



Test Report

(Class II Permissive Change)

Product Name	Full HD Video Wireless Receiver Module
Model No	ZRF-32100
FCC ID	YG7ZRF32100
End Product	Full HD Video Wireless Receiver

Applicant	ZINWELL CORPORATION
Address	7F 512, Yuan Shan Road, Chung Ho City, 235, Taipei Hsien, Taiwan

Date of Receipt	May. 10, 2010
Issued Date	July. 29, 2010
Report No.	106229R-RFUSP46V01
Report Version	V1.0

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.


This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date: July. 29, 2010

Report No.: 106229R-RFUSP46V01



Product Name	Full HD Video Wireless Receiver Module	
Applicant	ZINWELL CORPORATION	
Address	7F 512, Yuan Shan Road, Chung Ho City, 235, Taipei Hsien, Taiwan	
Manufacturer	ZINWELL CORPORATION	
Model No.	ZRF-32100	
FCC ID.	YG7ZRF32100	
EUT Rated Voltage	AC 100-240V, 50-60Hz	
EUT Test Voltage	AC 120V/60Hz	
Trade Name	ZINWELL[®]	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2009 ANSI C63.4: 2003	 NVLAP Lab Code: 200533-0
Test Result	Complied	

The Test Results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Leven Huang
(Senior Adm. Specialist / Leven Huang)



Tested By : Joe Guo
(Engineer / Joe Guo)

Approved By : Vincent Lin
(Manager / Vincent Lin)



TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION	5
1.1. EUT Description.....	5
1.2. Operational Description	7
1.3. Tested System Details.....	8
1.4. Configuration of tested System	8
1.5. EUT Exercise Software	8
1.6. Test Facility	9
2. Conducted Emission.....	10
2.1. Test Equipment.....	10
2.2. Test Setup	10
2.3. Limits	10
2.4. Test Procedure	11
2.5. Uncertainty	11
2.6. Test Result of Conducted Emission.....	12
3. Peak Transmit Power	16
3.1. Test Equipment.....	16
3.2. Test Setup	16
3.3. Limits	17
3.4. Test Procedur	17
3.5. Uncertainty	17
3.6. Test Result of Peak Transmit Power.....	18
4. Peak Power Spectral Density.....	24
4.1. Test Equipment.....	24
4.2. Test Setup	24
4.3. Limits	24
4.4. Test Procedure	25
4.5. Uncertainty	25
4.6. Test Result of Peak Power Spectral Density	26
5. Peak Excursion	29
5.1. Test Equipment.....	29
5.2. Test Setup	29
5.3. Limits	29
5.4. Test Procedure	30
5.5. Uncertainty	30
5.6. Test Result of Peak Excursion.....	31
6. Radiated Emission.....	34
6.1. Test Equipment.....	34
6.2. Test Setup	34
6.3. Limits	35
6.4. Test Procedure	36
6.5. Uncertainty	36
6.6. Test Result of Radiated Emission.....	37
7. Band Edge	44

7.1.	Test Equipment.....	44
7.2.	Test Setup	45
7.3.	Limits	46
7.4.	Test Procedure	46
7.5.	Uncertainty	46
7.6.	Test Result of Band Edge	47
8.	Frequency Stability.....	58
8.1.	Test Equipment.....	58
8.2.	Test Setup	58
8.3.	Limits	58
8.4.	Test Procedure	58
8.5.	Uncertainty	58
8.6.	Test Result of Frequency Stability.....	59
9.	EMI Reduction Method During Compliance Testing	63
Attachment 1:	EUT Test Photographs	
Attachment 2:	EUT Detailed Photographs	

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Full HD Video Wireless Receiver Module
Trade Name	ZINWELL [®]
FCC ID.	YG7ZRF32100
Model No.	ZRF-32100
Frequency Range	5270-5310MHz,5510-5670MHz
Number of Channels	5
Data Rate	60kbps
Type of Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna type	Internal : PIFA ; External : PIFA , Dipole
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
Power Adapter	MFR:SINO-American, M/N: SA115B-05-A Input: AC 100-240V,50-60Hz,0.4A Output: DC 5V,3A Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.

Antenna List

	Manufacturer	Model No.	Peak Gain
Internal	ZINWELL	N/A	3.47dBi for 5GHz
External	ZINWELL	9D10009E2002	6.11dBi for 5GHz
		9D10009E3002	

NOTE: External Antenna only uses in receive mode.

All testing are use external antenna.

802.11n-40MHz (5GHz Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 54:	5270 MHz	Channel 62:	5310 MHz	Channel 102:	5510 MHz	Channel 110:	5550 MHz
Channel 134:	5670 MHz						

Note:

1. This device is a Full HD Video Wireless Receiver Module with a built-in 5GHz transceiver.
2. This device is Master equipment, the transmission is disabled in the 5600-5650MHz band.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

1.2. Operational Description

The EUT is a Full HD Video Wireless Receiver Module with a built-in 5GHz transceiver, together with Full HD Video Wireless Transmitter Module. It has a MISO design of five channel and one slow rate output wireless channel, which generates an upstream channel for data content transmissions.

The data modulation is OFDM, using five antennas to support 1(Transmit) * 5(Receive) technology. The device only provided one transmitting speed 30kbps in 20MHz bandwidth mode and 60kbps in 40MHz bandwidth mode.

Presents the ultimate solution for converting any High Definition (HD) system, including Full HD, into a wireless one. These add-on modules enable wireless A/V applications that fit easily into the living room and eliminate traditional A/V wiring. The perfect HD video and audio quality and the high robustness are unmatched by any other wireless technology and present a true alternative to cable. The WHDI system transmits uncompressed video and audio streams wirelessly and thus simplifies and eliminates system issues, such as: lip-sync, large buffers and other burdens like retransmissions or error propagation.

The device can receive audio and video signal from associate equipment, device will transmit signal to request associate equipment change transmission frequency.

The IC AMN2220 WHDI baseband receiver chip is the heart of the ZRF32100 WHDI Receiver module. The AMN2220 interfaces the A/V sink through the WHDI connector and is controlled by the internal MAC uC. The AMN2220 is based on MIMO technology receiving up to five input channels. Five analog-to-digital converters and one digital-to-analog converter are embedded within the chip.

The AMN2220 internal PLL accepts an input clock frequency of 40MHz. The input frequency is multiplied and then used as an internal system clock.

The IC AMN3210 is a fully-integrated Zero-IF MIMO receiver specifically designed for WHDI applications using OFDM modulation for single-band 4.9 GHz to 5.9 GHz. The device consists of:

- Five Complete Downlink Zero-IF Receivers.
- One Uplink Direct Conversion Transmitter.
- Integrated Synthesizer/VCO.
- Internal DC Servo Loops.
- RSSI, RF and Baseband Control Interface.
- Power Management Unit.
- 3-Wire SPI Interface.

To complete the RF front-end solution, the AMN3210 uses external PA, RF Band Pass Filters (BPF), RF BALUNs and a few passive components.

The device antenna are use five FIFA and printed on PCB; for receiver function there are support two external antenna which can instead of printed antenna.

The frequency band 5250-5350MHz and 5470 – 5725MHz are not support 20M bandwidth mode. This device is Master equipment.

Test Mode	Mode 1: Transmitter - 40BW
-----------	----------------------------

The major change filed under this application is:

Change #1: Add the plastics Cover

Product Name: Full HD Video Wireless Receiver

Model number: ZWD-2222R, ZWD-2322R, ZWD-2422R, ZWD-2522R, ZWD-2622R,
 ZWD-2722R, ZWD-2822R, ZWD-1222R, BV-2222R, BV-2322R,
 BV-2422R, BV-2522R, BV-2622R, BV-2722R, BV-2822R,
 BV-1222R

Trade name: ZINWELL, brite-view

Change #2: Add the frequency band from 5250-5350MHz and 5470 – 5725MHz by software.

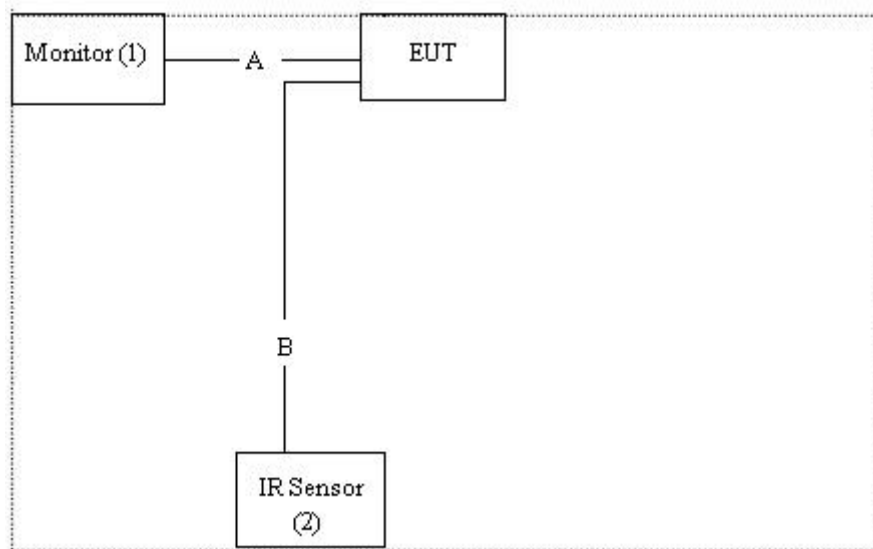
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
(1) Monitor	JPV	N/A	N/A	N/A
(2) IR Sensor	ZINWELL	N/A	N/A	N/A

Signal Cable Type	Signal cable Description
A HDMI Cable	Non-Shielded, 1m
B IR Cable	Non-Shielded, 1m

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Connect EUT and Notebook via USB Cable
- (2) Execute “UART Console Options” program on the Notebook
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous transmission.
- (5) Remove notebook and USB cable, Setup the EUT as shown in Section 1.4
- (6) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Registration Number: 92195



Accreditation on NVLAP
 NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation
 Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
 Lin-Kou Shiang, Taipei,
 Taiwan, R.O.C.
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

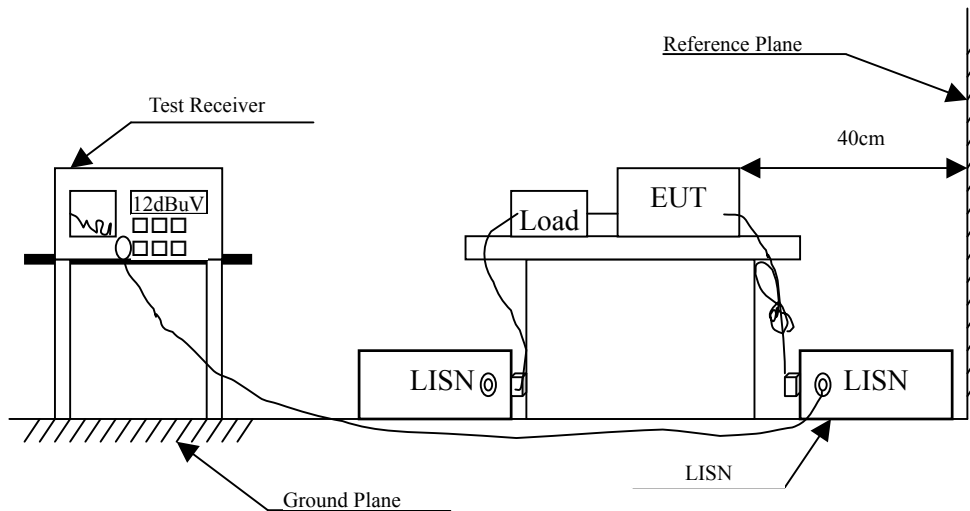
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2010	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2010	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2010	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2010	
5	No.1 Shielded Room			N/A	

