

FCC CFR47 PART 15 SUBPART E INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

Dual-Band 802.11 a/b/g/n Industrial Access Point with Integrated DOCSIS 3.0 Modem

MODEL NUMBER: ZoneFlex7761-CM

FCC ID: S9GZF7761CM IC: 5912A-ZF7761CM

REPORT NUMBER: 10U13475-3, Revision C

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NVLAP LAB CODE 200065-0

Revision History

Rev.	lssue Date	Revisions	Revised By
	03/02/11	Initial Issue	F. Ibrahim
А	03/03/11	Inserted the conducted spurious data for the notch band of 5.6-5.65 GHz	F. Ibrahim
В	03/21/11	Revised output power values in sections 7.4.2, section 7.6.2, section 7.7.2, section 7.8.2, and section 7.9.2. Revised MPE section.	F. Ibrahim
С	06/06/11	Revised sections 7.4.6, 7.5.2, 7.5.4, 7.5.6, 7.6.2, 7.6.4, 7.6.6, 7.7.6, 7.8.2, 7.8.4, 7.8.6, 7.9.2, 7.9.4, and 7.9.6 for limits and test procedure paragraphs.	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	Ruckus Wireless 880 West Maude Ave., Suite 101 Sunnyvale, CA 94085, U.S.A
EUT DESCRIPTION:	Dual-Band 802.11 a/b/g/n Industrial Access Point with Integrated DOCSIS 3.0 Modem
MODEL:	ZoneFlex7761-CM
SERIAL NUMBER:	C0C5200001BD
DATE TESTED:	NOVEMBER 2, 2010 - MARCH 2, 2011

APPLICABLE STANDARDS				
STANDARD	TEST RESULTS			
CFR 47 Part 15 Subpart E	Pass			
INDUSTRY CANADA RSS-210 Issue 8	Pass			
INDUSTRY CANADA RSS-GEN Issue 3	Pass			

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

FRANK IBRAHIM EMC SUPERVISOR COMPLIANCE CERTIFICATION SERVICES

Tested By:

William Shing

WILLIAM ZHUANG EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ccsemc.com</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Dual-Band 802.11 a/b/g/n Industrial Access Point with Integrated DOCSIS 3.0 Modem.

The radio module is manufactured by Ruckus Wireless.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

THREE CHAIN CONFIGURATION IN THE 5.2 GHz BAND

Frequency Range	Mode	Output Power	Output Power	
(MHz)		(dBm)	(mW)	
5180 - 5240 802.11a		12.29 16.94		
5180 - 5240 802.11n HT20		15.71	37.24	
5190 - 5230	802.11n HT40	16.85	48.42	

THREE CHAIN CONFIGURATION IN THE 5.3 GHz BAND

Frequency Range	Mode	Output Power	Output Power	
(MHz)		(dBm)	(mW)	
5260 -5320 802.11a		20.60	114.82	
5260 - 5320	802.11n HT20	23.64	231.21	
5270- 5310	802.11n HT40	23.02	200.45	

THREE CHAIN CONFIGURATION IN THE 5.6 GHz BAND

Frequency Range	Mode	Output Power	Output Power	
(MHz)		(dBm)	(mW)	
5500 - 5700 802.11a		20.73	118.30	
5500 - 5700	802.11n HT20	21.79	151.01	
5510 - 5670	802.11n HT40	21.73	148.94	

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5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes MIMO dual-band antenna with a maximum peak gain of **5 dBi** in the 2.4 GHz band and a MIMO Omni antenna for only 5 GHz band with maximum peak gain of **5.5 dBi** in the 5 GHz bands.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was version 9.0.0.0.65 and the cable modem firmware was version V92004.

The RF conducted testing used Atheros Radio Test software which we call "ART". The version number is v0_5_b25ALL.

5.5. WORST-CASE CONFIGURATION AND MODE

For Radiated Emissions and Power line Conducted Emissions, the channel with the highest conducted output power was selected.

Worst-case data rates as provided by the manufacturer are:

For 11a mode: 6Mbps For 11n HT20 (5.2 GHz and 5.6 GHz bands): MCS8 For 11n HT40 (5.2 GHz and 5.6 GHz bands): MCS8

Peak Power Spectral Density was investigated for individual chains versus combiner, and it was determined that combiner is worst-case; therefore, all final measurements of PPSD were performed using a combiner.

RF Conducted Spurious was investigated for individual chains versus combiner, and it was determined that combiner is worst-case; therefore, all final measurements of RF conducted spurious were performed using a combiner.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST							
Description Manufacturer Model Serial Number							
Laptop PC	IBM	2366	78-BWY97				
AC/DC Adapter	IBM	02K6665	1Z0Z0500ZF				
POE	RUCKUS	NPE-5818	10A282617				
AC/DC Adapter	RUCKUS	PA1060-48 T1A125	1022				
USB Mouse	Microsoft	X09-13962	N/A				
AC/DC Adapter	RUCKUS	MPC-1200201	101				

Note: AC/DC adapter MPC-1200201 was used to power the radio for radiated emissions 3-1000 MHz and power line conducted emissions tests.

I/O CABLES

VO CABLE LIST						
Cable No.	Port	# of Identical	Connector Type	Cable Type	Cable Length	Remarks
		Ports			-	
1	AC Input	2	AC	Un-Shielded	1.5m	N/A
2	DC Input	2	DC	Un-Shielded	1.8m	N/A
3	Ethernet	2	RJ45	Un-Shielded	1.5m	N/A
4	USB	1	USB	Un-Shielded	1.5m	N/A

TEST SETUP

The Access Point EUT is controlled externally with a laptop, via Ethernet.

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SETUP DIAGRAM FOR RADIO TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST							
Description	Manufacturer	Model	Asset	Cal Due			
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01178	08/30/10			
Peak Power Meter	Boonton	4541	C01185	03/01/10			
Peak Power Sensor	Boonton	57006	C01203	02/24/10			
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/12/11			
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/06/12			
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/11			
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/14/11			
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	05/06/11			
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/11			
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	11/10/11			

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7. ANTENNA PORT TEST RESULTS

7.1. 802.11a THREE CHAIN LEGACY MODE IN THE 5.2 GHz BAND

7.1.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	22.434	16.3921
Middle	5200	20.997	16.4137
High	5240	20.336	16.4002

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	18.770	16.2711
Middle	5200	19.012	16.5410
High	5240	21.031	16.3638

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	18.24	16.5538
Middle	5200	19.45	16.4851
High	5240	21.76	16.4216

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CHAIN 1

26 dB and 99% BANDWIDTH



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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 14:21:52 Nov 4, 2010 T	Freq/Channel
Ch Freq 5.2 GHz Trig Free Occupied Bandwidth	Center Freq 5.20000000 GHz
Project: 10U13475	Start Freq 5.17500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.22500000 GHz
10 dB/ → typ Offst 11 → typ	CF Step 5.0000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.5410 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error 12.000 kHz x dB Bandwidth 19.012 MHz*	
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CHAIN 3

26 dB and 99% BANDWIDTH



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7.1.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.77	10.27

For the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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RESULTS

Limit

Channel	Frequency	Fixed	В	4 + 10 Log B	Effective	Limit
		Limit		Limit	Ant. Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5180	16.99	18.24	16.61	10.27	12.34
Mid	5200	16.99	19.012	16.79	10.27	12.52
High	5240	16.99	20.336	17.08	10.27	12.72

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	5.71	9.14	6.95	12.27	12.34	-0.07
Mid	5200	5.92	8.54	7.70	12.29	12.52	-0.23
High	5240	5.45	8.63	7.77	12.25	12.72	-0.47

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CHAIN 1 OUTPUT POWER



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Channel Power	Res BW 1.0 MHz Auto <u>Man</u>
Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp	VIdeo BW 3.0 MHz Auto Man VBW/RBW 1.00000 Auto Man Average
Center 5.200 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts)	100 <u>On Off</u> Avg/VBW Type Pwr (RMS) ^ Auto <u>Man</u>
Channel Power Power Spectral Density 5.92 dBm / 24.0000 MHz -67.88 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 2 OUTPUT POWER



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OUTPUT POWER MID CH, CH	IAIN 2	BW/Avg
Ch Freq 5.2 GHz Channel Power	Trig Free	Res BW 1.0 MHz Auto Man Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp defined and defined attended	Span 36 MHz	Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>Qn Qff</u> Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
Channel Power 8.54 dBm / 24.0000 MHz Copyright 2000-2010 Agilent Technologies	Power Spectral Density -65.26 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 3 OUTPUT POWER



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OUTPUT POWER MID	CH, CHAI	N 3	Т	BV	//Avg
Ch Freq 5.2 GHz Channel Power			Trig Free	Auto	Res BW 1.0 MHz <u>Man</u> Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp			Span 36 MHz	Auto Auto On Avg/VE Auto	<u>Man</u> /BW/RBW 1.00000 <u>Man</u> Average 100 <u>Off</u> 3W Type ³ Wr (RMS) ^ Man
#Res BW 1 MHz Channel Power 7.70 dBm / 24.0000	#VBW 3 MHz MHz 	Sweep 20 n Power Spectral -66.10 d	is (601 pts) Density Bm/Hz	Auto	00000000000000000000000000000000000000

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7.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5180	5.47	8.54	7.32	12.06
Middle	5200	5.25	8.97	7.17	12.16
High	5240	5.17	9.05	7.36	12.25

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7.1.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.77	, 10.27

For the 5.15-5.25 GHz band, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

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RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5180	-0.658	-0.27	-0.388
Middle	5200	-0.326	-0.27	-0.056
High	5240	-0.793	-0.27	-0.523

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POWER SPECTRAL DENSITY WITH COMBINER



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7.1.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin	
	(MHz)	(dB)	(dB)	(dB)	
Low	5180	9.17	13	-3.83	
Middle	5200	9.44	13	-3.56	
High	5240	8.55	13	-4.45	

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5180	10.04	13	-2.96
Middle	5200	10.04	13	-2.96
High	5240	10.11	13	-2.89

CHAIN 3

Channel	Frequency	Frequency Peak Excursion		Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5180	10.10	13	-2.90
Middle	5200	10.32	13	-2.68
High	5240	9.17	13	-3.83

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CHAIN 1

PEAK EXCURSION



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🔆 Agilent 14:14:04 Nov 4,	2010		Т	B١	///Avg
Ch Freq 5.: Channel Power	2 GHz	-	Trig Free	Auto	Res B\ 1.0 MH; <u>Ma</u>
RBW 1.0 MHz		. 1	4kr1 0 Hz	Auto	Video BV 3.0 MH: Ma
Ref 30 dBm Atter #Peak Log	1 30 dB		9.44 dB	Auto	VBW/RB 1.00000 Ma
10				On	Average 100 Of
dB		N. M.	Harris Marrier	Avg/VI Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2				5	pan/RBV
Center 5.200 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sp Sweep 20 ms	an 36 MHz (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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CHAIN 2

PEAK EXCURSION



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CHAIN 3

PEAK EXCURSION



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7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (1)

IC RSS-210 A9.3 (1)

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.2. 802.11n THREE CHAINS HT20 MODE IN THE 5.2 GHz BAND

7.2.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	20.028	17.4629
Middle	5200	20.142	17.6717
High	5240	19.635	17.5555

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	19.665	17.6511
Middle	5200	19.579	17.5286
High	5240	19.124	17.7595

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5180	20.732	17.6570
Middle	5200	19.699	17.4910
High	5240	19.445	17.5278

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.24 GHz Trig Free Occupied Bandwidth	Center Freq 5.24000000 GHz
Project: 10U13475	Start Freq 5.21500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.26500000 GHz
lo dB/ offst 11 11 12 14 14 14 14 14 14 14 14 14 14	CF Step 5.0000000 MHz <u>Auto Man</u>
db mm m mm mm mm </th <th>Freq Offset 0.00000000 Hz</th>	Freq Offset 0.00000000 Hz
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.5555 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -96.452 kHz x dB Bandwidth 19.635 MHz*	
Copyright 2000-2010 Agilent Technologies	

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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.2 GHz Trig Free Occupied Bandwidth	Center Freq 5.20000000 GHz
Project: 10U13475	Start Freq 5.17500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.22500000 GHz
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.200 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.5286 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error -50.314 kHz x dB Bandwidth 19.579 MHz*	
Copyright 2000-2010 Agilent Technologies	

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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.2 GHz Trig Free Occupied Bandwidth	Center Freq 5.20000000 GHz
Project: 10U13475	Start Freq 5.17500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.22500000 GHz
10 dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.200 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
17.4910 MHz × dB -26.00 dB	on <u>on</u>
Transmit Freq Error -22.154 kHz x dB Bandwidth 19.699 MHz*	
Copyright 2000-2010 Agilent Technologies	

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7.2.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

For the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	4 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5180	16.99	19.665	16.94	5.50	16.94
Mid	5200	16.99	19.579	16.92	5.50	16.92
High	5240	16.99	19.124	16.82	5.50	16.82

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	9.60	12.23	10.44	15.67	16.94	-1.27
Mid	5200	9.90	12.35	10.14	15.71	16.92	-1.20
High	5240	9.06	12.19	10.29	15.48	16.82	-1.34

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CHAIN 1 OUTPUT POWER



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Ch Freq 5.2 GHz Trig Free Channel Power Image: Channel Power Image: Channel Power Image: Channel Power Project: 100/13475 Image: Channel Power Image: Channel Power Image: Channel Power Project: 100/13475 Image: Channel Power Image: Chanel Power Image: Channel Pow	OUTPUT POWER MID CH, CHAIN 1	BW/Avg
Project: 10U13475 Atten 30 dB Atten 30 dB VBW/RBW Log Ind Ind Ind Ind Auto Man VIGeo BW 3.0 MHz Auto Man VBW/RBW 1.00000 Auto Man Ind Ind Ind Ind Ind Ind Man Average Ind Man Center 5.200 00 GHz Frame Span 36 MHz Span 36 MHz Average Ind Man Channel Power Power Spectral Density 9.90 dBm / 24.0000 MHz -63.90 dBm/Hz Span/RBW Ind	Ch Freq 5.2 GHz Trig Free Channel Power	Res BW 1.0 MHz Auto <u>Man</u>
Offst 100 Offst 0ffst 11 0ffst dB 0 Center 5.200 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 9.90 dBm / 24.0000 MHz -63.90 dBm/Hz Span/RBW	Project: 10U13475 Ref 30 dB #Samp Log 10 dB/	Video BW 3.0 MHz Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average
Channel Power Power Spectral Density 9.90 dBm /24.0000 MHz -63.90 dBm/Hz Span/RBW 106 Auto Man	Offst 11 dB Center 5.200 00 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts)	100 <u>On Off</u> Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
	Channel Power Power Spectral Density 9.90 dBm / 24.0000 MHz -63.90 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 2 OUTPUT POWER



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OUTPUT POWER I	MID CH, CHAI	IN 2	BW/Avg
Ch Freq 5.2 Channel Power Project: 10U13475 Ref 30 dBm Atten : #Samp Log 10 dB/ Offst 11 dB Center 5.200 00 GHz	GHz	Trig Free	Res BW 1.0 MHz Auto Man Video BW 3.0 MHz Auto Man VBW/RBW 1.00000 Auto Man Average 100 On Off Avg/VBW Type Pwr (RMS) Man
Channel Power 12.35 dBm /24.0 Copyright 2000-2010 Agilent Te	#VBW 3 MHZ	Sweep 20 ms (601 pts) Power Spectral Density -61.45 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 3 OUTPUT POWER



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OUTPUT POWER	MID CH, CHA	IN 3	T BW/Avg
Ch Freq 5.2 Channel Power	GHz	Trig F	Free Auto Man Video BW 3.0 MHz Video BW 3.0 MHz Auto Man
Ref 30 dBm Atten : #Samp Atten : #	80 dB	Span 36	Auto Man Auto Man Average 00 0n Off Avg/VBW Type Pwr (RMS)* Auto Man tel
Channel Power 10.14 dBm /24.0 Copyright 2000-2010 Agilent Te	000 MHz	Power Spectral Density -63.66 dBm/H	/ Z Span/RBW 106 <u>Auto Man</u>

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7.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5180	9.31	12.03	10.07	15.40
Middle	5200	9.32	11.91	10.11	15.36
High	5240	9.01	11.52	10.12	15.11

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7.2.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

For the 5.15-5.25 GHz band, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 4 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

<u>RESULTS</u>

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5180	3.74	4	-0.26
Middle	5200	3.40	4	-0.60
High	5240	2.98	4	-1.02

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POWER SPECTRAL DENSITY WITH COMBINER



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🔆 Agilent 13:41:02 Nov 5, 20	110		Т	В	W/Avg
Ch Freq 5.2 (Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 2	0 dB	Mkr1 5.	199 30 GHz 3.400 dBm	Auto	
#Samp Log				<u>Auto</u>	1.00000 <u>Ma</u>
dB/		marrier and			Average 100
dB				<u>On</u> Ava/\	<u>Off</u> /BW Type
DI 4.0			Mary to water	Auto	Pwr (RMS) <u>Ma</u>
#PAvg 100					
W1 S2					Span/RBV
Center 5.200 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	ipan 30 MHz s (601 pts)	<u>Auto</u>	106 <u>Ma</u> i

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PSD HIGH CH, WI		t Т	BW/Avg
Ch Freq 5.24 Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBVV 1.0 MHZ Project: 10U13475 Ref 30 dBm Atten	20 dB	Mkr1 5.238 45 GHz 2.979 dBm	3.0 MHz Auto <u>Man</u>
#Samp Log 10			1.00000 Auto Man
dB/ Offst 21 dB			Average 100 On Off
DI 4.0		- Wypers attended	Avg/VBVV Type Pwr (RMS) • Auto <u>Man</u>
#PAvg 100 W1 S2			-
Center 5.240 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 30 MHz Sweep 20 ms (601 pts)	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Te	echnologies	· · · ·	

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7.2.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5180	10.50	13	-2.50
Middle	5200	10.47	13	-2.53
High	5240	10.16	13	-2.84

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5180	9.64	13	-3.36
Middle	5200	9.23	13	-3.77
High	5240	9.52	13	-3.48

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5180	10.33	13	-2.67
Middle	5200	11.84	13	-1.16
High	5240	10.36	13	-2.64

CHAIN 1

PEAK EXCURSION

PEAK EXCURSION L	-OW CH		
🔆 Agilent 15:11:34 Nov 5, 2010)	Т	BW/Avg
Ch Freq 5.18 GH Channel Power	lz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475	dB.	∆ Mkr1 0 Hz	Auto <u>Man</u>
#Peak		*-	VBVWRBW 1.00000 <u>Auto Man</u>
dB/ Offst		warman We	Average
			Avg/VBW Type
man and the second s		- When the second	Auto <u>Man</u>
#PAvg			
V1 V2			Span/RBW
Center 5.180 00 GHz #Res BW 1 MHz	#VBW 3 MHz S	Span 30 MH; weep 20 ms (601 pts)	z 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Techn	nologies		

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🔆 Agilent 15:15:09 Nov 5,	2010		Т	B	/V/Avg
Ch Freq 5.2 Channel Power	2 GHz		Trig Free	Auto	Res B\ 1.0 MH; <u>Ma</u>
RBW 1.0 MHz			MI1.011-	Auto	Video BV 3.0 MH: Ma
Ref 30 dBm Atter	1 30 dB	,	10.47 dB	Auto	VBW/RB 1.00000 <u>Ma</u>
10 dB/ Offst 11		Marine Mari	N	On	Average 100 <u>Of</u>
dB			Maria and a start	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2		s	pan 30 MHz		Span/RBV 108
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	s (601 pts)	<u>Auto</u>	<u>Ma</u>

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* Agilent 15:20:03 Nov 5,	2010		Т	BW/Avg
Ch Freq 5.2 Channel Power	24 GHz	-	Trig Free	Res B 1.0 MH Auto <u>M</u>
RBW 1.0 MHz		٥١	/kr1 0 Hz	Video B 3.0 MH Auto <u>M</u>
Ref 30 dBm Atter #Peak Log	n 30 dB		10.16 dB	VBVV/RE 1.0000 <u>Auto M</u>
10 dB/ Offst 11		and manufactures of the		Average 10 On <u>C</u>
dB			Mar a service for	Avg/VBW Type Pwr (RMS Auto <u>M</u>
#PAvg				
V1 V2		Sn Sn	an 30 MHz	Span/RB\
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	(601 pts)	Auto M

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CHAIN 2

PEAK EXCURSION



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* Agilent 14:58:50 Nov 5, 2	2010		Т	B	W/Avg
Ch Freq 5.2 Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Project: 100134/5 Ref 30 dBm Atten #Peak #Peak	30 dB		9.23 dB		VBW/RB 1.00000
Log 10 dB/		and the second		<u>Auto</u>	Ma Average
Offst 11 dB			him the harden	On Ava/V	Off BW Type
Warning the Agendantia			mar mar and	Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2		s	pan 30 MHz		Span/RBV 106
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	s (601 pts)	<u>Auto</u>	<u>Ma</u>

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PEAK EXCURSION	HIGH CH		-		
- 🧩 Agilent 14:54:58 Nov 5, 20)10				W/Avg
Ch Freq 5.24 Channel Power	GHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz					Video BW 3.0 MHz
Project: 10U13475		Δ	Mkr1 0 Hz	Auto	<u>Man</u>
Ref 30 dBm Atten 3 #Peak Log	0 dB		9.52 dB	<u>Auto</u>	VBW/RBV 1.00000 <u>Man</u>
10 dB/ Offst	The second s	and			Average 100
11 dB			Will With manufacture	On Avg/\	<u>Off</u> /BW Type
Manager and the and			and the state of t	Auto	Pwr (RMS) ► <u>Man</u>
#PAvg					
V1 V2					Span/RBW
Center 5.240 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sy Sweep 20 ms	oan 30 MHz (601 pts)	<u>Auto</u>	106 <u>Man</u>
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CHAIN 3

PEAK EXCURSION



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Agilent 14:44:52 Nov 5, 2	010		Т	В	W/Avg
Ch Freq 5.2 Channel Power	GHz		Trig Free	Auto	Res B\ 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Mo
Project: 10U13475 Ref 30 dBm Atten : #Peak Log	30 dB		. Mkr1 0 Hz 11.84 dB	Auto	VBW/RB 1.00000 Ma
10 dB/ Offst		Anne marken and a	<u> </u>	On	Average 100 <u>Of</u>
dB			A Subject of the second	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2			non 20 MHz	Ś	Span/RBV
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	s (601 pts)	<u>Auto</u>	<u>Ma</u>

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PEAK EXCURSION	I HIGH CH			
🔆 Agilent 14:48:39 Nov 5, 2	010		Т	BW/Avg
Ch Freq 5.24 Channel Power	GHz	Tri	ig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz				Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3	30 dB	۵ Mi	(r1 0 Hz 0.36 dB	VBW/RBV
HPeak Log			*	1.00000 <u>Auto Man</u>
dB/ Offst	and a start and a	any general contangen		Average 100
11 dB			William	On <u>Ott</u> Avg/VBW Type
			Hay Wayton	Pwr (RMS) ► Auto <u>Man</u>
#PAvg				
V1 V2				Span/RBVV
Center 5.240 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Spa Sweep 20 ms (6	n 30 MHz 01 pts)	<u>Auto Man</u>
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7.2.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (1)

IC RSS-210 A9.3 (1)

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.3. 802.11n THREE CHAINS HT40 MODE IN THE 5.2 GHz BAND

7.3.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency 26 dB Bandwidth		99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5190	38.101	36.3802
High	5230	39.237	36.1201

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5190	38.814	36.1397
High	5230	37.375	36.3575

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5190	38.534	35.9210
High	5230	40.760	36.3548

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.23 GHz Trig Free Occupied Bandwidth	Center Freq 5.23000000 GHz
Project: 10U13475	Start Freq 5.2050000 GHz
Ref 20 dBm Atten 20 dB #Samp Log Cog Cog Cog Cog Cog Cog Cog Cog Cog C	Stop Freq 5.2550000 GHz
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	CF Step 5.0000000 MHz <u>Auto Man</u>
Genter 5.230 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 36.1201 MHz × dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -13.036 kHz x dB Bandwidth 39.237 MHz*	
Copyright 2000-2010 Agilent Technologies	

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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Т	Freq/Channel
Ch Freq 5.23 GHz Occupied Bandwidth	Trig Free	Center Freq 5.23000000 GHz
Project: 10U13475		Start Freq 5.20500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	At Maria Maria	Stop Freq 5.25500000 GHz
dB/		CF Step 5.0000000 MHz <u>Auto Man</u>
dB	Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz	#Sweep 100 ms (601 pts)	
Occupied Bandwidth 36.3575 MHz	Occ BW % Pwr 99.00 % x dB -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error 6.744 kHz x dB Bandwidth 37.375 MHz*		
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH HIG Agilent 10:50:27 Nov 5,	H CH 2010		Т	Freq/Channel
Ch Freq 5.2 Occupied Bandwidth	3 GHz		Trig Free	Center Freq 5.23000000 GHz
Project: 10U13475				Start Freq 5.20500000 GHz
Ref 20 dBm Atter #Samp Log	120 dB	LINAN DALAMAN MARKAN		Stop Freq 5.25500000 GHz
dB/ → → → → → → → → → → → → → → → → → → →				CF Step 5.0000000 MHz <u>Auto Man</u>
Center 5.230 00 GHz #Res RW 430 kHz	#VBW 1.3 M	Hz #Sween 100	Span 50 MHz	Freq Offset 0.00000000 Hz
Occupied Bandw 36.3	idth 548 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error x dB Bandwidth	-100.347 kHz 40.760 MHz*			
Copyright 2000-2010 Agilent	<u>Fechnologies</u>			

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7.3.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

For the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	B 4 + 10 Log B		Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5190	16.99	38.101	19.81	5.50	16.99
High	5230	16.99	37.275	19.71	5.50	16.99

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	10.88	12.96	11.83	16.74	16.99	-0.25
High	5230	10.88	13.50	11.40	16.85	16.99	-0.14

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CHAIN 1 OUTPUT POWER



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CHAIN 2 OUTPUT POWER



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CHAIN 3 OUTPUT POWER



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OUTPUT POWER	HIGH CH, CHA 2011	AIN 3	T BW/Avg
Ch Freq 5.23 Channel Power	GHz	Trig Fi	ree Res BW 1.0 MHz Auto <u>Man</u> Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten #Samp Log 10 dB/ Offst 11 dB Center 5.230 000 GHz	30 dB	Span 63 N	Auto Man VBW/RBW 1.00000 Auto Man Average 100 Avg/VBW Type Pwr (RMS) • HHz Auto Man
#Res BW 1 MHz Channel Power 11.40 dBm / 42.0 Copyright 2000-2010 Agilent Te	#VBW 3 MHz F 10000 MHz	Sweep 20 ms (601 pts Power Spectral Density -64.83 dBm/Hz) Span/RBW 106 <u>Auto Man</u>

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7.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5190	10.18	12.11	11.21	16.01
High	5230	10.03	13.02	11.47	16.45

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7.3.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (1)

IC RSS-210 A9.2 (1)

For the 5.15-5.25 GHz band, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 4 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5190	3.914	4	-0.086
High	5230	2.561	4	-1.439

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POWER SPECTRAL DENSITY WITH COMBINER

PSD LOW CH, WIT	H COMBINER		
🔆 Agilent 09:52:45 Nov 5, 20)10	T	BW/Avg
Ch Freq 5.19 Channel Power	GHz	Trig Fre	e Res BW e 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW
Project: 10U13475	û dB	Mkr1 5.201 1 GHz 3 914 dBm	Auto <u>Man</u>
#Samp			
0 dB/ Offst		1.	Average 100
21 / / / / / / / / / / / / / / / / / / /			Avg/VBW Type
dBm		Man mayley	Auto Man
#PAvg			-
W1 S2		Span 60 MH	Span/RBW
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms (601 pts)	<u>Auto Man</u>
Copyright 2000-2010 Agilent Teo	chnologies		

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Agilent 10:02:43 Nov 5, 2	010	Т	Freq/Channel
Ch Freq 5.23 Channel Power	GHz	Trig Free	Center Freq 5.23000000 GHz
Project: 10U13475		Mkr1 5.221 8 GHz	Start Freq 5.2000000 GHz
Ref 30 dBm Atten 3 #Samp Log	20 dB	2.561 dBm	Stop Freq 5.2600000 GHz
10 dB/ Offst			CF Step 6.00000000 MHz <u>Auto Mar</u>
dB / DI 4.0 mpt		- Humphone	Freq Offset 0.00000000 Hz
#PAvg 100 W1 S2			Signal Track On <u>Off</u>
Center 5.230 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 60 MHz Sweep 20 ms (601 pts)	

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7.3.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5190	11.18	13	-1.82
High	5230	11.64	13	-1.36

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5190	12.28	13	-0.72
High	5230	12.79	13	-0.21

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5190	11.65	13	-1.35
High	5230	11.94	13	-1.06

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CHAIN 1

PEAK EXCURSION

	т	B\//Aya
Ch Freq 5.19 GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475	∆ Mkr1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten 30 dB #Peak	11.18 dB	VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst	and a second and a second a se	Average 100 On <u>Off</u>
aB	March	Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
#PAvg		
V1 V2	Span 60 MHz	Span/RBW
#Res BW 1 MHz #VBW 3 MHz Copyright 2000-2010 Agilent Technologies	Sweep 20 ms (601 pts)	<u>Auto Man</u>

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PEAK EXCURSION			т	P\A//Ava	_
Ch Freq 5.23 Channel Power) GHz	7	Trig Free	Res B ¹ 1.0 MH Auto <u>Ma</u>	W z an
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten #Peak Image: Comparison of the second seco	30 dB	۸۵	/lkr1 0 Hz 11.64 dB	Video B\ 3.0 MH Auto <u>Ma</u> VBW/RB 1.00000	₩ zmn M
Log 10 dB/ Offst 11 D	and the second	deren y yr Halfens Mar		Auto Ma Average 100 On <u>Ot</u>	<u>an</u> : 0 ff
			44,//WWWW	Avg/VBW Type Pwr (RMS) Auto <u>Ma</u>	:) ► an
V1 V2		Sp	an 60 MHz	Span/RBV	√ 6
#Res BW 1 MHz Copyright 2000-2010 Agilent To	#VBW 3 MHz echnologies	Sweep 20 ms	(601 pts)	<u>Auto Ma</u>	<u>an</u>

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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION LO	W CH	т	BW//Aya
Ch Freq 5.19 GHz Channel Power		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz		<u>ــــــــــــــــــــــــــــــــــــ</u>	Video BW 3.0 MHz Auto Man
Ref 30 dBm Atten 30 dB #Peak Log 10 dB/ Offst 11 dB			VBW/RBW 1.00000 <u>Auto Man</u> Average 100 On <u>Off</u> Avg/VBW Type Pwr (RMS)* Auto <u>Man</u>
#PAvg		Span 60 MHz	Span/RBW
#Res BW 1 MHz # Copyright 2000-2010 Agilent Technolog	VBW 3 MHz Sv gies	weep 20 ms (601 pts)	Auto Man

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PEAK EXCURSION	HIGH CH		т		· · · · · · · · · · · · · · · · · · ·
Ch Freq 5.23 G	Hz	Trig	Free	Auto	Res BW 1.0 MHz Man
RBW 1.0 MHz				V Auto	ideo BW 3.0 MHz
Project: 100134/5 Ref 30 dBm Atten 30 #Peak	dB	۵ Mkr 12	1 U Hz .79 dB	Auto	BW/RBV 1.00000 Man
10 Server of the		non man and the former		A	verage 100 Off
			MANIF VA	Avg/VB\ Pv Auto	 V Type vr (RMS)∙ Mar
#PAvg					
V1 V2		Span	60 MHz	Sp	an/RBW 106
#Res BW 1 MHz Copyright 2000-2010 Agilent Tech	#VBW 3 MHz nologies	Sweep 20 ms (60	1 pts)	Auto	<u>ivian</u>

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CHAIN 3

PEAK EXCURSION



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			т	BW/Ava
Ch Freq 5.23 Channel Power	GHz	Trig	Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		∆ Mkr1 □	O Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten 3 #Peak Log 10	30 dB	11.94	l dB *	VBW/RBV 1.00000 <u>Auto Mar</u>
dB/ Offst 11	alander and a second for a second for	and the second s		Average 100 On <u>Off</u>
dB				Avg/VBW Type Pwr (RMS) • Auto <u>Mar</u>
#PAvg				
V1 V2	4VDW 2 MIL-	Span 60	MHz	Span/RBW 106 Auto Man
#Res DVV 1 MHZ Copyright 2000-2010 Agilent Te	#VOVV 3 MITZ	5weep 20 ms (601 p	ns)	<u>Man</u>

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7.3.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (1)

IC RSS-210 A9.3 (1)

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.4. 802.11a THREE CHAINS LEGACY MODE IN THE 5.3 GHz BAND

7.4.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5260	26.614	16.3992
Middle	5300	27.130	16.4699
High	5320	26.688	16.6184

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth	
	(MHz)	(MHz)	(MHz)	
Low	5260	27.127	16.6643	
Middle	5300	27.692	16.4628	
High	5320	28.467	16.7663	

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5260	26.594	16.5814
Middle	5300	26.390	16.6829
High	5320	26.202	16.4907

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.32500000 GHz
10 dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.300 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.4699 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error -17.117 kHz x dB Bandwidth 27.130 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.32 GHz Trig Free Occupied Bandwidth	Center Freq 5.32000000 GHz
Project: 10U13475	Start Freq 5.29500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.3450000 GHz
	CF Step 5.00000000 MHz <u>Auto Man</u>
Center 5 320 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.6184 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -25.293 kHz x dB Bandwidth 26.688 MHz*	
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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.32500000 GHz
10 dB/ Offst 11 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.300 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.4628 MHz x dB -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error -6.333 kHz x dB Bandwidth 27.692 MHz*	
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BANDWIDTH HIGH C	H		Т	Freq/Channel
Ch Freq 5.32 GH; Occupied Bandwidth			Trig Free	Center Freq 5.32000000 GHz
Project: 10U13475				Start Freq 5.29500000 GHz
Ket ZU dBm Atten ZU d #Samp Log 10	B B			Stop Freq 5.34500000 GHz
dB/ Offst 11 dB			WATH AND A WARA AND	CF Step 5.00000000 MHz <u>Auto Man</u>
Center 5.320 00 GHz #Res BW 200 kHz	#VBW 620 kHz	#Sweep 100 m	Span 50 MHz ns (601 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwidth 16.7663	MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -171. x dB Bandwidth 28.4	086 kHz 67 MHz*			
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.32500000 GHz
10 dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.300 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.6829 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error 49.552 kHz x dB Bandwidth 26.390 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH Agilent 09:30:35 Nov 8, 2010	Т	Freq/Channel
Ch Freq 5.32 GHz Occupied Bandwidth	Trig Free	Center Freq 5.32000000 GHz
Project: 10U13475		Start Freq 5.29500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10 Or With World Atten		Stop Freq 5.34500000 GHz
dB/ Offst		CF Step 5.0000000 MHz <u>Auto Man</u>
dB	Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz	: #Sweep 100 ms (601 pts)	
Occupied Bandwidth 16.4907 MHz	Occ BW % Pwr 99.00 % x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error 8.508 kHz x dB Bandwidth 26.202 MHz*		
Copyright 2000-2010 Agilent Technologies		

