

FCC PART 15C TESTREPORT No. I15Z41068-SRD01

for

Reliance Communications LLC

GSM/UMTS(B2/B4) Mobile phone

MODEL NAME: RC4740

with

FCC ID: 2ABGH-RC4740

Hardware Version: M8047X_MB_P3

Software Version: M8047TMX_20150420_V1.0

Issued Date: 2015-08-13



Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL, Telecommunication Technology Labs, Academy of Telecommunication Research, MIIT

No.52, HuayuanNorth Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512,Fax:+86(0)10-62304633-2504

Email: cttl_terminals@catr.cn, website: www.chinattl.com

©Copyright. All rights reserved by CTTL.



REPORT HISTORY

Report Number	Revision	Description	Issue Date
I15Z41068-SRD01	Rev.0	1st edition	2015-08-13



CONTENTS

1.	TEST LABORATORY	5
1.1	. TESTINGLOCATION	5
1.2	. TESTINGENVIRONMENT	5
1.3	. PROJECT DATA	5
1.4	. SIGNATURE	. 5
2.	CLIENTINFORMATION	6
2.1	. APPLICANT INFORMATION	6
2.2	. MANUFACTURER INFORMATION	6
3.	EQUIPMENT UNDERTEST (EUT) AND ANCILLARY EQUIPMENT (AE)	7
3.1	ABOUT EUT	7
3.2	. INTERNAL IDENTIFICATION OF EUT	7
3.3	. INTERNAL IDENTIFICATION OF AE	7
3.4	. GENERAL DESCRIPTION	8
3.5	. INTERPRETATION OF THE TEST ENVIRONMENT	. 8
4.	REFERENCE DOCUMENTS	. 8
4.1	. DOCUMENTS SUPPLIED BY APPLICANT	. 8
4.2	. REFERENCE DOCUMENTS FOR TESTING	8
5.	TEST RESULTS	. 9
5.1	. SUMMARY OF TEST RESULTS	. 9
5.2	. STATEMENTS	. 9
5.3	. TEST CONDITIONS	. 9
6.	TEST FACILITIES UTILIZED	10
AN	NEX A: DETAILED TEST RESULTS	11
A.1	. MEASUREMENT METHOD	11
A.2	. MAXIMUM OUTPUT POWER	12
	A.2.1. PEAK OUTPUT POWER-CONDUCTED	
	A.2.2. AVERAGE OUTPUT POWER-CONDUCTED	
	. PEAK POWER SPECTRAL DENSITY	
A.4	. DTS 6-DB SIGNAL BANDWIDTH	21
	BAND EDGES COMPLIANCE	
A.6	TRANSMITTER SPURIOUS EMISSION	
	Scopyright. An hynts reserved by Cr	1



No. I15Z41068-SRD01 Page4 of 96

A.6.1 TRANSMITTER SPURIOUS EMISSION – CONDUCTED	31
A.6.2 TRANSMITTER SPURIOUS EMISSION - RADIATED	71
A.7. AC POWER-LINE CONDUCTED EMISSION	92
ANNEX B: ACCREDITATION CERTIFICATE	96



Address:

1. Test Laboratory

1.1. Testing Location

Location 1:CTTL(Huayuan North Road)

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China100191

Location 2:CTTL(Shouxiang)

Address: No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191

1.2. Testing Environment

Normal Temperature:	15-35 ℃
Extreme Temperature:	-20/+55°C
Relative Humidity:	20-75%

1.3. Project data

Testing Start Date:	2015-05-14
Testing End Date:	2015-05-26

1.4. Signature

B

Xu Zhongfei (Prepared this test report)

Li Zhibin (Reviewed this test report)

Stats

Lv Songdong (Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name:	Reliance Communications LLC
Address:	555 Wireless Blvd. Haupauge, NY
City:	Haupauge
Postal Code:	/
Country:	NY
Telephone:	631.240.8386
Fax:	/

2.2. Manufacturer Information

Company Name:	Cellon Communication Technology co.,LTD
Address:	Room513, 5Floor, Research Activities Building , Tsinghua Information Port, Hi-tech Park North Zone, Nanshan District, Shen Zhen City.
City:	Shen Zhen
Postal Code:	/
Country:	China
Telephone:	13480876001
Fax:	/



3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM/UMTS(B2/B4) Mobile phone
Model name	RC4740
FCC ID	2ABGH-RC4740
IC ID	/
With WLAN Function	Yes
Frequency Range	ISM 2400MHz~2483.5MHz
Type of Modulation	DSSS/CCK/OFDM
Number of Channels	11
Antenna	Integral Antenna
MAX Conducted Power	23.77dBm(OFDM)
Power Supply	3.7V DC by Battery

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
UT01a	350025855269679	M8047X_MB_P3	M8047TMX_20150420_V1.0
UT02a	014354000052147	M8047X_MB_P3	M8047TMX_20150420_V1.0

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description	SN
AE1	Battery	
AE2	Charger	

AE1

Commercial name	Battery
Туре	Li-ion polymer
Manufacturer	SHENZHEN WISEWOD TECHNOLOGY CO., LTD
Length of cable	/
AE2	
Commercial name	Charger
Туре	/
Manufacturer	KOSUN(Shen Zhen) Co.,Ltd
Length of cable	/

*AE ID: is used to identify the test sample in the lab internally.

No. I15Z41068-SRD01 Page8 of 96



3.4. General Description

The Equipment under Test (EUT) is a model of GSM/UMTS(B2/B4) Mobile phone with integrated antenna and inbuilt battery.

It has Bluetooth (EDR) function.

It consists of normal options: travel charger, USB cable and Phone.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor k=2.

Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

4. <u>Reference Documents</u>

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
	FCC CFR 47, Part 15, Subpart C:	
	15.205 Restricted bands of operation;	
FCC Part15	15.209 Radiated emission limits, general requirements;	2014-10-1
	15.247 Operation within the bands 902-928MHz,	
	2400-2483.5 MHz, and 5725-5850 MHz.	
	Methods of Measurement of Radio-Noise Emissions from	
ANSI C63.10	Low-Voltage Electrical and Electronic Equipment in the	2009
	Range of 9 kHz to 40 GHz	
	Guidance for Performing Compliance Measurements on	
KDB558074 v03r01	Digital Transmission Systems (DTS) Operating Under	2013
	§15.247	



5. Test Results

5.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247 (b)	1	Р
Peak Power Spectral Density	15.247 (e)	1	Р
Occupied 6dB Bandwidth	15.247 (a)	1	Р
Band Edges Compliance	15.247 (d)	1	Р
Transmitter Spurious Emission - Conducted	15.247 (d)	1	Р
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	Р
AC Powerline Conducted Emission	15.107, 15.207	/	Р

Please refer to **ANNEX A** for detail.

Terms used in Verdict column

Р	Pass, The EUT complies with the essential requirements in the standard.		
NP	Not Perform, The test was not performed by CTTL		
NA	Not Applicable, The test was not applicable		
F	Fail, The EUT does not comply with the essential requirements in the		
	standard		
F	Fail, The EUT does not comply with the essential requirements in the		
	standard		

5.2. Statements

The test cases as listed in section 5.1 of this report for the EUT specified in section 3 was performed by CTTL and according to the standards or reference documents listed in section 4.2 The EUT met all requirements of the standards or reference documents, and only the WLAN function was tested in this report.