Note: All equipments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Full HD Video Wireless Receiver Module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter - 40BW (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.201	9.706	35.480	45.186	-19.357	64.543
0.255	9.673	31.490	41.162	-21.838	63.000
0.439	9.640	32.350	41.990	-15.753	57.743
0.533	9.640	36.130	45.770	-10.230	56.000
1.502	9.678	26.540	36.218	-19.782	56.000
8.873	9.800	25.210	35.010	-24.990	60.000
Average					
0.201	9.706	32.270	41.976	-12.567	54.543
0.255	9.673	28.820	38.492	-14.508	53.000
0.439	9.640	28.840	38.480	-9.263	47.743
0.533	9.640	32.730	42.370	-3.630	46.000
1.502	9.678	23.390	33.068	-12.932	46.000
8.873	9.800	23.550	33.350	-16.650	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Full HD Video Wireless Receiver Module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter - 40BW (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.189	9.724	35.840	45.564	-19.322	64.886
0.252	9.685	31.450	41.135	-21.951	63.086
0.533	9.640	36.110	45.750	-10.250	56.000
0.818	9.670	29.210	38.880	-17.120	56.000
1.502	9.678	26.540	36.218	-19.782	56.000
11.306	9.860	24.630	34.490	-25.510	60.000
Average					
0.189	9.724	32.130	41.854	-13.032	54.886
0.252	9.685	28.630	38.315	-14.771	53.086
0.533	9.640	32.730	42.370	-3.630	46.000
0.818	9.670	26.720	36.390	-9.610	46.000
1.502	9.678	23.390	33.068	-12.932	46.000
11.306	9.860	24.120	33.980	-16.020	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Full HD Video Wireless Receiver Module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter - 40BW (5550MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.201	9.706	35.480	45.186	-19.357	64.543
0.263	9.667	30.410	40.077	-22.694	62.771
0.334	9.650	31.790	41.440	-19.303	60.743
0.533	9.640	35.970	45.610	-10.390	56.000
0.814	9.650	29.110	38.760	-17.240	56.000
2.295	9.680	25.030	34.710	-21.290	56.000
Average					
0.201	9.706	32.270	41.976	-12.567	54.543
0.263	9.667	28.150	37.817	-14.954	52.771
0.334	9.650	28.330	37.980	-12.763	50.743
0.533	9.640	32.660	42.300	-3.700	46.000
0.814	9.650	26.720	36.370	-9.630	46.000
2.295	9.680	22.930	32.610	-13.390	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Full HD Video Wireless Receiver Module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter - 40BW (5550MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.197	9.719	36.700	46.419	-18.238	64.657
0.252	9.685	31.410	41.095	-21.991	63.086
0.380	9.650	33.710	43.360	-16.069	59.429
0.533	9.640	36.050	45.690	-10.310	56.000
0.818	9.670	29.210	38.880	-17.120	56.000
2.857	9.690	24.390	34.080	-21.920	56.000
Average					
0.197	9.719	33.410	43.129	-11.528	54.657
0.252	9.685	28.630	38.315	-14.771	53.086
0.380	9.650	30.450	40.100	-9.329	49.429
0.533	9.640	32.660	42.300	-3.700	46.000
0.818	9.670	26.720	36.390	-9.610	46.000
2.857	9.690	21.240	30.930	-15.070	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Transmit Power

3.1. Test Equipment

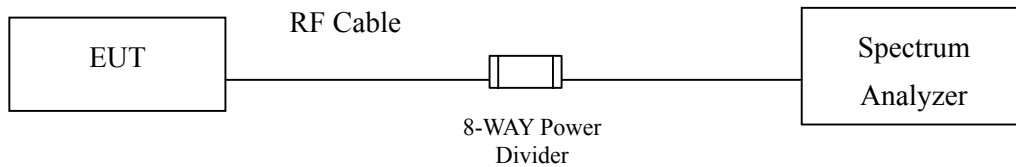
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

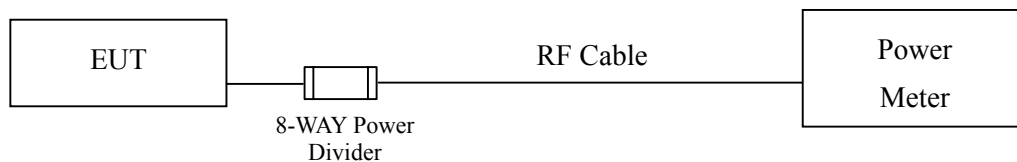
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



Conduction Power Measurement



3.3. Limits

- (1) For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (2) For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or $17 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

3.4. Test Procedur

As an alternative to DA 02-2138, the EUT peak power was measured with a peak power meter employing a video bandwidth greater than 6dB BW of the emission under test. Peak output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of DA 02-2138, and provides more accurate measurements.

3.5. Uncertainty

$\pm 1.27 \text{ dB}$

3.6. Test Result of Peak Transmit Power

Product : Full HD Video Wireless Receiver Module
Test Item : Peak Transmit Power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter - 40BW

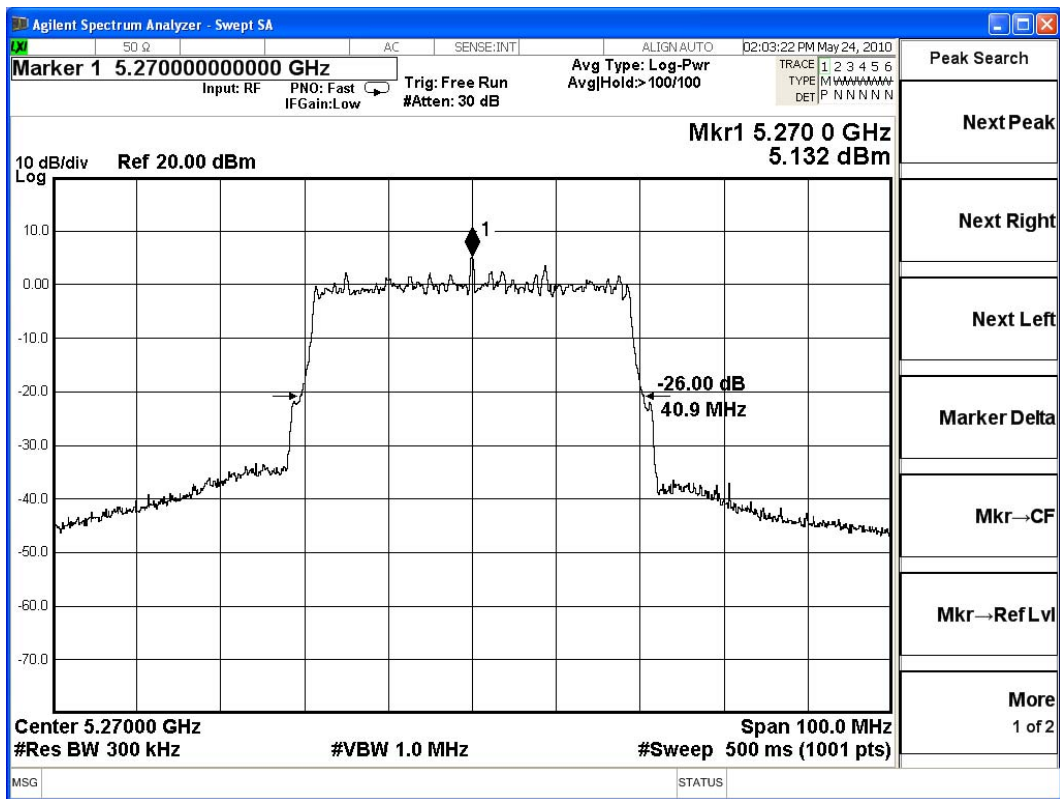
Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
54	5270	12.83	<24dBm	Pass
62	5310	12.85	<24dBm	Pass
102	5510	12.79	<24dBm	Pass
110	5550	12.82	<24dBm	Pass
134	5670	12.85	<24dBm	Pass

Note: Peak Power Output Value = Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
54	5270	40.9	12.83	24	27.12	Pass

**26dBc Occupied Bandwidth:
Channel 54**

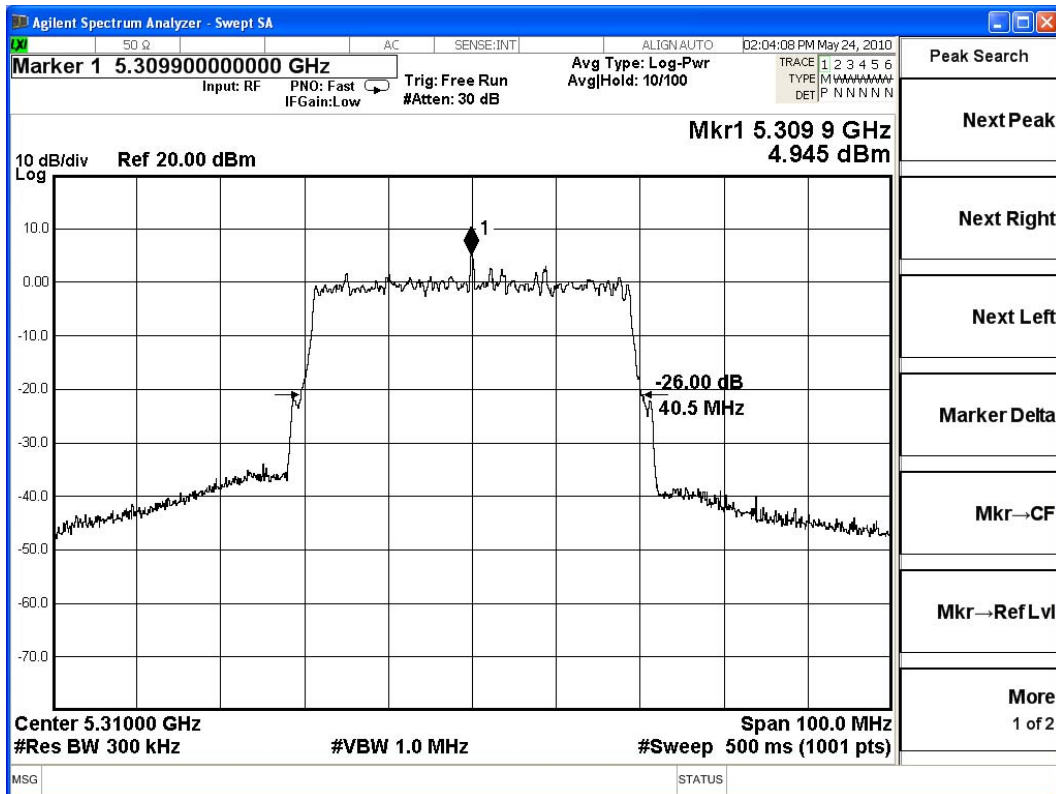


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
62	5310	40.5	12.85	24	27.07	Pass

26dBc Occupied Bandwidth:

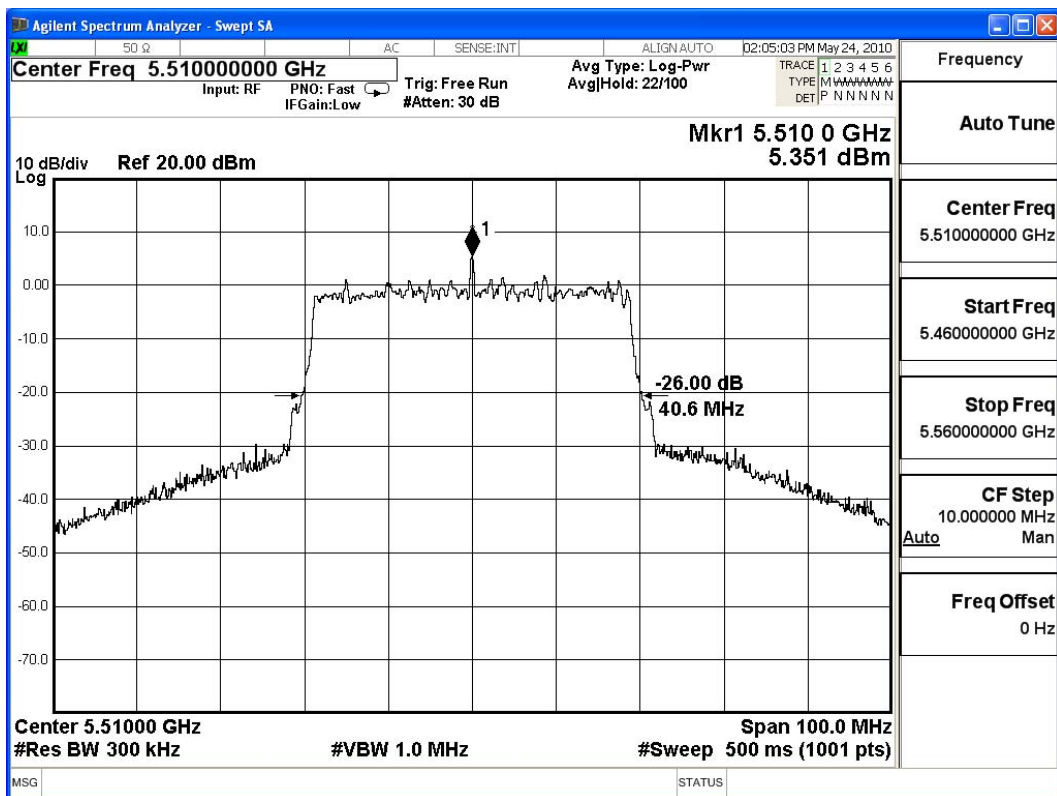
Channel 62



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
102	5510	40.6	12.79	24	27.09	Pass

