

FC

Test Report

Product Name	ROS Video DMA
Model No	005-01004
FCC ID.	BJM-ROS1000A

Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 10451, R.O.C.

Date of Receipt	Apr. 01, 2010
Issue Date	May. 10, 2010
Report No.	104110R-RFUSP42V01
Report Version	V0.1-Draft

The test results relate only to the samples tested.

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

Test Report Certification

Issue Date: May. 10, 2010

Report No.: 104110R-RFUSP42V01



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name	ROS Video DMA
Applicant	TATUNG CO.
Address	22, Chungshan N. Rd., 3rd Sec. Taipei, Taiwan, 10451, R.O.C.
Manufacturer	TATUNG CO.
Model No.	005-01004
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	Prodea Systems
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2009 ANSI C63.4: 2003
Test Result	Complied



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Testing Laboratory

0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ROS Video DMA
Trade Name	Prodea Systems
Model No.	005-01004
FCC ID.	BJM-ROS1000A
Frequency Range	2412-2462MHz, 5745-5825MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 5, n-40MHz: 2
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: 6.5-300Mbps
Channel separation	802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz 802.11n-40MHz: 40MHz
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11a/g/n: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	PIFA
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: UMEC, M/N: UP0251B-12PA Input: AC 100-240V, 50-60Hz, 0.6A Output: DC 12V, 2.1A, 25W Cable Out: Non-Shielded, 1.7m
Contain Module	U-MEDIA / WMD-702K

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	FAVORTRON	E773700180 (Main) E773700180 (Aux) E773700180 (MIMO)	4.69dBi in 2.4 GHz 2.97dBi in 5GHz

Note: The antenna of EUT is conform to FCC 15.203

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11a/n-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						

802.11n-40MHz (2.4G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2422 MHz	Channel 2:	2427 MHz	Channel 3:	2432 MHz	Channel 4:	2437 MHz
Channel 5:	2442 MHz	Channel 6:	2447 MHz	Channel 7:	2452 MHz		

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

Channel	Frequency	Channel	Frequency
Channel 151:	5755 MHz	Channel 159:	5795 MHz

Note:

1. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
2. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 13Mbps and 、802.11n(40M-BW) is 27Mbps)
3. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11a/b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices

1.2. Operational Description

The EUT is a ROS Video DMA with a built-in 2.4GHz and 5GHz WLAN card. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11a/g).

The device provided of eight kinds of transmitting speed 13,26,39,52,78,104,117 and 130Mbps in 802.11n(20BW) mode and 27,54,81,108,162,216,243 and 270Mbps(40BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n), the IEEE 802.11n is Multiple In, Multiple Out" (MIMO) technology.

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function and the antennas to support 2(Transmit) × 3(Receive) MIMO technology.

This ROS Video DMA, compliant with IEEE 802.11b and IEEE 802.11a/g/n, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz/5GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the ROS Video DMA Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11a/g/n network.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmitter - 802.11a 6Mbps
	Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band)
	Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band)
	Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band)
	Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band)

NOTE: 802.11a/b/g are tested by Chain A.
802.11n-20MHz / n-40MHz are tested by Chain A + Chain B.

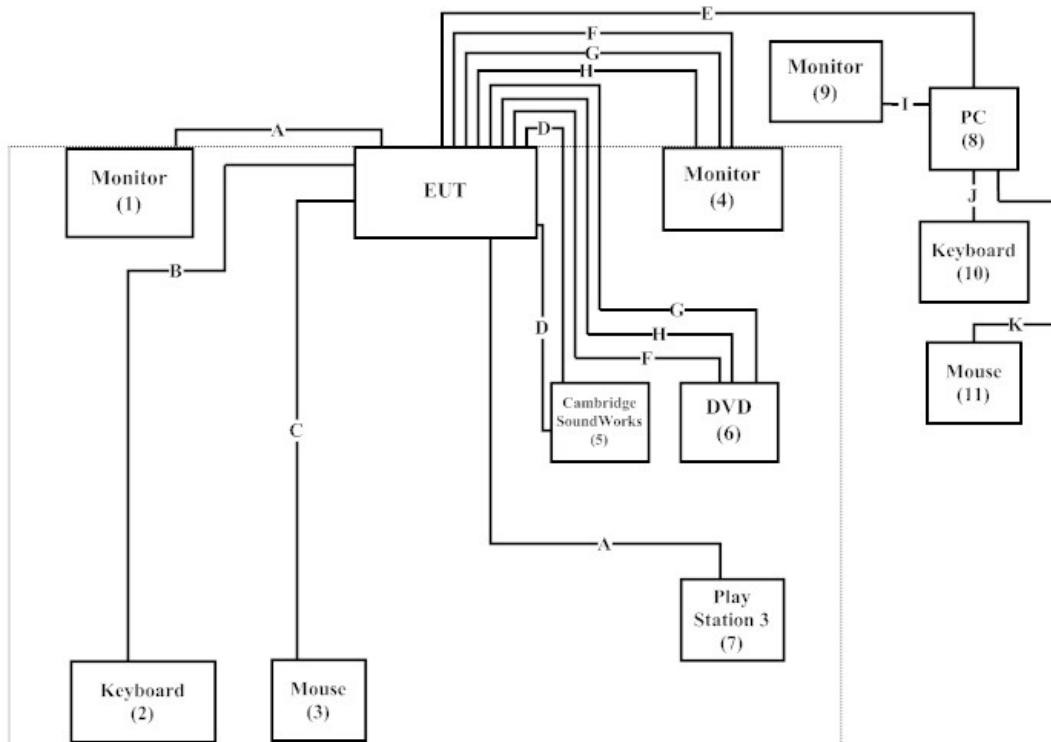
1.3. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Monitor	Dell	U2410f	CN-0J257M-72872-985-0JML	Non-Shielded, 1.8m
2 Keyboard	Logitech	Y-UR83	SY848UK	N/A
3 USB Mouse	Logitech	M-UAL-96	LZ923A40023	N/A
4 Monitor	Panasonic	TC-26VPK	N/A	Non-Shielded, 1.8m
5 Cambridge SoundWorks	Creative	S80130	AM01302400003563	Non-Shielded, 1.9m
6 DVD PLAYER	Panasonic	DVD-S97	VC6GG001063R	Non-Shielded, 1.9m
7 Play Station 3	SONY	CECHL07	03-27438581-4506054-CECHL07	Non-Shielded, 1.8m
8 PC	N/A	N/A	N/A	Non-Shielded, 1.8m
9 Monitor	Dell	2408WFPb	CN-0G293H-74261-95M-1H6S	N/A
10 Keyboard	COMPAQ	KB-0133	B55940MGAPK00K	N/A
11 Mouse	HP	M-S69	N/A	N/A

Signal Cable Type	Signal cable Description
A HDMI Cable	Shielded, 1.8m, two PCS.
B Keyboard Cable	Shielded, 1.8m
C Mouse Cable	Shielded, 1.8m
D Fiber Cable	Non-Shielded, 1.5m, two PCS.
E LAN Cable	Non-Shielded, 5.0m
F S-Video Cable	Shielded, 1.6m, two PCS.
G RCA Cable	Non-Shielded, 1.2m, two PCS.
H YPbPr Cable	Non-Shielded, 1.2m, two PCS.
I D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
J PS/ 2 Keyboard Cable	Shielded, 1.8m
K PS/ 2 Mouse Cable	Shielded, 1.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4
- (2) Execute the “DUT GUI” program (the continuous transmission program) on the EUT.
- (3) Setup the test mode, the test channel, and the data rate.
- (4) Press OK to start the transmission.
- (5) Verify that the EUT works correctly.

1.3.1

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://tw.quietek.com/tw/emc/accreditations/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
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 Registration Number: 92195



Accreditation on NVLAP
 NVLAP Lab Code: 200533-0



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FCC Accreditation Number: TW1014



2. Conducted Emission

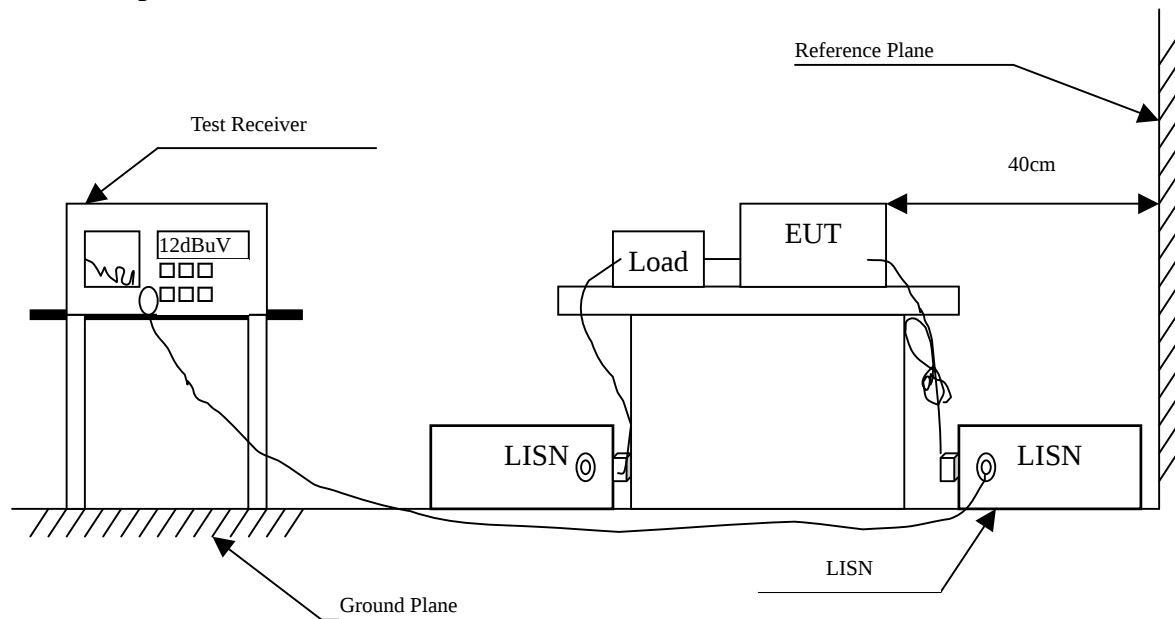
2.1. Test Equipment

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 instruments 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	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: 2003 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 : ROS Video DMA
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
Line 1					
Quasi-Peak					
0.177	9.730	44.100	53.829	-11.400	65.229
0.232	9.685	36.440	46.125	-17.532	63.657
0.306	9.650	26.860	36.510	-25.033	61.543
0.420	9.643	31.260	40.903	-17.383	58.286
0.482	9.640	29.630	39.270	-17.244	56.514
20.634	9.910	17.080	26.990	-33.010	60.000
Average					
0.177	9.730	40.690	50.419	-4.810	55.229
0.232	9.685	27.730	37.415	-16.242	53.657
0.306	9.650	18.270	27.920	-23.623	51.543
0.420	9.643	28.130	37.773	-10.513	48.286
0.482	9.640	24.820	34.460	-12.054	46.514
20.634	9.910	12.170	22.080	-27.920	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 : ROS Video DMA
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2437MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.177	9.736	42.680	52.416	-12.813	65.229
0.236	9.692	34.930	44.622	-18.921	63.543
0.302	9.660	26.500	36.160	-25.497	61.657
0.420	9.650	28.080	37.730	-20.556	58.286
0.486	9.640	28.970	38.610	-17.790	56.400
2.037	9.680	21.190	30.870	-25.130	56.000
Average					
0.177	9.736	33.800	43.536	-11.693	55.229
0.236	9.692	24.410	34.102	-19.441	53.543
0.302	9.660	21.500	31.160	-20.497	51.657
0.420	9.650	24.800	34.450	-13.836	48.286
0.486	9.640	21.210	30.850	-15.550	46.400
2.037	9.680	11.230	20.910	-25.090	46.000

Note:

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

Product : ROS Video DMA
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.181	9.724	43.590	53.314	-11.800	65.114
0.240	9.680	37.230	46.910	-16.519	63.429
0.302	9.650	27.140	36.790	-24.867	61.657
0.361	9.650	24.750	34.400	-25.571	59.971
0.420	9.643	31.240	40.883	-17.403	58.286
0.486	9.640	29.450	39.090	-17.310	56.400
Average					
0.181	9.724	37.770	47.494	-7.620	55.114
0.240	9.680	35.040	44.720	-8.709	53.429
0.302	9.650	24.510	34.160	-17.497	51.657
0.361	9.650	16.580	26.230	-23.741	49.971
0.420	9.643	27.700	37.343	-10.943	48.286
0.486	9.640	24.530	34.170	-12.230	46.400

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 : ROS Video DMA
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.177	9.736	42.730	52.466	-12.763	65.229
0.236	9.692	34.870	44.562	-18.981	63.543
0.298	9.660	26.980	36.640	-25.131	61.771
0.349	9.657	23.190	32.847	-27.467	60.314
0.420	9.650	28.020	37.670	-20.616	58.286
0.478	9.640	28.660	38.300	-18.329	56.629
Average					
0.177	9.736	29.040	38.776	-16.453	55.229
0.236	9.692	24.610	34.302	-19.241	53.543
0.298	9.660	22.330	31.990	-19.781	51.771
0.349	9.657	10.020	19.677	-30.637	50.314
0.420	9.650	25.240	34.890	-13.396	48.286
0.478	9.640	22.350	31.990	-14.639	46.629

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 Power Output

3.1. Test Equipment

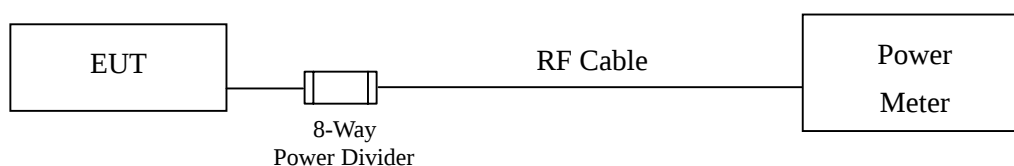
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2010
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2009
X	8-WAY Power Divider	JFW	50PD-647 / 526770 0916	Apr., 2010

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.

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 : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	16.11	--	--	--	18.88	<30dBm	Pass
06	2437	16.15	16.11	16.08	16.07	19.12	<30dBm	Pass
11	2462	16.13	--	--	--	18.92	<30dBm	Pass

Note: 1. Peak Power Output Value = Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	16.28	--	--	--	--	--	--	--	24.78	<30dBm	Pass
06	2437	16.16	16.10	16.13	16.11	16.09	16.08	15.96	15.92	24.65	<30dBm	Pass
11	2462	16.30	--	--	--	--	--	--	--	24.98	<30dBm	Pass

Note: 1. Peak Power Output Value = Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
149	5745.00	15.83	--	--	--	--	--	--	--	23.65	<30dBm	Pass
157	5785.00	15.93	15.92	15.9	15.88	15.87	15.86	15.85	15.82	23.67	<30dBm	Pass
165	5825.00	15.89	--	--	--	--	--	--	--	23.63	<30dBm	Pass

Note: 1. Peak Power Output Value = Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		13	26	39	52	78	104	117	130	13		
		Measurement Level (dBm)										
01	2412	16.11	--	--	--	--	--	--	--	25.38	<30dBm	Pass
06	2437	16.25	16.23	16.21	16.19	16.17	16.15	16.13	16.09	25.49	<30dBm	Pass
11	2462	16.24	--	--	--	--	--	--	--	25.51	<30dBm	Pass

Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		27	54	81	108	162	216	243	270			
		Measurement Level (dBm)										
01	2422	16.13	--	--	--	--	--	--	--	25.88	<30dBm	Pass
04	2437	16.15	16.14	16.12	16.1	16.09	16.07	16.05	16.02	25.93	<30dBm	Pass
07	2452	16.21	--	--	--	--	--	--	--	25.96	<30dBm	Pass

Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		13	26	39	52	78	104	117	130	13		
		Measurement Level (dBm)										
149	5745.00	15.86	--	--	--	--	--	--	--	25.38	<30dBm	Pass
157	5785.00	15.72	15.7	15.68	15.66	15.64	15.61	15.6	15.59	25.33	<30dBm	Pass
165	5825.00	15.91	--	--	--	--	--	--	--	25.34	<30dBm	Pass

Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss
 2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

Product : ROS Video DMA
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band)

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		27	54	81	108	162	216	243	270	27		
		Measurement Level (dBm)										
151	5755	15.78	15.77	15.75	15.73	15.71	15.68	15.66	15.63	25.49	<30dBm	Pass
159	5795	15.82	--	--	--	--	--	--	--	25.51	<30dBm	Pass

Note: 1. Peak Power Output Value =Reading value on peak power meter + cable loss

2. Using 8-Way Power Divider (factor =10dB), to compensate in the spectrum.

4. Radiated Emission

4.1. Test Equipment

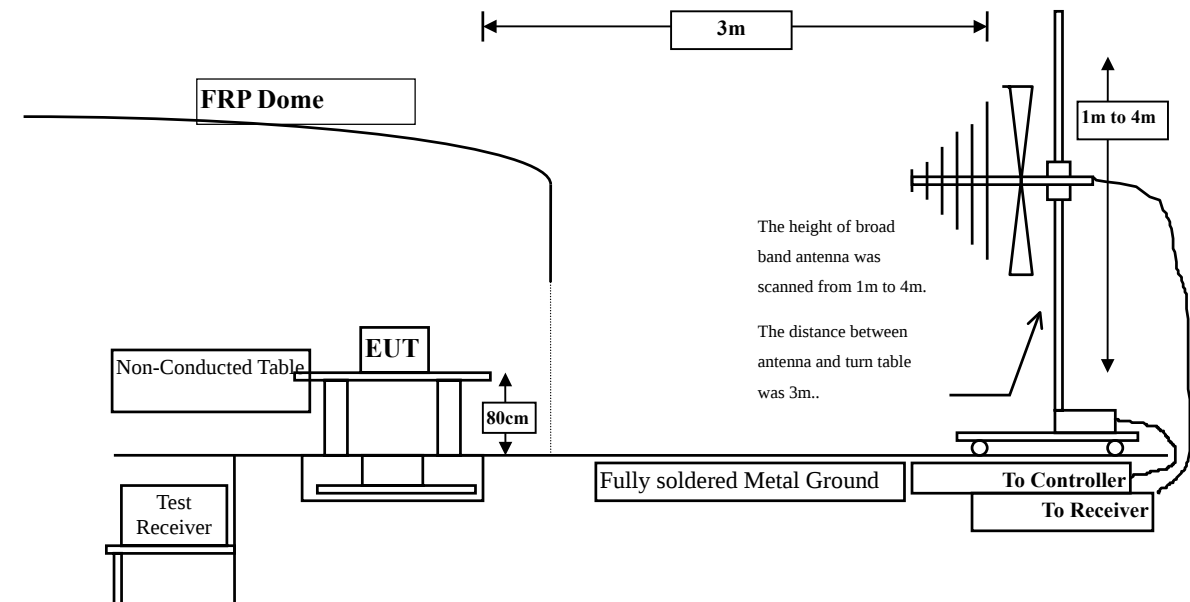
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2009
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	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

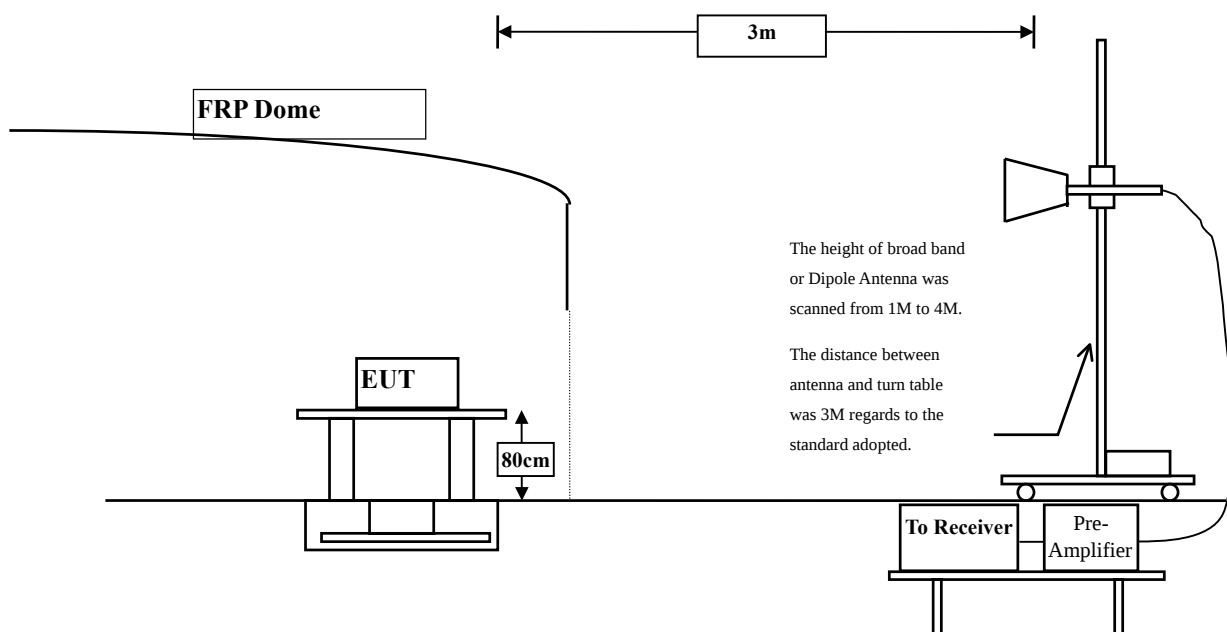
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
 2. The test instruments marked with “X” are used to measure the final test results.

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, 2003 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 C63.4:2003 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 from 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 : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	44.410	47.671	-26.329	74.000
7236.000	10.650	35.970	46.620	-27.380	74.000
9648.000	13.337	36.160	49.496	-24.504	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	6.421	42.610	49.031	-24.969	74.000
7236.000	11.495	35.830	47.325	-26.675	74.000
9648.000	13.807	36.100	49.906	-24.094	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	41.005	44.042	-29.958	74.000
7311.000	11.795	34.980	46.774	-27.226	74.000
9748.000	12.635	36.990	49.625	-24.375	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	42.110	47.921	-26.079	74.000
7311.000	12.630	36.390	49.019	-24.981	74.000
9748.000	13.126	36.010	49.136	-24.864	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	37.600	40.457	-33.543	74.000
7386.000	12.127	35.040	47.168	-26.832	74.000
9848.000	12.852	36.260	49.113	-24.887	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	37.140	42.660	-31.340	74.000
7386.000	13.254	35.060	48.314	-25.686	74.000
9848.000	13.367	35.880	49.247	-24.753	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.261	46.130	49.391	-24.609	74.000
7236.000	10.650	60.890	71.540	-2.460	74.000
9648.000	13.337	38.210	51.546	-22.454	74.000
Average					
Detector:					
7236.000	10.650	32.460	43.110	-10.890	54.000
Vertical					
Peak Detector:					
4824.000	6.421	47.800	54.221	-19.779	74.000
7236.000	11.495	60.770	72.265	-1.735	74.000
9648.000	13.807	39.290	53.096	-20.904	74.000
Average					
Detector:					
4824.000	6.421	33.960	40.381	-13.619	54.000
7236.000	11.495	27.990	39.485	-14.515	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	44.970	48.007	-25.993	74.000
7311.000	11.795	58.630	70.424	-3.576	74.000
9748.000	12.635	40.430	53.065	-20.935	74.000
Average					
Detector:					
7311.000	11.795	30.750	42.544	-11.456	54.000
Vertical					
Peak Detector:					
4874.000	5.812	47.960	53.771	-20.229	74.000
7311.000	12.630	60.220	72.849	-1.151	74.000
9748.000	13.126	42.380	55.506	-18.494	74.000
Average					
Detector:					
7311.000	12.630	29.000	41.629	-12.371	54.000
9748.000	13.126	26.270	39.396	-14.604	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	43.420	46.277	-27.723	74.000
7386.000	12.127	54.220	66.348	-7.652	74.000
9848.000	12.852	37.870	50.723	-23.277	74.000
Average Detector:					
7386.000	12.127	29.160	41.288	-12.712	54.000
Vertical					
Peak Detector:					
4924.000	5.521	46.930	52.450	-21.550	74.000
7386.000	13.254	55.750	69.004	-4.996	74.000
9848.000	13.367	39.930	53.297	-20.703	74.000
Average Detector:					
7386.000	13.254	27.420	40.674	-13.326	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps (5745 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	50.030	67.137	-6.863	74.000
Average					
Detector:					
11490.000	17.106	29.380	46.487	-7.513	54.000
Vertical					
Peak Detector:					
11490.000	18.034	47.600	65.535	-8.365	74.000
Average					
Detector:					
11490.000	18.034	25.250	43.285	-10.715	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	16.809	49.600	66.409	-7.591	74.000
Average					
Detector:					
11570.000	16.809	27.790	44.599	-9.401	54.000
Vertical					
Peak Detector:					
11570.000	17.698	45.520	63.218	-10.782	74.000
Average					
Detector:					
11570.000	17.698	28.410	46.108	-7.892	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps (5825 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11650.000	16.158	51.350	67.508	-6.492	74.000
Average					
Detector:					
11650.000	16.158	27.210	43.368	-10.632	54.000
Vertical					
Peak Detector:					
11650.000	17.274	49.380	66.655	-7.345	74.000
Average					
Detector:					
11650.000	17.274	28.520	45.795	-8.205	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band) (2412MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector:

4824.000	3.261	39.150	42.411	-31.589	74.000
7236.000	10.650	38.650	49.300	-24.700	74.000
9648.000	13.337	36.150	49.486	-24.514	74.000

Average

Detector:

--

Vertical

Peak Detector:

4824.000	6.421	43.050	49.471	-24.529	74.000
7236.000	11.495	36.600	48.095	-25.905	74.000
9648.000	13.807	36.020	49.826	-24.174	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	39.030	42.067	-31.933	74.000
7311.000	11.795	39.320	51.114	-22.886	74.000
9748.000	12.635	36.530	49.165	-24.835	74.000
Average					
Detector:					
--					
Vertical					
Peak Detector:					
4874.000	5.812	42.140	47.951	-26.049	74.000
7311.000	12.630	37.100	49.729	-24.271	74.000
9748.000	13.126	36.310	49.436	-24.564	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4924.000	2.858	38.220	41.077	-32.923	74.000
7386.000	12.127	37.150	49.278	-24.722	74.000
9848.000	12.852	35.840	48.693	-25.307	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	5.521	40.570	46.090	-27.910	74.000
7386.000	13.254	36.390	49.644	-24.356	74.000
9848.000	13.367	35.920	49.287	-24.713	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2422MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal

Peak Detector:

4844.000	3.171	39.930	43.101	-30.899	74.000
7266.000	11.162	40.410	51.572	-22.428	74.000
9688.000	12.964	36.830	49.795	-24.205	74.000

Average

Detector:

--

Vertical

Peak Detector:

4844.000	6.178	41.160	47.338	-26.662	74.000
7266.000	11.982	37.700	49.682	-24.318	74.000
9688.000	13.507	36.670	50.178	-23.822	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.038	39.340	42.377	-31.623	74.000
7311.000	11.795	44.280	56.074	-17.926	74.000
9748.000	12.635	36.980	49.615	-24.385	74.000
Average					
Detector:					
7311.000	11.795	23.750	35.544	-18.456	54.000
Vertical					
Peak Detector:					
4874.000	5.812	42.610	48.421	-25.579	74.000
7311.000	12.630	41.140	53.769	-20.231	74.000
9748.000	13.126	36.050	49.176	-24.824	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
4904.000	2.914	45.295	48.210	-25.790	74.000
7356.000	11.995	40.646	52.640	-21.360	74.000
9808.000	12.475	34.815	47.290	-26.710	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4904.000	5.530	41.369	46.900	-27.100	74.000
7356.000	13.005	40.276	53.280	-20.720	74.000
9808.000	12.901	35.409	48.310	-25.690	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band) (5745MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11490.000	17.106	49.030	66.137	-7.863	74.000
Average					
Detector:					
11490.000	17.106	29.020	46.127	-7.873	54.000
Vertical					
Peak Detector:					
11490.000	18.034	47.990	66.025	-7.975	74.000
Average					
Detector:					
11490.000	18.034	28.850	46.885	-7.115	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band) (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11570.000	16.809	48.520	65.329	-8.671	74.000
Average					
Detector:					
11570.000	16.809	28.650	45.459	-8.541	54.000
Vertical					
Peak Detector:					
11570.000	17.698	48.130	65.828	-8.172	74.000
Average					
Detector:					
11570.000	17.698	29.200	46.898	-7.102	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band) (5825 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector:					
11650.000	16.158	47.290	63.448	-10.552	74.000
Average Detector:					
11650.000	16.158	30.170	46.328	-7.672	54.000
Vertical					
Peak Detector:					
11650.000	17.274	49.010	66.285	-7.715	74.000
Average Detector:					
11650.000	17.274	28.480	45.755	-8.245	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11510.000	17.124	44.630	61.754	-12.246	74.000
Average					
Detector:					
11510.000	17.124	28.910	46.034	-7.966	54.000
Vertical					
Peak Detector:					
11510.000	18.081	45.260	63.341	-10.659	74.000
Average					
Detector:					
11510.000	18.081	27.780	45.861	-8.139	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band) (5795 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
11590.000	16.701	44.490	61.190	-12.810	74.000
Average					
Detector:					
11590.000	16.701	29.270	45.970	-8.030	54.000
Vertical					
Peak Detector:					
11590.000	17.567	45.940	63.506	-10.494	74.000
Average					
Detector:					
11590.000	17.567	28.230	45.796	-8.204	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	2.120	25.021	27.141	-12.859	40.000
99.840	-7.471	33.644	26.173	-17.327	43.500
322.940	-4.442	39.346	34.904	-11.096	46.000
456.800	-0.067	38.446	38.379	-7.621	46.000
679.900	2.870	35.262	38.132	-7.868	46.000
1000.000	9.119	26.950	36.069	-17.931	54.000
Vertical					
64.920	-5.683	37.878	32.195	-7.805	40.000
268.620	-8.842	44.868	36.026	-9.974	46.000
398.600	-4.678	40.802	36.124	-9.876	46.000
499.480	-0.852	39.875	39.023	-6.977	46.000
600.360	-2.833	42.402	39.569	-6.431	46.000
990.300	3.530	33.238	36.768	-17.232	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
31.940	-0.387	27.397	27.011	-12.989	40.000
216.240	-10.707	46.939	36.232	-9.768	46.000
268.620	-4.942	43.495	38.553	-7.447	46.000
431.580	-2.099	40.084	37.985	-8.015	46.000
749.740	3.320	36.800	40.120	-5.880	46.000
792.420	5.209	36.441	41.650	-4.350	46.000
Vertical					
35.820	-2.159	36.497	34.338	-5.662	40.000
268.620	-8.842	45.733	36.891	-9.109	46.000
365.620	-2.179	39.418	37.239	-8.761	46.000
540.220	0.121	39.313	39.434	-6.566	46.000
600.360	-2.833	43.005	40.172	-5.828	46.000
990.300	3.530	33.164	36.694	-17.306	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
30.000	2.120	24.617	26.737	-13.263	40.000
216.240	-10.707	47.216	36.509	-9.491	46.000
398.600	-2.268	39.602	37.334	-8.666	46.000
699.300	2.875	36.304	39.179	-6.821	46.000
864.200	5.671	32.190	37.861	-8.139	46.000
1000.000	9.119	26.059	35.178	-18.822	54.000
Vertical					
128.940	-4.128	37.002	32.874	-10.626	43.500
295.780	-7.455	43.190	35.735	-10.265	46.000
398.600	-4.678	41.536	36.858	-9.142	46.000
532.460	-0.563	40.411	39.848	-6.152	46.000
792.420	2.889	35.750	38.639	-7.361	46.000
990.300	3.530	32.465	35.995	-18.005	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	25.501	27.621	-12.379	40.000
216.240	-10.707	47.885	37.178	-8.822	46.000
398.600	-2.268	39.591	37.323	-8.677	46.000
641.100	1.348	38.287	39.635	-6.365	46.000
864.200	5.671	31.587	37.258	-8.742	46.000
998.060	8.386	27.167	35.553	-18.447	54.000
Vertical					
128.940	-4.128	36.419	32.291	-11.209	43.500
231.760	-8.848	42.543	33.695	-12.305	46.000
295.780	-7.455	43.971	36.516	-9.484	46.000
532.460	-0.563	40.671	40.108	-5.892	46.000
792.420	2.889	36.225	39.114	-6.886	46.000
990.300	3.530	33.069	36.599	-17.401	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band) (2437 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
216.240	-10.707	47.509	36.802	-9.198	46.000
398.600	-2.268	38.922	36.654	-9.346	46.000
499.480	0.048	40.050	40.098	-5.902	46.000
699.300	2.875	36.456	39.331	-6.669	46.000
749.740	3.320	36.991	40.311	-5.689	46.000
1000.000	9.119	26.870	35.989	-18.011	54.000
Vertical					
64.920	-5.683	38.974	33.291	-6.709	40.000
295.780	-7.455	43.572	36.117	-9.883	46.000
398.600	-4.678	42.479	37.801	-8.199	46.000
532.460	-0.563	40.593	40.030	-5.970	46.000
792.420	2.889	36.017	38.906	-7.094	46.000
990.300	3.530	33.415	36.945	-17.055	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band) (5785 MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	26.696	28.816	-11.184	40.000
216.240	-10.707	47.416	36.709	-9.291	46.000
398.600	-2.268	39.653	37.385	-8.615	46.000
699.300	2.875	37.375	40.250	-5.750	46.000
749.740	3.320	36.842	40.162	-5.838	46.000
1000.000	9.119	28.002	37.121	-16.879	54.000
Vertical					
64.920	-5.683	38.261	32.578	-7.422	40.000
233.700	-9.199	42.742	33.543	-12.457	46.000
398.600	-4.678	41.541	36.863	-9.137	46.000
532.460	-0.563	40.695	40.132	-5.868	46.000
749.740	2.510	35.707	38.217	-7.783	46.000
990.300	3.530	32.802	36.332	-17.668	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. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : ROS Video DMA
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band) (5755MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
30.000	2.120	26.191	28.311	-11.689	40.000
216.240	-10.707	47.364	36.657	-9.343	46.000
398.600	-2.268	38.818	36.550	-9.450	46.000
532.460	1.957	38.224	40.181	-5.819	46.000
699.300	2.875	37.238	40.113	-5.887	46.000
864.200	5.671	33.074	38.745	-7.255	46.000
Vertical					
30.000	1.020	27.391	28.411	-11.589	40.000
64.920	-5.683	39.307	33.624	-6.376	40.000
128.940	-4.128	36.223	32.095	-11.405	43.500
231.760	-8.848	42.463	33.615	-12.385	46.000
396.660	-4.356	40.636	36.280	-9.720	46.000
749.740	2.510	36.250	38.760	-7.240	46.000

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. The average measurement was not performed when the peak measured data under the limit of average detection.

5. RF antenna conducted test

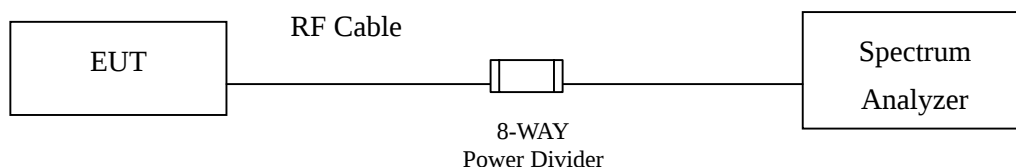
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
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

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

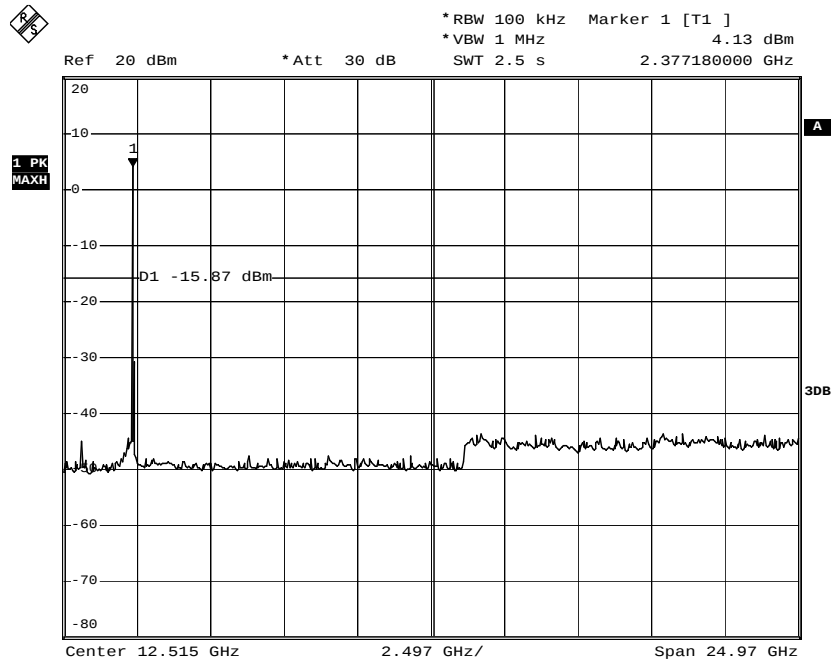
The measurement uncertainty

Conducted is defined as $\pm 1.27\text{dB}$

5.6. Test Result of RF antenna conducted test

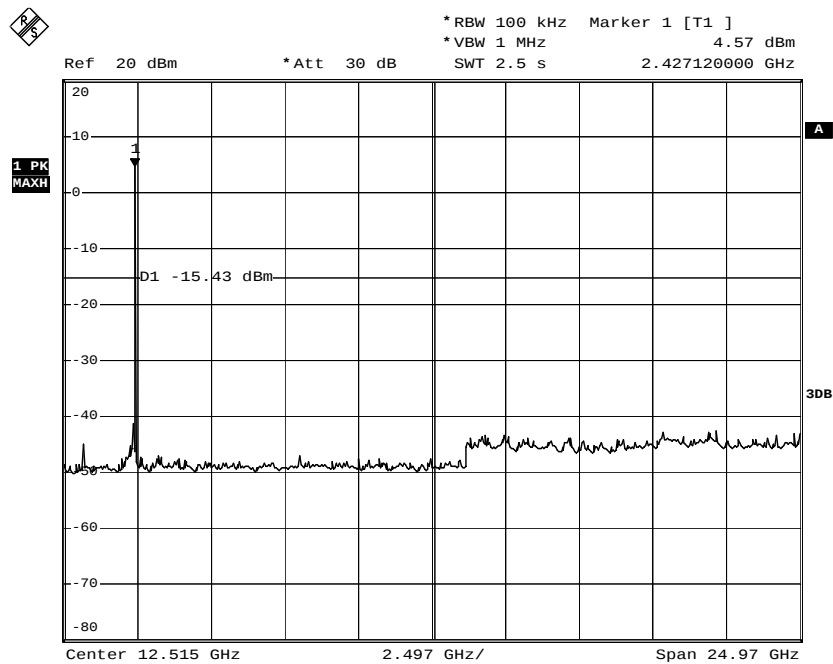
Product : ROS Video DMA
 Test Item : RF antenna conducted test
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz) 30MHz-25GHz



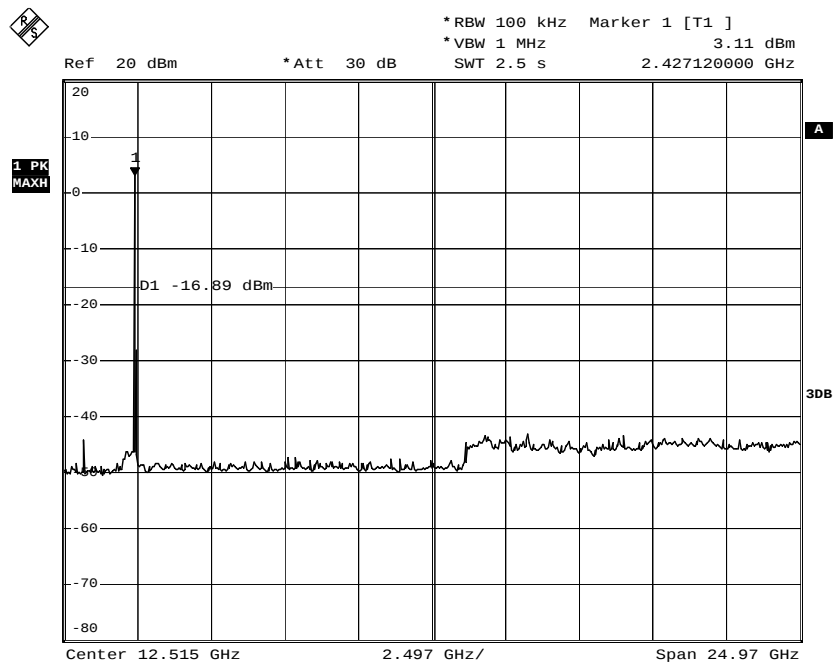
Date: 3.MAY.2010 09:30:02

Channel 06 (2437MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:31:35

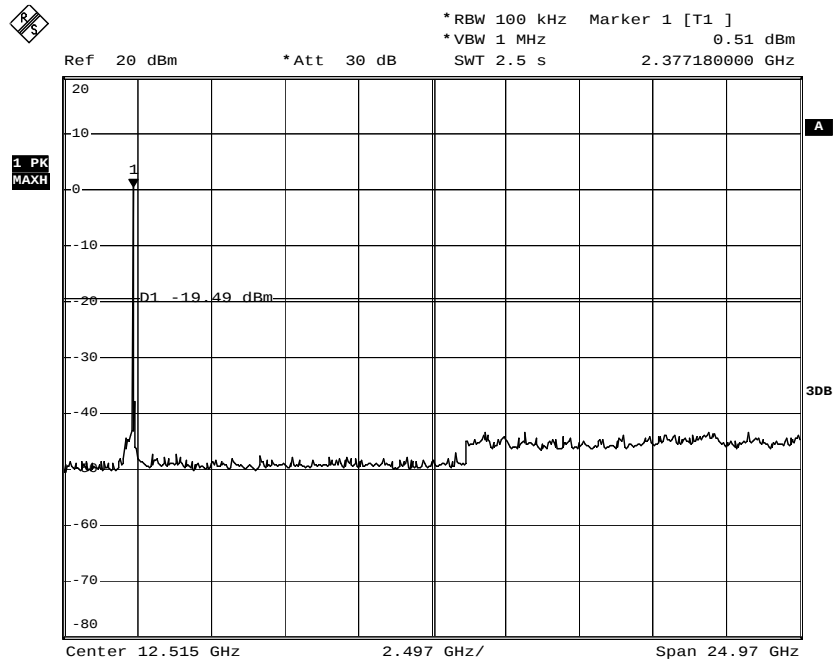
Channel 11 (2462MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:33:21

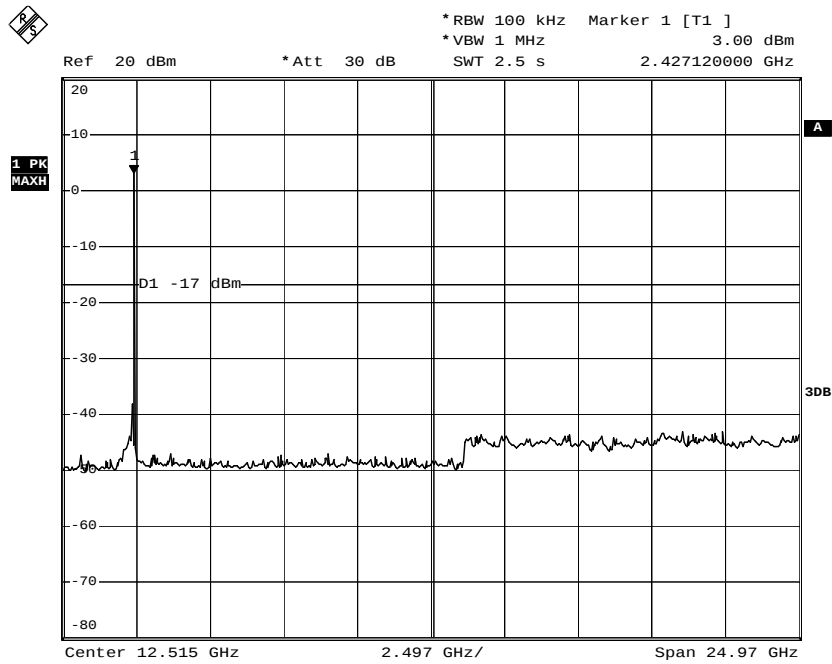
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz) 30MHz -25GHz



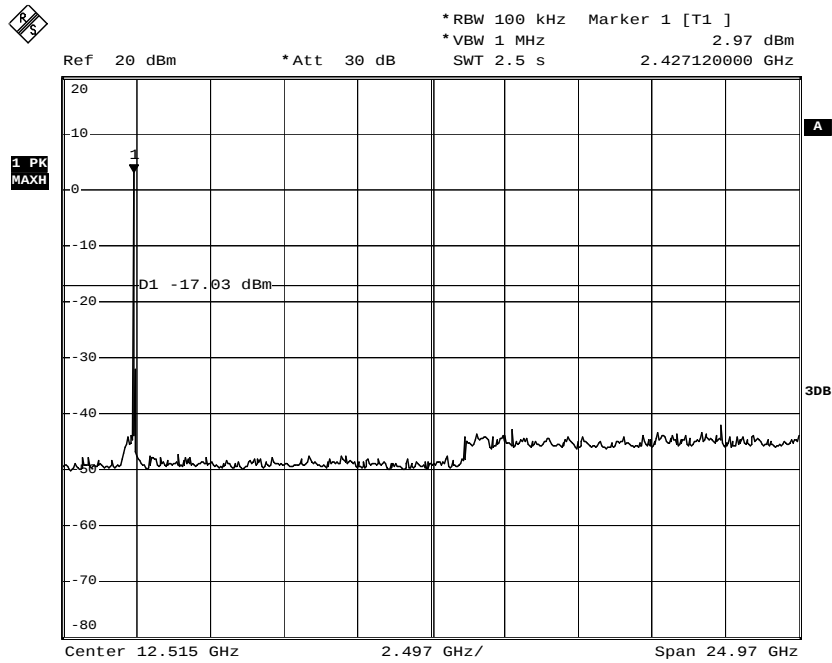
Date: 3.MAY.2010 09:35:02

Channel 06 (2437MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:36:51

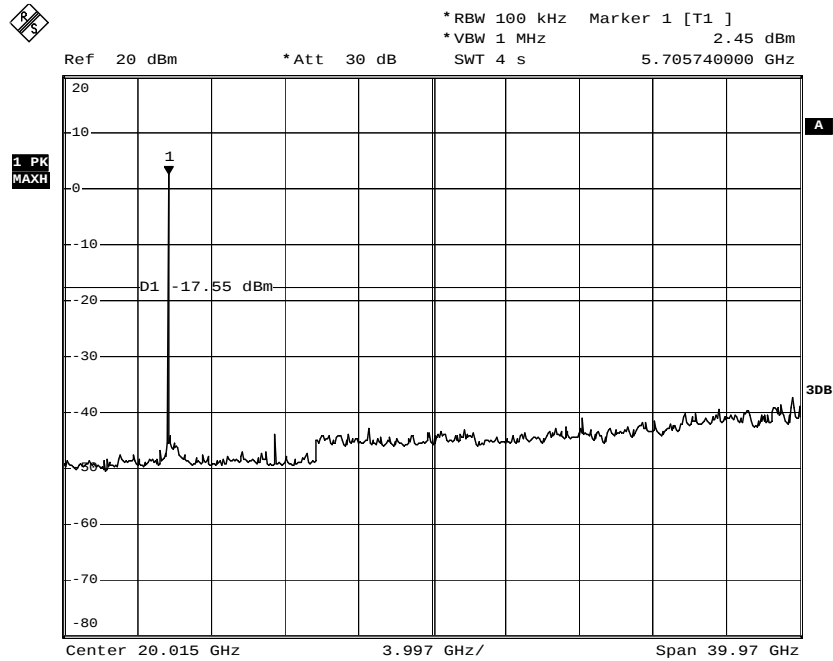
Channel 11 (2462MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:38:25

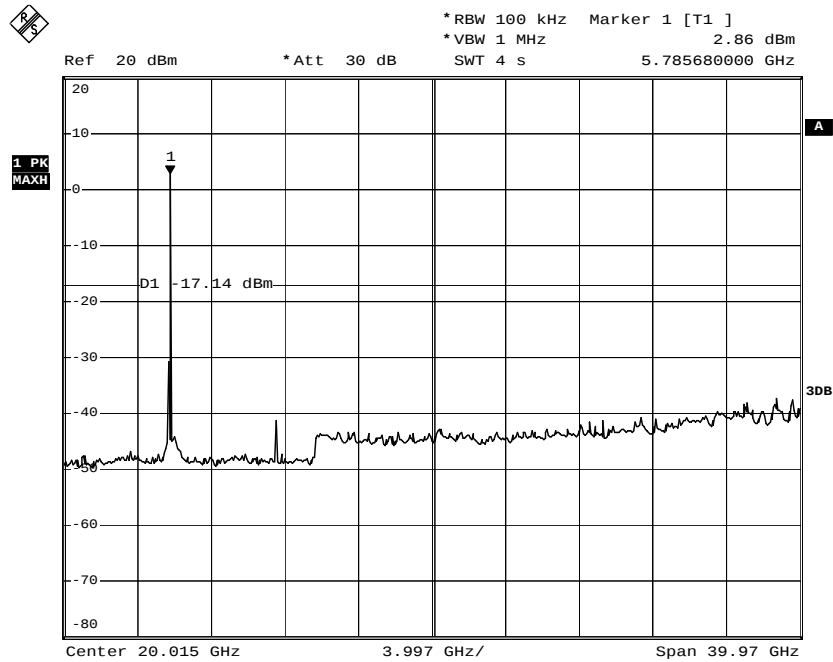
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter - 802.11a 6Mbps

Channel 149 (5745MHz) 30MHz -40GHz



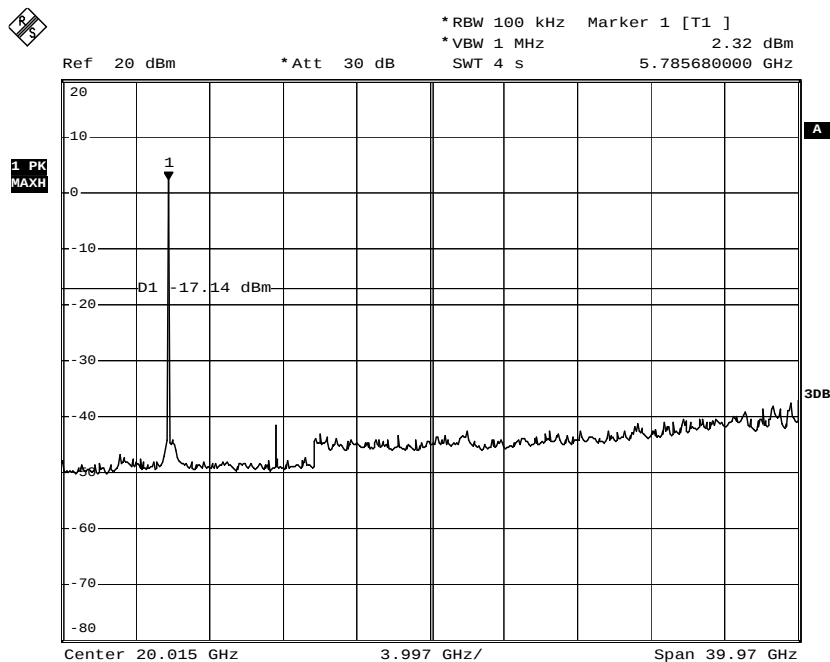
Date: 3.MAY.2010 09:41:11

Channel 157 (5785MHz) 30MHz -40GHz



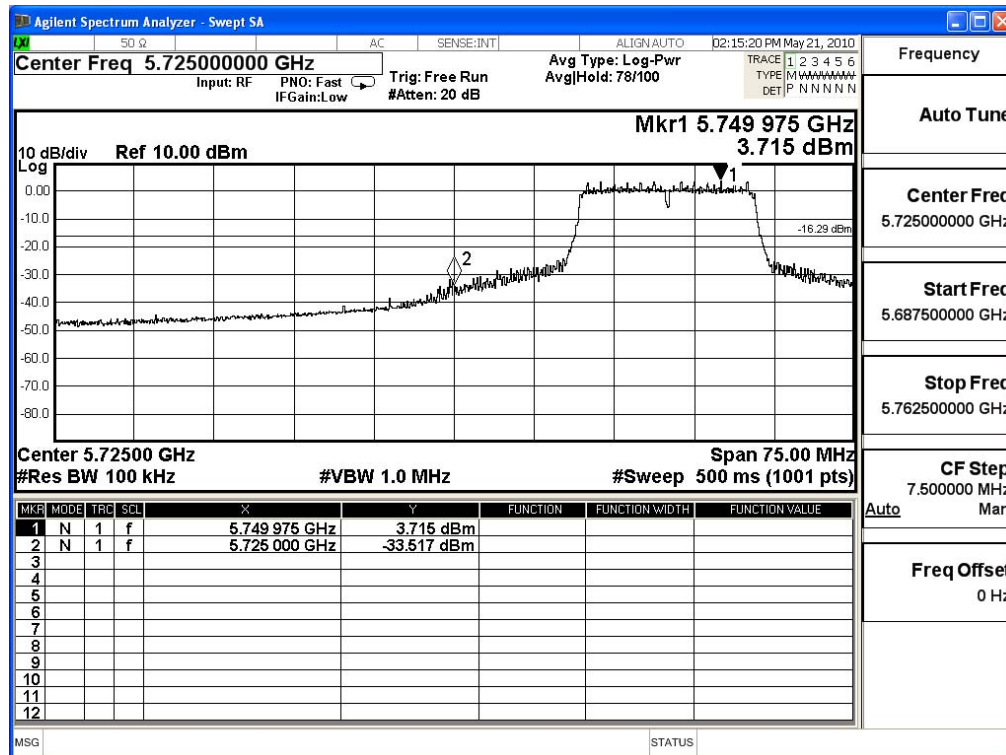
Date: 3.MAY.2010 09:45:27

Channel 165 (5825MHz) 30MHz -40GHz

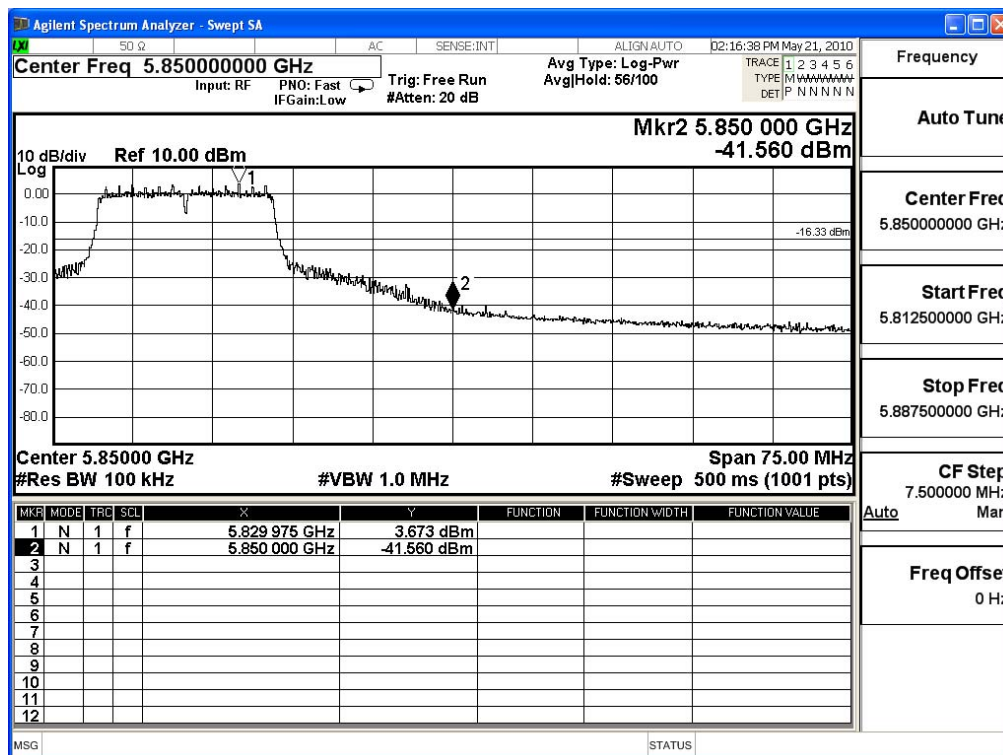


Date: 3.MAY.2010 09:47:23

Channel 149 (5745MHz)

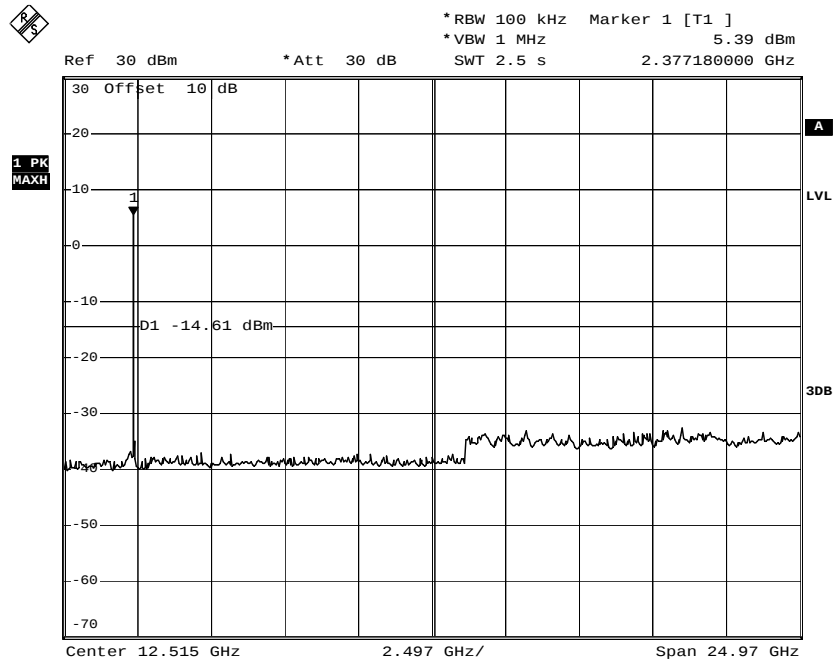


Channel 165 (5825MHz)



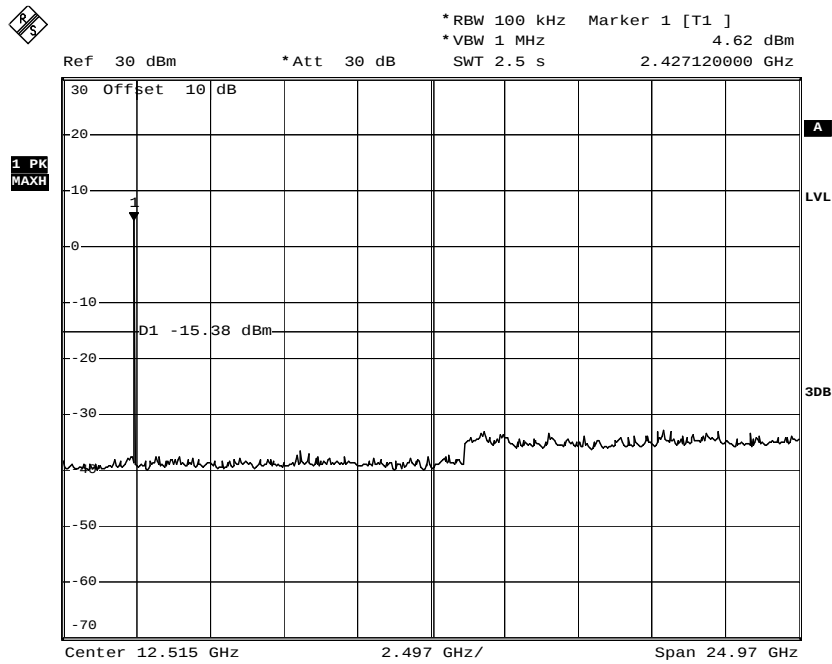
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band)

Channel 01 (2412MHz) 30MHz -25GHz



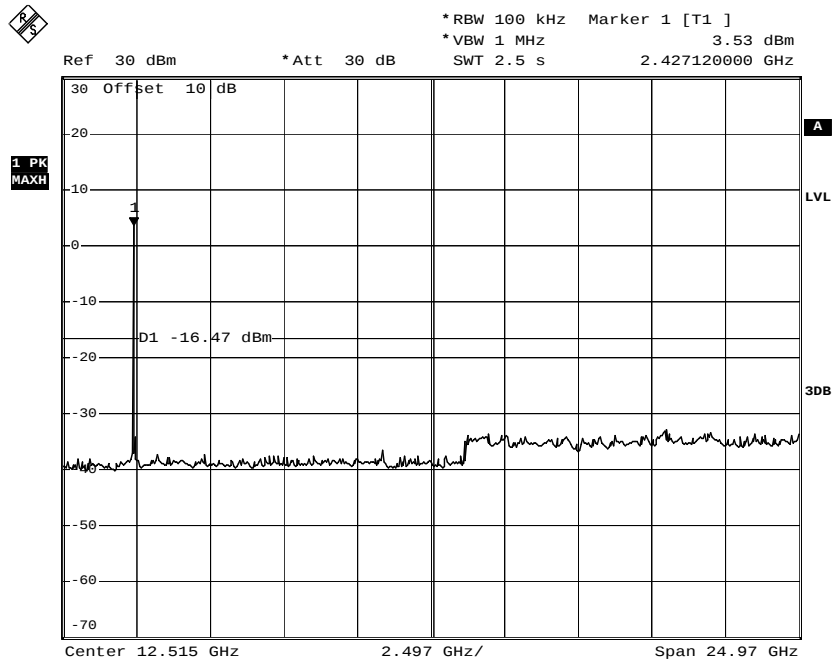
Date: 3.MAY.2010 08:37:41

Channel 06 (2437MHz) 30MHz -25GHz



Date: 3.MAY.2010 08:40:44

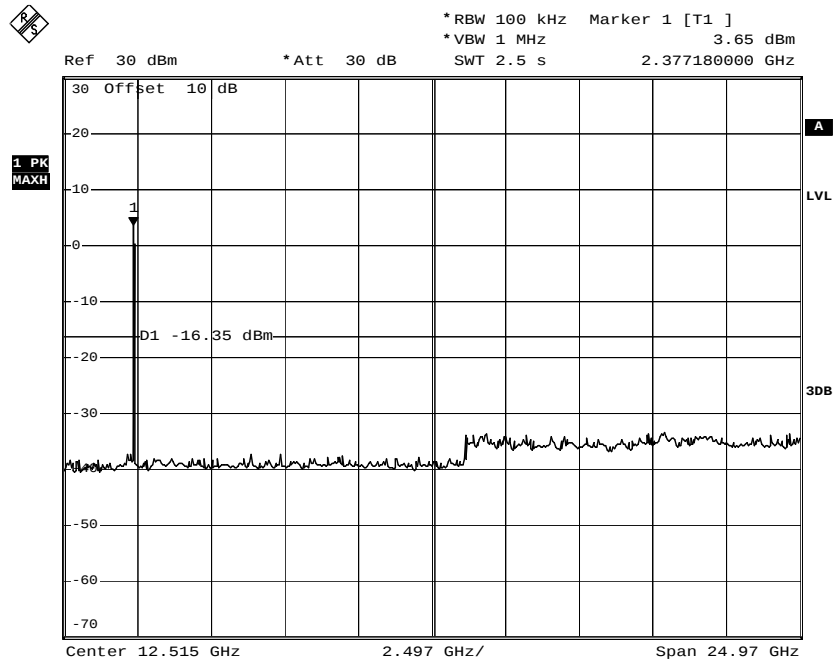
Channel 11 (2462MHz) 30MHz -25GHz



Date: 3.MAY.2010 08:45:25

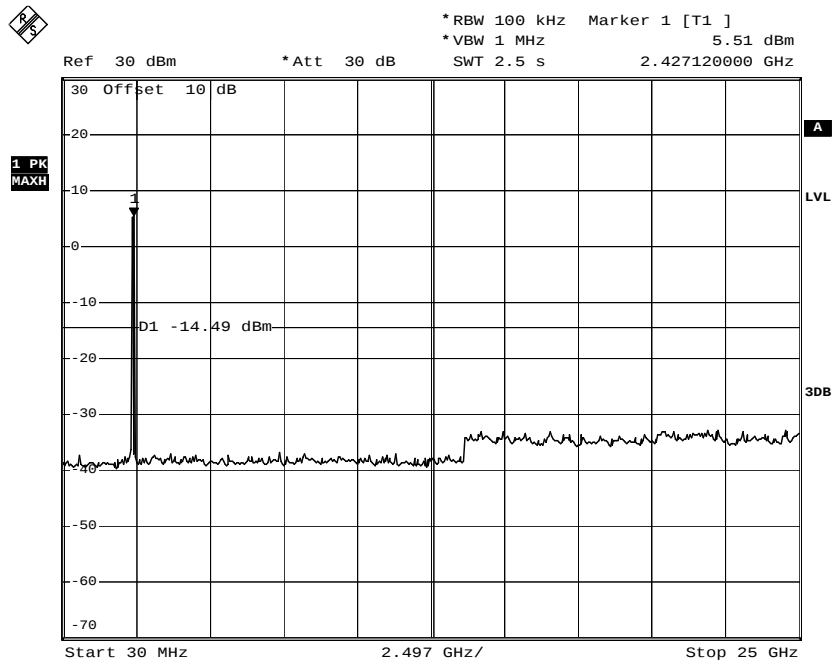
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band)

Channel 01 (2422MHz) 30MHz -25GHz



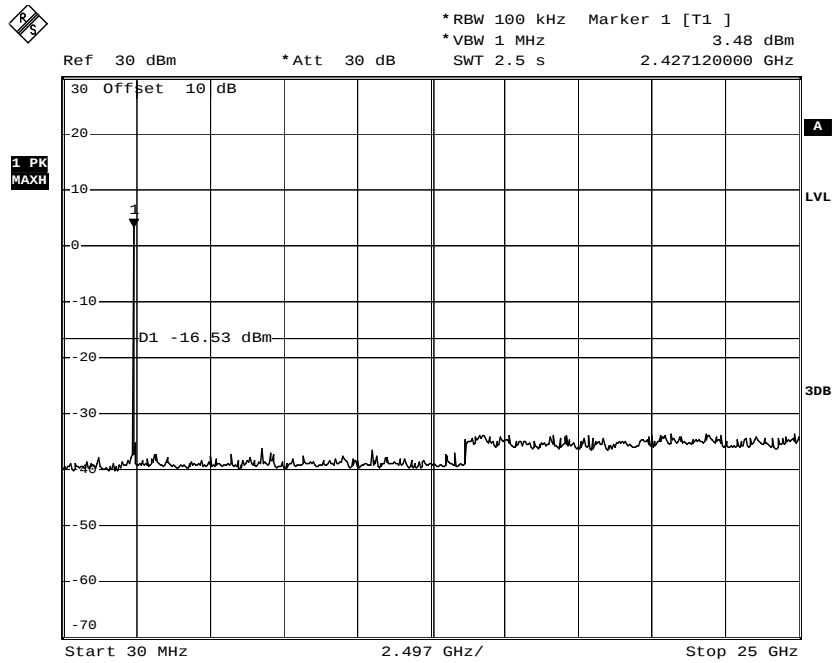
Date: 3.MAY.2010 09:04:19

Channel 04 (2437MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:10:05

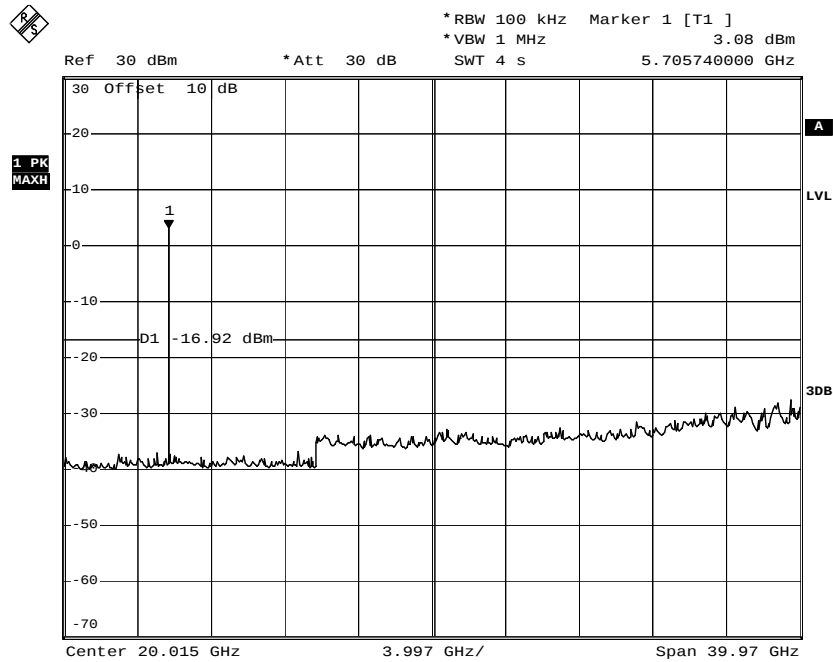
Channel 07 (2452MHz) 30MHz -25GHz



Date: 3.MAY.2010 09:18:41

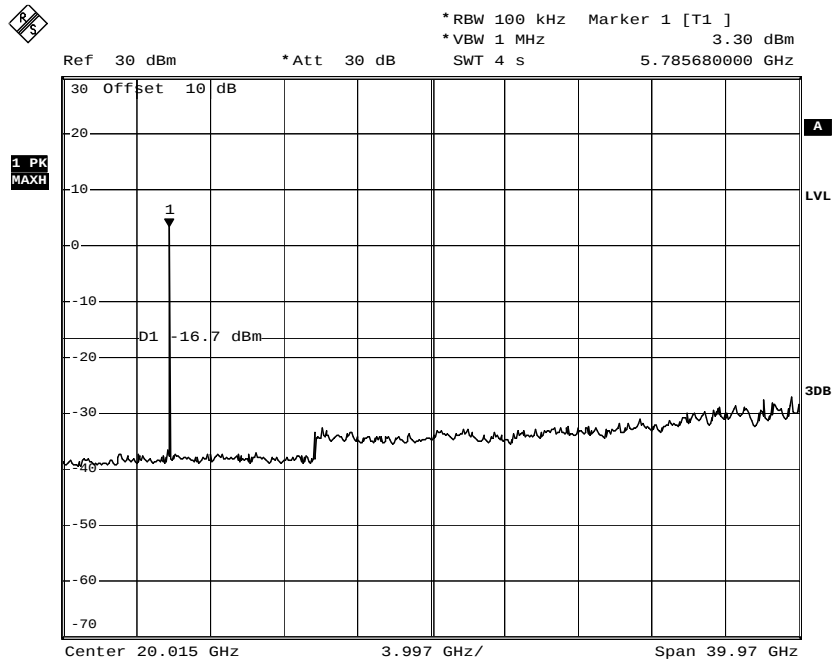
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmitter - 802.11n-20BW_13Mbps(5G Band)

Channel 49 (5745MHz) 30MHz -40GHz



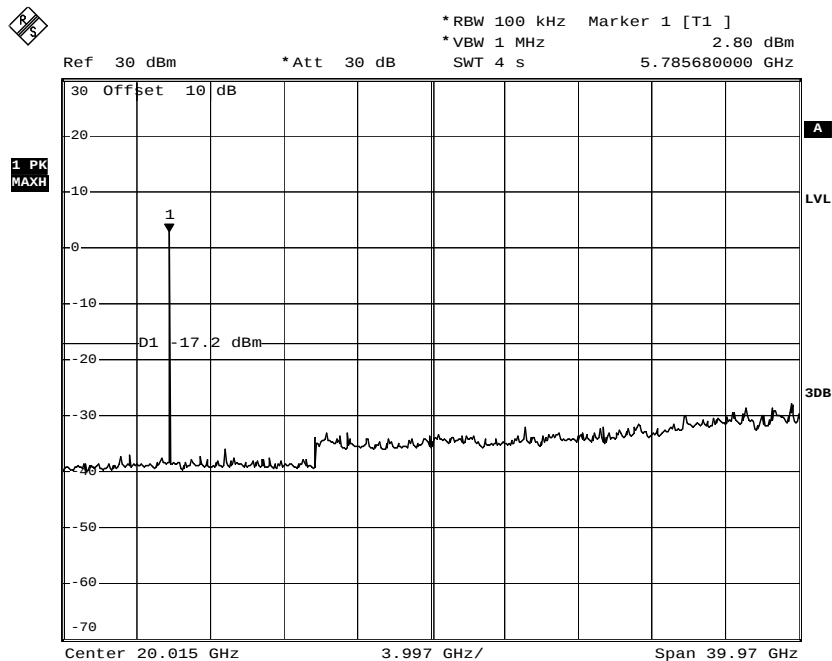
Date: 3.MAY.2010 08:49:11

Channel 157 (5785MHz) 30MHz -40GHz



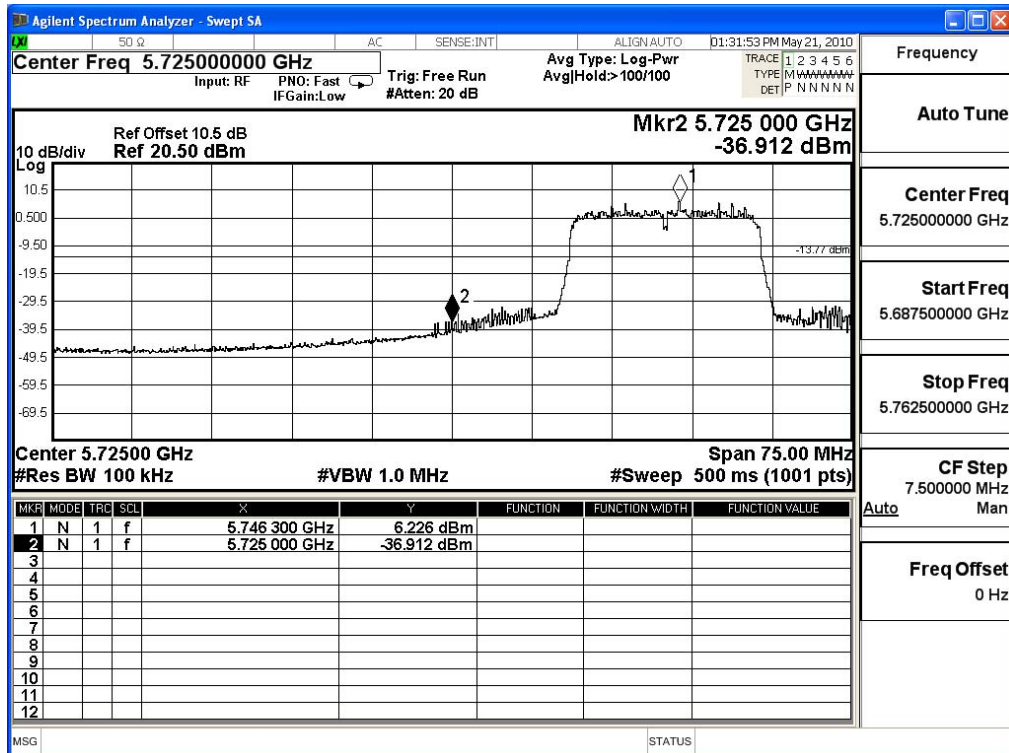
Date: 3.MAY.2010 08:56:20

Channel 165 (5825MHz) 30MHz -40GHz

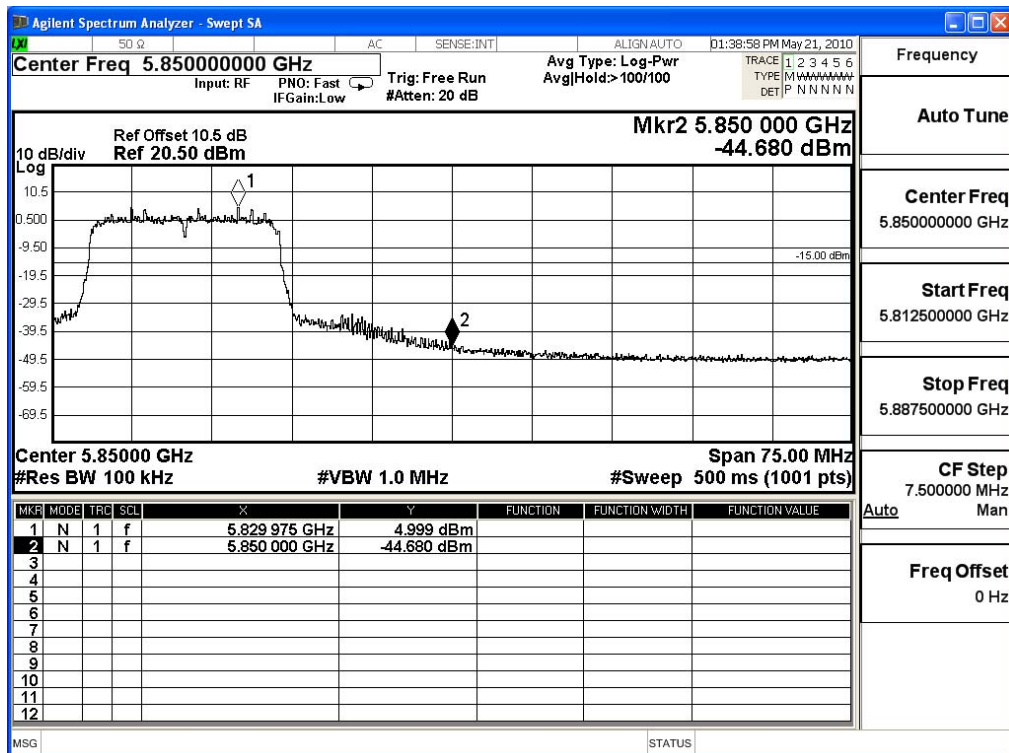


Date: 3.MAY.2010 08:59:12

Channel 149 (5745MHz)

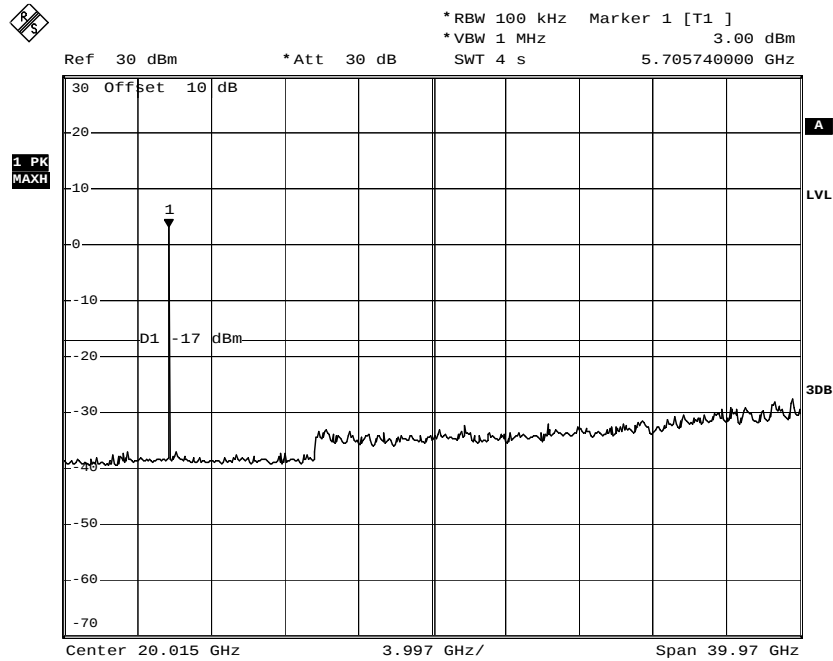


Channel 165 (5825MHz)



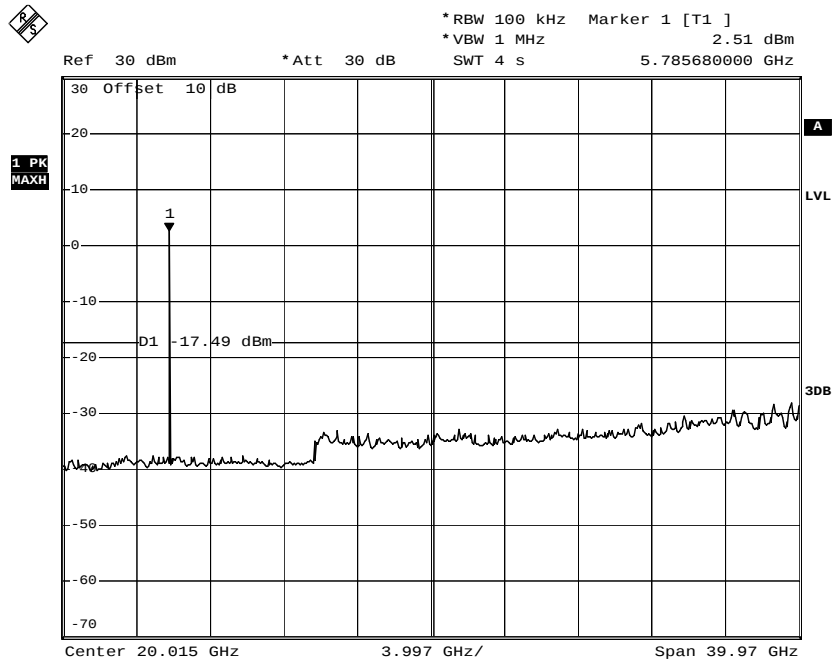
Product : ROS Video DMA
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmitter - 802.11n-40BW_27Mbps(5G Band)

Channel 151 (5755MHz) 30MHz -40GHz



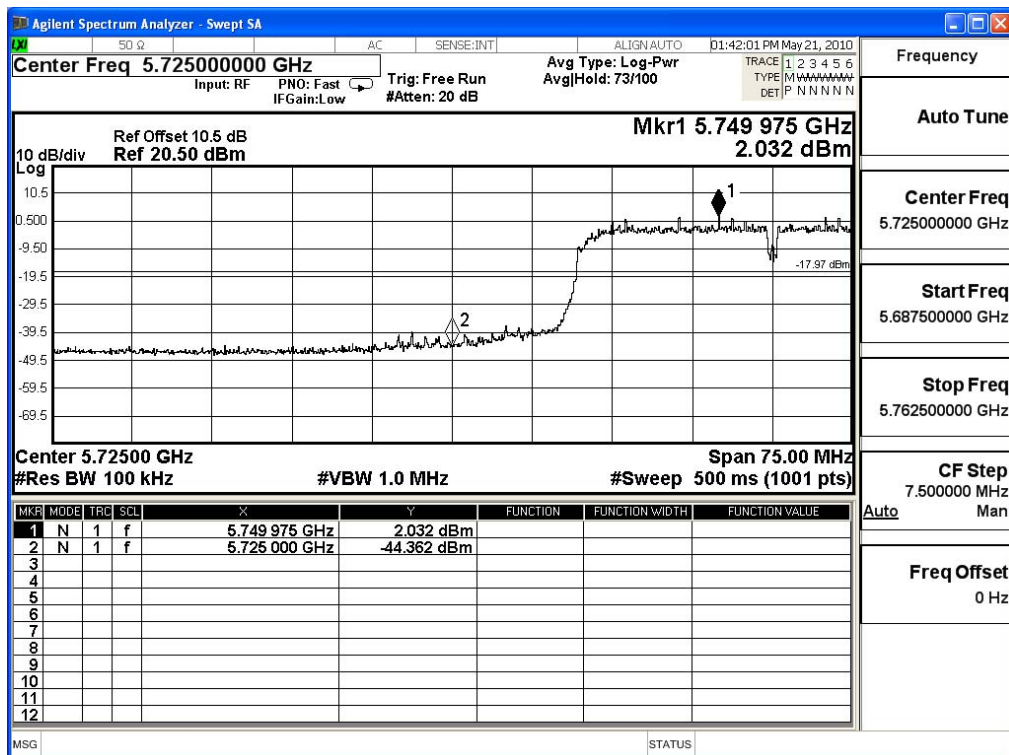
Date: 3.MAY.2010 09:24:52

Channel 159 (5795MHz) 30MHz -40GHz

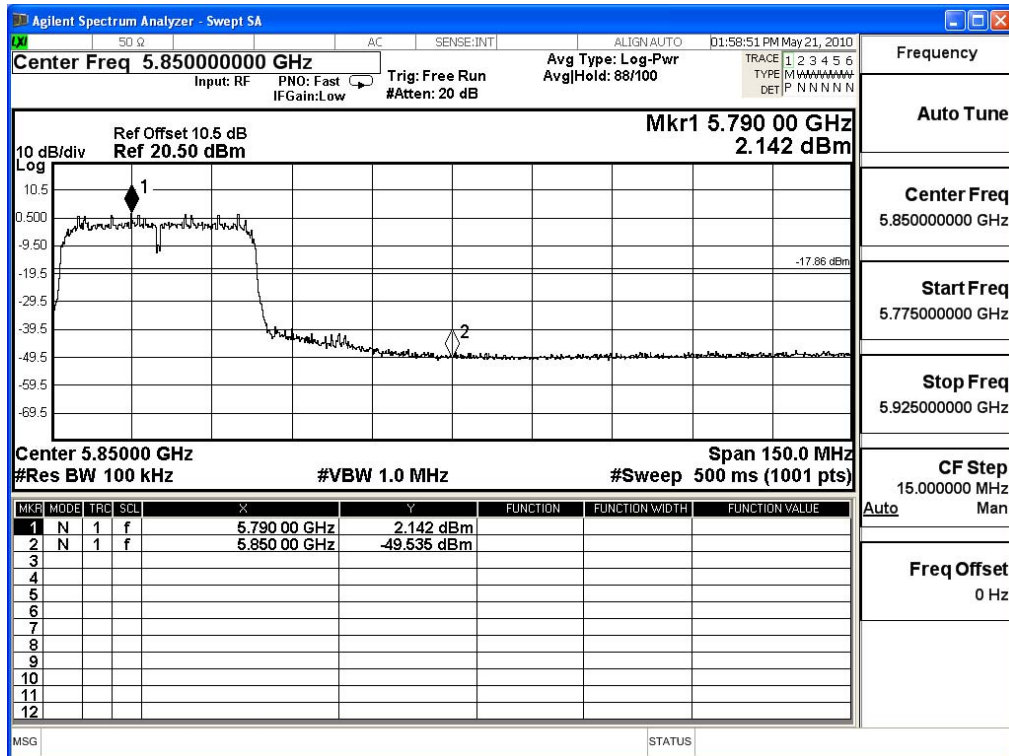


Date: 3.MAY.2010 09:26:34

Channel 151 (5755MHz)



Channel 159 (5795MHz)



6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
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:

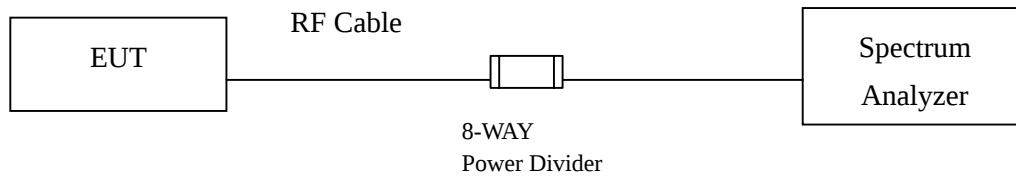
The following test equipments are used during the band edge tests:

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., 2009
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2009
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2010
		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

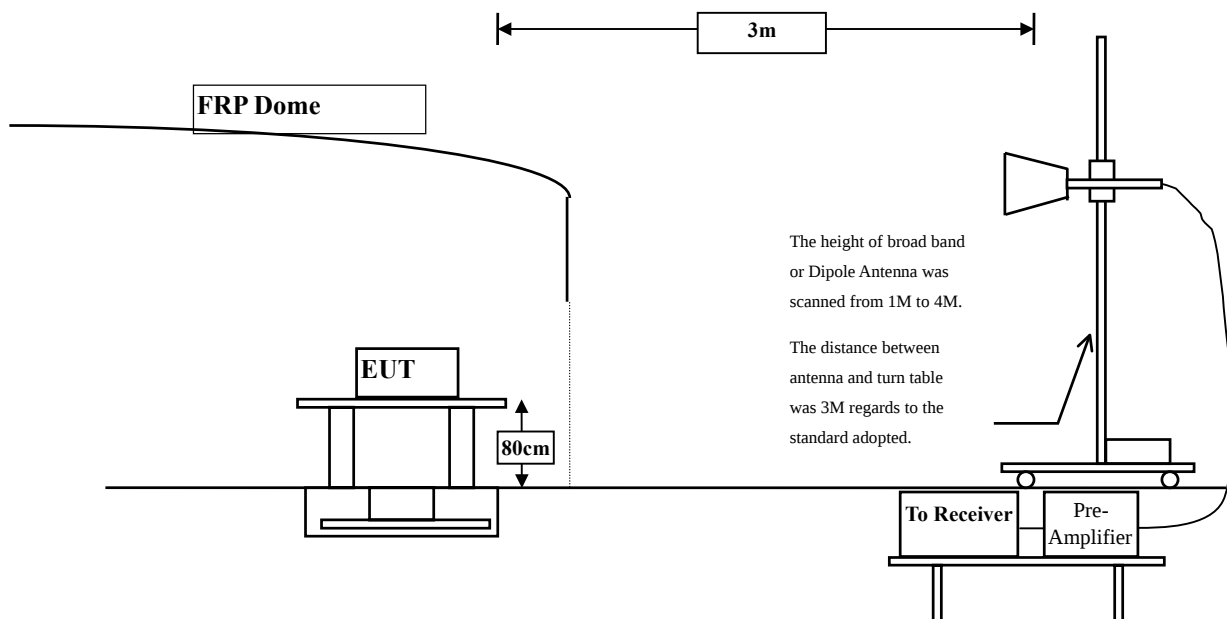
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

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.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 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 C63.4:2003 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : ROS Video DMA
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	73.4	105.038	Peak
Horizontal	2412	31.639	63.5	95.138	Average
Vertical	2412	30.95	75.22	106.169	Peak
Vertical	2412	31.639	65.82	97.458	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)	Detector
Horizontal	2390	105.038	37.844	67.194	Peak
Horizontal	2390	95.138	52.445	42.693	Average
Vertical	2390	106.169	37.844	68.325	Peak
Vertical	2390	97.458	52.445	45.013	Average

Note:

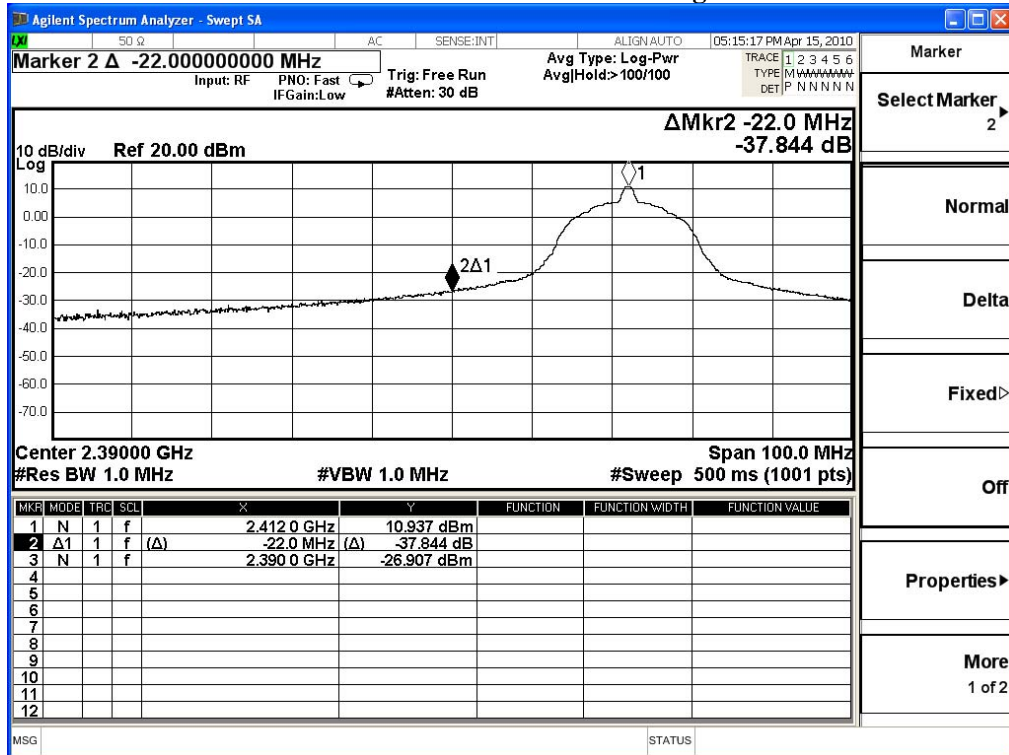
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

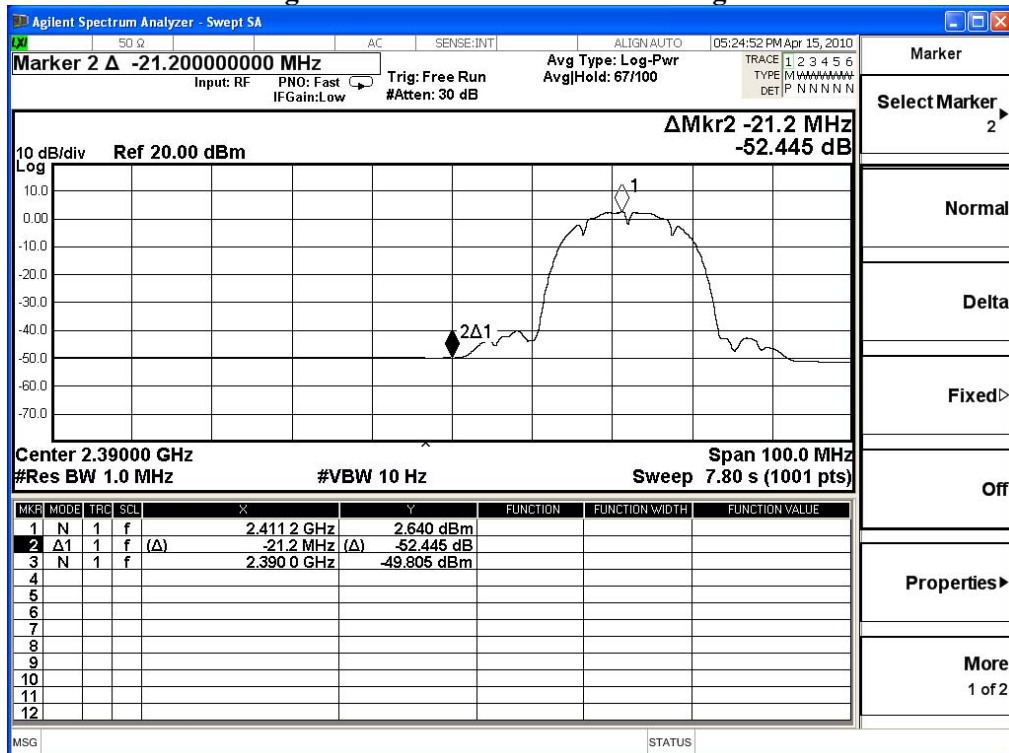
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	72.62	104.639	Peak
Horizontal	2462	32.019	64.02	96.039	Average
Vertical	2462	31.29	74.55	105.84	Peak
Vertical	2462	31.29	64.73	96.02	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)	Detector
Horizontal	2483.5	104.639	37.974	66.665	Peak
Horizontal	2483.5	96.039	53.7	42.339	Average
Vertical	2483.5	105.84	37.974	67.866	Peak
Vertical	2483.5	96.02	53.7	42.32	Average

Note:

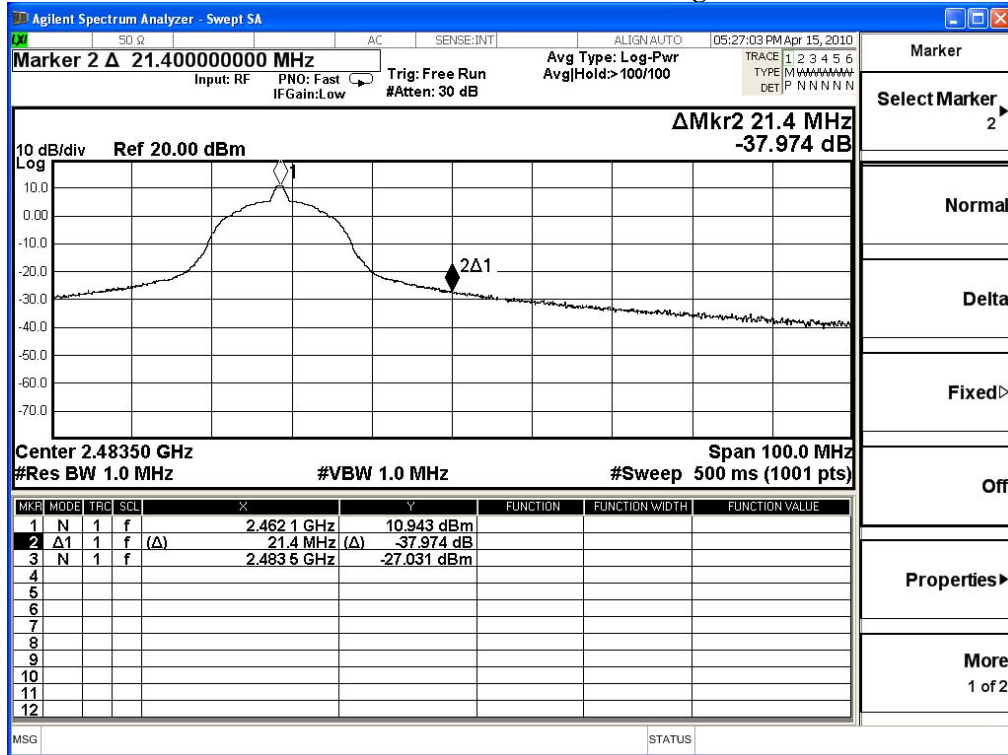
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

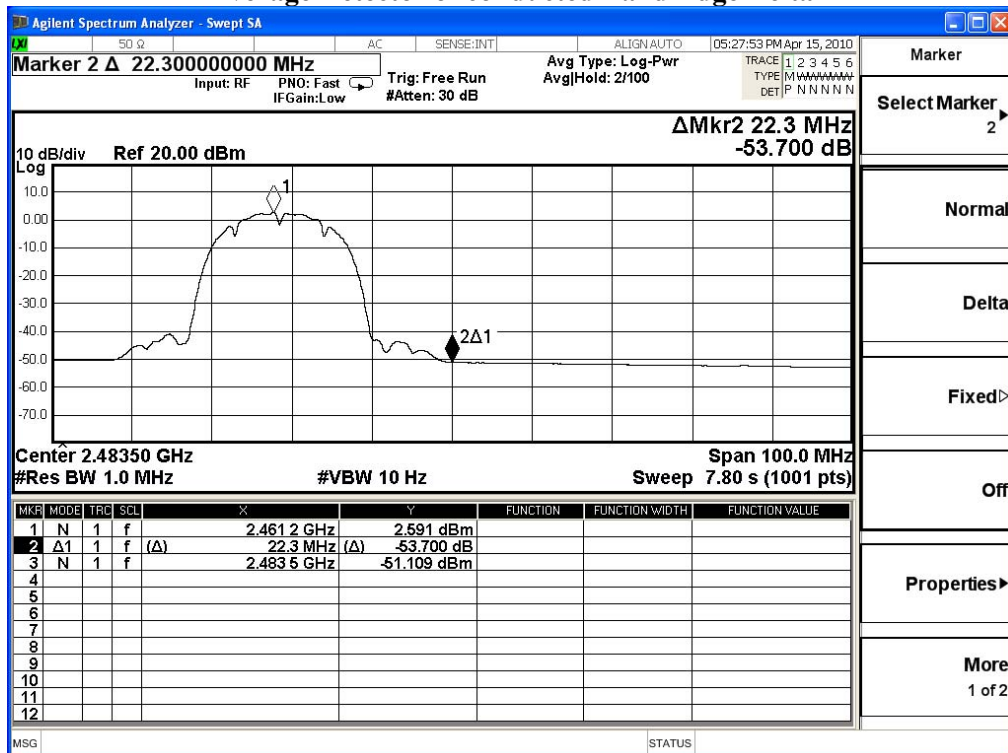
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	74.686	106.325	Peak
Horizontal	2412	31.639	57.88	89.518	Average
Vertical	2412	30.95	76.335	107.285	Peak
Vertical	2412	30.95	62.38	93.329	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)	Detector
Horizontal	2390	106.325	33.672	72.653	Peak
Horizontal	2390	89.518	46.565	42.953	Average
Vertical	2390	107.285	33.672	73.613	Peak
Vertical	2390	93.329	46.565	46.764	Average

Note:

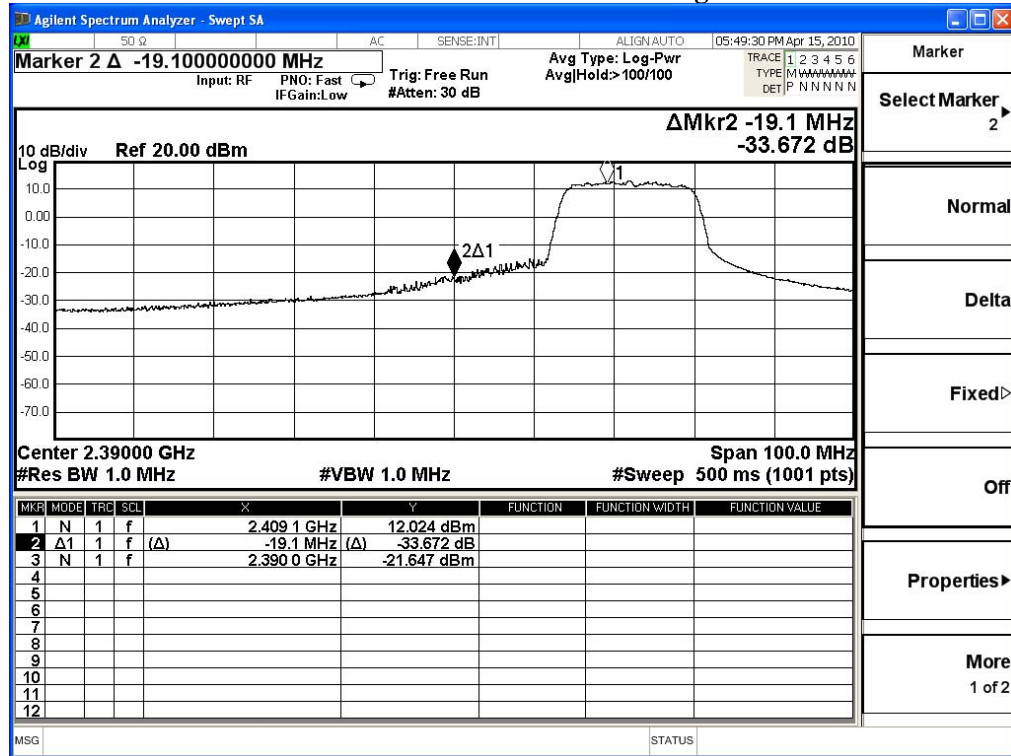
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

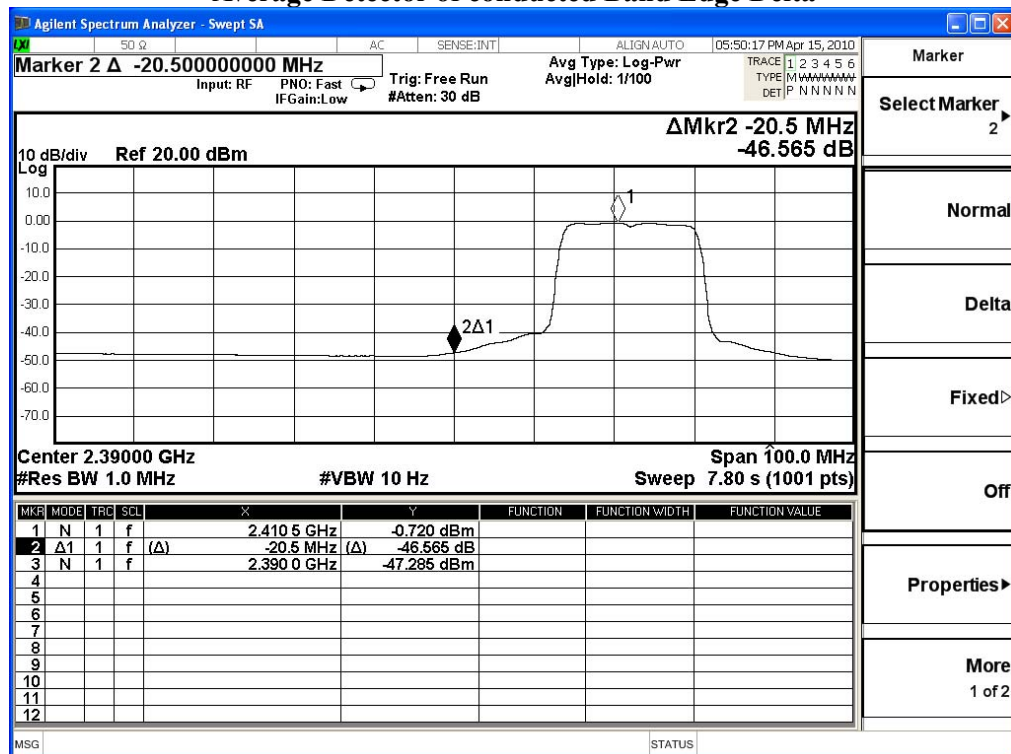
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	77.32	109.339	Peak
Horizontal	2462	32.019	60.2	92.219	Average
Vertical	2462	31.29	79.04	110.33	Peak
Vertical	2462	31.29	65.21	96.5	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)	Detector
Horizontal	2483.5	109.339	37.279	72.06	Peak
Horizontal	2483.5	92.219	48.534	43.685	Average
Vertical	2483.5	110.33	37.279	73.051	Peak
Vertical	2483.5	96.5	48.534	47.966	Average

Note:

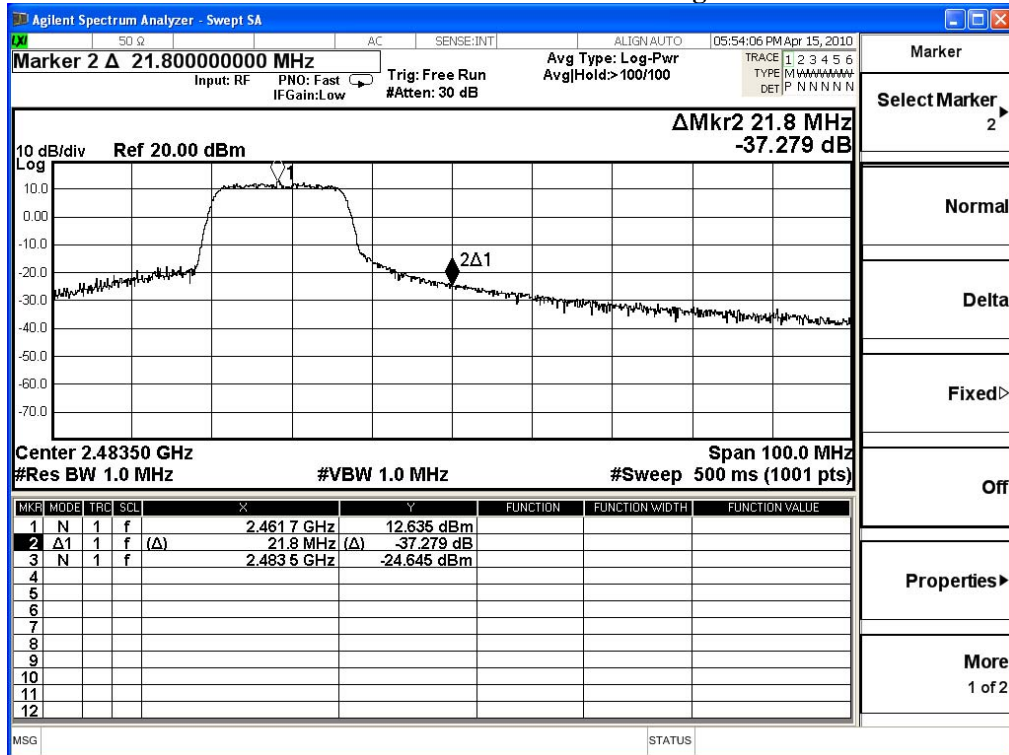
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

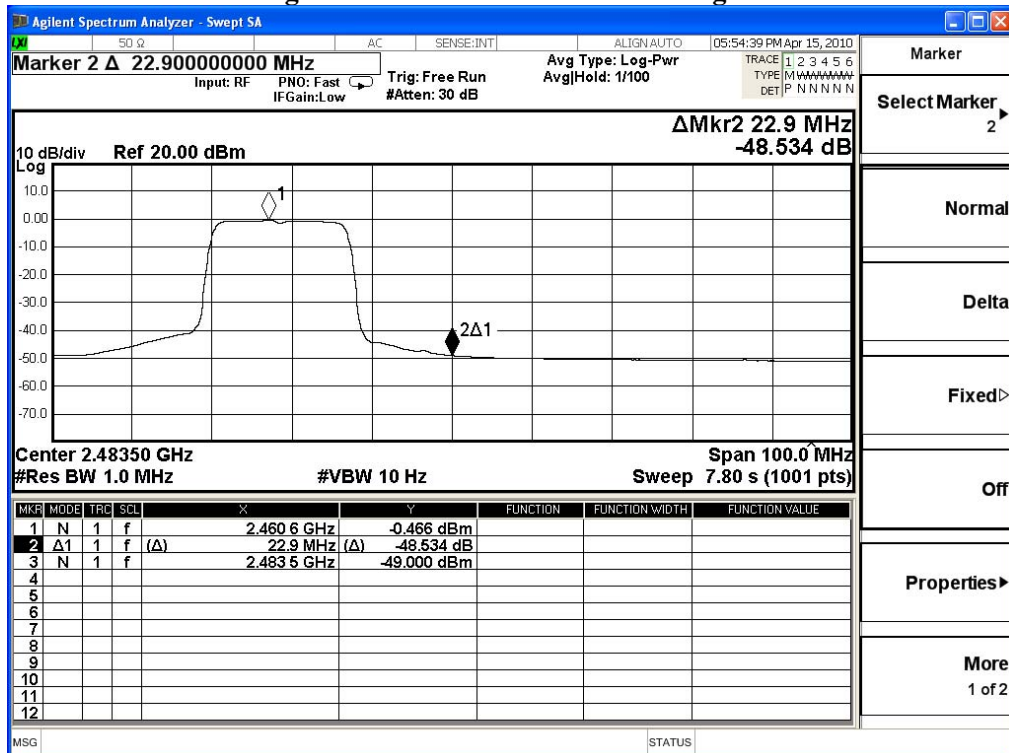
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	77.62	109.258	Peak
Horizontal	2412	31.639	61.65	93.288	Average
Vertical	2412	30.95	77.25	108.199	Peak
Vertical	2412	30.95	63.25	94.199	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)	Detector
Horizontal	2389	109.258	38.993	70.265	Peak
Horizontal	2390	93.288	43.243	50.045	Average
Vertical	2389	108.199	38.993	69.206	Peak
Vertical	2390	94.199	43.243	50.956	Average

Note:

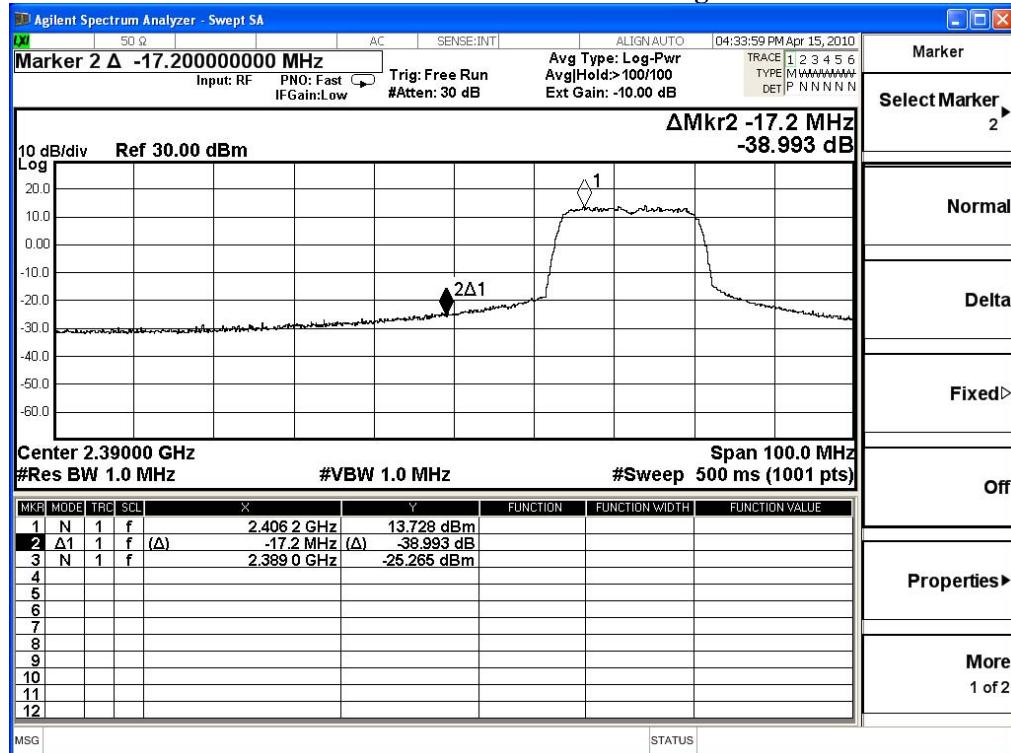
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

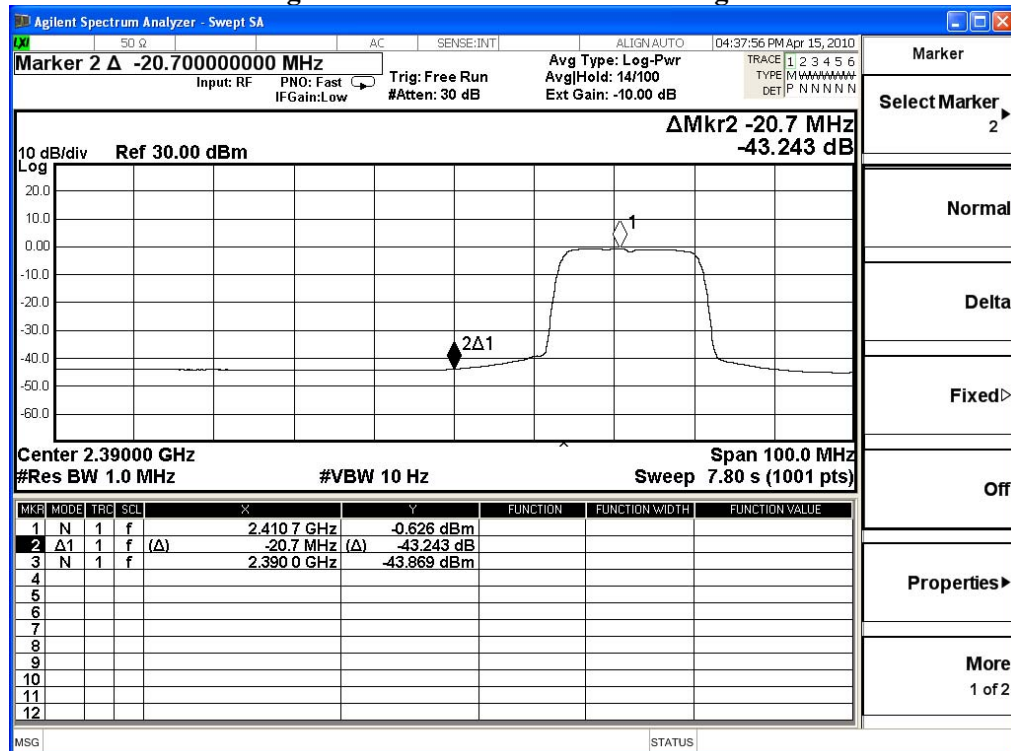
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmitter - 802.11n-20BW_13Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	74.14	106.159	Peak
Horizontal	2462	32.019	58.92	90.939	Average
Vertical	2462	31.29	75.97	107.26	Peak
Vertical	2462	31.29	60.49	91.78	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)	Detector
Horizontal	2483.5	106.159	38.038	68.121	Peak
Horizontal	2483.5	90.939	44.32	46.619	Average
Vertical	2483.5	107.26	38.038	69.222	Peak
Vertical	2483.5	91.78	44.32	47.46	Average