5.3. Test Conditions

Tnom	Normal Temperature
T min	Low Temperature
T max	High Temperature
V nom	Normal Voltage

For this report, if the test cases listed above are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	T nom 26℃	
Voltage	V nom	3.7V(By battery)
Humidity	H nom	44%



6. Test Facilities Utilized

Conducted test system

No.	Equipment	Model	Serial	Manufacturer	Calibration	Calibration
NO.	Equipment	Model	Number	Wandlacturer	date	Due date
1	Vector Signal	ESO40	200080	Rohde &	2014-07-08	2015-07-07
	Analyzer	F3Q40	FSQ40 200089 Schwarz		2014-07-08	2015-07-07
2	Test Receiver	ESCI	100344	Rohde &	2015-03-04	2016-03-03
2	lest Receiver	2301	100344	Schwarz	2015-03-04	2010-03-03
3	LISN	ENV216	101200	Rohde &	2014-07-08	2015-07-07
3	LISIN	EINVZIO	101200	Schwarz	2014-07-08	2015-07-07
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibratio n Due date
1	Test Receiver	ESCI 7	100948	Rohde & Schwarz	2014-07-17	2015-07-16
2	Loop antenna	HFH2-Z2	829324/007	Rohde & Schwarz	2014-12-17	2017-12-16
3	BiLog Antenna	VULB9163	234	Schwarzbeck	2013-09-16	2016-09-15
4	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2014-12-16	2017-12-15
5	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	2014-06-18	2017-06-17
6	Vector Signal Analyzer	FSV	101047	Rohde & Schwarz	2014-07-04	2015-07-03
7	Semi-anechoic chamber	/	CT000332-1 074	Frankonia German	/	/



ANNEX A: Detailed Test Results

A.1. Measurement Method

A.1.1. Conducted Measurements

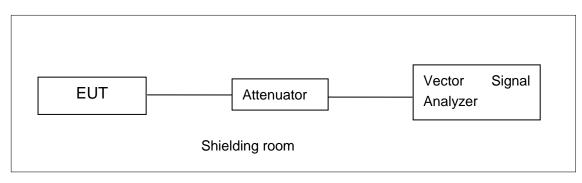
Connect the EUT to the test system as Fig.A.1.1.1 shows.

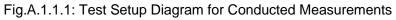
Set the EUT to the required work mode.

Set the EUT to the required channel.

Set the Vector Signal Analyzer and start measurement.

Record the values. Vector Signal Analyzer





A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows, Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz; Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;

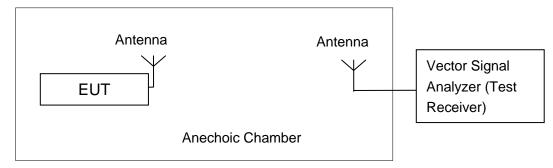


Fig.A.1.2.1: Test Setup Diagram for Radiated Measurements



A.2. Maximum Output Power

Method of Measurement: See ANSI C63.10-2009-clause 6.10.2.1

- a) Set the RBW ≥6 dB bandwidth of the emission, or use a peak power meter. A peak power meter is required if the 6 dB bandwidth is greater than the capability of the spectrum analyzer (typically 3 MHz RBW).
- b) Channel integration method. For peak output power measurements when the analyzer RBW is not large enough, the analyzer band power function can be used. For U-NII output power measurements where power averaging is allowed, see 6.10.3. For the channel integration method, maximum peak power shall be measured over any interval of continuous transmission.
 - 1) Set the RBW and VBW to the maximum available
 - 2) Set the band limits as appropriate for the power measurement; e.g., 6 dB, 20 dB, or 26 dB bandwidth. Expand the band limits by about 0.5 xRBW on each end
 - 3) Turn averaging off
 - 4) Set sweep to automatic
 - 5) Set the span just large enough to capture the emission
 - 6) Use a peak detector on max hold
 - 7) The analyzer should be in linear (rather than log) display mode
 - 8) Let the emission stabilize before making a final reading
- c) Bandwidth correction method.Using largest available analyzer RBW, the BW correction factor is 10 log [(6 dB BW of emission)/ (analyzer RBW)].
- d) Record the measured power.

Measurement Limit:

Standard	Limit (dBm)	
FCC CRF Part 15.247(b)	< 30	

EUT ID: EUT2

A.2.1. Peak Output Power-conducted

Measurement Results:

802.11b/g mode

	Data Data		Test Result (dBm)	
Mode	Data Rate	2412MHz	2437MHz	2457 MHz
	(Mbps)	(Ch1)	(Ch6)	(Ch10)
	1	21.23	/	/
000 116	2	21.29	/	/
802.11b	5.5	22.80	/	/
	11	24.32	24.48	24.51
	6	22.31	/	/
	9	22.39	/	/
802.11g	12	22.11	/	/
	18	21.99	/	/
	24	22.53	/	/

©Copyright. All rights reserved by CTTL.



36	22.55	23.57	23.75
48	22.41	/	/
54	22.40	/	/

The data rate 11Mbps and 36Mbps are selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

	Data Rate		Test Result (dBm)	
Mode	(Index)	2412MHz (Ch1)	2437MHz (Ch6)	2457 MHz (Ch10)
	MCS0	22.42	/	/
	MCS1	22.21	/	/
	MCS2	21.94	/	/
802.11n	MCS3	22.32	/	/
(20MHz)	MCS4	22.37	/	/
	MCS5	22.50	/	/
	MCS6	22.51	23.57	23.77
	MCS7	22.48	/	/

The data rate MCS6 is selected as worse condition, and the following cases are performed with this condition.

Conclusion: Pass

A.2.2. Average Output Power-conducted

Method of Measurement: See ANSI C63.10-2009-clause 6.10.3.1

- a) Set span to encompass the entire EBW of the signal.
- b) Set RBW = 1 MHz
- c) Set VBW =3 MHz
- d) Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise, use peak detector mode
- e) Use a video trigger with the trigger level set to enable triggering only on full power pulses.
 Unlicensed wireless device must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run." Power-gated sweeping may be used to ensure the analyzer sweeps only while the device is transmitting.
- f) Trace average across 100 traces in power averaging mode.
- g) Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer band-power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

802.11b/g mode

Mode



	2412MHz (Ch1)	2437MHz (Ch6)	2462 MHz (Ch10)
802.11b	17.64	17.62	17.57
802.11g	13.41	14.68	14.71

802.11n-HT20 mode

Mode	Test Result (dBm)		
WOde	2412MHz (Ch1) 2437MHz (Ch6) 2462 MHz (Ch10)		
802.11n (20MHz)	13.45	14.61	14.74

Conclusion: Pass



A.3. Peak Power Spectral Density

Method of Measurement: See ANSI C63.10-2009-clause 6.11.2.4

The measurement procedure shall be as follows:

Connect the antenna port to be measured through the 20 dB pad to the spectrum analyzer input. Configure the spectrum analyzer as described below (all losses between the unlicensed wireless device output and the spectrum analyzer, such as attenuator value, cable losses and other offsets shall be recorded). Locate and zoom in on emission peak(s) within the passband.

- a) Set RBW = 3 kHz
- b) Set VBW \geq 9 kHz
- c) Set Sweep time to Automatic
- d) Use a peak detector. A sample detector mode can be used only if the following conditions can be achieved with automatic sweep time and adjusting the bin width.
 - 1) Bin width (i.e., span/number of points in spectrum display) < 0.5 RBW.
 - 2) The transmission pulse or sequence of pulses remains at maximum transmit power throughout each of the 100 sweeps of averaging and that the interval between pulses is not included in any of the sweeps.

NOTE—If condition 2) cannot be achieved, then PSD Option 1 (method of 6.11.2.3) shall be used and trace averaging cannot be used.

- e) Use a video trigger (or RF gating) with the trigger level set to enable the sweep only during full power pulses. Transmitter shall operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run."
- f) Trace average 100 traces in power averaging mode. Do not use video averaging mode.

Measurement Limit:

Standard	Limit
FCC CRF Part 15.247(e)	< 8 dBm/3 kHz

Measurement Results:

802.11b/g mode

Mode	Channel	-	ctral Density /3 kHz)	Conclusion
	1	Fig.A.3.1	-6.77	Р
802.11b	6	Fig.A.3.2	-5.74	Р
	11	Fig.A.3.3	-6.77	Р
	1	Fig.A.3.4	-11.01	Р
802.11g	6	Fig.A.3.5	-10.02	Р
	11	Fig.A.3.6	-10.31	Р

802.11n-HT20 mode

Mode	Channel		ctral Density /3 kHz)	Conclusion
900 11 n	1	Fig.A.3.7	-12.14	Р
802.11n (HT20)	6	Fig.A.3.8	-10.78	Р
(1120)	11	Fig.A.3.9	-11.32	Р

©Copyright. All rights reserved by CTTL.



Conclusion: Pass

Test graphs as below:

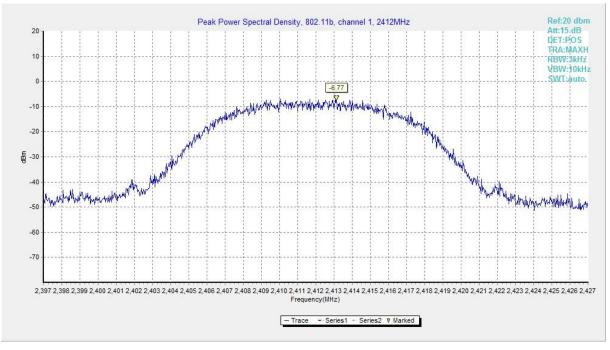


Fig.A.3.1 Power Spectral Density(802.11b,Ch1)

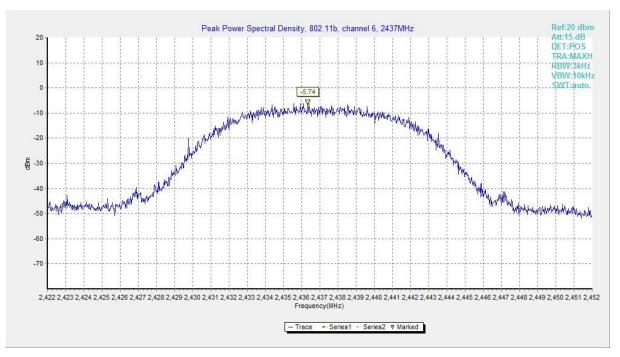


Fig.A.3.2 Power Spectral Density (802.11b, Ch 6)

No. I15Z41068-SRD01 Page17 of 96



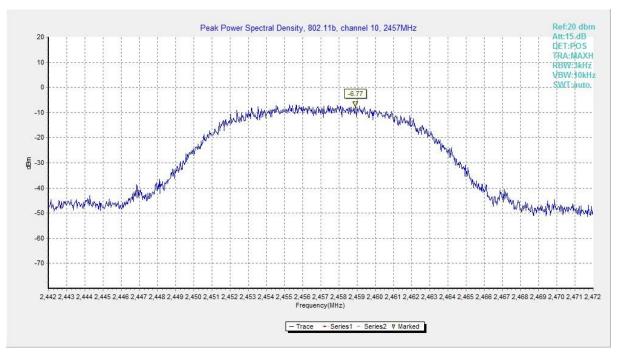


Fig.A.3.3Power Spectral Density (802.11b, Ch 11)

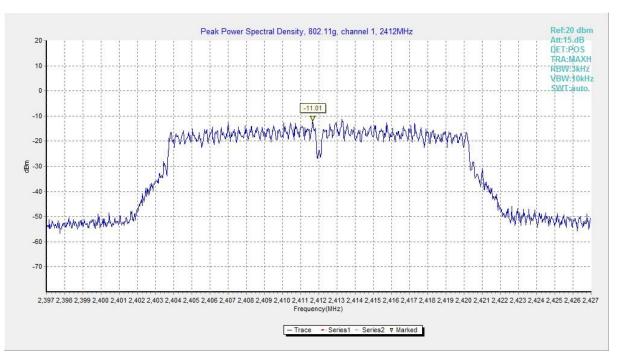


Fig.A.3.4 Power Spectral Density (802.11g, Ch 1)



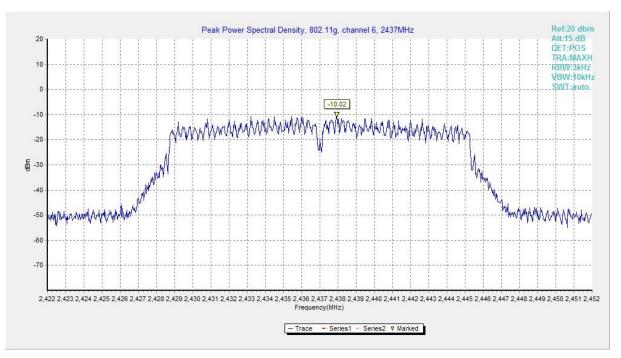


Fig.A.3.5Power Spectral Density (802.11g, Ch 6)

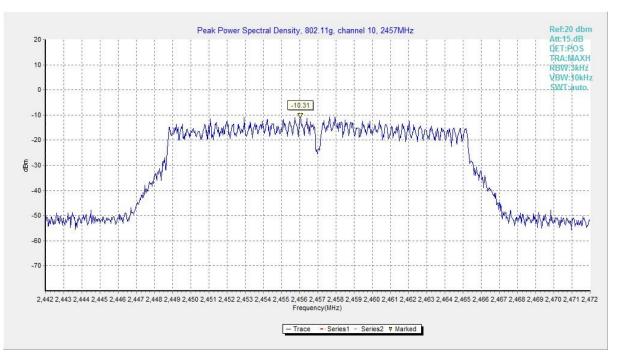


Fig.A.3.6 Power Spectral Density (802.11g, Ch 11)



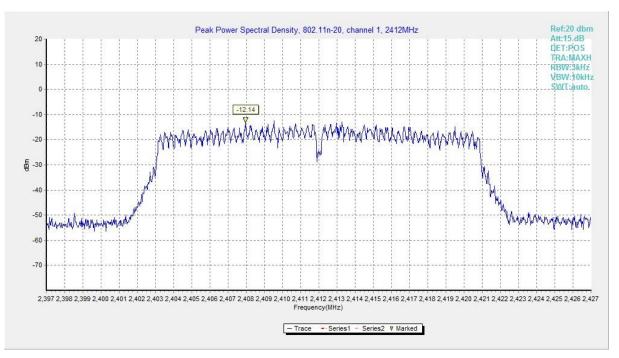


Fig.A.3.7 Power Spectral Density (802.11n-HT20, Ch 1)

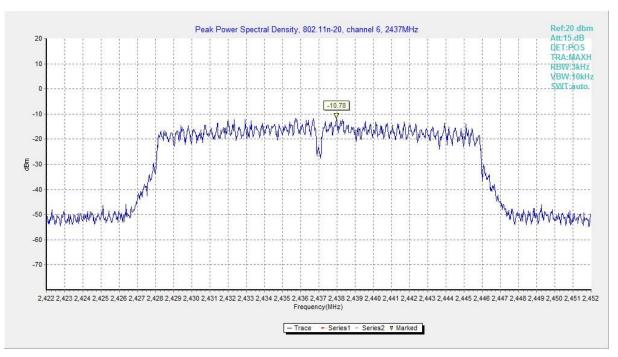


Fig.A.3.8 Power Spectral Density (802.11n-HT20, Ch 6)



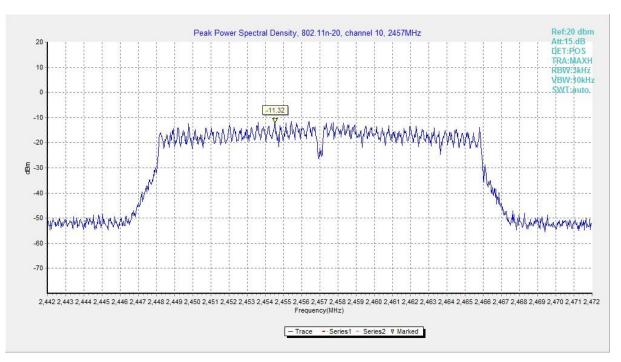


Fig.A.3.9 Power Spectral Density (802.11n-HT20, Ch 11)



A.4. DTS 6-dB Signal Bandwidth

Method of Measurement: See KDB558074 section 8.1 (Option 1).

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) = 300 kHz.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) 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.

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

EUT ID: EUT2

Measurement Result:

802.11b/g mode

Mode	Channel	-	B Bandwidth (Hz)	conclusion
	1	Fig.A.4.1	9000	Р
802.11b	6	Fig.A.4.2	8950	Р
	11	Fig.A.4.3	9800	Р
	1	Fig.A.4.4	15950	Р
802.11g	6	Fig.A.4.5	16350	Р
	11	Fig.A.4.6	15750	Р

802.11n-HT20 mode

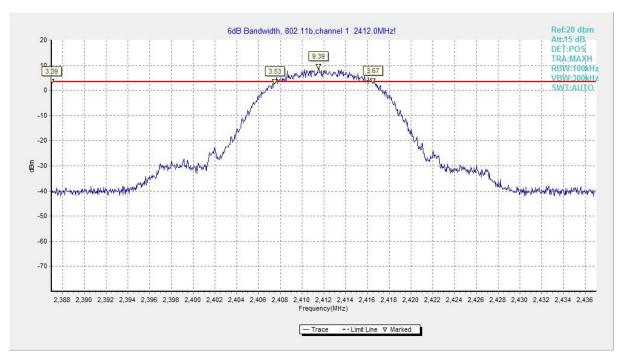
Mode	Channel	-	B Bandwidth (Hz)	conclusion
900 11 m	1	Fig.A.4.7	17000	Р
802.11n	6	Fig.A.4.8	17100	Р
(HT20)	11	Fig.A.4.9	16800	Р