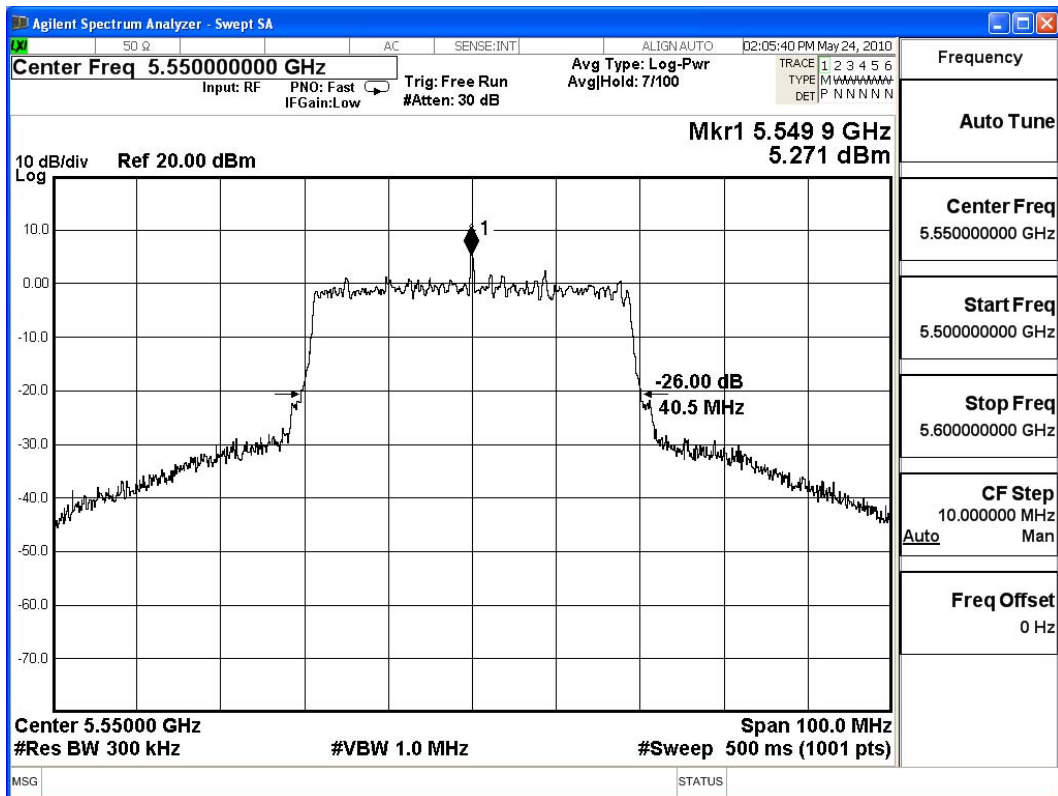
**26dBc Occupied Bandwidth:
Channel 102**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
110	5550	40.5	12.82	24	27.07	Pass

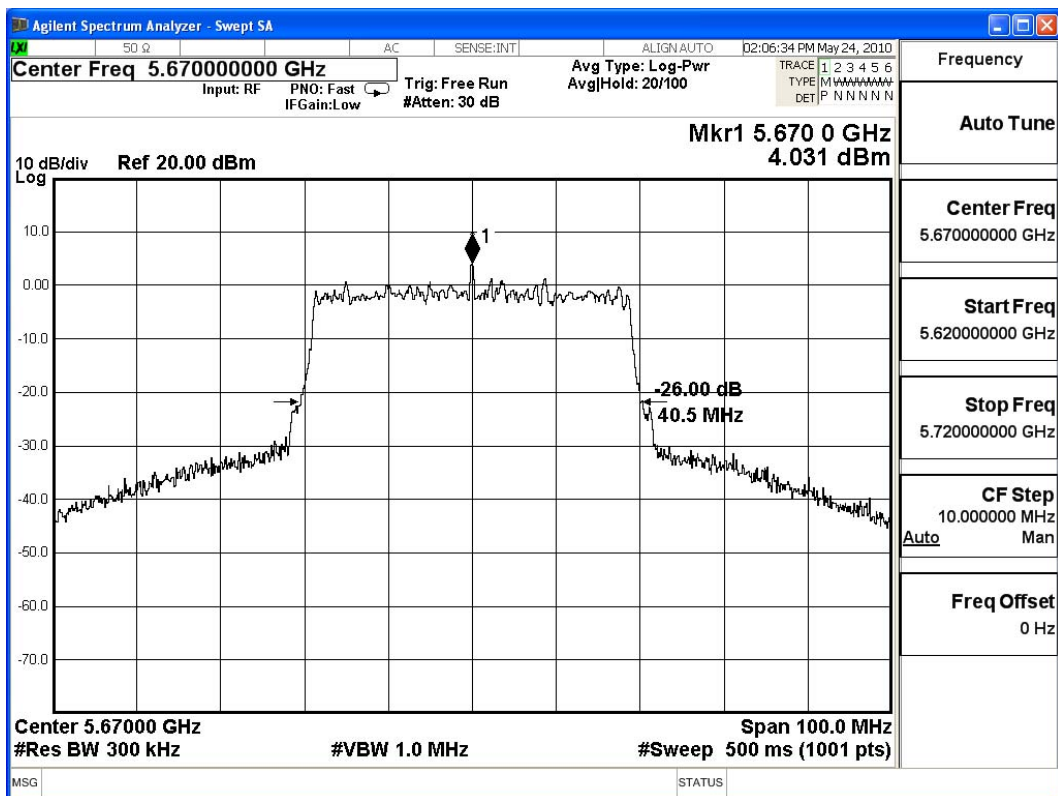
**26dBc Occupied Bandwidth:
Channel 110**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
134	5670	40.5	12.85	24	27.07	Pass

**26dBc Occupied Bandwidth:
Channel 134**



4. Peak Power Spectral Density

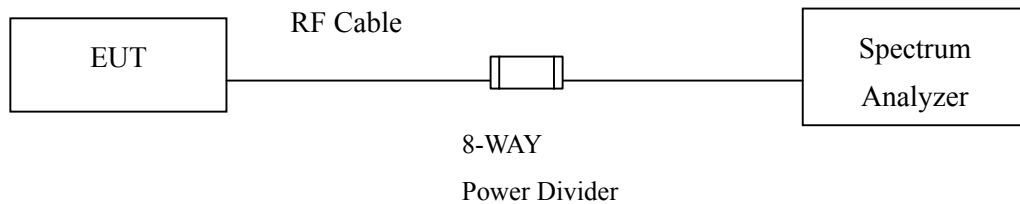
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

4.2. Test Setup



4.3. Limits

- (4) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (5) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (6) For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

4.5. Uncertainty

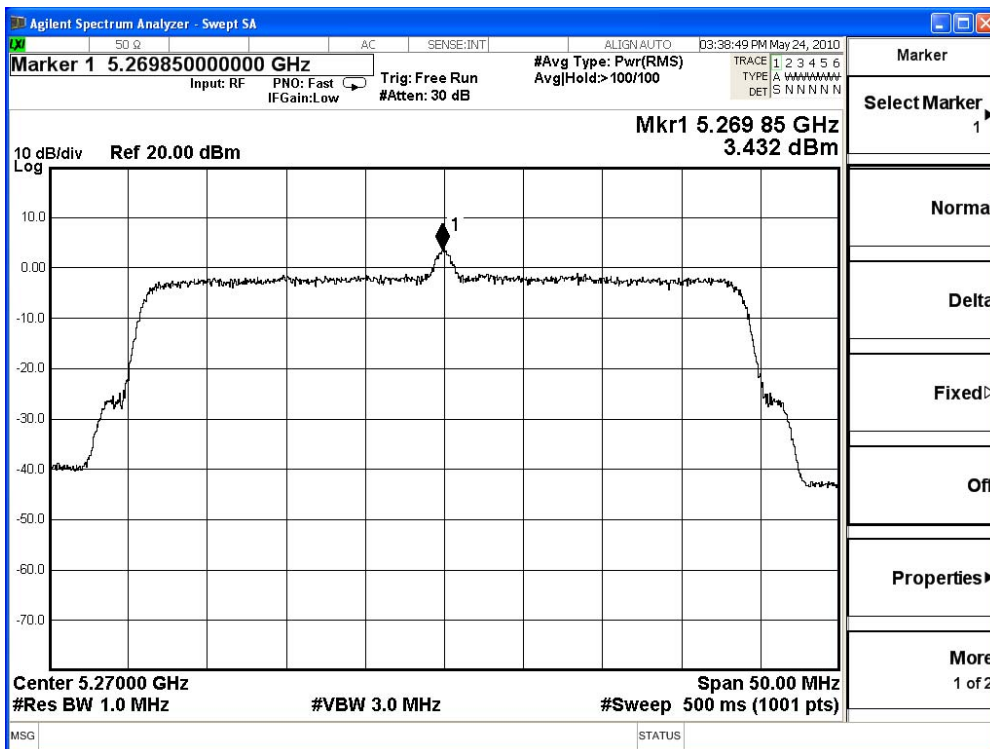
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

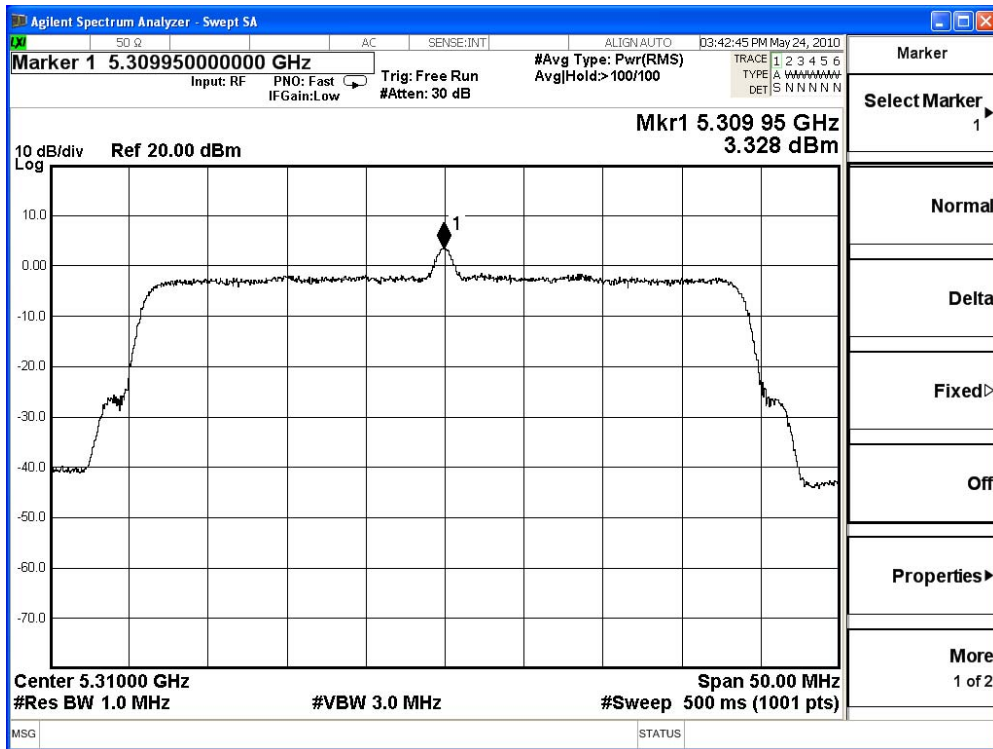
Product : Full HD Video Wireless Receiver Module
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
54	5270	3.432	<11	Pass
62	5310	3.328	<11	Pass
102	5510	3.676	<11	Pass
110	5550	3.522	<11	Pass
134	5670	2.707	<11	Pass

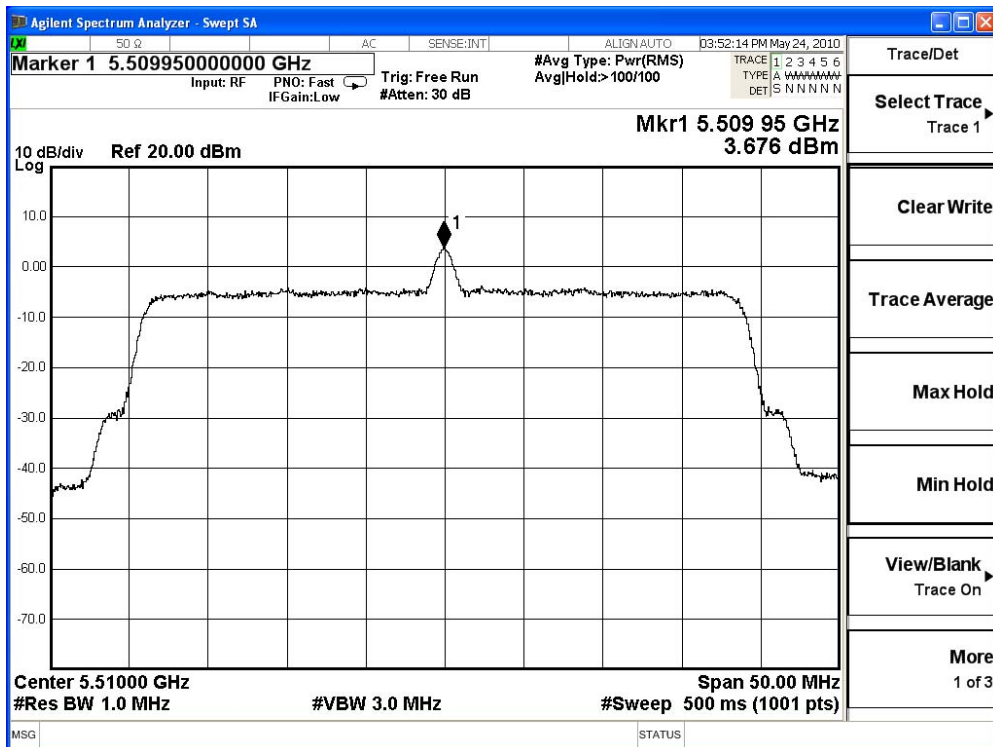
Channel 54:



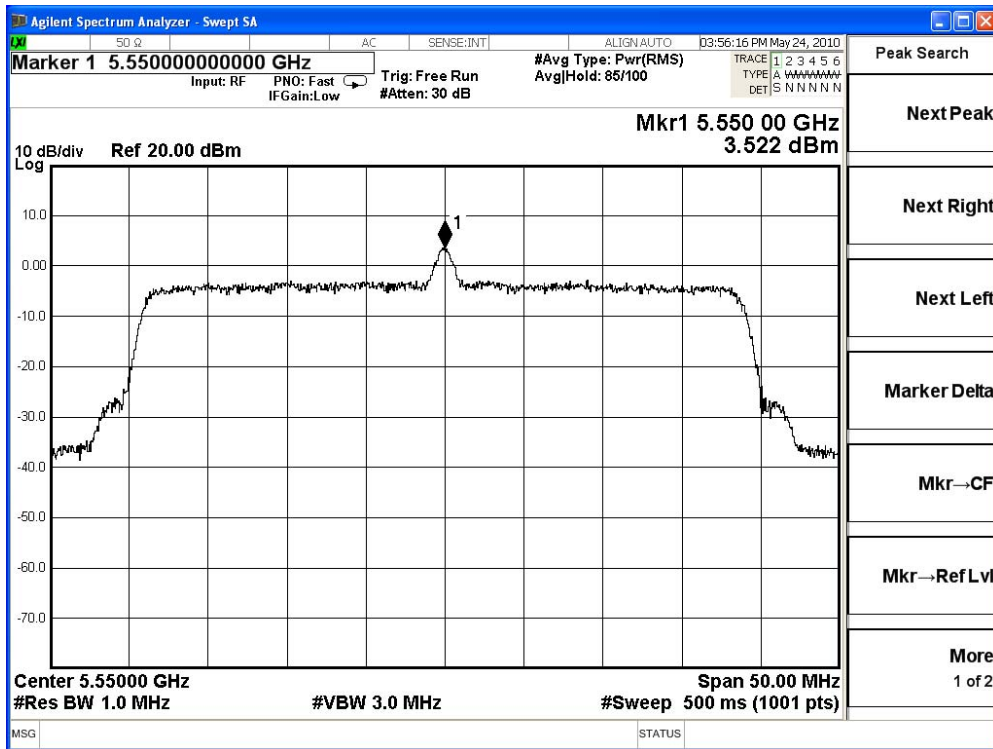
Channel 62:



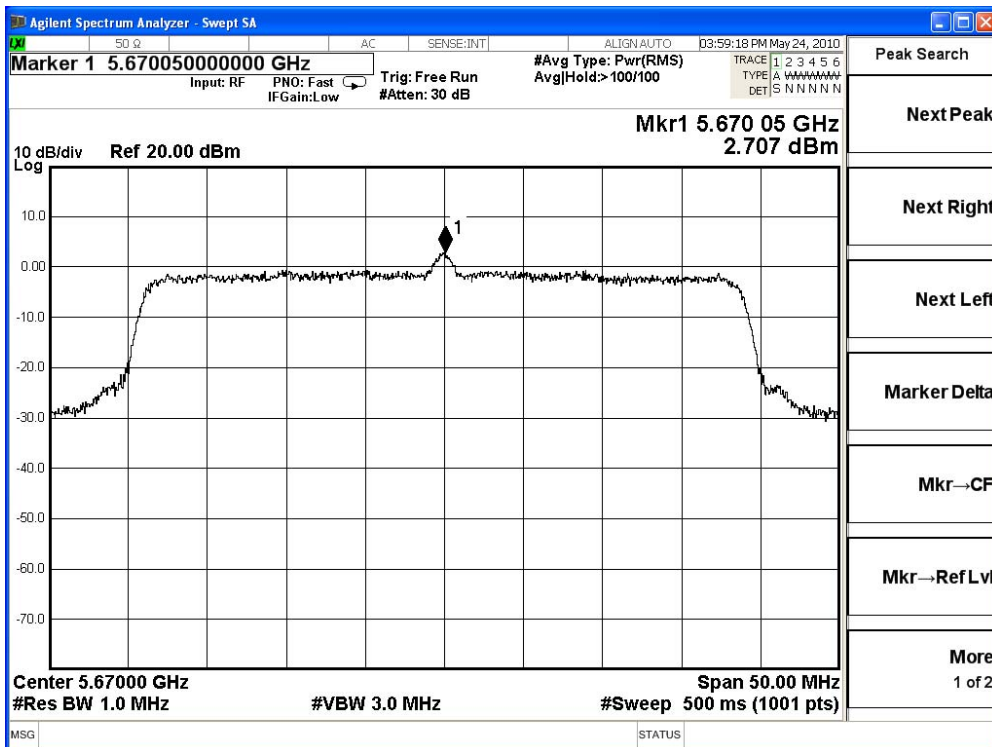
Channel 102:



Channel 110:



Channel 134:



5. Peak Excursion

5.1. Test Equipment

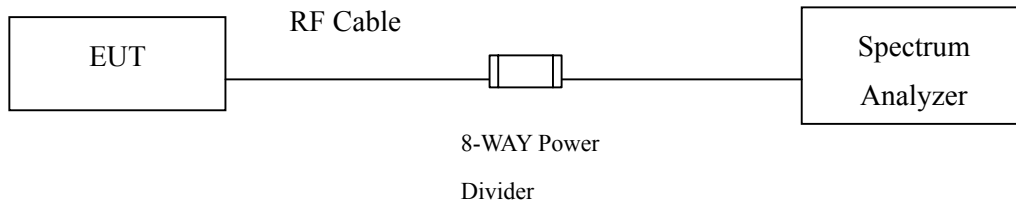
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr.,2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

5.2. Test Setup

Conduction Power Measurement



5.3. Limits

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

5.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

5.5. Uncertainty

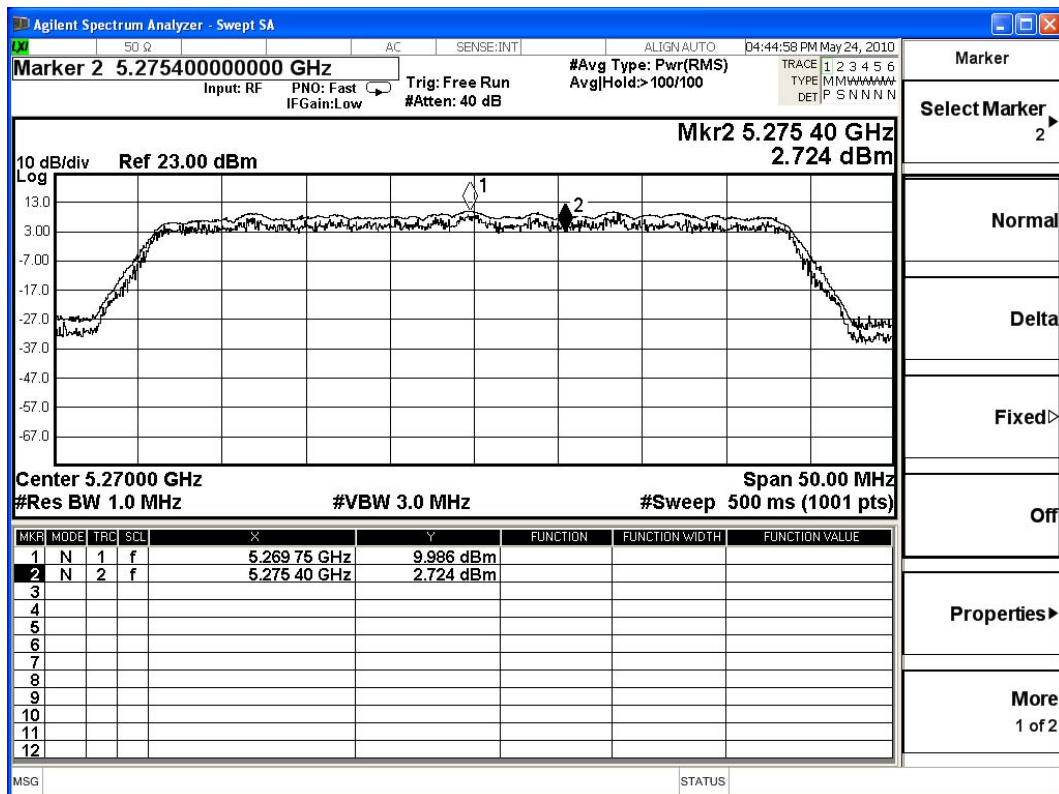
± 1.27 dB

5.6. Test Result of Peak Excursion

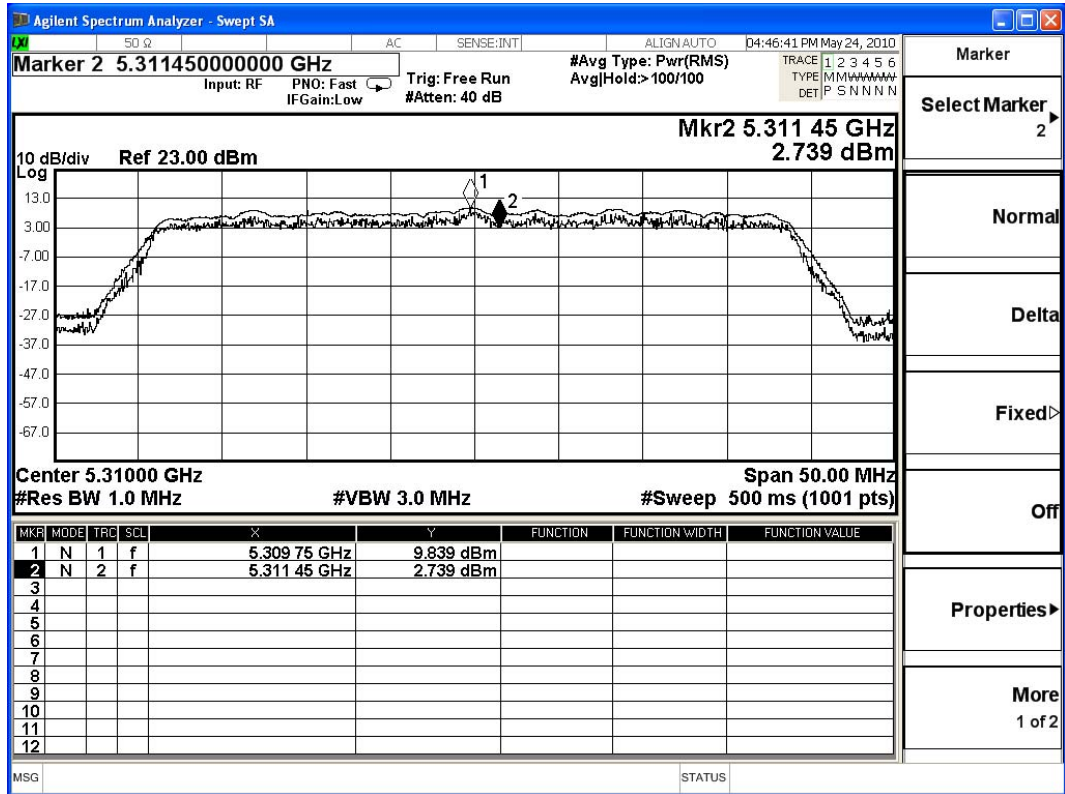
Product : Full HD Video Wireless Receiver Module
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
54	5270	7.26	<13	Pass
62	5310	7.10	<13	Pass
102	5510	6.73	<13	Pass
110	5550	7.63	<13	Pass
134	5670	6.28	<13	Pass

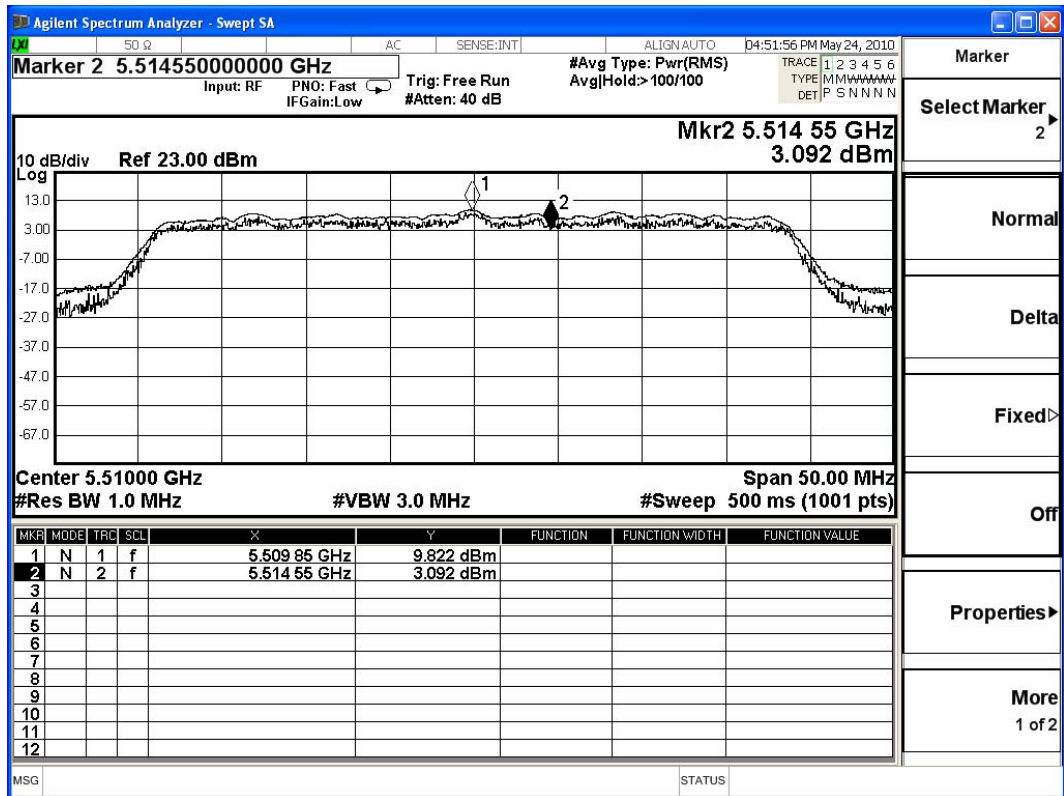
Channel 54:



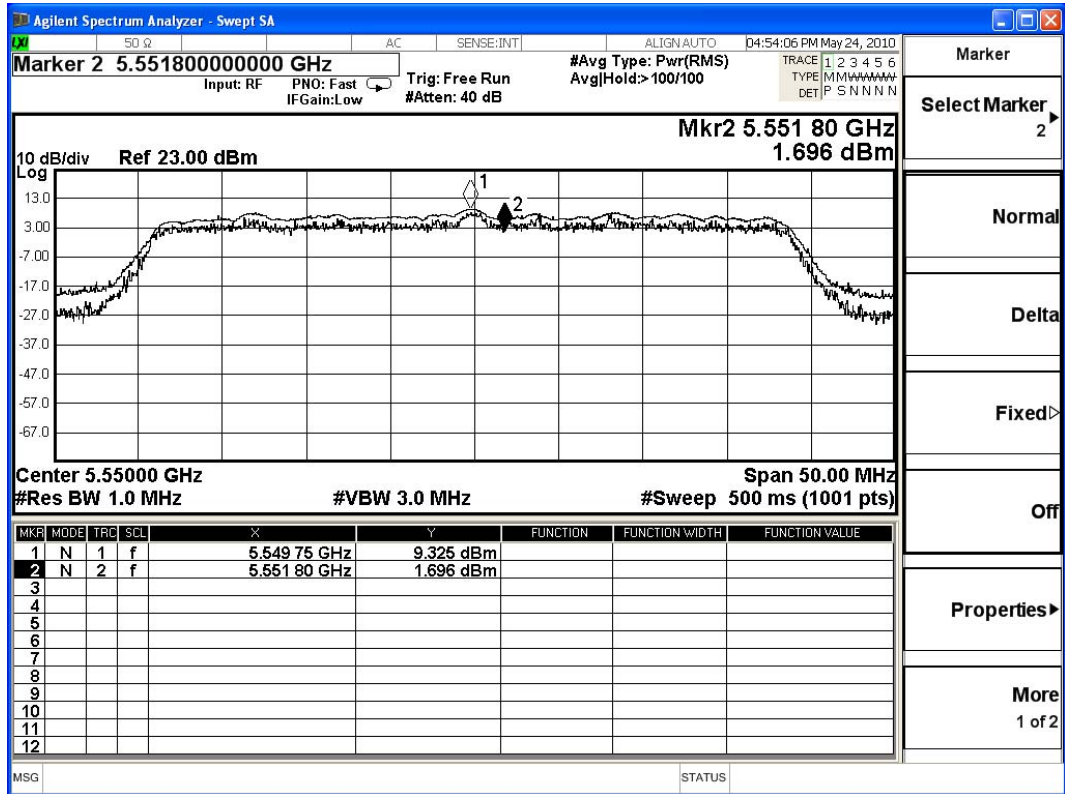
Channel 62:



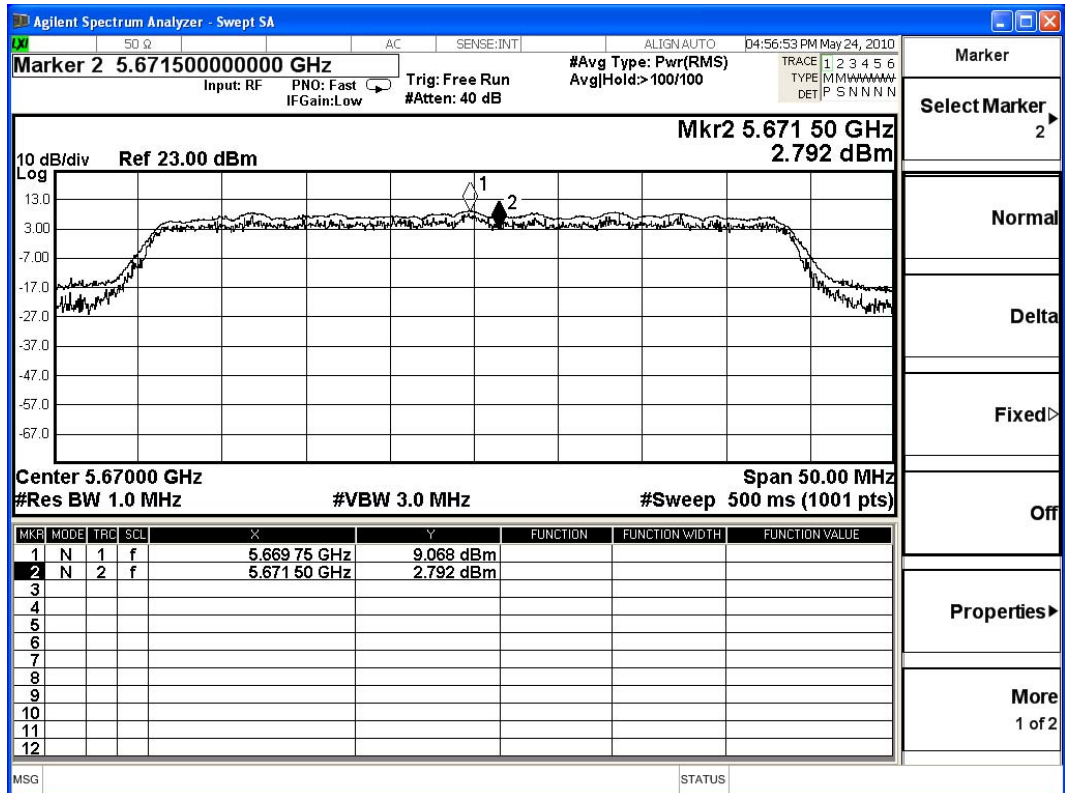
Channel 102:



Channel 110:



Channel 134:



6. Radiated Emission

6.1. Test Equipment

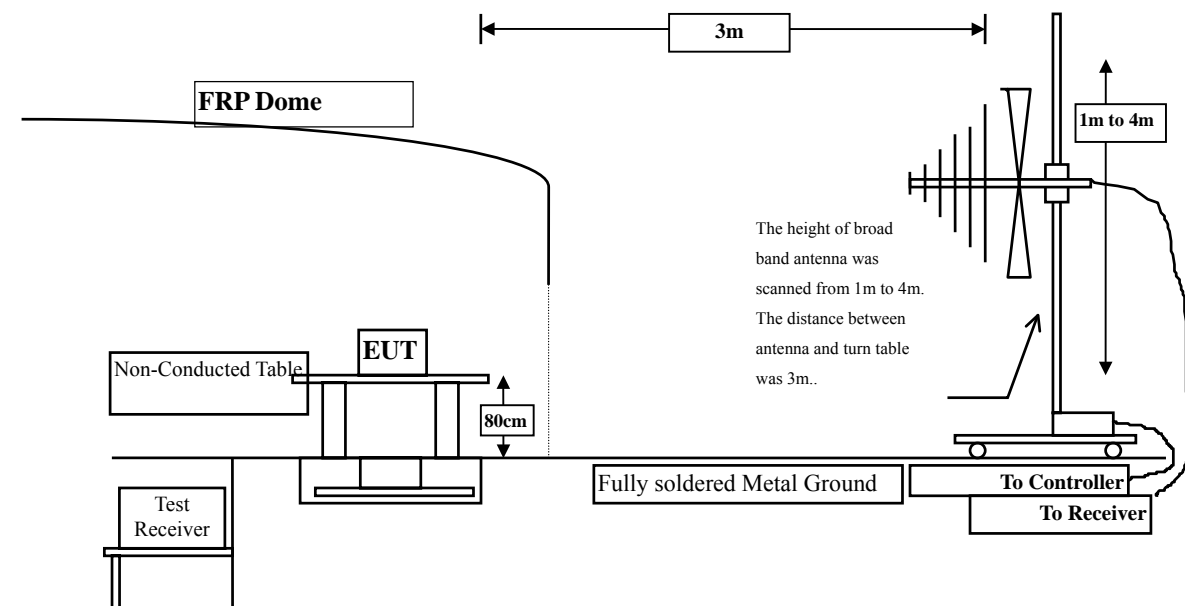
The following test equipments are used during the radiated emission test:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X Pre-Amplifier	HP	8449B/3008A01123	July., 2010
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
	X Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2010
	X Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

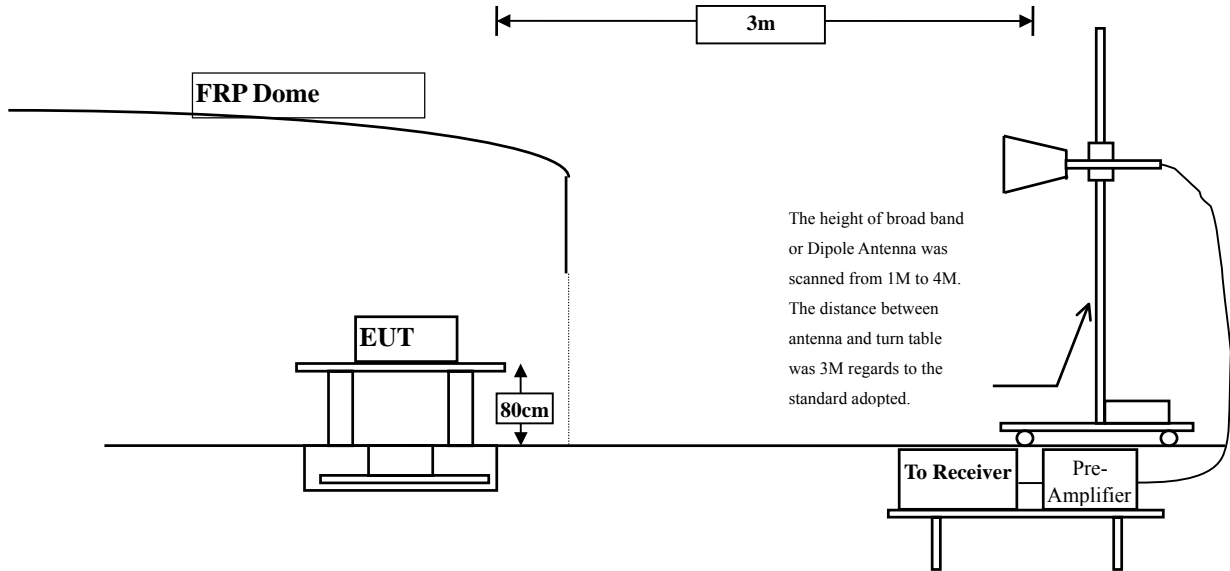
- Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

6.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to FCC Public Notice DA 02-2138 test procedure for compliance to FCC 47CFR 15. 407 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 30MHz - 10th Harmonic of fundamental was investigated.

