



Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 2.461 92 GHz
87.16 dBμV



M1 S2
Start 2.450 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz VBW 1 MHz Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.461 92 GHz	87.16 dBμV
2	(1)	Freq	2.483 50 GHz	48.21 dBμV

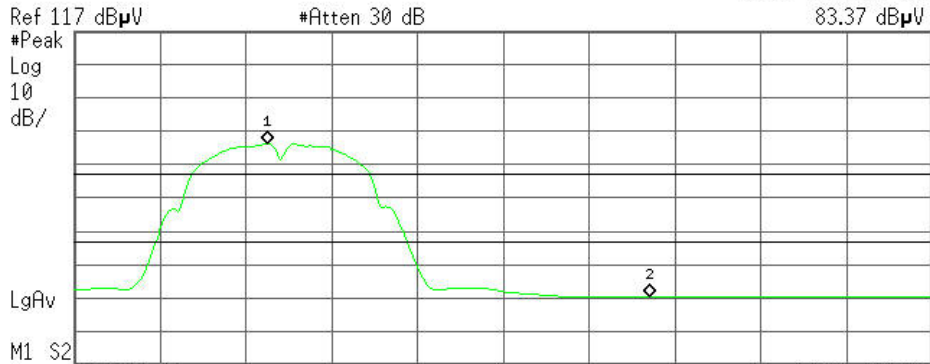
Detector mode: Average

Polarity: Horizontal

Agilent

R T

Mkr1 2.461 25 GHz
83.37 dBμV



M1 S2
Start 2.450 00 GHz Stop 2.500 00 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 3.899 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.461 25 GHz	83.37 dBμV
2	(1)	Freq	2.483 50 GHz	37.32 dBμV



IEEE 802.11g (Antenna 1)mode

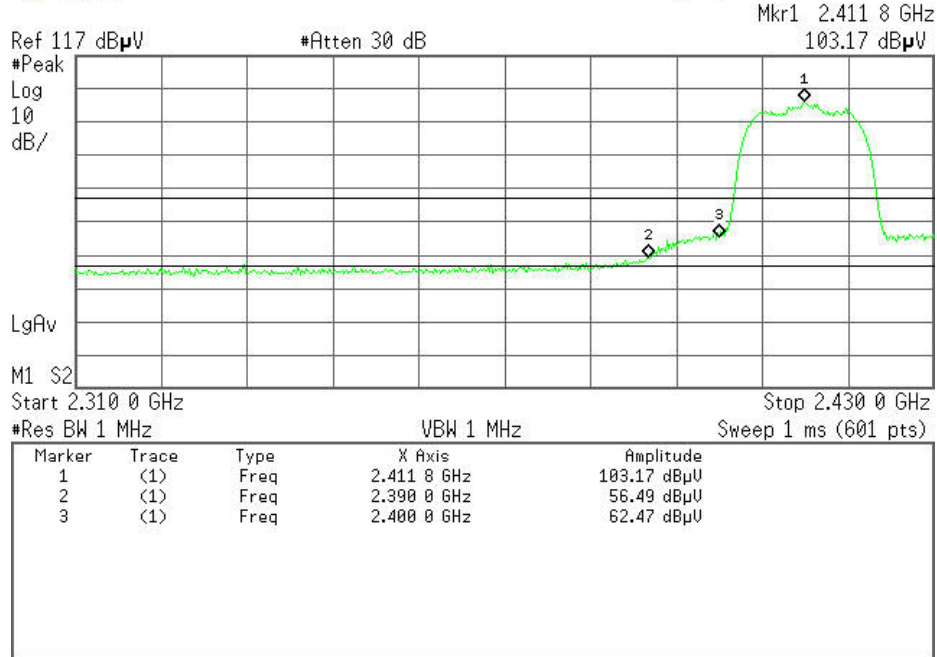
Band Edges (CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

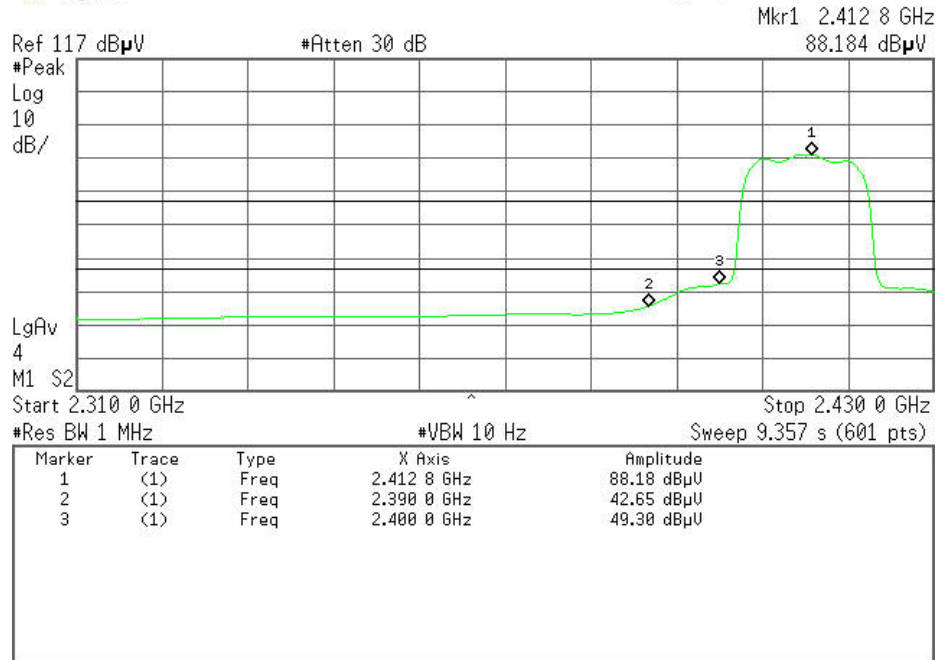


Detector mode: Average

Polarity: Vertical

Agilent

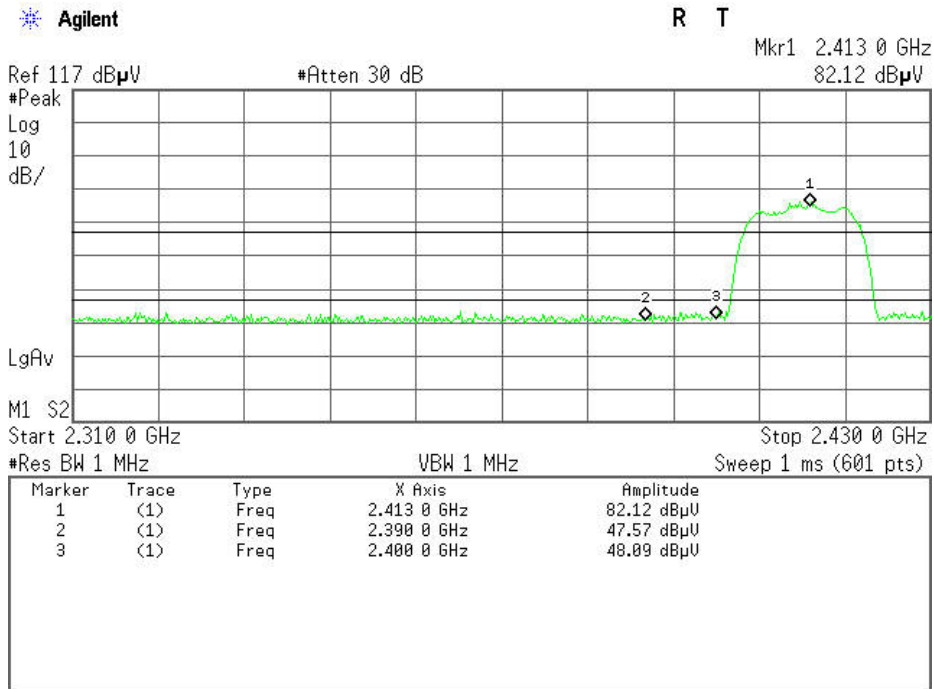
R T





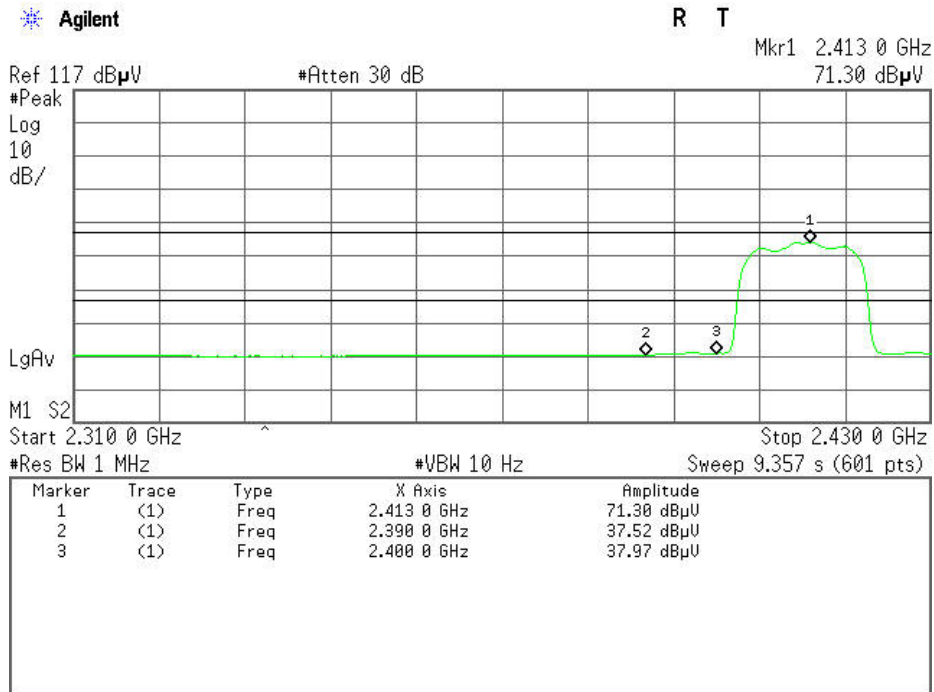
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

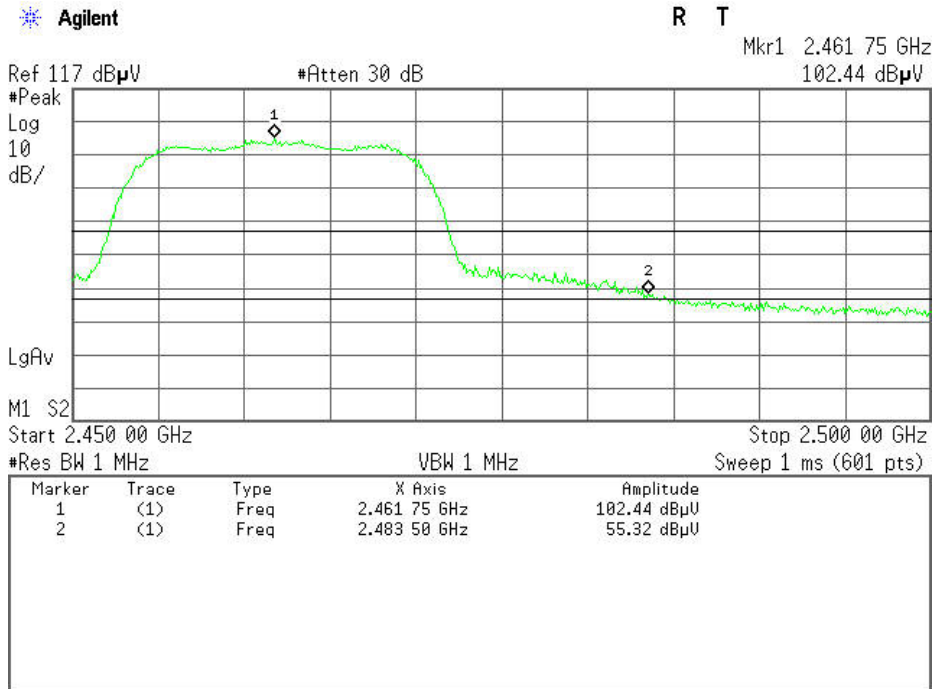




Band Edges (CH High)

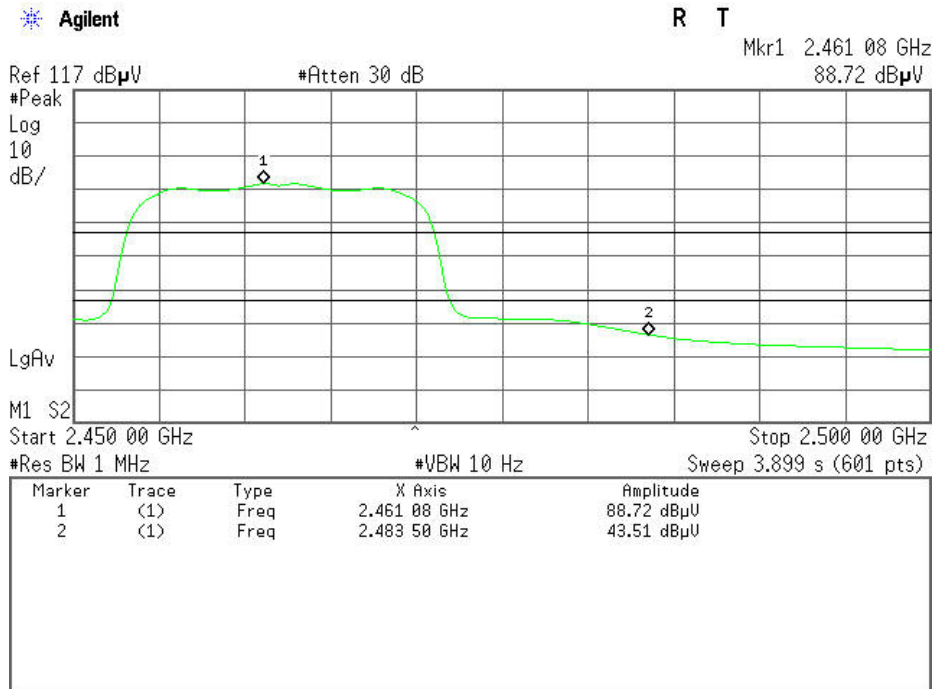
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

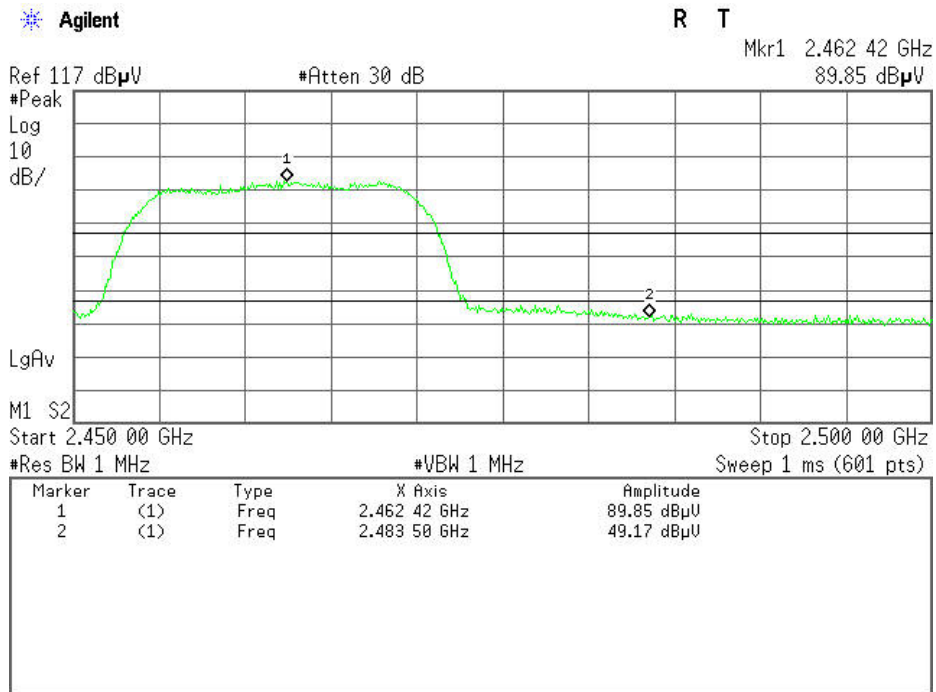
Polarity: Vertical





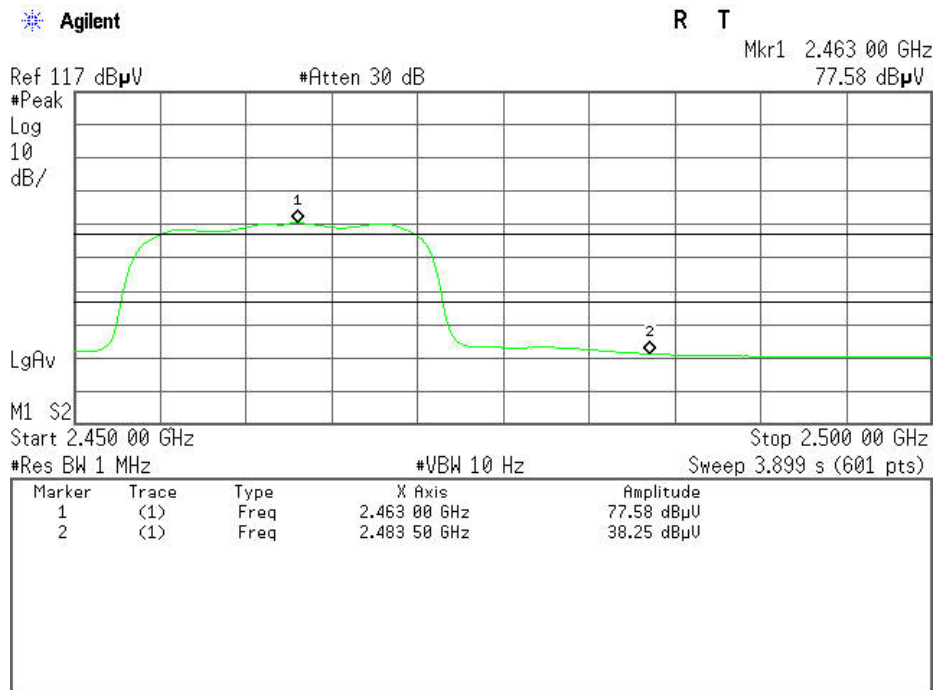
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





IEEE 802.11n HT20 MHz (Antenna 1) mode

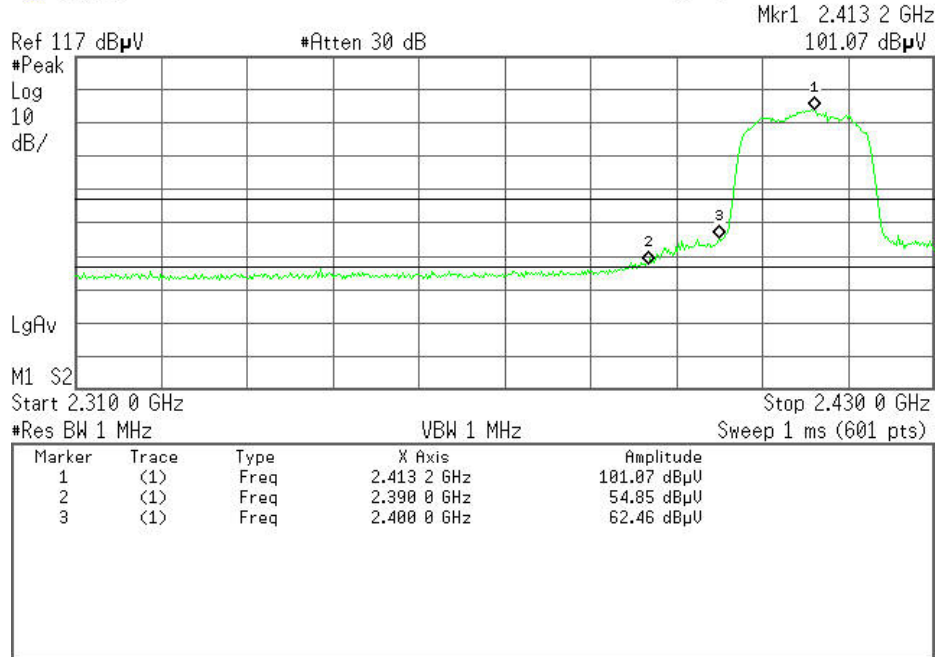
Band Edges (CH Low)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

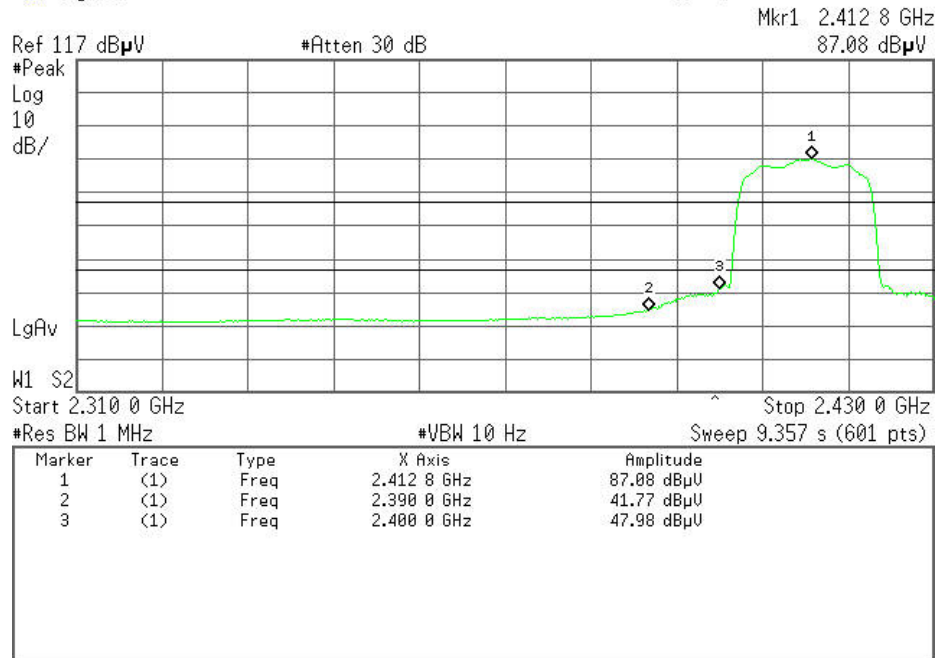


Detector mode: Average

Polarity: Vertical

Agilent

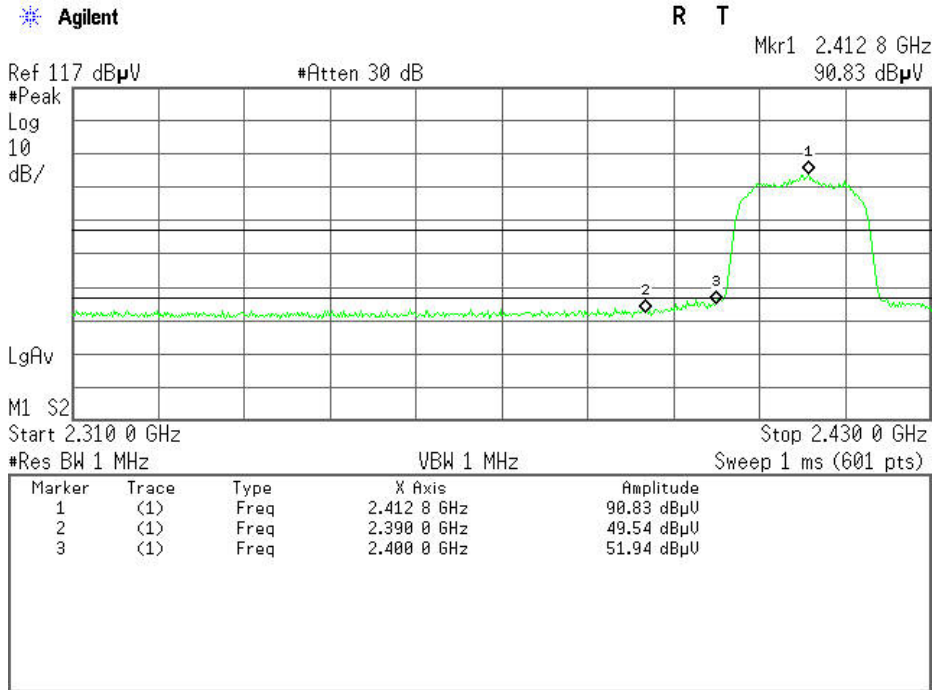
R T





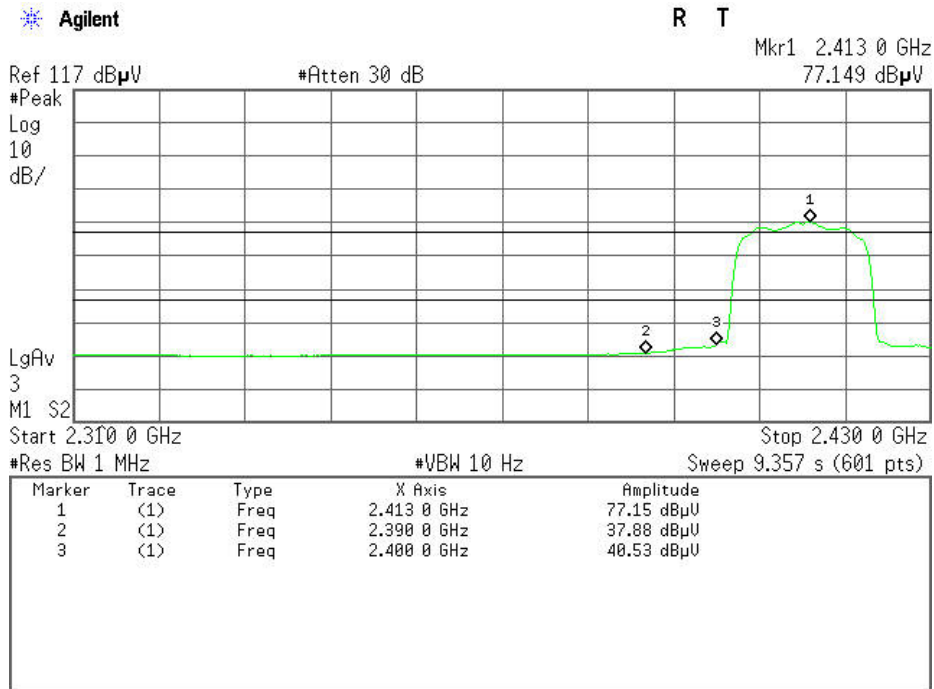
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





Band Edges (CH High)

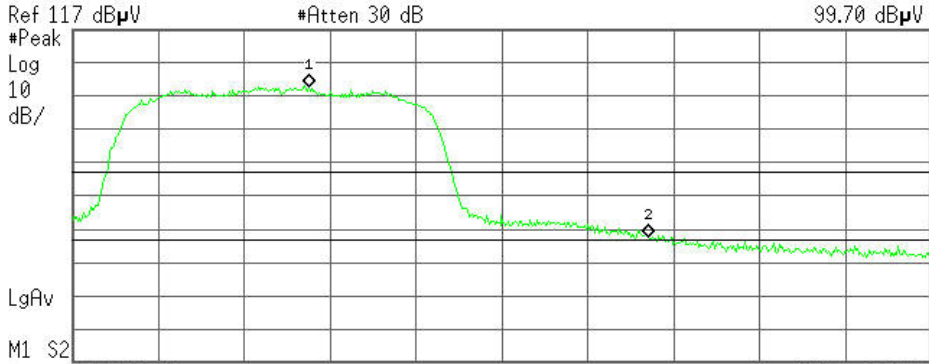
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.463 75 GHz
99.70 dBμV



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.463 75 GHz	99.70 dBμV
2	(1)	Freq	2.483 50 GHz	54.52 dBμV

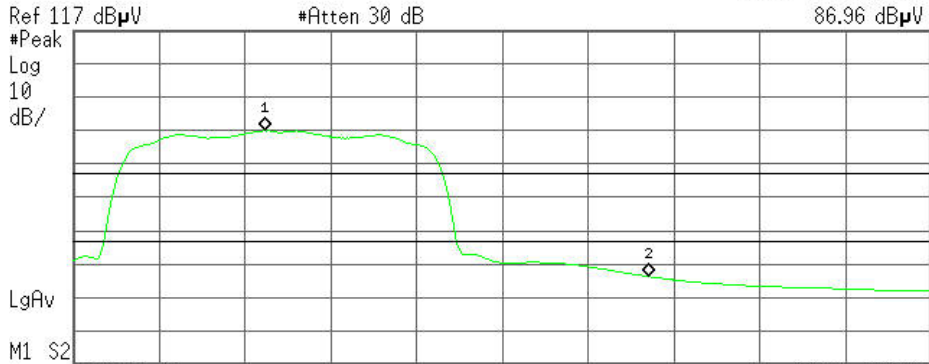
Detector mode: Average

Polarity: Vertical

Agilent

R T

Mkr1 2.461 17 GHz
86.96 dBμV

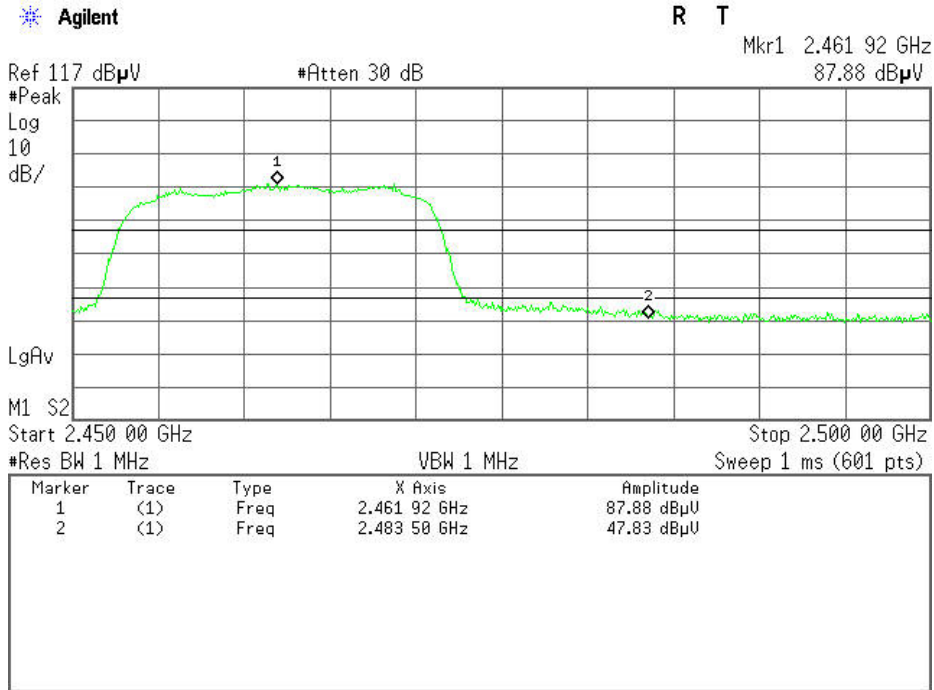


Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.461 17 GHz	86.96 dBμV
2	(1)	Freq	2.483 50 GHz	43.30 dBμV



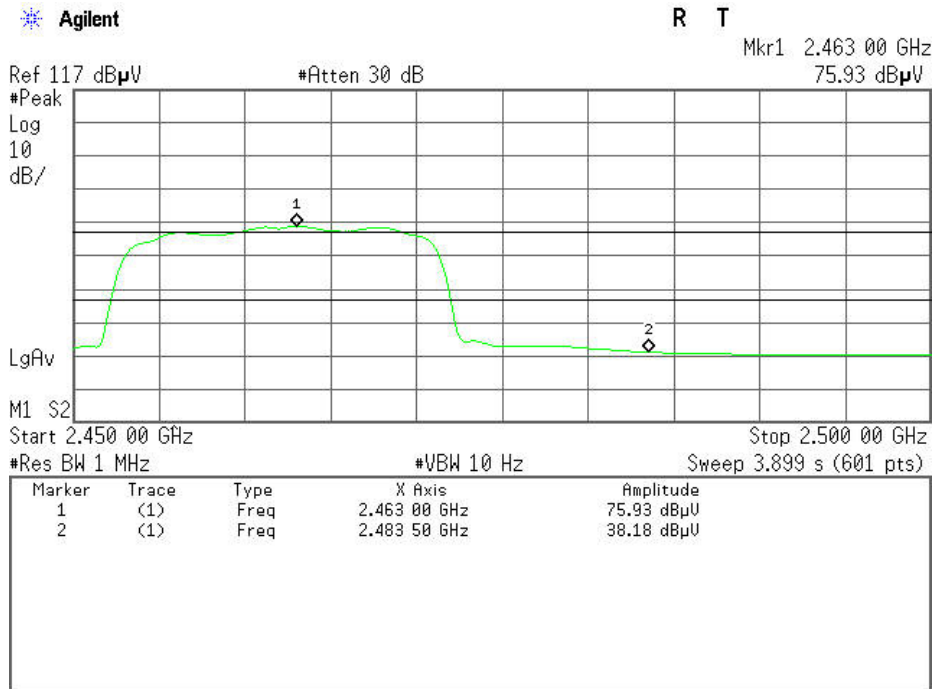
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal



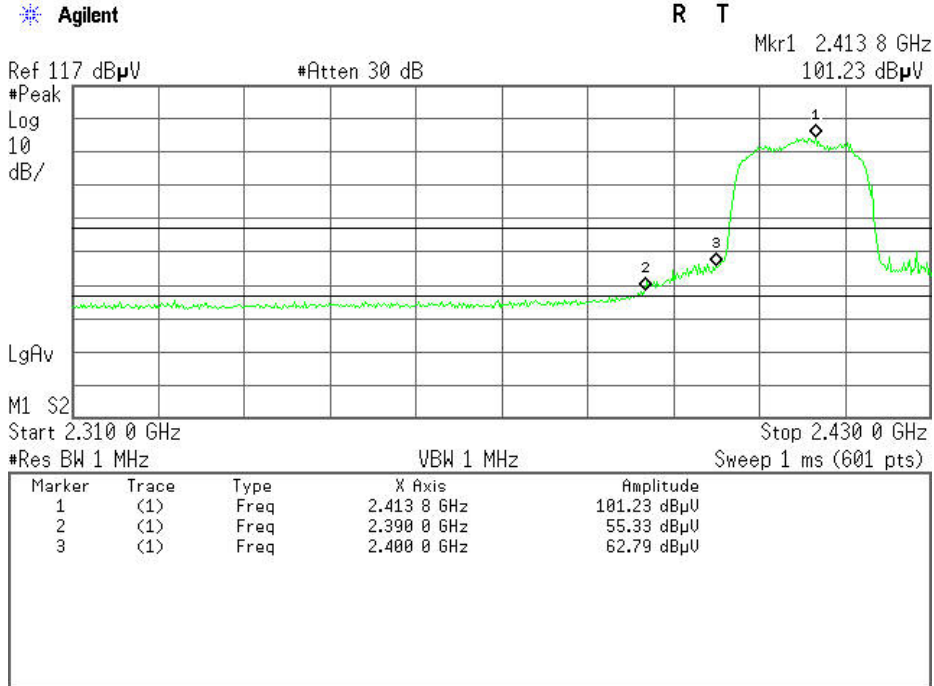


IEEE 802.11n HT20 MHz (Combine with antenna 1 and antenna 2) mode

Band Edges (CH Low)

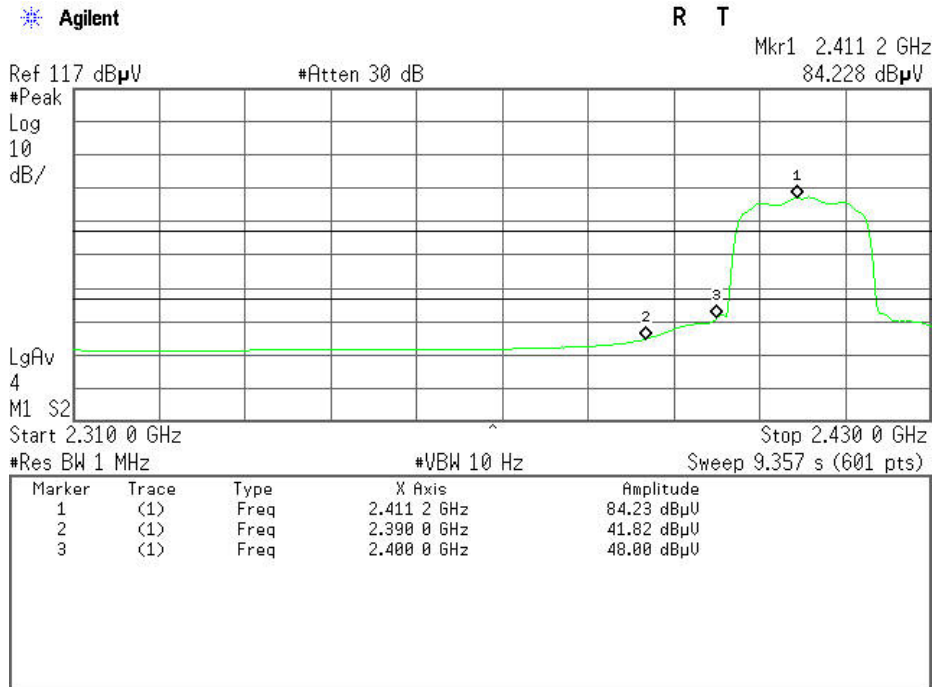
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

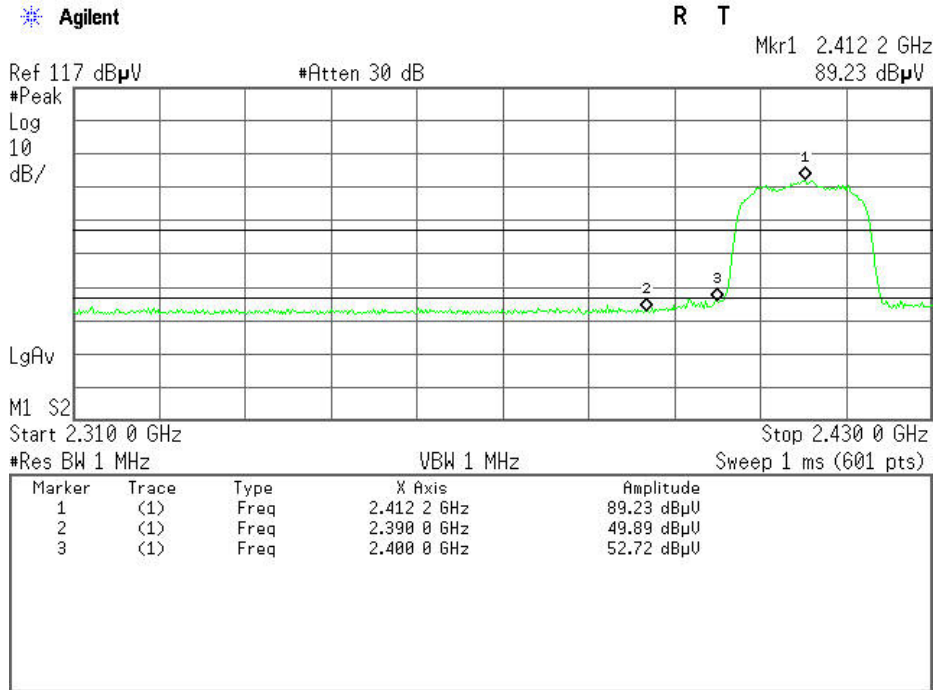
Polarity: Vertical





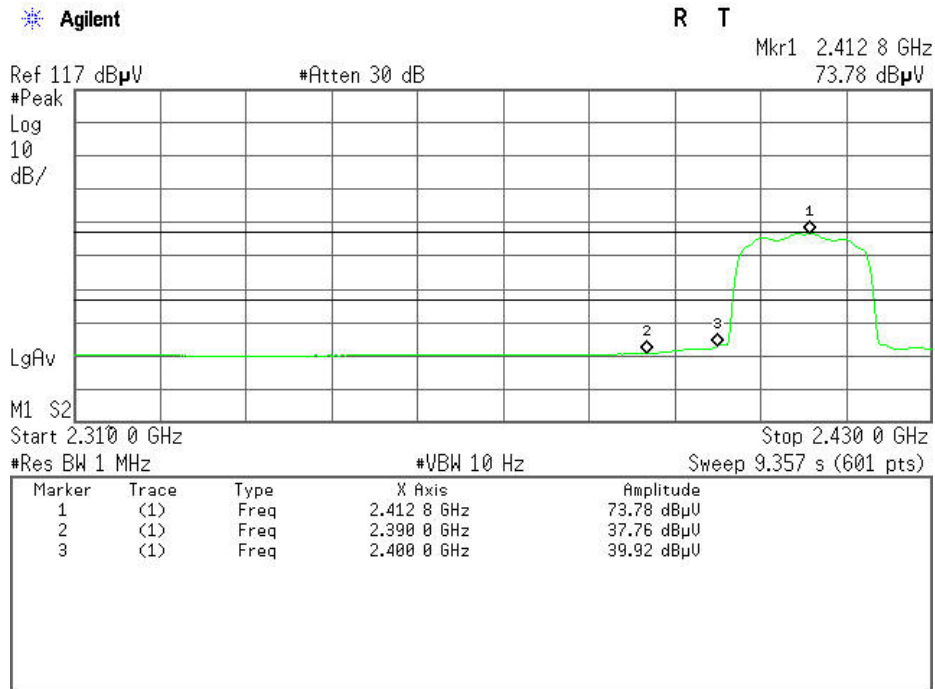
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





Band Edges (CH High)

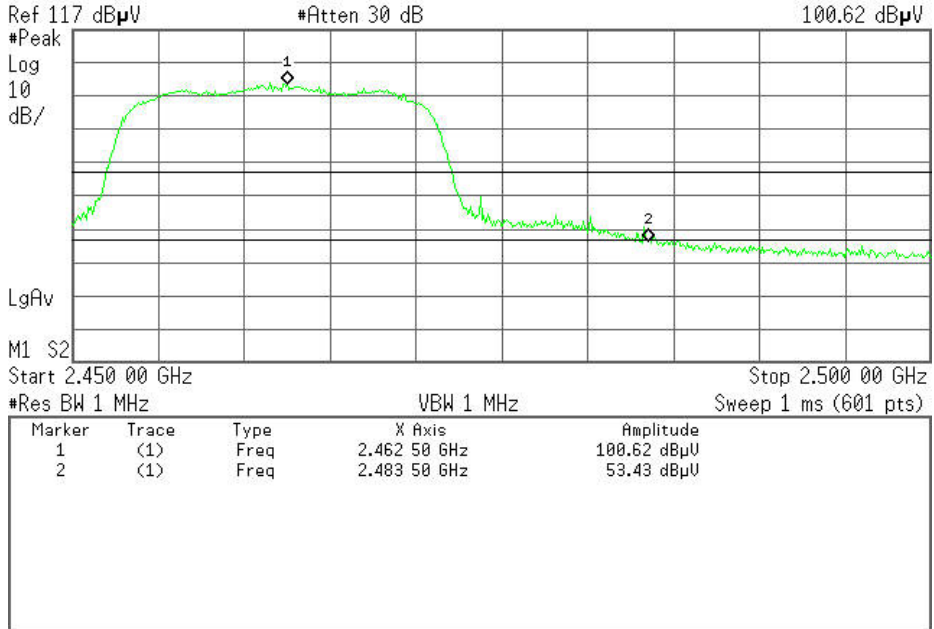
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.462 50 GHz
100.62 dBμV



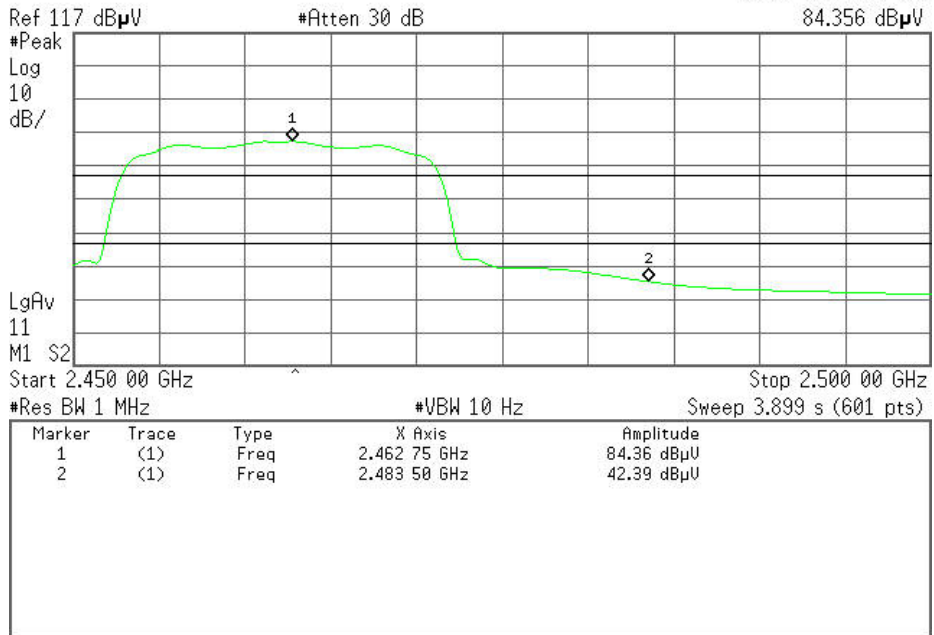
Detector mode: Average

Polarity: Vertical

Agilent

R T

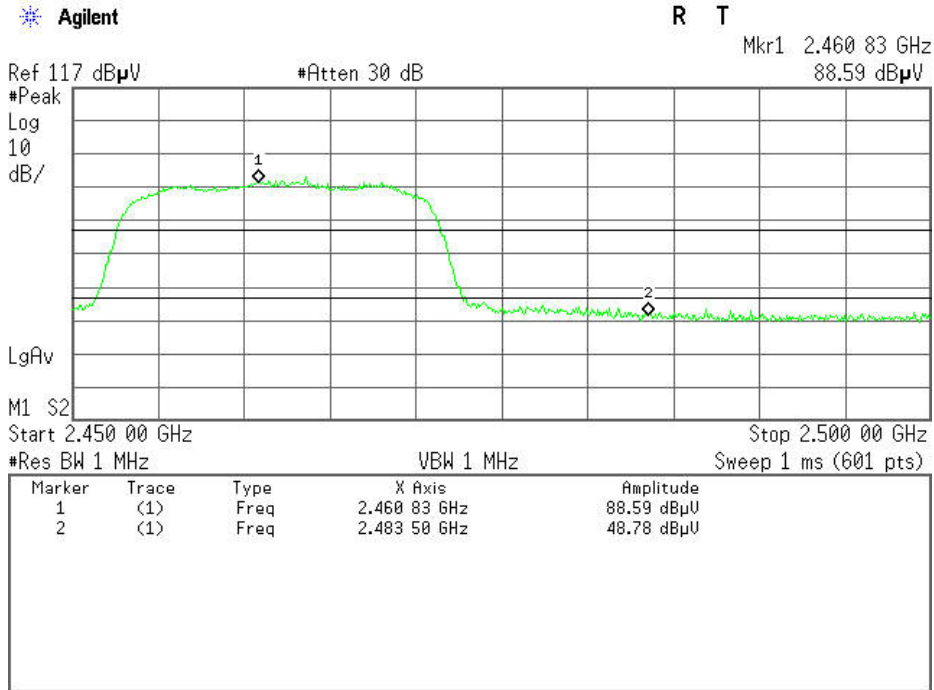
Mkr1 2.462 75 GHz
84.356 dBμV





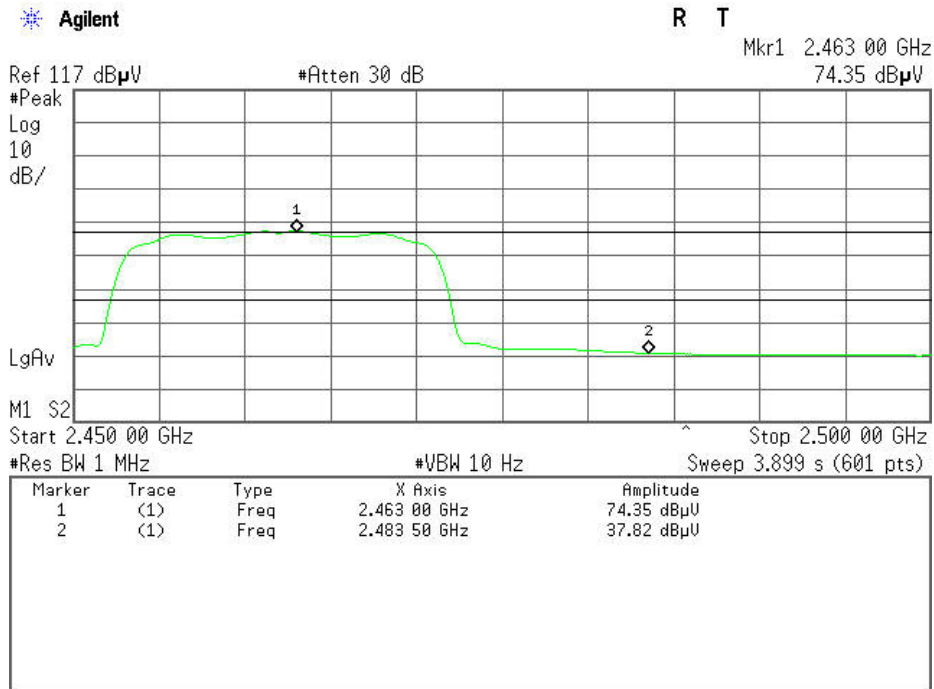
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





IEEE 802.11n HT40 MHz (Antenna 1) mode

Band Edges (CH Low)

Detector mode: Peak

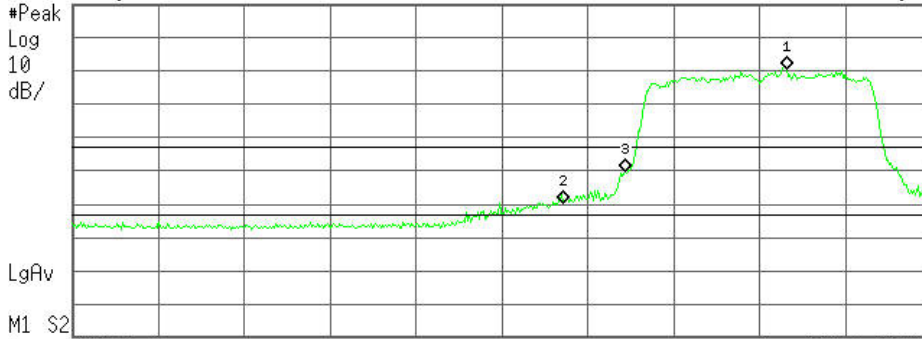
Polarity: Vertical

Agilent

R T

Mkr1 2.426 4 GHz
97.43 dBμV

Ref 117 dBμV #Atten 30 dB



Start 2.310 0 GHz Stop 2.450 0 GHz
#Res BW 1 MHz VBW 1 MHz Sweep 1 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.426 4 GHz	97.43 dBμV
2	(1)	Freq	2.390 0 GHz	57.08 dBμV
3	(1)	Freq	2.400 0 GHz	66.71 dBμV

Detector mode: Average

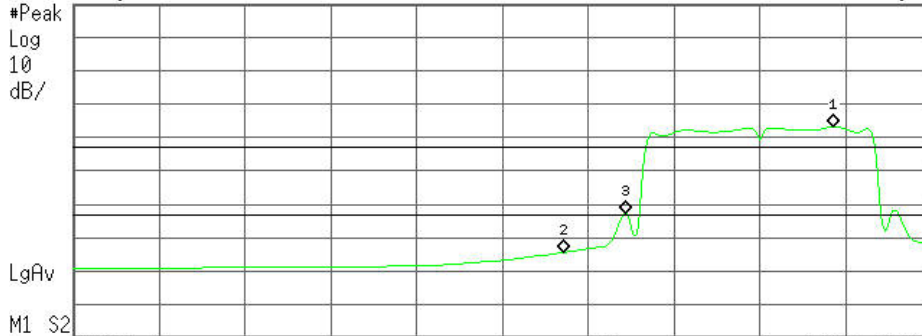
Polarity: Vertical

Agilent

R T

Mkr1 2.433 9 GHz
80.24 dBμV

Ref 117 dBμV #Atten 30 dB



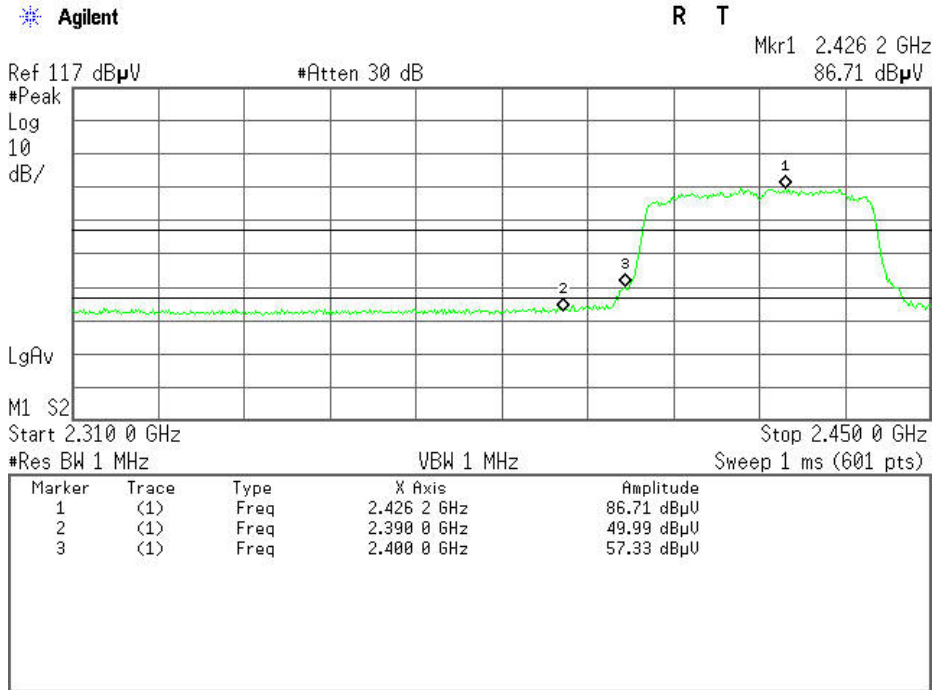
Start 2.310 0 GHz Stop 2.450 0 GHz
#Res BW 1 MHz #VBW 10 Hz Sweep 10.92 s (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.433 9 GHz	80.24 dBμV
2	(1)	Freq	2.390 0 GHz	42.62 dBμV
3	(1)	Freq	2.400 0 GHz	54.18 dBμV



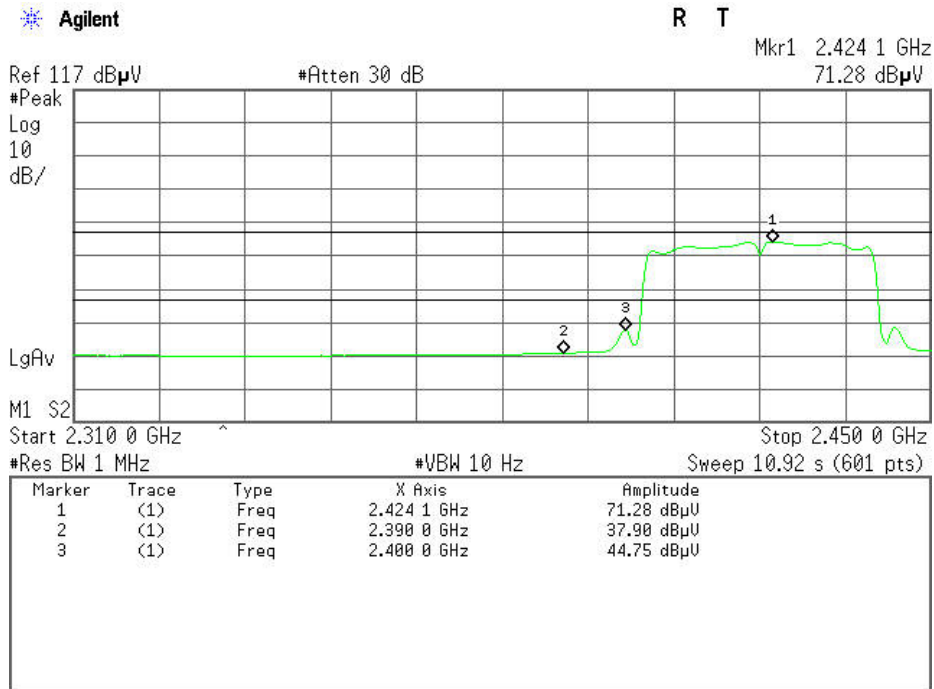
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

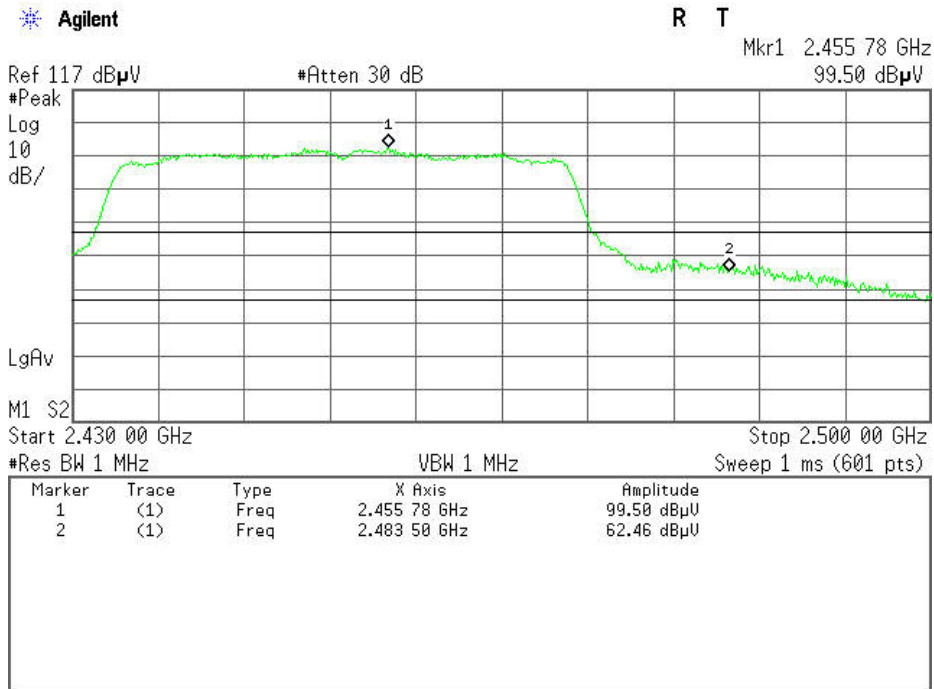




Band Edges (CH High)

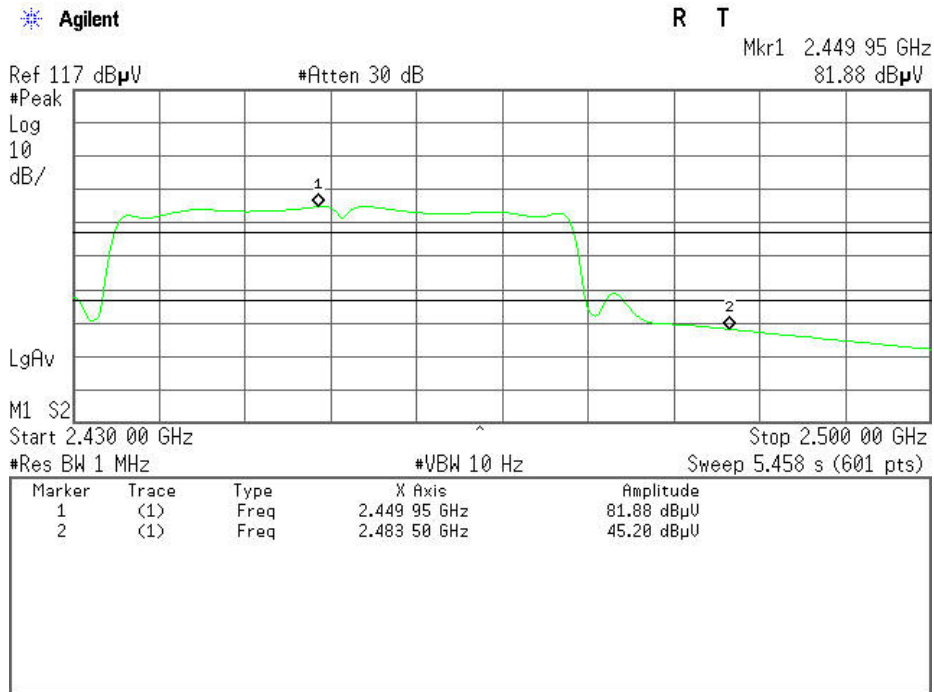
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical



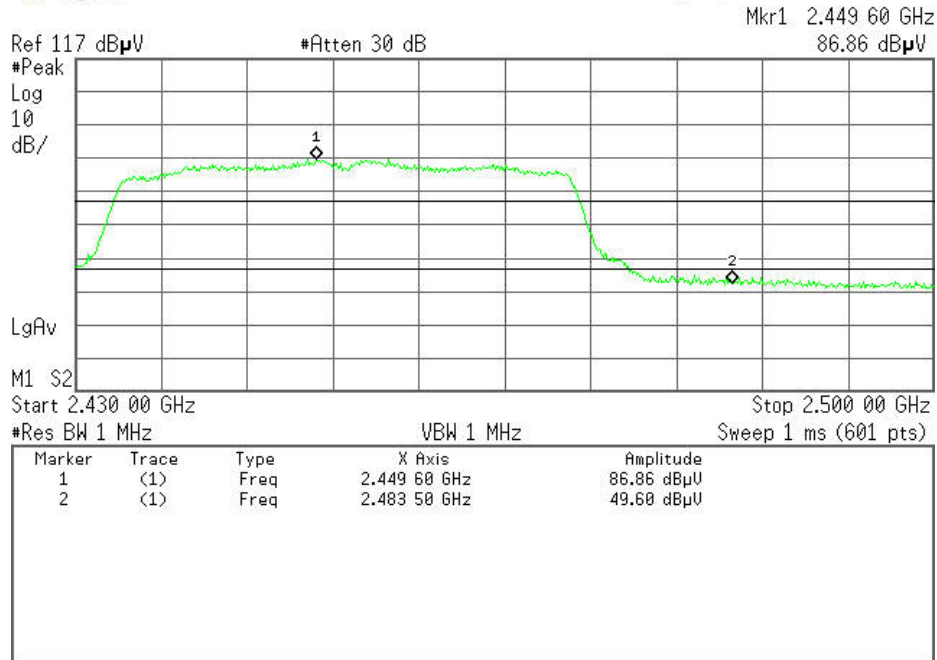


Detector mode: Peak

Polarity: Horizontal

Agilent

R T

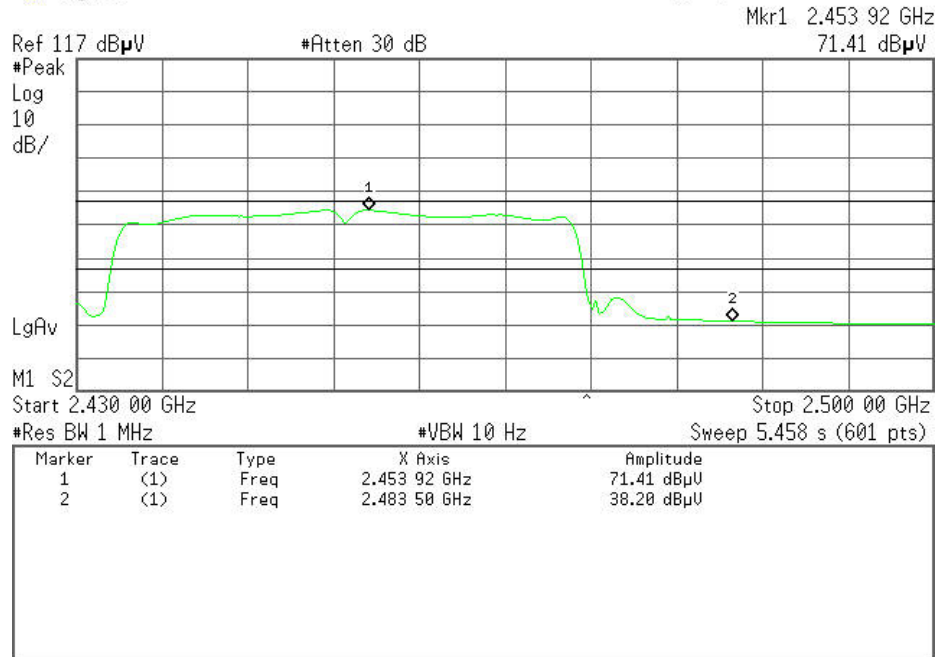


Detector mode: Average

Polarity: Horizontal

Agilent

R T





IEEE 802.11n HT40 MHz (Combine with antenna 1 and antenna 2) mode

Band Edges (CH Low)

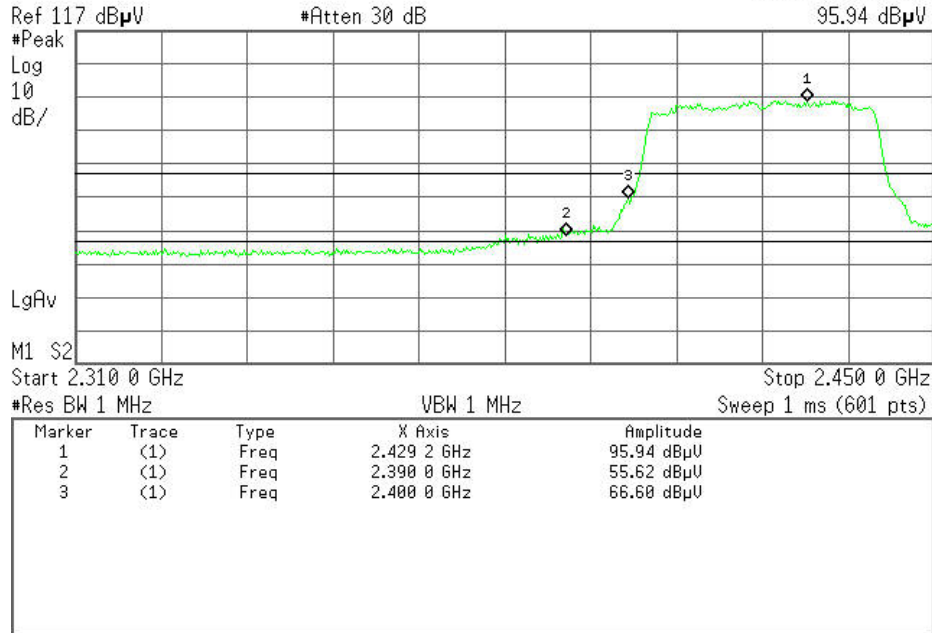
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.429 2 GHz
95.94 dBµV



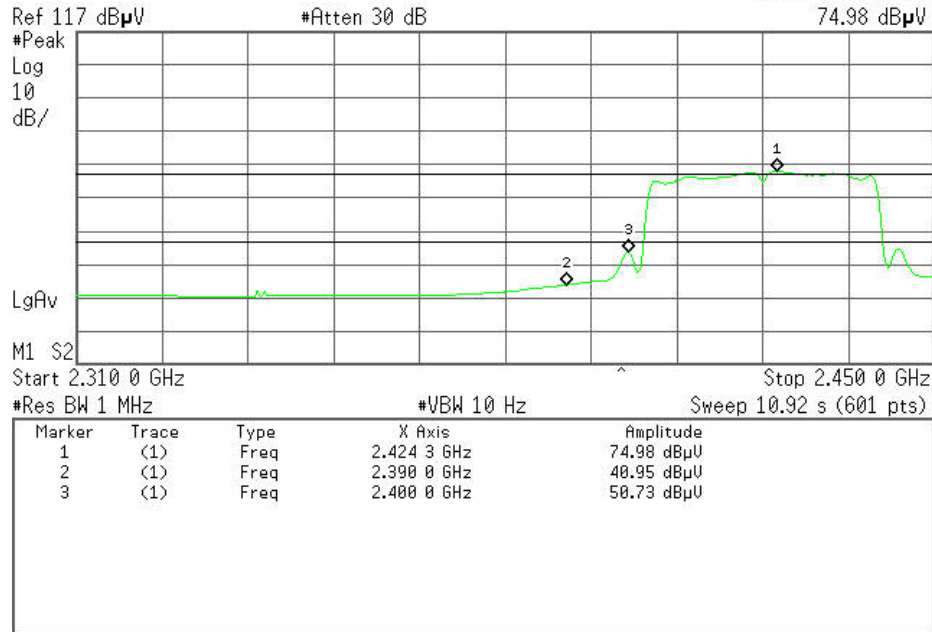
Detector mode: Average

Polarity: Vertical

Agilent

R T

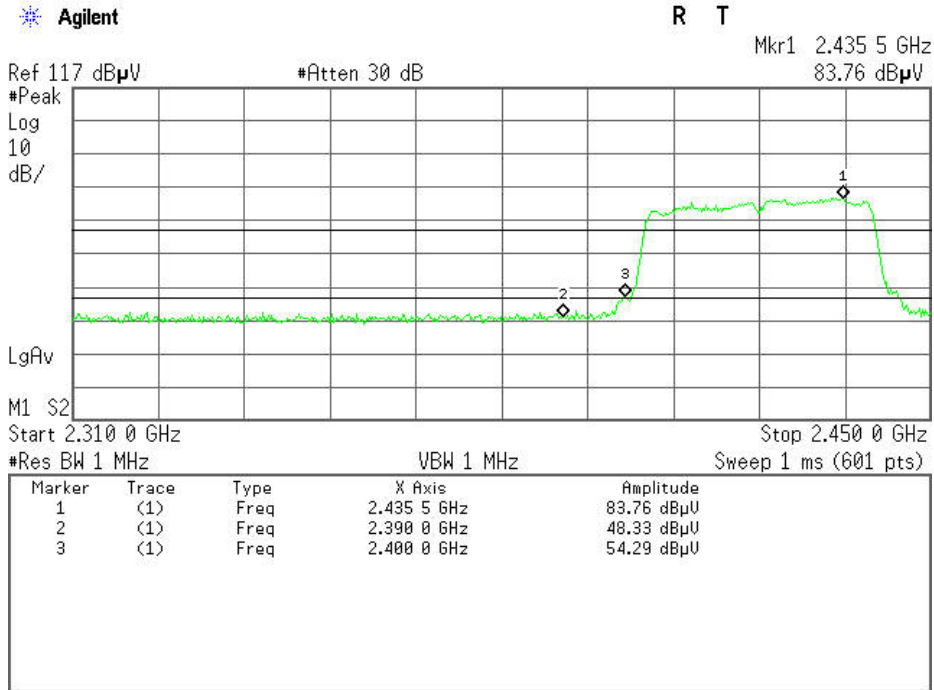
Mkr1 2.424 3 GHz
74.98 dBµV





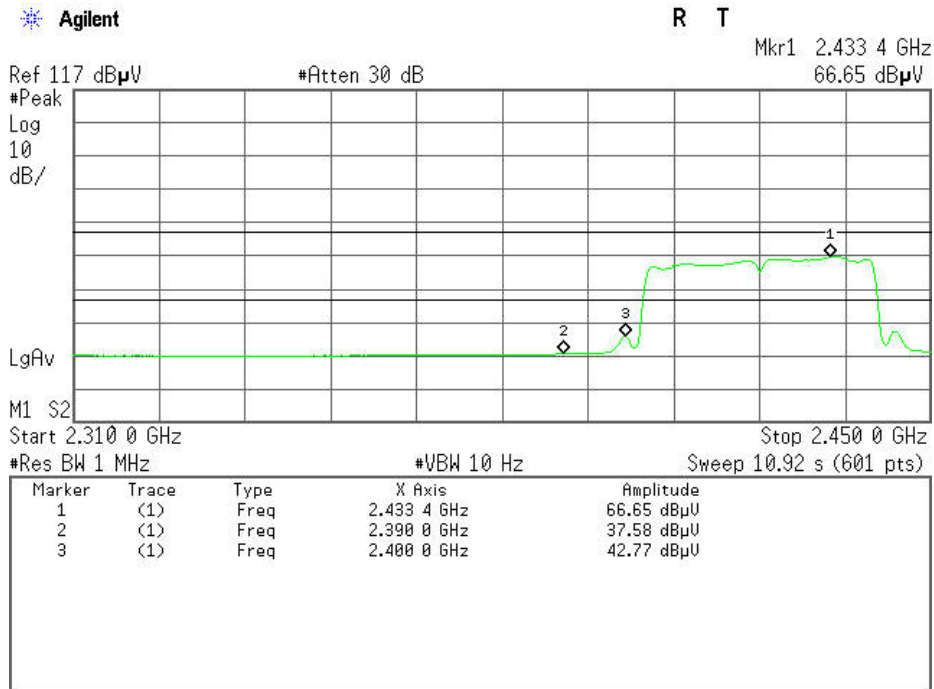
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





Band Edges (CH High)

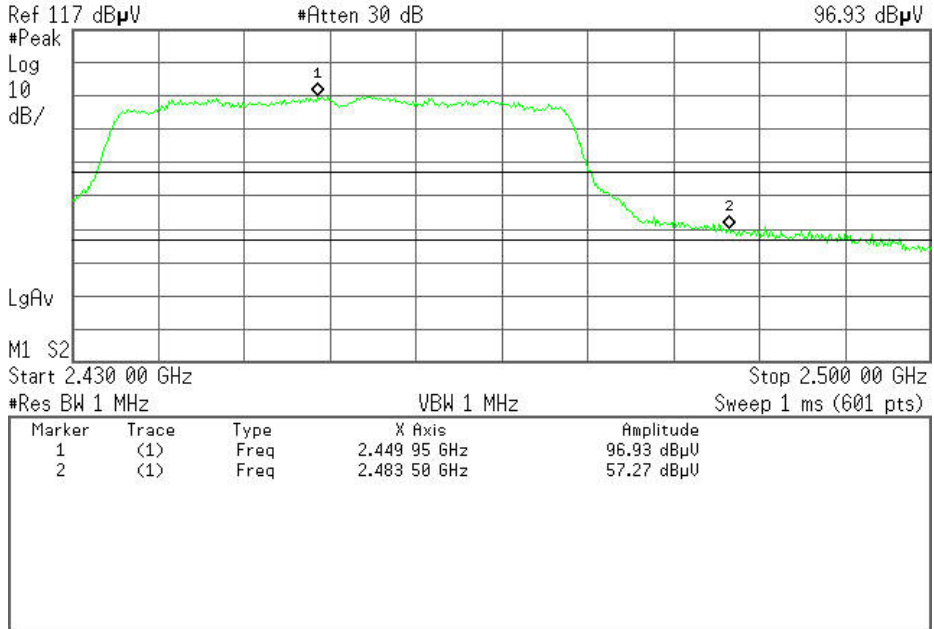
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 2.449 95 GHz
96.93 dBμV