Note:

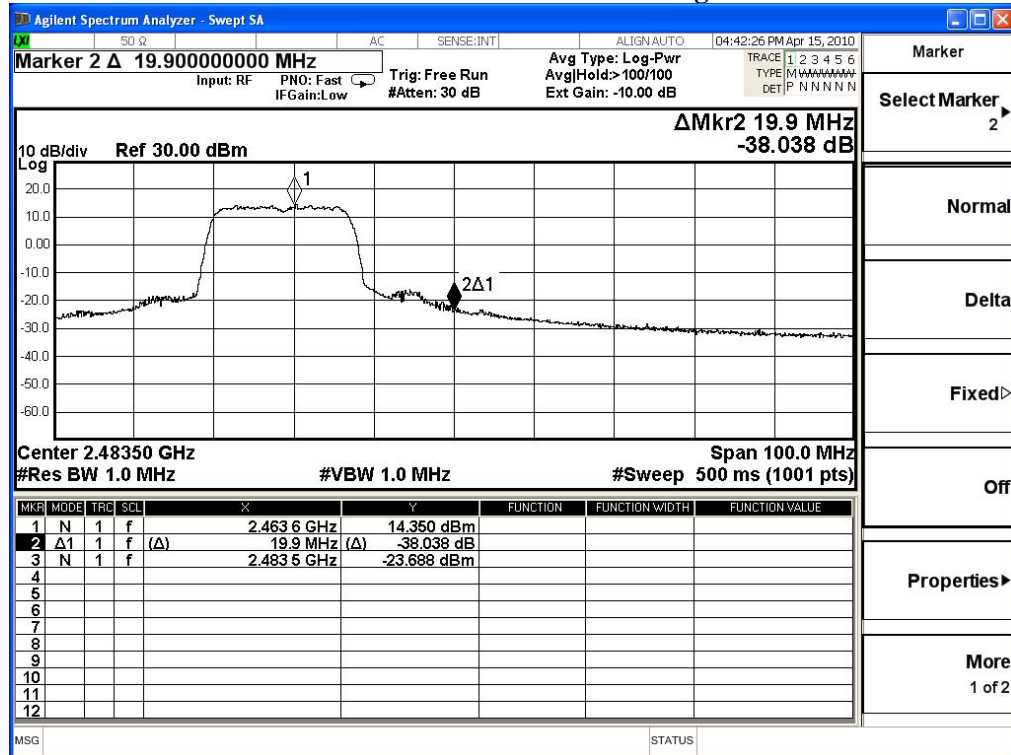
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

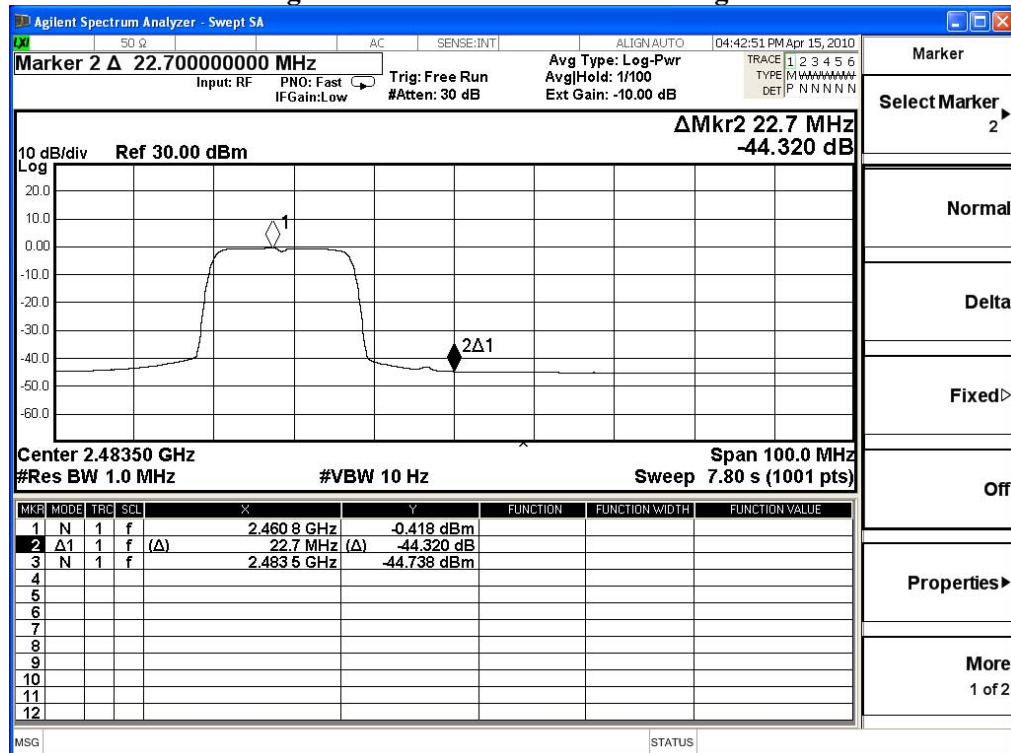
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	31.715	70.99	102.705	Peak
Horizontal	2422	31.715	54.24	85.955	Average
Vertical	2422	31.017	70.9	101.917	Peak
Vertical	2422	31.017	54.32	85.337	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)	Detector
Horizontal	2388	102.705	36.681	66.024	Peak
Horizontal	2390	85.955	35.936	50.019	Average
Vertical	2388	101.917	36.681	65.236	Peak
Vertical	2390	85.337	35.936	49.401	Average

Note:

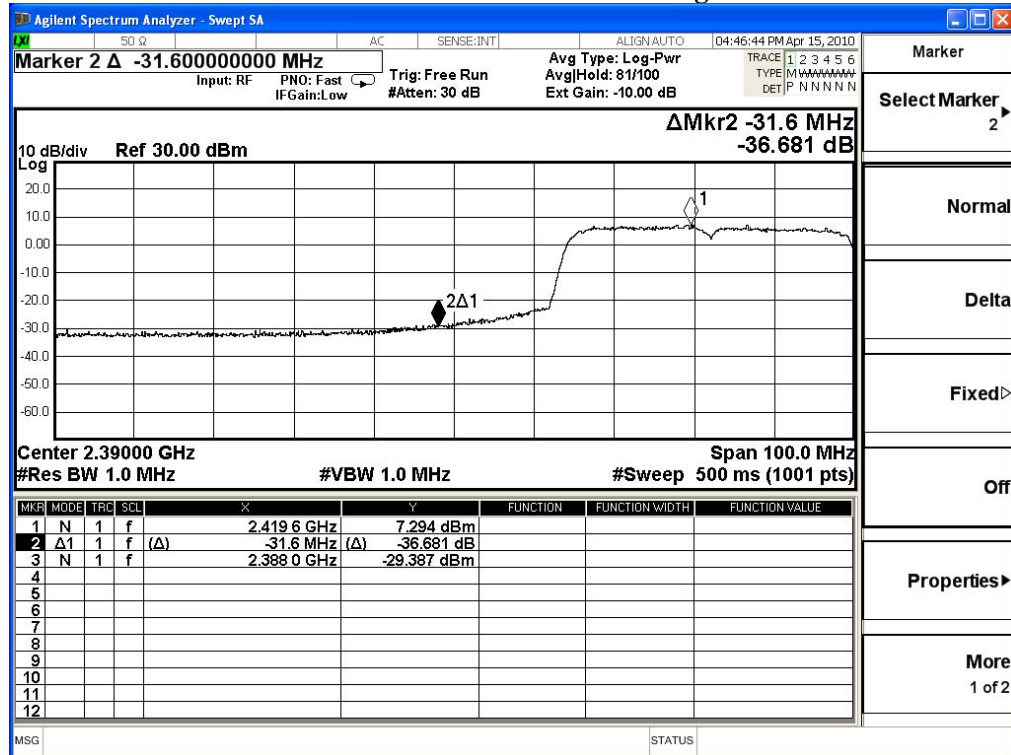
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

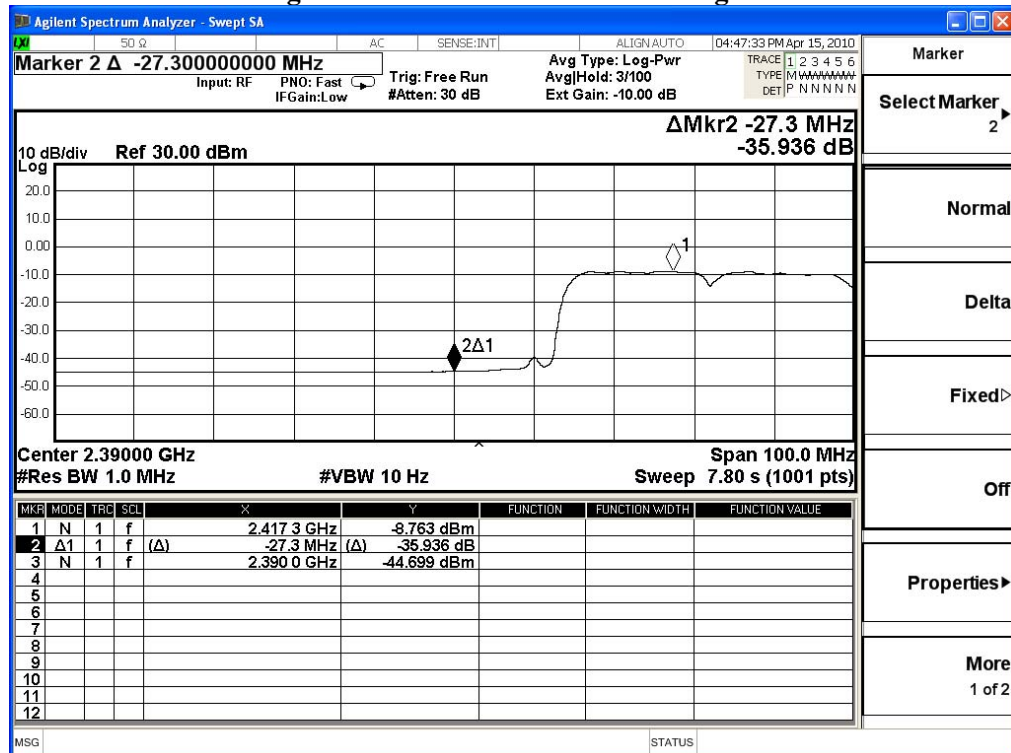
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : ROS Video DMA
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmitter - 802.11n-40BW_27Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2452	31.222	72.45	103.672	Peak
Horizontal	2452	31.222	52.38	83.602	Average
Vertical	2452	31.222	70.2	101.422	Peak
Vertical	2452	31.222	54.21	85.432	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)	Detector
Horizontal	2483.5	103.672	38.062	65.61	Peak
Horizontal	2483.5	83.602	39.282	44.32	Average
Vertical	2483.5	101.422	38.062	63.36	Peak
Vertical	2483.5	85.432	39.282	46.15	Average

Note:

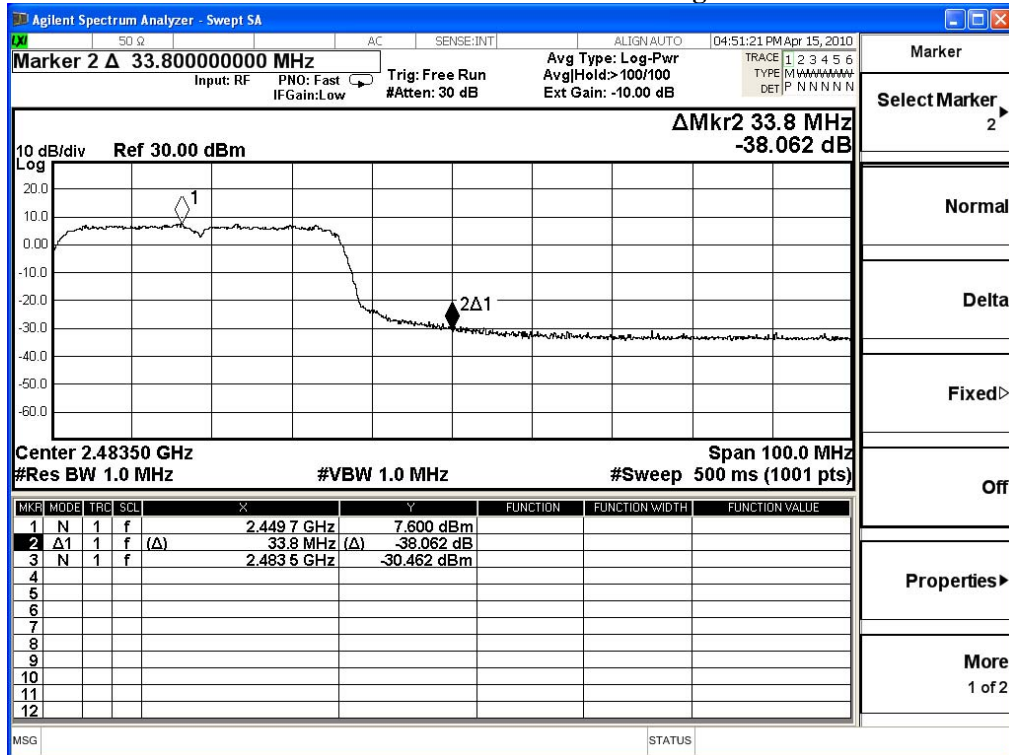
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

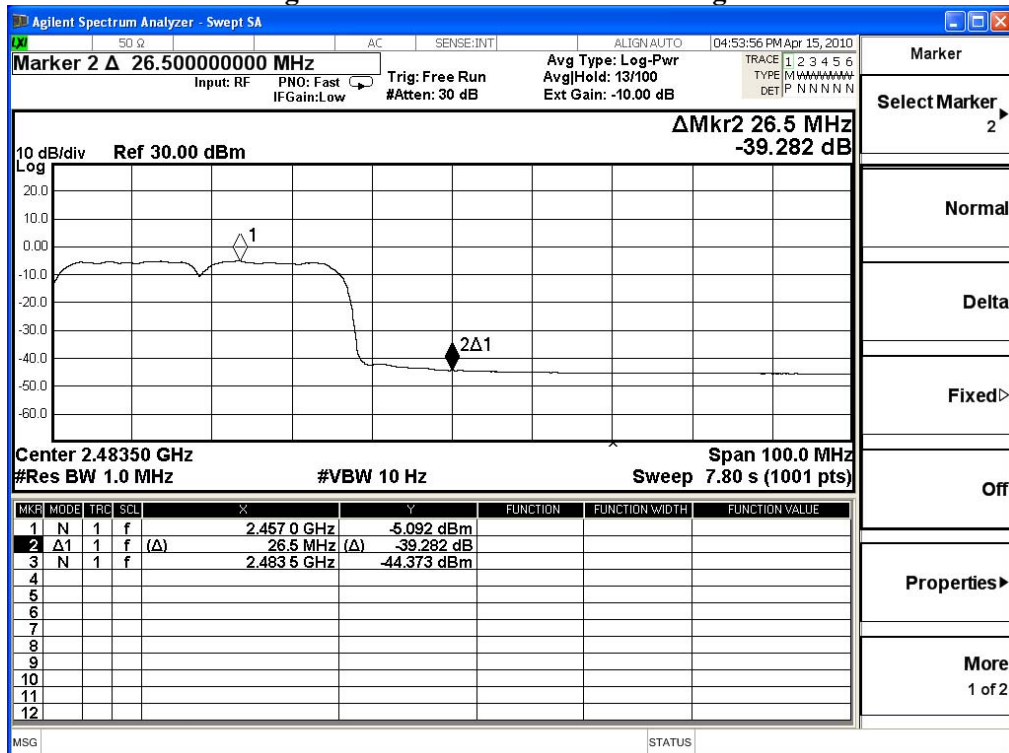
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



7. Occupied Bandwidth

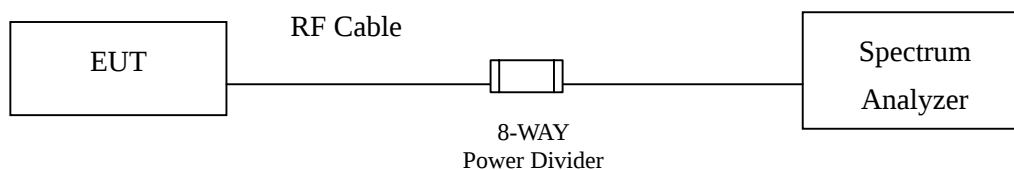
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2009
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2009
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.

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, 2003; 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

$\pm 150\text{Hz}$

7.6. Test Result of Occupied Bandwidth

Product : ROS Video DMA
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1 (1Mbps)	2412.00	13200	>500	Pass

Figure Channel 1:

