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FCC TEST REPORT

Report No: STS1502032F03

Issued for

Tianjin RoamWiFi Technology Co., Ltd.
2018 Zhong Tian Road , Block 16 Unit 429, Ready built
office, Tianjin Eco-city, Tianjin

Product Name:	3G Wireless Router
Brand Name:	Roam WiFi
Model No.:	RW-801
FCC ID:	2ADUB-ROAMWIFI
Test Standard:	FCC Part 15.247

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Shenzhen STS Test Services Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name: Tianjin RoamWiFi Technology Co., Ltd.
Address.....: 2018 Zhong Tian Road , Block 16 Unit 429, Ready built office,
Tianjin Eco-city, Tianjin
Manufacture's Name: Tianjin RoamWiFi Technology Co., Ltd.
Address.....: 2018 Zhong Tian Road , Block 16 Unit 429, Ready built office,
Tianjin Eco-city, Tianjin

Product description

Product name: 3G Wireless Router
Model and/or type reference: RW-801

Standards: FCC Part15.247

Test procedure: ANSI C63.10-2009

This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test:

Date (s) of performance of tests.....: 02 Feb. 2015 ~10 Feb. 2015

Date of Issue.....: 11 Feb. 2015

Test Result.....: **Pass**

Testing Engineer :

(Jin Ming)

Report writing :

(Sunny zheng)

Authorized Signatory :

(Bovey Yang)





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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b) (reference KDB 558074 v03r02)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Conducted Spurious Emission	PASS	
15.247 (e)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

Shenzhen STS Test Services Co., Ltd.

Add. : 1/F, Building 2, Zhuoke Science Park, Chongqing Road, Fuyong, Baoan District, Shenzhen, China.

FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	3G Wireless Router	
Trade Name	Roam WiFi	
Model Name	RW-801	
Product Description	The EUT is a 3G Wireless Router	
	Operation Frequency:	802.11b/g: 2412~2462 MHz
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps
	Number Of Channel	802.11b/g: 11CH
	Antenna Designation:	Please see Note 3.
	Antenna Gain (dBi)	0 dBi
Channel List	Please refer to the Note 2.	
Ratings	DC 3.7V from battery	
Battery	Rated Voltage: 3.7V Charge Limit: 4.2V capacity :5200mAh	
Hardware version number	SP918	
Software versioning number	RoamWiFi_1.00.001	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

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

2.

Channel List for 802.11b/g							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		



3. Table for Filed Antenna

Ant .	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	Integrated Antenna	NA	0	N/A





2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	Link Mode

For Conducted Emission	
Final Test Mode	Description
Mode 3	Link Mode

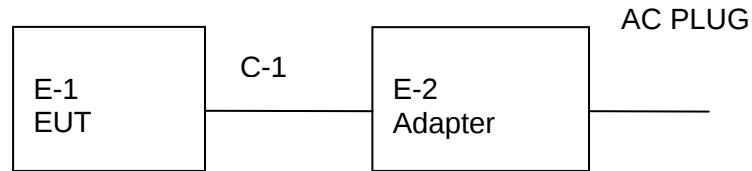
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	Link Mode

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported



2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TEST



2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	3G Wireless Router	Roam WiFi	RW-801	X510B	EUT
E-2	Adapter	Rivo	RM003	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.5m	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) The Adapter was provided by Lab.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2014.10.25	2015.10.24
Test Receiver	R&S	ESCI	101427	2014.10.25	2015.10.24
Bilog Antenna	TESEQ	CBL6111D	34678	2014.10.27	2015.10.26
Horn Antenna	R&S	9120D	152265	2014.10.27	2015.10.26
Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05
Amplifier	Agilent	8449B	60538	2014.10.25	2015.10.24
Loop Antenna	ARA	PLA-1030/B	1029	2014.06.08	2015.06.07
Power Meter	Anritsu	ML2495A	1204003	2014.10.25	2015.10.24
Power Sensor	Anritsu	MA2411B	100309	2014.10.25	2015.10.24
Low frequency cable	MURATA	R-03	130627	2014.10.25	2015.10.24
High frequency cable	HARBOUR	R-02	FL0000175	2014.10.25	2015.10.24

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	102086	2014.10.25	2015.10.24
LISN	R&S	ENV216	101242	2014.10.25	2015.10.24
LISN	EMCO	3810/2NM	000-23625	2014.10.25	2015.10.24
Conduction Cable	HUBER+SU HNER	C01	N/A	2014.10.25	2015.10.24



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.247&207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



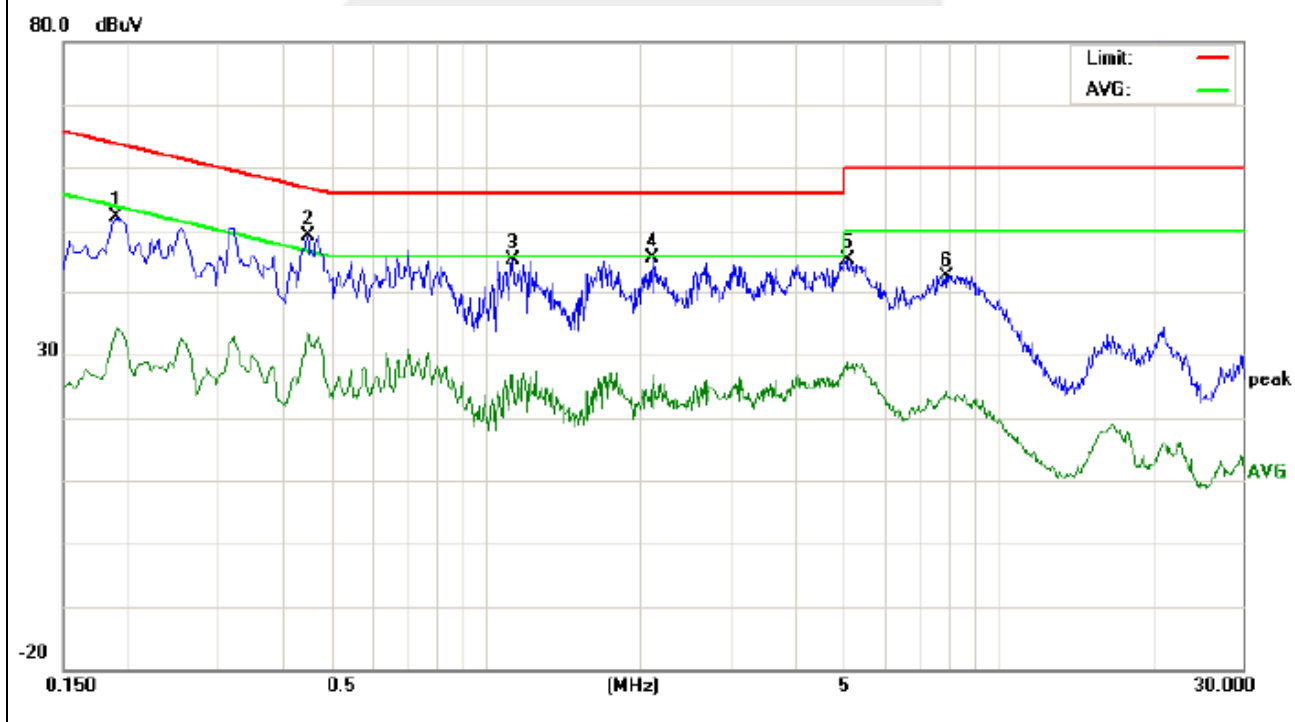
3.1.2 TEST RESULTS

EUT :	3G Wireless Router	Model Name. :	RW-801
Temperature :	23 °C	Relative Humidity :	50%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Link Mode

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1900	41.87		24.30	10.20	52.07		34.50	64.03	54.03	-11.96	-19.53	P	
2	0.4500	38.88		23.05	10.37	49.25		33.42	56.87	46.87	-7.62	-13.45	P	
3	1.1260	35.11		16.42	10.37	45.48		26.79	56.00	46.00	-10.52	-19.21	P	
4	2.1180	35.37		16.66	10.27	45.64		26.93	56.00	46.00	-10.36	-19.07	P	
5	5.0780	35.17		18.70	10.24	45.41		28.94	60.00	50.00	-14.59	-21.06	P	
6	7.9060	32.36		13.71	10.35	42.71		24.06	60.00	50.00	-17.29	-25.94	P	

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. The adapter provided by the lab.



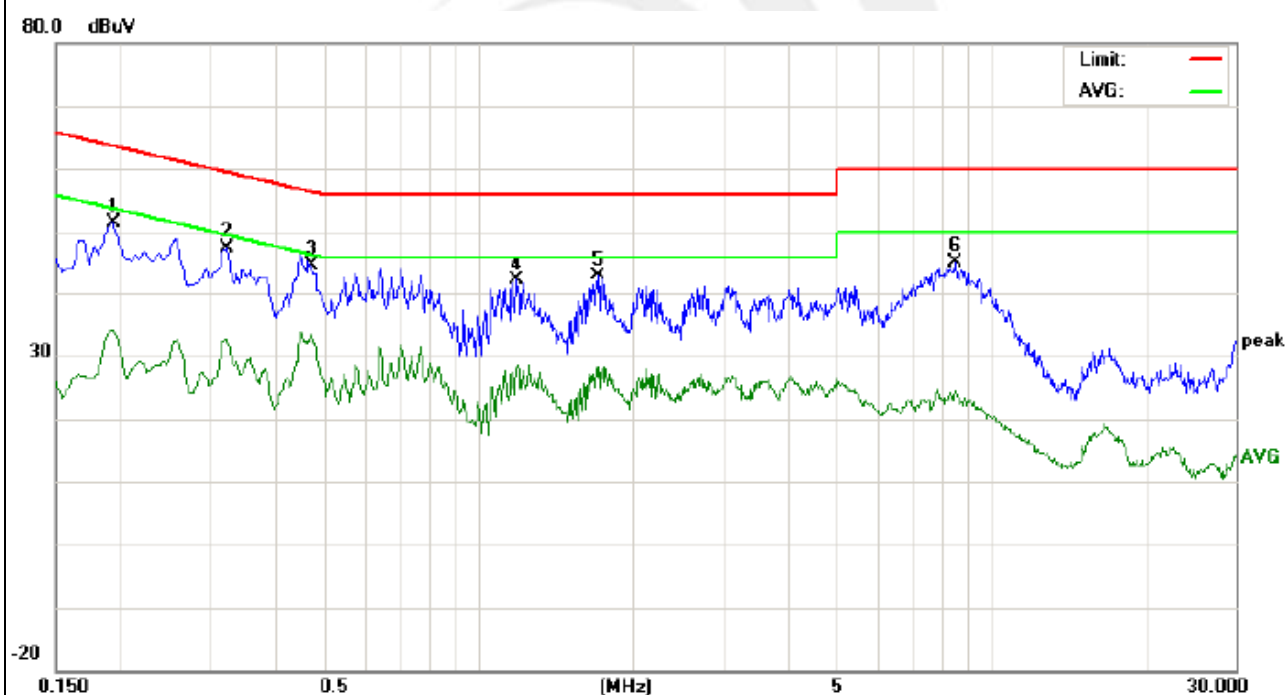


EUT :	3G Wireless Router	Model Name. :	RW-801
Temperature :	23 °C	Relative Humidity :	50%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode :	Link Mode

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1940	41.24		23.86	10.21	51.45		34.07	63.86	53.86	-12.41	-19.79	P	
2	0.3220	37.07		22.37	10.30	47.37		32.67	59.65	49.65	-12.28	-16.98	P	
3	0.4740	34.29		22.95	10.38	44.67		33.33	56.44	46.44	-11.77	-13.11	P	
4	1.1900	31.66		17.56	10.37	42.03		27.93	56.00	46.00	-13.97	-18.07	P	
5	1.7100	35.44		15.63	10.31	45.75		25.94	56.00	46.00	-10.25	-20.06	P	
6	8.5100	34.91		14.04	10.34	45.25		24.38	60.00	50.00	-14.75	-25.62	P	

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. The adapter provided by the lab





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

6 dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15.247&205(a), then the Part 15.247&209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT

The EUT operates below 10GHz, the spectrum must be examined from the upper block/band edge frequency up to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower. So the frequency range is 9KHz~25GHz.

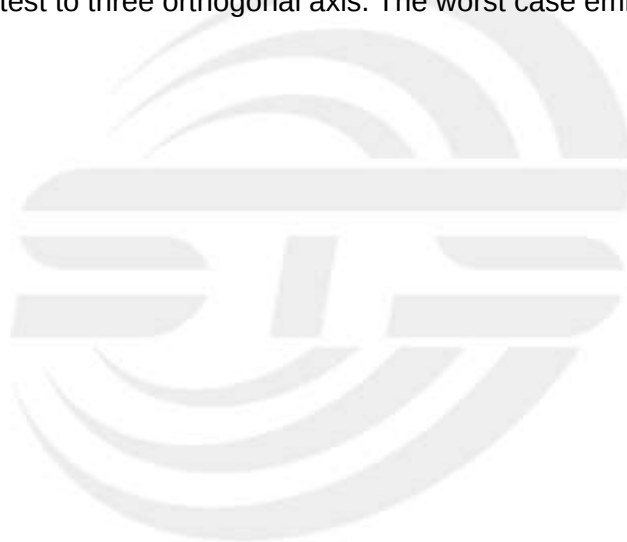


3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

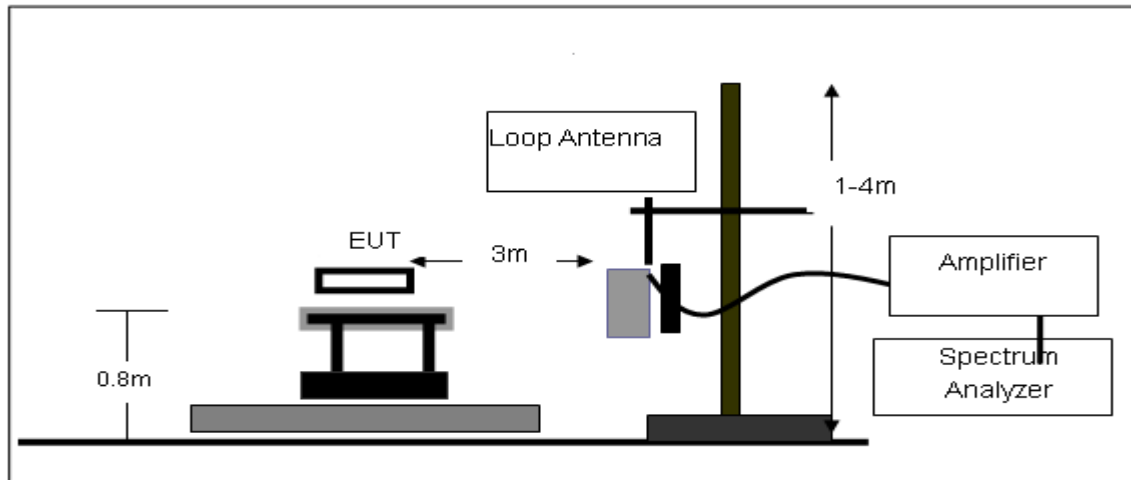
Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

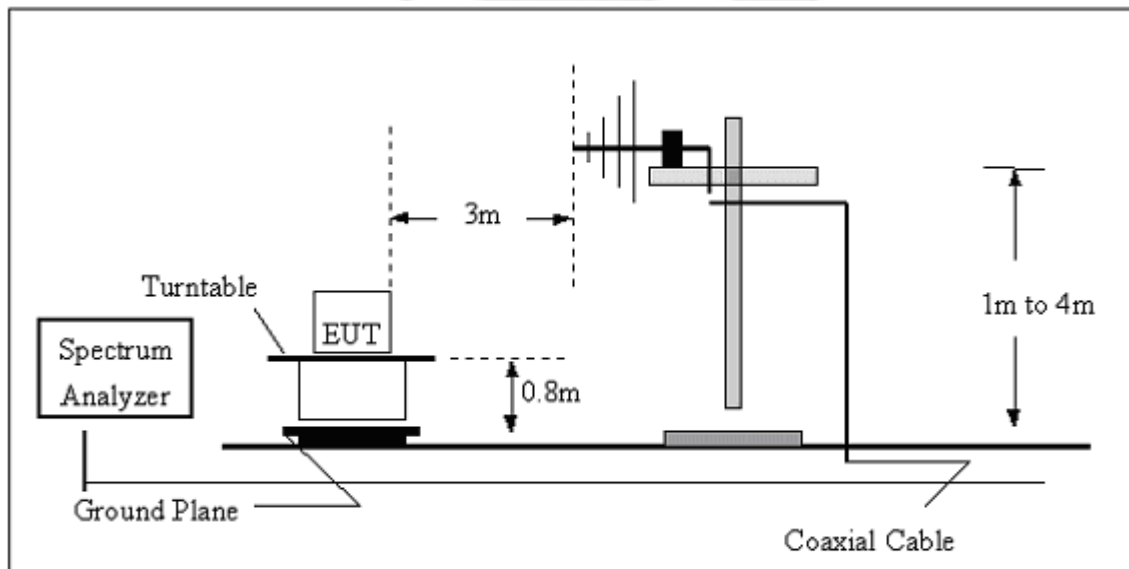


3.2.3 TEST SETUP

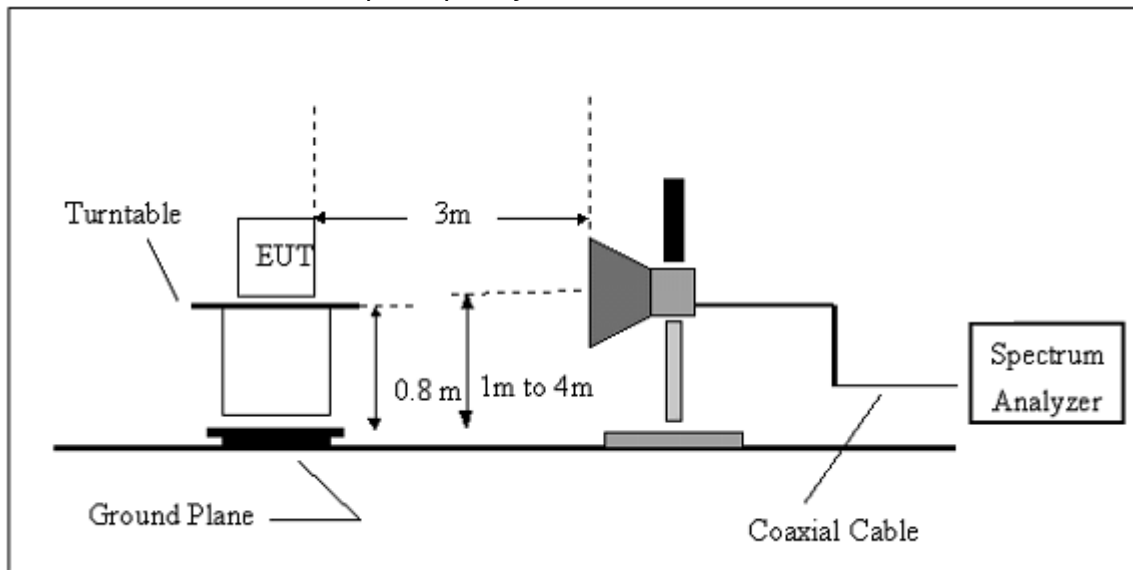
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.5 TEST RESULT

9KHz-30MHz

EUT:	3G Wireless Router	Model Name. :	RW-801
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX mode	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor.



