

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

C2PC CERTIFICATION TEST REPORT

FOR

802.11a/b/g/n WLAN + Bluetooth PCI-E Custom Combination Card

MODEL NUMBER: BCM94360CD

FCC ID: QDS-BRCM1070 IC: 4324A-BRCM1070

REPORT NUMBER: 13U14831-5

ISSUE DATE: August 08, 2013

Prepared for BROADCOM CORPORATION 190 MATHILDA PLACE SUNNYVALE, CA 94086, U.S.A.

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NVLAP LAB CODE 200065-0

Revision History

Rev.	lssue Date	Revisions	Revised By
	08/08/13	Initial Issue	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

	STANDARD	TEST RESULTS
	APPLICABLE STAND	ARDS
DATE TESTED:	OCTOBER 26, 2012 – Jl	JLY 31, 2013
SERIAL NUMBER:	C86248400DRF6RY11 ((RF TESTING)
MODEL:	BCM94360CD	
EUT DESCRIPTION:	802.11a/b/g/n WLAN + E Card	Bluetooth PCI-E Custom Combination
COMPANY NAME:	BROADCOM CORPORA 190 MATHILDA PLACE SUNNYVALE, CA 94086	ATION 6, USA

STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL Verification Services Inc. 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 UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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

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FRANK IBRAHIM WISE PROGRAM MANAGER UL Verification Services Inc.

Tested By:

DAVID GARCIA EMC ENGINEER UL Verification Services Inc.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n WLAN + Bluetooth PCI-E Custom Combination Card .

The radio module is manufactured by Broadcom.

5.2. DESCRIPTION OF C2PC

Adding the following antenna to the powers outlined in 12U14669-4E FCC IC UNII WLAN Report.

Host	Antenna	Antenna	Model	Peak gain	Peak gain	Peak gain (5150-	Peak gain (5250-	Peak gain (5470-	Peak gain (5725-
	Manufacturer	Туре		@ 2412, 2422,	@ 2412, 2422,	5250MHz)	5350MHz)	5725MHz)	5850MHz)
				2432MHz, (BT)	2432MHz, (WLAN)	@5200MHz	@5320MHz	@5500, 5700MHz	@5785, 5805MHz
2	Amphenol/Molex	802.11abgn	WF2 (604-3595)	NA	3.05	4.28	5.53	5.53	3.56
		WLAN							
		Antenna							
2	Amphenol/Molex	802.11abgn	WF3 (604-3214)	NA	2.64	1.47	1.34	2.68	1.96
		WLAN							
		Antenna							
2	Amphenol/Molex	802.11abgn	WF4 (604-3217)	NA	4.47	2.13	1.93	1.26	0.81
		WLAN							
		Antenna							

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5.3. MAXIMUM OUTPUT POWER

Average output power values were verified to be within +/- 0.5 dB from the original values.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Host 2:

Host	Antenna	Antenna	Model	Peak gain	Peak gain	Peak gain (5150-	Peak gain (5250-	Peak gain (5470-	Peak gain (5725-
	Manufacturer	Туре		@ 2412, 2422,	@ 2412, 2422,	5250MHz)	5350MHz)	5725MHz)	5850MHz)
				2432MHz, (BT)	2432MHz, (WLAN)	@5200MHz	@5320MHz	@5500, 5700MHz	@5785, 5805MHz
2	Amphenol/Molex	802.11abgn	WF2 (604-3595)	NA	3.05	4.28	5.53	5.53	3.56
		WLAN							
		Antenna							
2	Amphenol/Molex	802.11abgn	WF3 (604-3214)	NA	2.64	1.47	1.34	2.68	1.96
		WLAN							
		Antenna							
2	Amphenol/Molex	802.11abgn	WF4 (604-3217)	NA	4.47	2.13	1.93	1.26	0.81
1		WLAN							
1		Antenna							

Band	Chain 0	Chain 1	Chain 2	Uncorrelated Chains
	Antenna	Antenna	Antenna	Directional
	Gain	Gain	Gain	Gain
(GHz)	(dBi)	(dBi)	(dBi)	(dBi)
2.40	3.05	2.64	4.47	3.46
5.20	4.28	1.47	2.13	2.80
5.30	5.53	1.34	1.93	3.35
5.60	5.53	2.68	1.26	3.53
5.80	3.56	1.96	0.81	2.26

Band	Chain 0	Chain 1	Chain 2	Correlated Chains
	Antenna	Antenna	Antenna	Directional
	Gain	Gain	Gain	Gain
(GHz)	(dBi)	(dBi)	(dBi)	(dBi)
2.40	3.05	2.64	4.47	8.19
5.20	4.28	1.47	2.13	7.48
5.30	5.53	1.34	1.93	7.91
5.60	5.53	2.68	1.26	8.11
5.80	3.56	1.96	0.81	6.95

5.5. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 6.30.118.23. The test utility software used during testing was BCM Internal, rev. 6.30.RC118.23.

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5.6. WORST-CASE CONFIGURATION AND MODE

Refer to the certification report 12U14669-4E FCC IC UNII WLAN Report.

Note: based on the client, the antennas tested in the original application unrder report number "12U14669-1B FCC IC DTS WLAN Report" was a "mock-up" or "hybrid" antenna that contained the worst case configuration to cover both Host 1 and the new Host 2 (Host 2 is the antenna in this C2PC).

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List							
Description	Manufacturer	Model	Serial Number	FCC ID			
Laptop	Lenovo	G560	CBU4473193	DoC			
Laptop	Lenovo	G560	CBU3475167	DoC			
Laptop	Dell	E6400	1317590773	DoC			
AC Adapter	Lenovo	PA-1650-56LC	CBU4473193	N/A			
AC Adapter	Lenovo	PA-1650-56LC	CBU3475167	N/A			
AC Adapter	Dell	HP-OO065B83	CNON2765-47890-421-0062	N/A			
Adapter Board	Catalyst	MINI2EXP	06824800DRF6RY11	N/A			
Adapter Board	Catalyst	MINI2EXP	C863194009FF6RY3E	N/A			
Adapter Board/Jig	Atheros Comm	BCM94331CSMFG	C58639140010F6RY3K	N/A			

I/O CABLES

	I/O Cable List								
Cable	Port	# of identical	Connector	Cable Type	Cable	Remarks			
No		ports	Туре		Length (m)				
1	AC	1	US 115V	Un-Shielded	1m	NA			
2	DC	1	DC	Un-Shielded	1.8m	NA			

TEST SETUP

The EUT is attached to a jig board which is installed in the PCMCI slot of a host laptop computer during the tests. Test software exercised the radio card.

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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 E	quipment List			
Description	Manufacturer	Model	Asset	Cal Date	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	02/16/13	02/16/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	03/22/13	03/22/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/12	10/21/13
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/08/12	08/08/13
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	0	08/21/12	08/21/13
Antenna, Horn, 18 GHz	EMCO	3115	C01218/1000614	01/18/13	01/18/14
Antenna, Horn, 18 GHz	EMCO	3115	C00945	11/12/12	11/12/13
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/12	11/14/13
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	0	02/07/13	02/07/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/19/12	10/19/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/20/11	12/30/13
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/12	12/13/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/12	12/13/13
Power Meter	Agilent / HP	N1911A	0	07/27/12	07/27/13
Peak / Average Power Sensor	Agilent / HP	E9323A	0	07/26/13	07/26/14

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7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

<u>LIMITS</u>

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

Mode	ON Time	Period	Duty Cycle	Duty	Duty Cycle	1/B
	В		x	Cycle	Correction Factor	Minimum VBW
	(msec)	(msec)	(linear)	(%)	(dB)	(kHz)
802.11a 20 MHz	2.06	2.09	0.988	98.8%	0.00	0.010
802.11n HT20 CDD	1.93	1.95	0.987	98.7%	0.00	0.010
802.11n HT20 STBC	11.53	11.67	0.988	98.8%	0.00	0.010
802.11n HT40	0.91	0.96	0.948	94.8%	0.23	1.095
802.11n HT40 CDD	0.92	0.96	0.952	95.2%	0.22	1.091
802.11n HT40 STBC	0.92	0.97	0.948	94.8%	0.23	1.087
802.11ac VHT80	0.43	0.48	0.899	89.9%	0.46	2.316
802.11ac VHT80 CDD	0.43	0.48	0.899	89.9%	0.46	2.316

7.1.1. ON TIME AND DUTY CYCLE RESULTS

7.1.2. MEASUREMENT METHOD FOR POWER AND PPSD

For output power measurement, KDB 789033 Method PM as described in section C) f) was used.

For PSD measurement, KDB 789033 Method SA-1 was used when Duty Cycle is greater than or equal to 98%.

For PSD measurement, KDB 789033 Method SA-2 was used when Duty Cycle is less than 98%.

7.1.3. MEASUREMENT METHOD FOR AVG SPURIOUS EMISSIONS ABOVE 1 GHz

KDB 789033 Method VB with Power RMS Averaging is used.

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7.1.4. DUTY CYCLE PLOTS





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8. ANTENNA PORT TEST RESULTS

8.1. 802.11a Legacy 1TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.1.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5180	20.33	16.4210	4.28
Mid	5200	20.50	16.4319	4.28
High	5240	20.42	16.4444	4.28

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5180	17.00	22.15	17.87	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.16	17.88	17.00	4.00	10.00	4.00
High	5240	17.00	22.16	17.88	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.65	14.65	17.00	-2.35
Mid	5200	14.51	14.51	17.00	-2.49
High	5240	14.45	14.45	17.00	-2.55

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	3.085	3.085	4.00	-0.915
Mid	5200	3.262	3.262	4.00	-0.738
High	5240	3.197	3.197	4.00	-0.803

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PPSD, Chain 1

•				Mind	E 470 CE CU-	
ef 20 dBm Avg	Atten 2	20 dB			3.085 dBm	Center Freq 5.18000000 GHz
9g						- Start Freq 5.16500000 GHz
.5 3	+					- Stop Freq 5.19500000 GHz
Avg	4					CF Step 3.00000000 MHz <u>Auto Ma</u>
1 S2 3 FS AA						Freq Offset 0.00000000 Hz
f): Гun wp						Signal Track On <u>Of</u>
enter 5.180 00 G	Hz	#VBW 3 M	 1Hz	#Sween 100	Span 30 MH ms (601 pts)	z



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PPSD, Chain 1 HIO	GH CH 2012	R T	Freq/Channel
Ref 20 dBm Atten #Avg	20 dB	Mkr1 5.238 70 GHz 3.197 dBm	Center Freq 5.24000000 GHz
Log 10 dB/	1 •		Start Freq 5.22500000 GHz
dB			Stop Freq 5.2550000 GHz
PAvg			CF Step 3.0000000 MHz <u>Auto Man</u>
W1 S2 S3 FS AA			Freq Offset 0.00000000 Hz
⊐(f): FTun Swp			Signal Track On <u>Off</u>
Center 5.240 00 GHz #Res BW 1 MHz	#VBW 3 MHz	Span 30 MH #Sweep 100 ms (601 pts)	lz
Copyright 2000-2011 Agilent T	echnologies		

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8.2. 802.11n HT20 STBC 3TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.2.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	2.80

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5180	20.40	17.7221	2.80
Mid	5200	20.40	17.7256	2.80
High	5240	20.35	17.7281	2.80

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5180	17.00	22.49	19.69	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.49	19.69	17.00	4.00	10.00	4.00
Hiah	5240	17.00	22.49	19.69	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Dewer	Dowor	Dewer	Devier		
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	12.20	12.21	12.03	16.92	17.00	-0.08
Mid	5200	11.81	11.71	11.78	16.54	17.00	-0.46
High	5240	12.05	12.34	12.07	16.93	17.00	-0.07

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
			BB0D	0000	5505		
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	-1.17	-0.57	-0.79	3.93	4.00	-0.07
Mid	5200	-1.07	-1.02	-0.93	3.76	4.00	-0.24
High	5240	-1.60	-0.89	-1.01	3.62	4.00	-0.38

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OUTPUT POWER AND PPSD, Chain 0





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OUTPUT POWER AND PPSD, Chain 1



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OUTPUT POWER AND PPSD, Chain 2





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8.3. 802.11n HT40 1TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.3.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
		•	· · ·	• •
Low	5190	53.47	36.1592	4.28

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5190	17.00	23.00	18.72	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	18.72	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.23 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	14.61	14.61	17.00	-2.39
High	5230	16.53	16.53	17.00	-0.47

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	(MHz) 5190	(dBm) 3.386	(dBm) 3.616	(dBm) 4.00	(dB) -0.384

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OUTPUT POWER AND PPSD, Chain 1





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8.4. 802.11n HT40 CDD 3TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.4.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	2.80

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	7.48

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
LOW	5190	46.7	36.1651	2.80

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5190	17.00	23.00	20.20	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	20.20	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	11.74	12.23	11.85	16.72	17.00	-0.28
High	5230	11.79	12.37	11.97	16.82	17.00	-0.18

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional	
		26 dB	99%	Gain	
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	
Low	(MHz) 5190	(MHz) 46.7	(MHz) 36.1651	(dBi) 7.48	

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5190	15.52	23.00	15.52	15.52	2.52	10.00	2.52
High	5230	15.52	23.00	15.52	15.52	2.52	10.00	2.52

Duty Cycle CF (dB) 0.22 Included in Calculations of Corr'd PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	-3.29	-2.46	-4.32	1.70	2.52	-0.82
High	5230	-3.95	-3.21	-4.01	1.28	2.52	-1.24

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OUTPUT POWER AND PPSD, Chain 0





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8.5. 802.11n HT40 STBC 3TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.5.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chain	
Antenna	Antenna	Antenna	Directional	
Gain	Gain	Gain	Gain	
(dBi)	(dBi)	(dBi)	(dBi)	
4.28	1.47	2.13	2.80	

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	(MHz) 5190	(MHz) 39.47	(MHz) 36.0864	(dBi) 2.80

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Low	5190	17.00	23.00	20.20	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	20.20	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.23 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	11.09	12.65	11.92	16.70	17.00	-0.30
High	5230	11.25	12.32	12.06	16.67	17.00	-0.33

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	-4.97	-3.41	-4.05	0.90	4.00	-3.10
High	5230	-4.47	-3.87	-4.43	0.75	4.00	-3.25





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8.6. 802.11ac VHT80 1TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.6.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5210	125.77	75.4513	4.28

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Mid	5210	17.00	23.00	18.72	17.00	4.00	10.00	4.00

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd PPSD

Gated Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	13.40	13.40	17.00	-3.60

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	3.378	3.838	4.00	-0.162

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8.7. 802.11ac VHT80 CDD MCS0 3TX MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.7.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	2.80

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	7.48

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5210	82.2	75.0814	2.80

Limits

Channel	Frequency	FCC	IC	Мах	Power	FCC	IC
		Power	EIRP	IC	Limit	PPSD	eirp
		Limit	Limit	Power		Limit	PSD
							Limit
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
Mid	5210	17.00	23.00	20.20	17.00	4.00	10.00

 Duty Cycle CF (dB)
 0.00
 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	11.75	12.53	12.02	16.88	17.00	-0.12

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5210	82.2	75.0814	7.48

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Mid	5210	15.52	23.00	15.52	15.52	2.52	10.00	2.52

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-3.40	-2.97	-3.33	2.00	2.52	-0.52

<u>Note:</u> method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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OUTPUT POWER AND PPSD, Chain 1



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8.8. 802.11ac VHT80 3TX BF MODE, 5.2 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.8.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
4.28	1.47	2.13	7.48

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5210	82.2	75.0814	7.48

Limits

Channel	Frequency	FCC	IC	Max	Power	FCC	IC	PPSD
		Power	EIRP	IC	Limit	PPSD	eirp	Limit
		Limit	Limit	Power		Limit	PSD	
							Limit	
	(MHz)	(dBm)						
Mid	5210	15.52	23.00	15.52	15.52	2.52	10.00	2.52

 Duty Cycle CF (dB)
 0.46
 Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	9.95	10.56	10.25	15.03	15.52	-0.49

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5210	-3.40	-2.97	-3.33	2.00	2.52	-0.52

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

PPSD, Chain 0



PPSD, Chain 1



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PPSD, Chain 2

n righerit 21.12	10 1107 10,2012			
lef10 dBm A∨g	Atten 10 dB			Center Freq 5.21000000 GHz
og 0 B/				Start Freq 5.14000000 GHz
B				Stop Freq 5.28000000 GHz
'Avg	~			CF Step 14.0000000 MHz <u>Auto Ma</u>
V1 S2 3 FS AA				Freq Offset 0.00000000 Hz
(f): Tun WP				Signal Track OnOf
enter 5.210 00 G	Hz VDW 2 I	MU- #6	Span 140 M	MHz

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8.9. 802.11a Legacy 1TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.9.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB 99%		Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5260	38.42	16.8863	5.53
Mid	5300	38.33	16.5528	5.53
High	5320	29.08	16.4847	5.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5260	24.00	23.28	29.28	23.28	11.00	11.00	11.00
Mid	5300	24.00	23.19	29.19	23.19	11.00	11.00	11.00
High	5320	24.00	23.17	29.17	23.17	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD
--------------------	------	---

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	21.67	21.67	23.28	-1.61
Mid	5300	20.63	20.63	23.19	-2.56
High	5320	19.51	19.51	23.17	-3.66

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	10.632	10.632	11.00	-0.368
Mid	5300	10.394	10.394	11.00	-0.606
High	5320	10.553	10.553	11.00	-0.447





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		Mkr1 5 31	8.60 GHz	1
f 31.2 dBm	Atten 30 dB	10	.553 dBm	Center Fred 5.32000000 GH
g				Start Eroc
fet	المحمدين ويحجرهم ومراجع المحمد والمحمد			5.30500000 GH
.2				Stop Fre 5.33500000 GH
ivg				CF Ste 3.00000000 MH <u>Auto M</u>
1 S2 FS AA				Freq Offset 0.00000000 Hz
): un vp				Signal Trac On <u>(</u>
nter 5.320 00 GH	lz	 Sp	an 30 MHz	

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8.10. 802.11n HT20 CDD 3TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.10.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains		
Antenna	Antenna	Antenna	Directional		
Gain	Gain	Gain	Gain		
(dBi)	(dBi)	(dBi)	(dBi)		
5.53	1.34	1.93	3.35		

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	7.91

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5260	20.75	17.7441	3.35
Mid	5300	20.70	17.7528	3.35
High	5320	20.85	17.7560	3.35

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5260	24.00	23.49	29.49	23.49	11.00	11.00	11.00
Mid	5300	24.00	23.49	29.49	23.49	11.00	11.00	11.00
High	5320	24.00	23.49	29.49	23.49	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		_	_	_	_		
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	14.47	14.28	14.11	19.06	23.49	-4.43
Mid	5300	14.46	14.35	14.21	19.11	23.49	-4.38
High	5320	14.35	14.16	14.21	19.01	23.49	-4.48

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5260	20.75	17.7441	7.91
Mid	5300	20.70	17.7528	7.91
High	5320	20.85	17.7560	7.91

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5260	22.09	23.49	29.49	21.58	9.09	11.00	9.09
Mid	5300	22.09	23.49	29.49	21.58	9.09	11.00	9.09
High	5320	22.09	23.49	29.49	21.58	9.09	11.00	9.09

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power & PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	(MHz) 5260	(dBm) 3.37	(dBm) 4.29	(dBm) 3.00	(dBm) 8.36	(dBm) 9.09	(dB) -0.73
Low Mid	(MHz) 5260 5300	(dBm) 3.37 3.33	(dBm) 4.29 3.67	(dBm) 3.00 3.67	(dBm) 8.36 8.33	(dBm) 9.09 9.09	(dB) -0.73 -0.76

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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PPSD, Chain 0





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PPSD, Chain 1



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PPSD, Chain 2





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8.11. 802.11n HT20 STBC 3TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.11.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain Gain		Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	3.35

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5260	20.35	17.7428	3.35
Mid	5300	22.85	17.7505	3.35
High	5320	22.45	17.7561	3.35

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5260	24.00	23.49	29.49	23.49	11.00	11.00	11.00
Mid	5300	24.00	23.49	29.49	23.49	11.00	11.00	11.00
High	5320	24.00	23.49	29.49	23.49	11.00	11.00	11.00

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
		FOWEI	FOWEI	FOWEI	FOWEI		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	18.50	18.59	18.71	23.37	23.49	-0.12
Mid	5300	18.71	18.33	18.41	23.26	23.49	-0.23
High	5320	16.18	16.25	16.65	21.14	23.49	-2.36

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5260	4.56	4.83	5.12	9.61	11.00	-1.39
Mid	5300	5.10	4.93	5.17	9.84	11.00	-1.16
High	5320	4.55	6.04	5.82	10.29	11.00	-0.71

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PPSD, Chain 0





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PPSD, Chain 1



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PPSD, Chain 2





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8.12. 802.11n HT40 1TX MODE IN THE 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.12.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	<i></i>	<i>(</i> -)	<i>(</i>)	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	(MHz) 5270	(MHz) 100.6	(MHz) 42.1	(dBi) 5.53

0.23

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)

Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	<i>(</i> 111 1 1 1 1 1 1 1 1	(11)			(
	(MHZ)	(dBm)	(dBm)	(dBm)	(dB)
Low	(MHz) 5270	(dBm) 21.54	(dBm) 21.54	(dBm) 24.00	(dB) -2.46

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	7.60	7.83	11.00	-3.17
-					

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for Low and Middle channels for this PSD measurements.





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8.13. 802.11n HT40 CDD 3TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.13.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	3.35

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	7.91

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	(MHz) 5270	(MHz) 66.40	(MHz) 36.3999	(dBi) 3.35

Limits

Channel	Frequency	FCC	IC	IC	Power
		Power	Power	EIRP	Limit
		Limit	Limit	Limit	
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5270	24.00	24.00	30.00	24.00
High	5310	24.00	24.00	30.00	24.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	19.13	19.33	19.07	23.95	24.00	-0.05
High	5310	13.71	14.04	13.66	18.58	24.00	-5.42

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Bandwidth and Antenna Gain

Channel	Frequency	Min Min		Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	(MHz) 5270	(MHz) 66.40	(MHz) 36.3999	(dBi) 7.91

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5270	22.09	24.00	30.00	22.09	9.09	11.00	9.09
High	5310	22.09	24.00	30.00	22.09	9.09	11.00	9.09

 Duty Cycle CF (dB)
 0.22
 Included in Calculations of Corr'd PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	2.80	3.14	2.55	7.83	9.09	-1.26
High	5310	2.89	3.14	2.78	7.93	9.09	-1.16

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8.14. 802.11n HT40 STBC 3TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.14.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains	
Antenna	Antenna	Antenna	Directional	
Gain	Gain	Gain	Gain	
(dBi)	(dBi)	(dBi)	(dBi)	
5.53	1.34	1.93	3.35	

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
	· · ·	(· ·····	(4.2.)
Low	5270	81.00	36.4593	3.35

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.23

Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	19.00	19.08	18.75	23.72	24.00	-0.28
High	5310	13.71	14.04	13.66	18.58	24.00	-5.42

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5270	5.57	6.30	5.64	10.85	11.00	-0.15
High	5310	5.64	6.22	6.02	10.97	11.00	-0.03

<u>Note:</u> method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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8.15. 802.11ac VHT80 1TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.15.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5290	85.63	75.5722	5.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5290	24.00	24.00	30.00	24.00	11.00	11.00	11.00

 Duty Cycle CF (dB)
 0.46
 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	14.73	14.73	24.00	-9.27

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5290	6.00	6.46	11.00	-4.54

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8.16. 802.11ac VHT80 CDD 3TX MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.16.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains	
Antenna	Antenna	Antenna	Directional	
Gain	Gain	Gain	Gain	
(dBi)	(dBi)	(dBi)	(dBi)	
5.53	1.34	1.93	3.35	

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	7.91

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5290	82.05	75.2418	3.35

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5290	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5290	13.06	13.61	12.20	17.77	24.00	-6.23

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5290	82.05	75.2418	7.91

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5290	22.09	24.00	30.00	22.09	9.09	11.00	9.09

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd Power & PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5290	2.31	2.85	1.89	7.60	9.09	-1.49

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OUTPUT POWER AND PPSD, Chain 1



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8.17. 802.11ac VHT80 3TX BF MODE, 5.3 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.17.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	1.34	1.93	7.91

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5290	82.05	74.2418	7.91

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5290	22.09	24.00	30.00	22.09	9.09	11.00	9.09

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5290	12.58	12.88	12.82	17.53	22.09	-4.56

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5290	2.31	2.85	1.89	7.60	9.09	-1.49

<u>Note</u>: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.



OUTPUT POWER AND PPSD, Chain 1



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8.18. 802.11a Legacy 1TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.18.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5500	26.67	16.4615	5.53
Mid	5580	38.08	16.5583	5.53
High	5700	20.58	16.4221	5.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5500	24.00	23.16	29.16	23.16	11.00	11.00	11.00
Mid	5580	24.00	23.19	29.19	23.19	11.00	11.00	11.00
High	5700	24.00	23.15	29.15	23.15	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	18.21	18.21	23.16	-4.95
Mid	5580	20.25	20.25	23.19	-2.94
High	5700	17.20	17.20	23.15	-5.95

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	10.494	10.494	11.00	-0.506
Mid	5580	9.826	9.826	11.00	-1.174
High	5700	10.050	10.050	11.00	-0.950

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- Higher (14.20.0			Mire4 5 4	200 75 CU-	
ef 31.2 dBm Avg	Atten 30 dB		1 MIKEL 3.4	0.050 dBm	Center Freq 5.70000000 GHz
og D B/		1			Start Freq 5.68500000 GHz
B					Stop Freq 5.7150000 GHz
Avg				and an and and	CF Ste 3.0000000 MHz <u>Auto M</u> :
/1 S2 3 FS AA					Freq Offset 0.00000000 Hz
(f): Tun wp					Signal Track On <u>O</u>
enter 5.700 00 GH	lz #\	/BW/3 MH7	Sween 1 m	ipan 30 MHz s <i>(</i> 601 nts)	

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8.19. 802.11n HT20 3TX CDD MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.19.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chain		
Antenna	Antenna	Antenna	Directional		
Gain	Gain	Gain	Gain		
(dBi)	(dBi)	(dBi)	(dBi)		
5.53	2.68	1.26	3.53		

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB 99%		Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5500	30.80	17.8064	3.53
Mid	5580	28.95	17.7848	3.53
High	5700	31.10	17.7995	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5500	24.00	23.51	29.51	23.51	11.00	11.00	11.00
Mid	5580	24.00	23.50	29.50	23.50	11.00	11.00	11.00
High	5700	24.00	23.50	29.50	23.50	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
--------------------	------	--

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	14.56	14.34	14.15	19.12	23.51	-4.38
Mid	5580	14.78	14.27	14.32	19.23	23.50	-4.27
High	5700	14.70	14.21	14.39	19.21	23.50	-4.29

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB 99%		Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5500	30.80	17.8064	8.11
Mid	5580	28.95	17.7848	8.11
High	5700	31.10	17.7995	8.11

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5500	21.89	23.51	29.51	21.40	8.89	11.00	8.89
Mid	5580	21.89	23.50	29.50	21.39	8.89	11.00	8.89
High	5700	21.89	23.50	29.50	21.39	8.89	11.00	8.89

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'dPPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	3.59	3.89	3.29	8.37	8.89	-0.52
Mid	5580	3.62	4.27	3.56	8.60	8.89	-0.29
High	5700	3.95	3.58	3.63	8.49	8.89	-0.40

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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8.20. 802.11ac VHT20 CDD CH 144 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.20.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
High	5720	14.81	14.48	14.65	19.42

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8.20.2. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5720	16.63	13.7704	8.11	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5720	23.21	22.39	28.39	22.39	8.89	11.00	8.89

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5720	3.96	3.94	3.98	8.73	8.89	-0.16

Limits (FCC), portion in 5.8 GHz DTS band

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5720	7.4	3.8431	8.11	3.53

Bandwidth and Antenna Gain

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5720	19.70	16.85	22.85	16.85	8.89	11.00	8.89

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5720	7.38	7.40	7.38	12.16	16.85	-4.69

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5720	2.870	2.820	2.860	7.62	8.89	-1.27

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8.21. 802.11n HT20 STBC 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.21.1. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5500	30.80	17.7921	3.53
Mid	5580	28.95	17.8045	3.53
High	5700	31.10	17.7957	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5500	24.00	23.50	29.50	23.50	11.00	11.00	11.00
Mid	5580	24.00	23.51	29.51	23.51	11.00	11.00	11.00
High	5700	24.00	23.50	29.50	23.50	11.00	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PPSD
--------------------	------	---

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		_		_			
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	18.68	18.63	18.30	23.31	23.50	-0.19
Mid	5580	18.78	18.59	18.58	23.42	23.51	-0.08
High	5700	17.51	17.50	17.40	22.24	23.50	-1.26

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
					5565		
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5500	5.71	5.59	5.42	10.35	11.00	-0.65
Mid	5580	5.76	5.77	5.77	10.54	11.00	-0.46
High	5700	5.89	6.18	6.23	10.87	11.00	-0.13

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for Low and Middle channels for this PSD measurements.

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8.22. 802.11ac VHT20 STBC CH 144 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.22.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)

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8.22.2. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Uncorrelat
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
High	5720	30.7	20.6650	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
High	5720	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
High	5720	16.07	15.66	15.89	20.65	24.00	-3.35

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
High	5720	5.96	5.65	6.06	10.66	11.00	-0.34

Limits (FCC), portion in 5.8 GHz DTS band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Uncorrelat
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
High	5720	20.7	9.6833	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
High	5720	24.00	20.86	26.86	20.86	11.00	11.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
	· · ·		· · ·	· · ·	· · ·	• •	· · ·

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
High	5720	5.04	4.54	5.20	9.71	11.00	-1.29

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8.23. 802.11n HT40 1TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.23.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5510	125.30	71.4129	5.53
Mid	5550	126.70	70.2711	5.53
High	5670	125.77	65.8448	5.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.2	3 Included in	Calculations of Corr'd PPSD
------------------------	---------------	------------------------------------

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	16.57	16.57	24.00	-7.43
Mid	5550	23.05	23.05	24.00	-0.95
High	5670	18.71	18.71	24.00	-5.29

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	8.631	8.861	11.00	-2.139
Mid	5550	8.110	8.340	11.00	-2.660
High	5670	7.994	8.224	11.00	-2.776

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PPSD, Chain 1





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🌸 Agilent 09:06	.:56 Nov 14, 2012			R T	Peak Search
Ref 20 dBm ∉Avg	Atten 20 dB		Mkr1 5.	.664 26 GHz 7.994 dBm	Next Peak
.og 0 B/		1			Next Pk Right
Offst 11.2 IB				Margare and a day of the	Next Pk Left
2Avg					Min Search
N1 S2 53 FS AA					Pk-Pk Search
i(f): Tun Swp					Mkr © Cl
Center 5.670 00 G) Hz #\	/BW 3 MHz	Sweep 1 n	Span 65 MHz ns /601 pts)	More 1 of 2

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8.24. 802.11n HT40 CDD 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.24.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5510	65.20	36.3766	3.53
Mid	5550	63.80	36.3626	3.53
High	5670	58.30	36.3671	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

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Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Device	Devee	Device	Device		
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	13.23	12.96	12.50	17.68	24.00	-6.32
Mid	5550	17.54	17.17	16.85	21.97	24.00	-2.03
High	5670	17.57	17.01	17.25	22.05	24.00	-1.95

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5510	65.20	36.3766	8.11
Mid	5550	63.80	36.3626	8.11
High	5670	58.30	36.3671	8.11

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5510	21.89	24.00	30.00	21.89	8.89	11.00	8.89
Mid	5550	21.89	24.00	30.00	21.89	8.89	11.00	8.89
High	5670	21.89	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB) 0.22 Included in Calculations of Corr'd Power & PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margi
							n
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	(MHz) 5510	(dBm) 3.95	(dBm) 3.77	(dBm) 3.28	(dBm) 8.67	(dBm) 8.89	(dB) -0.22
Low Mid	(MHz) 5510 5550	(dBm) 3.95 3.43	(dBm) 3.77 3.90	(dBm) 3.28 3.40	(dBm) 8.67 8.58	(dBm) 8.89 8.89	(dB) -0.22 -0.31

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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f 20 dBm	Atten 20 dB		Center Freq
vg			5.67000000 GHz
g		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Start Freq 5.63750000 GHz
2			Stop Freq 5.70250000 GHz
vg		himmen	CF Step 6.5000000 MHz <u>Auto Mar</u>
) S2 FS AA			Freq Offset 0.00000000 Hz
): un /p			Signal Track On <u>Off</u>
nter 5.670 00 GH	Iz #VBW 3 MHz	Span 65 MHz Sween 1 ms (601 nte)	



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OUTPUT POWER AND PPSD, Chain 2





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f 20 dBm	Atten 20 dB		Center Fred 5.67000000 GH
yg g / st			Start Fred 5.63750000 GH
2			Stop Fre 5.70250000 GH
vg		- marine and a second s	CF Sto 6.5000000 MH <u>Auto N</u>
S2 FS AA			Freq Offse 0.00000000 H:
: un /р			Signal Trac
nter 5.670 00 G	Hz	Span 65 MHz	

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8.25. 802.11ac VHT40 CDD CH 142 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.25.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	
		Power	Power	Power	Power	
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	
High	5710	17 77	17 07	17 73	22 31	

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8.25.2. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5710	38.8	23.1024	8.11	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	24.00	30.00	24.00	8.89	11.00	8.89

Duty Cycle CF (dB)0.22Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	3.79	3.30	3.85	8.64	8.89	-0.25

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Limits (FCC), portion in 5.8 GHz DTS band

C	hannel	Frequency	Min	Min	Correlated	Uncorrelated
			26 dB	99%	Gain	Gain
			BW	BW		
		(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
	Mid	5710	28.8	13.1024	8.11	3.53

Bandwidth and Antenna Gain

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	22.17	28.17	22.17	8.89	11.00	8.89

Duty Cycle CF (dB) 0.22 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	6 96	6 1 2	6 80	11 63	22.17	10.54

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	2.67	2.08	2.63	7.46	8.89	-1.43

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8.26. 802.11n HT40 STBC 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.26.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min Min		Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5510	85.44	36.9069	3.53
Mid	5550	84.00	36.7588	3.53
High	5670	85.80	36.7167	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.23 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Dever	Dever	Deview	Dever		
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	13.23	12.96	12.50	17.68	24.00	-6.32
Mid	5550	18.95	18.65	18.45	23.46	24.00	-0.54
High	5670	18.99	18.69	18.68	23.56	24.00	-0.44

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	5.99	5.99	5.41	10.81	11.00	-0.19
Mid	5550	6.06	6.00	5.02	10.72	11.00	-0.28
High	5670	5.53	5.94	5.71	10.73	11.00	-0.27

Note: method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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PPSD, Chain 0





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Agilent 00:29:2	D Nov 14, 2012	R T	Freq/Channel
f20dBm vg	Atten 20 dB		Center Freq 5.67000000 GHz
g			Start Freq 5.63750000 GHz
2			Stop Freq 5.70250000 GHz
vg			CF Step 6.5000000 MHz <u>Auto Ma</u>
у 52 FS АА			Freq Offset 0.00000000 Hz
: un /р			Signal Track ^{On <u>Off</u>}
nter 5.670 00 GH es BW 1 MHz	z VBW 3 MHz	Span 65 MHz Sweep 1 ms (601 pts)	

PPSD, Chain 1



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PPSD, Chain 2

🌾 Agilent 00:46:3	36 Nov 14, 2012	R T	Freq/Channel
tef 20 dBm A∨g	Atten 20 dB		Center Freq 5.51000000 GHz
.og 0 IB/		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Start Freq 5.47750000 GHz
1.2 IB			Stop Freq 5.54250000 GHz
?A∨g			CF Step 6.5000000 MHz <u>Auto Ma</u>
V1 S2 3 FS AA			Freq Offset 0.00000000 Hz
(f): Tun Wp			Signal Track On <u>Of</u>
Center 5.510 00 GH Res BW 1 MHz	Iz VBW 3 MHz	Span 65 MHz Sweep 1 ms (601 pts)	



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					<u> </u>	
Ref20o #A∨g	dBm	Atten 20 dB			_	Center Freq 5.67000000 GHz
Log 10 dB/ Offet						Start Freq 5.63750000 GHz
11.2 dB	www.en.				•~~~•	Stop Freq 5.70250000 GHz
PA∨g 100						CF Step 6.5000000 MHz <u>Auto Ma</u>
W1 S2 S3 FS AA						Freq Offset 0.00000000 Hz
¤(f): FTun Swp						Signal Track ^{On <u>Off</u>}
Center #Dec Pl	5.670 00 GHz			 Span 65 I	VHz	

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8.27. 802.11ac VHT40 STBC CH 142 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.27.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
High	5710	19.54	19.09	19.42	24.13

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8.27.2. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Uncorrelated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5710	57.8	33.4347	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.23 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		Power	Power	Power	Power		
		FOWEI	TOWEI	FOWEI	FOWEI		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	5.51	4.98	5.26	10.26	11.00	-0.74

Limits (FCC), portion in 5.8 GHz DTS band

Channel	Frequency	Min	Min	Uncorrelat
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5710	47.8	23.4347	3.53

Bandwidth and Antenna Gain

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.23 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	9.38	8.91	9.34	14.22	24.00	-9.78

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5710	4.71	4.11	4.35	9.40	11.00	-1.60

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8.28. 802.11ac VHT80 1TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.28.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	116.67	75.0907	5.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB) 0.46 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	12.84	12.84	24.00	-11.16

PPSD Results

Channel	Frequency	Chain 1	Total	PPSD	PPSD
		Meas	Corr'd	Limit	Margin
		PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	5.845	6.305	11.00	-4.695

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OUTPUT POWER AND PPSD, Chain 1

ef 20 dBm	Atten 20 dB		Mkr1	5.518 53 GHz 5.845 dBm	Next Peak
9g 3/		1 •			Next Pk Right
ifst .2 3					Next Pk Left
Avg					Min Search
0 1 S2 3 FS					Pk-Pk Search
): 					Mkr © C
enter 5.530 00 0	iHz #Y	/BW/ 3 MH7	#Sween 100	Span 160 MHz	More 1 of 2

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8.29. 802.11ac VHT80 CDD 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.29.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC
		Power	Power	EIRP	Limit	PPSD
		Limit	Limit	Limit		Limit
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5530	24.00	24.00	30.00	24.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations of Corr'd Power

Gated Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	12.80	12.44	12.20	17.26	24.00	-6.74

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Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	8.11

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	21.89	24.00	30.00	21.89	8.89	11.00	8.89

 Duty Cycle CF (dB)
 0.46
 Included in Calculations of Corr'd PPSD

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							Ū
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	1.98	3.06	3.78	8.23	8.89	-0.66

<u>Note:</u> method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

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OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



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OUTPUT POWER AND PPSD, Chain 2



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8.30. 802.11ac VHT80 CDD CH 138 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.30.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Lliab	5000	40.70	40.05	40.04	00 50

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8.30.2. OUTPUT POWER AND PSD

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated for output power and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Uncorrelated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	3.53

The TX chains are correlated for PSD and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5690	121.00	72.6877	8.11	3.53

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	24.00	30.00	24.00	8.89	11.00	8.89

Duty Cycle CF (dB)0.46Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	18.59	18.48	18.86	23.88	24.00	-0.12

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
							-
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	0.605	0.740	1.016	6.02	8.89	-2.87

Limits (FCC), portion in 5.8 GHz DTS band

Channel	Frequency	Min	Min	Correlated	Uncorrelated
		26 dB	99%	Gain	Gain
		BW	BW		
	(MHz)	(MHz)	(MHz)	(dBi)	(dBi)
Mid	5690	51.00	2.6877	8.11	3.53

Bandwidth and Antenna Gain

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	24.00	15.29	21.29	15.29	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-0.898	-1.042	-0.835	4.31	8.890	-4.583

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OUTPUT POWER and PSD, Chain 1





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OUTPUT POWER and PSD, Chain 2





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8.31. 802.11ac VHT80 BF 3TX MODE, 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.31.1. OUTPUT POWER AND PPSD

<u>LIMITS</u>

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Directional
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Low	5530	92.70	75.3174	8.11

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Low	5530	21.89	24.00	30.00	21.89	8.89	11.00	8.89

 Duty Cycle CF (dB)
 0.46
 Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5530	1.98	3.06	3.78	8.23	8.89	-0.66

<u>Note:</u> method (1) "Measure and sum the spectra across the outputs" as specified in KDB 662911 D01 v01r02 was used for this PSD measurements.

OUTPUT POWER AND PPSD, Chain 0



OUTPUT POWER AND PPSD, Chain 1



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OUTPUT POWER AND PPSD, Chain 2



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8.32. 802.11ac VHT80 BF CH 138 3TX MODE IN THE 5.6 GHz BAND

This mode has same antenna port results, except for output power and PPSD, as documented in report 12U14669-4E FCC IC UNII WLAN Report.

8.32.1. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.2 dB (including 10 dB pad and 1.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Average Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total
		Power	Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Lliab	5000	16 70	16.00	16 75	21 56

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8.32.2. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0	Chain 1	Chain 2	Correlated Chains
Antenna	Antenna	Antenna	Directional
Gain	Gain	Gain	Gain
(dBi)	(dBi)	(dBi)	(dBi)
5.53	2.68	1.26	8.11

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RESULTS

Limits (FCC), portion in UNII 2 ext band

Bandwidth and Antenna Gain

Channel	Frequency	Min	Min	Correlated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5690	65.4	42.9863	8.11

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	21.89	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
							_
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
	• •	. ,		• •			

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-1.441	-0.893	-0.903	4.160	8.89	-4.730

Limits (FCC), portion in 5.8 GHz DTS band

Channel	Frequency	Min	Min	Correlated
		26 dB	99%	Gain
		BW	BW	
	(MHz)	(MHz)	(MHz)	(dBi)
Mid	5690	55.4	32.9863	8.11

Bandwidth and Antenna Gain

Limits

Channel	Frequency	FCC	IC	IC	Power	FCC	IC	PPSD
		Power	Power	EIRP	Limit	PPSD	PSD	Limit
		Limit	Limit	Limit		Limit	Limit	
	(MHz)	(dBm)						
Mid	5690	21.89	24.00	30.00	21.89	8.89	11.00	8.89

Duty Cycle CF (dB) 0.46 Included in Calculations of PPSD

Output Power Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	Power	Power
		Meas	Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	3.75	3.29	2.93	8.57	21.89	-13.32

PPSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PPSD	PPSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PPSD	PPSD	PPSD	PPSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Mid	5690	-2.855	-2.173	-2.548	2.71	8.89	-6.18

PSD, Cain 0





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PSD, Chain 1





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PSD, Chain 2





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9. RADIATED TEST RESULTS

9.1. 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.

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; the video bandwidth is set to 1 MHz for peak measurements and as applicable 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 applicable 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.

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9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. TX ABOVE 1 GHz 802.11a Legacy 1TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.2. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

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3.0	44.5	33.9	39.1	13.0	-31.9	0.0	0.0	64.6	53.9	74	54	-0.4	-0.1	H. p90	
3.0	45.5	32.6	.14.1	13,0	.31,9	0.0	0.0	63.4	52.7	74	54	10.6	13	V. 989	
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3.0	-	33.9	38.8	13.0	-31.9	0.0	0.0	19.9	53.8	74	54	-54.1	-0.2	V. 986	
el (524	(0 MHz)	1			1							-			
3.0	37.2	25.8	38.4	13.1	-31.9	0.0	0.0	56.8	45.4	74	54	-17.2	-8.6	fl, q85	
3.0	37.9	26.5	38.1	13.1	.11.9	0.0	0.0	57.5	46.1	74	54	16.5	7.9	V, 988	
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AF CL Ang P Corr Pir Peak Arg Pit Mar Ang 445 33.0 33.1 33.0 33.1</td><td>12110466 123 2 3032 arer: M Meduan Damy Yu ion: EUT, Adapter Bend, Antennes 11th HT20 373 mode Intent: Intent: N. Meduan Damy Yu Intent: Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 22807600 <th cols<="" td=""></th></td></td>	12014666 12014666 12012 332 M Meduana Dampy Vie Bion: DIT, Adapter Bend, Antenne Here: DIT, Adapter Bend, Antenne Here: DIT, Adapter Bend, Antenne Here: Bion: Dittance Correct to 3 meters Pre-amplifer 1-26GHz Pre-amplifer 25-40GHz Here: Tot HP 84496 Colspan="2">Cable 22807500 12' cable 22807600 12' cable 22807600 <td>12010406 1213 7812 1001 111 Adapter Beard, Anternes, HoldT20 3725 node 1101 Adapter Beard, Anternes, HoldT20 3725 node 112 Cable 2260Hz 111 Adapter Beard, Anternes, HoldT20 3725 node 112 Cable 22607500 112 Cable 22807700 112 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 HPF 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 HPF 112 Cable 22807700 12 Cable 22807500 10 Corr Fhr Peak Arg Mg BaV/m dBaV/m dB</td> <td>120124669 120124669 131 Mediania Danuyi Yu EUT, Adapter Board, Antenne, HighT20 373 mode ameer: 110 HT20 373 mode 110 HT20 373 mode Pre-ampiller 25-40GHz Horn > 18GHZ 12' cable 22807600 20' cable 22807500 12' cable 22807600 20' cable 22807500 IPre-ampiller 26-40GHz HPF Reject Filte Reject 700 12' cable 22807600 20' cable 22807500 IPre-ampiller 26-40GHz HPF Reject Filte Reject 7 HPF Reject Filte Reject 7 Pre-ampiller 22807500 12' cable 22807600 20' cable 22807500 Pre-ampiller 28.07500 Dist Read Pic Road Avg. AF CL Ang P Corr Pir Peak Arg Pit Mar Ang 445 33.0 33.1 33.0 33.1</td> <td>12110466 123 2 3032 arer: M Meduan Damy Yu ion: EUT, Adapter Bend, Antennes 11th HT20 373 mode Intent: Intent: N. Meduan Damy Yu Intent: Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 22807600 <th cols<="" td=""></th></td>	12010406 1213 7812 1001 111 Adapter Beard, Anternes, HoldT20 3725 node 1101 Adapter Beard, Anternes, HoldT20 3725 node 112 Cable 2260Hz 111 Adapter Beard, Anternes, HoldT20 3725 node 112 Cable 22607500 112 Cable 22807700 112 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 HPF 112 Cable 22807700 12 Cable 22807600 20 Cable 22807500 HPF 112 Cable 22807700 12 Cable 22807500 10 Corr Fhr Peak Arg Mg BaV/m dBaV/m dB	120124669 120124669 131 Mediania Danuyi Yu EUT, Adapter Board, Antenne, HighT20 373 mode ameer: 110 HT20 373 mode 110 HT20 373 mode Pre-ampiller 25-40GHz Horn > 18GHZ 12' cable 22807600 20' cable 22807500 12' cable 22807600 20' cable 22807500 IPre-ampiller 26-40GHz HPF Reject Filte Reject 700 12' cable 22807600 20' cable 22807500 IPre-ampiller 26-40GHz HPF Reject Filte Reject 7 HPF Reject Filte Reject 7 Pre-ampiller 22807500 12' cable 22807600 20' cable 22807500 Pre-ampiller 28.07500 Dist Read Pic Road Avg. AF CL Ang P Corr Pir Peak Arg Pit Mar Ang 445 33.0 33.1 33.0 33.1	12110466 123 2 3032 arer: M Meduan Damy Yu ion: EUT, Adapter Bend, Antennes 11th HT20 373 mode Intent: Intent: N. Meduan Damy Yu Intent: Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 26-40GHz Intent: Pre-amplifer 22807600 <th cols<="" td=""></th>	

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9.2.3. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.4. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

roject Date: Test En Tenfign Mode:	ny: ngineer: gration:	E	Brendrom 12034669 (2/7/3012 D. Gartia Don EUT, Adapter HarHT+E 373	ny Yu Basrit A Luode	niemu										
ł	iom 1-	18GHz	Pre-ar	nolifer	1.260	GHz	Pre-am	plifer	26-40GH	1	Н	orn > 180	Hż	Ĩ	Limit
173;	S/N: 571	7 @Jm	- T144 M	Aiteq 30	08400	931 .	TBS Min	eq 26-	40GHz	. 139	ARA 18-266	GHz; S/N:10	13		FCC 15.205
HP	quency Ca	oles		_	_	-		-		7					
3'	cable 2	2807700	12' c	able 2	26076	500	20' cal	ble 22	807500		HPF	Re	ject Filte	e Peal	Measurements
3.	able 221	807700	12 10	ible 728	07600		20' cab	le 228	07500 .	HF	F_7 6GHz	-	-	· Avera	ge Measurements
1	100		D 11	ir	-	-	ne	-	-	1	-		-		Auna , v bw-Liketa
GHz	(m)	dBuV	dBaV	dB/m	dB	dB	dB	dB	dBaV/m	dBaV/m	dBuV/m	dBuV/m	dB	Avg Mar AB	(V/H)
on Cha	anel (519	0.0 Milkes	16.0	25.0	17.7	310	-0.0	0.7	0.25	61.8	74	=1	-	0.1	11 -161
5.570	3,0	46.5	34.3	38.9	12.2	34.0	6.0	0.7	64.4	52.1	74	54	-9,6	-0.1	V, q81
igh Ch	annel (\$2	30 MHz)	16.6	10.0		140		0.7	460						11 - 61
5.690	3.0	47.4	33.5	38.5	12.3	34.0	0.0	6.7	65.0	51.1	74	54	-P.M	2.9	V, 983
	f Dist Read AF	Measureme Distance to Analyzer R Antenna Fo Cable Loss	ent Frequenc Antenna eading actor			Amp D Corr Avg Peak	Preamp Distance Average Calculate High Pas	Gain Corre Field S of Peal s Filter	ct to 3 meter Strength @ 1 k Field Stren	ns 1 m. ugth		Avg Lim Pk Lim Avg Mar Pk Mar	Average F Peak Field Margin vs Margin vs	ield Strengt Strength Li Average Li Posk Limit	h Limit nut mit

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9.2.5. TX ABOVE 1 GHz 802.11ac VHT80 1TX MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

Covered by testing 11n AC80 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.6. TX ABOVE 1 GHz 802.11ac VHT80 CDD 3Tx MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

Compa Project Date: Test En Configu Mode: Test Ec	ny: M: ngineer: nation: pulpmon	M2	Beendrom 12U14669 12/9/2012 M. Melama EUT, Adapter 11o HT91 3T2	Bàsrd A I mode	ntenn												
H	iorn 1-	18GHz	Pre-ar	nplifer	1-26	GHZ	Pre-am	plifer	26-40GH	z		Н	nn > 180	Hż	1	Limit	
173;	SIN: 671	7 @3m	- T144 P	Aiteq 30	08480	931 .	788 Mit	ieq 26-	40GHz	•	T39;	ARA 18-256	iHz; S/N:10	13	*	FCC 15.205	•
TH Fre	quency Ca	oles 22807700	12' 0	able 2	2807	600	20 [°] ca	ble 22	2807500	1		HPF	Re	ject Filte	Peal	c Measurements	
3'1	able 22	807790	12 ca	ible 228	07600		20° cab	alo 228	07500 .		HP	7 6GHz	3		RBW RBW=1	MH2 BW=3MH ge Measuremen MH2 VBW=1.11	z ts (H)
f	Dist	Read Pk	Read Avg.	AF	CL.	Amp	D Corr	Fltr	Peak	A	vg	Pk Lin	Avg Lim	Pk Mar	Avg Mar	Notes	-
GH2 Lon Cha	(m) nnei (52)	dBuV 0.0 MBz)	dBuV	dBm	dB	dB	dB	dB	dBaV/m	dBe	sV/m	dBaV/m	dBuV/m	dB	dB	(V/H)	-
5.630	3.0	47.3 43.7	36.0	38.7 38.7	12.2	-34,0 -34,0	0.0	0.7 0.7	65.0	8	3.7 9.6	74	54 54	-9.0	-0.3	H, q85 V, q85	-
	Read AF CL	Analyzer R Antenna Fa Cable Loss	eading actor			Avg Peak HPF	Average Calculate High Pas	Field S ed Peal s Filter	Strength @ k Field Stre r	3 m mgth			Avg Mar Pk Mar	Margin vs Margin vs	Average L Peak Lini	imit	

9.2.7. TX ABOVE 1 GHz 802.11ac VHT80 BF 3Tx MODE, 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





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HARMONICS AND SPURIOUS EMISSIONS

Notes Horn 1-18GHz Pre-amplifer 1-26GHz Pre-amplifer 25-40GHz Horn > 18GHz Limit T73; Sift: 6717 @3m T144 Milling 3008A0093+ T28 Milling 26.40GHz T39; ARA 18-26GHz; Sift:1013 Effect 13.209 3' cable 22807700 12' cable 22807600 20' cable 22807500 20' cable 22807500 Pre-ak Measurements RBW1MHz, BW=3MHz Peak Measurements RBW1MHz, BW=3MHz f Dist Read Avg AF CL Amp D Cerr Flir Peak Avg M with a BW/m BBW1MHz, Avg Mar Notes GBz (m) dBaV dBa dB d	Company: troject %: Jare: 'est Engineet; 'enfiguration: Jode:	irtadicon 12014669 13 13 (2013) M. Mekuna EUT, Adapter Board, Ant Lin HT\$9 BF 3TX mode	lanzon										
T73; 5/H: 5717 @Jm T144 Hilling 3608A00931 T88 Mineg 26.40GHz T39; ARA 18.26GHz; 5/H:1013 FCC 15.205 3' cable 22807700 12' cable 22807600 20' cable 22807600 20' cable 22807600 Peak Measurements BW/MHz, BW+3MHz Average Measurements BW/MHz, BW+3MHz f Dist Read Pik Read Avg AF CL Amp D Corr Fit Peak Avg Pit Lim Peak Measurements BW/MHz, Average Measurements BW/MHz, BW+3MHz f Dist Read Pik Read Avg AF CL Amp D Corr Fit Peak Avg Pit Lim Avg Mar Notes RBW/MHz, VBW=1 LHz f Dist Read Pik Read Avg AF CL Amp D Corr Fit Peak Avg Pit Lim Avg Mar Notes GHz (m) dBaV dBm dB	Horn 1-18GHz	Pre-amplifer 1	26GHz	Pre-ami	olifer	26-40GHz	T.	Но	rn > 180	Hż	-Y	Limit	1
If Presency Codes If Cable 22807700 If Cable 22807600 If Cable 22807600 If PF_7 6GHz Reject Filter Peak Measurements BWUMHz, BW=3MHz If Dist Read Pic Read Avg. dF CL Amp D Corr Filt Peak Avg Pic Line Avg Line Avg Mar Avg Mar Notes GBz (m) dBuV dBuV dBu dB dB dB dB dB dB dB dB Vini dBuV/m dBuV/m dB dB (V/R) arr Channet (S2100) Miri 55.3 38.7 12.2 34.0 0.0 0.7 65.8 52.7 74 54 4.1 1.3 H, q68 5630 3.0 48.1 35.1 38.7 12.2 34.0 0.0 0.7 65.8 52.7 74 54 4.1 1.3 H, q68 5630 3.0 48.1 35.1 38.7 12.2 34.0 0.0 0.7 63.8 52.7 74 54 4.1 1.3 V, q89 ter: 11.011 The stance to Antema D Corr Distance Correct to Stance to Co	173; S/N: 6717 @3m	T144 Miteq 3008	A00931 .	TES Mite	eq 26.4	IDGHz .	- T39	8: ARA 18-260	iHz; S/N:10	13	-	FCC 15.205	•
f Dist Read Pik Read Avg. AF CL Amp D Corr Fitr Peak Avg Pik Lim Avg Lim Pik Mar Avg Mar Notes GHz (m) dBaV dBaV dB	H Prequency Cables 3' cable 22807700 3' cable 22807700	12' cable 228	807600	20' cab	ole 22	807500	не	HPF	Re	ject Filter	Peak RBW Avera	Measurements IMHz, BW=3MH ge Measuremen	z ts
Image: Structure of the chain of the cha	6 Diet Read Plr	Rend Ave. AF	Cl Ann	D Carr	Flie	Peak	Are	Pt-T im	Atelin	Pl Mar	RBW=1	Notes	Hz
Jan Channel (\$2100 Wile) Jan Jan H.g85 15630 3.0 48.1 35.1 38.7 12.2 34.0 0.0 0.7 65.8 52.7 74 54 4.1 1.3 H.g85 15630 3.0 45.3 33.2 38.7 12.2 34.0 0.0 0.7 63.8 52.7 74 54 -1.3 H.g85 15630 3.0 45.3 33.2 38.7 12.2 -34.0 0.0 0.7 63.8 50.9 74 54 -11.0 -3.1 V.g89 ter: 11.0.11	GHz (m) dBuV	dBuV dBm	dB dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)	_
Image: Strength Limit Image: Strength Limit Image: Strength Limit Image: Strength Limit <td>ow Channel (\$210.0 Miliz) 5.630 3.0 48.1 5.630 3.0 45.3</td> <td>35.1 38.7 1 33.2 38.7 1</td> <td>12.2 -34.0 12.2 -34.0</td> <td>0.0 0.0</td> <td>0.7 0.7</td> <td>65.8 63.0</td> <td>51,7 50.9</td> <td>74 74</td> <td>84 54</td> <td>-8.1 -31.0</td> <td>-13 -31</td> <td>H, q89 V, q89</td> <td>_</td>	ow Channel (\$210.0 Miliz) 5.630 3.0 48.1 5.630 3.0 45.3	35.1 38.7 1 33.2 38.7 1	12.2 -34.0 12.2 -34.0	0.0 0.0	0.7 0.7	65.8 63.0	51,7 50.9	74 74	84 54	-8.1 -31.0	-13 -31	H, q89 V, q89	_
	 F Measureme Distance to Read Analyzer R AF Asterna Fa CL Cable Loss 	at Frequency Antenna ading clos	Amp D Corr Avg Peak HPF	Preamp G Distance (Average I Calculates High Pass	Jain Corres Field S d Peal Filter	n to Function Strength (2) 3 1 Field Stren	n gti		Avg Lim Pk Lim Avg Mar Pk Mar	Average Ei Peak Field Margin vs. / Margin vs. /	eld Strength Strength Li Average Li Peak Lund	s Limit mit mit	

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9.2.8. TX ABOVE 1 GHz 802.11a 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL, 5300 MHz)

<section-header>



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RESTRICTED BANDEDGE (HIGH CHANNEL, 5320 MHz)





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Covered by testing 11n HT20 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.9. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Test Equipment: Horn 1-18GHz Pre-amplifer 1-26GHz Horn > 18GHz T60: 5/K 2238 @3/m T14 HP 8449B Pre-amplifer 26-40GHz T30: ARA 18-26GHz; S/R:1013 FCC If Prequency Collec 3' cable 22807700 12' cable 22807600 20' cable 22807500 HPF Reject Filter Peak Measu RBW=V2BW 3' cable 22807700 12' cable 22807600 20' cable 22807500 20' cable 22807500 WPF Reject Filter Peak Measu RBW=104Hz; V f Dist Read Avg. AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar It: Othod BaV dBaV dB														nienne	anny Vu Roard, A mode	readcom 2024009 25 2042 1 Mekong Di UT, Adapter 16 HT32 373	11 12 14 15 15 11	iy: N: gineer: ration:	Compar Project Date: Test En Configu Mode:	
Tront Prevanjenite Prevanjenite Dodri 1 Prevanjenite Dodri 1 T60: S/N: 2238 galen T14 HP 8449B T18 Milleg 26.40GHz T39: ARA 18-26GHz; S/R:1013 FCC If Prevants/Solve IZ' cable 22807700 IZ' cable 22807600 20' cable 22807500 HPF Reject Filter Peak Measu RBW=10/HZ Rest Measu RBW=10/HZ f Dist Read Pic Read Arg. AF CL Amp D Corr Fltr Peak Arg. Pk Line Arg. Lin Pk Mar Arg. Mar f Dist Read Pic Read Arg. AF CL Amp D Corr Fltr Peak Arg. Pk Line Arg. Lin Pk Mar Arg. Mar GR2 (m) BuV BuV BuV BuV BuV BuV BuV BuV f Dist Read Pic Read Arg. AF CL Amp D Corr Fltr Peak Arg. BuV Mark Arg. Mar f Diston BaV BaV B	Limit	Limi	1		EP.		lot	H	T.	25.4004	nilifar	Pre.am	HT	1.260	nnlifer	Preian	10004+	uipmen	Lest Eq	
Mit Prequency Solies 12' cable 22807500 20' cable 22807500 HPF Reject Filter Peak Measure RBW~DBW 3' cable 22807700 12' cable 22807600 20' cable 22807500 Pit bit 22807500 <	15.205 -	FCC 15.20	+		13	Hz; S/N:101	5GH	9: ARA 18-26	1	IDGHz .	eq 26-4	TES Min		1.200	P 8449B	T34 HP	8@]m +	5/N: 223	T60; 5	
f Dist Read Pit Read Avg. AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar GR2 (m) dBuV dBuV dBuV dB dB dB dB dB dB dBuV/m	rements =1MHz aurements /BW=10Hz	eak Measureme RBW=VBW=IM erage Measurer W=1MHz_VBW	Peal RB ¹ Avera RBW=	er	ject Filta 001	Re		HPF	1	807500	ble 22 le 2280	20' cat	00	28076	able 2	12' c	22807700 807700	avency Cal cable 2 able 22	3'c	
GR2 (a) dBV dBv dBv dB dB <t< th=""><th>Notes</th><th>ar Note</th><th>vg Mar</th><th>Av</th><th>Pk Mar</th><th>Avg Lim</th><th></th><th>Pk Lim</th><th>Av</th><th>Peak</th><th>Fltr</th><th>D Corr</th><th>Amp</th><th>CL.</th><th>AF</th><th>Read Avg.</th><th>Read Pic B</th><th>Dist</th><th>1</th></t<>	Notes	ar Note	vg Mar	Av	Pk Mar	Avg Lim		Pk Lim	Av	Peak	Fltr	D Corr	Amp	CL.	AF	Read Avg.	Read Pic B	Dist	1	
15.780 3.0 44.3 33.6 38.2 13.1 31.9 0.0 0.0 63.7 53.0 74 54 40.3 1.0 15.780 3.0 43.0 32.2 38.2 13.1 31.9 0.0 0.0 62.4 51.6 74 54 40.3 -1.0 Mid Channel (5300 MBz) 0.0 0.0 0.0 62.4 51.6 74 54 -31.6 -2.4 Mid Channel (5300 MBz) 0.0 0.0 62.9 40.8 74 54 -11.1 -4.2 0.600 3.0 46.4 35.6 38.4 9.9 34.0 0.0 0.0 65.4 55.9 74 54 -11.1 -4.2 0.600 3.0 46.4 35.6 38.4 9.9 34.0 0.0 0.0 61.6 50.0 74 54 -12.4 -4.0 0.600 3.0 48.6 36.2 38.4 9.9 34.0 0.0 0.0 61.8 52.7 74 54 11.1 -3.6 -3.6 15.9 </td <td>(V/H)</td> <td>(V/E</td> <td>as</td> <td></td> <td>an</td> <td>dBuv m</td> <td></td> <td>dBuv/m</td> <td>dBav</td> <td>d Bu V/m</td> <td>0.15</td> <td>an</td> <td>as</td> <td>an</td> <td>415-115</td> <td>disav</td> <td>60 MHz)</td> <td>(m) mul (524</td> <td>Low Cha</td>	(V/H)	(V/E	as		an	dBuv m		dBuv/m	dBav	d Bu V/m	0.15	an	as	an	415-115	disav	60 MHz)	(m) mul (524	Low Cha	
5780 3.0 43.0 32.2 38.2 13.1 31.3 0.0 0.0 82.4 51.6 74 54 31.6 -2.4 fid Channel (5300 Milz) 0.600 3.0 48.6 35.6 38.4 9.9 34.0 0.0 62.9 49.8 74 54 11.1 4.2 5900 3.0 46.4 34.8 9.9 34.0 0.0 0.0 65.4 53.9 74 54 11.1 4.2 6000 3.0 46.4 34.8 9.9 34.0 0.0 0.0 61.6 50.0 74 54 12.4 4.0 0.400 3.0 48.4 9.9 34.0 0.0 0.0 61.6 50.0 74 54 11.1 -3.6 8900 3.0 48.4 9.9 34.0 0.0 0.0 61.8 52.7 74 54 11.1 -3.6 8900 3.0 42.7 33.6 37	11	н	-1.0		-10.3	54		74	53.4	63.7	0.0	0.0	-31.9	13.1	38.2	33.0	44.3	3.0	5,780	
fild Channel (5300 MBz) 0.600 3.0 48.6 35.6 38.4 9.9 34.0 0.0 0.0 62.9 49.8 74 54 11.1 4.2 5900 3.0 46.4 34.8 9.9 34.0 0.0 0.0 65.9 49.8 74 54 11.1 4.2 5900 3.0 46.4 34.8 9.7 31.8 0.0 0.0 65.4 53.9 74 54 8.2 0.1 0.400 3.0 46.4 34.8 9.9 34.0 0.0 0.0 61.6 50.0 74 54 8.2 0.1 0.400 3.0 48.6 36.2 38.4 9.9 34.0 0.0 0.0 62.9 50.4 74 54 11.1 -3.6 8590 3.0 48.6 36.2 38.4 9.9 34.8 0.0 6.0 61.8 52.7 74 64 12.2 1.3 <td colspa<="" td=""><td>.1</td><td></td><td>-24</td><td>-</td><td>-31.6</td><td>54</td><td>+</td><td>74</td><td>51.4</td><td>62.4</td><td>0.0</td><td>0.0</td><td>-31.9</td><td>13.1</td><td>38.2</td><td>31.2</td><td>43.0</td><td>3.9</td><td>5.780</td></td>	<td>.1</td> <td></td> <td>-24</td> <td>-</td> <td>-31.6</td> <td>54</td> <td>+</td> <td>74</td> <td>51.4</td> <td>62.4</td> <td>0.0</td> <td>0.0</td> <td>-31.9</td> <td>13.1</td> <td>38.2</td> <td>31.2</td> <td>43.0</td> <td>3.9</td> <td>5.780</td>	.1		-24	-	-31.6	54	+	74	51.4	62.4	0.0	0.0	-31.9	13.1	38.2	31.2	43.0	3.9	5.780
0.600 3.0 48.6 35.6 38.4 9.9 34.0 0.0 0.0 0.2.9 40.8 74 54 41.1 4.2. 5900 3.0 46.4 35.6 38.4 9.9 34.0 0.0 0.0 62.9 40.8 74 54 41.1 4.2 5900 3.0 46.4 36.8 37.8 13.2 31.8 0.0 0.0 65.6 65.9 74 54 41.1 4.2 0.600 3.0 47.3 35.7 38.4 9.9 34.0 0.0 0.0 61.6 50.0 74 54 41.1 4.2 4.0 0.600 3.0 48.6 362 38.4 9.9 34.0 0.0 0.0 62.9 50.4 74 54 31.1 -3.6 5900 3.0 42.7 33.6 27.8 13.2 31.8 0.0 0.0 61.8 52.7 74 64 12.2						-		-				1.10					0 MIHz)	mel (530	fid Chan	
0.600 3.0 47.3 35.7 38.4 9.9 34.0 0.0 61.6 50.0 74 54 -12.4 4.0 0.600 3.0 48.6 36.2 38.4 9.9 34.0 0.0 0.0 62.9 50.4 74 54 -12.4 4.0 5900 3.0 48.6 36.2 38.4 9.9 34.0 0.0 0.0 62.9 50.4 74 54 31.1 -3.6 5900 3.0 42.7 33.6 37.8 13.2 31.8 0.0 0.0 61.8 52.7 74 54 12.2 1.3 tex II 10 II f Measurement Frequency Distance to Antenna Amp Preamp Gain D Corr Distance Currect to 5 meters Avg Lim Avg Lim Avgrage Field Strength Limit	H	H	0.1		-11.1	54	-	74	65.6	65.5	8.0	0.0	-34.0	9.9	38.4	35.0	48.0	3.0	5.900	
0.600 3.0 48.6 36.2 38.4 9.9 54.0 0.0 0.0 62.9 50.4 74 54 51.1 -3.6 5900 3.8 427 33.6 37.8 13.2 31.8 0.0 0.0 61.8 52.7 74 54 31.1 -3.6 1ev: 11.10 11 f Measurement Frequency Dist Distance to Antenna Amp Preamp Gain D Corr Distance Currect to 5 matters Avg Lim Average Field Strength Limit	v	v	-4.0		-12.4	54		74	\$0.0	61.6	0.0	0.0	-34,0	9.9	38.4	35,7	47.3	3.0	0.600	
f Measurement Frequency Anu Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Currect to 5 meters Pk Lim Peak Field Strength Limit	V V	v v	-3.6		-11.1	54 64		74	50,4	62.9 61.8	0.0 0,0	-6.0 -0.0	.34.0 .31.8	9.9	38.4	36.2	48.6	3.0	5.900	
f Measurement Frequency Ann Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to Supress Pk Lim Peak Field Strength Limit																		лп	Rev. II.1	
Dist Distance to Antenna D Corr Distance Correct to 5 meters Pk Lin Peak Field Strength Limit		ngth Limit	ld Strengt	Field	Average 1	Avg Lim	-				ain (Preamp (Amp		Ē	Frequency	Measurement	f		
Part & how Parties Annual City Council (2) To Annual Martine Annual Table		h Limit	strength Li	id Str	Peak Fiel	PkLan	-		15	t to 3 mete	Contex	Distance	D Corr			Intenna	Distance to A	Dist		
AF Asterna Factor Peak and Calculated Peak Fuld Strength (2.5 m) Avg star starger sty, average time		e Lung	enk Limit	s. Av	Margar vs	Pk Mar			neth	Field Stre	d Peak	Calculate	Peak			ion .	Antenna Faci	AF		
C. Cable Loss HDF High Pass Filter			Citer Caller	~ * *	Company	C AL LAND	1		orai		Filter	High Pass	HPF				Cable Loss	CI.		
																	(

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Gart Equipment: Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Linit T73; SN: 6717 @Dn T144 Mineq 3008A00031 T08 Mineq 26 40GHz T09; ARA 18-26GHz; SN: 1013 FCC 15-209 3' cable 22807700 12' cable 22807600 20' cable 22807500 Perch Ansaurements RBW-10Hz; VBW-10Hz Perch Ansaurements RBW-10Hz; VBW-10Hz 3' cable 22807700 12' cable 22807600 20' cable 22807500 Perch Ansaurements RBW-10Hz; VBW-10Hz 6' Dist Read Pic Read Avg, AF CL Amp D Corr Ftr Peak Avg Pk Mar Avg Mar Notes 6' Dist Read Pic Read Avg, AF CL Amp D Corr Ftr Peak Avg Pk Mar Avg Mar Notes 6' Dist Read Pic Read Avg, AF CL Amp D Corr Ftr Peak Avg Pk Lin Avg Lin Avg Mar Notes 6' Dist Read Pic Read Avg, AF CL Amp D Corr Ftr Peak Avg Pk Lin Avg Mar Avg Mar Notes Stable 22807500 It avg Avg Avg Avg Avg Pick Stable 200 It avg Avg Avg Avg Avg Avg Pick Avg Avg Avg Pick Stable 200 <th>Compan Project Date: Cest En Configu Tode:</th> <th>iy: N: gineer. ration:</th> <th></th> <th>Broads on 12014005 12/7/2012 D. Garcie Dan EUT, Adaptes Hits H120 312</th> <th>my Vu Board, J Smode</th> <th>Lational</th> <th></th>	Compan Project Date: Cest En Configu Tode:	iy: N: gineer. ration:		Broads on 12014005 12/7/2012 D. Garcie Dan EUT, Adaptes Hits H120 312	my Vu Board, J Smode	Lational														
Horn 1-18GHz Pre-amplifer 126-GHz Horn > 186 Hireg Horn > 186 Hireg Linit 15 Tr35, SME G717 (gBm Tr34, Marea 3008A000331 Tr88 Mireg 26 40GHz Tr39, ARA 18-26GHz; STR-1013 FC 13-203 FF	Cest Eq	uipmen	uli.	T Com														1	1 Lots	- 0
17.3 Jik wir ungen 17.4 anneg Johannossi - 18.6 anneg Johannossi -	H	om 1-	-18GHz	Pre-a	mplifer	1-26	GHZ	Pre-am	plifer	26-40GH	z	119	H0	m >1	8G	Hz		-	FCC 15.285	_
3' cable 22807700 12' cable 22807600 20' cable 22807500 HPF Reject Filter Peåk Messurements RBW-NBW-1MEbr Average Messurements 1' cable 22807700 1' cable 22807600 20' cable 22807500 1''''''''''''''''''''''''''''''''''''	173; 3	2114: 01 1	r Idiani	-	aned 20	VALADO	9.51 -	FDG MIN	ed so-	SOGUE	-	1.00	HID4 10-200	unt au		E.		-	1 con solute	-
J Cuble 22807700 IZ Cable 22807600 Z0' cuble 22807500 S R_001 Numerical Stress and the second stress of the sec	3.	cable 2	22807700	12' 0	able 2	2807	500	20 ⁺ cal	ble 22	2807500			HPF		Re	ject Filte	er	Peak	Measuremen	ets.
f Dist Read Pk Read Avg_ AF CL Amp D Corr Fltr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes GRz (m) dBuV dBuV dB	3.0	able 22	807700	• 12 c	able 220	07600	-	20' cab	le 228	97500 .		1	_	3	R	001	ė	Avera RBW=	ge Measurem	ents 109Hz
figh Channel (3320.0 MBr) 0.640 3.0 66.1 38.7 51.0 74 54 15.6 3.0 H, 983 6560 3.0 445.3 37.6 12.4 33.9 0.0 0.0 58.4 51.0 74 54 13.6 0.3 H, 983 0.640 3.0 46.3 32.5 36.3 9.8 35.7 74 54 13.4 0.3 H, 983 0.640 3.0 46.3 32.5 38.3 9.8 35.7 0.0 0.0 59.2 45.2 74 54 14.8 8.8 V, 983 5590 3.0 46.2 35.0 37.6 12.4 33.9 0.0 0.0 64.3 51.1 74 54 14.8 8.8 V, 983 ter 11.041 36.0 12.4 33.9 0.0 0.0 64.3 51.1 74 54 9.7 2.9 V, 983 ter 11.041	f GRz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBoV/m	A dBa	vg tVm	Pk Lim dBuV/m	Avg L dBuV	im /m	Pk Mar dB	As	g Mar dB	Notes (V/H)	
15960 3.0 44.5 37.5 37.6 12.4 -33.9 0.0 0.0 59.7 74 54 -13.4 -0.3 Er.q63 5590 3.0 46.2 35.0 37.6 12.4 -33.9 0.0 0.0 59.2 45.2 74 54 -13.4 43.8 V.q83 5990 3.0 46.2 35.0 37.6 12.4 -33.9 0.0 0.0 64.3 51.1 74 54 -13.4 43.8 V.q83 5990 3.0 46.2 35.0 37.6 12.4 -33.9 0.0 0.0 64.3 51.1 74 54 -14.8 8.8 V.q83 5990 3.0 46.2 35.0 37.6 12.4 -33.9 0.0 0.0 64.3 51.1 74 54 -14.8 8.8 V.q83 5990 3.0 46.2 35.0 37.6 12.4 -33.9 0.0 0.0 64.5 51.1 74 54 -14.8 -16.8 -16.8 -16.8 -16.8 -	ligh Cha 0.640	annel (53 3.0	20.0 MHz) 46.1	38.7	38.3	9.8	35.7	0.0	0.0	58.4	5	1.0	74	54	-	15.6	-	-3.0	IL 983	_
0.440 3.0 46.8 32.9 33.5 0.8 35.7 0.0 0.0 90.2 45.2 74 54 (10.8 8.8 V, q81 5590 3.0 46.3 35.0 37.6 12.4 33.8 0.0 0.0 64.3 51.1 74 54 9.7 2.9 V, q81 ev [1.10.1]	5.960	3.0	44.5	37.5	37.6	12,4	-33.9	0.0	0.0	60.6	5	3.7	74	54		13.4		-8.3	B, q\$3	-
ev 11.19.11 f Measurement Frequency Amp Preamp Gain Avg Lim Average Field Strength Limit Dist Distance to Autemma D Corr Distance Correct to 3 meters Pk Lim Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Limit AF Antemna Factor Peak Colculated Peak Field Strength Pk Mar Margin vs. Peak Limit CL Cable Loss HPF High Pass Filter	5,960	3.0	46.8	32.9	38.3	9.8	.35.7	0.0	0.0	59.2	- 4	5.2	74	54	-	9.7	-	-8.8	V, q83 V, q83	-
		f Dist Read AF CL	Measurem Distance to Analyzer R Antenna F Cable Los	ent Frequenc 5 Automa Ceading actor 5	7		Ann D Con Avg Peak HPF	Preamp (Distance Average Calculate Hich Pas	Gain Corre Field S d Peal s Effer	ct to 3 mete Strength @ h: Field Stre	ns 3 m ngth			Avg Li Pk Lin Avg M Pk Ma	m ar	Average I Peak Firl Margin vs Margin vs	d Se Av	i Strengti rength Li renage Li ak Limit	h Limit indi indi	

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9.2.10. TX ABOVE 1 GHz 802.11n HT20 BF 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Company Project # Date: Test Eng Configura Mode:	nie ce in pineer: ation:	riacauou :	Breadcom 12014669 12.12.2012 M. Mekuni EUT, Adapter 11e/HT2t BF i	Board /	interna le	ander									
Fest Equ	dpmen	t:												_	
Ho	m 1-	18GHz	Pre-at	nplifer	1-260	GHz	Pre-am	plifer	26-40GH	z	Ho	orn > 18G	Hz		Limit
160: 5/	N: 223	1 @Jm	- T34 HF	9 8449B			TES Mit	eq 26-	40GHz	· + 139	ARA 18-260	SHz; S/N-10	13	-	FCC 15.205 •
3' ca	able 2	2807700	12° c	able 2	28078	500	20' cal	ble 22	2807500		HPF	Re	ject Filte	r Peal	Measurements
3' cal	ble 228	107700	• 12 ca	ible 228	07600	•	20° cab	ie 228		1		• R.	001	· Avera	ge Measurements 1MHz VBW=10Hz
f GHz	Dist (m)	Read Pk dBaV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Eltr dB	Peak dBaV/m	Avg dBaV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
for Chan (5.780	nel (526 3.0	0 MHz) 47.5	33.7	38.2	13.1	-31.9	0.0	6.0	67.3	53.2	74	54	-0.7	-0.5	н
5.780	3.0	41.5	32.5	38.2	13,1	31.9	0.0	0.0	61.9	51.9	74	54	-12,1	-2.1	v
did Chang	el (530	MHz)	-				-						-		
0.600	3.0	51.9	39.6	38.4	9.9	-34.0	0.0	0.0	66.2	53.8	74	54	.7.9	-8,2	H
0.600	00 3.0 47.3 34.8 37.8 13.2 31.8 0.0 0.0 06.4 55.9 74 54 7.0 0 00 3.0 49.0 35.3 35.4 9.9 34.0 0.0 0.0 63.3 49.6 74 54 40.7 0 00 3.0 45.7 31.8 37.8 13.2 31.8 0.0 0.0 64.8 50.9 74 54 9.2 Channel (5320 MHz)										-4.4	v			
5.900	P00 3.0 45.7 31.8 37.8 13.2 31.8 0.0 0.0 64.8 50.9 74 A Channel (5320 MHz)									74	54	9,2	-3.1	Y	
ligh Chun	mei (532	to MHz)	-				1.00		1.5						
0.640	A Channel (5320 MHz) 40 5.0 52.1 38.9 38.4 10.0 3 50 5.0 49.5 34.9 37.6 15.2 3 51 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2							0.0	66.5	53.3	74	54	.7.5	0,7	н
15.960	3.0	49.5 34.9 37.6 13.2 -31.8 0.0 0.0 68.4 53.8 74 54 .5.6 -0.1 51.7 37.9 38.4 10.0 -34.0 0.0 0.0 66.1 52.3 74 54 .7.9 -1.1								-0.2	H. V				
5.960	3.0	an.0	33.1 37.6 13.2 31.8 0.0 0.0 65.0 32.0 74 54 40 2.6								2.0	Ŷ			
(ev: 11.10.1	11.10.11														
	f Measurement Frequency Am Dist Distance to Autenna D C Read Analyzer Reading Avy AF Antenna Factor Pea CL Cable Loss HP							Gain Corre Field S od Peal s Filter	field Strengt f Strength L Average Li Peak Limit	h Limie nait imit					

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9.2.11. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Covered by testing 11n HT40 CCD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.12. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Compan Project (Date: Test En Configui Mode:	y: *: gineer; ration:		Reendrom 12U14669 12/1/2012 D. Garea Den EUT, Adapter 11o HT+0 312	my Vu Board A Lande	Antenna											
Tust Eq	ulpmen	<u>E</u>	1			-				7				- 1		
H	orn 1-	18GHz	Pre-at	mplifer	1-26	GHz	Pre-am	plifer	26-40GH	2	Ho	om > 18G	Hz		Limit	_
173; 5	S/N: 671)	/ @3m	- T144 I	Witten 30	08400	931 -	TES Mit	eq 26-	40GHz	- 139	ARA 18-204	anz; Sine to	13	-	FCC 13:203	*
3' c	able 2	2807700	12' 0	able 2	28076	600	20' ca	ble 22	2807500		HPF	Re	ject Filte	r Peal	k Measurements /IMHz BW=3MH	
3'0	able 221	107790	17 0	able 778	07600	•	20' cab	la 228	07500 .	HP	F_7 6GHz	3		· Aver	ige Measuremen MH± , VBW=1.11	ts Hr
f GHz	Dist (m)	Read Pk dBaV	Read Avg. dBaV	AF dB/m	CL dB	Amp dB	D Corr dB	Fitr dB	Peak dBaV/m	Avg dBeV/m	Pk Lim dBnV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
on Chin	nei (527	0.0 MBz)	36.0	-18.1	123	.110	-0.0	0.7	45.3	-	74	54	.8.7	.07	H	-
5.810	3.0	44.8	34.2	38.1	123	.33,9	0.0	0.7	62.0	51.5	74	54	12,0	-2.5	V. 988	_
ligh Cha	mel (53)	0 MHz)	10.5	39.5	4.4	45.7	0.0	0.0	48.0	67.3	74	24	10.5	1.0	10.00	_
5.930	3.0	67.2	36.7	37.7	12.4	-33.9	0.0	0.7	64.1	53.6	74	54	-9,8	0.1	H. 985	-
0.620	3.0	44.4	33.2	38.3	9.7	-35.7	0.0	0.8	57.5	46.2	74	54	16.5	-7.8	V. 989	
intering .	3.0		261	- 40.0	10-1	34.8		4.7	45.02	214			1	- ston	1.900	
les: 11.10	ji.				_	_	_	_								_
	f Dist Read AF CL	Measurem Distance to Analyzer R Antenna Fo Cable Loss	ent Frequenc Antenna eading actor	ÿ		Amp D Con Avg Peak HPF	Preamp of Distance Average Calculate High Pas	Gain Correct Field S of Peal of Filter	ct to 3 mete Strength @ k Field Stre	ers 3 m. ngth		Avg Lim Pk Lim Avg Mar Pk Mar	Average I Péak Fiel Margin vs Margin vs	field Strengt d Strength L Average L Peak Limit	th Limit imit t	
	AF CL	Antenna, Fr Cable Loss	earing actor	1		Peak. HPF	Calculate High Pas	sd Peal a Filter	k Field Stre	o m. ngth		Pk Mar	Margin vs	Peak Limit		

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9.2.13. TX ABOVE 1 GHz 802.11n HT40 BF 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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est Equipm Horn	int:	110/01/10/214	Board, A Beam Fo	kniemu ominig o	noðr										
Hom	1 40/14-	Pre at	anlifer	1.76	CH+	Dra am	miller	25 4000	a	Ha	m > 190	104	1	Limit	1
1/2; 2/14: 5	17 @3m	- T144 N	liteq 30	08A00	931 -	TB3 Min	eq 26-4	40GHz	• T39	ARA 18-260	iHz; SAK:10	13	•	FCC 15.205	•
3' cable	22807700	12' c	able 2	28078	500	20' cal	ble 22	2807500		HPF	Re	ject Filte	RBW=1	Moasurements	Rz
3' cable 2	2807700	• 12 ca	ible 228	07600	•	20° cab	le 2280	•	0		* R_	001	RBW=1	ge Measurement MHz: VBW=1.1k	s Hz
f Dis GHz (m	t Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBeV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	_
ov Channel (5 5.810 3.0 5.810 3.6	270 MHz) 47,3 45.5	36.4	38,1	13.1	-33.9	0.0	0.0	64.6 62.7	53.7 52.6	74	54 54	-9.4	-0.3	H. V	_
ish Channel (S	310 MH2)				- Climber		-								_
0.620 3.0	49.3	37.5	38.3	5.9	35,7	0.0	0.0	61.6	50.1	74	54	12,4	-3.9	н	
5.930 3.0 0.620 3.4	46.7	36.6	37.7	13,2	-33.9	0.0	0.0	63.8 59.2	46.3	74	54	30,2	-8.5	H V	
5.930 3.0	42.9	36.9	37.7	13.2	33.9	0.0	0.0	64.9	53.5	74	54	9.1	0.1	Ŷ	_
ev: 11.10.11															
f Dist Reas AF	Measurem Distance to Analyzer R Antenna F	ent Frequency Antenna Leading actor	F	3	Amp D Corr Avg Peak	Preamp (Distance Average Calculate	Gain Correc Field S ed Peal	ct to 3 mete Strength @ k Field Stre	rs 3 m ngth		Avg Lim Pic Lim Avg Mar Pic Mar	Average F Peak Field Margin vs Margin vs	ield Strengt I Strength Li Average Li Peak Limit	h Linui: mit	
a	Cable Los	5			4151	Tsigh Pas	s Filter					-			

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9.2.14. TX ABOVE 1 GHz 802.11ac VHT80 1TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Covered by testing 11n AC80 CCD MCS0 3TX at the same power level.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701J 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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9.2.15. TX ABOVE 1 GHz 802.11ac VHT80 CDD 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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Compa Project Date: Cest Ex Cooligu Mode: Cest Ex	ny: M: agineer: iration: pulpmon	<u>di</u>	licende on 12U14669 12 % 2012 M. Mekuna EUT, Adapter 11o AC80 572	Boerd, A Smode	antenna												
۲	iorn 1-	18GHz	Pre-at	nplifer	1-26	GHZ	Pre-am	plifer	26-40GH	z		Но	orn > 18G	Hz	1	Limit	
173;	SIN: 671	7 @3m	- T144 M	Aiteq 30	08A00	931 .	788 Mit	eq 26-	40GHz	-	T39;	ARA 18-266	GHz; S/N:10	13	*	FCC 15.205	•
H Fre	quency Ca cable 2	oles 22807700	12' 0	able 2	28076	500	20' ca	ble 22	2807500			HPF	Re	ject Filte	r Peal	Measurements	
3.4	able 22	807700	12 ca	ible 228	07600		20° cab	de 228	07500 .		HPP	7 6GHz	3		RBW	ge Measuremen MH2 , VBW=1.11	z ts (H)
f	Dist	Read Pk	Read Avg.	AF	CL.	Amp	D Corr	Fltr	Peak	A	eg	Pk Lin	Avg Lim	Pk Mar	Avg Mar	Notes	-
GH2 on Cha	(m) nnei (529	dBuV 0.0 Miliz)	dBuV	dBm	dB	dB	dB	dB	dBaV/m	dBa	V/mi	dBuV/m	dBuV/m	dB	dB	(V/H)	-
5.870 5.870	3.0	47.8 44.6	36.3 32.8	37.9	12.4	33.9	0.0	0.7 0.7	64.9 61.6	53	14	74	54 54	-0.1	-0.5	H, q90 V, q90	
	Read AF CL	Analyzer R Antenna Fa Cable Loss	eading actor			Avg Peak HPF	Average Calculate High Pas	Field 3 of Peal s Filter	Strength @ k Field Stre r	3 m mgth			Avg Mar Pk Mar	Margin vs. Margin vs	Average Li Peak Limi	imit	

9.2.16. TX ABOVE 1 GHz 802.11ac VHT80 BF 3TX MODE, 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)





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art Equipment:Horn 1-18GHzPre-ampiller 1-26GHzHorn > 18GHzLimitT13 SiN: 6717 @OmT144 Mineg 3008A00931Pre-ampiller 25-40GHzHorn > 18GHzLimitT144 Mineg 3008A00931Pre-ampiller 25-40GHzHorn > 18GHzLimitT144 Mineg 3008A00931Pre-ampiller 26-40GHzT19, ARA 18-26GHz; S/R-1013LimitT12' cable 2280760020' cable 22807500Pre-ampiller 22807600Pre-ampiller 22807600LimitT12' cable 2280760020' cable 22807500Pre-ampiller 22807600Pre-ampiller 22807600 <th colspan<="" th=""><th>Wet Equipment: Horn 1-18GHz Pre-ampilter 1-26GHz Pre-ampilter 26-40GHz Horn > 18GHz Linit T73; Sift: 6717 (g3m +) T144 Mineg 3008A00931 + T98 Mineg 26 40GHz + T99; ARA 18-26GHz; Sift: 1913 + FCC 15-265 3' cable 22807700 12' cable 22807600 20' cable 22807500 + Pre-ampilter 26-40GHz + T99; ARA 18-26GHz; Sift: 1913 + Peak Measurements: RBW/DMHz f Dist 22807700 + 12' cable 22807600 + 20' cable 22807500 + Pit F.7 6GHz + Pit Mar Avg Mar Notes f Dist Read Avg AF CL Amp D Corr Fitr Peak Avg Pit Line Avg Mar Notes RBW-IAHz, VBW-1.11E Notes conclamate (59.00 Mbz) 5570 3.0 451 33.3 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 31.0 -3.6 H; qs9 H; qs9 strong Channel (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes conclamate (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes strong Channel (59.00 Mbz) Distance to Autema D Corr Distance Correct to 3 meters Avg Lin: Average Field Strength Linuk f Measurement Frequency Amp Preamp Gam Avg Average Field Strength Linuk Py Lin: Average Field Strength Linuk GL Cable Lave HPF High Paor Filee</th><th>Wet Equipment: Horn 148GHz Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Unit T2: Site 5717 @3m T84 Miseg 3008A0033 T88 Miseg 26-40GHz T9: ABA 18-26GHz Pre-amplifer 25-40GHz T9: ABA 18-26GHz Pre-amplifer 26-40GHz FC: 53-26 3' cable 22807700 12' cable 22807600 20' cable 22807500 Pre-amplifer 26-40GHz Pre</th><th>Wet Equipment: Hom 1-18GHz Pre-amplifer 25-40GHz Horm > 18GHz Linit T3: Sift: 57N7 (B3) It 144 Milling 3008A00031 Pre-amplifer 25-40GHz Horm > 18GHz Linit 3' cable 22807700 12' cable 22807600 20' cable 22807600 Pre-amplifer 26-40GHz HPF 3' cable 22807700 12' cable 22807600 20' cable 22807600 3' cable 22807700 Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-00CH 20 3' cable 22807700 12' cable 22807600 Pre-amplifer 28-00CH 20 <</th><th>iempa roject late: est Ei coligi Iode:</th><th>ny: M: ngineer: tration:</th><th></th><th>Records on 12U14669 12/13/2012 M. Meltons EUT, Adopter 11o/HT91 3T3</th><th>Based A</th><th>niennu</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th>	<th>Wet Equipment: Horn 1-18GHz Pre-ampilter 1-26GHz Pre-ampilter 26-40GHz Horn > 18GHz Linit T73; Sift: 6717 (g3m +) T144 Mineg 3008A00931 + T98 Mineg 26 40GHz + T99; ARA 18-26GHz; Sift: 1913 + FCC 15-265 3' cable 22807700 12' cable 22807600 20' cable 22807500 + Pre-ampilter 26-40GHz + T99; ARA 18-26GHz; Sift: 1913 + Peak Measurements: RBW/DMHz f Dist 22807700 + 12' cable 22807600 + 20' cable 22807500 + Pit F.7 6GHz + Pit Mar Avg Mar Notes f Dist Read Avg AF CL Amp D Corr Fitr Peak Avg Pit Line Avg Mar Notes RBW-IAHz, VBW-1.11E Notes conclamate (59.00 Mbz) 5570 3.0 451 33.3 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 31.0 -3.6 H; qs9 H; qs9 strong Channel (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes conclamate (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes strong Channel (59.00 Mbz) Distance to Autema D Corr Distance Correct to 3 meters Avg Lin: Average Field Strength Linuk f Measurement Frequency Amp Preamp Gam Avg Average Field Strength Linuk Py Lin: Average Field Strength Linuk GL Cable Lave HPF High Paor Filee</th> <th>Wet Equipment: Horn 148GHz Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Unit T2: Site 5717 @3m T84 Miseg 3008A0033 T88 Miseg 26-40GHz T9: ABA 18-26GHz Pre-amplifer 25-40GHz T9: ABA 18-26GHz Pre-amplifer 26-40GHz FC: 53-26 3' cable 22807700 12' cable 22807600 20' cable 22807500 Pre-amplifer 26-40GHz Pre</th> <th>Wet Equipment: Hom 1-18GHz Pre-amplifer 25-40GHz Horm > 18GHz Linit T3: Sift: 57N7 (B3) It 144 Milling 3008A00031 Pre-amplifer 25-40GHz Horm > 18GHz Linit 3' cable 22807700 12' cable 22807600 20' cable 22807600 Pre-amplifer 26-40GHz HPF 3' cable 22807700 12' cable 22807600 20' cable 22807600 3' cable 22807700 Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-00CH 20 3' cable 22807700 12' cable 22807600 Pre-amplifer 28-00CH 20 <</th> <th>iempa roject late: est Ei coligi Iode:</th> <th>ny: M: ngineer: tration:</th> <th></th> <th>Records on 12U14669 12/13/2012 M. Meltons EUT, Adopter 11o/HT91 3T3</th> <th>Based A</th> <th>niennu</th> <th></th>	Wet Equipment: Horn 1-18GHz Pre-ampilter 1-26GHz Pre-ampilter 26-40GHz Horn > 18GHz Linit T73; Sift: 6717 (g3m +) T144 Mineg 3008A00931 + T98 Mineg 26 40GHz + T99; ARA 18-26GHz; Sift: 1913 + FCC 15-265 3' cable 22807700 12' cable 22807600 20' cable 22807500 + Pre-ampilter 26-40GHz + T99; ARA 18-26GHz; Sift: 1913 + Peak Measurements: RBW/DMHz f Dist 22807700 + 12' cable 22807600 + 20' cable 22807500 + Pit F.7 6GHz + Pit Mar Avg Mar Notes f Dist Read Avg AF CL Amp D Corr Fitr Peak Avg Pit Line Avg Mar Notes RBW-IAHz, VBW-1.11E Notes conclamate (59.00 Mbz) 5570 3.0 451 33.3 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 31.0 -3.6 H; qs9 H; qs9 strong Channel (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes conclamate (59.00 Mbz) 57.9 12.4 33.9 0.0 0.7 61.4 48.1 79 54 33.0 - 5.9 V; qs9 Notes strong Channel (59.00 Mbz) Distance to Autema D Corr Distance Correct to 3 meters Avg Lin: Average Field Strength Linuk f Measurement Frequency Amp Preamp Gam Avg Average Field Strength Linuk Py Lin: Average Field Strength Linuk GL Cable Lave HPF High Paor Filee	Wet Equipment: Horn 148GHz Pre-amplifer 1-26GHz Pre-amplifer 26-40GHz Horn > 18GHz Unit T2: Site 5717 @3m T84 Miseg 3008A0033 T88 Miseg 26-40GHz T9: ABA 18-26GHz Pre-amplifer 25-40GHz T9: ABA 18-26GHz Pre-amplifer 26-40GHz FC: 53-26 3' cable 22807700 12' cable 22807600 20' cable 22807500 Pre-amplifer 26-40GHz Pre	Wet Equipment: Hom 1-18GHz Pre-amplifer 25-40GHz Horm > 18GHz Linit T3: Sift: 57N7 (B3) It 144 Milling 3008A00031 Pre-amplifer 25-40GHz Horm > 18GHz Linit 3' cable 22807700 12' cable 22807600 20' cable 22807600 Pre-amplifer 26-40GHz HPF 3' cable 22807700 12' cable 22807600 20' cable 22807600 3' cable 22807700 Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 26-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-40GHz HPF Pre-amplifer 28-00CH 20 3' cable 22807700 12' cable 22807600 Pre-amplifer 28-00CH 20 <	iempa roject late: est Ei coligi Iode:	ny: M: ngineer: tration:		Records on 12U14669 12/13/2012 M. 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T73: Sill: 6717 @3m T144 Milling 3008A00931 TB8 Milling 26-40GHz T39: ARA 18-26GHz; Sill: 1013 FCC 15-205 # Federativ Codes 3' cable 22807700 12' cable 22807600 20' cable 22807500 HPF Reject Filter Peak Measurement Rewithing BW-300 Average Field Strength Linit 5.570 Peak Measurement Rewithing BW-300 f Dist Read Pk Reid Avg AF CL Amp D Corr Fltr Peak Avg Pk Line Avg Line Pk Mar Avg Mar Notes GHz (10) BaV Bb/m dB dB dB B dB B dB B dB B dB B dB May Mar Avg Mar Notes f Dist Read Pk Read Avg AF CL Amp Presump Gain Avg Mar Avg Mar Notes f Measurement Frequency Amp Presump Gain Average Field Strength Linit j Mar Avg Lin Average Field Strength Linit Average Field Strength Linit f Measurement Frequency Amp Presump Gain Average Field Strength Linit j Mar Average Field	T44 Mitting 5008A00931 - T88 Mitting 26.40GHz T9: ARA 18-26GHz; S/R-1013 FCC 15.205 If Figure Cooke 3' cable 22807700 12' cable 22807600 20' cable 22807500 IP Figure Cooke 3' cable 22807700 12' cable 22807600 20' cable 22807500 12' cable 22807600 20' cable 22807500 IP F_T Colspan="2">Cable 22807600 12' cable 22807600 20' cable 22807500 IP F_T Colspan="2">Cable 22807600 12' cable 22807600 20' cable 22807500 IP F_T Colspan="2">Cable 22807600 10' cable 22807600 Points Colspan="2">Cable 22807600 12' cable 22807600 20' cable 22807600 12' cable 22807600 Points Colspan="2">Cable 22807600 IP Former Colspan Arg Points Colspan= Cols	T2: SN: 6717 @3m T144 Milling 3008A00031 TBS Milling 26-40GHz T39: ARA 18-26GHz: SN:1013 FCC 15-205 3' cable 22807700 12' cable 22607600 20' cable 22807500 20' cable 22807500 PFC 15: 00 Peck Measurements 1' cable 22807700 12' cable 22607600 20' cable 22807500 Pit File Reject Filer Peak Measurements 1' cable 22807700 12' cable 22607600 20' cable 22807500 Pit Filer Reject Filer Result And the asymptotic and the	T2: SH: 6717 @3m T144 Milling 3008A00031 T88 Milling 26-00GHz T39: ARA 18-26GHz; S/R:1013 FCC 15-205 # Presency Code 12' cable 22807500 12' cable 22807500 20' cable 22807500 HPF Reject Filter Resence and Risk Milling 1008A00031 3' cable 22807700 12' cable 22807600 20' cable 22807500 20' cable 22807500 HPF Reject Filter Reject Filter Resence and Risk Milling 1008A00031 1' cable 22807700 12' cable 22807600 20' cable 22807500 10' cable 22807500 HPF Reject Filter Resence and Risk Milling 1008A00031 1' cable 22807700 12' cable 22807600 20' cable 22807500 10' cable 22807500 Presence and Risk Milling 10' cable 22807500 Presence and Risk Milling 10' cable 22807500 Resence and Risk Milling 10' cable 22807500 Presence and Risk Milling 10' cable 22807500 Presence and Risk Milling 10' cable 22807500 Resence an	Lust E.	iorn 1-	18GHz	Pre-at	nplifer	1-260	SHZ	Pre-am	plifer	25-40GH			H	orn > 180	Hz	1	Limit	1	
Image: Product Cable 12' cable 22807700 12' cable 22807600 20' cable 22807500 HPF Reject Filter Peak Measurement RBW1Mffg BW-3M Average Measurement RBW1Mffg BW-3M Average Measurement RBW1Mffg BW-3M Average Measurement BRW1Mffg BW-3M Average Measurement Brequency Amp Deak Measurement Brequency Amp Preamp Gain Average Measurement Brequency Amp Preamp Gain Average Field Strength Limit Pk Lim Peak Field Strength Limit f Measurement Frequency Amp Preamp Gain Average Field Strength Limit Avg Lim Average Field Strength Limit f Measurement Frequency Amp Preamp Gain Average Field Strength Limit Avg Max Margin vs. Average Field Strength Limit f Measurement Frequency Amp Preamp Gain Avg Max Margin vs. Average Limit f Measurement Frequency Amp Preamp Gain Avg Max Margin vs. Average Limit f Measurement Frequency Amp Preamp Gain Avg Max Margin vs. Average Limit f Measurement Frequency Amp Preamp Gain Avg Max Margin vs. Average Limit	I Predurer Cable 3' cable 22807700 Paik Maararamatik 3' cable 22807700 Paik Maararamatik 12' cable 22807600 Paik Maararamatik 10' cable 22807500 Paik Maararamatik 10' cable 22807500 Paik Maararamatik IPF 7' 6GHz Paik Maararamatik Notes Chable 22807700 Paik Maararamatik IPF 7' 6GHz Paik Maararamatik Notes Chable 22807700 Paik Maararamatik IPF 7' 6GHz Paik Maar Avg Mar Notes Chable 22807700 IPF 7' 6GHz Paik Maar Avg Mar Notes Chable 22807700 IPF 7' 6GHz Paik Maar Avg Mar Notes Chable 22807500 IPF 7' 6GHz Paik Maar Avg Mar Notes Chable 22807500 IPF 10' 10' 10' 10' 10' 10' 10' 10' 10' 10'	Image: Product Code 12' cable 22807500 20' cable 22807500 HPF_ Reject Filter Pack Measurements RBW:IAHE, BW-3AHE 3' cable 22807700 12' cable 22807600 20' cable 22807500 19' cable 22807500 10' cable 22807500	Image: Productor Code: 12° cable 22807700 12° cable 22807600 20° cable 22807500 HPF Reject Filter Pack Measurement RBWLMRfz BW-3NE Average Measurement RBW-1MHz; VBW-11 f Dist Read Avg. BBW AF CL Aup D Corr Filt Peak Avg Lim Pk Mar Avg Mar Average Measurement RBW-1MHz; VBW-11 f Dist Read Avg. BBW AF CL Aup D Corr Filt Peak Avg Lim Avg Lim Notes c BBW MBaV BBr MB BB MB MB MB Mar Avg Mar Notes c BBr AB AB AB Avg Lim <	173;	SIN: 671	7 @3m	- T344 6	Aiteq 30	08400	931 .	788 Min	eq 26-	40GHz	•	T39;	ARA 18-266	SHz; S/N:10	13		FCC 15.205	•	
J' cable 2280/700 12 cable 2280/600 20 cable 2280/500 HFF_7 63hr Average Massurement RBW=1MHz, VBW=1 f Dist Read Pk Read Avg. dBav AF CL Amp D Corr Fitr Peak Avg Pk Line Avg Lin Pk Mar Avg Mar Notes GHz (m) dBav dBav dB dW Notes or 0.0 0.7 61.0 0.7 61.0 48.1 74 54 31.0 3.5 8.9 9.0 0.7 61.0 48.1 74 54 31.0 3.5 9.0 9.7 61.0 48.1 74 54 31.0 3.5 9.0 9.7 61.0 48.1 74 54	J cable 22807/00 12 cable 22807600 20 cable 22807500 HFT_7 6GHz Average Maxarements RBW=1.0Hz Average Field Strength Limit Average Field Strength Limit Average Field Strength Limit AVE Average Field Strength Q an Average Field Strength Pk Mar Margin vs. Average Limit CL Cable Louz Average Field Strength Rev HPF HPF High Pase Filee	1 20 cable 2280/500 10 - 12 cable 2280/500	1 20 cable 22807/00 12 cable 22807/00 10 cable 22807/00<	3'	ovency Ca cable 2	2807700	12' c	able 2	26076	500	20 ¹ ca	ble 22	2807500	1	-	HPF	Re	ject Filte	r <u>Peal</u> RBW	k Measurements 'IMHz, BW-3MH	1	
f Dist Read Pk Read Avg. AF CL Amp D Corr Fltr Peak Avg Pk Lina Avg Lin Pk Mar Avg Mar Notes GHz (m) dBaV dBav dB (V/H) Jorn Channel (5290.0 Miks) 1 33.3 37.9 12.4 33.9 0.0 0.7 62.3 50.4 74 54 -11.9 -3.6 H, q89 51.5 /0 3.0 3.9 V, q89 Notes Pk Lin Avg Lin <th>f Dist Read Pk Read Avg dBaV AF CL Amp dB D Corr Fltr Peak dB Avg dBaV/m Pk Lina dBaV/m Avg Lin dBaV/m Avg Lin dBaV/m</th> <th>f Dist Read Pk Read Avg. (m) AF CL Amp D Corr Flr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes CHz (m) dBaV dBaV dB dB dB dB dB (VH) Low Channel (5290-300) 30.0 31.0 37.0 12.4 33.0 0.0 0.7 62.3 50.4 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.9 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 1.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 Zavarage D Corr</th> <th>f Dist Read Pk Read Avg. (m) AF CL Amp D Corr Fir Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes CHz (m) dBaV dBaV dB dB dB dB dB dB dB dB dB (VH) dB dB dB (VH) dB dB (VH) dB dB (VH) dB dB (UH) dB dB dB (UH) dB dB (UH) dB dB dB dB</th> <th>3.4</th> <th>able 22</th> <th>807700</th> <th>12 ca</th> <th>ible 228</th> <th>07600</th> <th>•</th> <th>20° cab</th> <th>4o 228</th> <th>•</th> <th></th> <th>HP</th> <th>F_7 6GHz</th> <th></th> <th>4</th> <th>RBW=</th> <th>MH2 , VBW=1.1)</th> <th>its (H)</th>	f Dist Read Pk Read Avg dBaV AF CL Amp dB D Corr Fltr Peak dB Avg dBaV/m Pk Lina dBaV/m Avg Lin dBaV/m	f Dist Read Pk Read Avg. (m) AF CL Amp D Corr Flr Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes CHz (m) dBaV dBaV dB dB dB dB dB (VH) Low Channel (5290-300) 30.0 31.0 37.0 12.4 33.0 0.0 0.7 62.3 50.4 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.9 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 45.8 31.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 3.0 1.1 37.8 12.4 33.8 0.0 0.7 61.4 48.1 74 54 41.0 3.6 H, g86 LSS70 Zavarage D Corr	f Dist Read Pk Read Avg. (m) AF CL Amp D Corr Fir Peak Avg Pk Lim Avg Lim Pk Mar Avg Mar Notes CHz (m) dBaV dBaV dB dB dB dB dB dB dB dB dB (VH) dB dB dB (VH) dB dB (VH) dB dB (VH) dB dB (UH) dB dB dB (UH) dB dB (UH) dB dB dB dB	3.4	able 22	807700	12 ca	ible 228	07600	•	20° cab	4o 228	•		HP	F_7 6GHz		4	RBW=	MH2 , VBW=1.1)	its (H)	
f Measurement Frequency Dist Amp Preamp Gain D Corr Distance Correct to 3 meters Read Avg Lim Average Field Strength Limit f Measurement Frequency Dist Amp Preamp Gain D Corr Distance Correct to 3 meters Read Avg Lim Average Field Strength Limit AF Antima Factor CL Cable Loss HPF High Pass Filter	f Measurement Frequency Amp Preamp Gain Avg Lin Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Lin Average Field Strength Linit f Measurement Frequency Amp Preamp Gain Avg Mar Margin vs. Average Field Strength Linit f Measurement Frequency Auge Strength Strength @ 3 m Avg Mar Margin vs. Peak Linit GE Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Linit CL Cable Lovs HPF High Pass Filter Pilter	Lor Channel (5290.0 MBz) 15270 3.0 45.1 33.3 57.9 12.4 33.8 0.0 0.7 62.3 50.4 74 54 41.0 3.6 H. 488 15370 3.0 45.1 33.3 57.9 12.4 33.8 0.0 0.7 61.0 48.1 74 54 41.0 3.6 H. 488 15370 3.0 45.5 V. 489 Rec 111011 f Measurement Frequency Amp Preamp Gain Read Analyzer Reading Avg Arape Field Strength Inti Read Analyzer Reading Avg Acadusted Peak Field Strength Peak Field Strength Limit At Antona Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Average Limit CL. Cable Losz. HPF High Pass Filter	Jon Channel (5290.0 MBz) Jon Jon Gar Ga	f GHz	Dist (m)	Read Pk dBaV	Read Avg. dBaV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBaV/m	AB	vg v/m	Pk Line dBaV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)		
f Measurement Frequency Amp Preamp Gain Avg Lin Average Field Strength Linit Dist Distance to Auteuna D Corr Distance Correct to 3 meters Pk Lin Peak Field Strength Linit Read Analyzer Reading Avg Average Field Strength @ 3 m Avg Mar Margin vs. Average Linit AF Antenna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Linit CL Cable Loss HPF High Pass Filter	f Measurement Frequency Amp Preamp Gain Avg Lin Avg Lin Average Field Strength Linit Dist Distance to Anteina D Corr Distance Correct to 3 meters Pk Lin Peak Field Strength Linit Read Analyzer Reading Avg Average Field Strength (2) 3 m Avg Mar Margin vs. Average Linit AF Antenna Factor Peak Calulated Peak Field Strength Pk Mar Margin vs. Peak Linit CL Cable Lova HPF High Pass Filter Pk Mar Margin vs. Peak Linit	f Meangrement Frequency Anny Presump Gain Avg Lin Average Field Strength Linit Bist Distance to Auteina D Corr D Corr Distance Correct to 3 meters Pk Lin Peak Field Strength Linit Read Analyzer Reading Avg Avg Avg Mar Margin vs. Average Linit AF Antonna Factor Peak Calculated Peak Field Strength Pk Mar Margin vs. Peak Linit CL Cable Lova HPF High Pass Filter Pilter Pilter	Act Act <td>on Cha 5.870</td> <td>anel (529</td> <td>0.0 MBz) 45.1 45.9</td> <td>33.3</td> <td>37.9</td> <td>12.4</td> <td>-33.9</td> <td>0.0 0.0</td> <td>0.7</td> <td>62.3</td> <td>5</td> <td>0.4</td> <td>74</td> <td>54</td> <td>-11.0</td> <td>-3.6</td> <td>H, q89 V a89</td> <td></td>	on Cha 5.870	anel (529	0.0 MBz) 45.1 45.9	33.3	37.9	12.4	-33.9	0.0 0.0	0.7	62.3	5	0.4	74	54	-11.0	-3.6	H, q89 V a89		
CL Cable Loss HPF High Pass Filter	CL Cable Loss HPF High Pass Filter	CL Cable Loss HPF High Pass Hiter	CL Cable Loss HPF High Pass Hiter	bev: 11.1	f Dist Read AF	Measureme Distance to Analyzer R Antenna Fa	st Frequency Antenna sading actor	ÿ	1	Amp D Corr Avg Peak	Preamp 0 Distance Average Calculate	Gain Corre Field S of Peal	ct to 3 meter Strength @ 3 k Field Stren	ts 3 m igth		-	Avg Lim Pk Lin Avg Mar Pk Mar	Average F Peak Field Margin vs. Margin vs	ield Strengt I Strength L Average L Peak Limi	h Linut inut inut	Ì	
					CL.	Cable Loss				HPF	High Pas	s Fibe										

9.2.17. TX ABOVE 1 GHz 802.11a MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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AUTHORIZED BANDEDGE (HIGH CHANNEL)





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Covered by testing HT20 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.18. TX ABOVE 1 GHz 802.11n HT20 CDD 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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AUTHORIZED BANDEDGE (HIGH CHANNEL)





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ompli	High ance Co	Frequency rtification	Measurem Services, Fr	emont	3m Ch	amber											
compan Project Date: Cest En	ly: N: gincer:		Beendrom 12U14669 12-6-2012 M. Mekuna D	tanary Vie													
onligu Iode:	ration:		EUT, Adapter 11a HT20 3TX	Board /	Antienna												
est Eq	ulpmon	t.															
н	orn 1-	18GHz	Pre-at	nplifer	1-260	GHZ	Pre-am	plifer	26-40GH	z	Н		Limit				
173; 5	SIN: 671	7 @3m	+ T144 M	Aiteq 30	08A80	931 .	788 Mit	eq 26-	40GHz	• T39;	ARA 18-256	GHz; S/N:10	13	*	FCC 15.205 -		
- Hi Fried	siency Ca	Nes	17'0	able 2	2807	000	20' ca	ble 22	2807500	1	HPE	Re	Deject Filter		Measurements		
3' cable 22807700			12 ca	ible 728	07600		20° cab	lo 228	07500 .	IF		- R.	001	RB'	RBW=VBW=1MHz Average Measurements RBW=1MHz , VBW=10Hz		
f CH-	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim dBeV/m	Avg Lim	Pk Mar	Avg Mar	Notes		
ow Cha	mel (55)	() MHz)	0.0414	and an	ap .	ub	015	-	HEPH Y/H	a part de	4154111	alon y m	40		(Ching		
1,000	3.0	49.3 50.6	37.9	38.4 38.4	10.5	35,6	0.0	0.0	62.5 63.8	51.1 51.9	74	54 54	10.2	-1.4	H, q86 V, q86		
fiel Chan	nal (558	0 MHz)				-			-		-						
1.160	3.0	48.8 53.1	39.4	38.5	10.7	35.6	0.0	0.0	66.7	53.1	74	54	.73	-1.9	W, q85 V, q82		
ligh Cha	nnel (57	00 MHz)	-	10.7				8.0	171	***			-	15	70.00		
1.400	3.0	33.1	38.6	38.7	11.1	35.6	0.0	0.0	14.3	52.5	74	54	59.7	1.2	ri, q85 V, q85		
lés it li	i II																
		Measurem	at Frequency	v.	-	Ann	Preamp	Gam				Ave Lim	Average I	Field Strength	Limit		
	Dist	Distance to	Autenna			D Corr	Distance	Corre	ct to 3 mete	T 5		PkLan	Peak Field	d Strength Li	tiufi		
	Read	Analyzer R Actemna Fa	eading .			Avg	Average Calculate	Field 1	Strength 20 Field Stre	3 m		Avg Mar Pk Mar	Margin vs Margin vs	Average Li Peak Limit	mit		
		Cable Loss				HPF	High Pas	s Filter	n a nema cours	in the second se		2.4.55100	stan for in	CT CON LOUGE			

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9.2.19. TX ABOVE 1 GHz 802.11n HT20 BF 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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AUTHORIZED BANDEDGE (HIGH CHANNEL)





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anisti	High	Frequency	Measurem	amont	3. 1.	ambor									
omput	ace c c	remeation	Services, Fr	emont	om ca	amper									
roject	iyo Ma		Reendrom 12U14669												
ate:			12/12/2012												
onligu	ration:		EUT. Adapter	Board /	Antenna.										
Iode:			Ho HT20 JTA	Beau F	ommig a	No.61									
est Eq	nipmen	C.													
н	orn 1-	18GHz	Pre-at	nplifer	1-260	SHZ	Pre-am	plifer	26-40GH	z	Н	om > 18G	Hż	1	Limit
173; 5	SIN: 571	7 @3m	+ T144 M	Aiteq 30	08A009	131 -	T88 Miteg 26.40GHz + T39; ARA 18-25GHz; S/N:1013								FCC 15.205 -
- Hi Fried	RIENCY Cal	bles	1			-	alle a	100		1		1		i	and the second
3.	cable 2	2807700	12' c	able 2	28076	00	20' cal	ble 22	2807500		HPF Reje			r Peak RB	W=VBW=1MHz
3' cable 22807700 . 12' cable 228			07600		20° cab	le 228	• 07500	U.		- R_	001	RBW=	ge Measurements 1MH2 , VBW=10H2		
f GHz	Dist (m)	Read Pk dBaV	Read Avg.	AF	CL dB	Amp	D Corr dB	Fltr	Peak dBaV/m	Avg dBaV/m	Pk Lim dBaV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
ov Cha	mel (55)	() MHz)							and the second						A. C. C. C.
000,1	3.0	51.9	38.2	38.4	10.5	-35.6	0.0	0.0	66,1	51.4	74	54	-7,9	-3.6	H, 1986
1,000	.0.6	24.0	39.9	39.4	10.5	39,0	60	0.0	66,0	30.0		34	-0,0	10.9	1,983
lid Char	nel (558	0 MHz)								250					-
1.160	3.0	55.8	40.1	38.5	10.7	-35.6	0.0	0.0	62.8	46.8	74	54	-4.6	-7.2	II 480 V. 680
		1	-				1.11.11.1			1					
igh Cha 1 400	nuel (57)	(0 MHz)	161	18.7	38.7 11.1 -35.6		0.0	8.0	143	50.6	74	54	49.7	36	FL 486
1.400	3.0	£93	35.1	38.7	11.1	35.6	0.0	0.0	63.6	49.4	74	54	10.4	4.6	V, 986
év 11.16	i i i														
	£.	Measurem	ent Frequency	y)		Amp	Preamp	Gaan				Avg Lim	Average I	field Strength	Linit
	Dist	Distance to	Autenna			D Corr	Distance	Corre	et to 3 mete	T 5		PkLan	Peak Field	1 Strength Li	tud.
	Read	Analyzer R	eading			Avg	Average	Field 1	Strength 2	3 m		Avg Mar	Margin vs	Average Li	strict
AF Antennal Factor Per						L'ERK	Calculate Eliste Date	d Peat	k Fueld Stre	ngui		PK-Mar	Windin an	Peak Lune	
		to service a service					1.400 1.000								

9.2.20. TX ABOVE 1 GHz 802.11n HT40 1TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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AUTHORIZED BANDEDGE (HIGH CHANNEL)





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Covered by testing HT40 CDD MCS0 3TX, total power across all three chains is higher than the power level the device will operate at.

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9.2.21. TX ABOVE 1 GHz 802.11n HT40 CDD 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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AUTHORIZED BANDEDGE (HIGH CHANNEL)





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Complia	High ance Co	Frequency ertification	Measurem Services, Fr	emont.	3m Ch	amber										
Compan Project Date: Test En Configu Mode:	iy: N: gincer: ration:		Reendrom 12U14669 12/1/2012 M. McRuna EUT, Adapter 11o HT+1 3T3	Board A	Interna											
lest Eq	ulpmer	it:														
н	orn 1-	18GHz	Pre-at	nplifer	1-260	GHZ	Pre-am	plifer	26-40GH	z	Н	Ĩ	Limit			
173; 5	SIN: 671	7 @3m	- T144 M	liteq 30	08A005	931 -	788 BAit	eq 26-	40GHz	• T39	ARA 18-266	SHz; S/N:10	•	FCC 15.205		
TH Free	cable 2	oles 22807700	12' 0	able 2	28078	500	20' ca	ble 22	2807500	Π	HPF	Re	iect Filte	Peal	Measurements	
3.0	3' cable 22807700 12' cable 2280760					•	20° cab	da 228	07500 .		1			RB RBW=	ige Measurements 1MH2 , VBW=10H2	
f GH-	Dist (m)	Read Pk	Read Avg.	AF	CL dB	Amp	D Corr dR	Fltr	Peak dBaV/m	Avg dBaV/m	Pk Lim dBaV/m	Avg Lim dBaV/m	Pk Mar dR	Avg Mar dB	Notes (V/H)	
Low Cha	nuel (55	10 MHz)		0.0-10	1415				Martin 7/mg	01791/0	40.04110	Siden y Int	and	10	11.111	
1.020	3.0 3.0	49.6 49.5	38.1 39.3	38.4 38.4	10.5	-35.6 -35,6	0.0	0.0	62.8 62.7	51.4 52.5	74	54 54	413	-1,6 -1,5	H, q88 V, q88	
fül Chan	nal (555	0 MHz)	- 16.1	16.5	10.6	12.6				40.5			19.0	15	R	
1.100	3.0	49.2	37.9	38.5	10.6	-35.6	0.0	0.0	62.7	51.4	74	54	41.3	-25	V, q87	
ligh Cha	nnel (56	70 MHz)	1	1						1						
1.340	3.0 3.0	48.9	36.6 37.6	38.7 38.7	11.0	-35.6 .35.6	0.0	0.0 0.0	63.0 63.0	50.7 51.7	73 74	54 54	-31.0	33	H, 988 V, 988	
	1				-	-		-								
tee it to	90.1		_	_	_	_	_	_				_	_	_		
	f Dist	Measurem Distance to	ent Frequenc	ŕ		Amp D Corr	Preamp Distance	Gain	et to 3 mete			Avg Lim Pk Lim	Average f Peak Field	Field Strengt d Strength L	h Limit	
	Read	Analyzer R	eading			Avg	Average	Field	Strength 2	3 m		Avg Mar	Margin vs	Average L	imit	
	AF	Antenna Fi	actor			Peak	Calculate	d Pea	k Field Stre	ngth		Pk Mar	Margan vs	Peak Limit	1	
		Cable Law				HPF	High Pas	s Filter	F							

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9.2.22. TX ABOVE 1 GHz 802.11n HT40 BF 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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Compli	High ance Co	Frequency	Measurem Services, Fr	emont .	3m Ch	amber										
Compai Project Date: Test Ex Configu Mode:	ny: N: ngiaeer: ration:		Reendrom 12U14669 12 12 2012 D. Garsa EUT, Adapter 11o HT+0 3TX	Board A	ommig o	nede										
Test Eq	nipmer	10														
н	iom 1-	18GHz	Pre-ar	nplifer	1-260	SHE	Pre-am	plifer	26-40GH	z	Н	orn > 180	Hz	Ĩ	Limit	
173;	SIN: 671	7 @3m	- T144 M	liteq 30	084005	31 -	788 Mit	eq 26-	40GHz	• 139	ARA 18-264	GHz; SAL10	13	FCC 15:205		
3'	cable :	oles 22807700	12' 0	able 2	28076	00	20' ca	ble 23	2807500		HPF Reject			Filter Peak Measurements		
3.4	3' cable 22807700 . 12' cable 22807600 .					•	20° cab	la 228	07500 .	II.	-	· Aven RBW=	RBW=1MHz, VBW=3MHz Average Measurements RBW=1MHz, VBW=1.1kHz			
f Dist Read Pk Read Avg. AF CL A GHz (m) dBaV dBaV dBm dB				Amp	D Corr	Fltr	Peak	Avg	Pk Lim dBaV/m	Avg Lim	Pk Mar	Avg Mar	Notes			
Low Cha	mael (55	0 MHz)	012411	and a	ap	un	un	ab	Marta +/m	015-0-10	40.04 1 101	a.ou y m		40	(c/m	
1.020	3.0 3.0	49.2 32.3	37.8 40.1	38.4 38.4	10.5 10.5	-35.6 -35.6	0.0	0.0	62,4 45.6	51.1 53.4	74 74	54 54	-11.6 -28.4	-2.9 0,6	H, 988 V, 988	
lid Cha	unel (555	0 MHz)			10	1.00	1.000							-		
1.100	3,9	51.5	40.0	38.5	10.6	38.6	0.0	0.0	65.0	53.4	74	84	9.0	0.0	V. 986	
1.100	3.0	41.2	30.2	38.5	10.6	-35.0	30.0	0.0	6U.7	49.7	34	54	12.5	-43	H, 986	
lighCha	anel 156	0 MHz)														
11.340	3.0	47.4 18.1	36.8	38.7	11.0	-35.6	0.0	0.0	61.5	50.9	74	54 54	42.5	-3.1	V, 986 II, 986	
Rev () (935															
	f Dist Read AF CL	Measurem Distance to Analyzer R Antenna Fe Cable Loss	ent Frequenc; Antenna Jeading actor 8	Y		Amp D Corr Avg Peak HPF	Preamp Distance Average Calculate High Pas	Gain Corre Field 1 of Peat s Filter	et to 3 met Strength @ k Field Stre r	ers 3 m. ngth		Avg Lim Pk Lim Avg Mæ Pk Mæ	Average I Peak Field Margin vs Margin vs	ield Strengt I Strength L Average L Peak Limi	h Linni inut inut	

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9.2.23. TX ABOVE 1 GHz 802.11ac VHT80 1TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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Covered by testing AC80 CDD MCS0 3TX at the same power level.

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9.2.24. TX ABOVE 1 GHz 802.11ac VHT80 CDD 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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the	igineer: pation: quipmen forn 1- 5/N: 671	t: 18GHz 7 @3m	Pre-an	Board, A mode mplifer liteq 30	1-260	3Hz 931 -	Pre-am	plifer eq 26-	26-40GH 10GHz	z • 139	Hc ARA 18-250	orn > 11 iHz: S/N:	8 GHz 1013		•	Limit FCC 15.295
3' i	cable 2	2807700	12' c	able 2	28076 07600	500	20' cal	ble 22	807500		HPF		Reject Fil R_001	ter	Peak RB ¹ Avera	Measurements W=VBW+1MHz ge Measurements
f GHz	Dist (m)	Read Pk dBaV	Read Avg. dBuV	AF dB/m	CL dB	Amp	D Carr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Liny dBuV/m	Avg Li dBaV	m Pk Ma m dB	r Av	g Mar dB	Notes (V/H)
are Ch 1.060 1.060	annel (553 3,0 3,0	0 MBz) 50.1 52.5	38.3 39.7	38.4 38.4	10.6 10.6	-35.6 -35.6	0.0 0.0	0.0 0.9	63.5 65.5	61.1 53.1	74 74	54 54	.10.5 -5.2		-13 -0.9	H. q89 V, q89
igh Ch 1.380 1.380	annel (569 3.9 3.0	NO MH2) 50.8 49.8	38.1 37.0	38.7 38.7	11.0 11.9	-35.6 .35.6	0.0 6.0	0.0 0.0	65.0 64.0	52.3 51.2	74 74	54 54	-9,0 10,0		-1.7 -2.8	H, q90 V, q98
49 (L)	f Dist Read AF CL	Measureme Distance to Analyzer R Antenna Fa Cable Loss	nt Frequency Autenna earling actor	Y		Amp D Corr Avg Peak HPF	Preamp (Distance Average Calculate High Pas	Corre Corre Field S d Peal s Filter	of to 3 mete strength II & Field Stre	ngtu		Avg Lin Pk Lin Avg Mz Pk Mar	Avernge Peak Fi Margin Margin	Field eld So es. As rs. Pe	f Strength rength Li verage Li rak Limit	i Limie nie nie

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9.2.25. TX ABOVE 1 GHz 802.11ac VHT80 BF 3TX MODE, 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





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He Compliance	igh Frequency Certification	Measures Services, F	nent remont	3m Ch	amber										
Company: Project #: Dato: Cest Engined Configuratio Mode:	et: Bž	Breadcon 12U14869 12/13/2012 M. Mekuna EUT, Adapte 11o/HT89/BF	r Roard, J 3TX mod	Anderson le											
Fest Equipm	1.1804+	Pre-a	molifer	1.26	247	Pre-amplifer 26-40GHz				Hr	vn > 180	- Y	Limit		
T73; 5/1: 5	717 @Jm	- T144	Mitteg 36	ORADO	931 .	TES Min	leq 26-	40GHz	• 139	T39; ARA 18-26GHz; S/N-1013			+	FCC 15.205 +	
3' cable	e 22807700	12'	able 2	2807	500	20 ⁺ ca	ble 22	2807500	1	HPF	Reject Filt		r Peal	k Measurements 3W=VBW=1MHz	
3' cable	. 12 cable 22807600				20' cable 22807500 +			l)		• R	001	· Avera	ge Measurements 1MHz / VBW=10Hz		
f Di GHz (m	st Read Pic i) dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBaV/m	Atg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Ph Mar dB	Avg Mar dB	Notes (V/H)	
Low Channel (1,060 3) 1,060 3)	5530 MHz) 0 49.1 0 53.1	34.7 38.3	38.4 38.4	10.6 10.6	-35,6 -35,6	0.0 0.0	0.0 0.0	62.4 66.4	48.1 51.7	74 74	54 54	-11.6 -7.6	4.9 23	H, q\$\$ V, q\$8	
ligh Chanael (1.380 3. 1.380 3.	5690 MBz) 0 53.2 0 52.6	35.8 58.1	38.7 38.7	11.0 11.0	-35.6	0.0 0.0	6.0 0.0	67.4 66.8	50.0 52.3	74 74	54 54	-6.6	-4.8 -1.7	H,q90 V,g90	
iev () ().11	Measurem	ent Fromen			Ann	Pression	Garr				Avelien	Average	Field Strengt	h I imir	
Dist Rea AF CL	Distance to ad Analyzer R Antenna Fr Cable Lote	Antenna eading actor	4		D Corr Avg Peak HPF	Distance Average Calculate High Pas	Corre Field 1 ed Peal as Fiber	ct to 3 metr Strength @ k Field Stre	an 3 m angth		Pk Lim Avg Mar Pk Mar	Peak Fiel Margin vi Margin vi	d Sovength L Average L S. Peak Limit	end imit	