

**7.4.5. TEST RESULTS***No non-compliance noted***Test Data****Test mode: IEEE 802.11b (Antenna 0)**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	26.37	0.43351	1	PASS
Mid	2437	26.59	0.45604		PASS
High	2462	26.31	0.42756		PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	25.67	0.36898	1	PASS
Mid	2437	25.25	0.33497		PASS
High	2462	24.46	0.27925		PASS

Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	23.04	0.20137	1	PASS
Mid	2437	23.13	0.20559		PASS
High	2462	23.17	0.20749		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	22.71	0.18664	1	PASS
Mid	2437	22.55	0.17989		PASS
High	2462	22.05	0.16032		PASS

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

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)	Limit (W)	Result
		Chain 0	Chain 1	Total			
Low	2412	19.65	20.01	22.84	0.19249	1	PASS
Mid	2437	20.12	19.65	22.90	0.19506		PASS
High	2462	19.69	18.74	22.25	0.16793		PASS

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

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)	Limit (W)	Result
		Chain 0	Chain 1	Total			
Low	2422	19.80	19.80	22.81	0.19100	1	PASS
Mid	2437	19.65	19.85	22.76	0.18886		PASS
High	2452	18.80	18.83	21.83	0.15224		PASS



7.5. BAND EDGES MEASUREMENT

7.5.1. 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)).

7.5.2. TEST INSTRUMENTS

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	N9010A	MY52221469	10/25/2013	10/24/2014
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2014	03/01/2015
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2014	03/08/2015
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2015	03/18/2015
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2015	03/18/2015
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	07/10/2014	07/09/2015
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/01/2014	03/01/2015
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/01/2014	03/01/2015
Loop Antenna	COM-POWER	AL-130	121044	09/27/2013	09/26/2014
Turn Table	N/A	N/A	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	02/28/2014	02/28/2015
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

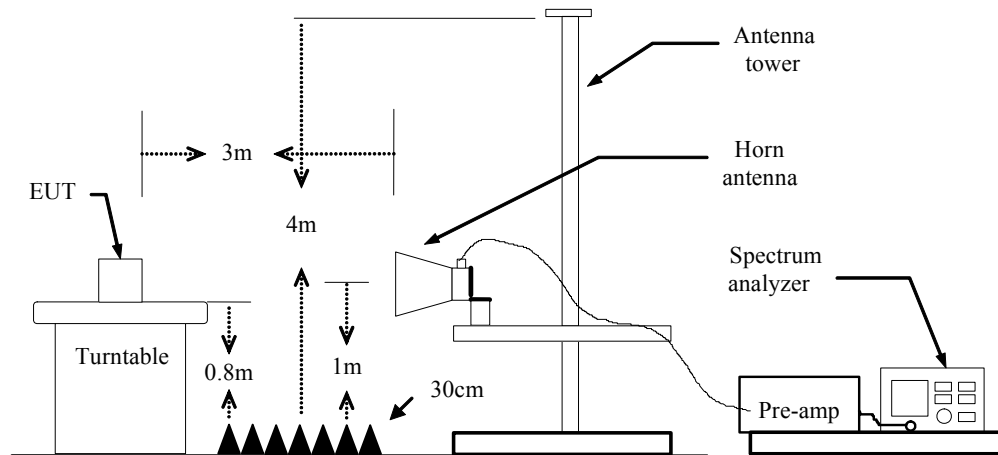
- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The FCC Site Registration number is 101879.
3. N.C.R = No Calibration Required.



7.5.3. TEST PROCEDURES (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 0.8m 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=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are

7.5.4. TEST SETUP



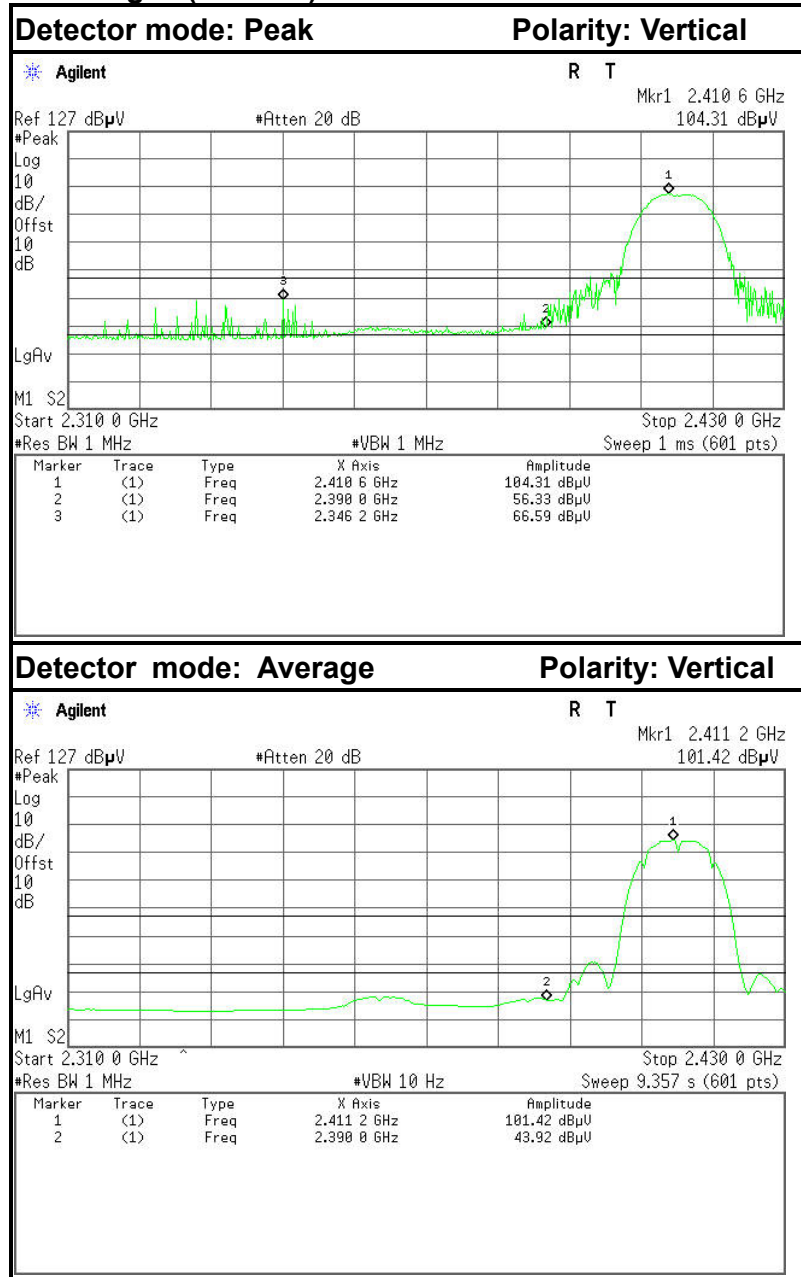


7.5.5. TEST RESULTS

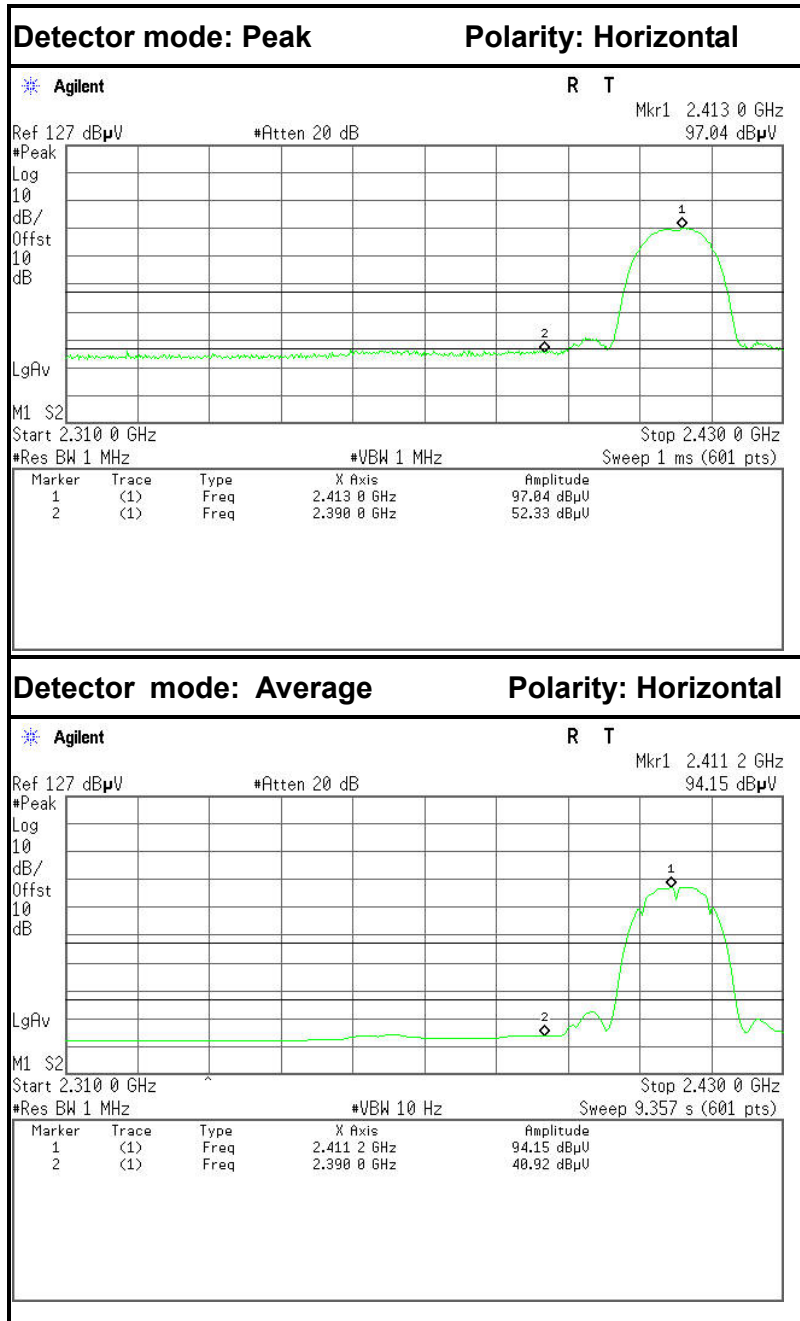
Test Plot

IEEE 802.11b mode (Antenna 0)

Band Edges (CH Low)



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	49.73	-6.60	56.33	74.00	-17.67	Peak	Vertical
2	2390.0000	37.32	-6.60	43.92	54.00	-10.08	Average	Vertical



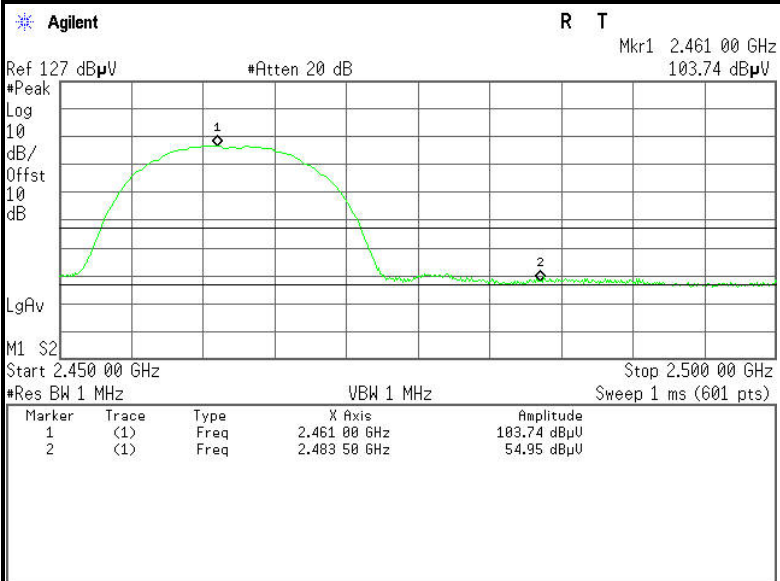
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	45.73	-6.60	52.33	74.00	-21.67	Peak	Horizontal
2	2390.0000	34.32	-6.60	40.92	54.00	-13.08	Average	Horizontal



Band Edges (CH High)

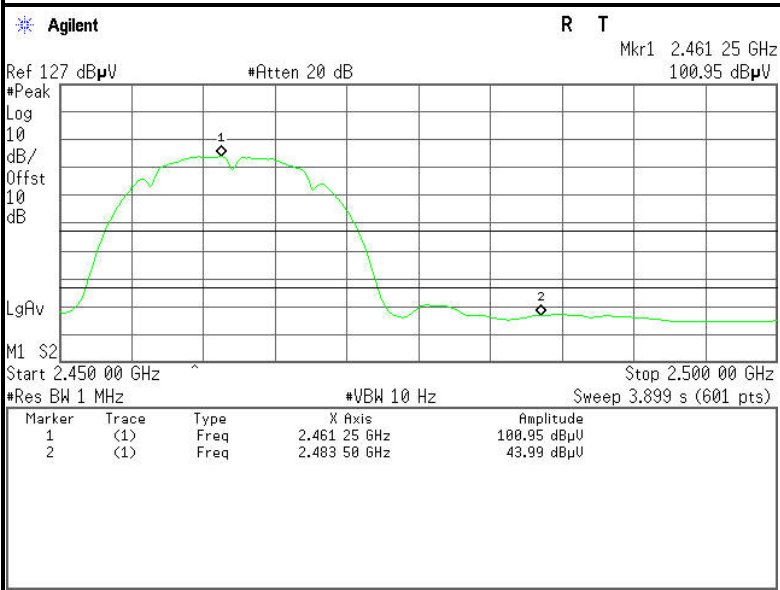
Detector mode: Peak

Polarity: Vertical

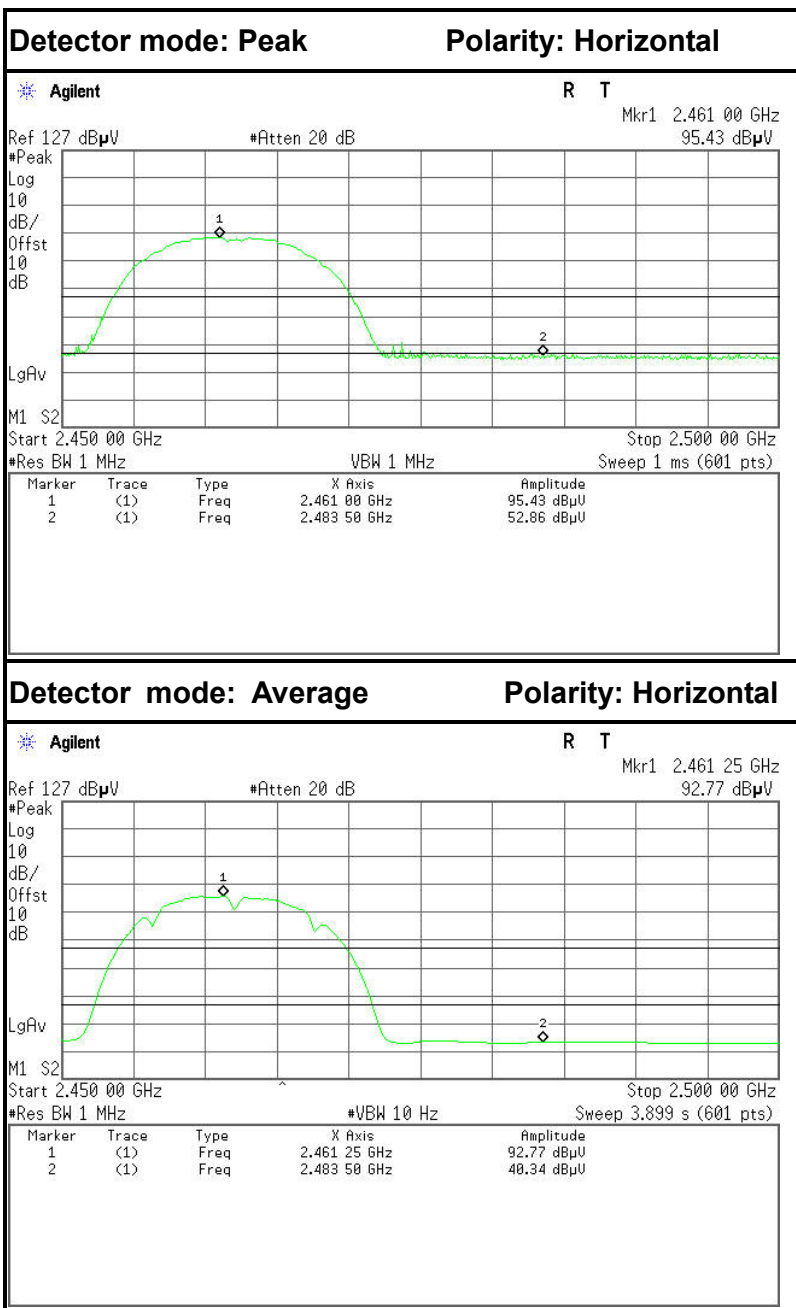


Detector mode: Average

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	48.71	-6.24	54.95	74.00	-19.05	Peak	Vertical
2	2483.5000	37.75	-6.24	43.99	54.00	-10.01	Average	Vertical

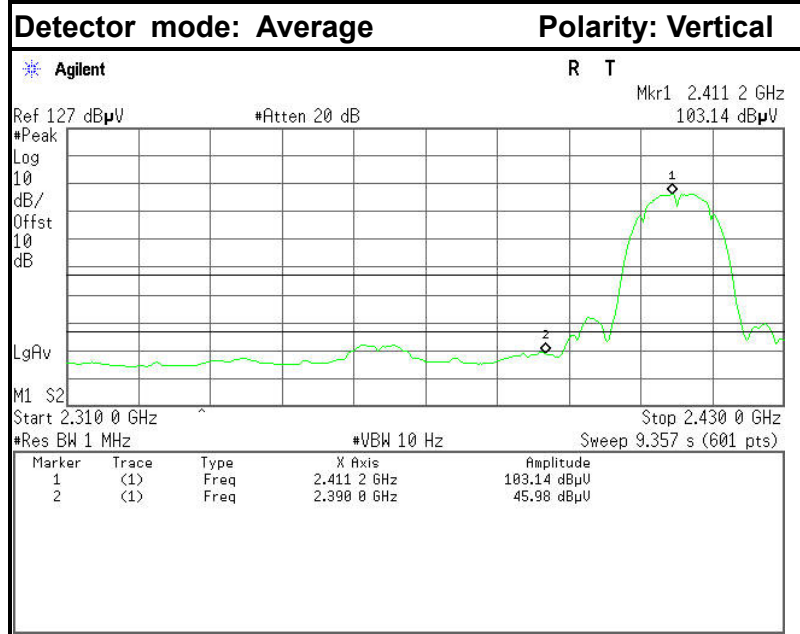
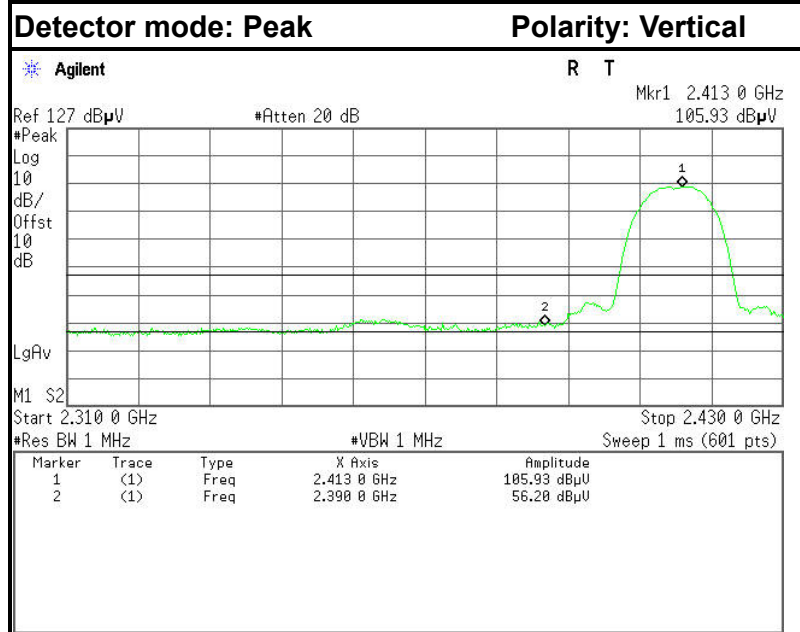


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	46.62	-6.24	52.86	74.00	-21.14	Peak	Horizontal
2	2483.5000	34.10	-6.24	40.34	54.00	-13.66	Average	Horizontal

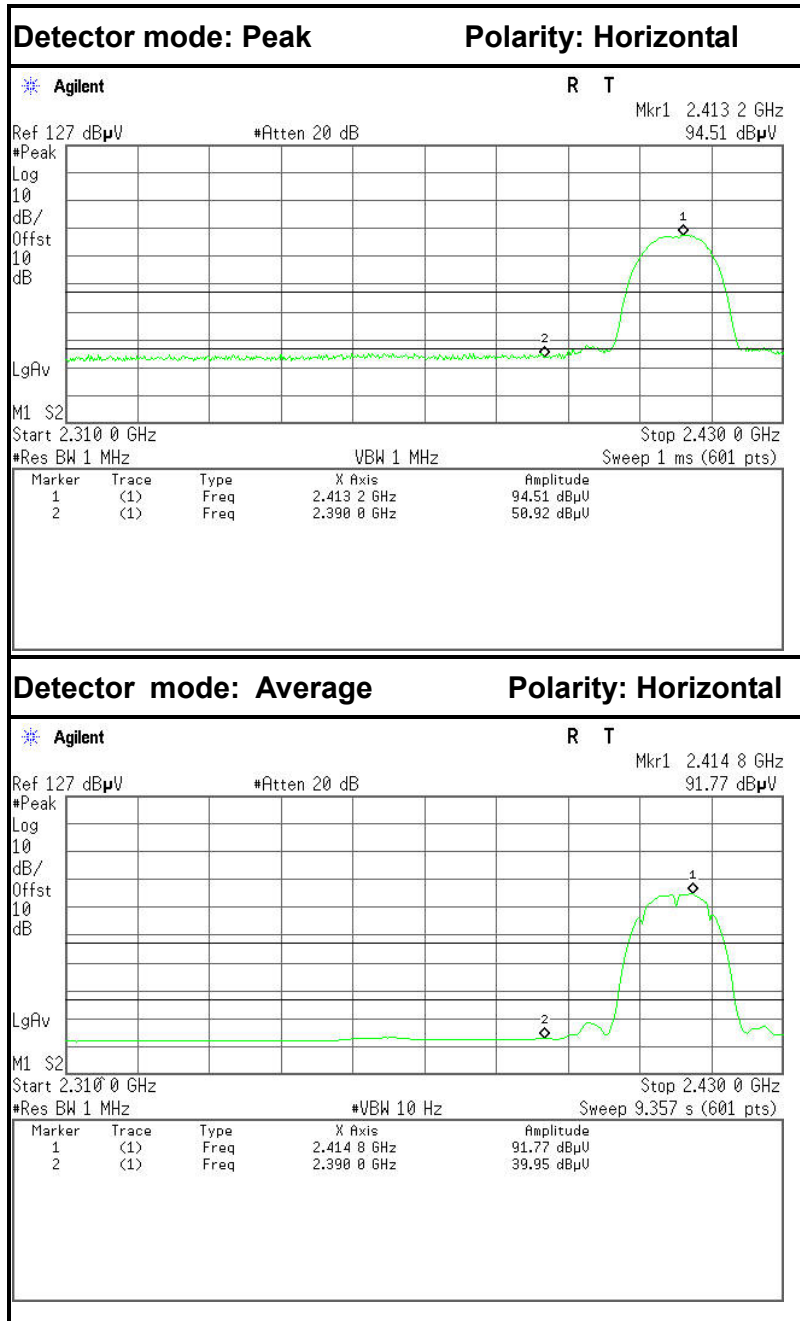


IEEE 802.11b mode (Antenna 1)

Band Edges (CH Low)



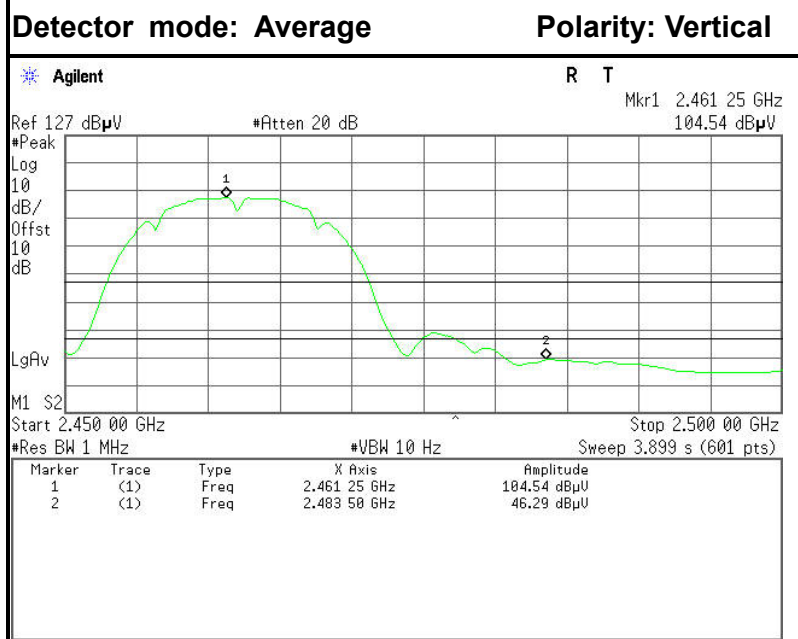
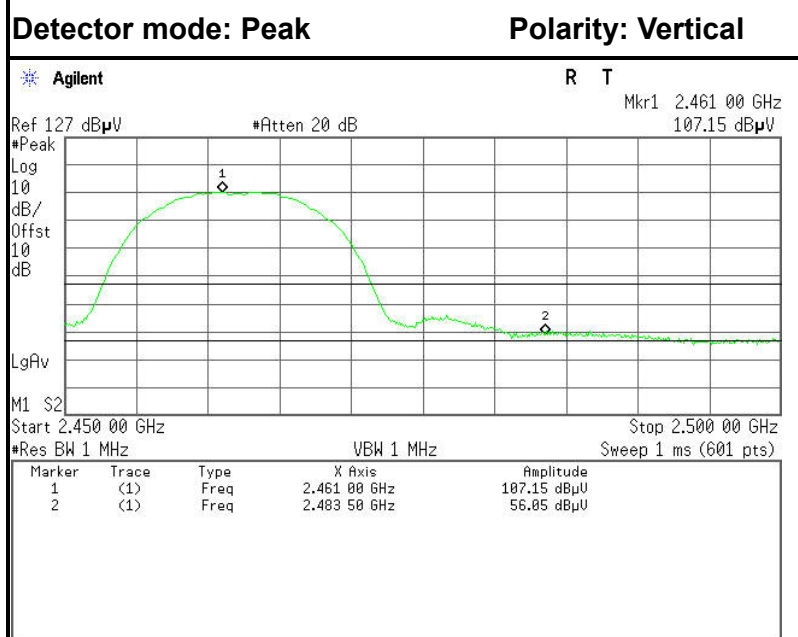
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	49.60	-6.60	56.20	74.00	-17.80	Peak	Vertical
2	2390.0000	39.38	-6.60	45.98	54.00	-8.02	Average	Vertical



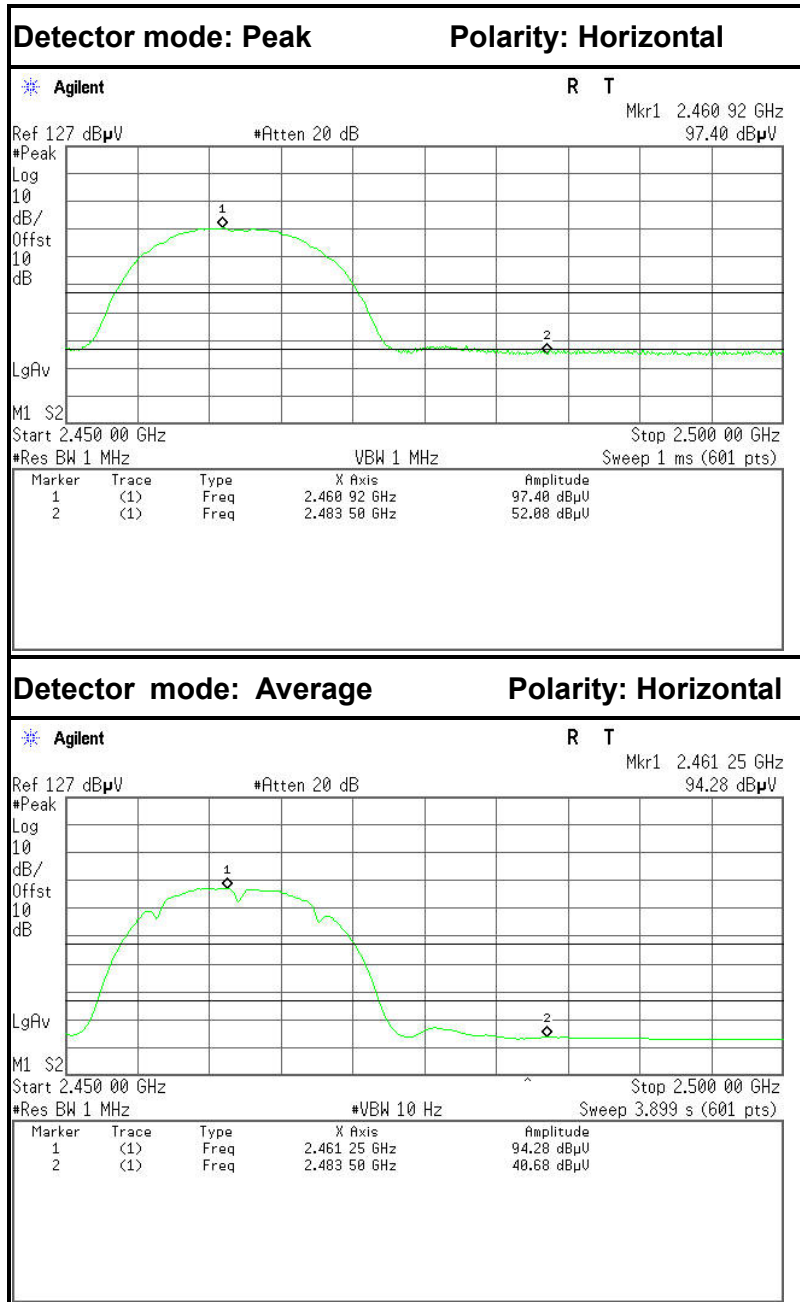
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	44.32	-6.60	50.92	74.00	-23.08	Peak	Horizontal
2	2390.0000	33.35	-6.60	39.95	54.00	-14.05	Average	Horizontal



Band Edges (CH High)



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	49.81	-6.24	56.05	74.00	-17.95	Peak	Vertical
2	2483.5000	40.05	-6.24	46.29	54.00	-7.71	Average	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	45.84	-6.24	52.08	74.00	-21.92	Peak	Horizontal
2	2483.5000	34.44	-6.24	40.68	54.00	-13.32	Average	Horizontal

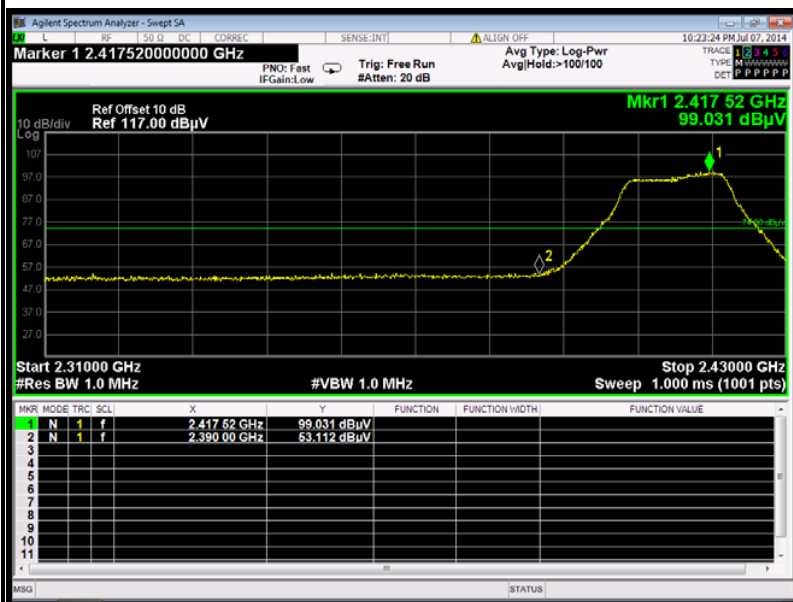


IEEE 802.11g mode (Antenna 0)

Band Edges (CH Low)

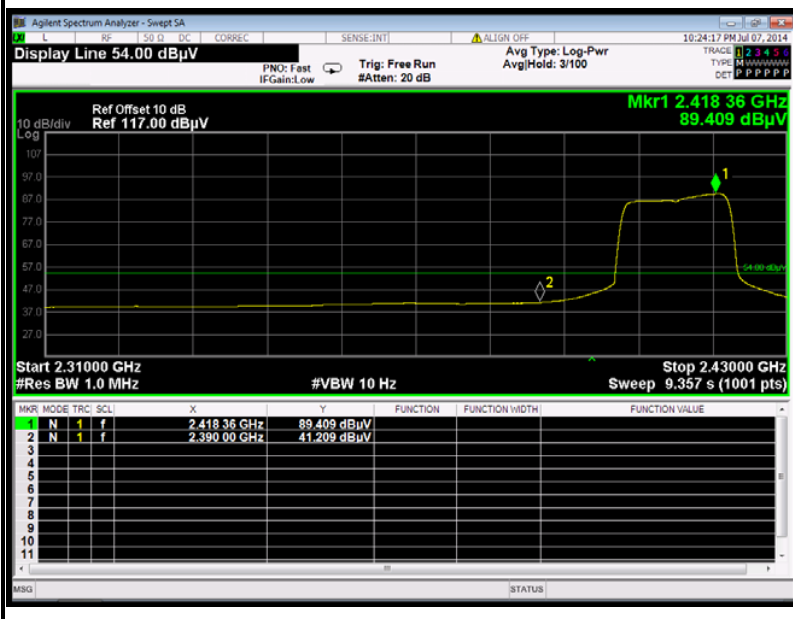
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical

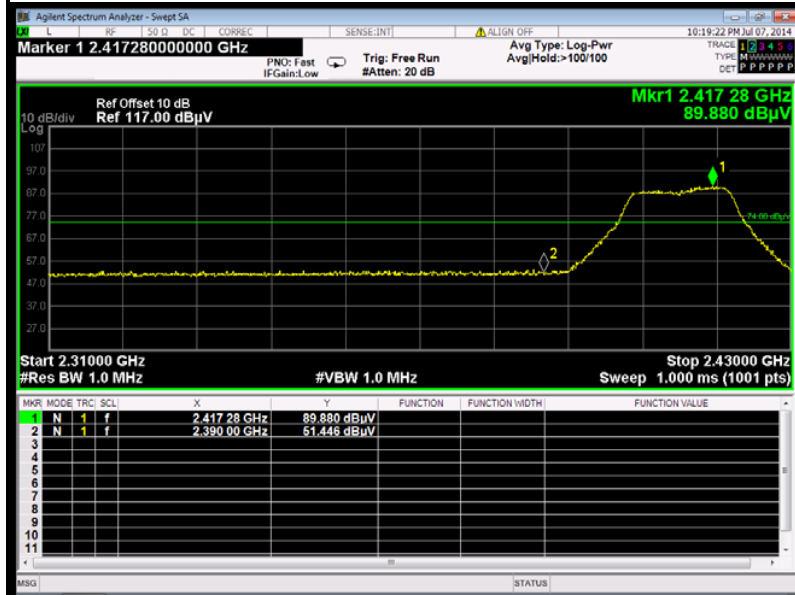


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	46.51	-6.60	53.11	74.00	-20.89	Peak	Vertical
2	2390.0000	34.61	-6.60	41.21	54.00	-12.79	Average	Vertical



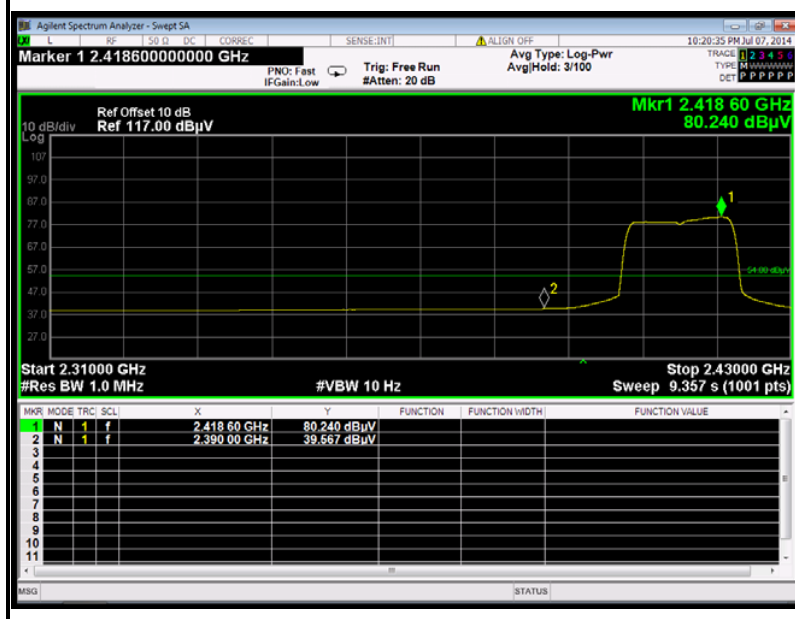
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	44.85	-6.60	51.45	74.00	-22.55	Peak	Horizontal
2	2390.0000	32.97	-6.60	39.57	54.00	-14.43	Average	Horizontal



Band Edges (CH High)

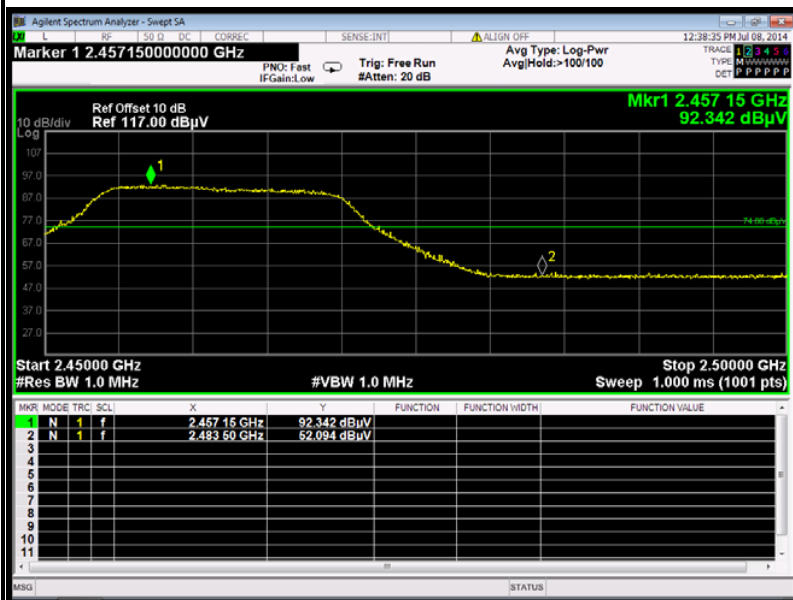
Detector mode: Peak

Polarity: Vertical

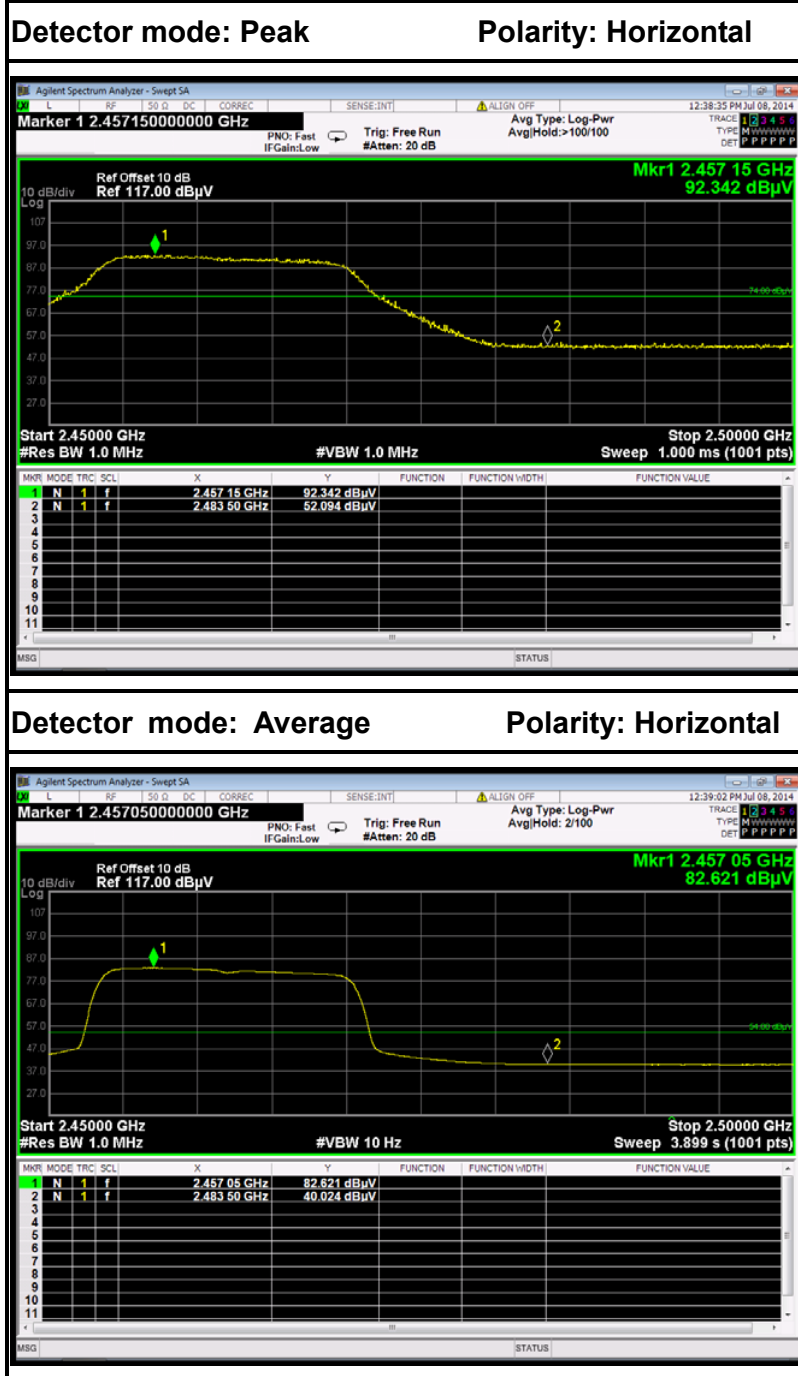


Detector mode: Average

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	47.03	-6.24	53.27	74.00	-20.73	Peak	Vertical
2	2483.5000	45.85	-6.24	52.09	54.00	-1.91	Average	Vertical

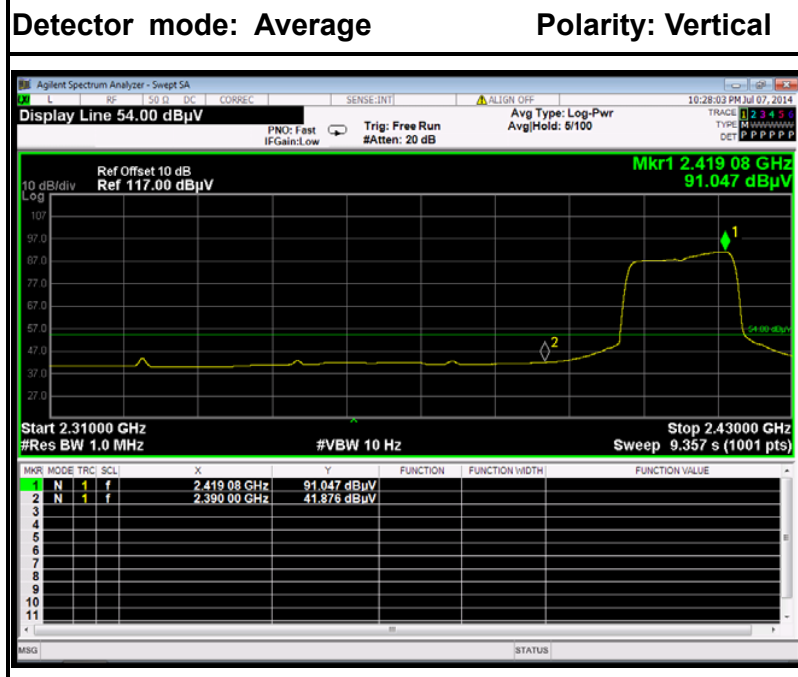
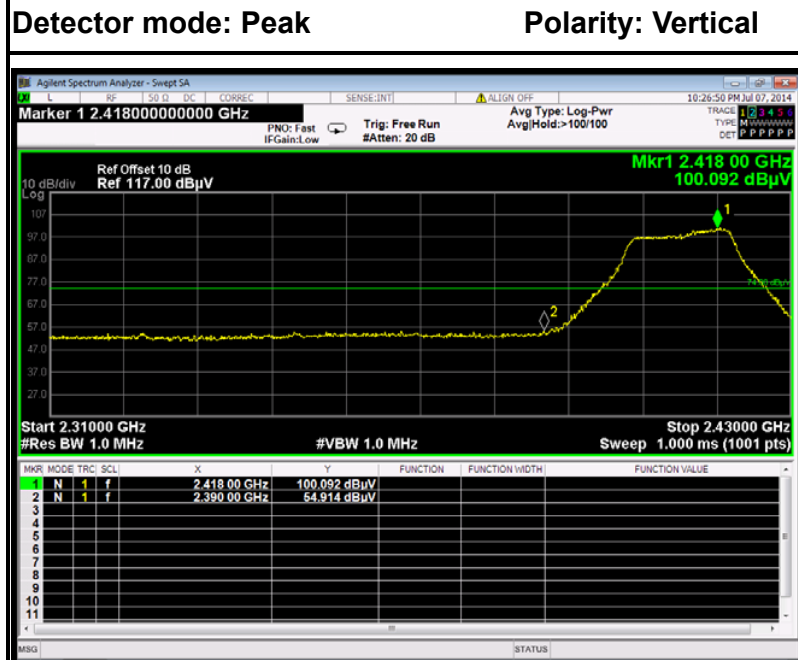


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	45.85	-6.24	52.09	74.00	-21.91	Peak	Horizontal
2	2483.5000	33.78	-6.24	40.02	54.00	-13.98	Average	Horizontal



IEEE 802.11g mode (Antenna 1)

Band Edges (CH Low)

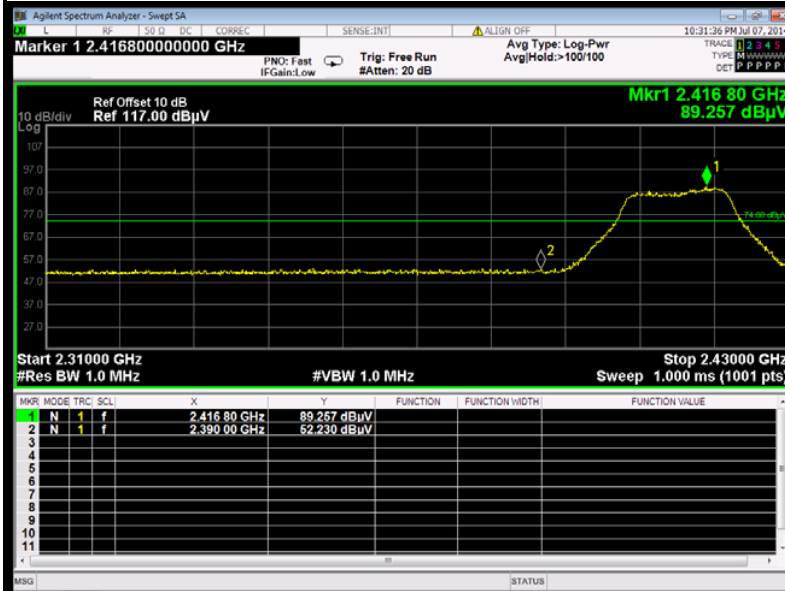


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	48.31	-6.60	54.91	74.00	-19.09	Peak	Vertical
2	2390.0000	35.28	-6.60	41.88	54.00	-12.12	Average	Vertical



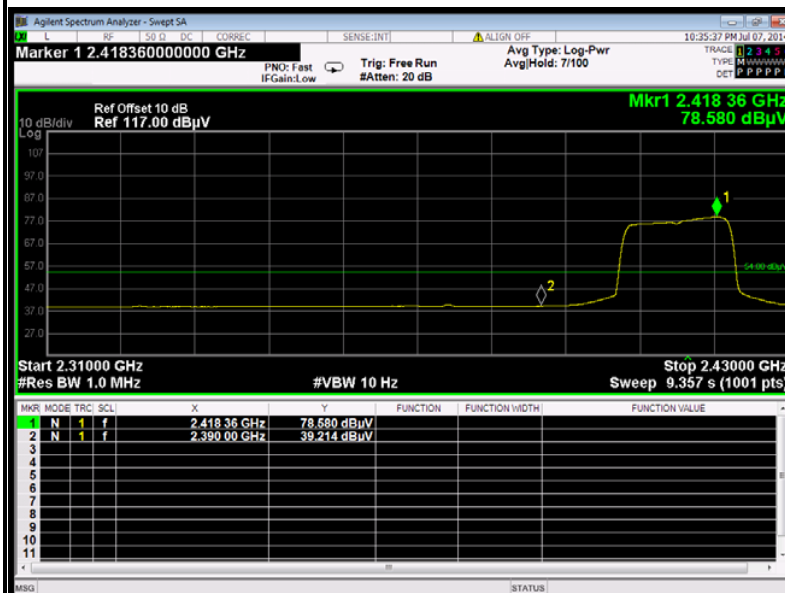
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

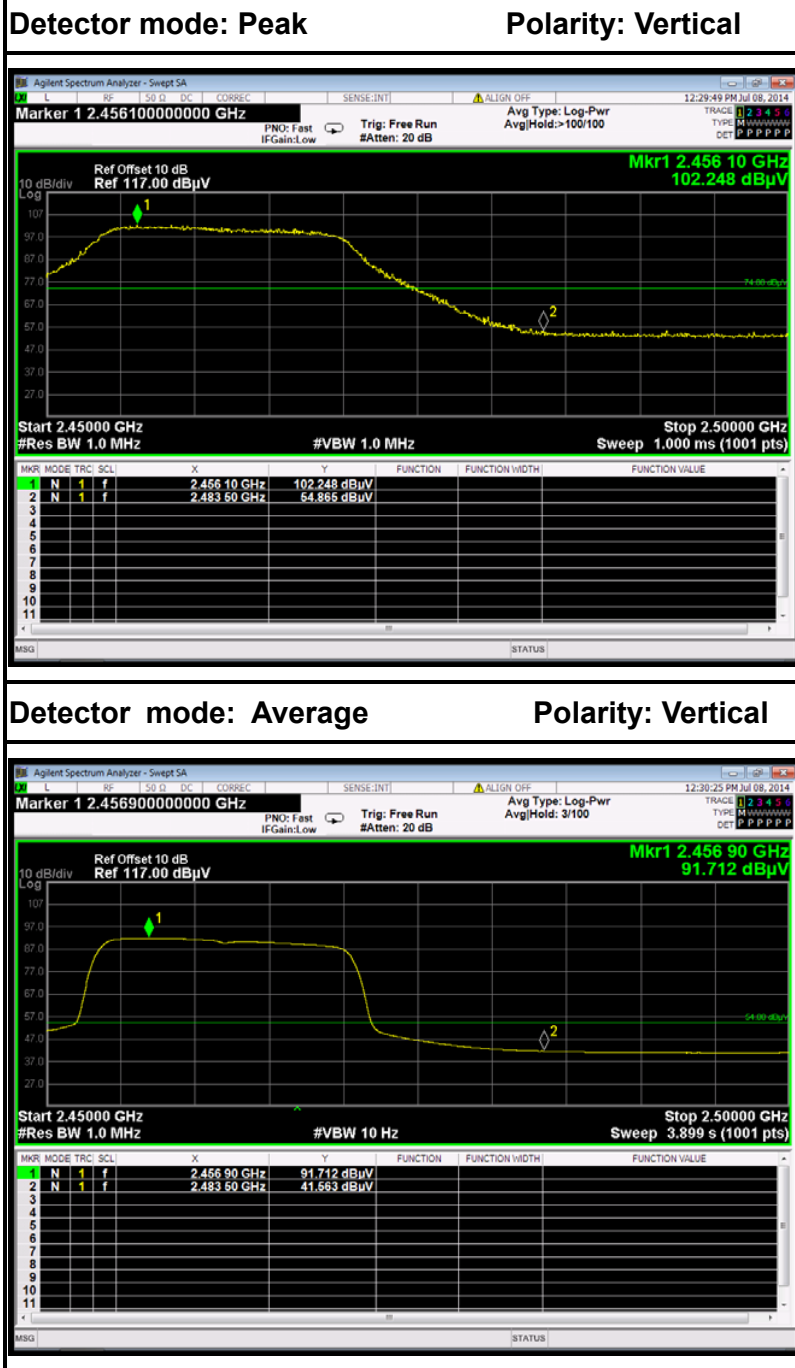
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	45.63	-6.60	52.23	74.00	-21.77	Peak	Horizontal
2	2390.0000	32.61	-6.60	39.21	54.00	-14.79	Average	Horizontal



Band Edges (CH High)

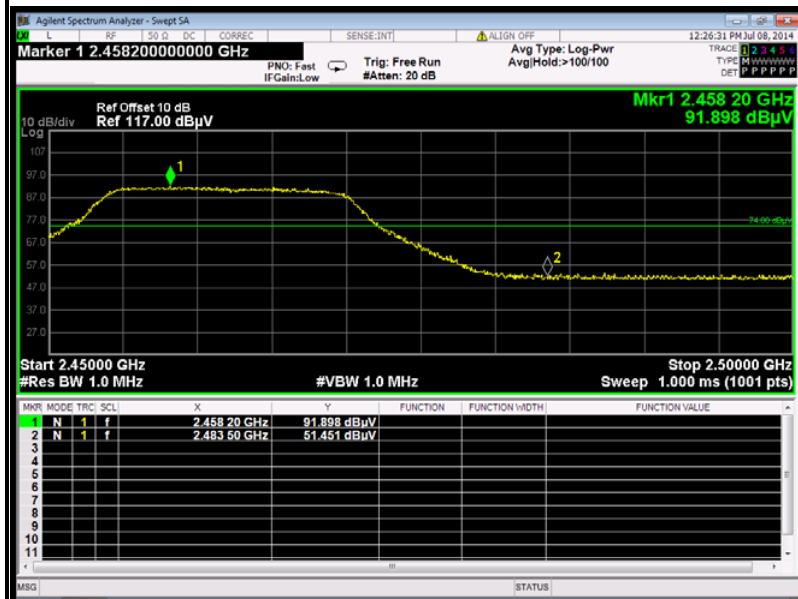


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	48.63	-6.24	54.87	74.00	-19.14	Peak	Vertical
2	2483.5000	35.32	-6.24	41.56	54.00	-12.44	Average	Vertical



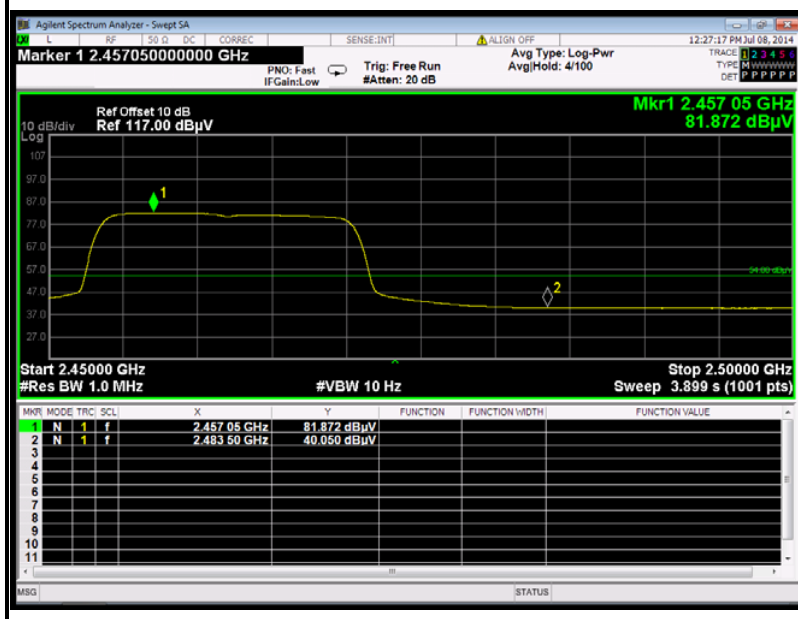
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

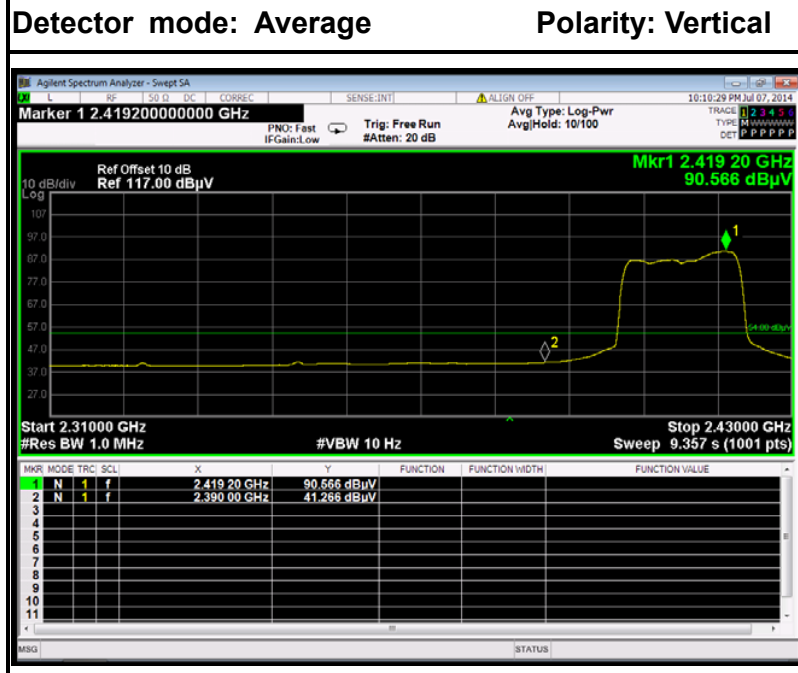
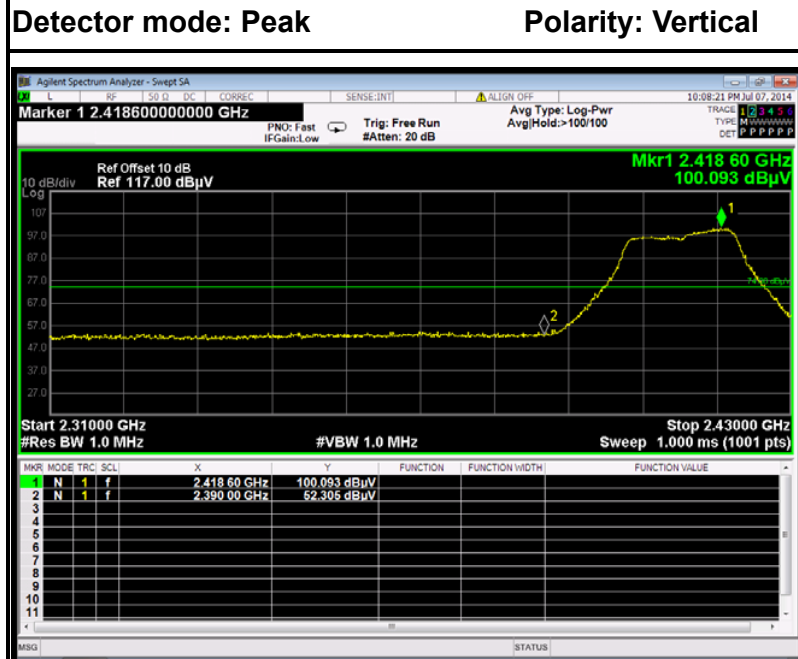


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	45.21	-6.24	51.45	74.00	-22.55	Peak	Horizontal
2	2483.5000	33.81	-6.24	40.05	54.00	-13.95	Average	Horizontal

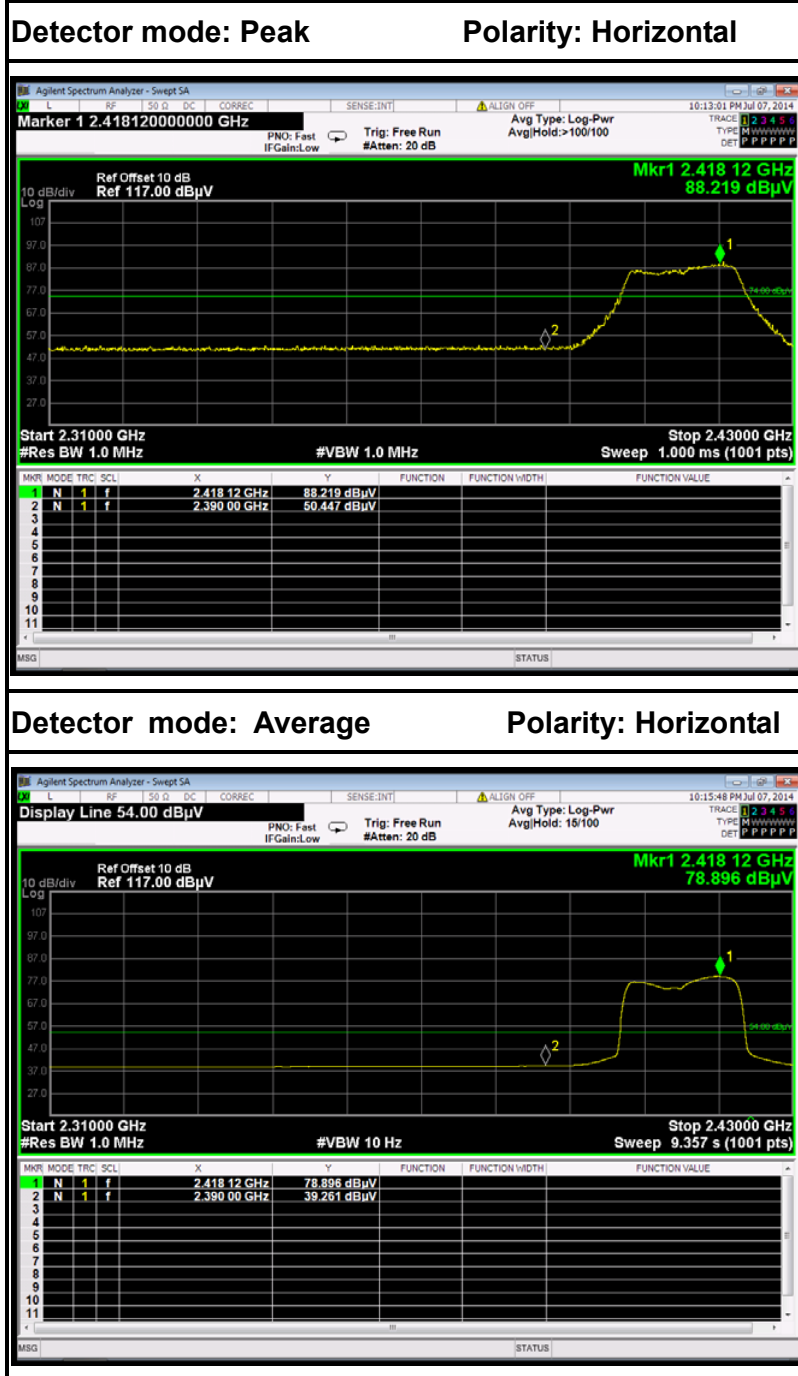


IEEE 802.11n HT20 MHz mode (Combine with Antenna 0 and Antenna 1)

Band Edges (CH Low)



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	45.71	-6.60	52.31	74.00	-21.70	Peak	Vertical
2	2390.0000	34.67	-6.60	41.27	54.00	-12.73	Average	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	43.85	-6.60	50.45	74.00	-23.55	Peak	Horizontal
2	2390.0000	32.66	-6.60	39.26	54.00	-14.74	Average	Horizontal



Band Edges (CH High)

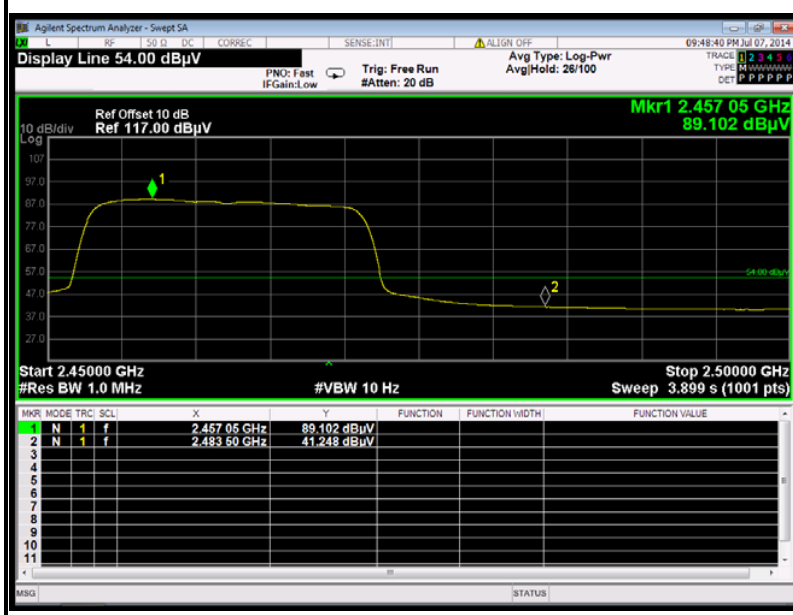
Detector mode: Peak

Polarity: Vertical

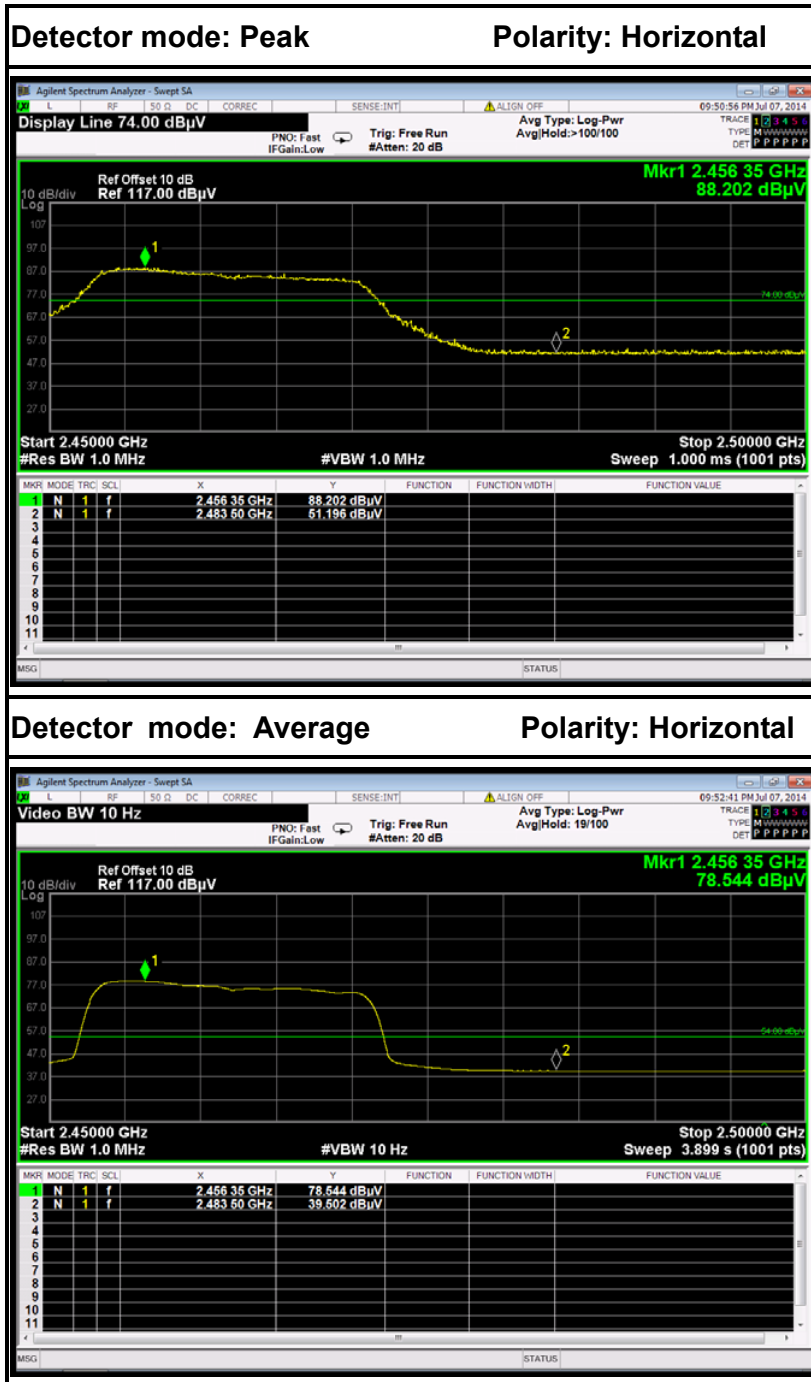


Detector mode: Average

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	46.95	-6.24	53.19	74.00	-20.81	Peak	Vertical
2	2483.5000	35.01	-6.24	41.25	54.00	-12.75	Average	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	44.96	-6.24	51.20	74.00	-22.80	Peak	Horizontal
2	2483.5000	33.26	-6.24	39.50	54.00	-14.50	Average	Horizontal

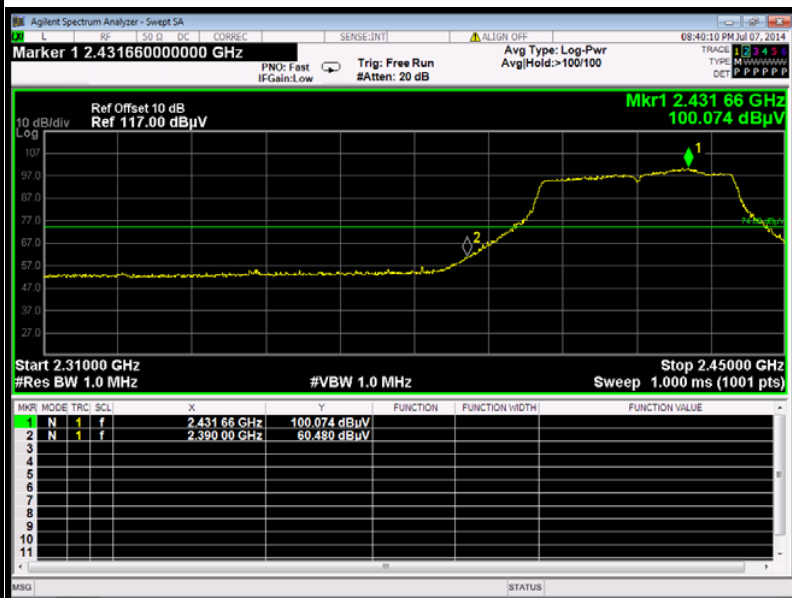


IEEE 802.11n HT40 MHz mode (Combine with Antenna 0 and Antenna 1)

Band Edges (CH Low)

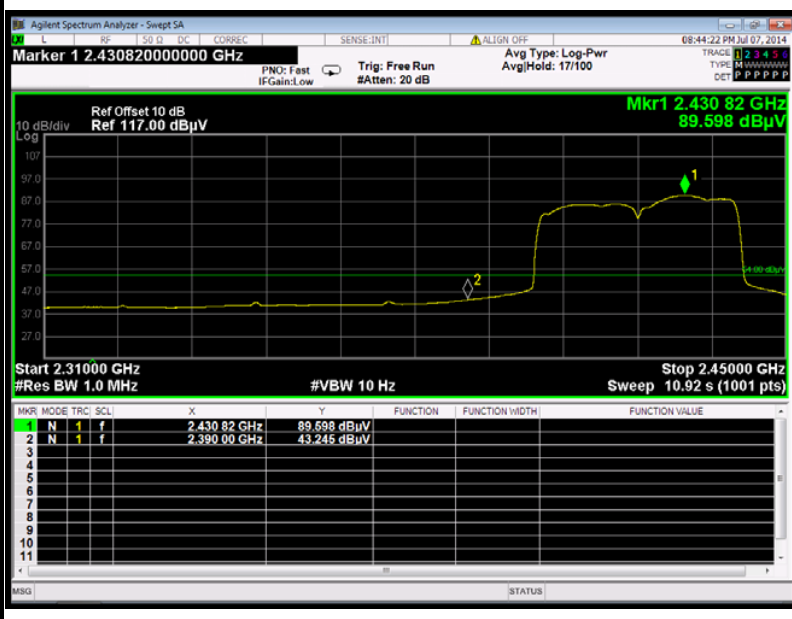
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical

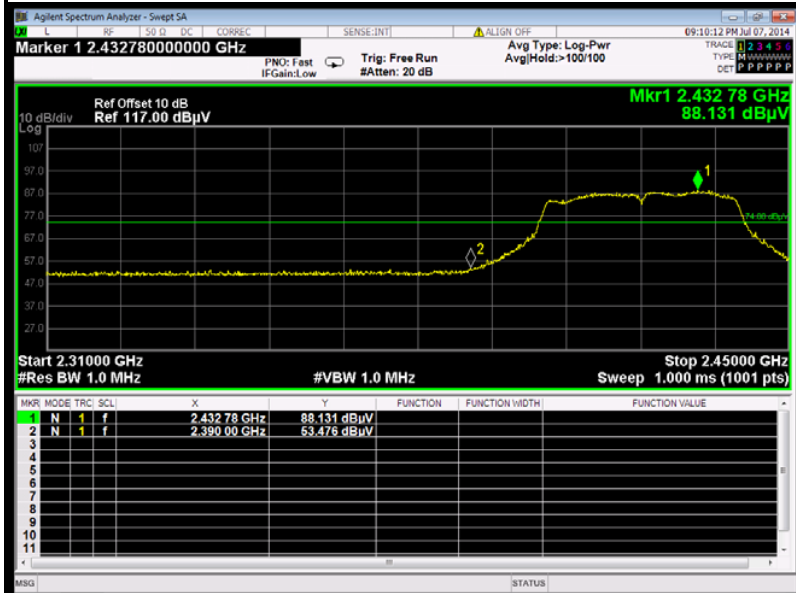


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	53.88	-6.60	60.48	74.00	-13.52	Peak	Vertical
2	2390.0000	36.65	-6.60	43.25	54.00	-10.76	Average	Vertical



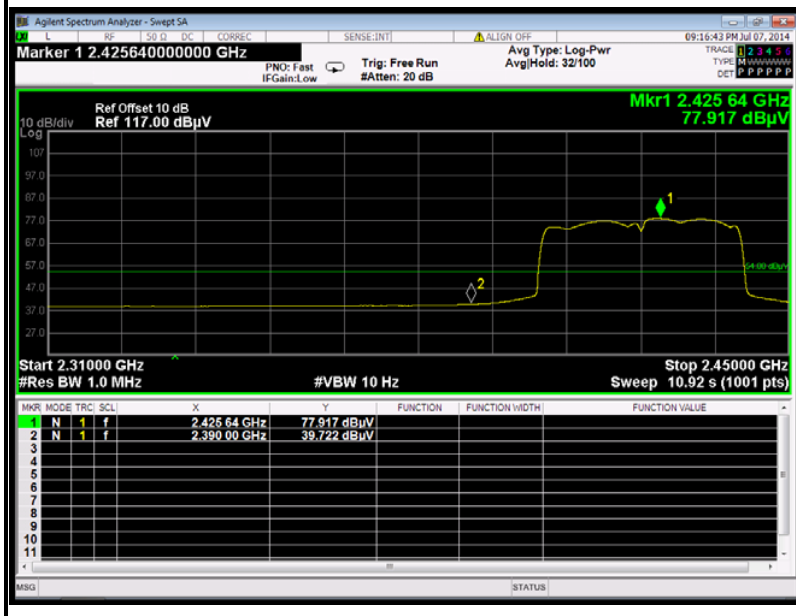
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal



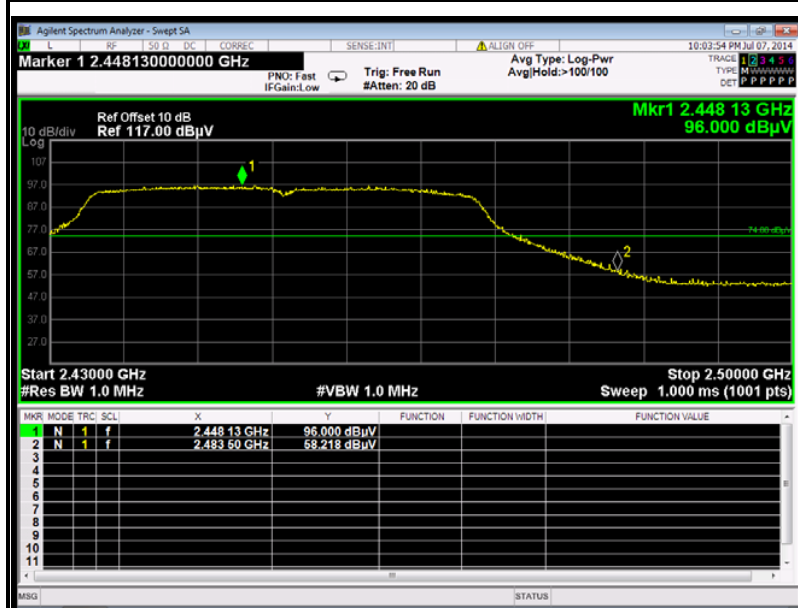
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	46.88	-6.60	53.48	74.00	-20.52	Peak	Horizontal
2	2390.0000	33.12	-6.60	39.72	54.00	-14.28	Average	Horizontal



Band Edges (CH High)

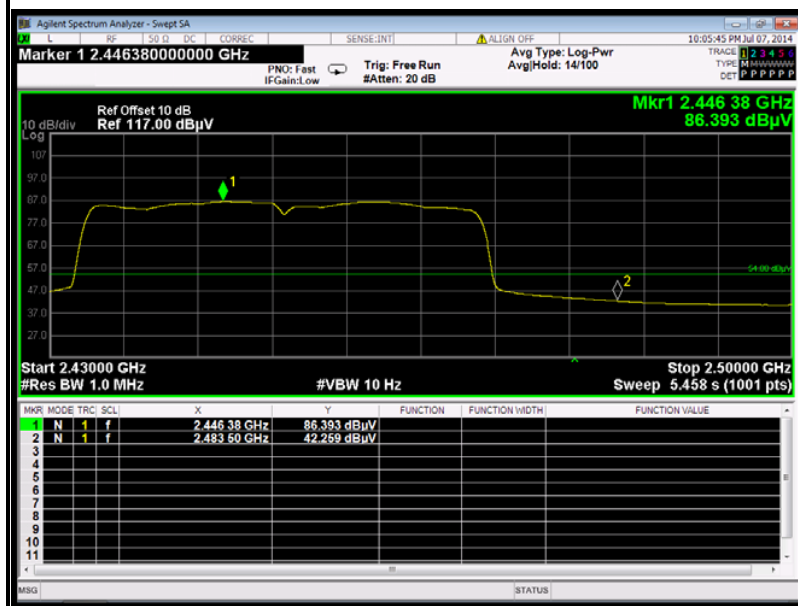
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

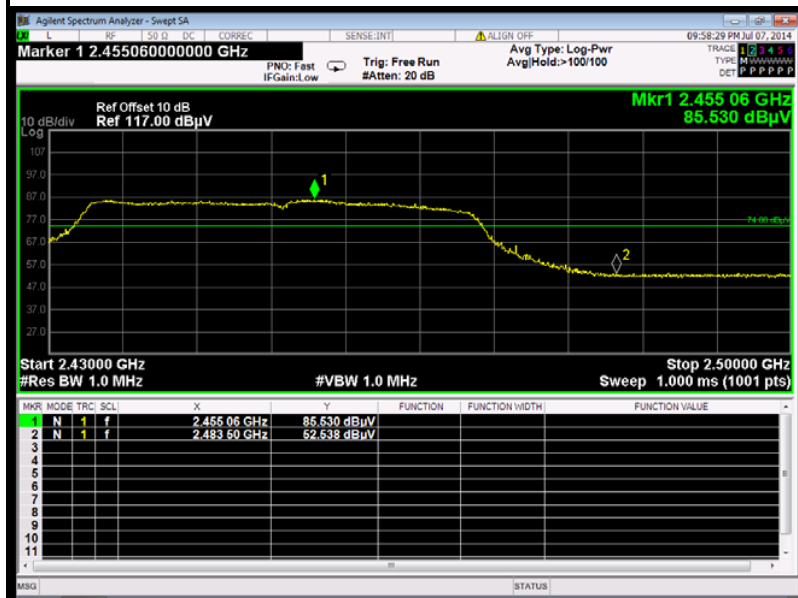
Polarity: Vertical



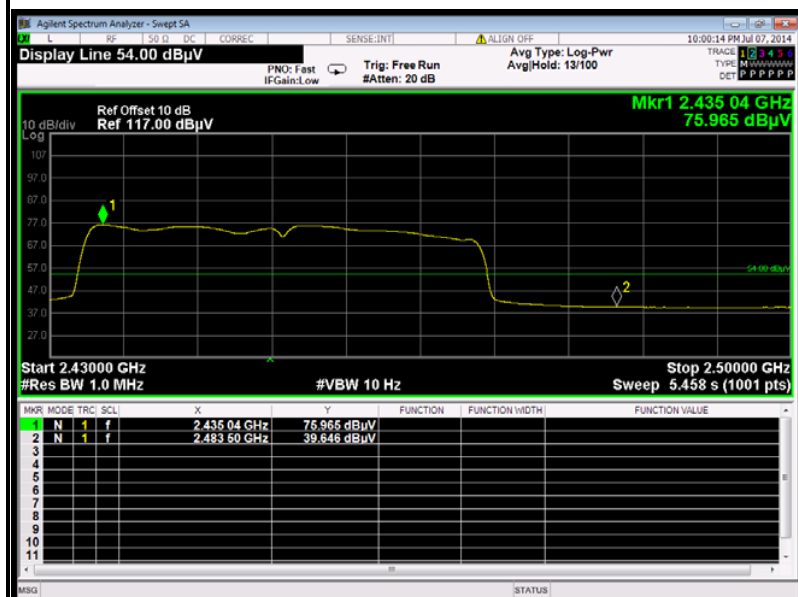
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.98	-6.24	58.22	74.00	-15.78	Peak	Vertical
2	2483.5000	36.02	-6.24	42.26	54.00	-11.74	Average	Vertical



Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	46.30	-6.24	52.54	74.00	-21.46	Peak	Horizontal
2	2483.5000	33.41	-6.24	39.65	54.00	-14.35	Average	Horizontal



7.6. PEAK POWER SPECTRAL DENSITY MEASUREMENT

7.6.1. 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.

7.6.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	R&S	FSU	200409	09/23/2013	09/22/2014
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2014	03/01/2015

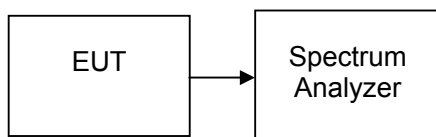
7.6.3. TEST PROCEDURES (please refer to measurement standard)

§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.

7.6.4. TEST SETUP



**7.6.5. 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	0.88	8	PASS
Mid	2437	0.65		PASS
High	2462	0.79		PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-0.24	8	PASS
Mid	2437	-0.22		PASS
High	2462	-1.49		PASS

Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-11.09	8	PASS
Mid	2437	-11.14		PASS
High	2462	-11.89		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-12.05	8	PASS
Mid	2437	-10.77		PASS
High	2462	-12.23		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	-14.84	-14.16	-11.48	8	PASS
Mid	2437	-13.79	-14.85	-11.28		PASS
High	2462	-14.74	-14.82	-11.77		PASS

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

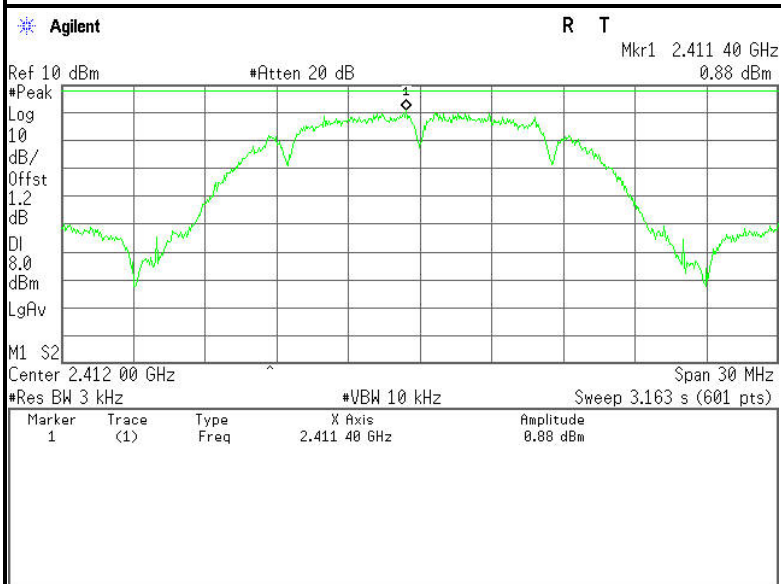
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total		
Low	2422	-14.68	-17.53	-12.86	8	PASS
Mid	2437	-17.54	-17.53	-14.52		PASS
High	2452	-17.91	-18.31	-15.10		PASS



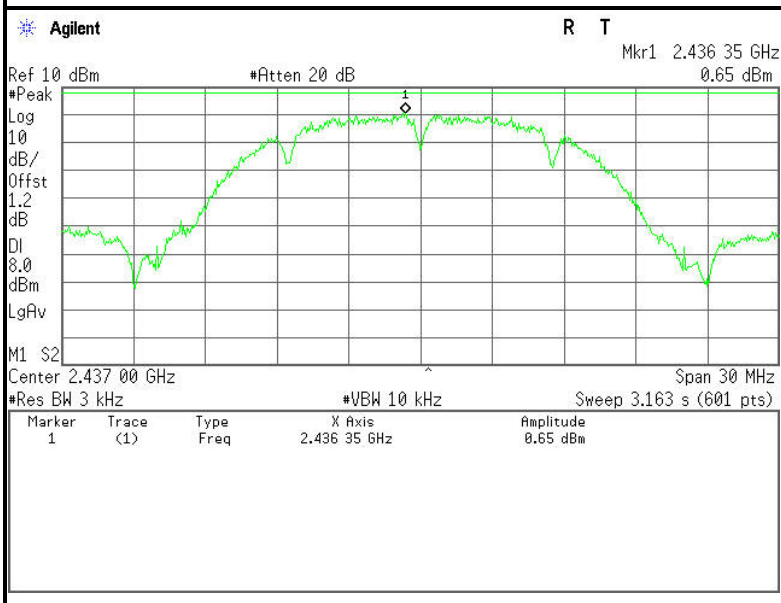
Test Plot

IEEE 802.11b mode (Antenna 0)

PPSD (CH Low)

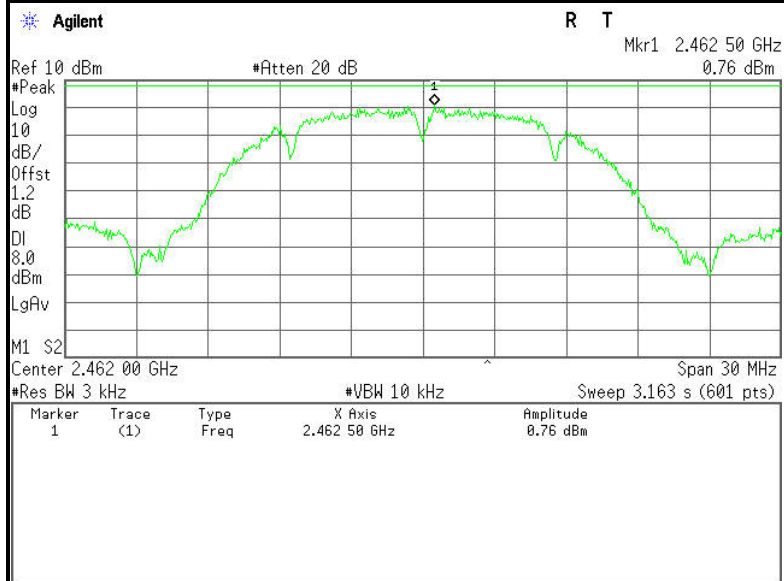


PPSD (CH Mid)



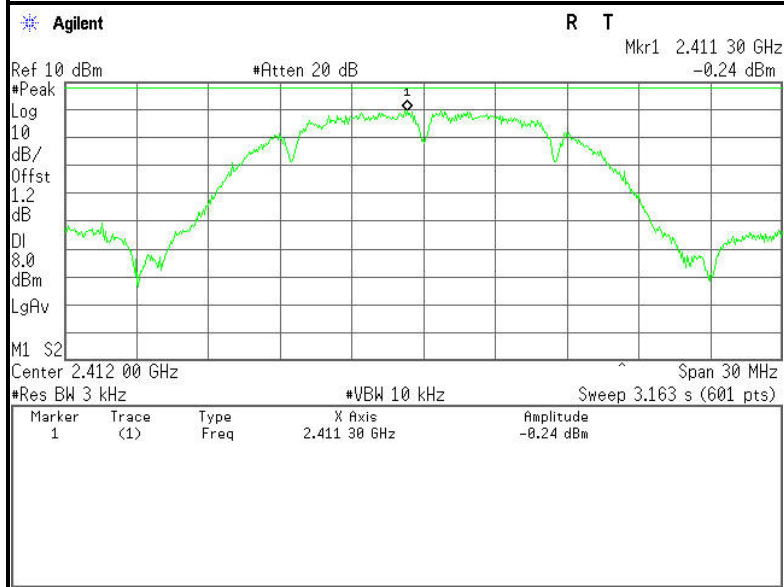


PPSD (CH High)



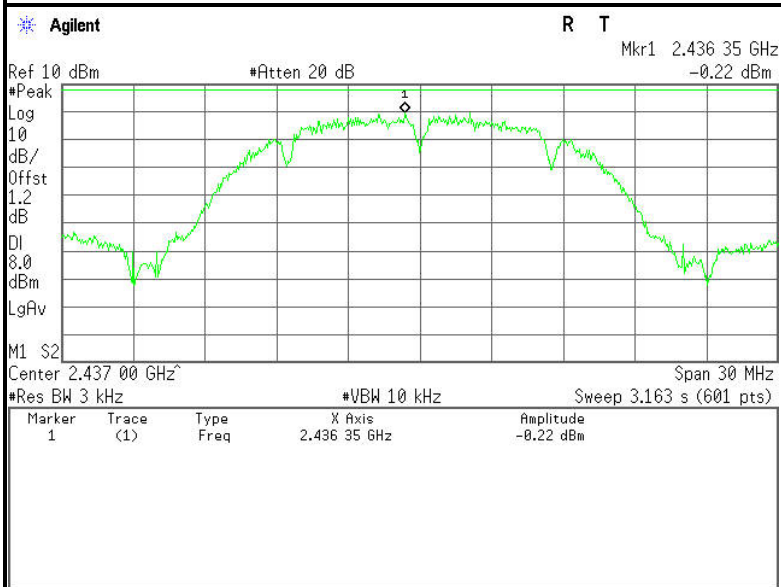
IEEE 802.11b mode (Antenna 1)

PPSD (CH Low)

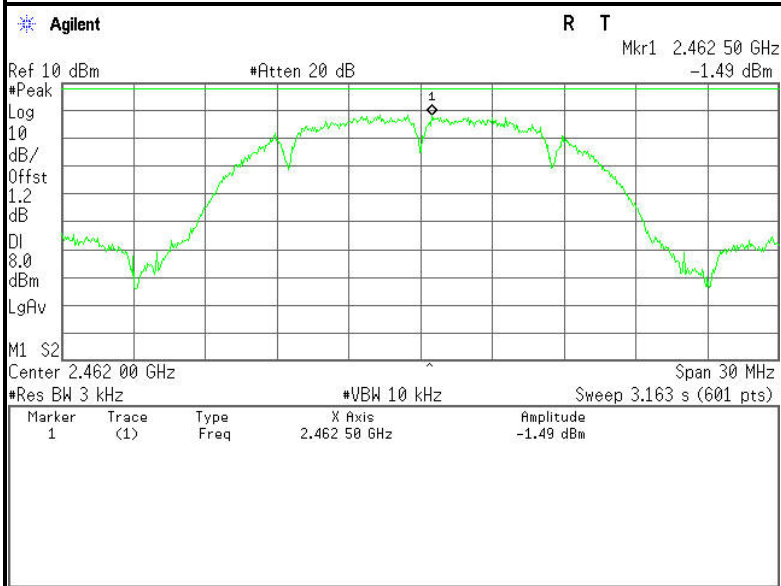




PPSD (CH Low)



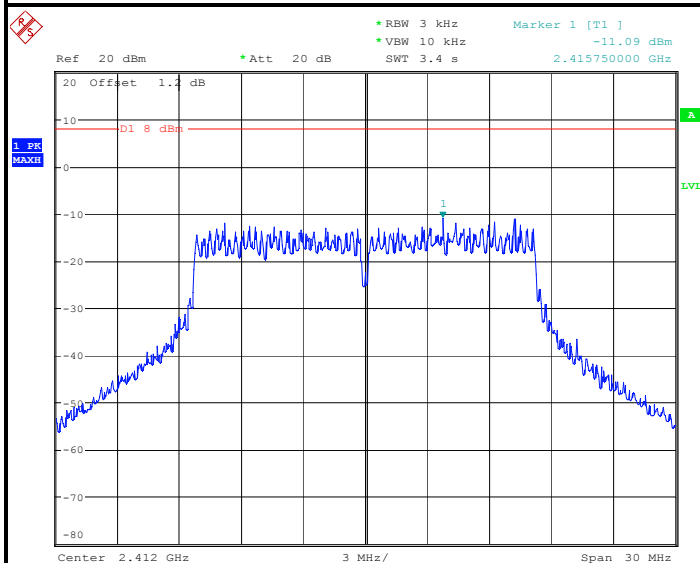
PPSD (CH High)





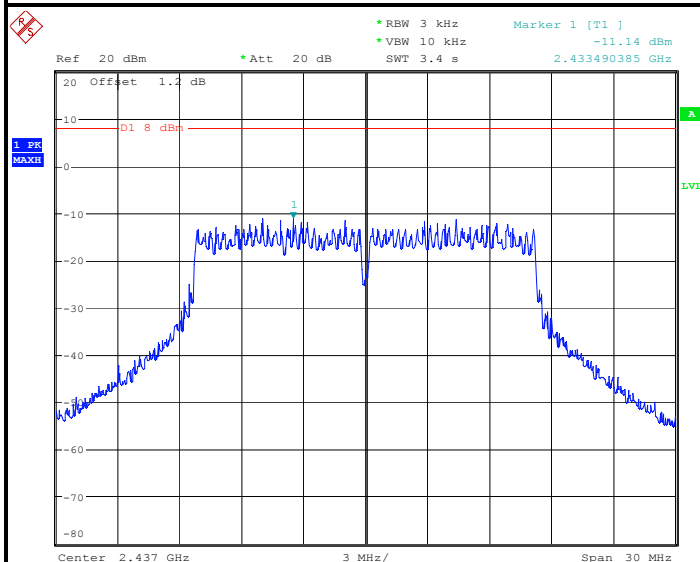
IEEE 802.11g mode (Antenna 0)

PPSD (CH Low)



Date: 8.JUL.2014 10:34:37

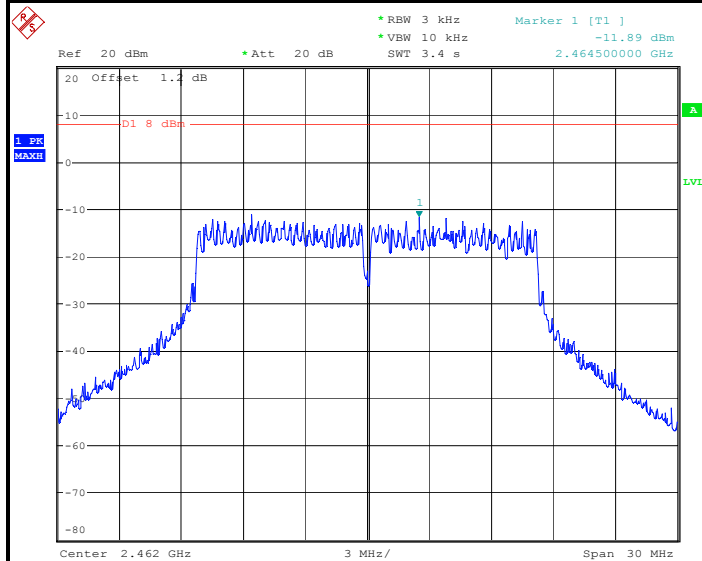
PPSD (CH Mid)



Date: 8.JUL.2014 10:33:50



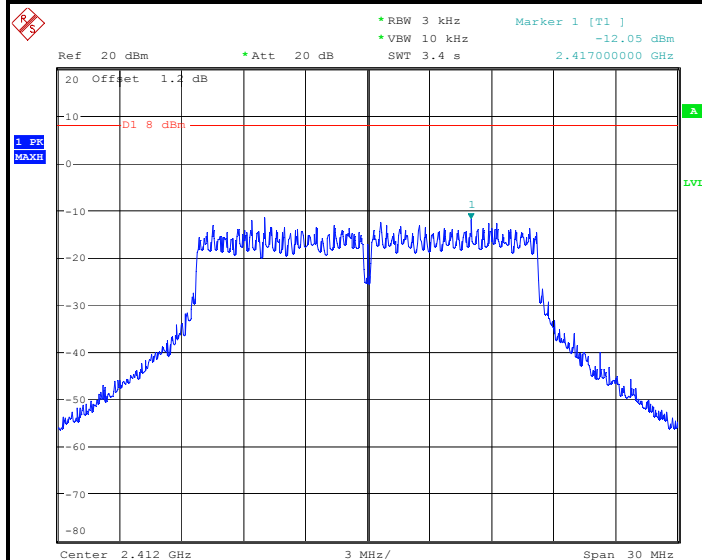
PPSD (CH High)



Date: 8.JUL.2014 10:33:06

IEEE 802.11g mode (Antenna 1)

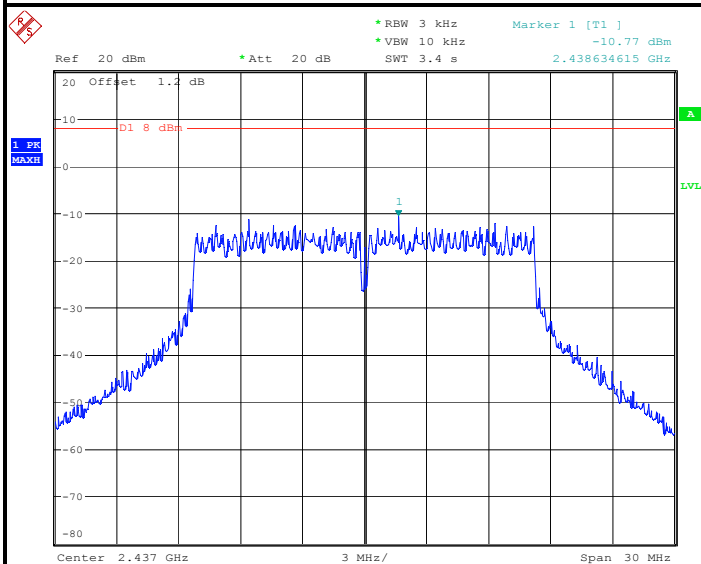
PPSD (CH Low)



Date: 8.JUL.2014 11:10:27

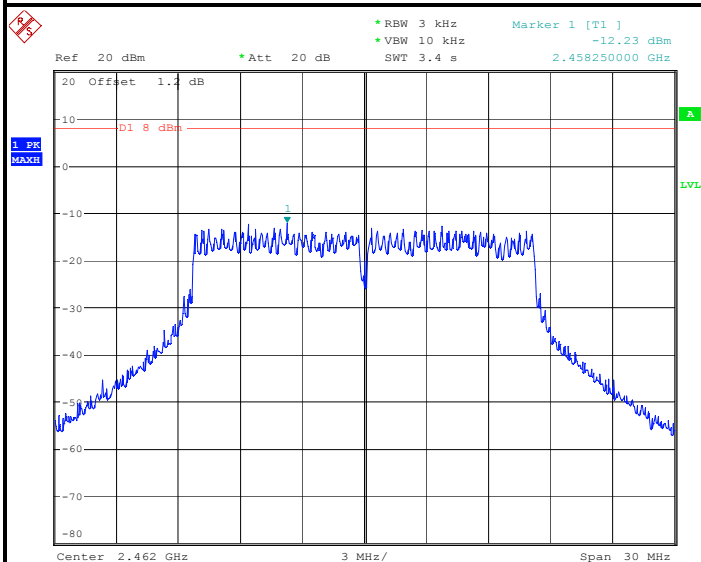


PPSD (CH Mid)



Date: 8.JUL.2014 11:08:34

PPSD (CH High)

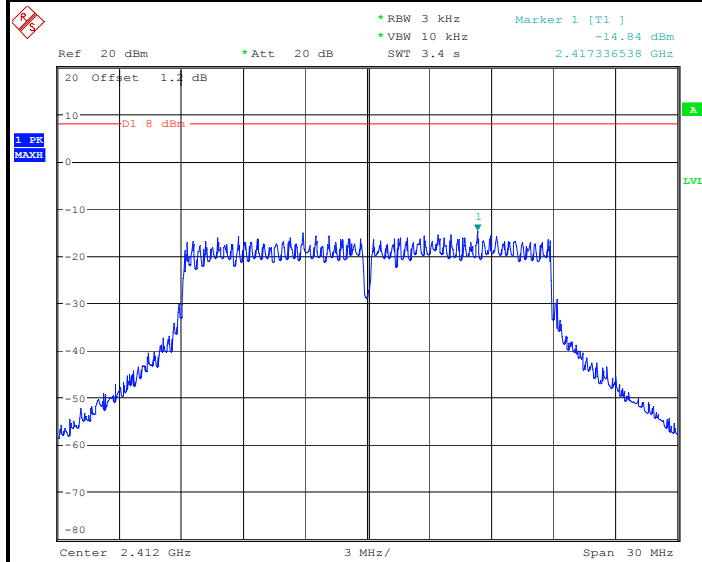


Date: 8.JUL.2014 11:09:39



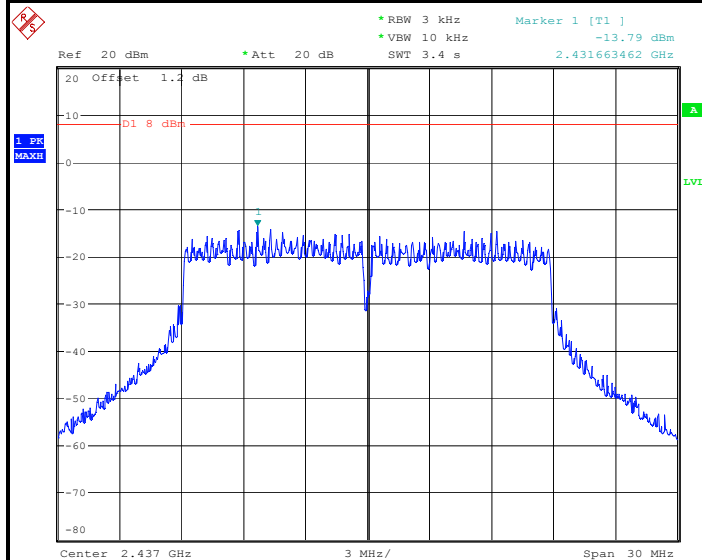
IEEE 802.11n HT20 MHz mode (Antenna 0)

PPSD (CH Low)



Date: 8.JUL.2014 10:37:02

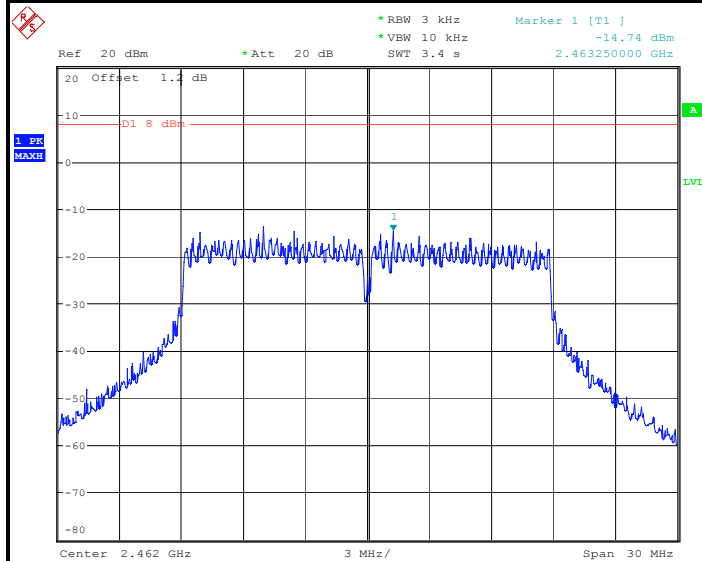
PPSD (CH Mid)



Date: 8.JUL.2014 10:37:36



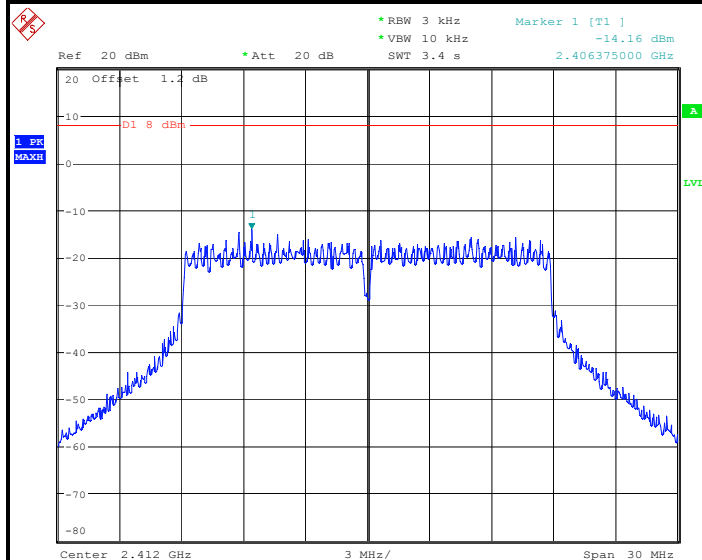
PPSD (CH High)



Date: 8.JUL.2014 10:38:09

IEEE 802.11n HT20 MHz mode (Antenna 1)

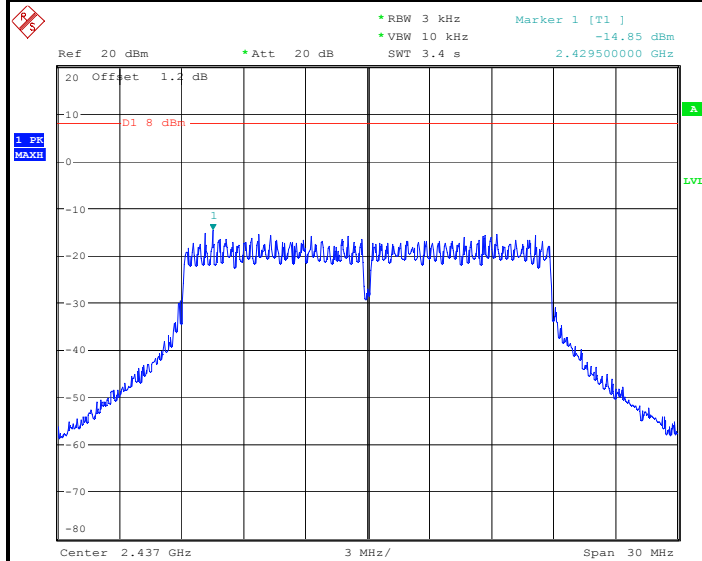
PPSD (CH Low)



Date: 8.JUL.2014 10:59:29

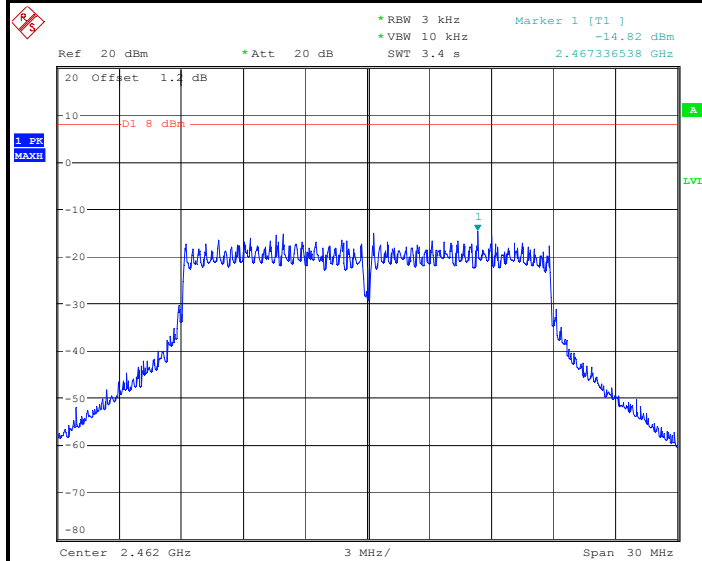


PPSD (CH Mid)



Date: 8.JUL.2014 11:00:27

PPSD (CH High)

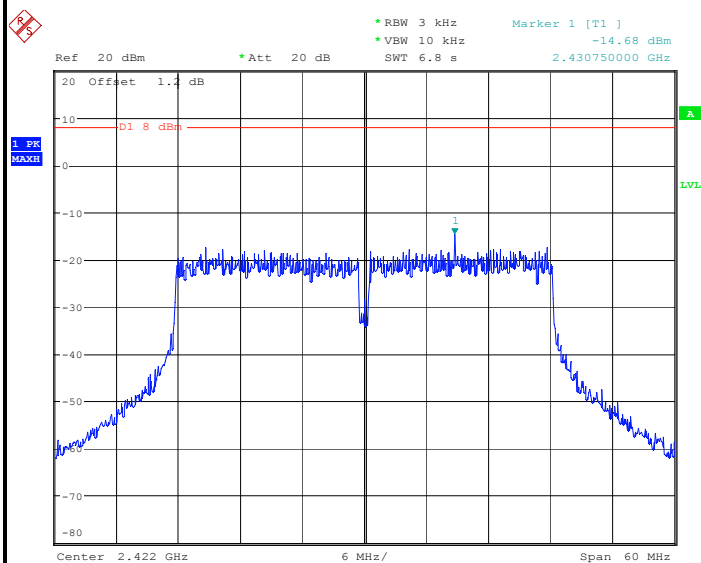


Date: 8.JUL.2014 11:01:10



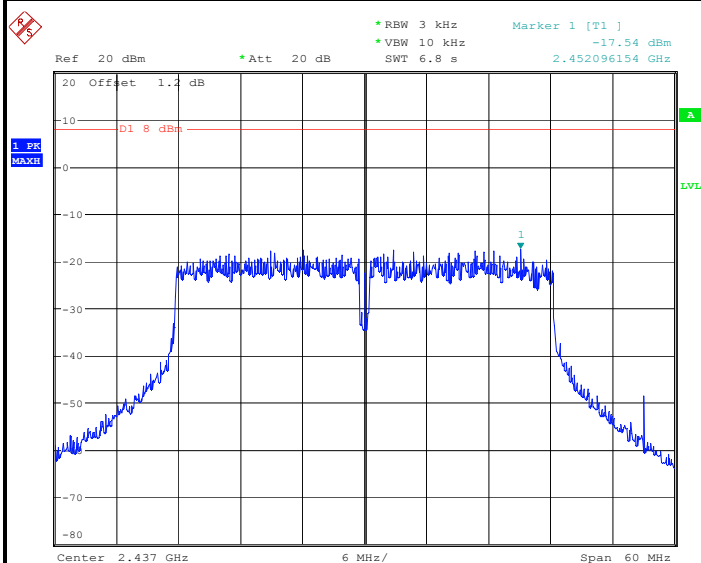
IEEE 802.11n HT40 MHz mode (Antenna 0)

PPSD (CH Low)



Date: 8.JUL.2014 10:54:17

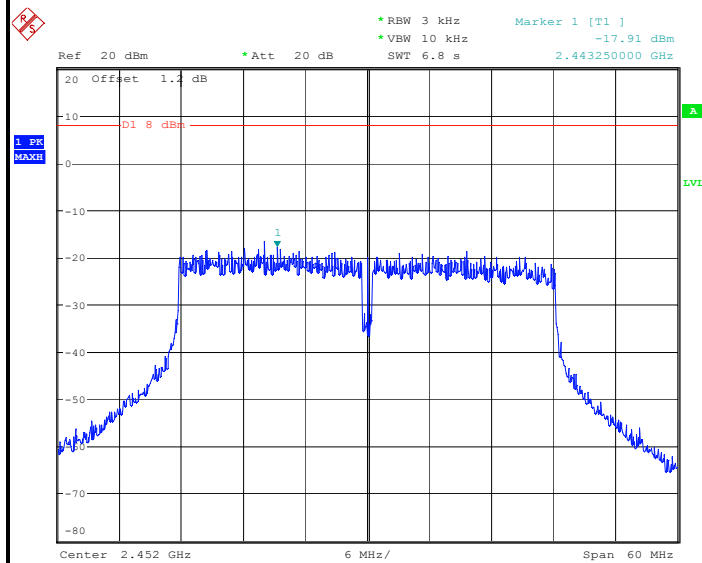
PPSD (CH Mid)



Date: 8.JUL.2014 10:54:58



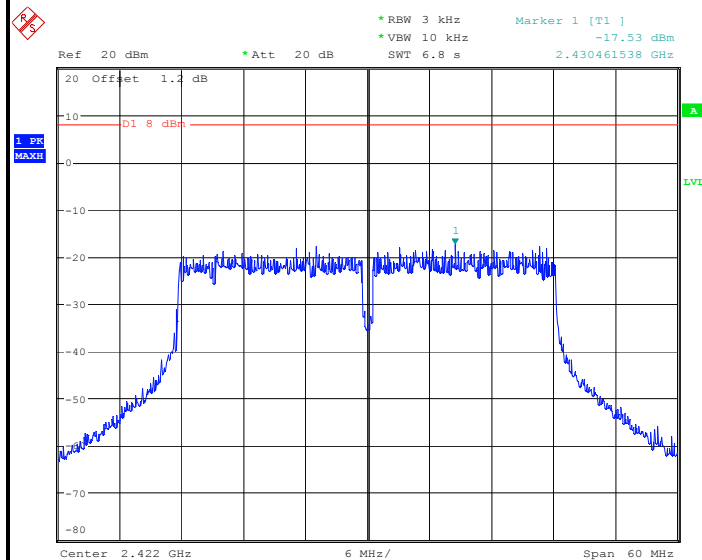
PPSD (CH High)



Date: 8.JUL.2014 10:55:44

IEEE 802.11n HT40 MHz mode (Antenna 1)

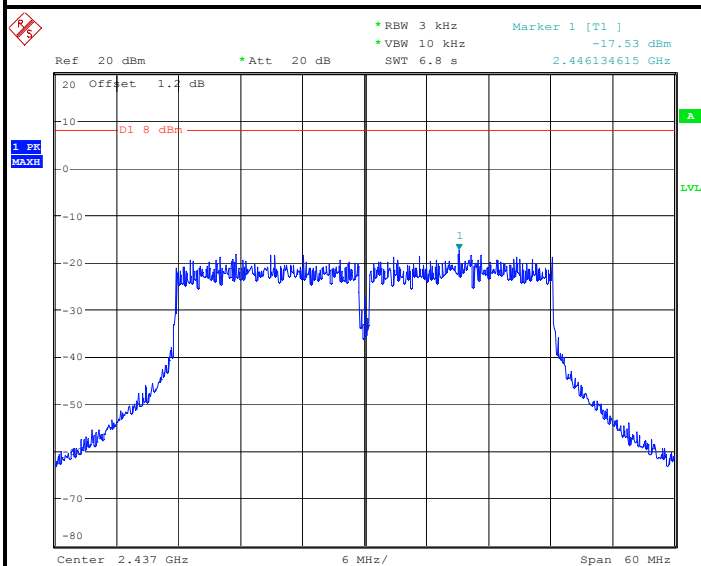
PPSD (CH Low)



Date: 8.JUL.2014 10:58:43

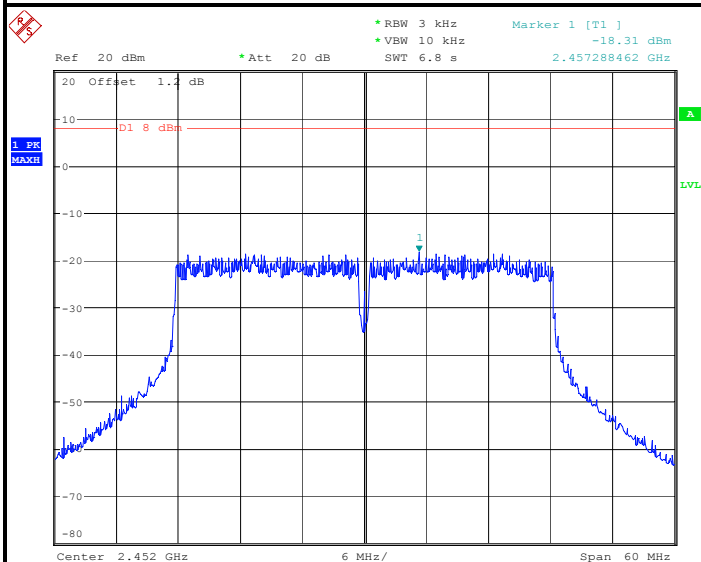


PPSD (CH Mid)



Date: 8.JUL.2014 10:58:08

PPSD (CH High)



Date: 8.JUL.2014 10:57:35