Conclusion: Pass

Test graphs as below:

No. I15Z41068-SRD01 Page22 of 96







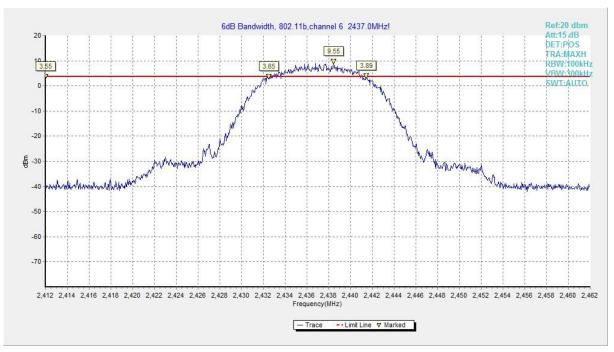


Fig.A.4.2 Occupied 6dB Bandwidth (802.11b, Ch 6)

No. I15Z41068-SRD01 Page23 of 96



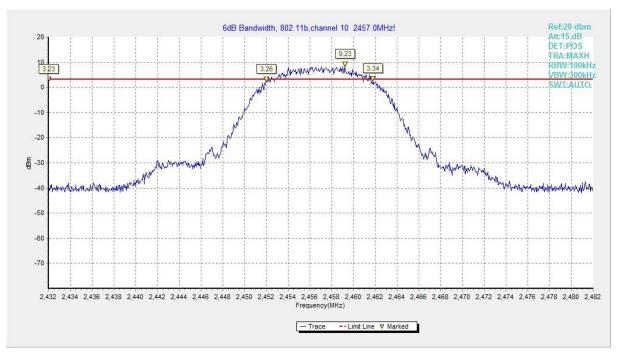


Fig.A.4.3 Occupied 6dB Bandwidth (802.11b, Ch 11)

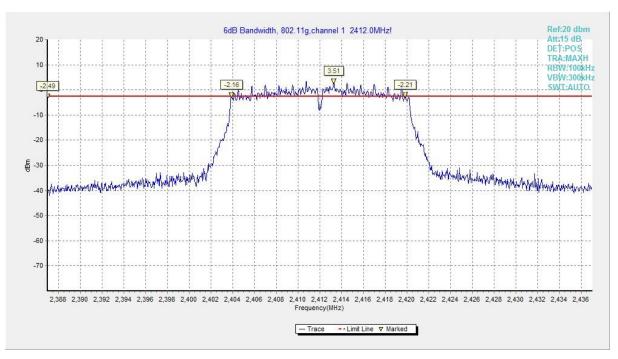


Fig.A.4.4 Occupied 6dB Bandwidth (802.11g, Ch 1)

No. I15Z41068-SRD01 Page24 of 96



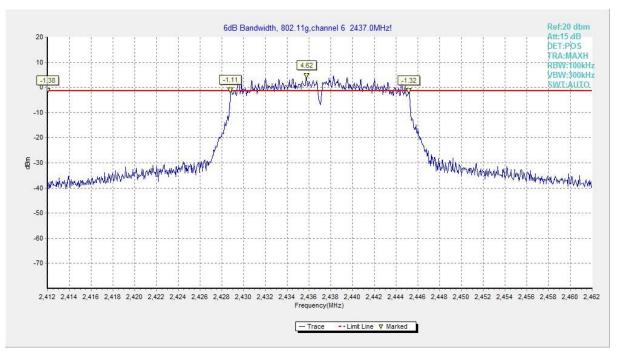


Fig.A.4.5 Occupied 6dB Bandwidth (802.11g, Ch 6)

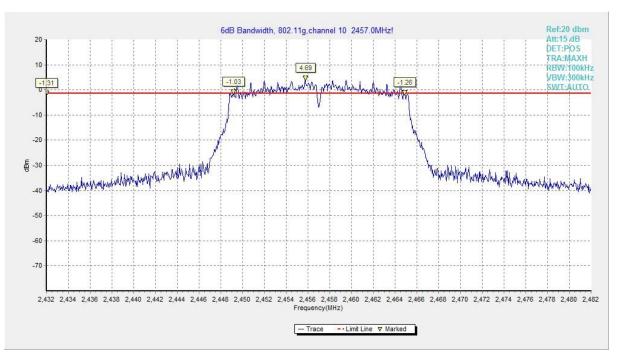


Fig.A.4.6 Occupied 6dB Bandwidth (802.11g, Ch 11)

No. I15Z41068-SRD01 Page25 of 96



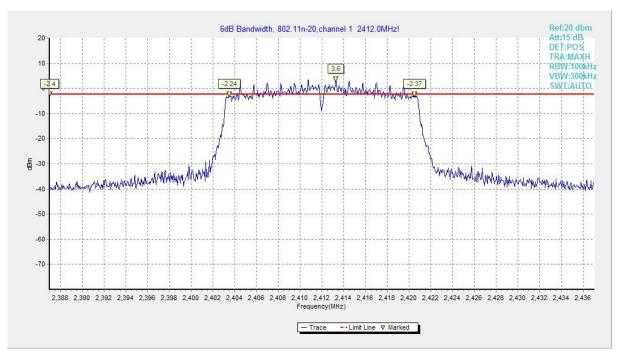


Fig.A.4.7 Occupied 6dB Bandwidth (802.11n-20MHz, Ch 1)

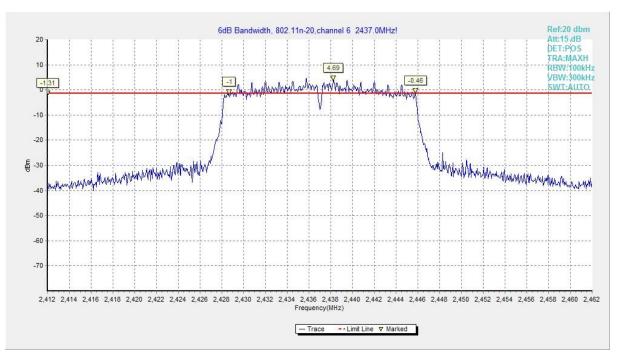


Fig.A.4.8 Occupied 6dB Bandwidth (802.11n-HT20, Ch 6)

No. I15Z41068-SRD01 Page26 of 96



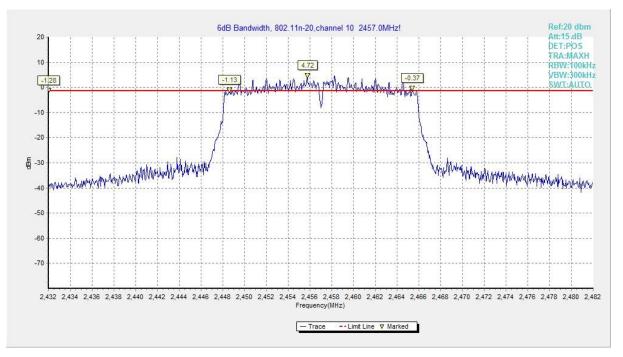


Fig.A.4.9 Occupied 6dB Bandwidth (802.11n-HT20, Ch 11)



A.5. Band Edges Compliance

Method of Measurement: See ANSI C63.10-2009-clause 6.9.2

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below (be sure to enter all losses between the unlicensed wireless device output and the spectrum analyzer).

- -Span: Set Span for minimum 50 MHz
- -Reference Level: 110 dBµ V (corrected for gains and losses of test antenna factor, preamp gain and cable loss)
- -Attenuation: 10 dB
- -Sweep Time: Coupled
- -Resolution Bandwidth: Up to and including 1 GHz = ≥ 100 kHz
- -Resolution Bandwidth: Above 1 GHz = 1 MHz
- -Video Bandwidth: Below 1 GHz = 300 kHz
- —Video Bandwidth: Up to and including 1 GHz = ≥ 3 MHz for peak and10 Hz for average
- -Detector: Peak

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.