6.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

6.6. Test Result of Radiated Emission

Product : Full HD Video Wireless Receiver Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
10540.000	14.151	48.250	62.400	-11.600	74.000
Average Detector:					
10540.000	14.151	33.800	47.950	-6.050	54.000
Vertical					
Peak Detector:					
10540.000	14.829	44.460	59.288	-14.712	74.000
Average Detector:					
10540.000	14.829	32.030	46.858	-7.142	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the too weak instrument of signal is unable to test.
5. Measurement Level = Reading Level + Correct Factor.
6. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
7. The average measurement was not performed when the peak measured data under the limit of average detection.
8. The emission levels of other frequencies are very lower than the limit and not show in test report

Product : Full HD Video Wireless Receiver Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5310MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
10620.000	14.623	46.800	61.423	-12.577	74.000
Average Detector:					
10620.000	14.623	32.880	47.503	-6.497	54.000
Vertical					
Peak Detector:					
10620.000	14.970	43.620	58.590	-15.410	74.000
Average Detector:					
10620.000	14.970	32.380	47.350	-6.650	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the too weak instrument of signal is unable to test.
5. Measurement Level = Reading Level + Correct Factor.
6. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
7. The average measurement was not performed when the peak measured data under the limit of average detection.
8. The emission levels of other frequencies are very lower than the limit and not show in test report

Product : Full HD Video Wireless Receiver Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5510MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11020.000	16.474	45.880	62.353	-11.647	74.000
Average Detector:					
11020.000	16.474	31.380	47.853	-6.147	54.000
Vertical					
Peak Detector:					
11020.000	17.224	41.900	59.124	-14.876	74.000
Average Detector:					
11020.000	17.224	30.000	47.224	-6.776	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the too weak instrument of signal is unable to test.
5. Measurement Level = Reading Level + Correct Factor.
6. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
7. The average measurement was not performed when the peak measured data under the limit of average detection.
8. The emission levels of other frequencies are very lower than the limit and not show in test report

Product : Full HD Video Wireless Receiver Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5550MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11100.000	16.681	45.600	62.281	-11.719	74.000
Average Detector:					
11100.000	16.681	31.000	47.681	-6.319	54.000
Vertical					
Peak Detector:					
11100.000	17.523	45.280	62.803	-11.197	74.000
Average Detector:					
11100.000	17.523	29.650	47.173	-6.827	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the too weak instrument of signal is unable to test.
5. Measurement Level = Reading Level + Correct Factor.
6. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
7. The average measurement was not performed when the peak measured data under the limit of average detection.
8. The emission levels of other frequencies are very lower than the limit and not show in test report

Product : Full HD Video Wireless Receiver Module
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5670MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11340.000	16.408	44.630	61.037	-12.963	74.000
Average Detector:					
11340.000	16.408	29.420	45.827	-8.173	54.000
Vertical					
Peak Detector:					
11340.000	17.167	42.460	59.627	-14.373	74.000
Average Detector:					
11340.000	17.167	30.100	47.267	-6.733	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the too weak instrument of signal is unable to test.
5. Measurement Level = Reading Level + Correct Factor.
6. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
7. The average measurement was not performed when the peak measured data under the limit of average detection.
8. The emission levels of other frequencies are very lower than the limit and not show in test report

Product : Full HD Video Wireless Receiver Module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
148.100	-10.261	36.362	26.100	-17.400	43.500
229.650	-8.223	40.823	32.600	-13.400	46.000
233.700	-8.619	38.119	29.500	-16.500	46.000
311.500	-4.034	33.434	29.400	-16.600	46.000
593.100	3.808	32.292	36.100	-9.900	46.000
742.000	3.345	29.256	32.600	-13.400	46.000
Vertical					
Peak Detector					
41.100	-1.482	27.832	26.350	-13.650	40.000
148.600	-6.240	32.640	26.400	-17.100	43.500
154.250	-6.220	32.710	26.490	-17.010	43.500
218.000	-8.565	35.865	27.300	-18.700	46.000
296.300	-7.374	38.574	31.200	-14.800	46.000
593.410	-4.389	38.589	34.200	-11.800	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “█” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested.
Only the worst case is shown on the report.

Product : Full HD Video Wireless Receiver Module
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW (5550MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
148.000	-10.265	41.465	31.200	-12.300	43.500
229.600	-8.241	36.431	28.190	-17.810	46.000
300.100	-3.550	33.149	29.600	-16.400	46.000
311.625	-4.040	30.350	26.310	-19.690	46.000
593.310	3.826	34.334	38.160	-7.840	46.000
741.700	3.347	32.013	35.360	-10.640	46.000
Vertical					
Peak Detector					
73.950	-5.272	30.952	25.680	-14.320	40.000
150.000	-6.226	37.426	31.200	-12.300	43.500
233.490	-9.162	35.491	26.330	-19.670	46.000
299.875	-6.842	32.992	26.150	-19.850	46.000
593.406	-4.391	34.591	30.200	-15.800	46.000
742.300	0.356	36.224	36.580	-9.420	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. "█" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
5. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested.
Only the worst case is shown on the report.

7. Band Edge

7.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr.,2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.
3. The power combiner is used for measure 11n mode.

RF Radiated Measurement:

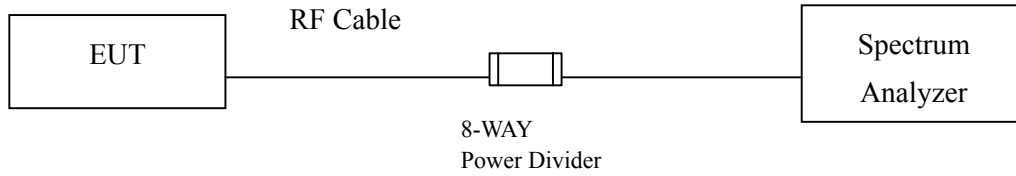
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2010
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Pre-Amplifier	HP	8449B/3008A01123	July., 2010
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2009
	X	Coaxial Cable	QuietTek	QTK-CABLE/ CAB5	Feb., 2010
	X	Controller	QuietTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

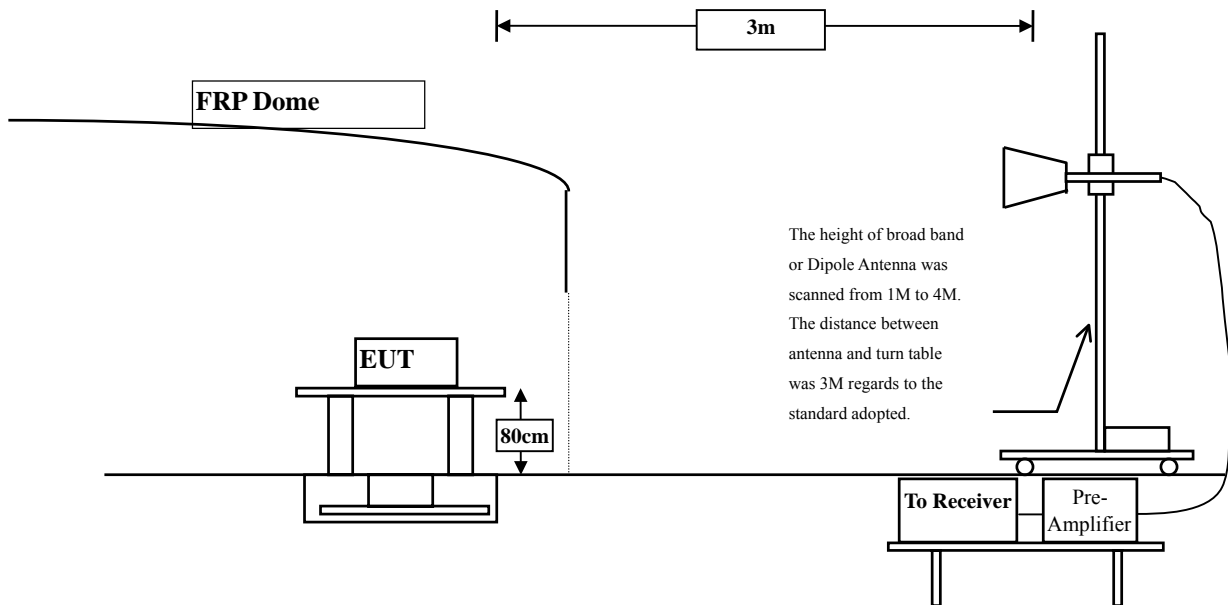
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

7.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



7.3. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

7.5. Uncertainty

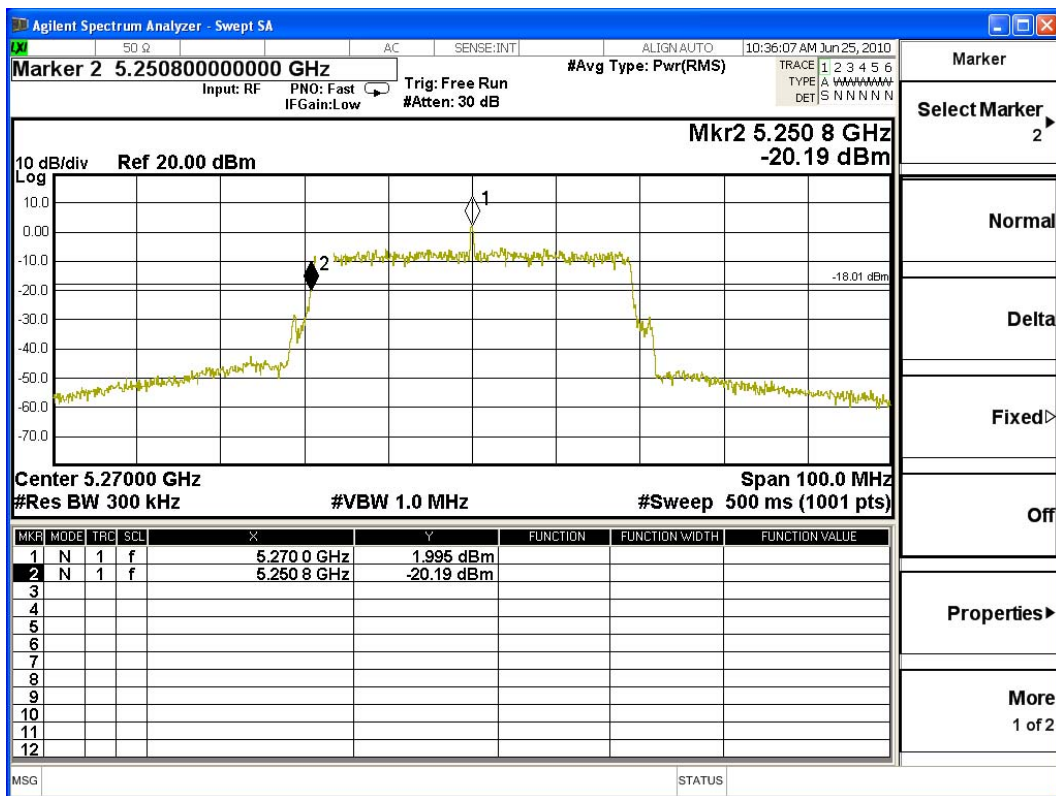
- ± 3.8 dB below 1GHz
- ± 3.9 dB above 1GHz

7.6. Test Result of Band Edge

Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 54

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5270	5250.8	>5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 62

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	5310	72.994	35.655	108.65	Peak
Horizontal	5310	59.804	35.655	95.46	Average
Vertical	5310	65.127	37.553	102.68	Peak
Vertical	5310	51.097	37.553	88.65	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5353.75	108.65	42.916	65.734	74.000	Peak
Horizontal	5350	95.46	53.803	41.657	54.000	Average
Vertical	5353.75	102.68	42.916	59.764	74.000	Peak
Vertical	5350	88.65	53.803	34.847	54.000	Average

Note:

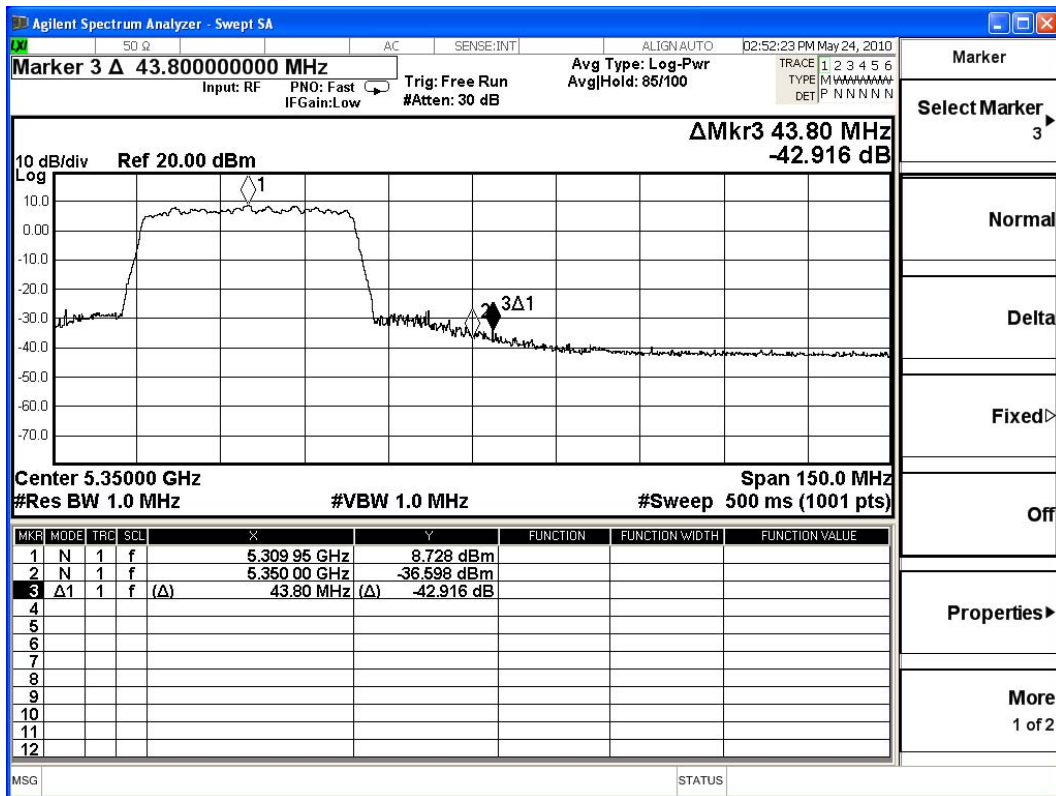
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