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7.4.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.77	10.27

For the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Effective	Limit
		Limit		Limit	Ant. Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5260	23.98	26.59	25.25	10.27	19.71
Mid	5300	23.98	26.39	25.21	10.27	19.71
High	5320	23.98	26.2	25.18	10.27	19.71

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	13.92	15.01	14.42	19.24	19.71	-0.47
Mid	5300	14.83	14.85	14.71	19.57	19.71	-0.14
High	5320	14.42	14.71	15.08	19.52	19.71	-0.19

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CHAIN 1 OUTPUT POWER



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OUTPUT POWER MII	CH, CHA	IN 1	Т	BW/Avg
Ch Freq 5.3 GHz Channel Power	Res BW 1.0 MHz Auto <u>Man</u> Video BW			
Project: 10U13475 Ref 30 dBm Atten 30 dl #Samp 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	B	Span -	45 MHz	3.0 MHz Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pwr (RMS) Auto Man
#Res BW 1 MHz Channel Power 14.83 dBm / 30.000 Copyright 2000-2010 Agilent Techno	#VBW 3 MHz 0 MHz plogies	Sweep 20 ms (601 Power Spectral Dens -59.94 dBm/	ity /Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 2 OUTPUT POWER



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OUTPUT POWER	MID CH, CHA	IN 2	BW/Avg
Ch Freq 5.3 Channel Power	Res BW 1.0 MHz Auto <u>Man</u> Video BW		
Project: 10U13475 Ref 30 dBm Atten #Samp Log 10 dB/ Offst 11 dB Center 5.300 000 GHz	30 dB	Span 45 MHz	3.0 MHz Auto <u>Man</u> VBW/RBV 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pwr (RMS) • Auto Man
#Res BW 1 MHz Channel Power 14.85 dBm / 30.0 Copyright 2000-2010 Agilent Tr	#VBW 3 MHz	Sweep 20 ms (601 pts) Power Spectral Density -59.92 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 3 OUTPUT POWER



Page 144 of 528
Chennel Power Trig Free Res BW Channel Power Image: Channel Power Video BW Project: 10U13475 Video BW 3.0 MHz Ref 30 dBm Atten 30 dB VBW/RBV Auto Man Log VBW/RBV 1.00000 Auto Man 10 VBW/RBV 1.00000 Auto Man VBW/RBV Man VBW/RBV 1.00000 11 Average 100 0n Offst 11 VBW 3 MHz Span 45 MHz Auto Man Auto Man Average 100 0n Offst Center 5.300 000 GHz #VBW 3 MHz Sweep 20 ms (601 pts) Auto Man Channel Power Power Spectral Density Auto Man 14.71 dBm / 30.0000 MHz -60.06 dBm/Hz Span/RBW 106	OUTPUT POWER MID CH, CHAIN Agilent 00:12:54 Mar 23, 2011	3	BW/Avg
Project: 10U13475 Auto Man Ref 30 dBm Atten 30 dB VBW/RBV Log Image: Constraint of the second	Ch Freq 5.3 GHz Channel Power	Trig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Center 5.300 000 GHz Span 45 MHz Auto Man #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Image: Constraint of the system of the sys	L Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp definition of the second sec		Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pwr (RMS) •
Channel Power Power Spectral Density 14.71 dBm / 30.0000 MHz -60.06 dBm/Hz Span/RBW 106 Auto Man	Center 5.300 000 GHz #Res BW 1 MHz #VBW 3 MHz	Span 45 MHz Sweep 20 ms (601 pts)	Auto <u>Man</u>
	Channel Power Powe	wer Spectral Density -60.06 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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7.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5260	13.60	15.00	13.90	18.98
Middle	5300	14.80	14.50	14.50	19.37
High	5320	14.00	14.10	14.40	18.94

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7.4.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.7	77 10.27

For the 5.25–5.35 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum effective antenna gain is 10.27 dBi, therefore the limit is 6.73 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

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RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5260	6.199	6.73	-0.531
Middle	5300	6.264	6.73	-0.466
High	5320	6.303	6.73	-0.427

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POWER SPECTRAL DENSITY WITH COMBINER



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Agilent 13:45:31 Feb 25, 2	011		T BW/Avg
Ch Freq 5.3 G Channel Power	GHz	Trig F	ree Res B Auto <u>M</u>
Project: 10U13475		Mkr1 5.304 800 G	Video B 3.0 MH Hz Auto <u>M</u> a
Ref 30 dBm Atten 24)dB	6.264 dE	3m VBW/RE
#Samp Log 10			1.00000 <u>Auto M</u>
dB/	prover and a second	Ramony	Average 10
21 dB			Avg/VBW Type
DI 11.0 mm		"When we wanted	Auto M
#PAvg			
W1 S2			Span/RBV
Center 5.300 000 GHz ⊭Res BW 1 MHz	#VBW 3 MHz	Span 45 f Sweep 20 ms (601 pt	MHz 10 s) <u>Auto M</u> s

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* Agilent 13:51:10 Feb 25	, 2011	τ.	BW/Avg
Ch Freq 5.33 Channel Power	2 GHz	Trig Free	Res BV 1.0 MHz Auto Mar
Project: 10U13475 Ref 30 dBm Atten	20 dB	Mkr1 5.318 800 GHz 6.303 dBm	Video BV 3.0 MHz Auto <u>Mar</u>
#Samp Log 10	1		1.00000 Auto Mar Average
05/ Offst 21 dB			- 100 <u>On Off</u> Avg0//BW/Type
DI 11.0 dBm		The second secon	Pwr (RMS) ^v Auto <u>Mar</u>
#PAvg 100 W1 S2			
Center 5.320 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 45 MHz Sweep 20 ms (601 pts)	L Span/RBW 106 <u>Auto Mar</u>

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7.4.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	9.68	13	-3.32
Middle	5300	8.37	13	-4.63
High	5320	8.23	13	-4.77

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	10.25	13	-2.75
Middle	5300	9.84	13	-3.16
High	5320	9.72	13	-3.28

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	10.18	13	-2.82
Middle	5300	9.88	13	-3.12
High	5320	9.35	13	-3.65

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CHAIN 1

PEAK EXCURSION

PEAK EXCURSION	LOW CH				
🔆 Agilent 09:15:57 Nov 8, 20	10		Т	BM	//Avg
Ch Freq 5.26 C Channel Power	GHz		Trig Free	Auto	Res BVV 1.0 MHz <u>Man</u>
RBW 1.0 MHz				۱ ۱	Video BW 30 MHzI
Project: 10U13475		۵	Mkr1 0 Hz	Auto	<u>Man</u>
Ref 30 dBM Atten 30 #Peak Log 10 dB/ Offst 11 dB blucher/Willing manufactor blucher/Willing manufactor			9.58 db	A <u>uto</u> On Avg/VE Auto	/BW/RBV 1.00000 <u>Man</u> Average 100 <u>Off</u> Wr (RMS) • <u>Man</u>
#PAvg				S	pan/RBW
Center 5.260 000 GHz #Res BW 1 MHz	#VBW 3 MHz	S Sweep 20 ms	pan 45 MHz s (601 pts)	<u>Auto</u>	106 <u>Man</u>
Copyright 2000-2010 Agilent Tec	hnologies				

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* Agilent 09:22:12 Nov 8, 20	010		Т	B\	N/Avg
Ch Freq 5.3 Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz			Mist 0 Ha	Auto	Video BV 3.0 MHz Ma
Ref 30 dBm Atten 3 #Peak Log	10 dB		8.37 dB	Auto	VBW/RB ¹ 1.00000 Ma
10 dB/ Offst	and the second s	and the second s		 On	Average 100 Off
dB		- Warner	Wend Charles Marked	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2				5) pan/RBV
Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	S Sweep 20 ms	pan 45 MHz ; (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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PEAK EXCURSION			Т	BW/Ava 1
Ch Freq 5.32 Channel Power	GHz		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		۵	Mkr1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten : #Peak Log 10	1		8.23 dB	VBW/RBV 1.00000 <u>Auto Man</u>
dB/ Offst 11		and the second	Martin La	Average 100 On <u>Off</u>
dB		Norther products	the manufacture and	Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
#PAvg				
Center 5.320 000 GHz #Res BW 1 MHz	#VBW 3 MH7	Sween 20 m	pan 45 MHz s (601 nts)	Span/RBW 106 Auto Man
Copyright 2000-2010 Agilent Te	chnologies	5 H C C P 20 III	5 (50 F Pray	

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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION	LOW CH				
🔆 Agilent 09:57:23 Nov 8, 201	10		Т	B۷	WAvg 💦
Ch Freq 5.26 G Channel Power	GHz		Trig Free	Auto	Res BVV 1.0 MHz <u>Man</u>
RBW 1.0 MHz					Video BW 3.0 MHz
Project: 10U13475	. JD	Δ١	Mkr1 0 Hz	Auto	<u>Man</u>
#Peak			10.25 dB	<u>Auto</u>	VBW/RBM 1.00000 <u>Man</u>
dB/ Offst		and the second s		On	Average 100 Off
dB		Korrower	The second s	Avg/VI	BW Type Pwr (RMS) ►
#PAvg				Auto	<u>Man</u>
V1 V2					inan/RBW/
Center 5.260 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sr Sweep 20 ms	oan 45 MHz (601 pts)	<u>Auto</u>	106 106
Copyright 2000-2010 Agilent Tech	hnologies				

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Agilent 09:53:26 Nov 8, 2	010		Т	B	W/Avg
Ch Freq 5.3 Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz			Mkr1 0 Hz	Auto	Video BV 3.0 MHz Ma
Ref 30 dBm Atten 3 #Peak Log	30 dB		9.84 dB	Auto	VBW/RB 1.00000 <u>Ma</u>
10 dB/ Offst 11 the block wave		man 1		On	Average 100 <u>Of</u>
dB			and the second sec	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
					Span/RBV
Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	s (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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PEAK EXCURSION			Т	BW/Avg	<u> </u>
Ch Freq 5.32 Channel Power	GHz		Trig Free	Res B 1.0 MH Auto <u>M</u> i	¦W Iz an
RBW 1.0 MHz Project: 10U13475			∆ Mkr1 0 Hz	Video B' 3.0 MH Auto <u>M</u> i	W Iz an
Ref 30 dBm Atten 3 #Peak Log 10	30 dB		9.72 dB	VBW/RE 1.00000 <u>Auto M</u> :	3V∖ D ⊡an
dB/ Offst 11		mon wanter the	Marka I.	Average 10 On <u>O</u>) 10 0 <u>所</u>
dB		- Vitheringer	were and a second a se	Avg/VBW Type Pwr (RMS) Auto Mi	¢)∙ lan
#PAvg					
V1 V2			Span 45 MHz	Span/RBV	// 16
# Res BW 1 MHz Copyright 2000-2010 Agilent Te	#VBW 3 MHz chnologies	Sweep 20	ms (601 pts)	<u>Auto M</u>	an

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CHAIN 3

PEAK EXCURSION

	СН	т	BW/Ava
Ch Freq 5.26 GHz Channel Power		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		∆ Mkr1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten 30 dB #Peak Log 10 dB/ Offst 11 unuture data and a strength of the strength o		10.18 dB	VBW/RBW 1.00000 <u>Auto Man</u> Average 00 On <u>Off</u>
#PAvg		and the second s	Avg/VBW Type Pwr (RMS) ► Auto <u>Man</u>
V1 V2		Span 45 MHz	Span/RBW 106
Center 5.260 000 GHz #Res BW 1 MHz #VB Copyright 2000-2010 Agilent Technologie:	W 3 MHz Sweep 20	Span 45 MHz ms (601 pts)	106 Auto <u>Man</u>

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🔆 Agilent 16:14:59 Nov 6, 20	10		Т	В	W/Avg
Ch Freq 5.3 G Channel Power	Hz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Ref 30 dBm Atten 30 #Peak Log) dB		9.88 dB	Auto	VBW/RB ¹ 1.00000 Ma
10 dB/ Offst 11				On	Average 100 <u>Of</u>
dB		North and the state	Marine Construction	Avg/v Auto	/BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2	#VDW 2 MH-	Sween 20 m	Span 45 MHz	Auto	Span/RBV 106 Ma

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			т	BW/Ava
Ch Freq 5.32 Channel Power	GHz	Trig	Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		∆ Mkr1	0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Affen 3 #Peak Log 10		9	35 dB	VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst 11		and the second sec	Phane Mar	Average 100 On <u>Off</u>
W Contraction of the contraction			Marken Line	Avg/VBW Type Pwr (RMS) [►] Auto <u>Man</u>
#PAvg				
Center 5.320 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span Sweep 20 ms (601	45 MHz Ipts)	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Te	chnologies			

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7.4.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (2)

IC RSS-210 A9.3 (2)

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.5. 802.11n THREE CHAIN HT20 MODE IN THE 5.3 GHz BAND

7.5.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5260	24.026	17.7461
Middle	5300	26.450	17.8793
High	5320	26.011	17.5315

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5260	26.962	17.7806
Middle	5300	26.873	17.6020
High	5320	28.966	17.8666

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5260	26.002	17.7563
Middle	5300	27.912	17.9305
High	5320	26.198	17.7968

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 13:31:28 Nov 8, 2010 T	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.32500000 GHz
	CF Step 5.00000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.8793 MHz × dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -25.036 kHz x dB Bandwidth 26.450 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.32 GHz Trig Free Occupied Bandwidth	Center Freq 5.32000000 GHz
Project: 10U13475	Start Freq 5.2950000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10	Stop Freq 5.3450000 GHz
dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.320 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
17.5315 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error 105.713 kHz x dB Bandwidth 26.011 MHz*	
Copyright 2000-2010 Agilent Technologies	

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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 13:53:23 Nov 8, 2010 T	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.32500000 GHz
	CF Step 5.00000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 680 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.6020 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -44.937 kHz x dB Bandwidth 26.873 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH	Freq/Channel				
Ch Freq 5.32 GHz Trig Free Occupied Bandwidth	Center Freq 5.32000000 GHz				
Project: 10U13475	Start Freq 5.29500000 GHz				
Ref 20 dBm Atten 20 dB #Samp Log 10	Stop Freq 5.34500000 GHz				
dB/ Offst	CF Step 5.0000000 MHz <u>Auto Man</u>				
Center 5.320 00 GHz Span 50 MHz #Sween 100 ms (601 pts)	Freq Offset 0.00000000 Hz				
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.8666 MHz × dB -26.00 dB	Signal Track On <u>Off</u>				
Transmit Freq Error -20.494 kHz x dB Bandwidth 28.966 MHz*					
Copyright 2000-2010 Agilent Technologies					

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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.3 GHz Trig Free Occupied Bandwidth	Center Freq 5.30000000 GHz
Project: 10U13475	Start Freq 5.27500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.32500000 GHz
10 dB/ Offst	CF Step 5.00000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.9305 MHz x dB -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error -107.977 kHz x dB Bandwidth 27.912 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH	Freq/Channel					
Ch Freq 5.32 GHz Trig Free Occupied Bandwidth	Center Freq 5.32000000 GHz					
Project: 10U13475	Start Freq 5.29500000 GHz					
Ref 20 dBm Atten 20 dB #Samp Log 10 dB/ Offst	Stop Freq 5.34500000 GHz CF Step 5.00000000 MHz Auto Man					
dB	Freq Offset 0.00000000 Hz					
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.7968 MHz x dB -26.00 dB	Signal Track On <u>Off</u>					
Transmit Freq Error -26.548 kHz x dB Bandwidth 26.198 MHz*						
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7.5.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5260	23.98	24.025	24.81	5.50	23.98
Mid	5300	23.98	26.45	25.22	5.50	23.98
High	5320	23.98	26.011	25.15	5.50	23.98

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	18.57	19.49	18.48	23.64	23.98	-0.34
Mid	5300	18.04	18.45	18.12	22.98	23.98	-1.00
High	5320	18.18	18.69	18.25	23.15	23.98	-0.83

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CHAIN 1 OUTPUT POWER



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Ch Freq 5.3 GHz Trig Free Channel Power I.0 MHz Project: 10U13475 Video BV Ref 30 dBm Atten 30 dB #Samp I.0 MHz Log I.0 MHz 0 dB/ I.0 MHz 0 dB/ I.0 MHz 11 dB III III III III III III IIII III IIII III IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	OUTPUT POWER MID CH, C * Agilent 13:32:26 Nov 8, 2010	CHAIN 1	Т	BW/A	vg
RBVV 1.0 MHZ 3.0 MHz Project: 10U13475 Auto Ref 30 dBm Atten 30 dB #Samp 0 Log 0 10 0 dB/ 0 Offst 0 11 0 dB 0 Center 5.300 000 GHz Span 45 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) 0 Channel Power Power Spectral Density 18.04 dBm / 30.0000 MHz -56.73 dBm/Hz	Ch Freq 5.3 GHz Channel Power		Trig Free	R 1 Auto Vid	es BW .0 MHz <u>Man</u>
dB/ Offst	RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp Log 10			Auto VB\ <u>Auto</u>	.0 MHz <u>Man</u> N/RBV .00000 <u>Man</u>
#Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 18.04 dBm / 30.0000 MHz -56.73 dBm/Hz Span/RBW 106 Auto Mai	dB/ Offst	S	pan 45 MHz	<u>On</u> Avg/VBW Pwr Auto	100 <u>Off</u> Type (RMS) • <u>Man</u>
	#Res BW 1 MHz #VBW 3 M Channel Power 18.04 dBm / 30.0000 MHz	IHz Sweep 20 m Power Spectral I -56.73 dE	s (601 pts) Density Bm/Hz	Spar <u>Auto</u>	1/RBW 106 <u>Man</u>

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OUTPUT POWER	HIGH CH, CH/	AIN 1	BW/Avg
Ch Freq 5.32 Channel Power	GHz	Trig Fre	e Res BW Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475			Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten #Samp Dog 10	30 dB		VBW/RBV 1.00000 <u>Auto Man</u>
dB/ Offst			Average 100 On Off
dB		Span 45 Mł	Avg/VBW Type Pwr (RMS) [•] Iz Auto <u>Man</u>
#Res BW 1 MHz Channel Power	#VBW 3 MHz	Sweep 20 ms (601 pts) Power Spectral Density	
18.18 dBm /30.0	000 MHz	-56.59 dBm/Hz	Span/RBW 106 Auto Man
Copyright 2000-2010 Agilent Te	chnologies		

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CHAIN 2 OUTPUT POWER



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Ch Freq 5.3 GHz Trig Free Channel Power Auto Video Ref 30 dBm Atten 30 dB Video Auto Project: 10U13475 Auto Video Ref 30 dBm Atten 30 dB VBW/l Auto VBW/l Log 0 0 Auto VBW/l 10 0 0 Auto VBW/l 11 0 0 Avera 0 0ffst 0 0 Avera 0 11 0 0 Avera 0 0r Avg/VBW Ty Pwr (Rh Auto Avg/VBW Ty Center 5.300 000 GHz Span 45 MHz Auto Auto Channel Power Power Spectral Density Auto Auto Span/R 18.45 dBm / 30.0000 MHz -56.32 dBm/Hz Span/R Span/R	OUTPUT POWER	MID CH, CHAI	N 2	Т	BW/Avg
Project: 10U13475 Ref 30 dBm Atten 30 dB VBW// Samp Log 10 dB/ Offst 11 dB Center 5.300 000 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 18.45 dBm / 30.0000 MHz -56.32 dBm/Hz Span/R	Ch Freq 5.3 Channel Power RBW 1.0 MHz	GHz	T	rig Free	Res BW 1.0 MHz Auto Man Video BW 3.0 MHz
Center 5.300 000 GHz Span 45 MHz Auto #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Auto Channel Power Power Spectral Density Image: Colspan 45 mHz Image: Colspan 45 mHz 18.45 dBm / 30.0000 MHz -56.32 dBm/Hz Span /R	Project: 10U13475 Ref 30 dBm Atten 3 #Samp 4 Log 4 10 4 dB/ 4 Offst 4 dB 4 Log	0 dB			Auto <u>Man</u> VBW/RBV 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pwr (RMS)*
Channel Power Power Spectral Density 18.45 dBm / 30.0000 MHz -56.32 dBm/Hz Span/R	Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Spa Sweep 20 ms (an 45 MHz 601 pts)	Auto <u>Man</u>
Auto	Channel Power 18.45 dBm /30.0	F 000 MHz	ower Spectral De	ensity m/Hz	Span/RBW 106 <u>Auto Mar</u>

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CHAIN 3 OUTPUT POWER



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Ch Freq 5.3 GHz Trig Free Channel Power Auto Man Ref 30 dBm Atten 30 dB Video BW Ysamp Auto Man Log Video BW 3.0 MHz Auto Man VBW/RBV 1.00000 Auto Man Average 100 Offst Ind I1 Ind dB Ind Center 5.300 000 GHz Span 45 MHz WR SW 1 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 18.12 dBm / 30.0000 MHz -56.65 dBm/Hz Span/RBW Ind Auto Man	OUTPUT POWER N	11D CH, CHAI	N 3	Т	BW/Avg
Project: 10U13475 Auto Man Ref 30 dBm Atten 30 dB VBW/RBV Log Interview Interview 10 Interview Interview dB/ Interview Interview Offst Interview Interview dB Interview Interview dB Interview Interview Center 5.300 000 GHz Span 45 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 18.12 dBm / 30.0000 MHz -56.65 dBm/Hz Span/RBW Interview Interview Interview	Ch Freq 5.3 G Channel Power RBW 1.0 MHz	Hz		Trig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW 3.0 MHz
Center 5.300 000 GHz Span 45 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 18.12 dBm / 30.0000 MHz -56.65 dBm/Hz Span 45 MHz Span 45 MHz Auto Man	Project: 10U13475 Ref 30 dBm Atten 34 #Samp bog Log dB/ Offst dB/ dB/ dB/ dB/ dB/ dB/ dB/) dB			Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Ever (BMS)
Channel Power Power Spectral Density 18.12 dBm / 30.0000 MHz -56.65 dBm/Hz Span/RBW 106 <u>Auto Man</u>	Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	S Sweep 20 ms	pan 45 MHz ; (601 pts)	Auto <u>Man</u>
	Channel Power 18.12 dBm /30.00	000 MHz	Power Spectral E -56.65 dE	Density B m/Hz	Span/RBW 106 <u>Auto Man</u>

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DUTPUT POWER HIGH CH, C Agilent 13:40:51 Nov 8, 2010	HAIN 3	BW/Avg
Ch Freq 5.32 GHz Channel Power	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp		Video BW 3.0 MHz Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Burg (PMS)
Center 5.320 000 GHz #Res BW 1 MHz #VBW 3 MHz	Span 45 MHz Sweep 20 ms (601 pts)	Auto <u>Man</u>
Channel Power 18.25 dBm / 30.0000 MHz Copyright 2000-2010 Agilent Technologies	Power Spectral Density -56.52 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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7.5.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5260	17.21	18.91	17.83	22.81
Middle	5300	17.33	18.08	17.75	22.50
High	5320	17.24	17.84	17.71	22.38

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7.5.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25–5.35 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 11 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5260	10.610	11	-0.390
Middle	5300	10.354	11	-0.646
High	5320	9.943	11	-1.057

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POWER SPECTRAL DENSITY WITH COMBINER



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🔆 Agilent 11:33:29 Nov 8, 2	010		Т	В	W/Avg
Ch Freq 5.3 Channel Power	GHz		Trig Free	Auto	Res B\ 1.0 MH; <u>Ma</u>
RBW 1.0 MHz Project: 10U13475		Mkr1 5.30	2 325 GHz	Auto	Video B\ 3.0 MH; <u>Ma</u>
Ref 30 dBm Atten 2	20 dB	1	0.354 dBm		VBW/RB
#Samp Log 10				<u>Auto</u>	1.00000 <u>Ma</u>
dB/	Jan	- Margang			Average 100
21 dB			~~~~	<u>On</u> Ava/\	<u>Of</u> /BW Type
DI			- adama	Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
W1 S2					Span/RBV
Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	pan 45 MHz ; (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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PSD HIGH CH, WIT			т		0// 0
Agilent 11:36:19 Nov 8, 20	10				Res BW
Ch Freq 5.32 Channel Power	GHz	Trig	Free	Auto	1.0 MHz <u>Man</u>
RBW 1.0 MHz					Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 2	0 dB	Mkr1 5.318 425 9.943	GHz dBm	Auto	Man VBW/RBV
#Samp Log 10	1			<u>Auto</u>	1.00000 <u>Man</u>
dB/ Offst	and the second	anone -			Average 100
21 dB		· · · · · · · · · · · · · · · · · · ·		<u>Un</u> Avg/V	<u>un</u> BW Type
DI dem				Auto	Pwr (RMS) ► <u>Man</u>
#PAvg					
W1 S2					Span/RBW
Center 5.320 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 4 Sweep 20 ms (601	5 MHz pts)	<u>Auto</u>	106 <u>Man</u>
Copyright 2000-2010 Agilent Teo	chnologies				

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7.5.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	9.13	13	-3.87
Middle	5300	10.72	13	-2.28
High	5320	9.57	13	-3.43

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	10.63	13	-2.37
Middle	5300	9.57	13	-3.43
High	5320	9.67	13	-3.33

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5260	10.05	13	-2.95
Middle	5300	10.63	13	-2.37
High	5320	9.34	13	-3.66

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CHAIN 1

PEAK EXCURSION

PEAK EXCURSION L	OW CH		
🔆 Agilent 13:27:18 Nov 8, 2010		Т	BW/Avg
Ch Freq 5.26 GH Channel Power	lz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 30 d	IB	∆ Mkr1 0 Hz 9.13 dB	Auto <u>Man</u> VBW/RBV
#Peak Log	1.	**	1.00000 Auto <u>Man</u>
dB/ Offst			Average 100
11 dB yuhhan marta and and a second		March and all and a law and a	On <u>Ott</u> Avg/VBW Type
and a second		and the second s	Pwr (RMS) ► Auto <u>Man</u>
#PAvg			
V1 V2			Span/RBW
Center 5.260 000 GHz #Res BW 1 MHz	#VBW 3 MHz Sw	Span 45 MHz eep 20 ms (601 pts)	106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Techn	ologies		

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🔆 Agilent 13:33:10 Nov 8, 20	010		Т	В	W/Avg
Ch Freq 5.3 Channel Power	GHz		Trig Free	Auto	Res B\ 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				0	Video BV 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3	0 dB	1	∆ Mkr1 0 Hz 10.72 dB	Auto	
#Peak Log 10	I Marine Marine		**	<u>Auto</u>	1.00000 <u>Ma</u>
dB/ Offst	- Summer and				Average 100
11 dB			man and a start of the start of the	On Avg/V	/BW Type
www.wywww.				Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2					 Span/RBV
Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	Span 45 MHz is (601 pts)	<u>Auto</u>	108 <u>Ma</u>

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PEAK EXCURSION	N HIGH CH		Т	BW/Avg
Ch Freq 5.32 Channel Power	GHz		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		۵	Mkr1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten i #Peak Log 10			9.57 dB	VBW/RBV 1.00000 <u>Auto Man</u>
dB/ Offst 11	and the second s		and the second	Average 100 On <u>Off</u>
dB Within the second second			and manual	Avg/VBW Type Pwr (RMS)► Auto <u>Man</u>
#PAvg				
V1 V2		s	pan 45 MHz	Span/RBW 106
#Res BW 1 MHz Copyright 2000-2010 Agilent Te	#VBW 3 MHz chnologies	Sweep 20 ms	s (601 pts)	

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CHAIN 2

PEAK EXCURSION



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* Agilent 13:55:17 Nov 8	, 2010		Т	B	W/Avg
Ch Freq 5 Channel Power	3 GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Ref 30 dBm Atte #Peak Log	n 30 dB		9.57 dB	Auto	VBW/RB ¹ 1.00000 <u>Ma</u>
10 dB/ Offst 11	A	monorman Hadrad Mar	Whyleys at all	On	Average 100 <u>Of</u>
dB		hit was and	and a state of the	Avg/V Auto	'BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2			an 45 Mile		Span/RBV
#Res BW 1 MHz	#VBW 3 MHz	ן Sweep 20 ms	oan 45 MHz (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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Ch Freq 5.32 GHz Trig Free Channel Power I.0 MHz Ref 30 dBm Atten 30 dB 9.67 dB Video BW 1.0 MHz Auto Man Video BW 3.0 MHz Auto Man Video BW 3.0 MHz Auto Man Video BW 1.00000 I Auto Man VBW/RBW 1.00000 I Auto Man VBW/RBW 1.00000 I Auto Man Average 1.00000 I Man Average 0ffst Average 11 Average 010 Average 011 Average 012 Independent 113 Independent 114 Independent 116 Independent 117 Independent 118 Independent 119 Independent 110 Independent 111 Independent 112 Independent				т	RW//Ava	
RBW 1.0 MHz Video BW Project: 10U13475	Ch Freq 5.32 Channel Power	GHz		Trig Free	Res B 1.0 MH Auto <u>M</u>	W Iz an
Inter 50 dbm Atten 50 db Stor db VBW/RBW/ 1.00000 l Log i i i Atten 50 db 10 i i i i dB/ i i i i 0ffst i i i i 11 i i i i dB/ i i i i 0ffst i i i i 11 i i i i dB/ i i i i 0ffst i i i i 11 i i i i dB/ i i i i i i i i i dB i i i i V1 V2 i i i <th>RBW 1.0 MHz Project: 10U13475 Ref 30 dBm</th> <th></th> <th></th> <th>Δ Mkr1 O Hz</th> <th>Video B 3.0 MH Auto <u>M</u>a</th> <th>W Iz an</th>	RBW 1.0 MHz Project: 10U13475 Ref 30 dBm			Δ Mkr1 O Hz	Video B 3.0 MH Auto <u>M</u> a	W Iz an
dB/ Offst Average 100 0n 11 dB Average 0n 100 everage Average 0n 100 everage Average 0n 100 everage Average 0n 100 everage Average 0n 100 everage Average 0n 100 everage Span/RBW 106 everage Span/RBW 106 everage Man	#Peak Log 10		Mendlyne weiter	**_	VBVV/RE 1.00000 <u>Auto M</u> :	3VA D an
#PAvg Image: Constraint of the second seco	dB/ Offst 11 dB		A share a second a se	WWWWWWWWWWWWW		; 0 ∰
#PAvg				and a second and a s	Avg/vBvvType Pwr (RMS) Auto <u>M</u>	;)∙ an_
Center 5.320 000 GHz Span 45 MHz 106 #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Auto Man	#PAvg V1 V2				Span/DB	Δ/
	Center 5.320 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 r	Span 45 MHz ns (601 pts)	Auto Ma	∩v 6 an

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CHAIN 3

PEAK EXCURSION

PEAK EXCURSIO	N LOW CH			
🔆 Agilent 13:47:37 Nov 8,	2010		Т	BW/Avg
Ch Freq 5.2 Channel Power	6 GHz	Trig	Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz				Video BW
Project: 10U13475	20 JD	∆ Mkr1	O Hz	Auto <u>Man</u>
#Peak	Angle		*-	VBVVRBV 1.00000 <u>Auto Man</u>
dB/ Offst	A manufacture and the second	Survey Contraction		Average 100
11 dB		The second secon	Multister	Avg/VBW Type
			- Whee	Auto <u>Man</u>
#PAvg				
V1 V2				Span/RBW
Center 5.260 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span Sweep 20 ms (601	45 MHz pts)	106 Auto Man
Copyright 2000-2010 Agilent T	echnologies			

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🔆 Agilent 13:44:44 Nov 8, 20	010		Т	В	W/Avg
Ch Freq 5.3 (Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz			Mkri 0 Hr	Auto	Video BV 3.0 MHz Ma
Ref 30 dBm Atten 3 #Peak	0 dB		10.63 dB		VBW/RB
Log		monte	**	<u>Auto</u>	1.00000 <u>Ma</u>
dB/ Offst		March		On	Average 100
dB		- horana	Man Anna Anna Anna Anna Anna Anna Anna A	Avg/v	/BW Type
			Mentury .	Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2					Span/RBV
Center 5.300 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	ipan 45 MHz s (601 pts)	<u>Auto</u>	106 <u>Ma</u>

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PEAK EXCURSION	N HIGH CH			Т	В	W/Ava]
Ch Freq 5.32 Channel Power	GHz		Trig	Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz Project: 10U13475			∆ Mkr1	0 Hz	Auto	Video BW 3.0 MHz <u>Man</u>
Ref 30 dBm Atten : #Peak Log 10	30 dB ⊥ 		9.34	↓ dB *_	<u>Auto</u>	VBW/RBV 1.00000 <u>Man</u>
dB/ Offst 11	×~~	man hand	minulus		On	Average 100 <u>Off</u>
dB				When the sound	Avg/\ Auto	/BW Type Pwr (RMS) ► <u>Man</u>
#PAvg						
V1 V2			Span 45	5 MHz		Span/RBVV 106
# Res BW 1 MHz Copyright 2000-2010 Agilent Te	#VBW 3 MHz echnologies	Sweep 20	ms (601	ots)	<u>Auto</u>	Man

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7.5.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (2)

IC RSS-210 A9.3 (2)

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.6. 802.11n THREE CHAINS HT40 MODE IN THE 5.3 GHz BAND

7.6.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5270	47.924	36.2173
High	5310	46.567	36.2879

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5270	46.603	36.3378
High	5310	47.618	36.4785

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5270	46.955	36.4813
High	5310	47.541	36.2204

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.31 GHz Trig Free Occupied Bandwidth	Center Freq 5.31000000 GHz
Project: 10U13475	Start Freq 5.26000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.3600000 GHz
10 dB/ Offst 11	CF Step 10.0000000 MHz <u>Auto Man</u>
dBCenter 5.310 00 GHzSpan 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 36.2879 MHz x dB -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error -103.943 kHz x dB Bandwidth 46.567 MHz*	
Copyright 2000-2010 Agilent Technologies	

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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.31 GHz Trig Free Occupied Bandwidth	Center Freq 5.3100000 GHz
Project: 10U13475	Start Freq 5.26000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.3600000 GHz
10 dB/ Offst 11	CF Step 10.0000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 36.4785 MHz × dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error 22.849 kHz x dB Bandwidth 47.618 MHz*	
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.31 GHz Trig Free Occupied Bandwidth	Center Freq 5.31000000 GHz
Project: 10U13475	Start Freq 5.2600000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.3600000 GHz
10 dB/ Offst 11	CF Step 10.000000 MHz <u>Auto Man</u>
dB Center 5.310 00 GHz Span 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	Ciencel Treasly
Occupied Bandwidth Occ BW % Pwr 99.00 %	On <u>Off</u>
36.2204 MHz × dB -26.00 dB	
Transmit Freq Error -33.192 kHz x dB Bandwidth 47.541 MHz*	
Copyright 2000-2010 Agilent Technologies	

