



Test Report

(Class II Permissive Change)

Product Name	Full HD Video Wireless Transmitter Module
Model No	ZRF-31100
FCC ID	YG7ZRF31100

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

Date of Receipt	June 11, 2010
Issued Date	Aug. 25, 2010
Report No.	106228R-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: Aug. 25, 2010

Report No.: 106228R-RFUSP46V01



Product Name	Full HD Video Wireless Transmitter Module	
Applicant	ZINWELL CORPORATION	
Address	7F 512, Yuan Shan Road, Chung Ho City, 235, Taipei Hsien, Taiwan	
Manufacturer	ZINWELL CORPORATION	
Model No.	ZRF-31100	
FCC ID.	YG7ZRF31100	
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.

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Documented By : Genie Chang
(Senior Adm. Specialist / Genie Chang)



Tested By : Joe Guo
(Engineer / Joe Guo)

Approved By : Vincent Lin
(Manager / Vincent Lin)



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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Full HD Video Wireless Transmitter Module
Trade Name	ZINWELL
FCC ID.	YG7ZRF31100
Model No.	ZRF-31100
Frequency Range	5270-5310MHz, 5510-5670MHz
Number of Channels	5
Data Rate	63Mbps
Type of Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna type	PIFA
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, 15W Cable out: Non-Shielded, 1.8m, with one ferrite core bonded.
Contain Module	ZINWELL / ZRF-31100

Antenna List

	Manufacturer	Model No.	Peak Gain
Internal	ZINWELL	N/A	3.47dBi for 5.25~5.725GHz
External	INVAX	NB0169-B	0.07dBi for 5.25~5.725GHz

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 Transmitter Module with a built-in 5GHz transceiver.
2. This device is Slave 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 Transmitter Module with a built-in 5GHz transceiver, together with Full HD Video Wireless Receiver Module. It has a SIMO 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 4(Transmit) * 1(Receive) technology. The device only provided one transmitting speed 31.5Mbps in 20MHz bandwidth mode and 63Mbps 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 transmit audio and video signal to associate equipment, device will receive signal form associate equipment when associate equipment request change operation frequency.

The AMN2120 WHDITM baseband transmitter chip is the heart of the ZRF31100 WHDI transmitter module. The AMN2120 interfaces the A/V source through the WHDI connector. The AMN2120 includes an internal microcontroller for controlling the physical level.

The AMN2120 is based on MIMO technology transmitting through up to four output channels. Four digital-to-analog converters and one analog-to-digital converter are embedded within the chip.

The AMN2120 internal PLL accepts an input clock frequency of 40MHz. The input frequency is multiplied and then used as an internal system clock. The AMN2120 also generates a 10 MHz reference clock, derived from 40 MHz for general use.

The AMN3110 is a fully-integrated direct conversion MIMO transmitter specifically designed for WHDI applications using OFDM modulation in single-band 4.9 GHz to 5.9 GHz. The device consists of:

- Four Complete Downlink Direct Conversion Transmitters.
- One Uplink Receiver.
- Integrated Synthesizer.
- Internal DC Servo Loops.
- RSSI.
- IQ Detector.
- RF and Baseband Control Interface.
- Power Management Unit.
- 3-Wire SPI Interface.

To complete the RF front-end solution, the AMN3110 uses external PA, RF switches, RF Band Pass Filters (BPF), RF BALUNs and a few passive components.

The device antenna are use five FIFA(4TX, 1RX) and printed on PCB, for receiver function there are support one external antenna which can instead of printed antenna.

The frequency band 5250-5350MHz and 5470 – 5725MHz are not support 20M bandwidth mode.

The device is slave equipment and has not radar detection and not ad-hoc operation in the DFS band. Another information please refer to user's manual.

Test Mode	Mode 1: Transmitter - 40BW
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The major change filed under this application is:

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

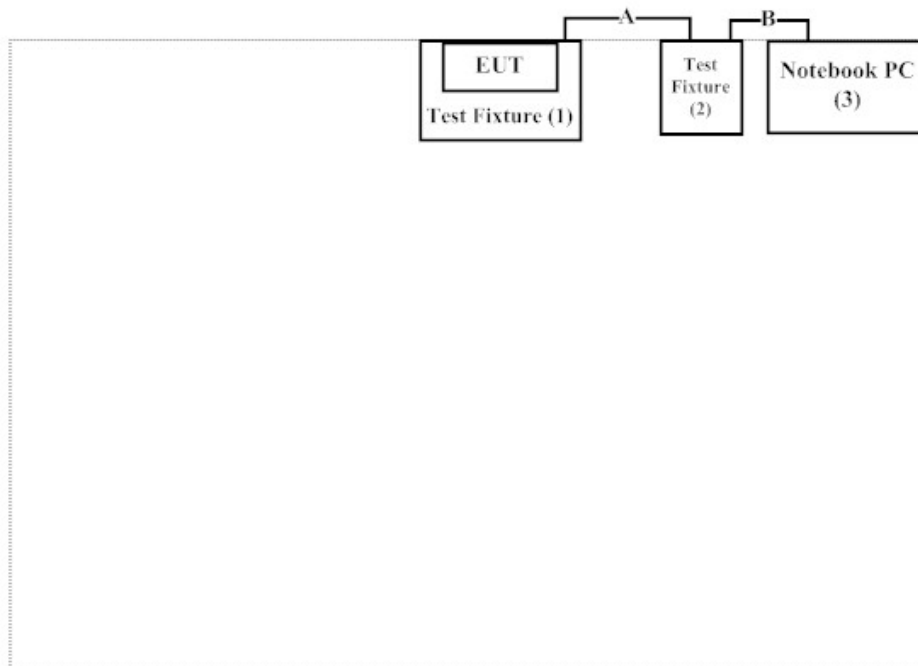
1.3. Tested System Details

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	Test Fixture	N/A	N/A	N/A	N/A
2	Test Fixture	N/A	N/A	N/A	N/A
3	Notebook PC	DELL	PP18L	36119001664	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	Test Fixture Control Cable	Non-Shielded, 0.2m
B	USB to RS-232 Cable	Non-Shielded, 1.5m

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Execute the UART program on the EUT
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmitter.
- (5) 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

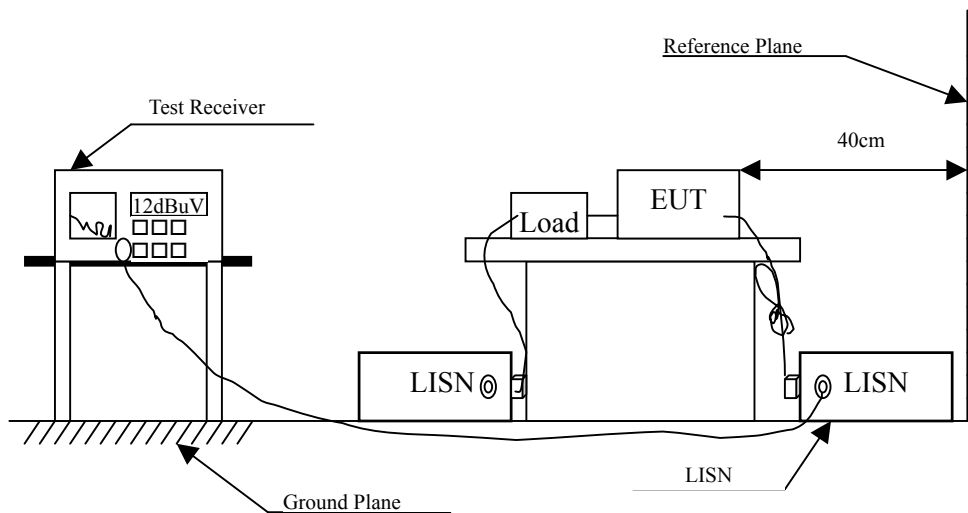
2.1. Test Equipment

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 Transmitter 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					
0.189	9.714	35.250	44.964	-19.922	64.886
0.537	9.640	23.040	32.680	-23.320	56.000
1.314	9.670	23.710	33.380	-22.620	56.000
2.240	9.680	24.400	34.080	-21.920	56.000
4.584	9.700	23.770	33.470	-22.530	56.000
7.627	9.780	26.950	36.730	-23.270	60.000
Average					
0.189	9.714	23.850	33.564	-21.322	54.886
0.537	9.640	19.560	29.200	-16.800	46.000
1.314	9.670	21.750	31.420	-14.580	46.000
2.240	9.680	21.390	31.070	-14.930	46.000
4.584	9.700	19.950	29.650	-16.350	46.000
7.627	9.780	20.730	30.510	-19.490	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 Transmitter 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					
0.193	9.721	36.420	46.141	-18.630	64.771
0.443	9.645	28.830	38.475	-19.154	57.629
0.740	9.658	25.360	35.018	-20.982	56.000
1.279	9.670	23.440	33.110	-22.890	56.000
4.177	9.700	24.080	33.780	-22.220	56.000
7.572	9.770	26.470	36.240	-23.760	60.000
Average					
0.193	9.721	28.370	38.091	-16.680	54.771
0.443	9.645	25.630	35.275	-12.354	47.629
0.740	9.658	22.550	32.208	-13.792	46.000
1.279	9.670	19.730	29.400	-16.600	46.000
4.177	9.700	19.550	29.250	-16.750	46.000
7.572	9.770	21.490	31.260	-18.740	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 Transmitter 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					
0.193	9.711	28.250	37.961	-26.810	64.771
0.505	9.640	29.240	38.880	-17.120	56.000
0.947	9.670	21.450	31.120	-24.880	56.000
1.505	9.679	21.520	31.199	-24.801	56.000
3.244	9.690	18.890	28.580	-27.420	56.000
7.396	9.760	21.640	31.400	-28.600	60.000
Average					
0.193	9.711	15.460	25.171	-29.600	54.771
0.505	9.640	25.640	35.280	-10.720	46.000
0.947	9.670	18.760	28.430	-17.570	46.000
1.505	9.679	17.710	27.389	-18.611	46.000
3.244	9.690	14.910	24.600	-21.400	46.000
7.396	9.760	19.390	29.150	-20.850	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 Transmitter 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	29.690	39.409	-25.248	64.657
0.380	9.650	27.410	37.060	-22.369	59.429
0.505	9.640	29.720	39.360	-16.640	56.000
1.005	9.670	22.770	32.440	-23.560	56.000
2.365	9.680	20.230	29.910	-26.090	56.000
6.654	9.740	20.670	30.410	-29.590	60.000
Average					
0.197	9.719	26.470	36.189	-18.468	54.657
0.380	9.650	24.230	33.880	-15.549	49.429
0.505	9.640	26.220	35.860	-10.140	46.000
1.005	9.670	20.060	29.730	-16.270	46.000
2.365	9.680	17.510	27.190	-18.810	46.000
6.654	9.740	19.030	28.770	-21.230	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

3. Peak Transmit Power

3.1. Test Equipment

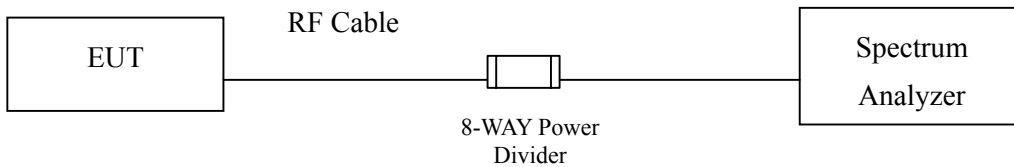
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

Note:

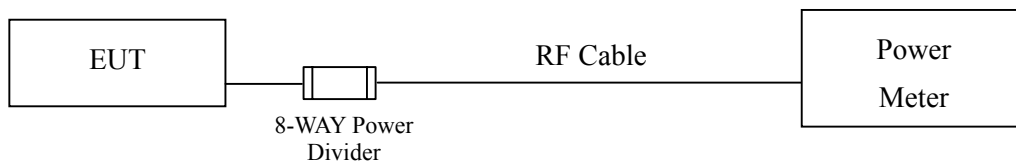
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

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 Transmitter 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	15.52	<24dBm	Pass
62	5310	16.69	<24dBm	Pass
102	5510	15.87	<24dBm	Pass
110	5550	16.00	<24dBm	Pass
134	5670	15.42	<24dBm	Pass

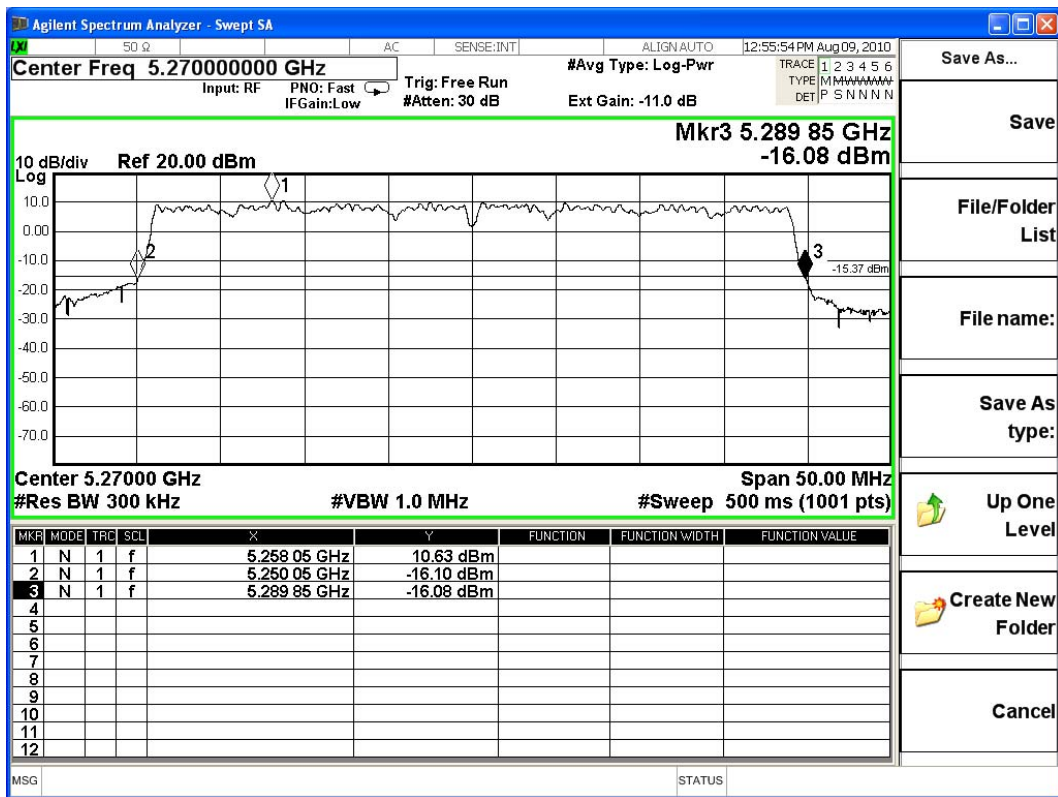
Note: Peak Power Output Value = Reading value on peak power meter + cable loss

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	39.8	15.52	24	27.00	Pass

26dBc Occupied Bandwidth:

Channel 54

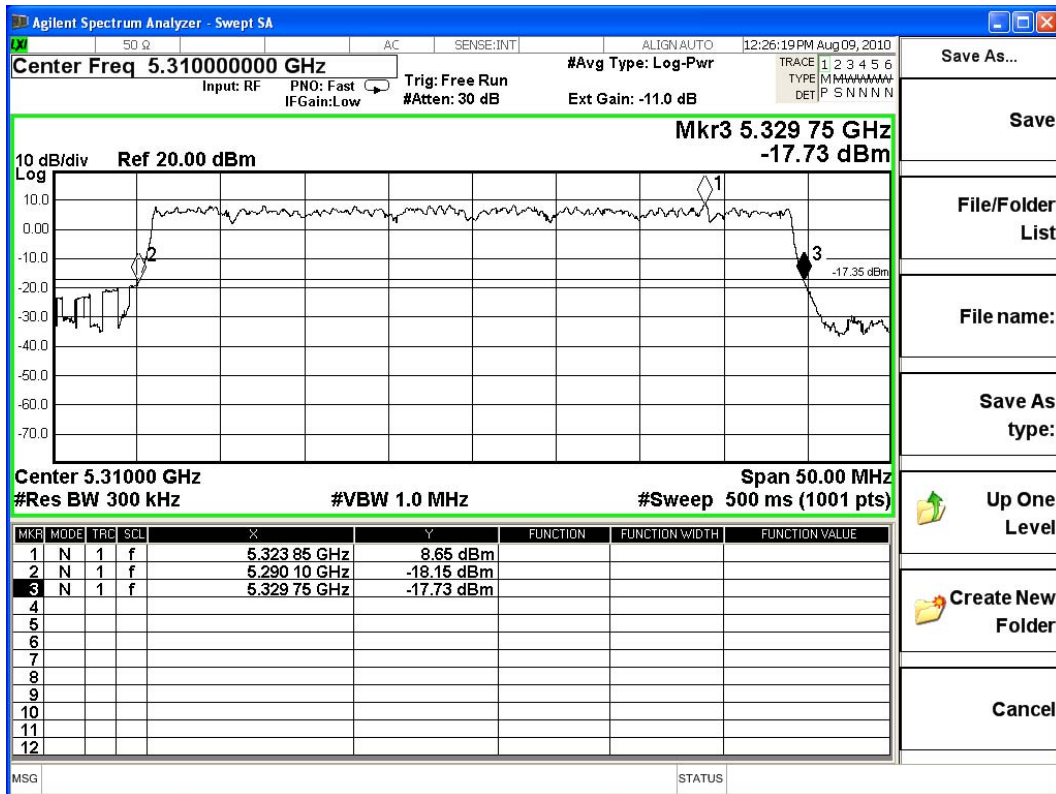


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
62	5310	39.65	16.69	24	26.98	Pass

26dBc Occupied Bandwidth:

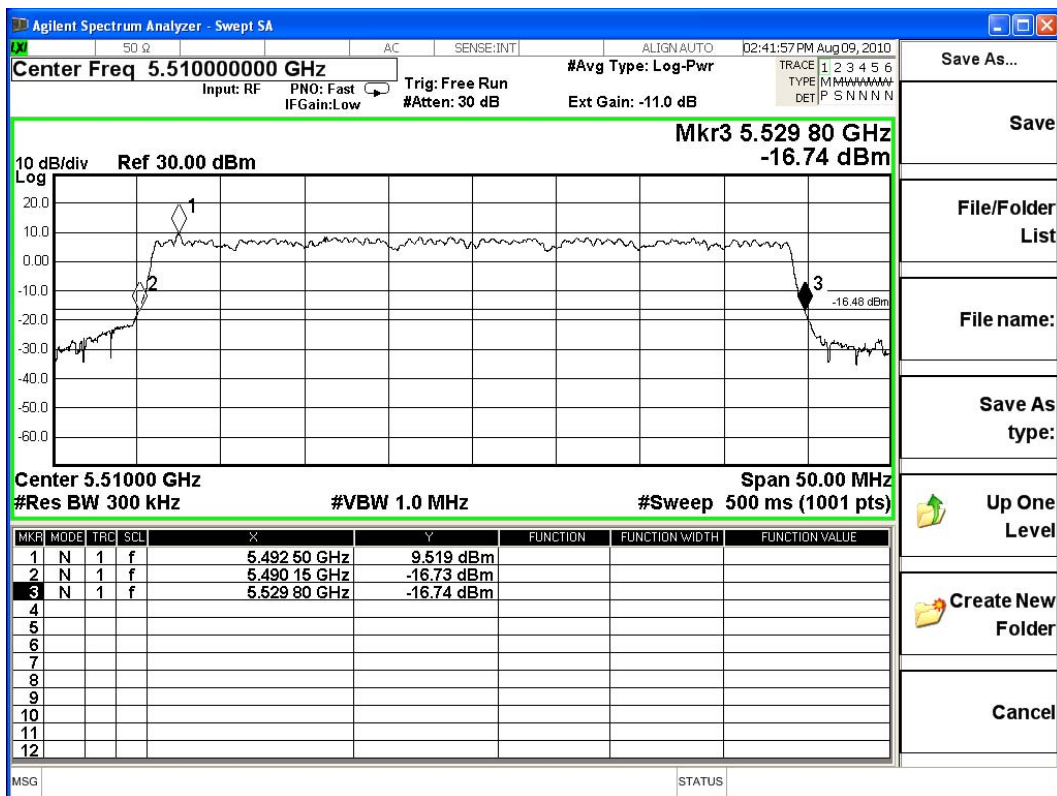
Channel 62



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	39.65	15.87	24	26.98	Pass

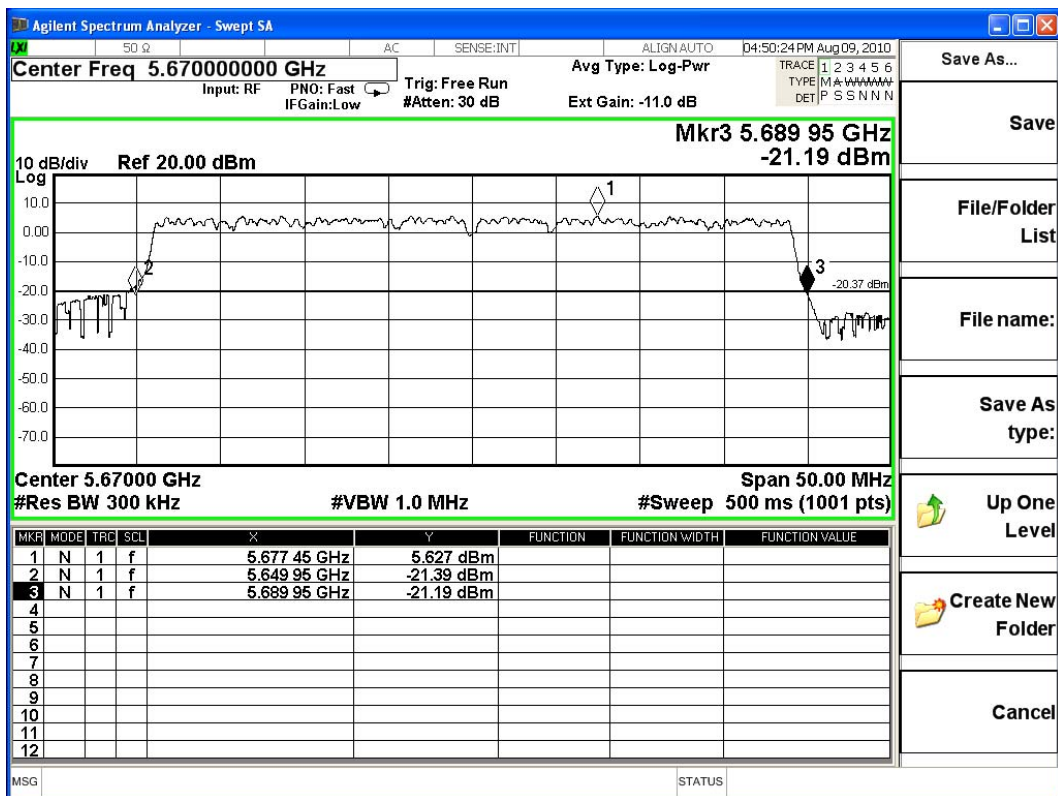
**26dBc Occupied Bandwidth:
Channel 102**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
134	5670	40	15.42	24	27.02	Pass

**26dBc Occupied Bandwidth:
Channel 134**



4. Peak Power Spectral Density

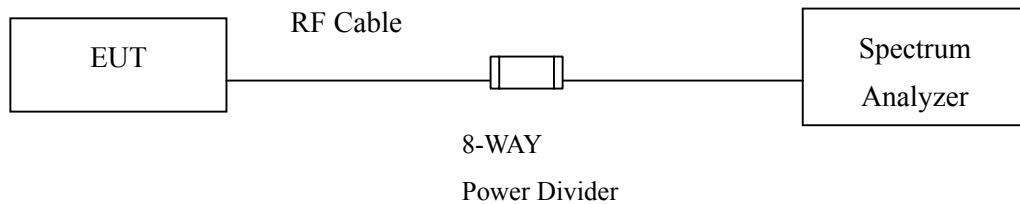
4.1. Test Equipment

	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
X	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

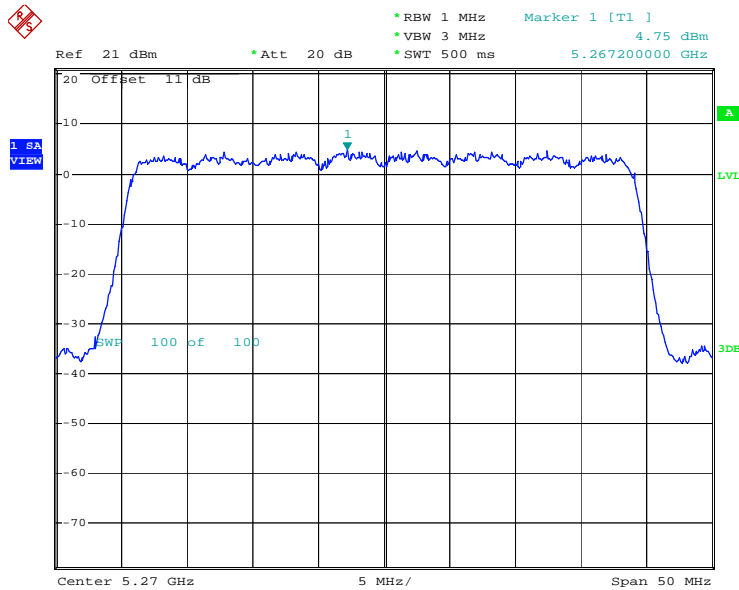
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

Product : Full HD Video Wireless Transmitter 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	4.750	<11	Pass
62	5310	3.410	<11	Pass
102	5510	4.590	<11	Pass
110	5550	1.920	<11	Pass
134	5670	-0.630	<11	Pass

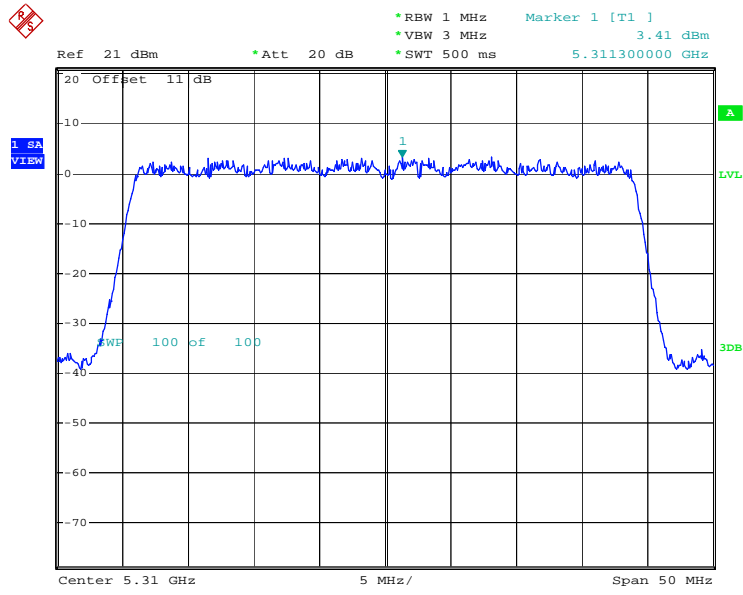
Channel 54:



5190

Date: 16.AUG.2010 04:20:45

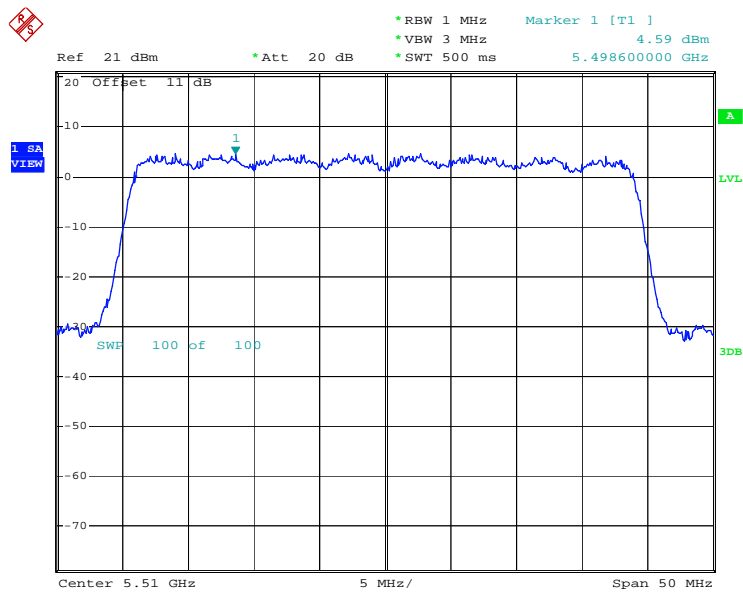
Channel 62:



5190

Date: 16.AUG.2010 04:23:59

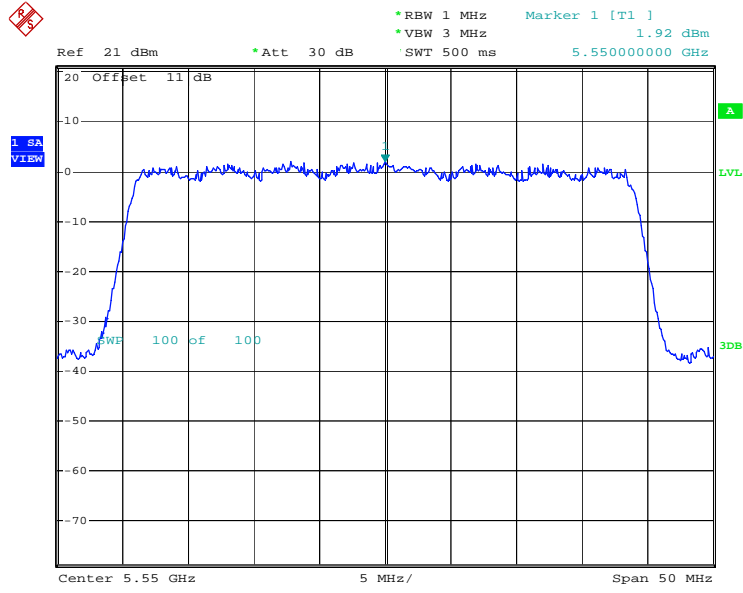
Channel 102:



5190

Date: 16.AUG.2010 04:30:25

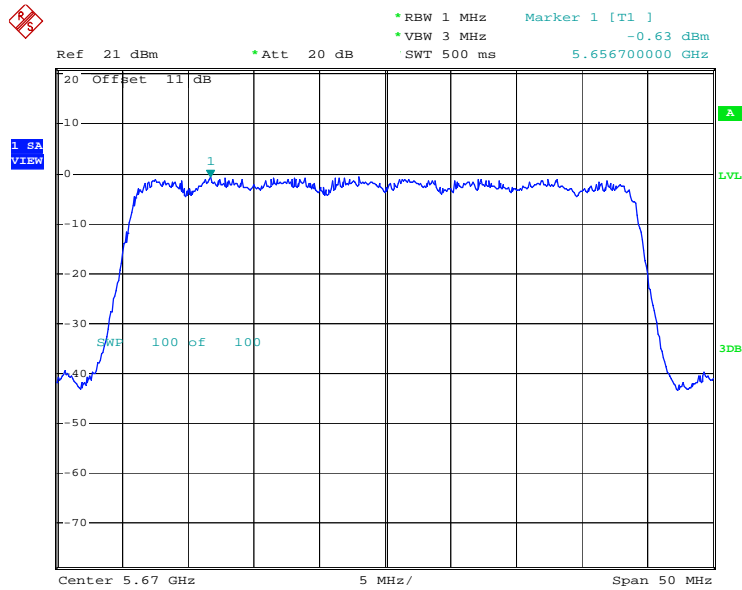
Channel 110:



5190

Date: 16.AUG.2010 04:34:04

Channel 134:



5190

Date: 16.AUG.2010 04:43:42

5. Peak Excursion

5.1. Test Equipment

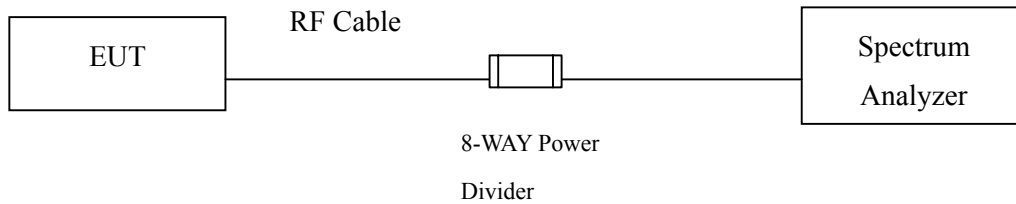
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2010
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2010
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr.,2010
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr.,2010

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

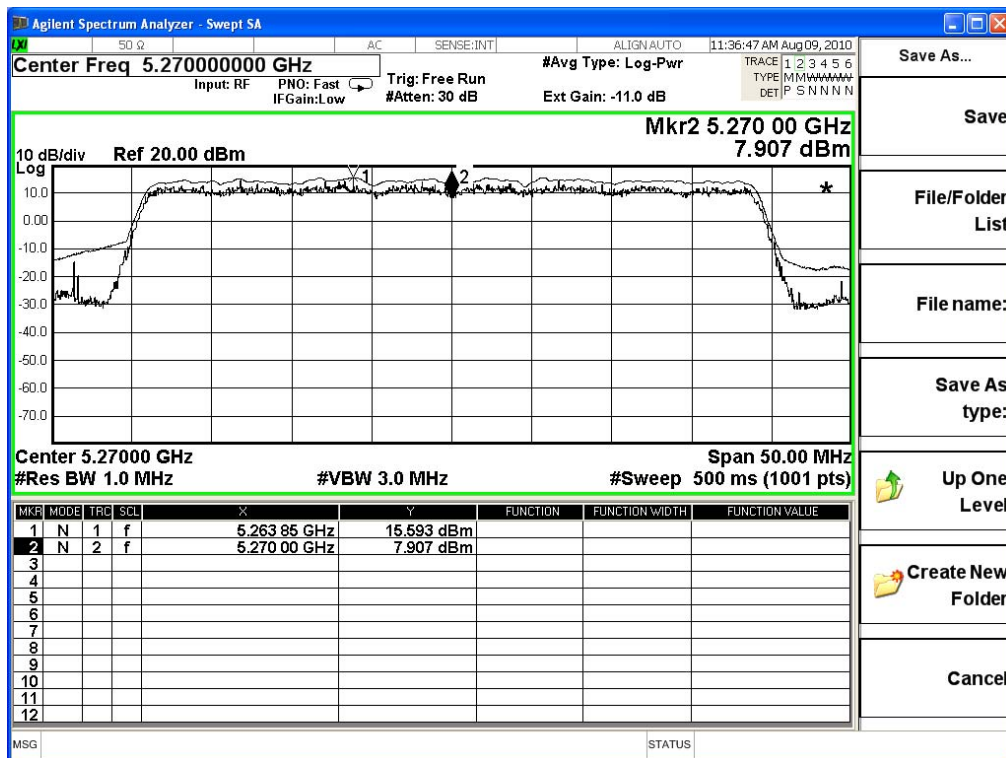
± 1.27 dB

5.6. Test Result of Peak Excursion

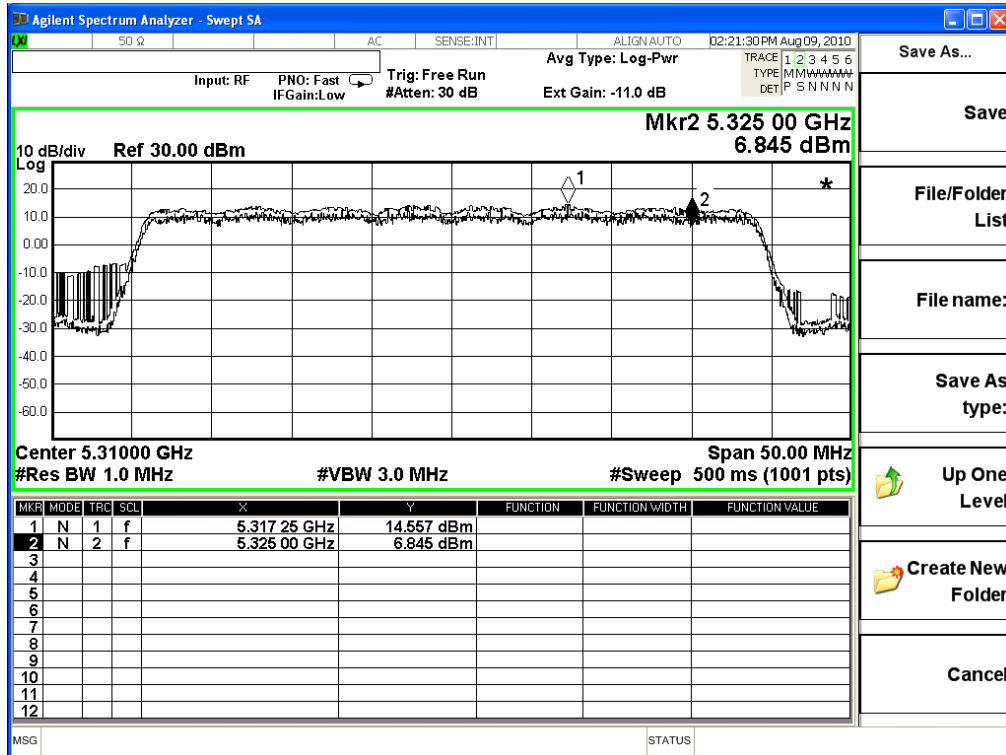
Product : Full HD Video Wireless Transmitter Module
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter - 40BW

Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
54	5270	7.69	<13	Pass
62	5310	7.71	<13	Pass
102	5510	7.12	<13	Pass
110	5550	8.01	<13	Pass
134	5670	5.92	<13	Pass

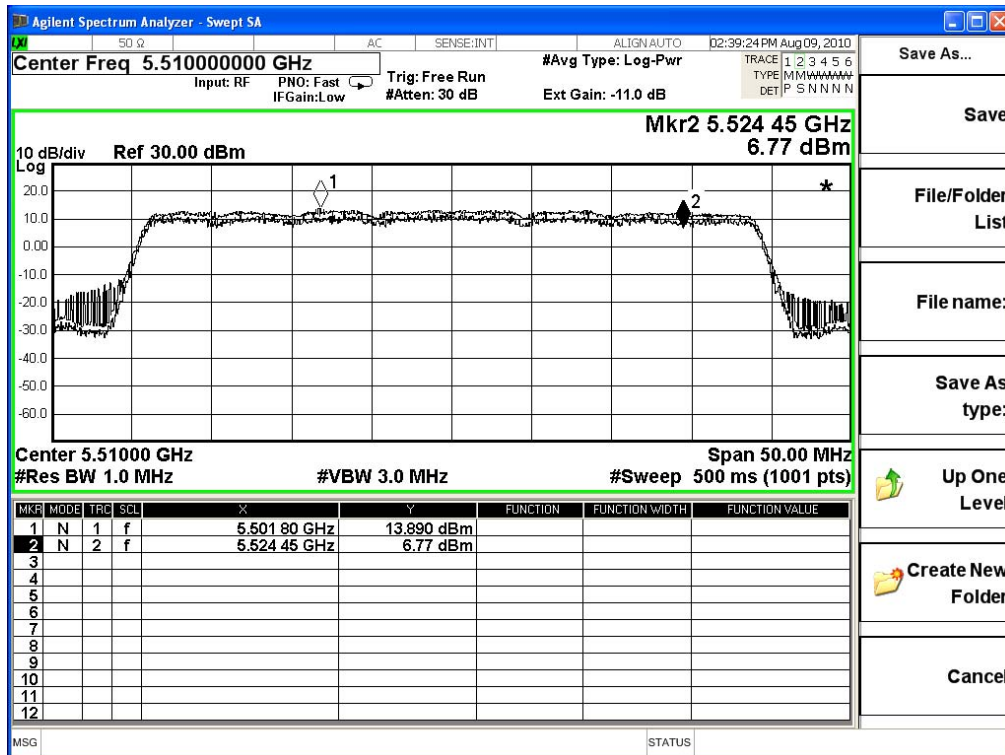
Channel 54:



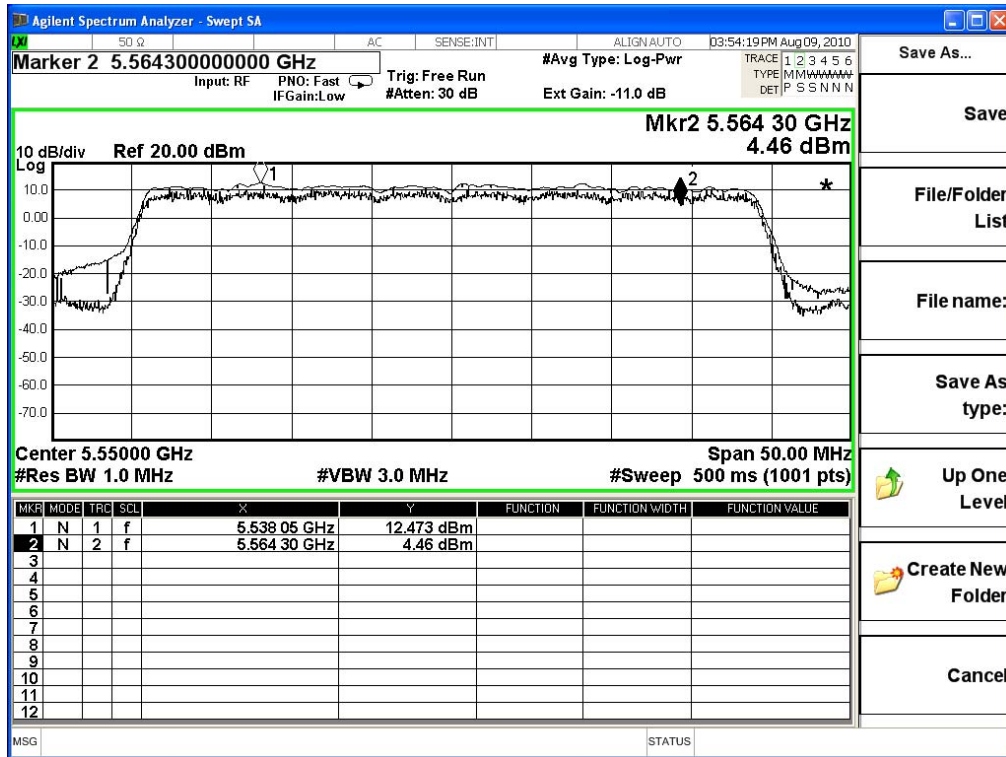
Channel 62:



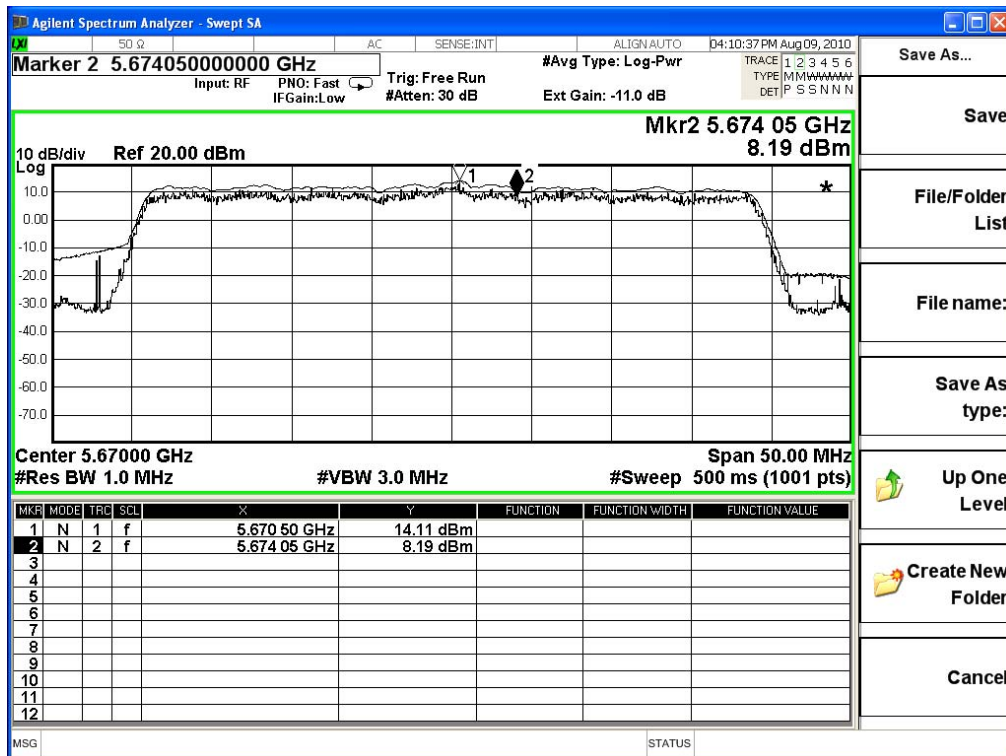
Channel 102:



Channel 110:



Channel 134:



6. Radiated Emission

6.1. Test Equipment

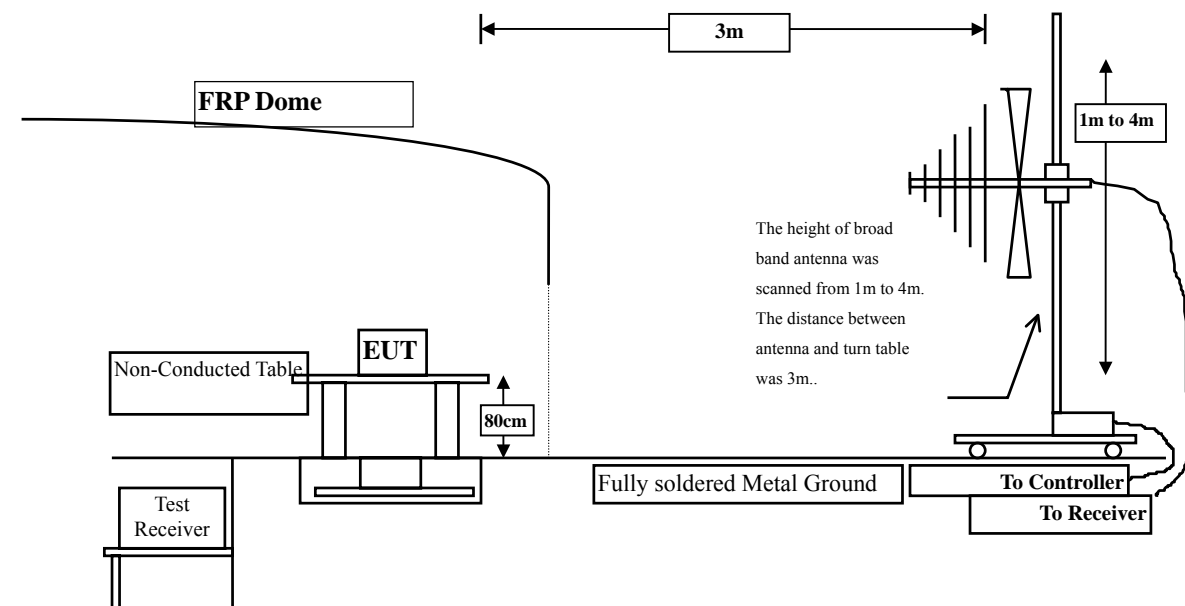
The following test equipments are used during the radiated emission test:

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

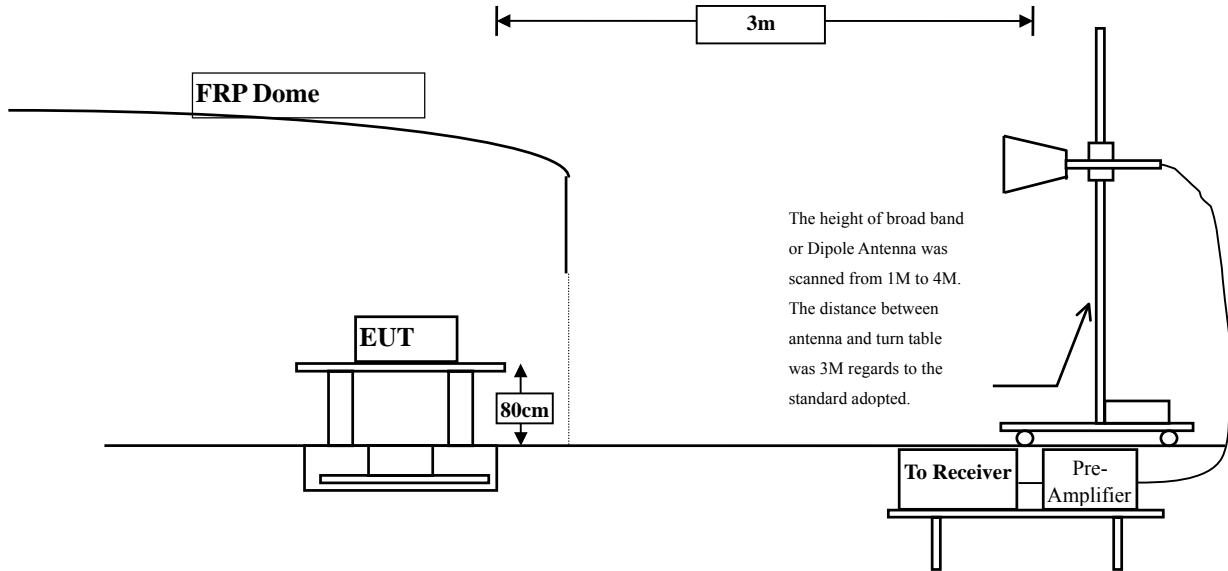
- Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with "X" are used to measure the final test results.

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 Transmitter 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	38.620	52.770	-21.230	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10540.000	14.829	41.500	56.328	-17.672	74.000
Average Detector:					
10540.000	14.829	36.450	51.278	-2.722	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 worst emission level.
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 Transmitter 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	38.640	53.263	-20.737	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
10620.000	14.970	39.600	54.570	-19.430	74.000
Average Detector:					
10620.000	14.970	34.170	49.140	-4.860	74.000

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 worst emission level.
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 Transmitter 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	35.050	51.523	-22.477	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11020.000	17.224	36.150	53.374	-20.626	74.000
Average Detector:					
--					

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 worst emission level.
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 Transmitter 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	35.220	51.901	-22.099	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11100.000	17.523	36.370	53.893	-20.107	74.000
Average Detector:					
--					

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 worst emission level.
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 Transmitter 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	36.820	53.227	-20.773	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
11340.000	17.167	40.070	57.237	-16.763	74.000
Average Detector:					
11340.000	17.167	34.880	52.047	-1.953	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 worst emission level.
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 Transmitter 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					
303.540	-3.074	32.795	29.721	-16.279	46.000
460.680	1.589	24.609	26.198	-19.802	46.000
679.900	2.870	29.868	32.738	-13.262	46.000
761.380	4.345	37.010	41.355	-4.645	46.000
840.920	5.191	31.873	37.064	-8.936	46.000
881.660	6.307	29.396	35.703	-10.297	46.000
Vertical					
Peak Detector					
109.540	-0.418	28.789	28.371	-15.129	43.500
344.280	-3.171	28.252	25.082	-20.918	46.000
520.820	-0.298	27.605	27.307	-18.693	46.000
679.900	1.000	27.381	28.381	-17.619	46.000
761.380	2.335	34.504	36.839	-9.161	46.000
840.920	2.961	29.067	32.028	-13.972	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 Transmitter 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					
303.540	-3.074	32.646	29.572	-16.428	46.000
600.360	3.977	26.372	30.349	-15.651	46.000
679.900	2.870	30.716	33.586	-12.414	46.000
761.380	4.345	38.097	42.442	-3.558	46.000
840.920	5.191	31.417	36.608	-9.392	46.000
881.660	6.307	29.833	36.140	-9.860	46.000
Vertical					
Peak Detector					
111.480	-0.954	29.566	28.612	-14.888	43.500
344.280	-3.171	28.091	24.921	-21.079	46.000
520.820	-0.298	27.272	26.974	-19.026	46.000
761.380	2.335	34.490	36.825	-9.175	46.000
840.920	2.961	28.953	31.914	-14.086	46.000
881.660	2.557	29.241	31.798	-14.202	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
X	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:

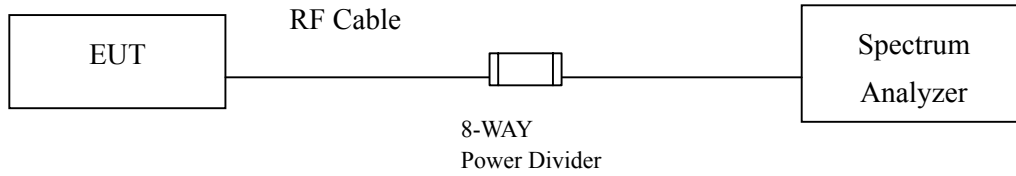
The following test equipments are used during the band edge tests:

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

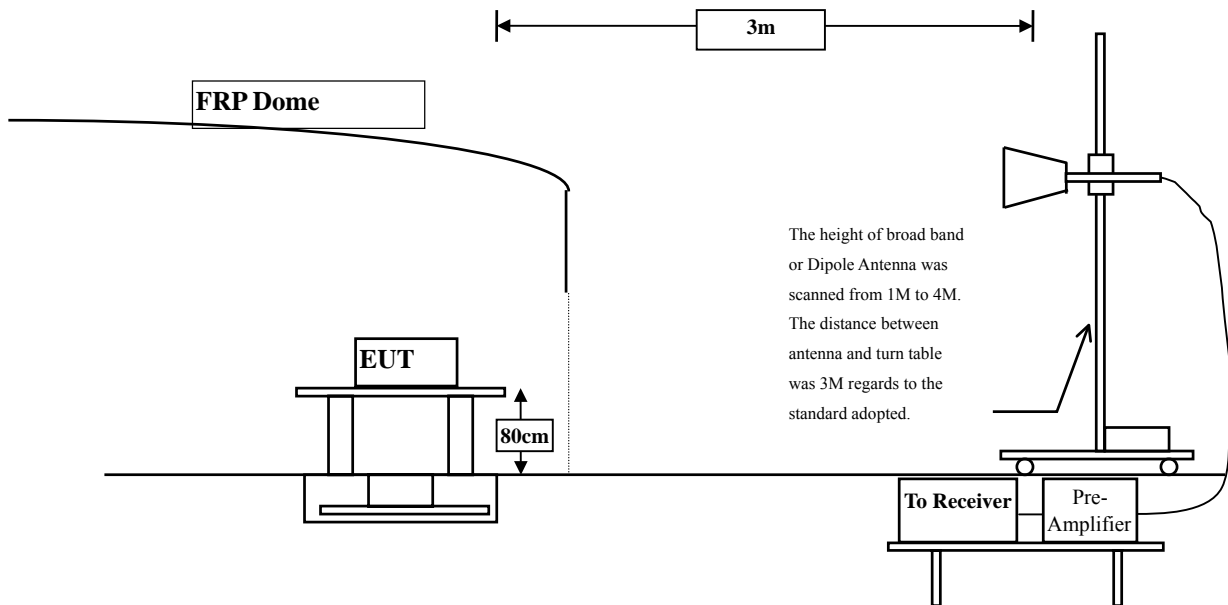
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