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

EUT ID: EUT2

Measurement Result:

802.11b/g mode

Mode	Channel	Test Results	Conclusion
802.11b	1	Fig.A.5.1	Р
002.110	11	Fig.A.5.2	Р
902.11 a	1	Fig.A.5.3	Р
802.11g	11	Fig.A.5.4	Р

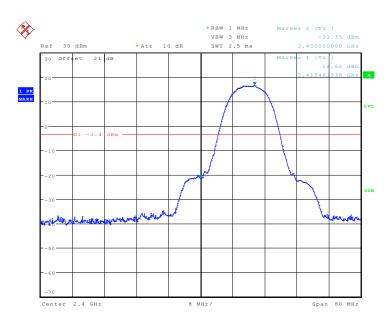
802.11n-HT20 mode

Mode	Channel	Test Results	Conclusion
802.11n	1	Fig.A.5.5	Р
(HT20)	11	Fig.A.5.6	Р

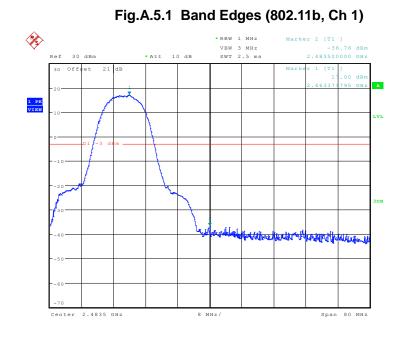
Conclusion: Pass

Test graphs as below:





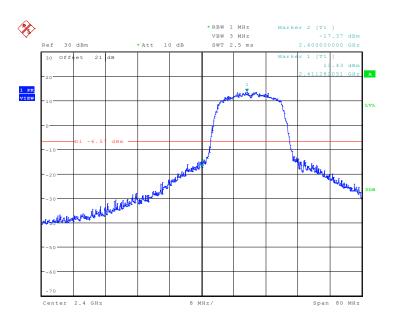
Date: 15.MAY.2015 17:27:01



Date: 15.MAY.2015 17:33:24

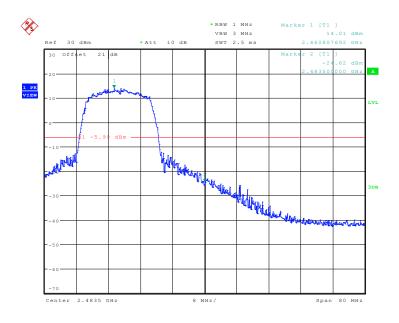
Fig.A.5.2 Band Edges (802.11b, Ch 11)





Date: 15.MAY.2015 17:28:23

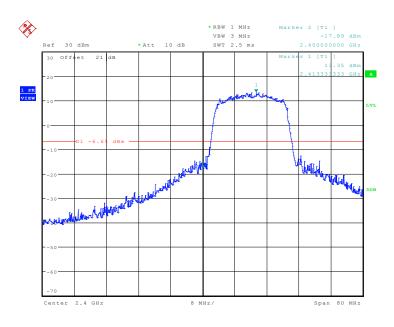




Date: 15.MAY.2015 17:32:15

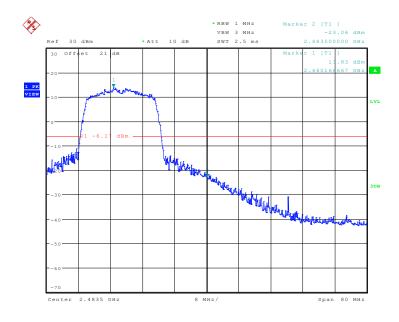
Fig.A.5.4 Band Edges (802.11g, Ch 11)



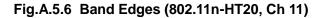


Date: 15.MAY.2015 17:29:42





Date: 15.MAY.2015 17:31:08





A.6. Transmitter Spurious Emission

A.6.1 Transmitter Spurious Emission – Conducted

Method of Measurement: See ANSI C63.10-2009-clause 6.5&6.6

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency
- b) Set the span to \geq 1.5 times the DTS bandwidth
- c) Set the RBW= 100 kHz
- d) Set the VBW= 300 kHz
- e) Detector = Peak
- f) Sweep time = auto couple
- g) Trace mode = max hold
- h) Allow trace to fully stabilize
- i) Use the peak marker function to determine the maximum PSD level

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW = 300 kHz.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

Measurement Limit:

Standard	Limit
	20dB below peak output power in 100 kHz
FCC 47 CFR Part 15.247 (d)	bandwidth

EUT ID: EUT2

Measurement Results:



802.11b mode

MODE	Channel	Frequency Range	Test Results	Conclusion
	1	2.412 GHz	Fig.A.6.1.1	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.2	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.3	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.4	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.5	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.6	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.7	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.8	Р
		2.437 GHz	Fig.A.6.1.9	Р
802.11b	6	30 MHz ~ 1 GHz	Fig.A.6.1.10	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.11	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.12	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.13	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.14	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.15	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.16	Р
	11	2.462 GHz	Fig.A.6.1.17	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.18	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.19	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.20	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.21	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.22	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.23	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.24	Р



802.11g mode

MODE	Channel	Frequency Range	Test Results	Conclusion
	1	2.412 GHz	Fig.A.6.1.25	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.26	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.27	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.28	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.29	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.30	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.31	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.32	Р
802.11g		2.437 GHz	Fig.A.6.1.33	Р
	6	30 MHz ~ 1 GHz	Fig.A.6.1.34	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.35	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.36	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.37	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.38	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.39	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.40	Р
	11	2.462 GHz	Fig.A.6.1.41	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.42	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.43	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.44	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.45	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.46	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.47	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.48	Р



802.11n-HT20 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
	1	2.412 GHz	Fig.A.6.1.49	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.50	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.51	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.52	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.53	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.54	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.55	Р
802.11n (HT20)		20 GHz ~ 26 GHz	Fig.A.6.1.56	Р
	6	2.437 GHz	Fig.A.6.1.57	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.58	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.59	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.60	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.61	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.62	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.63	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.64	Р
	11	2.462 GHz	Fig.A.6.1.65	Р
		30 MHz ~ 1 GHz	Fig.A.6.1.66	Р
		1 GHz ~ 2.5 GHz	Fig.A.6.1.67	Р
		2.5 GHz ~ 7.5 GHz	Fig.A.6.1.68	Р
		7.5 GHz ~ 10 GHz	Fig.A.6.1.69	Р
		10 GHz ~ 15 GHz	Fig.A.6.1.70	Р
		15 GHz ~ 20 GHz	Fig.A.6.1.71	Р
		20 GHz ~ 26 GHz	Fig.A.6.1.72	Р

Conclusion: Pass Test graphs as below:

No. I15Z41068-SRD01 Page35 of 96



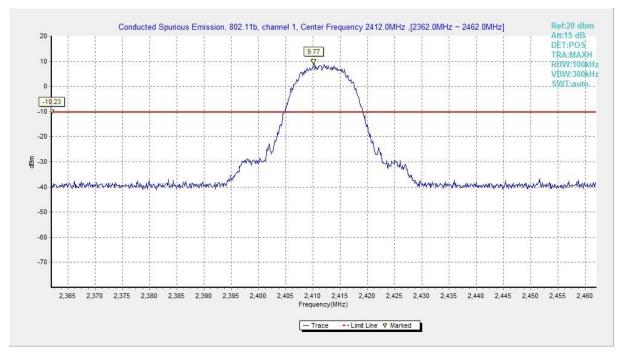


Fig.A.6.1.1 Transmitter Spurious Emission - Conducted (802.11b, Ch1, Center Frequency)

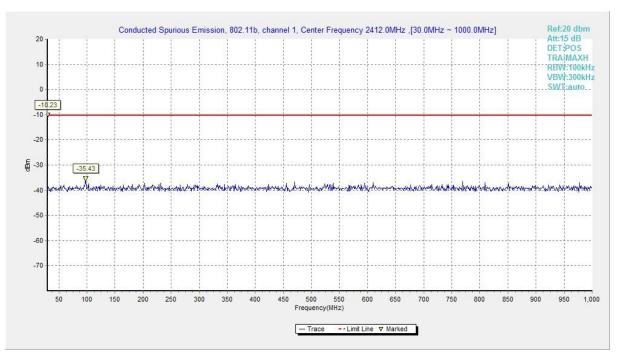


Fig.A.6.1.2 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 30 MHz-1 GHz)

