

Product Name	WHDI Rx board
Model No	WV301A
FCC ID.	PPQ-WV301A

Applicant	LITE-ON TECHNOLOGY CORP.
Address	4F, 90, Chien 1 Road, Chung Ho, Taipei Hsien 235, Taiwan, R.O.C.

Date of Receipt	Sep. 16, 2011
Issue Date	Oct. 14, 2011
Report No.	119322R-RFUSP28V01
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

Issue Date: Oct. 14, 2011 Report No.: 119322R-RFUSP28V01



Accredited by NIST (NVLAP) NVLAP Lab Code: 200533-0

Product Name	WHDI Rx board	
Applicant	LITE-ON TECHNOLOGY CORP.	
Address	4F, 90, Chien 1 Road, Chung Ho, Taipei Hsien 235, Taiwan, R.O.C.	
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD	
Model No.	WV301A	
EUT Rated Voltage	DC 5V	
EUT Test Voltage	AC 120V/60Hz	
Trade Name	LITE-ON	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2010	
	ANSI C63.4: 2009 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

nita Chon Documented By : (Senior Engineering Adm. Specialist / Anita Chou ) Tested By (Engineer / Henk Huang) **Testing Laboratory** 11 July Approved By : 0914 (Manager / Vincent Lin)

## TABLE OF CONTENTS

De	scription	Page
1.	GENERAL INFORMATION	5
1.1.	EUT Description	5
1.2.	Operational Description	
1.2.	Tested System Details	
1.4.	Configuration of Tested System	
1.4.	EUT Exercise Software	
1.6.	Test Facility	
2.	Conducted Emission	11
2.1.	Test Equipment	
2.2.	Test Setup	
2.3.	Limits	
2.4.	Test Procedure	
2.5.	Uncertainty	
2.6.	Test Result of Conducted Emission	
3.	Peak Power Output	15
3.1.	Test Equipment	
3.2.	Test Setup	
3.3.	Limits	
3.4.	Test Procedure	
3.5.	Uncertainty	
3.6.	Test Result of Peak Power Output	
4.	Radiated Emission	
4.1.	Test Equipment	18
4.2.	Test Setup	
4.3.	Limits	
4.4.	Test Procedure	
4.4.		
	Uncertainty	
4.6.	Test Result of Radiated Emission	
5.	RF antenna conducted test	29
5.1.	Test Equipment	
5.2.	Test Setup	
5.3.	Limits	
5.4.	Test Procedure	
5.5.	Uncertainty	
5.6.	Test Result of RF antenna conducted test	
6.	Band Edge	41
6.1.	Test Equipment	
6.2.	Test Setup	
6.3.	Limits	
6.4.	Test Procedure	
6.5.	Uncertainty	
6.6.	•	
0.0.	Test Result of Band Edge	

## 

7.	Occupied Bandwidth	48
7.1.	Test Equipment	
7.2.	Test Setup	
7.3.	Limits	
7.4.	Test Procedure	
7.5.	Uncertainty	
7.6.	Test Result of Occupied Bandwidth	
8.	Power Density	54
8.1.	Test Equipment	
8.2.	Test Setup	
8.3.	Limits	
8.4.	Test Procedure	
8.5.	Uncertainty	
8.6.	Test Result of Power Density	
9.	EMI Reduction Method During Compliance Testing	60

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

### 1. GENERAL INFORMATION

### **1.1. EUT Description**

Product Name	WHDI Rx board	
Trade Name	LITE-ON	
Model No.	WV301A	
FCC ID.	PPQ-WV301A	
Frequency Range	20MHz-BW:5745-5825MHz , 40MHz-BW:5755-5795MHz	
Number of Channels	20MHz-BW: 5, 40MHz-BW: 2	
Data Speed	20MHz mode: 30kbps, 40MHz mode: 60kbps	
Channel separation	20MHz-BW: 20MHz, 40MHz-BW: 40MHz	
Type of Modulation	OFDM	
Antenna Type	Printed on PCB (PIFA)	
Antenna Gain	Refer to the table "Antenna List"	
Channel Control	Auto	
Power Adapter	MFR: Asian, M/N: WA-15C05R	
	Input: AC 100-240V, 50-60Hz, 0.5A Max.	
	Output: DC 5V, 3A	
	Cable Out: Shielded, 1.5m, with one ferrite core bonded.	

#### Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	LITE-ON	N/A	2dBi for 5GHz

Note: The antenna of EUT is conform to FCC 15.203

20MHz Center Working Frequency of Each Channel:

Channel Frequency Channel Frequency Channel Frequency Channel Frequency Channel 149: 5745 MHz Channel 153: 5765 MHz Channel 157: 5785 MHz Channel 161: 5805 MHz Channel 165: 5825 MHz

40MHz Center Working Frequency of Each Channel:

Channel Frequency Channel Frequency

Channel 151: 5755 MHz Channel 159: 5795 MHz

- 1. This device is a WHDI Rx board with a built-in and 5GHz WLAN transceiver.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. These tests are conducted on a sample for the purpose of demonstrating compliance of 5GHz transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

### **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 WV301A 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 5.15 -5.25GHz and 5.725 - 5.85 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.

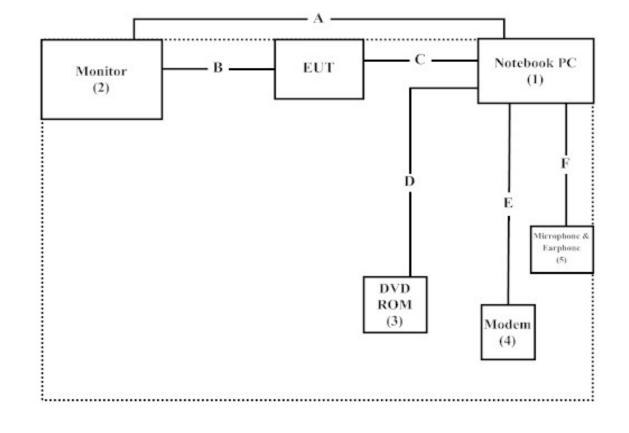
Test Mode:	Mode 1: Transmit - 20BW
	Mode 2: Transmit - 40BW

### **1.3.** Tested System Details

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

Pro	duct	Manufacturer	Model No.	Serial No.	Power Cord
(1)	Notebook PC	DELL	РРТ	N/A	Non-Shielded, 0.8m
(2)	Monitor	LG	W2261VT	907YHZK07373	Non-Shielded, 1.8m
(3)	DVD ROM	DELL	PD01S	03029	N/A
(4)	Modem	ACEEX	DM-1414	0102027550	Non-Shielded, 1.8m
(5)	Microphone &	Ergotech	ET-E201	N/A	N/A
	Earphone				

Signal Cable Type		Signal cable Description	
А	VGA Cable	Shielded, 1.8m, with two ferrite cores bonded.	
В	HDMI Cable	Shielded, 1.2m	
С	USB Cable	Shielded, 1.2m	
D	DVD ROM Cable	Shielded, 0.6m	
Е	Modem Cable	Non-Shielded, 1.8m	
F	Microphone & Earphone Cable	Non-Shielded, 1.0m	



### **1.4.** Configuration of Tested System

### **1.5.** EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute "APPcom" program on the Notebook.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press "OK" to start the continuous Transmit.
- (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 : <u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <u>http://www.quietek.com/</u>

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 CorporationSite Address:No.5-22, Ruishukeng Linkou Dist., New Taipei City 24451,<br/>Taiwan, R.O.C.TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789<br/>E-Mail : <a href="mailto:service@quietek.com">service@quietek.com</a>

FCC Accreditation Number: TW1014



### 2. Conducted Emission

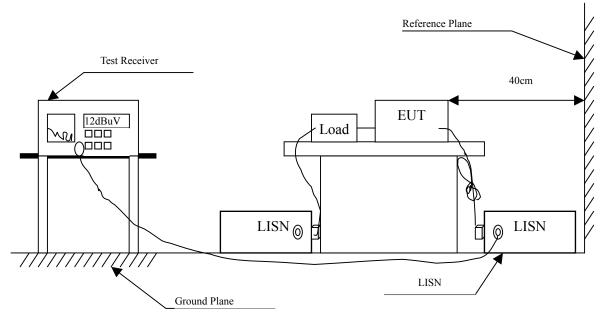
### 2.1. Test Equipment

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, 2011	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2011	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2011	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2011	
5	No.8 Shielded Roo	m		N/A	

Note: All instruments are calibrated every one year.

### 2.2. Test Setup



### 2.3. Limits

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

### 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: 2009 on conducted measurement.

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

### 2.5. Uncertainty

± 2.26 dB

### 2.6. Test Result of Conducted Emission

Product	:	WHDI Rx board
Test Item	:	Conducted Emission Test
Power Line	:	Line 1
Test Mode	:	Mode 2: Transmit - 40BW (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.201	9.706	50.020	59.726	-4.817	64.543
0.259	9.670	40.860	50.530	-12.356	62.886
0.459	9.640	37.120	46.760	-10.411	57.171
0.732	9.635	40.580	50.215	-5.785	56.000
1.541	9.680	25.980	35.660	-20.340	56.000
15.021	9.990	33.420	43.410	-16.590	60.000
Average					
0.201	9.706	37.450	47.156	-7.387	54.543
0.259	9.670	26.750	36.420	-16.466	52.886
0.459	9.640	26.320	35.960	-11.211	47.171
0.732	9.635	32.010	41.645	-4.355	46.000
1.541	9.680	13.120	22.800	-23.200	46.000
15.021	9.990	25.220	35.210	-14.790	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	: WHDI Rx board				
Test Item	: Conducted Emission Test				
Power Line	: Line 2				
Test Mode	: Mode 2	: Transmit - 40BW	/ (5755MHz)		
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.201	9.716	51.780	61.496	-3.047	64.543
0.330	9.660	41.280	50.940	-9.917	60.857
0.443	9.645	41.160	50.805	-6.824	57.629
0.759	9.664	40.640	50.304	-5.696	56.000
1.517	9.680	28.160	37.840	-18.160	56.000
15.088	10.000	32.760	42.760	-17.240	60.000
Average					
0.201	9.716	39.040	48.756	-5.787	54.543
0.330	9.660	29.470	39.130	-11.727	50.857
0.443	9.645	28.350	37.995	-9.634	47.629
0.759	9.664	32.120	41.784	-4.216	46.000
1.517	9.680	15.350	25.030	-20.970	46.000
15.088	10.000	24.110	34.110	-15.890	50.000

- 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 Power Output

### **3.1.** Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2011	
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2011	
Note:					
1.	All equipments are	calibrated with trac	eable calibrations. Each calibrations	ation is traceable to the	
	national or international standards.				
	All equipments are	calibrated with trac			

2. The test instruments marked with "X" are used to measure the final test results.

### 3.2. Test Setup

Conducted Measurement



### 3.3. Limits

The maximum peak power shall be less 1 Watt.

### **3.4.** Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 3.5. Uncertainty

± 1.27 dB

### **3.6.** Test Result of Peak Power Output

Product	:	WHDI Rx board
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW

Frequency (MHz)	Measurement (dBm)	Required Limit	Result
5745	23.73	<30dBm	Pass
5785	24.16	<30dBm	Pass
5825	23.93	<30dBm	Pass

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

Product	:	WHDI Rx board
Test Item	:	Peak Power Output Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW

Frequency (MHz)	Measurement (dBm)	Required Limit	Result
5755	24.36	<30dBm	Pass
5795	24.29	<30dBm	Pass

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

### 4. Radiated Emission

### 4.1. Test Equipment

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

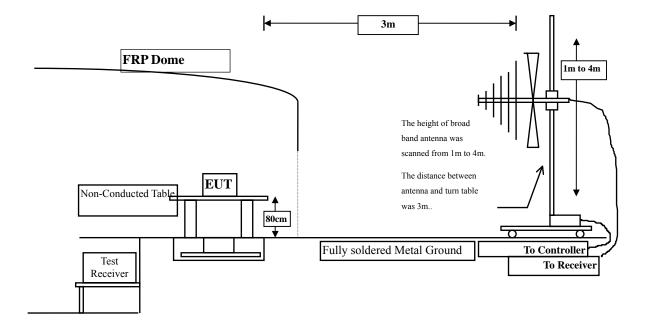
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	Х	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	Х	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2011
	Х	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
	Х	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2011
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2011
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	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.

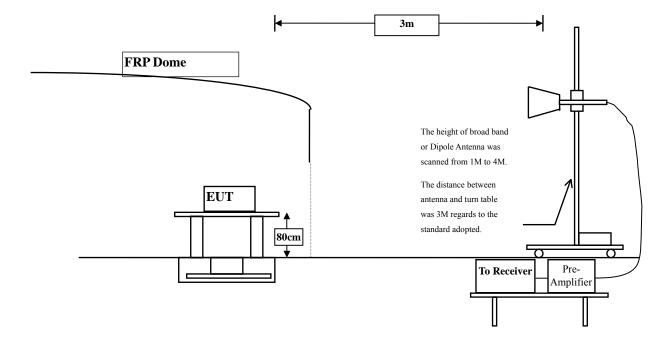
2. The test instruments marked with "X" are used to measure the final test results.

### 4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



### 4.3. 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)

### 4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 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 between 1 meter and 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 C63.4:2009 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.

### 4.5. Uncertainty

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

### 4.6. Test Result of Radiated Emission

Product Test Item Test Site Test Mode	: No.3 OA	ic Radiated Emiss			
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	35.550	52.657	-21.343	74.000
Average Detector:					
Vertical					
<b>Peak Detector:</b>					
11490.000	18.034	36.370	54.405	-19.595	74.000
Average Detector:					
11490.000	18.034	24.110	42.145	-11.855	54.000

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: WHDI R	x board			
Test Item	: Harmoni	ic Radiated Emiss	sion Data		
Test Site	: No.3 OA	ATS			
Test Mode	: Mode 1:	Transmit - 20BW	/ (5785 MHz)		
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
<b>Peak Detector:</b>					
11570.000	16.809	35.370	52.179	-21.821	74.000
Average Detector: 					
Vertical Peak Detector:					
11570.000	17.698	36.100	53.798	-20.202	74.000

#### **Average Detector:**

---

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: WHDI R	x board			
Test Item	: Harmoni	c Radiated Emiss	sion Data		
Test Site	: No.3 OA	TS			
Test Mode	: Mode 1:	Transmit - 20BW	/ (5825 MHz)		
Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	16.158	34.080	50.238	-23.762	74.000
Average Detector: 					
Vertical Peak Detector: 11650.000	17.274	34.370	51.645	-22.355	74.000
11020.000	1/.2/7	57.570	51.075	-22.333	/ <b>T</b> .000

#### **Average Detector:**

---

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Test Item Test Site Test Mode	<ul> <li>WHDI Rx board</li> <li>Harmonic Radiated Emission Data</li> <li>No.3 OATS</li> <li>Mode 2: Transmit - 40BW (5755MHz)</li> </ul>						
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level	-			
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
<b>Peak Detector:</b>							
11510.000	17.124	35.450	52.574	-21.426	74.000		
Average Detector: 							
Vertical							
Peak Detector:							
11510.000	18.081	36.640	54.721	-19.279	74.000		
Average Detector:							
11510.000	18.081	26.520	44.601	-9.399	54.000		

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: WHDI R	x board			
Test Item	: Harmoni	c Radiated Emiss	sion Data		
Test Site	: No.3 OA	TS			
Test Mode	: Mode 2:	Transmit - 40BW	/ (5795 MHz)		
Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
<b>Peak Detector:</b>					
11590.000	16.701	34.790	51.490	-22.510	74.000
Average Detector:					
Vertical					
Peak Detector:					
11590.000	17.567	36.110	53.676	-20.324	74.000

#### **Average Detector:**

--

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Test Item Test Site Test Mode	<ul> <li>WHDI Rx board</li> <li>General Radiated Emission Data</li> <li>No.3 OATS</li> <li>Mode 1: Transmit - 20BW (5785MHz)</li> </ul>							
Frequency	Correct	Reading	Measurement	Margin	Limit			
	Factor	Level	Level	-				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m			
Horizontal								
148.340	-7.806	33.108	25.302	-18.198	43.500			
295.780	-4.747	39.251	34.504	-11.496	46.000			
445.160	-0.432	38.472	38.040	-7.960	46.000			
594.540	3.555	33.855	37.410	-8.590	46.000			
743.920	3.898	33.641	37.539	-8.461	46.000			
891.360	6.265	35.126	41.391	-4.609	46.000			
Vertical								
148.340	-5.406	33.108	27.702	-15.798	43.500			
295.780	-4.687	31.651	26.964	-19.036	46.000			
445.160	-6.402	37.272	30.870	-15.130	46.000			
594.540	0.175	37.255	37.430	-8.570	46.000			
743.920	0.718	33.041	33.759	-12.241	46.000			
891.360	0.905	39.026	39.931	-6.069	46.000			

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Test Item Test Site Test Mode	<ul> <li>WHDI Rx board</li> <li>General Radiated Emission Data</li> <li>No.3 OATS</li> <li>Mode 2: Transmit - 40BW (5755MHz)</li> </ul>						
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBuV	dBuV/m	dB	dBuV/m		
Horizontal							
148.340	-7.806	34.108	26.302	-17.198	43.500		
295.780	-4.747	36.251	31.504	-14.496	46.000		
445.160	-0.432	37.872	37.440	-8.560	46.000		
594.540	3.555	36.255	39.810	-6.190	46.000		
743.920	3.898	33.741	37.639	-8.361	46.000		
891.360	6.265	34.726	40.991	-5.009	46.000		
Vertical							
148.340	-5.406	34.108	28.702	-14.798	43.500		
295.780	-4.687	34.751	30.064	-15.936	46.000		
445.160	-6.402	44.572	38.170	-7.830	46.000		
594.540	0.175	37.955	38.130	-7.870	46.000		
743.920	0.718	34.341	35.059	-10.941	46.000		
891.360	0.905	39.126	40.031	-5.969	46.000		

- 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. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

### 5. **RF** antenna conducted test

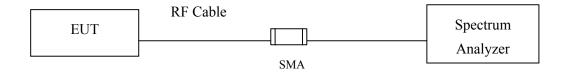
### 5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Х	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

- 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.

#### 5.2. Test Setup

#### **RF** antenna Conducted Measurement:



### 5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### 5.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

### 5.5. Uncertainty

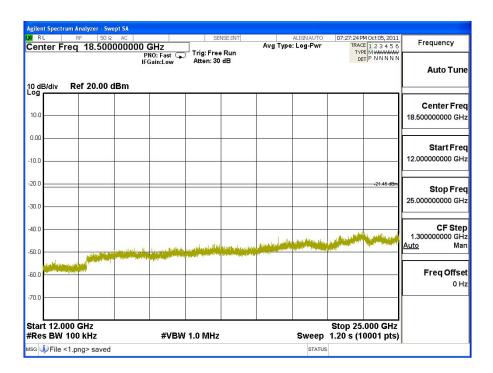
The measurement uncertainty Conducted is defined as  $\pm 1.27$ dB

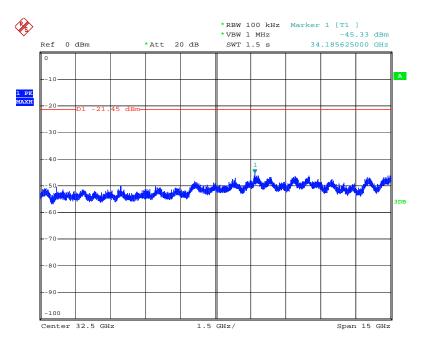
### 5.6. Test Result of RF antenna conducted test

Product	:	WHDI Rx board
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW

#### Channel 149 (5745MHz) 30MHz -40GHz

ilent Spec R L		50 Ω AC		SE	NSE:INT		ALIGN AUTO	U7:26:48F	PM Oct 05, 2011	Frequency
enter l	Freq 515.	000000 M	Hz PNO: Fast G	Trig: Free	Run	Avg Type	: Log-Pwr	TRAC	ET P NNNN	
			IFGain:Low	Atten: 30	dB					Auto Tur
d D (diu	Ref 20.0	0 dBm					IVIKI		74 MHz 20 dBm	
dB/div										
0.0										Center Fre
0.0										515.000000 MH
.00						-				
										Start Fre
D.O										30.000000 MH
0.0									-21.45 dBm	
5.0									*21.40 GDII	Stop Fre
0.0				-		-				1.000000000 Gł
0.0				1						CF Ste 97.000000 Mi
0.0									<b>▲</b> 1	<u>Auto</u> M
					hale has a			a taliyina ad	<b>†</b>	
D.O 🐙	ter (Theili) and the balls is constructed and a state of the second	n fra de la faite de la faite. Na faite de la faite de la faite	manda alt and ime	al la contra di successi Na successi di successi		Individual and a second la				Freq Offs
										01
D.O										
tart 30. Res BM									0000 GHz	
	V 100 KH7		#VBV	4 1 II MHZ						
G 🗼 File	<b>V 100 kHz</b> e <1.png> sa	ved	#VBV	V 1.0 MHz		,	Sweep 9		0001 pts)	
	e <1.png> sa		#VBV	V 1.U IVIHZ		,	-		0001 pts)	
ilent Spec	e <1.png> sa trum Analyzer	- Swept SA	#VBV				STATUS			
ilent Spec R L	e <1.png> sa trum Analyzer RF		GHz	SE	NSE:INT		-	07:26:12F	PM Oct 05, 2011	Frequency
ilent Spec R L	e <1.png> sa trum Analyzer RF	- Swept SA 50 Ω AC 100000000		SE	Run		ALIGNAUTO	07:26:12F TRAC TYI D	PM Oct 05, 2011 DE 123456 MWWWWW ET PNNNNN	Frequency
ilent Spec RL enter I	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	SE	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency
ilent Spec RL enter I	e <1.png> sa trum Analyzer RF	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	SE	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	PM Oct 05, 2011 DE 123456 MWWWWW ET PNNNNN	Frequency
ilent Spec R L	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	SE	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency
ilent Spec RL enter I	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	SE	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency Auto Tur Center Fre
ilent Spec RL enter I dB/div 9 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	SE	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency Auto Tur Center Fre
ilent Spec RL enter I dB/div	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency Auto Tur Center Fri 6.50000000 Gi
ilent Spec RL enter I dB/div 9 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency Auto Tur 6.50000000 G Start Fro
ilent Spec RL enter I odB/div Og 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct05,2011 te[123456 te[Mwwwww tr]P NNNN 1 0 GHz 45 dBm	Frequency Auto Tur 6.50000000 G Start Fro
oldB/div	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 E 1 2 3 4 5 6 M M M M M M ET P NN NN N 1 0 GHz	Frequency Auto Tur Center Fr 6.500000000 G Start Fr 1.000000000 G
ilent Spec RL enter I 0 dB/div 0.0 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct05,2011 te[123456 te[Mwwwww tr]P NNNN 1 0 GHz 45 dBm	Center Fr 6.50000000 G Start Fr 1.00000000 G
ilent Spec RL enter I odB/div Og 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct05,2011 te[123456 te[Mwwwww tr]P NNNN 1 0 GHz 45 dBm	Center Fr 6.50000000 G Start Fr 1.00000000 G
ilent Spec RL enter I 0 dB/div 0.0 0.0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	⊃ Trig: Free Atten: 30	Run		ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct05,2011 te[123456 te[Mwwwww tr]P NNNN 1 0 GHz 45 dBm	Frequency Auto Tur 6.50000000 Gl Start Frd 1.00000000 Gl Stop Frd 12.00000000 Gl
ilent Spece RL enter I g g g g g g g g g g g g g g g g g g g	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Ω AC 100000000	GHz PN0: Fast	Trig:Free Atten: 30	e Run dB	Avg Type	ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct05,2011 te[123456 te[Mwwwww tr]P NNNN 1 0 GHz 45 dBm	Frequency           Auto Tun           Center Fra           6.500000000 Gi           Start Fra           1.000000000 Gi           Stop Fra           12.000000000 Gi           1.100000000 Gi
ilent Spec           RL           enter I           0 dB/div           0 dB/div           0 0.0           .00           .00           .00           .00           .00           .00           .00           .00           .00           .00	e <1.png> sa trum Analyzer RF 0.50 Ref 20.1	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	Run	Avg Type		07:26:12F	M Oct 05, 2011 = [1 2 3 4 5 6 EM MUNUMW = [P NNNN N 1 0 GHz 45 dBm 	Frequency           Auto Tun           Center Fra           6.500000000 Gi           Start Fra           1.000000000 Gi           Stop Fra           12.000000000 Gi           1.100000000 Gi
ilent Spec RL enter I odB/div 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	e <1.png> sa trum Analyzer RF Freq 6.50	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type	ALIGNAUTO	07:26:12F TRAG TYI D r1 5.74	M Oct 05, 2011 # [12 3 4 5 6 FE MUNUMW 1 0 GHz 45 dBm -21.46 dBm	Frequency           Auto Tun           Center Frr           6.500000000 Gi           Start Frr           1.000000000 Gi           Stop Frr           12.00000000 Gi           CF Ste           1.100000000 Gi
ilent Spece RL enter I g g g g g g g g g g g g g g g g g g g	e <1.png> sa trum Analyzer RF 0.50 Ref 20.1	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type		07:26:12F	M Oct 05, 2011 = [1 2 3 4 5 6 EM MUNUMW = [P NNNN N 1 0 GHz 45 dBm 	Frequency           Auto Tun           Center Frr           6.500000000 Gi           Start Frr           1.000000000 Gi           Stop Frr           12.00000000 Gi           CF Start           1.100000000 Gi           Auto           Freq Offs
ilent Spec RL enter I odB/div 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	e <1.png> sa trum Analyzer RF 0.50 Ref 20.1	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type		07:26:12F	M Oct 05, 2011 = [1 2 3 4 5 6 EM MUNUMW = [P NNNN N 1 0 GHz 45 dBm 	Frequency           Auto Tun           Center Frr           6.500000000 Gi           Start Frr           1.000000000 Gi           Stop Frr           12.00000000 Gi           CF Start           1.100000000 Gi           Auto           Freq Offs
ilent Spec           RL           eenter I           00           00           00           00           00           00           00           00           00           00           00           00           00           00           00           00           00           00           00	e <1.png> sa trum Analyzer RF 0.50 Ref 20.1	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type		07:26:12F	M Oct 05, 2011 = [1 2 3 4 5 6 EM MUNUMW = [P NNNN N 1 0 GHz 45 dBm 	Frequency           Auto Tun           Center Frr           6.500000000 Gi           Start Frr           1.000000000 Gi           Stop Frr           12.00000000 Gi           CF Start           1.100000000 Gi           Auto           Freq Offs
ilent Spec           RL           enter I           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0           0	e <1.png> sa trum Analyzer RF 0.50 Ref 20.1	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PNO: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type		07:26:12f	M Oct 05, 2011 = [1 2 3 4 5 6 EM MUNUMW = [P NNNN N 1 0 GHz 45 dBm 	Frequency           Auto Tun           Center Frr           6.500000000 Gi           Start Frr           1.000000000 Gi           Stop Frr           12.00000000 Gi           CF Start           1.100000000 Gi           Auto           Freq Offs
ilent Spece RL enter 1 od B/div yg gg gg gg gg gg gg gg gg gg	e <1.png> sai	- Swept SA 50 Q AC   00000000 0 00 dBm	GHz PN0: Fast G FGain:Low	Trig:Free Atten: 30	e Run dB	Avg Type		07:26:12F	M Oct 05, 2011 TE [1 2 3 4 5 6 FE MWWWW TP NNNNN T 1 0 GHz 45 dBm 	Frequency           Auto Tur           Center Fre           6.500000000 GH           Start Fre           1.00000000 GH           CF Stee           1.100000000 GH           Auto           Mato           Freq Offs           0 H





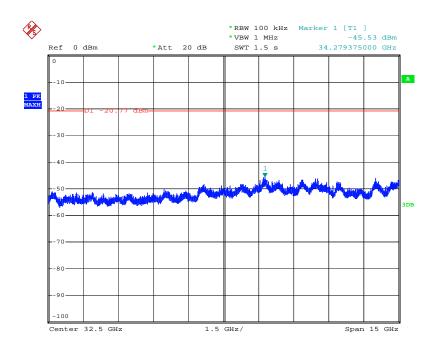
Date: 7.0CT.2011 16:28:24

RL	RF 50 Ω	AC	SENS	E:INT	ALIGN AUTO	07:34:53 PM Oct 05, 2011	_
enter F	req 515.0000	PNO: Fast	Trig: Free F	Run	ype: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
0 dB/div	Ref 20.00 dB	IFGain:Low	Atten: 30 d	в			Auto Tune
°g							Center Free
10.0							515.000000 MH
).00							Start Fre
10.0							30.000000 MH
0.0						-20.77 dBm	Stop Fre
0.0							1.000000000 GH
0.0							CF Ste 97.000000 MH
0.0				35 16 C			<u>Auto</u> Ma
D.O KANA	Andrew White the suppose	chose have have been here here	ndrikan nantan nataharing	- Law Mandala	happyreadingsources.	prosenses and a second s	Freq Offse
0.0							
tart 30.0	D MHz 100 kHz	#\/I	3W 1.0 MHz		Sween	Stop 1.0000 GHz 89.5 ms (1001 pts)	
	<1.png> saved	<i></i>	599 1.0 IVII 12		STATUS	· · · ,	

### Channel 157 (5785MHz) 30MHz -40GHz

	Ω AC		SE	VSE:INT		ALIGNAUTO			Frequency
eq 6.500	P	NO: Fast 🕞			Avg Type	: Log-Pwr	TRA TY E	CE 1 2 3 4 5 6 PE MWWWWW ET P NNNNN	Frequency
Ref 20.00		San:Luw	Atten. oo			Μ			Auto Tur
									Center Fre
			<b>▲</b> 1						6.50000000 Gł
									Start Fr
									1.000000000 G
								-20.77 dBm	Stop Fr
									12.000000000 G
									CF St
			aller	0					1.100000000 G <u>Auto</u> M
www.www.huerthing	and a share the second	her you have the	an Manchelaise	materitation piller	ithe Herrystee	washingthe	uperturbly all the	hulmandunital	Freq Offs
		#\/B\A	1.0 MHz			Sween			
	Ref 20.00	Ref 20.00 dBm	Ref 20.00 dBm	eq       6.500000000 GHz       Trig: Free         PN0: Fast providence       Trig: Free         Ref 20.00 dBm       1         1       1	eq       6.50000000 GHz       Trig: Free Run Atten: 30 dB         Ref 20.00 dBm       1         Image: A start of the start o	Ref 20.00 dBm     1	eq     6.50000000 GHz     Avg Type: Leg-Pwr       PN0: Fast C     Trig: Free Run     M       Ref 20.00 dBm     M     M	PRO: Fast     Trig: Free Run     Avg Type: Log-Pwr     Trig: Trig: Free Run       Ref 20.00 dBm     -0.	PR0: Fast         Trig: Free Run Ref 20.00 dBm         Avg Type: Log-Pwr         If Rec 1: 2: 3 t 5 C           Ref 20.00 dBm         Mkr1 5.796 GHz -0.77 dBm         0.77 dBm           0

Res BW	100 kHz		#VBW	1.0 MHz			Sweep		1001 pts)	
tart 12.0	00 GHz				1			Stop 25	.000 GHz	
0.0										
0.0		_					-			Freq Offs
P22.0	nnunum									
0.0	Juner	to mark marked	and Angele and	alountary	which have been been been been been been been be	hoteleventing	Marinene	WWWWW	die in Deinen	<u>Auto</u> M
0.0								and with the	Mayorwoodrawlaw	CF St 1.300000000 G
0.0										25.00000000 0
.0									-20.77 dBm	Stop Fi
0.0										Start Fr 12.00000000 G
.00										
0.0										18.50000000 G
0.0							8			Center Fr
dB/div	Ref 20.00	) dBm								
										Auto Tu
	•		NO: Fast 🖵 Gain:Low	Trig: Free Atten: 30				D		
		0000000	GHz			Avg Typ	e: Log-Pwr	TRAC	E123456	Frequency
RL	RE 50	IΩ AC		000	NSE:INT	1	ALIGNAUTO	07/05/00 0	M Oct 05, 2011	·

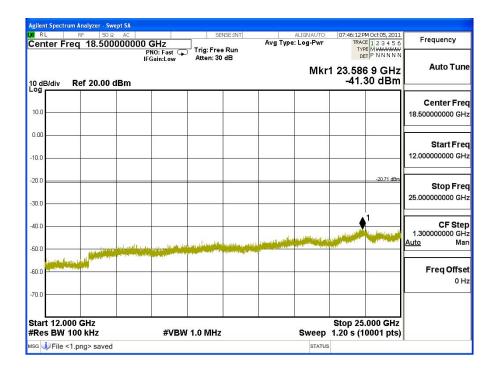


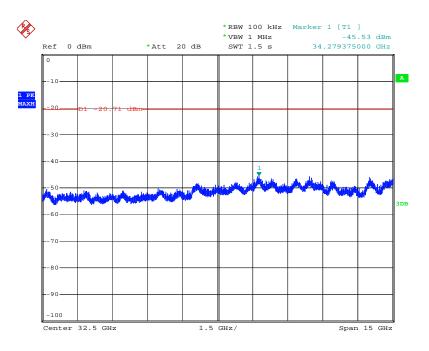
Date: 7.0CT.2011 16:31:10

RL RF 50 Ω enter Freg 515.00	AC DOOO MHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	07:45:36 PM Oct 05, 2011 TRACE 1 2 3 4 5 6	Frequency
0 dB/div Ref 20.00 d	PNO: Fast ⊂ IFGain:Low	Trig: Free Run Atten: 30 dB		TYPE M WWWWWW DET P N N N N N	Auto Tun
og 0.0					Center Fre 515.000000 MH
).00					010.000000
0.0					Start Fre 30.000000 M⊦
0.0				-20.71 dBm	Stop Fre
0.0					1.000000000 GH
0.0					CF Ste 97.000000 MH Auto Ma
0.0			7 16 14 146		<u>Auto</u> me
					Freq Offs 0 H
0.0					
tart 30.0 MHz Res BW 100 kHz	#VB	N 1.0 MHz	Sweep 9	Stop 1.0000 GHz ).0 ms (10001 pts)	

### Channel 165 (5825MHz) 30MHz -40GHz

					alyzer - Swept SA	
Frequency	07:45:00 PM Oct 05, 2011 TRACE 1 2 3 4 5 6 TYPE M WWWWWW	ALIGNAUTO	SENSE:INT	PNO East	50 Ω AC 6.500000000 (	
Auto Tune	r1 5.821 3 GHz -0.71 dBm	Mk	ten: 30 dB	IFGain:Low At	ہ f 20.00 dBm	
Center Freq 6.50000000 GHz			.1			10.0
Start Freq 1.000000000 GHz						0.00
Stop Freq 12.00000000 GHz	-20.71 dBm					30.0
<b>CF Step</b> 1.10000000 GHz <u>Auto</u> Man						40.0
Freq Offset 0 Hz	lan an Aline in Andre Status					60.0 <b></b>
	Stop 12.000 GHz 1.02 s (10001 pts)	Sweep	MHz	#VBW 1.0		70.0 Start 1.000 G Res BW 100
		STATUS		ared	anged; all traces cle	sg 🔱 Points ch

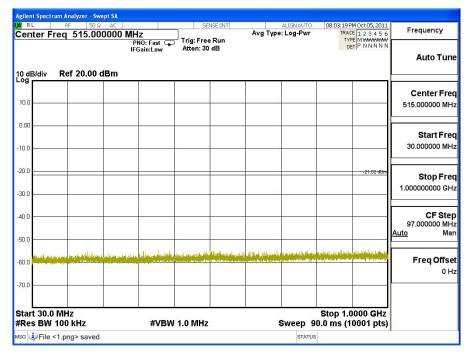




Date: 7.0CT.2011 16:32:04

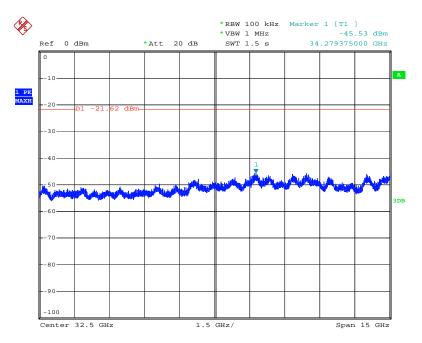
Product	:	WHDI Rx board
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW

#### Channel 151 (5755MHz) 30MHz -40GHz

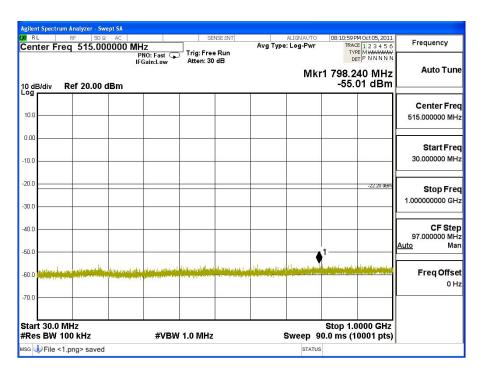


art 1.000 GHz Res BW 100 kHz	#VBW /	I.0 MHz		Sweep	Stop 12.000 GHz 1.02 s (10001 pts)	
0.0						01
		Contraction of the last parameter		hina dini pitilaji Anazarta		Freq Offs
0.0			Malanda	1 - 1 - 2 - 2 - 2	a (na 19 ang bangan dan sa ang bangang bangang bangang bangang dan sa ang bangang bangang bang bang bang ban	<u>Auto</u> M
0.0						CF St 1.10000000 G
						CER
0.0						12.00000000 G
.0					-21.62 dBm	Stop Fr
0.0						1.000000000 G
						Start Fr
00		<b>▲</b> <sup>1</sup>				
0.0						Center Fr 6.50000000 G
					1.02 42.11	O antas Es
dB/div Ref 20.00 c	IPm			Mk	r1 5.755 3 GHz -1.62 dBm	Auto Tu
•	PNO: Fast 🖵 IFGain:Low	Trig: Free Run Atten: 30 dB			DET P NNNN	
enter Freg 6.5000	00000 GHz	SENSE:INT		ALIGNAUTO : Log-Pwr	08:02:43 PM Oct 05, 2011 TRACE 1 2 3 4 5 6	Frequency



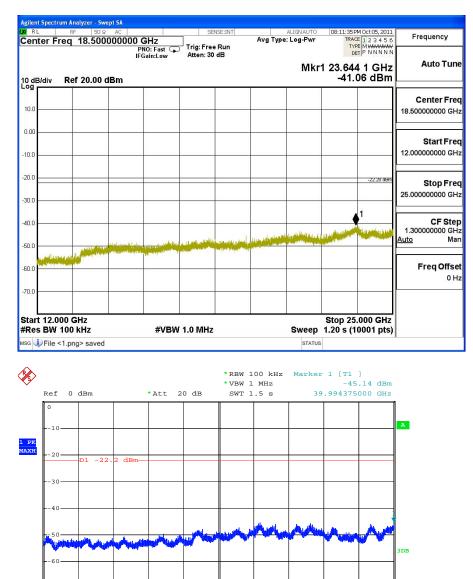


Date: 7.0CT.2011 16:33:52



#### Channel 159 (5795MHz) 30MHz -40GHz

	RF 50 Ω AC		SEI	VSE:INT		ALIGN AUTO	08:10:23 PM Oct 05, 2011	Frequency
nter Free	q 6.50000000	0 GHz PNO: Fast G	Trig: Free Atten: 30		Avg Typ	e: Log-Pwr	TRACE 1 2 3 4 5 5 TYPE M WATMANN DET P N N N N N	Trequency
dB/div R	tef 20.00 dBm	ii Gain.cow				Mk	r1 5.794 9 GHz -2.20 dBm	Auto Tui
								Center Fr
0			▲1					6.500000000 G
)			•					Start Fr
			_					1.000000000 G
							-22.20 dBm	Stop Fr
)								12.000000000 G
								CF St
			1.	1969				1.100000000 G <u>Auto</u> M
Juliantaile		West and the second second			- Maladad		a an	Freq Offs
) <mark></mark>								
0								
urt 1.000 ( es BW 10			1.0 MHz				Stop 12.000 GHz 1.02 s (10001 pts)	





Date: 7.0CT.2011 16:34:39

#### 6. **Band Edge**

#### 6.1. **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, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

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.

#### **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., 2011
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2011
	Х	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2011
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2011
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2011
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Х	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

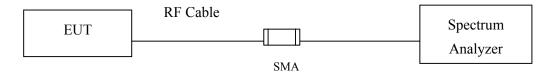
Note:

1. All instruments are calibrated every one year.

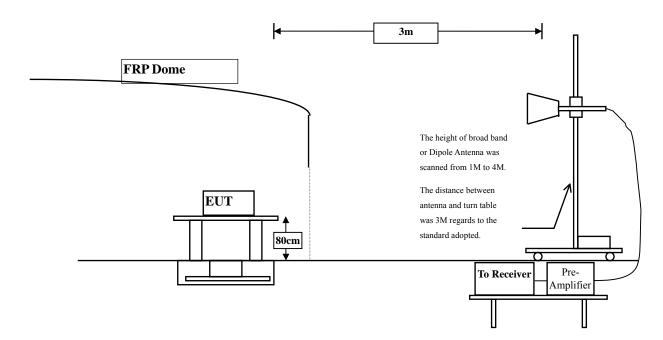
2. The test instruments marked by "X" are used to measure the final test results.

## 6.2. Test Setup

#### **RF Conducted Measurement**



#### **RF Radiated Measurement:**



#### 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. QuieTer

# 6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 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 C63.4:2009 on radiated measurement.

## 6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

# 6.6. Test Result of Band Edge

Product	:	WHDI Rx board
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta$ (dB)	$\Delta$ (dB)	
5745	43.310	>20	PASS

RL enter	Fre	RF		AC 00000 GI	H7	SE	VSE:INT	Ava 1	ALIGNAUTO	TRA	PM Oct 05, 2011	Frequency
Critor		-4	5.7250	PI	NO: Fast C Gain:Low	Trig: Free Atten: 30			,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,	TY D		
) dB/di	v	Ref	20.00 c	dBm					M		5 0 GHz 77 dBm	Auto Tu
								1	~ <b>1</b>			Center Fr
		+						many	and marying		-	5.725000000 G
.0		+			-						-20.46 dBm	
.0	_	1						1		1	-20.46 dbm	Start Fi
							2	/		alabarta -		5.675000000 G
0	-A.b.		المربيقي الم		- man and	bullen Hundelpur				about	ndedwiff windowed make	
.0		-	a danihi (kadinana)									Stop Fi
.0		+			0	-						5.775000000 G
			0 GHz								00.0 MHz	CF St
les B			KHZ		#VB	W 1.0 MHz					1001 pts)	10.000000 N
B MODE	1	f		× 5.742		-0.46 di	3m	NCTION	FUNCTION WIDTH	FUNCTI	ON VALUE	<u>Auto</u> N
N	1	f		5.725	0 GHz	-43.77 dE	3m					Freq Off
												0
									8			
			_									

Product	:	WHDI Rx board
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta$ (dB)	$\Delta$ (dB)	
5825	46.210	>20	PASS

RL F	RF 50 Ω	AC		SEN	VSE:INT		ALIGN AUTO		M Oct 05, 2011	Francisco
enter Freq	5.85000	P	Hz NO:Fast ⊂ Gain:Low	Trig: Free Atten: 30		Avg Type	e: Log-Pwr	TYP	E 1 2 3 4 5 6 E MWWWWW T P N N N N N	Frequency
	ef 20.00 d	Bm					Mk		0 0 GHz 43 dBm	Auto Tur
<b>og</b> 0.0 0.00 0.0	front	hours Nama	1 •••••							<b>Center Fr</b> 5.85000000 G
0.0 0.0 0.0	madda	<u>V</u> V	hleet	and Mayinda and Josephine	2				-20.23 dBm	<b>Start Fr</b> 5.800000000 G
0.0 0.0					manhill ann.	and the state of t	or have been a	annygereighereigh	1.7-0-10-194.94 <sup>8</sup> 0-440	<b>Stop Fr</b> 5.90000000 G
enter 5.850 Res BW 100	) kHz	×	#VB\	W 1.0 MHz	-		#Sweep	500 ms (	00.0 MHz 1001 pts)	CF St 10.000000 M Auto M
1 N 1 f 2 N 1 f 3 4 5		5.832	6 GHz 0 GHz	-0.22 dE -46.43 dE	3m					Freq Off:
3										
7 B 9 0 1 2									Č.	



Product	:	WHDI Rx board
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta$ (dB)	$\Delta$ (dB)	
5755	40.90	>20	PASS

RL RF 50 9	Ω AC	SENSE:INT	ALIGN AUTO	08:02:04 PM Oct 05, 2011	_
enter Freq 5.7250	DOOOOO GHz PNO: Fast G IFGain:Low	Trig: Free Run Atten: 30 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
0 dB/div Ref 20.00	dBm		Mkr	2 5.725 00 GHz -42.27 dBm	Auto Tur
og 10.0 0.00			Anerkymerky merkerier	h	Center Fre 5.725000000 GH
0.0		2 2 A and a second		-21.37 dBm	<b>Start Fr</b> 5.65000000 GI
0.0	Whenderer Children and Stational				<b>Stop Fr</b> 5.800000000 G
enter 5.72500 GHz Res BW 100 kHz		№ 1.0 MHz		Span 150.0 MHz 500 ms (1001 pts) FUNCTION VALUE	CF Sto 15.000000 M Auto M
KR MODE TRG SCL 1 N 1 f 2 N 1 f 3	× 5.755 00 GHz 5.725 00 GHz	-1.37 dBm -42.27 dBm	JNCTION FUNCTION WIDTH	FUNCTION VALUE	
4					Freq Offs 0
5					
4 5 6 7 7 8 9 9 0					

Product	:	WHDI Rx board
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW

Test Frequency	Measurement Level	Limit	Result
(MHz)	$\Delta$ (dB)	$\Delta$ (dB)	
5795	49.250	>20	PASS

R L RF	50 Ω AC		SENS	BE:INT		ALIGN AUTO	08:09:45 P	M Oct 05, 2011	
enter Freq	5.85000000	GHz PNO: Fast C IFGain:Low	Trig: Free l Atten: 30 d		Avg Type	: Log-Pwr	TYP	E 123456 PE MWWWWW T P N N N N N	Frequency
	<sup>7</sup> 20.00 dBm					Mkrź		00 GHz 21 dBm	Auto Tur
0.0 0.0 0.00 0.00	A more and any								<b>Center Fr</b> 5.85000000 G
5.0 5.0 5.0		Will was here been here		2				21.96 dBm	<b>Start Fr</b> 5.775000000 G
0.0 0.0 0.0			and Berry Michael Contraction	46-γ7- <b>412/1-}∽ช66</b> -8-γ6	an a	مراسه شده و می و شو	ระเปลี่ยรัฐกิจกระใจจัง <sub>ไ</sub> ร	Marana de Marie de La	Stop Fr 5.925000000 G
enter 5.8500 Res BW 100	kHz	#VB	W 1.0 MHz				500 ms (	50.0 MHz 1001 pts)	CF St 15.000000 M
r Mode Trc Scl 1 N 1 f 2 N 1 f	5.79	4 95 GHz 0 00 GHz	-1.96 dB -51.21 dB	m	CTION FUI	NCTION WIDTH	FUNCTIC	JN VALUE	<u>Auto</u> N
3 4 5 5									Freq Off 0
7 B 9 0 1 2									
				1					

## 7. Occupied Bandwidth

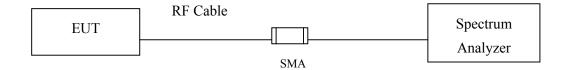
## 7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

#### 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.

## 7.2. Test Setup



## 7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

## 7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 100 kHz, Span greater than RBW.

## 7.5. Uncertainty

± 150Hz

## 7.6. Test Result of Occupied Bandwidth

Product	:	WHDI Rx board
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	17700	>500	Pass

## Figure Channel 149:

RL RF 50		SENSE:INT	ALIGNAUTO	07:31:34 PM Oct 05, 2011	Frequency
enter Freq 5.745	000000 GHz PNO: Fast G IFGain:Low	Trig: Free Run Atten: 30 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	
dB/div Ref 20.00	dBm		Mkr:	2 5.736 10 GHz -10.85 dBm	Auto Tur
0.0					Center Fr 5.745000000 G
0.0		manning prove	had have by	-7.18 dBm	0.1400000000
0.0	and and a second and		N. N		Start Fr 5.720000000 G
D.O Man HARMAN	Stor, a second		Bernhold and Series	annontine toursen for the	04a
0.0					<b>Stop Fr</b> 5.770000000 G
enter 5.74500 GHz Res BW 100 kHz	#VBI	V 100 kHz	#Sweep	Span 50.00 MHz 500 ms (1001 pts)	CF St 5.000000 M
R MODE TRO SCL 1 N 1 f 2 N 1 f	× 5.752 60 GHz 5.736 10 GHz	-1.18 dBm -10.85 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> N
3 N 1 f 4 5	5.753 80 GHz	-8.05 dBm			Freq Offs 0
3 7 3 9					
0					

Product	:	WHDI Rx board
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	17700	>500	Pass

# Figure Channel 157:

Frequency	M Oct 05, 2011		ALIGNAUTO	Ανα Τνοε	NSE:INT	SE	AC DOOO GHz	F 50 Ω	tor Fro
		TYP	. Log-i wi	118 I 144		Trig: Free Atten: 30	PNO: Fast IFGain:Lov	5.78500	
Auto Tu	10 GHz 33 dBm	2 5.776 -10.6	Mkr				Im	ef 20.00 di	3/div F
Center Fi 5.785000000 G	-7.30 dBm			A 3	press	many for the may			
Start Fi 5.760000000 G		nd lot would be not go	-				anna	and water to the	
<b>Stop Fi</b> 5.810000000 G	een an							handrade and have been	plan & plands
CF S1 5.000000 M	0.00 MHz 1001 pts)	Span 50 500 ms (1	#Sweep			/BW 100 kHz	#V		ter 5.78 s BW 10
Auto N	N VALUE	FUNCTIO	NCTION WIDTH	CTION FU	Bm	-1.30 d -10.63 d	× 5.792 60 GHz 5.776 10 GHz		10de TRC N 1 N 1
Freq Off 0						-7.43 di	5.793 80 GHz		N 1
						0			

Product	:	WHDI Rx board
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	17700	>500	Pass

## Figure Channel 165:

3PM Oct 05, 2011 Frequen		ALIGNAUTO	Ava Type	ENSE:INT	SEI	CU-7	AC 00000 0	00 30	RI	or E	RL
DET P N N N N N	TYPE DET	. Log-i wi	018 I MA		Trig: Free Atten: 30	GEZ PNO: Fast IFGain:Low	1	5.8250	req	er Fi	ent
6 10 GHz Auto 0.12 dBm		Mkr					1Bm	f 20.00 (	Re	/div	dB
Cente			1	_	_						
-6.50 dBm 5.82500000			unand 3	An	al hour and	2					.00
				w		Ĵ					).0 - ).0 -
Star		1		-		1					0.0
5.8000000	Another and the second	John Laboration		-		w	and the second	-hardensensensensen	Manya Ale		0.0
								Sanda en		and the second	.0 -
5.8500000											).0 - ).0 -
50.00 MHz (1001 pts) CF 5.0000		#Sweep		:	V 100 kHz	#VE		0 GHz kHz		er 5.8 BW	
	FUNCTION	NCTION WIDTH	CTION FU	Due	Y -0.50 dl	2 60 GHz	X			ODE TE N 1	
				Bm	-10.12 di	6 10 GHz	5.816			N 1 N 1	2 1
Freq			1	Bm	-7.63 dl	3 80 GHz	5.833		1 T	N 1	1
											5
											7 3
											)
									- I.		1

Product	:	WHDI Rx board
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW (5755MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	33050	>500	Pass

## Figure Channel 151:

nter Freg 5.7550		SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	08:08:08 PM Oct 05, 2011 TRACE 1 2 3 4 5 6	Frequency
	PNO: Fast ( IFGain:Low	Trig: Free Run Atten: 30 dB		DET P N N N N	
dB/div Ref 20.00	dBm		Mkr	2 5.738 35 GHz -9.79 dBm	Auto Tur
<b>g</b> 0.0		41			Center Fre
	and the start and a start and a start and a start a sta		and the state of t	-7.49 dBm	5.755000000 G
.0					01-15
.0				- mark	Start Fr 5.730000000 G
1.0 <b>Augustum</b>				"htman water	
					Stop Fr
.0	×				5.780000000 G
enter 5.75500 GHz les BW 100 kHz	#VE	SW 100 kHz	#Sweep	Span 50.00 MHz 500 ms (1001 pts)	CF St 5.000000 M
R MODE TRC SCL	× 5.754 95 GHz	-1.49 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto N
N 1 1 N 1 f 3 N 1 f	5.738 35 GHz 5.771 40 GHz	-1.49 dBm -9.79 dBm -8.66 dBm			
	0.77140 0112	-0.00 ubm			Freq Offs
3					
3					

WHDI Rx board
Occupied Bandwidth Data
No.3 OATS
Mode 2: Transmit - 40BW (5795MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	33200	>500	Pass

## Figure Channel 159:

RL RF 50 S		SENSE:INT	ALIGNAUTO	08:15:49 PM Oct 05, 2011	Frequency
enter Freq 5.7950	100000 GHz PNO: Fast IFGain:Low	Trig: Free Run Atten: 30 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	
dB/div Ref 20.00	dBm		Mkr	2 5.778 35 GHz -10.49 dBm	Auto Tu
9 <b>9</b> 0.0		1			Center Fr
00 <u>2</u>	an a like Marcon a start Arrive	hashalan har har	man Man manager Arth and ma	3 -7.97 dBm	5.795000000 G
.0					
.0		w w		Jose me	Start Fr
1.0 managener				Ne Manufacture	5.770000000 0
.0					
.0					Stop Fi
.0		· · · · · · · · · · · · · · · · · · ·			5.820000000 0
enter 5.79500 GHz tes BW 100 kHz	#VE	3W 100 kHz	#Sweep	Span 50.00 MHz 500 ms (1001 pts)	CF St
R MODE TRC SCL	× *				5.000000 N Auto N
N   1   f	5.794 95 GHz	-1.97 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto
2 N 1 F 3 N 1 F	5.778 35 GHz 5.811 55 GHz	-10.49 dBm -9.68 dBm			
	0.01100 0112	-0.00 0.511			Freq Off
3					0
3					
			1		

## 8. **Power Density**

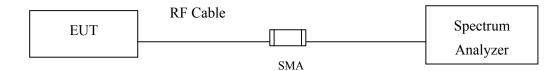
## 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

#### 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

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

## 8.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements. Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

## 8.5. Uncertainty

± 1.27 dB

# 8.6. Test Result of Power Density

Product	:	WHDI Rx board
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW (5745MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745.00	-7.15	< 8dBm	Pass

## Figure Channel 149:

enter Freq 5.740		SENSE:INT Trig: Free Run Atten: 30 dB	ALIGNAUTO Avg Type: Log-Pwr	07:30:47 PM Oct 05, 2011 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
0 dB/div Ref 20.00			Mkr1 5.	740 796 3 GHz -7.15 dBm	Auto Tun
0.0					Center Fre 5.740820000 GH
0.0		↑ <sup>1</sup>		<u></u>	Start Fre 5.740670000 GH
0.0 martinet	howeverselaparinabilities	n Warnerskerkinster	and and an another work and and	maddiller franker a terret	<b>Stop Fr</b> 5.740970000 G
D.0					CF Ste 30.000 k <u>Auto</u> M
0.0					Freq Offs 0
enter 5.7408200 Gł				Span 300.0 kHz	
Res BW 3.0 kHz		10 kHz	#Sweep	100 s (1001 pts)	

Product	:	WHDI Rx board
Test Item	:	Power Density Data
Test Site	:	No.3OATS
Test Mode	:	Mode 1: Transmit - 20BW (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
157	5785.000	-5.53	< 8dBm	Pass

## Figure Channel 157:

RL RF 50	Ω AC	SENSE:INT	ALIGNAUTO	07:38:51 PM Oct 05, 2011	
enter Freq 5.792	595000 GHz PNO: Far	7	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Frequency
dB/div Ref 20.00	IFGain:Low	Allen. 30 dB	Mkr1 5.	792 601 6 GHz -5.53 dBm	Auto Tun
0.0					Center Fre 5.792595000 GH
0.0					<b>Start Fr</b> 5.792445000 G
	ere land and hold and be a start and	and with the second second	and the alought and an all and a	unification /	<b>Stop Fr</b> 5.792745000 G
0.0					CF Sto 30.000 k <u>Auto</u> M
0.0					Freq Offs 0
0.0					
enter 5.7925950 GH Res BW 3.0 kHz		W 10 kHz	#Sweep	Span 300.0 kHz 0 100 s (1001 pts)	
G			STATUS		

Product	:	WHDI Rx board
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 20BW (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
165	5825.00	-5.99	< 8dBm	Pass

## Figure Channel 165:

RL	R	F 50 Ω	AC		SE	NSE:INT		ALIGNAUTO		PM Oct 05, 2011	<b>F</b> -1	
enter	r Freq	5.8224		GHz PNO: Far 🕞 FGain:Low	Trig: Fre		Avg Typ	e: Log-Pwr	TY	CE 123456 (PE MWWWWW DET P N N N N N	F	equency
0 dB/di	iv Re	ef 20.00 (		rGam.Low	And the second s			Mkr1 5.8		1 8 GHz 99 dBm		Auto Tun
10.0												enter Fre 2460000 Gi
0.00 — 0.0 —	A					1				Λ	5.822	<b>Start Fr</b> 2310000 G
0.0	North Star	-Mithen Antaly	and the second second	un and an	an again the produce of	hjuhahman	hall the second	hilipigel a production of	lynny weehdd	and that has	5.822	<b>Stop Fr</b> 2610000 G
0.0											<u>Auto</u>	CF Sto 30.000 k M
0.0											F	Freq Offs 0
'0.0 —												
	5.8224 W 3.0	4600 GH: kHz	Z	#VBV	v 10 kHz	<u> </u>	1	#Sweep		300.0 kHz (1001 pts)		
	13 Y D 10 000 40 00	t Complete	od	Konstanti Cha Go				STATUS				

Product	:	WHDI Rx board
Test Item	:	Power Density Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 40BW (5755MHz)

Channel No.	FrequencyMeasure Level(MHz)(dBm)		Limit (dBm)	Result
151	5755.00	-1.79	< 8dBm	Pass

## Figure Channel 151:

gilent Spectrum Analyzer - Sw A RL RF 50 S		SENSE:INT	ALIGNAUTO	08:07:18 PM Oct 05, 2011	
Center Freq 5.7549		1	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N	Frequency
0 dB/div Ref 20.00		Attent of the	Mkr1 5.3	754 961 4 GHz -1.79 dBm	Auto Tun
10.0					Center Fre 5.754965000 G⊦
0.00					<b>Start Fre</b> 5.754815000 GH
30.0					<b>Stop Fre</b> 5.755115000 GH
10.0 pr	y alman hall more more all	respondential for the second of the second o	of when the second s		CF Ste 30.000 kł <u>Auto</u> Ma
0.0					Freq Offs 01
70.0 Center 5.7549650 GH		10 kHz	#Sweep	Span 300.0 kHz 100 s (1001 pts)	
sg	<i>"</i> <b>* D v</b>	1 1 11 12	STATUS	100 5 (1001 pt3)	

Product	:	WHDI Rx board
Test Item	:	Power Density Data
Test Site	:	No.3OATS
Test Mode	:	Mode 2: Transmit - 40BW (5795MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
159	5795.000	-2.29	< 8dBm	Pass

## Figure Channel 159:

Agilent Spectrum A									
	RL RF 50 Ω AC enter Freq 5.794960000 GHz			SENSE:INT		ALIGN AUTO Avg Type: Log-Pwr		1 Oct 05, 2011	Frequency
Center Freq	5.794960000	GHZ PNO: Far 😱 IFGain:Low	Trig: Fre Atten: 30		AVg Type	.: Log-Pwr Mkr1 5.	TYPE	123456 MWWWWW PNNNNN 5 GHz	Auto Tun
0 dB/div Re	ef 20.00 dBm							9 dBm	Center Fre
0.00				1					5.794960000 GH
10.0									<b>Start Fre</b> 5.794810000 GH
30.0									<b>Stop Fre</b> 5.795110000 GH
40.0 pp/ /unatu	ryhine and Duillean Pallagin	free dealers of the sector of	HANNIN PARAM	layalandari	g Aparenti Aparenti	hinine durch and	in the second second	planter Aug	CF Ste 30.000 ki <u>Auto</u> Mi
50.0									Freq Offs 01
70.0									
Center 5.7949 #Res BW 3.0		#VBW	10 kHz			#Sweep		00.0 kHz 1001 pts)	
ISG						STATUS			

# 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.