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

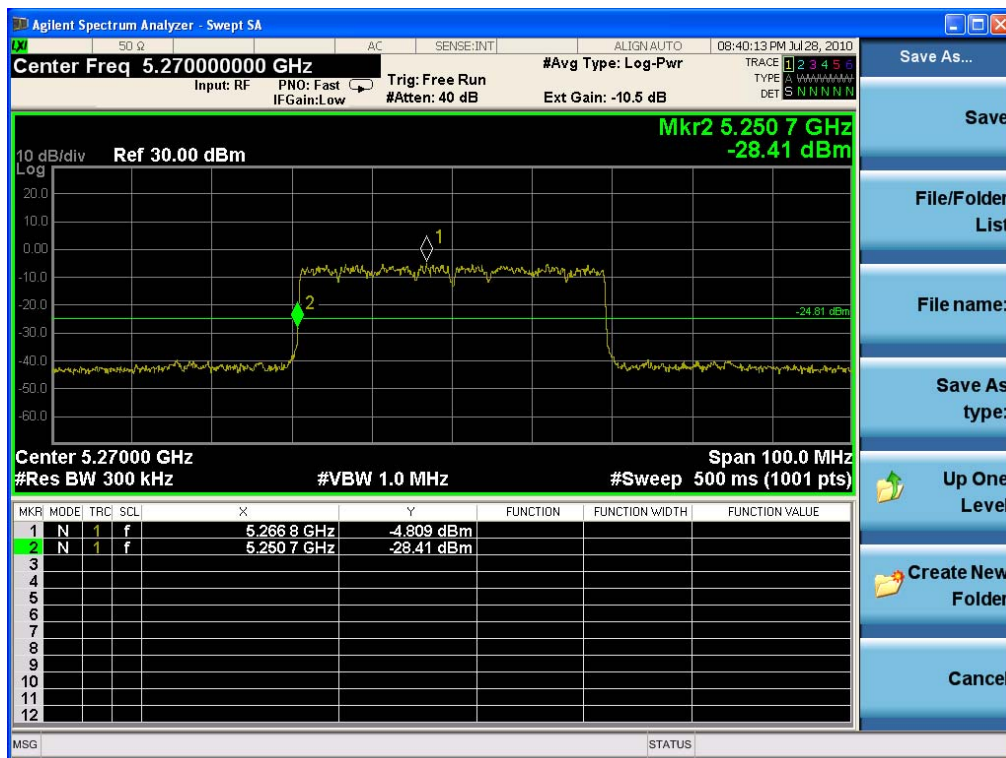
- ± 3.8 dB below 1GHz
- ± 3.9 dB above 1GHz

7.6. Test Result of Band Edge

Product : Full HD Video Wireless Transmitter 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	5250.70	>5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : Full HD Video Wireless Transmitter 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	35.655	67.46	103.116	Peak
Horizontal	5310	35.655	54.06	89.716	Average
Vertical	5310	37.553	64.48	102.033	Peak
Vertical	5310	37.553	51.26	88.813	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	5350	103.116	36.664	66.452	74.000	Peak
Horizontal	5350	89.716	40.324	49.392	54.000	Average
Vertical	5350	102.033	36.664	65.369	74.000	Peak
Vertical	5350	88.813	40.324	48.489	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

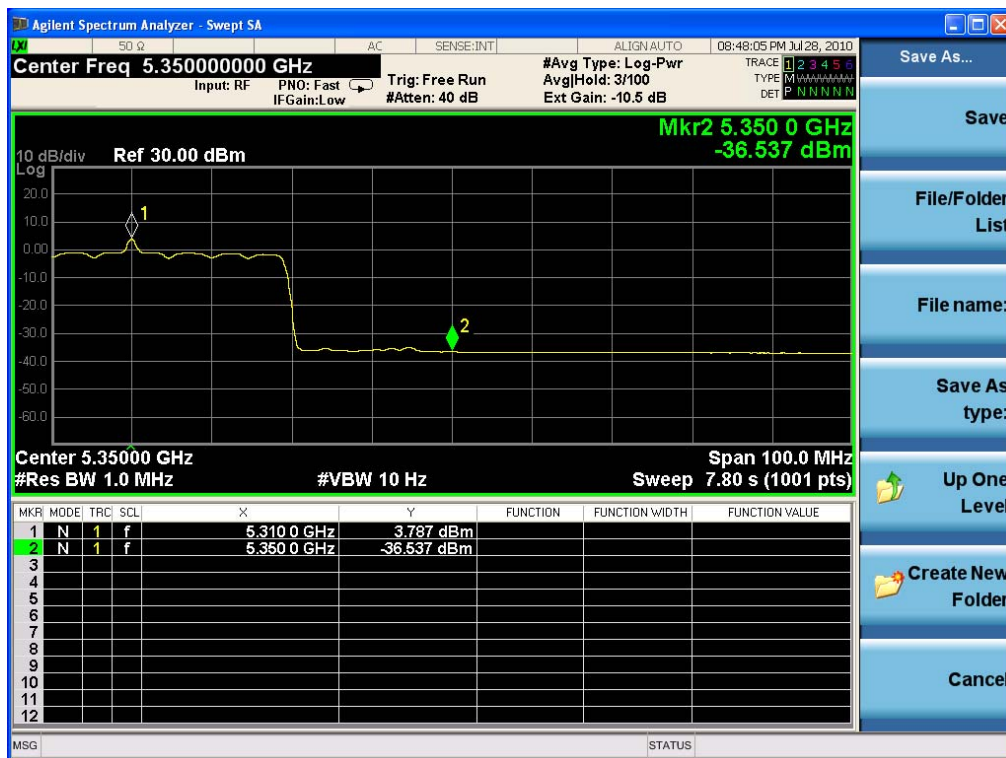
F = Fundamental field Strength (Peak or Average)

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 Transmitter 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	36.675	64.52	101.195	Peak
Horizontal	5510	36.675	58.88	95.555	Average
Vertical	5510	38.124	57.98	96.104	Peak
Vertical	5510	38.124	44.49	82.614	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	101.195	45.158	56.037	74.000	Peak
Horizontal	5460	95.555	44.198	51.357	54.000	Average
Vertical	5460	96.104	45.158	50.946	74.000	Peak
Vertical	5460	82.614	44.198	38.416	54.000	Average
Horizontal	5470	101.195	43.833	57.362	68.220	Peak
Vertical	5470	96.104	43.833	52.271	68.220	Peak

Note:

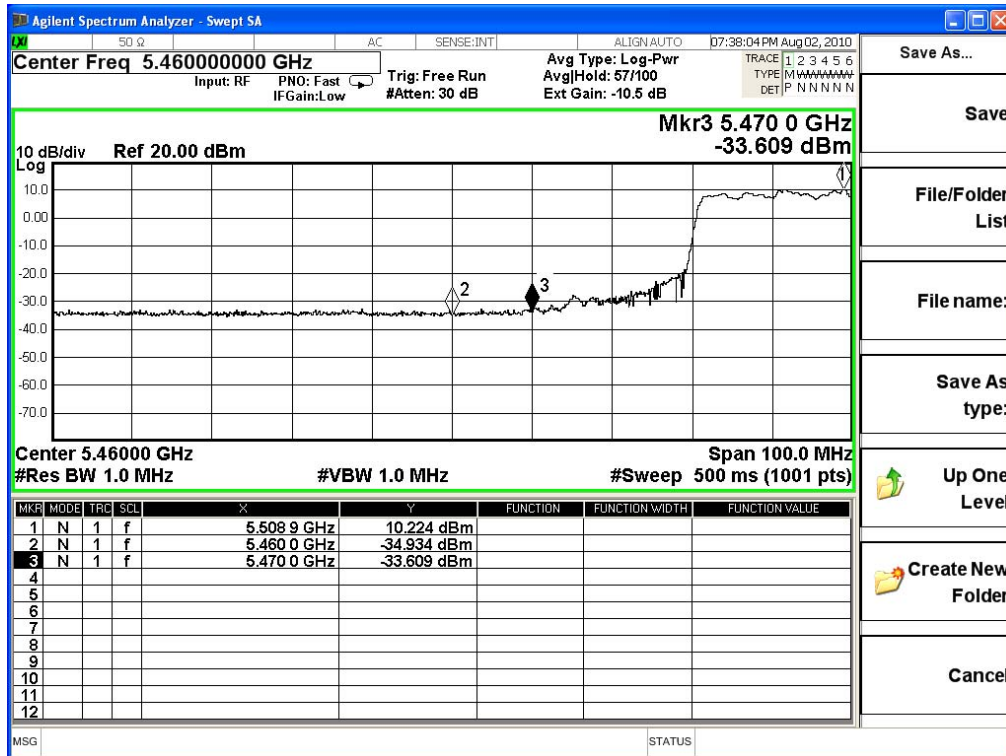
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

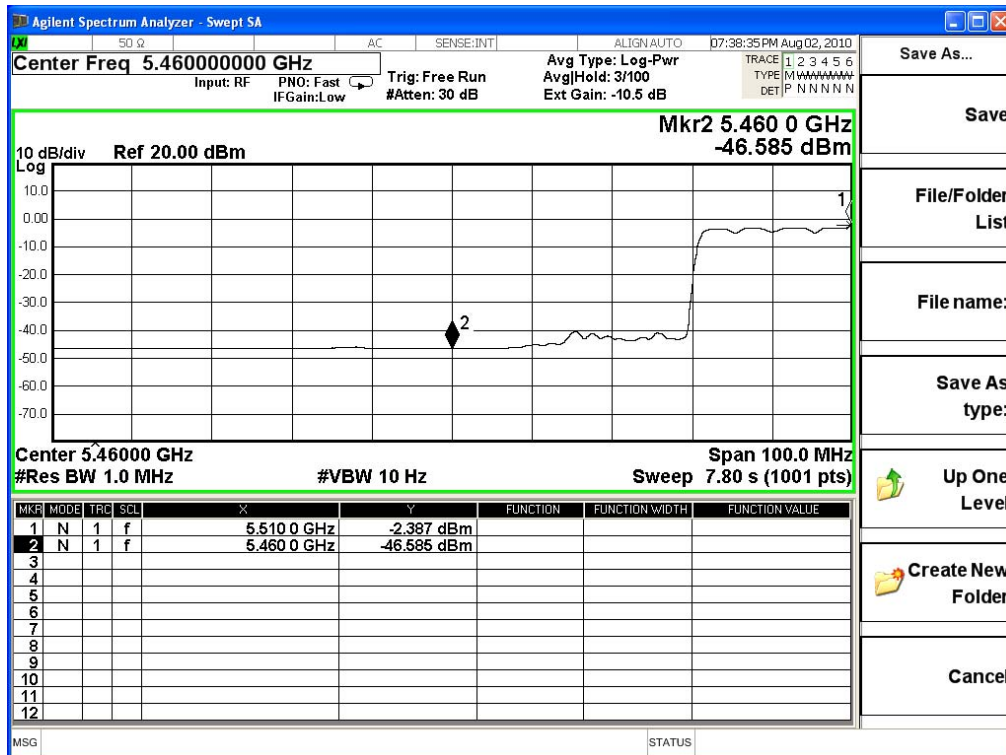
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : Full HD Video Wireless Transmitter 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	36.26	71.55	107.81	Peak
Vertical	5670	37.683	60.23	97.913	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	107.81	43.427	64.383	68.220	Peak
Vertical	5725	97.913	43.427	54.486	68.220	Peak