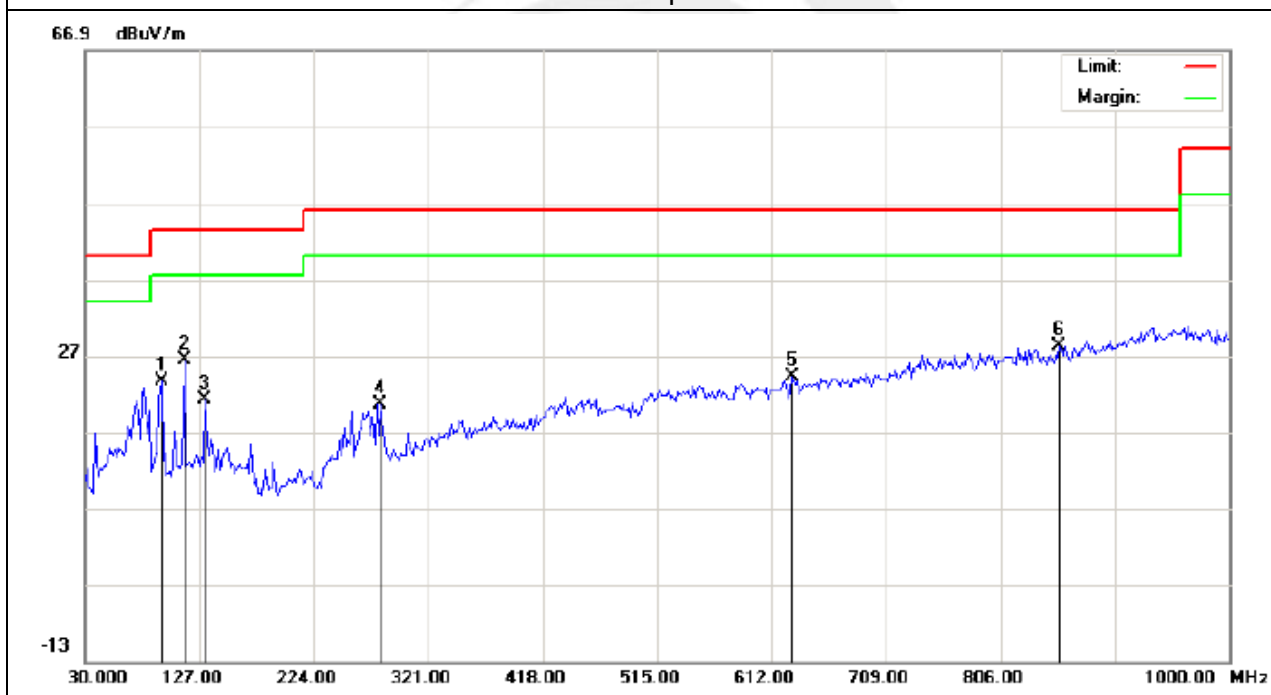
30MHz - 1000MHz

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	Low channel tx	Polarization :	Horizontal

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		94.6667	13.77	9.89	23.66	43.50	-19.84	peak			
2	*	114.0667	14.95	11.45	26.40	43.50	-17.10	peak			
3		131.8500	7.35	13.84	21.19	43.50	-22.31	peak			
4		280.5833	5.86	14.82	20.68	46.00	-25.32	peak			
5		629.7833	0.31	23.80	24.11	46.00	-21.89	peak			
6		856.1167	0.73	27.47	28.20	46.00	-17.80	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



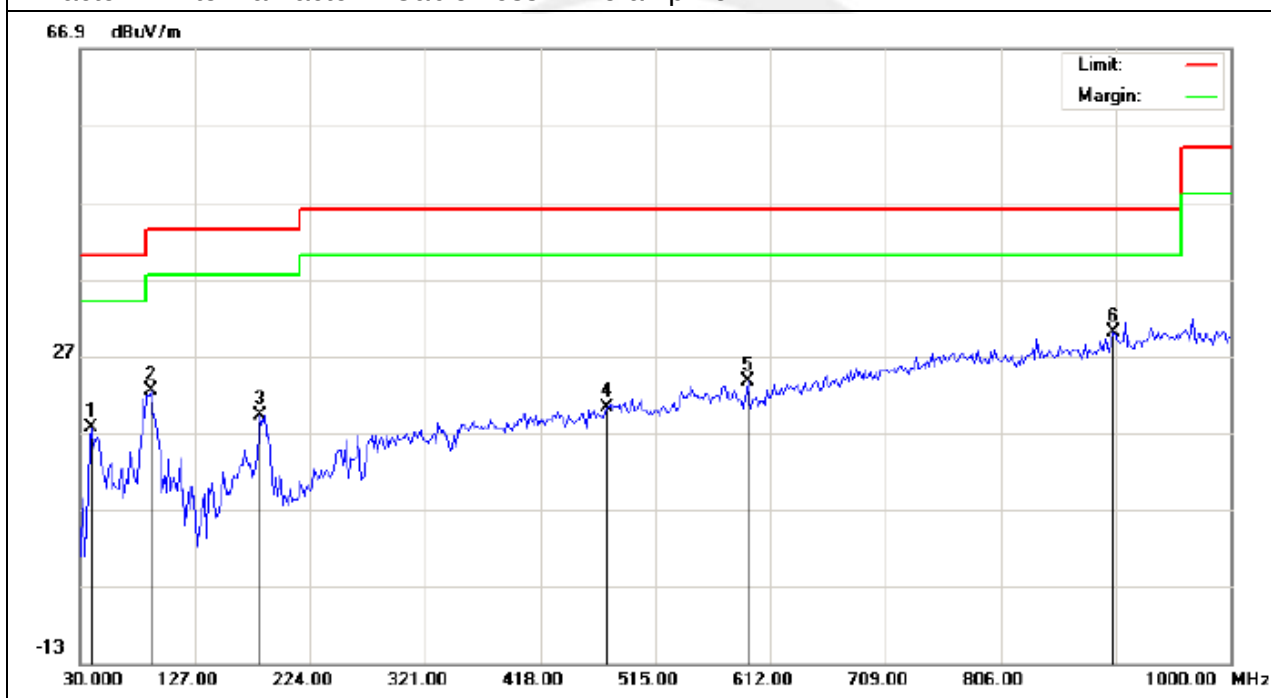


EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	Low channel tx	Polarization :	Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		39.7000	9.01	8.51	17.52	40.00	-22.48	peak			
2		89.8167	17.04	5.31	22.35	43.50	-21.15	peak			
3		181.9667	5.66	13.57	19.23	43.50	-24.27	peak			
4		474.5833	-0.71	20.86	20.15	46.00	-25.85	peak			
5		592.6000	0.90	22.69	23.59	46.00	-22.41	peak			
6	*	901.3833	1.34	28.65	29.99	46.00	-16.01	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



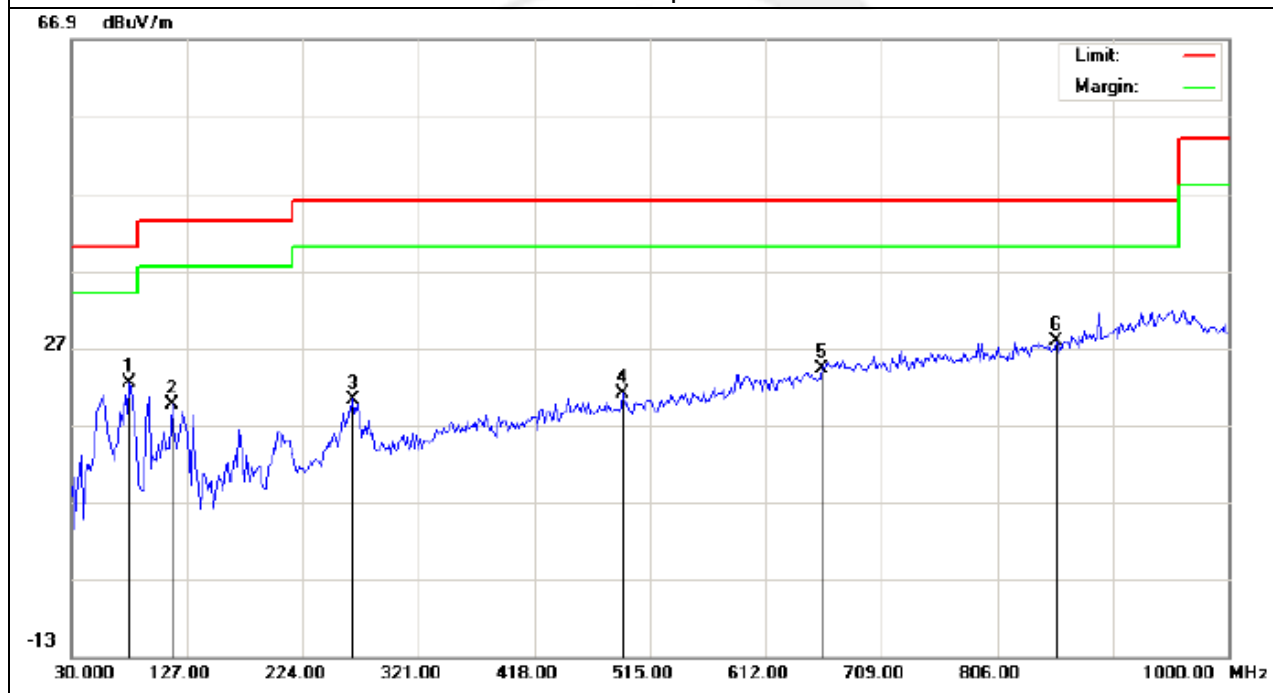


EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	Middle channel tx	Polarization :	Horizontal

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	78.5000	12.59	9.87	22.46	40.00	-17.54	peak			
2		114.0667	8.17	11.45	19.62	43.50	-23.88	peak			
3		266.0333	5.92	14.38	20.30	46.00	-25.70	peak			
4		492.3667	0.05	21.05	21.10	46.00	-24.90	peak			
5		658.8833	0.15	24.09	24.24	46.00	-21.76	peak			
6		856.1167	0.27	27.47	27.74	46.00	-18.26	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



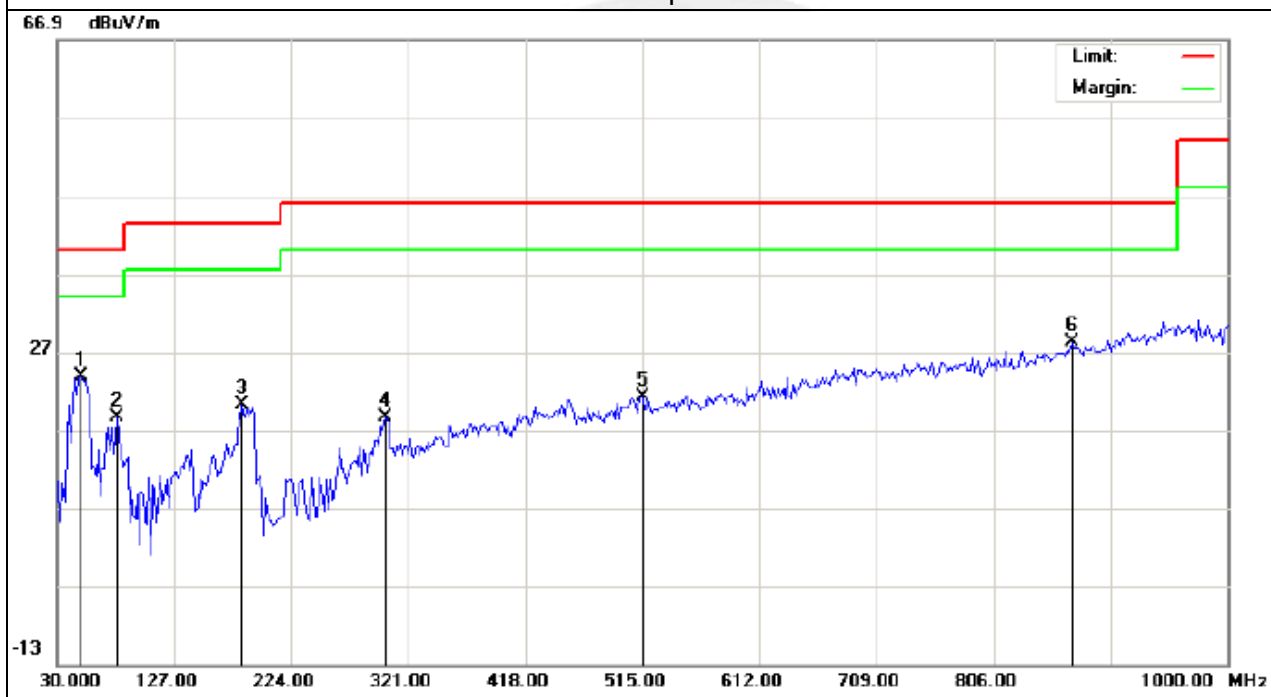


EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	Middle channel tx	Polarization :	Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	49.4000	15.46	8.28	23.74	40.00	-16.26	peak			
2		80.1167	16.67	1.84	18.51	40.00	-21.49	peak			
3		183.5833	7.03	13.16	20.19	43.50	-23.31	peak			
4		301.6000	3.05	15.52	18.57	46.00	-27.43	peak			
5		515.0000	-0.37	21.54	21.17	46.00	-24.83	peak			
6		870.6667	0.44	27.85	28.29	46.00	-17.71	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



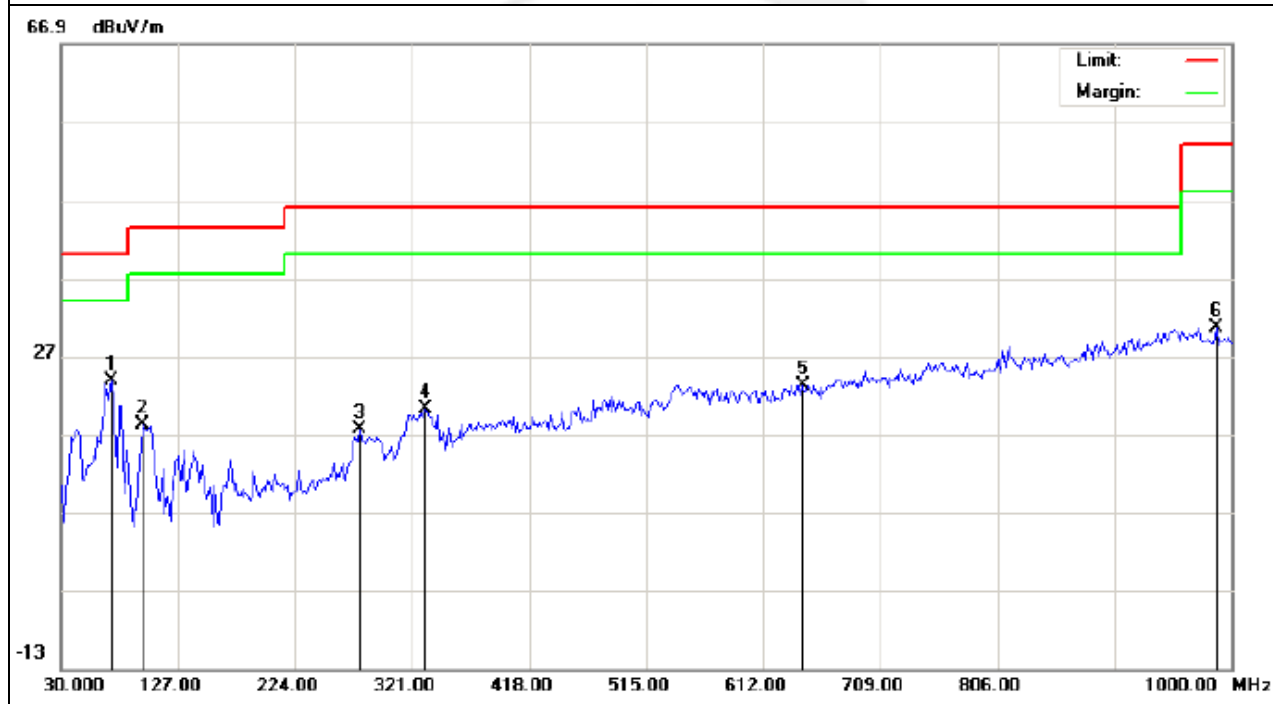


EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	High channel tx	Polarization :	Horizontal

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	72.0333	13.68	10.17	23.85	40.00	-16.15	peak			
2		97.9000	7.88	10.25	18.13	43.50	-25.37	peak			
3		277.3500	2.82	14.73	17.55	46.00	-28.45	peak			
4		332.3167	2.57	17.56	20.13	46.00	-25.87	peak			
5		644.3333	-0.59	23.84	23.25	46.00	-22.75	peak			
6		987.0667	1.02	29.64	30.66	54.00	-23.34	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



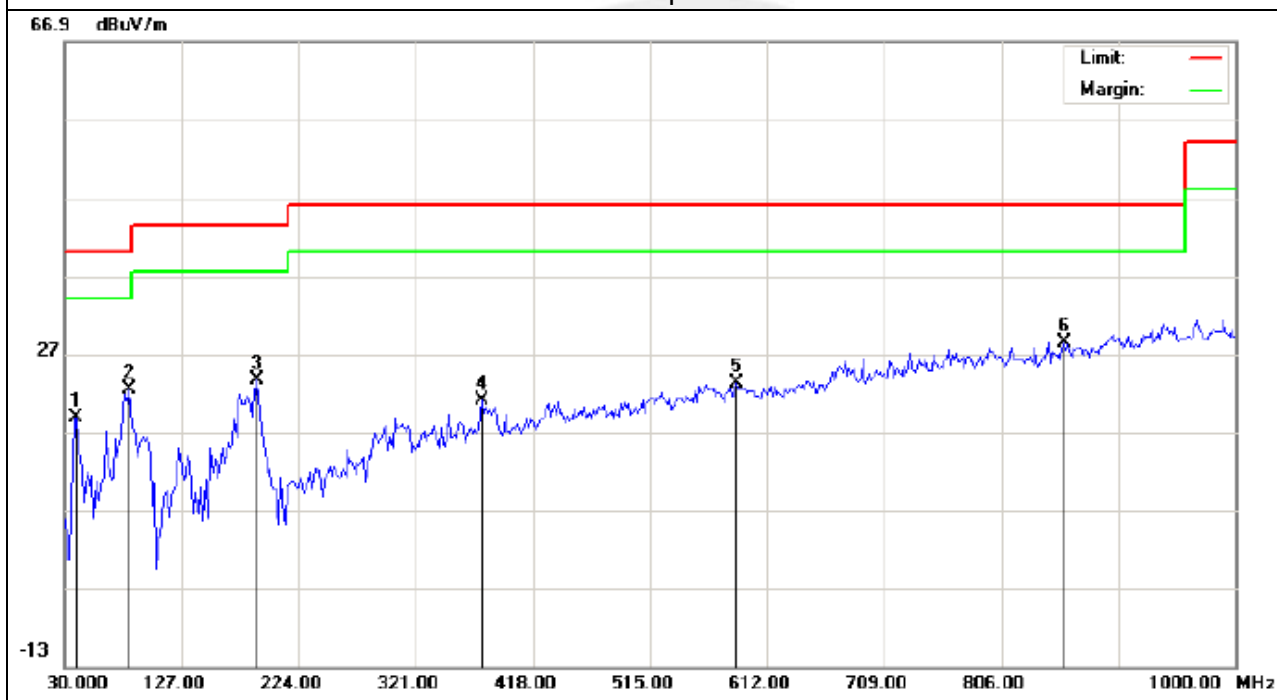


EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	High channel tx	Polarization :	Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		39.7000	10.38	8.51	18.89	40.00	-21.11	peak			
2		83.3500	19.37	3.00	22.37	40.00	-17.63	peak			
3		190.0500	12.06	11.52	23.58	43.50	-19.92	peak			
4		375.9667	2.05	18.91	20.96	46.00	-25.04	peak			
5		586.1333	0.50	22.66	23.16	46.00	-22.84	peak			
6	*	857.7333	0.94	27.51	28.45	46.00	-17.55	peak			

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.





1000MHz - 25000MHz

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1 (802.11b Mode)/2412	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.070	46.56	10.44	57	74	-17	peak
4824.070	31.24	10.44	41.68	54	-12.32	AVG
7236.104	43.75	12.39	56.14	74	-17.86	peak
7236.104	33.48	12.39	45.87	54	-8.13	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1 (802.11b Mode)/2412	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.040	49.38	10.39	59.77	74	-14.23	peak
4824.062	33.72	10.39	44.11	54	-9.89	AVG
7236.146	48.48	12.68	61.16	74	-12.84	peak
7236.064	30.53	12.68	43.21	54	-10.79	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH6 (802.11b Mode)/2437	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.100	49.63	10.39	60.02	74	-13.98	peak
4874.087	33.37	10.39	43.76	54	-10.24	AVG
7311.101	48.58	12.68	61.26	74	-12.74	peak
7311.128	30.27	12.68	42.95	54	-11.05	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH6 (802.11b Mode)/2437	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.047	49.72	10.39	60.11	74	-13.89	peak
4874.129	33.44	10.39	43.83	54	-10.17	AVG
7311.145	48.65	12.68	61.33	74	-12.67	peak
7311.131	30.53	12.68	43.21	54	-10.79	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11 (802.11b Mode)/2462	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.090	49.96	10.39	60.35	74	-13.65	peak
4924.050	33.36	10.39	43.75	54	-10.25	AVG
7386.094	48.25	12.68	60.93	74	-13.07	peak
7386.083	30.53	12.68	43.21	54	-10.79	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11 (802.11b Mode)/2462	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.117	49.45	10.39	59.84	74	-14.16	peak
4924.051	33.92	10.39	44.31	54	-9.69	AVG
7386.102	48.36	12.68	61.04	74	-12.96	peak
7386.085	30.84	12.68	43.52	54	-10.48	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1 (802.11g Mode)/2412	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.127	46.33	10.44	56.77	74	-17.23	peak
4824.134	36.62	10.44	47.06	54	-6.94	AVG
7236.049	42.53	12.39	54.92	74	-19.08	peak
7236.056	28.28	12.39	40.67	54	-13.33	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1 (802.11g Mode)/2412	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4824.119	46.62	10.44	57.06	74	-16.94	peak
4824.059	36.37	10.44	46.81	54	-7.19	AVG
7236.038	42.56	12.39	54.95	74	-19.05	peak
7236.071	28.47	12.39	40.86	54	-13.14	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH6 (802.11g Mode)/2437	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4874.073	45.58	10.4	55.98	74	-18.02	peak
4874.121	26.27	10.4	36.67	54	-17.33	AVG
7311.091	44.55	12.75	57.3	74	-16.7	peak
7311.164	25.49	12.75	38.24	54	-15.76	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH6 (802.11g Mode)/2437	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4874.079	48.15	10.4	58.55	74	-15.45	peak
4874.077	35.92	10.4	46.32	54	-7.68	AVG
7311.080	48.35	12.75	61.1	74	-12.9	peak
7311.087	33.77	12.75	46.52	54	-7.48	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11 (802.11g Mode)/2462	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.046	49.37	10.39	59.76	74	-14.24	peak
4924.074	33.52	10.39	43.91	54	-10.09	AVG
7386.117	48.15	12.68	60.83	74	-13.17	peak
7386.088	30.38	12.68	43.06	54	-10.94	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11(802.11g Mode)/2462	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4924.086	46.37	10.39	56.76	74	-17.24	peak
4924.123	34.49	10.39	44.88	54	-9.12	AVG
7386.084	46.62	12.68	59.3	74	-14.7	peak
7386.086	33.25	12.68	45.93	54	-8.07	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



3.2.6 TEST RESULTS (BAND EDGE)

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1(802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2399.900	80.63	-13	67.63	74	-6.37	peak
2399.900	61.54	-13	48.54	54	-5.54	AVG
2400.000	82.39	-12.99	69.4	74	-4.41	peak
2400.000	61.44	-12.99	48.45	54	-5.74	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2399.900	81.72	-13	68.72	74	-5.28	peak
2399.900	61.64	-13	48.64	54	-5.36	AVG
2400.000	78.35	-12.99	65.36	74	-8.64	peak
2400.000	59.24	-12.99	46.25	54	-7.75	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11(802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2483.500	78.25	-12.78	65.47	74	-8.53	peak
2483.500	60.63	-12.78	47.85	54	-6.15	AVG
2483.600	79.57	-12.77	66.8	74	-7.2	peak
2483.600	60.85	-12.78	48.07	54	-5.93	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2483.500	77.75	-12.78	64.97	74	-9.03	peak
2483.500	60.93	-12.78	48.15	54	-5.85	AVG
2483.600	78.25	-12.77	65.48	74	-8.52	peak
2483.600	59.34	-12.77	46.57	54	-7.43	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1(802.11g Mode)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2399.900	76.62	-13	63.62	74	-10.38	peak
2399.900	59.47	-13	46.47	54	-7.53	AVG
2400.000	78.31	-12.99	65.32	74	-8.68	peak
2400.000	58.38	-12.99	45.39	54	-8.61	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH1(802.11gMode)	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2399.900	77.38	-13	64.38	74	-9.62	peak
2399.900	60.82	-13	47.82	54	-6.18	AVG
2400.000	78.39	-12.99	65.4	74	-8.6	peak
2400.000	62.52	-12.99	49.53	54	-4.47	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11(802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2483.500	77.32	-12.78	64.54	74	-9.46	peak
2483.500	63.59	-12.78	50.81	54	-3.19	AVG
2483.600	76.14	-12.77	63.37	74	-10.63	peak
2483.600	61.86	-12.77	49.09	54	-4.91	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
2483.500	76.75	-12.78	63.97	74	-10.03	peak
2483.500	60.84	-12.78	48.06	54	-5.94	AVG
2483.600	75.69	-12.77	62.92	74	-11.08	peak
2483.600	61.63	-12.77	48.86	54	-5.14	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

4. CONDUCTED SPURIOUS EMISSIONS

4.1 APPLIED PROCEDURES / 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. Attenuation below the general limits specified in Section 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)).

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

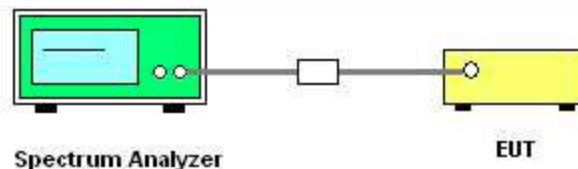
For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2300 to 2430 MHz Upper Band Edge: 2450 to 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

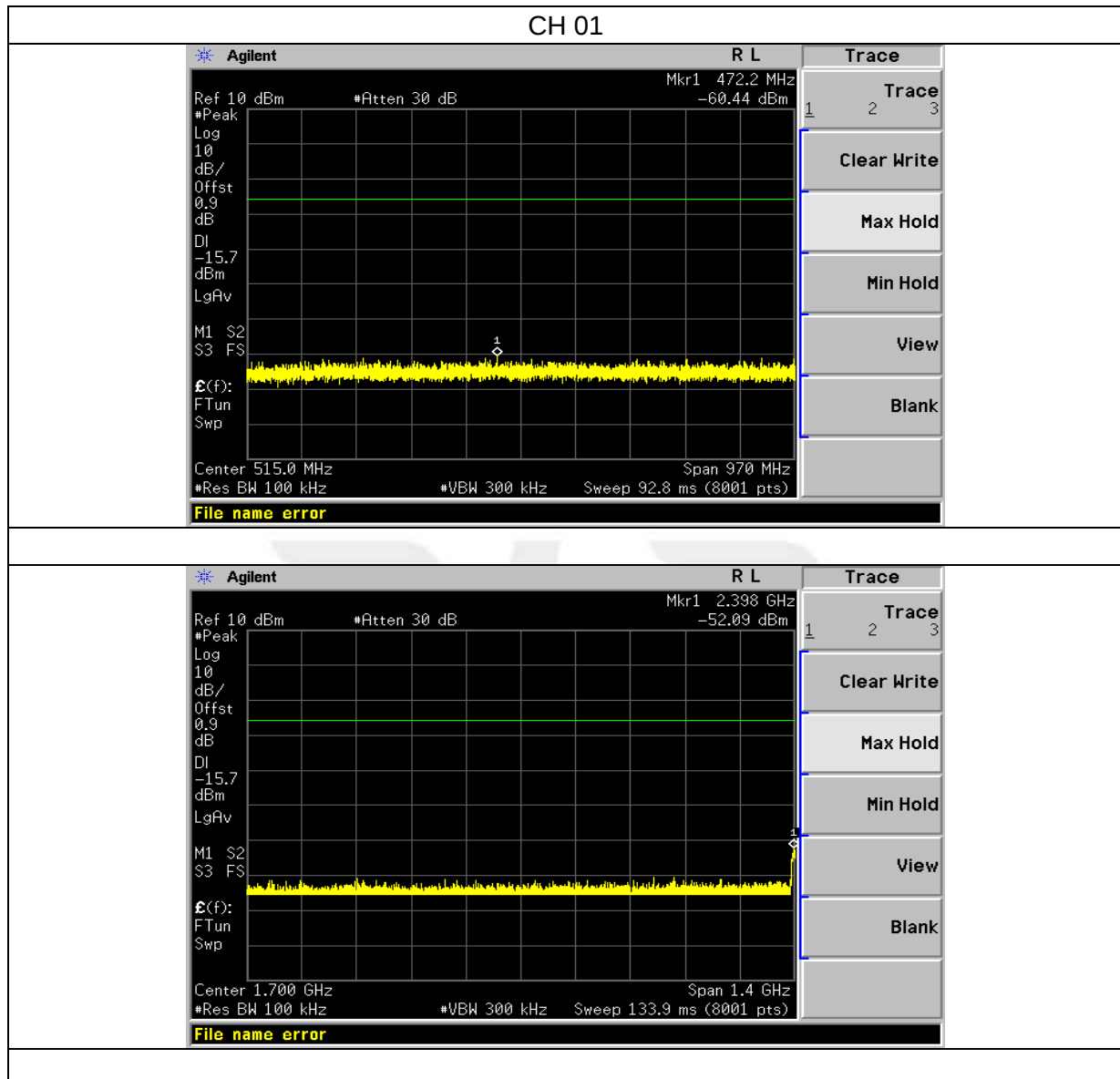
4.5 EUT OPERATION CONDITIONS

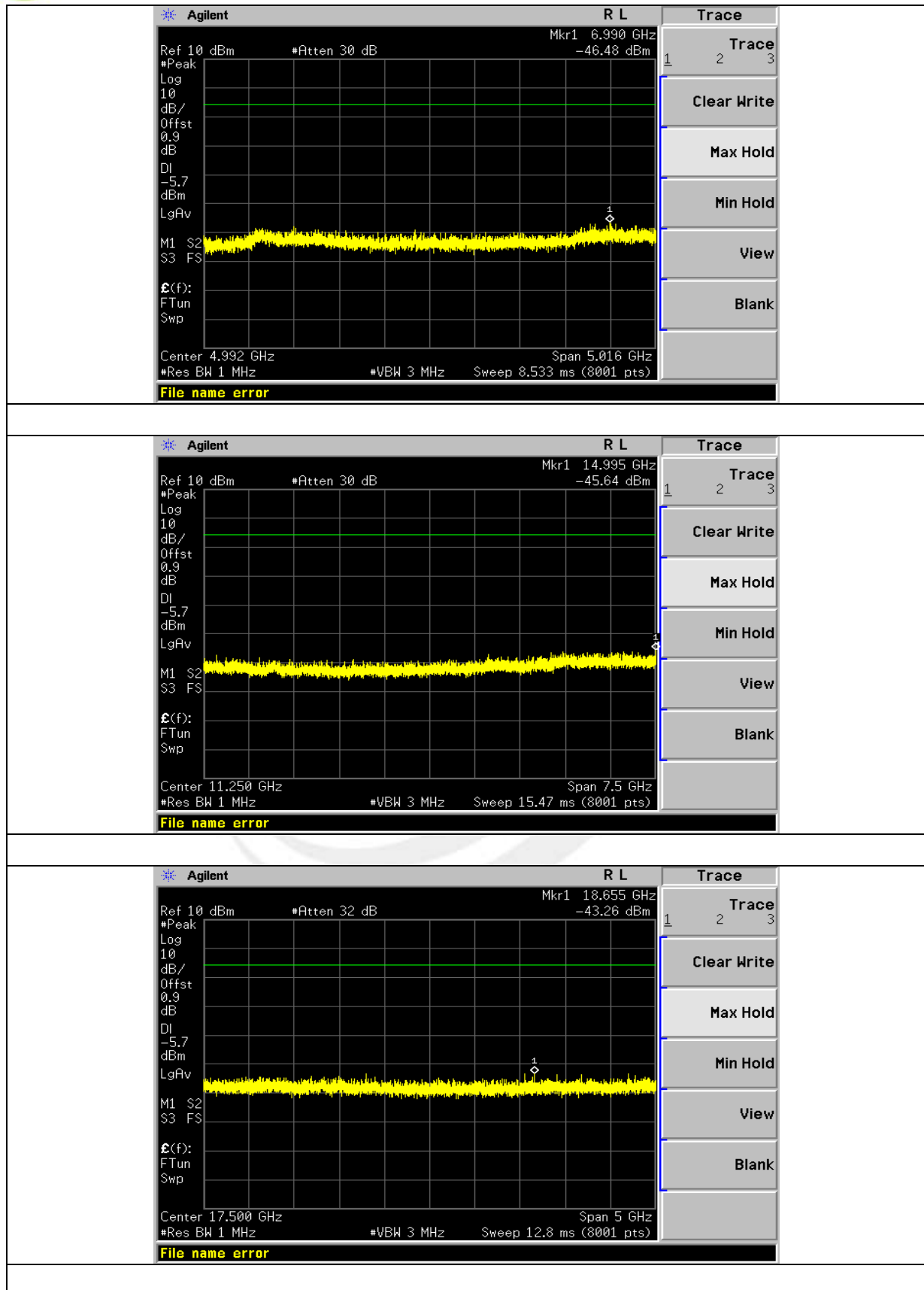
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

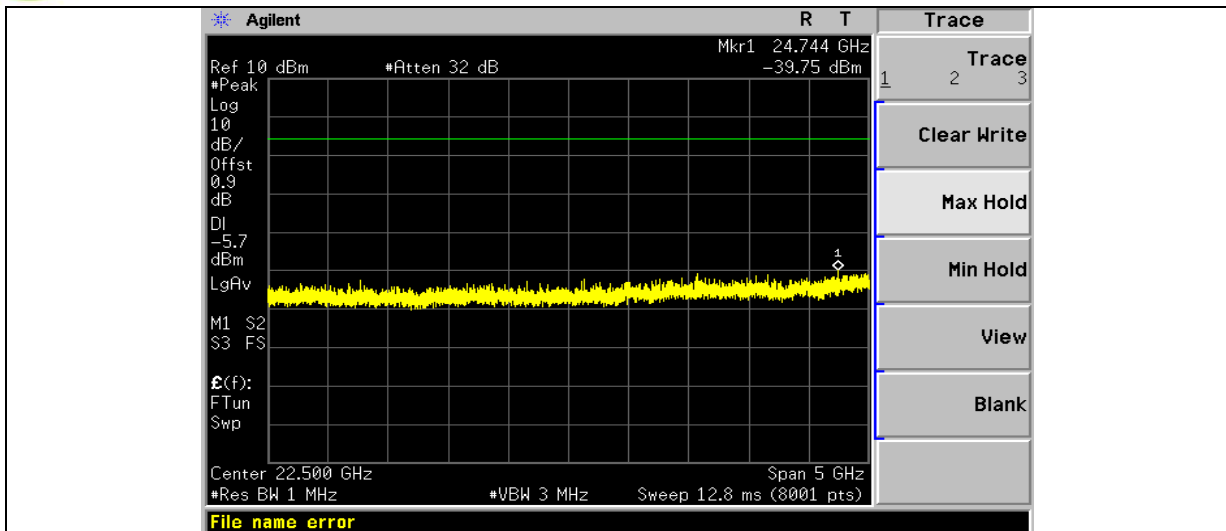


4.6 TEST RESULTS

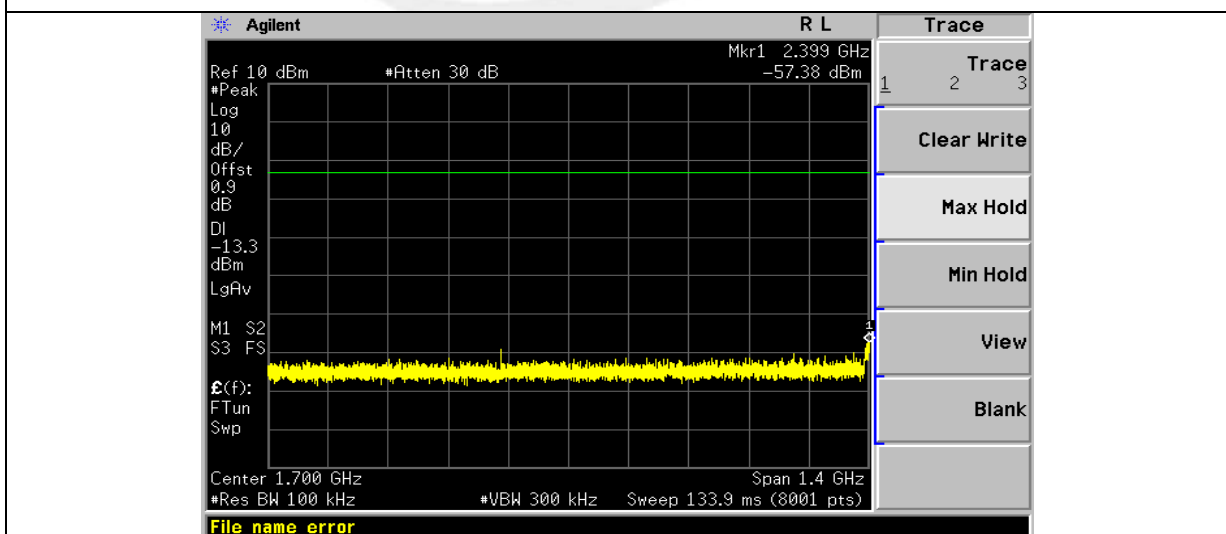
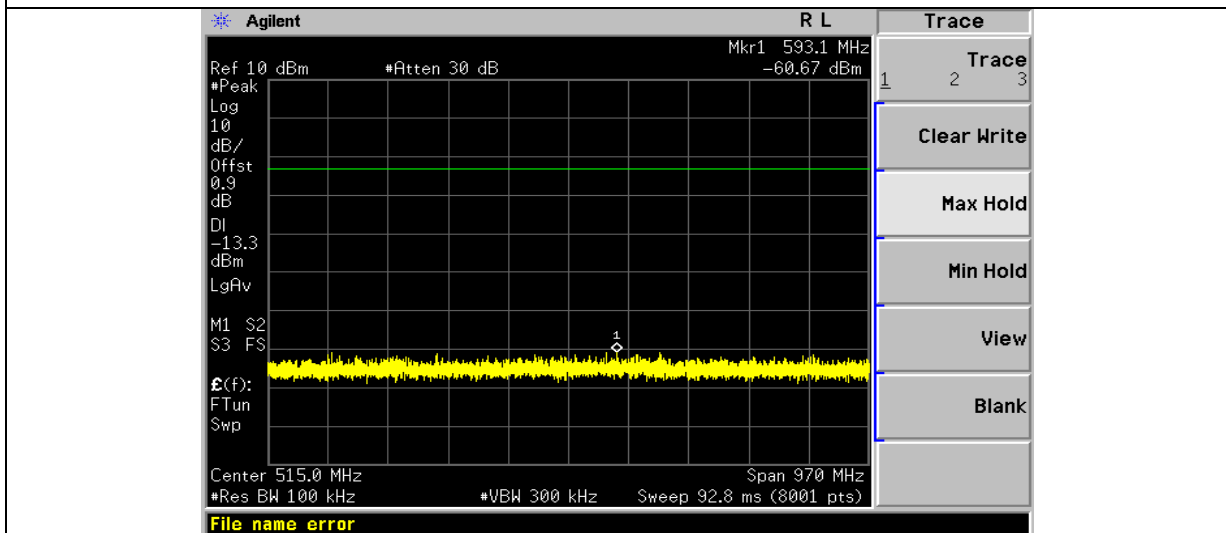
EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX b Mode /CH01, CH06, CH11		

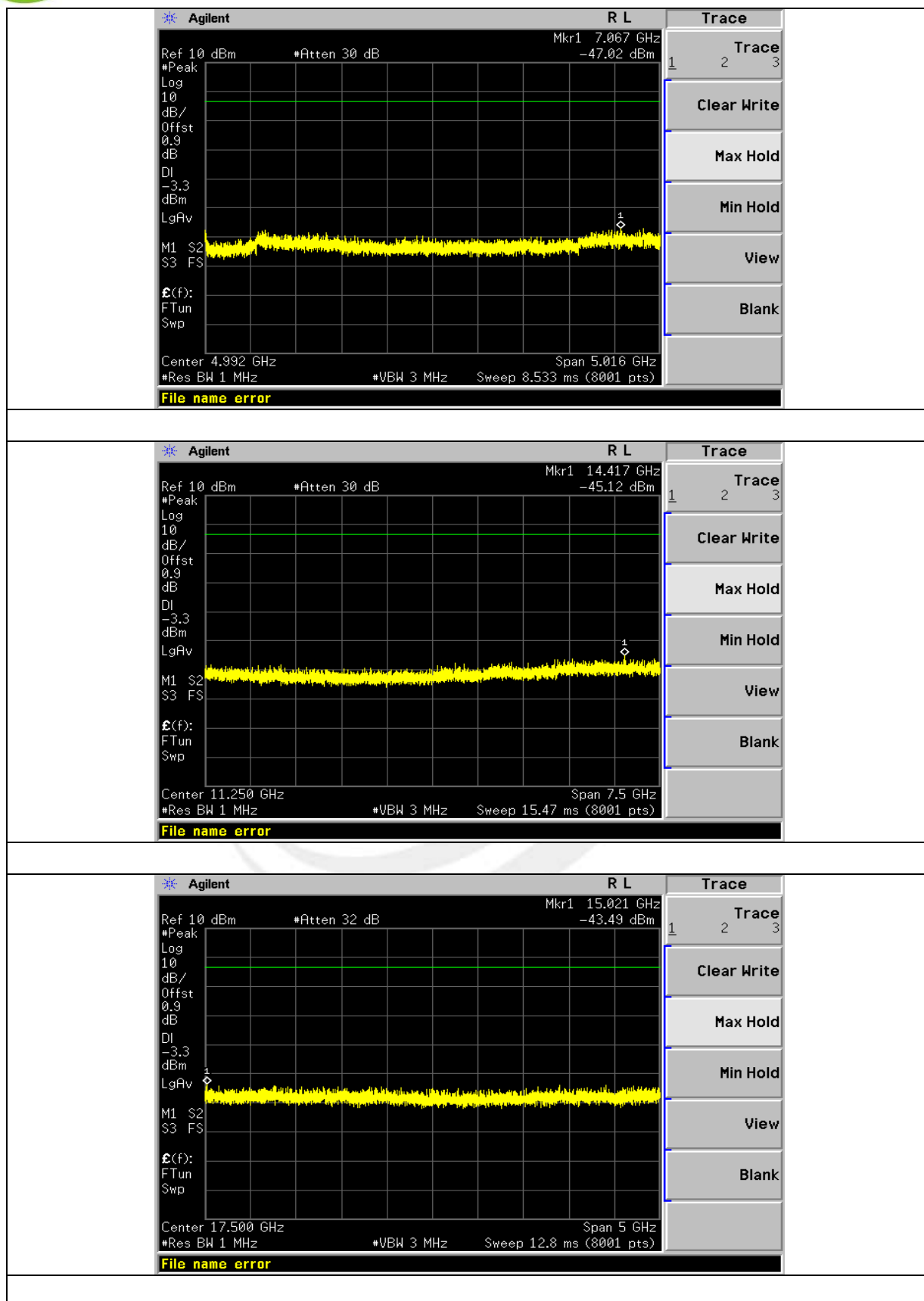


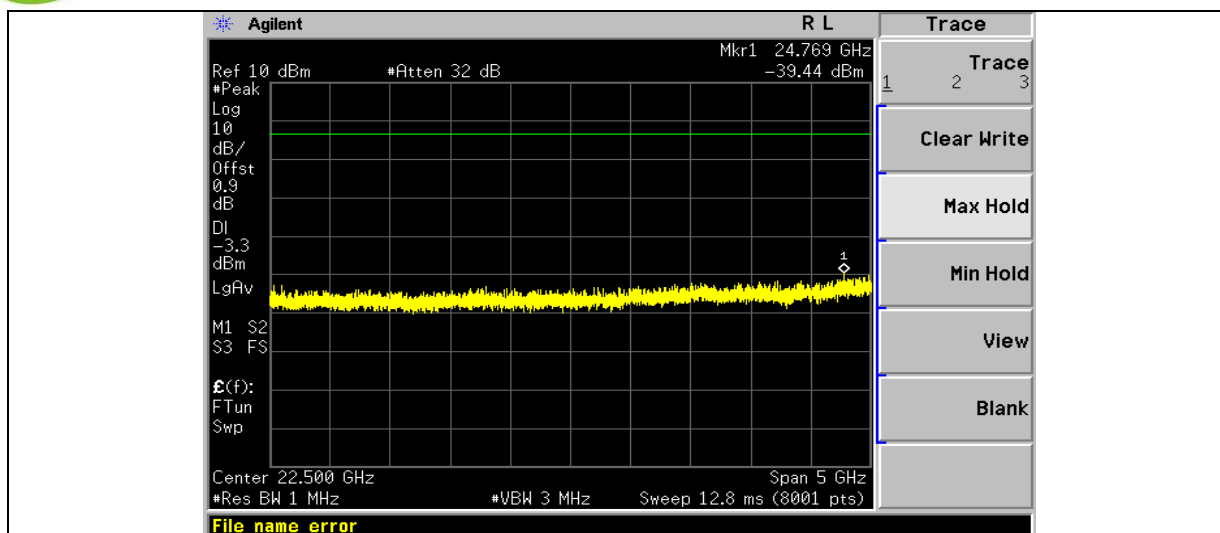




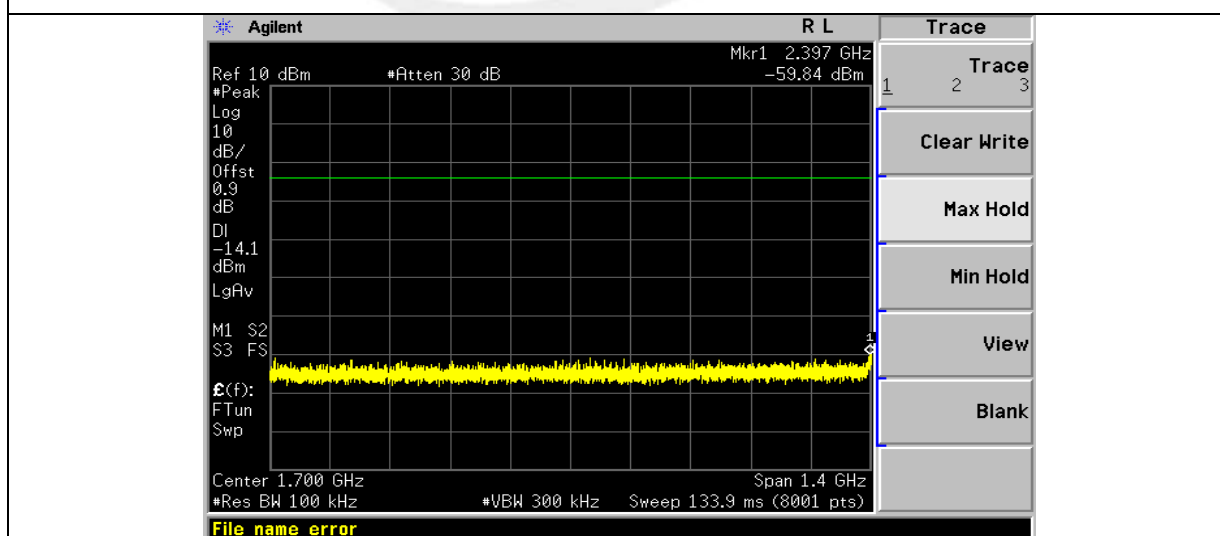
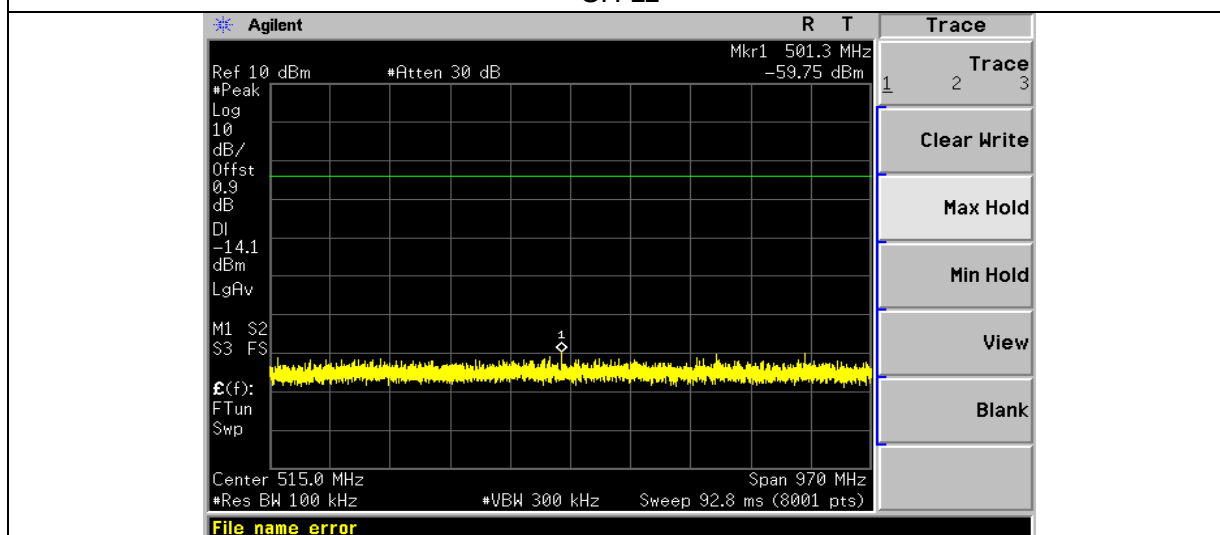
CH 06



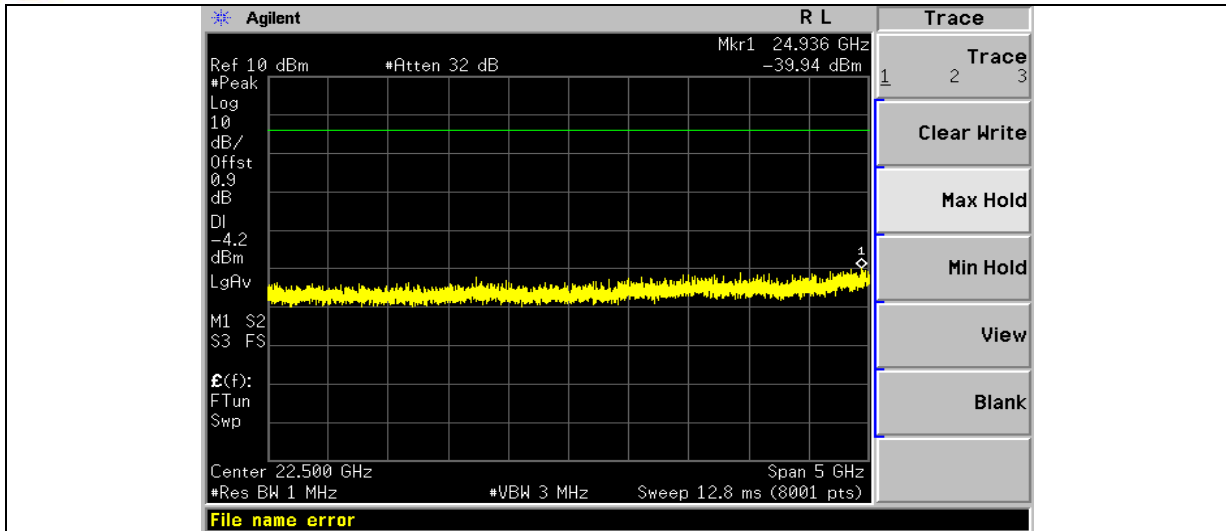




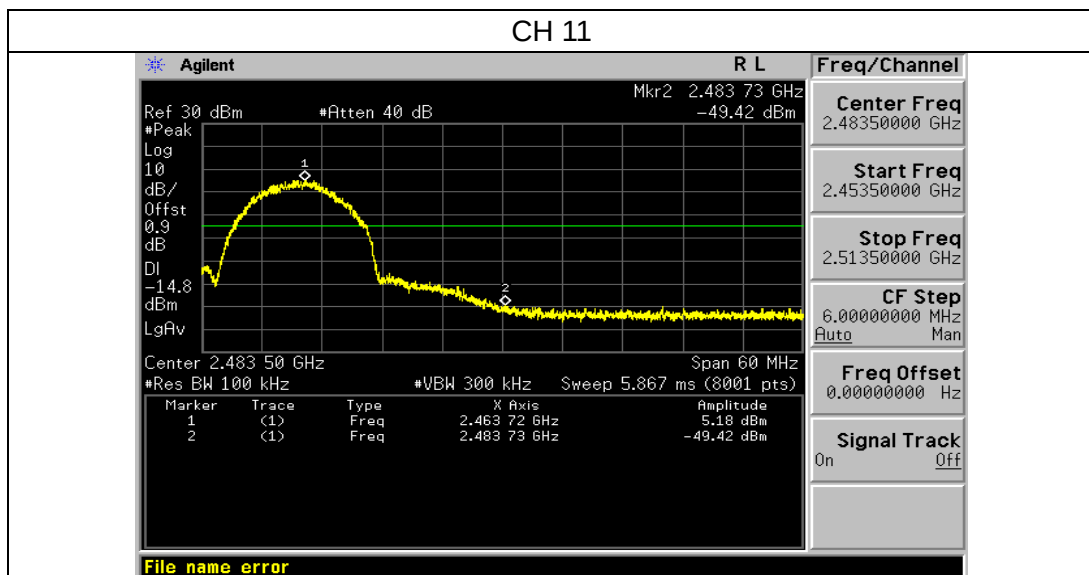
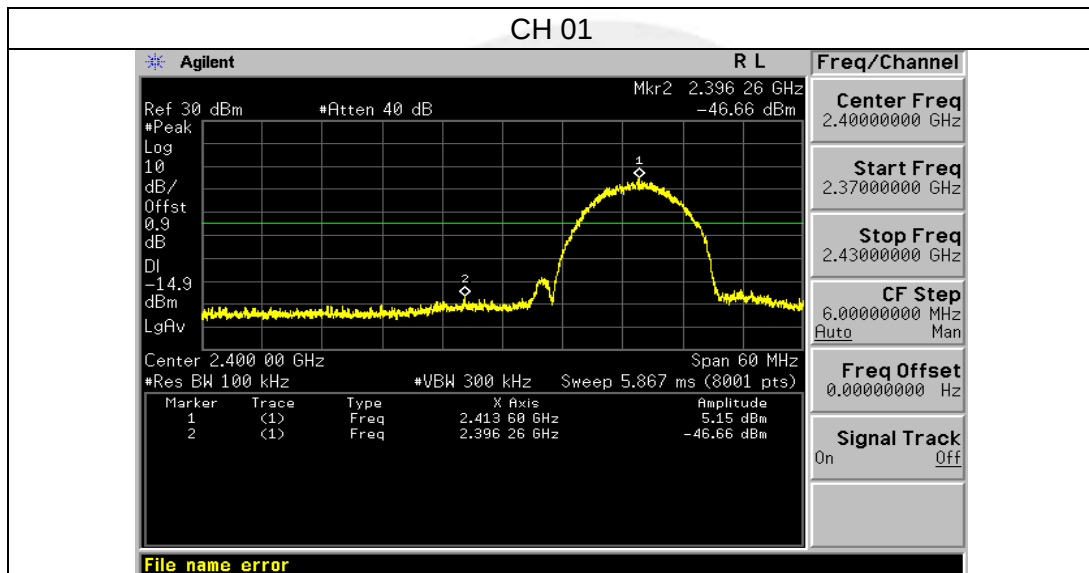
CH 11





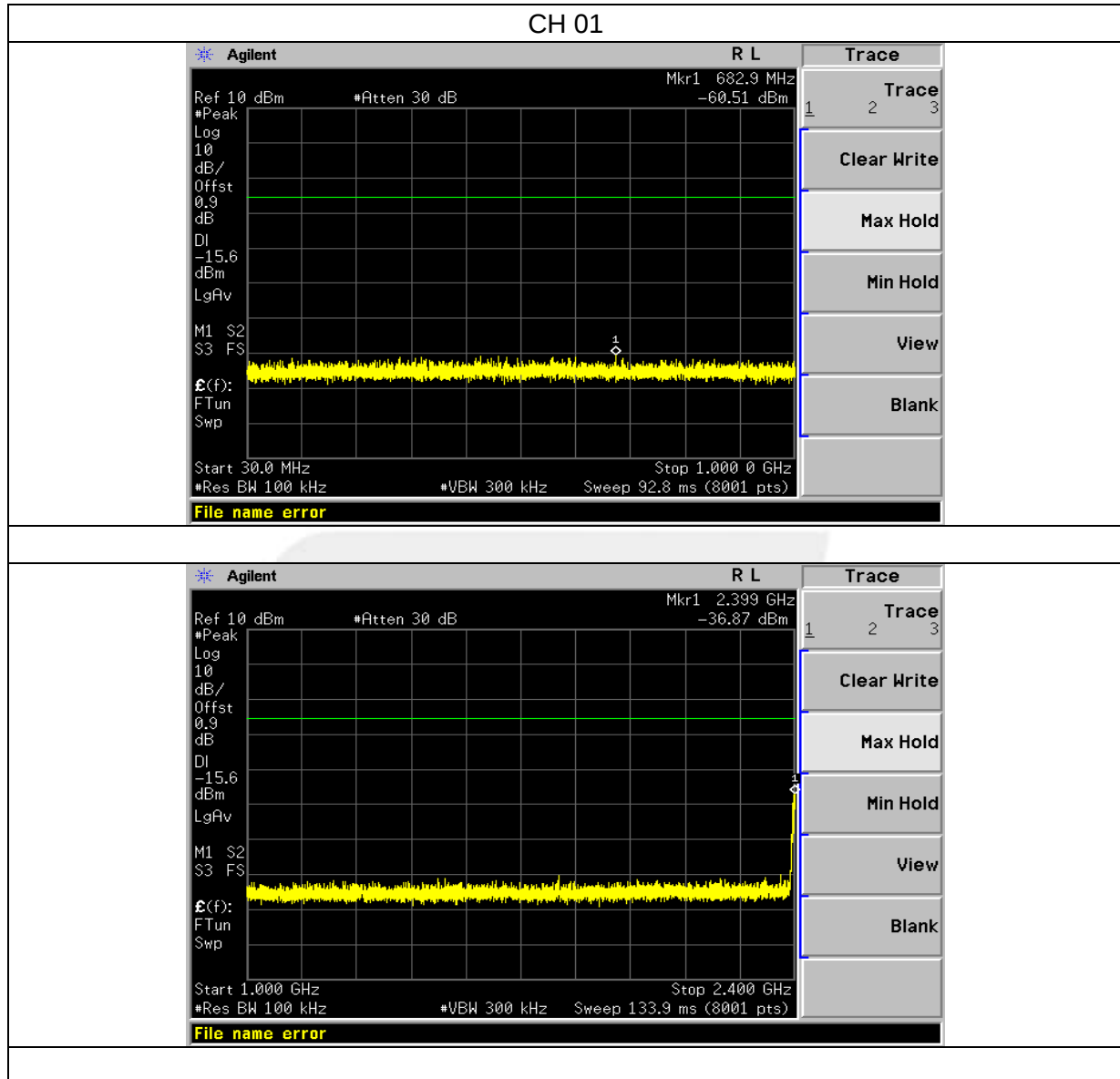


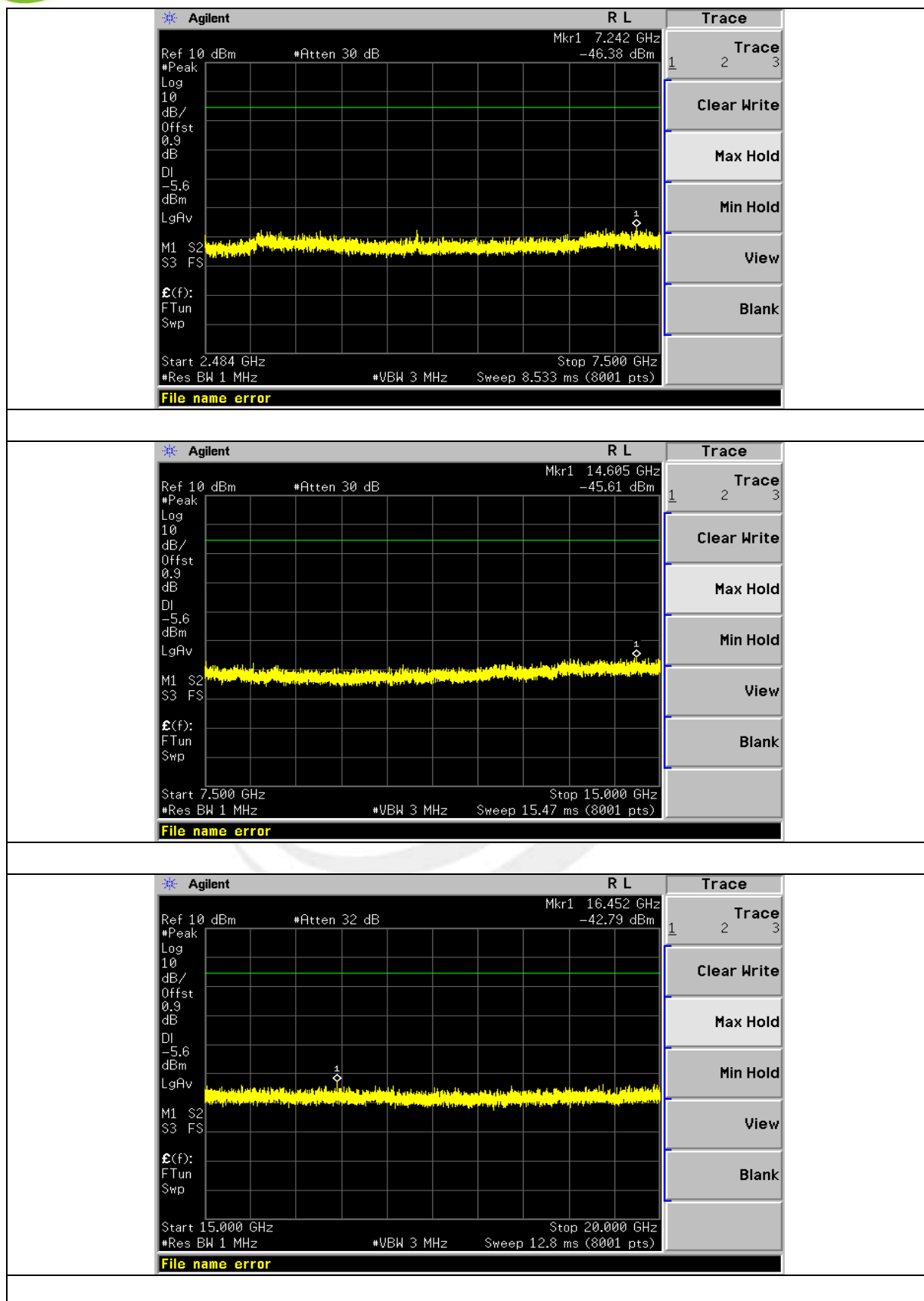
Band edge

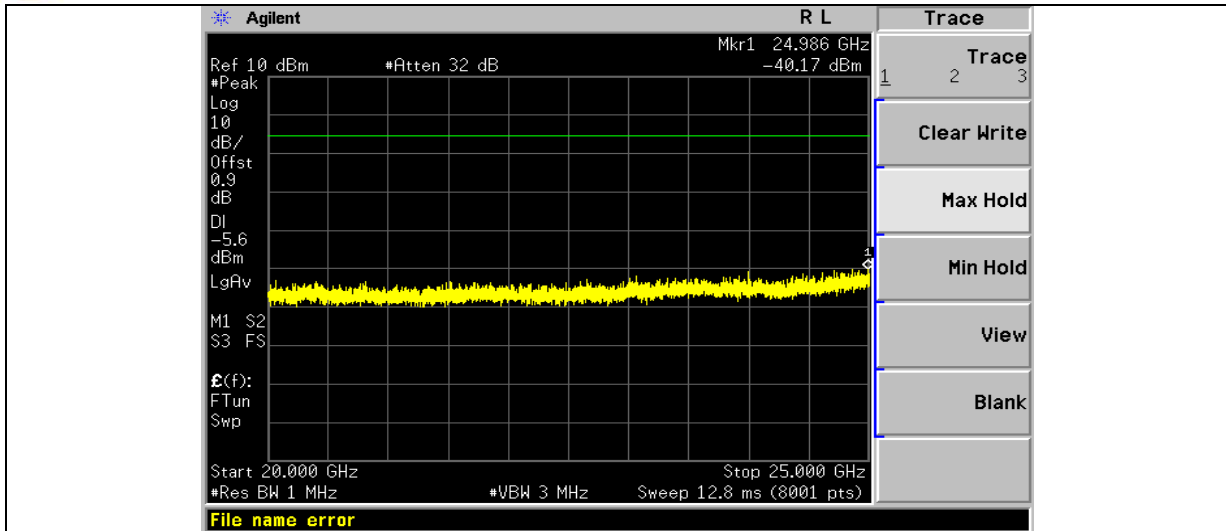




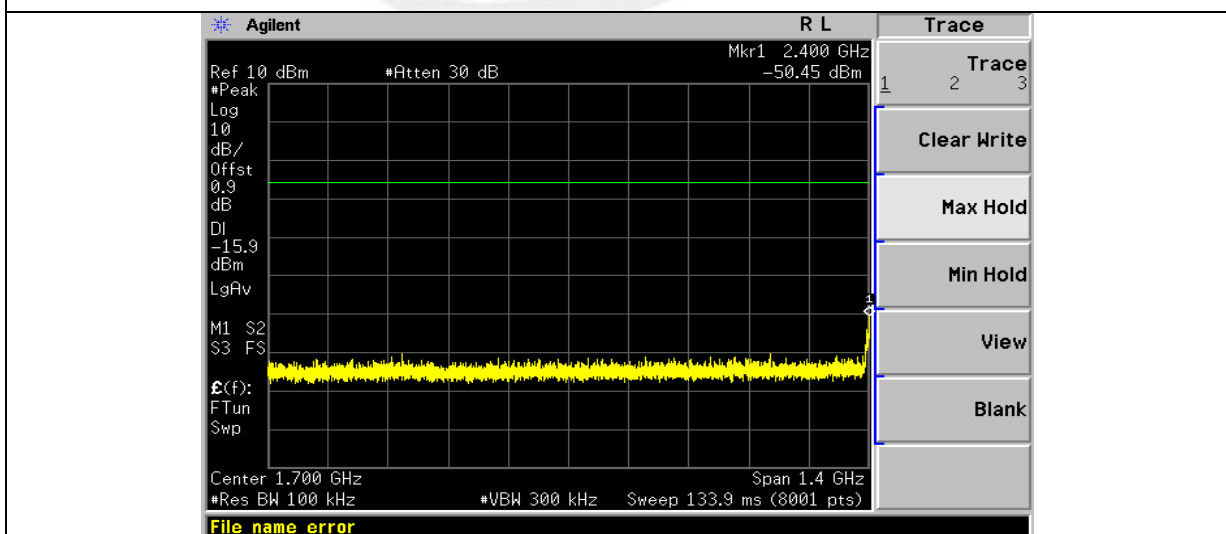
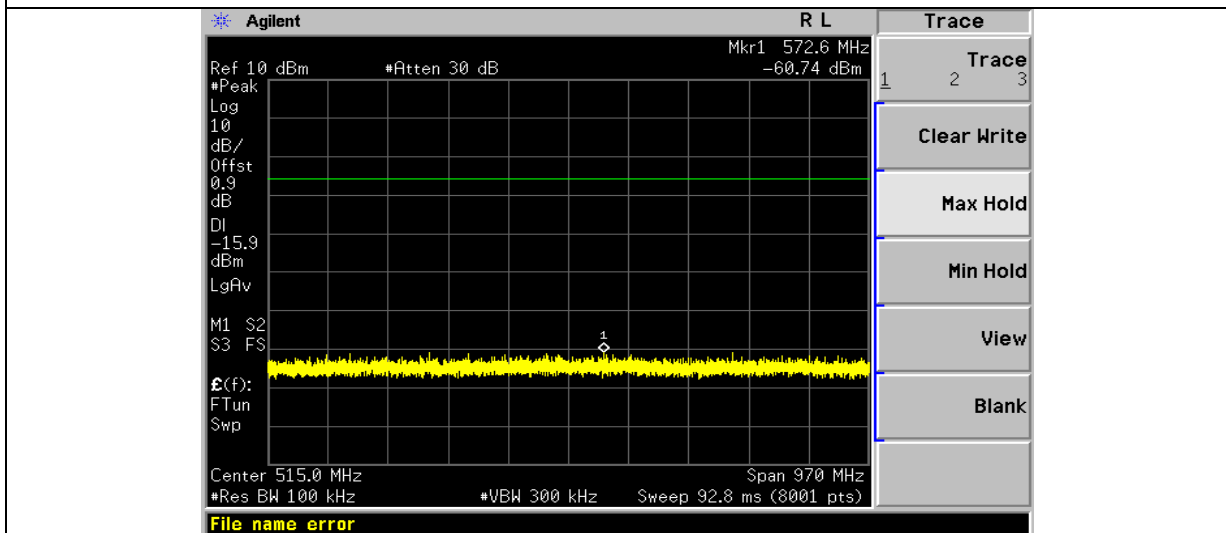
EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX g Mode /CH01, CH06, CH11		

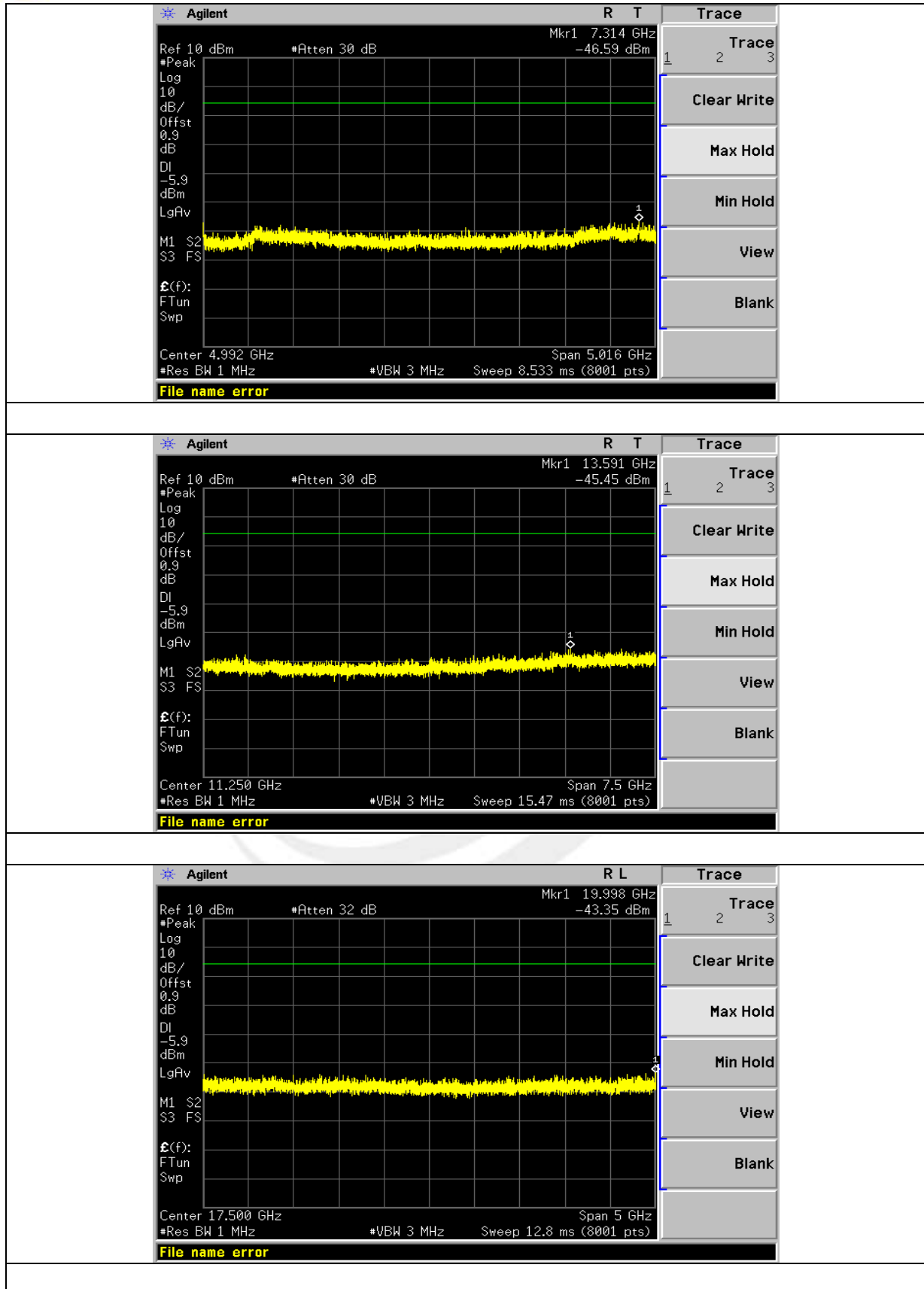


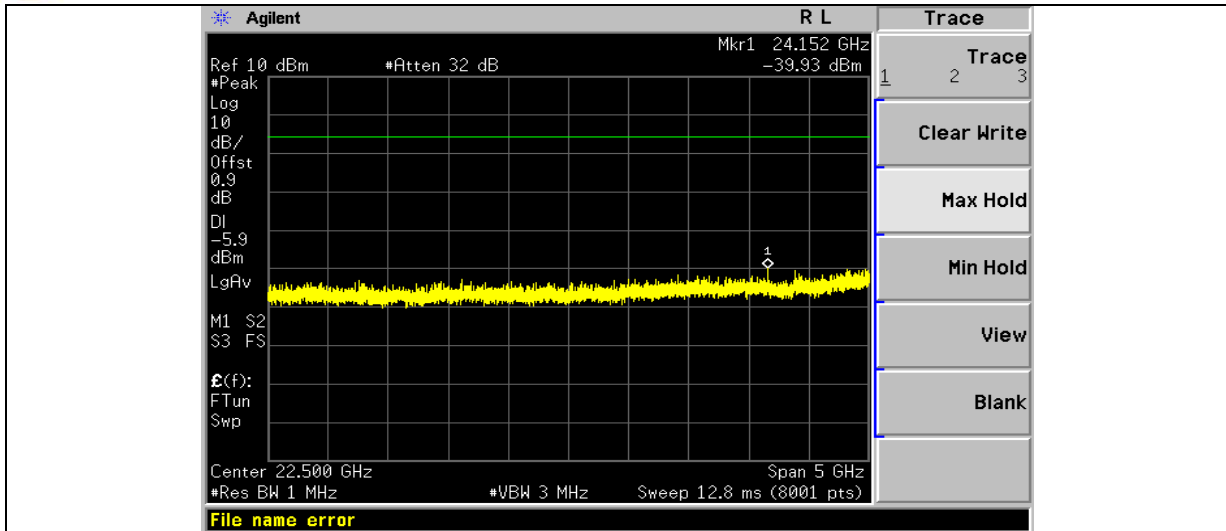




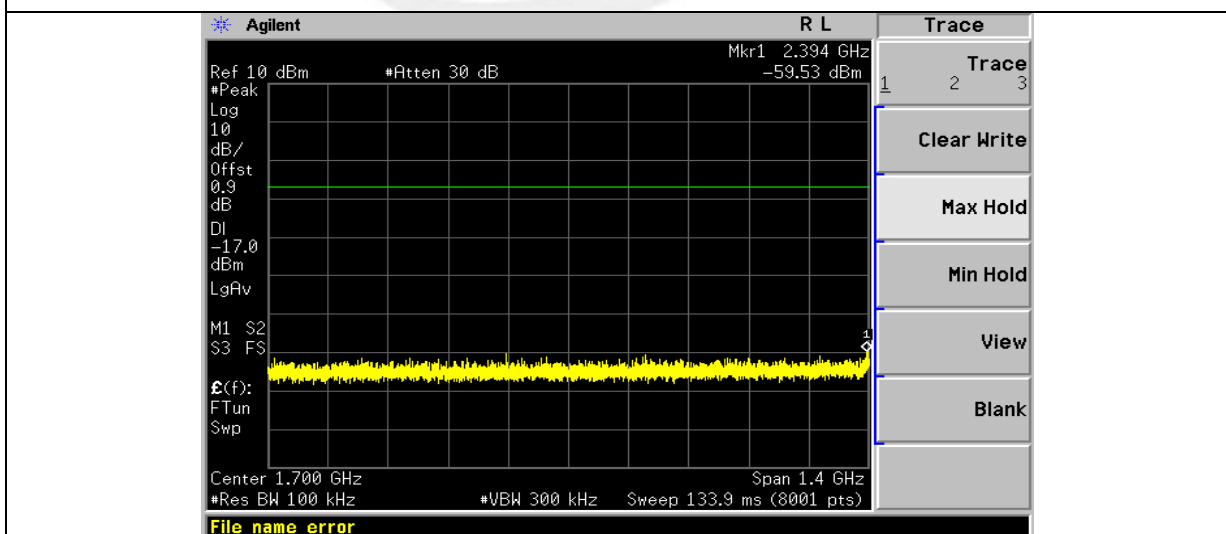
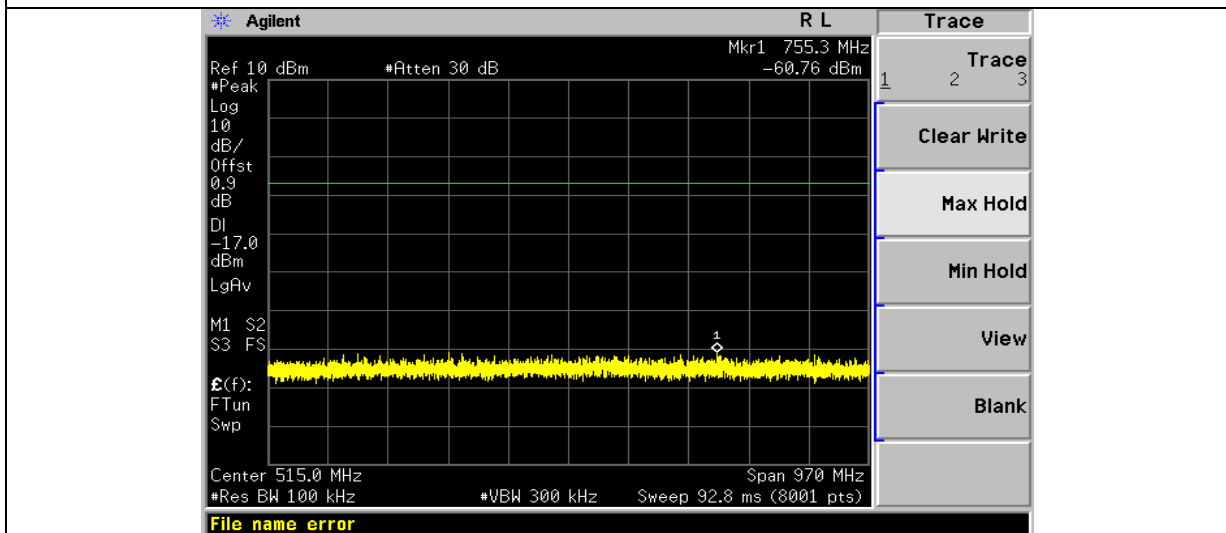
CH 06

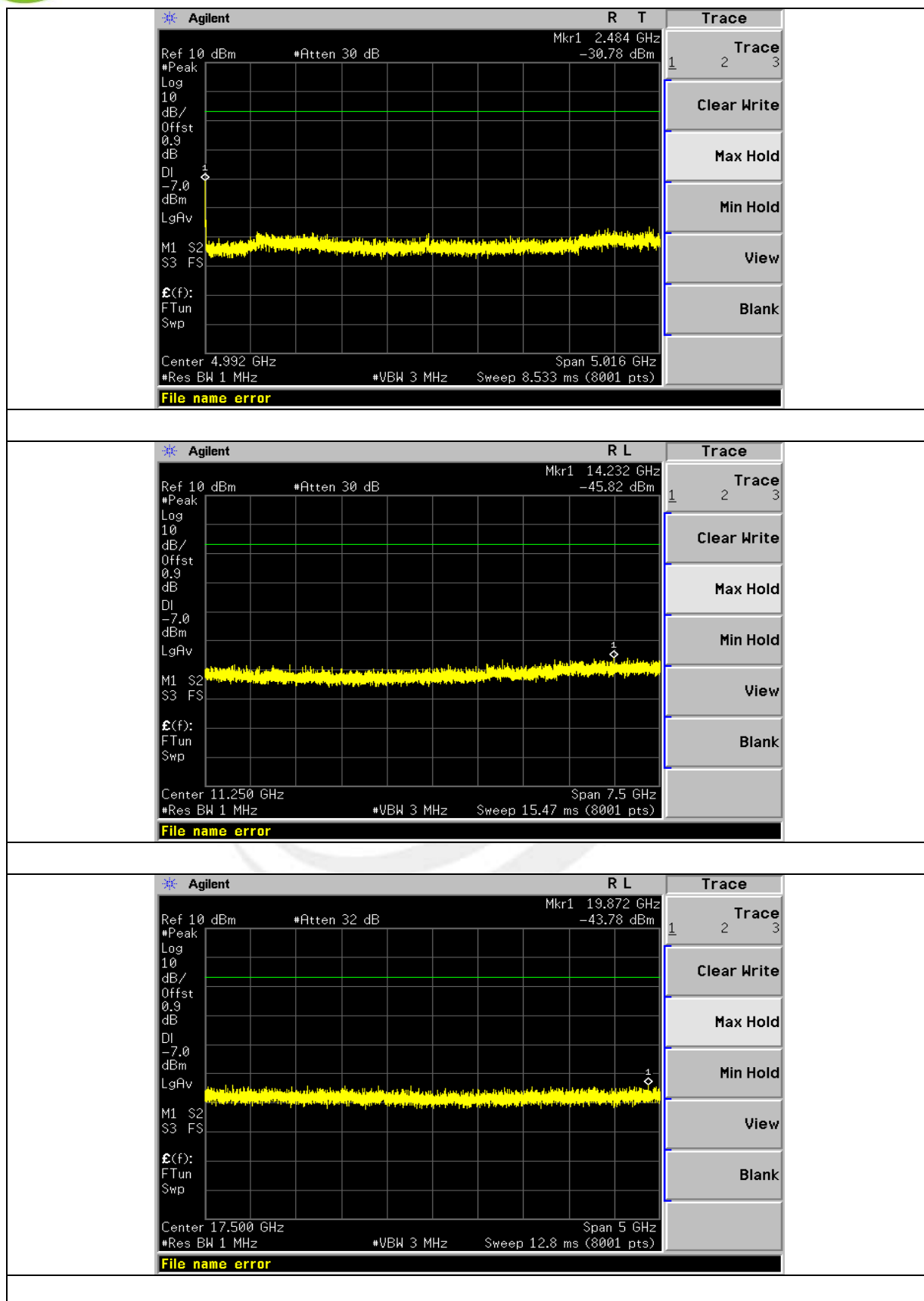


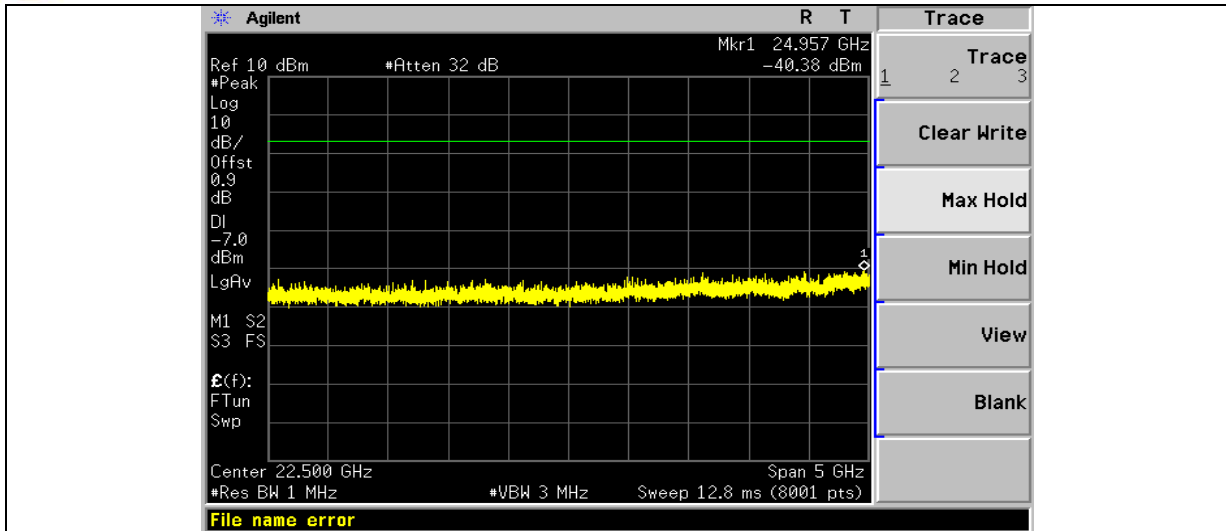




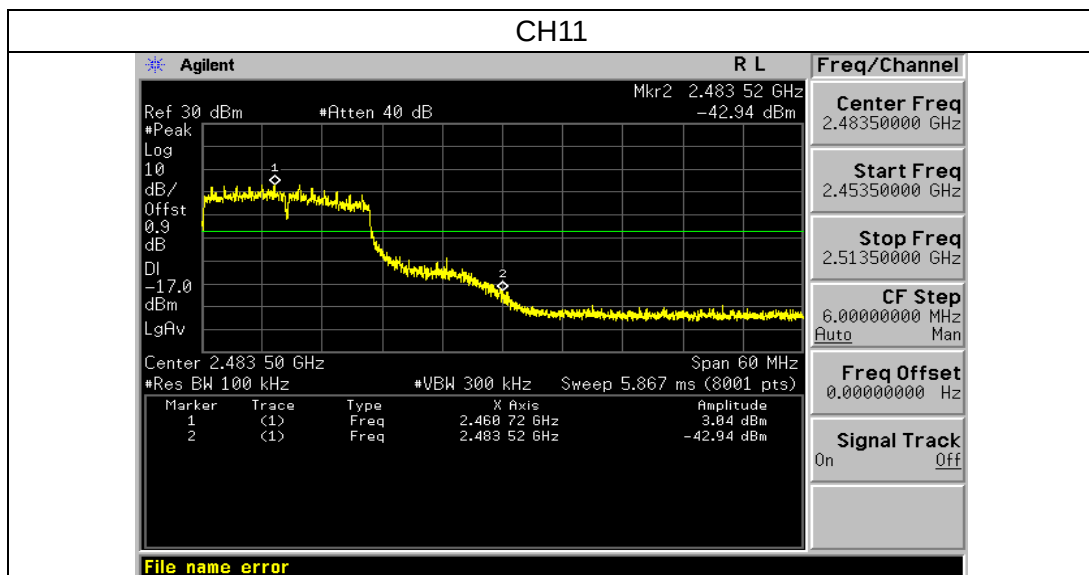
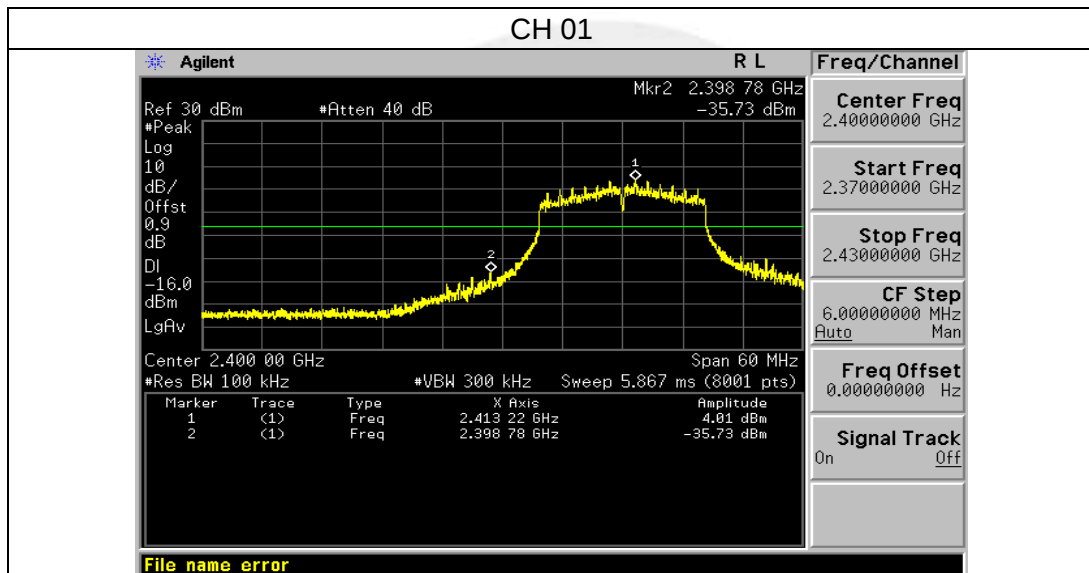
CH 11







Band edge





5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

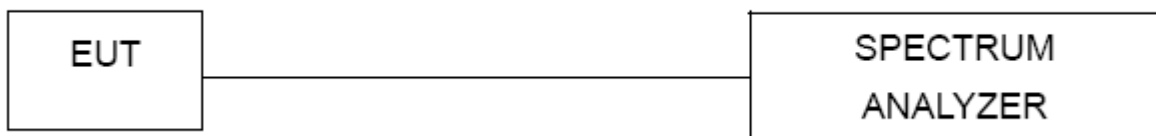
5.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW $\geq 3 \times$ RBW.
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 amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

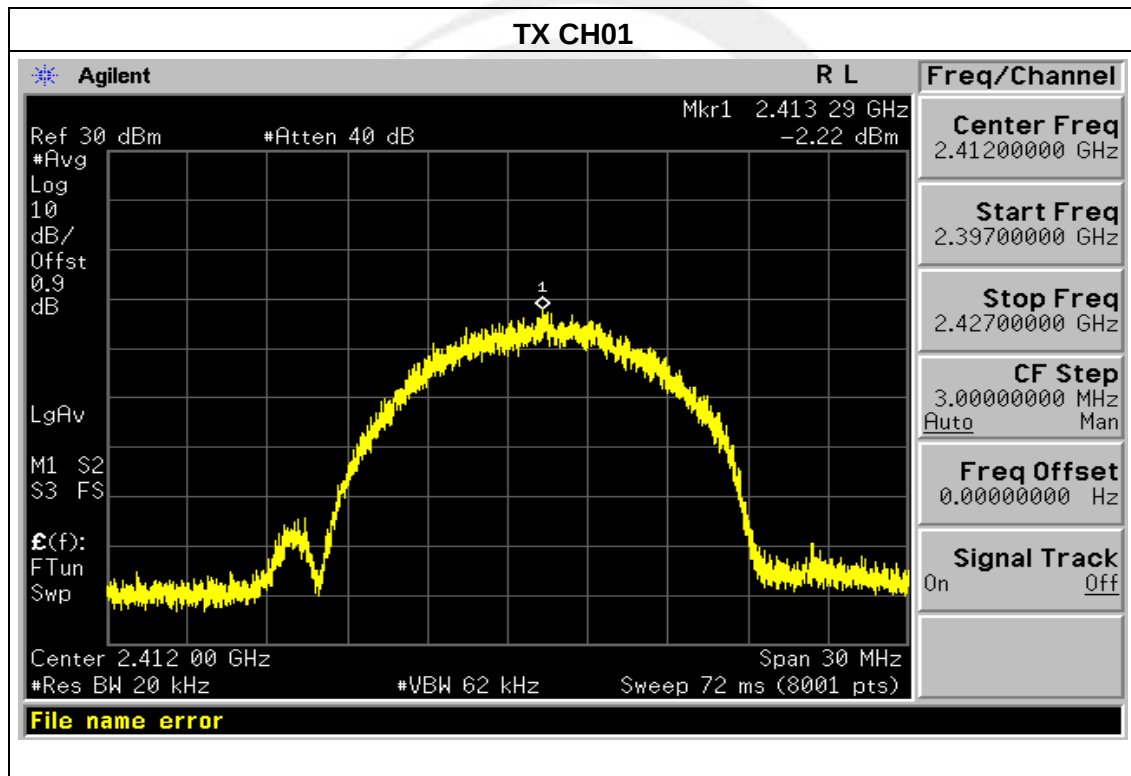
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

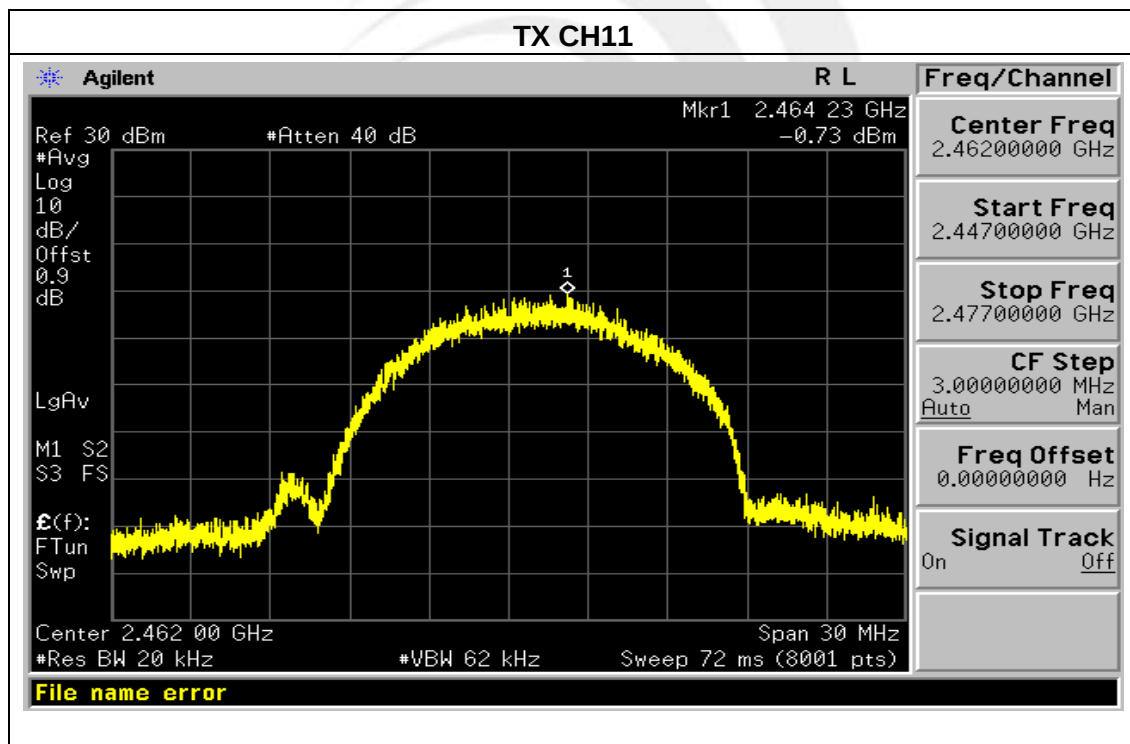
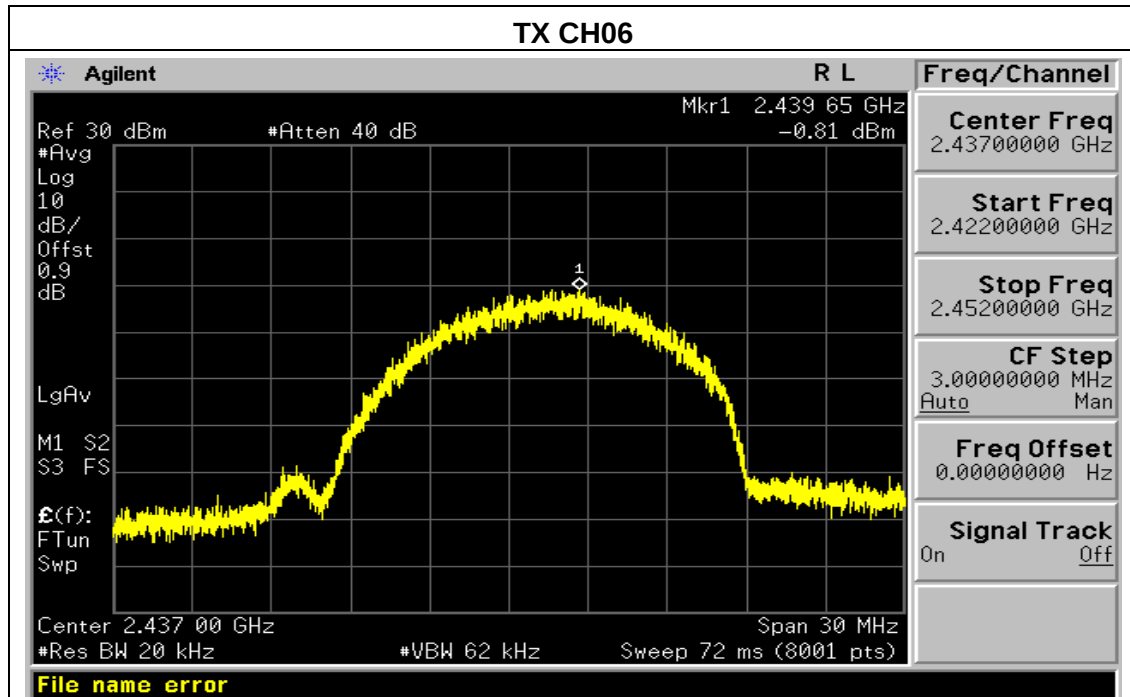


5.6 TEST RESULTS

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm/20kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-2.22	8	PASS
2437 MHz	-0.81	8	PASS
2462 MHz	-0.73	8	PASS

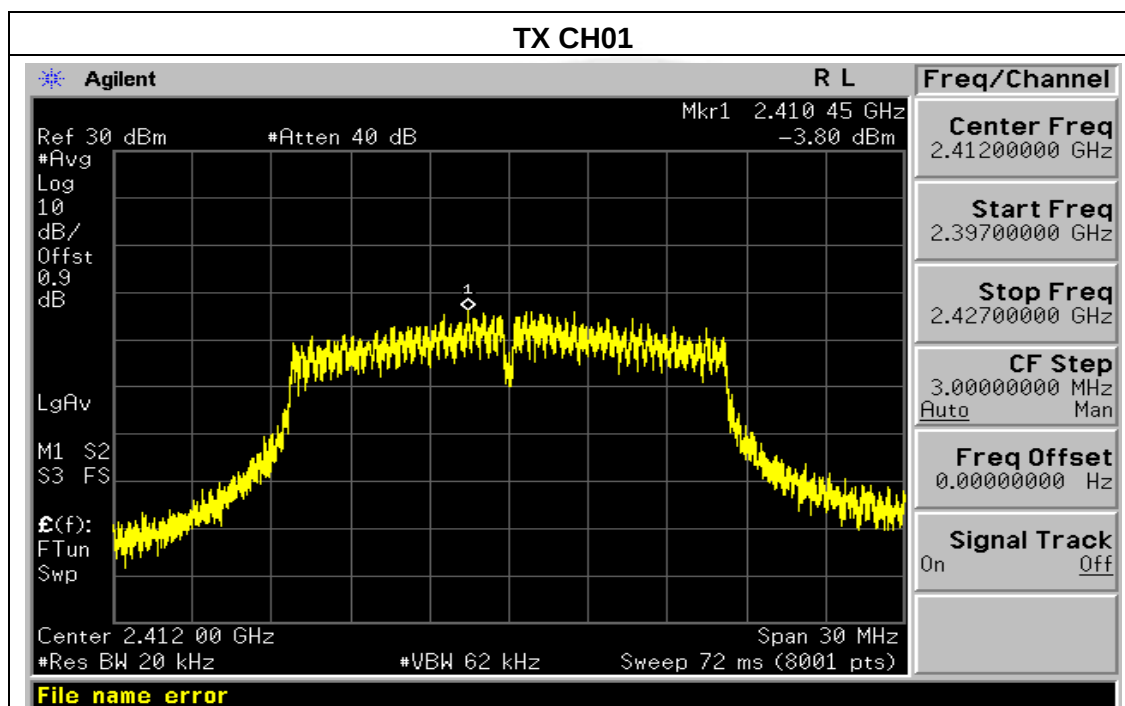


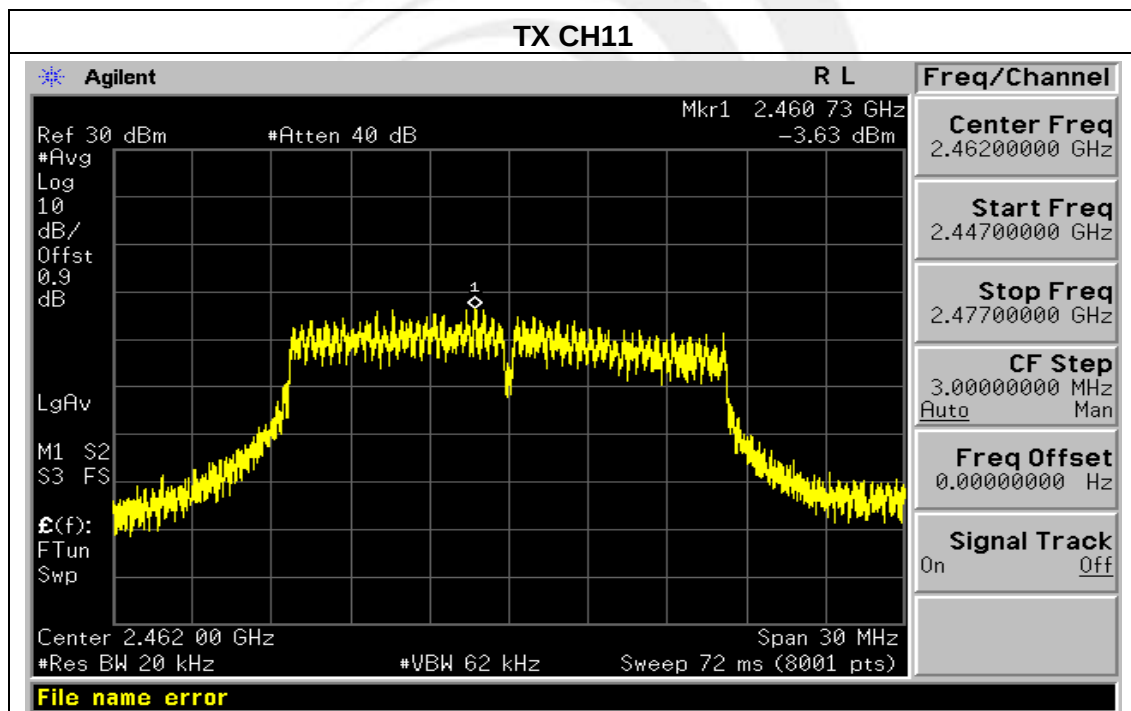
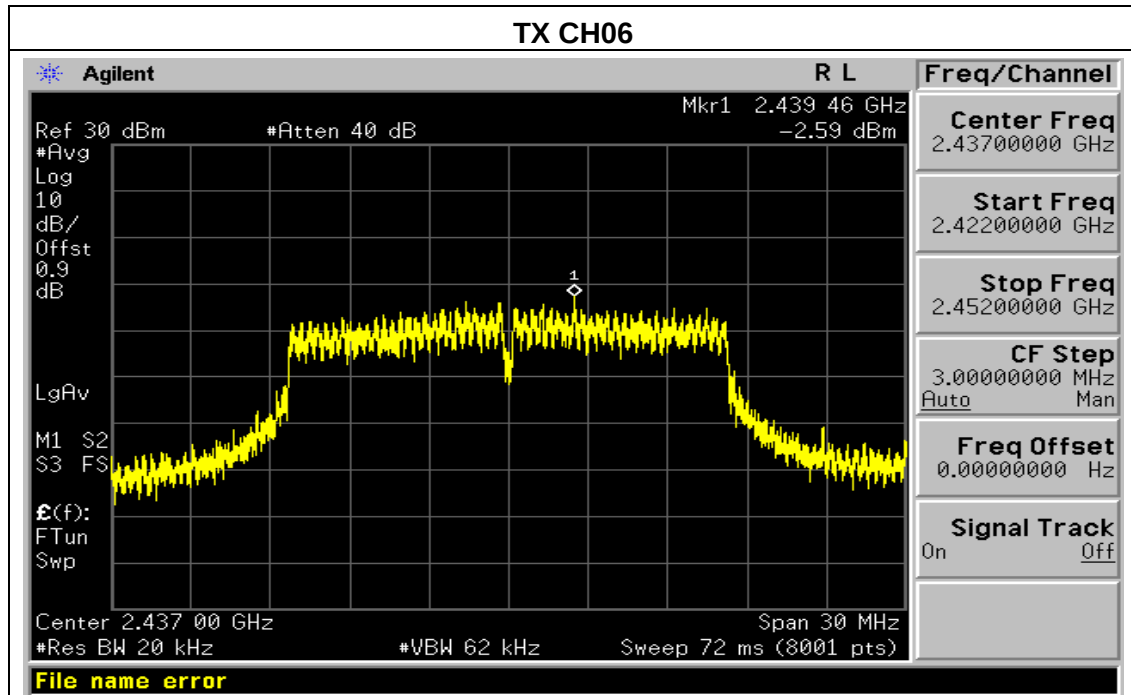




EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm/20kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-3.80	8	PASS
2437 MHz	-2.59	8	PASS
2462 MHz	-3.63	8	PASS







6. BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

6.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
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 frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

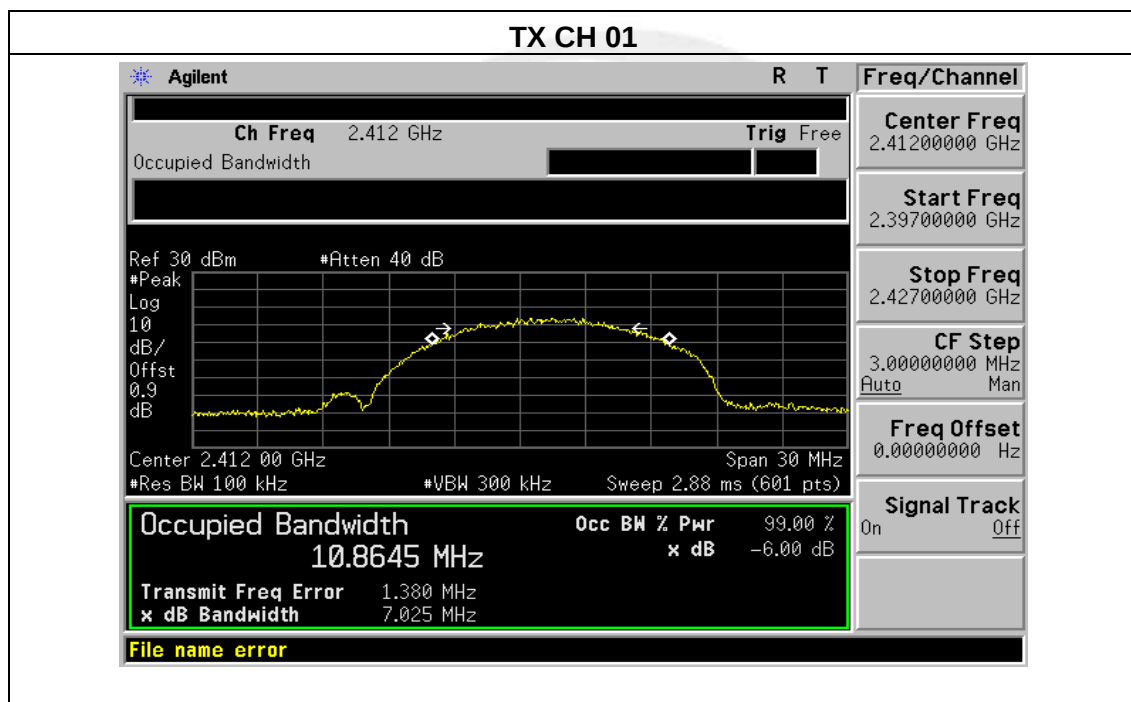
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



6.6 TEST RESULTS

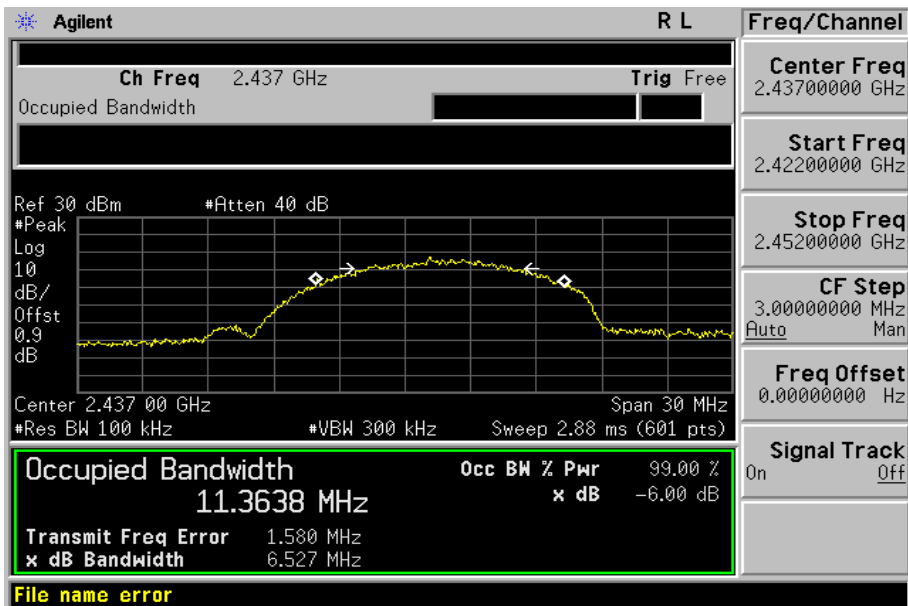
EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	Channel Separation	Result
2412 MHz	7.03	>=500KHz	PASS
2437 MHz	6.53	>=500KHz	PASS
2462 MHz	7.18	>=500KHz	PASS

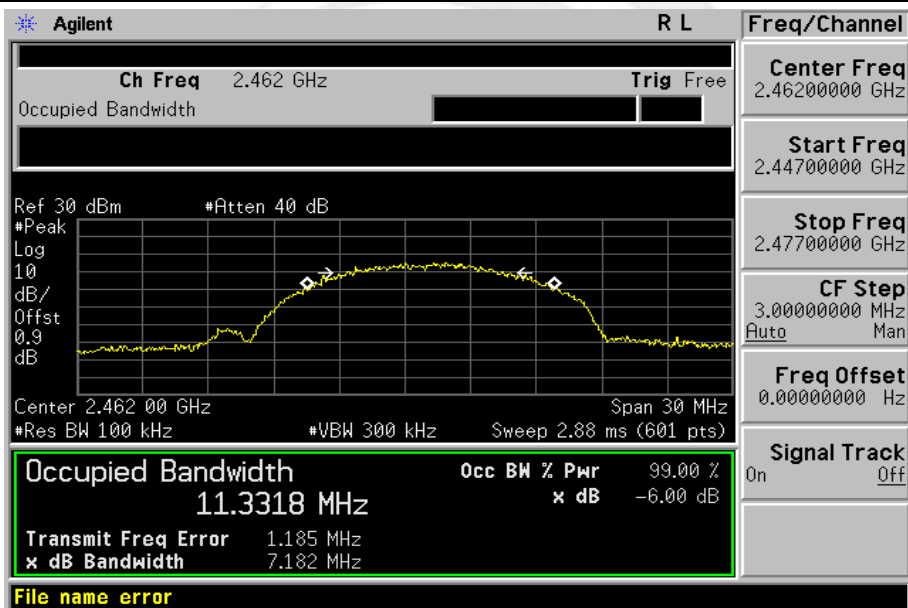




TX CH 06



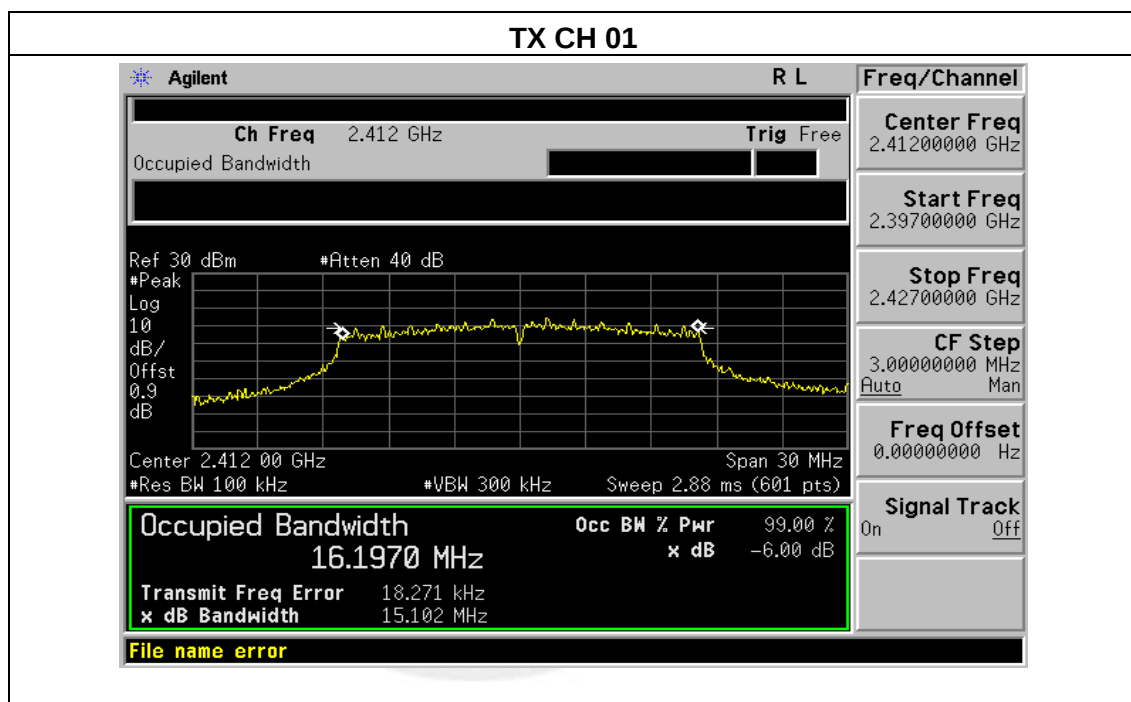
TX CH 11





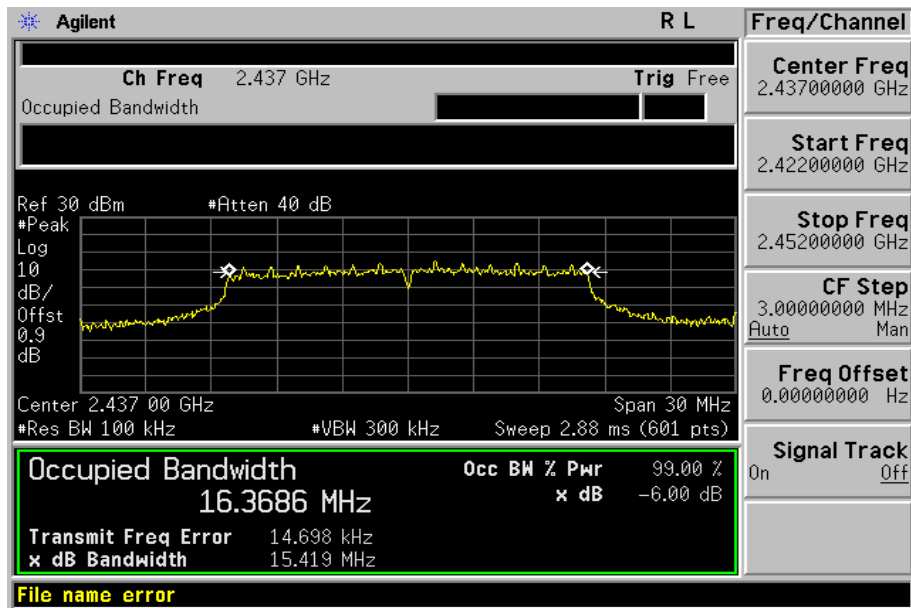
EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	Channel Separation	Result
2412 MHz	15.10	>=500KHz	PASS
2437 MHz	15.42	>=500KHz	PASS
2462 MHz	15.75	>=500KHz	PASS

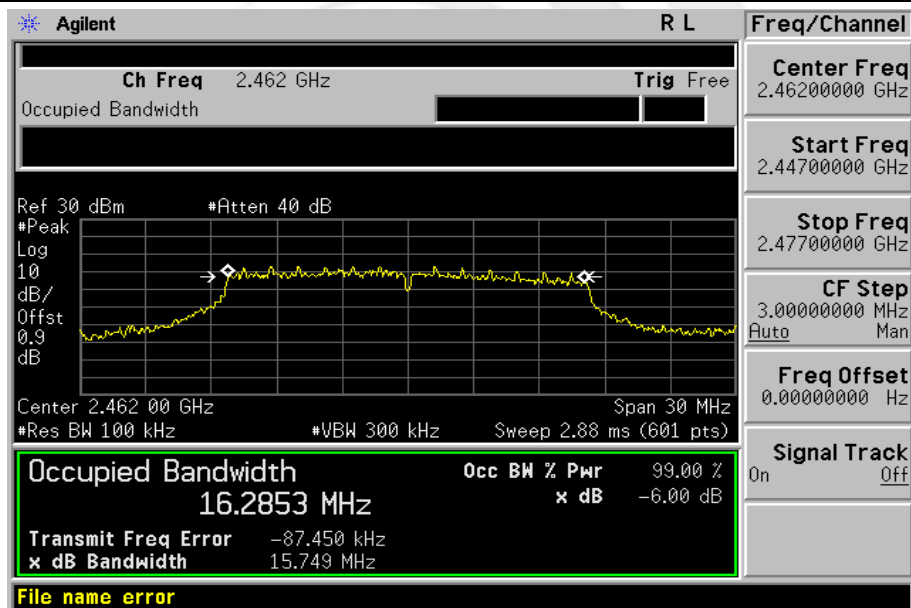




TX CH 06



TX CH 11





7. PEAK OUTPUT POWER TEST

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the Power Sensor&Power meter

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



7.5 TEST RESULTS

EUT :	3G Wireless Router	Model Name :	RW-801
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V from battery
Test Mode :	TX b/g/n(20M,40M) Mode /CH01, CH06, CH11		

TX 802.11b Mode			
Test Channe	Frequency	Peak Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	9.88	30
CH06	2437	9.47	30
CH11	2462	9.39	30

TX 802.11g Mode			
Test Channe	Frequency	Peak Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	8.4	30
CH06	2437	8.36	30
CH11	2462	8.31	30



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, 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.

8.2 EUT ANTENNA

The EUT antenna is PIFA Antenna. It comply with the standard requirement.



APPENDIX - PHOTOS OF TEST SETUP

Radiated Measurement Photos



Conducted Measurement Photos

