PSD, CHAIN 0





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PSD, CHAIN 1



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PSD, CHAIN 2





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8.44. 802.11ac VHT20 3Tx BEAM FORMING STRADDLE CHANNEL 144 RESULTS (FCC)

8.44.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		26 dB	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
144	5720	16.08	10.68	10.68	18.38	6.32

Duty Cycle CF (dB) 0.69	Included in Calculations of Corr'd Power & PSD
-------------------------	--

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)
144	5720	8.09	8.22	8.23	13.64	18.38	-4.74

PSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PSD	PSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	-2.677	-2.171	-2.152	3.13	6.32	-3.19

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enter Fr	RF 50 Ω DC req 5.720000000) GHz PNO: Fast ← IFGain:Low	SENSE:INT → Trig: Free Run Atten: 26 dB	ALIGN AUTO #Avg Type: RMS Avg Hold: 100/100	10:04:26 PM Sep 16, 2016 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N	Frequency
0 dB/div	Ref Offset 15.7 dB Ref 30.00 dBm			Mki Band Po	r1 5.716 93 GHz wer 8.093 dBm	Auto Tune
20.0						Center Freq
0.0			- 1			5.720000000 GHz
.00			\			
0.0						Start Freq
0.0						5.695000000 GHz
0.0		<u> </u>				01-1 F
0.0						5.745000000 GHz
tart 5.69 Res BW	500 GHz 1.0 MHz	#VB	W 3.0 MHz*	Sweep 2	Stop 5.74500 GHz 20.00 ms (1001 pts)	CF Step 5.000000 MHz <u>Auto</u> Mar
1 N 1 2 3	f 5.	716 93 GHz	-3.074 dBm	Band Power 16.14 MHz	8.093 dB	Freg Offset
4 5 6					E	0 Hz
8						

OUTPUT POWER, CHAIN 1



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PSD, CHAIN 0



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PSD, CH 144 UNII 2C APv5.2(090116).50820. Chi L RF 50 Ω DC L Center Freq 5.720000000 GHz PN0: Fast →→ IFGain:Low Atten: 26 dB #Avg Type: RMS Avg|Hold: 100/100 Frequency DET A N N N N Auto Tune Mkr2 5.721 45 GHz Ref Offset 15.7 dB Ref 30.00 dBm I0 dB/div -2.171 dBm **Center Freq** 5.720000000 GHz Start Freq 5.695000000 GHz Stop Freq 5.745000000 GHz CF Step 5.000000 MHz Auto Mar Freq Offset 0 Hz Start 5.69500 GHz Stop 5.74500 GHz #VBW 3.0 MHz* #Res BW 1.0 MHz Sweep 1.000 ms (1001 pts) STATUS

PSD, CHAIN 2



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Directional	Power	PSD
		26 dB	Gain	Gain	Limit	Limit
		BW	For Power	For PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
144	5720	6.08	10.68	10.68	25.32	25.32

Duty Cycle CF (dB)	0.69	Included in Calculations of Corr'd Power & PSD
--------------------	------	--

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)
144	5720	2.88	3.06	3.06	8.46	25.32	-16.86

PSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PSD	PSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	-5.59	-5.11	4.87	6.31	25.32	-19.01

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OUTPUT POWER, CHAIN 1



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PSD, CHAIN 0



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PSD, CHAIN 1



PSD, CHAIN 2



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8.45. 802.11ac VHT20 3Tx BEAM FORMING STRADDLE CHANNEL 144 **RESULTS (IC)**

8.45.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		99%	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
144	5720	13.850	10.68	10.68	17.73	6.32

Duty Cycle CF (dB) 0	.69	Included in Calculations of Corr'd Power & PSD
----------------------	-----	--

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)
144	5720	8.04	8.16	8.17	13.59	17.73	-4.15

PSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PSD	PSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	-2.68	-2.17	-2.15	3.13	6.32	-3.19



OUTPUT POWER, CHAIN 1



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PSD, CHAIN 0



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PSD, CHAIN 1



PSD, CHAIN 2



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Directional	Power	PSD
		99%	Gain	Gain	Limit	Limit
		BW	For Power	For PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
144	5720	3.854	10.68	10.68	25.32	25.32

Duty Cycle CF (dB)	0.69	Included in Calculations of Corr'd Power & PSD
	0.00	

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)
144	5720	2.66	2.81	2.81	8.22	25.32	-17.10

PSD Results

Channel	Frequency	Chain 0	Chain 1	Chain 2	Total	PSD	PSD
		Meas	Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
144	5720	-5.59	-5.11	-4.87	0.28	25.32	-25.04



OUTPUT POWER, CHAIN 1



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PSD, CHAIN 0



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PSD, CHAIN 1



PSD, CHAIN 2



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8.45.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

IC RSS-247 (6.2.4) (1)

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

<u>RESULTS</u>

Channel	Frequency	6 dB BW	6 dB BW	6 dB BW
		Chain 0	Chain 1	Chain 2
	(MHz)	(MHz)	(MHz)	(MHz)
144	5720	3.888	3.942	3.834

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CHAIN 0



CHAIN 1



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CHAIN 2

enter F	req 5.7200	2 DC 00000 GHz PNO IEGa	: Wide 🔸	Trig: Free R #Atten: 30 d	INT # un A B	Avg Type vg Hold:	ALIGN AUTO =: RMS 20/20	02:18:01P TRA TY C	M Sep 15, 2016 CE 1 2 3 4 5 6 PE M WWWWWW ET P N N N N N	Frequency
dB/div	Ref Offset 1 Ref 20.00	5.7 dB dBm					ΔN	1kr1 3.8 -6	34 MHz .867 dB	Auto Tune
		- Anna	0.4.4.00 (bat	manna a	low-paybly	name A	3 En Margare	1Δ2 -	-8.98 dBm	Center Freq 5.720000000 GHz
).0).0).0				Ψ				- And and a second seco	hy we we	Start Freq 5.706500000 GHz
).0 <mark>~~~~</mark>).0).0									Entroph	Stop Freq 5.733500000 GHz
enter 5. Res BW	72000 GHz 100 kHz		#VBW	i 300 kHz		5	Sweep 1	Span 2 .000 ms (27.00 MHz (1001 pts)	CF Step 2.700000 MHz
(3) MODE 11 1) ∆2 1 2 F 1 3 N 1 4 5 6 7	10 SCL f (Δ) f	× 3.834 5.724 995 (5.725 022)	MHz (Δ) GHz GHz	-6.867 dB -2.605 dBm -2.980 dBm	FUNCTIO	N FUN	ICTION WIDTH	FUNCTI	ON VALUE	Freq Offsel
3 9 0										

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8.46. 802.11n HT40 CHAIN 0 MODE IN THE 5.6 GHz BAND

8.46.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB Bandwidth
	(MHz)	(MHz)
Low	5510	40.920
Mid	5550	40.796
High	5670	40.920
142	5710	40.672

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26 dB BANDWIDTH





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8.46.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	36.369
Mid	5550	36.397
High	5670	36.312
142	5710	36.367

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99% BANDWIDTH





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8.46.3. **AVERAGE POWER**

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESUL	TS

ID:	43573	Date:	9/7/16
-----	-------	-------	--------

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5510	12.17
Mid	5550	12.19
High	5670	12.22
142	5710	12.16

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8.46.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the 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-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	43573	Date:	9/7/16
-----	-------	-------	--------

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Low	5510	40.92	36.369	4.90	24.00	11.00
Mid	5550	40.80	36.397	4.90	24.00	11.00
High	5670	40.92	36.312	4.90	24.00	11.00

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency	Chain 0	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	12.17	12.17	24.00	-11.83
Mid	5550	12.19	12.19	24.00	-11.81
High	5670	12.22	12.22	24.00	-11.78

PSD Results

Channel	Frequency	Chain 0	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	-2.08	-2.08	11.00	-13.08
Mid	5550	-2.35	-2.35	11.00	-13.35
High	5670	-2.27	-2.27	11.00	-13.27

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<u>PSD</u>





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8.47. 802.11ac VHT40 CHAIN 0 STRADDLE CH 142 RESULTS (FCC)

8.47.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional Directional		Power	PSD
		26 dB	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	35.34	4.90	4.90	24.00	11.00

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.71	11.71	24.00	-12.29

PSD Results

Channel	Frequency	equency Chain 1		PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.17	-2.17	11.00	-13.17

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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		26 dB	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
142	5710	5.34	4.90	30.00	30.00

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas Corr'd		Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	1.60	1.60	30.00	-28.40

PSD Results

Channel	Frequency	Chain 1	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-5.54	-5.54	30.00	-35.54

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	RF 50 Ω D0		SENSE:II	IT #Ava	ALIGN AUTO	09:25:27 PM Sep 12, 2016	Frequency
enterr	-req 5.7 100000	PNO: Fast ← IFGain:Low	➡ Trig: Free Run Atten: 28 dB	n Avg l	Hold: 100/100	TYPE A WWWWW DET A NNNN	
) dB/div	Ref Offset 12.7 d Ref 30.00 dBr	B			Mkr1 Band Pov	l 5.727 67 GHz ver 1.598 dBm	Auto Tune
20.0							Center Free
0.0						.1	5.710000000 GH
				****	******		
0.0							Start Free
0.0						\	
0.0						- Andrew	Stop Free
0.0							5.735000000 GH
tart 5.6	8500 GHz					Stop 5.73500 GHz	CF Step
Res BW	/ 1.0 MHz	#VB	W 3.0 MHz*		Sweep 1.	000 ms (1001 pts)	5.000000 MH Auto Mar
KR MODE 1 1 N	rrc scl 1 f	x 5.727 67 GHz	Y -3.312 dBm	Band Power	FUNCTION WIDTH 5.336 MHz	FUNCTION VALUE ^ 1.598 dB	
2							Freq Offse
4 5 6						Е	0 H:
7 8							
9 0							
1							



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8.48. 802.11ac VHT40 CHAIN 0 STRADDLE CH 142 RESULTS (IC)

8.48.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		99%	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	33.190	4.90	4.90	24.00	11.00

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

Output Power Results

Channel	Frequency	Chain 0	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.68	11.68	24.00	-12.32

PSD Results

Channel	Frequency	Chain 0	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.17	-2.17	11.00	-13.17

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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		99%	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
142	5710	3.185	4.90	30.00	30.00

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

Output Power Results

Channel	Frequency	Chain 0	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power Power			
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	1.26	1.26	30.00	-28.74

PSD Results

Channel	Frequency	Chain 0	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-6.19	-6.19	30.00	-36.19

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Keysight Sp	ectrum Analyzer - APv5.2(09011	.6),50820, Temp B	CENCETAIT		ALIGN AUTO	00-25-40 PM Sep 12, 2016	
enter F	reg 5.710000000	GHz	SENSE:INI	#Avg	Type: RMS	TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 28 dB	Avg H	lold: 100/100		
) dB/div	Ref Offset 12.7 dB Ref 30.00 dBm				Mkr Band Pov	l 5.726 59 GHz ver 1.257 dBm	Auto Tune
							Contor Fro
0.0							5 710000000 GH
						0 ¹	
0.0					******		
0.0						λ	Start Free
0.0						\	5.68500000 GH
0.0						<u> </u>	
0.0	~~~						Stop Free
0.0							5.735000000 GH
tart 5.68 Res BW	8500 GHz 1.0 MHz	#VB\	N 3.0 MHz*		Sweep 1.	Stop 5.73500 GHz 000 ms (1001 pts)	CF Step 5.000000 MH
KRI MODELT	RCISCIL X		Ŷ	FUNCTION	FUNCTION WIDTH		<u>Auto</u> Mar
1 N	1 f 5.7	26 59 GHz	-3.567 dBm	Band Power	3.185 MHz	1.257 dB	
3							Freq Offse
4 5						E	0 H
6							
8							
9							
1						-	



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8.48.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

IC RSS-247 (6.2.4) (1)

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

RESULTS

Channel	Frequency	6 dB Bandwidth
	(MHz)	(MHz)
142	5710	3.245

6 dB BANDWIDTH



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8.49. 802.11n HT40 CHAIN 1 MODE IN THE 5.6 GHz BAND

8.49.1. 26 dB BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

RESULTS

Channel	Frequency	26 dB Bandwidth	
	(MHz)	(MHz)	
Low	5510	40.626	
Mid	5550	40.734	
High	5670	40.734	
142	5710	40.796	

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26 dB BANDWIDTH





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8.49.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	36.522
Mid	5550	36.428
High	5670	36.366
142	5710	36.259

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99% BANDWIDTH





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8.49.3. **AVERAGE POWER**

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESUL	TS

ID:	43573	Date:	9/7/16
-----	-------	-------	--------

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5510	12.16
Mid	5550	12.19
High	5670	12.16
142	5710	11.92

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8.49.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the 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-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

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<u>RESULTS</u>

ID:	43573	Date:	9/7/16
-----	-------	-------	--------

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Low	5510	40.63	36.522	7.40	24.00	9.60
Mid	5550	40.73	36.428	7.40	24.00	9.60
High	5670	40.73	36.366	7.40	24.00	9.60

Duty Cycle CF (dB)

Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	12.16	12.16	24.00	-11.84
Mid	5550	12.19	12.19	24.00	-11.81
High	5670	12.16	12.16	24.00	-11.84

0.00

PSD Results

Channel	Frequency	Chain 1 Total		PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	-2.06	-2.06	9.60	-11.66
Mid	5550	-2.24	-2.24	9.60	-11.84
High	5670	-2.35	-2.35	9.60	-11.95

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<u>PSD</u>





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8.50. 802.11ac VHT40 CHAIN 1 STRADDLE CH 142 RESULTS (FCC)

8.50.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		26 dB	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	35.40	7.40	7.40	22.60	9.60

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.42	11.42	22.60	-11.18

PSD Results

Channel	Frequency	Chain 1	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.72	-2.72	9.60	-12.32

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	RF 50 Ω	DC	.ond D	SENS	E:INT #Ave	ALIGN AUTO	10:24:24 PM Sep 12, 2016	Frequency
enter F	req 5.710000	PNO: IFGain	Fast ↔ ∺Low	Trig: Free I Atten: 28 d	Run Avg iB	Hold: 100/100	TYPE A WWWWW DET A N N N N	4
) dB/div	Ref Offset 12.7 Ref 30.00 dE	dB 3m				Mkr Band Pow	1 5.707 30 GHz /er 11.416 dBm	Auto Tune
og no								Contor From
10.0								5.710000000 GHz
).00				0 ¹				
0.0								Start Fred
0.0								5.685000000 GHz
0.0	/						h.	
0.0	and the second se						and the second	Stop Fred
0.0								5.735000000 GHz
L	500 OU-						Ofen 5 70500 Olla	
Res BW	1.0 MHz		#VBW	3.0 MHz*		Sweep 1	.000 ms (1001 pts)	5.000000 MHz
KR MODE T	RC SCL	X		Y 0.745 dB	FUNCTION	FUNCTION WIDTH		Auto Mar
2 2	T	5.707 30 G	HZ	-2.715 dBi	n Band Power	35.40 MHZ	11.416 GB	Fred Offset
4								0 Hz
5 6							E	
7 8								
9								
1								



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		26 dB	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
142	5710	5.40	7.40	28.60	28.60

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	1.27	1.27	28.60	-27.33

PSD Results

Channel	Frequency	Chain 1	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-6.19	-6.19	28.60	-34.79

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enter F	RF 50 Ω DC) GHz	SENSE:IN	T #Avg	ALIGN AUTO	10:24:38 PM Sep 12, 2016 TRACE 1 2 3 4 5 6	Frequency
	•	PNO: Fast ↔ IFGain:Low	Atten: 28 dB	Avgi	Hold: 100/100	DET A NNNN	A
0 dB/div	Ref Offset 12.7 dB Ref 30.00 dBm				Mkr Band Pov	1 5.727 70 GHz wer 1.273 dBm	Auto Tun
.og 20.0							Cepter Fre
10.0							5.710000000 GH:
0.00						1	
10.0		Alferia and complete given allow					Start Ero
20.0						\	5.685000000 GH
80.0	_/					\	0.0000000000
40.0	Joseph Land Land Land Land Land Land Land Land					<u> </u>	
50.0						- The second	5 73500000 CH
50.0							0.70000000 011
tart 5.68	8500 GHz					Stop 5.73500 GHz	CE Ster
Res BW	1.0 MHz	#VB۱	V 3.0 MHz*		Sweep 1.	000 ms (1001 pts)	5.000000 MH
IKR MODE T	RC SCL X		Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Mar
1 N 2	1 f 5.1	727 70 GHz	-3.986 dBm	Band Power	5.398 MHz	1.273 dB	
3							Freq Offse
5						=	0 1.
7							
9							
10							



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8.51. 802.11ac VHT40 CHAIN 1 STRADDLE CH 142 RESULTS (IC)

8.51.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		99%	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	33.130	7.40	7.40	22.60	9.60

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.39	11.39	22.60	-11.22

PSD Results

Channel	Frequency	Chain 1	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.72	-2.72	9.60	-12.32

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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		99%	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
142	5710	3.130	7.40	28.60	28.60

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

Output Power Results

Channel	Frequency	Chain 1	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	0.89	0.89	28.60	-27.72

PSD Results

Channel	Frequency	Chain 1	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-6.19	-6.19	28.60	-34.79

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L Keysight Sp	RF 50 Ω DC	16),50820, Cond D	SENSE:INT	ALIGN AUTO	10:25:02 PM Sep 12, 2016	Frequency
	1eq 3.7 1000000	PNO: Fast ↔ IFGain:Low	⊢ Trig: Free Run Atten: 28 dB	Avg Hold: 100/100	TYPE A WWWWWW DET A N N N N N	
0 dB/div	Ref Offset 12.7 dB Ref 30.00 dBm			Mkr Band Pov	1 5.726 57 GHz wer 0.885 dBm	Auto Tune
og 20.0 10.0						Center Fred 5.710000000 GH:
20.0						Start Free 5.68500000 GH:
i0.0 i0.0 i0.0					b	Stop Free 5.735000000 GH:
tart 5.68 Res BW	8500 GHz 1.0 MHz	#VB\	V 3.0 MHz*	Sweep 1.	Stop 5.73500 GHz .000 ms (1001 pts)	CF Ster 5.000000 MH
KR MODE T	RC SCL X 1 f 5.7	26 57 GHz	Y Fl -3.994 dBm Bar	INCTION FUNCTION WIDTH and Power 3.130 MHz	FUNCTION VALUE	<u>Auto</u> Mar
2 3 4 5 6 7 8					E	Freq Offse 0 H
10						



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8.51.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

IC RSS-247 (6.2.4) (1)

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

RESULTS

Channel	Frequency	6 dB Bandwidth
	(MHz)	(MHz)
142	5710	3.300

6 dB BANDWIDTH



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8.52. 802.11n HT40 CHAIN 2 MODE IN THE 5.6 GHz BAND

8.52.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel Frequency		26 dB Bandwidth	
	(MHz)	(MHz)	
Low	5510	40.858	
Mid	5550	41.643	
High	5670	40.734	
142	5710	41.230	

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26 dB BANDWIDTH





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8.52.2. 99% BANDWIDTH

<u>LIMITS</u>

None; for reporting purposes only.

<u>RESULTS</u>

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	36.603
Mid	5550	35.279
High	5670	36.519
142	5710	36.465

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99% BANDWIDTH





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8.52.3. AVERAGE POWER

<u>LIMITS</u>

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.

RESUL	TS

ID:	43573	Date:	9/7/16

Channel	Frequency	Power
	(MHz)	(dBm)
Low	5510	12.23
Mid	5550	12.25
High	5670	12.22
142	5710	11.96

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8.52.4. OUTPUT POWER AND PSD

<u>LIMITS</u>

FCC §15.407 (a) (2)

For the band 5.47–5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the 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-247 (6.2.3) (1)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power is measured using PXA spectrum analyzer, duty cycle correction factor is required.

DIRECTIONAL ANTENNA GAIN

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

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RESULTS

ID:	43573	Date:	9/7/16
-----	-------	-------	--------

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Min	Directional	Power	PSD
		26 dB	99%	Gain	Limit	Limit
		BW	BW			
	(MHz)	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
Low	5510	40.86	36.603	5.20	24.00	11.00
Mid	5550	41.64	35.279	5.20	24.00	11.00
High	5670	40.73	36.519	5.20	24.00	11.00

Duty Cycle CF (dB) 0.00

Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency	Chain 2	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	12.23	12.23	24.00	-11.77
Mid	5550	12.25	12.25	24.00	-11.75
High	5670	12.22	12.22	24.00	-11.78

PSD Results

Channel	Frequency	Chain 2	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5510	-1.80	-1.80	11.00	-12.80
Mid	5550	-2.08	-2.08	11.00	-13.08
High	5670	-2.58	-2.58	11.00	-13.58

<u>PSD</u>





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8.53. 802.11ac VHT40 CHAIN 2 STRADDLE CH 142 RESULTS (FCC)

8.53.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	Power	PSD
		26 dB	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	35.62	5.20	5.20	24.00	11.00

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

Output Power Results

Channel	Frequency	Chain 2	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.53	11.53	24.00	-12.47

PSD Results

Channel	Frequency	Chain 2	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.59	-2.59	11.00	-13.59

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	RF 50 Ω req 5.710000	DC 0000 GHz		SENS	E:INT #Avg	ALIGN AUTO Type: RMS	10:29:30 PM Sep 12, 2016 TRACE 1 2 3 4 5 6	Frequency
		PNC IFGa	:Fast 🔸	Trig: Free Atten: 28	Run Avg dB	Hold: 100/100	DET A NNNN	
0 dB/div	Ref Offset 12.7 Ref 30.00 df	′dB Bm				Mkr Band Pow	1 5.707 19 GHz er 11.528 dBm	
og								Contor From
10.0								5 71000000 GHz
				<mark></mark>				

0.0							$\langle \rangle$	Start Freq
0.0								5.685000000 GHz
0.0	/							
0.0							- marine	Stop Freq
0.0								5.735000000 GHz
tart 5.68 Res BM	3500 GHz		#VBM	3 0 MH7*		Sween 1	Stop 5.73500 GHz	CF Step 5 00000 MHz
		~	***	0.0 141112	FUNCTION			Auto Man
1 N	1 f	5.707 19	GHz	-3.120 dB	m Band Power	35.62 MHz	11.528 dB	
2 3								Freq Offset
4							=	0 Hz
6								
7 8								
9								
0								
							*	



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UNII-3 BAND

Antenna Gain and Limit

Channel	Frequency	Min	Directional	Power	PSD
		26 dB	Gain	Limit	Limit
		BW			
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)
142	5710	5.62	5.20	30.00	30.00

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

Output Power Results

Channel	Frequency	Chain 2	Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	1.38	1.38	30.00	-28.62

PSD Results

Channel	Frequency	Chain 2	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-5.74	-5.74	30.00	-35.74

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enter F	RF 50 Ω D	C 00 GHz	SENSE:IN	T #Avg Avgl	ALIGN AUTO	10:29:46 PM Sep 12, 2016 TRACE 1 2 3 4 5 6 TYPE A WARMANN	Frequency
	Ref Offset 12.7 d	IFGain:Low	Atten: 28 dB		Mkr	5.727 81 GHz	Auto Tune
0 dB/div og	Ref 30.00 dBr	n			Band Po	ver 1.383 aBm	
20.0							Center Fred 5.710000000 GH;
0.00						1	
0.0			\square				Start Fred
0.0							5.685000000 GH
0.0	1						
0.0						man	Stop Free
0.0							5.735000000 GH
tart 5.6	8500 GHz					Stop 5.73500 GHz	CF Step
Res BW	/ 1.0 MHz	#VB	N 3.0 MHz*		Sweep 1.	000 ms (1001 pts)	5.000000 MH: Auto Mar
KR MODE I	TRC SCL	X 5 727 81 GHz	4 406 dBm	FUNCTION Band Power	FUNCTION WIDTH 5 615 MHz	EUNCTION VALUE	
2				bana i onoi	0.0101012		Frea Offse
4							0 H:
6							
8							
9							
1							



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8.54. 802.11ac VHT40 CHAIN 2 STRADDLE CH 142 RESULTS (IC)

8.54.1. OUTPUT POWER AND PSD

UNII-2C BAND

Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional Directional		Power	PSD
		99%	Gain	Gain	Limit	Limit
		BW	for Power	for PSD		
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)
142	5710	33.230	5.20	5.20	24.00	11.00

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

Output Power Results

Channel	Frequency Chain		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	11.50	11.50	24.00	-12.50

PSD Results

Channel	Frequency	Chain 2	Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
142	5710	-2.59	-2.59	11.00	-13.59

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