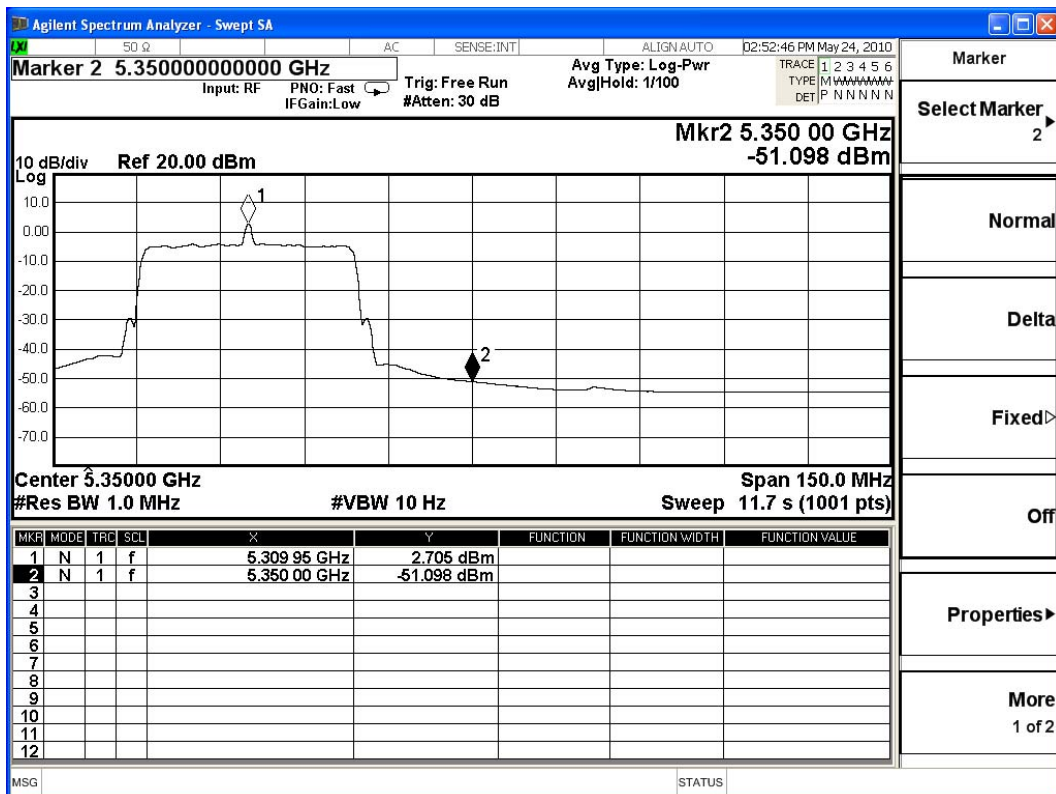
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 102

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	5510	70.315	36.675	106.99	Peak
Horizontal	5510	60.125	36.675	96.8	Average
Vertical	5510	65.076	38.124	103.2	Peak
Vertical	5510	52.976	38.124	91.1	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5460	106.99	46.765	60.225	74.000	Peak
Horizontal	5447.85	96.8	56.784	40.016	54.000	Average
Vertical	5460	103.2	46.765	56.435	74.000	Peak
Vertical	5447.85	91.1	56.784	34.316	54.000	Average
Horizontal	5470	106.99	41.385	65.605	68.220	Peak
Vertical	5470	103.2	41.385	61.815	68.220	Peak

Note:

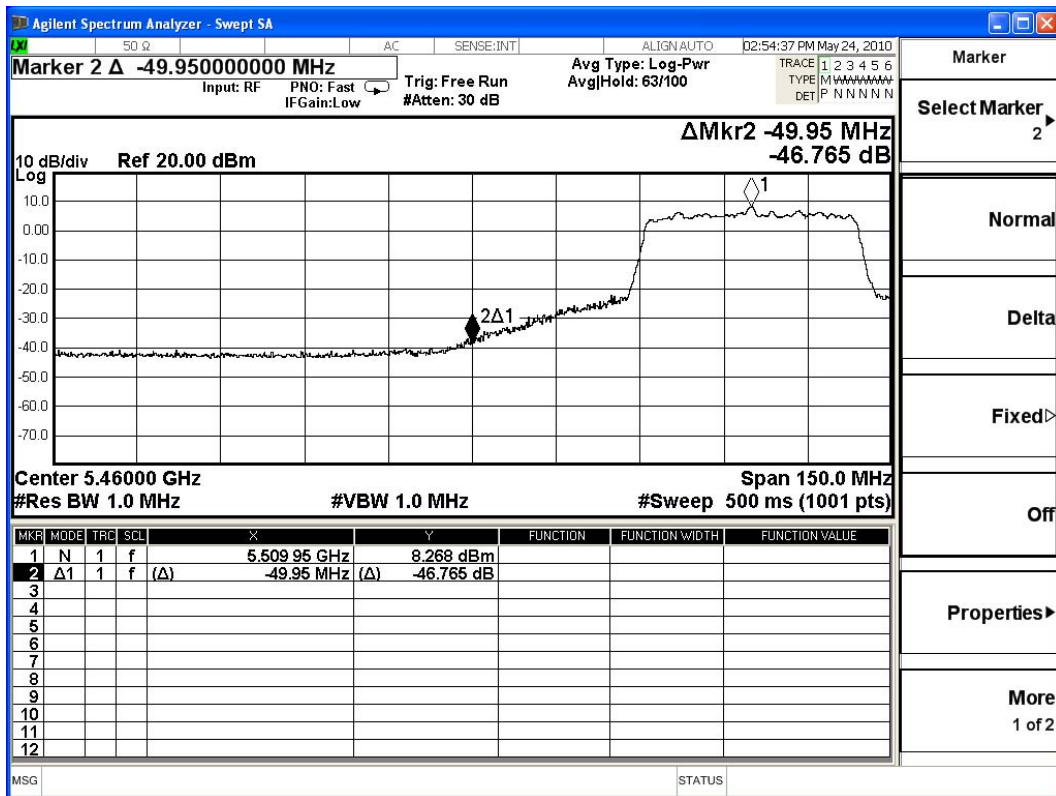
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

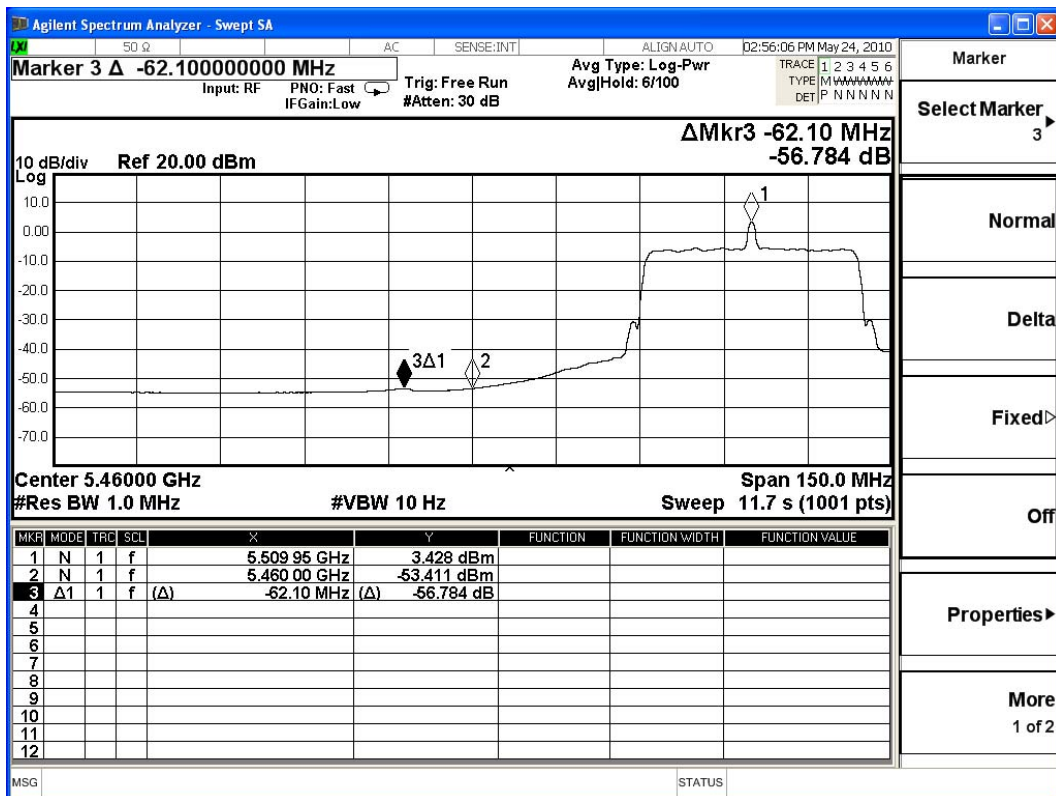
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

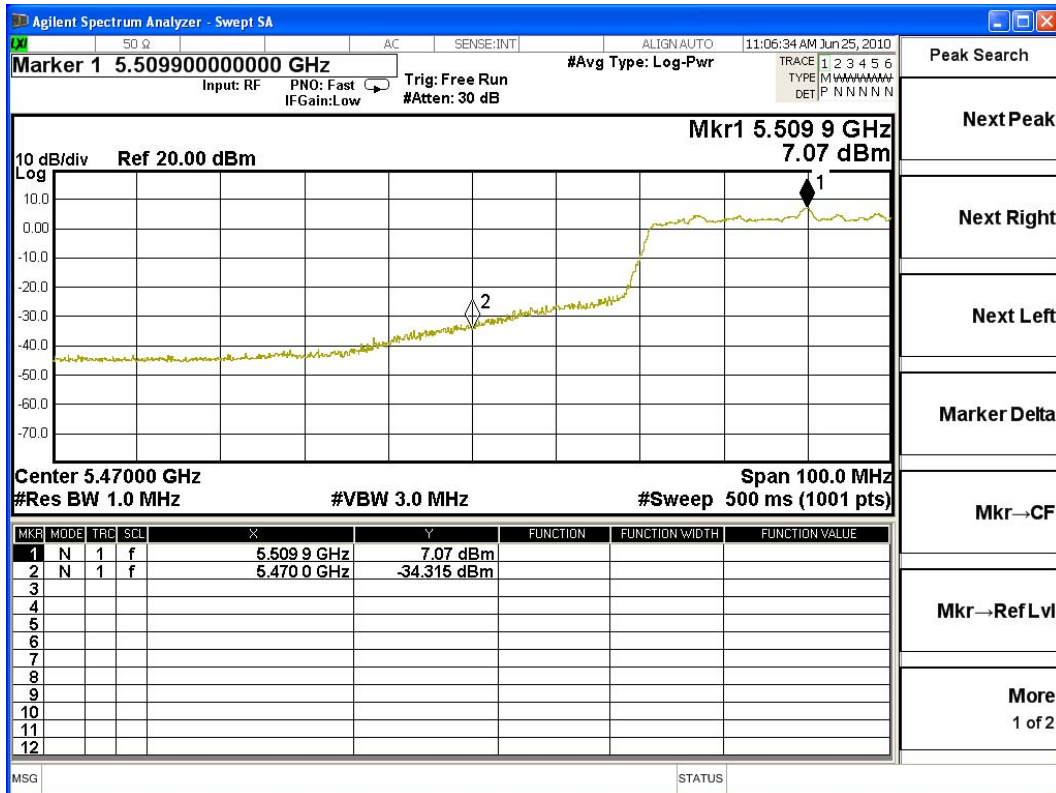
Peak Detector of conducted Band Edge Delta-1



Average Detector of conducted Band Edge Delta



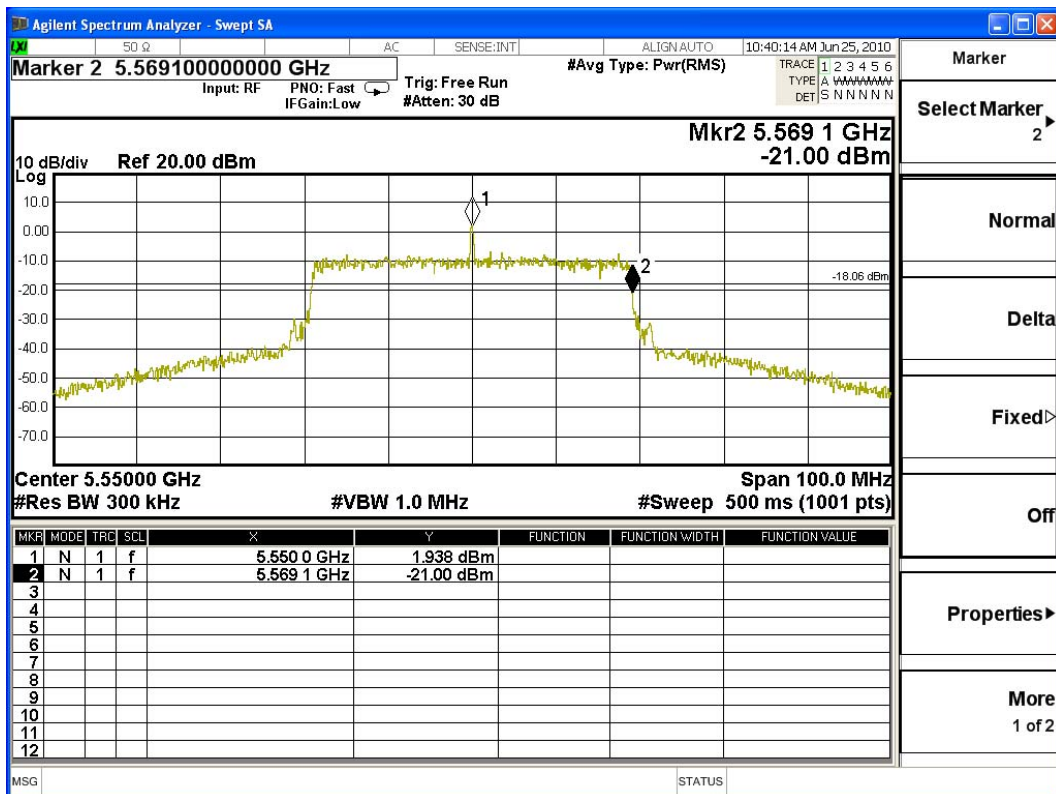
Peak Detector of conducted Band Edge Delta-2