Note:

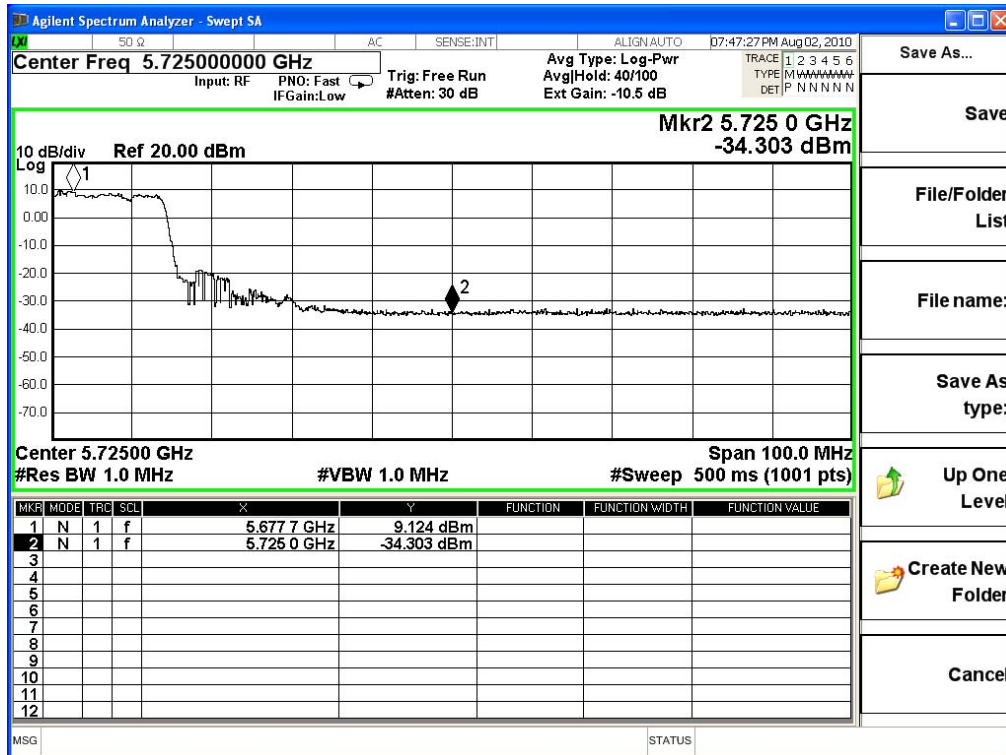
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

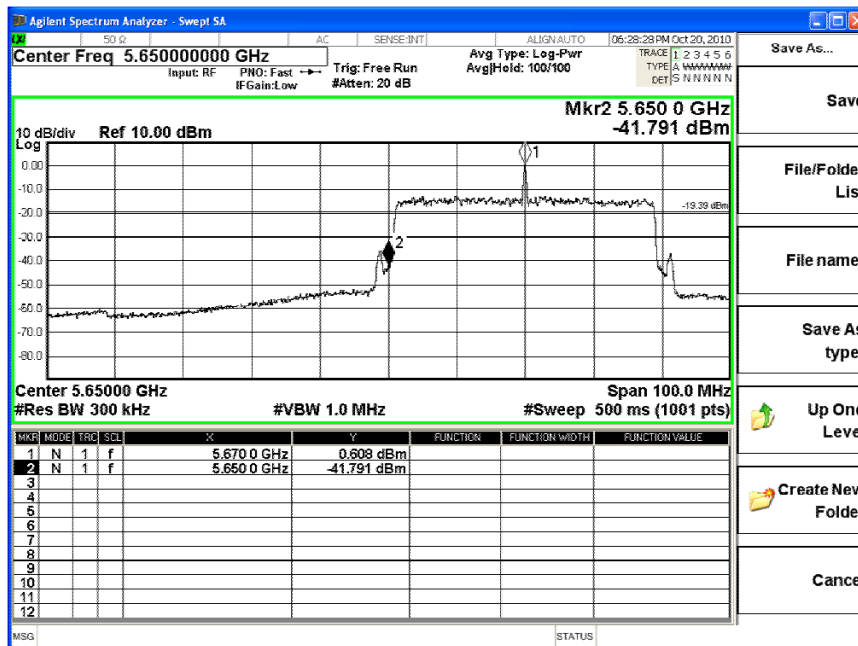
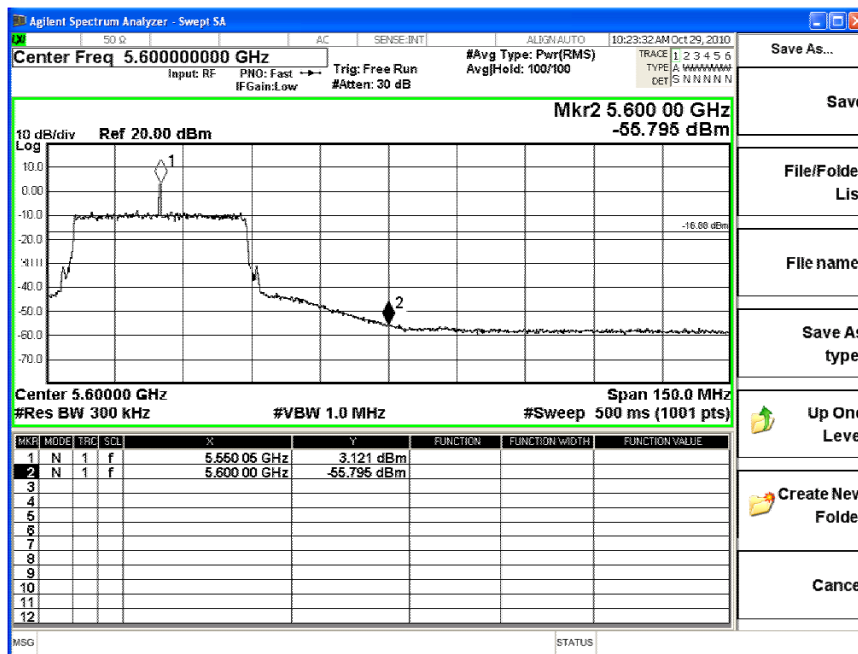
Peak Detector of conducted Band Edge Delta



Product : Full HD Video Wireless Transmitter 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

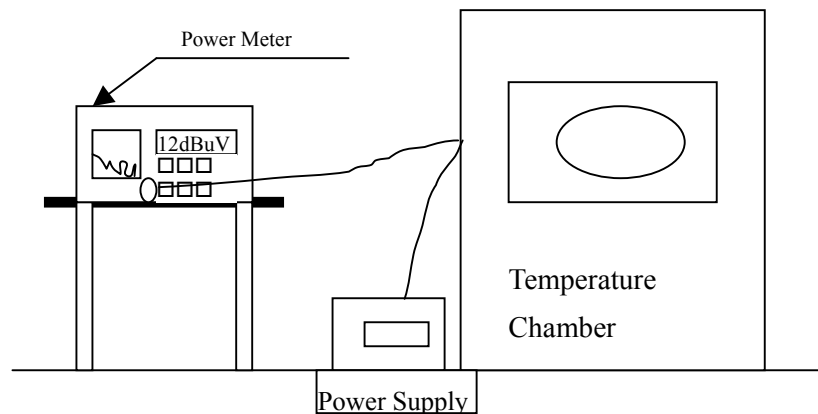
8.1. Test Equipment

	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 Transmitter 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	5270.0015	-0.0015
		62	5310.00	5310.0089	-0.0089
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0095	-0.0095
		134	5670.00	5670.0095	-0.0095
Tmax (70) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0095	-0.0095
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0100	-0.0100
		134	5670.00	5670.0098	-0.0098
Tmin (-10) °C	Vnom (120)V	54	5270.00	5270.0098	-0.0098
		62	5310.00	5310.0091	-0.0091
		102	5510.00	5510.0095	-0.0095
		110	5550.00	5550.0092	-0.0092
		134	5670.00	5670.0082	-0.0082

Product : Full HD Video Wireless Transmitter 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	5270.0085	-0.0085
		62	5310.00	5310.0097	-0.0097
		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	5270.0099	-0.0099
		62	5310.00	5310.0092	-0.0092
		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	5310.0099	-0.0099
		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 Transmitter 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	5310.0099	-0.0099
		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	5670.0099	-0.0099
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 Transmitter 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	5310.0099	-0.0099
		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	5270.0099	-0.0099
		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	5310.0096	-0.0096
		102	5510.00	5510.0100	-0.0100
		110	5550.00	5550.0097	-0.0097
		134	5670.00	5670.0095	-0.0095

9. EMI Reduction Method During Compliance Testing

No modification was made during testing.