

FCC 47 CFR PART 15 SUBPART C INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

Tablet with IEEE 802.11a/b/g/n (MIMO 2x2) and Bluetooth radio

MODEL NUMBER: A1474

FCC ID: BCGA1474 IC: 579C-A1474

REPORT NUMBER: 13U15555-3

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Prepared for APPLE, INC. 1 INFINITE LOOP CUPERTINO, CA 95014, U.S.A.

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1. ATTESTATION OF TEST RESULTS

	APPLICABLE STANDARDS	
DATE TESTED:	JULY 17 – AUGUST 30, 2013	
SERIAL NUMBER:	DLXKW04QFMN4 (Radiated), DLXKW02NFMN6 (Conducted)	
MODEL:	A1474	
EUT DESCRIPTION:	Tablet with IEEE 802.11a/b/g/n (MIMO 2x2) and Bluetooth radio	
COMPANY NAME:	APPLE, INC. 1 INFINITE LOOP CUPERTINO, CA 95014, U.S.A.	

APPLICABLE STANDARDS				
STANDARD	TEST RESULTS			
CFR 47 Part 15 Subpart C	Pass			
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	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.

Approved & Released For UL Verification Services Inc. By:

Tested By:

Thu Chan WiSE Operations Manager UL Verification Services Inc.

Oliver Su WiSE 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, 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.

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
Chamber A	Chamber D
Chamber B	🖂 Chamber E
Chamber C	🖂 Chamber F

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

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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

Tablet with IEEE 802.11a/b/g/n (MIMO 2x2) and Bluetooth radio

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b	18.69	73.96
2413 - 2472	802.11g	24.32	270.40
2414 - 2472	802.11n HT20 CDD 2TX	26.81	479.73
5745 - 5825	802.11a	24.11	257.63
5745 - 5825	802.11n HT20 CDD 2TX	27.13	516.42
5755 - 5795	802.11n HT40 SISO	24.42	276.69
5755 - 5795	802.11n HT40 CDD 2TX	27.50	562.34

List of test reduction and modes covering other modes:

Frequency Range (MHz)	Mode	Covered by	
2.4 GHz band			
2412 - 2472	802.11g 2TX CDD	802.11n HT20 CDD 2TX	
2412 - 2472	802.11n SISO	802.11g SISO	
2412 - 2472	802.11n HT20 2TX STBC	802.11n HT20 CDD 2TX	
2412 - 2472	802.11n HT20 2TX SDM	802.11n HT20 CDD 2TX	
5.8 GHz band			
5745 - 5825	802.11a 2TX CDD	802.11n HT20 CDD 2TX	
5745 - 5825	802.11n SISO	802.11a SISO	
5745 - 5825	802.11n HT20 2TX STBC	802.11n HT20 CDD 2TX	
5745 - 5825	802.11n HT20 2TX SDM	802.11n HT20 CDD 2TX	
5745 - 5825	802.11n HT40 2TX STBC	802.11n HT40 CDD 2TX	
5745 - 5825	802.11n HT40 2TX SDM	802.11n HT40 CDD 2TX	

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band	Antenna Gain		Uncorrelated Gain	
(GHz)	Tx1	Tx2	Sheorrelated Gam	
2.4	0.50	1.99	1.31	
5.2	2.37	2.07	2.22	
5.3	2.60	2.11	2.36	
5.5	3.66	3.99	3.83	
5.8	4.21	3.92	4.07	

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5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was Broadcom WL Tool Version 6.25.86.

5.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z, with AC Adapter and Headset, it was determined that X orientation without AC Adapter and Headset was the worst-case orientation for 2.4GHz band, and Z orientation was the worst-case orientation for 5.8 GHz band; therefore, all final radiated testing was performed with the EUT in X orientation for 2.4GHz band, and Z orientation for 5.8 GHz band.

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps 802.11g mode: 6 Mbps 802.11a mode: 6 Mbps 802.11n HT20mode: MCS0 802.11n HT40mode: MCS0

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was including headset, AC charger and the mode and channel with the highest output power.

For all modes with single chain, chain 0 was selected per the software provided by the client. Based on the client a preliminary investigation was performed on the two chains and chain 0 was found to be worst-case for the antenna port. The radiated emissions test was based on the port with the higher antenna gain.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List						
Description	Manufacturer	Model	Serial Number	FCC ID		
AC/DC adapter	Apple	A1401	60812	DoC		
Earphone	Apple	NA	NA	NA		

I/O CABLES (CONDUCTED TEST)

	I/O Cable List										
Cable	Port	# of identical	Connector	Cable Type	Cable	Remarks					
No		ports	Туре		Length (m)						
1	Antenna	1	SMA	Un-Shielded	0.1m	To Spectrum Analyzer					

I/O CABLES (RADIATED TEST)

	I/O Cable List										
Cable	Port	# of identical	Connector	Cable Type	Cable	Remarks					
No		ports	Туре		Length (m)						
1	Audio	1	Jack	Un-Shielded	0.5m	NA					

I/O CABLES (AC POWER CONDUCTED TEST)

	I/O Cable List										
Cable	Port	# of identical	Connector	Cable Type	Cable	Remarks					
No		ports	Туре		Length (m)						
1	AC	1	US115	Un-Shielded	2m	NA					
2	DC	1	USB	Un-Shielded	2m	NA					
3	Audio	1	Jack	Un-Shielded	0.5m	NA					

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SETUP DIAGRAM FOR CONDUCTED TESTS



SETUP DIAGRAM FOR RADIATED TESTS



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SETUP DIAGRAM FOR BELOW 1GHz & AC POWER CONDUCTED TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

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

	Test Equipment	List		
Description	Manufacturer	Model	Asset	Cal Due
Horn Antenna 1-18GHz	ETS Lindgren	3117	F00131	02/19/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/14
Antenna, Horn, 26.5 GHz	ARA	SWH-28	C01015	05/06/14
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	F00027	03/07/14
Peak / Average Power Sensor	Agilent / HP	E9323A	F00163	04/03/14
P-Series single channel Power Meter	Agilent / HP	N1911A	F00164	04/03/14
Spectrum Analyzer, 3Hz-44GHz	Agilent	N9030A	F00127	02/22/14
Spectrum Analyzer, 3Hz-44GHz	Agilent	E4446A	C01012	10/21/13
PreApmplifier, 1-26.5GHz	Agilent	8449B	C01052	10/22/13
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	F00194	05/14/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/15/14
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/20/14

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7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time	Period	Duty Cycle	Duty	Duty Cycle	1/T
	В		x	Cycle	Correction Factor	Minimum VBW
	(msec)	(msec)	(linear)	(%)	(dB)	(kHz)
2.4 GHz						-
802.11b	8.42	8.46	0.995	99.5%	0.00	0.010
802.11g	2.063	2.094	0.985	98.5%	0.00	0.010
802.11n HT20	2.06	2.09	0.986	98.6%	0.00	0.010
5.0 GHz						
802.11a	2.06	2.09	0.987	98.7%	0.00	0.010
802.11n HT20 CDD	2.06	2.10	0.983	98.3%	0.00	0.010
802.11n HT40 SISO	0.93	0.95	0.982	98.2%	0.00	0.010
802.11n HT40 CDD	0.93	0.95	0.984	98.4%	0.00	0.010

7.2. MEASUREMENT METHODS

<u>6 dB BW</u>: KDB 558074 D01.

Output Power: KDB 558074 D01.

Power Spectral Density: KDB 558074 D01.

Out-of-band emissions in non-restricted bands: KDB 558074 D01.

Out-of-band emissions in restricted bands: KDB 558074 D01.

7.3. DUTY CYCLE PLOTS

2.4 GHz Band

enter F	req 2,437000	PHO: Fast	Trig Free Run	Avg Type: Log-Per	TRACE 11 2 3 4 3 5 TSPE BARRIER I	Frequency
v altida o	Ref Offset 6.4 d Ref 26.40 dB	B		Δ.	/kr3 8.460 ms -0.58 dB	Auto Tune
08 16.4					3.04	Center Free 2.437000000 GH
1.6 1.6 0.6						Start Fre 2 43700000 GH
18 15						Stop Free 2.437000000 GH
enter 2. es BW 1	437000000 GH MHz	z NVBW	50 MHz	Sweep 10	Span 0 Hz .00 ms (1001 pts)	CF Ster 8.000000 MH Auto Mar
1 Δ2 1 μ 2 μ 4 μ 5 6 7 8 9 0 1		8,420 ms (Δ) 410.0 us (Δ) 8,460 ms (Δ) 410.0 us	0.58 dB 19.70 dBm 0.56 dB 19.70 dBm			Freq Offse 0 H

Avg Type Leg Per Rect 2 1 1 2 1 2 2 2 2 4 4 4 4 17, 2013	Frequency
AMkr3 2.094 ms -0.42 dB	Auto Tun
Hann and an and a state of the second sec	Center Fre 2.437000000 GH
	Start Fre 2.437000000 GH
	Stop Fre 2.43700000 GH
Span 0 Hz #VBW 50 MHz Sweep 3.467 ms (1001 pts)	CF Stej 8.000000 MH Auto Ma
63 ms (Δ) 1,22 dB 63 ms (Δ) 17,69 dBm 94 ms (Δ) - 40,42 dB 8.3 μs 17,69 dBm	Freq Offse 0 H

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enter F	req	2.43700	00000 GHz	Fost -	Trig: Free Run	Avg Type: Log-Pwr	07:30-00 MM M 17, 2013 TRACE 2 5 4 5 6 TYPE Weiweiweiwei	Frequency
a delativ	Re	Offset 6.4	FGa 1 dB 9Bm	intow	#Atten: 30 dB	۵	Mkr3 2.091 ms 0.08 dB	Auto Turk
	~ 3		anerstan of		and the second	estress a freeze a	344 and aroundary	Center Free 2.437000000 GH
18 18 18								Start Free 2.437000000 GH
16 16	¥							Stop Free 2.437000000 GH
enter 2. es BW	4370 8 MH	00000 G z	Hz	#VBW	50 MHz	Sweep 2	Span 0 Hz 933 ms (1001 pts)	CF Step 8.000000 MH
1 Δ2 2 F Δ4 4 F 6 7 8 9 0 1 2		വ പ്ര വ്ര	2.063 284 2.091 297	(ms (Δ) 5 με (Δ) ms (Δ) 5 με	1.05 dB 17.87 dBm 0.08 dB 17.87 dBm		PCALTOS VALUE	Auto Mer Freq Offse 0 H

5.8GHz Band

Ref 30 dBi #Peak	n	#Atten 30	dB				2 2.0 -0.7	9 ms 4 dB	Center Fre 5.78500000 Gł
Log 10 10 — dB/ —			1000-00-00-00-00-00-00-00-00-00-00-00-00	estelling of the state		post trade	*******		Start Fre 5.78500000 GH
Offst 10.7 dB									Stop Fre 5.78500000 GH
#PAvg									CF Si 8.00000000 Mi <u>Auto</u>
Center 5.7 Res BW 8	85 000 GI MHz	Hz	#VBW	50 MHz	Sweep 2	533 ms	Spa : (1001	n 0 Hz nts)	Freq Offse
Marker 1R 1∆ 2R 2∆	Trace (1) (1) (1) (1) (1)	Type Time Time Time Time		X Axis 207.7 μs 2.062 ms 210.3 μs 2.09 ms		:	Amplitu 20.63 dB -0.96 dI 20.64 dB -0.74 dI	de m 3 m 3	0.00000000 ⊢ Signal Trad

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		· · ·					ΔMł	(r2 2.09	5 m s		
Ref 30 dB	m	#Atten 3	0 dB					-0.70	D dB	Center I	Freq
#Peak	ward Salaria	or tables	Automation	and the second	Uniarial			and the set of the set	×	5.78500000	JGHZ
	2.8								- 2	Chart	
										518f1 F	-req
)ffst										3.70300000	i GHz
0.7										_	
IB										Stop	Freq
	i									5.78500000) GHz
											Oter
- H		_									Step
¢PAva —										8.00000000	JMHZ
Ľ										<u></u>	1914
Center 5.7	85 000 GH	z						Spa	n 0 Hz	Fred O	ffset
Res BW 8	MHz		#V	BW 50 I	//Hz	Sweep	2.533 m	ns (1001	pts)	0.0000000	0 Hz
Marker	Trace	Туре		×	Axis			Amplitu	de		
1R 14	(1)	Time		28	31.2 μs 2.06 mc			21.55 dB	m		
2R	(1)	Time		28				21.55 dB	m	Signal I	rack
2 <u>∆</u>	(1)	Time		2.	095 ms			-0.70 dE	.	On	<u>0#</u>



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,,, ,,g.,		1 109 20, 20				ΔMk	r2 947	.6 μs		
Ref 30 dBi #Peak	m	#Atten 30	dB				0.1	25 dB	5.755000	DO GHz
Log PAN 10	6197-84-18-4818-48		and the second	and a start of the start of the	alle alle di	and the second	Quintertyle	a stand	Star	t Erea
dB/									5.755000	DO GHz
11.4										
dB									5.755000	p⊢req 00 GHz
		· · · ·					p I			`E Sten
#PAva									8.000000	DO MHZ
Center 5.7	55 000 GH	7					Sna	D 0 Hz	Auto	Iviar
Res BW 8	MHz	2	#VBW 50	MHz	Sweep	1.533 m	is (1001	pts)	Freq	Offset
Marker	Trace	Туре	,	< Axis			Amplite	Jde	0.000000	00 112
1R 10	(1)	Time	2	89.8 μs 132 3 μs			12.77 dE	am	~	
2R	(1)	Time	2	89.8 µs			12.77 dE	9m	Signal	I I rack
2∆	(1)	Time	9	47.6 μs			0.25 c	18	Un	<u>U1</u>

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8. ANTENNA PORT TEST RESULTS

8.1. 802.11b MODE IN THE 2.4GHz BAND

8.1.1. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
1	2412	9.091	0.5
6	2437	9.077	0.5
11	2462	9.077	0.5
12	2467	9.093	0.5
13	2472	9.100	0.5

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6 dB BANDWIDTH





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6 dB l	BANDWI	OTH CH	H 13				
🔆 Agi	lent 11:28:18 /	Aug 26, 201	3			RT	Freq/Channel
Ref 10.9 #Peak	dBm #	≄Atten 10 d	B	rnn	∆ Mkr2	9.100 MHz 0.19 dB	Center Freq 2.47200000 GHz
Log 10 dB/							Start Freq 2.46517500 GHz
dB							Stop Freq 2.47882500 GHz
DI -0.2 dBm							CF Step
#PA∨g							Auto Man
Center 2 #Res BV	2.472 000 GHz N 100 kHz		#VBW 300 kHz	Swe	Span ep 1.32 ms	13.65 MHz (601 pts)	Freq Offset
Marker 1 2R 2A	Trace (1) (1) (1)	Type Freq Freq Freq	X Axis 2.472 500 GH; 2.467 450 GH; 9 100 MH	:	A 5 -0.	mplitude .79 dBm 95 dBm 0 19 dB	Signal Track
	~~						On <u>Off</u>
Copyrigh	nt 2000-2010 Ag	ilent Techn	ologies				<u> </u>]

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8.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
1	2412	11.0593
6	2437	11.2562
11	2462	11.1304
12	2467	11.2848
13	2472	11.1782

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99% BANDWIDTH





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8.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency	Power	
	(MHz)	(dBm)	
1	2412	15.50	
6	2437	15.50	
11	2462	15.50	
12	2467	15.00	
13	2472	14.00	

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8.1.4. OUTPUT POWER

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

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

<u>RESULTS</u>

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
1	2412	1.99	30.00	30	36	30.00
6	2437	1.99	30.00	30	36	30.00
11	2462	1.99	30.00	30	36	30.00
12	2467	1.99	30.00	30	36	30.00
13	2472	1.99	30.00	30	36	30.00

Results

Channel	Frequency	Meas	Total	Power	Margin
		Power	Corr'd	Limit	
			Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	18.69	18.69	30.00	-11.31
6	2437	18.10	18.10	30.00	-11.90
11	2462	18.04	18.04	30.00	-11.96
12	2467	18.01	18.01	30.00	-11.99
13	2472	16.86	16.86	30.00	-13.14

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OUTPUT POWER





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8.1.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency	Meas	Limit	Margin
		PSD		
	(MHz)	(dBm)	(dBm)	(dB)
1	2412	-6.02	8.0	-14.0
6	2437	-6.64	8.0	-14.6
11	2462	-6.78	8.0	-14.8
12	2467	-6.17	8.0	-14.2
13	2472	-7.70	8.0	-15.7

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PSD, Chain 0





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8.1.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the inband reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

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RESULTS

IN-BAND REFERENCE LEVEL



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LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



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OUT-OF-BAND EMISSIONS





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Ref 30 dBi	m	#Δtten 30 d	В		Mkr	3 24.92	2 GHz	Center Freq
Peak						-10.110		13.0150000 GHz
.og	1 0							Start Freq 30.000000 MHz
0.5 B			2				3	Stop Freq 26.000000 GHz
12.8 IBm		- man	mar and a second					CF Ste 2.59700000 GHz
								<u>Auto Ma</u>
Start 30 M Res BW	Hz 100 kHz		#VBW 300 kHz	Swee	Sto p 2.482 :	p 26.00 s (2001	0GHz^ pts)	Freq Offset
Marker	Trace	Туре	X Axis		•	Amplit	Jde	0.00000000 Hz
1	(1)	Freq	2.458 GHz			5.70 dE) m	
3	(1)	Freq	13.314 GHz 24.922 GHz			-42.70 dB -40.19 dB	'm 'm	Signal Track On <u>O</u>

OUT OF BAND CH12 (REFERENCE LEVEL)



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HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS



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OUT OF BAND CH13 (REFERENCE LEVEL)



HIGH CHANNEL BANDEDGE



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OUT-OF-BAND EMISSIONS



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8.2. 802.11g MODE IN THE 2.4GHz BAND

8.2.1. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
1	2412	15.392	0.5
6	2437	15.485	0.5
11	2462	15.415	0.5
12	2467	15.600	0.5
13	2472	15.500	0.5

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6 dB BANDWIDTH





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8.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
1	2412	16.4093
6	2437	16.4507
11	2462	16.4141
12	2467	16.3570
13	2472	16.4600

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99% BANDWIDTH





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8.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency	Power
	(MHz)	(dBm)
1	2412	15.50
6	2437	15.50
11	2462	15.00
12	2467	10.96
13	2472	3.45

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8.2.4. OUTPUT POWER

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

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

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RESULTS

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
1	2412	1.99	30.00	30	36	30.00
6	2437	1.99	30.00	30	36	30.00
11	2462	1.99	30.00	30	36	30.00
12	2467	1.99	30.00	30	36	30.00
13	2472	1.99	30.00	30	36	30.00

Results

Channel	Frequency	Meas	Total	Power	Margin
		Power	Corr'd	Limit	
			Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	24.32	24.32	30.00	-5.68
6	2437	24.01	24.01	30.00	-5.99
11	2462	23.47	23.47	30.00	-6.53
12	2467	19.40	19.40	30.00	-10.60
13	2472	12.02	12.02	30.00	-17.98

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OUTPUT POWER





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8.2.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency	Meas	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
1	2412	-8.49	8.0	-16.5
6	2437	-8.47	8.0	-16.5
11	2462	-8.15	8.0	-16.2
12	2467	-13.40	8.0	-21.4
13	2472	-19.85	8.0	-27.9

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PSD





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8.2.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the inband reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

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RESULTS

IN-BAND REFERENCE LEVEL



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LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



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OUT-OF-BAND EMISSIONS





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OUT OF BAND CH11



OUT OF BAND CH12 (REFERENCE LEVEL)



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OUT-OF-BAND EMISSIONS





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OUT OF BAND CH13 (REFERENCE LEVEL)



OUT-OF-BAND EMISSIONS



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AL.	14 1410	PNO: Fast	Trig Free Run	Mvg Type: RMS	11-40:30 AM Aug 25, 2012 WACE 1 2, 3 4 5 5 Trifle 21 Walker- DCT P Information	Marker
0 dB/div	Ref Offset 10 Ref 20.00	19 dB dBm	Profession of the	M	kr2 25.481 GHz -38.33 dBm	Select Marker 2
0.0						Norma
0.0 0.0 0.0			10.000	2		Delt
0.0 0.0 70.0	- June (1940)	ng ga far ha far an				Fixed
Res BW 1	Hz 100 kHz	#VBV	/ 300 kHz	Sweep	Stop 26.00 GHz 2.48 s (1001 pts)	or
1 N 1 2 N 1 3 4 5 5	Î	20.338 GHz 25.481 GHz	-39.18 dBm -38.33 dBm			Properties
7 8 9 10						Mon t of:

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8.3. 802.11n HT20 2TX CDD MODE IN THE 2.4GHz BAND

8.3.1. 6 dB BANDWIDTH

<u>LIMITS</u>

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
1	2412	15.460	16.640	0.5
6	2437	15.470	16.970	0.5
11	2462	15.352	15.820	0.5
12	2462	17.350	15.750	0.5
13	2472	16.025	16.575	0.5

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6 dB BANDWIDTH, Chain 0





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6 dB BANDWIDTH, Chain 0





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6 dB BANDWIDTH, Chain 1





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6 dB BANDWIDTH, Chain 1



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8.3.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	99% BW	99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
1	2412	17.5582	17.6115
6	2437	17.6474	17.6579
11	2462	17.6379	17.6178
12	2467	17.6340	17.5980
13	2472	17.6790	17.6110

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH, Chain 1





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8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency	Chain 0	Chain 1	Total
		Power	Power	Power
	(MHz)	(dBm)	(dBm)	(dBm)
1	2412	14.50	14.40	17.46
6	2437	15.50	15.30	18.41
11	2462	14.00	13.89	16.96
12	2467	9.50	9.40	12.46
13	2472	2.00	2.00	5.01

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8.3.4. OUTPUT POWER

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

Chain 0	Chain 1	Uncorrelated Chains
Antenna	Antenna	Directional
Gain	Gain	Gain
(dBi)	(dBi)	(dBi)
0.50	1.99	1.31

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RESULTS

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
1	2412	1.31	30.00	30	36	30.00
6	2437	1.31	30.00	30	36	30.00
11	2462	1.31	30.00	30	36	30.00
12	2467	1.31	30.00	30	36	30.00
13	2472	1.31	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Chain 1	Total	Power	Margi
		Meas	Meas	Corr'd	Limit	
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	23.22	23.18	26.21	30.00	-3.79
6	2437	24.01	23.58	26.81	30.00	-3.19
11	2462	22.91	21.92	25.45	30.00	-4.55
12	2467	20.68	19.10	22.97	30.00	-7.03
13	2472	9.77	9.84	12.82	30.00	-17.18

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OUTPUT POWER, Chain 0





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OUTPUT POWER, Chain 1





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8.3.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency	Chain 0	Chain 1	Total	Limit	Margin
		Meas	Meas	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
1	2412	-8.14	-8.29	-5.20	8.0	-13.2
6	2437	-8.52	-7.78	-5.12	8.0	-13.1
11	2462	-9.62	-9.48	-6.54	8.0	-14.5
12	2467	-13.47	-13.45	-10.45	8.0	-18.4
13	2472	-21.74	-21.66	-18.69	8.0	-26.7

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PSD, Chain 0





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PSD, Chain 1





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8.3.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the inband reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

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RESULTS

IN-BAND REFERENCE LEVEL, Chain 0



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LOW CHANNEL BANDEDGE, Chain 0



HIGH CHANNEL BANDEDGE, Chain 0



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OUT-OF-BAND EMISSIONS, Chain 0





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Ref30dBn #Peak	n	#Atten 30 d	IB		Mkr	4 24.87 -40.15	0 GHz dBm	Center Freq 13.0150000 GHz
Log 10 dB/								Start Freq 30.000000 MHz
10.5 dB							A	Stop Freq 26.000000 GHz
-14.4 dBm		2 		-		and the second	×	CF Step
#PAvg —								Auto <u>Ma</u>
Start 30 MH #Res BW 1/	lz 00 kHz		#VBW 300 kHz	Swee	Sto p 2.482 :	p 26.00 s (2001	0 GHz pts)	Freq Offset
Marker 1 2 3 4	Trace (1) (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Axis 2.458 GHz 6.782 GHz 13.521 GHz 24.870 GHz			Amplitu 0.86 dE -44.38 dB -42.03 dB -40.15 dB	ude Om Im Im	Signal Track

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IN-BAND REFERENCE LEVEL, Chain 1



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LOW CHANNEL BANDEDGE, Chain 1



HIGH CHANNEL BANDEDGE, Chain 1



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🔆 Agilen	f 16:34:04	Jul 31, 2013			F	<u>к</u> т	Freq/Channel
Ref 30 dBi #Peak	m	#Atten 30 d	B		Mkr4 25.06 -39.90	5 GHz dBm	Center Freq 13.0150000 GHz
Log 10 dB/ Offst	¢						Start Freq 30.000000 MHz
10.5 dB						4	Stop Freq 26.000000 GHz
-14.3 dBm #PAvg	with the state of			•		~~ <u>×</u>	CF Step 2.59700000 GHz <u>Auto Ma</u> i
Start 30 M	Hz				Stop 26.00	0 GHz	Freg Offset
#Res BW ′	100 kHz		#VBW 300 kHz	Sweep 2.4	182 s (2001	pts)	0.00000000 Hz
Manker 1 2 3 4	Trace (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Axis 2.419 GHz 6.834 GHz 14.080 GHz 25.085 GHz		Amplitu 2.11 dE -43.73 dB -42.47 dB -39.90 dB	ude Im Im Im	Signal Track On <u>Off</u>
	~~				40		



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tef 30 dBi Peak	m	#Atten 30 dl	B	MI	Gr4 25.078 GHz -39.71 dBm	Center Freq 13.0150000 GHz
.og 0 B/)ffst						Start Freq 30.0000000 MHz
0.5 B		2	3		4	Stop Fred 26.000000 GHz
14.3 IBm PAvg			and and and a second			CF Ste 2.59700000 GHz <u>Auto M</u>
itart 30 M	Hz 100 kHz		#VBW 300 kHz	Sween 2 482	top 26.000 GHz 2 s (2001 pts)	Freq Offset
Marker 1 2 3 4	Trace (1) (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Axis 2.458 GHz 6.834 GHz 13.456 GHz 26.078 GHz	50000 2.40	Amplitude 1.12 dBm -44.22 dBm -41.77 dBm -39.71 dBm	0.00000000 Hz Signal Track On <u>C</u>



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8.4. 802.11a MODE IN THE 5.8 GHz BAND

8.4.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	5745	15.460	0.5
Mid	5785	15.810	0.5
High	5825	15.420	0.5

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6 dB BANDWIDTH





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8.4.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel Frequence		99% Bandwidth
	(MHz)	(MHz)
Low	5745	16.4005
Mid	5785	16.4004
High	5825	16.4061

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99% BANDWIDTH





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8.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5745	16.00
Mid	5785	16.00
High	5825	16.00

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8.4.4. OUTPUT POWER

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

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

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RESULTS

Limits

Channel	Frequency	Directional	FCC	IC	IC	Max
		Gain	Power	Power	EIRP	Power
			Limit	Limit	Limit	
	(MHz)	(dBi)	(dBm)	(dBm)	(dBm)	(dBm)
Low	5745	4.21	30.00	30	36	30.00
Mid	5785	4.21	30.00	30	36	30.00
High	5825	4.21	30.00	30	36	30.00

Results

Channel	Frequency	Chain 0	Total	Power	Margin
		Meas	Corr'd	Limit	
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5745	24.11	24.11	30.00	-5.89
Mid	5785	23.88	23.88	30.00	-6.12
High	5825	24.10	24.10	30.00	-5.90

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OUTPUT POWER





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8.4.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

PSD Results

Channel	Frequency	Meas	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	5745	-7.53	8.0	-15.5
Mid	5785	-8.47	8.0	-16.5
High	5825	-8.17	8.0	-16.2

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<u>PSD</u>





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8.4.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the inband reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

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RESULTS

IN-BAND REFERENCE LEVEL



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LOW CHANNEL BANDEDGE



HIGH CHANNEL BANDEDGE



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OUT-OF-BAND EMISSIONS





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			-	м	kr4 7.717 GHz	
Ref 10.7 d ≇Peak	Bm	#Atten 10	dB		-55.28 dBm	Center Freq 13.0150000 GHz
Log 10 dB/ Offst						Start Freq 30.000000 MHz
10.7 1B	2	\$				Stop Freq 26.000000 GHz
13.8 1Bm ≠PA∨g —	Alexandre and		منها المحمد ومالي المحمد ومحمد المحمد			CF Step 2.59700000 GHz <u>Auto Ma</u>
Start 30 M	Hz Ioo kHz		#\/P\W 200 LU-	Steen 2 492	op 26.000 GHz	Freq Offset
Marker 1 2 3 4	Trace (1) (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Axis 5.795 GHz 3.881 GHz 5.575 GHz 7.717 GHz	<u>Sweep 2.462</u>	Amplitude 3.13 dBm -48.85 dBm -53.28 dBm -55.28 dBm	0.00000000 Hz Signal Track On <u>Off</u>
Demonialist C		gilant Taabu				



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		<u> </u>			Mkr4 7.769 GHz	
Ref10.7 d ÿPeak [Bm	#Atten 10	dB		-55.10 dBm	13.0150000 GHz
Log 10 dB/						Start Freq 30.0000000 MHz
Offst 10.7 1B 01		[™] 4				Stop Freq 26.000000 GHz
13.8 IBm ≠PA∨g —	List and the second	11 mil	A second second second	*****		CF Ste 2.59700000 GHz <u>Auto Ma</u>
Start 30 M ∉Res BW ′	Hz 100 kHz		#VBW 300 kHz	Sweep 2.48	Stop 26.000 GHz 2 s (2001 pts)	Freq Offset
Marker 1 2 3 4	Trace (1) (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Axis 5.821 GHz 3.887 GHz 5.627 GHz 7.769 GHz		Amplitude 1.75 dBm -48.29 dBm -53.76 dBm -55.10 dBm	Signal Track



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8.5. 802.11n HT20 2TX CDD MODE IN THE 5.8 GHz BAND

8.5.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Chain 0	Chain 1	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5745	15.340	16.360	0.5
Mid	5785	15.530	16.278	0.5
High	5825	15.530	15.810	0.5

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6 dB BANDWIDTH, Chain 0





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6 dB BANDWIDTH, Chain 1



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8.5.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Channel Frequency		99% BW
		Chain 0	Chain 1
	(MHz)	(MHz)	(MHz)
Low	5745	17.5796	17.5951
Mid	5785	17.5896	17.6070
High	5825	17.5781	17.5932

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99% BANDWIDTH, Chain 0





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99% BANDWIDTH Chain 0 HIGH CH Agilent 15:19:10 Aug 1, 2013 R T	Freq/Channel
Ch Freq 5.825 GHz Trig Free Occupied Bandwidth Averages: 100	Center Freq 5.82500000 GHz
	Start Freq 5.80500000 GHz
Ref 20 dBm #Atten 20 dB #Samp Log 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Stop Freq 5.84500000 GHz
dB/ Offst 10.7 B	CF Step 4.0000000 MHz <u>Auto Ma</u>
Center 5.825 00 GHz Span 40 MHz #Res BW 300 kHz #VBW 910 kHz Sweep 20 ms (1001 pts)	Freq Offset 0.00000000 Hz
Occupied Bandwidth Occ BW % Pwr 99.00 % 17.5781 MHz × dB -26.00 dB	Signal Track On <u>Off</u>
Transmit Freq Error -37.525 kHz x dB Bandwidth 18.927 MHz* Copyright 2000-2010 Agilent Technologies	

99% BANDWIDTH, Chain 1



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