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 110

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5550	5569.10	<5600	PASS

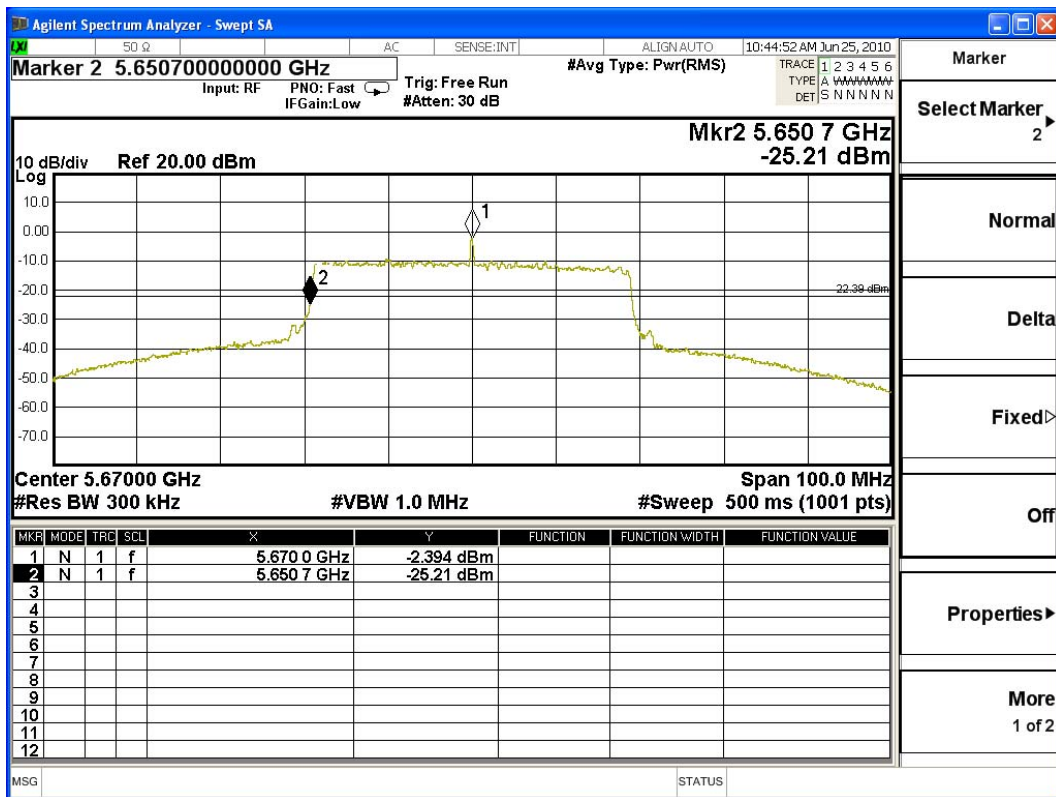
NOTE: Accordance with 15.215 requirement.



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 134

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5670	5650.7	>5650	PASS

NOTE: Accordance with 15.215 requirement.



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW -Channel 134

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Reading Level [dB(uV)]	Correction Factor [dB/m]	Emission Level [dB(uV/m)]	Detector
Horizontal	5670	72.24	36.26	108.5	Peak
Vertical	5670	68.617	37.683	106.3	Peak

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Requiqment Limit (dBuV/m)	Detector
Horizontal	5725	108.5	45.153	63.347	68.220	Peak
Vertical	5725	106.3	45.153	61.147	68.220	Peak

Note:

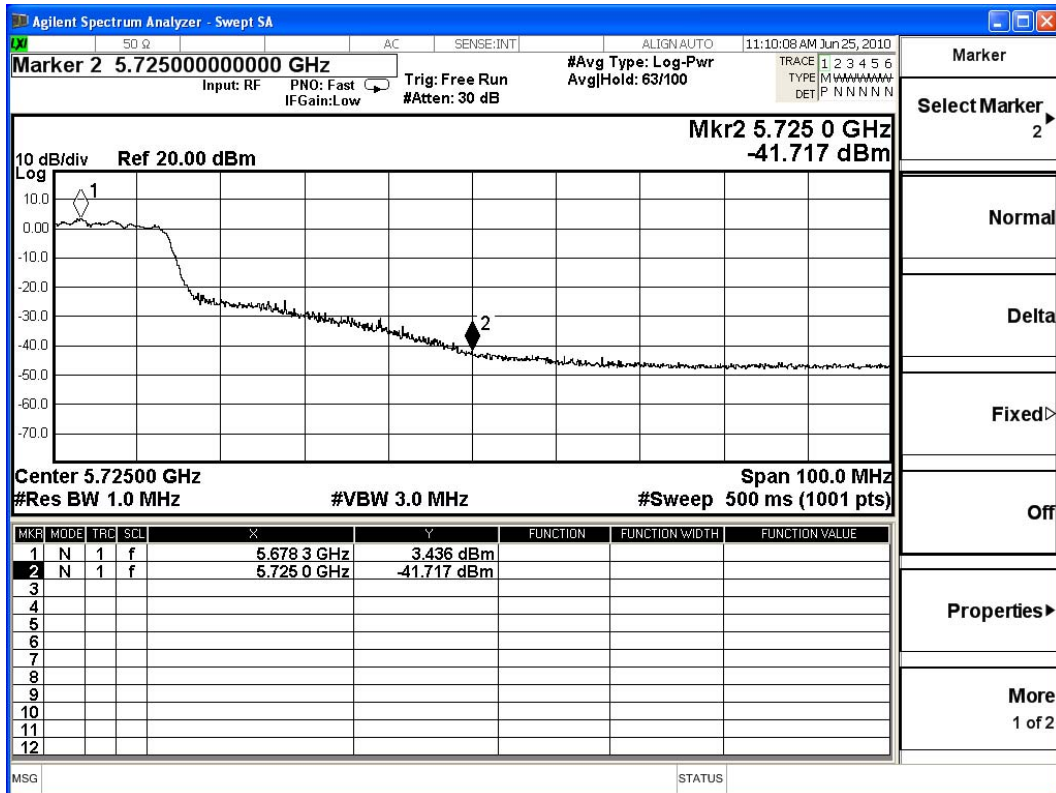
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

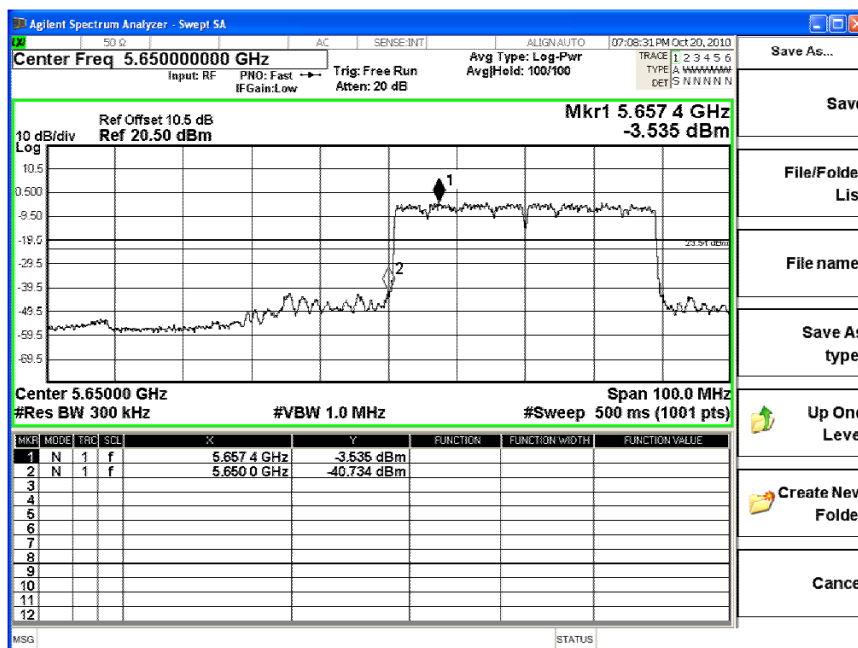
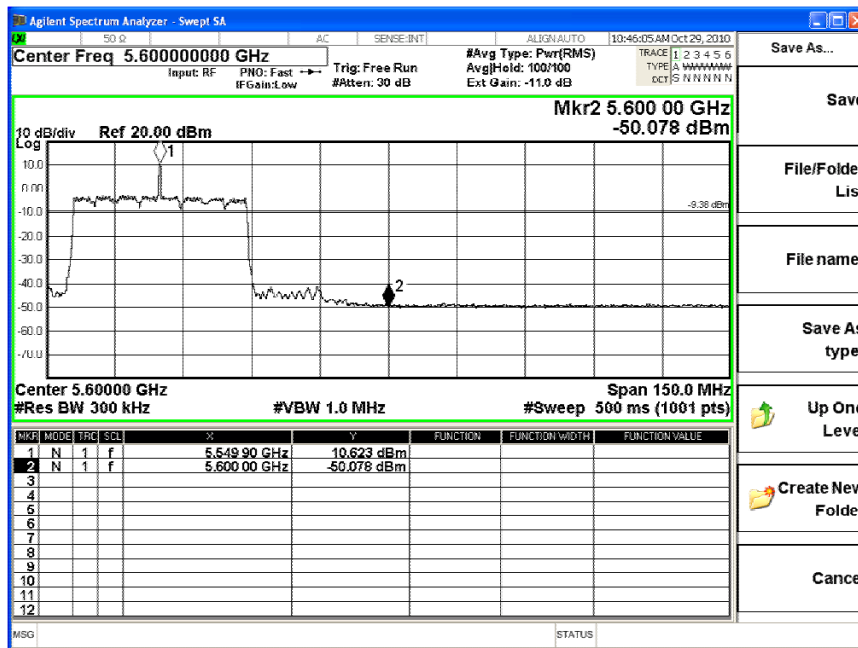
Peak Detector of conducted Band Edge Delta



Product : Full HD Video Wireless Receiver Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW

Frequency [MHz]	Measurement [Frequency at 20dB Bandwidth]	Limit [MHz]	Test Result
5500	<5600	<5600	PASS
5670	>5650	>5650	PASS

Note: The 5600~5650MHz band is not used in accordance with 15.215 requirement.



8. Frequency Stability

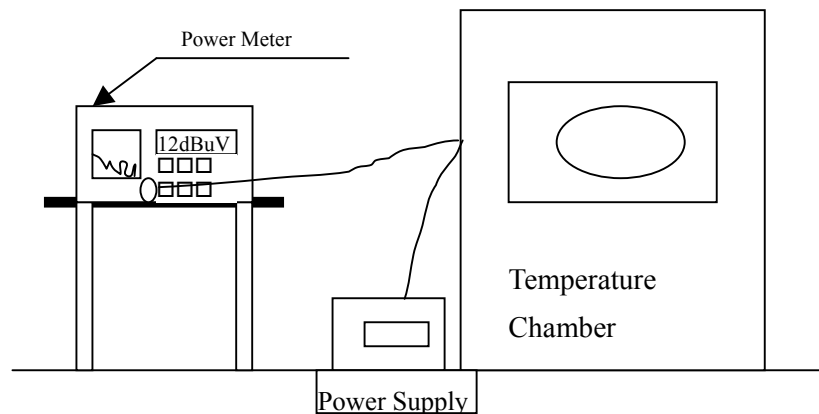
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

8.2. Test Setup



8.3. Limits

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

8.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

8.5. Uncertainty

± 150 Hz

8.6. Test Result of Frequency Stability

Product : Full HD Video Wireless Receiver Module
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Carrier Wave (for 802.11n-40MHz Channel)(Begining)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmax (70) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmin (-10) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095

Product : Full HD Video Wireless Receiver Module
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Carrier Wave (for 802.11n-40MHz Channel)(AFTER 2Min)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmax (70) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmin (-10) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095

Product : Full HD Video Wireless Receiver Module
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Carrier Wave (for 802.11n-40MHz Channel) (AFTER 5Min)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmax (70) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmin (-10) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095

Product : Full HD Video Wireless Receiver Module
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Carrier Wave (for 802.11n-40MHz Channel) (AFTER 10Min)

Test Conditions		Channel	Frequency (MHz)	Spectrum Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmax (50) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095
Tmin (0) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0095	-0.0095

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs