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Report No.: GTI20150438F-1

Page 1 of 54

TEST REPORT

Product Name: WiFi Module

Trademark: \

Model/Type reference: F31953501

Listed Model(s): F31953500

FCC ID.....: RBA-EZSEE-3268

Test Standards: **FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz**

Applicant: TALITOR (FAR EAST) COMPANY LIMITED

Address of applicant: 6F.-6, No. 646, Sec. 5, Chongsin Rd., Sanchong Dist., New Taipei City 241, Taiwan

Date of Receipt: Sept. 01, 2015

Date of Test Date.....: Sept. 02, 2015 - Sept. 24, 2015

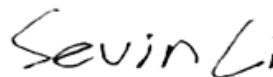
Data of issue.: Sept. 25, 2015

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified above

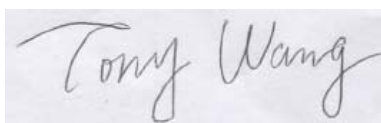
GENERAL DESCRIPTION OF EUT	
Equipment:	WiFi Module
Model Name:	F31953501
Manufacturer:	TALITOR (FAR EAST) COMPANY LIMITED
Manufacturer Address:	6F.-6, No. 646, Sec. 5, Chongsin Rd., Sanchong Dist., New Taipei City 241, Taiwan
Power Rating:	DC 3.3V

Compiled By:



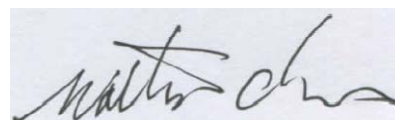
(Sevin)

Reviewed By:



(Tony Wang)

Approved By:



(Walter Chen)

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1. SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

[ANSI C63.4:2003](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB558074 D01 V03r03](#): Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

1.2. Test Description

FCC PART 15 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Conducted Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

Remark: The measurement uncertainty is not included in the test result.

1.3. Test Facility

1.3.1 Address of the test laboratory

Shenzhen General Testing & Inspection Technology Co., Ltd.

Add: 1F, 2 Block, Jiaquan Building, Guanlan High-tech Park Baoan District, Shenzhen, Guangdong, China

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9783A

The 3m alternate test site of Shenzhen GTI Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Aug, 2011.

FCC-Registration No.: 214666

Shenzhen GTI Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 214666, Sep 19, 2011

1.4. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements and is documented in the Shenzhen General Testing & Inspection Technology Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for General Testing & Inspection laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	1.60 dB	(1)
Radiated spurious emission 9KHz-40 GHz	2.20 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

2. GENERAL INFORMATION

2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

2.2. General Description of EUT

Product Name:	WiFi Module
Model/Type reference:	F31953501
Listed model:	F31953500
Difference(s) of Model(s):	All the models are same except for sale to different district. The model F31953501 is selected for test
Main Board Model:	BH0708, BH0708w, BH0711, BH0711w, BH0713, BH0713w (More Main Board Models, please refer to the manufacturer)
Power supply:	DC 3.3V
Hardware version:	Tailtor D30713WF0 V1.0
Software version:	1.3.0.5
WIFI :	
Supported type:	802.11b/802.11g/802.11n(H20)/802.11n(H40)
Modulation technology:	802.11b: DSSS 802.11g/802.11n(H20)/802.11n(H40): OFDM
Modulation type:	802.11b: BPSK/QPSK/CCK 802.11g/802.11n(H20)/802.11n(H40): BPSK/QPSK/16QAM/64QAM
Operation frequency:	802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz
Channel number:	802.11b/802.11g/802.11n(H20): 11 802.11n(H40): 7
Channel separation:	5MHz
Antenna type:	Dipole Antenna
Antenna gain:	3dBi

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.3. Description of Test Modes

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT						
No.	Equipment	Model	Serial No.	Manufacture	Trade name	Remark
1.	PC Note	1717-A31	L3-M1102	Lenovo	IBM	N/A
2.	AC adapter	PA-1650-161	Qzp1158	Lenovo	Lenovo	Input: AC 100-240V,50-60Hz Output: DC 20V, 3.25A

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test.

WIFI Operation Frequency :

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) mode for testing.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

Data Rate Used:

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10th Harmonic	11b/DSSS	1 Mbps	1/6/11
	11g/OFDM	6 Mbps	1/6/11
	11n(20MHz)/OFDM	6.5Mbps	1/6/11
	11n(40MHz)/OFDM	13.5 Mbps	3/6/9
Band Edge	11b/DSSS	1 Mbps	1/11
	11g/OFDM	6 Mbps	1/11
	11n(20MHz)/OFDM	6.5Mbps	1/11
	11n(40MHz)/OFDM	13.5 Mbps	3/9

2.4. Measurement Instruments List

Maximum Peak Output Power					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSU26	100105	Jan 07,2016

Power Spectral Density / 6dB Bandwidth / Band Edge Compliance of RF Emission / Spurious RF Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSU26	100105	Jan 07,2016

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrate until
1	LISN	R&S	ENV216	101112	Jan. 07, 2016
2	LISN	R&S	ENV216	101113	Jan. 07, 2016
3	EMI Test Receiver	R&S	ESCI	100920	Jan. 07, 2016
4	Cable	Schwarzbeck	AK9515E	33156	Jan. 07, 2016

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100658	Jan 07,2016
2	High pass filter	micro-tranics	HPM50111	34202	Jan 07,2016
3	Log-Bicon Antenna	Schwarzbeck	CBL6141A	4180	Jan 07,2016
4	Ultra-Broadband Antenna	ShwarzBeck	BBHA9170	25841	Jan. 10,2016
5	Loop Antenna	LAPLAC	RF300	9138	Jan. 10,2016
6	Spectrum Analyzer	Rohde & Schwarz	FSU	100105	Jan 07,2016
7	Horn Antenna	Schwarzbeck	BBHA 9120D	647	Jan 14,2016
8	Pre-Amplifier	HP	8447D	1937A03050	Jan. 07,2016
9	Pre-Amplifier	EMCI	EMC05183 5	980075	Jan. 07,2016
10	Antenna Mast	UC	UC3000	N/A	N/A
11	Turn Table	UC	UC3000	N/A	N/A
12	Cable Below 1GHz	Schwarzbeck	AK9515E	33155	Jan. 07,2016
13	Cable Above 1GHz	Hubersuhner	SUCOFLEX1 02	DA1580	Jan. 07,2016

Note: 1. The Cal.Interval was one year.

2. The cable loss has calculated in test result which connection between each test instruments.

3. TEST CONDITIONS AND RESULTS

3.1. Conducted Emission (AC Main)

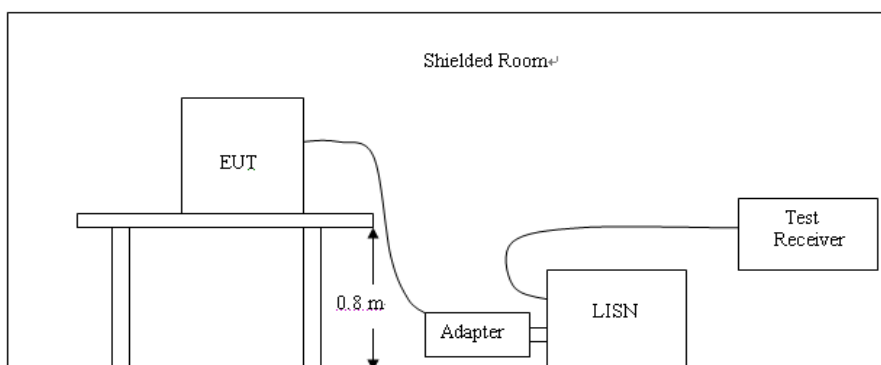
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION

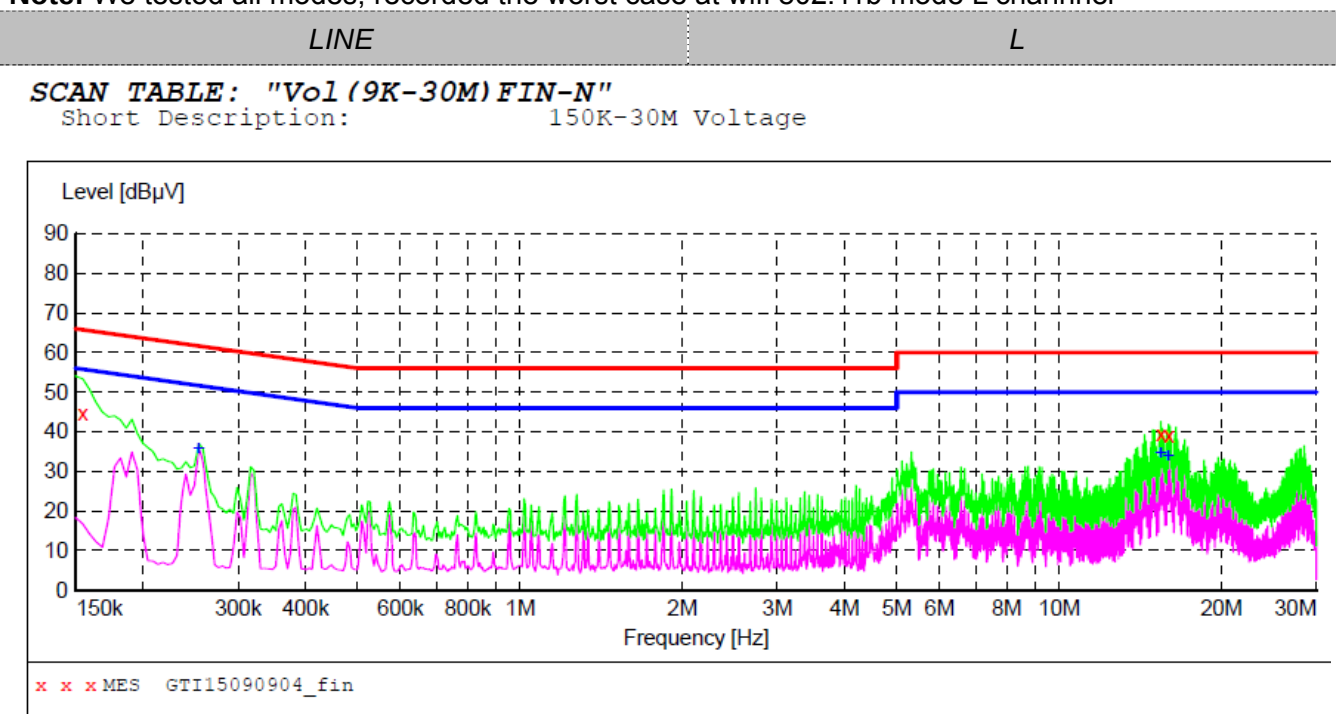


TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4:2003.
2. Support equipment, if needed, was placed as per ANSI C63.4:2003
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4:2003
4. The EUT received DC5V power from the adapter, the adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Note: We tested all modes, recorded the worst case at wifi 802.11b mode L channel



MEASUREMENT RESULT: "GTI15090904_fin"

9/9/2015 11:30AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.154500	44.70	9.8	66	21.1	QP	L1	GND
15.444500	39.30	10.6	60	20.7	QP	L1	GND
15.966500	38.90	10.6	60	21.1	QP	L1	GND

MEASUREMENT RESULT: "GTI15090904_fin2"

9/9/2015 11:30AM

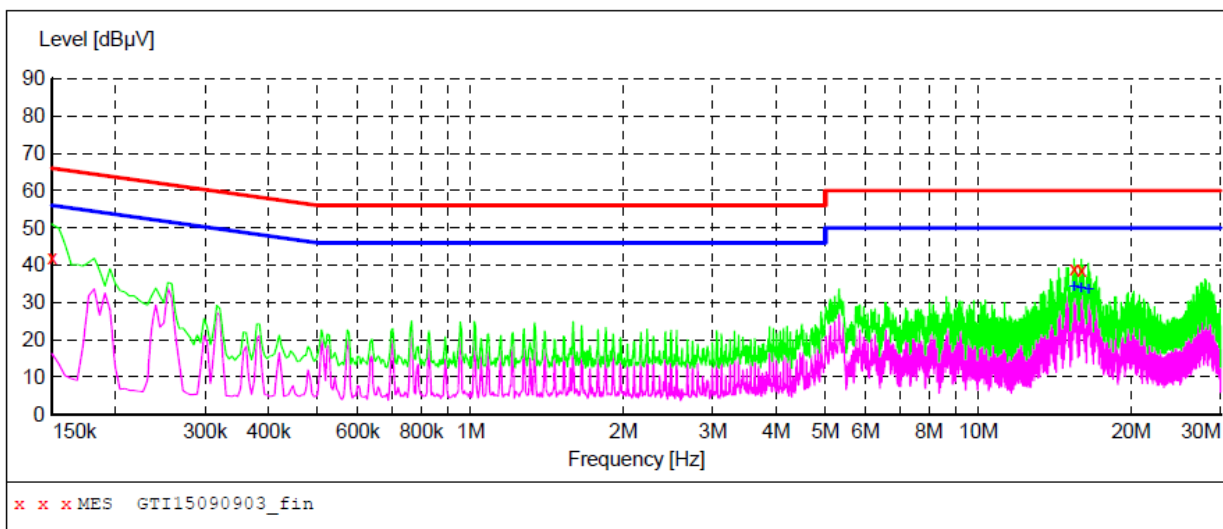
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.253500	35.70	9.7	52	15.9	AV	L1	GND
15.444500	34.40	10.6	50	15.6	AV	L1	GND
15.962000	33.90	10.6	50	16.1	AV	L1	GND

LINE

N

SCAN TABLE: "Vol (9K-30M) FIN-N"

Short Description: 150K-30M Voltage


MEASUREMENT RESULT: "GTI15090903_fin"

9/9/2015 11:26AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	41.90	9.5	66	24.1	QP	N	GND
15.444500	39.20	10.4	60	20.8	QP	N	GND
15.966500	38.70	10.4	60	21.3	QP	N	GND

MEASUREMENT RESULT: "GTI15090903_fin2"

9/9/2015 11:26AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
15.444500	34.30	10.4	50	15.7	AV	N	GND
15.962000	33.90	10.4	50	16.1	AV	N	GND
16.484000	33.30	10.4	50	16.7	AV	N	GND

3.2. Radiated Emission

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

The frequency spectrum above 1 GHz for Transmitter was investigated. All emission not reported are much lower than the prescribed limits. Set the RBW=1MHz, VBW=3MHz for Peak Detector while the RBW=1MHz, VBW=10Hz for Average Detector, Readings are both peak and average values. The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBuV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane..
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

For example

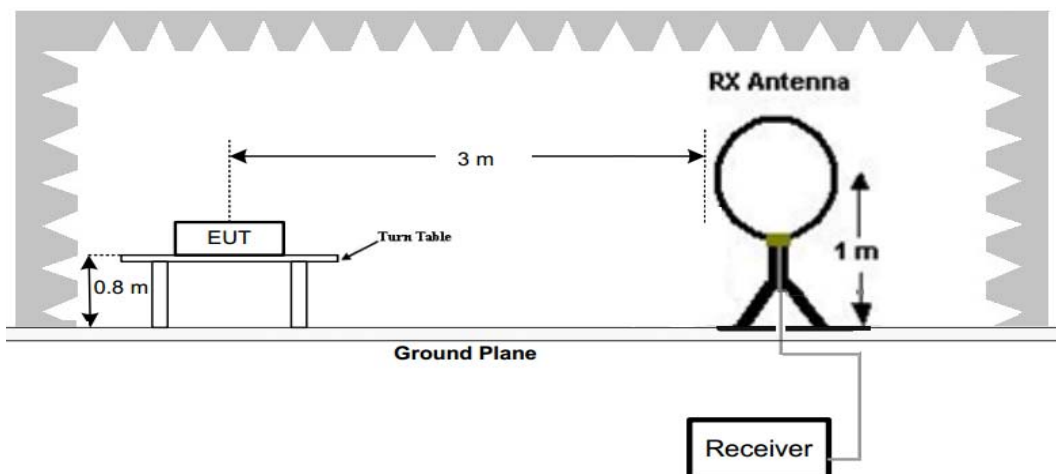
Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
150.00	40	58.1	12.2	1.6	31.90	-18.1

$$\text{Transd} = \text{AF} + \text{CL} - \text{AG}$$

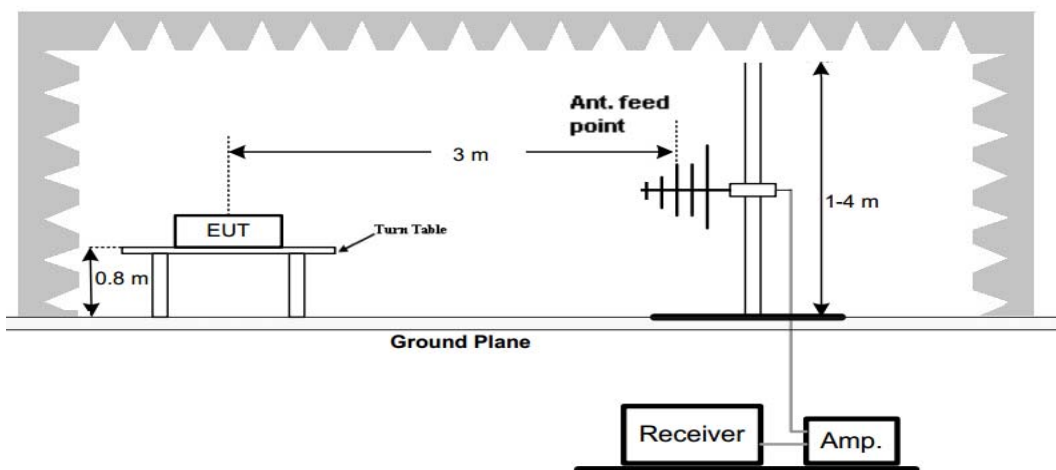
Test Configuration

For the actual test configuration, please refer to the related Item –EUT Test Photos.

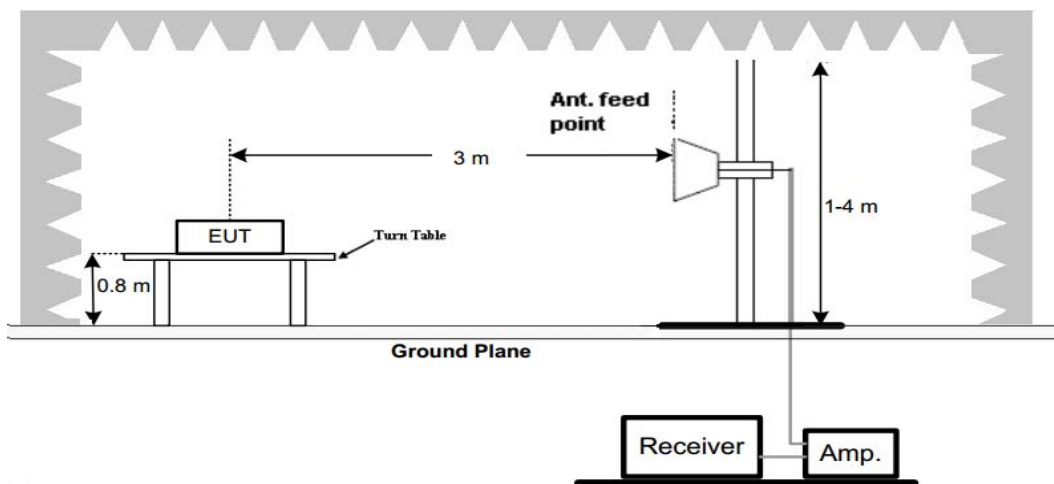
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



Test Results

Remark:

1. We tested three channels for each mode and recorded worst case at low channel of 802.11b Mode L channel below 1GHz

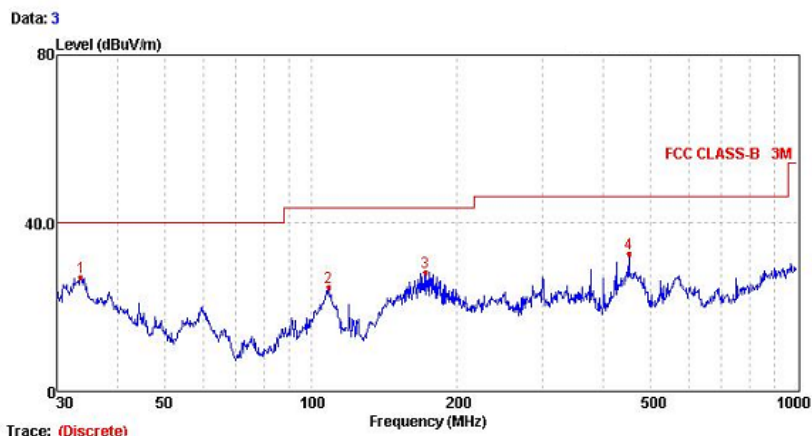
For 9 KHz-30MHz

Frequency (MHz)	Corrected Reading (dBuV/m)@3m	FCC Limit (dBuV/m) @3m	Margin (dB)	Detector	Result
0.23	56.02	100.37	44.35	QP	PASS
1.64	47.69	63.31	15.62	QP	PASS
12.47	30.24	69.54	39.30	QP	PASS
24.66	47.65	69.54	21.89	QP	PASS

For 30MHz-1GHz

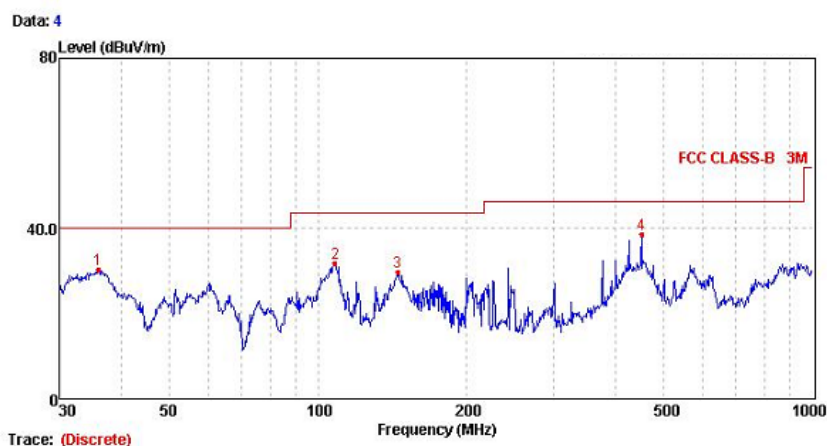
For 802.11B Low Channel

Horizontal



Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	33.56	26.88	-10.08	36.96	40.00	13.12	HORIZONTAL	Peak
2	108.65	24.35	-19.08	43.43	43.50	19.15	HORIZONTAL	Peak
3	171.99	27.97	-20.22	48.19	43.50	15.53	HORIZONTAL	Peak
4	451.14	32.46	-12.36	44.82	46.00	13.54	HORIZONTAL	Peak

Vertical



Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	36.00	29.98	-10.88	40.86	40.00	10.02	VERTICAL	Peak
2	108.27	31.52	-19.08	50.60	43.50	11.98	VERTICAL	Peak
3	144.84	29.53	-19.38	48.91	43.50	13.97	VERTICAL	Peak
4	451.14	38.37	-12.36	50.73	46.00	7.63	VERTICAL	Peak



For 1GHz to 25GHz

802.11b Mode (above 1GHz)

Frequency(MHz):				2412			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	51.87	PK	74.00	22.13	1.00	80	49.77	31.6	7.00	36.5	2.10
1	4824	46.94	AV	54.00	7.06	1.00	80	44.84	31.6	7.00	36.5	2.10
2	7236	45.45	PK	74.00	28.55	1.00	80	34.52	37.33	8.90	35.3	10.93
2	7236	38.95	AV	54.00	15.05	1.00	80	28.02	37.33	8.90	35.3	10.93

Frequency(MHz):				2412			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	53.24	PK	74.00	20.76	1.00	220	51.14	31.60	7.00	36.50	2.10
1	4824	46.29	AV	54.00	7.71	1.00	220	44.19	31.60	7.00	36.50	2.10
2	7236	44.86	PK	74.00	29.14	1.00	220	33.93	37.33	8.90	35.30	10.93
2	7236	40.20	AV	54.00	13.80	1.00	220	29.27	37.33	8.90	35.30	10.93

Frequency(MHz):				2437			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	51.51	PK	74.00	22.49	1.00	74	49.39	31.02	7.60	36.5	2.12
1	4874.00	46.73	AV	54.00	7.27	1.00	74	44.61	31.02	7.60	36.5	2.12
2	7311.00	45.05	PK	74.00	28.95	1.00	74	33.97	37.28	8.60	34.8	11.08
2	7311.00	37.68	AV	54.00	16.32	1.00	74	26.60	37.28	8.60	34.8	11.08

Frequency(MHz):				2437			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	51.88	PK	74.00	22.12	1.00	230	49.76	31.02	7.60	36.5	2.12
1	4874.00	47.14	AV	54.00	6.86	1.00	230	45.02	31.02	7.60	36.5	2.12
2	7311.00	45.86	PK	74.00	28.14	1.00	230	34.78	37.28	8.60	34.8	11.08
2	7311.00	38.16	AV	54.00	15.84	1.00	230	27.08	37.28	8.60	34.8	11.08

Frequency(MHz):				2462			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	51.18	PK	74.00	22.82	1.00	92	47.98	31.58	7.82	36.2	3.20
1	4924.00	46.58	AV	54.00	7.42	1.00	92	43.38	31.58	7.82	36.2	3.20
2	7386.00	44.17	PK	74.00	29.83	1.00	92	32.23	38.51	8.73	35.3	11.94
2	7386.00	37.64	AV	54.00	16.36	1.00	92	25.70	38.51	8.73	35.3	11.94

Frequency(MHz):				2462			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	52.69	PK	74.00	21.31	1.00	216	49.49	31.58	7.82	36.2	3.20
1	4924.00	47.55	AV	54.00	6.45	1.00	216	44.35	31.58	7.82	36.2	3.20
2	7386.00	46.10	PK	74.00	27.90	1.00	216	34.16	38.51	8.73	35.3	11.94
2	7386.00	38.31	AV	54.00	15.69	1.00	216	26.37	38.51	8.73	35.3	11.94

802.11g Mode (above 1GHz)

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	51.71 PK	74.00	22.29	1.00	80	49.61	31.6	7.00	36.5	2.10
1	4824	43.78 AV	54.00	10.22	1.00	80	41.68	31.6	7.00	36.5	2.10
2	7236	44.55 PK	74.00	29.45	1.00	80	33.62	37.33	8.90	35.3	10.93
2	7236	37.06 AV	54.00	16.94	1.00	80	26.13	37.33	8.90	35.3	10.93

Frequency(MHz):			2412			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	53.21 PK	74.00	20.79	1.00	220	51.11	31.60	7.00	36.50	2.10
1	4824	42.20 AV	54.00	11.80	1.00	220	40.10	31.60	7.00	36.50	2.10
2	7236	47.34 PK	74.00	26.66	1.00	220	36.41	37.33	8.90	35.30	10.93
2	7236	39.86 AV	54.00	14.14	1.00	220	28.93	37.33	8.90	35.30	10.93

Frequency(MHz):			2437			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	52.88 PK	74.00	21.12	1.00	74	50.76	31.02	7.60	36.5	2.12
1	4874.00	42.26 AV	54.00	11.74	1.00	74	40.14	31.02	7.60	36.5	2.12
2	7311.00	45.50 PK	74.00	28.50	1.00	74	34.42	37.28	8.60	34.8	11.08
2	7311.00	37.07 AV	54.00	16.93	1.00	74	25.99	37.28	8.60	34.8	11.08

Frequency(MHz):			2437			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	52.34 PK	74.00	21.66	1.00	230	50.22	31.02	7.60	36.5	2.12
1	4874.00	44.44 AV	54.00	9.56	1.00	230	42.32	31.02	7.60	36.5	2.12
2	7311.00	46.91 PK	74.00	27.09	1.00	230	35.83	37.28	8.60	34.8	11.08
2	7311.00	38.15 AV	54.00	15.85	1.00	230	27.07	37.28	8.60	34.8	11.08

Frequency(MHz):			2462			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	52.99 PK	74.00	21.01	1.00	230	49.79	31.58	7.82	36.2	3.20
1	4924.00	44.06 AV	54.00	9.94	1.00	230	40.86	31.58	7.82	36.2	3.20
2	7386.00	46.51 PK	74.00	27.49	1.00	230	34.57	38.51	8.73	35.3	11.94
2	7386.00	38.31 AV	54.00	15.69	1.00	230	26.37	38.51	8.73	35.3	11.94

Frequency(MHz):			2462			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	52.81 PK	74.00	21.19	1.00	216	49.61	55.70	7.82	36.2	3.20
1	4924.00	42.21 AV	54.00	11.79	1.00	216	39.01	49.20	7.82	36.2	3.20
2	7386.00	47.57 PK	74.00	26.43	1.00	216	35.63	50.45	8.73	35.3	11.94
2	7386.00	36.15 AV	54.00	17.85	1.00	216	24.21	41.28	8.73	35.3	11.94

802.11n20 Mode (above 1GHz)

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	50.85 PK	74.00	23.15	1.00	90	48.75	31.6	7.00	36.5	2.10
1	4824	43.01 AV	54.00	10.99	1.00	90	40.91	31.6	7.00	36.5	2.10
2	7236	44.44 PK	74.00	29.56	1.00	90	33.51	37.33	8.90	35.3	10.93
2	7236	34.85 AV	54.00	19.15	1.00	90	23.92	37.33	8.90	35.3	10.93

Frequency(MHz):			2412			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4824	51.97 PK	74.00	22.03	1.00	200	49.87	31.60	7.00	36.50	2.10
1	4824	41.93 AV	54.00	12.07	1.00	200	39.83	31.60	7.00	36.50	2.10
2	7236	46.40 PK	74.00	27.60	1.00	200	35.47	37.33	8.90	35.30	10.93
2	7236	39.44 AV	54.00	14.56	1.00	200	28.51	37.33	8.90	35.30	10.93

Frequency(MHz):			2437			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	49.71 PK	74.00	24.29	1.00	84	47.59	56.38	7.60	36.5	2.12
1	4874.00	42.18 AV	54.00	11.82	1.00	84	40.06	48.60	7.60	36.5	2.12
2	7311.00	45.12 PK	74.00	28.88	1.00	84	34.04	51.34	8.60	34.8	11.08
2	7311.00	35.58 AV	54.00	18.42	1.00	84	24.50	43.25	8.60	34.8	11.08

Frequency(MHz):			2437			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	51.24 PK	74.00	22.76	1.00	210	49.12	31.02	7.60	36.5	2.12
1	4874.00	42.70 AV	54.00	11.30	1.00	210	40.58	31.02	7.60	36.5	2.12
2	7311.00	45.57 PK	74.00	28.43	1.00	210	34.49	37.28	8.60	34.8	11.08
2	7311.00	35.27 AV	54.00	18.73	1.00	210	24.19	37.28	8.60	34.8	11.08

Frequency(MHz):			2462			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	51.99 PK	74.00	22.01	1.00	210	48.79	31.58	7.82	36.2	3.20
1	4924.00	43.57 AV	54.00	10.43	1.00	210	40.37	31.58	7.82	36.2	3.20
2	7386.00	45.17 PK	74.00	28.83	1.00	210	33.23	38.51	8.73	35.3	11.94
2	7386.00	36.56 AV	54.00	17.44	1.00	210	24.62	38.51	8.73	35.3	11.94

Frequency(MHz):			2462			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4924.00	52.40 PK	74.00	21.60	1.00	196	49.20	31.58	7.82	36.2	3.20
1	4924.00	42.49 AV	54.00	11.51	1.00	196	39.29	31.58	7.82	36.2	3.20
2	7386.00	47.36 PK	74.00	26.64	1.00	196	35.42	38.51	8.73	35.3	11.94
2	7386.00	36.95 AV	54.00	17.05	1.00	196	25.01	38.51	8.73	35.3	11.94

802.11n40 Mode (above 1GHz)

Frequency(MHz):			2422			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4844.00	46.85 PK	74.00	27.15	1.00	65	44.75	31.6	7.00	36.5	2.10
1	4844.00	41.14 AV	54.00	12.86	1.00	65	39.04	31.6	7.00	36.5	2.10
2	7266.00	43.49 PK	74.00	30.51	1.00	65	32.56	37.33	8.90	35.3	10.93
2	7266.00	32.09 AV	54.00	21.91	1.00	65	21.16	37.33	8.90	35.3	10.93

Frequency(MHz):			2422			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4844.00	50.56 PK	74.00	23.44	1.00	190	48.46	31.60	7.00	36.50	2.10
1	4844.00	39.08 AV	54.00	14.92	1.00	190	36.98	31.60	7.00	36.50	2.10
2	7266.00	44.03 PK	74.00	29.97	1.00	190	33.10	37.33	8.90	35.30	10.93
2	7266.00	36.62 AV	54.00	17.38	1.00	190	25.69	37.33	8.90	35.30	10.93

Frequency(MHz):			2437			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	48.83 PK	74.00	25.17	1.00	59	46.71	31.02	7.60	36.5	2.12
1	4874.00	39.34 AV	54.00	14.66	1.00	59	37.22	31.02	7.60	36.5	2.12
2	7311.00	42.25 PK	74.00	31.75	1.00	59	31.17	37.28	8.60	34.8	11.08
2	7311.00	32.32 AV	54.00	21.68	1.00	59	21.24	37.28	8.60	34.8	11.08

Frequency(MHz):			2437			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4874.00	49.79 PK	74.00	24.21	1.00	200	47.67	31.02	7.60	36.5	2.12
1	4874.00	38.83 AV	54.00	15.17	1.00	200	36.71	31.02	7.60	36.5	2.12
2	7311.00	41.80 PK	74.00	32.20	1.00	200	30.72	37.28	8.60	34.8	11.08
2	7311.00	33.44 AV	54.00	20.56	1.00	200	22.36	37.28	8.60	34.8	11.08

Frequency(MHz):			2452			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4904.00	49.86 PK	74.00	24.14	1.00	200	46.66	31.58	7.82	36.2	3.20
1	4904.00	41.11 AV	54.00	12.89	1.00	200	37.91	31.58	7.82	36.2	3.20
2	7356.00	42.25 PK	74.00	31.75	1.00	200	30.31	38.51	8.73	35.3	11.94
2	7356.00	34.76 AV	54.00	19.24	1.00	200	22.82	38.51	8.73	35.3	11.94

Frequency(MHz):			2452			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	4904.00	48.85 PK	74.00	25.15	1.00	186	45.65	31.58	7.82	36.2	3.20
1	4904.00	41.03 AV	54.00	12.97	1.00	186	37.83	31.58	7.82	36.2	3.20
2	7356.00	44.84 PK	74.00	29.16	1.00	186	32.90	38.51	8.73	35.3	11.94
2	7356.00	34.92 AV	54.00	19.08	1.00	186	22.98	38.51	8.73	35.3	11.94

3.3. Maximum Conducted Output Power

Limit

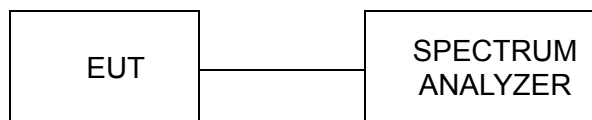
30dBm for digital modulation systems.

Test Procedure

- For Maximum conducted (average) output power
 1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the SPECTRUM.
 2. Ensure EUT transmitting with a duty cycle $\geq 98\%$.
 3. Set SA as follow:
 - a) Center frequency: frequency to be tested.
 - b) Span: ≥ 1.5 times the OBW.
 - c) RBW: $= 1\text{-}5\%$ of the OBW, not to exceed 1 MHz.
 - d) VBW: $\geq 3 \times$ RBW.
 - e) Sweep points: 8001
 - f) Sweep time: auto
 - g) Detector: RMS
 - h) Trace: Average(100 traces)
 4. Allow trace to fully stabilize
 5. Use instrument's band power measurement function to integrate power in this band across a bandwidth OBW.

Note: OBW test data please see the section 3.6

Test Configuration

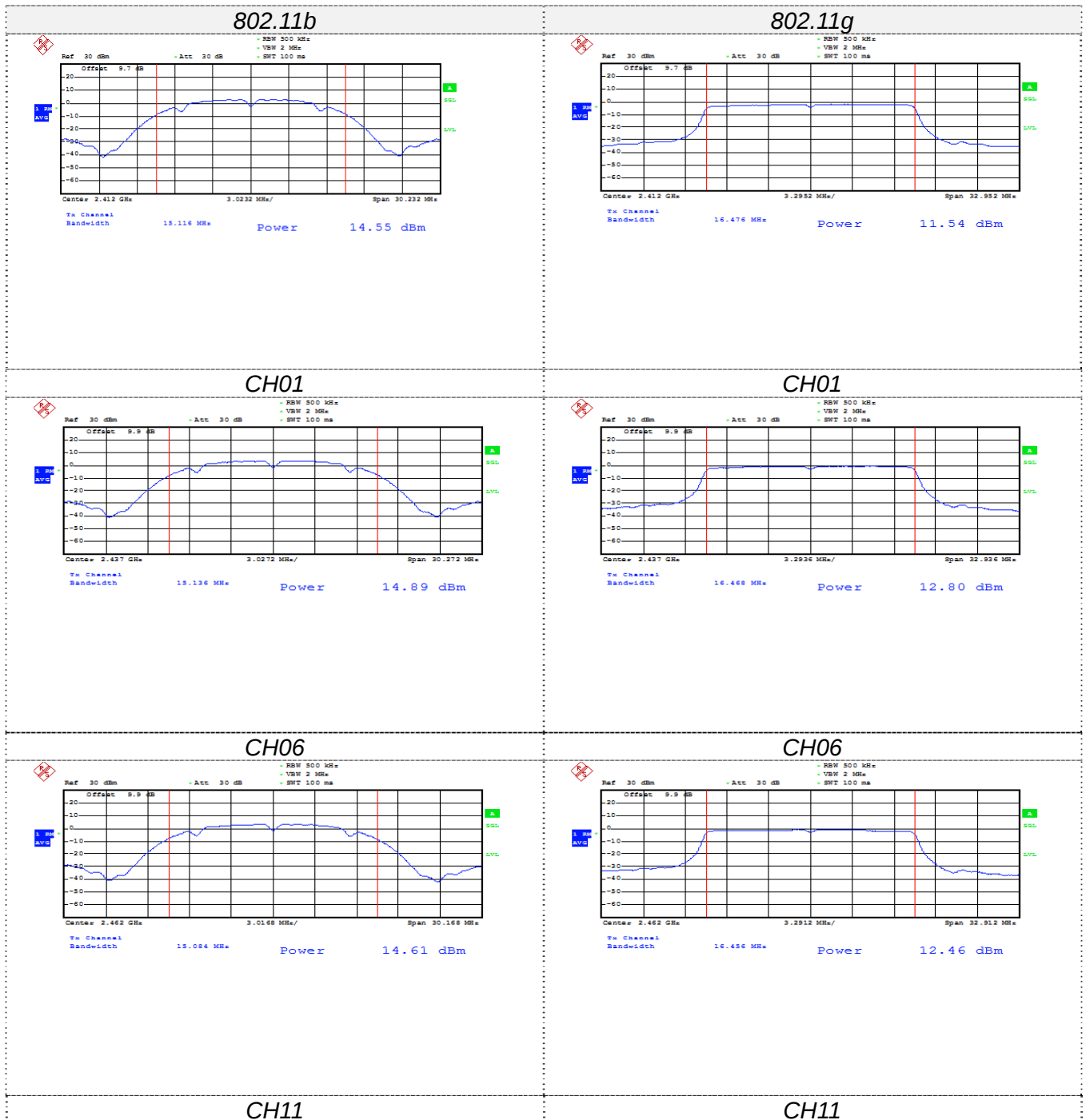


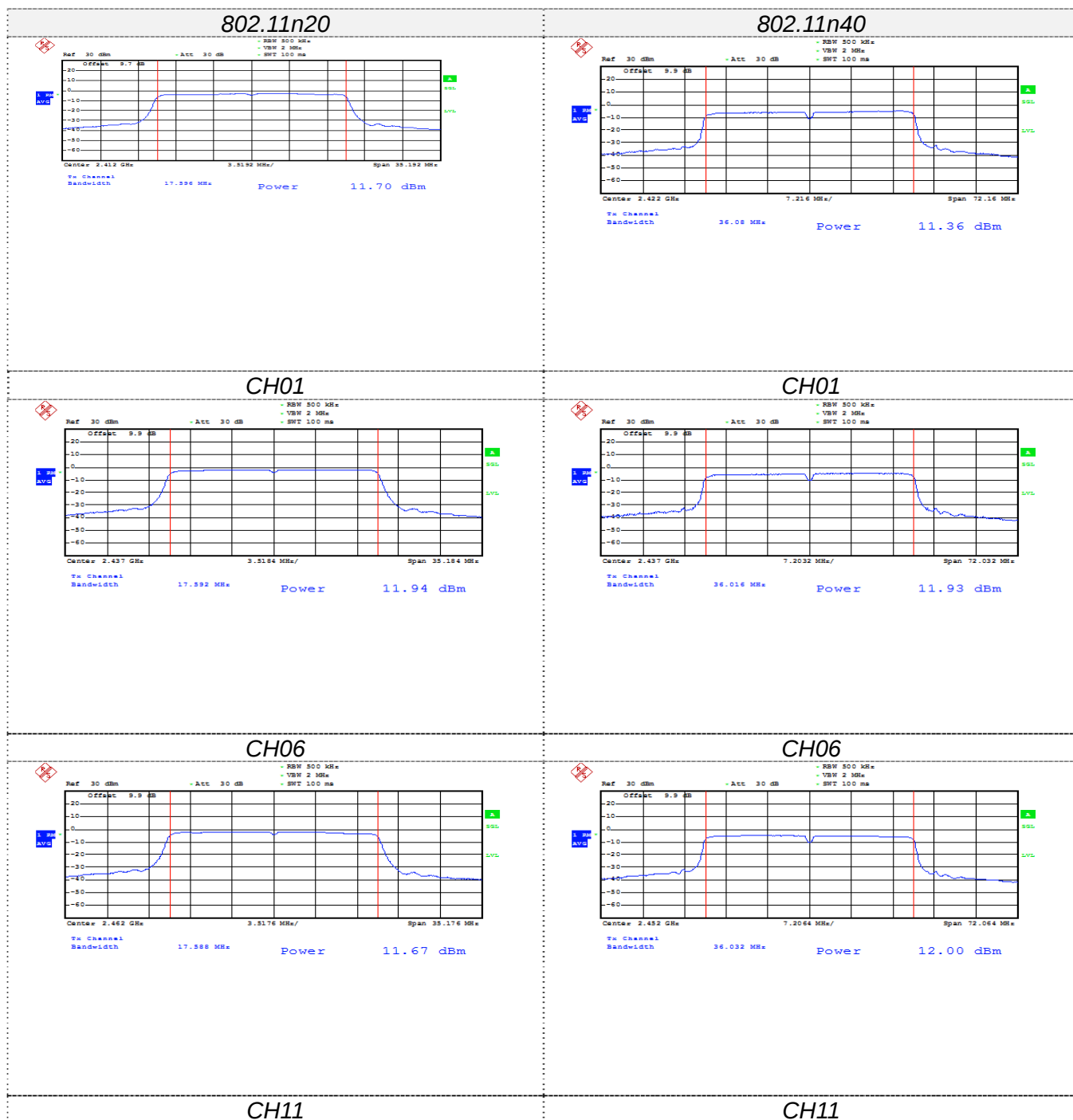
Test Results

WIFI				
Type	Channel	Output power AV(dBm)	Limit (dBm)	Result
802.11b	01	14.55	30.00	Pass
	06	14.89		
	11	14.61		
802.11g	01	11.54	30.00	Pass
	06	12.80		
	11	12.46		
802.11n(H20)	01	11.70	30.00	Pass
	06	11.94		
	11	11.67		
802.11n(H40)	03	11.36	30.00	Pass
	06	11.93		
	09	12.00		

Note: 1.The test results including the cable lose.

Test plot as follows:





3.4. Power Spectral Density

Limit

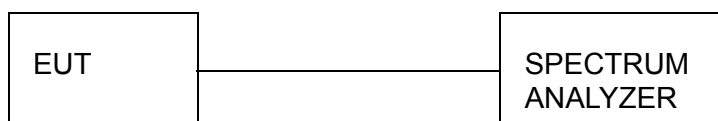
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure

- Use this procedure when the maximum (average) conducted output power was used to demonstrate compliance to the output power limit.
 1. Set analyzer center frequency to DTS channel center frequency.
 2. Set span to at least 1.5 times the OBW
 3. RBW: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 4. VBW: $\geq 3 \times \text{RBW}$.
 5. Detector: power averaging (RMS)
 6. Sweep time: Auto couple.
 7. Swoop points: ≥ 8001 .
 8. Trace mode = Average (100 traces)
 9. Use the peak marker function to determine the maximum power level.
 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Note: The OBW test data please see the section 3.5

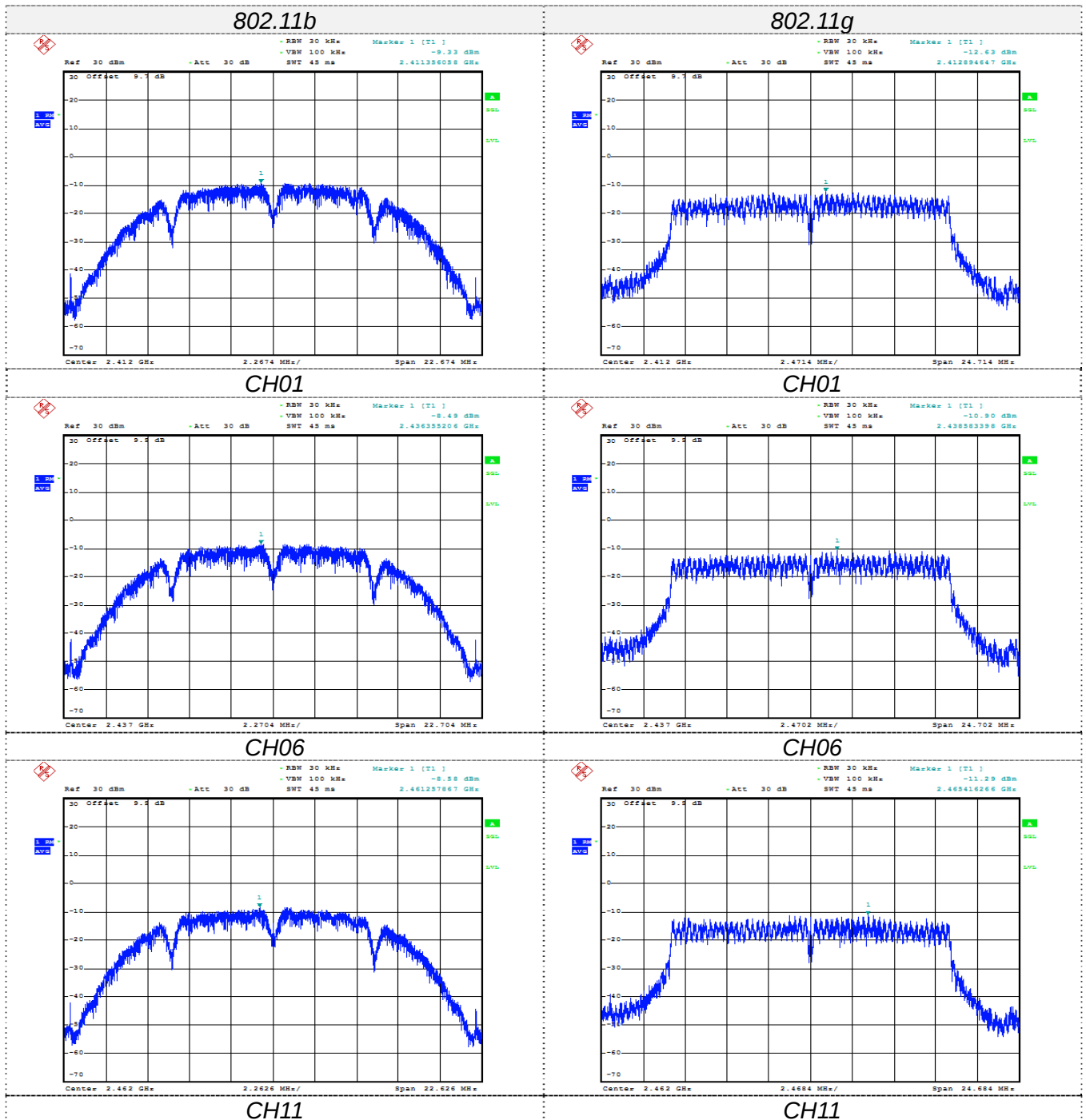
Test Configuration

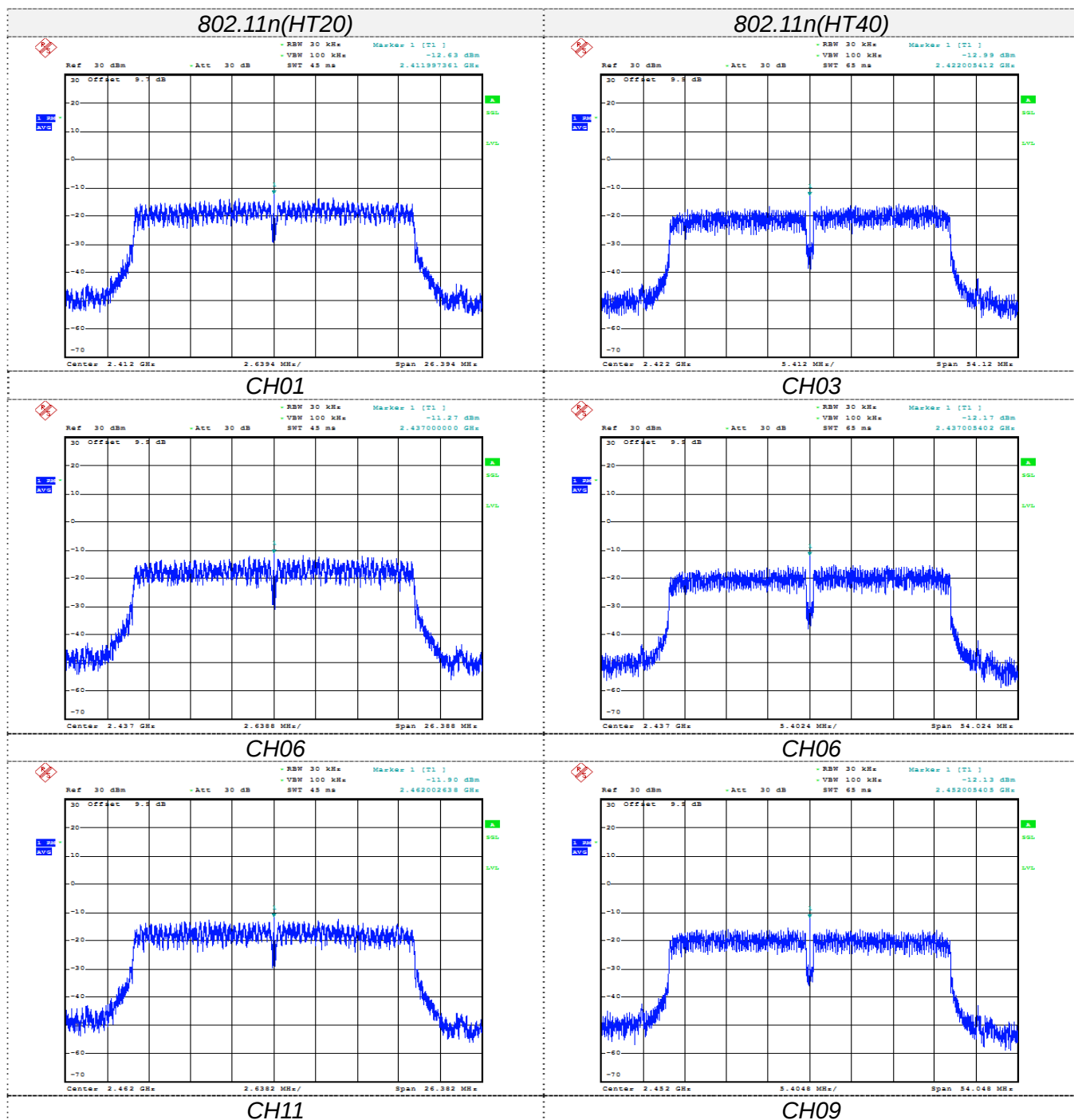


Test Results**WIFI**

Type	Channel	Power Spectral Density (dBm/30KHz)	Limit (dBm/3KHz)	Result
802.11b	01	-9.330	8.00	Pass
	06	-8.490		
	11	-8.580		
802.11g	01	-12.630	8.00	Pass
	06	-10.900		
	11	-11.290		
802.11n(HT20)	01	-12.630	8.00	Pass
	06	-11.270		
	11	-11.900		
802.11n(HT40)	03	-12.990	8.00	Pass
	06	-12.170		
	09	-12.130		

Test plot as follows:





3.5. 6dB Bandwidth

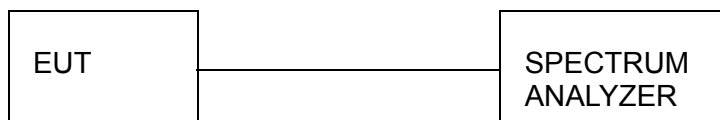
Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

Test Procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Set SA as follow:
 - a) RBW: 100 kHz.
 - b) VBW: $\geq 3 \times$ RBW.
 - c) Detector: Peak.
 - d) Trace mode: max hold.
 - e) Sweep: auto couple.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Configuration

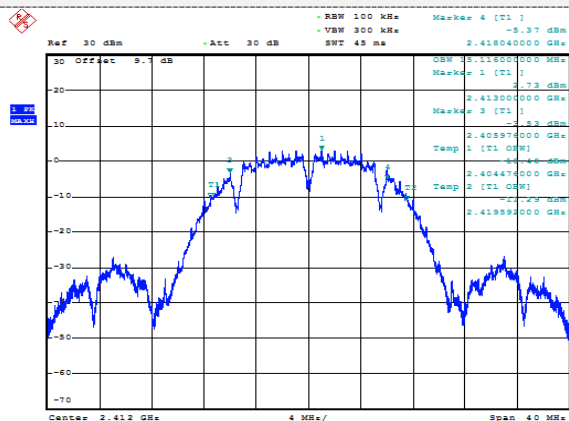


Test Results

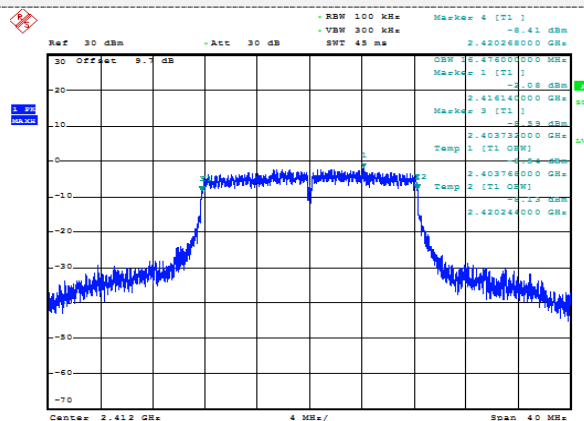
WIFI					
Type	Channel	6dB Bandwidth (MHz)	99% OBW (MHz)	Limit (KHz)	Result
802.11b	01	12.064	15.116	≥ 500	Pass
	06	12.100	15.136		
	11	12.068	15.084		
802.11g	01	16.536	16.476	≥ 500	Pass
	06	16.552	16.468		
	11	16.468	16.456		
802.11n(HT20)	01	17.604	17.596	≥ 500	Pass
	06	17.616	17.592		
	11	17.616	17.588		
802.11n(HT40)	03	36.360	36.080	≥ 500	Pass
	06	36.352	36.016		
	09	36.360	36.032		

Test plot as follows:

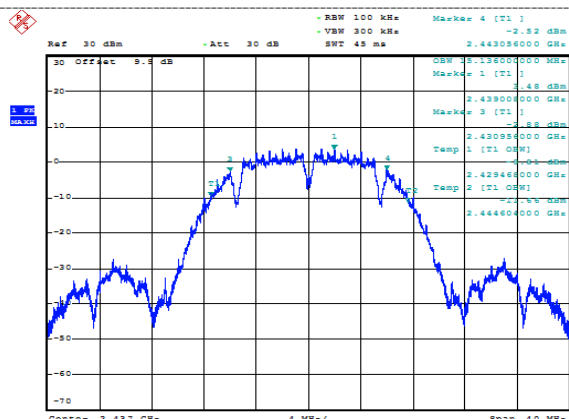
802.11b



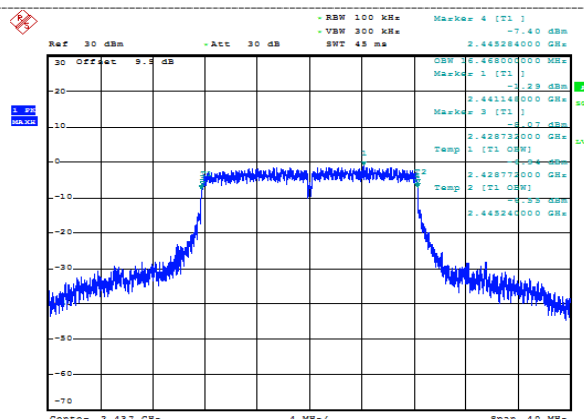
802.11g



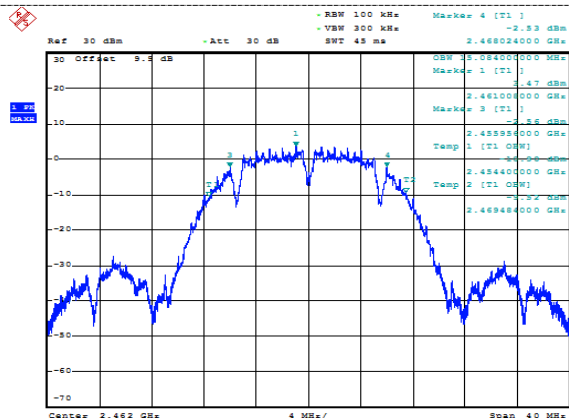
CH01



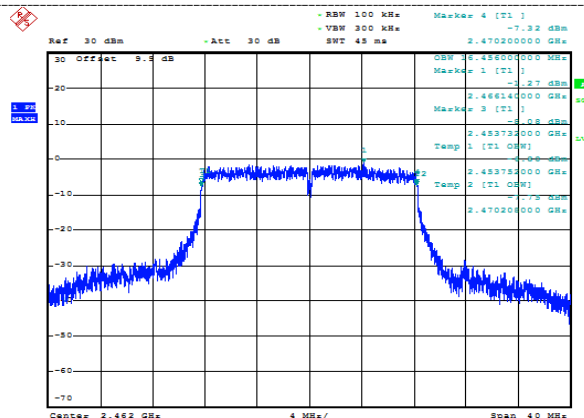
CH01



CH06



CH06

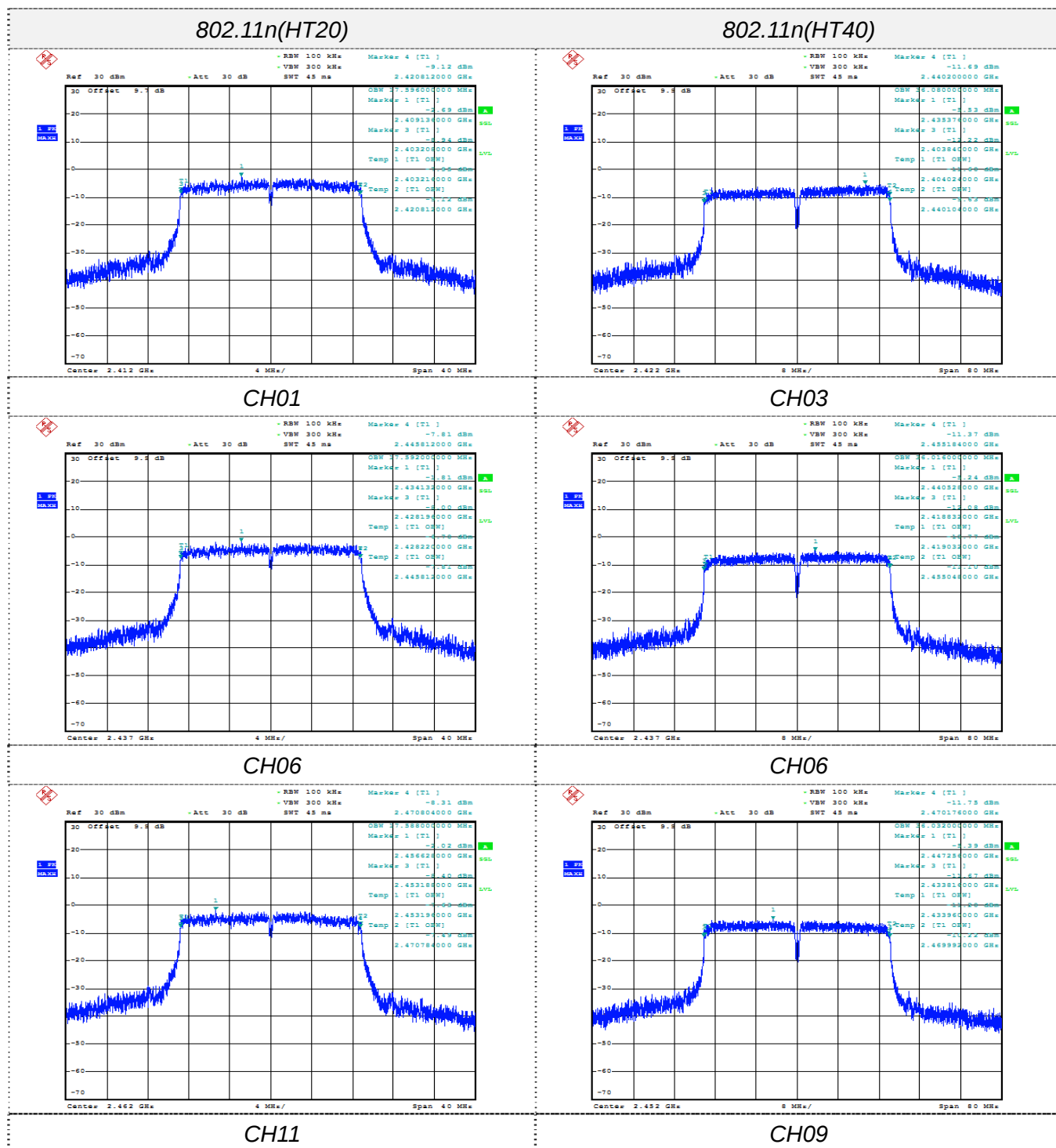


CH11



CH11





3.6. Band Edge Compliance of RF Emission

Limit

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)).

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)

Test Procedure

Test Procedure for conducted method

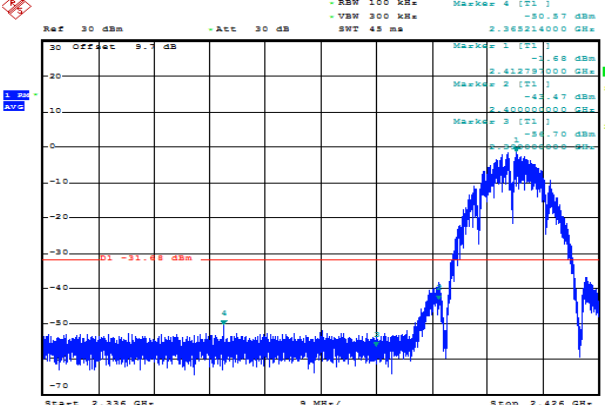
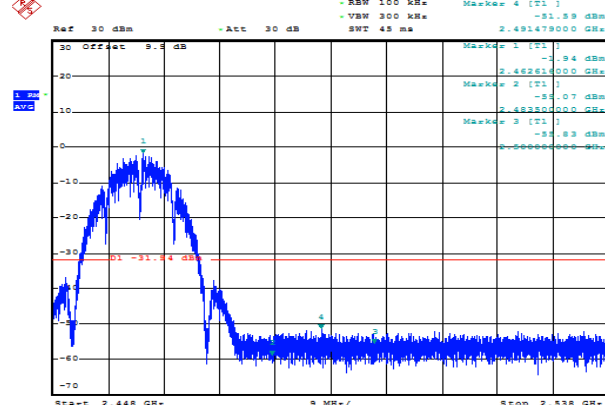
- Use this procedure when the maximum (average) conducted output power was used to demonstrate compliance to the output power limit.
 1. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a spectrum analyzer
 2. Turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
 3. Set spectrum analyzer RBW =100 kHz, VBW=300 kHz, Detector=RMS, Sweep point= ≥ 8001 , Sweep time=Auto, trace= Average(100 traces)
 4. Marker the highest point which fall into restricted frequency bands
 5. Repeat above procedures until all measured frequencies were complete.

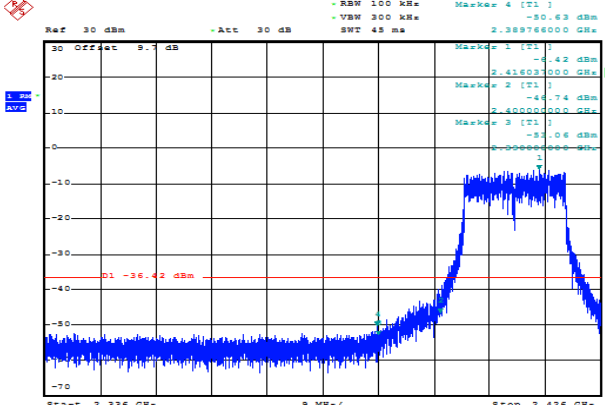
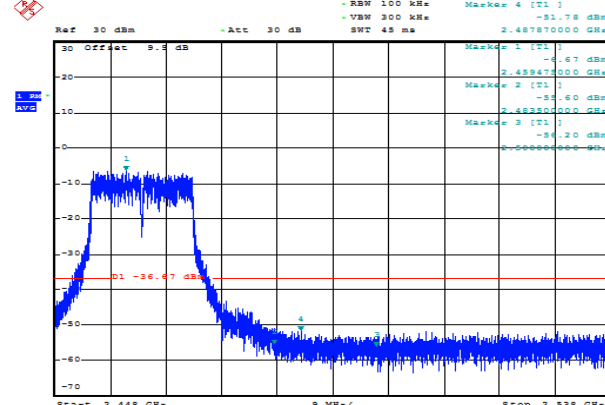
Test Procedure tor radiated method

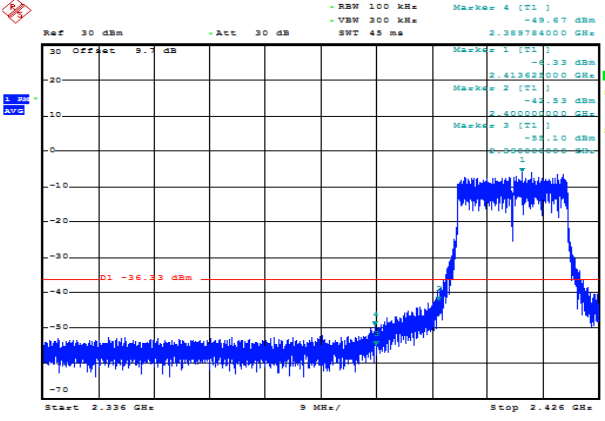
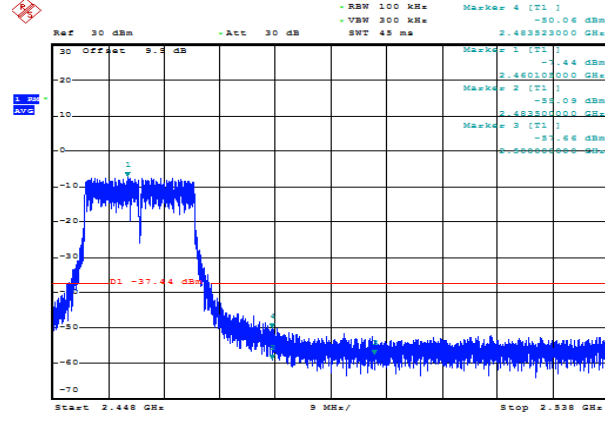
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel
7. Test the EUT in the lowest channel, the highest channel
8. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
9. Repeat above procedures until all frequencies measured was complete.

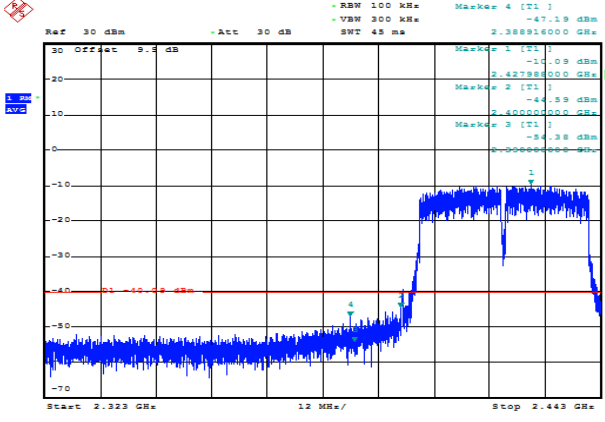
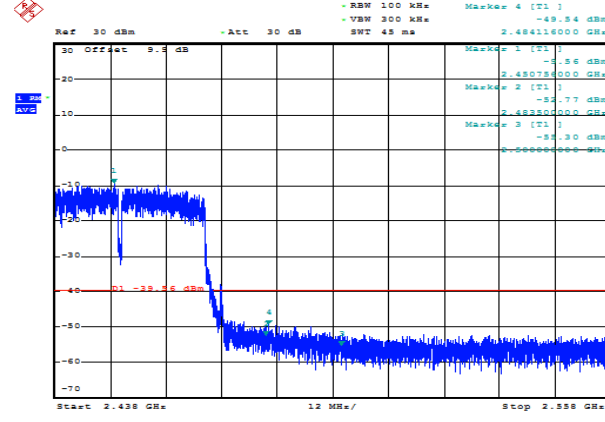
Test Results

A. Conducted measurements

802.11b			
Frequency (MHz)	Delta Peak to Band emission (dBc)	Limit (dBc)	Verdict
2365.214	48.890	30	PASS
2491.479	49.654	30	PASS
			
2412		2462	

802.11g			
Frequency (MHz)	Delta Peak to Band emission (dBc)	Limit (dBc)	Verdict
2389.766	44.212	30	PASS
2487.870	45.114	30	PASS
			
2412		2462	

802.11n20			
Frequency (MHz)	Delta Peak to Band emission (dBc)	Limit (dBc)	Verdict
2389.784	43.336	30	PASS
2483.523	42.623	30	PASS
			
2412		2462	

802.11n40			
Frequency (MHz)	Delta Peak to Band emission (dBc)	Limit (dBc)	Verdict
2388.916	37.101	30	PASS
2484.116	39.981	30	PASS
			
2422		2452	

B. Radiated measurements

802.11b

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	54.68	PK	74.00	19.32	1.00	75	59.99	27.49	3.32	36.12	-5.31
2390.00	45.14	AV	54.00	8.86	1.00	75	50.45	27.49	3.32	36.12	-5.31
Frequency(MHz):			2412			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	53.68	PK	74.00	20.32	1.00	305	58.99	27.49	3.32	36.12	-5.31
2390.00	42.16	AV	54.00	11.84	1.00	305	47.47	27.49	3.32	36.12	-5.31
Frequency(MHz):			2462			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	51.97	PK	74.00	22.03	1.00	80	57.69	27.45	3.38	36.55	-5.72
2483.50	42.43	AV	54.00	11.57	1.00	80	48.15	27.45	3.38	36.55	-5.72
Frequency(MHz):			2462			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	49.49	PK	74.00	24.51	1.00	295	55.21	27.45	3.38	36.55	-5.72
2483.50	40.08	AV	54.00	13.92	1.00	295	45.80	27.45	3.38	36.55	-5.72

802.11g

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	53.27	PK	74.00	20.73	1.00	70	58.58	27.49	3.32	36.12	-5.31
2390.00	41.92	AV	54.00	12.08	1.00	70	47.23	27.49	3.32	36.12	-5.31
Frequency(MHz):			2412			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	51.16	PK	74.00	22.84	1.00	310	56.47	27.49	3.32	36.12	-5.31
2390.00	42.52	AV	54.00	11.48	1.00	310	47.83	27.49	3.32	36.12	-5.31
Frequency(MHz):			2462			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	52.33	PK	74.00	21.67	1.00	80	58.05	27.45	3.38	36.55	-5.72
2483.50	40.83	AV	54.00	13.17	1.00	80	46.55	27.45	3.38	36.55	-5.72
Frequency(MHz):			2462			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	49.69	PK	74.00	24.31	1.00	325	55.41	27.45	3.38	36.55	-5.72
2483.50	42.13	AV	54.00	11.87	1.00	325	47.85	27.45	3.38	36.55	-5.72

802.11n20

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	50.76	PK	74.00	23.24	1.00	57	56.07	27.49	3.32	36.12	-5.31
2390.00	41.11	AV	54.00	12.89	1.00	57	46.42	27.49	3.32	36.12	-5.31
Frequency(MHz):			2412			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	47.98	PK	74.00	26.02	1.00	315	53.29	27.49	3.32	36.12	-5.31
2390.00	38.72	AV	54.00	15.28	1.00	315	44.03	27.49	3.32	36.12	-5.31
Frequency(MHz):			2462			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	50.80	PK	74.00	23.20	1.00	67	56.52	27.45	3.38	36.55	-5.72
2483.50	39.92	AV	54.00	14.08	1.00	67	45.64	27.45	3.38	36.55	-5.72
Frequency(MHz):			2462			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	47.46	PK	74.00	26.54	1.00	330	53.18	27.45	3.38	36.55	-5.72
2483.50	39.77	AV	54.00	14.23	1.00	330	45.49	27.45	3.38	36.55	-5.72

802.11n40

Frequency(MHz):			2422			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	48.14	PK	74.00	25.86	1.00	55	53.45	27.49	3.32	36.12	-5.31
2390.00	38.58	AV	54.00	15.42	1.00	55	43.89	27.49	3.32	36.12	-5.31
Frequency(MHz):			2422			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2390.00	47.56	PK	74.00	26.44	1.00	319	52.87	27.49	3.32	36.12	-5.31
2390.00	37.96	AV	54.00	16.04	1.00	319	43.27	27.49	3.32	36.12	-5.31
Frequency(MHz):			2452			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	49.32	PK	74.00	24.68	1.00	65	55.04	27.45	3.38	36.55	-5.72
2483.50	37.04	AV	54.00	16.96	1.00	65	42.76	27.45	3.38	36.55	-5.72
Frequency(MHz):			2452			Polarity:			VERTICAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2483.50	46.82	PK	74.00	27.18	1.00	334	52.54	27.45	3.38	36.55	-5.72
2483.50	39.14	AV	54.00	14.86	1.00	334	44.86	27.45	3.38	36.55	-5.72

3.7. Spurious RF Conducted Emission

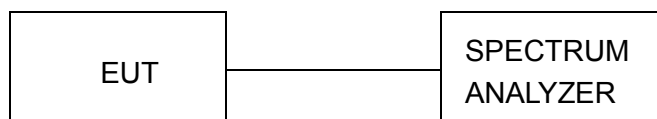
Limit

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4:2003 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100 kHz and VBM= 300 KHz to measure the peak field strength, and measured frequency range from 30MHz to 26.5GHz.

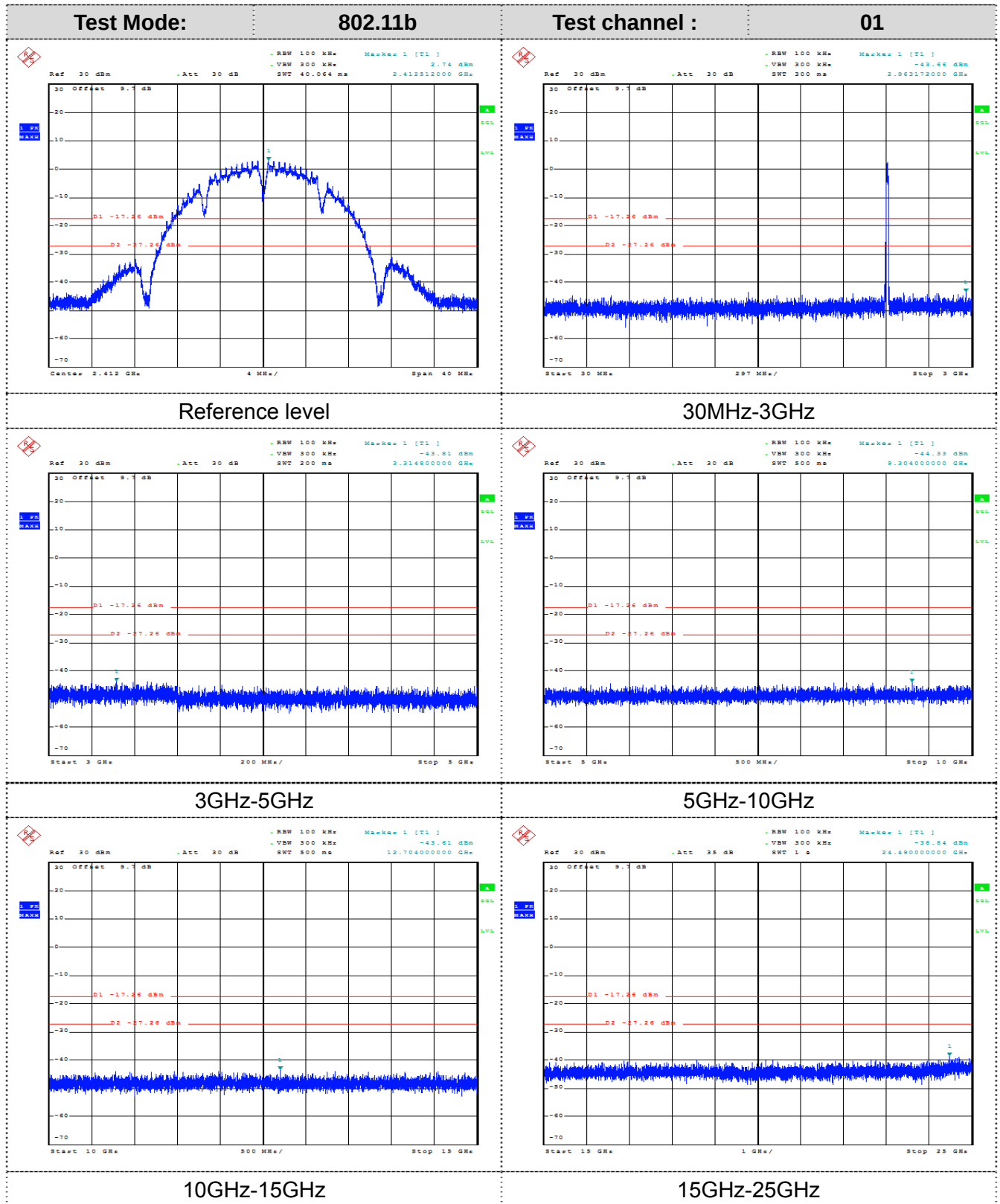
Test Configuration

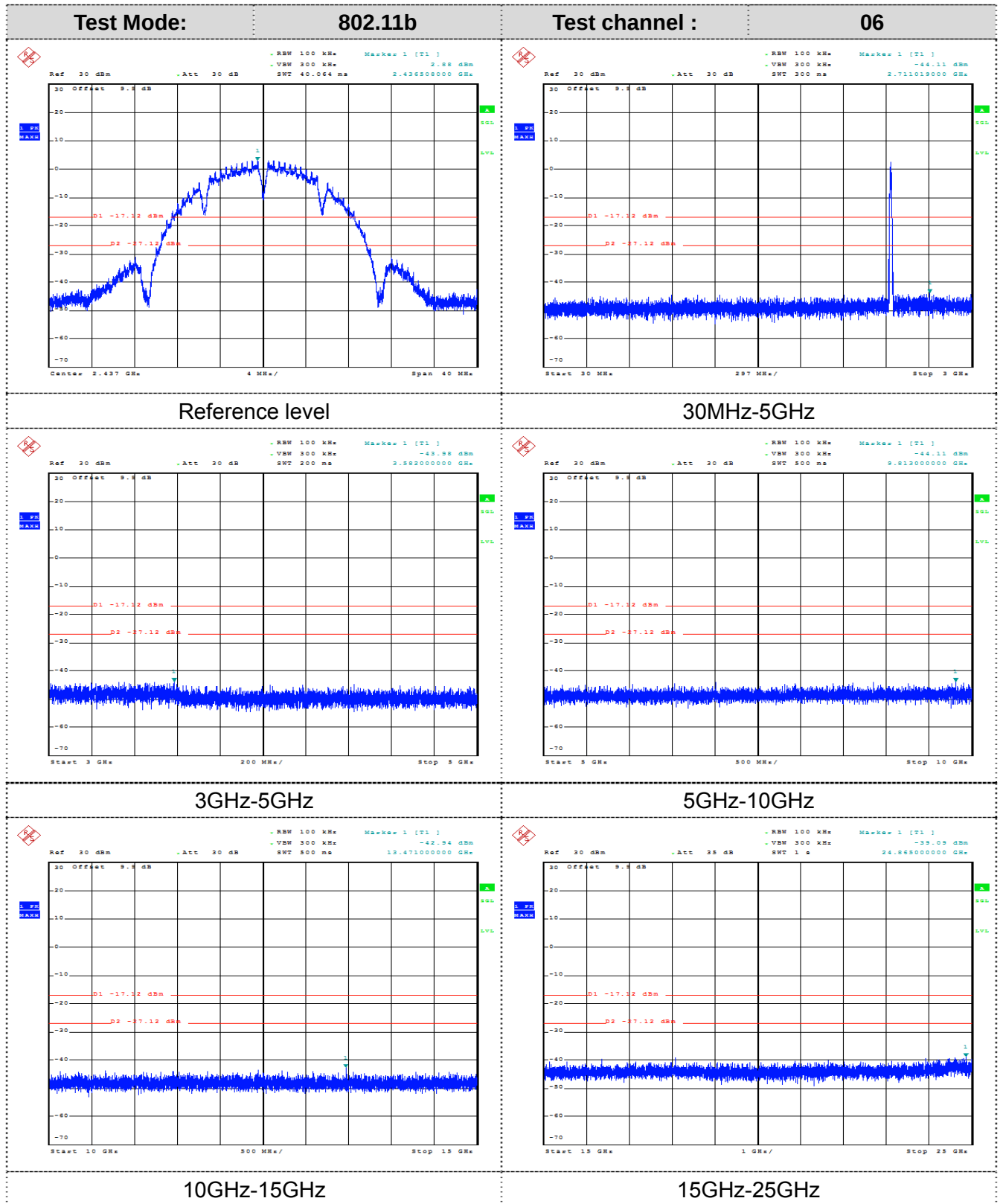


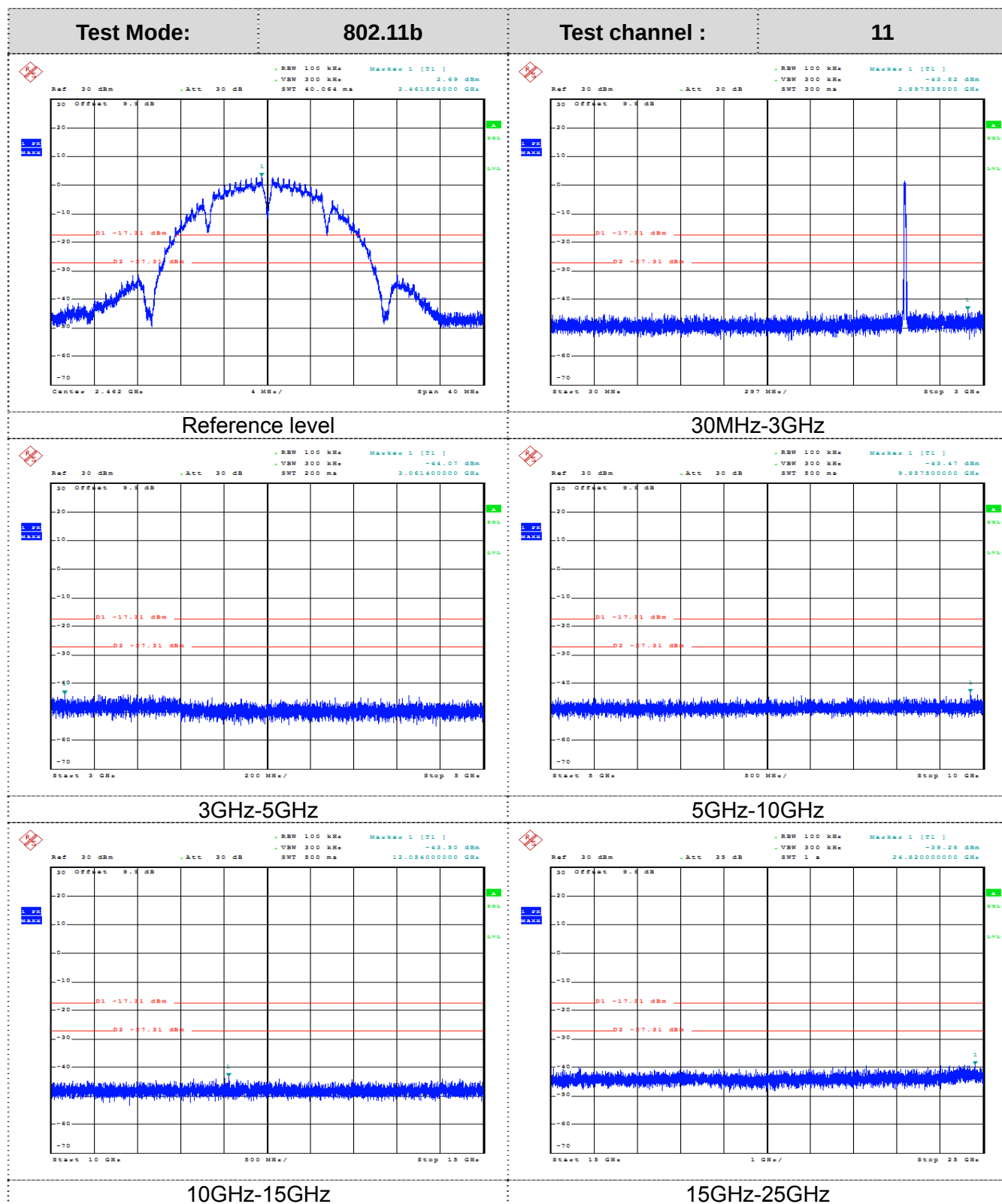
Test Results

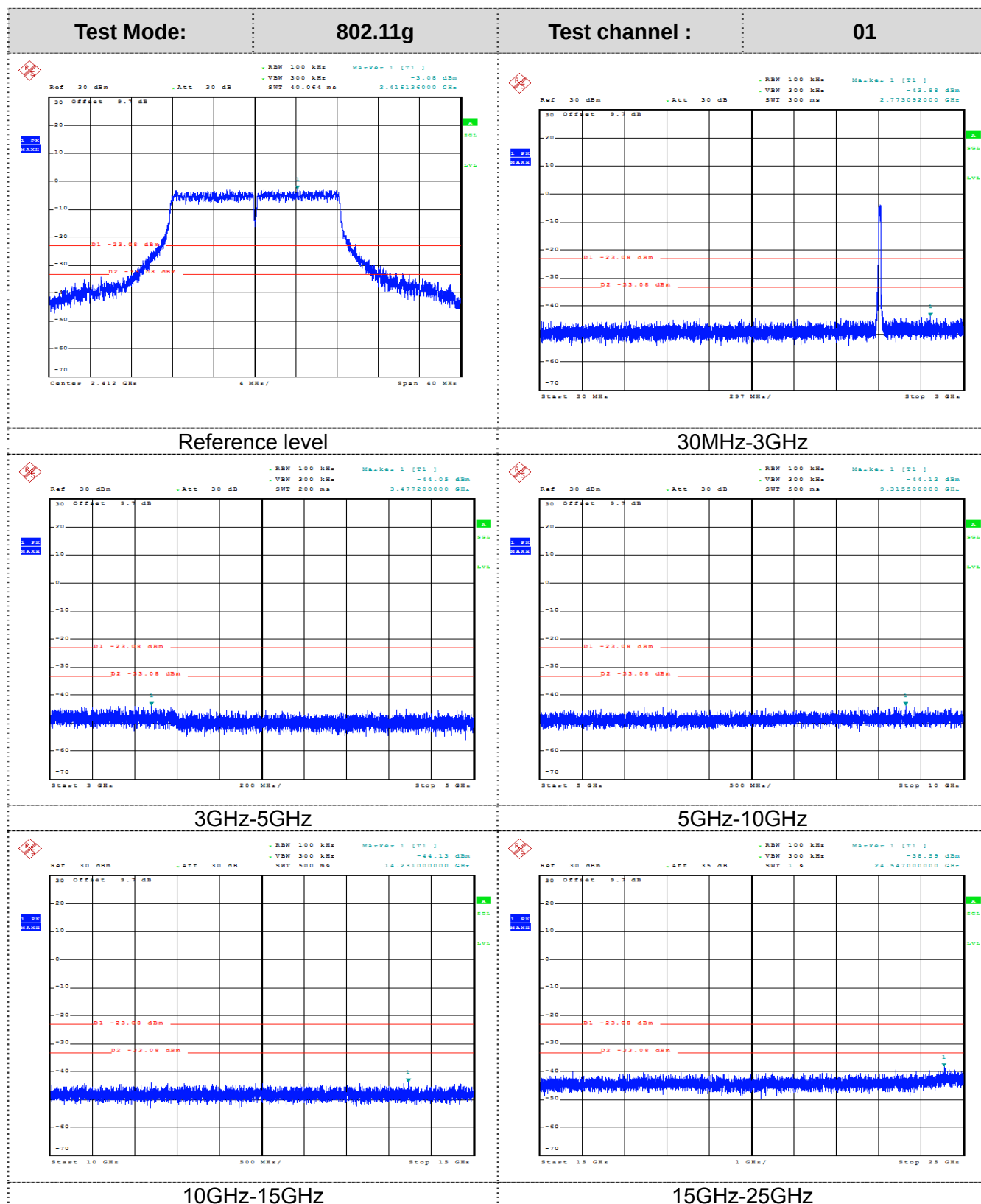
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandage measurement data.

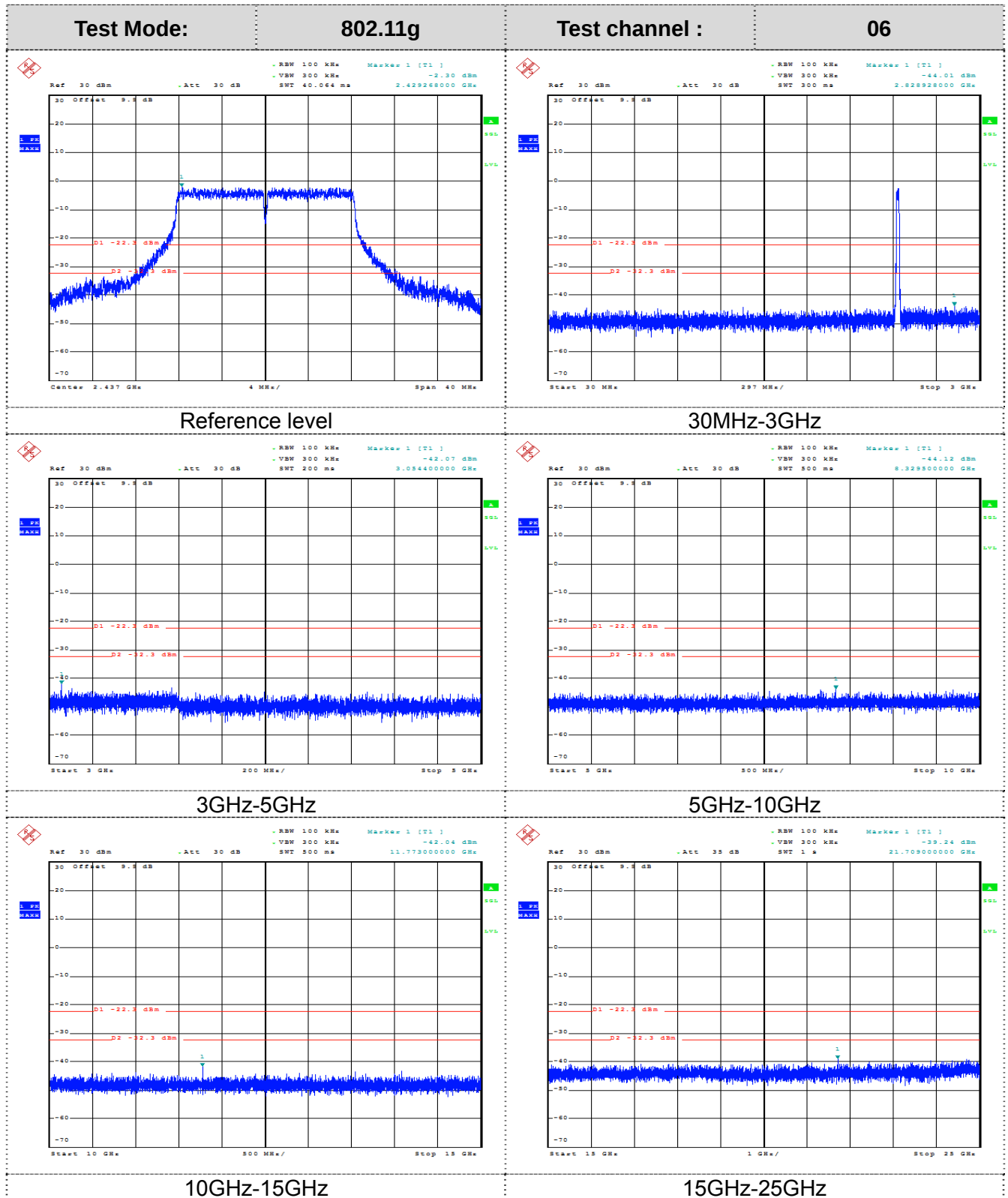
Test plot as follows:

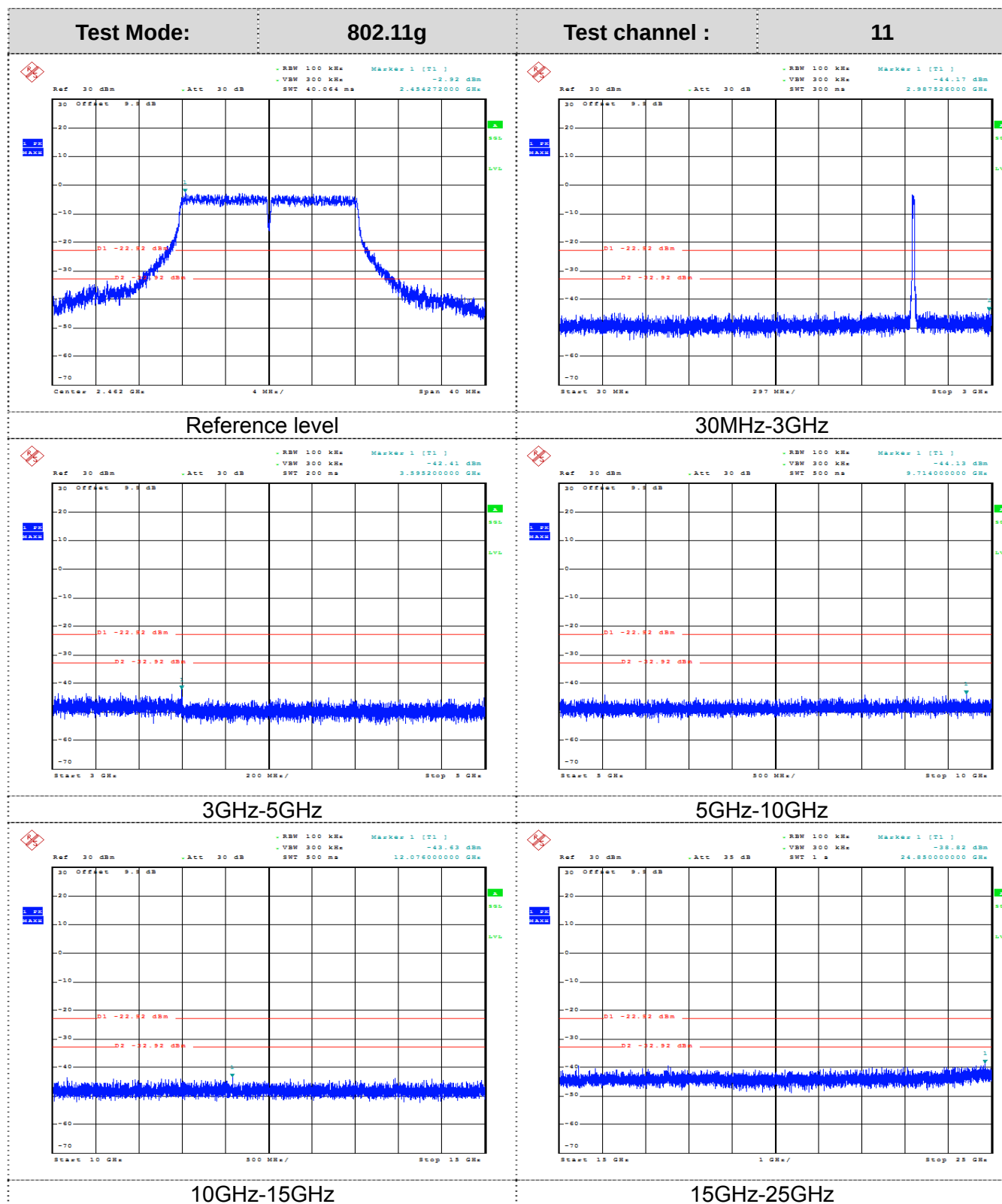


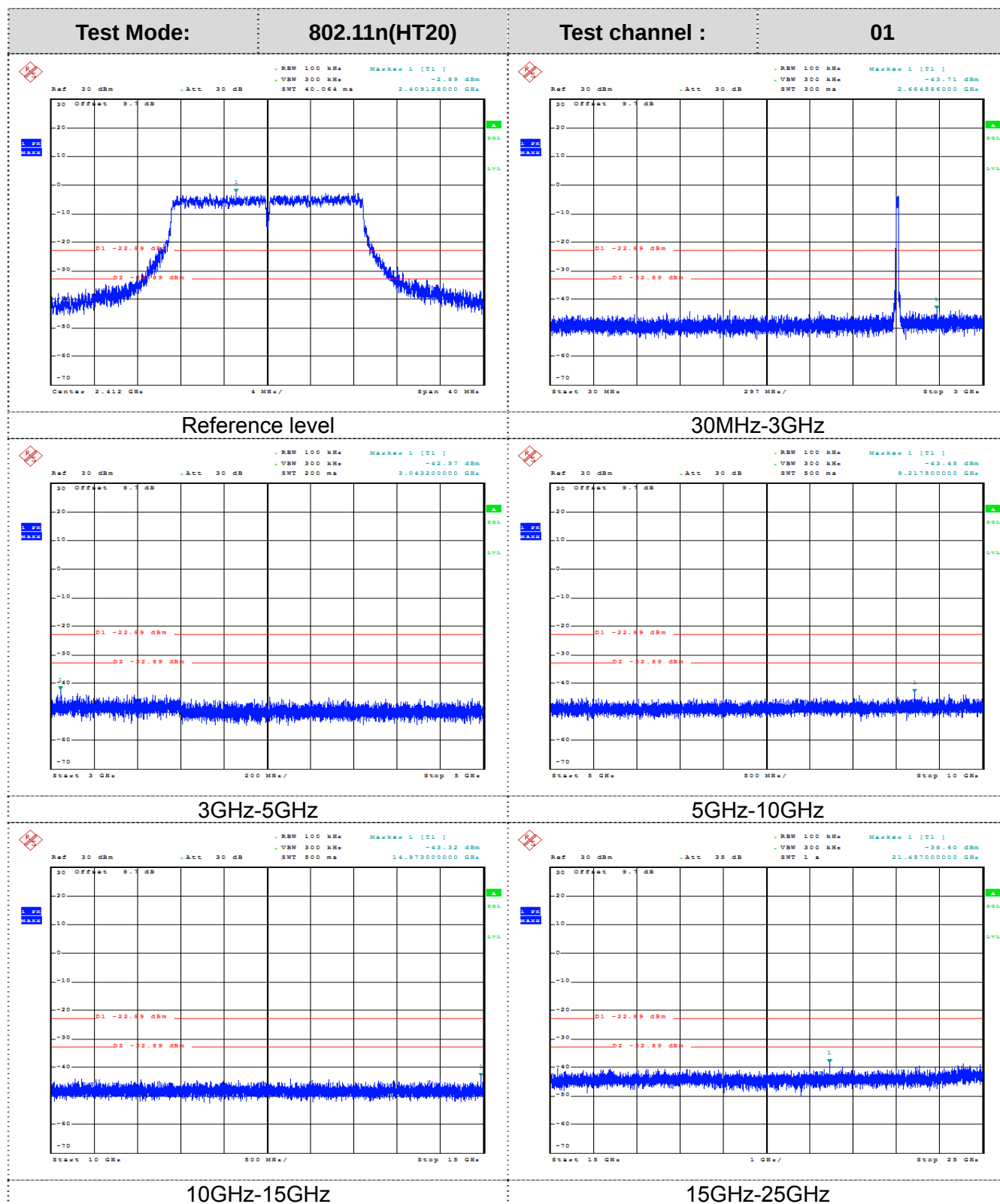


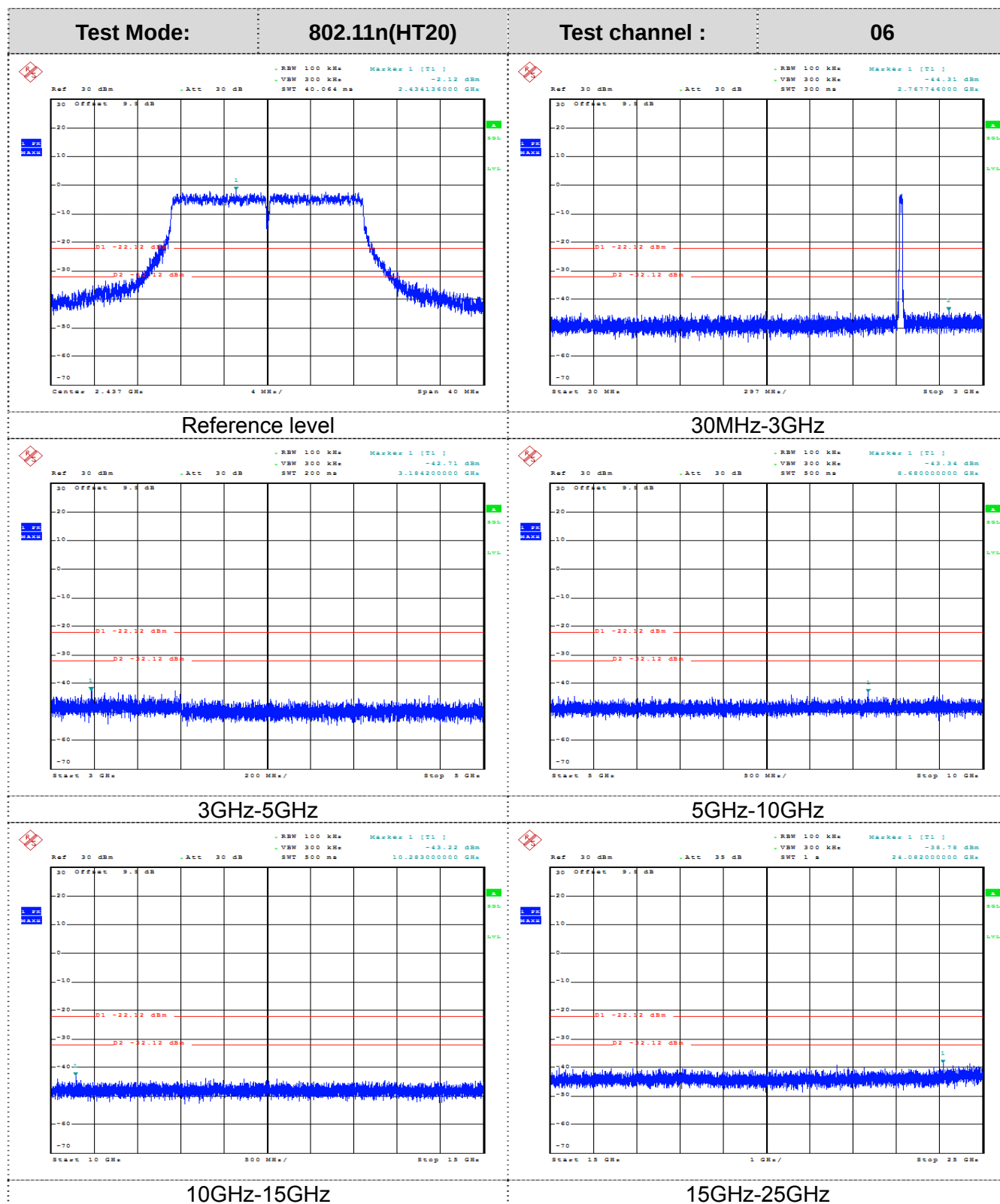


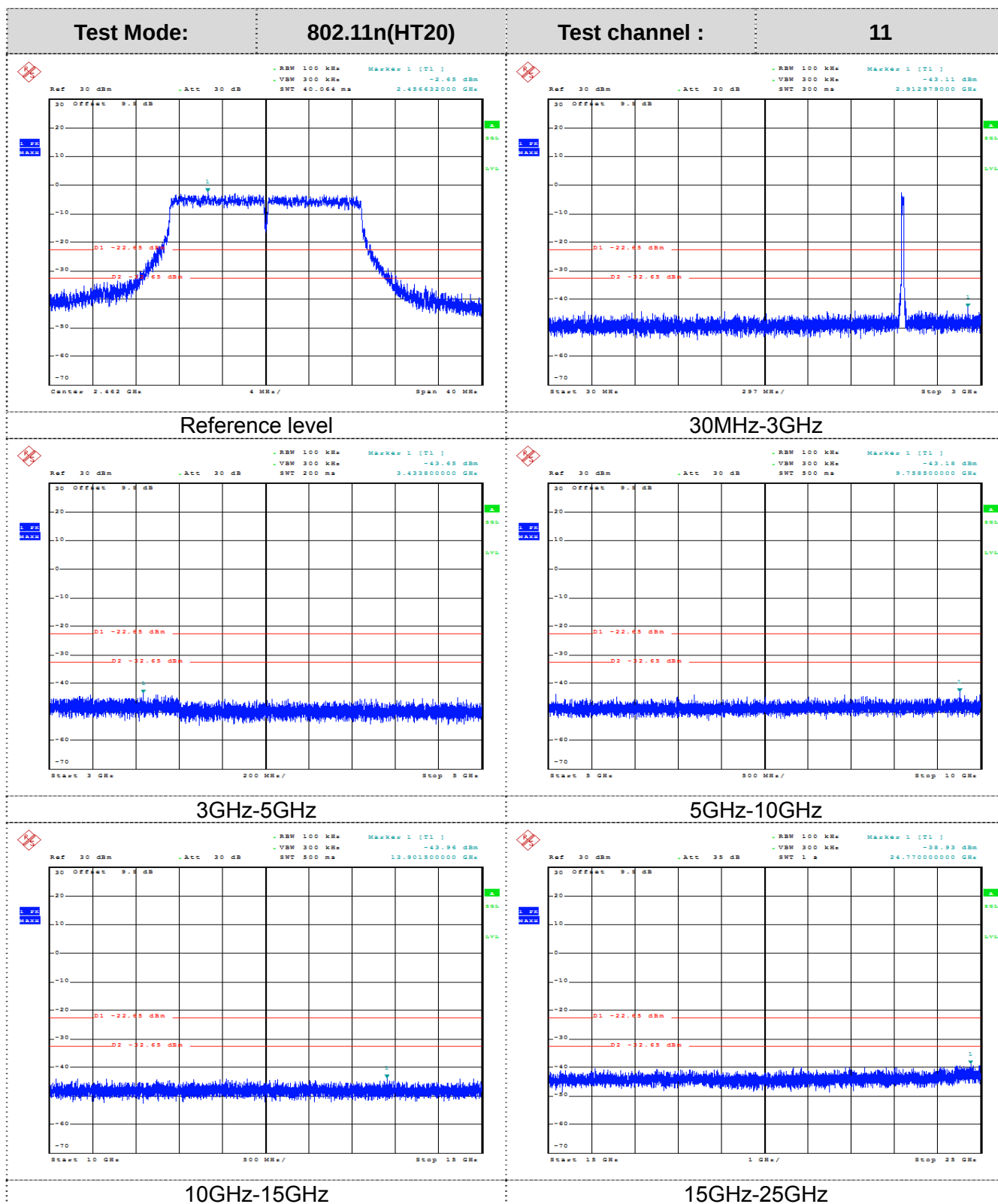


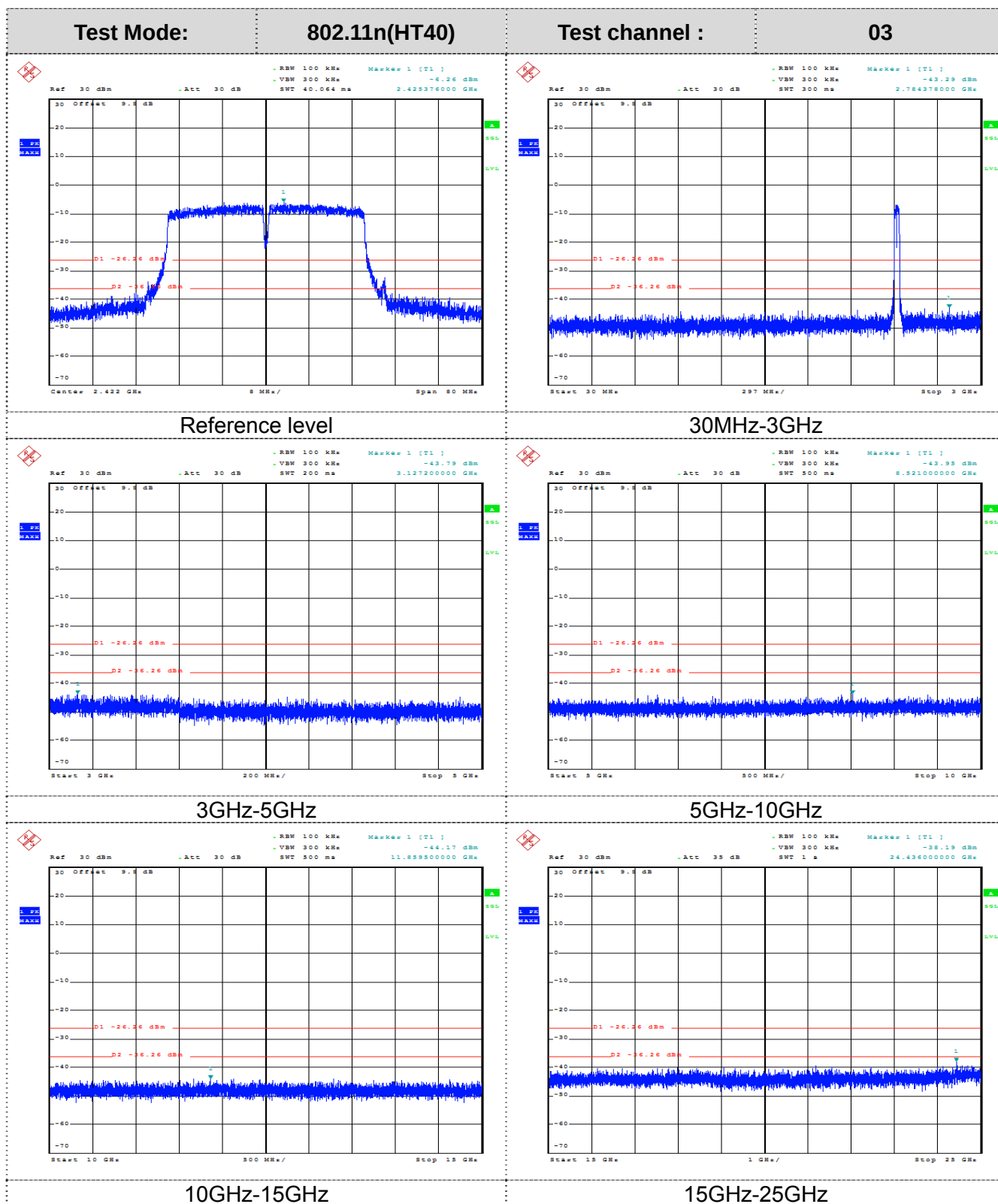


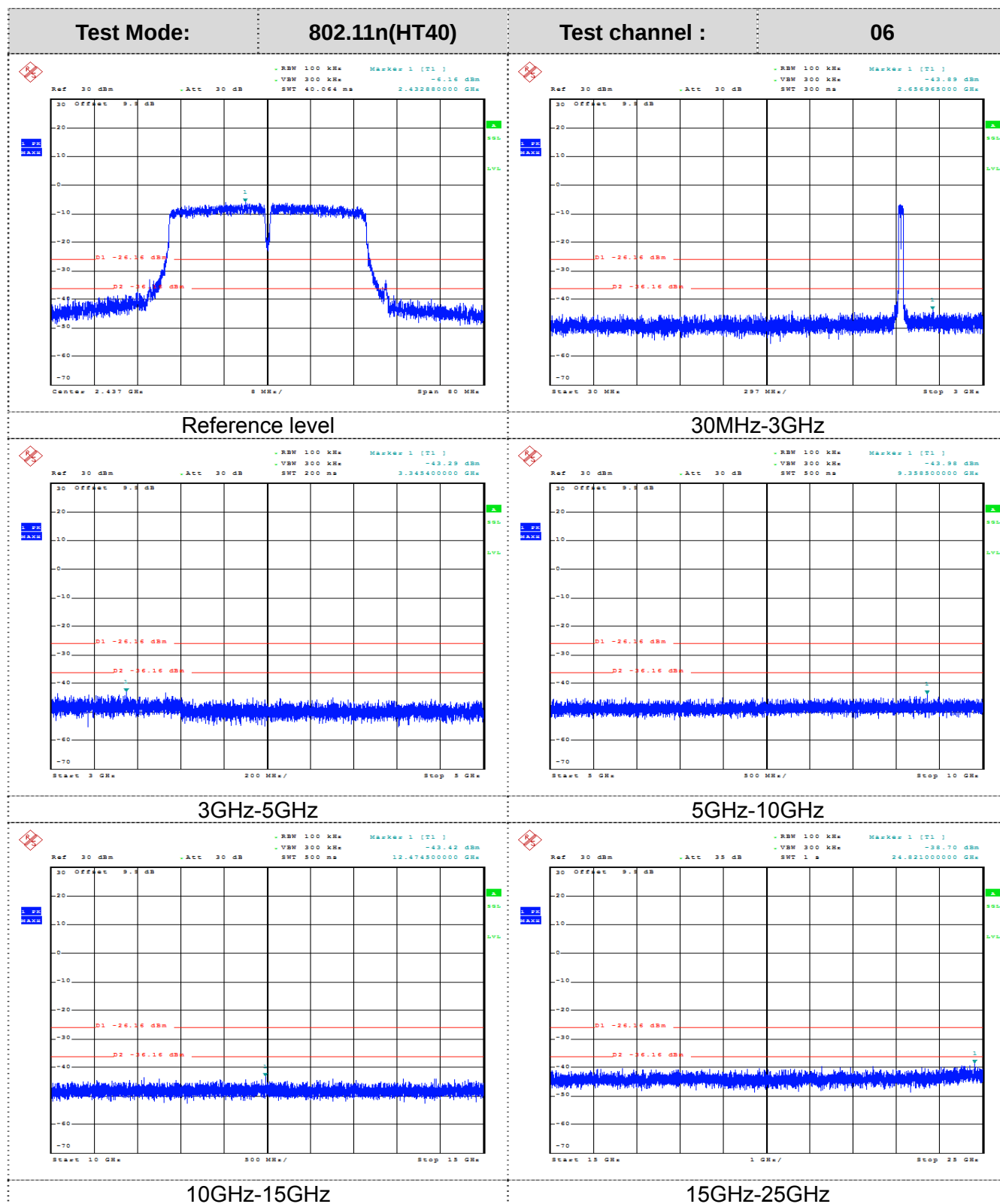


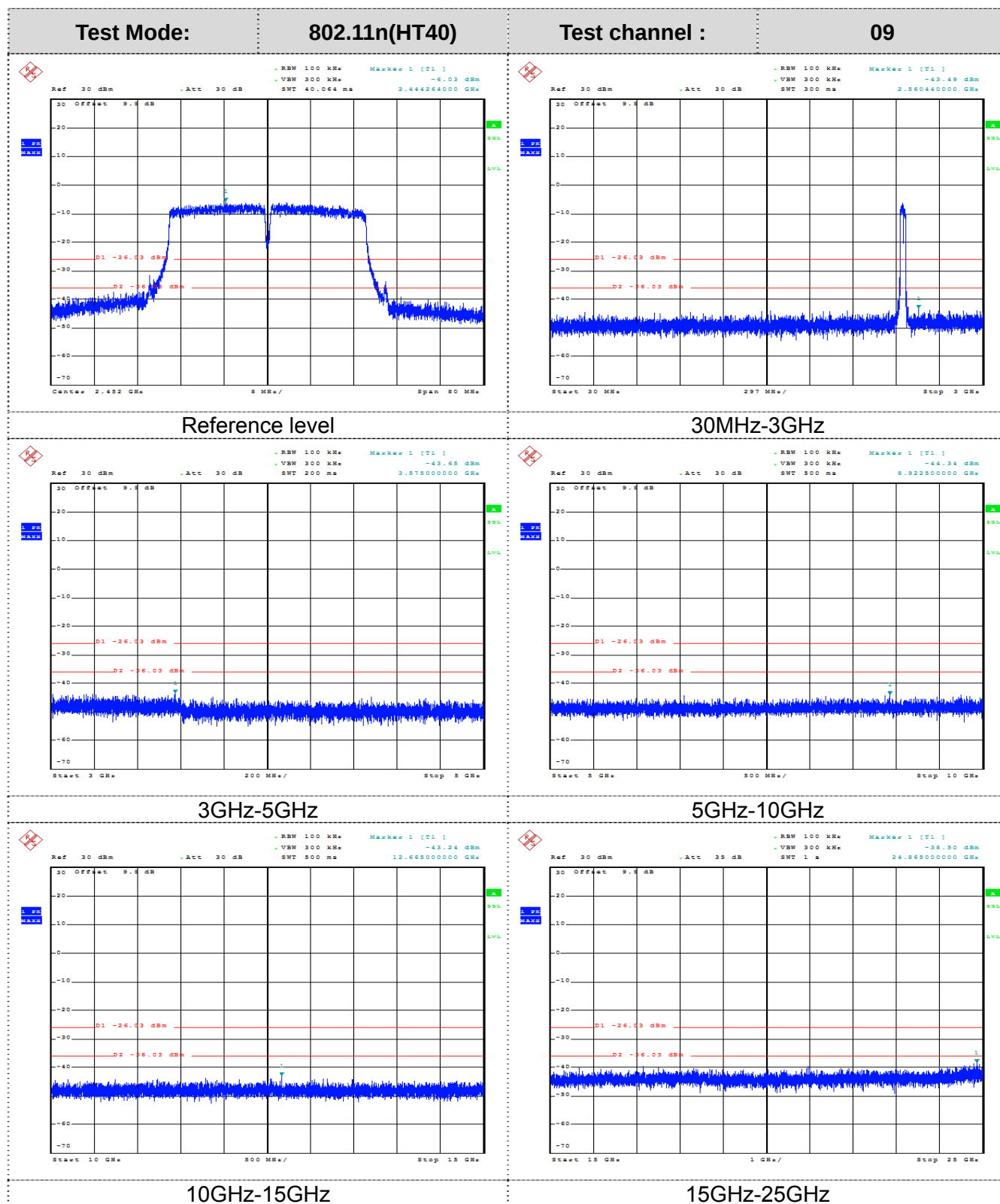












3.8. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

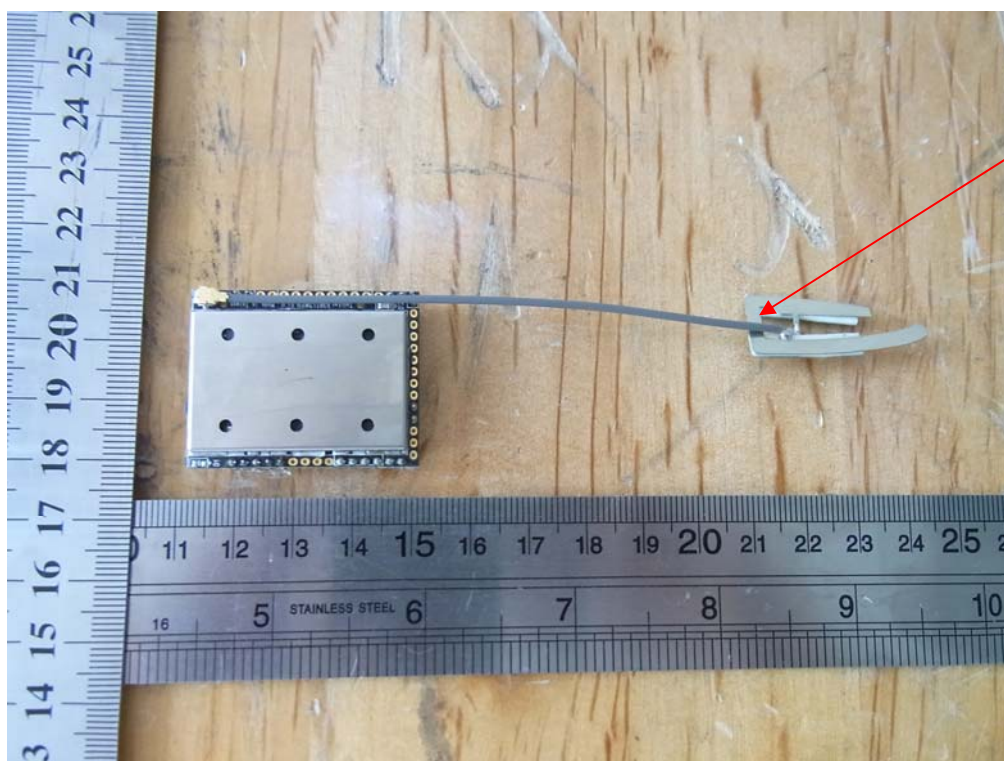
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result:

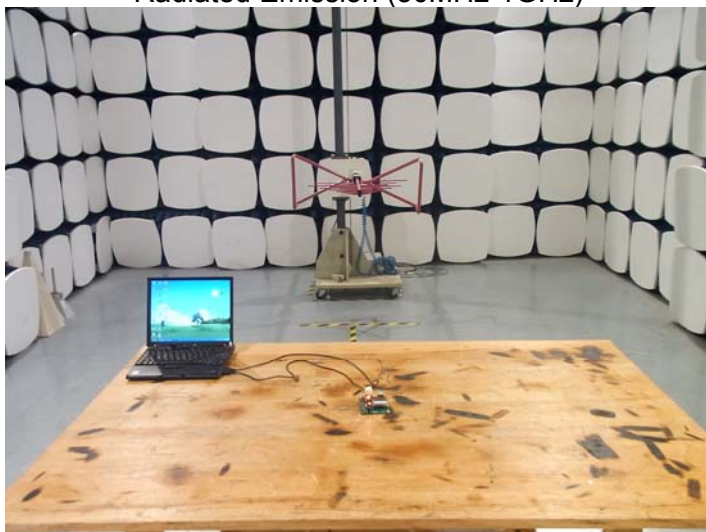
The maximum gain of WiFi antenna was 3dBi.



WiFi
Antenna

4. EUT TEST PHOTO

Radiated Emission (30MHz-1GHz)



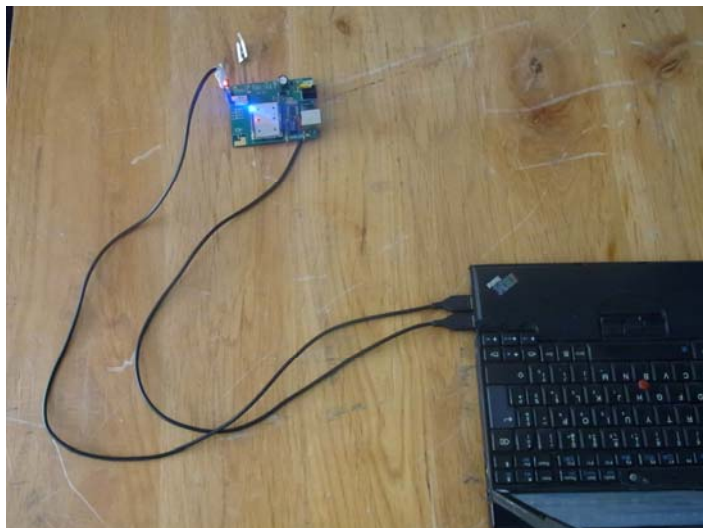
Radiated Emission (1GHz-25GHz)



Conducted Emission

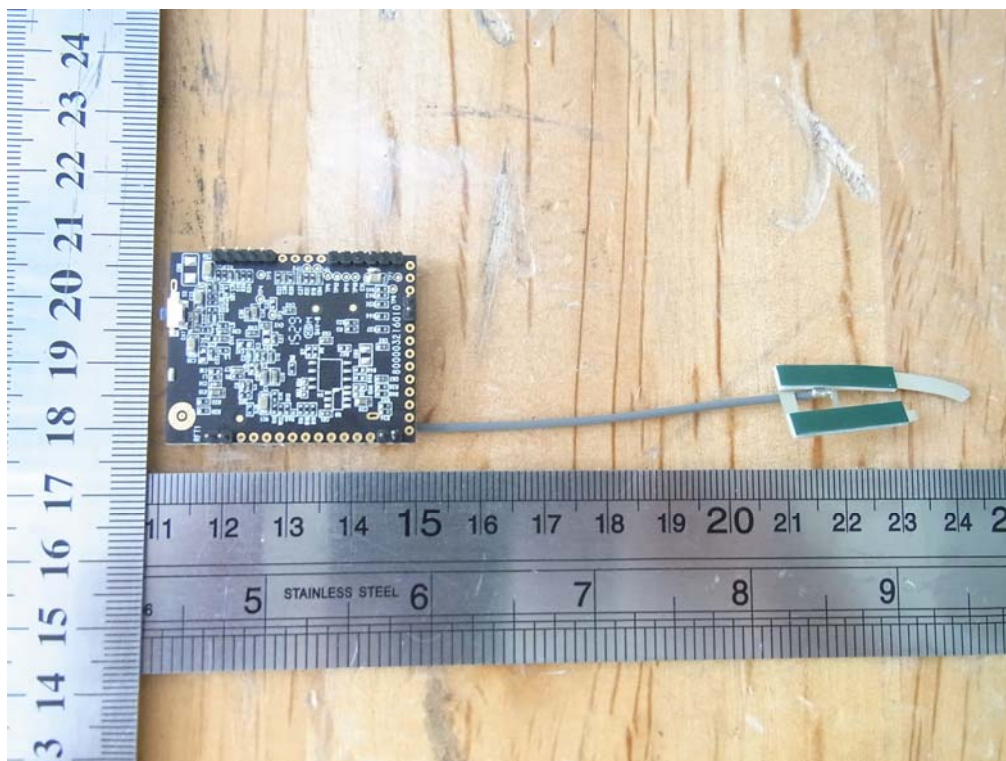
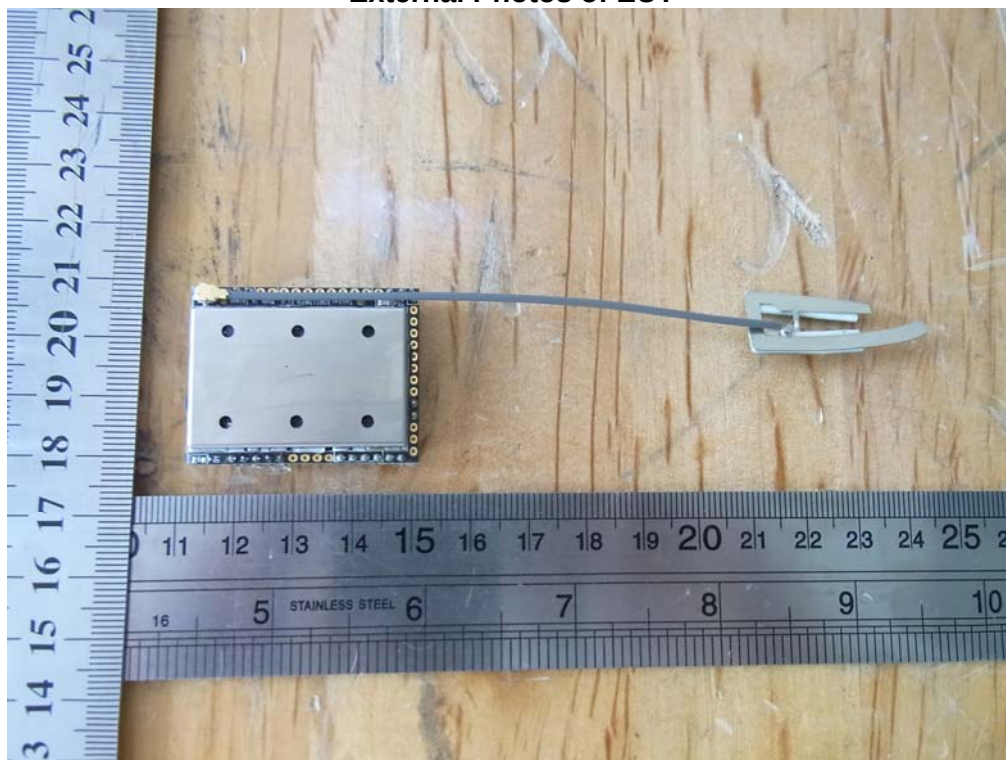


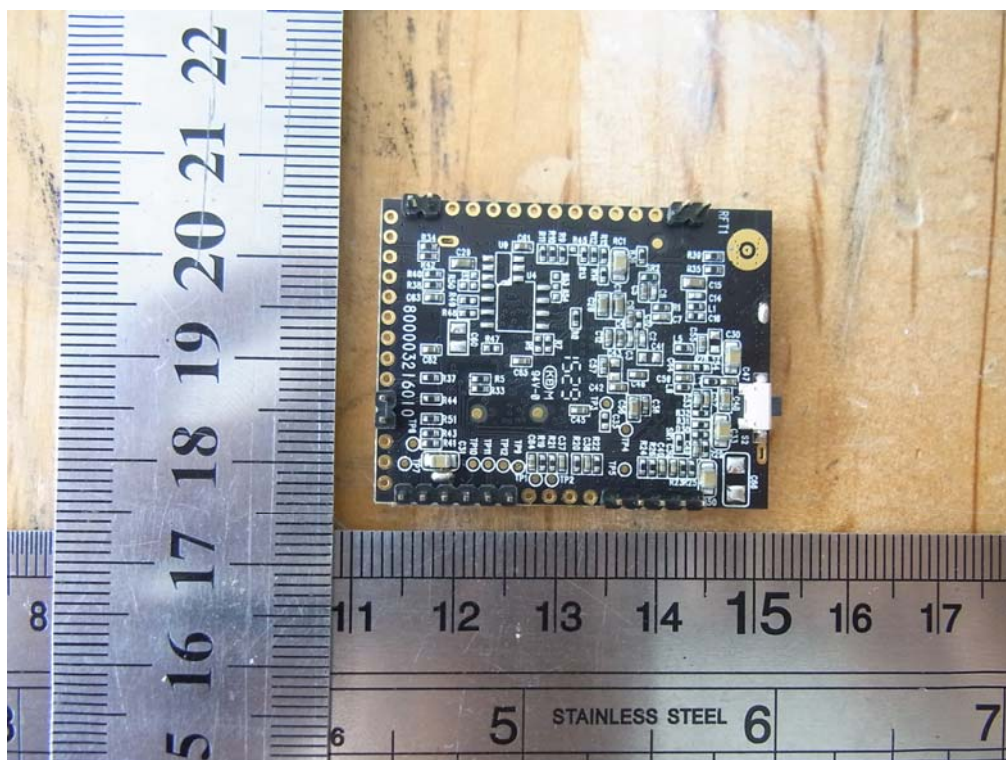
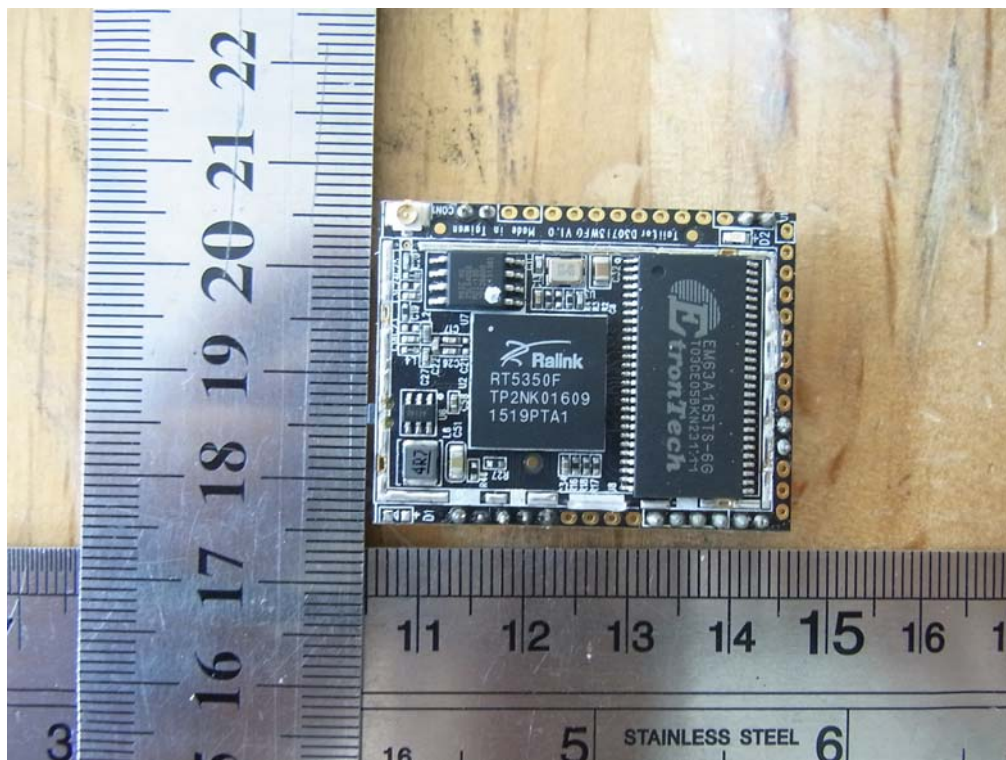
Close UP View



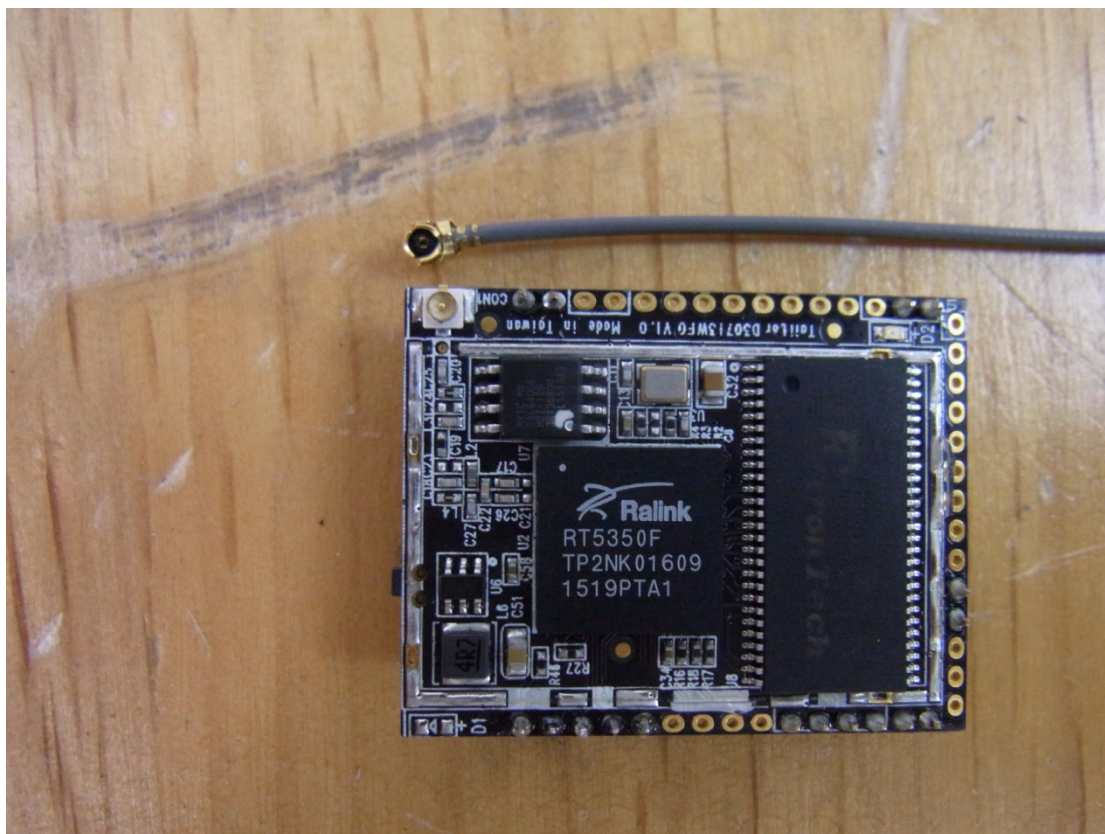
5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

External Photos of EUT





Antenna Port



*****THE END*****