

FCC CFR47 PART 15 SUBPART E INDUSTRY CANADA RSS-210 ISSUE 7

CERTIFICATION TEST REPORT

FOR

POINT TO POINT WIRELESS BRIDGE

TYPE NUMBER: PTP54600 MODEL NUMBERS: 5530BH, 5530BH15

> FCC ID: QWP54100 IC: 109AO-54100

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Prepared for MOTOROLA POINT TO POINT FIXED WIRELESS SOLUTIONS GROUP UNIT A1, LINHAY BUSINESS PARK, EASTERN RD ASHBURTON, DEVON, TQ137UP UNITED KINGDOM

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Rev.	lssue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

INDUSTRY CANADA RSS-GEN Issue 2

COMPANY NAME:	MOTOROLA UNIT A1, LINHAY BUSINESS PARK, I ASHBURTON, DEVON, TQ137UP, UN	
EUT DESCRIPTION:	WIRELESS ETHERNET BRIDGE	
TYPE NUMBER: MODELS:	PTP54600 5530BH, 5530BH15	
SERIAL NUMBER, RF: S/N, DFS MASTER: S/N, DFS SLAVE:	0004568050E0 00045680503C 000456804C5D	
DATE TESTED:	SEPTEMBER 14-23, 2008	
	APPLICABLE STANDARDS	
ST	ANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E		Pass
INDUSTRY CANADA	A RSS-210 Issue 7 Annex 9	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. 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. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:

M.H

MICHAEL HECKROTTE DIRECTOR OF ENGINEERING COMPLIANCE CERTIFICATION SERVICES

Chin Pany

CHIN PANG EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

Pass

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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, FCC 06-96, RSS-GEN Issue 2, and RSS-210 Issue 7.

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. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 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 PTP54600 is a 5.4 GHz band wireless Ethernet bridge.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range	Mode	Output Power	Output Power
(MHz)		(dBm)	(mW)
DISH Antenna 5MHz BW			
5474-5720	BPSK	-9.00	0.13
DISH Antenna 10MHz BW		•	•
5476-5718	BPSK	-7.51	0.18
DISH Antenna 15MHz BW		•	•
5480-5714	BPSK	-6.15	0.24
PANEL Antenna 5MHz BW		•	
5474-5720	BPSK	-0.95	0.80
PANEL Antenna 10MHz BW		•	
5476-5718	BPSK	3.10	2.04
PANEL Antenna 15MHz BW	•	-	
5480-5714	BPSK	3.99	2.51

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes Dish or Panel antennas, with a maximum assembly gain of 32.3 dBi for Dish antennas in the 5 MHz bandwidth, 33.9 dBi for Dish antennas in the 10 or 15 MHz bandwidths, and 23dBi gain for panel antenna in all bandwidths. The minimum gain of any antenna is 23 dBi.

5.4. SOFTWARE AND FIRMWARE

The operating software used during testing was 03-00.

5.5. WORST-CASE CONFIGURATION AND MODE

A baseline performance investigation was made by measuring the bandwidth, average power, peak power, power spectral density and band edge using all available modulation modes: Acquisition, BPSK, QPSK, 16QAM and 64QAM.

From the results of these measurements it was determined that BPSK modulation was the worst-case.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST						
Description	Manufacturer	Model	Serial Number			
PIDU PLUS	Motorola	PTP 500/600	819186560			
PIDU PLUS	Motorola	PTP 600	721131990			
Wireless Ethernet Bridge	Motorola	PTP54600	000456804FDE			
Laptop	Acer	ZL8	LXA860518154004044EM00			
AC Adapter	Delta Electronic	SADP65KBD	9JW0538080402			
Directional Coupler	Krytar	1817	131			

I/O CABLES

I/O CABLES

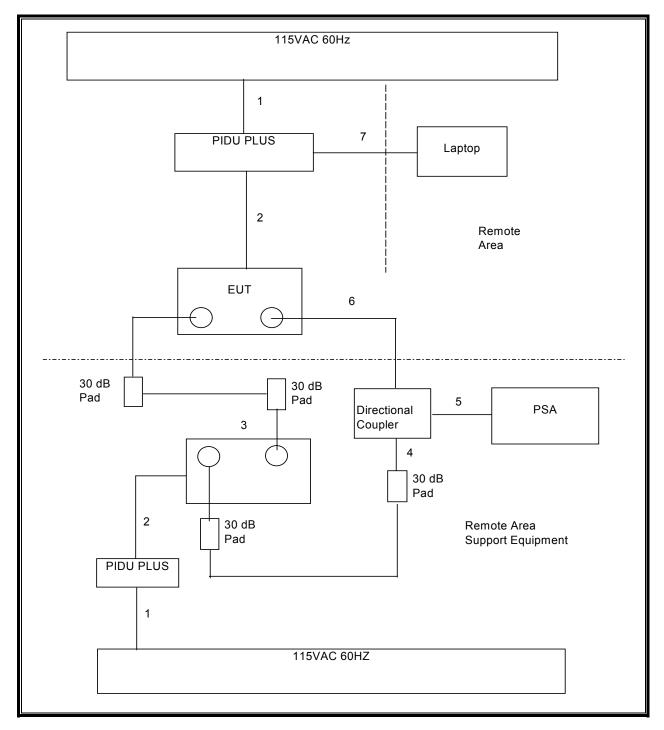
	I/O CABLE LIST					
Cable No.	Port	# of Identical Ports	To Port	Cable Type	Cable Length	Remarks
1	AC Mains	2	Mains Input	Un-shielded	2m	NA
2	PIDU+	2	ODU	CAT 5 Un- shielded	2m	Data and 48 VDC
3	EUT Antenna H	1	Support Antenna H	Coaxial	1m	Incorporates two 30 dB Attenuators
				Coaxial		Incorporates two 30 dB
4	Splitter	1	Support Antenna V		1m	Attenuators
5	Splitter	1	PSA RF Input	Coaxial	1m	NA
6	EUT Antenna V	1	Splitter	Coaxial	0m	Direct Connection
7	LAN	1	Laptop LAN	CAT 5 Un- shielded	5m	NA

TEST SETUP

The EUT is connected to another wireless Ethernet bridge during test, a laptop is used to setup test condition requirement

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SETUP DIAGRAM FOR 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	
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	9/28/2008	
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/27/2008	
Antenna, Horn, 18 GHz	EMCO	3115	C00872	4/22/2009	
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	10/8/2009	
Power Meter	Agilent / HP	437B	N02778	10/18/2008	
Power Sensor	Agilent / HP	8481A	2783	11/2/2009	
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	3/31/2009	
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	9/29/2008	
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	10/11/2008	
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	8/6/2009	
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/25/2008	

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7. ANTENNA PORT TEST RESULTS

7.1. 5MHz BANDWIDTH

7.1.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

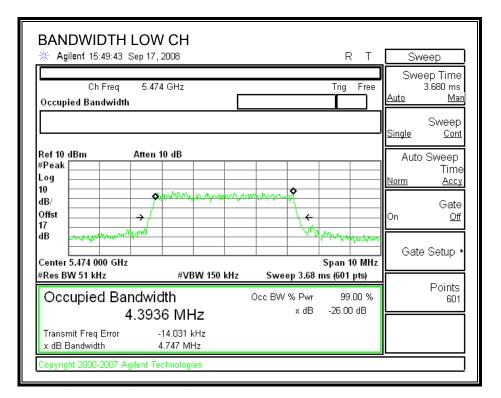
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5474	4.747	4.3936
Middle	5600	4.647	4.4219
High	5720	4.696	4.4257

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26 dB and 99% BANDWIDTH



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BANDWIDTH MID CH			RТ	Sweep
Ch Freq 5.6 GHz Occupied Bandwidth			Trig Free	Sweep Time 3.680 ms <u>Auto Man</u> Sweep
Ref 10 dBm Atten 10 dB #Peak Log 10 dB/ Offst → /	Ann Ann	+		<u>Single Cont</u> Auto Sweep Time <u>Norm Accy</u> Gate On <u>Off</u>
dB	/ 150 kHz	Sweep 3.68	Span 10 MHz ms (601 pts)	Gate Setup ▸
Occupied Bandwidth 4.4219 MHz Transmit Freq Error × dB Bandwidth 4.647 MHz	-	Occ BW % Pwr x dB	99.00 % -26.00 dB	Points 601
Copyright 2000-2007 Agilent Technologies				<u> </u>

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BANDWIDTH HIG	-		RТ	Sweep
Ch Freq 5.7 Occupied Bandwidth	2 GHz		Trig Free	Sweep Time 3.680 ms <u>Auto Man</u>
				Sweep <u>Single Cont</u>
#Peak				Auto Sweep Time <u>Norm Accy</u>
$\begin{array}{c c} dB \\ Offst \\ 17 \\ dB \\ \hline \\ & & & & \\ & & & \\ & & & & \\ & & & &$		· \ <	Mar Martin	Gate On <u>Off</u>
Center 5.720 000 GHz #Res BW 51 kHz	#VBW 150 kHz	Sweep 3.68	Span 10 MHz	Gate Setup ▸
Occupied Bandw 4.42	dth 57 MHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Points 601
Transmit Freq Error x dB Bandwidth	-24.188 kHz 4.696 MHz			
Copyright 2000-2007 Agilent T	echnologies			

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7.1.2. 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 method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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<u>RESULTS</u>

Dish Antenna, Port H and V

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5474	24	5	17.99	32.30	-8.31
Mid	5600	24	5	17.99	32.30	-8.31
High	5720	24	5	17.99	32.30	-8.31

Individual Chain Results

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5474	-12.30	-12.40	-9.34	-8.31	-1.03
Mid	5600	-11.83	-12.19	-9.00	-8.31	-0.69
High	5720	-11.74	-12.39	-9.04	-8.31	-0.73

Panel Antenna, Port H and V

Limit

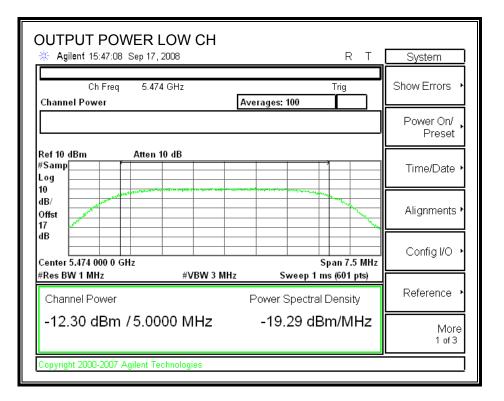
Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5474	24	5	17.99	23.00	0.99
Mid	5600	24	5	17.99	23.00	0.99
High	5720	24	5	17.99	23.00	0.99

Individual Chain Results

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5474	-3.77	-4.28	-1.01	0.99	-2.00
Mid	5600	-4.03	-4.06	-1.03	0.99	-2.02
High	5720	-3.72	-4.22	-0.95	0.99	-1.94

DISH ANTENNA

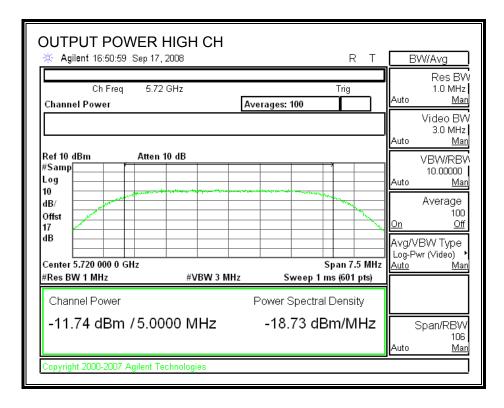
Port V OUTPUT POWER



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OUTPUT POWER MID CH * Agilent 16:28:05 Sep 17, 2008	RТ	Sweep
Ch Freq 5.6 GHz Channel Power Averages: 100	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
Ref 0 dBm Atten 10 dB #Samp Log 10 dB/		Sweep <u>Single Cont</u> Auto Sweep Time <u>Norm Accy</u> Gate
Offst 77 dB 6 Center 5.600 000 0 GHz 5	Span 7.5 MHz ns (601 pts)	On <u>Off</u> Gate Setup •
Channel Power Power Spectral -11.83 dBm / 5.0000 MHz -18.82 dB Copyright 2000-2007 Agilent Technologies	Density	Points 601

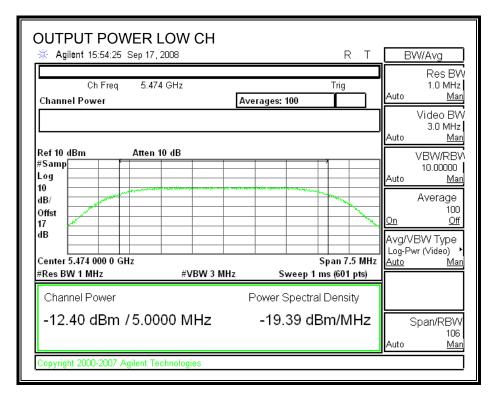
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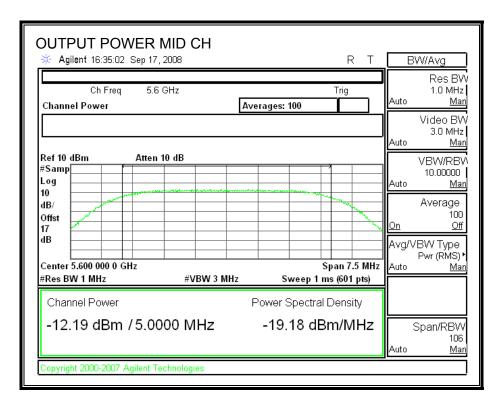
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DISH ANTENNA

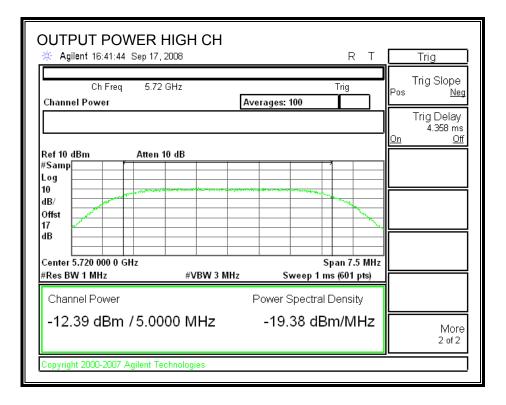
PORT H OUTPUT POWER



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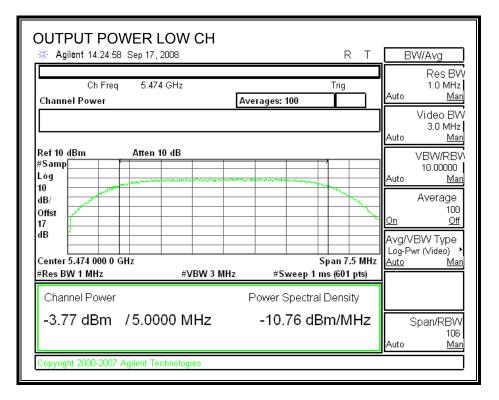
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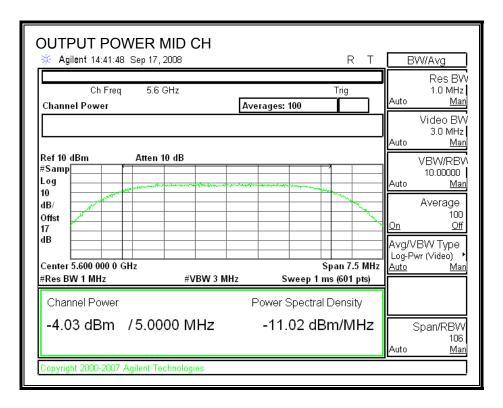
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PANEL ANTENNA

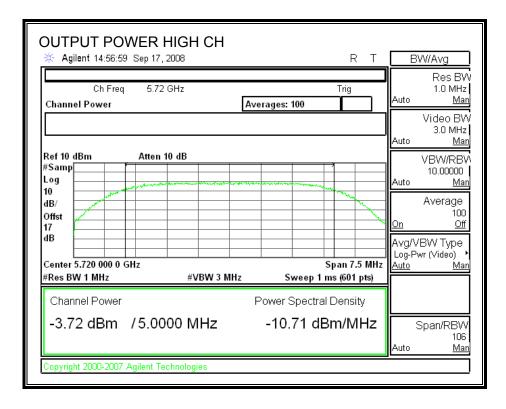
Port V, OUTPUT POWER



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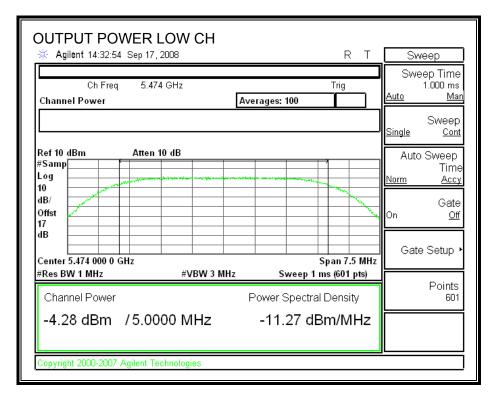
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PANEL ANTENNA

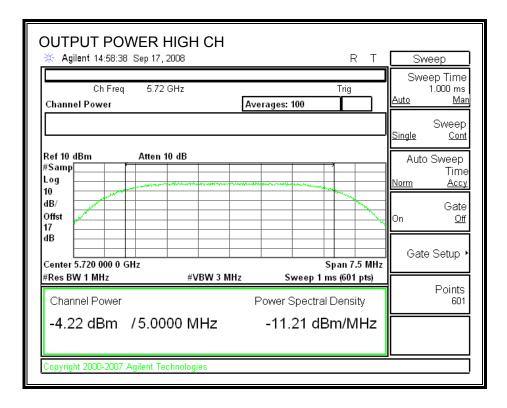
PORT H OUTPUT POWER



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OUTPUT POWER MID CH		RТ	BW/Avg
Ch Freq 5.6 GHz Channel Power	Averages: 100	Trig	Res BVV 1.0 MHz Auto <u>Man</u>
			Video BW 3.0 MHz Auto <u>Man</u>
Ref 10 dBm Atten 10 dB #Samp Log 10			VBW/RBV 10.00000 Auto <u>Man</u>
dB/ Offst 17 dB			Average 100 <u>On Off</u> Avg/VBW Type
Center 5.600 000 0 GHz #Res BW 1 MHz #VBW 3		pan 7.5 MHz ıs (601 pts)	Log-Pwr (Video) • Auto Man
Channel Power -4.06 dBm /5.0000 MHz	Span/RBW		
Copyright 2000-2007 Agilent Technologies			106 Auto <u>Man</u>

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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 17dB (including 16 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

DISH ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5474	-13.10
Middle	5600	-12.80
High	5720	-13.00

PANEL ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5474	-4.70
Middle	5600	-4.27
High	5720	-4.68

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7.1.4. 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 for Dish Antenna is 32.3 dBi, therefore the limit is –15.3 dBm.

The maximum antenna gain for Panelk Antenna is 23 dBi, therefore the limit is -6 dBm.

TEST PROCEDURE

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

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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<u>RESULTS</u>

DISH Antenna

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5474	-18.50	-18.67	-15.57	-15.3	-0.27
Middle	5600	-18.35	-18.55	-15.44	-15.3	-0.14
High	5720	-18.02	-18.69	-15.33	-15.3	-0.03

Panel Antenna

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5474	-9.95	-10.5	-7.21	-6	-1.21
Middle	5600	-10.28	-10.31	-7.28	-6	-1.28
High	5720	-10.12	-10.42	-7.26	-6	-1.26

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DISH ANTENNA

PORT V POWER SPECTRAL DENSITY

PSD LOW CH, PC			RТ	Swee	əp 🚺	
Ch Freq 5. Channel Power	47463 GHz	verages: 100	Trig		o Time 000 ms <u>Man</u>	
		-		Single	Sweep <u>Cont</u>	
Ref 0 dBm Atte	n 10 dB			Auto S <u>Norm</u>	Sweep Time <u>Accy</u>	
dB/ Offst				On	Gate <u>Off</u>	
dB Center 5.474 633 3 GHz			pan 1.5 MHz	Gate S	Setup 🕨	
#Res BW 100 kHz Channel Power	#Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts) Channel Power Power Spectral Density				Points 601	
-18.50 dBm /1.0	-18.50 dBm / 1.0000 MHz -18.50 dBm/MHz					
Copyright 2000-2007 Agilent	Technologies			IL		

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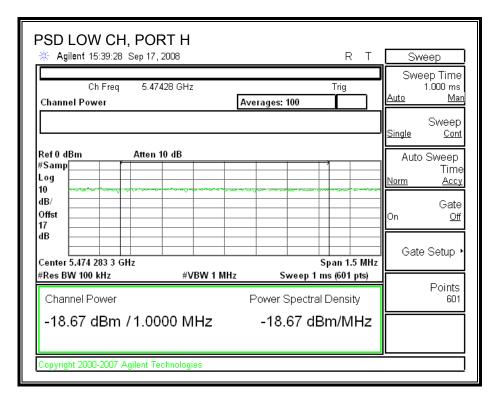
PSD MID CH, PORT V <u># Agilent 16:15:37 Sep 17, 2008</u>				Sweep	
Ch Freq 5.60022 GHz Trig Channel Power Averages: 100				Swe <u>Auto</u>	ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u> t
Ref 0 dBm Atten #Samp Log	10 dB			Auto <u>Norm</u>	Sweep Time <u>Accy</u>
IB/				On	Gate <u>Off</u>
IB	#VBW 1 MHz	Sweep	Span 1.5 MHz ms (601 pts)	Gate	e Setup
Channel Power Power Spectral Density					Points 601
-18.35 dBm /1.00	000 MHZ	-18.35 d	Bm/MHZ		

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PSD HIGH CH, PC			RТ	Detector		
Ch Freq 5.7 Channel Power	Auto					
Sweep Time 1.00	Channel Power Averages: 100 Sweep Time 1.000 ms					
Ref 0 dBm Atter #Samp Log	10 dB			Average (Log/RMS/V)		
10 dB/ Offst 17				Peak		
dB Center 5.719 233 3 GHz #Res BW 100 kHz	#VBW 1 MHz	Sweep 1 m	pan 1.5 MHz	Sample		
Channel Power	Negative Peak					
-18.02 dBm /1.0	More 1 of 2					
Copyright 2000-2007 Agilent 1	echnologies					

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PORT H POWER SPECTRAL DENSITY



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🔆 Agilent 16:36:45 S	ep 17, 2008			RT	Amplitude
Ch Freq Channel Power	5.59987 GHz	Averages:	100	Trig	Ref Level 0.00 dBm
					Attenuation 10.00 dB <u>Auto Ma</u>
Ref 0 dBm #Samp Log	Atten 10 dB		, , ,		Scale/Div 10.00 dB
IB/					Scale Type Log Li
IB	#VBW 1 M		•	oan 1.5 MHz	Presel Center
Res BW 100 kHz Channel Power			Spectral E		Presel Adjust [3-26 GHz] 0.000 Hz
-18.55 dBm /	1.0000 MHz	-18	.55 dBr	n/MHz	More 1 of 3

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Channel Power Averages: 100 Video BV Ref 0 dBm Atten 10 dB Video BV #Samp Video BV 1.0 MH Log Video BV 10 dB/ Offst 0 Average 17 0 0 0 VBW/RB 0 0 0 Average 0 0 0 0 Video BV 0 0	PSD HIGH CH, PORT H	R	т	BW/Avg	
Ref 0 dBm Atten 10 dB VBW/RB Log 0 </th <th></th> <th></th> <th></th> <th>100.0 k</th> <th></th>				100.0 k	
#Samp VDV/RD Log I0 10 III dB/ IIII 0 ffst IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				1.0 N	
dB/ Average Offst Offst 17 Offst dB Offst	#Samp Log			10.000	
AVG/VBVV Type Log-Pwr (Video)	dB/ Offst			7	ge 100 <u>Off</u>
#Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts)	Center 5.720 083 3 GHz	-	5 MHz	Log-Pwr (Video	
	-18.69 dBm /1.0000 MHz	-18.69 dBm/M			ΒV) 106 <u>Ma</u>

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PANEL ANTENNA

PORT V POWER SPECTRAL DENSITY

PSD LOW CH, PORT V			RТ	Sw	eep
Ch Freq 5.4745 GHz Channel Power	Ave	erages: 100	Trig		ep Time 1.000 ms <u>Man</u>
				<u>Single</u>	Sweep <u>Cont</u>
Ref 10 dBm Atten 10 dB #Samp			Ž	Auto <u>Norm</u>	Sweep Time <u>Accy</u>
dB/ Offst				On	Gate <u>Off</u>
dB Center 5.474 500 0 GHz #Res BW 100 kHz #V	/BW 1 MHz		pan 1.5 MHz	Gate	Setup 🕨
Channel Power		Sweep 1 m Power Spectral I	· · ·		Points 601
-9.95 dBm /1.0000 N	lHz	-9.95 dB	m/MHz		
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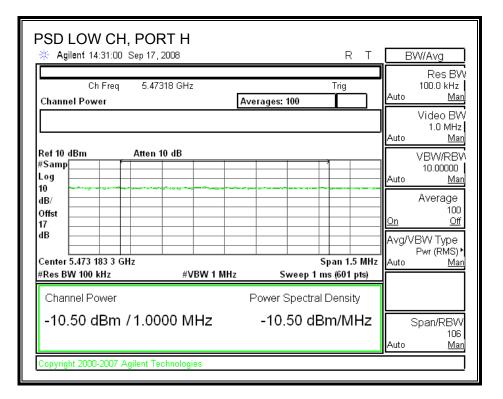
Agilent 14:44:18 Sep 17,	2008		RT	Sweep	_
Ch Freq 5.599 Channel Power	965 GHz	verages: 100	Trig	Sweep Ti 1.000 <u>Auto</u>	
				Swe <u>Single (</u>	eep Con
Ref 10 dBm Atten 1 #Samp	0 dB				ep ïm: <u>\cc</u>
IB/				G On	ate <u>Of</u>
IB	#VBW 1 MHz	Sweep 1	Span 1.5 MHz ms (601 pts)	Gate Setu	qı
Channel Power		Power Spectra	I Density	Poi	nts 601
-10.28 dBm /1.00	00 MHz	-10.28 dl	3m/MHz		

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PSD HIGH CH, PORT V	Sweep
Ch Freq 5.71907 GHz Trig Channel Power Averages: 100	Sweep Time 1.000 ms <u>Auto Man</u>
Sweep Time 1.000 ms	Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp	Auto Sweep Time <u>Norm Accy</u>
dB/ Offst	Gate On <u>Off</u>
Center 5.719 066 7 GHz Span 1.5 Mł #Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts)	Gate Setup ▸
Channel Power Power Spectral Density -10.12 dBm / 1.0000 MHz -10.12 dBm/MHz	Points 601
Copyright 2000-2007 Agilent Technologies	

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PORT H POWER SPECTRAL DENSITY



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Agilent 14:37:12 Sep 17,	2008		RT	SW	еер
Ch Freq 5.59 Channel Power	902 GHz	verages: 100	Trig		ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u> t
Ref 10 dBm Atten #Samp	10 dB			Auto <u>Norm</u>	Sweep Time <u>Acc</u>
dB/				On	Gate <u>Off</u>
IB	#VBW 1 MHz	Sween 1	Span 1.5 MHz ms (601 pts)	Gate	Setup
Channel Power		Power Spectra	l Density		Points 601
-10.31 dBm / 1.00	00 MHz	-10.31 dI	3m/MHz		

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PSD HIGH CH, PORT H				RT		Sweep
Ch Freq 5.72068 GHz Channel Power		erages: 10)0	Trig	Auto	Sweep Time 1.000 ms <u>Man</u>
						Sweep <u>Le Cont</u>
Ref 10 dBm Atten 10 dB #Samp Log 10					A Norm	Auto Sweep Time <u>1 Accy</u>
dB/					On	Gate <u>Off</u>
dB Center 5.720 683 3 GHz #Res BW 100 kHz #V	BW 1 MHz	Sw		pan 1.5 Mł s (601 pts)		Gate Setup ▸
Channel Power -10.42 dBm / 1.0000 M		Power Sp	pectral [· · ·		Points 601
L Copyright 2000-2007 Agilent Technologi	es					

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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 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.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

<u>RESULTS</u>

DISH ANTENNA

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5474	10.99	13	-2.01
Middle	5600	11.69	13	-1.31
High	5720	12.24	13	-0.76

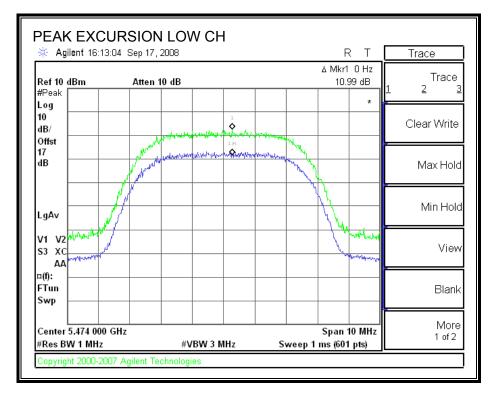
PANEL ANTENNA

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5474	9.83	13	-3.17
Middle	5600	10.46	13	-2.54
High	5720	9.85	13	-3.15

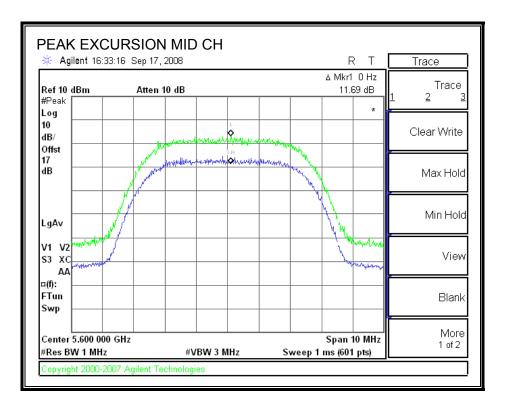
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DISH ANTENNA

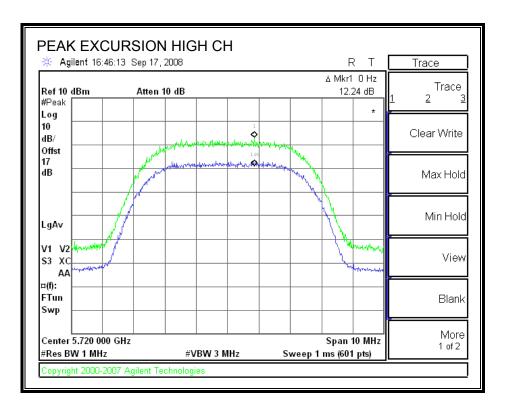
PEAK EXCURSION



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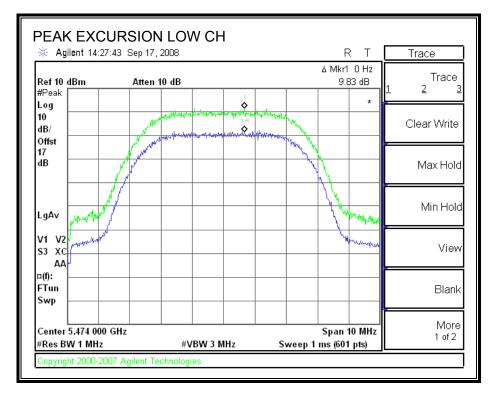
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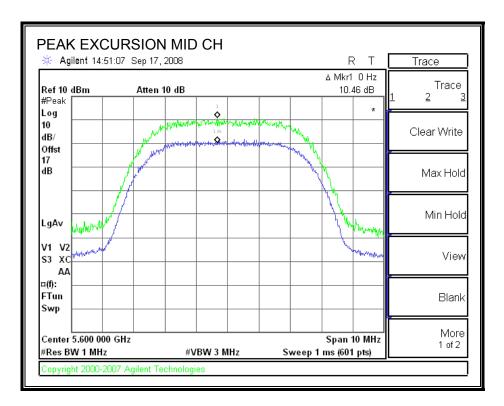
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PANEL ANTENNA

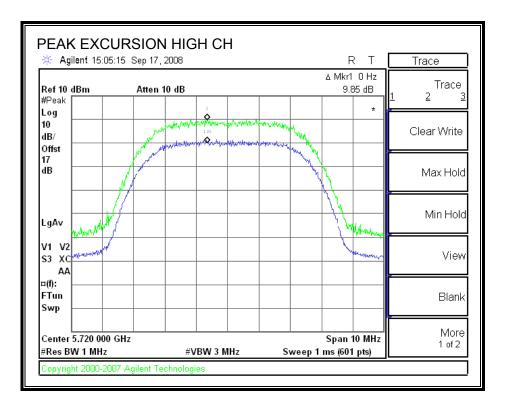
PEAK EXCURSION



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7.1.6. 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 the average EIRP limit, adjusted for the maximum antenna gain. If necessary, additional average detection measurements are made.

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

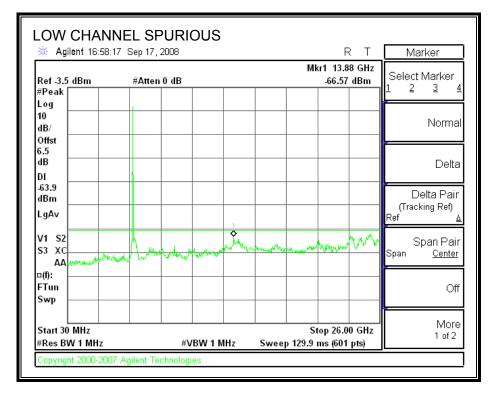
RESULTS

Note: For Dish antenna, an 26-40GHz pre-Amp

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DISH ANTENNA

SPURIOUS EMISSIONS



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🔆 Agilent 17:09	9:34 Sep 17 , 2008		RT	Peak Search
Ref -24 dBm #Peak	#Atten 0 dB		Mkr1 37.527 GH; _72.38 dBm	- II
Log 10 dB/ Offst				Next Pk Right
-14 dB DI				Next Pk Left
-63.9 dBm LgAv	myour more more more more more more more mor	www.www.	The second second second	Min Search
M1 S2 S3 XC AA				Pk-Pk Search
⊐(f): FTun Swp				Mkr © Cf
Start 26.000 GHz #Res BW 1 MHz	#VBW		Stop 40.000 GHz veep 70 ms (601 pts)	More 1 of 2

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🔆 Agilent 16:59:	34 Sep 17, 2008			RT	Marker
Ref -3.5 dBm	#Atten 0 dB		M	kr1 23.58 GHz -66.79 dBm	Select Marker
#Peak Log					
10 dB/					Norma
Offst 6.5 dB					Delta
DI -63.9 dBm					Delta Pair
LgA∨					(Tracking Ref) Ref
V1 S2 S3 XC AA	n hourse	and the second and the second s	unaur makagar a	Anger Russ	Span Pai Span <u>Center</u>
⊐(f):	*				~
Swp					Of
Start 30 MHz			<u> </u> s	itop 26.00 GHz	More
#Res BW 1 MHz	#\	/BW 1 MHz	Sweep 129.9	•	1 of 2

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🌾 Agilent 17:09	9:03 Sep 17, 2008			RΤ	Peak Search
Ref-24 dBm ≄Peak	#Atten 0 dB		Mkr1 37. -72.	387 GHz 02 dBm	Next Peak
Log 10 IB/ Offst					Next Pk Right
14 IB					Next Pk Left
63.9 IBm ₋gAv	MMM Winner market	wannand	Multiple works	14-11/1-11	Min Search
/1 S2 53 XC AA					Pk-Pk Search
i(f): :Tun Swp					Mkr©C
Start 26.000 GHz Res BW 1 MHz		V 1 MHz	Stop 40. Sweep 70 ms (6	000 GHz	More 1 of 2

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🔆 Agilent 17:00:	35 Sep 17, 2008			R	Т	Marker
Ref -3.5 dBm #Peak	#Atten 0 dB			Mkr1 25.20 -65.45		Select Marker
Log						
10 dB/						Norma
Offst 6.5 dB						Delta
DI -63.9 dBm						Delta Pair
LgA∨					1	(Tracking Ref) Ref <u>4</u>
V1 S2 S3 XC AA 7, 1/10/4/1/1/	hurle Warkerson	A Marine Marine	whender	my way	w Św	Span Pail Span <u>Center</u>
⊐(f):						-
FTun Swp						Ofi
Start 30 MHz				Stop 26.00	GHz	More
#Res BW 1 MHz	#V	BW 1 MHz	Sweep 129).9 ms (601		1 of 2

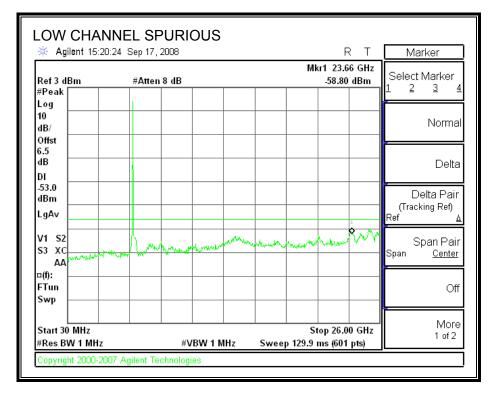
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🔆 Agilent 17:08	3:11 Sep 17, 2008			RΤ	Peak Search
Ref -24 dBm #Peak	#Atten 0 dB		Mkr	1 37.200 GHz -71.50 dBm	Next Peak
Log 10 dB/ Offst					Next Pk Right
-14 dB DI					Next Pk Left
-63.9 dBm LgAv	when the second	www.www.	draw warman	Morrison and and and and and and and and and an	Min Search
V1 S2 S3 XC AA					Pk-Pk Search
¤(f): FTun Swp					- Mkr©Cf
Start 26.000 GHz Res BW 1 MHz		W 1 MHz		p 40.000 GHz ms (601 pts)	More 1 of 2

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PANEL ANTENNA

SPURIOUS EMISSIONS



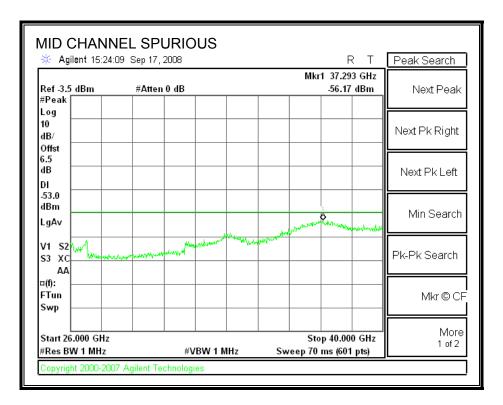
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🔆 Agilent 15:24:50	Sep 17, 2008		RΤ	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB	Mkr1	37.433 GHz -56.09 dBm	Next Peak
Log 10 dB/ Offst				Next Pk Right
6.5 dB DI				Next Pk Left
-53.0 dBm LgAv			2 Revender when the	Min Search
V1 S2 S3 XC	- and a second and a second	and a show a sho		Pk-Pk Search
⊐(f): FTun Swp				Mkr © CF
Start 26.000 GHz #Res BW 1 MHz	#VBW 1 I		p 40.000 GHz ns (601 pts)	More 1 of 2

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🔆 Agilent 15:21	:02 Sep 17, 2008			RT	Marker
Ref3dBm #Peak □	#Atten 8 dB		N	lkr1 23.58 GHz -59.01 dBm	Select Marker
Log					
10 dB/					Norma
Offst 6.5 dB					Delta
DI -53.0 dBm					Delta Pair
LgAv					(Tracking Ref) Ref
V1 S2 S3 XC	mal home man	whom had not	human	man	Span Pai Span <u>Center</u>
¤(f): FTun					Of
Swp					ļ
Start 30 MHz #Res BW 1 MHz		3W 1 MHz		Stop 26.00 GHz) ms (601 pts)	More 1 of 2

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🔆 Agilent 15:23	:05 Sep 17, 2008			R T	Marker
Ref 3 dBm #Peak	#Atten 8 dB		Mkr1 23.5 -59.01	58 GHz dBm	Select Marker
Log					
10 dB/ Offst					Norma
6.5 dB					Delta
DI -53.0 dBm					Delta Pair
LgAv				1	(Tracking Ref) Ref <u>4</u>
V1 S2 S3 XC AA	man home marker	choras and the second	manunation	Ŵŕ	Span Pair Span <u>Center</u>
¤(f):					~
Swp					Off
Start 30 MHz #Res BW 1 MHz	#VB	W 1 MHz S	Stop 26.0 weep 129.9 ms (601		More 1 of 2

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🔆 Agilent 15:23:4	40 Sep 17, 2008		RT	Marker
Ref -3.5 dBm #Peak	#Atten 0 dB		Mkr1 37.200 GHz -57.10 dBm	Select Marker
Log 10 dB/				Norma
Offst 5.5 dB				_ Delt:
-53.0			Min Minde Mar Margaret	Delta Pai (Tracking Ref) Ref
	and the for the second state and state	the state of the s		Span Pai – Span <u>Cente</u>
a(f): FTun Swp				- 01
Start 26.000 GHz #Res BW 1 MHz	#VBW 1	MHz Swee	Stop 40.000 GHz 570 ms (601 pts)	Mor 1 of 2

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7.1.7. TPC

LIMITS

FCC §15.407 (h) (1)

IC RSS-210 A9.4 (a)

Transmit power control (TPC). U-NII devices operating in the 5.25–5.35 GHz band and the 5.47–5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

TEST PROCEDURE

The test is performed in accordance with method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

RESULTS

I imit

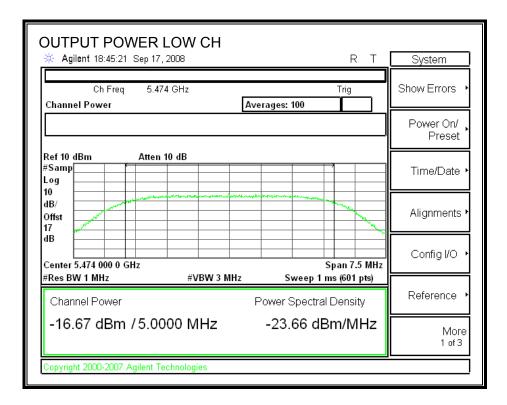
The Panel antenna has a lower gain than the Dish antenna, therefore the EIRP at the lowest power with the Panel antenna will be lower than indicated below for the Dish antenna.

Channel		Eissad	D		Antonno	Lineit
Channel	Frequency	Fixed	В	5 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5474	24	5	11.99	32.30	-14.31
Mid	5600	24	5	11.99	32.30	-14.31
High	5720	24	5	11.99	32.30	-14.31

Results

Channel	Frequency	Power	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5474	-16.67	-14.31	-2.36
Mid	5600	-16.64	-14.31	-2.33
High	5720	-16.35	-14.31	-2.04

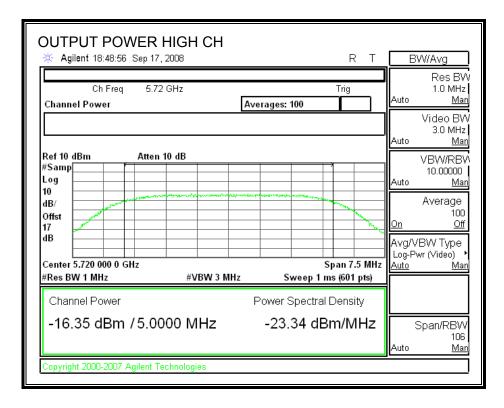
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OUTPUT POWER N * Agilent 18:46:56 Sep 17, 2	-		RТ	Sweep
Ch Freq 5.6 G Channel Power	···-	verages: 100	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
Sweep Time 1.000	ms			Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 #Samp Log 10) dB			Auto Sweep Time <u>Norm Accy</u>
dB/ Offst 17 dB				Gate On <u>Off</u>
Center 5.600 000 0 GHz #Res BW 1 MHz	#VBW 3 MHz	Sweep 1	Span 7.5 MHz ms (601 pts)	Gate Setup •
Channel Power -16.64 dBm / 5.000	Points 601			
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7.2. 10MHz BANDWIDTH

7.2.1. 26 dB and 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

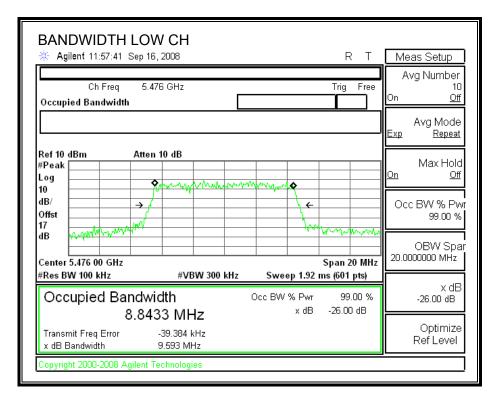
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5476	9.593	8.8433
Middle	5590	9.520	8.8163
High	5718	9.603	8.8400

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26 dB and 99% BANDWIDTH



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BANDWIDTH MII			RТ	Sweep
Ch Freq 5 Occupied Bandwidth	.59 GHz		Trig Free	Sweep Time 1.920 ms <u>Auto Man</u>
Ref 10 dBm Att	en 10 dB]	Sweep <u>Single Cont</u>
#Peak	Man may many mon	m Manna 🕈		Auto Sweep Time <u>Norm Accy</u>
dB/ → Offst 17 dB		he he	Mununpanny	Gate On <u>Off</u>
Center 5.590 00 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep 1.92 r	Span 20 MHz	Gate Setup ▸
Occupied Band		Occ BW % Pwr		Points 601
Transmit Freq Error x dB Bandwidth	-66.974 kHz 9.520 MHz			
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BANDWIDTH HIGH	-		RT	Meas Setup
Ch Freq 5.718 (Occupied Bandwidth	GHz		Trig Free	Avg Number 10 On <u>Off</u>
				Avg Mode <u>Exp</u> <u>Repeat</u>
Ref 20 dBm Atten 10 #Peak Log 10	dB	man Mar man		Max Hold <u>On Off</u>
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		← hptM	man and a second	Occ BW % Pwr 99.00 %
Center 5.718 00 GHz			Span 20 MHz	OBW Spar 20.0000000 MHz
#Res BW 100 kHz	#VBW 300 kHz	Sweep 1.92	ns (601 pts)	хdВ
Occupied Bandwidt 8.8400		Occ BW % Pwr x dB	99.00 % -26.00 dB	-26.00 dB
	.817 kHz 603 MHz			Optimize Ref Level
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7.2.2. 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 method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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<u>RESULTS</u>

DISH Antenna

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5476	24	9.6	20.82	33.90	-7.08
Mid	5590	24	9.6	20.82	33.90	-7.08
High	5718	24	9.6	20.82	33.90	-7.08

Individual Chain Results

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5476	-9.99	-11.13	-7.51	-7.08	-0.44
Mid	5590	-10.72	-11.04	-7.87	-7.08	-0.79
High	5718	-10.51	-11.41	-7.93	-7.08	-0.85

PANEL Antenna

Limit

-						
Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5476	24	9.6	20.82	23.00	3.82
Mid	5590	24	9.6	20.82	23.00	3.82
High	5718	24	9.6	20.82	23.00	3.82

Individual Chain Results

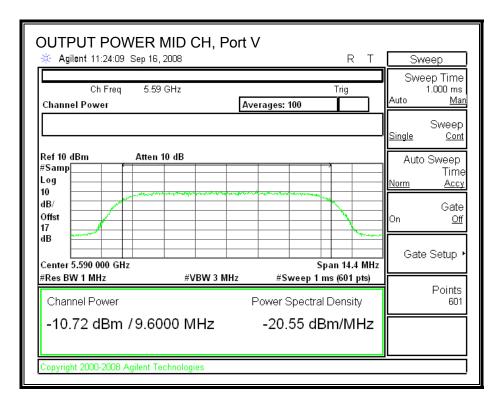
Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5476	-0.86	-1.12	2.02	3.82	-1.80
Mid	5590	-0.82	-1.01	2.10	3.82	-1.73
High	5718	0.23	-0.06	3.10	3.82	-0.72

DISH ANTENNA

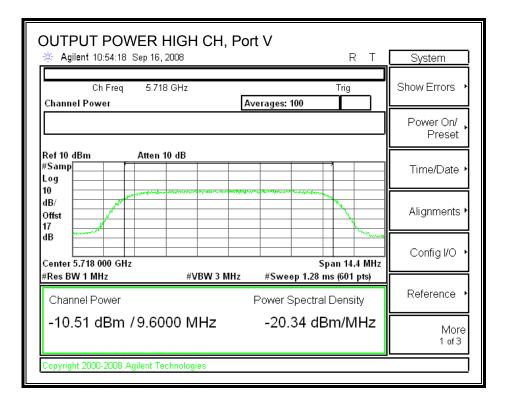
PORT V OUTPUT POWER

OUTPUT POWER LOW CH, Port V	Sweep
Ch Freq 5.476 GHz Trig Channel Power Averages: 100	Sweep Time 1.000 ms <u>Auto Man</u>
	Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp	Auto Sweep Time <u>Norm Accy</u> Gate On <u>Off</u> Gate Setup
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts) Channel Power Power Spectral Density -9.98 dBm / 9.6000 MHz -19.81 dBm/MHz	Points 601
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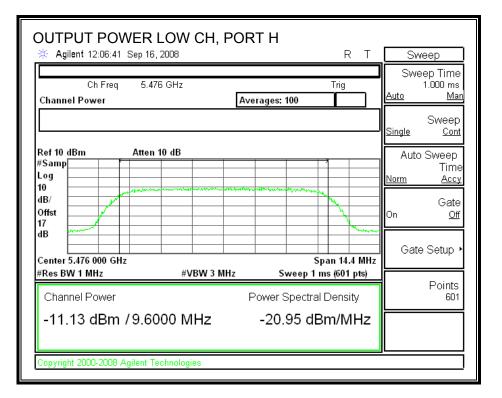


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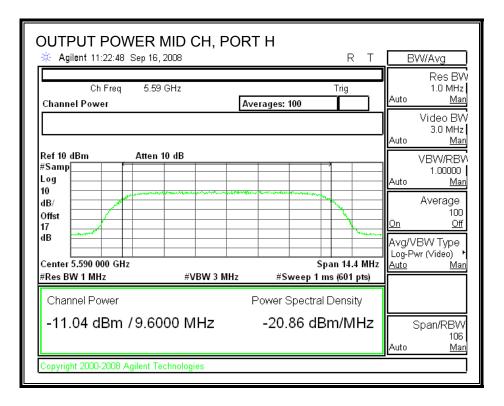


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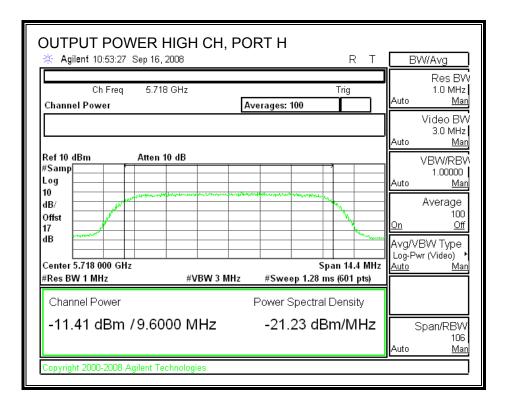
PORT H OUTPUT POWER



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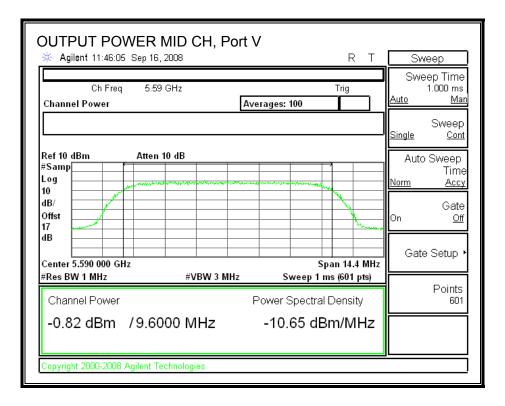
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PANEL ANTENNA

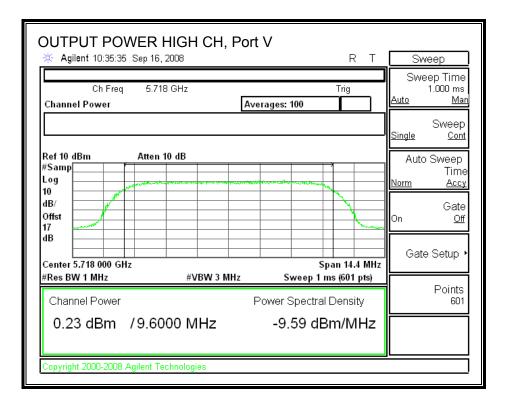
PORT V OUTPUT POWER

OUTPUT POWER LOW CH,	, Port V	Sweep
Ch Freq 5.476 GHz Channel Power	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
		Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp Log 10	The defendence of the other of	Auto Sweep Time <u>Norm Accy</u>
dB/ Offst 17 dB		Gate On <u>Off</u>
Center 5.476 000 GHz #Res BW 1 MHz #VBW 3	Span 14.4 MHz MHz Sweep 1 ms (601 pts)	Gate Setup ▸
Channel Power	Power Spectral Density	Points 601
-0.86 dBm /9.6000 MHz	-10.69 dBm/MHz	
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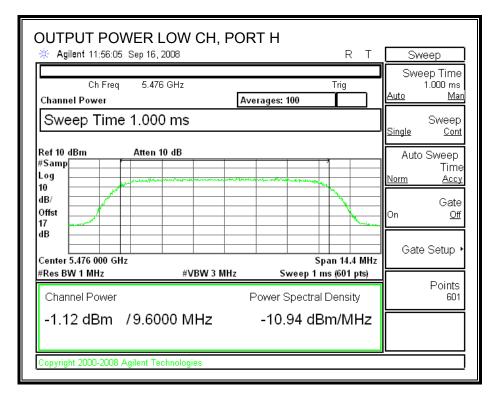


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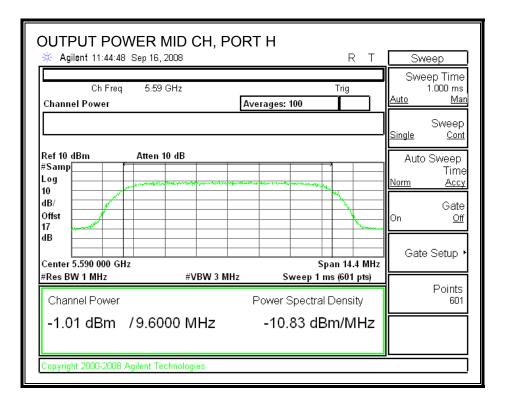


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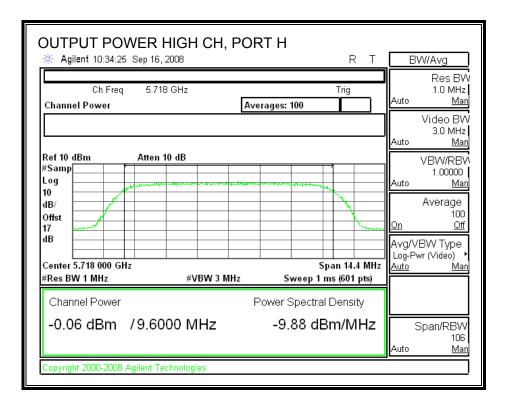
PORT H OUTPUT POWER



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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 17 dB (including 16 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

DISH ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5476	-13.05
Middle	5590	-13.10
High	5718	-13.15

Panel ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5476	0.50
Middle	5590	-0.50
High	5718	-0.80

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7.2.4. 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 Dish antenna gain is 33.9 dBi, therefore the limit is –16.9 dBm.

The maximum Panel antenna gain is 23 dBi, therefore the limit is -6 dBm.

TEST PROCEDURE

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

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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RESULTS

DISH ANTENNA

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5476	-19.44	-20.97	-17.13	-16.9	-0.23
Middle	5590	-19.57	-20.75	-17.11	-16.9	-0.21
High	5718	-20	-20.4	-17.19	-16.9	-0.29

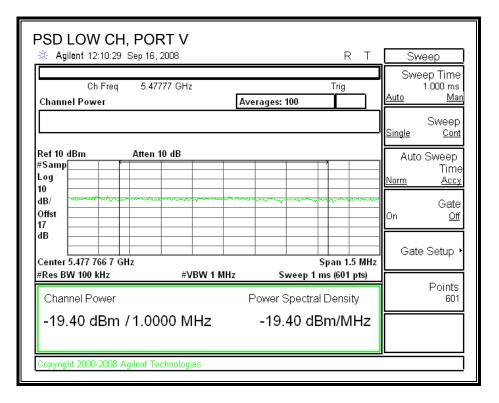
PANEL ANTENNA

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5476	-10.49	-10.89	-7.68	-6	-1.68
Middle	5590	-10.21	-10.32	-7.25	-6	-1.25
High	5718	-8.82	-9.25	-6.02	-6	-0.02

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DISH ANTENNA

PORT V POWER SPECTRAL DENSITY



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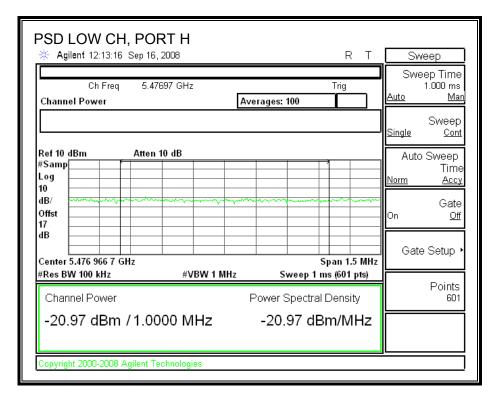
🔆 Agilent 11:27:04 Sep 16, 2008			RT	Sw	reep
Ch Freq 5.5919 GHz Channel Power	Average	s: 100	Trig	Swe <u>Auto</u>	ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u> t
Ref 10 dBm Atten 10 dB #Samp Log				Auto <u>Norm</u>	Sweep Time <u>Acc</u>
dB/ V	1000 00 00 00 00 00 00 00 00 00 00 00 00			On	Gate <u>Of</u>
Center 5.591 900 0 GHz #Res BW 100 kHz #VBW	1 MHz		Span 1.5 MHz ns (601 pts)	Gate	e Setup
Channel Power	Powe	r Spectral	Density		Points 601
-19.57 dBm /1.0000 MHz	z -1	9.57 dB	m/MHz		

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PSD					V				F	₹Т	5	weep
Chann	Ch el Powe	Freq er	5.	7168 GH	Ιz	Ave	erages:	100	Trig		Sw <u>Auto</u>	eep Time 1.000 ms <u>Man</u>
											<u>Single</u>	Sweep <u>Cont</u>
Ref0d #Samp Log 10			Atte	n 10 dB							Aut <u>Norm</u>	o Sweep Time <u>Accy</u>
dB/ Offst 17 dB											On	Gate <u>Off</u>
	5.716 80 W 100 k		Hz		#VBW 1 I	MHz		Sweep 1	-	.5 MHz Ipts)	Ga	te Setup 🕨
Channel Power Power Spectral Density -20.00 dBm / 1.0000 MHz -20.00 dBm/MHz							Points 601					
Neg. Trig	g Delay (unavai	lable in	Swept	Mode, zer	o delay u	ised.					

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PORT H POWER SPECTRAL DENSITY



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🔆 Agilent 11:20:28 Sep 16, 2	2008		RT	B	W/Avg
Ch Freq 5.590 Channel Power	3 GHz	verages: 100	Trig	Auto	Res BV 100.0 kHz <u>Ma</u>
				Auto	Video BV 1.0 MHz <u>Ma</u>
Ref 10 dBm Atten 1 #Samp Description Atten 1 Log Description Atten 1	0 dB			Auto	VBW/RB ¹ 1.00000 <u>Ma</u>
dB/	·····			<u>On</u>	Average 100 <u>Of</u>
dB	#VBW 1 MHz	Sweep 1	Span 1.5 MHz ms (601 pts)		BW Type wr (Video) <u>Ma</u>
Channel Power		Power Spectra	l Density		
-20.75 dBm /1.00	00 MHz	-20.75 dl	3m/MHz	S Auto	Span/RBV 108 <u>M</u> a

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PSD HIGH CH, PC			RТ	System
Ch Freq 5.7 ⁻ Channel Power	Show Errors 🔸			
				Power On/ Preset
Ref 0 dBm Atten #Samp Log	10 dB			Time/Date ►
dB/ Offst				Alignments 🕨
dB Center 5.716 800 0 GHz #Res BW 100 kHz	#VBW 1 MHz	Si Sweep 1 ms	oan 1.5 MHz	Config I/O 🔸
Channel Power	Reference 🕨			
-20.40 dBm /1.00	More 1 of 3			
Neg.Trig Delay unavailable in S	Swept Mode, zero delay	used.		

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PANEL ANTENNA

Port V POWER SPECTRAL DENSITY

PSD LOW CH, Port V	3		RТ	Sweep
Ch Freq 5.47847 Channel Power	_	verages: 100	Trig	Sweep Time 1.000 ms <u>Auto Mar</u>
				Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 d #Samp			Span 1.5 MHz	Auto Sweep Time <u>Norm Accy</u> Gate On <u>Off</u> Gate Setup
#Res BW 100 kHz Channel Power -10.49 dBm /1.0000		Sweep 1 r Power Spectral -10.49 dB	-	Points 601
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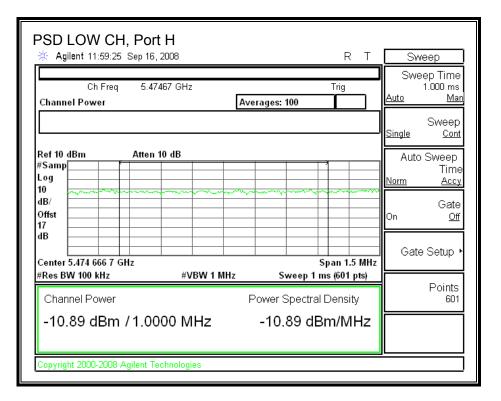
Agilent 11:48:58 Sep 16, 200	8		RT	Sw	reep
Ch Freq 5.5891 (Channel Power		/erages: 100	Trig	Swe <u>Auto</u>	ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u> t
Ref 10 dBm Atten 10 d #Samp Log				Auto <u>Norm</u>	Sweep Tim <u>Acc</u>
dB/				On	Gate <u>Of</u>
dB	#VBW 1 MHz	Sween	Span 1.5 MHz	Gate	e Setup
Channel Power Power Spectral Density					Points 601
-10.21 dBm / 1.0000) MHZ	-10.21 d	Bm/MHz		

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PSD HIGH CH, Port V	BW/Avg
Ch Freq 5.71683 GHz Trig Channel Power Averages: 100	Res BW 100.0 kHz Auto <u>Man</u>
	Video BW 1.0 MHz Auto <u>Man</u>
Ref 10 dBm Atten 10 dB #Samp	VBW/RBW 1.00000 Auto <u>Man</u>
dB/ Offst	Average 100 <u>On Off</u>
db center 5.716 833 3 GHz Span 1.5 MHz #Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts)	Avg/VBW Type Log-Pwr (Video) <u>Auto Man</u>
Channel Power Power Spectral Density -8.82 dBm /1.0000 MHz -8.82 dBm/MHz	Span/RBW
Neg.Trig Delay unavailable in Swept Mode, zero delay used.	106 Auto <u>Man</u>

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Port H POWER SPECTRAL DENSITY



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Agilent 11:42:03 Sep 16,	2008		RT	Swe	эер
Ch Freq 5.587 Channel Power	783 GHz	verages: 100	Trig		ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u>
Ref 10 dBm Atten 1 #Samp Log	0 dB			Auto <u>Norm</u>	Sweep Tim <u>Acc</u>
dB/ Offst				On	Gate <u>Of</u>
dB	#VBW 1 MHz		Span 1.5 MHz ns (601 pts)	Gate	Setup
Channel Power Power Spectral Density					Points 601
-10.32 dBm /1.00	00 MHz	-10.32 dE	sm/MHz		

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PSD HIGH CH, Port H	Sweep
Ch Freq 5.71683 GHz Trig Channel Power Averages: 100	Sweep Time 1.000 ms <u>Auto Man</u>
Ref 10 dBm Atten 10 dB	Sweep Single Cont
#Samp Log 10	Auto Sweep Time <u>Norm Accy</u>
dB/ Offst 17 dB	Gate On <u>Off</u>
Center 5.716 833 3 GHz Span 1.5 MHz #Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts)	Gate Setup •
Channel Power Power Spectral Density -9.25 dBm /1.0000 MHz -9.25 dBm/MHz	Points 601
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7.2.5. PEAK EXCURSION

<u>LIMITS</u>

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 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.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep

RESULTS

DISH ANTENNA

Channel	Frequency Peak Excursion		Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5476	12.29	13	-0.71
Middle	5590	10.75	13	-2.25
High	5718	12.79	13	-0.21

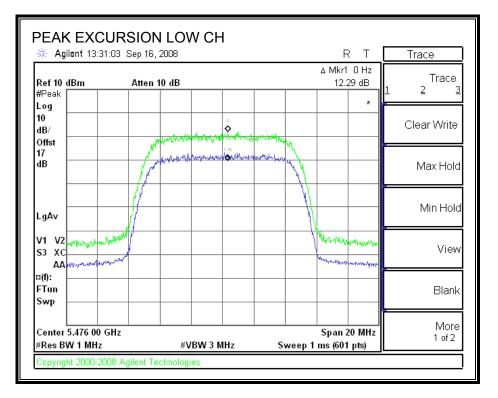
PANEL ANTENNA

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5476	11.28	13	-1.72
Middle	5590	11.36	13	-1.64
High	5718	11.78	13	-1.22

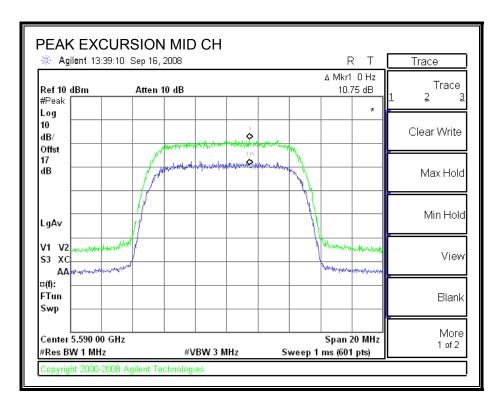
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DISH ANTENNA

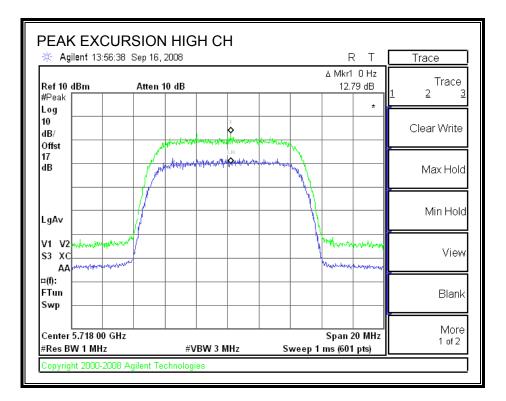
PEAK EXCURSION



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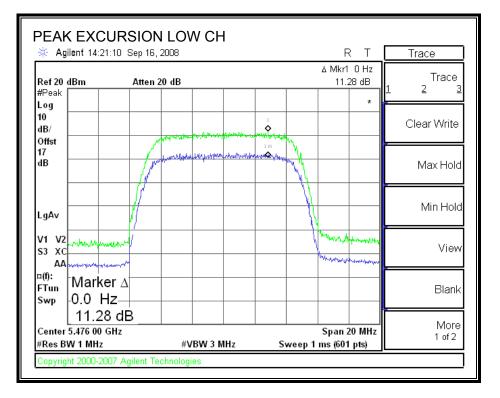
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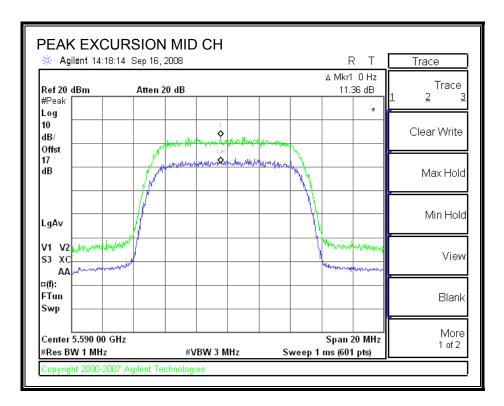
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PANEL ANTENNA

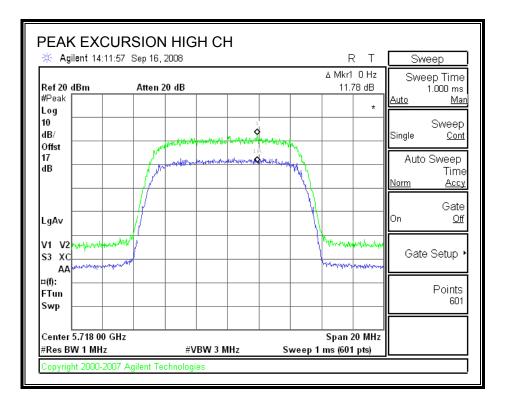
PEAK EXCURSION



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7.2.6. 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 the average EIRP limit, adjusted for the maximum antenna gain. If necessary, additional average detection measurements are made.

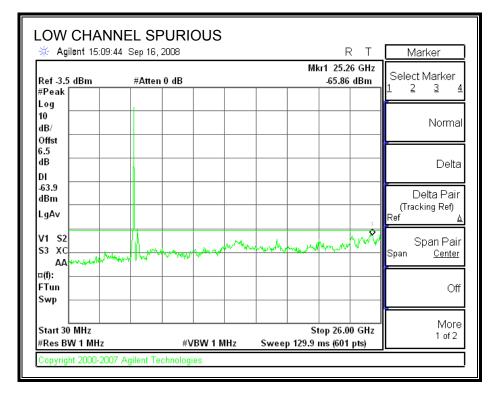
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

RESULTS

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DISH ANTENNA

SPURIOUS EMISSIONS



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🔆 Agilent 15:11:0	19 Sep 16, 2008			F	₹ T	Peak Search
Ref -24 dBm #Peak	#Atten 0 dB			Mkr1 37.41 -75.29		Next Peak
Uog 10 dB/						Next Pk Right
-14 dB DI						Next Pk Left
-63.9 dBm LgAv	har Mary Mary Mary Mary Mary Mary			I Stranger	and should	Min Search
V1 S2 S3 XC AA	har a far a far and the far and the far a far far far far far far far far f	and the second s				Pk-Pk Search
¤(f): FTun Swp						Mkr © Cf
Start 26.000 GHz #Res BW 1 MHz	#VB	W 1 MHz	Sweet	Stop 40.00 70 ms (601		More 1 of 2

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🔆 Agilent 15:08:	51 Sep 16, 2008			F		Marker
Ref -3.5 dBm #Peak	#Atten 0 dB			Mkr1 23.6 -65.45		Select Marker
Log						
10 dB/						Norma
Offst 6.5 dB						Delta
DI -63.9 dBm						Delta Pair
LgA∨					1	(Tracking Ref) Ref
V1 S2 S3 XC AAmerican	und when my	And and a marked	ale man	per hannasterit	tur	Span Pai Span <u>Cente</u> r
⊐(f):						Of
Swp						
Start 30 MHz #Res BW 1 MHz		#VBW 1 MHz	Sweep 129	Stop 26.0		More 1 of 2

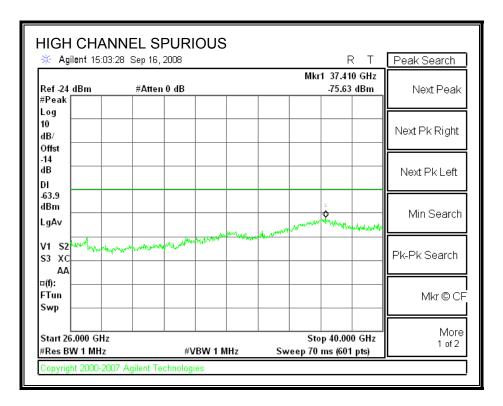
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🔆 Agilent 15:07:1	9 Sep 16, 2008			RT	Peak Search
Ref -24 dBm #Peak	#Atten 0 dB		Mkr	1 36.850 GHz -75.43 dBm	Next Peak
Log 10 dB/					Next Pk Right
Offst 14 dB DI					Next Pk Left
-63.9 dBm LgAv	and the second of the second o		2 Alexandream	Margara Maria	Min Search
V1 S2 VV Anno V S3 XC AA	white he had a second of the low				Pk-Pk Search
⊐(f): FTun Swp					Mkr©C
Start 26.000 GHz #Res BW 1 MHz	#VBV	V 1 MHz		p 40.000 GHz ms (601 pts)	More 1 of 2

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🔆 Agilent 14:45:	33 Sep 16, 2008			RT	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB		M	kr1 25.26 GHz -65.37 dBm	Next Peak
Log 10 dB/					Next Pk Right
Offst 6.5 dB					Next Pk Left
DI -63.9 dBm					Min Search
LgAv V1 S2				MAR	
S3 XC AA √**//////////////////////////////////	ver hours where	Marrie Carlor Carlor	ally all all and a second		Pk-Pk Search
FTun Swp					Mkr © C
Start 30 MHz #Res BW 1 MHz		3W 1 MHz	Sweep 129.9	top 26.00 GHz ms (601 pts)	More 1 of 2

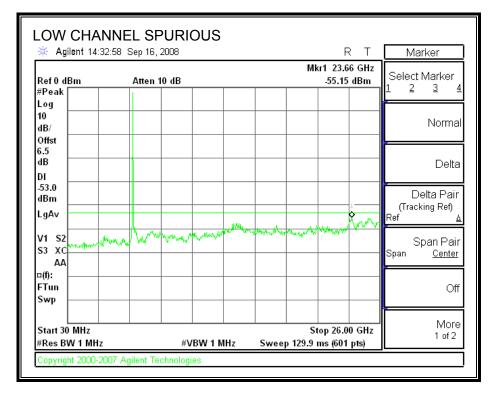
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PANEL ANTENNA

SPURIOUS EMISSIONS



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🔆 Agilent 14:34:1	01 Sep 16, 2008		RT	Trace
Ref -3.5 dBm #Peak	#Atten 0 dB		Mkr1 37.573 GHz -56.19 dBm	Trace
Log				
10 dB/				Clear Write
Offst 6.5 dB DI				Max Hold
-53.0			1. Up Willyngham a series	Min Hold
V1 S2	wand winder have find have been	a for the factor of the factor		View
AA ⊐(f): FTun Swp				Blank
Start 26.000 GHz #Res BW 1 MHz	#VBW 1		Stop 40.000 GHz 70 ms (601 pts)	More 1 of 2

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NO Agricine 14.3	86:49 Sep 16, 2008			RT	Marker
Ref0dBm #Peak	#Atten 8 dB		MI	<pre>sr1 25.22 GHz -56.30 dBm</pre>	Select Marker
Log					
10 dB/					Norma
Offst 6.5 dB					Delta
DI -53.0 dBm					Delta Pair
LgAv					(Tracking Ref) Ref <u>/</u>
V1 S2 S3 XC	money bertheredan	man	here many and the	Marin Vort	Span Pai Span <u>Center</u>
AA ¤(f):					
FTun Swp					Ofi
Start 30 MHz			S	top 26.00 GHz	More 1 of 2

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🔆 Agilent 14:37:25	5 Sep 16, 2008		RT	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB	Mkr	1 36.780 GHz -55.80 dBm	Next Peak
Log 10 dB/ Offst				Next Pk Right
6.5 dB DI				Next Pk Left
-53.0 dBm LgAv		a construction and the second data	any how have not the	Min Search
V1 S2 S3 XC	manumberturbert			Pk-Pk Search
a(f): FTun Swp				Mkr©C
Start 26.000 GHz #Res BW 1 MHz	#VBW 1 I		op 40.000 GHz ms (601 pts)	More 1 of 2

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🔆 Agilent 14:41	:25 Sep 16, 2008		RT	Marker
Ref0dBm #Peak	#Atten 8 dB		Mkr1 23.62 GHz -56.93 dBm	Select Marker
Log				-
10 dB/ Offst				– Norma
6.5 dB				Delta
DI -53.0 dBm				Delta Pair
LgAv			l l	(Tracking Ref) Ref
	and har of which where	and the manual the	manner understand VV	Span Pail Span <u>Center</u>
AA ¤(f):				_
FTun Swp				- Ofi
Start 30 MHz #Res BW 1 MHz	#VBW	1 MHz Swee	Stop 26.00 GHz p 129.9 ms (601 pts)	More 1 of 2

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🔆 Agilent 14:42:10) Sep 16, 2008			RΤ	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB		Mkr1 37.0 -55.1	083 GHz 16 dBm	Next Peak
Log 10 dB/ Offst					Next Pk Right
6.5 dB DI					Next Pk Left
-53.0 dBm LgAv			1 .	H-martin mar	Min Search
V1 S2 S3 XC	with provide the formation of the second sec	All mark freed parts and	<u></u>		Pk-Pk Search
¤(f): FTun Swp					Mkr © Cł
Start 26.000 GHz #Res BW 1 MHz	#VBW 1	MHz Sv	Stop 40.0 weep 70 ms (6)		More 1 of 2

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7.2.7. TPC

LIMITS

FCC §15.407 (h) (1)

IC RSS-210 A9.4 (a)

Transmit power control (TPC). U-NII devices operating in the 5.25–5.35 GHz band and the 5.47–5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

TEST PROCEDURE

The test is performed in accordance with method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

RESULTS

I imit

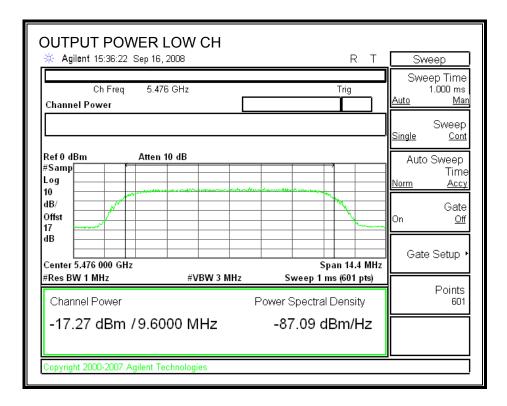
The Panel antenna has a lower gain than the Dish antenna, therefore the EIRP at the lowest power with the Panel antenna will be lower than indicated below for the Dish antenna.

Channel	Frequency	Fixed	В	5 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5476	24	9.6	14.82	32.30	-11.48
Mid	5590	24	9.6	14.82	32.30	-11.48
High	5718	24	9.6	14.82	32.30	-11.48

Results

Channel	Frequency	Power	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5476	-17.27	-11.48	-5.79
Mid	5590	-16.95	-11.48	-5.47
High	5718	-18.33	-11.48	-6.85

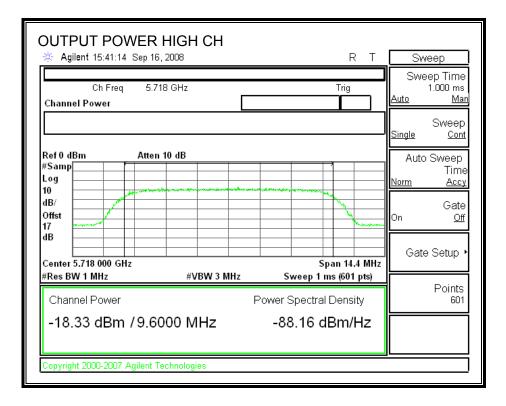
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DUTPUT POWER MID CH ☆ Agilent 15:38:06 Sep 16, 2008 R T	Sweep
	Sweep Time 1.000 ms <u>Auto Man</u> Sweep <u>Single Cont</u>
10 dB/ Offst 17 dB Center 5.590 000 GHz Span 14.4 MHz	Auto Sweep Time <u>Norm Accy</u> On <u>Off</u> Gate Setup •
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts) Channel Power Power Spectral Density -16.95 dBm / 9.6000 MHz -86.77 dBm/Hz	Points 601

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7.3. 15MHz BANDWIDTH

7.3.1. 26 dB and 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

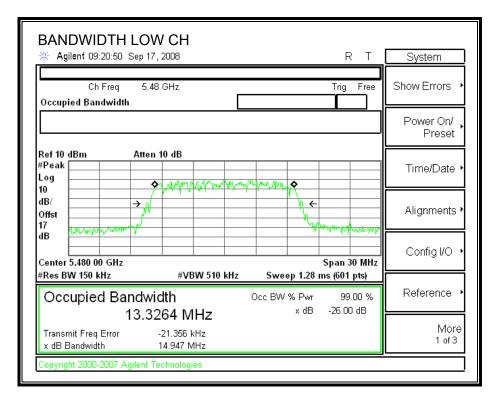
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the measured bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth function is utilized.

RESULTS

Channel	Frequency	26 dB Bandwidth	99% Bandwidth
	(MHz)	(MHz)	(MHz)
Low	5480	14.947	13.3264
Middle	5600	14.908	13.3592
High	5714	14.911	13.3972

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26 dB and 99% BANDWIDTH



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BANDWIDTH MID * Agilent 09:25:13 Sep 17	-		RТ	Sweep
Ch Freq 5.6 Occupied Bandwidth	GHz		Trig Free	Sweep Time 1.280 ms <u>Auto Man</u> Sweep Single Cont
#Peak	10 dB		and the second s	Auto Sweep Time <u>Norm Accy</u> Gate On <u>Off</u>
Center 5.600 00 GHz #Res BW 150 kHz	#VBW 510 kHz	Sweep 1.28 r	Span 30 MHz ns (601 pts)	Gate Setup 🕨
	dth 592 MHz -17.792 kHz	Occ BW % Pwr x dB	99.00 % -26.00 dB	Points 601
Transmit Freq Error x dB Bandwidth Copyright 2000-2007 Agilent T	14.908 MHz			

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BANDWIDTH HIGH CH Agilent 09:47:32 Sep 17, 2008	R	T Sweep
Ch Freq 5.714 GHz Occupied Bandwidth	Trig F	ree Sweep Time 1.280 ms <u>Auto Man</u>
		Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Peak Log 10	www.www.	Auto Sweep Time <u>Norm Accy</u>
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	- · · · · · · · · · · · · · · · · · · ·	Gate On <u>Off</u>
Center 5.714 00 GHz #Res BW 150 kHz #VBW 5	Span 30 f 510 kHz Sweep 1.28 ms (601 pts	5)
Occupied Bandwidth 13.3972 MHz	Occ BW % Pwr 99.00 x dB -26.00 dł	
Transmit Freq Error -43.749 kHz x dB Bandwidth 14.911 MHz		
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7.3.2. 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 method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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RESULTS

DISH Antenna

Limit

Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5480	24	15	22.76	33.90	-5.14
Mid	5600	24	15	22.76	33.90	-5.14
High	5714	24	15	22.76	33.90	-5.14

Individual Chain Results

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5480	-8.91	-10.40	-6.58	-5.14	-1.44
Mid	5600	-8.37	-10.13	-6.15	-5.14	-1.01
High	5714	-8.54	-10.31	-6.33	-5.14	-1.19

PANEL Antenna

Limit

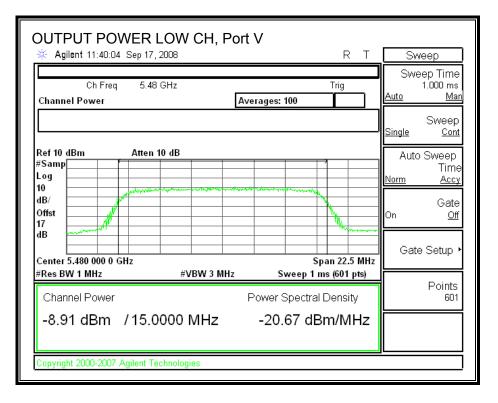
Channel	Frequency	Fixed	В	11 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5480	24	15	22.76	23.00	5.76
Mid	5600	24	15	22.76	23.00	5.76
High	5714	24	15	22.76	23.00	5.76

Individual Chain Results

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5480	0.95	0.77	3.87	5.76	-1.89
Mid	5600	1.15	0.80	3.99	5.76	-1.77
High	5714	1.04	0.82	3.94	5.76	-1.82

DISH ANTENNA

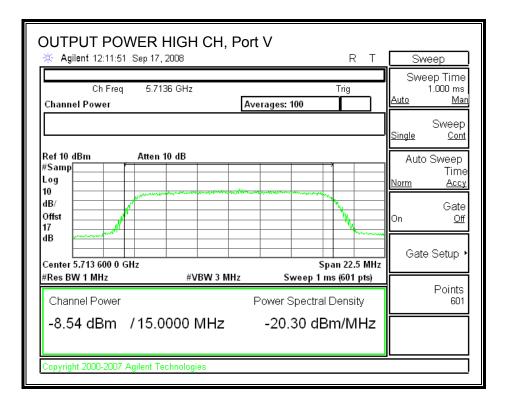
PORT V OUTPUT POWER



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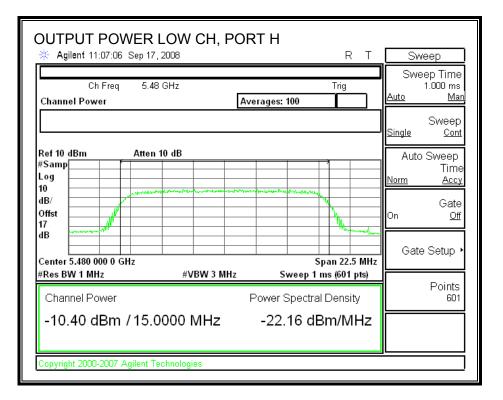
OUTPUT POWER MID CH, PC	prt V	Sweep		
Ch Freq 5.6 GHz Channel Power	Trig	Sweep Time 1.000 ms <u>Auto Man</u>		
		Sweep <u>Single Cont</u>		
Ref 10 dBm Atten 10 dB #Samp		Auto Sweep Time <u>Norm Accy</u> Gate		
17 dB	Span 22.5 MHz	On <u>Off</u> Gate Setup •		
Kes BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts) Channel Power Power Spectral Density Points 601 -8.37 dBm / 15.0000 MHz -20.13 dBm/MHz				
Copyright 2000-2007 Agilent Technologies				

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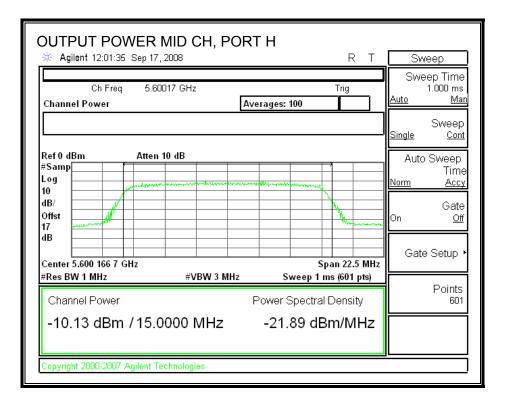


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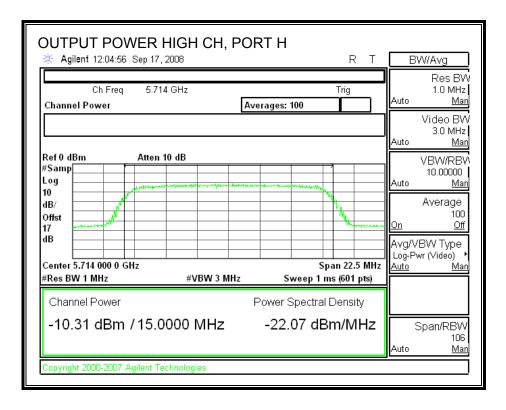
PORT H OUTPUT POWER



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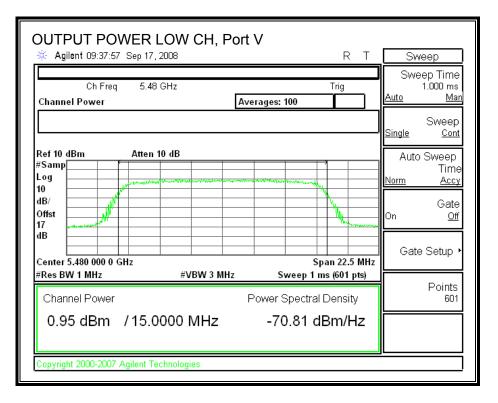
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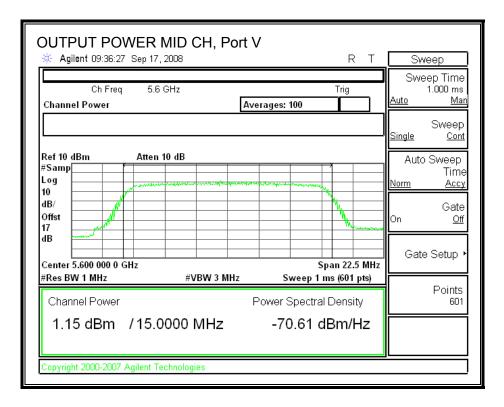
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PANEL ANTENNA

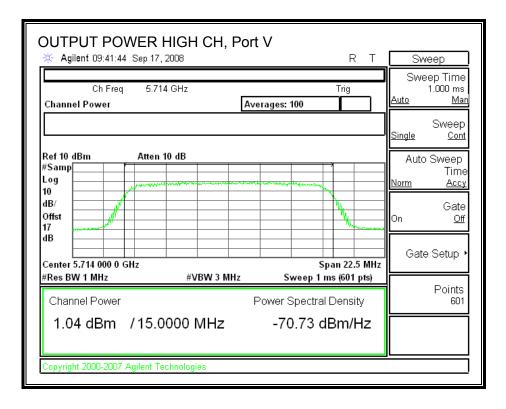
PORT V OUTPUT POWER



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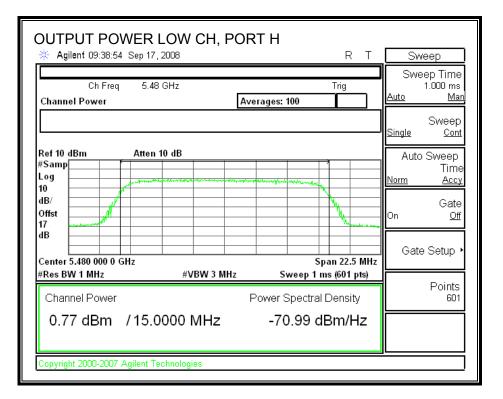


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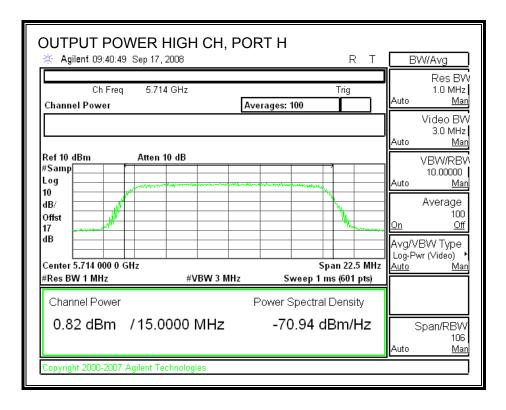
PORT H OUTPUT POWER



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OUTPUT POWER MID CH, F Agilent 09:32:44 Sep 17, 2008	PORT H	Sweep
Ch Freq 5.6 GHz Channel Power	Trig Averages: 100	Sweep Time 1.000 ms <u>Auto Man</u>
		Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp		Auto Sweep Time <u>Norm Accy</u> Gate
Offst		On <u>Off</u> Gate Setup
Center 5.600 000 0 GHz #Res BW 1 MHz #VBW 3 N		Points
Channel Power 0.80 dBm /15.0000 MHz	Power Spectral Density -70.96 dBm/Hz	601
Copyright 2000-2007 Agilent Technologies		

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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 17 dB (including 16 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

DISH ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5480	-10.15
Middle	5600	-9.55
High	5714	-9.63

Pannel ANTENNA

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5480	0.37
Middle	5600	0.44
High	5714	0.33

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7.3.4. 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 Dish antenna gain is 33.9 dBi, therefore the limit is --16.9 dBm.

The maximum Panel antenna gain is 23 dBi, therefore the limit is -6 dBm.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

TEST PROCEDURE

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

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

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RESULTS

DISH ANTENNA

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5480	-19.85	-21.47	-17.57	-16.9	-0.67
Middle	5600	-19.22	-21.26	-17.11	-16.9	-0.21
High	5714	-19.6	-21.3	-17.36	-16.9	-0.46

PANEL ANTENNA

Channel	Frequency	Port V	Port H	Total	Limit	Margin
		PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5480	-9.79	-10.18	-6.97	-6	-0.97
Middle	5600	-9.67	-10.65	-7.12	-6	-1.12
High	5714	-9.8	-9.83	-6.80	-6	-0.80

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Dish Antenna

PORT V POWER SPECTRAL DENSITY

PSD LOW CH, PORT V		RТ	Sweep
Ch Freq 5.48157 GHz Channel Power	Averages: 100	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
			Sweep <u>Single Cont</u>
Ref 0 dBm Atten 10 dB #Samp Log 10			Auto Sweep Time <u>Norm Accy</u>
dB/ Offst			Gate On <u>Off</u>
dB Center 5.481 566 7 GHz #Res BW 100 kHz #VBV		Span 1.5 MHz ms (601 pts)	Gate Setup ▸
Channel Power	Power Spectra		Points 601
-19.85 dBm / 1.0000 MH	lz -19.85 dE	3m/MHz	
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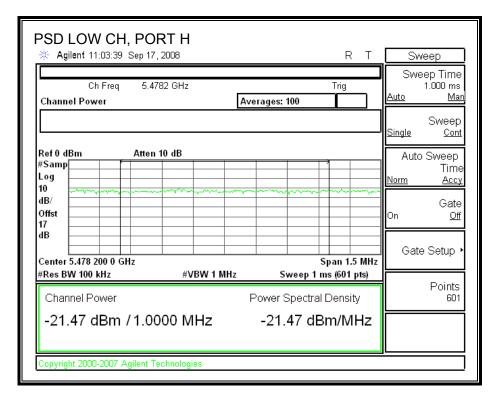
Agilent 11:46:01 Sep 17, 20	008		RT	Swe	еер
Ch Freq 5.6019 Channel Power		verages: 100	Trig		ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u>
Ref 0 dBm Atten 10 #Samp Log 10	dB			Auto <u>Norm</u>	Sweep Tim <u>Acc</u>
dB/ Offst				On	Gate <u>Of</u>
dB	#VBW 1 MHz	Sweep	Span 1.5 MHz 1 ms (601 pts)	Gate	Setup
Channel Power	0.0411-	Power Spectr	al Density		Points 601
-19.22 dBm /1.000	0 MHZ	-19.22 c	lBm/MHz		

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PSD HIGH CH, PORT V		RT	Sweep
Ch Freq 5.7136 GHz Channel Power	Averages: 1	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
			Sweep <u>Single Cont</u>
Ref 0 dBm Atten 10 dB #Samp Log 10			Auto Sweep Time <u>Norm Accy</u>
dB/ Offst			Gate On <u>Off</u>
Center 5.713 600 0 GHz	BW 1 MHz Sw	Span 1.5 MHz /eep 1 ms (601 pts)	Gate Setup ▸
Channel Power -19.60 dBm /1.0000 M	Power S	pectral Density	Points 601
Copyright 2000-2007 Agilent Technologie	95		

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PORT H POWER SPECTRAL DENSITY



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Agilent 11:58:53 Sep 17, 2008				RT	Sw	еер
Ch Freq 5.60017 GHz Channel Power		erages: 10		rig	Swe <u>Auto</u>	ep Time 1.000 ms <u>Ma</u>
		-			<u>Single</u>	Sweep <u>Con</u> t
Ref 0 dBm Atten 10 dB #Samp Log					Auto <u>Norm</u>	Sweep Time <u>Acc</u> y
dB/ Offst 17 dB					On	Gate <u>Of</u>
Center 5.600 166 7 GHz	BW 1 MHz	Swe	Spa Spa	n 1.5 MHz 601 pts)	Gate	e Setup
Channel Power		Power Sp	ectral De	ensity		Points 601
-21.26 dBm / 1.0000 M	Hz	-21.2	6 dBm	/MHz		

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PSD HIGH CH, PORT H		RТ	Sweep
Ch Freq 5.71657 GHz Channel Power	Averages: 10	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
			Sweep <u>Single Cont</u>
Ref 0 dBm Atten 10 dB #Samp Log 10	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Auto Sweep Time <u>Norm Accy</u>
dB/ Offst			Gate On <u>Off</u>
Center 5.716 566 7 GHz	BW 1 MHz Sw	Span 1.5 MHz reep 1 ms (601 pts)	Gate Setup 🕨
Channel Power -21.30 dBm / 1.0000 MI	Power Sp	bectral Density 0 dBm/MHz	Points 601
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Panel Antenna

Port V POWER SPECTRAL DENSITY

PSD LOW CH, Port V		RТ	Sweep
Ch Freq 5.48133 GHz Channel Power	Averages: 100	Trig	Sweep Time 1.000 ms <u>Auto Ma</u>
			Sweep <u>Single Cont</u>
Ref 10 dBm #Atten 10 dB #Samp Log			Auto Sweep Time <u>Norm Accy</u>
dB/ Offst			Gate On <u>Off</u>
dB Center 5.481 333 3 GHz #Res BW 100 kHz #VBW	SF 1 MHz Sweep 1 ms) an 1.5 MHz 5 (601 pts)	Gate Setup
Channel Power	Power Spectral D	Density	Points 601
-9.79 dBm /1.0000 MHz	2 -9.79 dBr	n/MHz	
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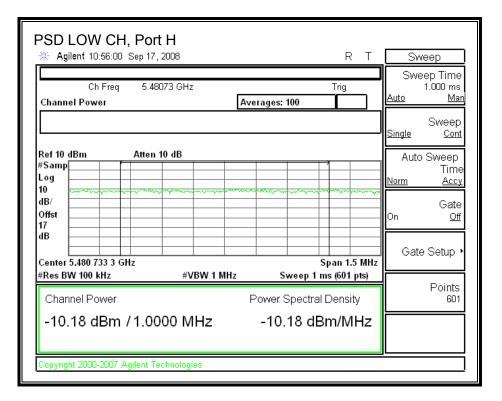
Agilent 09:26:43 Sep 17, 2008			RT	Sw	/eep
Ch Freq 5.60207 GHz Channel Power	Averag	es: 100	Trig	Swe <u>Auto</u>	ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u>
Ref 10 dBm Atten 10 dB #Samp Log				Auto <u>Norm</u>	Sweep Tim <u>Acc</u>
dB/ Offst				On	Gate <u>Of</u>
dB	1 MHz		Span 1.5 MHz ns (601 pts)	Gate	e Setup
Channel Power -9.67 dBm /1.0000 MHz	Pow	er Spectral	Density		Points 601
-9.67 abm 71.0000 MHZ	-	09.07 C	DIII/HZ		

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PSD HIGH CH, Port V	Sweep
Ch Freq 5.71533 GHz Trig Channel Power Averages: 100	Sweep Time 1.000 ms <u>Auto Man</u>
Sweep Time 1.000 ms	Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp	Auto Sweep Time <u>Norm Accy</u>
dB/ Offst	Gate On <u>Off</u>
Center 5.715 333 3 GHz Span 1.5 MHz #Res BW 100 kHz #VBW 1 MHz Sweep 1 ms (601 pts)	Gate Setup ▸
Channel Power Power Spectral Density -9.80 dBm /1.0000 MHz -9.80 dBm/MHz	Points 601
Copyright 2000-2007 Agilent Technologies	

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Port H POWER SPECTRAL DENSITY



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Agilent 09:29:35 Sep 17,	2008		RT	Sw	еер
Ch Freq 5.59 Channel Power	337 GHz	erages: 100	Trig		ep Time 1.000 ms <u>Ma</u>
				<u>Single</u>	Sweep <u>Con</u>
Ref 10 dBm Atten				Auto <u>Norm</u>	Sweep Time <u>Acc</u>
IB/				On	Gate <u>Of</u>
Center 5.598 366 7 GHz	#VBW 1 MHz	Sweep 1 n	Span 1.5 MHz	Gate	Setup
Channel Power Spectral Density				Points 601	
-10.65 dBm /1.00	00 MHz	-70.65 d	Bm/Hz		

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PSD HIGH CH, Port H	RТ	Sweep
Ch Freq 5.7146 GHz Channel Power Averages	Trig :: 100	Sweep Time 1.000 ms <u>Auto Man</u>
Ref 10 dBm Atten 10 dB #Samp		Sweep Single Cont Auto Sweep Time Norm Accy On Off
Center 5.714 600 0 GHz #Res BW 100 kHz #VBW 1 MHz	Span 1.5 MHz Sweep 1 ms (601 pts)	Gate Setup •
	Spectral Density 9.83 dBm/MHz	Points 601

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7.3.5. PEAK EXCURSION

<u>LIMITS</u>

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 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.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

RESULTS

DISH ANTENNA

Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5480	10.36	13	-2.64
Middle	5600	9.69	13	-3.31
High	5714	11.14	13	-1.86

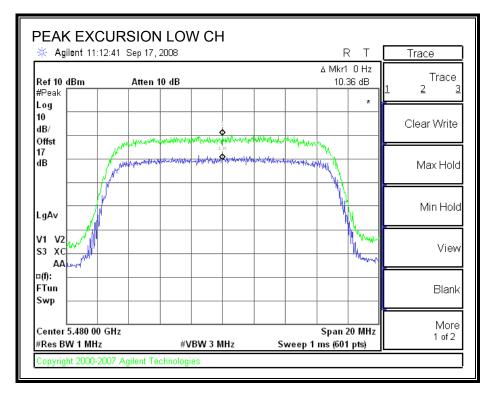
Channel	Frequency	Peak Excursion	Limit	Margin
	(MHz)	(dB)	(dB)	(dB)
Low	5480	10.68	13	-2.32
Middle	5600	11.06	13	-1.94
High	5714	10.67	13	-2.33

PANEL ANTENNA

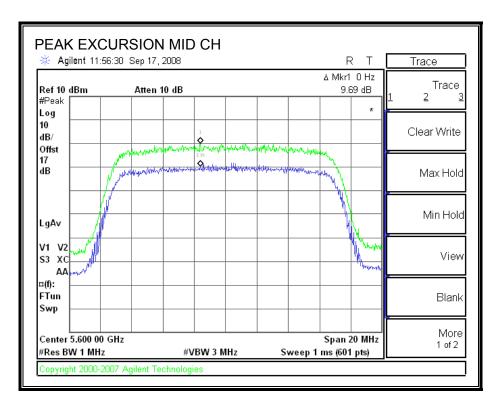
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DISH ANTENNA

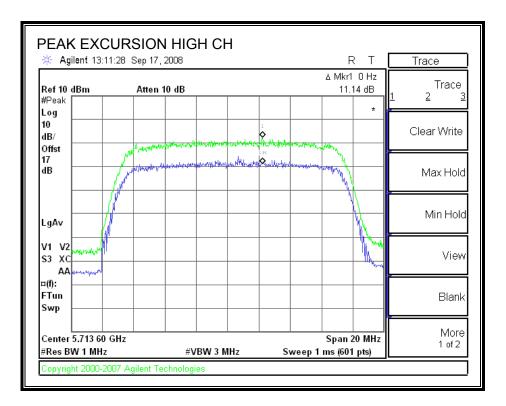
PEAK EXCURSION



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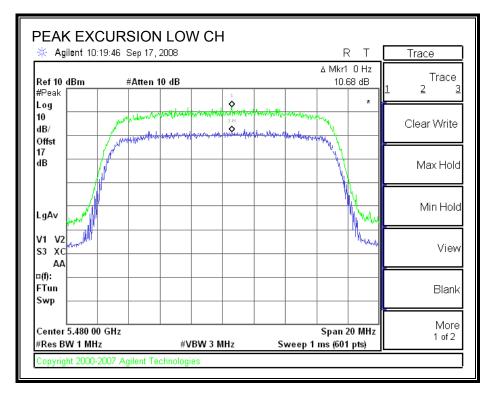
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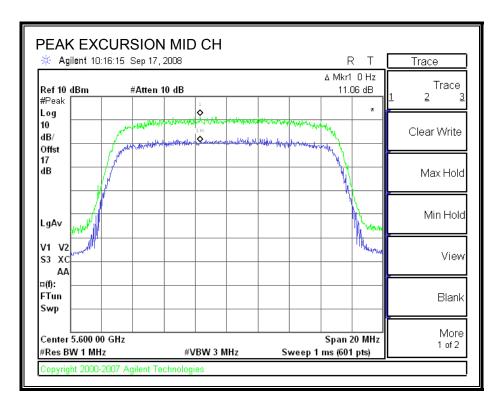
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PANEL ANTENNA

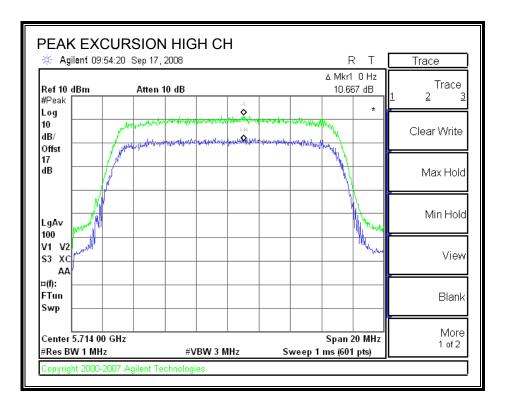
PEAK EXCURSION



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7.3.6. 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 -27dBm / 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 1MHz Peak detection measurements are compared to the average EIRP limit, adjusted for the maximum antenna gain. If necessary, additional average detection measurements are made.

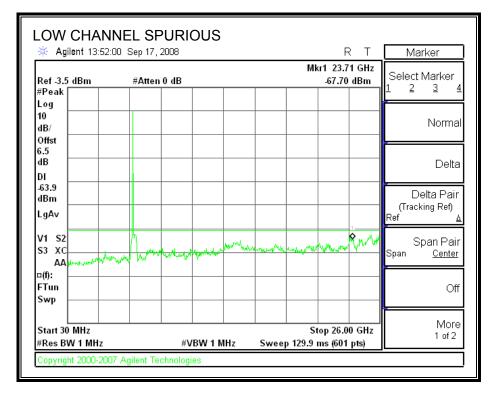
Measurements are made over the 30 MHz to 40 GHz range with the transmitter set to the lowest, middle, and highest channels.

RESULTS

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DISH ANTENNA

SPURIOUS EMISSIONS



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🔆 Agilent 17:20	:06 Sep 17, 2008		R	Т	Peak Search
Ref -24 dBm ≠Peak	#Atten 0 dB		Mkr1 37.387 -72.71 d		Next Peak
l0 dB/					Next Pk Right
14 IB					Next Pk Left
63.9 IBm _gAv	apple way ball and a set	NUMAMANAM	prover the second	under	Min Search
/1 S2 53 XC AA	hull hull a second s				Pk-Pk Search
i(f): :Tun Swp					Mkr © C
Start 26.000 GHz Res BW 1 MHz	#VBW		Stop 40.000 ep 73.04 ms (601 p		More 1 of 2

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	1:11 Sep 17, 2008			RT	Marker
Ref -3.5 dBm #Peak □ □ □	#Atten 0 dE	3		/kr1 23.62 GHz _66.91 dBm	Select Marker
#Peak Log					
10 dB/					Norma
Offst 6.5 dB					_ Delta
DI -63.9 dBm					Delta Pair
LgAv					 (Tracking Ref) Ref
V1 S2 S3 XC AA	munder have	man general Marine	www.www.	umun M	Span Pai Span <u>Center</u>
⊐(f): FTun					_ Of
Swp					-
Start 30 MHz				Stop 26.00 GHz	More 1 of 2

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🎋 Agilent 17:34	:13 Sep 17, 2008		R	T Peak Search
Ref -24 dBm ≠Peak	#Atten 0 dB		Mkr1 37.387 G -72.71 dB	
Log 10 dB/				Next Pk Right
Offst 14 IB DI				Next Pk Left
63.9 dBm LgAv	Manananananana		morter the month	Min Search
√1 S2 S3 XC AA	p Obration and a			Pk-Pk Search
a(f): -Tun Swp				Mkr © C
Start 26.000 GHz #Res BW 1 MHz	#VBW	1 MHz #Swe	Stop 40.000 G ep 73.04 ms (601 pts	II 1012

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🔆 Agilent 13:46:5	53 Sep 17, 2008			RT	Marker
Ref -3.5 dBm #Peak	#Atten 0 dB			lkr1 23.49 GHz -66.18 dBm	Select Marker
Log					
10 dB/					Norma
Offst 6.5 dB					Delta
DI -63.9 dBm					Delta Pair
LgAv					(Tracking Ref) Ref
V1 S2 S3 XC AA	Augent former	manuer Mar	anne hall a hand a hand a	munu	Span Pai Span <u>Center</u>
⊐(f): FTun					Of
Swp					
Start 30 MHz #Res BW 1 MHz		VBW 1 MHz	Sweep 129.9	Stop 26.00 GHz	More 1 of 2

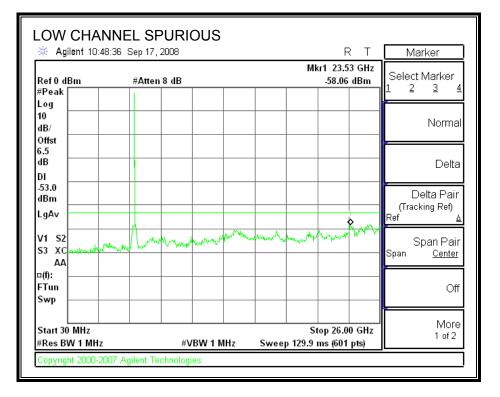
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🔆 Agilent 17:34	:44 Sep 17, 2008		RT	Peak Search
Ref -24 dBm #Peak	#Atten 0 dB		Mkr1 37.340 GHz -72.00 dBm	Next Peak
Log 10 dB/ Offst				Next Pk Right
-14 dB DI				Next Pk Left
-63.9 dBm LgAv	multi Marry market	when when a	Werter Ward Warden	Min Search
V1 S2 S3 XC AA	h. Ma Wa			Pk-Pk Search
¤(f): FTun Swp				Mkr © Cf
Start 26.000 GHz #Res BW 1 MHz	#VBW	1 MHz #Swee	Stop 40.000 GHz p 73.04 ms (601 pts)	More 1 of 2

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PANEL ANTENNA

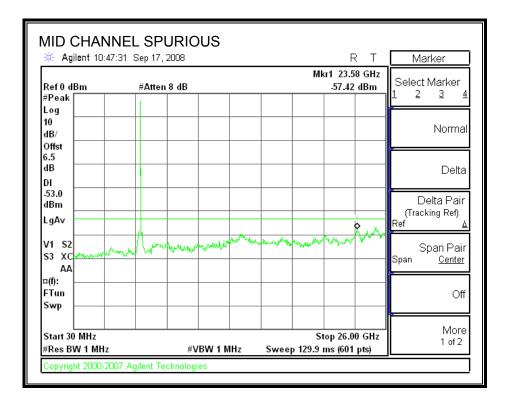
SPURIOUS EMISSIONS



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🔆 Agilent 10:49:39	Sep 17, 2008		RΤ	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB	Mkr	1 37.527 GHz -56.54 dBm	Next Peak
Log 10 dB/ Offst				Next Pk Right
6.5 dB DI				Next Pk Left
-53.0 dBm LgAv			1 Milliondry my	Min Search
V1 S2 S3 XC	and an and a second a	A Charles and the second secon		Pk-Pk Search
¤(f): FTun Swp				Mkr © Cf
Start 26.000 GHz #Res BW 1 MHz	#VBW 1 I		p 40.000 GHz ms (601 pts)	More 1 of 2

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🔆 Agilent 10:46:42 🗄	Sep 17, 2008	R	T Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB	Mkr1 37.410 (-56.10 dl	
Log 10 dB/ Offst			Next Pk Right
6.5 dB DI			Next Pk Left
-53.0 dBm LgAv		1 Internet and the starting of the later	Min Search
V1 S2	Anound a france and the white war when	Market Market Market Market	Pk-Pk Search
¤(f): FTun Swp			Mkr © Cl
Start 26.000 GHz #Res BW 1 MHz	#VBW 1 MF	Stop 40.000 (z Sweep 70 ms (601 pt	

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🔆 Agilent 10:43	:25 Sep 17, 2008		F	к т	Marker
Ref0dBm #Peak	#Atten 8 dB		Mkr1 23.5 -58.54	58 GHz IdBm	Select Marker 1 2 3 4
Log					
10 dB/					Norma
Offst 6.5 dB					Delta
DI -53.0 dBm					Delta Pair
LgAv				k a	(Tracking Ref) Ref <u>/</u>
V1 S2 S3 XCmhumm ¹	marin	hope and the Manager	and the second s		Span Pair Span <u>Center</u>
AA ¤(f):					
FTun Swp					Off
Start 30 MHz #Res BW 1 MHz		W 1 MHz Sv	Stop 26.0 veep 129.9 ms (601		More 1 of 2

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🔆 Agilent 10:46:0	05 Sep 17, 2008		RT	Peak Search
Ref -3.5 dBm #Peak	#Atten 0 dB	Mkr1 37. -56.	177 GHz 01 dBm	Next Peak
dB/				Next Pk Right
dB DI				Next Pk Left
53.0 dBm LgAv			hours	Min Search
V1 S2 S3 XC	and the second second	Norman and a start of the start		Pk-Pk Search
¤(f): FTun Swp				Mkr © Cf
Start 26.000 GHz #Res BW 1 MHz	#VBW 1	Stop 40. MHz Sweep 70 ms (6		More 1 of 2

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7.3.7. TPC

LIMITS

FCC §15.407 (h) (1)

IC RSS-210 A9.4 (a)

Transmit power control (TPC). U-NII devices operating in the 5.25–5.35 GHz band and the 5.47–5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

TEST PROCEDURE

The test is performed in accordance with method 1 as documented in FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

External triggering is used to ensure that the transmitter operates at full control power during the entire sweep of every sweep.

RESULTS

I imit

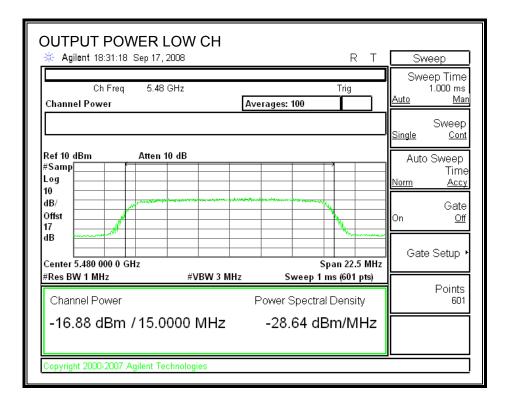
The Panel antenna has a lower gain than the Dish antenna, therefore the EIRP at the lowest power with the Panel antenna will be lower than indicated below for the Dish antenna.

Channel	Frequency	Fixed	В	5 + 10 Log B	Antenna	Limit
		Limit		Limit	Gain	
	(MHz)	(dBm)	(MHz)	(dBm)	(dBi)	(dBm)
Low	5480	24	15	16.76	32.30	-9.54
Mid	5600	24	15	16.76	32.30	-9.54
High	5714	24	15	16.76	32.30	-9.54

Results

Channel	Frequency	Power	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5480	-16.88	-9.54	-7.34
Mid	5600	-18.00	-9.54	-8.46
High	5714	-16.34	-9.54	-6.80

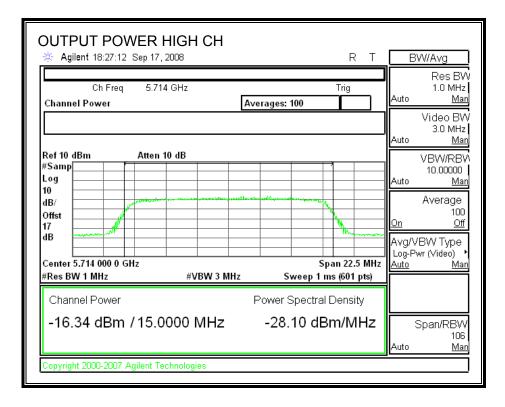
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OUTPUT POWER MID CH		RТ	Sweep
Ch Freq 5.6 GHz	Averages: 100	Trig	Sweep Time 1.000 ms <u>Auto Man</u>
			Sweep <u>Single Cont</u>
Ref 10 dBm Atten 10 dB #Samp			Auto Sweep Time <u>Norm Accy</u> Gate On <u>Off</u>
dB	3 MHz Sweep	Span 22.5 MHz 1 ms (601 pts)	Gate Setup ▸
Channel Power -18.00 dBm / 15.0000 MH	Power Spectr Iz -29.76 d	al Density IBm/MHz	Points 601
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8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

<u>LIMITS</u>

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each appplicable band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. TRANSMITTER ABOVE 1 GHz FOR 5MHz BANDWIDTH, DISH ANTENNA

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

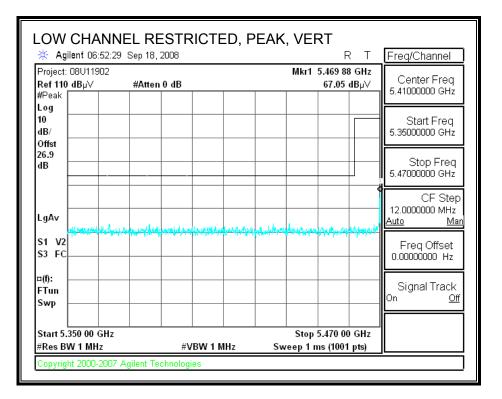
Agilent 07:11:38 Se	p 18, 2008	RT	Freq/Channel
Project: 08∪11902 Ref 110 dB µ∨ # #Peak	Atten 0 dB	Mkr1 5.458 48 GHz 53.80 dBµ∨	Center Freq 5.41000000 GHz
.og 10 1B/ 2ffst			Start Freq 5.3500000 GHz
118			Stop Freq 5.47000000 GHz
_gAv			CF Step 12.0000000 MHz <u>Auto Ma</u>
51 V2 53 FC		der gelgen som beter spinnen og det senset at segnedetet.	Freq Offset 0.00000000 Hz
r(f): -Tun Swp			Signal Track On <u>O</u> f
Start 5.350 00 GHz Res BW 1 MHz	#VBW 1 MHz	Stop 5.470 00 GHz Sweep 1 ms (1001 pts)	

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LOW CHANNE	L RESTRICTE	ED, AVG, HORI	Z	
🔆 Agilent 07:12:36 S	ep 18, 2008		RΤ	Freq/Channel
Project: 08∪11902 Ref 110 dB µ∨ #Peak	#Atten 0 dB		.351 20 GHz 41.83 dBµ∀	Center Freq 5.41000000 GHz
Log 10 dB/ Offst				Start Freq 5.35000000 GHz
26.9 dB				Stop Freq 5.47000000 GHz
LgAv				CF Step 12.0000000 MHz <u>Auto Man</u>
S1 V2 S3 FC				Freq Offset 0.00000000 Hz
¤(f): FTun Swp				Signal Track On <u>Off</u>
Start 5.350 00 GHz #Res BW 1 MHz	#VBW 10	•	.470 00 GHz (1001 pts)	
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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

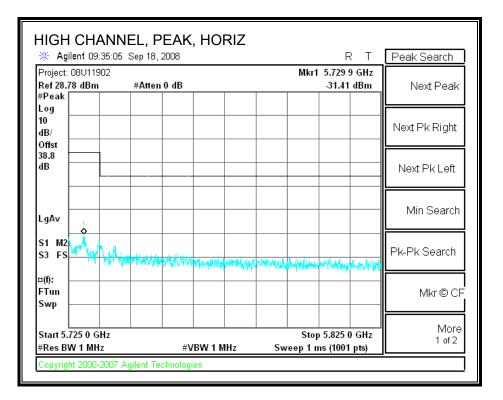


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LOW CHANN	EL RESTRICI	ED, AVG,	VERT	
🔆 Agilent 06:53:18	Sep 18, 2008		RT	Freq/Channel
Project: 08U11902 Ref 110 dB μ∨ #Peak	#Atten 0 dB		Mkr1 5.470 00 GHz 42.94 dBµ∨	Center Freq 5.41000000 GHz
Log 10 dB/ Offst				Start Freq 5.35000000 GHz
26.9 dB				Stop Freq 5.4700000 GHz
LgAv				CF Step 12.0000000 MHz <u>Auto Man</u>
S1 V2 S3 FC				Freq Offset 0.00000000 Hz
¤(f): FTun Swp				Signal Track On <u>Off</u>
Start 5.350 00 GHz #Res BW 1 MHz	#VBW 1	IO Hz Swe	Stop 5.470 00 GHz ep 9.357 s (1001 pts)	
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AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

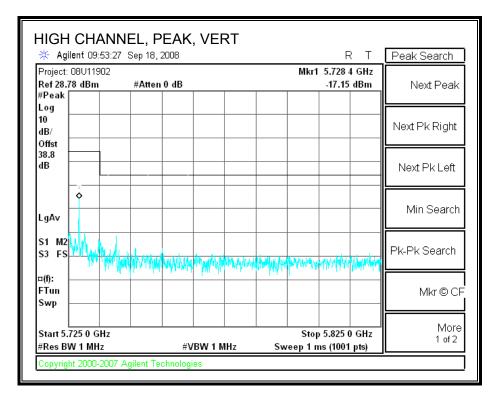


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HIGH CHAN		HORIZ		_		
🔆 Agilent 09:53:2	27 Sep 18, 2008			R	Т	Peak Search
Project: 08U11902 Ref 28.78 dBm #Peak	#Atten 0 dB		M	lkr1 5.725 0 G _48.27 dE		Next Peak
Log 10 dB/						Next Pk Right
38.8 dB						Next Pk Left
LgAv						Min Search
S1 V2 S3 FC AA						Pk-Pk Search
¤(f): FTun Swp						Mkr © CF
Start 5.725 0 GHz #Res BW 1 MHz		/BW 10 Hz		Stop 5.825 0 G 797 s (1001 pts		More 1 of 2
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AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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HIGH CHAN		VERT		RТ	Peak Search
Project: 08U11902 Ref 28.78 dBm #Peak	#Atten 0 dB		Mkr1	I 5.725 0 GHz -47.44 dBm	Next Peak
Log 10 dB/ Offst					Next Pk Right
38.8 dB					Next Pk Left
LgAv					Min Search
S1 M2 S3 FS AAb					Pk-Pk Search
¤(f): FTun Swp					Mkr © CF
Start 5.725 0 GHz #Res BW 1 MHz	#V	/BW 10 Hz	Sto Sweep 7.797	p 5.825 0 GHz s (1001 pts)	More 1 of 2
Copyright 2000-2007	7 Agilent Technologi	es			

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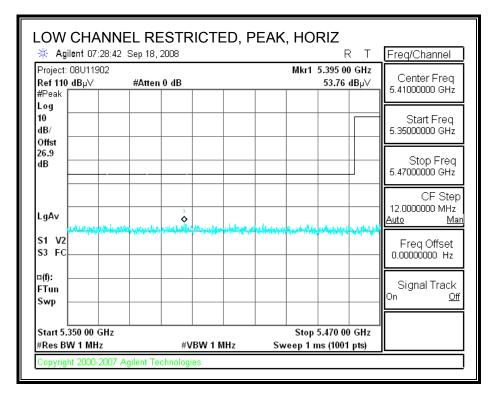
HARMONICS AND SPURIOUS EMISSIONS

	uipmen orn 1-	<u>t:</u> 18GHz	Pre-ar	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	7	н	orn > 18	GHz		Limit		
	5/N: 223			9 8449B		-	T88 Mit	·			; ARA 18-26			-	FCC 15.205		
	uency Cal 2 foot		3	foot c	able		12	foot c	able		HPF	Re	eject Filte		Peak Measurements RBW=VBW=1MHz		
						•	C-5m C	:hambe	er 🔽			• R_	001	Avera	ge Measurements 1MHz ; VBW=10Hz		
f GHz	Dist (m)	dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m		Pk Mar dB	Avg Mar dB	Notes (V/H)		
r Ch, 5 948 948	474MHz 3.0 3.0	42.7 41.4	30.1 29.0	38.6 38.6	0.0 0.0	-32.6 -32.6	0.0 0.0	0.0 0.0	48.7 47.4	36.1 35.0	74 74	54 54	-25.3 -26.6	-17.9 -19.0	V H		
Ch, 5 200 200	600MHz 3.0 3.0	43.2 42.6	31.2 29.8	38.7 38.7	0.0 0.0	-32.6 -32.6	0.0 0.0	0.0 0.0	49.3 48.7	37.3 35.9	74 74	54 54	-24.7 -25.3	-16.7 -18.1	V H		
h Ch, 140 140	5720MH 3.0 3.0	42.1 41.3	30.1 29 <i>5</i>	38.8 38.8	0.0 0.0	-32.5 -32.5	0.0 0.0	0.0 0.0	48.3 47.5	36.3 35.7	74 74	54 54	-25.7 -26.5	-17.7 -18.3	V H		
v. 4.12. te: No (f Dist		eading actor		m noise	Amp	Average	Corre Field S ed Peal	ct to 3 mete Strength @ c Field Stre	3 m		Pk Lim Avg Mar	Peak Field Margin vs	Field Strengti d Strength Li . Average Li . Peak Limit	mit mit		

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8.2.2. TRANSMITTER ABOVE 1 GHz FOR 10MHz, DISH ANTENNA

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

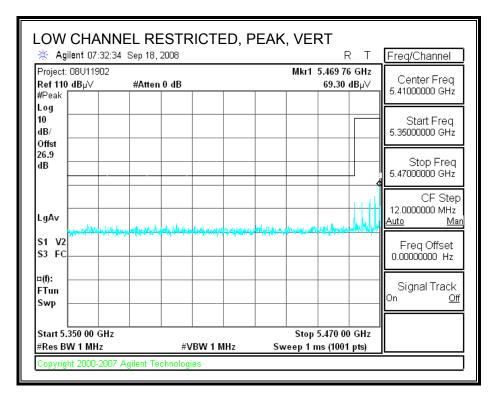


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LOW CHANNEL	RESTRICTED,	AVG, HORIZ	
🔆 Agilent 07:29:42 Sep	18, 2008	RL	Freq/Channel
#Peak	tten 0 dB	Mkr1 5.355 52 GHz 41.84 dBµ∨	Center Freq 5.41000000 GHz
Log 10 dB/ Offst			Start Freq 5.3500000 GHz
26.9 dB			Stop Freq 5.47000000 GHz
LgAv			CF Step 12.0000000 MHz <u>Auto Man</u>
S1 V2 S3 FC			Freq Offset 0.00000000 Hz
¤(f): FTun Swp			Signal Track On <u>Off</u>
Start 5.350 00 GHz #Res BW 1 MHz	#VBW 10 Hz	Stop 5.470 00 GHz Sweep 9.357 s (1001 pts)	
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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

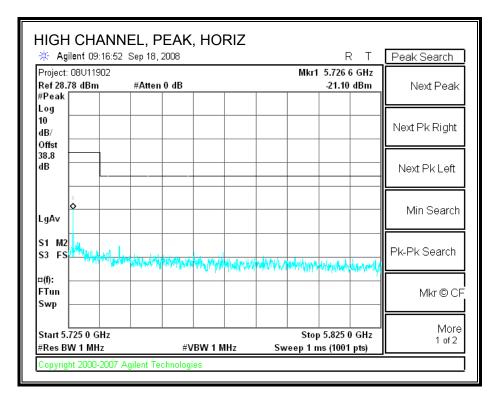


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LOW CHANN	IEL RESTRIC	TED, A	VG, VERT		
🔆 Agilent 07:33:48	8 Sep 18, 2008			RΤ	Freq/Channel
Project: 08U11902 Ref 110 dB µ∨ #Peak	#Atten 0 dB			.470 00 GHz 44.40 dBµ∀	Center Freq 5.41000000 GHz
Log 10 dB/ Offst					Start Freq 5.3500000 GHz
26.9 dB					Stop Freq 5.47000000 GHz
LgAv					CF Step 12.0000000 MHz <u>Auto Man</u>
S1 V2 S3 FC					Freq Offset 0.00000000 Hz
¤(f): FTun Swp					Signal Track On <u>Off</u>
Start 5.350 00 GHz #Res BW 1 MHz	#VBM	/ 10 Hz	Stop 5. Sweep 9.357 s	.470 00 GHz (1001 pts)	
Copyright 2000-2007	Agilent Technologies				

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AUTHORIZED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

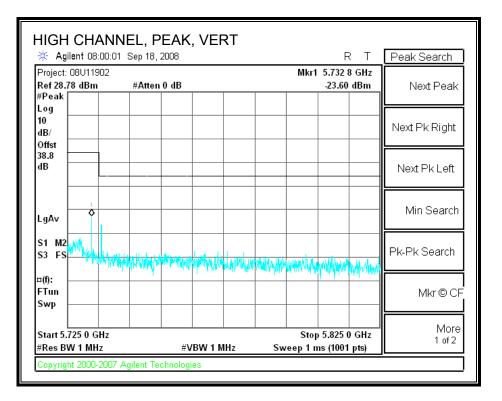


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HIGH C				RIZ			F	? т	Peak Search
Project: 080 Ref 28.78 d #Peak	U11902	#Atten 0				Mkr1	5.728 49.30	4 GHz	Next Peak
Log 10 dB/									Next Pk Right
Offst 38.8 dB									Next Pk Left
LgAv									Min Search
S1 W2 S3 FS									Pk-Pk Search
¤(f): FTun Swp			1.57						Mkr © CF
Start 5.725 #Res BW 1			#VBW	10 Hz	Swee	Stop p 7.797 :	5.825 (s (1001		More 1 of 2
Copyright 2	000-2007 A	vgilent Tech	nologies						

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AUTHORIZED BANDEDGE (HIGH CHANNEL, VERTICAL)



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