No. I15Z41068-SRD01 Page36 of 96



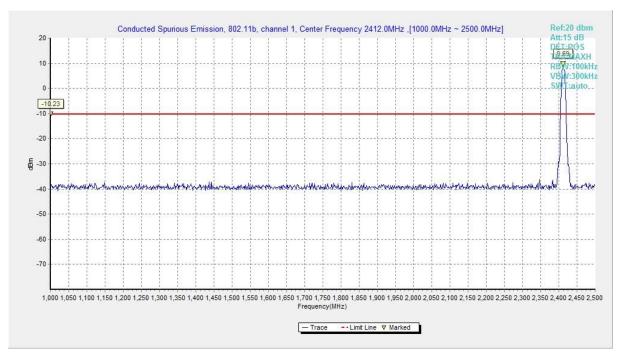


Fig.A.6.1.3 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 1 GHz-2.5 GHz)

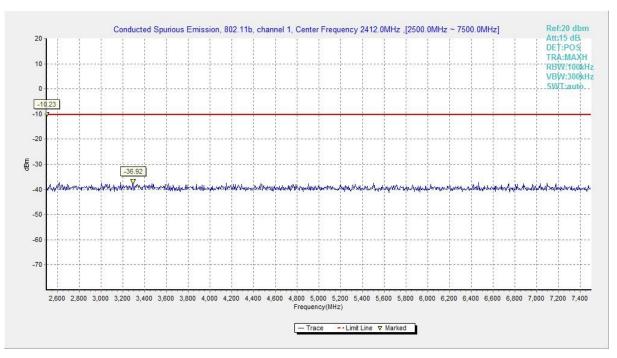


Fig.A.6.1.4 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 2.5 GHz-7.5 GHz)

No. I15Z41068-SRD01 Page37 of 96



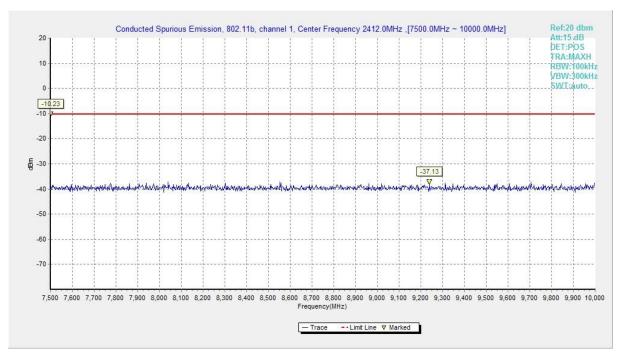


Fig.A.6.1.5 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 7.5 GHz-10 GHz)

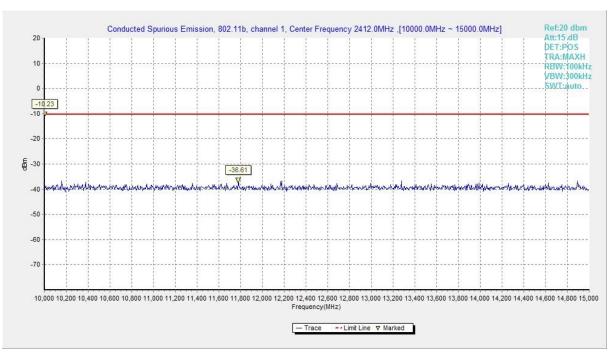


Fig.A.6.1.6 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 10 GHz-15 GHz)

No. I15Z41068-SRD01 Page38 of 96



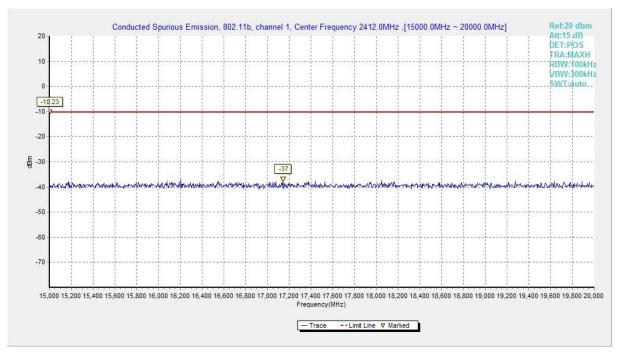


Fig.A.6.1.7 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 15 GHz-20 GHz)

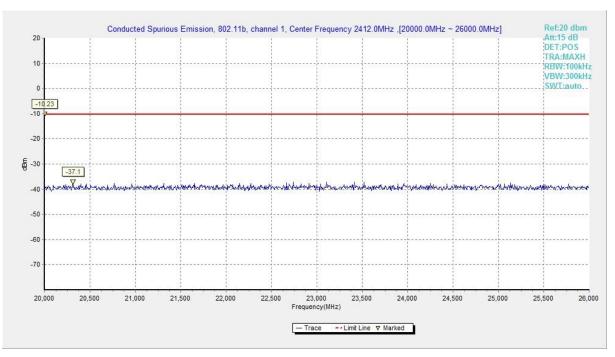


Fig.A.6.1.8 Transmitter Spurious Emission - Conducted (802.11b, Ch1, 20 GHz-26 GHz)

No. I15Z41068-SRD01 Page39 of 96



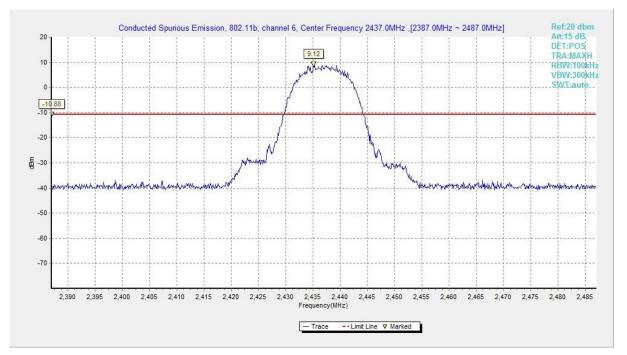


Fig.A.6.1.9 Transmitter Spurious Emission - Conducted (802.11b, Ch6, Center Frequency)

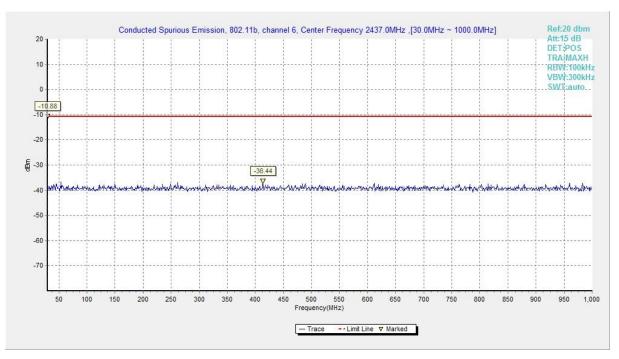


Fig.A.6.1.10 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 30 MHz-1 GHz)

No. I15Z41068-SRD01 Page40 of 96



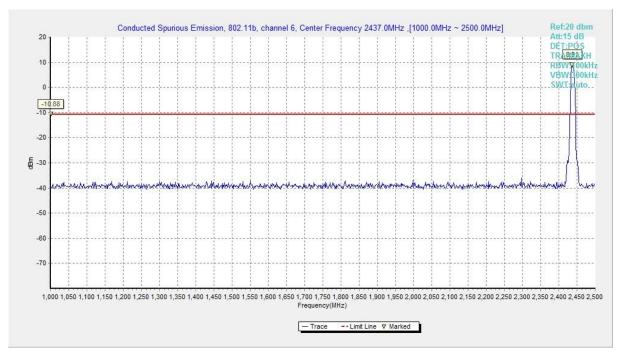


Fig.A.6.1.11 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 1 GHz-2.5 GHz)

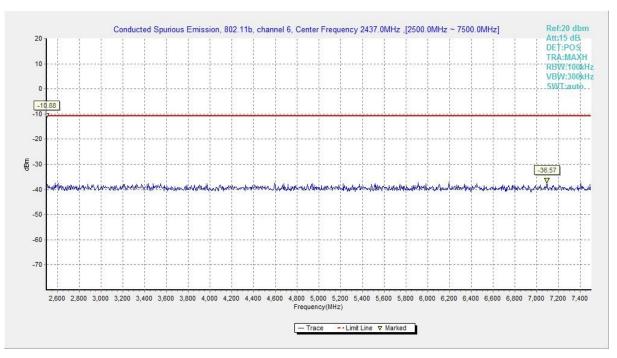


Fig.A.6.1.12 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 2.5 GHz-7.5 GHz)

No. I15Z41068-SRD01 Page41 of 96



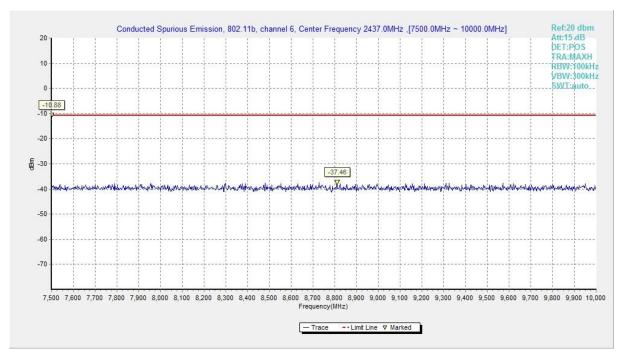


Fig.A.6.1.13 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 7.5 GHz-10 GHz)

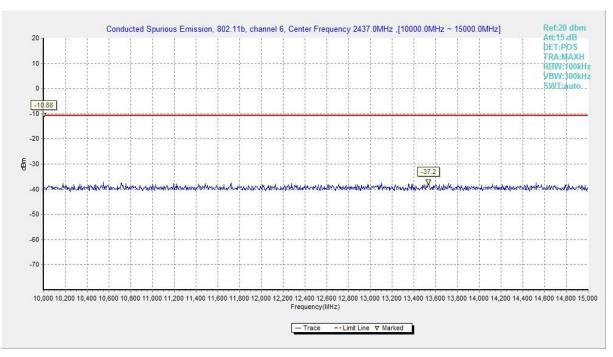


Fig.A.6.1.14 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 10 GHz-15 GHz)

No. I15Z41068-SRD01 Page42 of 96



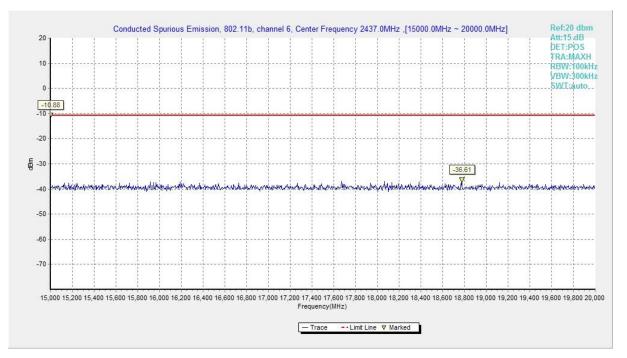


Fig.A.6.1.15 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 15 GHz-20 GHz)

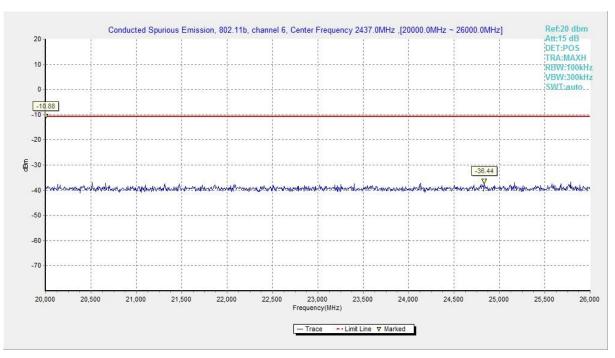


Fig.A.6.1.16 Transmitter Spurious Emission - Conducted (802.11b, Ch6, 20 GHz-26 GHz)

No. I15Z41068-SRD01 Page43 of 96



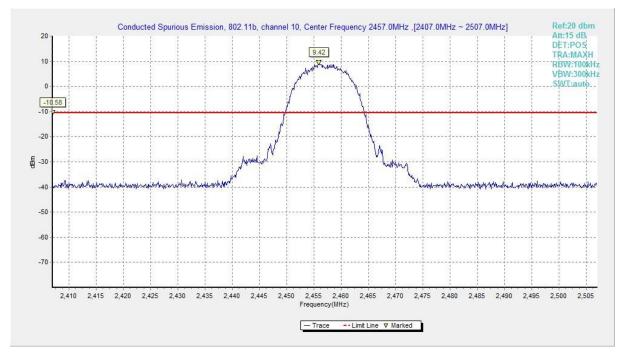


Fig.A.6.1.17 Transmitter Spurious Emission - Conducted (802.11b, Ch11, Center Frequency)

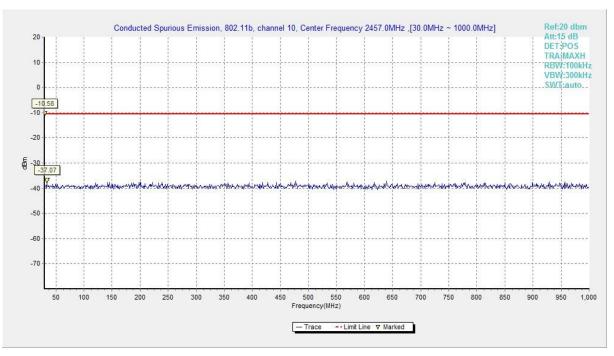


Fig.A.6.1.18 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 30 MHz-1 GHz)

No. I15Z41068-SRD01 Page44 of 96



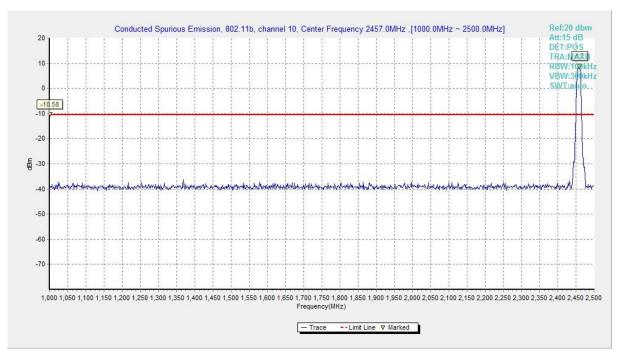


Fig.A.6.1.19 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 1 GHz-2.5 GHz)

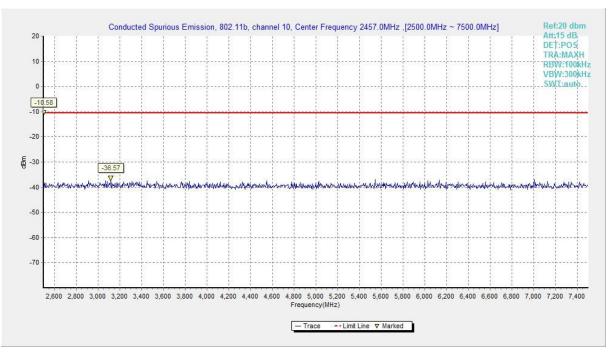


Fig.A.6.1.20 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 2.5 GHz-7.5 GHz)

No. I15Z41068-SRD01 Page45 of 96



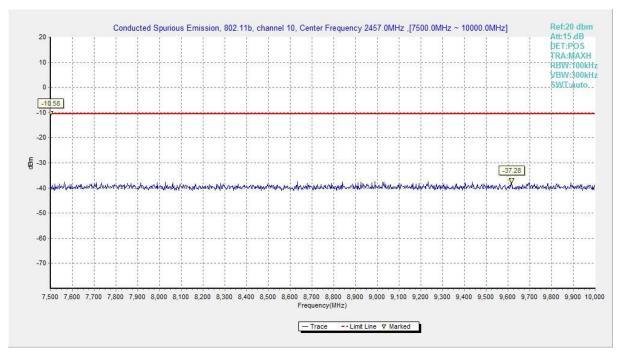


Fig.A.6.1.21 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 7.5 GHz-10 GHz)

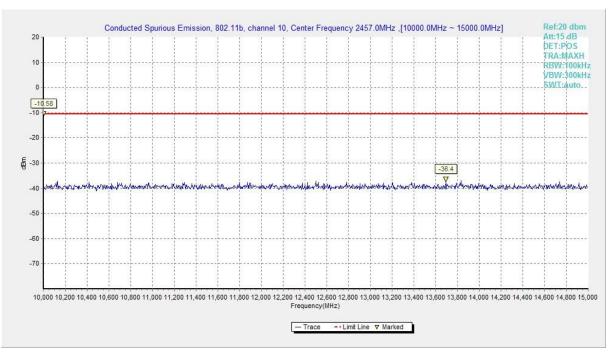


Fig.A.6.1.22 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 10 GHz-15 GHz)

No. I15Z41068-SRD01 Page46 of 96



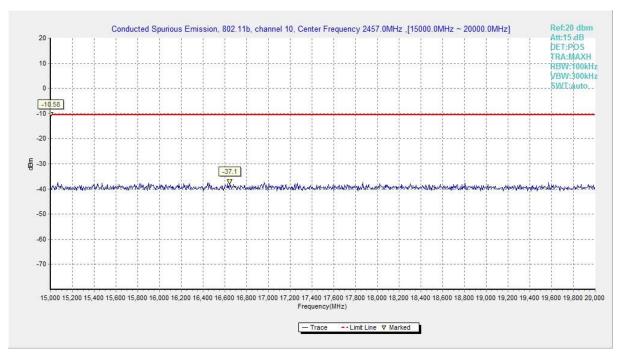


Fig.A.6.1.23 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 15 GHz-20 GHz)

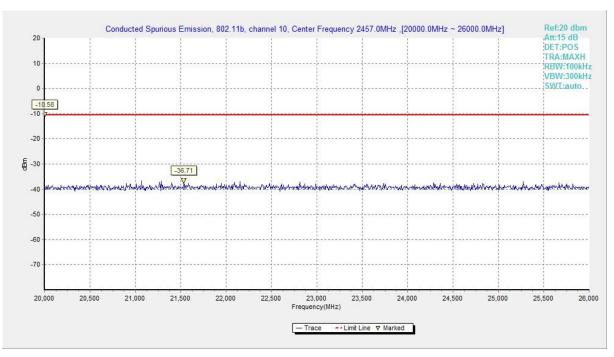


Fig.A.6.1.24 Transmitter Spurious Emission - Conducted (802.11b, Ch11, 20 GHz-26 GHz)

No. I15Z41068-SRD01 Page47 of 96



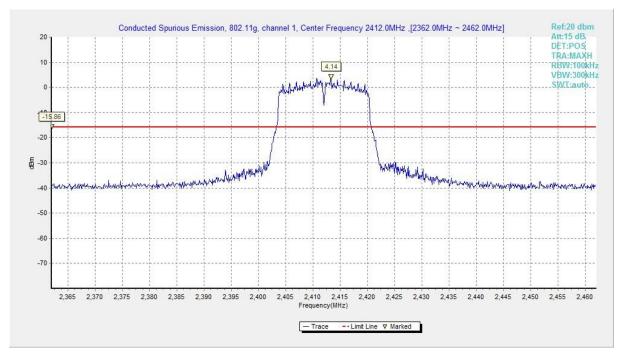


Fig.A.6.1.25 Transmitter Spurious Emission - Conducted (802.11g, Ch1, Center Frequency)

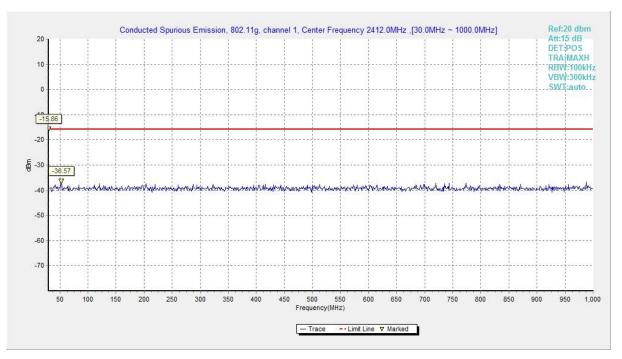


Fig.A.6.1.26 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 30 MHz-1 GHz)

No. I15Z41068-SRD01 Page48 of 96



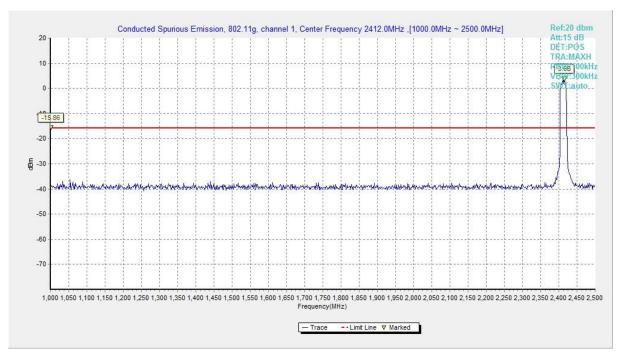


Fig.A.6.1.27 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 1 GHz-2.5 GHz)

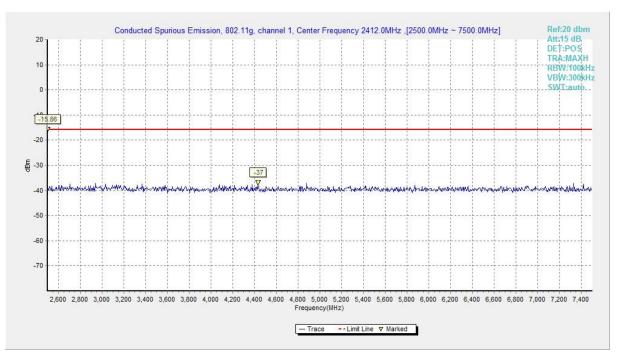


Fig.A.6.1.28 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 2.5 GHz-7.5 GHz)

No. I15Z41068-SRD01 Page49 of 96



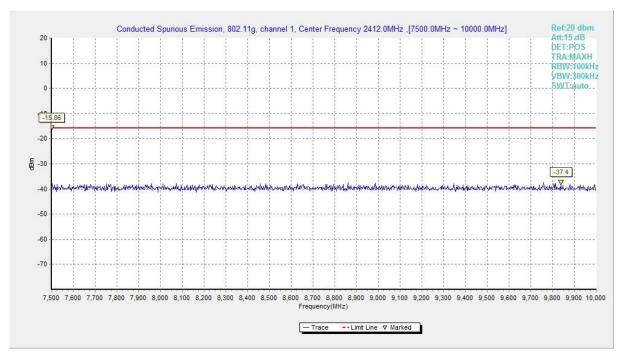


Fig.A.6.1.29 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 7.5 GHz-10 GHz)

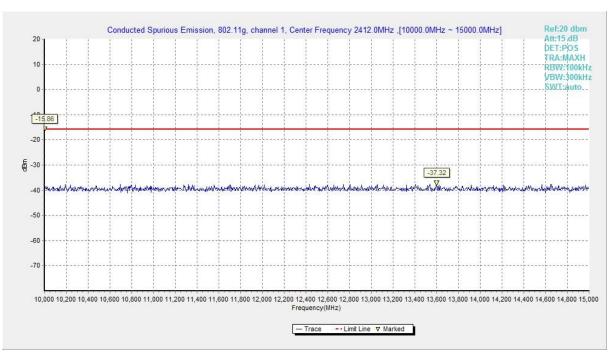


Fig.A.6.1.30 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 10 GHz-15 GHz)

No. I15Z41068-SRD01 Page50 of 96



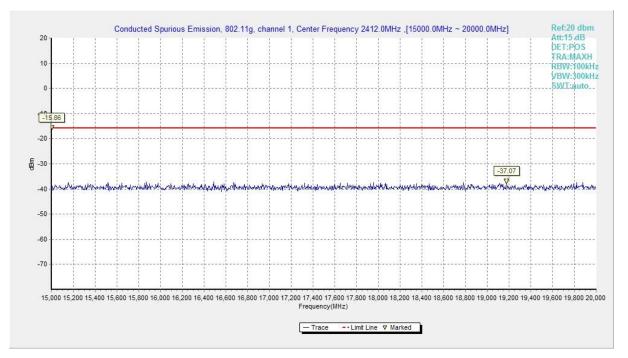


Fig.A.6.1.31 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 15 GHz-20 GHz)

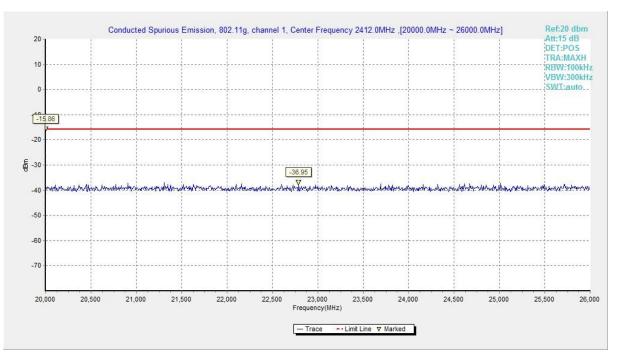


Fig.A.6.1.32 Transmitter Spurious Emission - Conducted (802.11g, Ch1, 20 GHz-26 GHz)