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7.6.2. OUTPUT POWER

<u>LIMITS</u>

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5270	23.98	46.603	27.68	5.50	23.98
High	5310	23.98	46.567	27.68	5.50	23.98

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	18.18	18.64	17.90	23.02	23.98	-0.96
High	5310	17.90	18.19	18.08	22.83	23.98	-1.15

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CHAIN 1 OUTPUT POWER



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OUTPUT POWER I		AIN 1	BW/Avg
Ch Freq 5.31 Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475			Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten 3	30 dB		VBW/RBV 1.00000 <u>Auto Man</u>
dB/ Offst			Average 100 <u>On Off</u>
dB		Span 75 MHz	Avg/VBW Type Pwr (RMS) ► Auto <u>Man</u>
#Res BW 1 MHz Channel Power	#VBW 3 MHz	Sweep 20 ms (601 pts) Power Spectral Density	
17.90 dBm /50.0	000 MHz	-59.09 dBm/Hz	Span/RBW 106 <u>Auto Man</u>
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CHAIN 2 OUTPUT POWER



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CHAIN 3 OUTPUT POWER



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7.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5270	17.21	18.27	17.41	22.43
High	5310	17.03	17.17	17.27	21.93

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7.6.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.25–5.35 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 11 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

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RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5270	8.270	11	-2.730
High	5310	7.854	11	-3.146

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POWER SPECTRAL DENSITY WITH COMBINER

PSD LOW CH, WI	TH COMBINER		
🔆 Agilent 14:49:54 Nov 8, 3	2010	Τ	BW/Avg
Ch Freq 5.27 Channel Power	′ GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten	20 dB	Mkr1 5.277 375 GHz 8.270 dBm	
#Samp			VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst	and the second se		Average 100
21 dB			Avg/VBW Type
DI 11.0 dBm			Pwr (RMS) • Auto <u>Man</u>
#PAvg			-
W1 S2		Стар 75 МШа	Span/RBW
#Res BW 1 MHz	#VBW 3 MHz	Span 75 MHz Sweep 20 ms (601 pts)	<u>Auto Man</u>
Copyright 2000-2010 Agilent T	echnologies		

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PSD HIGH C	H, WITH COM	BINER		т	BW/Ava
Ch Free Channel Power	9 5.31 GHz		Trig	Free	Res BV 1.0 MHz Auto <u>Mar</u> Video BW
Project: 10U13475 Ref 30 dBm	Atten 20 dB		Mkr1 5.303 75 7.85	0 GHz 4 dBm	3.0 MHz Auto <u>Mar</u> VBVV/RBV
#Samp Log 10 4P/	1				1.00000 <u>Auto Mar</u> Average
Offst					100 On Off
DI				-	Avg/vBvv Type Pwr (RMS) • Auto <u>Mar</u>
#PAvg 100 W1 S2					
Center 5.310 000 GHz Span 75 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts)					Span/RBW 106 <u>Auto Mar</u>
Copyright 2000-2010) Agilent Technologies				

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7.6.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency Peak Excursion		Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5290	11.95	13	-1.05
High	5310	10.20	13	-2.80

CHAIN 2

Channel	Frequency Peak Excursion		Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5290	12.20	13	-0.80
High	5310	11.65	13	-1.35

CHAIN 3

Channel	Frequency Peak Excursion		Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5290	11.11	13	-1.89
High	5310	9.76	13	-3.24

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CHAIN 1

PEAK EXCURSION



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PEAK EXCURSION			т	B	NIAva
Ch Freq 5.31 Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Man</u>
RBW 1.0 MHz Project: 10U13475		۵	Mkr1 0 Hz	Auto	Video BW 3.0 MHz <u>Man</u>
Ref 30 dBm Atten 3 #Peak Log	0 dB		10.20 dB	<u>Auto</u>	VBW/RBV 1.00000 <u>Man</u>
dB/ Offst		-		On	Average 100 <u>Off</u>
dB			and and the stand of the stand	Avg/V Auto	BW Type Pwr (RMS) • Mar
#PAvg					
V1 V2		S	pan 75 MHz	5) pan/RBW
#Res BW 1 MHz Copyright 2000-2010 Agilent Ter	#VBW 3 MHz chnologies	Sweep 20 m	s (601 pts)	<u>Auto</u>	Man

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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION	LOW CH	-	
- Revealed to the second secon	10		BVV/Avg
Ch Freq 5.27 G Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475) JP	∆ Mkr1 O Hz	Auto <u>Man</u>
#Peak		**	VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst		months and a second sec	Average 100
dB			Avg/VBW Type
			Auto <u>Man</u>
#PAvg			
V1 V2			
Center 5.270 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 75 MHz Sweep 20 ms (601 pts)	106 Auto Man
Copyright 2000-2010 Agilent Tec	hnologies		

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PEAK EXCURSION			т	D)AllAva
Ch Freq 5.31 Channel Power	GHz	Tr	ig Free	Res B' 1.0 MH Auto <u>Ma</u>
RBW 1.0 MHz		- A Mi	(r1 0 Hz	Video B ¹ 3.0 MH Auto <u>M</u> a
Ref 30 dBm Atten 3 #Peak Log	30 dB		1.65 dB	VBW/RB 1.00000 <u>Auto Ma</u>
10 dB/ Offst 11		montener have	MAN MAN	Average 100 On <u>O</u> 1
dB			and the second secon	Avg/VBW Type Pwr (RMS) Auto <u>Ma</u>
#PAvg				
V1 V2		Spa	n 75 MHz	Span/RBV
¥ Res BW 1 MHz Copyright 2000-2010 Agilent Te	#VBW 3 MHz chnologies	Sweep 20 ms (6	01 pts)	

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CHAIN 3

PEAK EXCURSION



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PEAK EXCURSION	N HIGH CH			_
🔆 Agilent 15:44:09 Nov 8, 2	010		T BW/Avg	
Ch Freq 5.31 Channel Power	GHz	Trig F	Free Res E Auto M Video B	∛W Hz Ian
Project: 10U13475 Ref 30 dBm Atten	30 dB	∆ Mkr1 0 9.76 a) Hz Auto M dB VRW/RE	lan RVΛ
#Peak Log 10	fundational de la construise de la const		*_ <u>Auto M</u>	0 lan
dB/ Offst 11		and a second	Average 10 0n <u>C</u>	€ 00 <u>)</u> ∭
dB manufacture and		Mary mary	Avg/VBW Type Pwr (RMS Auto <u>M</u>	∋ 3) ► lan
#PAvg				
V1 V2			Span/RB\	W
Center 5.310 000 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 75 l Sweep 20 ms (601 pt	MHz 10 ts) <u>Auto M</u>)6 Ian
Copyright 2000-2010 Agilent Te	echnologies			

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7.6.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (2)

IC RSS-210 A9.3 (2)

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed an EIRP of -27 dBm / MHz.

Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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7.7. 802.11a THREE CHAINS Legacy MODE IN THE 5.6 GHz BAND

7.7.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	22.486	16.5299
Middle	5580	22.112	16.4171
High	5700	21.006	16.5165

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	20.53	16.3539
Middle	5580	20.807	16.4059
High	5700	21.231	16.5752

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	21.933	16.4185
Middle	5580	20.253	16.4405
High	5700	19.486	16.3874

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 19:17:37 Nov 9, 2010 T	Freq/Channel
Ch Freq 5.58 GHz Trig Free Occupied Bandwidth	Center Freq 5.58000000 GHz
Project: 10U13475	Start Freq 5.55500000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.60500000 GHz CF Step 5.00000000 MHz <u>Auto</u> Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 16.4171 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -1.066 kHz x dB Bandwidth 22.112 MHz*	
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BANDWIDTH HIGH CH Agilent 19:20:53 Nov 9, 2010			Т	Freq/Channel
Ch Freq 5.7 GHz Occupied Bandwidth			Trig Free	Center Freq 5.70000000 GHz
Project: 10U13475				Start Freq 5.67500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log				Stop Freq 5.72500000 GHz
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			Whent	CF Step 5.0000000 MHz <u>Auto Man</u>
dB			Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 5	50 kHz #	Sweep 100 r	ns (601 pts)	
Occupied Bandwidth 16.5165 MHz	Occ	BW % Pwr x dB	99.00 % -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error20.731 kHzx dB Bandwidth21.006 MHz*				
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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID # Agilent 19:38:52 Nov 9	CH 2010		Т	Freq/Channel
Ch Freq 5.8 Occupied Bandwidth	58 GHz		Trig Free	Center Freq 5.58000000 GHz
Project: 10U13475				Start Freq 5.55500000 GHz
Ref 20 dBm Atte #Samp	n 20 dB	talantar		Stop Freq 5.6050000 GHz
dB/ Offst 11 dB			MAN WARNAN WARNANN WANT	5.00000000 MHz <u>Auto Man</u> Fred Offset
Center 5.580 00 GHz #Res BW 200 kHz	#VBW 620	kHz #Sweep 1	Span 50 MHz 00 ms (601 pts)	0.00000000 Hz
Occupied Bandw 16.4	idth 059 MHz	Occ BW % Pv x d	wr 99.00 % B -26.00 dB	On <u>Off</u>
Transmit Freq Error x dB Bandwidth	-44.235 kHz 20.807 MHz*			
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BANDWIDTH HIGH CH	Т	Freq/Channel
Ch Freq 5.7 GHz Trig Occupied Bandwidth	Free	Center Freq 5.70000000 GHz
Project: 10U13475		Start Freq 5.6750000 GHz
Ref 20 dBm Atten 20 dB #Samp Log		Stop Freq 5.72500000 GHz
10 dB/ Offst 11 44 44 44 44 44 44 44 44 44	m the last	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.700 00 GHz Span 50	MHz	Freq Offset 0.00000000 Hz
#Res BW 200 kHz #VBW 620 kHz #Sweep 100 ms (601 p	ts)	
Occupied Bandwidth Occ BW % Pwr 99.0 16.5752 MHz x dB -26.00 d	0 % JB	Signal Irack On <u>Off</u>
Transmit Freq Error -38.058 kHz x dB Bandwidth 21.231 MHz*		
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH			T	Freq/Channel
Ch Freq 5.58 GHz Occupied Bandwidth			Trig Free	Center Freq 5.58000000 GHz
Project: 10U13475				Start Freq 5.55500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log 10	aleration and more and and a			Stop Freq 5.60500000 GHz
dB/ Offst				CF Step 5.0000000 MHz <u>Auto Man</u>
dB			Span 50 MHz	Freq Offset 0.00000000 Hz
Occupied Bandwidth	<u>вии 620 кHz</u> Ос	# Sweep 100 n cBW % Pwr xdB	99.00 % -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -15.737 x dB Bandwidth 20.253	/TFT∠ kHz MHz*			
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BANDWIDTH HIGH CH	T Freq/Channel
Ch Freq 5.7 GHz Occupied Bandwidth	Trig Free Center Freq 5.70000000 GHz
Project: 10U13475	Start Freq 5.67500000 GHz
Kei 20 dbin Alten 20 db #Samp Log 10	Stop Freq 5.72500000 GHz
dB/ Offst 11 dB	S.00000000 MHz Main Main Main Main Main Main Main Main
Center 5.700 00 GHz #Res BW 200 kHz #VBW 620 kHz #Swe	Span 50 MHz Freq Offset 0.00000000 Hz 0.00000000 Hz ep 100 ms (601 pts) 0.00000000 Hz
Occupied Bandwidth Occ BW 16.3874 MHz	% Pwr 99.00 % Signal Track x dB -26.00 dB 0n 0ff
Transmit Freq Error -13.620 kHz x dB Bandwidth 19.486 MHz*	
Copyright 2000-2010 Aglient Technologies	

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7.7.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.77	10.27

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Effective	Limit
		Limit		Limit	Ant. Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5500	23.98	20.53	24.12	10.27	19.71
Mid	5580	23.98	20.253	24.06	10.27	19.71
High	5700	23.98	19.486	23.90	10.27	19.63

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	14.72	12.66	14.96	19.00	19.71	-0.71
Mid	5580	14.83	14.51	15.15	19.61	19.71	-0.10
High	5700	14.66	14.82	14.58	19.46	19.63	-0.17

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CHAIN 1 OUTPUT POWER



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OUTPUT POWER N	MID CH, CHA	IN 1	Т	BW/Avg
Ch Freq 5.58 Channel Power	GHz	Trig	Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Project: 10U13475 Ref 30 dBm Atten 3 #Samp db dB Log dB dB offst dB dB	0 dB			Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pwr (RMS) •
Center 5.580 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 36 Sweep 20 ms (601 j	5 MHz ots)	Auto <u>Man</u>
Channel Power 14.83 dBm /24.0	000 MHz	Power Spectral Densit -58.97 dBm/H	y Iz	Span/RBW 106 <u>Auto Man</u>
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CHAIN 2 OUTPUT POWER



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OUTPUT POWER I	MID CH, CHA	IN 2	Т	BV	W/Avg
Ch Freq 5.58 Channel Power	GHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u> Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3 #Samp 0 Log 10 dB/ 0 offst 0 11.2 dB 0 Center 5.580 00 GHz	0 dB		Span 36 MHz	Auto Auto On Avg/VE Auto	Man VBW/RBW 1.00000 Man Average 100 Off BW Type Pwr (RMS) • Man
#Res BW 1 MHz Channel Power 14.51 dBm / 24.0 Copyright 2000-2010 Agilent Te	#VBW 3 MHz 000 MHz chnologies	Sweep 20 r Power Spectral -59.29 d	ns (601 pts) I Density I Bm/Hz	S <u>Auto</u>	pan/RBW 106 <u>Man</u>

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CHAIN 3 OUTPUT POWER



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OUTPUT POWER MID CH, CHAIN 3	BW/Avg
Ch Freq 5.58 GHz Trig Free Channel Power	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Project: 10U13475 Ref 30 dB	Auto Man VBW/RBW 1.00000 Auto Man Auto Man Average 100 On Off Avg/VBW Type Pwr (RMS) •
Center 5.580 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts)	Auto <u>Man</u>
Channel Power Power Spectral Density 15.15 dBm / 24.0000 MHz -58.65 dBm/Hz	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Technologies	

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7.7.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5500	14.31	12.08	14.26	18.44
Middle	5580	14.49	13.78	14.87	19.17
High	5700	14.20	14.70	14.10	19.11

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7.7.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

Antenna	10 Log	Effective
Gain	(# Tx Chains)	Legacy Gain
(dBi)	(dB)	(dBi)
5.5	4.77	10.27

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum effective antenna gain is 10.27 dBi, therefore the limit is 6.73 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5500	6.569	6.73	-0.161
Middle	5580	6.621	6.73	-0.109
High	5700	6.674	6.73	-0.056

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POWER SPECTRAL DENSITY WITH COMBINER



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PSD HIGH CH, W	ITH COMBINE	२	BW/Ava
Ch Freq 5 Channel Power	.7 GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
Project: 10U13475 Ref 30 dBm Atte	n 20 dB	Mkr1 5.694 72 GHz 6.674 dBm	VIGEO BW 3.0 MHz Auto <u>Man</u> VBW/RBV
#Samp Log 10 dB/	1	Management of the second se	1.00000 <u>Auto Man</u> Average
Offst 21.5 dB DI		- Un month	<u>On Off</u> Avg/VBW Type Pwr (RMS)►
11.0 484 474 474 474 474 474 474 474 474 474			Auto <u>Man</u>
W1 S2	#VBW 3 MH7	Span 36 MHz	Span/RBW 106 Auto Man
Copyright 2000-2010 Agilent	Technologies	5 Weep 20 ms (001 prs)	

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7.7.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	9.19	13	-3.81
Middle	5580	9.27	13	-3.73
High	5700	8.41	13	-4.59

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	8.67	13	-4.33
Middle	5580	9.09	13	-3.91
High	5700	9.30	13	-3.70

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	10.30	13	-2.70
Middle	5580	10.66	13	-2.34
High	5700	9.85	13	-3.15

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CHAIN 1

PEAK EXCURSION

PEAK EXCURSION	LOW CH		
🔆 Agilent 19:13:35 Nov 9, 20	10	-	T BVV/Avg
Ch Freq 5.5 C Channel Power	GHz	Trig Fr	ee Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3	0 dB	∆ Mkr1 O H 9 19 dF	Hz Auto Man
#Peak Log			-*
dB/ Offst		www.www.www.www.	Average
dB		Name and State	
			Auto <u>Man</u>
#PAvg			
V1 V2			
Center 5.500 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 30 M Sweep 20 ms (601 pts)	Hz 106 Auto Man
Copyright 2000-2010 Agilent Tec	chnologies		

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🔆 Agilent 19:19:26 Nov 9, 2	010		Т	B	W/Avg
Ch Freq 5.58 Channel Power	GHz		Trig Free	Auto	Res B\ 1.0 MH; <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MH:
Project: 10U13475 Ref 30 dBm Atten : #Peak Log	30 dB	۵ ۱	Mkr1 0 Hz 9.27 dB	Auto	VBW/RB 1.00000 Ma
10 dB/ Offst 11	······································	A second second	hivyony be	On	Average 100 <u>Of</u>
dB			Martin Carlo Carlos	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
¢PA∨g					
V1 V2					Span/RBV
Center 5.580 00 GHz ⊭Res BW 1 MHz	#VBW 3 MHz	S Sweep 20 ms	pan 30 MHz s (601 pts)	<u>Auto</u>	108 <u>Ma</u>

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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION	LOW CH				
🔆 Agilent 19:37:43 Nov 9, 201	10		Т	BW/Avg	
Ch Freq 5.5 G Channel Power	Hz		Trig Free	Res E 1.0 MH Auto <u>M</u>	3VV Hz 1an
RBW 1.0 MHz				Video E 30 MH	3VV H 7
Project: 10U13475	, JD	Δ	Mkr1 0 Hz	Auto <u>M</u>	<u>1an</u>
#Peak			**	VBW/RE 1.0000 <u>Auto M</u>	3V 10 1an
dB/ Offst	؞ عدار ۵۵۵،۵۵۵ کلامامانی و به و مرکز میکند. ۱۹۹۹ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ ۱۹۹۹ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰			Average 10	e 30
dB			March March March		9 0
			- Warney	Auto <u>M</u>	1 <u>an</u>
#PAvg					
V1 V2				Snan/PR	w
Center 5.500 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sı Sweep 20 ms	oan 30 MHz (601 pts)	Auto M)6 1an
Copyright 2000-2010 Agilent Tecl	hnologies				

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🔆 Agilent 19:40:15 Nov 9, 2	2010		Т	В	W/Avg
Ch Freq 5.58 Channel Power	GHz	1	rig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Atten #Peak Affeak Log 10 dB/ Offst 11 dB	30 dB		1kr1 U HZ 9.09 dB	Auto On Avg/\ Auto	VBW/RB' 1.00000 Ma Average 100 0ff 0ff Pwr (RMS) Ma
#PAvg		Sp Succession 20	an 30 MHz	Auto	Span/RBV 106 Ma

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PEAK EXCURSION	I HIGH CH		_	
- 🧩 Agilent 19:43:36 Nov 9, 20)10			BVV/Avg
Ch Freq 5.7 (Channel Power	GHz		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz				Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3	0 dB	۵	Mkr1 O Hz 9.30 dB	Auto <u>Man</u> VBW/RBW
#Peak	المعادية الم		*	1.00000 Auto Man
dB/ Offst			Maria .	Average 100
11 dB			Mar	On <u>Ott</u> Avg/VBW Type
				Pwr (RMS) ► Auto <u>Man</u>
#PAvg				
V1 V2				
Center 5.700 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	pan 30 MHz ; (601 pts)	SpaninkBw 106 <u>Auto Man</u>
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CHAIN 3

PEAK EXCURSION



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			т	E B	
Ch Freq 5.7 Channel Power	GHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz Project: 10U13475	20.48	Ĺ	Mkr1 0 Hz	Auto	Video BW 3.0 MHz <u>Man</u>
#Peak Allen		Margally and a start	9.00 UD **_	<u>Auto</u>	VBW/RBW 1.00000 <u>Man</u>
dB/ Offst 11 dB			Mar Mar Martinet	On	Average 100 <u>Off</u>
preserve provide and a second se			the strategy and	Avg/V Auto	BW Type Pwr (RMS) • <u>Man</u>
#PAvg					
Center 5.700 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	Span 30 MHz s (601 pts)	S <u>Auto</u>	Span/RBW 106 <u>Man</u>
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7.7.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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-20 dBc RF CONDUCTED SPURIOUS IN THE NOTCH BAND OF 5.6-5.65 GHz



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7.8. 802.11n THREE CHAINS HT20 MODE IN THE 5.6 GHz BAND

7.8.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	21.813	17.7303
Middle	5580	21.184	17.7186
High	5700	21.329	17.7968

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	22.422	17.6334
Middle	5580	21.845	17.6054
High	5700	23.894	17.7881

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5500	20.9	17.8508
Middle	5580	20.403	17.5262
High	5700	21.831	17.6642

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 10:55:33 Nov 10, 2010 T	Freq/Channel
Ch Freq 5.58 GHz Trig Free Occupied Bandwidth	Center Freq 5.58000000 GHz
Project: 10U13475	Start Freq 5.55500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.60500000 GHz
	CF Step 5.00000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.7186 MHz x dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -39.554 kHz x dB Bandwidth 21.184 MHz*	
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BANDWIDTH HIGH CH Agilent 10:58:59 Nov 10, 2010	т	Freq/Channel
Ch Freq 5.7 GHz Trig Occupied Bandwidth	Free	Center Freq 5.70000000 GHz
Project: 10U13475		Start Freq 5.67500000 GHz
Ref 20 dBm Atten 20 dB #Samp		Stop Freq 5.72500000 GHz
dB/ Offst 11 12		CF Step 5.0000000 MHz <u>Auto Man</u>
Center 5.700 00 GHz Span 5	50 MHz	Freq Offset 0.00000000 Hz
Wess bw 200 kH2 #VBW 020 kH2 #Sweep 100 HIS (001 Occupied Bandwidth Occ BW % Pwr 99 17 7968 MHz × dB -26.00	00 % 0 dB	Signal Track On <u>Off</u>
Transmit Freq Error -59.571 kHz x dB Bandwidth 21.329 MHz*		
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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.58 GHz Trig Free Occupied Bandwidth	Center Freq 5.58000000 GHz
Project: 10U13475	Start Freq 5.55500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.60500000 GHz
10 dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.580 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Ciencel Treach
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.6054 MHz x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error44.385 kHzx dB Bandwidth21.845 MHz*	
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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.7 GHz Trig Free Occupied Bandwidth	Center Freq 5.70000000 GHz
Project: 10U13475	Start Freq 5.67500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.72500000 GHz
10 dB/ Offst 11	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.700 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.7881 MHz × dB -26.00 dB	On <u>Off</u>
Transmit Freq Error-16.981 kHzx dB Bandwidth23.894 MHz*	
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 10:27:27 Nov 10, 2010 T	Freq/Channel
Ch Freq 5.58 GHz Trig Free Occupied Bandwidth	Center Freq 5.58000000 GHz
Project: 10U13475	Start Freq 5.55500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.60500000 GHz
10 dB/ Offst 11 Add/day wy	CF Step 5.0000000 MHz <u>Auto Man</u>
dB Center 5.580 00 GHz Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.5262 MHz x dB -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error -10.791 kHz x dB Bandwidth 20.403 MHz*	
Copyright 2000-2010 Agilent Technologies	

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BANDWIDTH HIGH CH Agilent 10:39:07 Nov 10, 2010	тĘ	req/Channel
Ch Freq 5.7 GHz Occupied Bandwidth	Trig Free	Center Freq 5.70000000 GHz
Project: 10U13475		Start Freq 5.67500000 GHz
Ref 20 dBm Atten 20 dB #Samp Log		Stop Freq 5.72500000 GHz
10 dB/ Offst 11		CF Step 5.00000000 MHz <u>uto Man</u>
dB	Span 50 MHz	Freq Offset 0.00000000 Hz
#Res BW 220 kHz #VBW 620 kHz	#Sweep 100 ms (601 pts)	Oi en el Tre el t
Occupied Bandwidth 17.6642 MHz	Occ BW % Pwr 99.00 % x dB -26.00 dB	Signal Irack n <u>Off</u>
Transmit Freq Error-8.564 kHzx dB Bandwidth21.831 MHz*		
Copyright 2000-2010 Agilent Technologies		

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7.8.2. OUTPUT POWER

<u>LIMITS</u>

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5500	24	20.9	24.20	5.50	24.00
Mid	5580	24	20.403	24.10	5.50	24.00
High	5700	24	21.329	24.29	5.50	24.00

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	16.70	15.50	16.31	20.97	24.00	-3.03
Mid	5580	16.50	16.92	16.43	21.39	24.00	-2.61
High	5700	15.88	18.10	16.79	21.79	24.00	-2.21

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CHAIN 1 OUTPUT POWER



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Ch Freq 5.58 GHz Trig Free Auto Mar Channel Power I.D MHz Video BW 3.0 MHz 3.0 MHz Project: 10U13475 Auto Mar Auto Mar Ref 30 dBm Atten 30 dB VBW/RBV 1.00000 Auto Mar 10 Image: Comparison of the second of th	OUTPUT POWER MID CH, CHAIN 1 * Agilent 10:56:46 Nov 10, 2010 T	BW/Avg
Project: 10U13475 Auto Mar Ref 30 dBm Atten 30 dB VBW/RBV Log Ind Ind Ind dB/ Ind Ind Ind dB/ Ind Ind Ind Center 5.580 00 GHz Span 36 MHz Mar #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.50 dBm / 24.0000 MHz -56.51 dBm/Hz	Ch Freq 5.58 GHz Trig Free Channel Power RBW 1.0 MHz	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Center 5.580 00 GHz Span 36 MHz Pwr (RMS)* #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.50 dBm / 24.0000 MHz -56.51 dBm/Hz Span/RBW 106 Auto Mar	Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3.0 MHz Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u>
Channel Power Mer Spectral Density 16.50 dBm / 24.0000 MHz -56.51 dBm/Hz Span/RBW 106 Auto Mar	Center 5.580 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts)	Avg/VBVV Type Pwr (RMS) • Auto <u>Man</u>
	Channel Power Power Spectral Density 16.50 dBm / 24.0000 MHz -56.51 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 2 OUTPUT POWER



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Ch Freq 5.58 GHz Trig Free Channel Power I.0 MHz Ref 30 dBm Atten 30 dB Video BW %Samp I.0 MHz Video BW Log I.0 MHz Video BW 10 I.0 MHz Man Video BW I.0000 I Auto Man VBW/RBW 1.00000 I Log I.0 MHz I.0000 I I0 I.0 MHz I.0000 I MB/ III III MB III IIII Center 5.580 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.92 dBm / 24.0000 MHz -56.09 dBm/Hz Span/RBW	OUTPUT POWER MID CH, CHAIN 2	BW/Avg
Intervention 3.0 MHz Project: 10U13475 Auto Ref 30 dBm Atten 30 dB VBW/RBW 1.00000 Log Intervention 10 dB/ Offst Intervention 11 Intervention dB/ Intervention Offst Intervention 11 Intervention dB Intervention Center 5.580 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Auto Channel Power Power Spectral Density 16.92 dBm / 24.0000 MHz -56.09 dBm/Hz Span/RBW Intervention Intervention Intervention	Ch Freq 5.58 GHz Trig Free Channel Power RBW/ 1.0 MHz	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Offst 100 Offst 11 dB 11 dB 11 Center 5.580 00 GHz Span 36 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.92 dBm / 24.0000 MHz -56.09 dBm/Hz Span/RBW 100 0n 01ff	Project: 10U13475 Ref 30 dBm Atten 30 dB #Samp	3.0 MHz Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average
#Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.92 dBm / 24.0000 MHz -56.09 dBm/Hz Span/RBW 106 Auto Man	Offst Image: Center 5.580 00 GHz Image: Center 5.580 00 GHz Span 36 MHz	100 On Off Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
	#Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Channel Power Power Spectral Density 16.92 dBm / 24.0000 MHz -56.09 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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OUTPUT POWER * Agilent 10:46:15 Nov 10,	HIGH CH, CH	AIN 2	BW/Avg
Ch Freq 5.7 Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW
Project: 10U13475 Ref 30 dBm Atten	30 dB	· · · · · · · · · · · · · · · · · · ·	Auto Man VBW/RBV
#Samp			1.00000 <u>Auto Man</u> Average
dB/ Offst 11 dB			100 <u>On Off</u>
Center 5.700 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 36 MHz Sweep 20 ms (601 pts)	Avg/vBvvType Pwr(RMS)* Auto <u>Man</u>
Channel Power		Power Spectral Density	
18.10 dBm /24.0	JUUU MHZ	-54.91 dBm/Hz	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent To	echnologies		_

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CHAIN 3 OUTPUT POWER



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OUTPUT POWER N	MID CH, CHAI	N 3	Т	BW/Avg
Ch Freq 5.58 Channel Power RBW 1.0 MHz	GHz		Trig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3 #Samp Log 10 dB/ Offst 11 dB	0 dB			VBW/RBW 1.00000 Auto Man Average 100 On Off Avg/VBW Type Pwr (RMS) •
Center 5.580 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sp Sweep 20 ms	an 36 MHz (601 pts)	Auto <u>Mán</u>
Channel Power 16.43 dBm /24.0	F 000 MHz	^p ower Spectral D -56.58 dB	ensity m/Hz	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Teo	chnologies			

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7.8.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5500	16.23	15.12	16.01	20.58
Middle	5580	15.83	16.35	16.22	20.91
High	5700	15.56	17.74	16.22	21.38

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7.8.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 11 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

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RESULTS

Channel	Frequency	PPSD With Combiner	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5500	9.876	11	-1.124
Middle	5580	10.632	11	-0.368
High	5700	10.748	11	-0.252

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POWER SPECTRAL DENSITY WITH COMBINER

Agilent 09:46:28 Nov 10, 2010 T BW/Avg Ch Freq 5.5 GHz Trig Free Channel Power Image: Channel Power Image: Channel Power Image: Channel Power Project: 100/13475 Mkr1 5.502 20 GHz Auto Muto Ref 30 dBm Atten 20 dB 9.876 dBm Video E 3.0 Mi Log Image: Channel Power Image: Channel Po		CH, WITH COMBINER	PSD LOW CH, V
Ch Freq 5.5 GHz Trig Free Channel Power I.0 MI Auto M Project: 10013475 Mkr1 5.502.20 GHz 3.0 MI Ref 30 dBm Atten 20 dB 9.876 dBm Video E 3.0 MI Log Image: Comparison of the state o	T BW/Avg	6:28 Nov 10, 2010	🔆 Agilent 09:46:28 Nov
RBW 1.0 MHz Video E Project: 10U13475 Mkr1 5.502 20 GHz Ref 30 dBm Atten 20 dB 9.876 dBm #Samp 0 0 Log 0 0 10 0 0 0ffst 0 0 21 0 0 dB 0 0 11.0 0 0 11.0 0 0 11.0 0 0 W1 S2 0 0	Trig Free 1.0 MHz Auto <u>Man</u>	req 5.5 GHz	Ch Freq Channel Power
Project: 10U13475 Mkr1 5.502.20 GHz Auto Muto Ref 30 dBm Atten 20 dB 9.876 dBm VBW/R 1.0000 Log 1 1 1 1.0000 1.0000 dB/ 1 1 1 1.0000 1.0000 1.0000 dB/ 1 1 1 1.0000	Video BW	MHz	RBW 1.0 MHz
Ref 30 dBm Atten 20 dB 9.8/6 dBm VBW/RI Log	r1 5.502 20 GHz Auto <u>Man</u>	5	Project: 10U13475
Log Auto Auto Auto Mathematical stress 10 dB/	9.8/6 dBm VBW/RBV	Atten 20 dB	Ref 30 dBm At #Samp
B/ Average 0ffst 0 21 0 dB 0 <	Auto Man		Log 10
Offst On On 21	Average	warmen angene and an and the assessme	dB/
dB	On Off		Offst 21
Display Pwr (RMS) 11.0 Auto dBm Auto #PAvg Auto 100 Auto	Avg/VBW Type		dB
#PAvg	Auto Man		11.0 dBm
100 W1 S2			#PAvg
W1 32			W1 S2
Center 5.500 00 GHz Span/RB	Span 30 MHz Span/RBW	GHz	Center 5.500 00 GHz
#Res BW 1 MHz #VBW 3 MHz Sweep 20 ms (601 pts) Auto M	20 ms (601 pts) <u>Auto Man</u>	#VBW 3 MHz	#Res BW 1 MHz

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🔆 Agilent 09:42:47 Nov 10, 2	2010		Т	В	W/Avg
Ch Freq 5.58 Channel Power	GHz		Trig Free	Auto	Res BV 1.0 MHz <u>Ma</u>
RBW 1.0 MHz Project: 10U13475		Mkr1 5.5	82 60 GHz	Auto	Video BV 3.0 MHz <u>Ma</u>
Ref 30 dBm Atten 2	0 dB	10	0.632 dBm		VBW/RB
¢Samp Log 10				<u>Auto</u>	1.00000 <u>Ma</u>
dB/	vernetine er				Average 100
dB DI 11.0			Medingunger	<u>On</u> Avg/\	Off /BW Type Pwr (RMS)
dBm #PA∨g				Auto	<u>Ma</u>
100 W1 S2					
Center 5.580 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sı Sweep 20 ms	oan 30 MHz (601 pts)	<u>Auto</u>	эран/к.вм 106 <u>Ма</u>

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PSD HIGH CH, WI		ξ	
Ch Freq 5.7 Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto Man
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten ; #Samp	20 dB	Mkr1 5.698 85 GHz 10.748 dBm	Video BW 3.0 MHz Auto <u>Man</u> VBW/RBW
Log 10 dB/ Offst			- <u>Auto Man</u> - Average - 100
21 dB DI 11.0 dBm			Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
#PAvg 100 W1 S2			Span/DBW/
Center 5.700 00 GHz #Res BW 1 MHz Copyright 2000-2010 Agilent Te	#VBW 3 MHz chnologies	Span 30 MH; Sweep 20 ms (601 pts)	z 106 Auto Man

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7.8.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	9.95	13	-3.05
Middle	5580	10.44	13	-2.56
High	5700	10.60	13	-2.40

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	11.36	13	-1.64
Middle	5580	9.63	13	-3.37
High	5700	10.16	13	-2.84

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5500	10.74	13	-2.26
Middle	5580	11.56	13	-1.44
High	5700	9.64	13	-3.36

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CHAIN 1

PEAK EXCURSION

PEAK EXCURSION L	OW CH		
🔆 Agilent 11:03:26 Nov 10, 201	0	Т	BW/Avg
			Res BW
Ch Freq 5.5 GH Channel Power	z	Trig Free	1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475		∆ Mkr1 0 Hz	Auto <u>Man</u>
Ref 30 dBm Atten 30 d	IB	9.95 dB	VBW/RBV
Log	↓	**	1.00000 <u>Auto Man</u>
dB/	······································	and the second s	Average
Offst 11		- Contraction of the contraction	00 On <u>Off</u>
dB All and a second sec		- Antonio -	Avg/VBW Type Pwr (RMS)►
			Auto <u>Man</u>
#PAvg			
V1 V2			
Center 5 500 00 GHz		Span 30 MHz	Span/RBVV
#Res BW 1 MHz	#VBW 3 MHz Sw	eep 20 ms (601 pts)	Auto Man
Copyright 2000-2010 Agilent Techn	ologies		

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🔆 Agilent 10:57:21 Nov 10, 2	2010			Т	B\	/V/Avg
Ch Freq 5.58 Channel Power	GHz		Trig	Free	Auto	Res B∖ 1.0 MHz <u>Ma</u>
RBW 1.0 MHz					Auto	Video BV 3.0 MH:
Project: 10U13475 Ref 30 dBmAtten 3	0 dB	Δ	. Mkr1 (10.44) Hz dB	Auto	VBW/RB
#Peak	1. •			*	<u>Auto</u>	1.00000 <u>Ma</u>
dB/ Offst		A manufacture of the second se			_	Average 100
dB			Mar An	Maryday	On Avg/V	<u>Ot</u> BW Type
AL ALL ALL ALL ALL ALL ALL ALL ALL ALL			1000	runiya ya	Auto	Pwr (RMS) <u>Ma</u>
#PAvg						
V1 V2				_		
Center 5.580 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	ipan 30 s (601 p	MHz ts)	<u>Auto</u>	100 <u>Ma</u>

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PEAK EXCURSION	I HIGH CH		Т	BW/Avg
Ch Freq 5.7 Channel Power	GHz	1	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		ΔN	/kr1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten 3 #Peak	30 dB		10.60 dB	VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst 11		Marine Mari	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Average 100 On <u>Off</u>
dB			March and March and March	Avg/VBW Type Pwr (RMS) [►] Auto <u>Man</u>
#PAvg				
V1 V2		Sp	an 30 MHz	Span/RBW 106
#Res 6W 1 MHz Copyright 2000-2010 Agilent Te	#VBVV 3 MHZ chnologies	Sweep 20 ms	(ou'i pts)	

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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION LOW C	н		
🔆 Agilent 10:50:03 Nov 10, 2010		Т	BW/Avg
Ch Freq 5.5 GHz Channel Power		Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 30 dB		∆ Mkr1 0 Hz 11.36 dB	Auto <u>Man</u> VBW/RBW
#Peak	1 ♦	**	1.00000 Auto <u>Man</u>
dB/ Offst	The second maker and the second second	<u>\</u>	Average 100
11 dB		And the second s	on <u>oπ</u> Avg/VBW Type
		and a state of the	Pwr (RMS) ► Auto <u>Man</u>
#PAvg			
V1 V2			Span/RBW
Center 5.500 00 GHz #Res BW 1 MHz #VBW 3	3 MHz Sweep 20	Span 30 MHz ms (601 pts)	106 Auto Man
Copyright 2000-2010 Agilent Technologies			

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🔆 Agilent 10:53:09 Nov 10,	2010		1	E	3W/Avg
Ch Freq 5.58 Channel Power	GHz		Trig Fre	e Auto	Res B\ 1.0 MHz <u>Ma</u>
RBW 1.0 MHz					Video BV 3.0 MHz Ma
Project: 100134/5 Ref 30 dBm Atten #Peak	30 dB		. Mkr1 U H 9.63 dE	z Auto 3 *	VBW/RB 1.00000
dB/		marker marker war have			Average
11 dB			man war	On Avg/	Of VBW Type Pwr (RMS)
#PAvg				Auto	<u>Ma</u>
V1 V2					Span/RBV
Center 5.580 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	5pan 30 M s (601 pts)	Hz <u>Auto</u>	108 <u>Ma</u>

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PEAK EXCURSIC	ON HIGH CH		Т	BW/Avg
Ch Freq 5 Channel Power	.7 GHz	T	rig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW
RBW 1.0 MHZ Project: 10U13475 Ref 30 dBm	n 30 dB	ΔM	1kr1 0 Hz 10.16 dB	3.0 MHz Auto <u>Man</u> VBW/RBV
#Peak Log 10 dB/		war have been and a war have been a war have been a war a war war war war war war war war	*	1.00000 <u>Auto Man</u> Average
Offst 11 Julium Market dB			and providence	100 On <u>Off</u> Avg/VBW Type
#PAva				Pwr (RMS) ► Auto <u>Man</u>
V1 V2				Span/RBW
Center 5.700 00 GHz #Res BW 1 MHz Convright 2000-2010 Agilent	#VBW 3 MHz	Spa Sweep 20 ms (an 30 MHz 601 pts)	Auto Man

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CHAIN 3

PEAK EXCURSION

PEAK EXCURSION	LOW CH		
🔆 Agilent 10:34:21 Nov 10, 2	2010	Т	BW/Avg
Ch Freq 5.5 (Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBmAtten 3	0 dB	∆ Mkr1 0 Hz 10.74 dB	
#Peak Log		*	1.00000 <u>Auto Man</u>
dB/		with descent when the second s	Average 100
11 dB			On <u>Off</u> Avg/VBW Type
ala and a second se		and an and a second and a second and a second a	Pwr (RMS) Auto <u>Man</u>
#PAvg			_
V1 V2			Span/RBW
Center 5.500 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 30 MH Sweep 20 ms (601 pts)	z 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Teo	chnologies		

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🔆 Agilent 10:30:	24 No	ov 10, 20	010							Т	В	W/Avg
Ch Fre Channel Power	eq	5.58 0	€Hz					Tr	rig	Free	Auto	Res B ¹ 1.0 MH <u>Ma</u>
RBW 1.0 N	ИНz										0	Video B\ 3.0 MH
Project: 10U13475 Ref 30 dBm #Dock	, <i>μ</i>	Atten 30)dB					Δ M 1	kr1 11.5	0 Hz i6 dB	Auto	VBW/RB
Log 10		mun			Janahan Ja		-	-	-	*	<u>Auto</u>	1.00000 <u>Ma</u>
dB/ Offst			eter (kralie ope	4. Marine for	mont		anone	4. \ 1 .4			A	Average 100
l1 dB									~~	Hold - International And	Un Avg/V	<u>u</u> /BW Type
walter								_	***	-the strange time	Auto	Pwr (RMS) <u>Ma</u>
¥PA∨g												
V1 V2								+	_			Snan/RBV
Center 5.580 00 G #Res BW 1 MHz	Hz		#V	BW 3 M	IHz	Sw	, veep 20	Spa ms (6	in 3 501	0 MHz pts)	<u>Auto</u>	100 100

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PEAK EXCURSIO			т	Б	W/Ava
Ch Freq 5.7 Channel Power	GHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm	30 dB	۵	. Mkr1 0 Hz 9.64 dB	Auto	Video BW 3.0 MHz <u>Man</u>
#Peak Log 10 dB/		an a	**	<u>Auto</u>	1.00000 <u>Man</u> Average
Offst 11 dB			Manager and a start of the star	On Avg/V	100 <u>Off</u> /BW Type
#PAvg				Auto	Pwr (RMS) ⁵ <u>Man</u>
V1 V2			Span 30 MHz		Span/RBW
#Res BW 1 MHz Copyright 2000-2010 Agilent T	#VBW 3 MHz echnologies	Sweep 20 m	s (601 pts)	<u>Auto</u>	<u>Man</u>

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7.8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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-20 dBc RF CONDUCTED SPURIOUS IN THE NOTCH BAND OF 5.6-5.65 GHz



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-20 dB Agiler	c, Chair nt 18:19:54	1, Lo Nov 10, 20	w End					Т	Marker
Project: 10 Ref 20 dB #Peak	0U13475 m	Atten 20	dB			Mkr2	5.650 00 -39.10	0 GHz) dBm	Select Marker 1 <u>2 3 4</u>
Log 10 dB/ Offst						production of the second se	tructure	4	Normal
11 dB DI				And the second second	Auto Aline			1990-9449 	Delta
-13.0 dBm LgAv	unis-mandateter	and the second second							Delta Pair (Tracking Ref) Ref ∆
Start 5.60 #Res BW	0 00 GHz 100 kHz		VBW 30	0 kHz	Swee	Stop ep 9.56	5.700 00 ms (601	0 GHz pts)	Span Pair _{Span <u>Center</u>}
Marker 1 2	Trace (1) (1)	Type Freq Freq	5.67 5.65	X Axis 7 50 GHz 0 00 GHz			Amplitu 7.02 dE -39.10 dB	ude 9m 9m	Off
									More 1 of 2
Copyright :	2000-2010 A	gilent Tech	nologies						

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7.9. 802.11n THREE CHAINS HT40 MODE IN THE 5.6 GHz BAND

7.9.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

CHAIN 1

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5510	40.387	36.467
Middle	5550	40.084	35.6656
High	5670	41.814	36.1641

CHAIN 2

Channel	Frequency	26 dB Bandwidth	99% Bandwidth	
	(MHz)	(MHz)	(MHz)	
Low	5510	40.59	36.2698	
Middle	5550	40.175	35.9154	
High	5670	40.849	35.9937	

CHAIN 3

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5510	40.623	36.4489
Middle	5550	40.9	36.0575
High	5670	40.391	36.321

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CHAIN 1

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH Agilent 14:33:13 Nov 10, 2010 T	Freq/Channel
Ch Freq 5.55 GHz Trig Free Occupied Bandwidth	Center Freq 5.55000000 GHz
Project: 10U13475	Start Freq 5.50000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.6000000 GHz
10 dB/ Offst 11	CF Step 10.0000000 MHz <u>Auto Man</u>
dB Center 5.550 00 GHz Span 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	
Occupied Bandwidth Occ BW % Pwr 99.00 % 35.6656 MHz x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error -116.887 kHz x dB Bandwidth 40.084 MHz*	
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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.67 GHz Trig Free Occupied Bandwidth	Center Freq 5.67000000 GHz
Project: 10U13475	Start Freq 5.62000000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.72000000 GHz
	CF Step 10.000000 MHz <u>Auto Man</u>
dB	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	Signal Track
36.1641 MHz × dB -26.00 dB	
Transmit Freq Error -65.247 kHz x dB Bandwidth 41.814 MHz*	
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CHAIN 2

26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH	Freq/Channel
Ch Freq 5.55 GHz Trig Free Occupied Bandwidth	Center Freq 5.55000000 GHz
Project: 10U13475	Start Freq 5.50000000 GHz
Ref 20 dBm Atten 20 dB #Samp	Stop Freq 5.6000000 GHz
10 →	CF Step 10.0000000 MHz <u>Auto Man</u>
dB 7 1 4 13 3 Center 5.550 00 GHz Span 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 35.9154 MHz x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error-255.699 kHzx dB Bandwidth40.175 MHz*	
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BANDWIDTH HIGH CH	Freq/Channel
Ch Freq 5.67 GHz Trig Free Occupied Bandwidth	Center Freq 5.67000000 GHz
Project: 10U13475	Start Freq 5.6200000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Stop Freq 5.7200000 GHz
10 dB/ Offst 11	CF Step 10.0000000 MHz <u>Auto Man</u>
dB Center 5.670 00 GHz Span 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz #Sweep 100 ms (601 pts)	Cignal Track
Occupied Bandwidth Occ BW % Pwr 99.00 % 35.9937 MHz x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error75.655 kHzx dB Bandwidth40.849 MHz*	
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CHAIN 3

26 dB and 99% BANDWIDTH



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BANDWIDTH MID	CH 2010		Т	Freq/Channel
Ch Freq 5.55 Occupied Bandwidth	GHz		Trig Free	Center Freq 5.55000000 GHz
Project: 10U13475				Start Freq 5.5000000 GHz
Ref 20 dBm Atten #Samp Log	20 dB			Stop Freq 5.6000000 GHz
10 dB/ Offst 11			110 / H. A.	CF Step 10.000000 MHz <u>Auto Man</u>
dB		S	ipan 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz	#VBW 1.3 MHz	#Sweep 100 n	ns (601 pts)	
Occupied Bandwi 36.05	dth 575 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Signal Irack On <u>Off</u>
Transmit Freq Error x dB Bandwidth	8.621 kHz 40.900 MHz*			
Copyright 2000-2010 Agilent To	echnologies			

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BANDWIDTH HIGH CH Agilent 14:20:37 Nov 10, 2010	Т	Freq/Channel
Ch Freq 5.67 GHz Occupied Bandwidth	Trig Free	Center Freq 5.67000000 GHz
Project: 10U13475		Start Freq 5.6200000 GHz
Ref 20 dBm Atten 20 dB #Samp Log	Avalution A	Stop Freq 5.7200000 GHz
10 dB/ Offst 11		CF Step 10.0000000 MHz <u>Auto Man</u>
dB	Span 100 MHz	Freq Offset 0.00000000 Hz
#Res BW 430 kHz #VBW 1.3 MHz	#Sweep 100 ms (601 pts)	Signal Track
Occupied Bandwidth 36.3210 MHz	Occ BW % Pwr 99.00 % x dB -26.00 dB	On <u>Off</u>
Transmit Freq Error -21.615 kHz x dB Bandwidth 40.391 MHz*		
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7.9.2. OUTPUT POWER

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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REPORT NO: 10U13475-3C FCC ID: S9GZF7761CM

RESULTS

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5510	23.98	40.387	27.06	5.50	23.98
Mid	5550	23.98	40.084	27.03	5.50	23.98
High	5670	23.98	40.391	27.06	5.50	23.98

Individual Chain Results

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	16.14	14.45	16.02	20.37	23.98	-3.61
Mid	5550	16.20	14.49	15.87	20.35	23.98	-3.63
High	5670	16.54	17.38	16.91	21.73	23.98	-2.25

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CHAIN 1 OUTPUT POWER



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OUTPUT POWER * Agilent 14:34:13 Nov 10,	MID CH, CHAI	N 1	T BW/Avg
Ch Freq 5.55 Channel Power RBW 1.0 MHz	GHz	Trig	Free Auto Man Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten #Samp dB/ Log dB/ Offst 11 dB	30 dB		Auto Man VBW/RBW 1.00000 Auto Man Average 100 On Off Avg/VBW Type
Center 5.550 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 63 Sweep 20 ms (601 p	Pwr (RMS)* MHz Auto <u>Man</u> pts)
Channel Power 16.20 dBm / 42.0	y 1 Z Span/RBW 106 <u>Auto Man</u>		
Copyright 2000-2010 Agilent Te	echnologies		

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OUTPUT POWER	HIGH CH, CH	AIN 1	BW/Avg
Ch Freq 5.6 Channel Power RBW 1.0 MHz	7 GHz	Trig Free	Res BW 1.0 MHz Auto Man Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten #Samp	30 dB		Auto <u>Man</u> VBW/RBV 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Bwr (PMS)
Center 5.670 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 63 MHz Sweep 20 ms (601 pts)	Auto <u>Man</u>
Channel Power 16.54 dBm / 42.0 Copyright 2000-2010 Agilent T	0000 MHz echnologies	[⊃] ower Spectral Density -59.48 dBm/Hz	Span/RBW 106 <u>Auto Man</u>

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CHAIN 2 OUTPUT POWER



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OUTPUT POWER	MID CH, CHAI	N 2	T BW/Avg
Ch Freq 5.55 Channel Power RBW 1.0 MHz Project: 10U13475	GHz	Trig Fr	ee Res BW Auto Man Video BW 3.0 MHz Auto Man
Ref 30 dBm Atten #Samp Log 10 dB/ Offst Addated The Atten 11 dB	30 dB		VBW/RBV 1.0000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type Pur (PMS)
Center 5.550 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 63 M Sweep 20 ms (601 pts)	Hz Auto <u>Man</u>
Channel Power 14.49 dBm / 42.0	6000 MHz	Power Spectral Density -61.53 dBm/Hz	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Te	chnologies		

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OUTPUT POWER Agilent 14:55:30 Nov 10,	HIGH CH, CH	AIN 2	BW/Avg
Ch Freq 5.67 Channel Power	′ GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHZ Project: 10U13475 Ref 30 dBm Atten	30 dB		3.0 MHz Auto <u>Man</u>
#Samp Log 10			1.00000 Auto Man
dB/ Offst 11 dB			On Off
Center 5.670 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 63 MHz Sweep 20 ms (601 pts)	Avg/vBvvType Pwr (RMS) • Auto <u>Man</u>
Channel Power			
17.38 dBm 742.0	Span/RBW 106 <u>Auto Man</u>		
Copyright 2000-2010 Agilent T	echnologies		

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CHAIN 3 OUTPUT POWER



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OUTPUT POWER I	VID CH, CHAI	N 3	Т	BW/Avg
Ch Freq 5.55 Channel Power RBW 1.0 MHz	GHz	T	rig Free	Res BW 1.0 MHz Auto <u>Man</u> Video BW 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten : #Samp	30 dB			Auto <u>Man</u> VBW/RBW 1.00000 <u>Auto Man</u> Average 100 <u>On Off</u> Avg/VBW Type
Center 5.550 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Spa Sweep 20 ms (an 63 MHz 601 pts)	Pwr (RMS) ► Auto <u>Man</u>
Channel Power Power Spectral Density 15.87 dBm / 42.0000 MHz -60.15 dBm/Hz				Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Technologies				

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7.9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Chain 1	Chain 2	Chain 3	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5510	15.41	14.34	15.93	20.05
Middle	5550	15.53	15.02	15.87	20.26
High	5670	15.67	16.48	16.05	20.85

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7.9.4. PEAK POWER SPECTRAL DENSITY

LIMITS

FCC §15.407 (a) (2)

IC RSS-210 A9.2 (2)

For the 5.47-5.725 GHz band, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 11 dBm.

