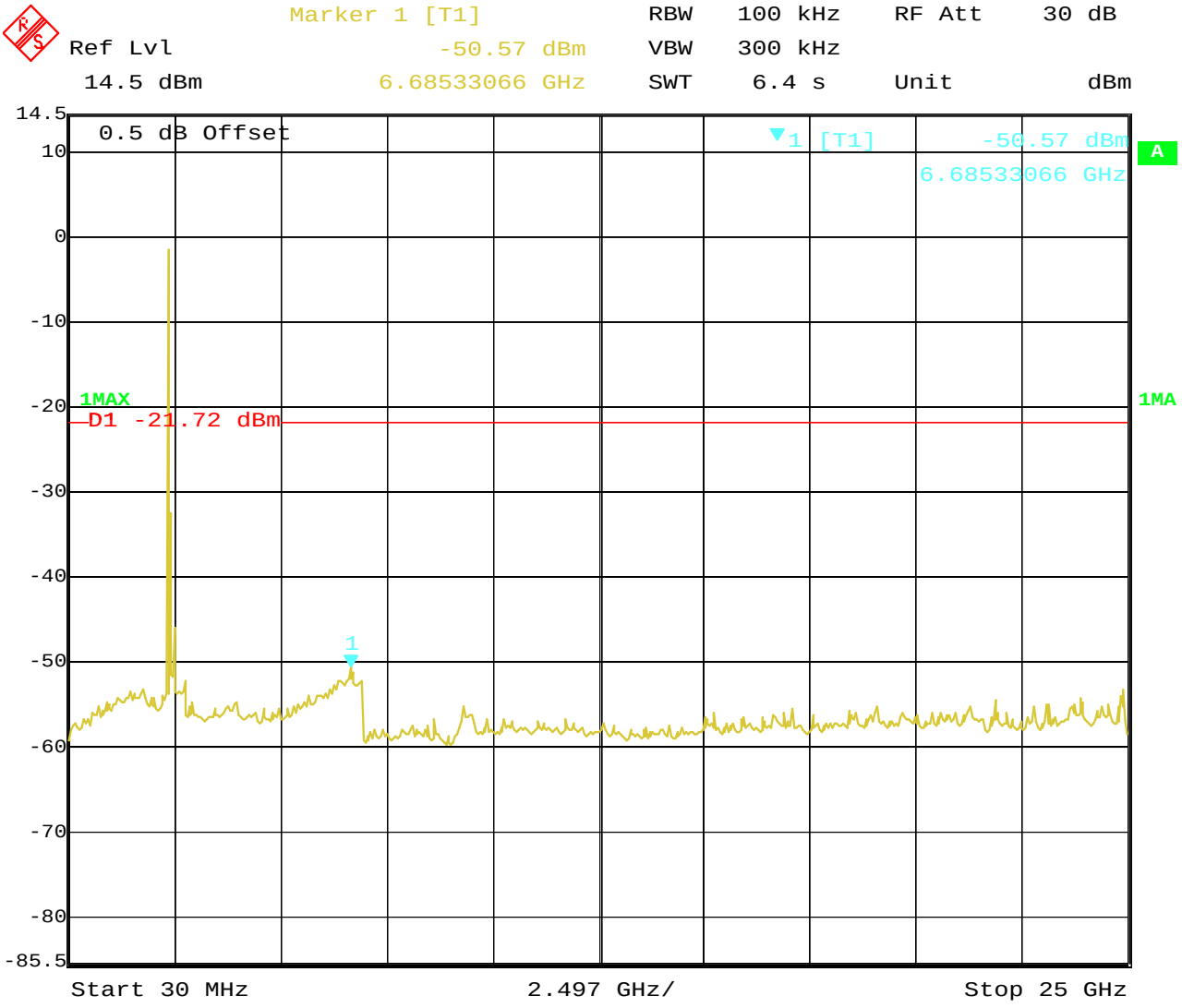


High channel

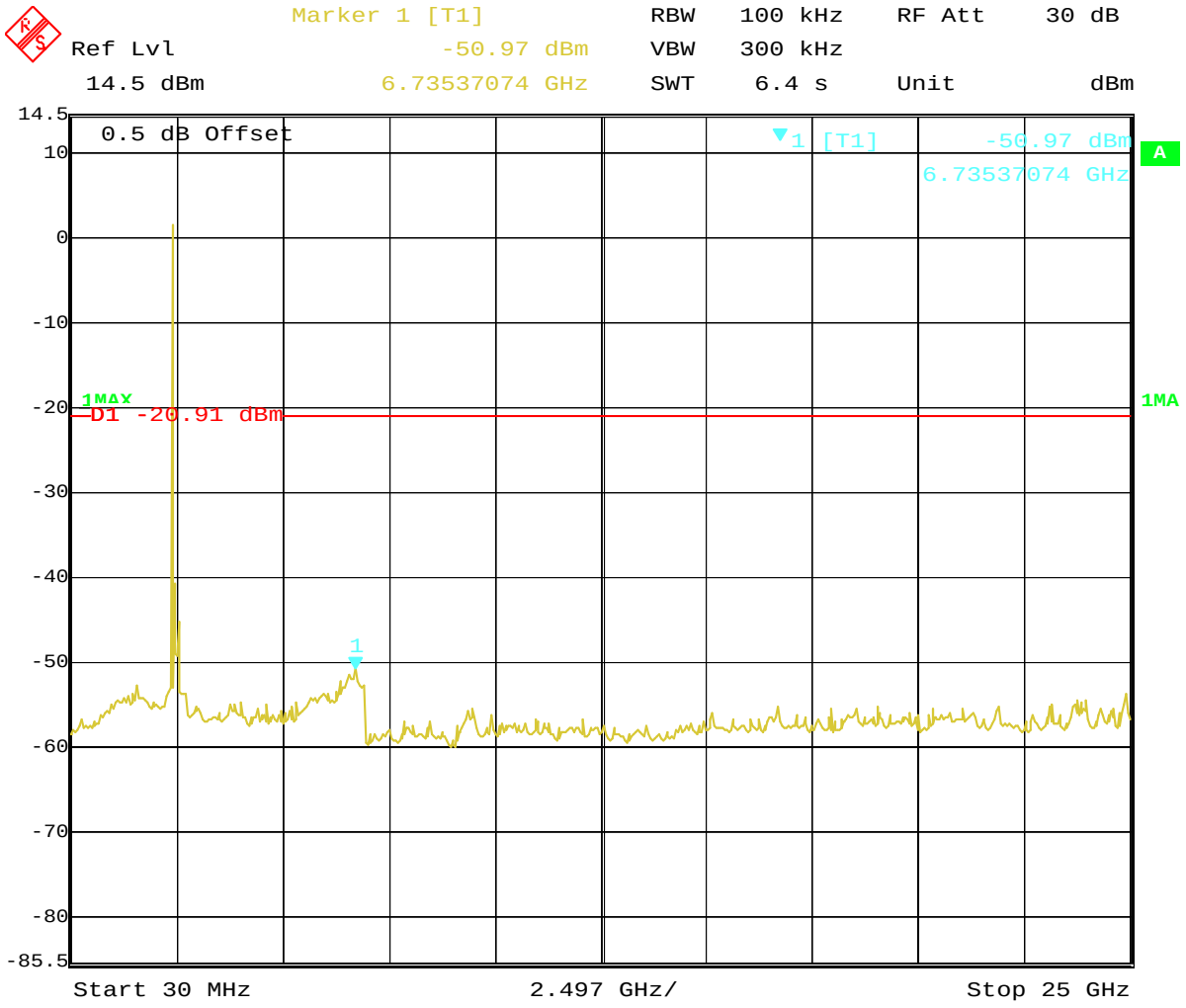


802.11g mode:

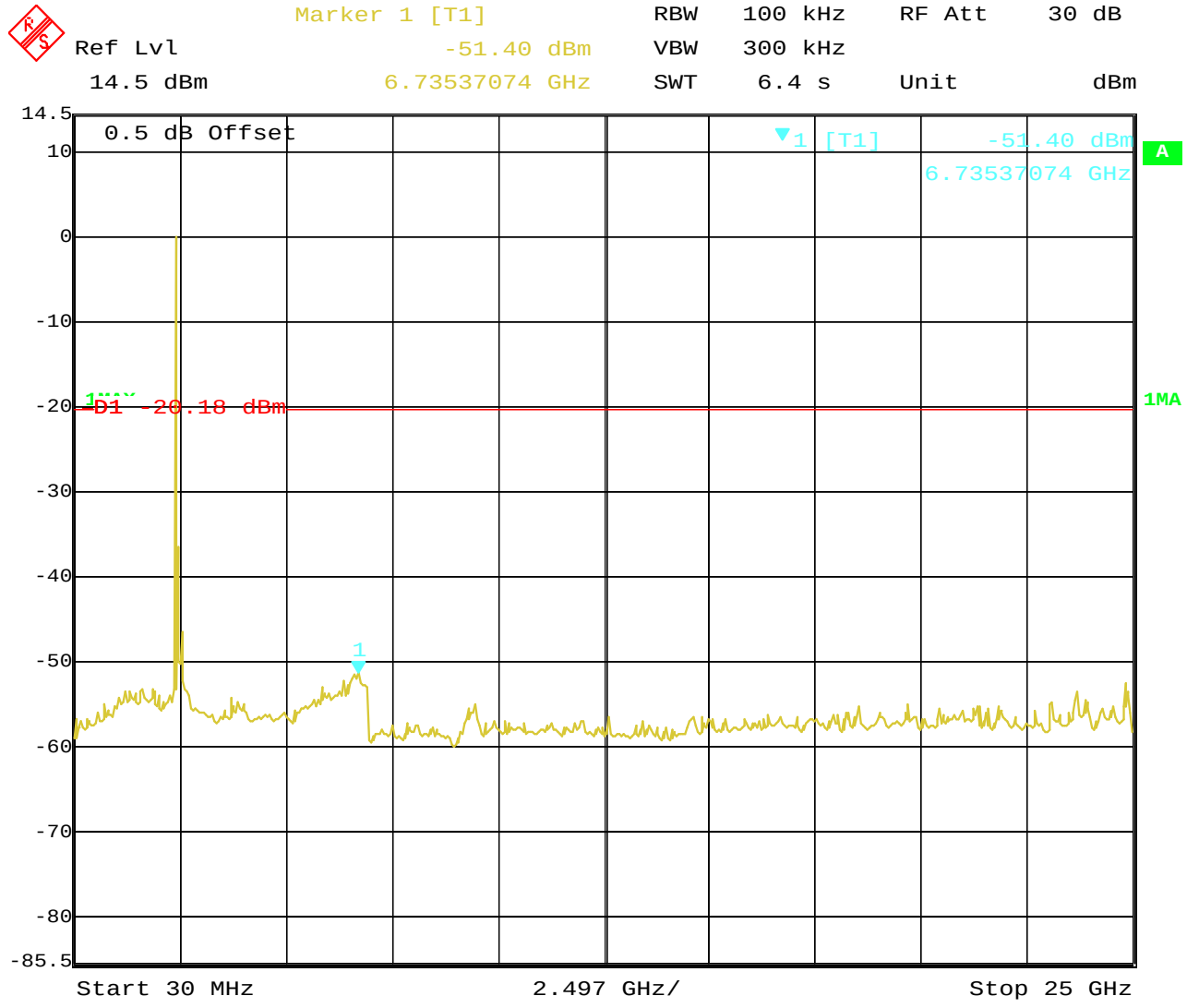
Low channel



Middle channel



High channel



10. §15.247(A) (2) – 6DB BANDWIDTH TESTING

10.1. Test Equipment

Please refer to Section 4 this report.

10.2.Test Procedure

1. Set resolution bandwidth (RBW) = 1-5 % of the emission bandwidth (EBW).
2. Set the video bandwidth (VBW) >=3xRBW
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is 1-5 %.

10.3.Applicable Standard

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.

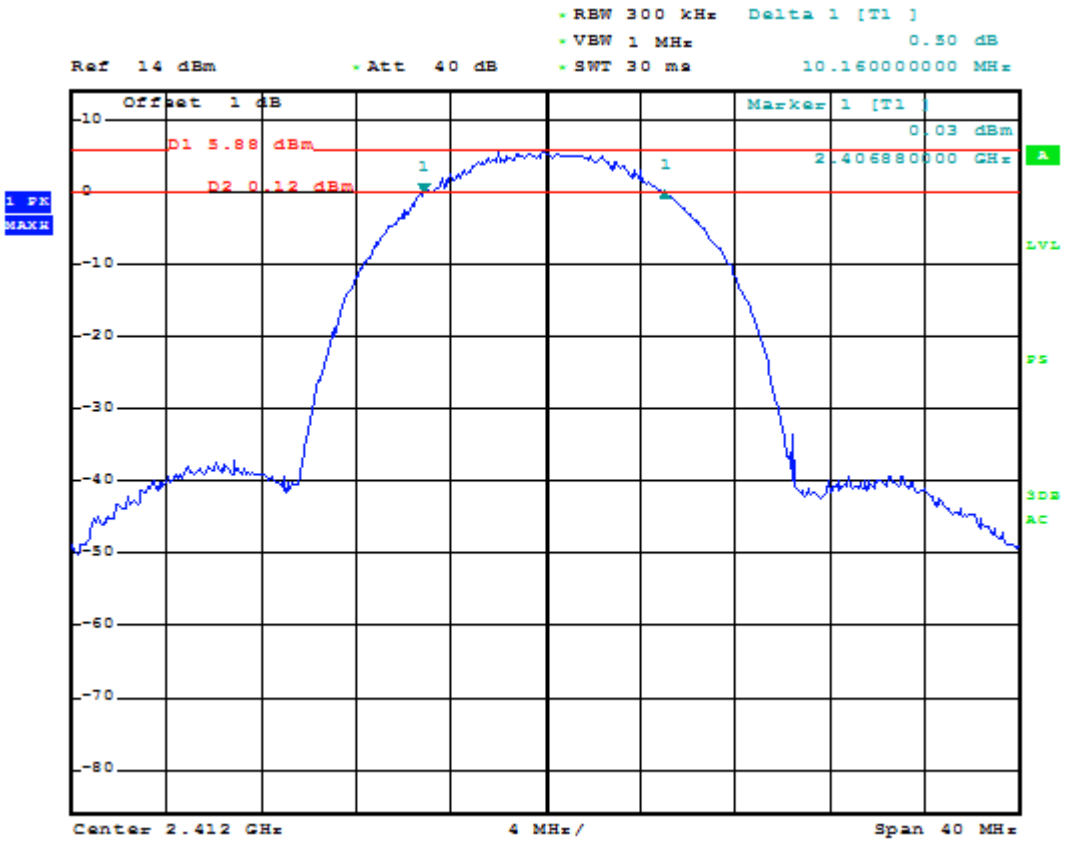
10.3. Test Result:Pass.

Please refer to the following tables

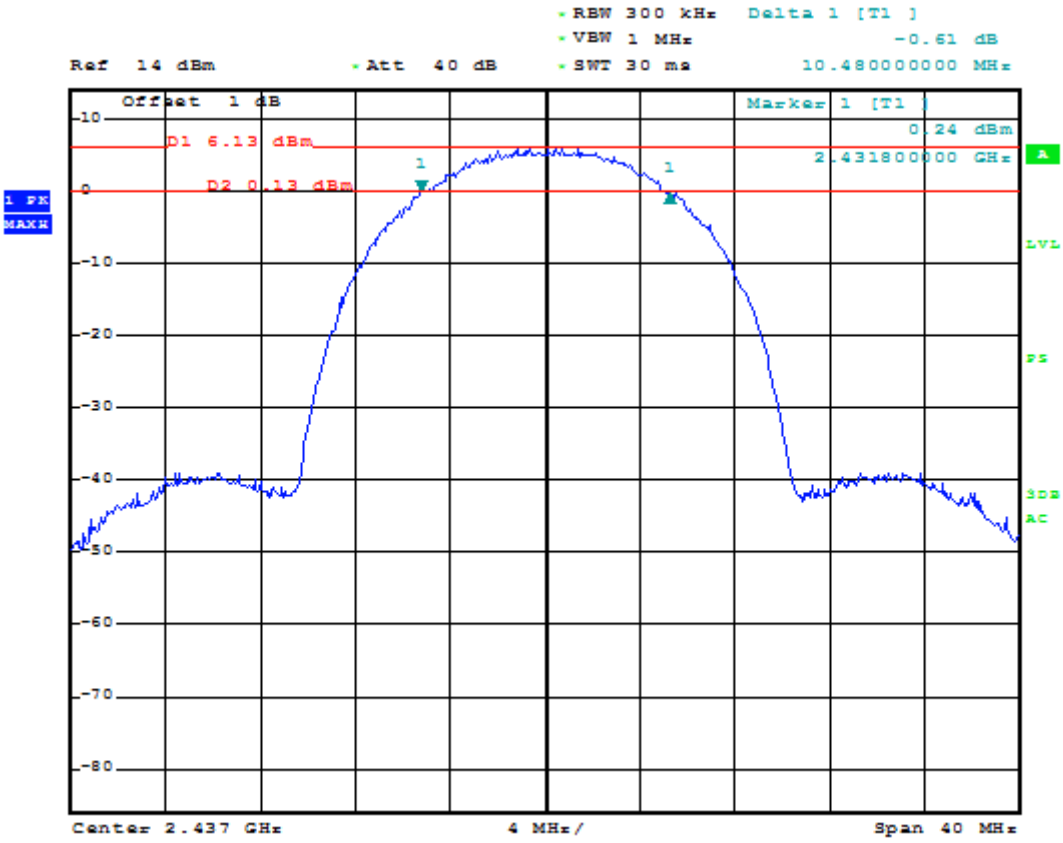
Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth MHz	Limit (kHz)	Ref. Plot
802.11b Mode				
2412	1	10.16	＞500	PLOT 1
2437	1	10.48	＞500	PLOT 2
2462	1	11.28	＞500	PLOT 3
802.11g Mode				
2412	6	15.68	＞500	PLOT 4
2437	6	15.12	＞500	PLOT 5
2462	6	15.20	＞500	PLOT 6

802.11b Mode:

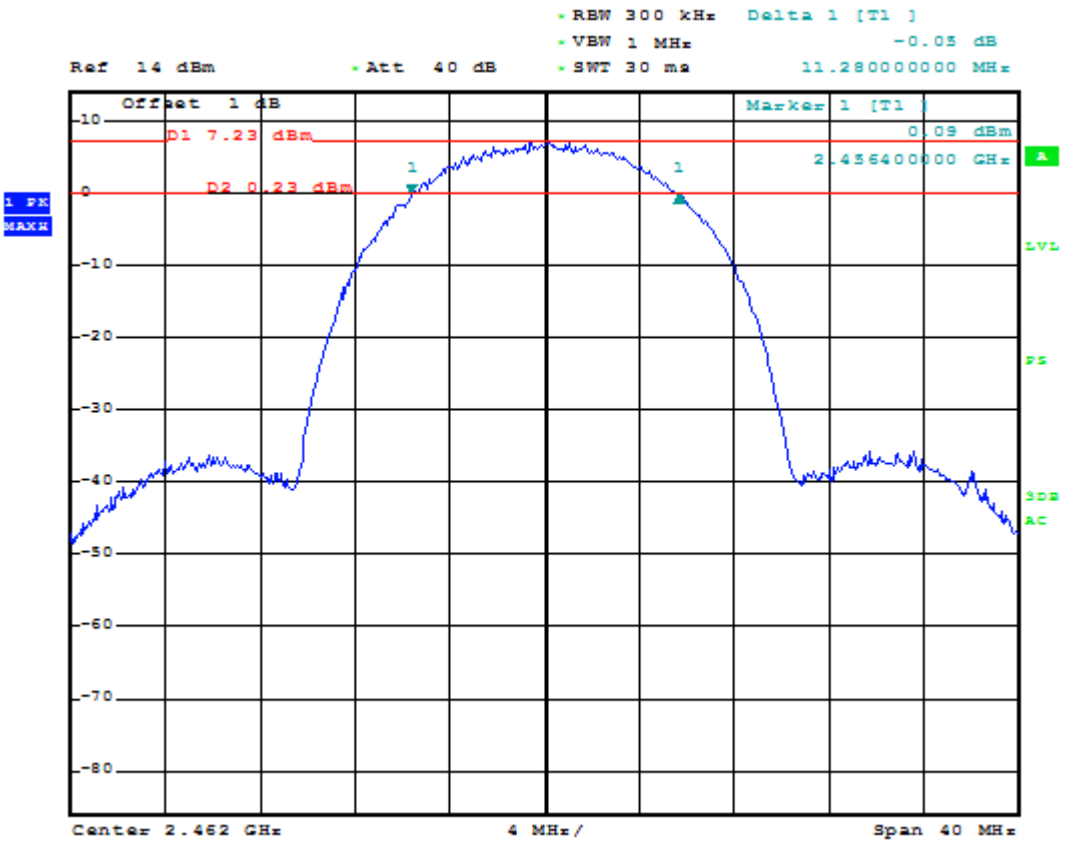
Low Channel



Middle Channel

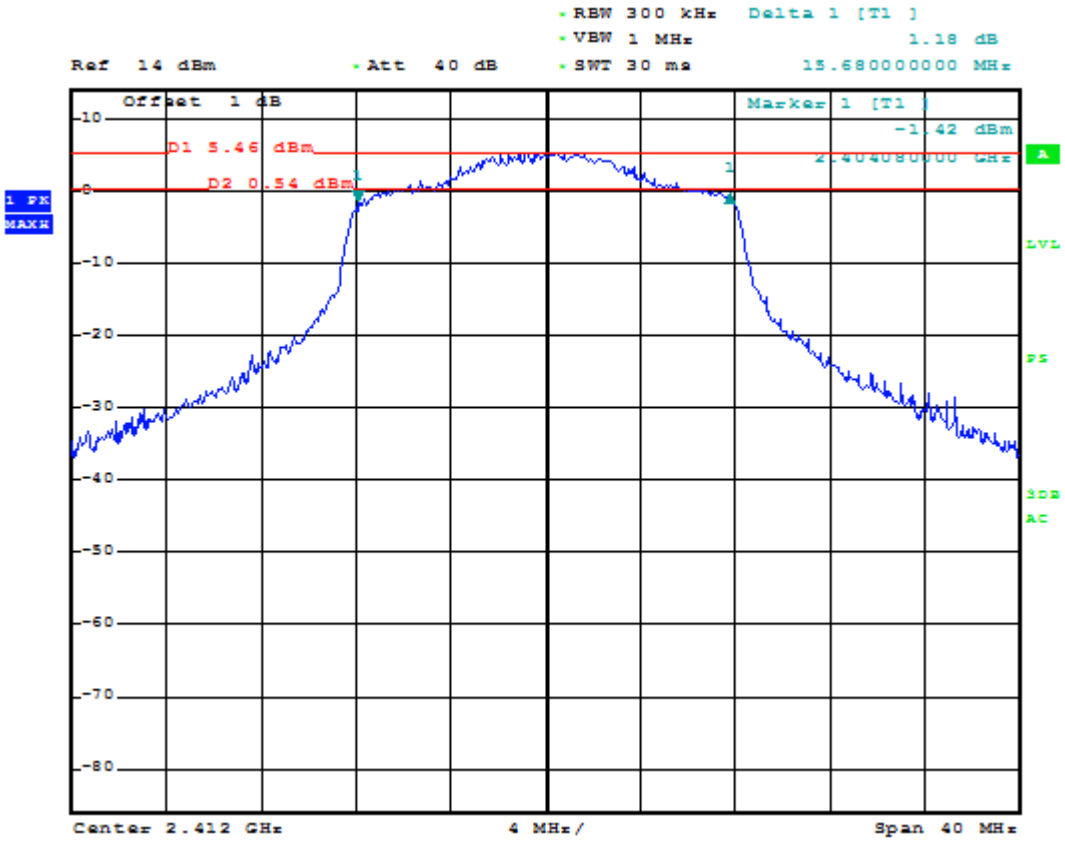


High Channel

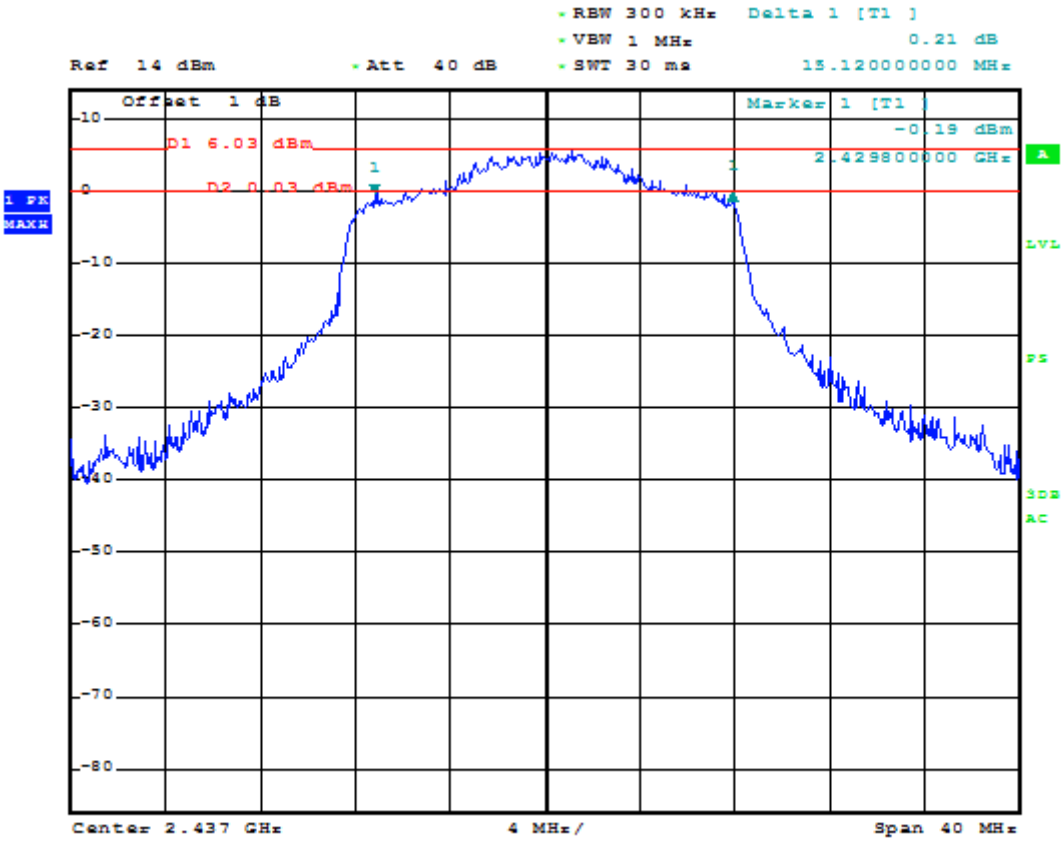


802.11g Mode:

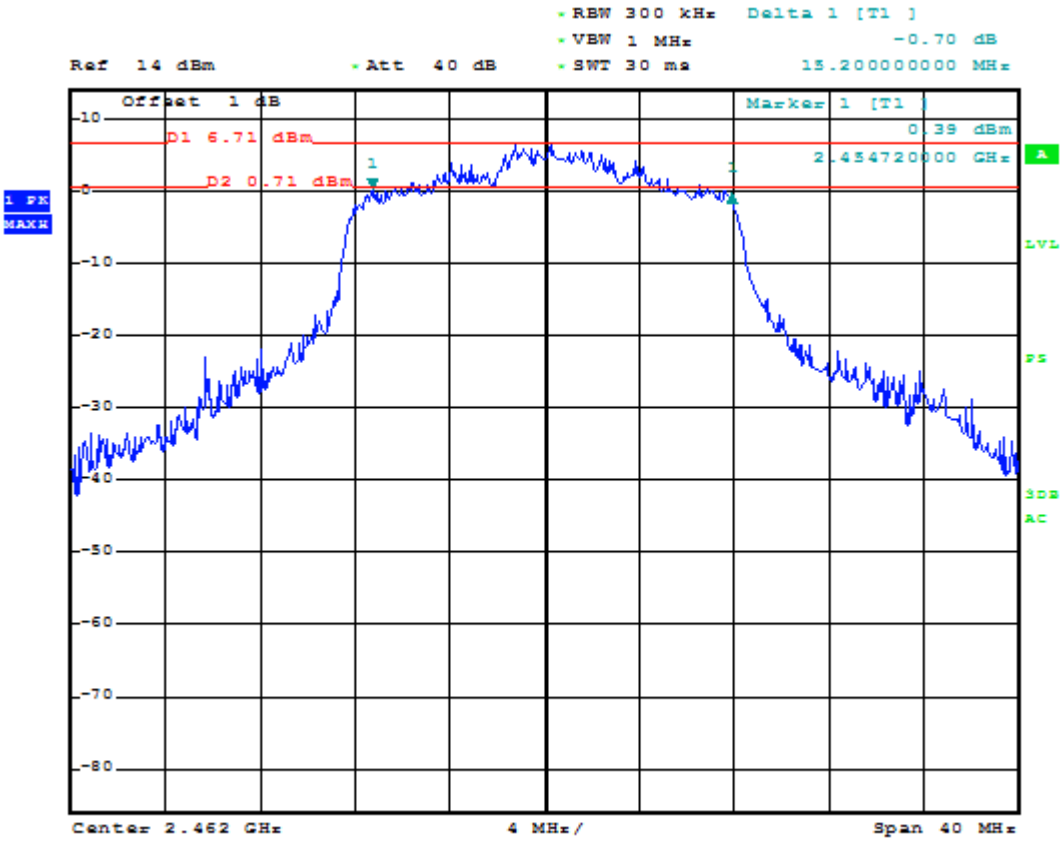
Low Channel



Middle Channel



High Channel



11. §15.247(B) (3) - Maximum Peak Output Power

11.1. Test Equipment

Please refer to Section 4 this report.

11.2.Test Procedure

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz.
3. Set VBW $\geqslant$ RBW
4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.
5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.
6. Trace average 100 traces in power averaging mode.
7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

11.3.Applicable Standard

According to §15.247(b) (3), for systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

11.4. Test Result

Pass

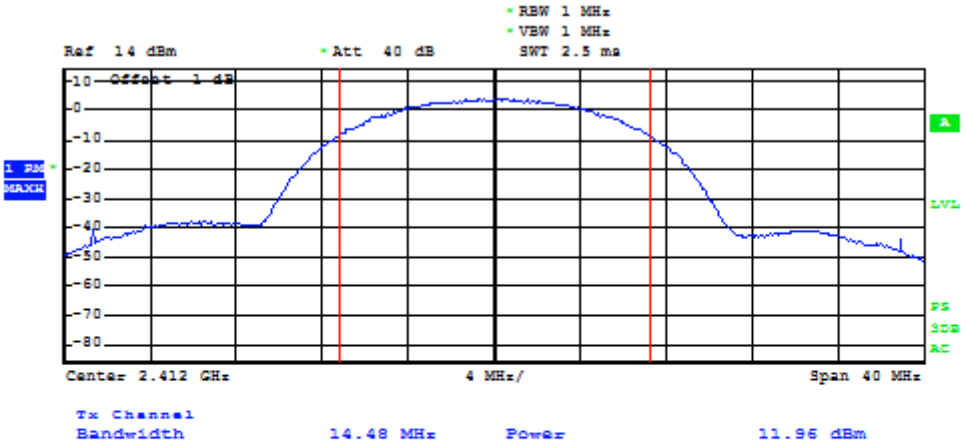
802.11b Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	1	11.96	30
Mid	2437	1	11.14	30
High	2462	1	11.48	30

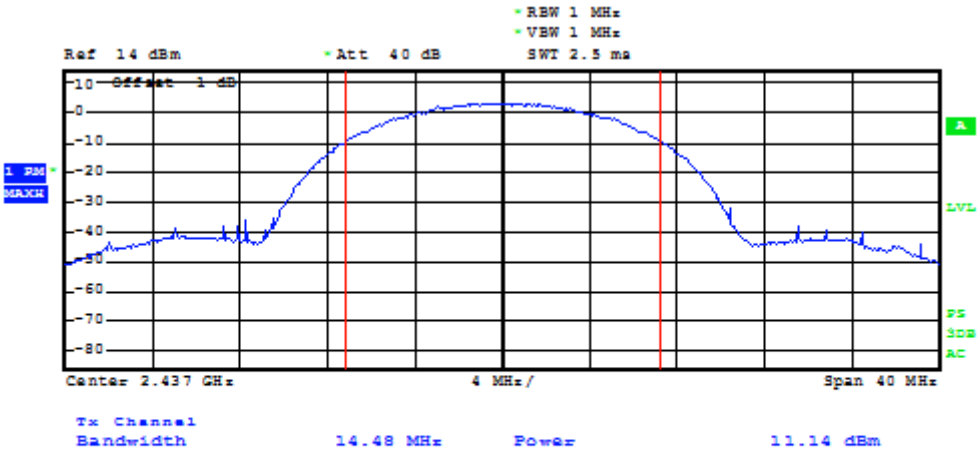
802.11g Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6	12.24	30
Mid	2437	6	11.43	30
High	2462	6	12.10	30

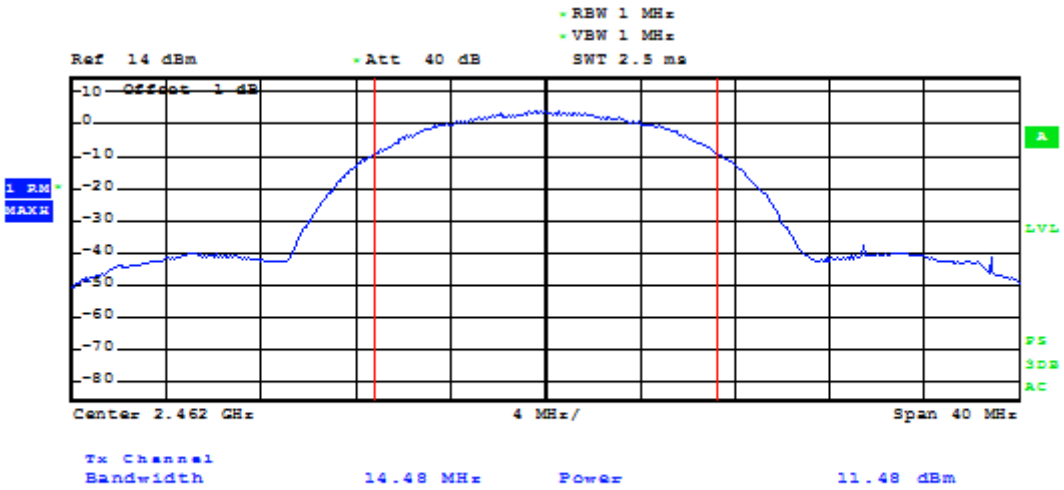
802.11b RF output power,low channel



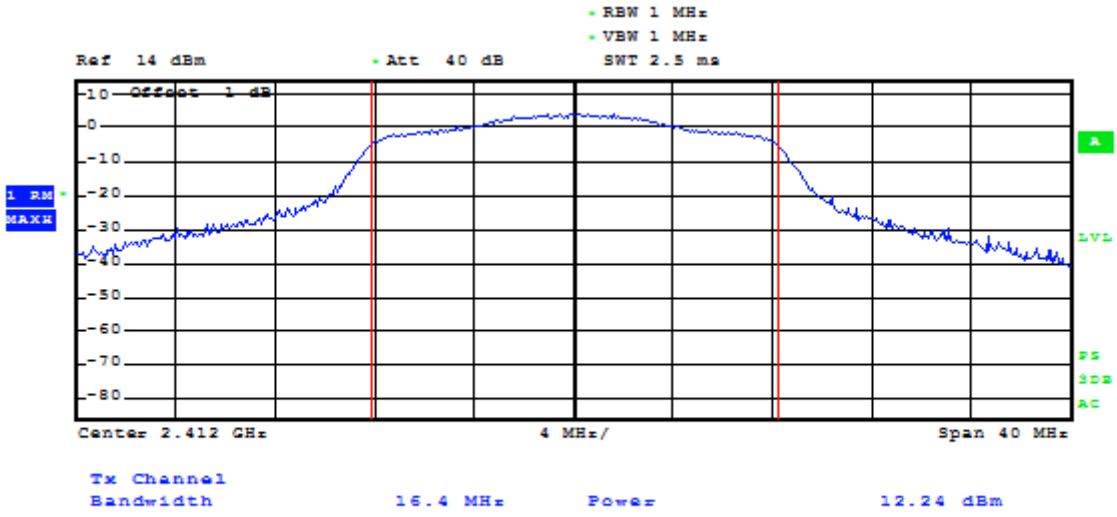
802.11b RF output power,middle channel



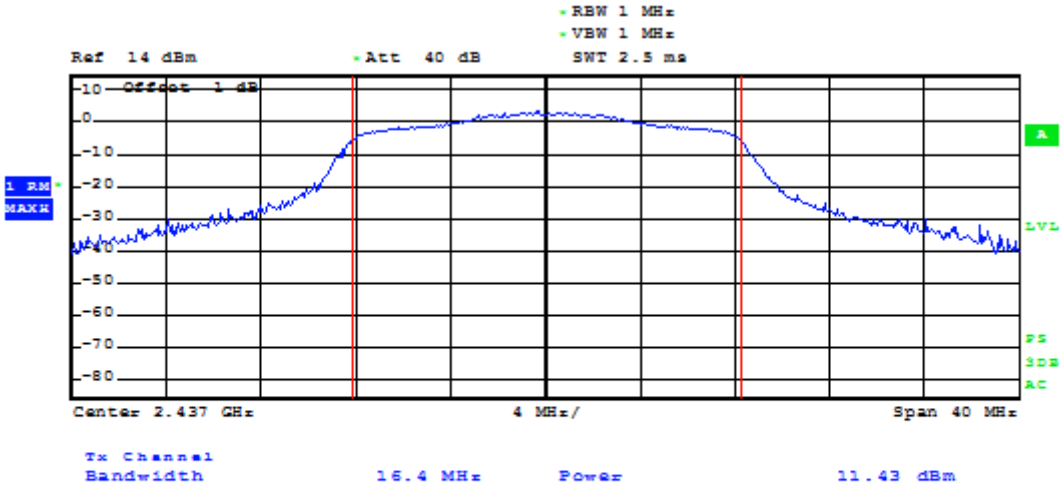
802.11b RF output power,high channel



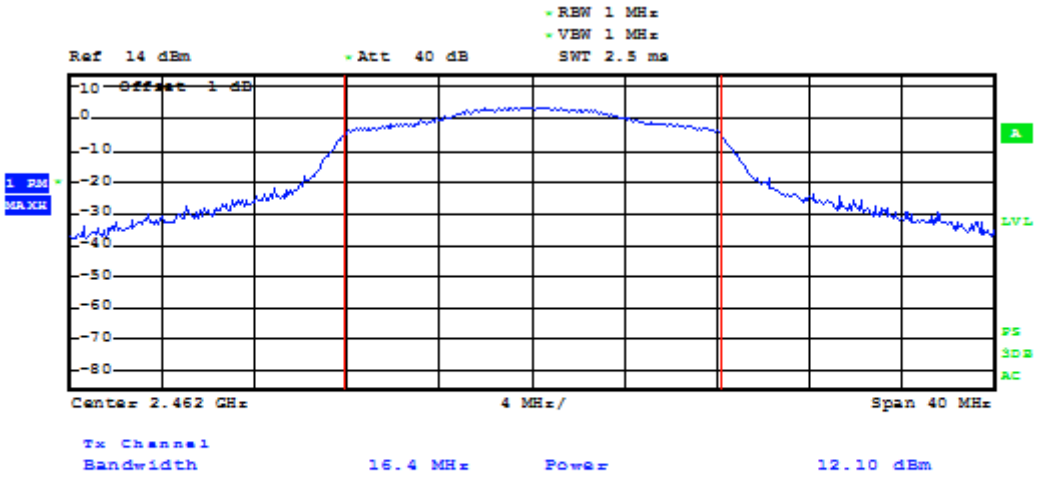
802.11g RF output power,low channel



802.11g RF output power,middle channel



802.11b RF output power,high channel



12. §15.247(D) –BAND EDGE RESTRICTED BANDS

12.1.Test Equipment

Please refer to Section 4 this report.

12.2.Test Procedure

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 Rdstricted Band

RBW=1MHz

VBW=1 MHz

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.

12.3.Applicable Standard

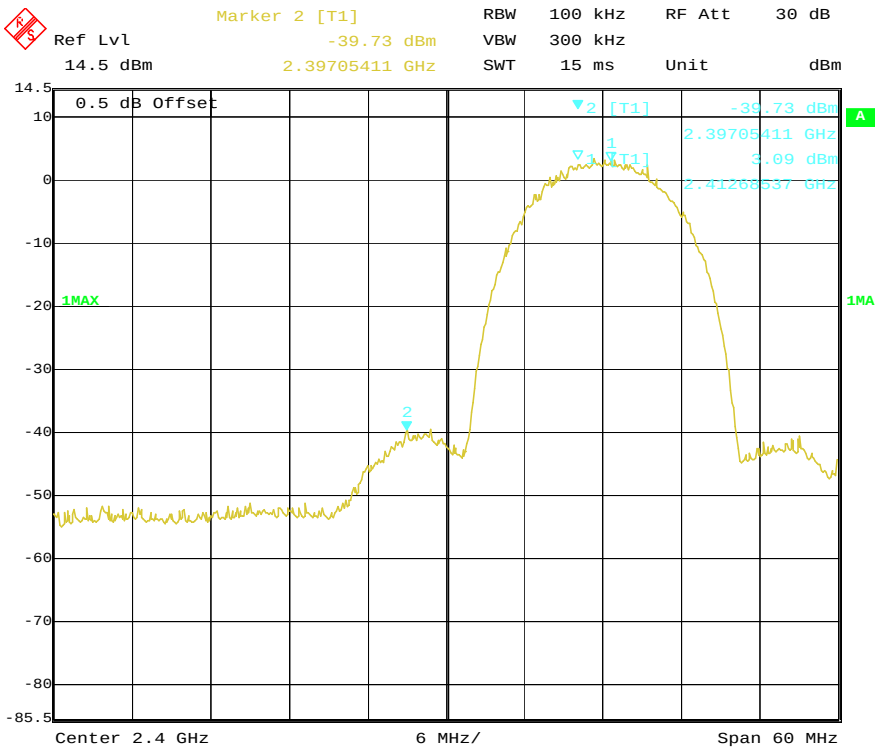
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

12.4.Test Result

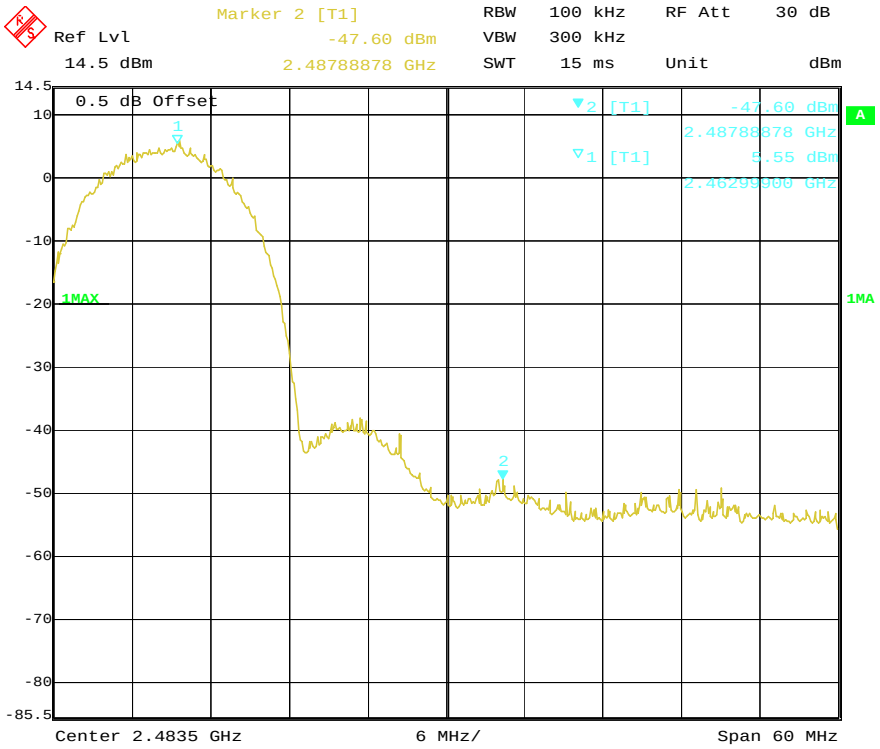
Above 1GHz:
802.11b
Remark: Emissions were searched from 30MHz to 2400MHz and from 2483.5MHz to 25000MHz.the 2389.54MHz and 2483.69MHz RESTRICTED BANDS is the worst case.

Indicated		result (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (2412MHz)											
2389.54	31.4	AV	250	1.2	V	30.3	4.1	33.1	32.7	54	21.3
2389.54	31.3	AV	60	1.6	H	30.3	4.1	33.1	32.6	54	31.4
2389.54	42.6	PK	180	1.3	V	30.3	4.1	33.1	43.9	74	30.1
2389.54	41.9	PK	210	1.1	H	30.3	4.1	33.1	43.2	74	30.8
HighChannel (2462MHz)											
2483.69	30.9	AV	360	1.5	V	31	4.4	32.7	33.6	54	20.4
2483.69	30.8	AV	45	1.5	H	31	4.4	32.7	33.5	54	20.5
2483.69	40.9	PK	0	1.4	V	31	4.4	32.7	43.6	74	30.4
2483.69	39.8	PK	200	1.4	H	31	4.4	32.7	42.5	74	31.5

Bandedge test as below : PK detector .



802.11b low channel



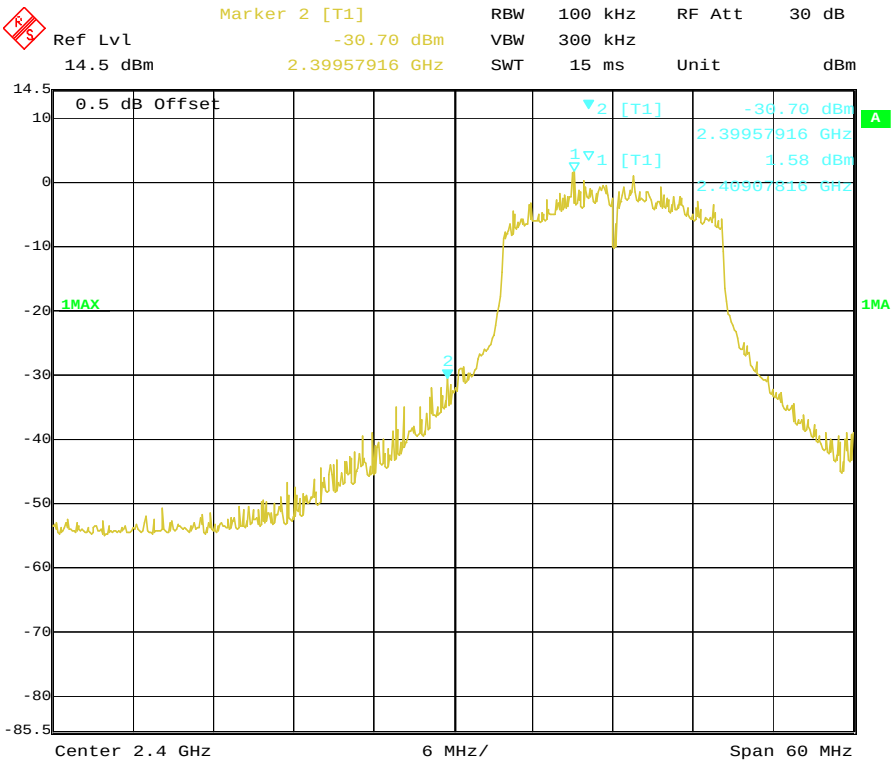
802.11b high channel

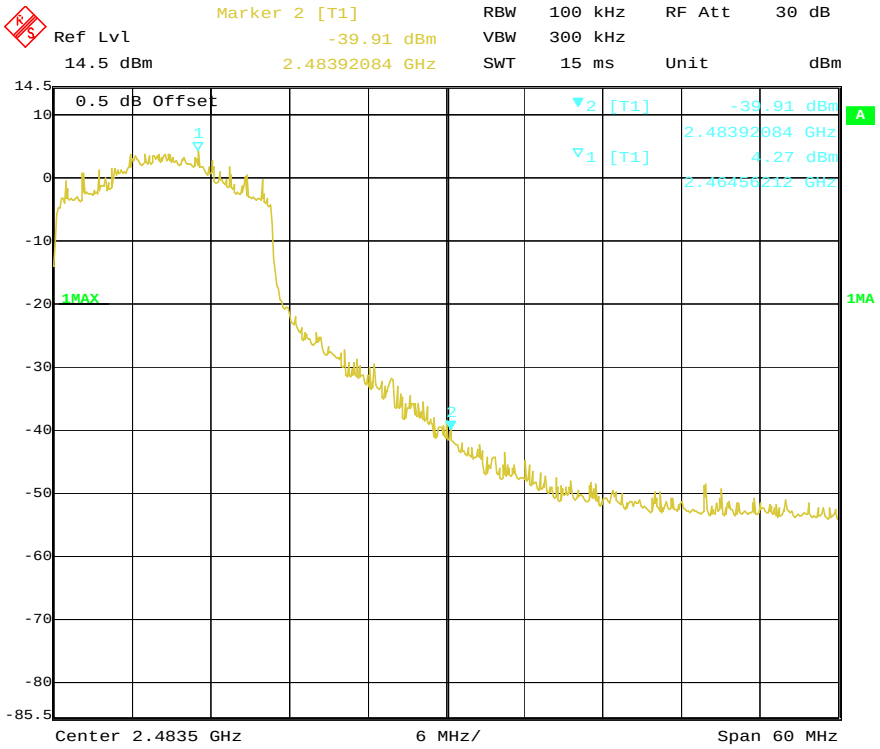
802.11g

Remark: Emissions were searched from 30MHz to 2400MHz and from 2483.5MHz to 25000MHz.the 2389.54MHz and 2483.69MHz RESTRICTED BANDS is the worst case.

Indicated		result (PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit dBμV/m)	Margin (dB)
Low Channel (2412MHz)											
2389.54	31.2	AV	250	1.2	V	30.3	4.1	33.1	32.5	54	21.5
2389.54	31.1	AV	60	1.6	H	30.3	4.1	33.1	32.4	54	21.6
2389.54	419	PK	180	1.3	V	30.3	4.1	33.1	43.2	74	30.8
2389.54	41.6	PK	210	1.1	H	30.3	4.1	33.1	42.9	74	31.1
HighChannel (2462MHz)											
2483.69	29.9	AV	360	1.5	V	31	4.4	32.7	32.6	54	21.4
2483.69	29.8	AV	45	1.5	H	31	4.4	32.7	32.5	54	21.5
2483.69	39.9	PK	0	1.4	V	31	4.4	32.7	42.6	74	31.4
2483.69	39.4	PK	200	1.4	H	31	4.4	32.7	42.1	74	31.9

802.11g low channel





802.11g high channel

13. §15.247(E) - Power Spectral Density

13.1. Test Equipment

Please refer to Section 4 this report.

13.2.Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 100 kHz.
3. Set the VBW 〉 = 300 kHz.
4. Set the span to 5-30 % greater than the EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).
11. The resulting peak PSD level must be <=8dbm

13.3.Applicable Standard

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.

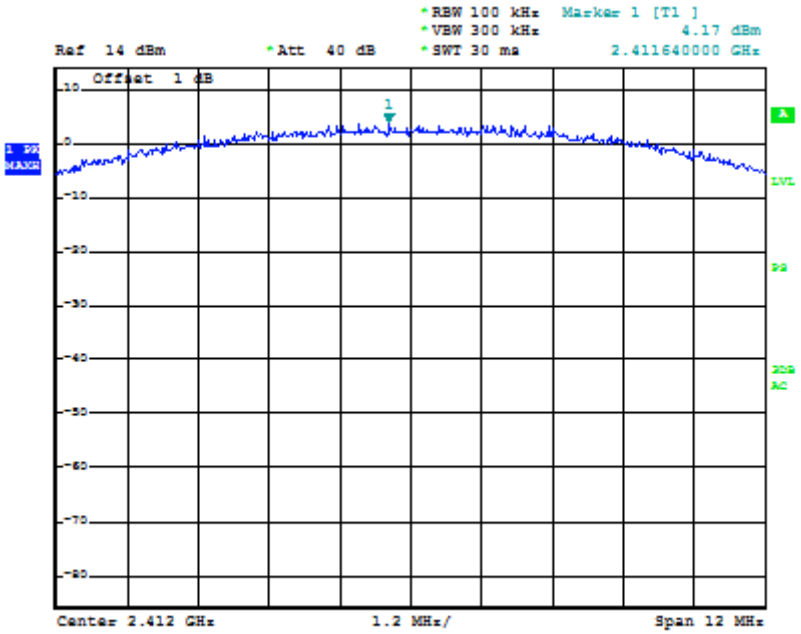
13.4. Test Result

PASS

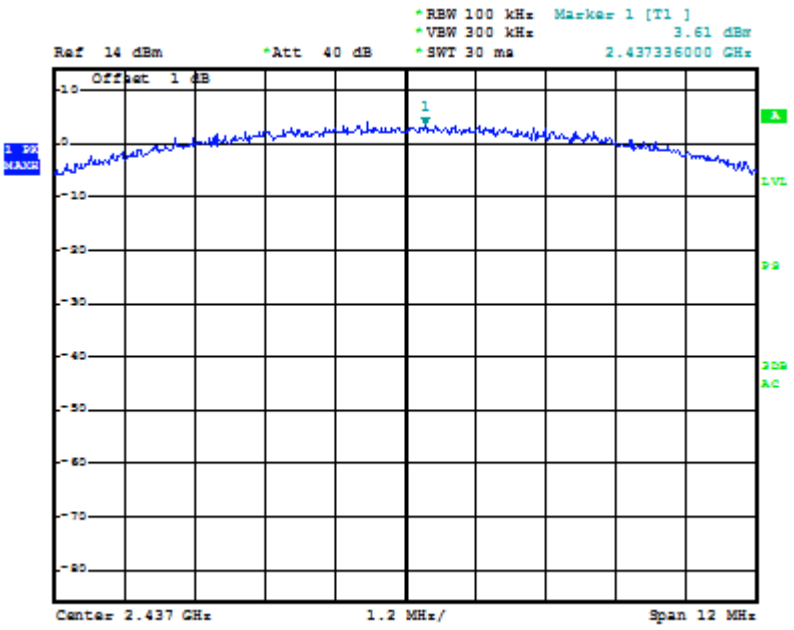
Channel Frequency (MHz)	Data Rate (Mbps)	PSD (dBm/3kHz)			Limit (dBm/3kHZ)	RESULT
802.11b Mode						
2412	1	4.17	-15.2	-11.03	8	Compliant
2437	1	3.61	-15.2	-11.59	8	Compliant
2462	1	4.79	-15.2	-10.41	8	Compliant
802.11g Mode						
2412	6	2.36	-15.2	-12.84	8	Compliant
2437	6	2.55	-15.2	-12.65	8	Compliant
2462	6	4.05	-15.2	-11.15	8	Compliant

802.11b Mode:

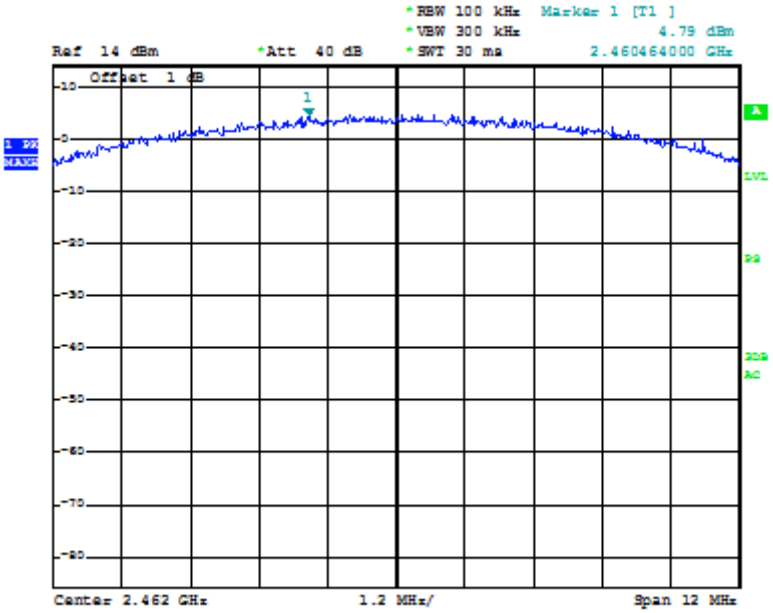
Low Channel



Middle Channel

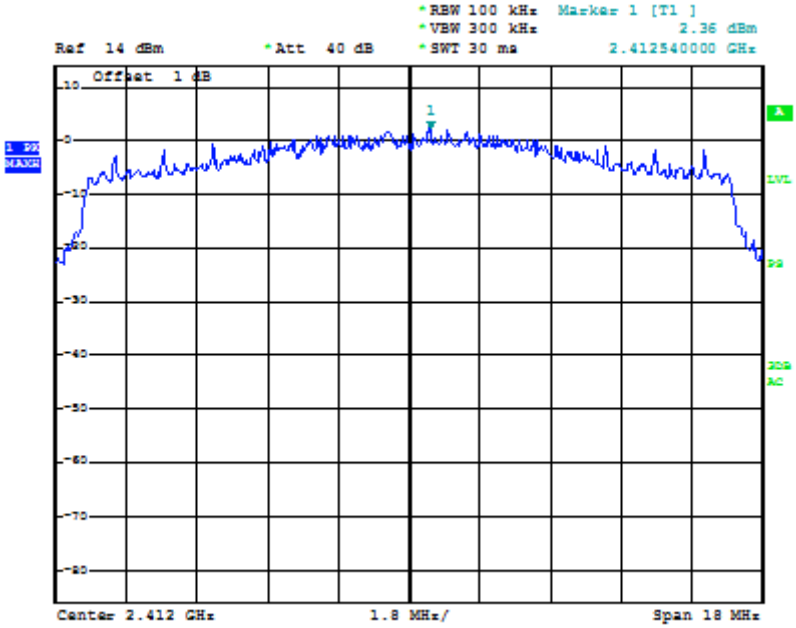


High Channel

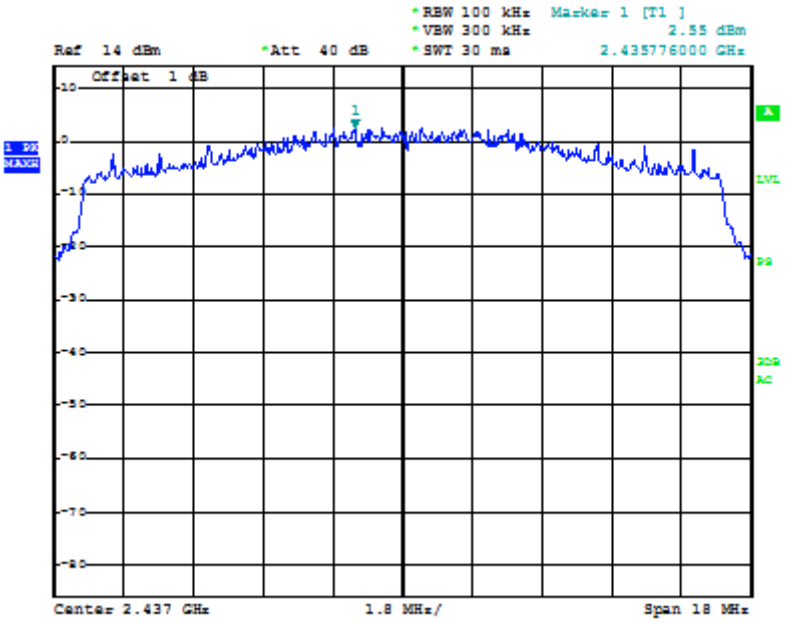


802.11g Mode:

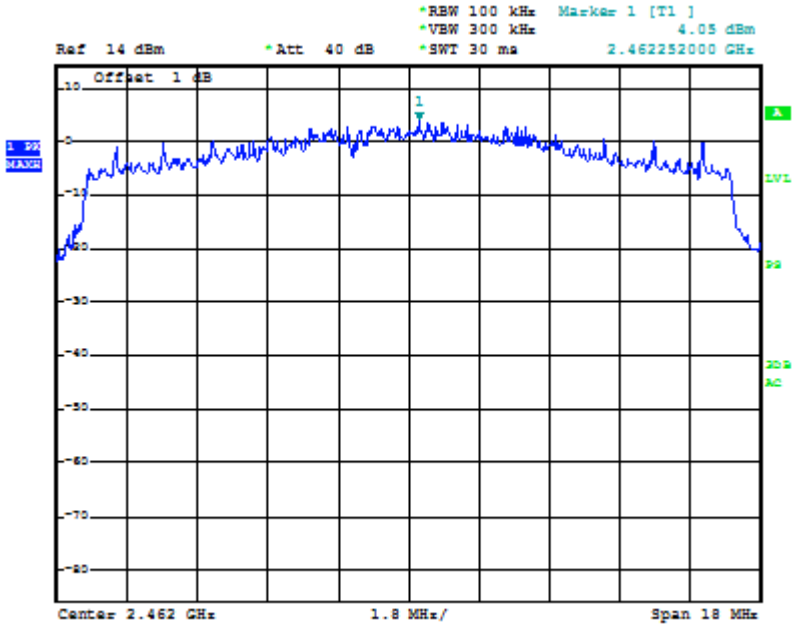
Low Channel



Middle Channel



High Channel



RADIATED EMISSION TEST

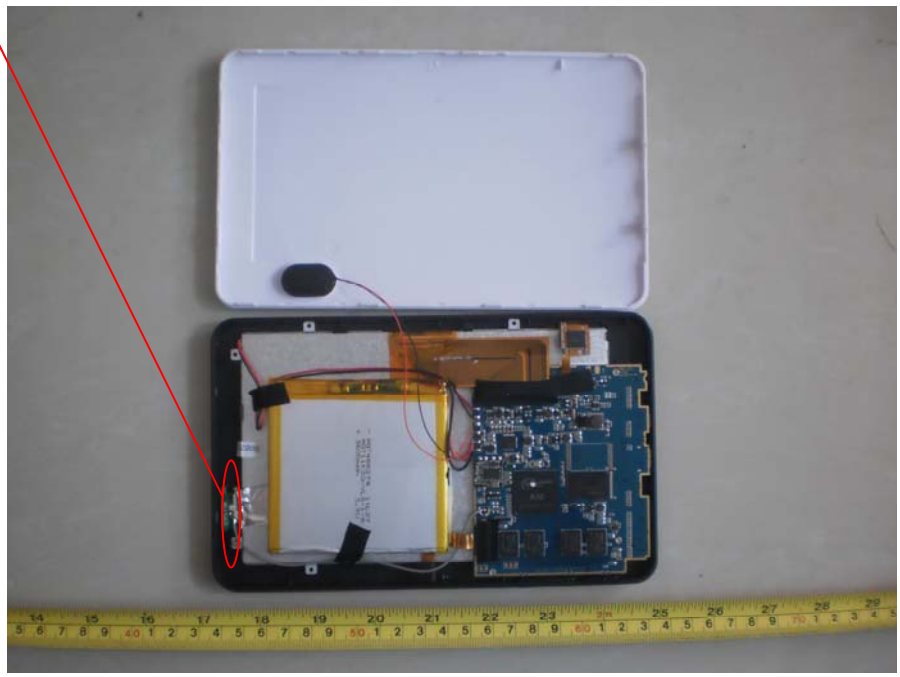
CONDUCTED EMISSION TEST

Appearance photograph of EUT

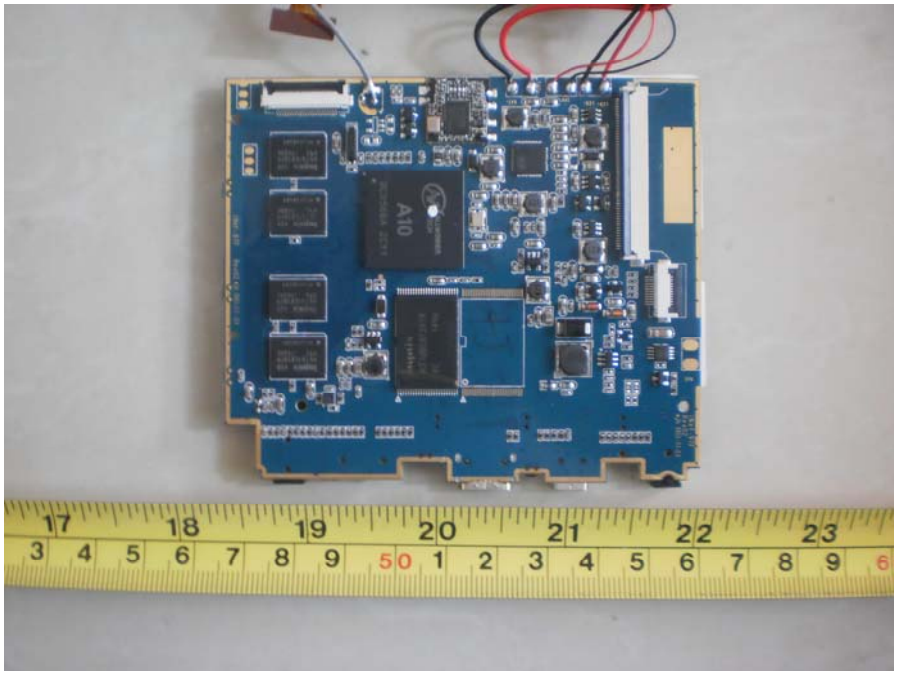
Appearance photograph of EUT

antenna

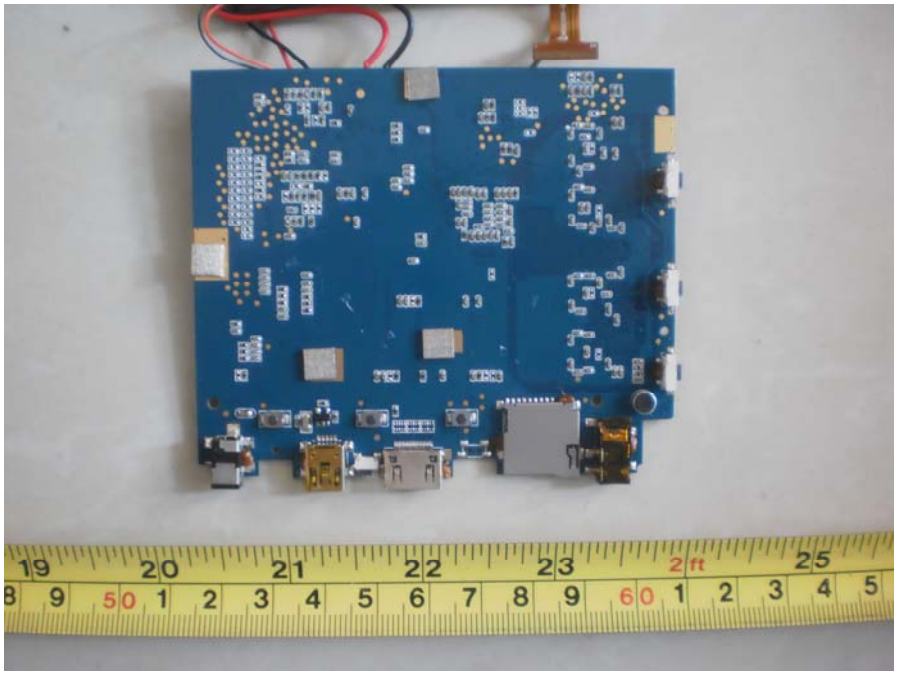
Inside photograph of EUT



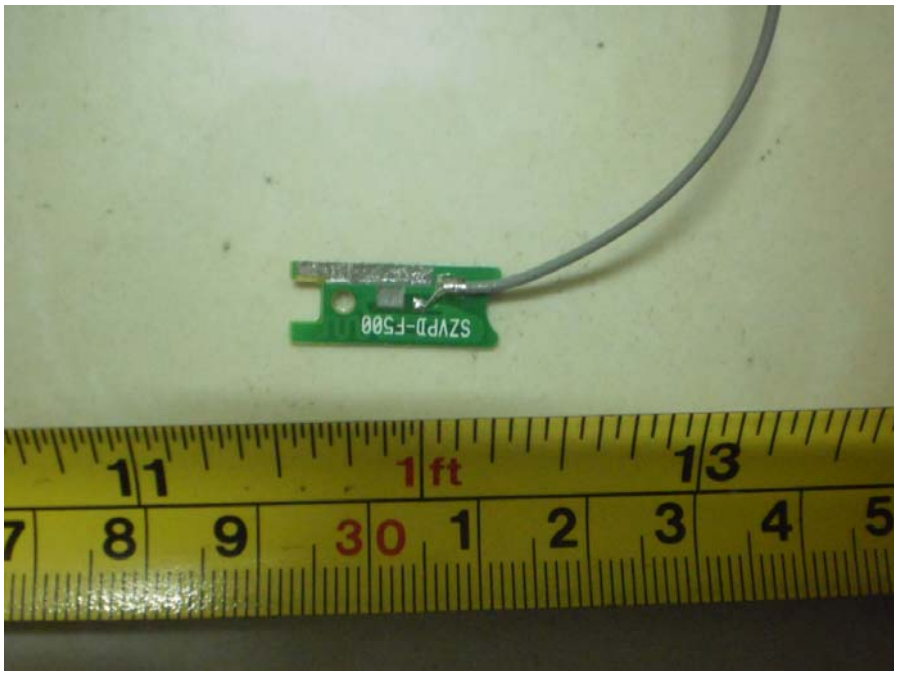
Main PCB photograph of EUT



Main PCB photograph of EUT

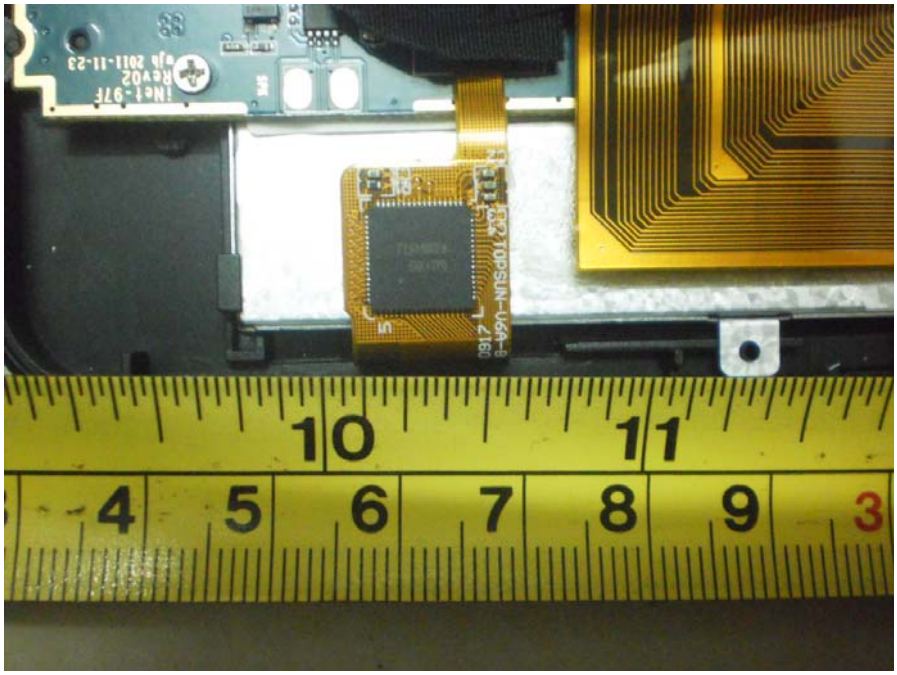


PCB photograph of EUT



PCB photograph of EUT

PCB photograph of EUT



PCB photograph of EUT