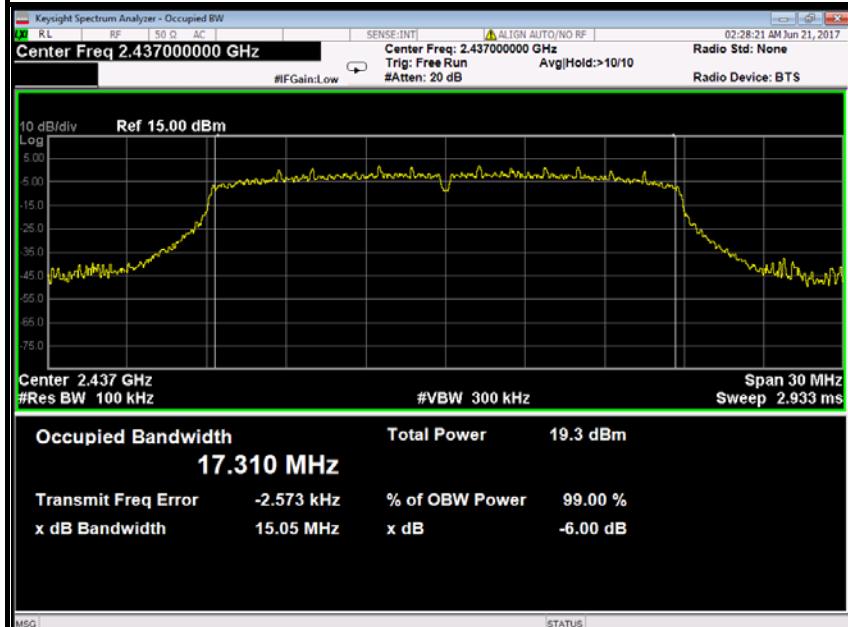
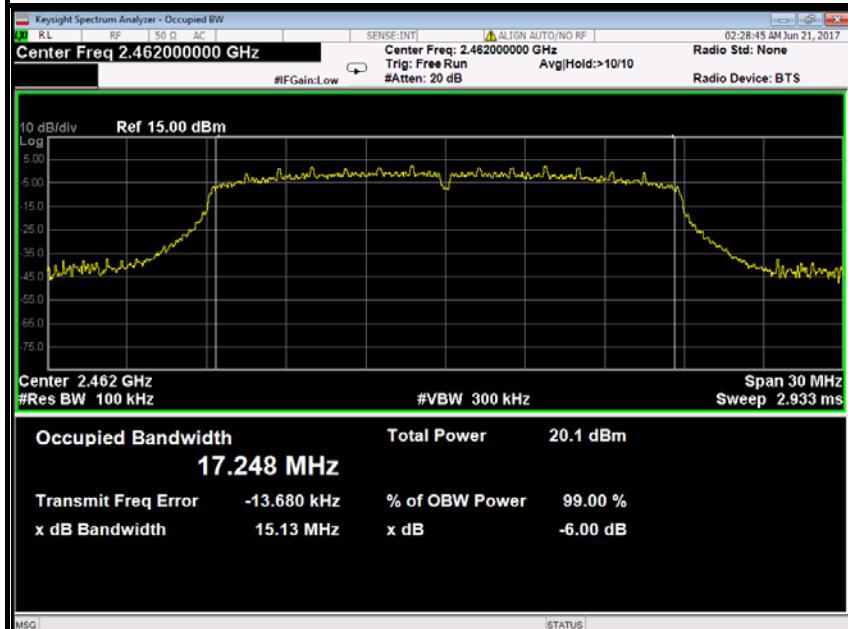


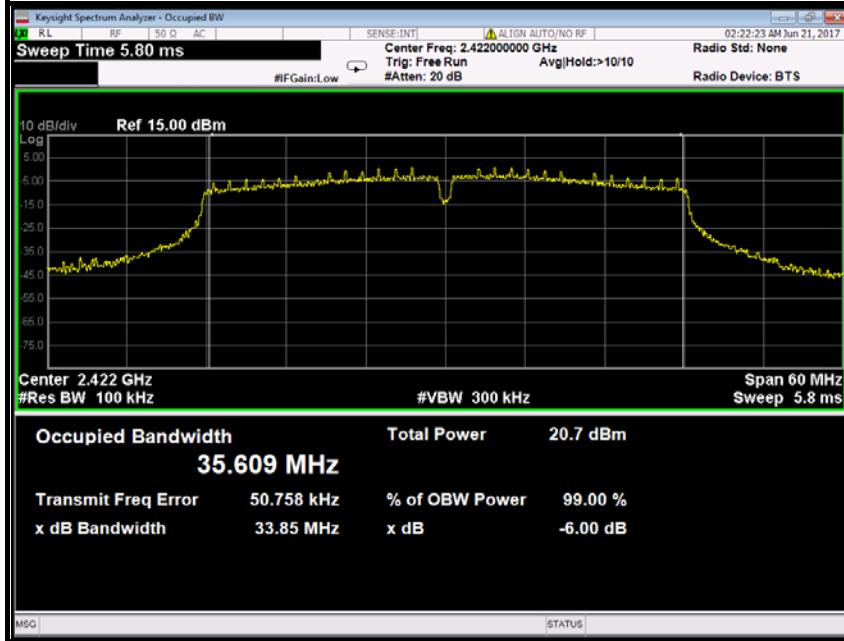
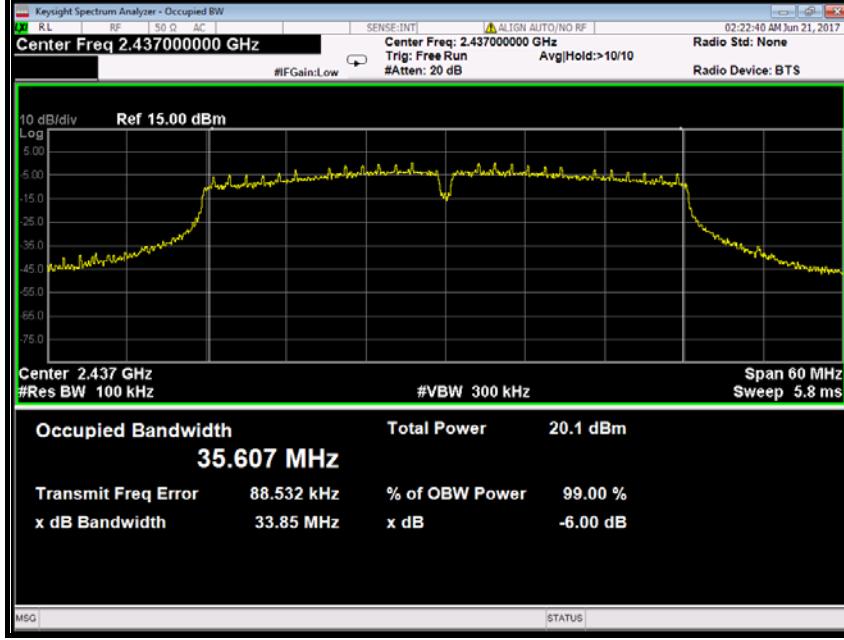


6dB Bandwidth (CH Mid)



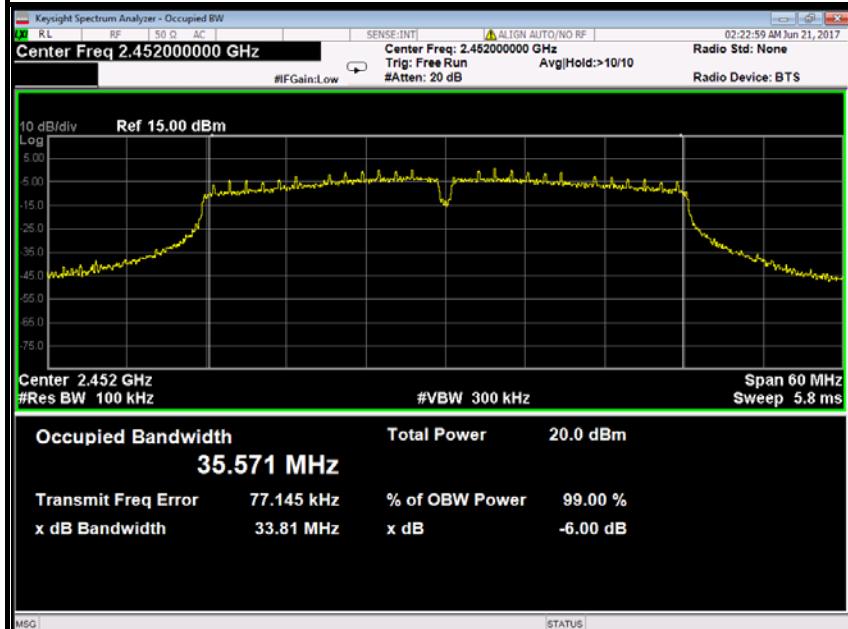
6dB Bandwidth (CH High)



**IEEE 802.11n HT40 MHz mode (Antenna 0)****6dB Bandwidth (CH Low)****6dB Bandwidth (CH Mid)**

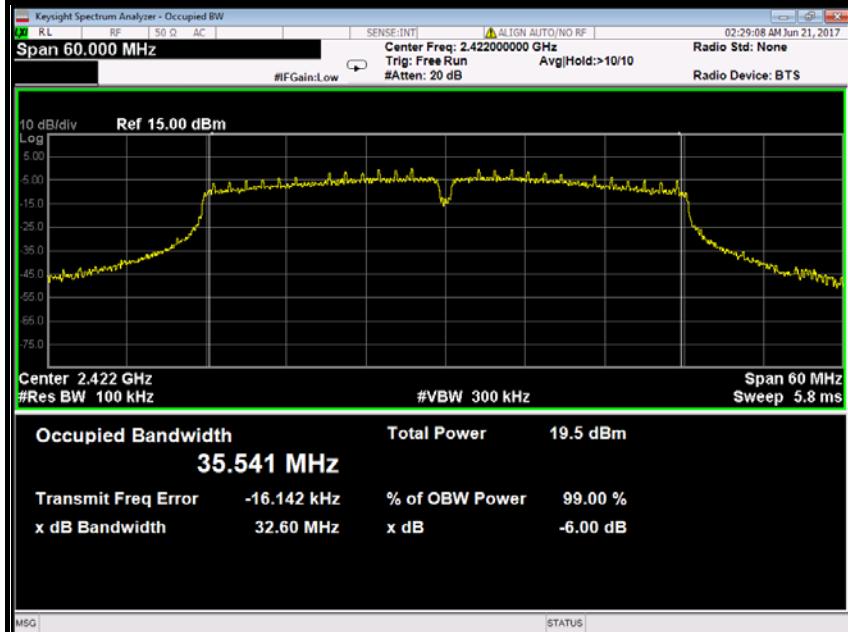


6dB Bandwidth (CH High)



IEEE 802.11n HT40 MHz mode (Antenna 1)

6dB Bandwidth (CH Low)

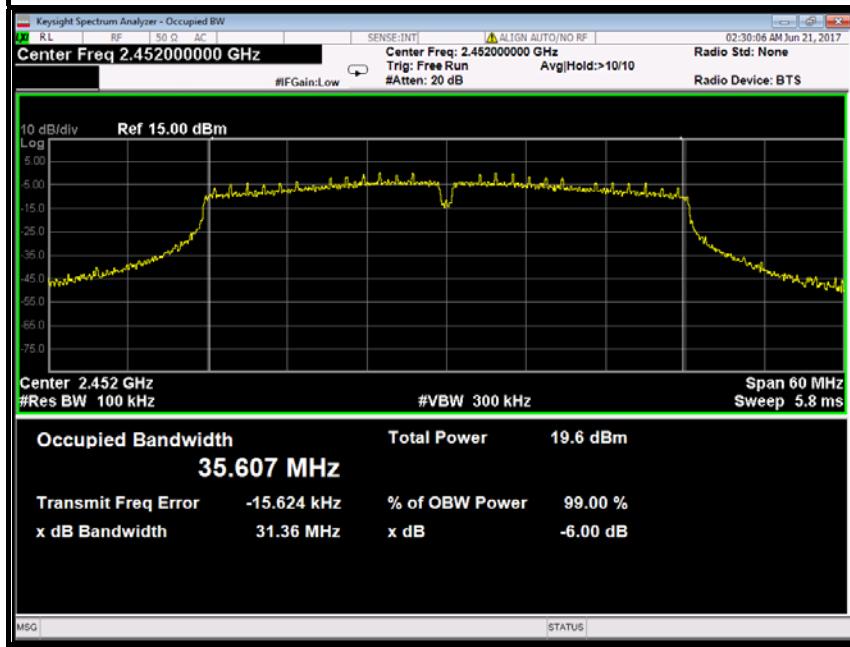




6dB Bandwidth (CH Mid)



6dB Bandwidth (CH High)





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 Gain	
6 dBi	



TEST RESULTS

IEEE 802.11b mode (Antenna 0)

T _{nom}	V _{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		5.90	5.00	5.40
Radiated power [dBm/MHz] Measured with DSSS modulation		8.05	7.85	8.87
Gain [dBi] Calculated		2.15	2.85	3.07
Measurement uncertainty	± 1.5 dB (cond.) / ± 3 dB (rad.)			

IEEE 802.11b mode (Antenna 1)

T _{nom}	V _{nom}	Lowest channel 2412MHz	Middle channel 2437MHz	Highest channel 2462MHz
Conducted power [dBm/MHz] Measured with DSSS modulation		5.10	5.20	5.10
Radiated power [dBm/MHz] Measured with DSSS modulation		8.25	8.65	7.67
Gain [dBi] Calculated		3.15	3.45	2.57
Measurement uncertainty	± 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 INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Power Meter	Anritsu	ML2495A	1204003	02/21/2017	02/20/2018
Power Sensor	Anritsu	MA2411B	1126150	02/21/2017	02/20/2018

7.5.3. TEST PROCEDURES (please refer to measurement standard)

9.1.1 RBW \geq DTS bandwidth

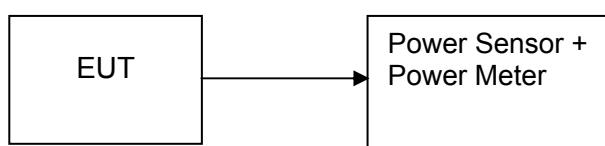
This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the *DTS bandwidth*.

- a) Set the RBW \geq DTS bandwidth.
- b) Set VBW \geq 3 RBW.
- c) Set span \geq 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.

9.1.3 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.

7.5.4. TEST SETUP





7.5.5. 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	15.90	0.03890	Peak	1	PASS
Mid	2437	15.00	0.03162			PASS
High	2462	15.40	0.03467			PASS
Low	2412	12.80	0.01905	AVG	1	PASS
Mid	2437	12.00	0.01585			PASS
High	2462	12.30	0.01698			PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	15.10	0.03236	Peak	1	PASS
Mid	2437	15.20	0.03311			PASS
High	2462	15.10	0.03236			PASS
Low	2412	12.10	0.01622	AVG	1	PASS
Mid	2437	12.20	0.01660			PASS
High	2462	12.00	0.01585			PASS

Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	20.90	0.12303	Peak	1	PASS
Mid	2437	20.40	0.10965			PASS
High	2462	20.50	0.11220			PASS
Low	2412	13.20	0.02089	AVG	1	PASS
Mid	2437	12.10	0.01622			PASS
High	2462	12.30	0.01698			PASS

**Test mode: IEEE 802.11g (Antenna 1)**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Peak / AVG	Limit (W)	Result
Low	2412	20.90	0.12303	Peak	1	PASS
Mid	2437	20.60	0.11482			PASS
High	2462	20.50	0.11220			PASS
Low	2412	12.40	0.01738	AVG	1	PASS
Mid	2437	12.50	0.01778			PASS
High	2462	12.30	0.01698			PASS

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

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)	Peak / AVG	Limit (W)	Result
		Antenna 0	Antenna 1	Total				
Low	2412	20.80	20.80	23.81	0.24045	Peak	1	PASS
Mid	2437	20.30	20.40	23.36	0.21680			PASS
High	2462	20.60	20.70	23.66	0.23231			PASS
Low	2412	12.90	12.20	15.57	0.03609	AVG	1	PASS
Mid	2437	12.10	12.00	15.06	0.03207			PASS
High	2462	12.40	11.90	15.17	0.03287			PASS

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

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)	Peak / AVG	Limit (W)	Result
		Antenna 0	Antenna 1	Total				
Low	2422	20.60	20.30	23.46	0.22197	Peak	1	PASS
Mid	2437	20.10	20.40	23.26	0.21198			PASS
High	2452	20.50	20.50	23.51	0.22440			PASS
Low	2422	12.90	11.50	15.27	0.03362	AVG	1	PASS
Mid	2437	11.70	11.80	14.76	0.02993			PASS
High	2452	12.20	12.20	15.21	0.03319			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 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. 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 INSTRUMENTS

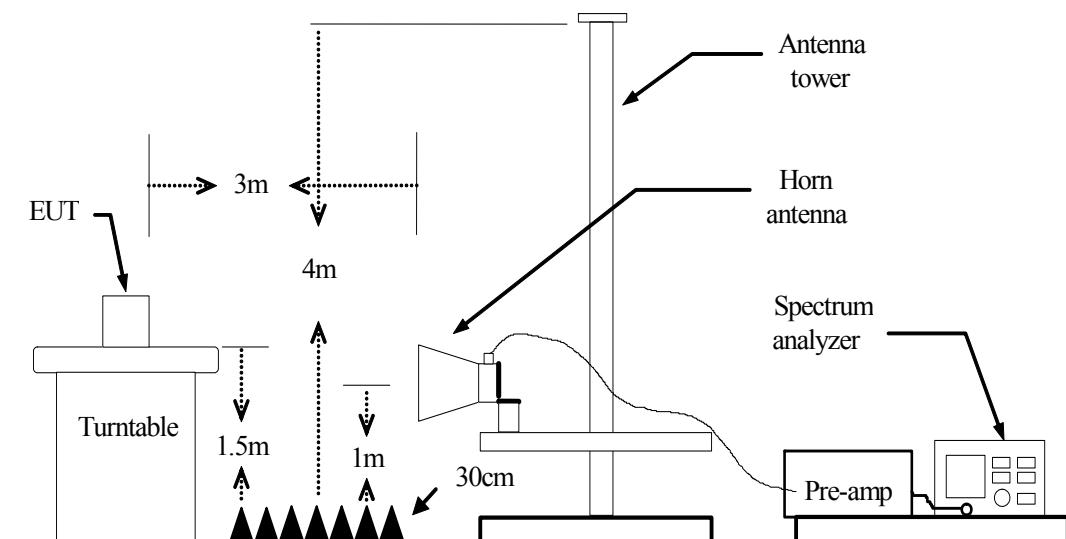
Radiated Emission Test Site 966(2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	N9010A	MY55370330	02/21/2017	02/20/2018
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/21/2017	02/20/2018
Amplifier	EMEC	EM330	060661	03/18/2017	03/17/2018
High Noise Amplifier	Agilent	8449B	3008A01838	02/21/2017	02/20/2018
Loop Antenna	COM-POWER	AL-130	121044	09/25/2016	09/24/2017
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2017	02/20/2018
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/28/2017	02/27/2018
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/28/2017	02/27/2018
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/21/2017	02/20/2018
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The FCC Site Registration number is 101879.
3. N.C.R = No Calibration Required.

7.6.3. 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=10Hz / Sweep=AUTO / Detector=PEAK
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

7.6.4. TEST SETUP



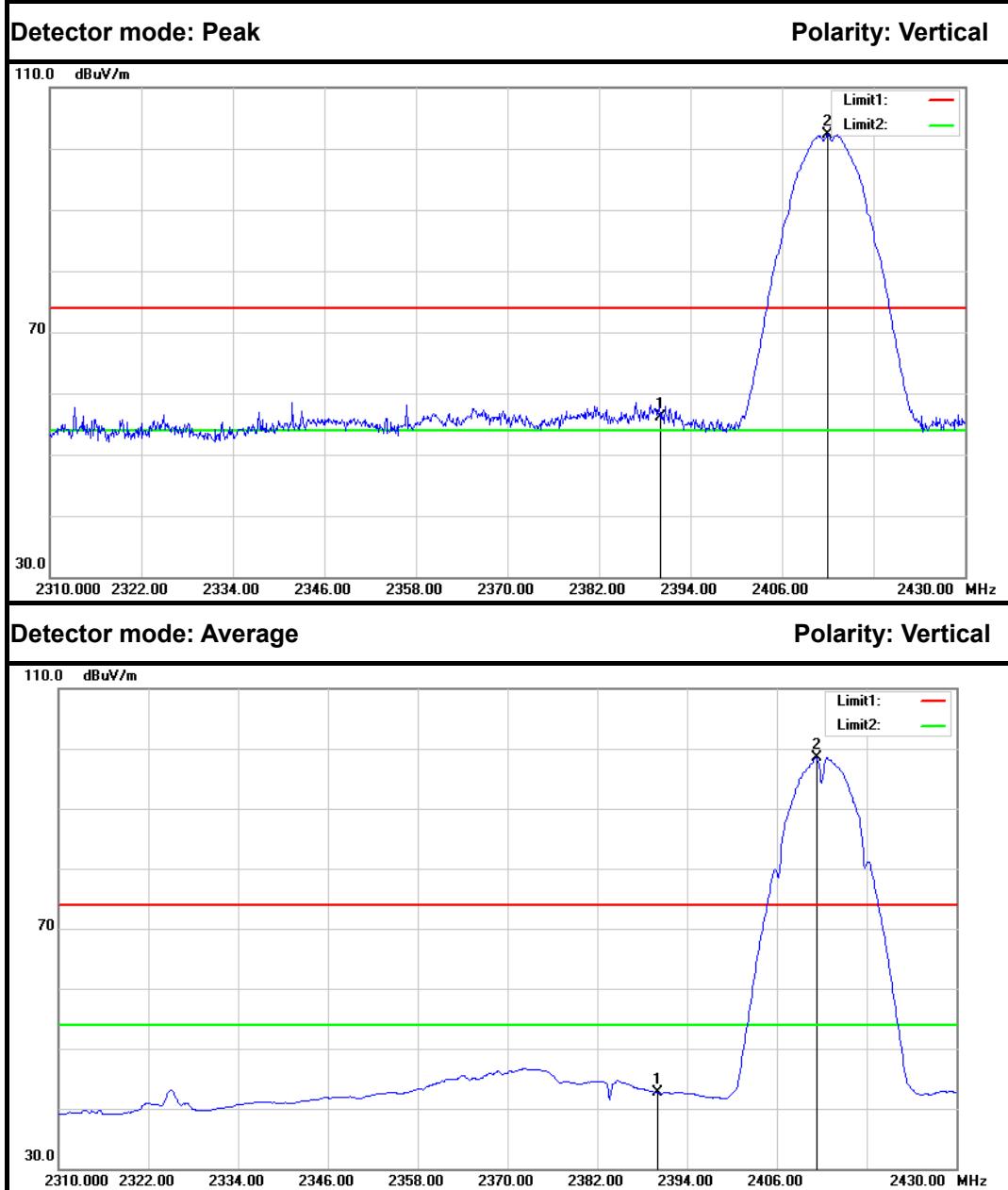


7.6.5. TEST RESULTS

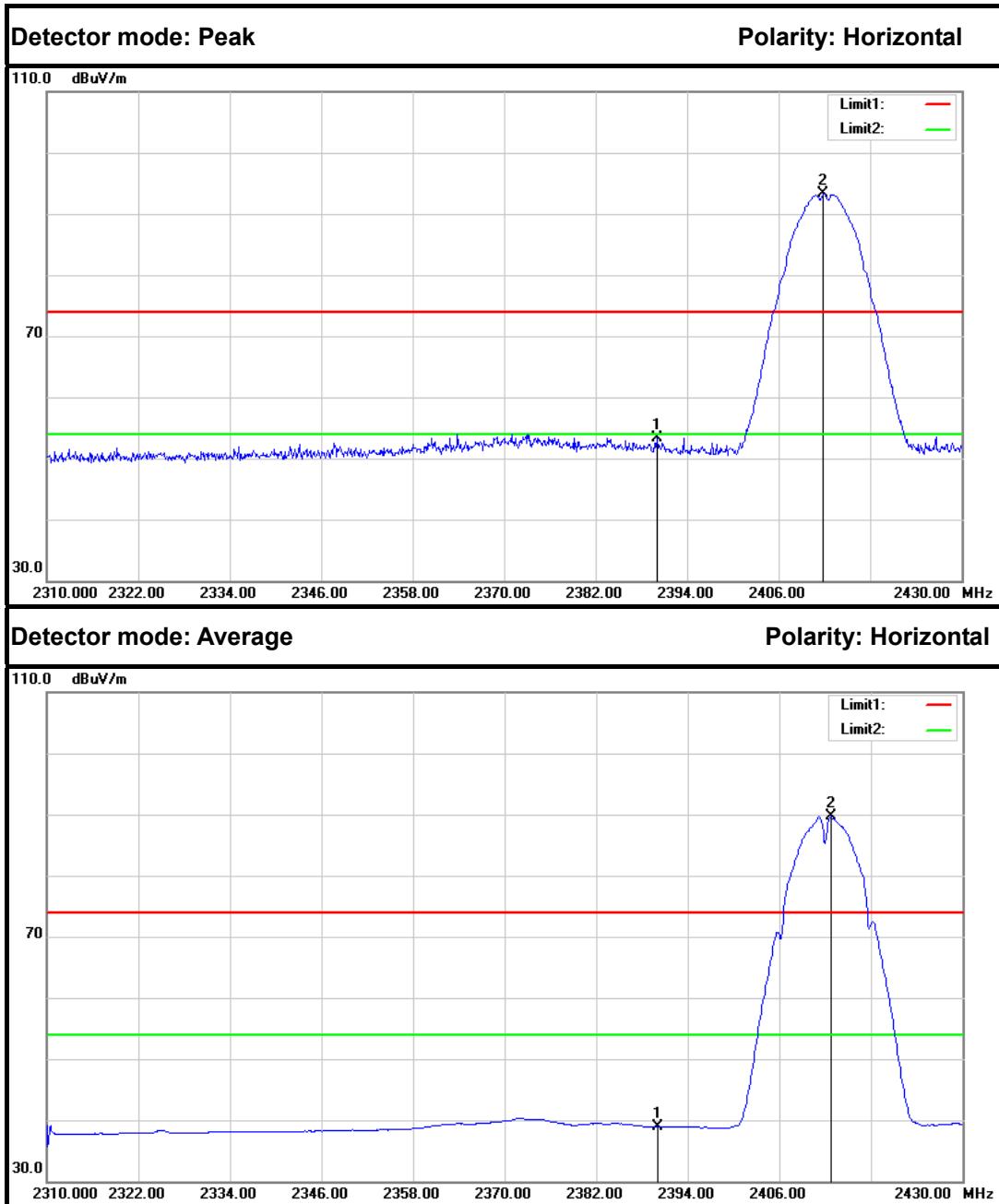
Test Plot

IEEE 802.11b mode (Antenna 0)

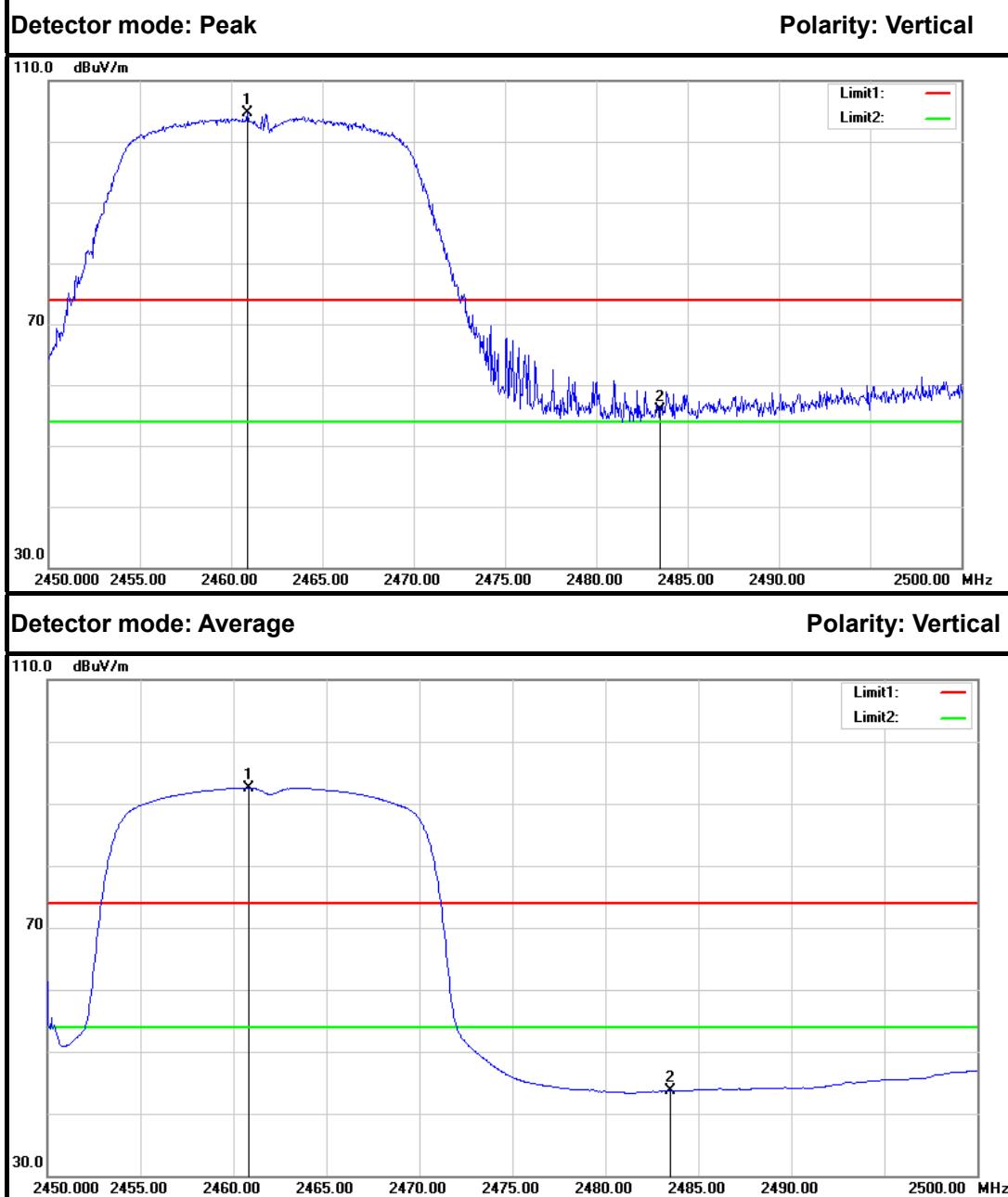
Band Edges (CH Low)



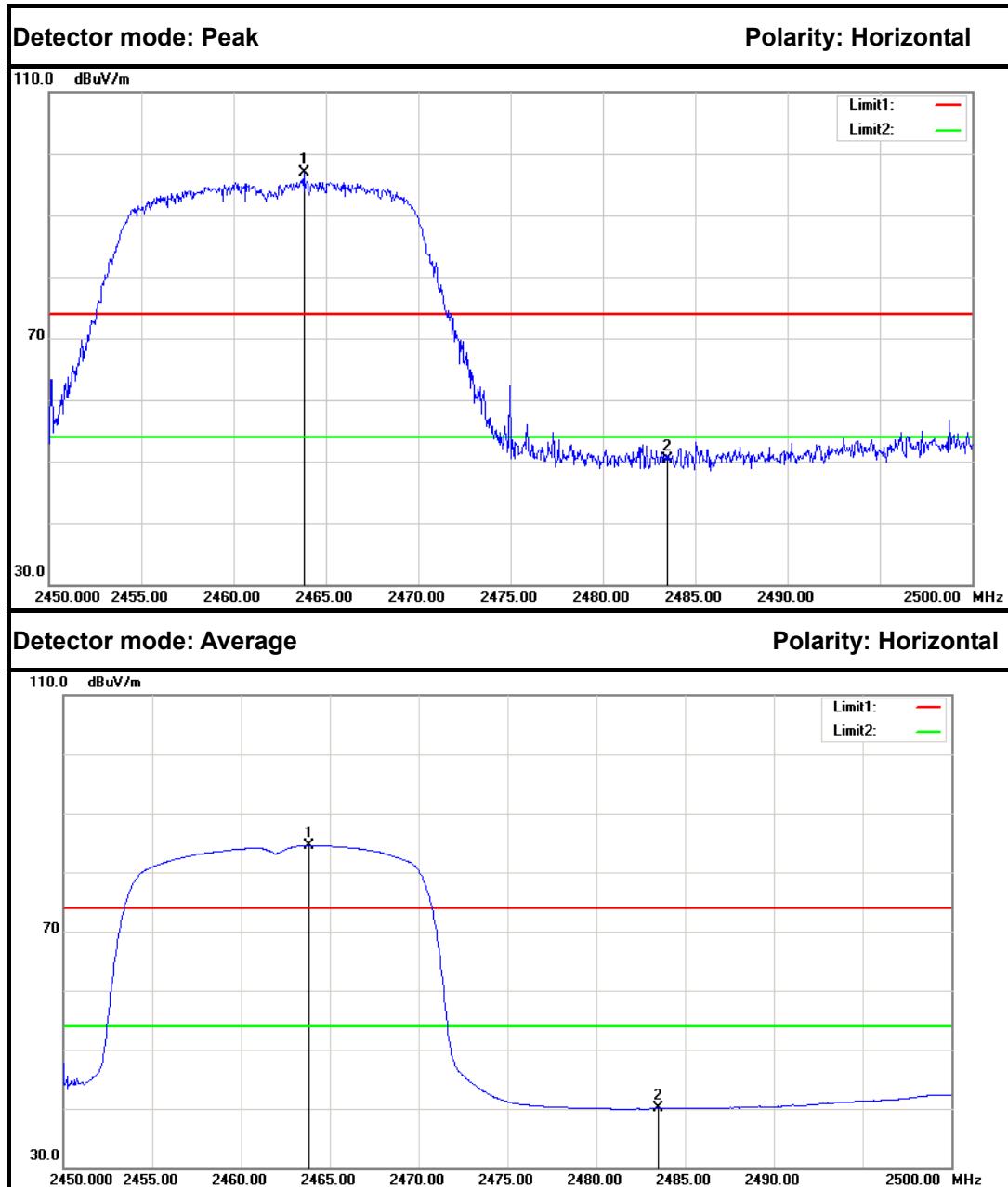
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	59.03	-2.86	56.17	74.00	-17.83	Peak	Vertical
2	2412.000	105.08	-2.74	102.34	---	---	Peak	Vertical
1	2390.000	45.51	-2.86	42.65	54.00	-11.35	Average	Vertical
2	2411.280	101.25	-2.75	98.50	---	---	Average	Vertical



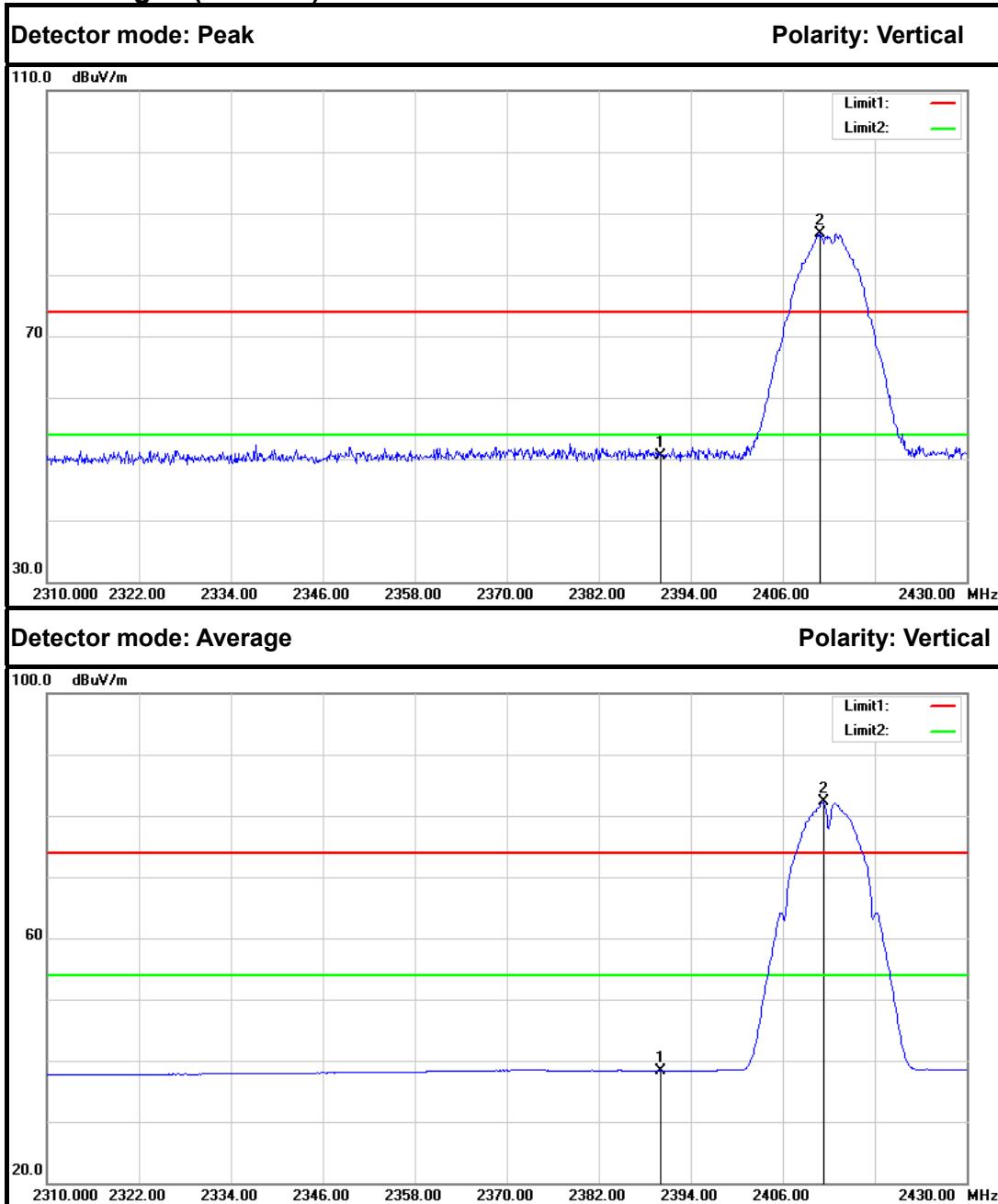
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	56.18	-2.86	53.32	74.00	-20.68	Peak	Horizontal
2	2411.880	95.96	-2.74	93.22	---	---	Peak	Horizontal
1	2390.000	41.78	-2.86	38.92	54.00	-15.08	Average	Horizontal
2	2412.720	92.38	-2.74	89.64	---	---	Average	Horizontal

**Band Edges (CH High)**

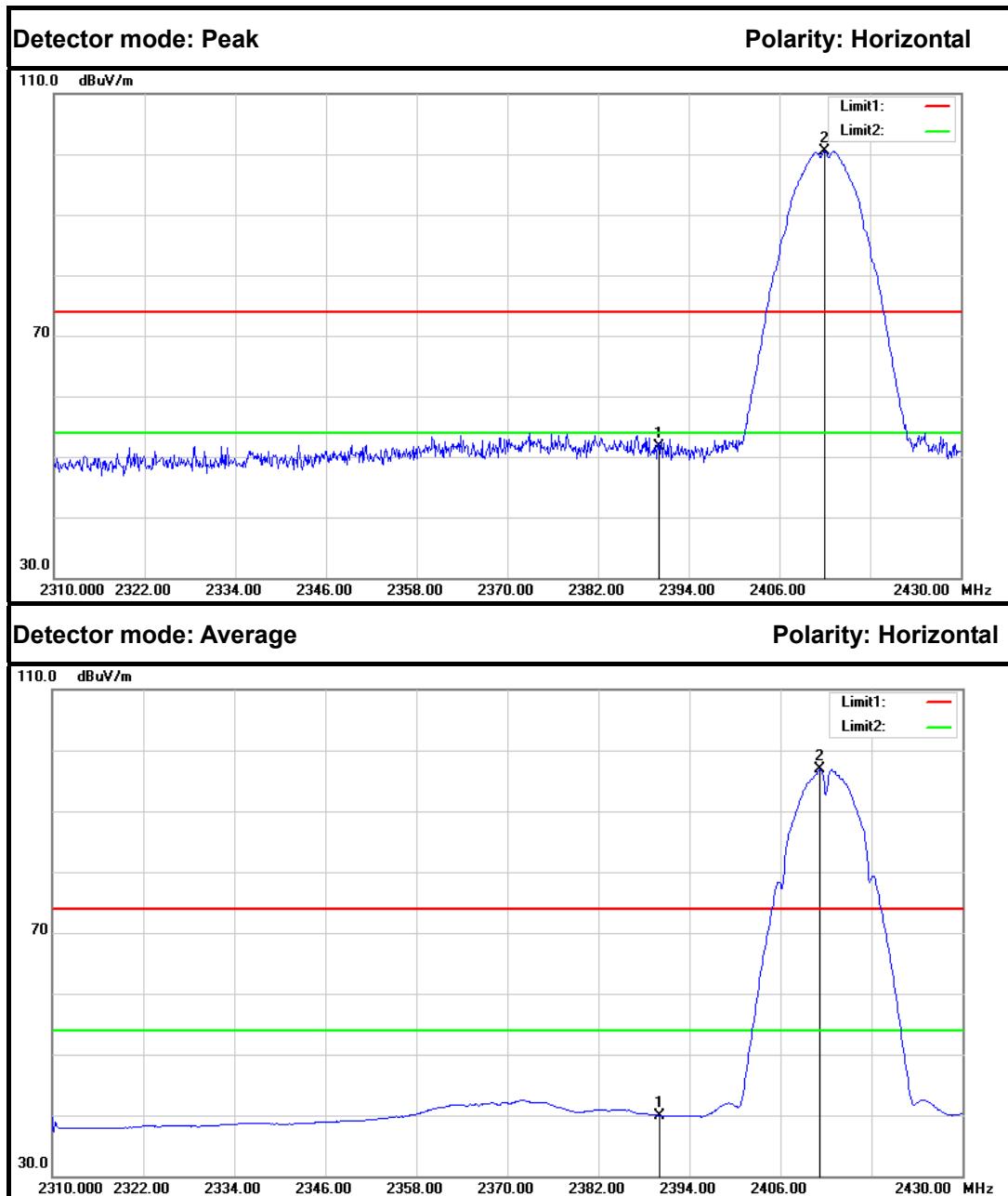
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2460.900	107.10	-2.47	104.63	---	---	Peak	Vertical
2	2483.500	58.34	-2.35	55.99	74.00	-18.01	Peak	Vertical
1	2460.800	95.00	-2.47	92.53	---	---	Average	Vertical
2	2483.500	46.02	-2.35	43.67	54.00	-10.33	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2463.800	99.27	-2.46	96.81	---	---	Peak	Horizontal
2	2483.500	52.55	-2.35	50.20	74.00	-23.80	Peak	Horizontal
1	2463.800	86.93	-2.46	84.47	---	---	Average	Horizontal
2	2483.500	42.37	-2.35	40.02	54.00	-13.98	Average	Horizontal

**IEEE 802.11b mode (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	53.27	-2.86	50.41	74.00	-23.59	Peak	Vertical
2	2410.920	89.45	-2.75	86.70	---	---	Peak	Vertical
1	2390.000	41.16	-2.86	38.30	54.00	-15.70	Average	Vertical
2	2411.280	84.96	-2.75	82.21	---	---	Average	Vertical



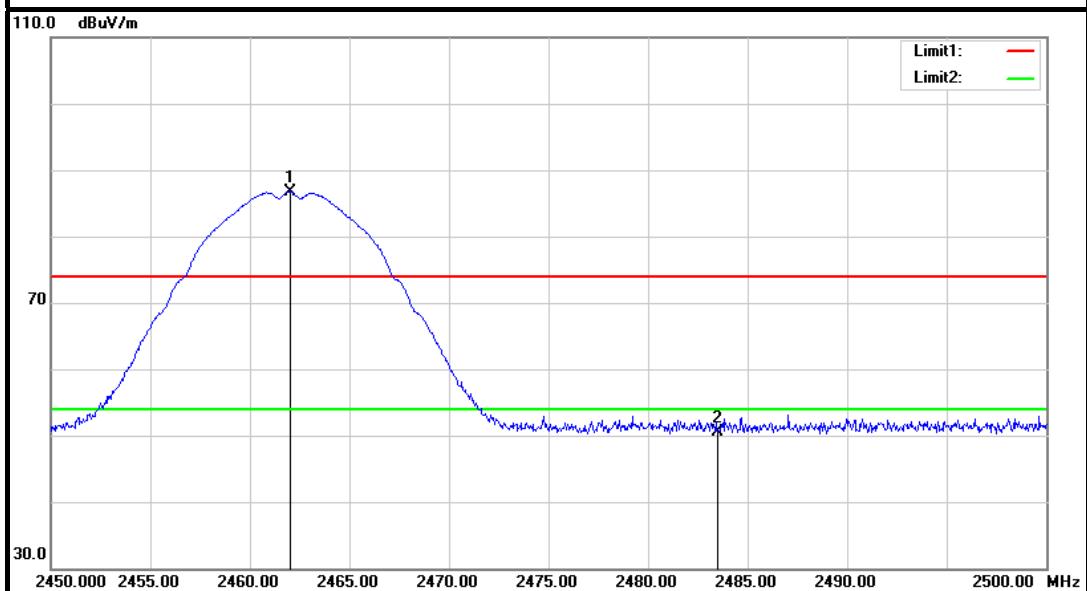
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	54.51	-2.86	51.65	74.00	-22.35	Peak	Horizontal
2	2411.160	103.29	-2.74	100.55	---	---	Peak	Horizontal
1	2390.000	42.83	-2.86	39.97	54.00	-14.03	Average	Horizontal
2	2411.160	99.65	-2.75	96.90	---	---	Average	Horizontal



Band Edges (CH High)

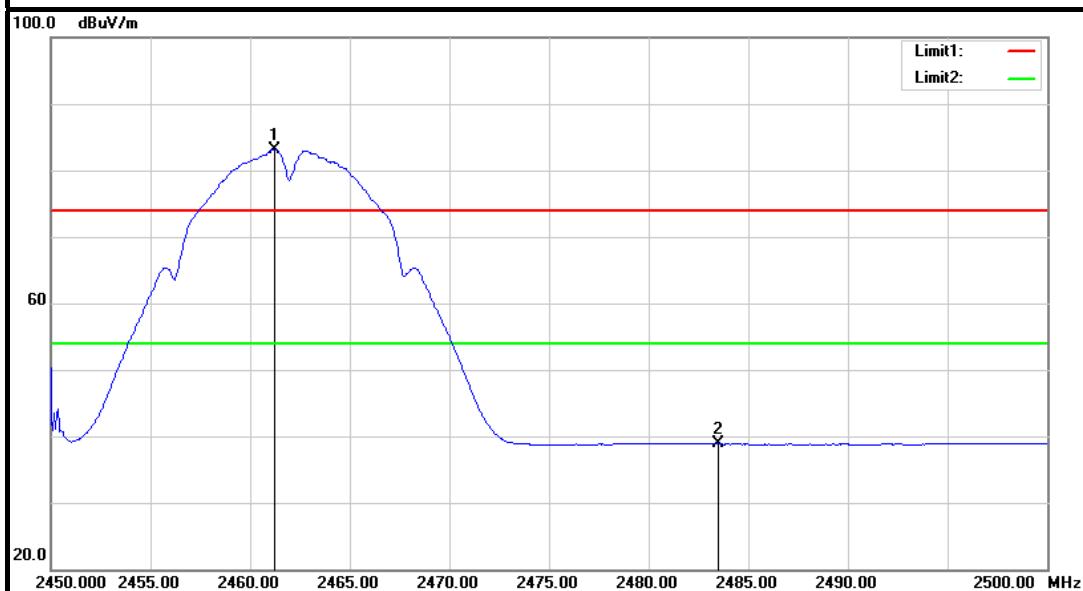
Detector mode: Peak

Polarity: Vertical

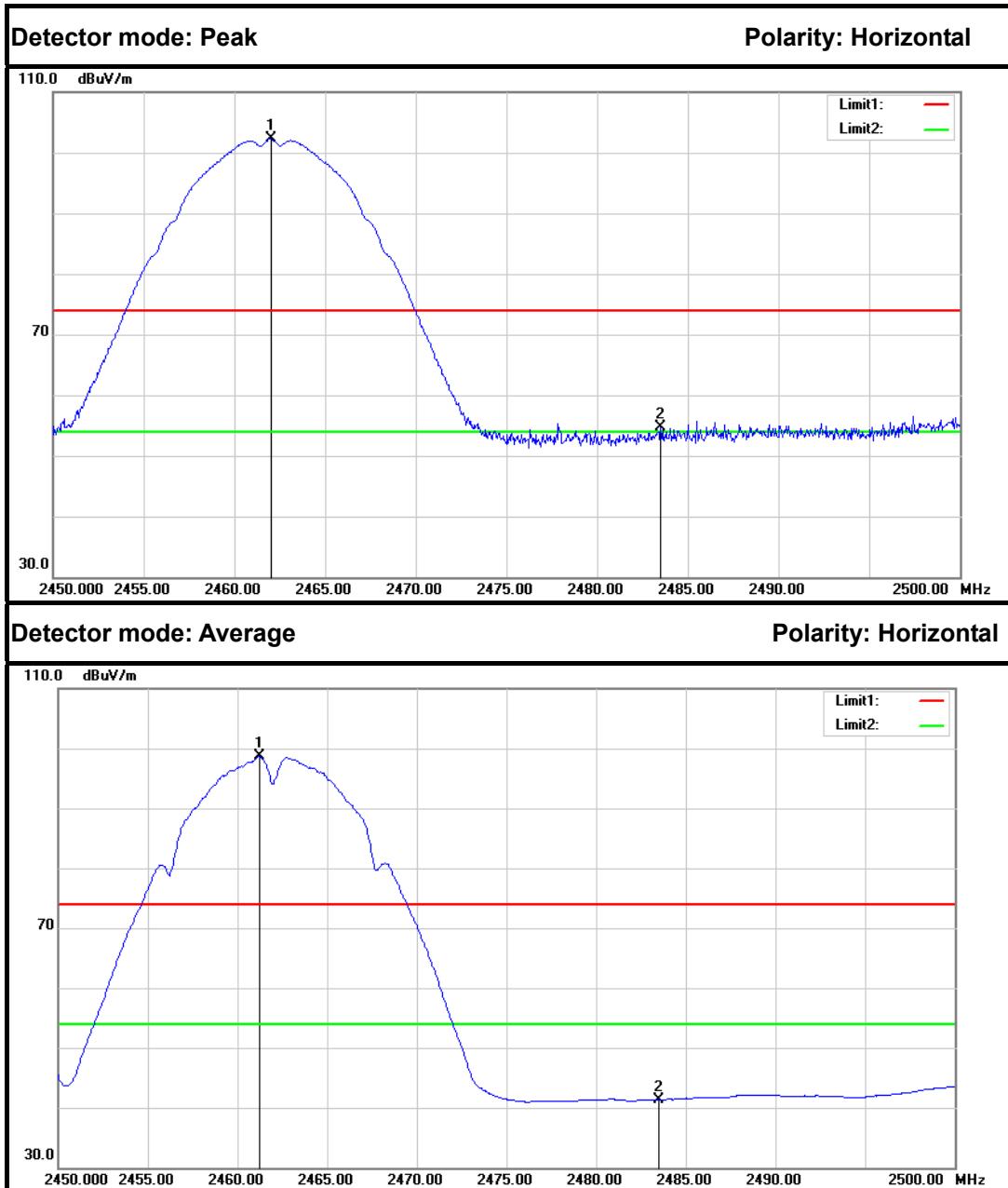


Detector mode: Average

Polarity: Vertical



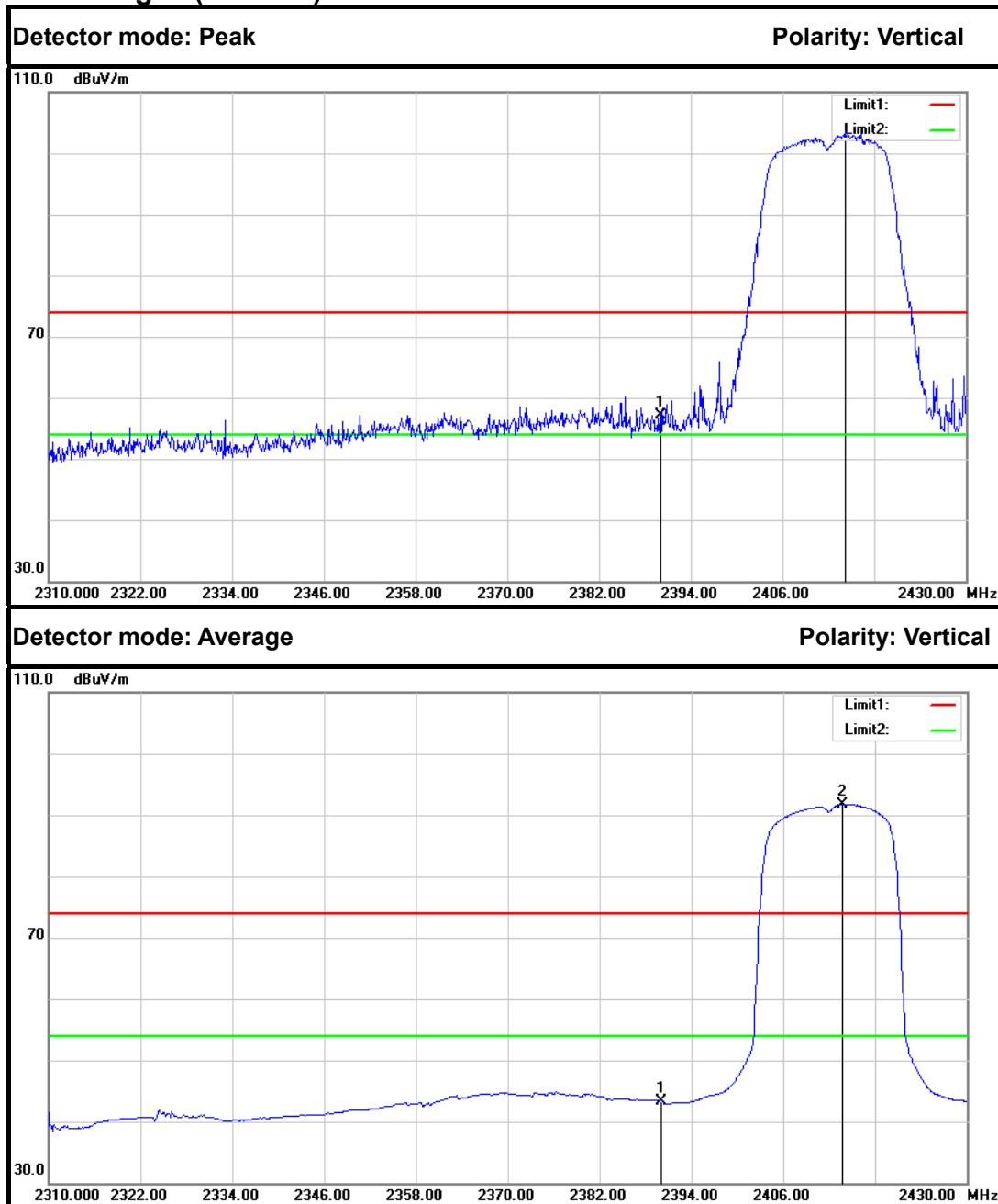
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	89.27	-2.47	86.80	---	---	Peak	Vertical
2	2483.500	52.82	-2.35	50.47	74.00	-23.53	Peak	Vertical
1	2461.200	85.66	-2.47	83.19	---	---	Average	Vertical
2	2483.500	41.16	-2.35	38.81	54.00	-15.19	Average	Vertical



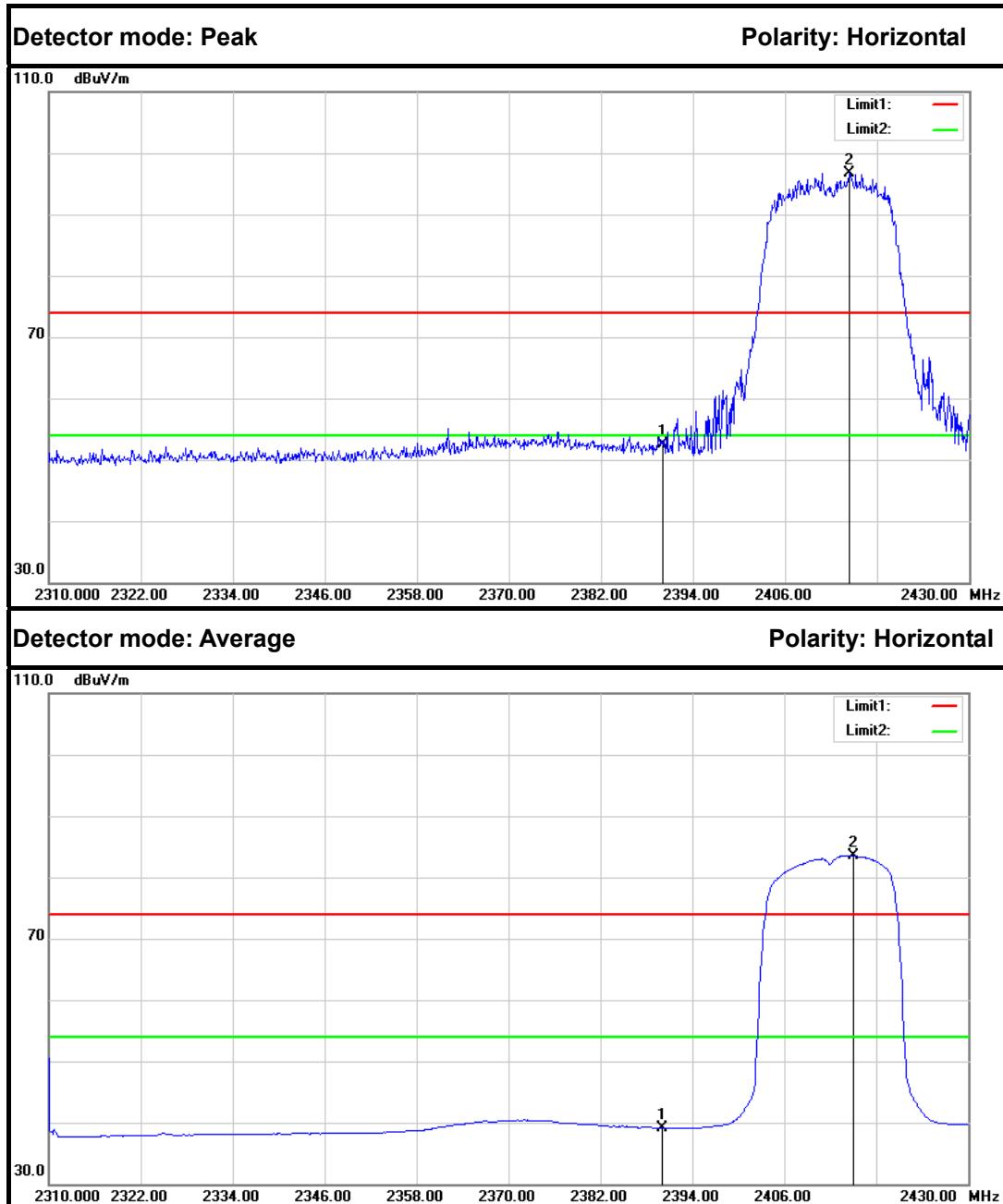
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2462.000	104.76	-2.47	102.29	---	---	Peak	Horizontal
2	2483.500	57.03	-2.35	54.68	74.00	-19.32	Peak	Horizontal
1	2461.200	101.11	-2.47	98.64	---	---	Average	Horizontal
2	2483.500	43.70	-2.35	41.35	54.00	-12.65	Average	Horizontal



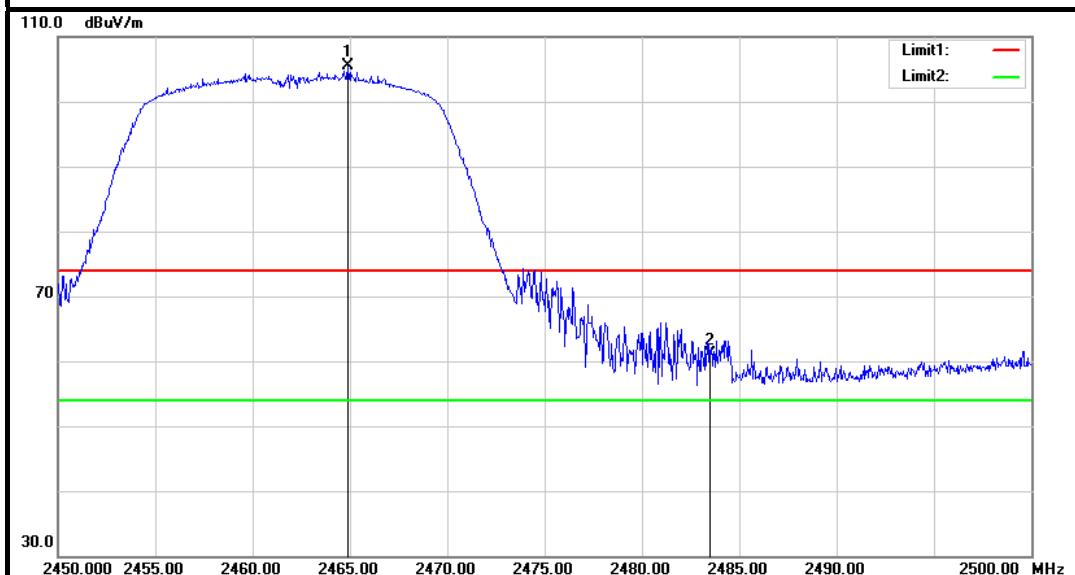
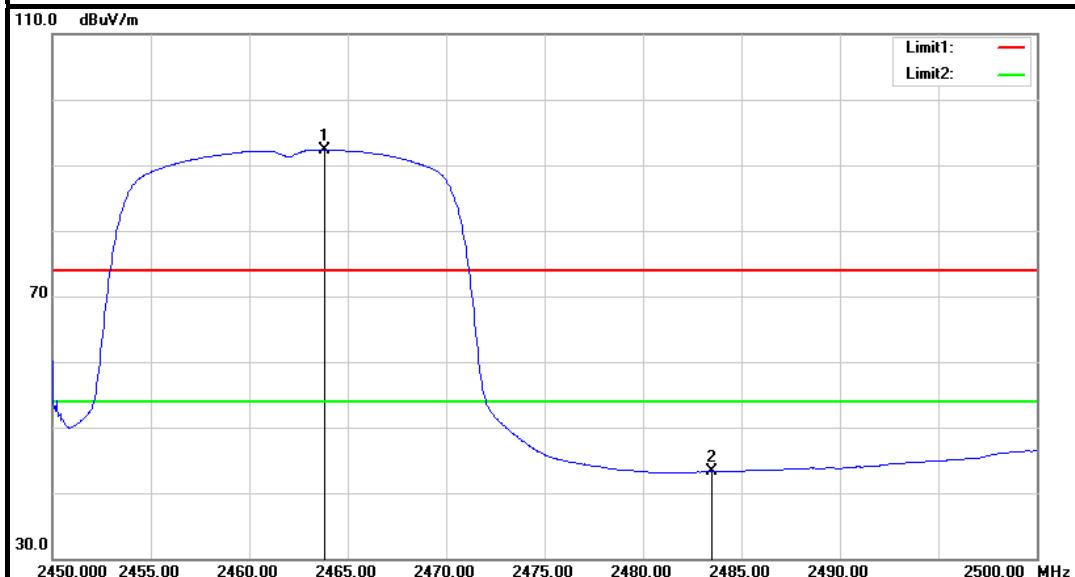
**IEEE 802.11g mode (Antenna 0)
Band Edges (CH Low)**



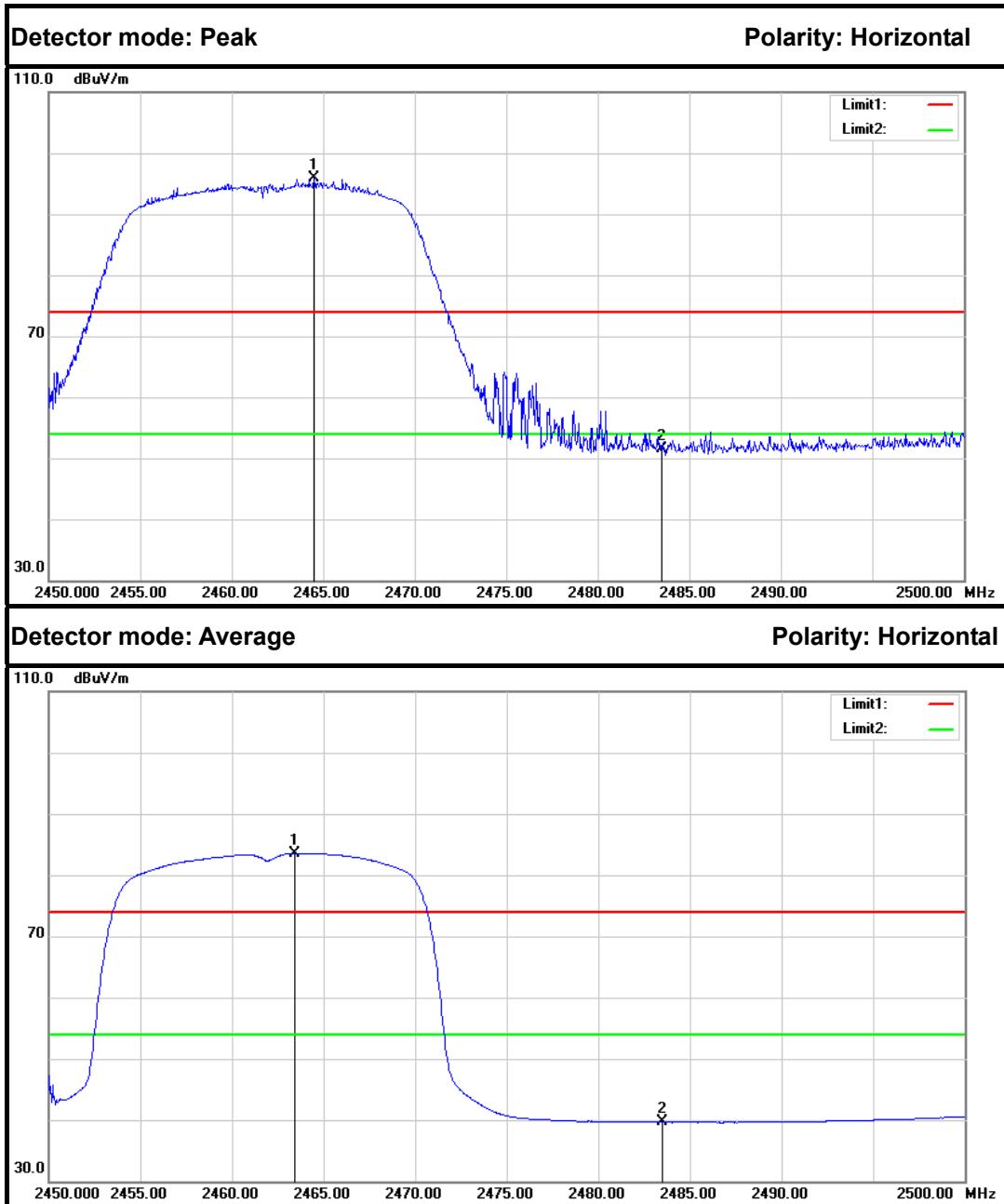
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	59.99	-2.86	57.13	74.00	-16.87	Peak	Vertical
2	2414.160	106.35	-2.73	103.62	---	---	Peak	Vertical
1	2390.000	46.26	-2.86	43.40	54.00	-10.60	Average	Vertical
2	2413.800	94.43	-2.73	91.70	---	---	Average	Vertical



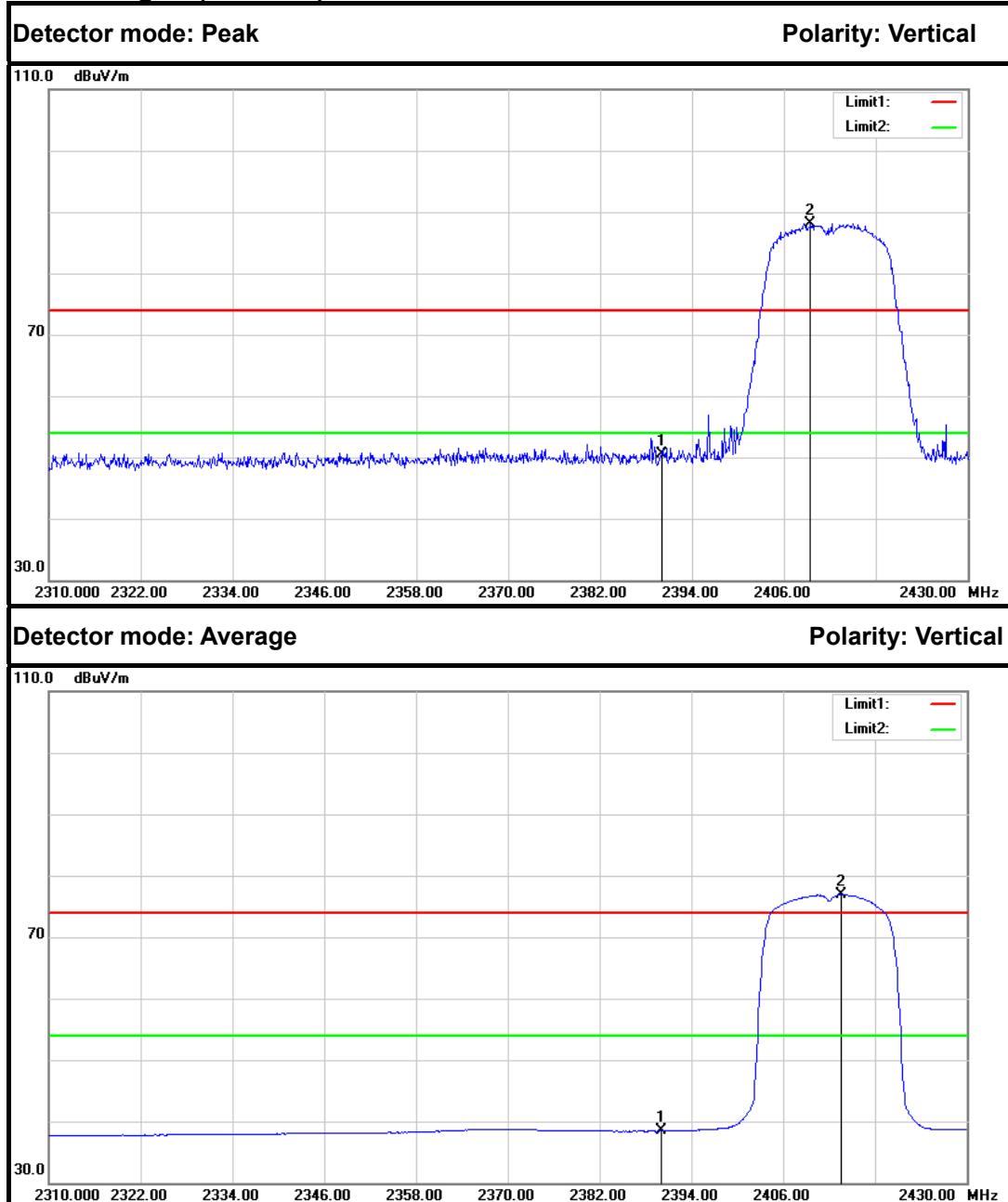
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	55.43	-2.86	52.57	74.00	-21.43	Peak	Horizontal
2	2414.400	99.45	-2.73	96.72	---	---	Peak	Horizontal
1	2390.000	42.00	-2.86	39.14	54.00	-14.86	Average	Horizontal
2	2415.000	86.21	-2.73	83.48	---	---	Average	Horizontal

**Band Edges (CH High)****Detector mode: Peak****Polarity: Vertical****Detector mode: Average****Polarity: Vertical**

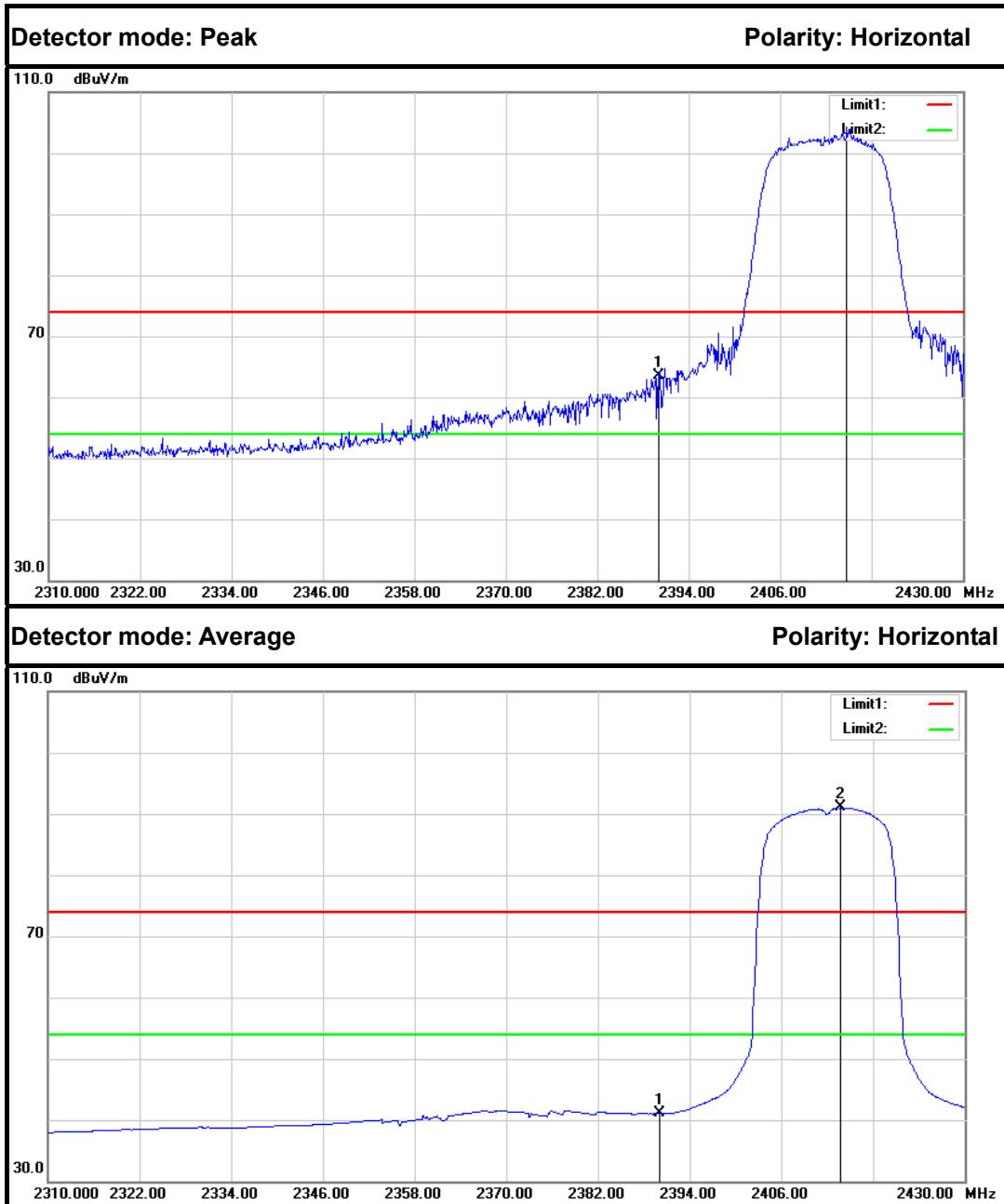
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2464.900	107.86	-2.45	105.41	---	---	Peak	Vertical
2	2483.500	63.46	-2.35	61.11	74.00	-12.89	Peak	Vertical
1	2463.800	94.83	-2.46	92.37	---	---	Average	Vertical
2	2483.500	45.58	-2.35	43.23	54.00	-10.77	Average	Vertical



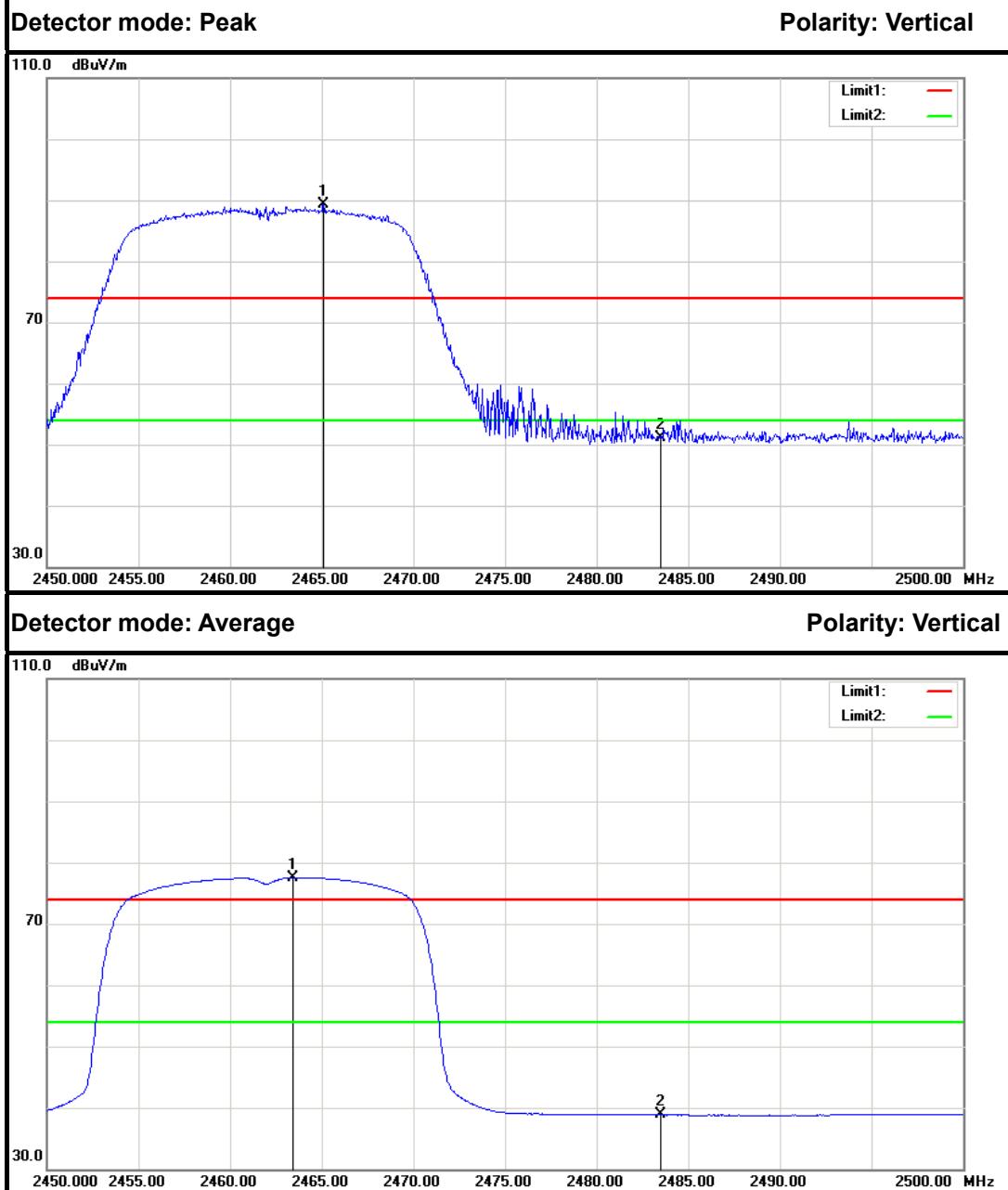
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2464.500	98.26	-2.45	95.81	---	---	Peak	Horizontal
2	2483.500	53.76	-2.35	51.41	74.00	-22.59	Peak	Horizontal
1	2463.450	86.04	-2.46	83.58	---	---	Average	Horizontal
2	2483.500	41.96	-2.35	39.61	54.00	-14.39	Average	Horizontal

**IEEE 802.11g mode (Antenna 1)
Band Edges (CH Low)**

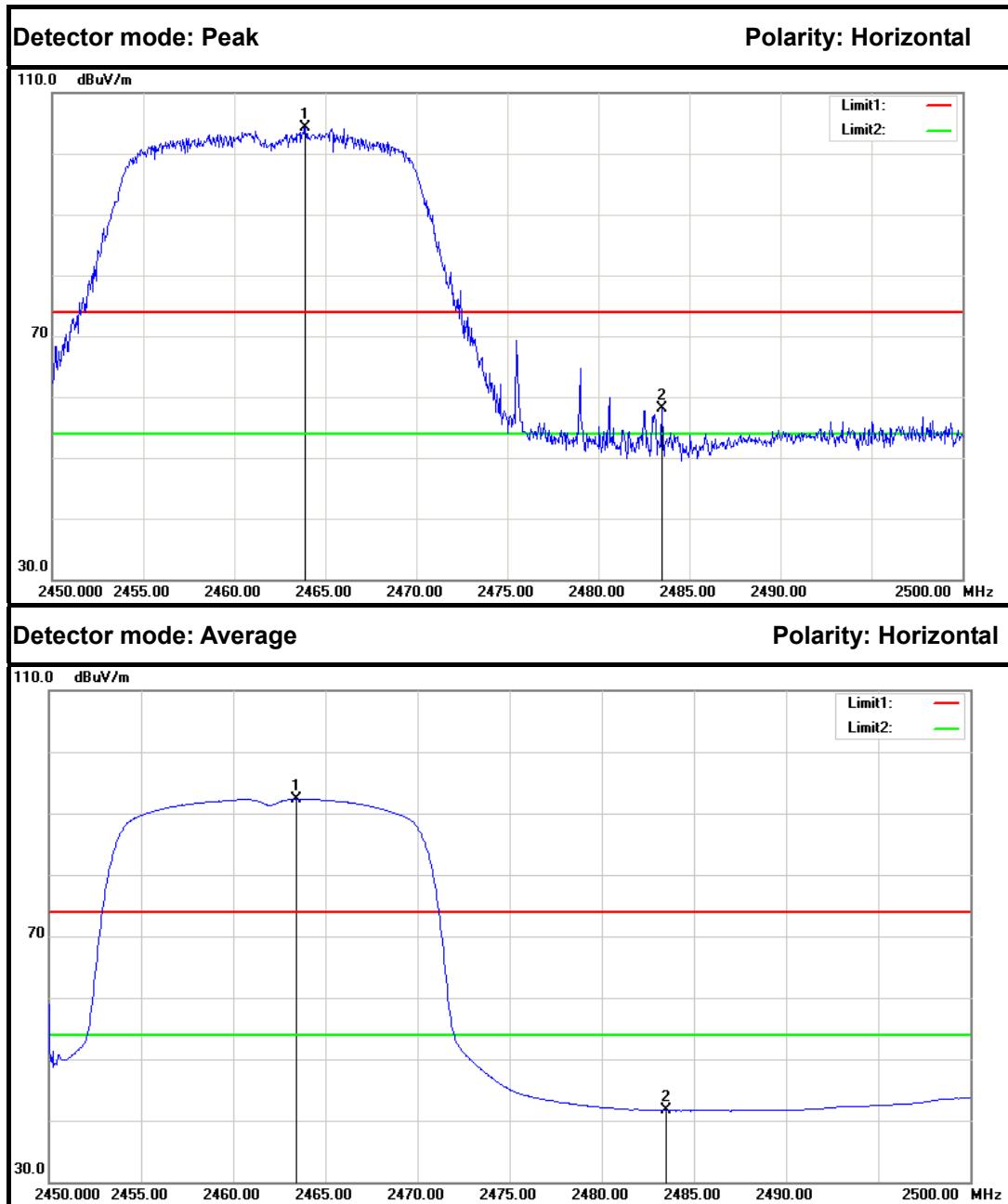
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	53.29	-2.86	50.43	74.00	-23.57	Peak	Vertical
2	2409.480	90.94	-2.76	88.18	---	---	Peak	Vertical
1	2390.000	41.27	-2.86	38.41	54.00	-15.59	Average	Vertical
2	2413.560	79.67	-2.73	76.94	---	---	Average	Vertical



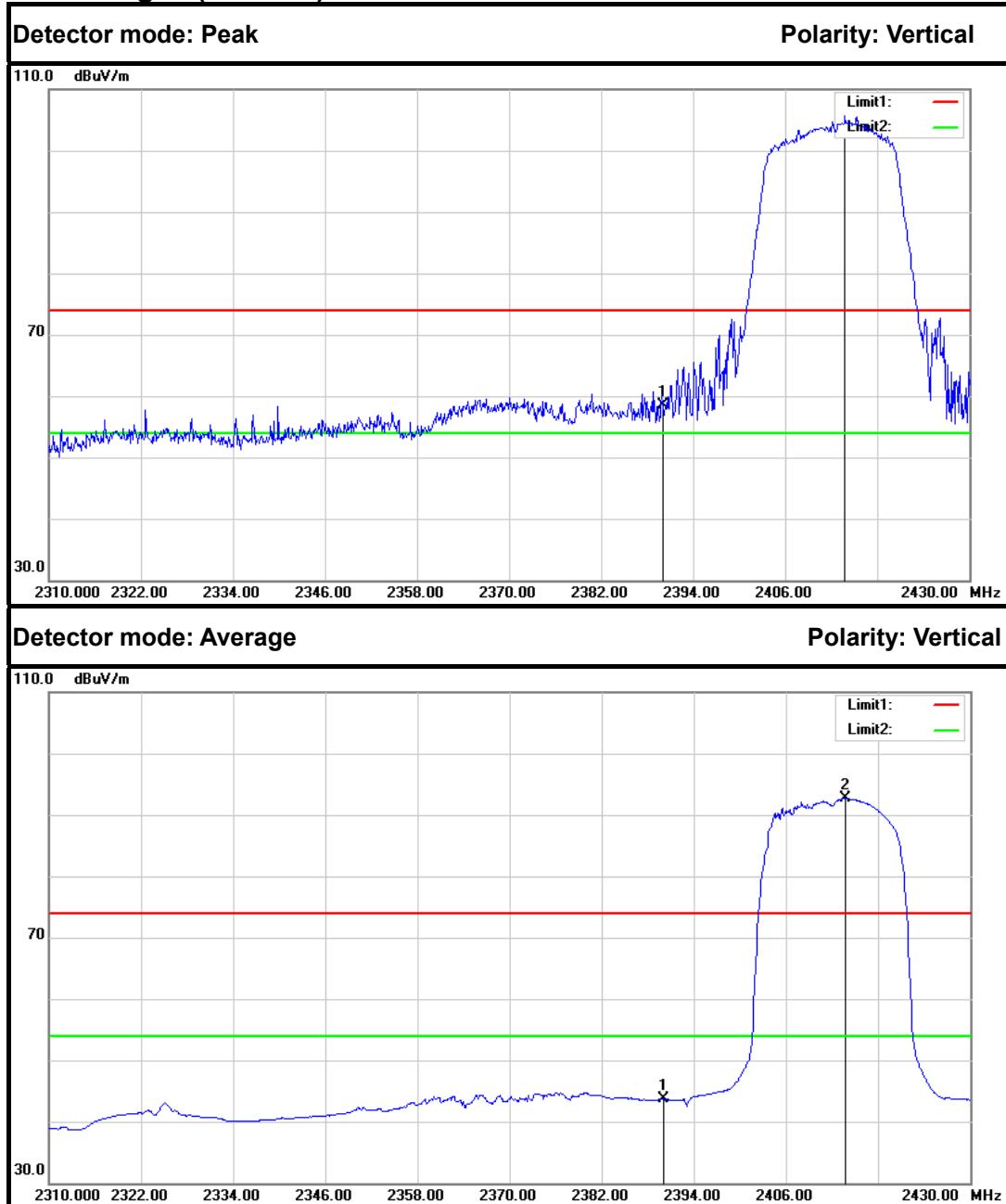
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	66.43	-2.86	63.57	74.00	-10.43	Peak	Horizontal
2	2414.760	106.93	-2.73	104.20	---	---	Peak	Horizontal
1	2390.000	43.87	-2.86	41.01	54.00	-12.99	Average	Horizontal
2	2413.680	93.75	-2.73	91.02	---	---	Average	Horizontal

**Band Edges (CH High)**

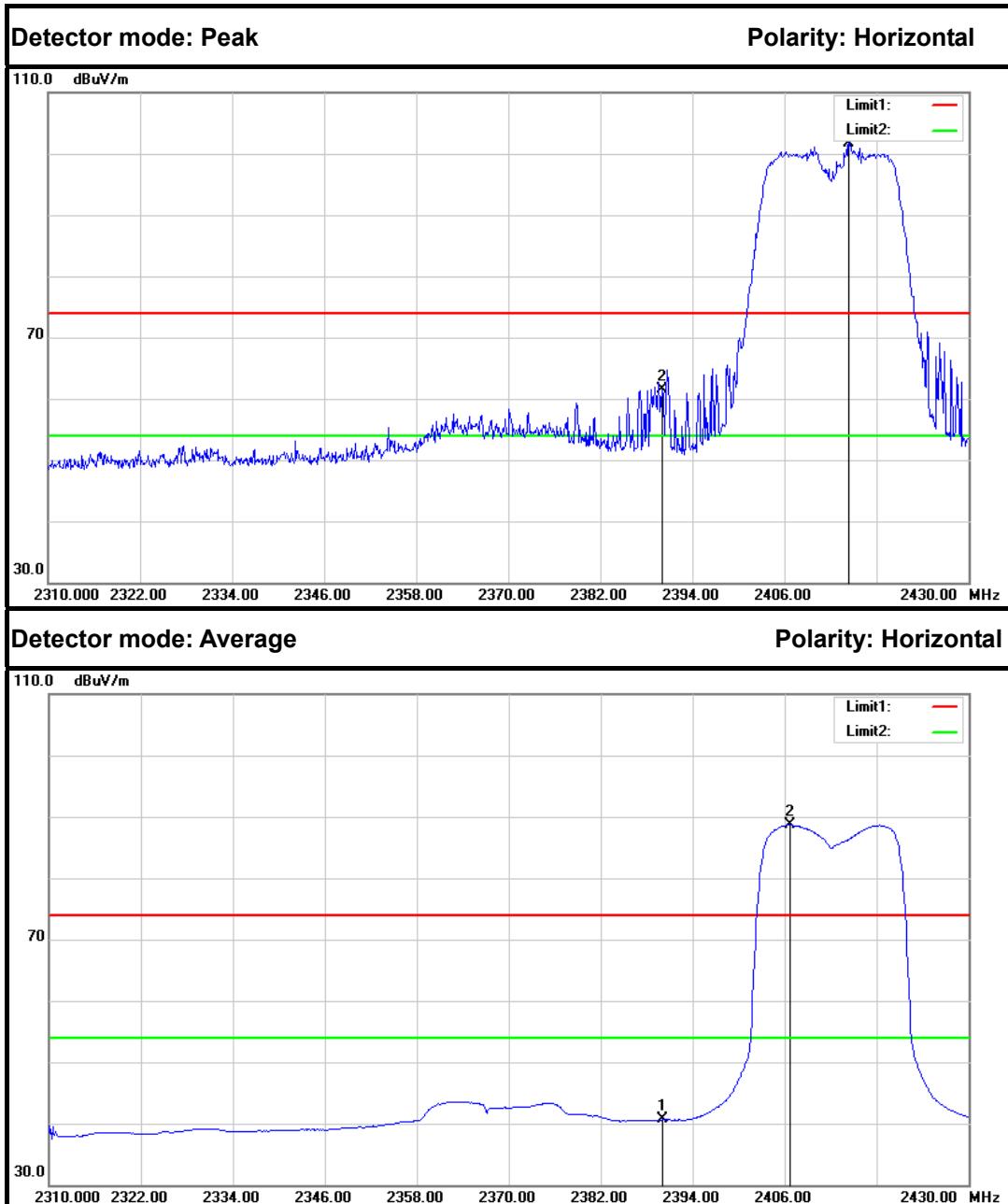
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2465.100	91.70	-2.45	89.25	---	---	Peak	Vertical
2	2483.500	53.38	-2.35	51.03	74.00	-22.97	Peak	Vertical
1	2463.400	80.01	-2.46	77.55	---	---	Average	Vertical
2	2483.500	41.20	-2.35	38.85	54.00	-15.15	Average	Vertical



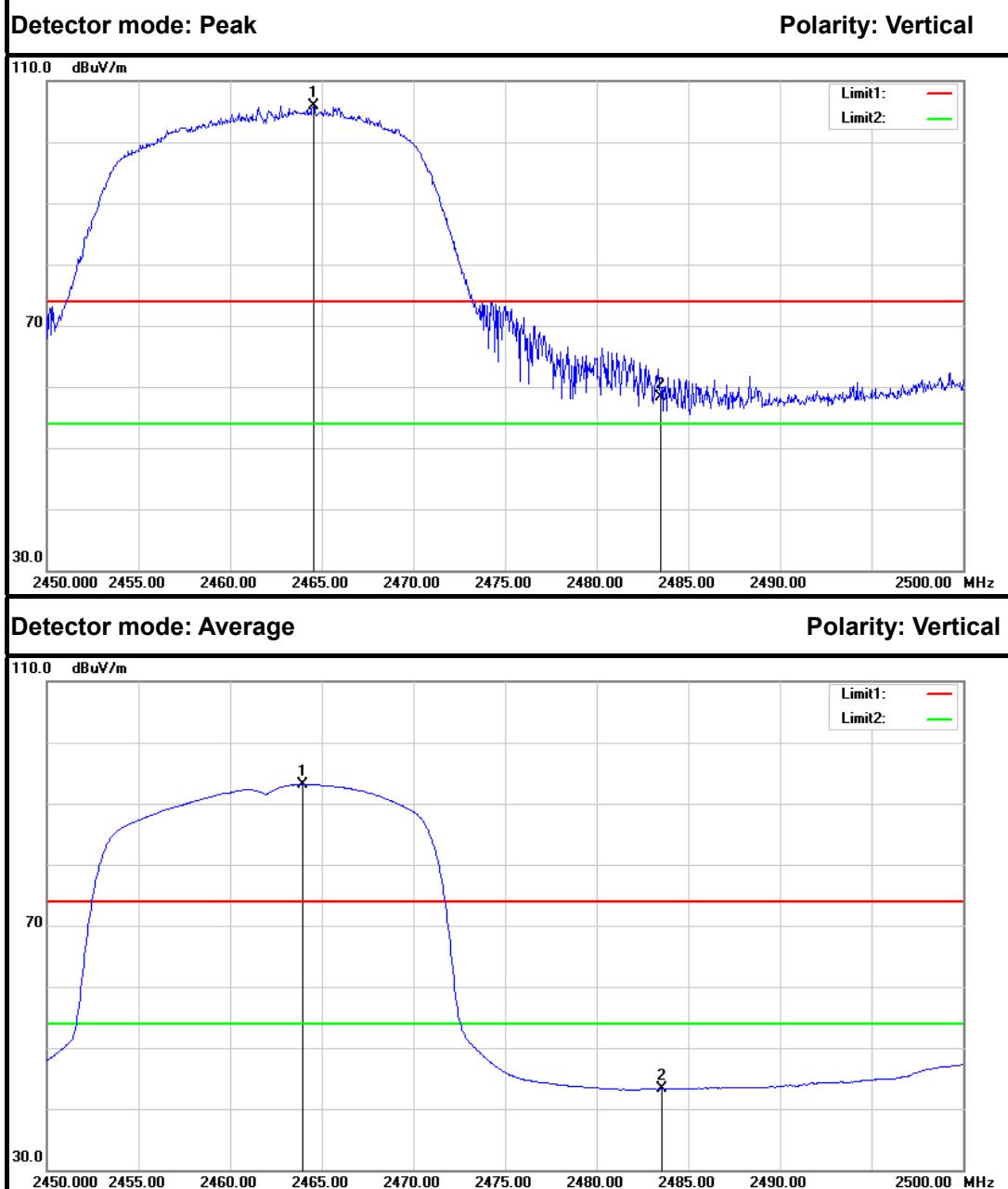
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2463.900	106.83	-2.46	104.37	---	---	Peak	Horizontal
2	2483.500	60.44	-2.35	58.09	74.00	-15.91	Peak	Horizontal
1	2463.450	94.79	-2.46	92.33	---	---	Average	Horizontal
2	2483.500	43.99	-2.35	41.64	54.00	-12.36	Average	Horizontal

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

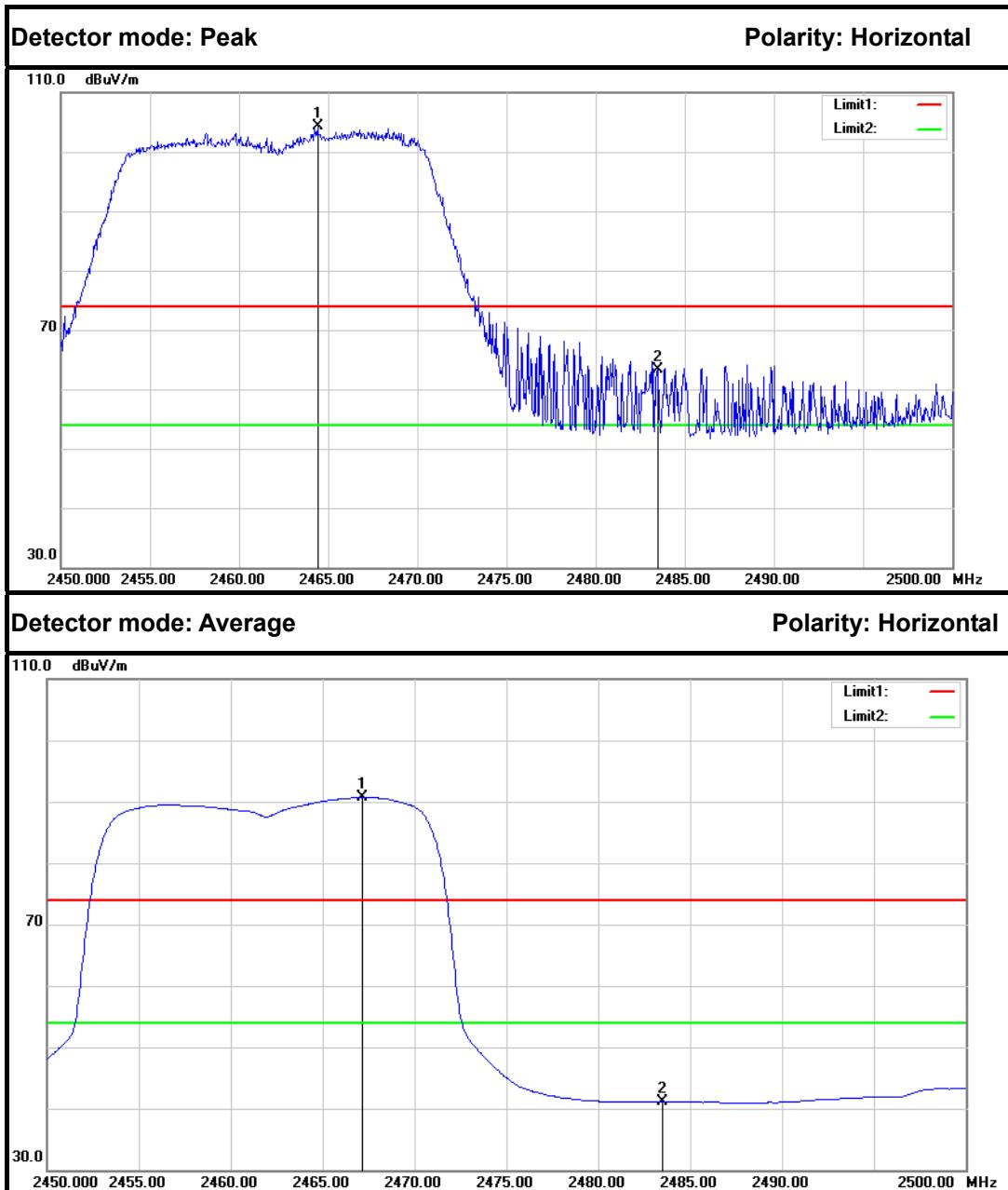
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	61.27	-2.86	58.41	74.00	-15.59	Peak	Vertical
2	2413.800	108.45	-2.73	105.72	---	---	Peak	Vertical
1	2390.000	46.47	-2.86	43.61	54.00	-10.39	Average	Vertical
2	2413.800	95.42	-2.73	92.69	---	---	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2414.400	104.47	-2.73	101.74	---	---	Peak	Horizontal
2	2390.000	64.38	-2.86	61.52	74.00	-12.48	Peak	Horizontal
1	2390.000	43.47	-2.86	40.61	54.00	-13.39	Average	Horizontal
2	2406.720	91.43	-2.77	88.66	---	---	Average	Horizontal

**Band Edges (CH High)**

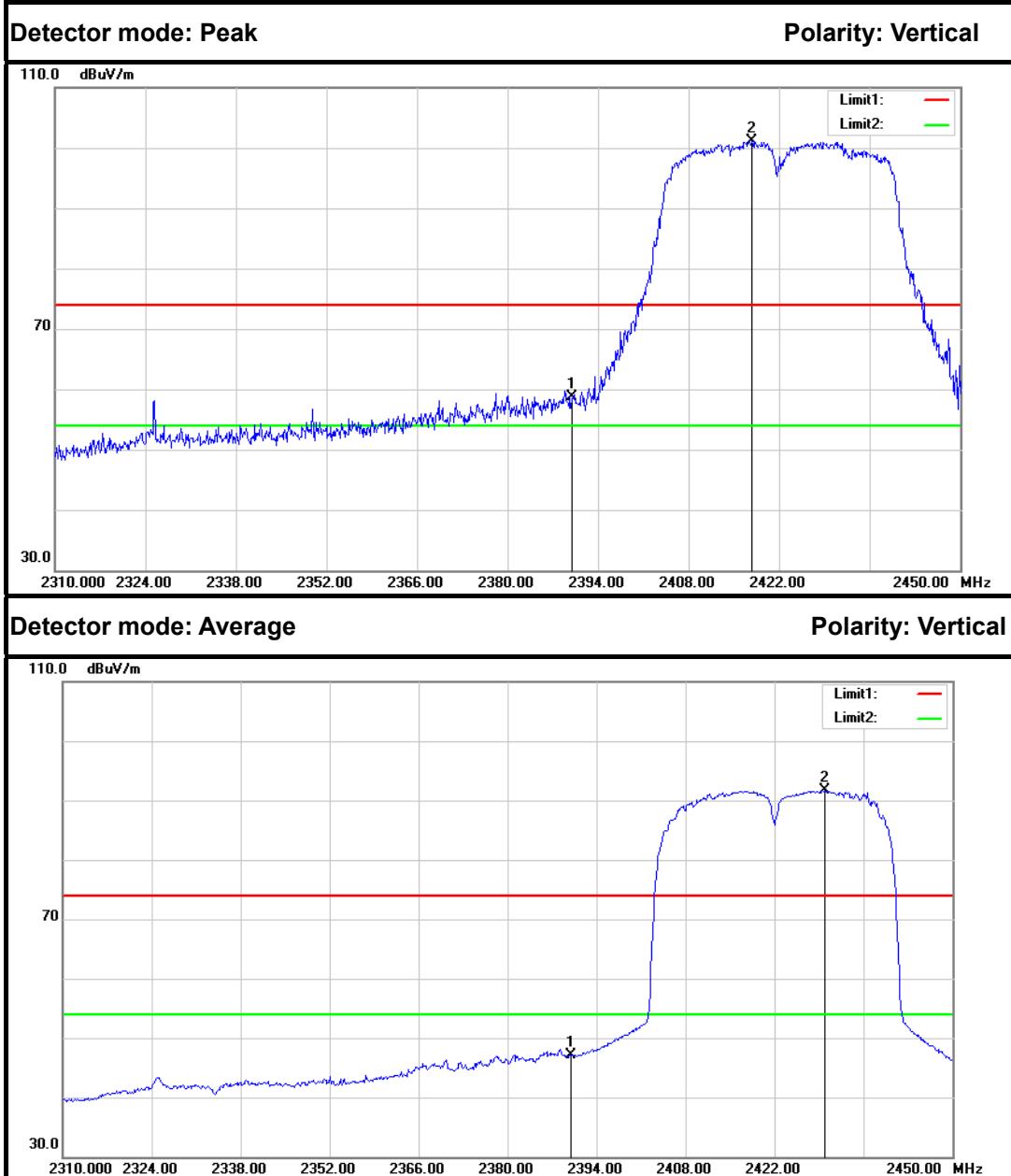
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2464.550	108.33	-2.45	105.88	---	---	Peak	Vertical
2	2483.500	60.56	-2.35	58.21	74.00	-15.79	Peak	Vertical
1	2463.950	95.57	-2.46	93.11	---	---	Average	Vertical
2	2483.500	45.57	-2.35	43.22	54.00	-10.78	Average	Vertical



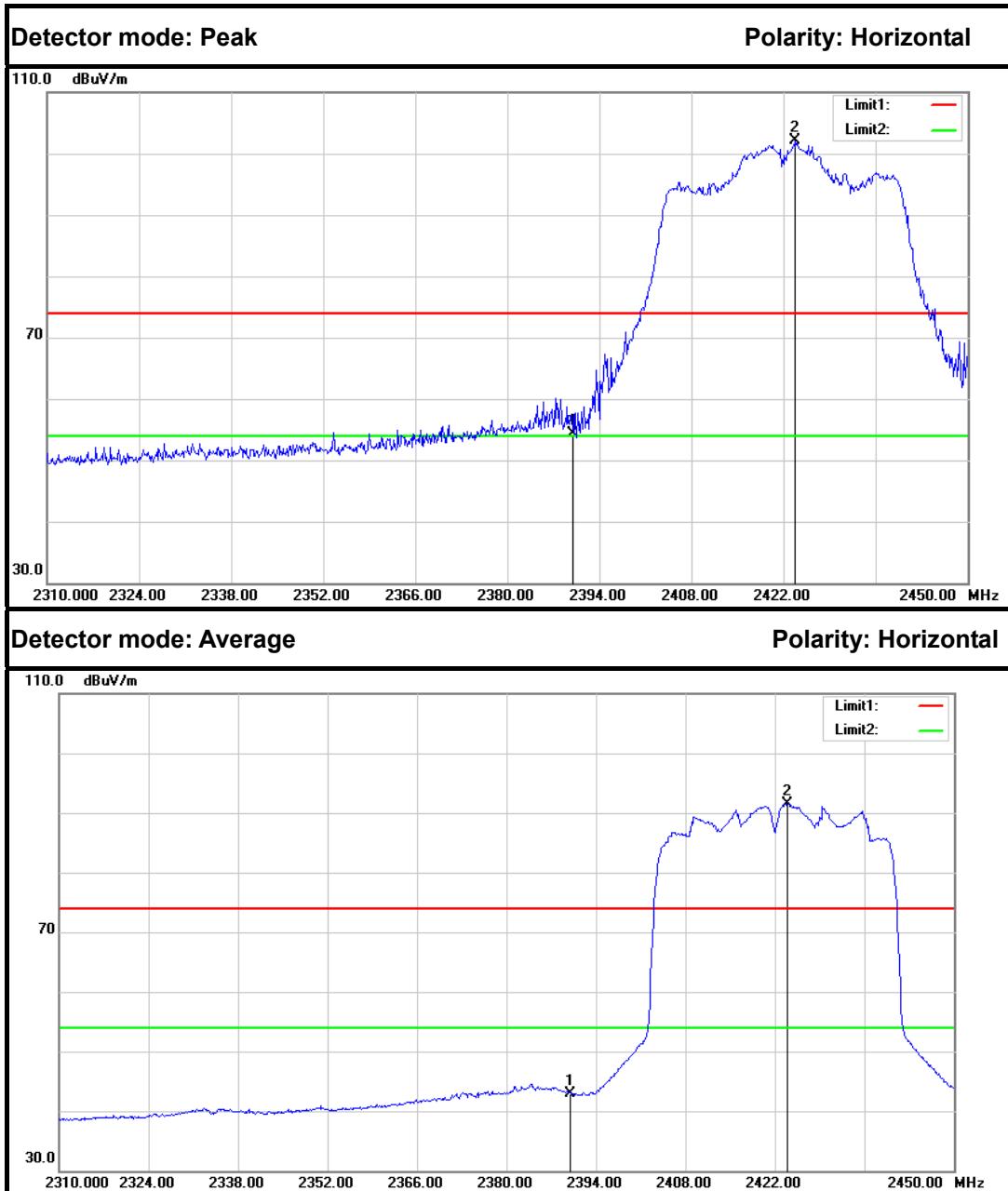
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2464.400	106.66	-2.45	104.21	---	---	Peak	Horizontal
2	2483.500	65.67	-2.35	63.32	74.00	-10.68	Peak	Horizontal
1	2467.150	93.18	-2.44	90.74	---	---	Average	Horizontal
2	2483.500	43.45	-2.35	41.10	54.00	-12.90	Average	Horizontal



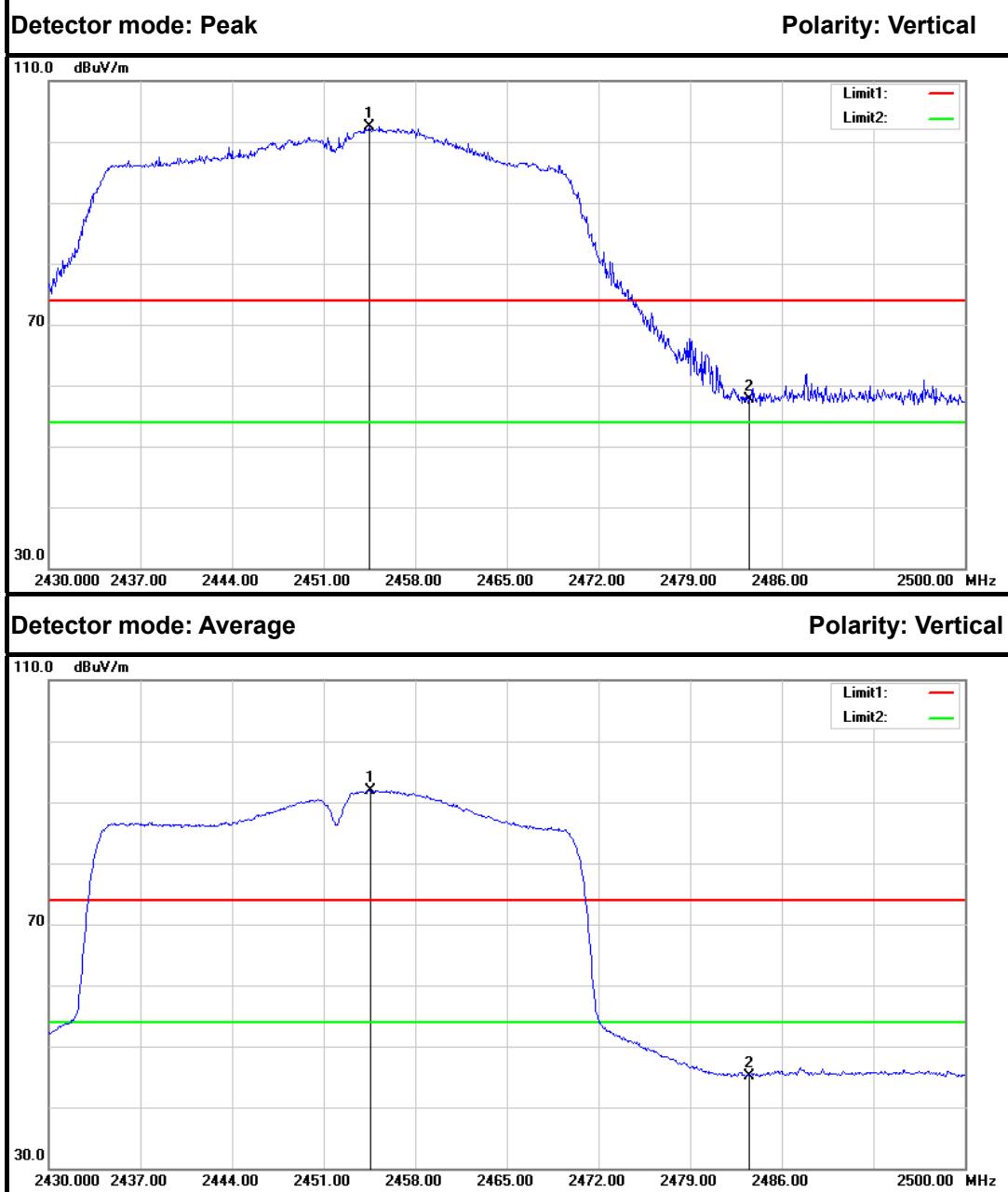
**IEEE 802.11n HT40 MHz mode (Combine with Antenna 0 and Antenna 1)
Band Edges (CH Low)**



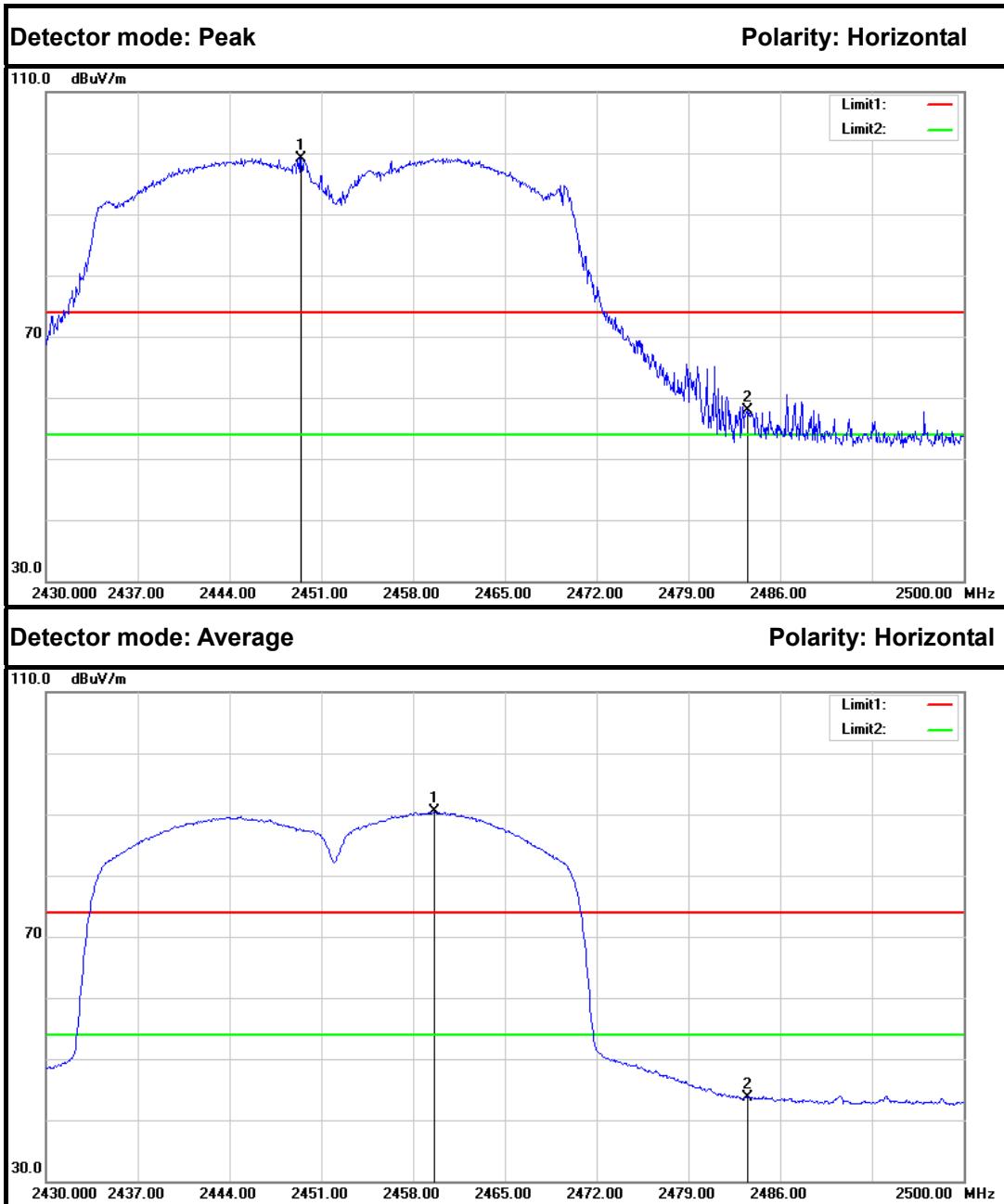
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	61.55	-2.86	58.69	74.00	-15.31	Peak	Vertical
2	2417.800	103.77	-2.71	101.06	---	---	Peak	Vertical
1	2390.000	49.88	-2.86	47.02	54.00	-6.98	Average	Vertical
2	2429.980	94.28	-2.64	91.64	---	---	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2390.000	57.18	-2.86	54.32	74.00	-19.68	Peak	Horizontal
2	2423.820	104.74	-2.68	102.06	---	---	Peak	Horizontal
1	2390.000	45.77	-2.86	42.91	54.00	-11.09	Average	Horizontal
2	2423.960	94.19	-2.68	91.51	---	---	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	2454.500	104.96	-2.51	102.45	---	---	Peak	Vertical
2	2483.500	60.07	-2.35	57.72	74.00	-16.28	Peak	Vertical
1	2454.570	94.46	-2.51	91.95	---	---	Average	Vertical
2	2483.500	47.48	-2.35	45.13	54.00	-8.87	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	2449.460	101.73	-2.54	99.19	---	---	Peak	Horizontal
2	2483.500	60.24	-2.35	57.89	74.00	-16.11	Peak	Horizontal
1	2459.610	92.93	-2.48	90.45	---	---	Average	Horizontal
2	2483.500	45.98	-2.35	43.63	54.00	-10.37	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 INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY52221469	02/21/2017	02/20/2018

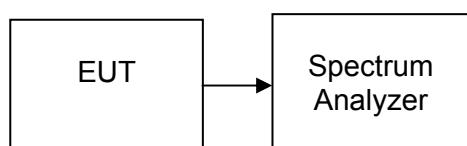
7.7.3. TEST PROCEDURES (please refer to measurement standard)

§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 $\geq 3 \times \text{RBW}$.
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.

7.7.4. TEST SETUP





7.7.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-8.239	8	PASS
Mid	2437	-8.772		PASS
High	2462	-8.534		PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-9.451	8	PASS
Mid	2437	-9.313		PASS
High	2462	-9.410		PASS

Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-10.915	8	PASS
Mid	2437	-11.475		PASS
High	2462	-10.573		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-11.843	8	PASS
Mid	2437	-11.509		PASS
High	2462	-11.552		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		
Low	2412	-11.126	-11.907	-8.489	7	PASS
Mid	2437	-11.439	-12.284	-8.831		PASS
High	2462	-11.539	-12.134	-8.816		PASS

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

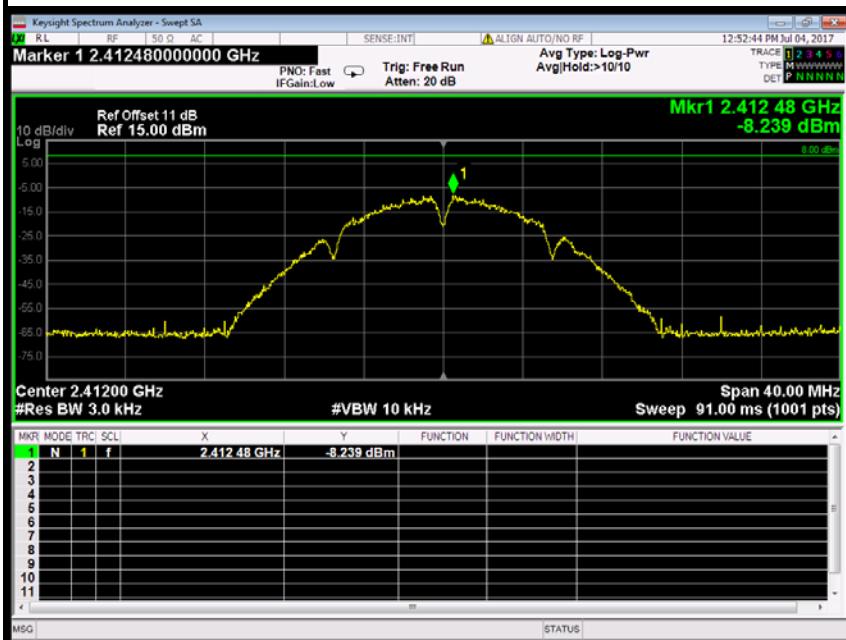
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total		
Low	2422	-13.392	-14.124	-10.732	7	PASS
Mid	2437	-13.868	-14.228	-11.034		PASS
High	2452	-11.955	-14.271	-9.950		PASS



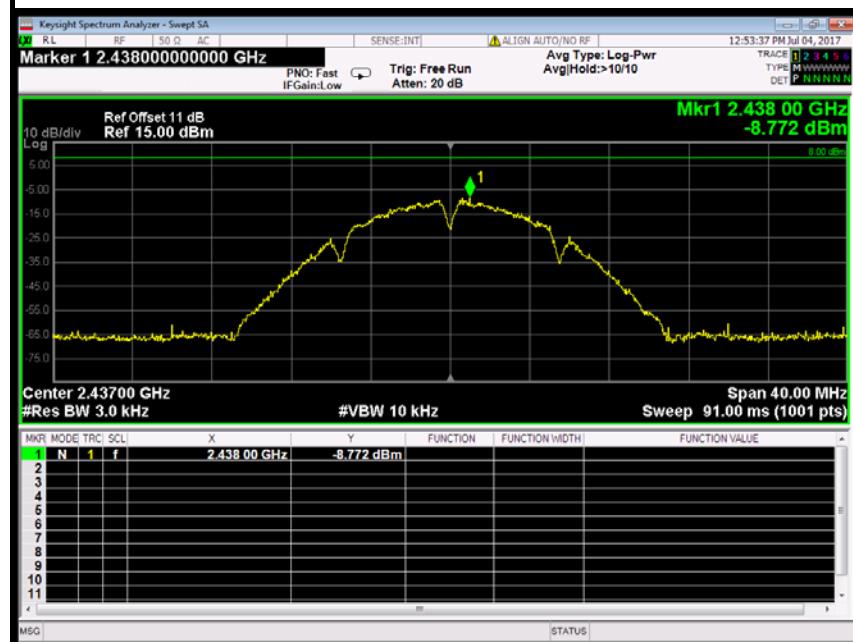
Test Plot

IEEE 802.11b mode (Antenna 0)

PPSD (CH Low)

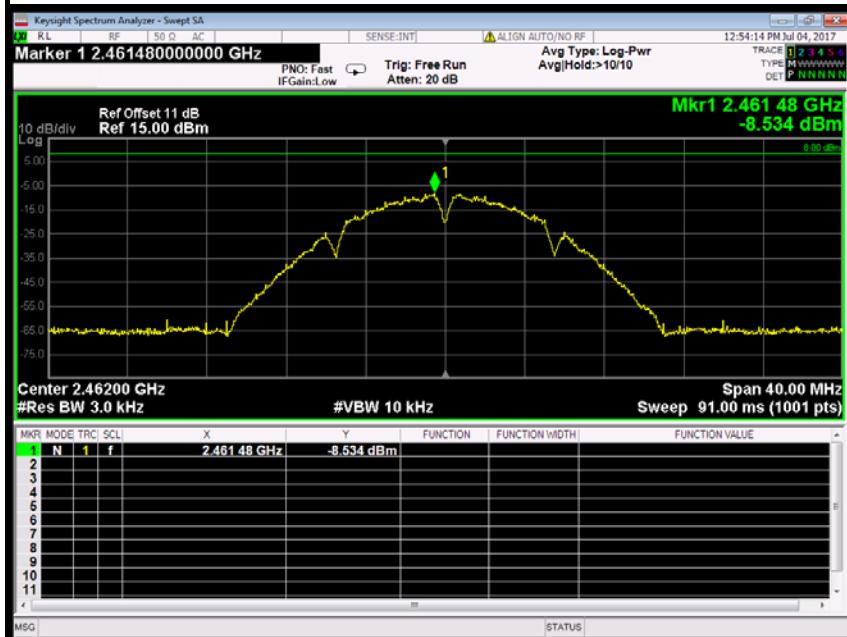


PPSD (CH Mid)





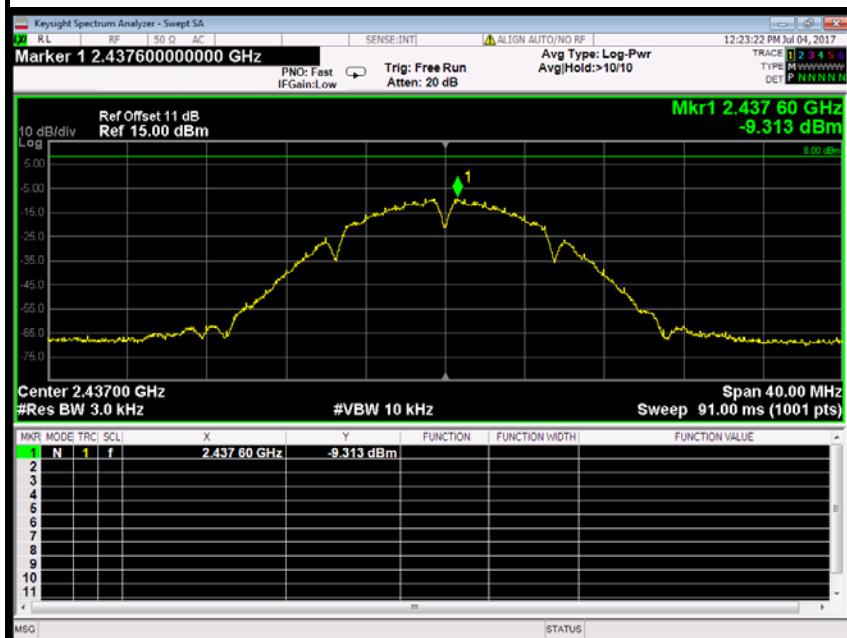
PPSD (CH High)



IEEE 802.11b mode (Antenna 1)

PPSD (CH Low)

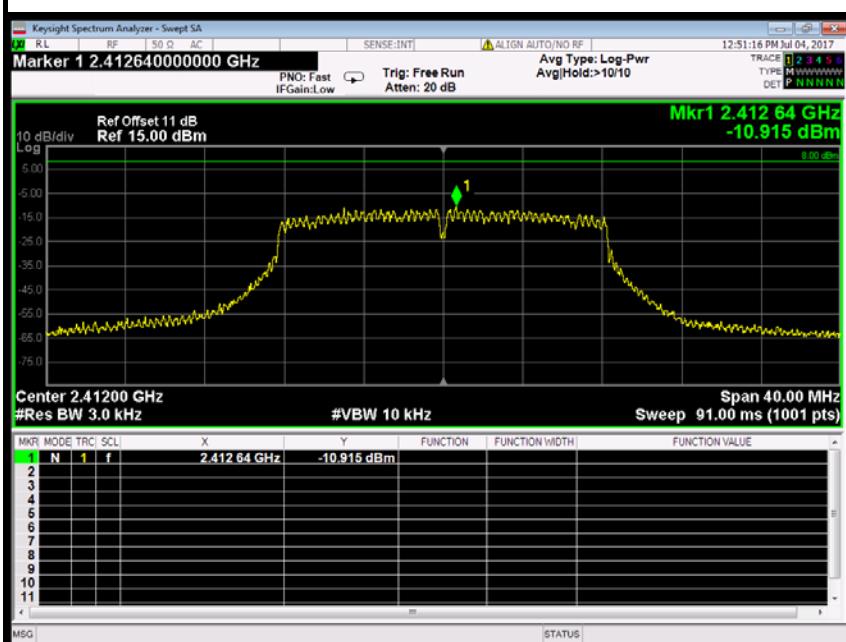


**PPSD (CH Mid)****PPSD (CH High)**

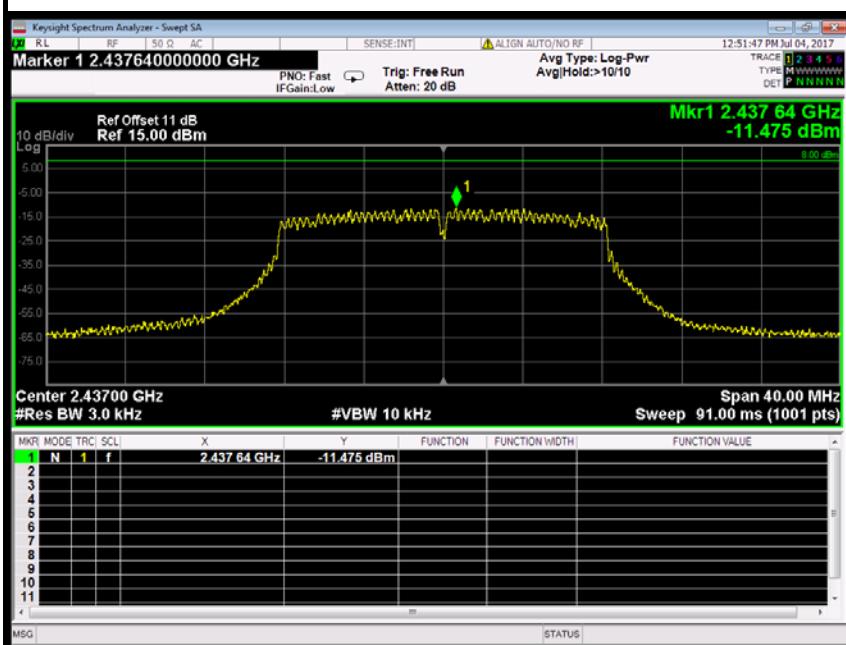


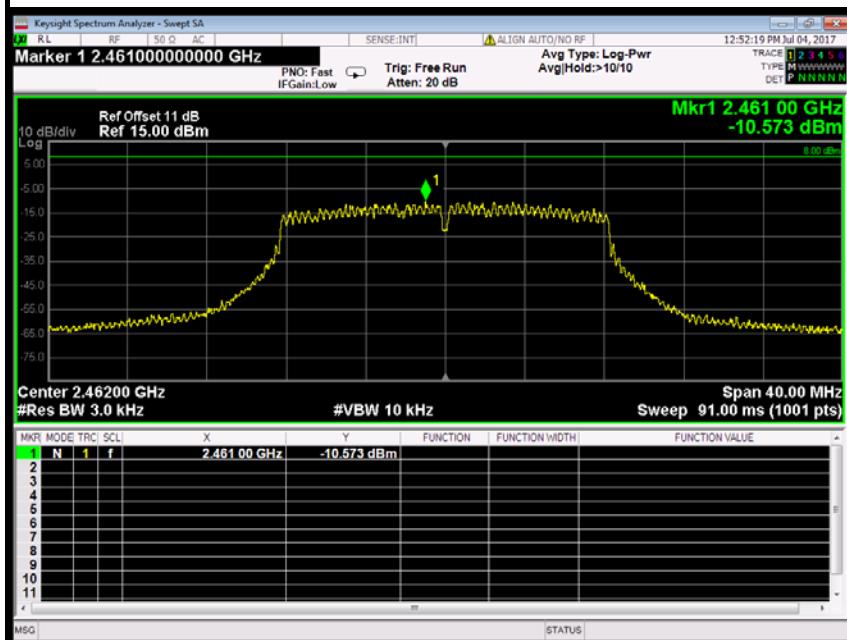
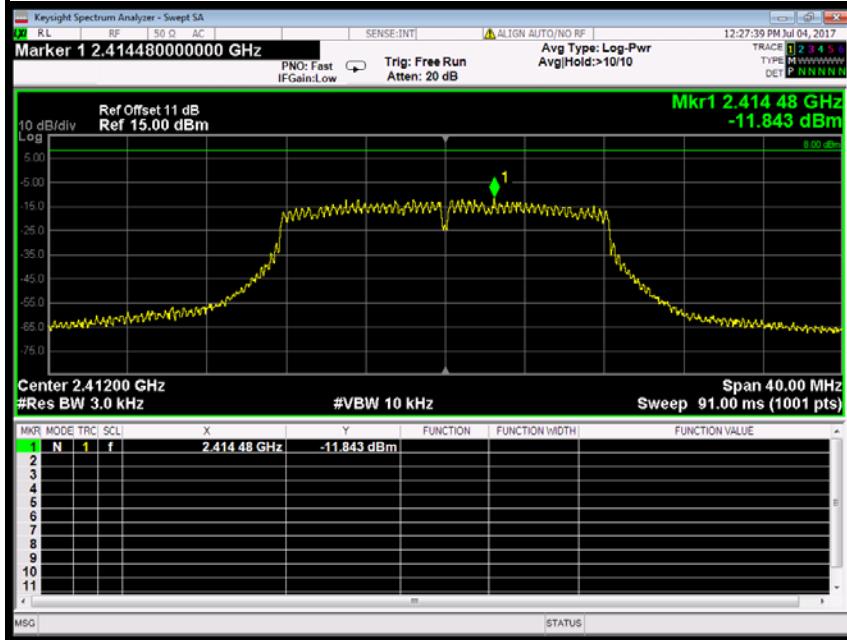
IEEE 802.11g mode (Antenna 0)

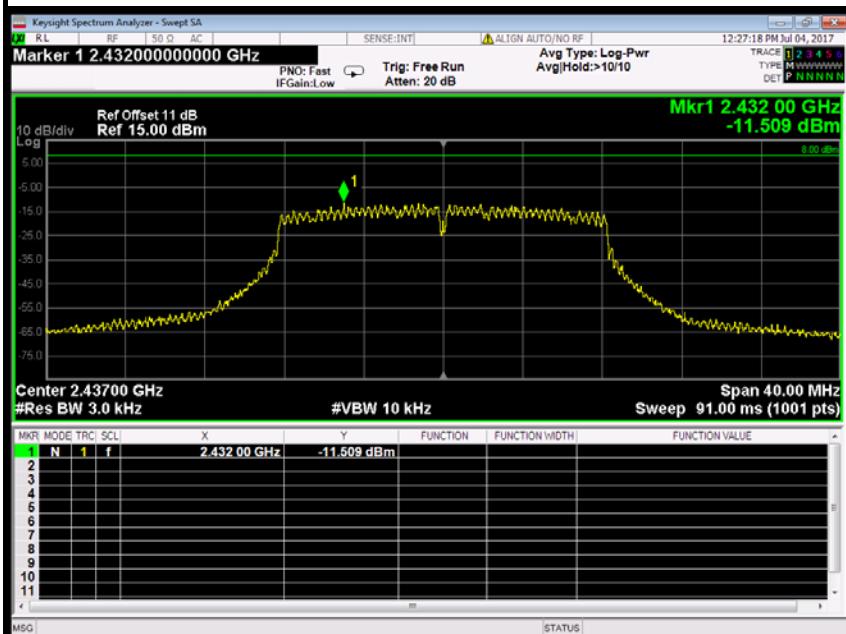
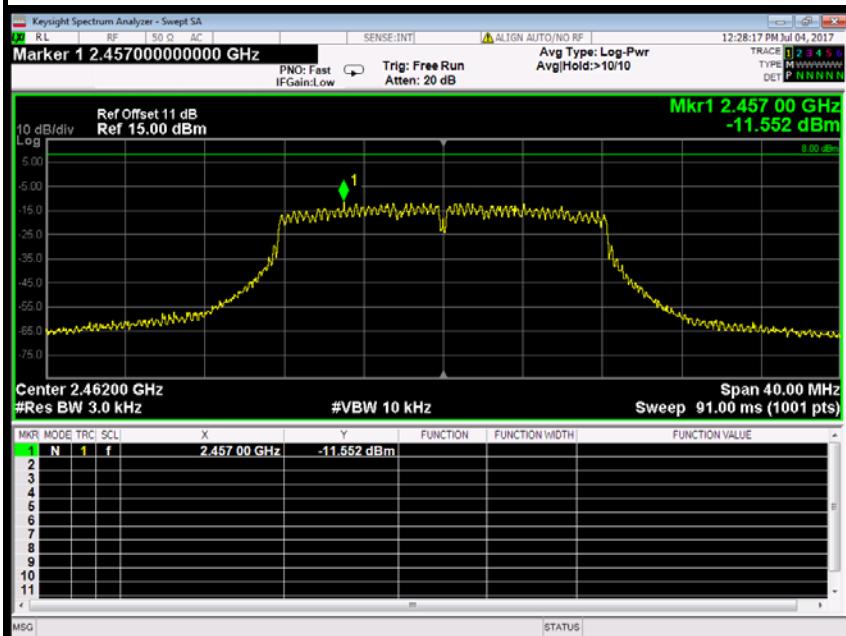
PPSD (CH Low)



PPSD (CH Mid)



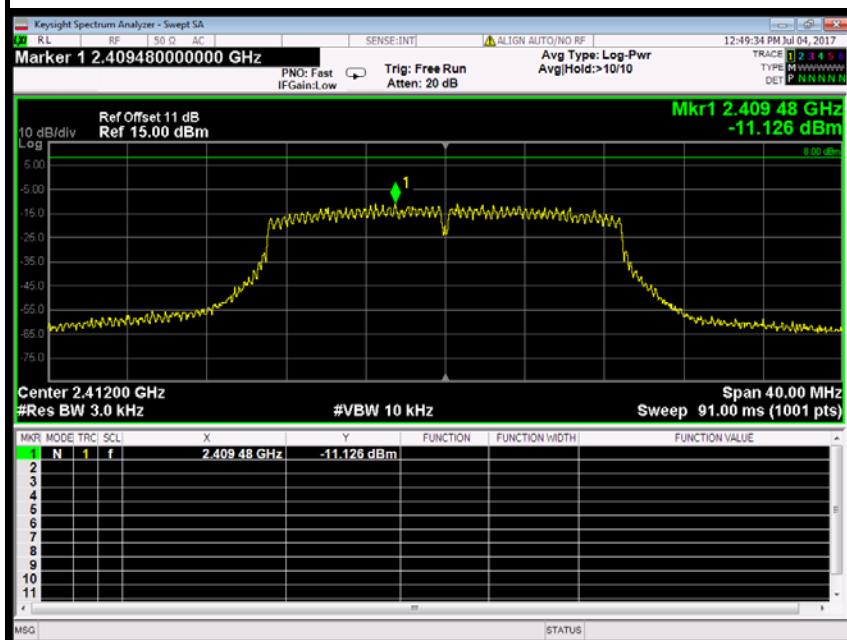
**PPSD (CH High)****IEEE 802.11g mode (Antenna 1)****PPSD (CH Low)**

**PPSD (CH Mid)****PPSD (CH High)**

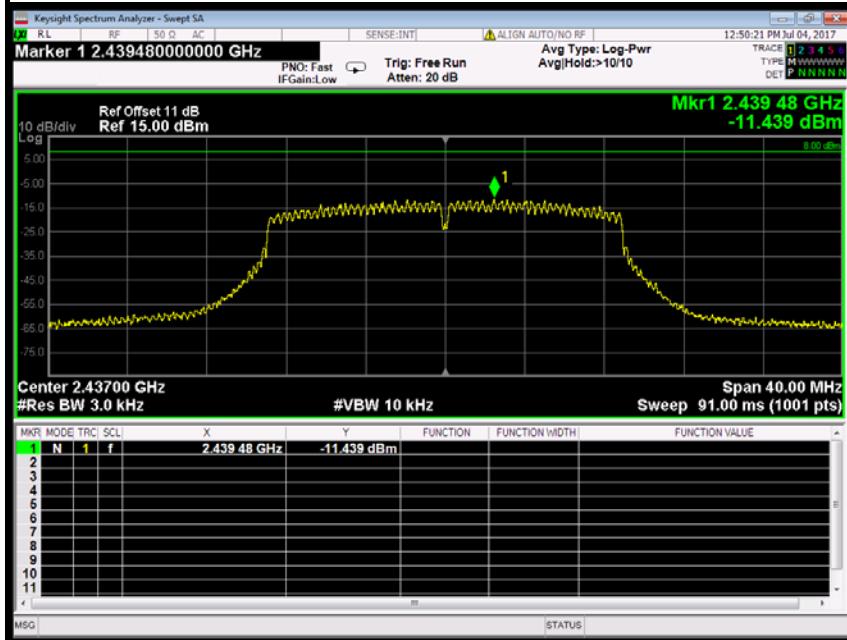


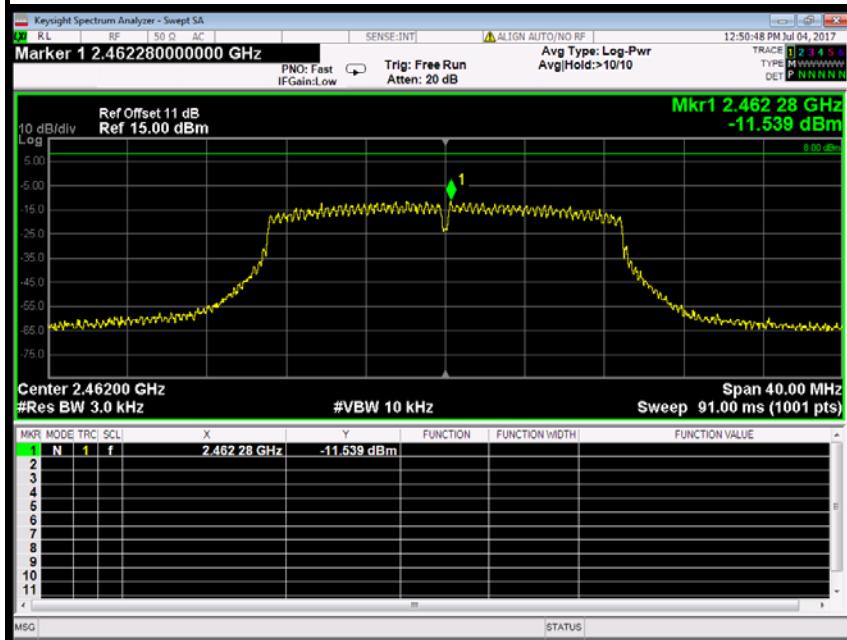
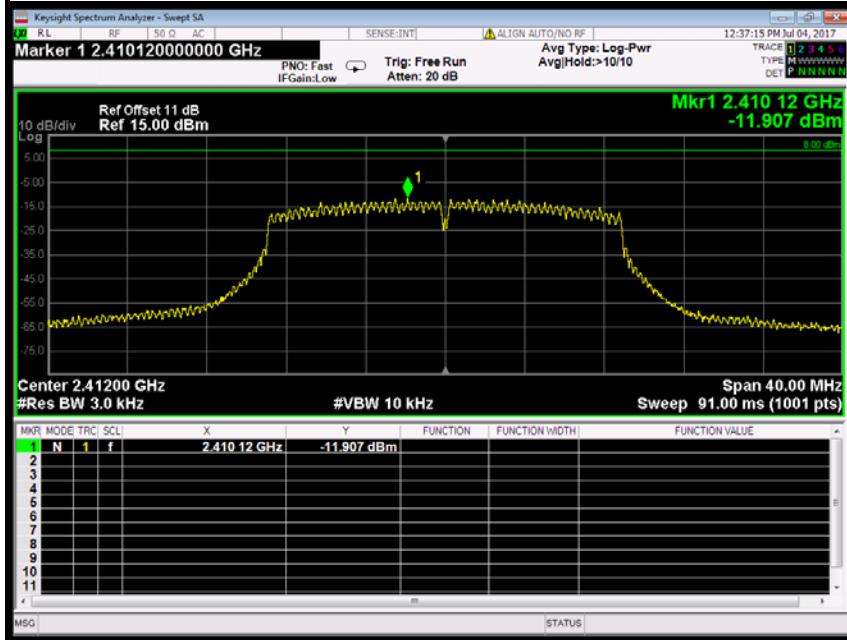
IEEE 802.11n HT20 MHz mode (Antenna 0)

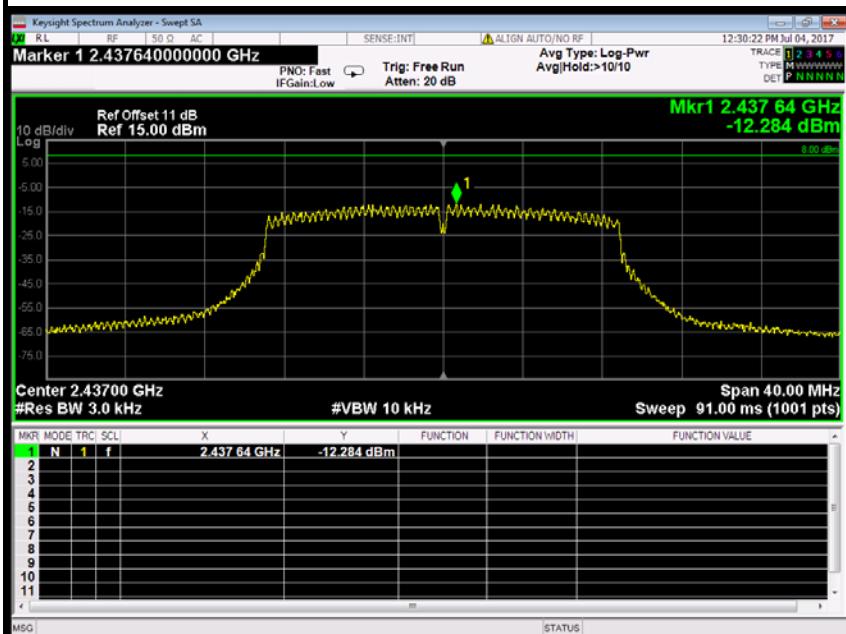
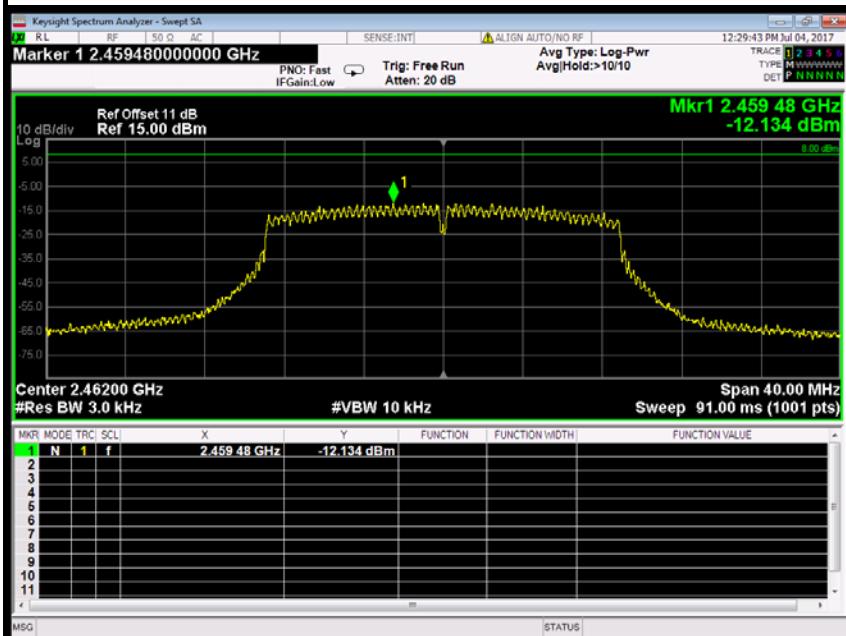
PPSD (CH Low)



PPSD (CH Mid)



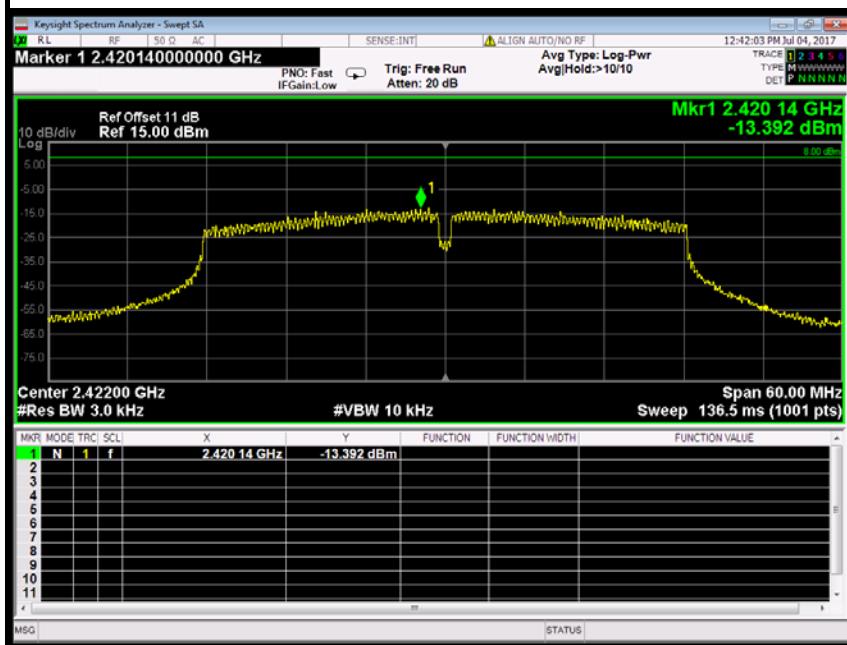
**PPSD (CH High)****IEEE 802.11n HT20 MHz mode (Antenna 1)****PPSD (CH Low)**

**PPSD (CH Mid)****PPSD (CH High)**

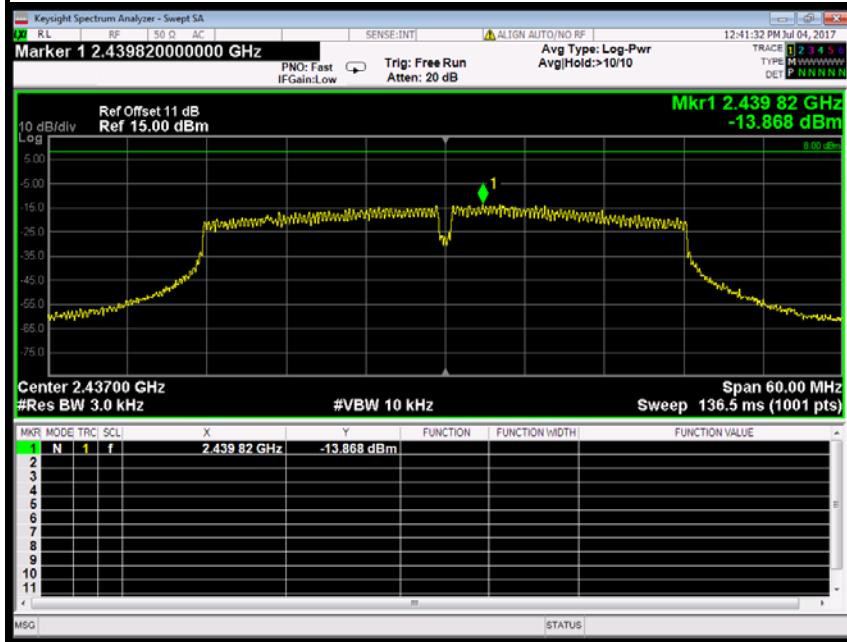


IEEE 802.11n HT40 MHz mode (Antenna 0)

PPSD (CH Low)

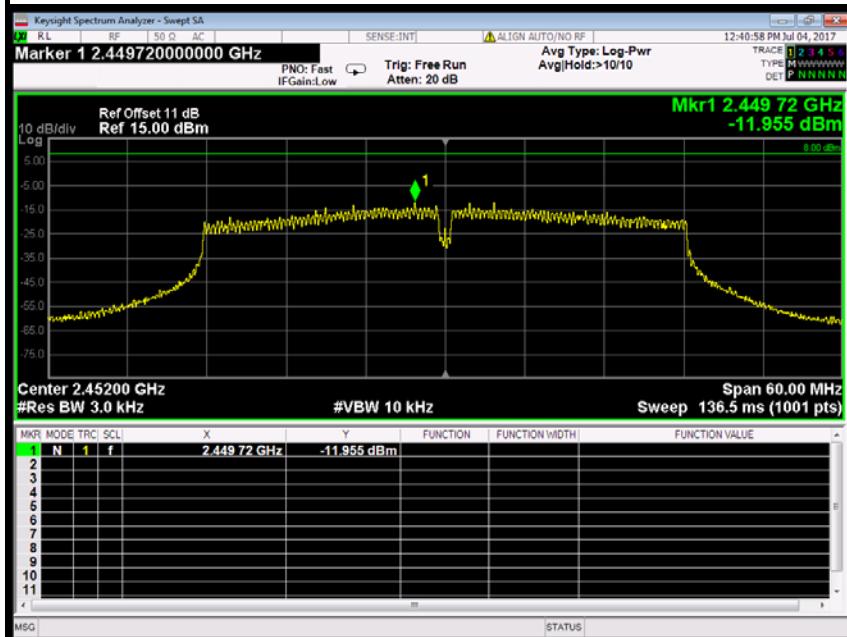


PPSD (CH Mid)



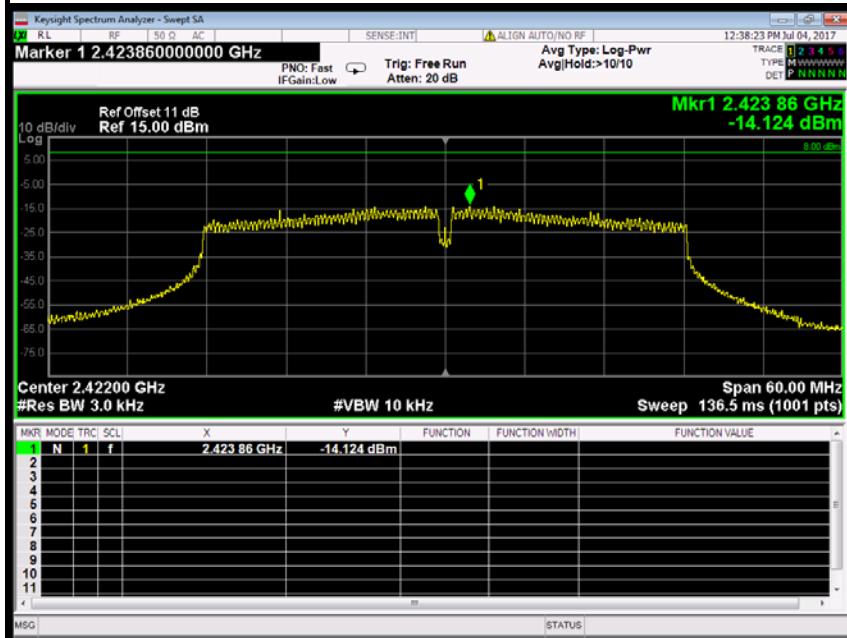


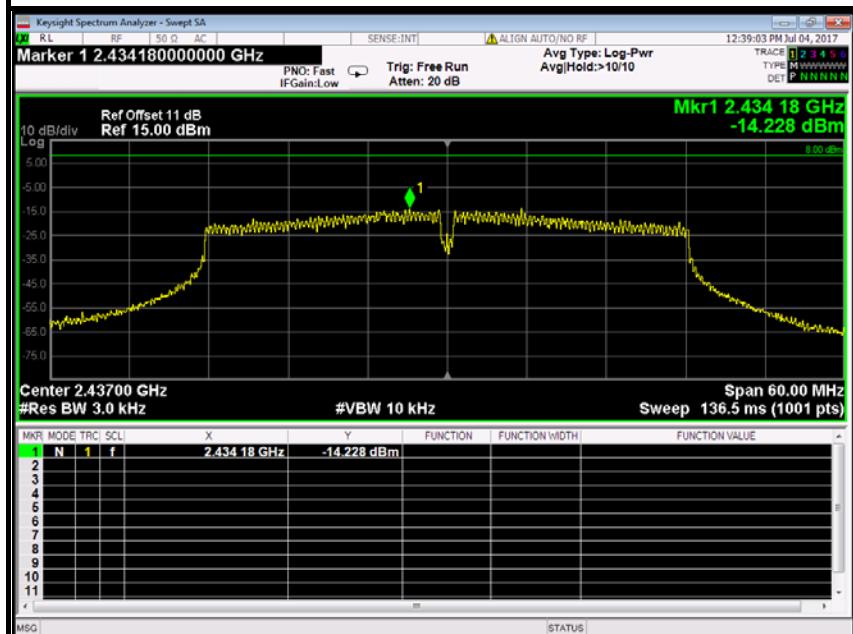
PPSD (CH High)



IEEE 802.11n HT40 MHz mode (Antenna 1)

PPSD (CH Low)



**PPSD (CH Mid)****PPSD (CH High)**