TEST PROCEDURE

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002. PPSD method #2 was used.

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RESULTS

Channel	Frequency PPSD With Combiner		Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5510	5.884	11	-5.116
Middle	5550	6.575	11	-4.425
High	5670	7.909	11	-3.091

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POWER SPECTRAL DENSITY WITH COMBINER

PSD LOW CH, WIT	H COMBINER		
🔆 Agilent 13:33:39 Nov 10, 2	010	T	BW/Avg
Ch Freq 5.51 Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW
Project: 10U13475	0 dB	Mkr1 5.521 1 GHz 5 884 dBm	Auto <u>Man</u>
#Samp			VBW/RBW 1.00000 Auto <u>Man</u>
10 dB/ Offst		1	Average 100
21 dB			On Off Avg/VBW Type
DI 11.0 dBm		What the approximation	Pwr (RMS) ► Auto <u>Man</u>
#PAvg			-
W1 S2			Span/RBW
Center 5.510 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 60 MHz Sweep 20 ms (601 pts)	106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Teo	chnologies		

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🔆 Agilent 13:38:00 Nov 10, 20	10		Т	В	W/Avg
Ch Freq 5.55 G Channel Power	Hz		Trig Free	Auto	Res B\ 1.0 MH; <u>Ma</u>
RBW 1.0 MHz Project: 10U13475		Mkr1 5	.566 5 GHz	Auto	Video BV 3.0 MHz <u>Ma</u>
Ref 30 dBm Atten 20	dB		6.575 dBm		VBW/RB
¥Samp Log				<u>Auto</u>	1.00000 <u>Ma</u>
dB/	and the second second				Average 100
21 dB			40.	<u>On</u> Ava/\	<u>Off</u> /BW Type
DI			"There & should write	Auto	Pwr (RMS) <u>Ma</u>
¥ΡΑνg					
W1 S2					Span/RBV
Center 5.550 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	pan 60 MHz s (601 pts)	<u>Auto</u>	108 <u>Ma</u>

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PSD HIGH CH, WITH CO	MBINER	Т	BW/Avg
Ch Freq 5.67 GHz Channel Power		Trig Free	Res BV 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten 20 dB	Mkr1	5.659 0 GHz	Video BW 3.0 MHz Auto <u>Man</u>
#Samp Log 10			VBVV/RBV 1.00000 <u>Auto Man</u>
dB/ Offst 21			Average 100 <u>On Off</u>
DI Hitstand Concernent		- The and a second second	Avg/VBW Type Pwr (RMS) • Auto <u>Mar</u>
#PAvg			
Center 5.670 0 GHz #Res BW 1 MHz #VBV	V 3 MHz Sweep 20	Span 60 MHz ms (601 pts)	Span/RBW 106 <u>Auto Mar</u>

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7.9.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

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

TEST PROCEDURE

The transmitter outputs are connected to the spectrum analyzer via a combiner.

The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

Since Method # 1 was used for peak power measurements, Method # 1 settings are used for the second PPSD trace.

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RESULTS

CHAIN 1

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5510	8.72	13	-4.28
Middle	5550	11.77	13	-1.23
High	5670	12.30	13	-0.70

CHAIN 2

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5510	11.57	13	-1.43
Middle	5550	11.93	13	-1.07
High	5670	10.56	13	-2.44

CHAIN 3

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5510	11.11	13	-1.89
Middle	5550	10.34	13	-2.66
High	5670	11.26	13	-1.74

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CHAIN 1

PEAK EXCURSION

PEAK EXCURSION	I LOW CH			
🔆 Agilent 14:39:10 Nov 10, 2	2010		T BW/Avg	
Ch Freq 5.51 Channel Power	GHz	Trig F	Free Res Auto <u>1</u>	BVV IHz <u>Man</u>
RBW 1.0 MHz			Video I 3.0 M	BW. IHz I
Project: 10U13475	A JP	∆ Mkr1 0) Hz Auto <u>1</u>	Vlan
#Peak Atten 3			* <u>Auto1.000</u>	287) 00 <u>Man</u>
dB/ Offst			Averag	je 100
11 dB				011)e S) •
marked up to 1 / to 1 / to 1			Auto 1	Vian Vian
#PAvg				
V1 V2			Span/RF	31/1/
Center 5.510 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 60 Sweep 20 ms (601 pt	MHz 1 ts) <u>Auto 1</u>	06 Man
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* Agilent 14:36:00 Nov 10,	2010		Т	B)	N/Avg
Ch Freq 5.55 Channel Power	GHz		Trig Free	Auto	Res B∖ 1.0 MH₂ <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Project: 10013475 Ref 30 dBm Atten #Peak Log	30 dB		Mkri U Hz 11.77 dB	Auto	VBW/RB' 1.00000 Ma
10 dB/ Offst				On	Average 100 <u>Of</u>
dB ////////////////////////////////////			hallen ander me	Avg/V Auto	BW Type Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2		SI SI	an 60 MHz		Span/RBV
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	(601 pts)	<u>Auto</u>	<u>Ma</u>

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	HIGH CH	т	DIAIIAva
Ch Freq 5.67 GH Channel Power	z	Trig Free	Res BVv Res BVv 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475 Ref 30 dBm Atten 30 of	IB	∆ Mkr1 0 Hz 12.30 dB	Video BW 3.0 MHz Auto <u>Man</u> VBW/RBW
#Peak Log 10 dB/		**	1.00000 <u>Auto Man</u> Average
offst 11 dB db db db db db db db db db db			On <u>Off</u> Avg/VBW Type Pwr (RMS) •
#PAvg			
Center 5.670 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 60 MHz Sweep 20 ms (601 pts)	Span/RBW 106 <u>Auto Man</u>
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CHAIN 2

PEAK EXCURSION

PEAK EXCURSION	LOW CH		
🔆 Agilent 14:45:00 Nov 10, 2	:010	Т	BW/Avg
Ch Freq 5.51 (Channel Power	GHz	Trig Free	Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz			Video BW 3.0 MHz
Project: 10U13475	0.40	∆ Mkr1 O Hz	Auto <u>Man</u>
Ref 30 dBm Atten 30 #Peak		*	- VBW/RBV 1.00000 <u>Auto Man</u>
db/ Offst 11 dB		the second of th	- 100 On <u>Off</u> Avg/VBW Type
at the second		Helmon Adverse	Pwr (RMS) • Auto <u>Man</u>
#PAvg			-
V1 V2			- Span/RBW
Center 5.510 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 60 MH Sweep 20 ms (601 pts)	z 106 Auto Man
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* Agilent 14:51:59 Nov 10,	2010		Т	B	W/Avg
Ch Freq 5.55 Channel Power	GHz		Trig Free	Auto	Res B∖ 1.0 MH₂ <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz
Project: 10U13475 Ref 30 dBm Atten 3 #Peack	30 dB		ムMkr1 0 Hz 11.93 dB オーレー	Auto	
Log 10			**	<u>Auto</u>	1.00000 <u>Ma</u>
dB/ Offst		A CONTRACTOR AND A CONTRACTOR		0	Average 100
dB			And the second s	Avg/V	BW Type
1/gg/Mirstvalanden			My mart Mar Dear and and	Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2					Span/RBV
Center 5.550 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	Span 60 MHz is (601 pts)	<u>Auto</u>	108 <u>Ma</u>

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PEAK EXCURSION	I HIGH CH		т		0220
Channel Power	GHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz Project: 10U13475	L	۵	Mkr1 0 Hz	Auto	Video BVV 3.0 MHz <u>Man</u>
Ref 30 dBm Atten 3 #Peak	30 dB		10.56 dB	<u>Auto</u>	VBW/RBW 1.00000 <u>Man</u>
dB/ Offst			Annu la constantina de la constant	On	Average 100 <u>Off</u>
dB			and the second	Avg/VI Auto	BW Type Pwr (RMS) ► <u>Man</u>
#PAvg					
Center 5.670 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 20 ms	pan 60 MHz (601 pts)	S <u>Auto</u>)pan/RBW 106 <u>Man</u>
Copyright 2000-2010 Agilent Te	chnologies	•	· · /		

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CHAIN 3

PEAK EXCURSION

PEAK EXCURSION	LOW CH		т		
Rynent 14.15.07 Nov 10, 2	.010				///AVg
Ch Freq 5.51 (Channel Power	ЭHz		Trig Free	Auto	Res BW 1.0 MHz <u>Man</u>
RBW 1.0 MHz					Video BW 3.0 MHz
Project: 10U13475			∆ Mkr1 O Hz	Auto	<u>Man</u>
Ref 30 dBm Atten 3	0 dB		11.11 dB		VBW/RBV
#Peak Log	1		**	<u>Auto</u>	1.00000 <u>Man</u>
		And the second			Average
dB			March 1	On	<u>Off</u>
			Wilder and	Avg/V	BW Type Pwr (RMS) •
with with the second			Manufacture of the	Auto	Man
#PAvg					
V1 V2					
Center 5.510 0 GHz			Span 60 MHz		5pan/R.D.M
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 r	ns (601 pts)	<u>Auto</u>	<u>Man</u>
Copyright 2000-2010 Agilent Tec	hnologies:			-	

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Agilent 14:18:29 Nov 10,	2010		Т	B\	N/Avg
Ch Freq 5.58 Channel Power	5 GHz		Trig Free	Auto	Res B\ 1.0 MHz <u>Ma</u>
RBW 1.0 MHz				Auto	Video BV 3.0 MHz Ma
Project: 100134/5 Ref 30 dBm Atten #Peak #Peak	30 dB		10.34 dB	<u></u>	VBW/RB ¹
Log 10 dB/				<u>Auto</u>	Ma Average
Offst 11 dB			Land way way way and	On Ava/V	Of BW Type
M BANKA WALWA			Marine Caller Marine Marine	Auto	Pwr (RMS) <u>Ma</u>
#PAvg					
V1 V2			Span 60 MHz	S	pan/RBV
#Res BW 1 MHz	#VBW 3 MHz	Sweep 20 m	s (601 pts)	<u>Auto</u>	<u>Ma</u>

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	N HIGH CH		т	
Channel Power	/ GHz	Tri	ig Free	BVWAVg Res BW 1.0 MHz Auto <u>Man</u>
RBW 1.0 MHz Project: 10U13475		∎ ∆ Mł	(r1 0 Hz	Video BW 3.0 MHz Auto <u>Man</u>
Ref 30 dBm Atten #Peak Log	30 dB	1	1.26 dB	VBW/RBW 1.00000 <u>Auto Man</u>
dB/ Offst 11				Average 100 On <u>Off</u>
dB Andrey and a f			may with the second	Avg/VBW Type Pwr (RMS) • Auto <u>Man</u>
#PAvg				
Center 5.670 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Spar Sweep 20 ms (6	n 60 MHz 01 pts)	Span/RBW 106 <u>Auto Man</u>
Copyright 2000-2010 Agilent Te	echnologies			

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7.9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.407 (b) (3)

IC RSS-210 A9.3 (3)

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm / MHz.

TEST PROCEDURE

Conducted RF measurements of the transmitter output are made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz. Peak detection measurements are compared to EIRP limit, adjusted for the maximum antenna gain.

Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS WITH COMBINER



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-20 dBc RF CONDUCTED SPURIOUS IN THE NOTCH BAND OF 5.6-5.65 GHz



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7.10. RECEIVER CONDUCTED SPURIOUS EMISSIONS

<u>LIMITS</u>

IC RSS-GEN 7.2.3.1

Antenna Conducted Measurement: Receiver spurious emissions at any discrete frequency shall not exceed 2 nanowatts (-57 dBm) in the band 30-1000 MHz, or 5 nanowatts (-53 dBm) above 1 GHz.

TEST PROCEDURE

IC RSS-GEN 4.10, Conducted Method

The receiver antenna port is connected to a spectrum analyzer.

The spectrum from 30 MHz to 18 GHz is investigated with the receiver set to the middle channel of each 5 GHz band.

Preliminary tests on individual chains, and on all chains with a combiner, were performed. The worst-case configuration was with a combiner, therefore final test were performed with all chains feeding a combiner.

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RECEIVER SPURIOUS EMISSIONS FOR 802.11a MODE IN THE 5.2 GHz BAND

W Ay	IICHU 10.43.3	DZ INUV4,2	010						- 1	Peak Search
Project:	10U13475				7 MHz					
Ref0d	Bm	#Atter	10 dB					-67.34	dBm	Next Peak
Реак										
.og 0										
B/										Next Pk Right
)ffst										
1										
IB										Next Pk Left
1										
57.0										
вm										Min Search
.gAv										
14 63			+ +						1	
1 52 3 EC									Ŷ	Pk-Pk Search
	annah har an	when the second	-	Mar. 2010 (1998) - 4	444.44	aboration	publicktingen		rest percent	
(f):	- 1 4 - 1									
Tun	warker									Mkr©C
Swp	-933.70	0000	лHz⊣							
	-67.34	dBm								
Start 30	0.0 MHz						Stor	1.000) GHz	Mor
Res B	W 120 kHz		#VB	W 1 2 N	IH7	Swe	an 62.2	ms (601	nts)	1 of 2



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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT20 MODE IN THE 5.2 GHz BAND

Project: 10 Ref 0 dBn	0013475								
Ref0dBn				4 MHz					
	n	#Atten ()dB				-63.65	dBm	Next Peak
Реак									
.og -									
									Next Pk Right
)ffst		++			+				
1									
IB 🕇					+				Next Pk Left
л									
57.0									
iBm 📋									Min Search
_gAv									Iviin Ocurci
							1		
/1 \$2							Š.		Dk Dk Soorah
S3 FC	. Aleration to	Survey and and	mandraldhad	MARAN	manufacture	A Martine West	marthe		PK-PK Search
AA	100 101 101	1				[]			
^{ц():} [N	/larker	++			+				
	867 4000	ύοο Μ	H7						MKr@C
wp [0									ļ
[-]	63.65 d	⊔ m⊠							More
A-++ 20 0	MHz					Stop	1.000 () GHz	1(2



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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT40 MODE IN THE 5.2 GHz BAND

🔆 Ayı	ent 10.27.	VUVI OC.	(S, ZU)	U							Peak Search
^o roject:	10U13475			Mkr1 867.4 MHz							
Ref0dE	3m	##	Atten (dB					-62.35	dBm	Next Peal
Peak											
.og											
											Next Pk Right
ffet							-				_
1											
ів						<u> </u>					Next Pk Left
я											
57.0											
IBm						<u> </u>					Min Search
.gAv											i i i i i i i i i i i i i i i i i i i
F						-	-		0		
/1 S2									L L		Pk Pk Sparch
53 FC	Murdunkan	habelahr	whenthe	and the second	Keerbyt	Nount	-	holy and the second	and the second	Andrewood	
ци). :Tun	Marke	r									Mire
wp	867 40	booo	0 M	Hz_							IVIKIGC
	67.25	dDn									
L	-02.33	u DI									Mor
Start 30.0 MHz				Stop 1.000 0) GHZ	1 of 2		



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RECEIVER SPURIOUS EMISSIONS FOR 802.11a MODE IN THE 5.3 GHz BAND

e Aglient 14:4	3:16 NOV6,∠	010					Peak Search
roject: 10U1347 ef 0 dBm	5 #Atter	0 dB		Mk	r1 866. 62 04	6 MHz dBm	Novt Poal
Peak					-02.04		NOALT GUP
og) B/							Next Pk Right
							Next Pk Left
-IVIark _{7.0} -IVIark _{8m} 866.6 _{9Av} -62.0	er 600000 № 4 dBm	ЛНz					Min Search
1 S2 3 FC					•	ul ul u	Pk-Pk Search
AA (f): Tun wp							Mkr © C
tart 30.0 MHz				Stop	1.000 () GHz	Mor 1 of 2



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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT20 MODE IN THE 5.3 GHz BAND





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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT40 MODE IN THE 5.3 GHz BAND

· · ·	401140475				4 000	C MIL					
Project: Ref 0 dE Boak F	3m	#Atten	Mkr1 866.6 d Atten 0 dB -63.35 d							Next Peak	
.og 0 B/ Dffst										Next Pk Right	
:1 IB)I	Marker_									Next Pk Left	
-57.0 dBm 866.600000 LgAv -63.35 dBm		<u>000 N</u> Bm	n Hz							Min Searc	
/1 S2 53 FC AA	Wergerinster frittigeren		il arrige type i vigities	ilimitation value	liter to the second	a tiya Langi kan	-	*		Pk-Pk Search	
(f): Tun Swp										Mkr © C	
Start 30.	.0 MHz V 120 kHz		#VB	W 1.2	MHz	Sweep	Stoj 62.27 u	o 1.000 (os (2001) GHz	More 1 of 2	



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RECEIVER SPURIOUS EMISSIONS FOR 802.11a MODE IN THE 5.6 GHz BAND





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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT20 MODE IN THE 5.6 GHz BAND





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RECEIVER SPURIOUS EMISSIONS FOR 802.11n HT40 MODE IN THE 5.6 GHz BAND





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