Test Mode: TX / IEEE 802.11n HT40 MHz (CH High) Tested by: Sam Zene									
Ambient ten	Ambient temperature: <u>24°C</u> Relative humidity: <u>52% RH</u> Da								
Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark		
1747.000	52.08	-6.38	45.70	74.00	-28.30	V	Peak		
2449.000	47.92	-2.54	45.38	74.00	-28.62	V	Peak		
3268.000	47.45	-0.91	46.54	74.00	-27.46	V	Peak		
4024.000	41.90	1.67	43.57	74.00	-30.43	V	Peak		
4240.000	42.01	2.43	44.44	74.00	-29.56	V	Peak		
5626.000	40.99	5.92	46.91	74.00	-27.09	V	Peak		
1747.000	53.55	-6.38	47.17	74.00	-26.83	Н	Peak		
1891.000	50.67	-5.69	44.98	74.00	-29.02	Н	Peak		
2548.000	44.48	-2.17	42.31	74.00	-31.69	Н	Peak		
3268.000	45.53	-0.91	44.62	74.00	-29.38	Н	Peak		
4276.000	42.39	2.56	44.95	74.00	-29.05	Н	Peak		
5725.000	41.25	5.96	47.21	74.00	-26.79	Н	Peak		

Test Made: TV / IEEE 202 11n UT/0 MUz (CU Uigh)

1.

Remark:

Radiated emissions measured in frequency above 1000MHz were made with an instrument using 2. peak/average detector mode.

Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

- Average test would be performed if the peak result were greater than the average limit or as required 3. by the applicant.
- Data of measurement within this frequency range shown "---" in the table above means the reading 4. of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " 5. remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).



7.3. 6dB BANDWIDTH MEASUREMENT

7.3.1. LIMITS

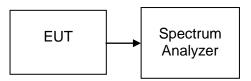
According to §15.247(a) (2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.3.2. TEST PROCEDURES (please refer to measurement standard)

8.1 Option 2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW \geq 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be \geq 6 dB.

7.3.3. TEST SETUP





7.3.4. TEST RESULTS

No non-compliance noted

<u>Test Data</u>

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	Bandwidth (kHz) Antenna 0	Limit (kHz)	Test Result
Low	2412	8553		PASS
Mid	2437	8095	>500	PASS
High	2462	8103		PASS

Test mode: IEEE 802.11g

Channel	Frequency		width Hz)	Limit	Test Result
	(MHz)	Antenna 0	Antenna 1	(kHz)	
Low	2412	15110	15120		PASS
Mid	2437	15140	15120	>500	PASS
High	2462	15120	15130		PASS

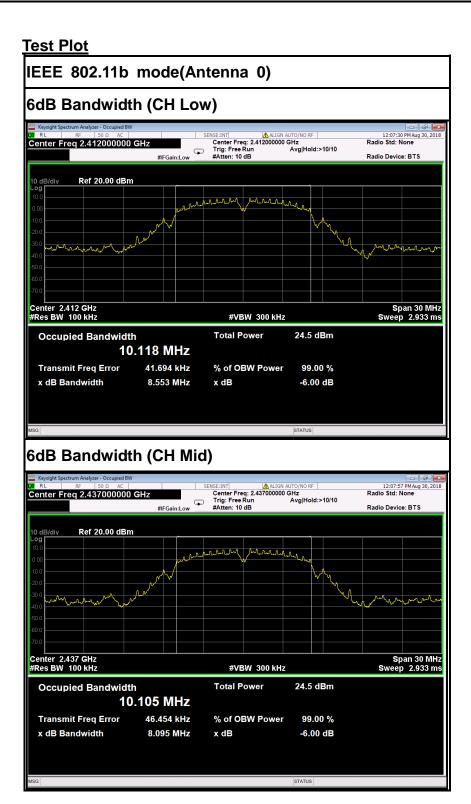
Test mode: IEEE 802.11n HT20 MHz

Channel	Frequency		width Hz)	Limit	Test Result
	(MHz)	Antenna 0	Antenna 1	(kHz)	
Low	2412	15100	15720		PASS
Mid	2437	15120	15130	>500	PASS
High	2462	15120	15700		PASS

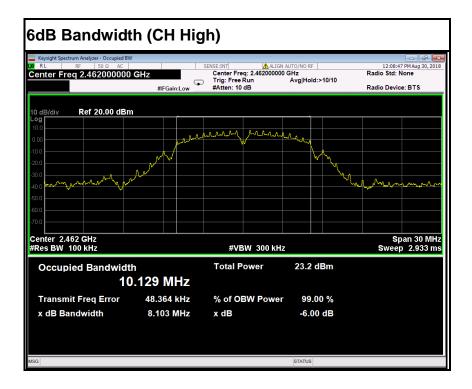
Test mode: IEEE 802.11n HT40 MHz

Channel	Frequency		width Iz)	Limit	Test Result
Cildinio	(MHz)	Antenna 0	Antenna 1	(kHz)	
Low	2422	35340	35690		PASS
Mid	2437	35720	35730	>500	PASS
High	2452	35730	35720		PASS

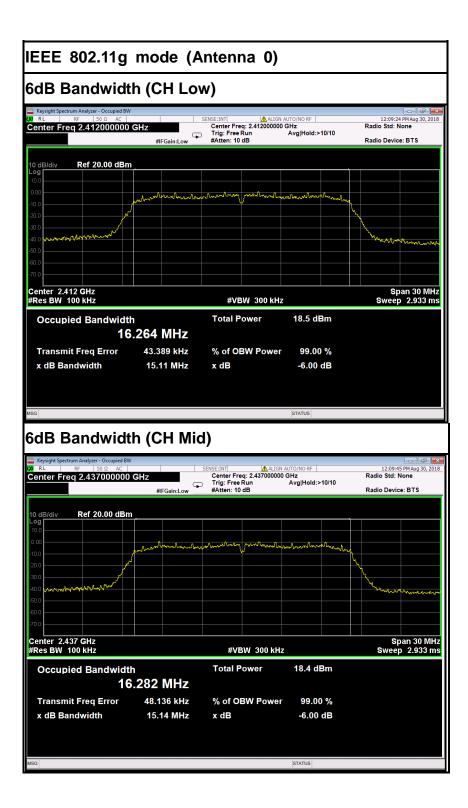




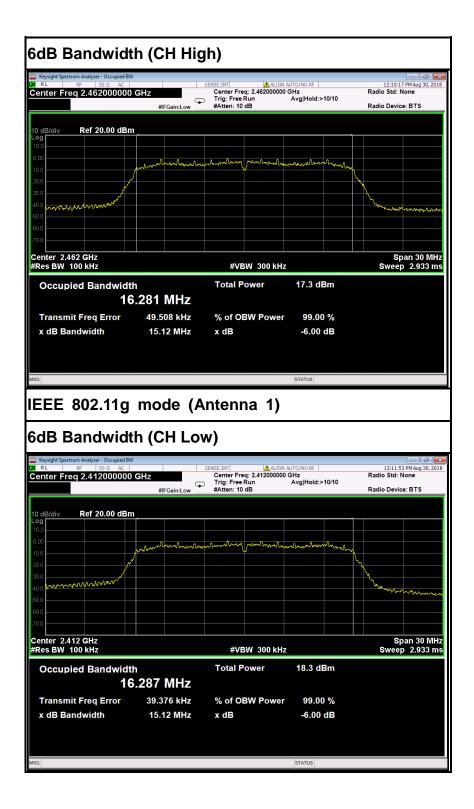




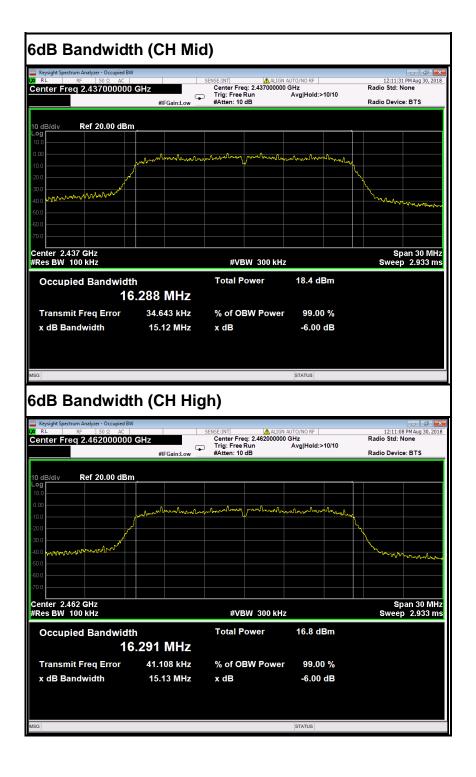








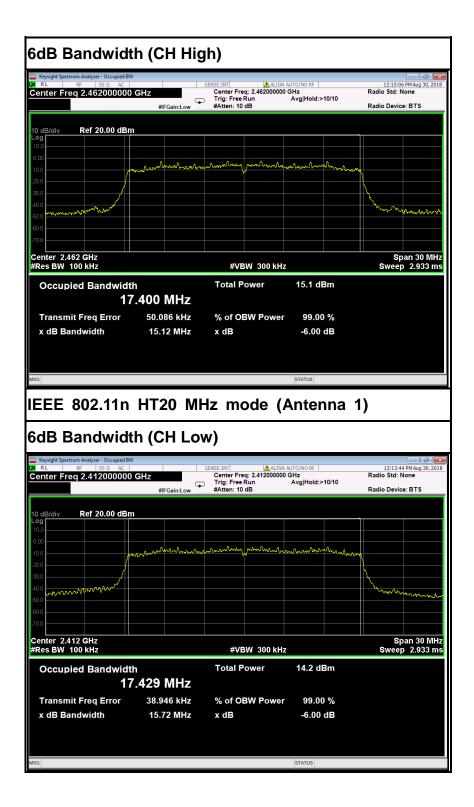




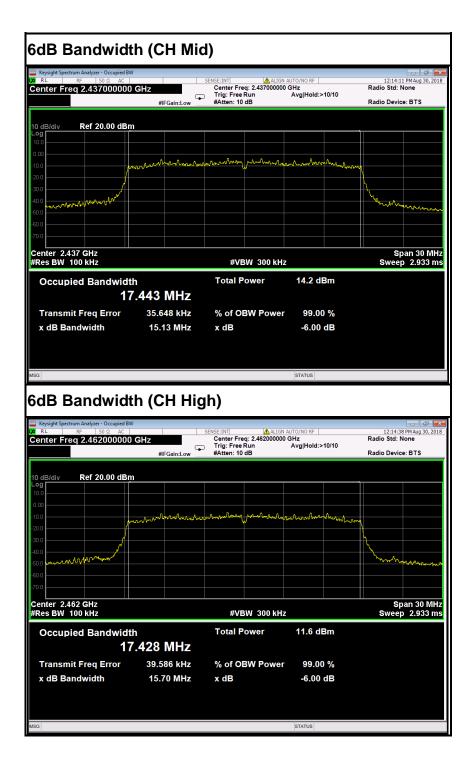


IEEE 802.11n HT20 MHz mode (Antenna 0) 6dB Bandwidth (CH Low) SENSE:INT ALIGN AUTO/NO RF Center Freq: 2.412000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 10 dB 12:16:04 PM Aug 30, 2018 Radio Std: None Center Freg 2.412000000 GHz #IFGain:Low Radio Device: BTS Ref 20.00 dBm B/div Span 30 MHz Sweep 2.933 ms Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz 16.4 dBm **Occupied Bandwidth** Total Power 17.394 MHz Transmit Freq Error 50.219 kHz % of OBW Power 99.00 % x dB Bandwidth 15.10 MHz x dB -6.00 dB STATUS 6dB Bandwidth (CH Mid) 12:15:30 PM Aug 30, 2018 Radio Std: None SENSE:INT Center Freq: 2.437000000 GHz Trig: Free Run #IFGain:Low #Atten: 10 dB Center Freq 2.437000000 GHz Radio Device: BTS Ref 20.00 dBm 3/div Span 30 MHz Sweep 2.933 ms Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Total Power 15.6 dBm Occupied Bandwidth 17.391 MHz Transmit Freq Error 45.312 kHz % of OBW Power 99.00 % x dB Bandwidth 15.12 MHz x dB -6.00 dB









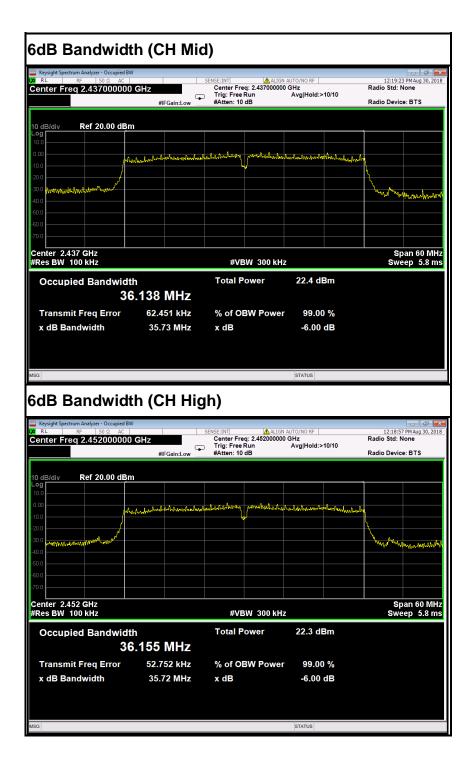


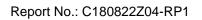
IEEE 802.11n HT40 MHz mode (Antenna 0) 6dB Bandwidth (CH Low) SENSE:INT ALIGN AUTO/NO RF Center Freq: 2.422000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 10 dB 12:17:09 PM Aug 30, 2018 Radio Std: None Span 60.000 MHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm B/div لساميهم when the second bardless lies at .n n Span 60 MHz Sweep 5.8 ms Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz 21.5 dBm **Occupied Bandwidth** Total Power 36.073 MHz Transmit Freq Error 81.881 kHz % of OBW Power 99.00 % x dB Bandwidth 35.34 MHz x dB -6.00 dB STATUS 6dB Bandwidth (CH Mid) 12:17:46 PM Aug 30, 2018 Radio Std: None I SENSE:INT CALIGN AUTO/NO RF Center Freq: 2.437000000 GHz Trig: Free Run Avg|Hold:>10/10 #IFGain:Low #Atten: 10 dB Center Freq 2.437000000 GHz Radio Device: BTS Ref 20.00 dBm /div when have been and and and and and and and and and مرام مار مار مار adjorthant 1 Center 2.437 GHz #Res BW 100 kHz Span 60 MHz Sweep 5.8 ms #VBW 300 kHz Total Power 21.3 dBm **Occupied Bandwidth** 36.077 MHz Transmit Freq Error 88.276 kHz % of OBW Power 99.00 % x dB Bandwidth 35.72 MHz x dB -6.00 dB



6dB Bandwidth (CH High) Sense:BNT| ▲ ALIGN AUTO/NO RF | Center Freq: 2.452000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 10 dB 12:18:22 PM Aug 30, 2018 Radio Std: None Center Freq 2.452000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm boolendard استان ال Span 60 MHz Sweep 5.8 ms Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Occupied Bandwidth Total Power 21.2 dBm 36.083 MHz 82.048 kHz Transmit Freq Error % of OBW Power 99.00 % x dB Bandwidth 35.73 MHz -6.00 dB x dB IEEE 802.11n HT40 MHz mode (Antenna 1) 6dB Bandwidth (CH Low) 12:19:43 PM Aug 30, 2018 Radio Std: None I SENSE:INT LALIGN AUTO/NO RF Center Freq: 2.422000000 GHz Trig: Free Run Avg|Hold:>10/10 #Atten: 10 dB Center Freq 2.422000000 GHz Radio Device: BTS Ref 20.00 dBm /div Andre t. 1 1 100 والمعار ومعرفة والم Center 2.422 GHz #Res BW 100 kHz Span 60 MHz Sweep 5.8 ms #VBW 300 kHz Total Power 22.3 dBm **Occupied Bandwidth** 36.113 MHz Transmit Freq Error 72.972 kHz % of OBW Power 99.00 % x dB Bandwidth 35.69 MHz x dB -6.00 dB









7.4. ANTENNA GAIN

MEASUREMENT

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal WLAN devices, the DSSS mode is used.

MEASUREMENT PARAMETERS

Measurement parameter						
Detector	Peak					
Sweep time	Auto					
Resolution bandwidth	3 MHz					
Video bandwidth	3 MHz					
Trace-Mode	Max hold					

LIMITS

FCC	IC
Antenna	a Gain
6 d	Bi

TEST RESULTS

Antenna 0

T _{nom}	V _{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz	
Conducted power [dBm/MHz] Measured with DSSS modulation		10.52	10.72	9.77	
	Radiated power [dBm/MHz] Measured with DSSS modulation		14.83	14.26	
Gain [dBi] Calculated		4.88	4.11	4.49	
Measurement und	ertainty	± 1.5	dB (cond.) / ± 3 dB	(rad.)	



7.5. PEAK OUTPUT POWER

7.5.1. LIMITS

The maximum peak output power of the intentional radiator shall not exceed the following:

- 1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
- 2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- 7.5.2. TEST PROCEDURES (please refer to measurement standard)

9.1.1 RBW ≥ DTS bandwidth

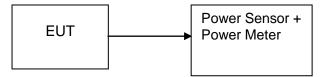
This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the *DTS bandwidth*.

- a) Set the RBW \geq DTS bandwidth.
- b) Set VBW \geq 3 RBW.
- c) Set span ≥ 3 x RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

9.1.2 PKPM1 Peak power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

7.5.3. TEST SETUP





7.5.4. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (Antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	20.52	0.11272			PASS
Mid	2437	20.72	0.11803	Peak	1	PASS
High	2462	19.77	0.09484			PASS
Low	2412	17.05	0.05070			PASS
Mid	2437	17.09	0.05117	AVG	1	PASS
High	2462	16.10	0.04074			PASS

Test mode: Test mode: IEEE 802.11g (Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)	C	Output Power (dBm)			Peak / AVG	Limit (W)	Result
		Antenna 0	Antenna 1	Total	(W)	AVG	(**)	
Low	2412	19.65	19.19	22.44	0.17524		1	PASS
Mid	2437	20.07	19.03	22.59	0.18161	Peak		PASS
High	2462	18.01	17.67	20.85	0.12172			PASS
Low	2412	11.65	11.03	14.36	0.02730			PASS
Mid	2437	11.35	10.99	14.18	0.02621	AVG	1	PASS
High	2462	10.11	9.32	12.74	0.01881			PASS



Test mode: IEEE 802.11n HT20 MHz(Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)		output Powe (dBm)	er	Output Power	Peak / AVG	Limit (W)	Result
	(Antenna 0	Antenna 1	Total	(W)		()	
Low	2412	16.77	14.78	18.90	0.07759			PASS
Mid	2437	16.44	14.28	18.50	0.07085	Peak	1	PASS
High	2462	15.84	11.15	17.11	0.05140			PASS
Low	2412	8.79	6.33	10.74	0.01186			PASS
Mid	2437	8.42	6.41	10.54	0.01133	AVG	1	PASS
High	2462	7.79	2.54	8.92	0.00781			PASS

Test mode: IEEE 802.11n HT40 MHz(Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)		Output Power	Peak / AVG	Limit (W)	Result	
		Antenna 0	Antenna 1	Total	(W)	AVG	(**)	
Low	2422	21.90	22.75	25.36	0.34325		1	PASS
Mid	2437	21.74	22.66	25.23	0.33378	Peak		PASS
High	2452	19.09	19.16	22.14	0.16351			PASS
Low	2422	13.53	14.11	16.84	0.04831			PASS
Mid	2437	13.50	14.05	16.79	0.04780	AVG	1	PASS
High	2452	10.76	10.54	13.66	0.02324			PASS



7.6. BAND EDGES MEASUREMENT

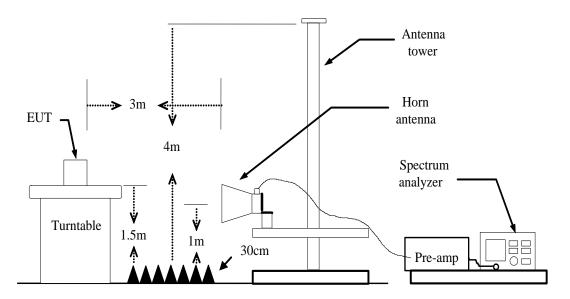
7.6.1. LIMITS

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

7.6.2. TEST PROCEDURES (please refer to measurement standard)

- 1. The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO / Detector=PEAK
- 5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are

7.6.3. TEST SETUP

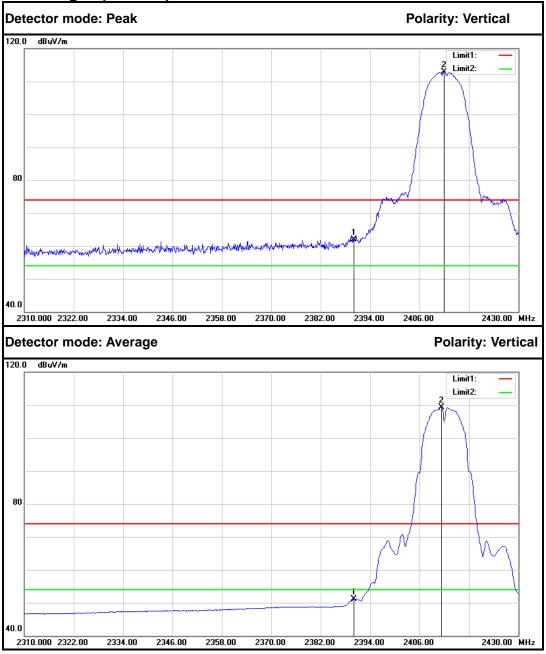




7.6.4. TEST RESULTS

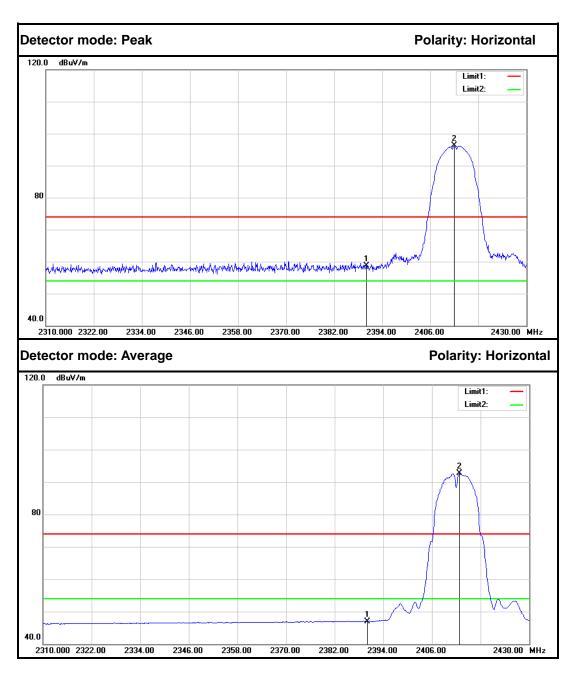
Test Plot

IEEE 802.11b mode (Antenna 0) Band Edges (CH Low)



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	64.70	-2.86	61.84	74.00	-12.16	Peak	Vertical
2	2412.000	115.74	-2.74	113.00			Peak	Vertical
1	2390.000	53.89	-2.86	51.03	54.00	-2.97	Average	Vertical
2	2411.280	112.11	-2.75	109.36			Average	Vertical

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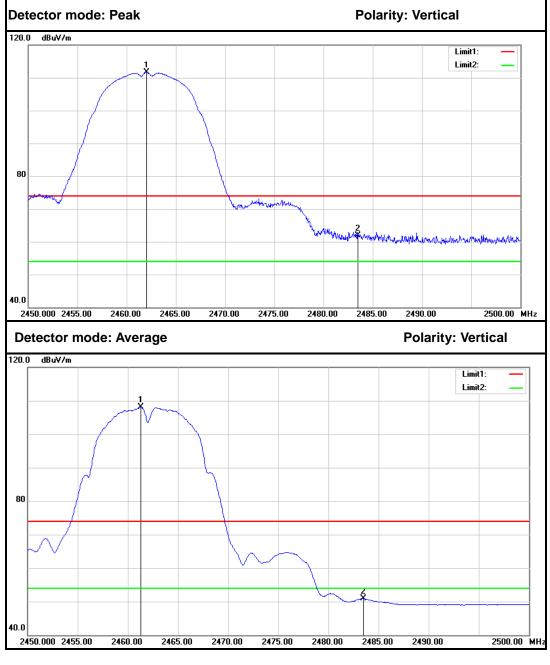


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	61.51	-2.86	58.65	74.00	-15.35	Peak	Horizontal
2	2412.000	99.06	-2.74	96.32			Peak	Horizontal
1	2390.000	49.84	-2.86	46.98	54.00	-7.02	Average	Horizontal
2	2412.840	95.38	-2.74	92.64			Average	Horizontal

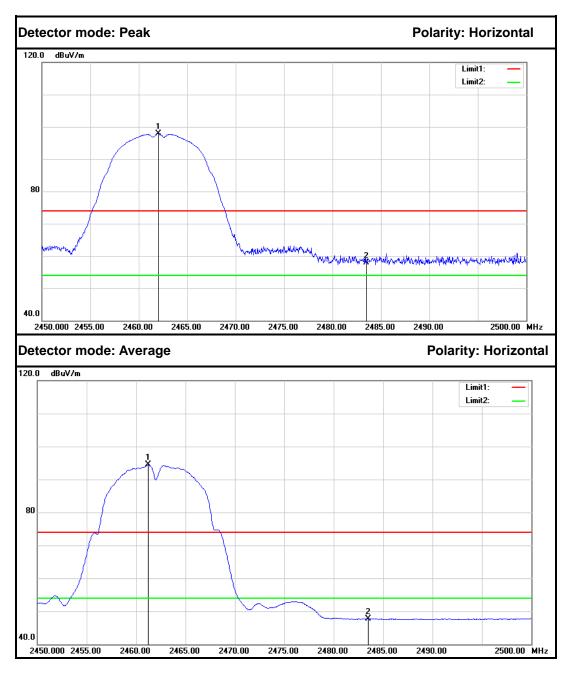
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Band Edges (CH High)



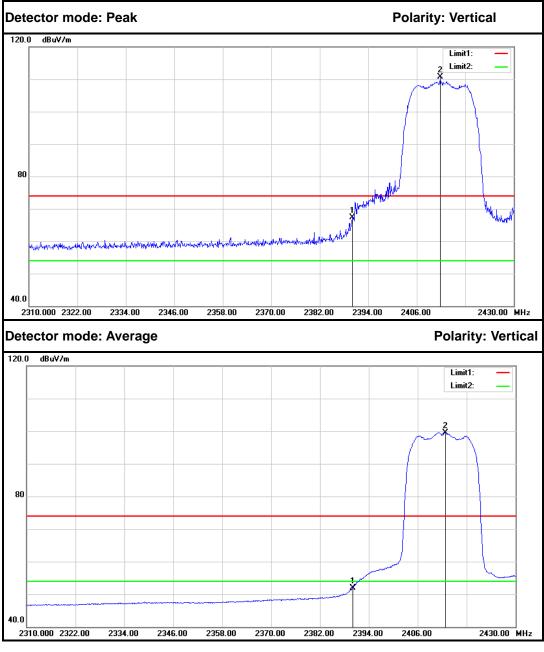
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	114.21	-2.47	111.74			Peak	Vertical
2	2483.500	64.25	-2.35	61.90	74.00	-12.10	Peak	Vertical
1	2461.300	110.60	-2.47	108.13			Average	Vertical
2	2483.500	53.25	-2.35	50.90	54.00	-3.10	Average	Vertical



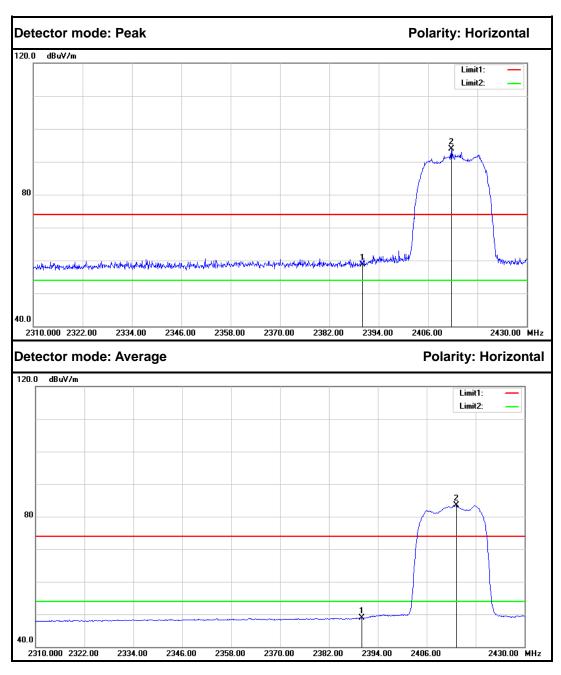
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	100.46	-2.47	97.99			Peak	Horizontal
2	2483.500	60.21	-2.35	57.86	74.00	-16.14	Peak	Horizontal
1	2461.250	96.91	-2.47	94.44			Average	Horizontal
2	2483.500	50.01	-2.35	47.66	54.00	-6.34	Average	Horizontal



IEEE 802.11g mode (Combine with Antenna 0 and Antenna 1) Band Edges (CH Low)



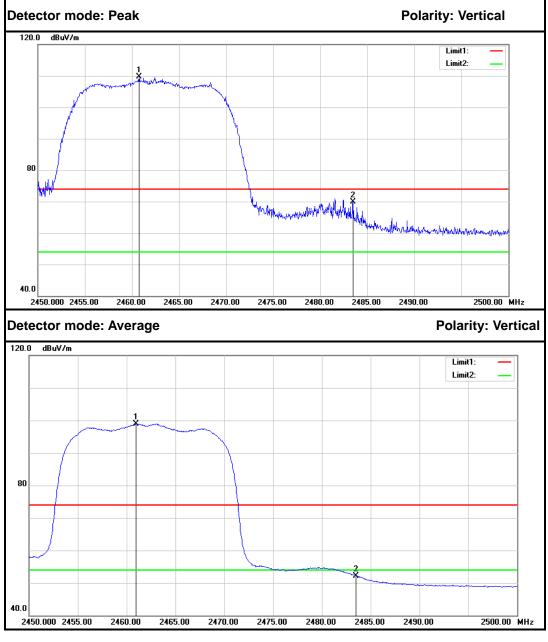
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	70.22	-2.86	67.36	74.00	-6.64	Peak	Vertical
2	2411.880	113.51	-2.74	110.77			Peak	Vertical
1	2390.000	54.78	-2.86	51.92	54.00	-2.08	Average	Vertical
2	2412.720	102.30	-2.74	99.56			Average	Vertical



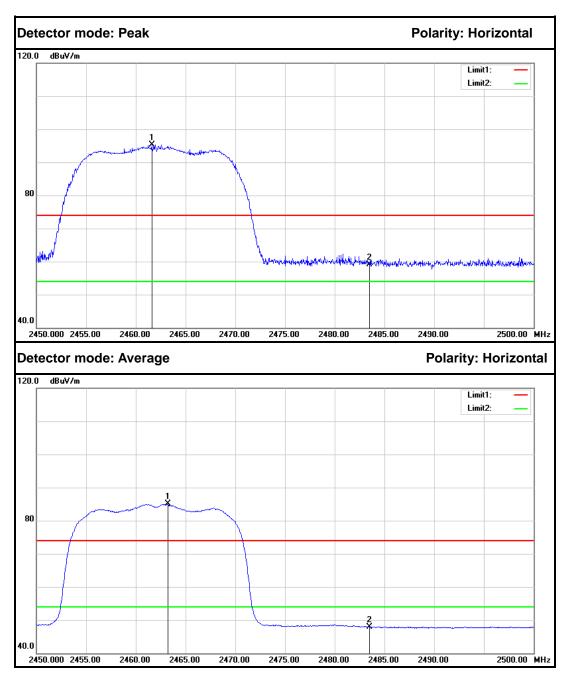
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	61.64	-2.86	58.78	74.00	-15.22	Peak	Horizontal
2	2411.640	96.56	-2.74	93.82			Peak	Horizontal
1	2390.000	51.70	-2.86	48.84	54.00	-5.16	Average	Horizontal
2	2413.320	86.32	-2.73	83.59			Average	Horizontal



Band Edges (CH High)



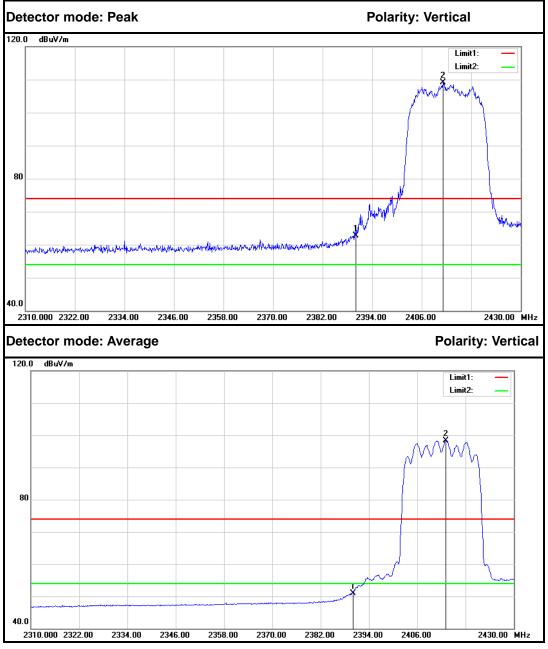
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2460.750	112.09	-2.47	109.62			Peak	Vertical
2	2483.500	72.18	-2.35	69.83	74.00	-4.17	Peak	Vertical
1	2460.950	101.36	-2.47	98.89			Average	Vertical
2	2483.500	54.48	-2.35	52.13	54.00	-1.87	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2461.600	97.83	-2.47	95.36			Peak	Horizontal
2	2483.500	61.54	-2.35	59.19	74.00	-14.81	Peak	Horizontal
1	2463.200	87.58	-2.46	85.12			Average	Horizontal
2	2483.500	50.31	-2.35	47.96	54.00	-6.04	Average	Horizontal

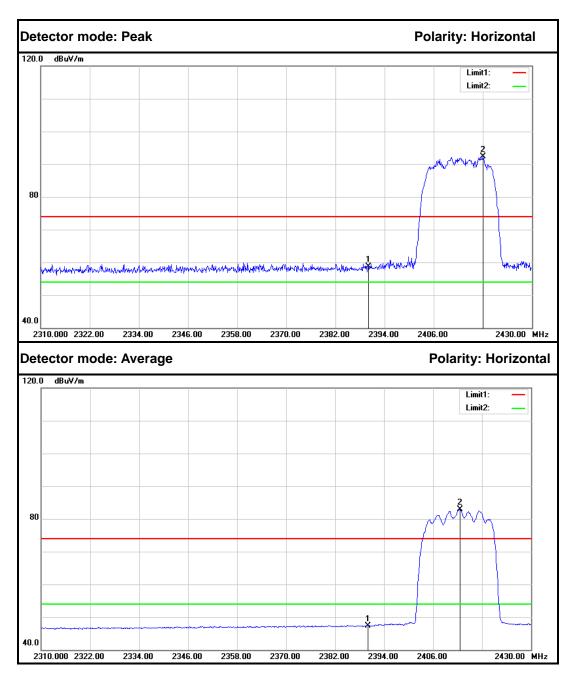


IEEE 802.11n HT20 MHz mode (Combine with Antenna 0 and Antenna 1) Band Edges (CH Low)



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	65.62	-2.86	62.76	74.00	-11.24	Peak	Vertical
2	2411.160	111.94	-2.75	109.19			Peak	Vertical
1	2390.000	53.85	-2.86	50.99	54.00	-3.01	Average	Vertical
2	2413.080	101.13	-2.74	98.39			Average	Vertical

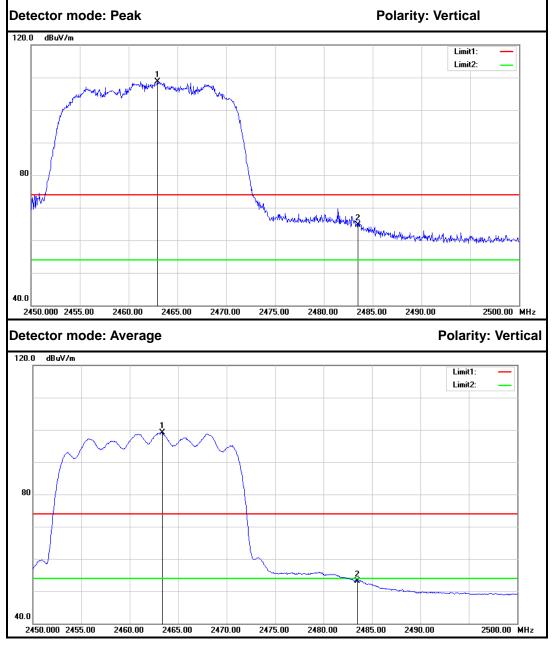
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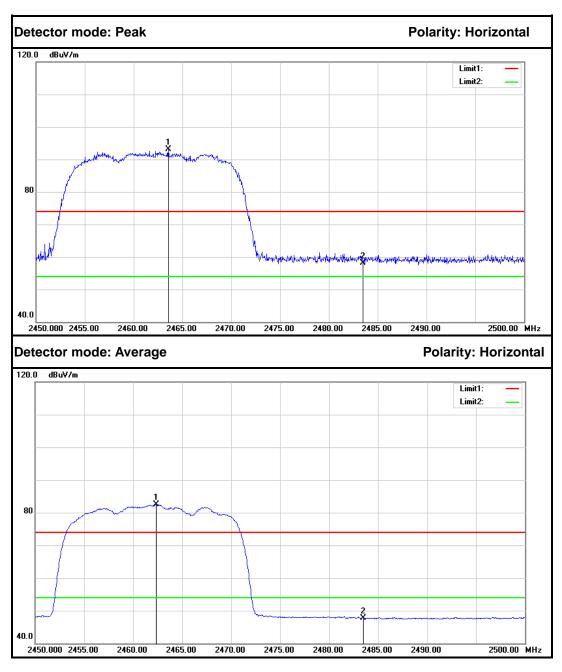
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	61.61	-2.86	58.75	74.00	-15.25	Peak	Horizontal
2	2418.000	95.01	-2.71	92.30			Peak	Horizontal
1	2390.000	50.21	-2.86	47.35	54.00	-6.65	Average	Horizontal
2	2412.600	85.62	-2.74	82.88			Average	Horizontal



Band Edges (CH High)



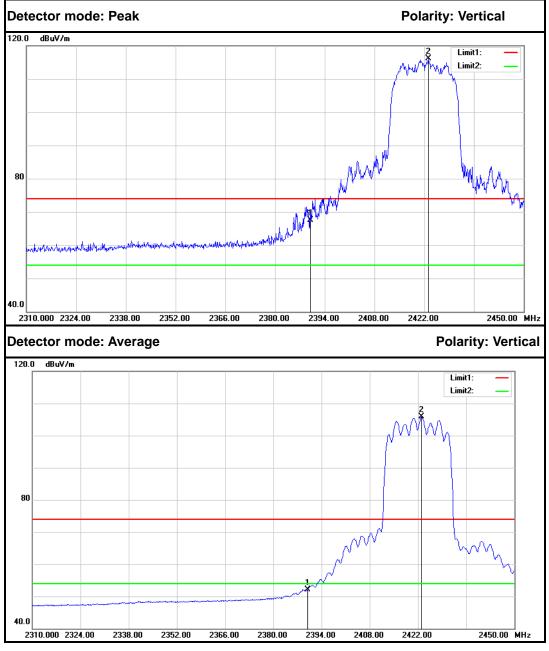
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.950	111.21	-2.46	108.75			Peak	Vertical
2	2483.500	67.03	-2.35	64.68	74.00	-9.32	Peak	Vertical
1	2463.350	101.63	-2.46	99.17			Average	Vertical
2	2483.500	55.49	-2.35	53.14	54.00	-0.86	Average	Vertical



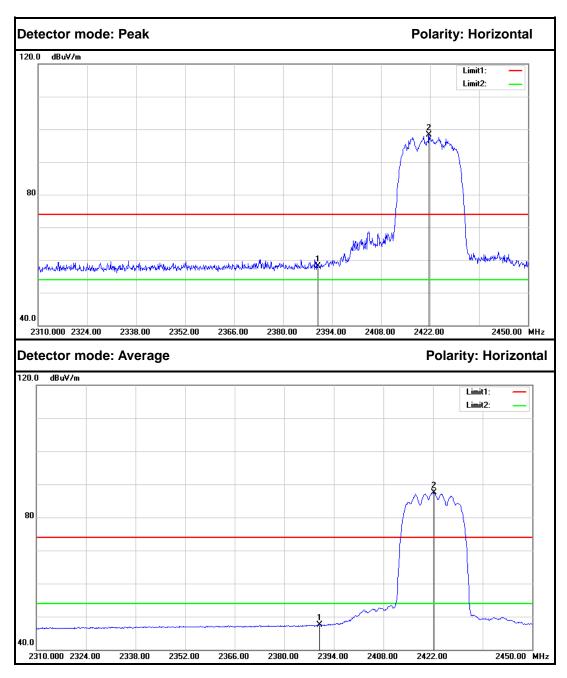
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2463.550	95.50	-2.46	93.04			Peak	Horizontal
2	2483.500	60.51	-2.35	58.16	74.00	-15.84	Peak	Horizontal
1	2462.350	85.03	-2.47	82.56			Average	Horizontal
2	2483.500	50.12	-2.35	47.77	54.00	-6.23	Average	Horizontal



IEEE 802.11n HT40 MHz mode (Combine with Antenna 0 and Antenna 1) Band Edges (CH Low)

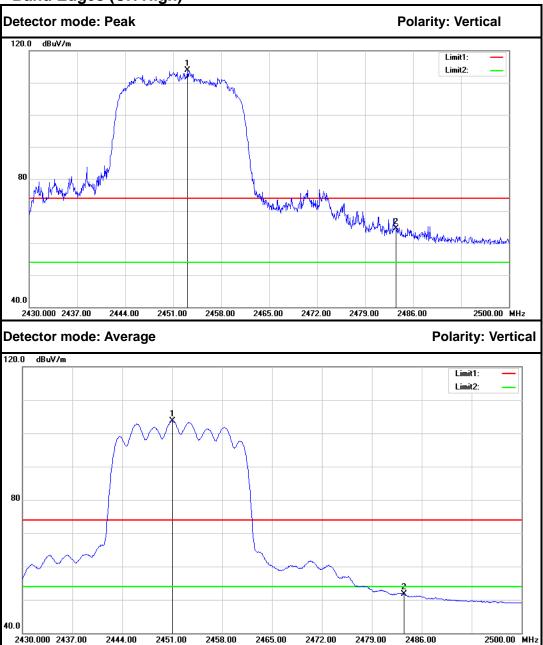


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	70.31	-2.86	67.45	74.00	-6.55	Peak	Vertical
2	2423.120	118.71	-2.68	116.03			Peak	Vertical
1	2390.000	54.88	-2.86	52.02	54.00	-1.98	Average	Vertical
2	2422.980	108.57	-2.68	105.89			Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	60.92	-2.86	58.06	74.00	-15.94	Peak	Horizontal
2	2421.720	101.04	-2.69	98.35			Peak	Horizontal
1	2390.000	50.40	-2.86	47.54	54.00	-6.46	Average	Horizontal
2	2422.280	90.13	-2.69	87.44			Average	Horizontal

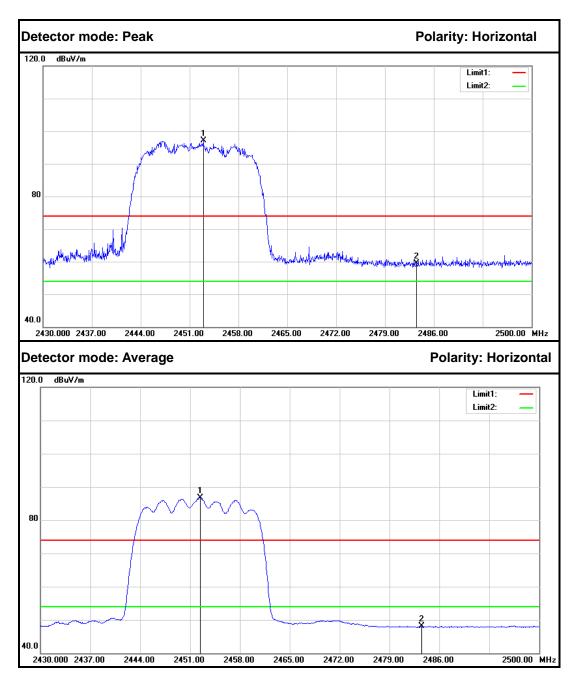




Band Edges (CH High)

No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2453.100	116.43	-2.52	113.91			Peak	Vertical
2	2483.500	66.79	-2.35	64.44	74.00	-9.56	Peak	Vertical
1	2451.070	106.33	-2.53	103.80			Average	Vertical
2	2483.500	53.99	-2.35	51.64	54.00	-2.36	Average	Vertical





No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2452.960	99.60	-2.52	97.08			Peak	Horizontal
2	2483.500	61.94	-2.35	59.59	74.00	-14.41	Peak	Horizontal
1	2452.400	89.30	-2.52	86.78			Average	Horizontal
2	2483.500	50.36	-2.35	48.01	54.00	-5.99	Average	Horizontal



7.7. PEAK POWER SPECTRAL DENSITY MEASUREMENT

7.7.1. LIMITS

According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

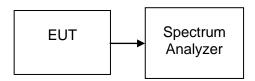
7.7.2. TEST PROCEDURES (please refer to measurement standard)

§15.247(e)specifies a conducted power spectral density (PSD) limit of 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission. The same method as used to determine the conducted output power shall be used to determine the power spectral density (i.e., if peak-detected fundamental power was measured then use the peak PSD procedure and if average fundamental power was measured then use the average PSD procedure).

10.2 Method PKPSD (peak PSD)

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS bandwidth.
- 3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- 4. Set the VBW \geq 3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

7.7.3. TEST SETUP





7.7.4. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b

Channel	Frequency (MHz)	PPSD (dBm) Antenna 0	Limit (dBm)	Test Result
Low	2412	-3.192		PASS
Mid	2437	-3.296	8	PASS
High	2462	-5.748		PASS

Test mode: IEEE 802.11g (Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)		PPSD (dBm)	Limit (dBm)	Test Result	
		Antenna 0	Antenna 1	Total	(ubiii)	
Low	2422	-12.938	-12.785	-9.851		PASS
Mid	2437	-12.925	-12.817	-9.860	8	PASS
High	2452	-13.438	-14.407	-10.885		PASS

Test mode: IEEE 802.11n HT20 MHz (Combine with Antenna 0 and Antenna 1)

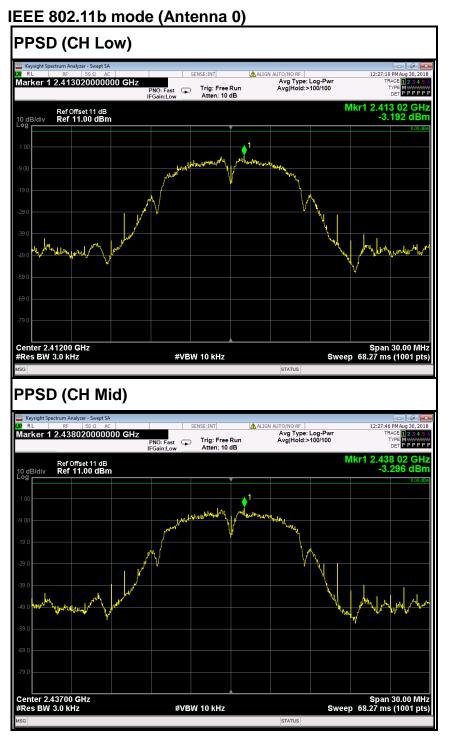
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total	(abiii)	
Low	2412	-14.645	-16.968	-12.643		PASS
Mid	2437	-14.811	-15.858	-12.293	8	PASS
High	2462	-16.031	-20.225	-14.630		PASS

Test mode: IEEE 802.11n HT40 MHz (Combine with Antenna 0 and Antenna 1)

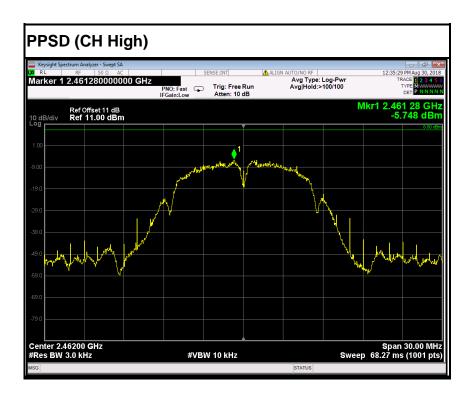
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total	(abiii)	
Low	2422	-12.457	-12.707	-9.570		PASS
Mid	2437	-12.695	-11.481	-9.035	8	PASS
High	2452	-15.300	-16.658	-12.916		PASS

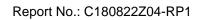


<u>Test Plot</u>

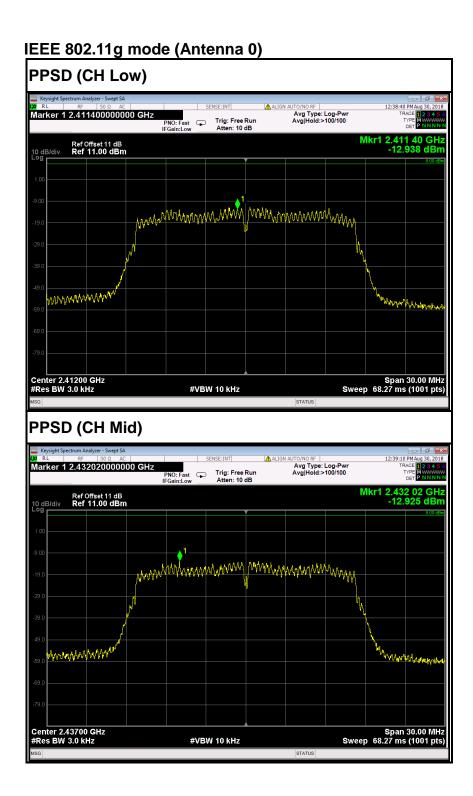




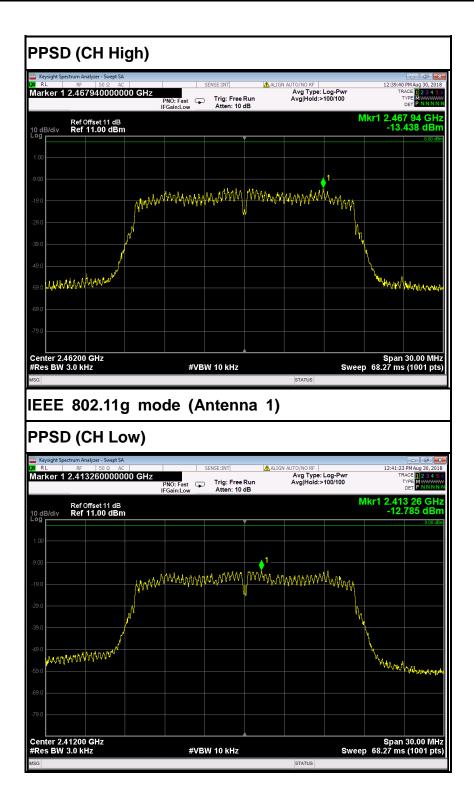




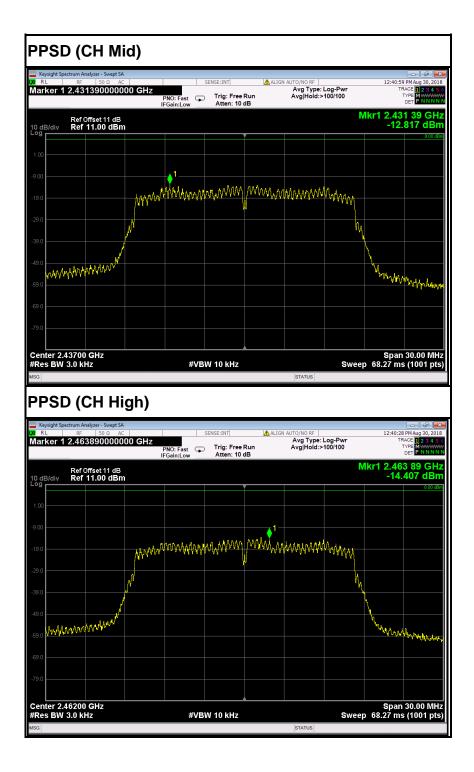




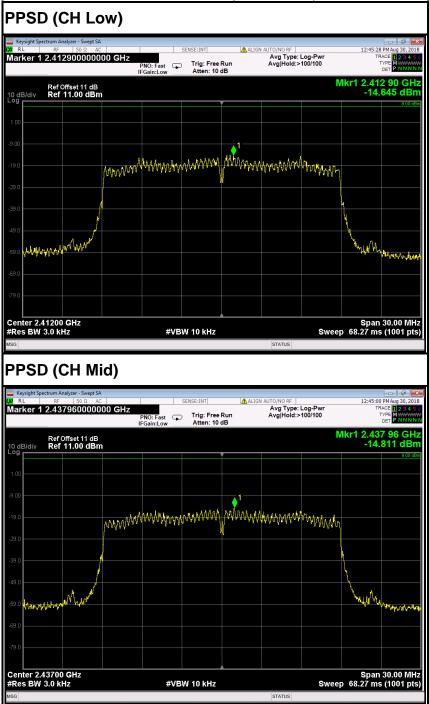






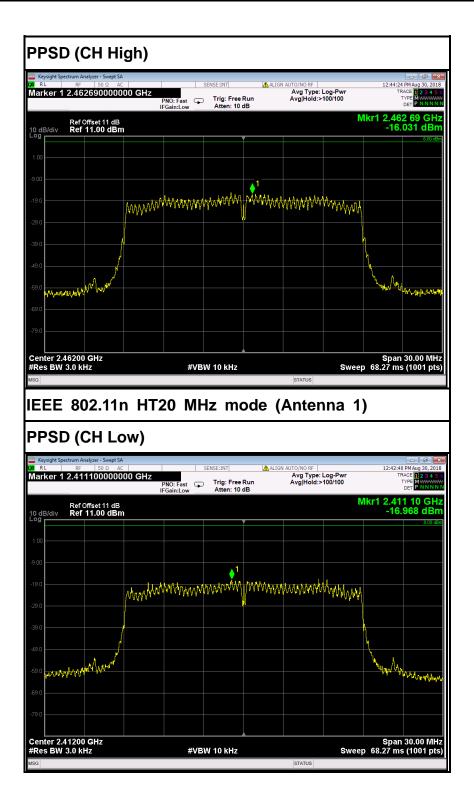




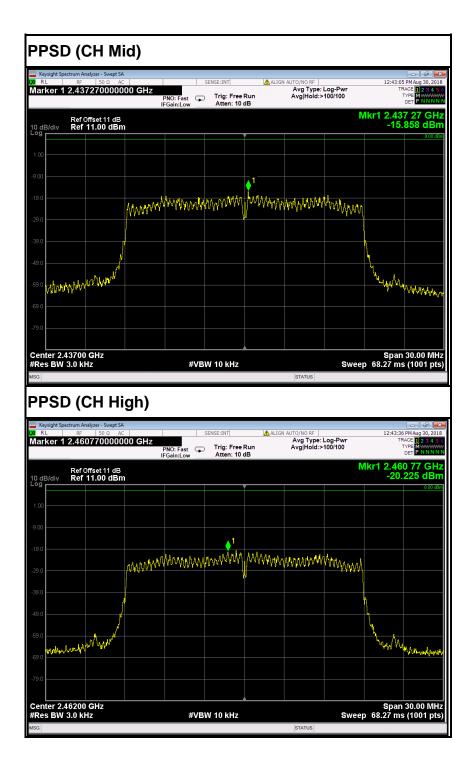


IEEE 802.11n HT20 MHz mode (Antenna 0)

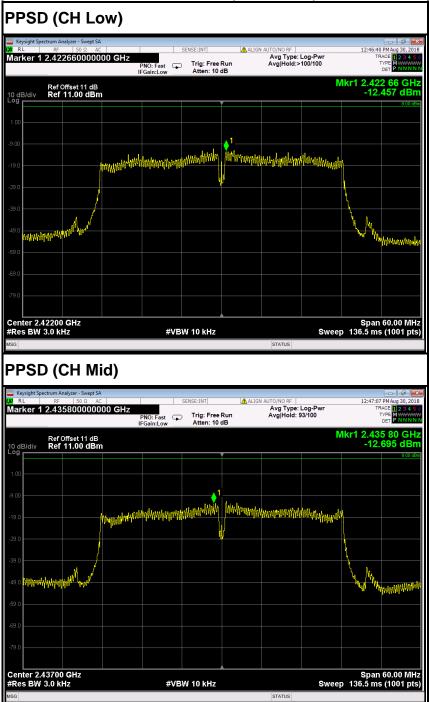












IEEE 802.11n HT40 MHz mode (Antenna 0)