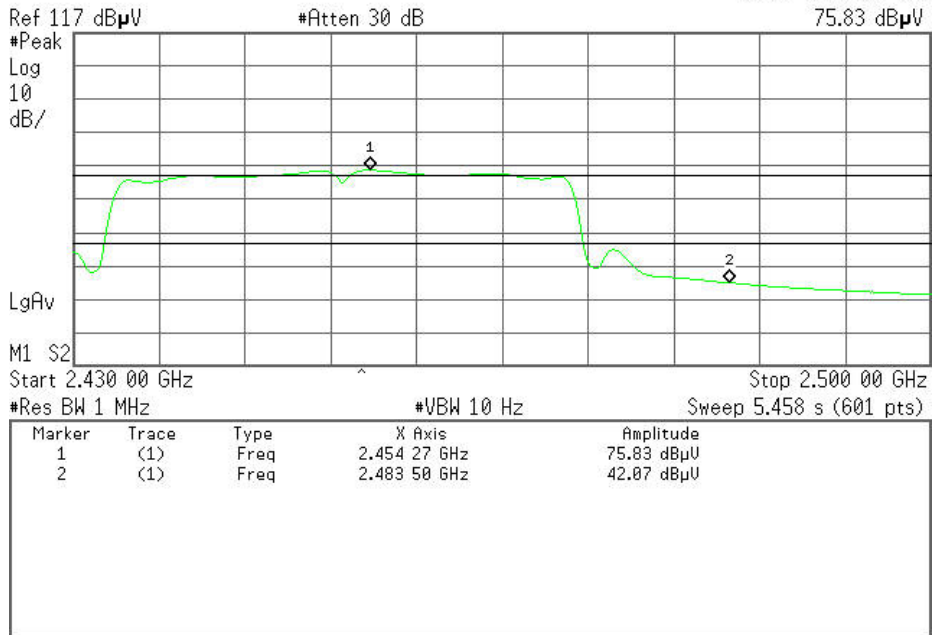
Detector mode: Average

Polarity: Vertical

Agilent

R T

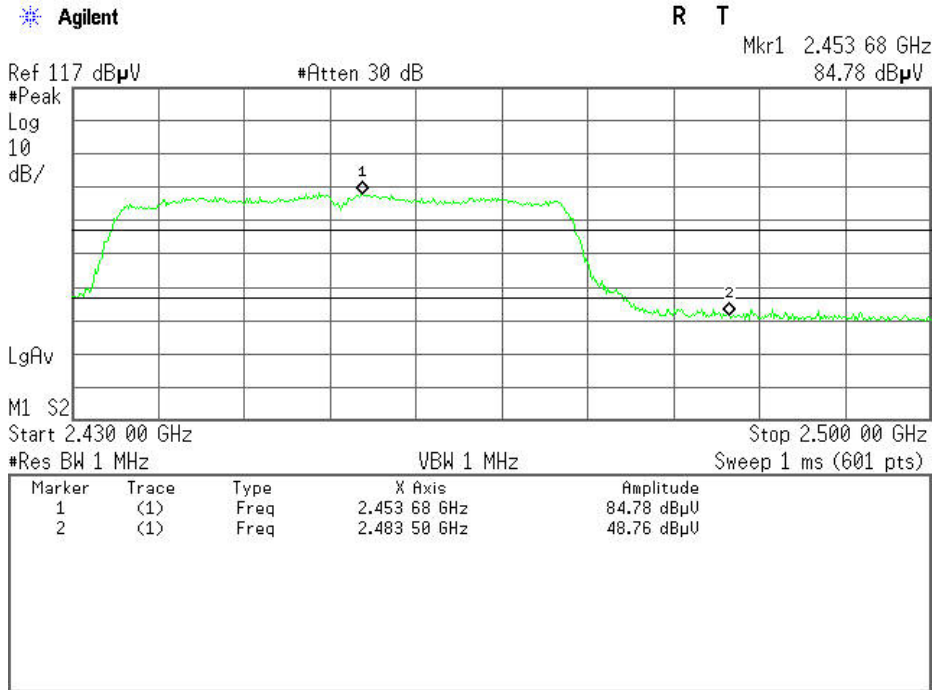
Mkr1 2.454 27 GHz
75.83 dBμV





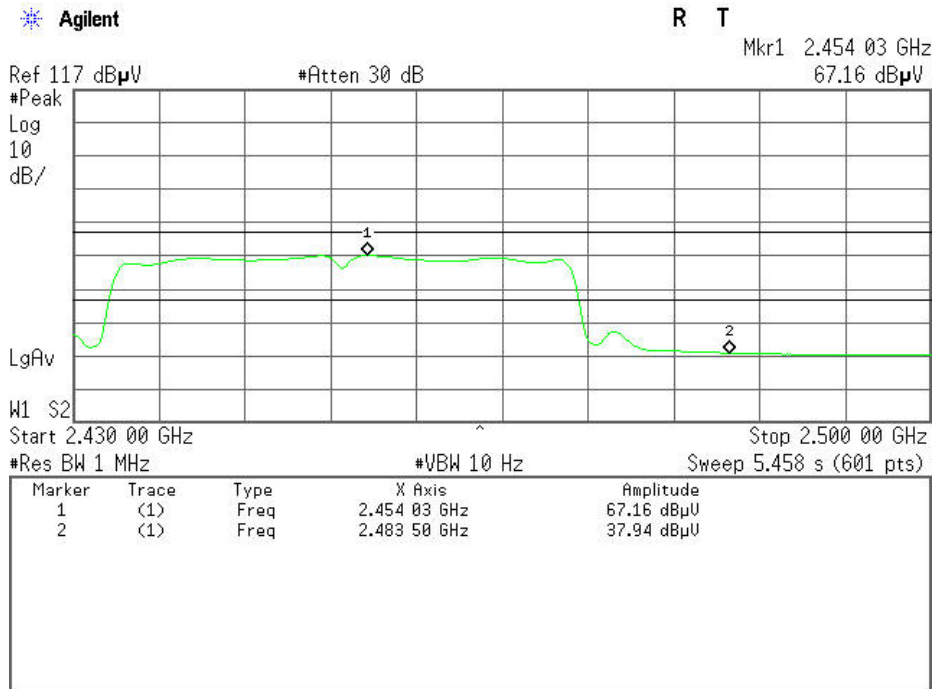
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: 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

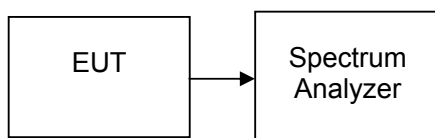
Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/19/2012	03/19/2013

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).

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 100 kHz.
3. Set the VBW \geq 300 kHz.
4. Set the span to 5-30 % greater than the EBW.
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 power level in any 100 kHz band segment within the fundamental EBW.
10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3 \text{ kHz}/100 \text{ kHz} = -15.2 \text{ dB})$.
11. The resulting peak PSD level must be \leq 8 dBm.

7.6.4. TEST SETUP





7.6.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-8.00	-15.20	-23.20	8	PASS
Mid	2437	-6.36	-15.20	-21.56		PASS
High	2462	-8.07	-15.20	-23.27		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-16.52	-15.20	-31.72	8	PASS
Mid	2437	-11.73	-15.20	-36.93		PASS
High	2462	-16.59	-15.20	-31.79		PASS

Test mode: IEEE 802.11n HT20 MHz (Antenna 1)

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-17.46	-15.20	-32.66	8	PASS
Mid	2437	-12.88	-15.20	-28.08		PASS
High	2462	-18.04	-15.20	-33.24		PASS

Test mode: IEEE 802.11n HT20 MHz (Combine with antenna 1 and antenna 2)

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-11.74	-15.20	-26.94	8	PASS
Mid	2437	-6.35	-15.20	-21.55		PASS
High	2462	-12.72	-15.20	-27.92		PASS



Test mode: IEEE 802.11n HT40 MHz (Antenna 1)

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-20.91	-15.20	-36.11	8	PASS
Mid	2437	-15.14	-15.20	-30.34		PASS
High	2462	-19.85	-15.20	-35.05		PASS

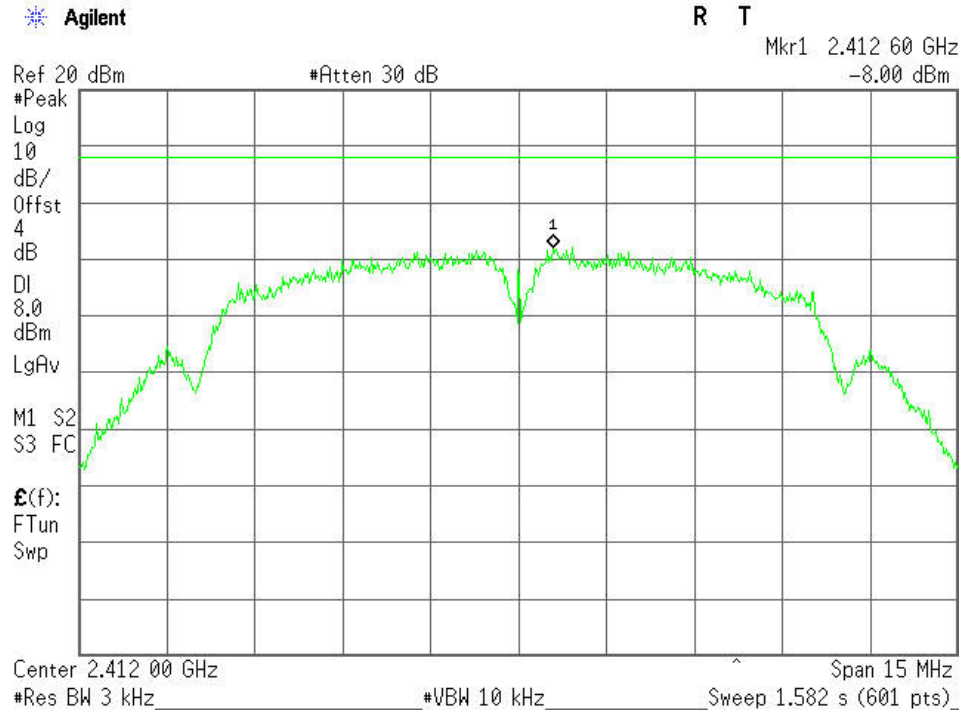
Test mode: IEEE 802.11n HT40 MHz (Combine with antenna 1 and antenna 2))

Channel	Frequency (MHz)	Peak (dBm)	Factor (BWCF)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-16.02	-15.20	-31.22	8	PASS
Mid	2437	-11.31	-15.20	-26.51		PASS
High	2462	-16.92	-15.20	-32.12		PASS

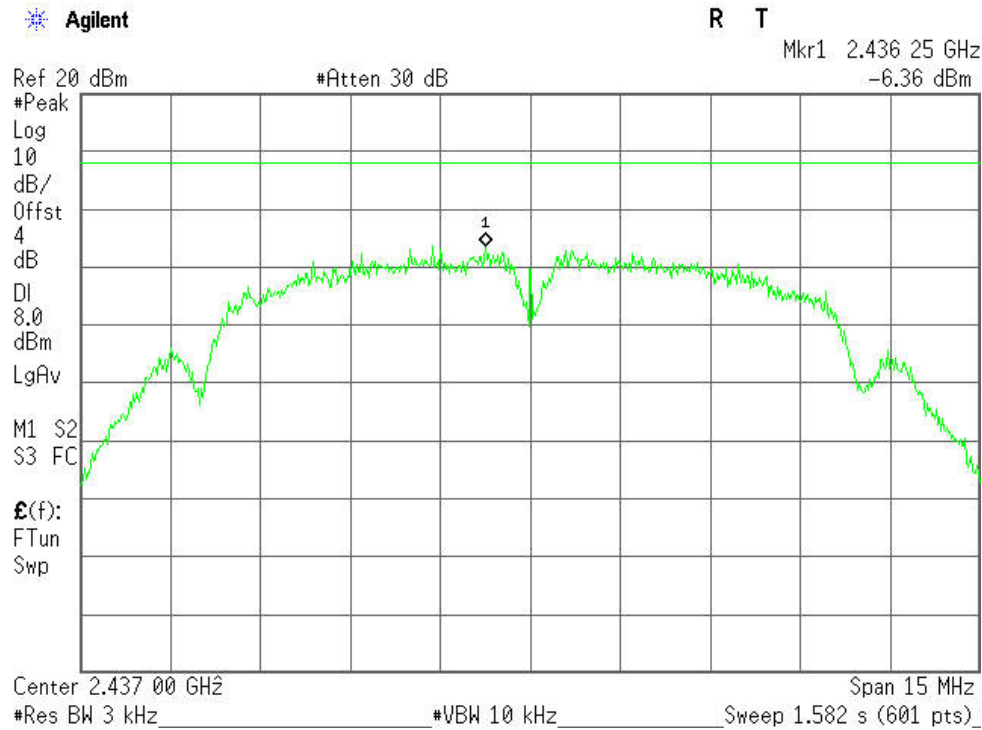


Test Plot IEEE 802.11b (Antenna 1)mode

PPSD (CH Low)

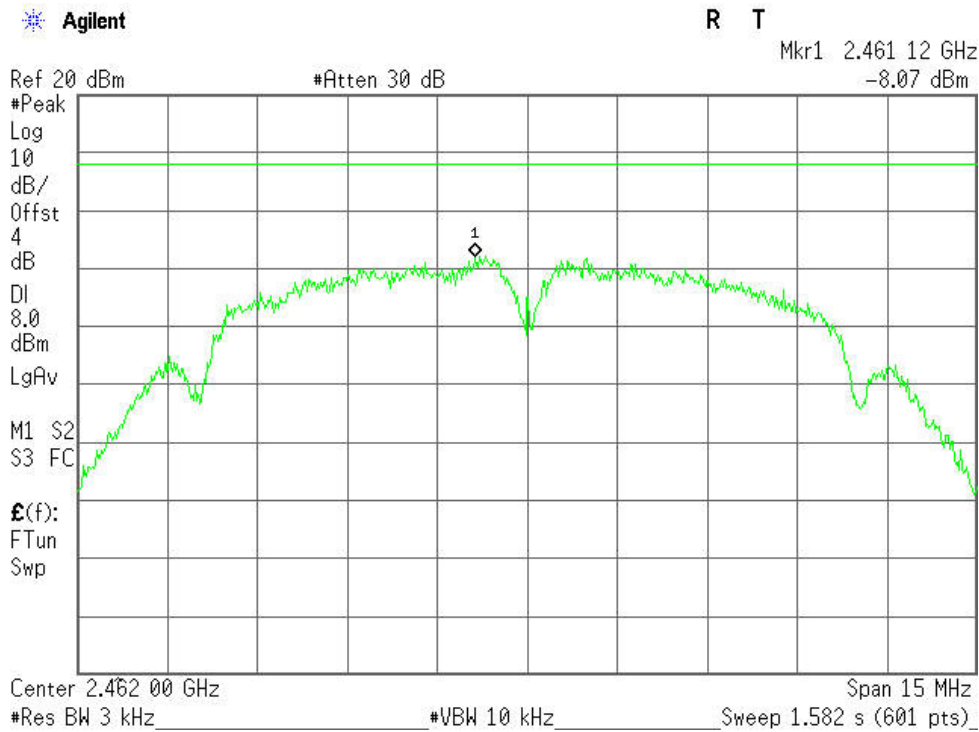


PPSD (CH Mid)



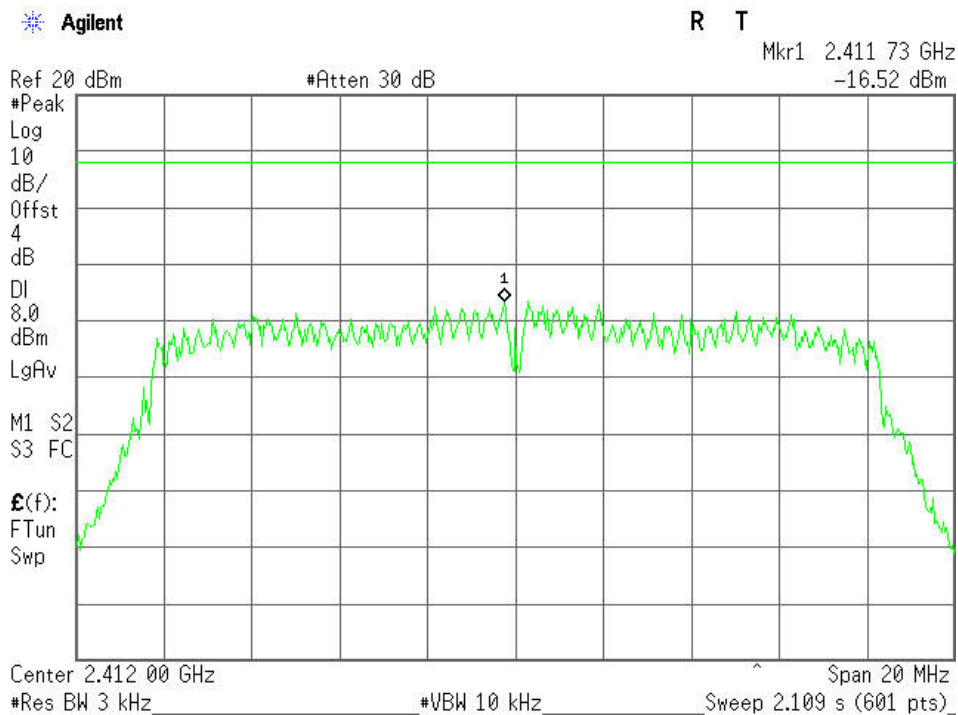


PPSD (CH High)



IEEE 802.11g (Antenna 1)mode

PPSD (CH Low)



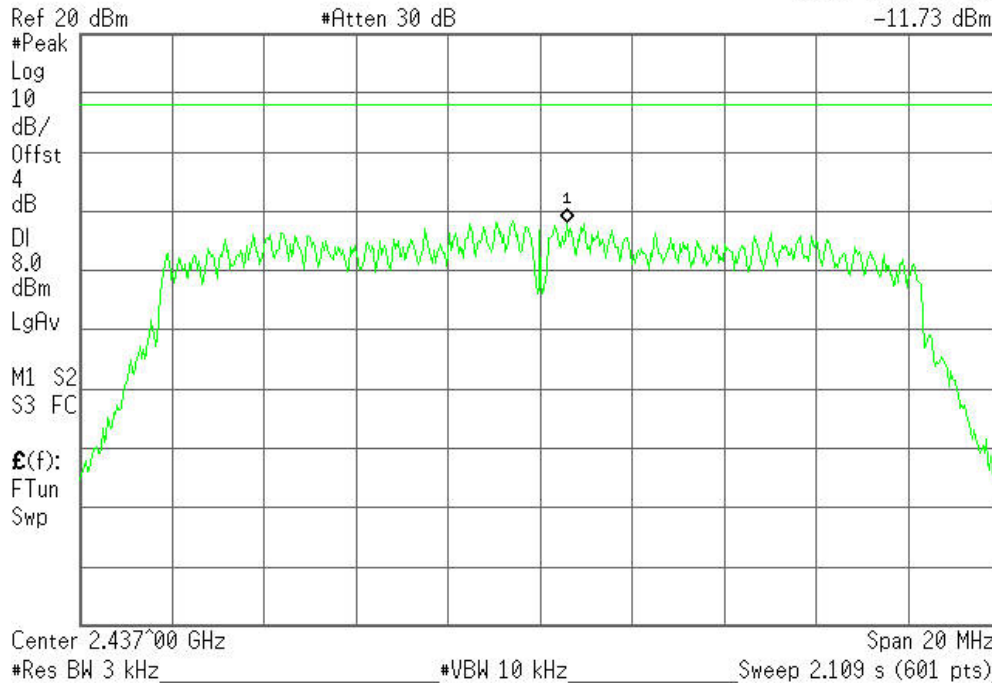


PPSD (CH Mid)

Agilent

R T

Mkr1 2.437 60 GHz
-11.73 dBm

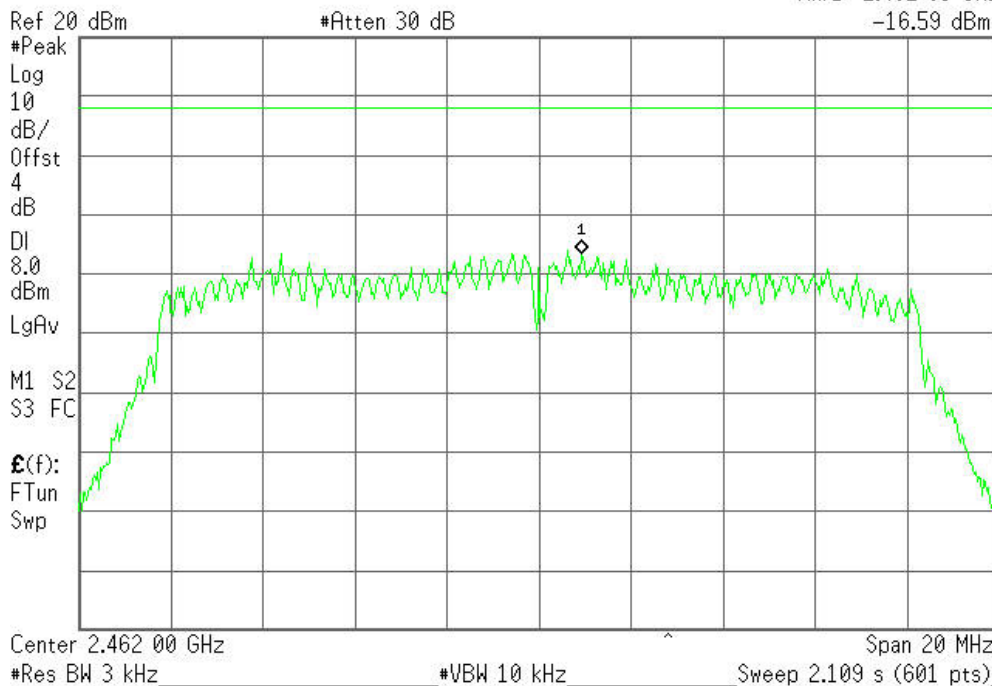


PPSD (CH High)

Agilent

R T

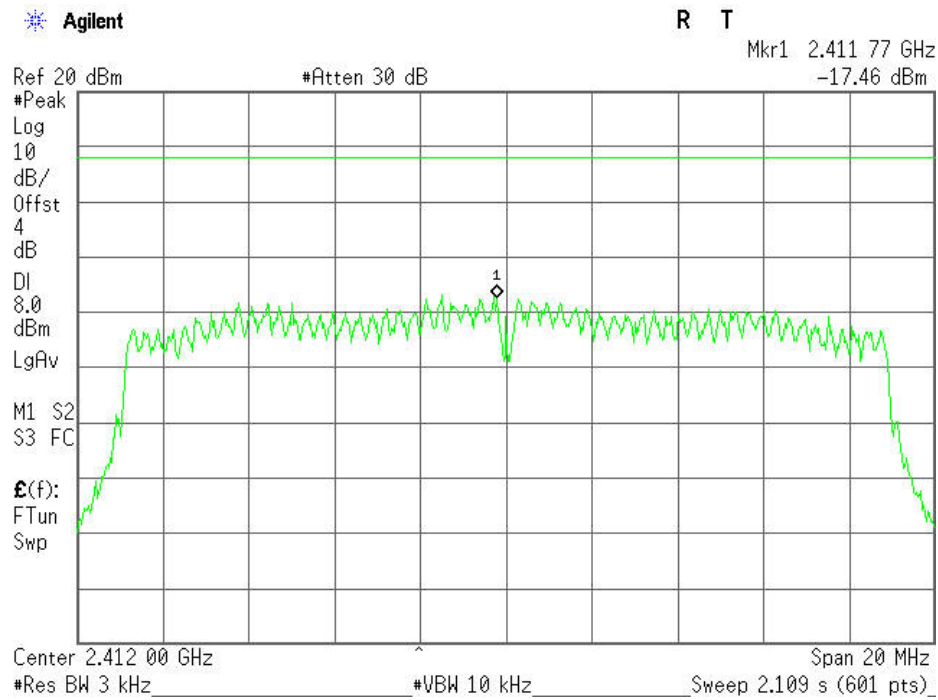
Mkr1 2.462 93 GHz
-16.59 dBm



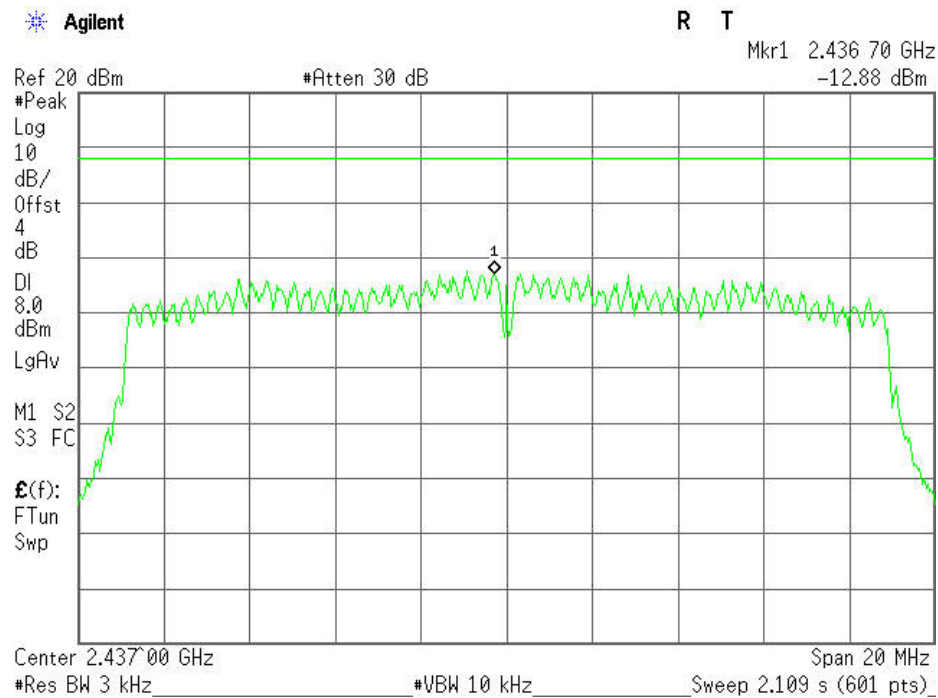


IEEE 802.11n HT20 MHz(Antenna 1)mode

PPSD (CH Low)

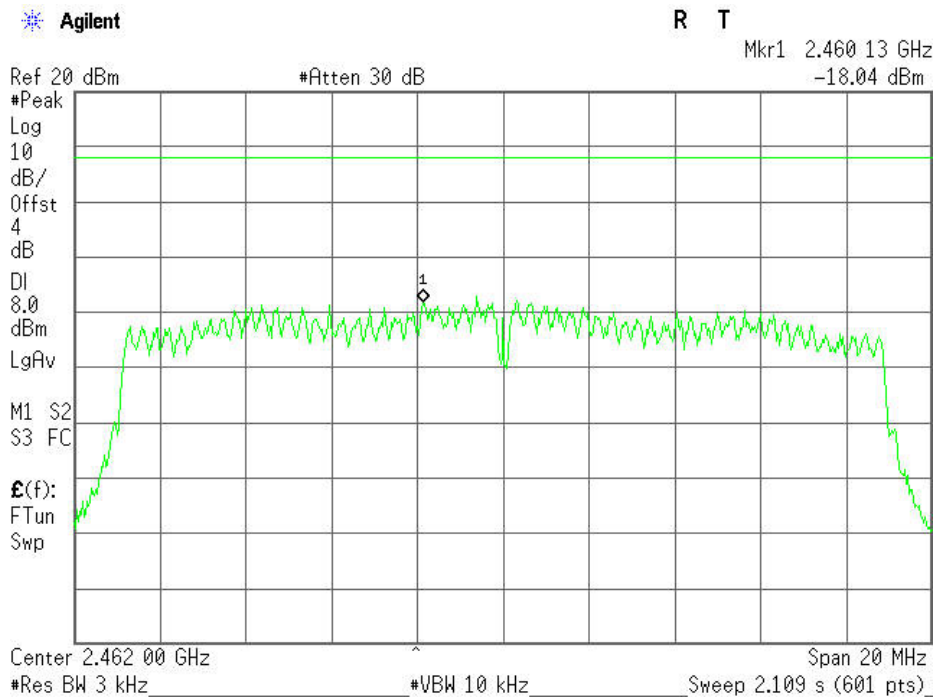


PPSD (CH Mid)



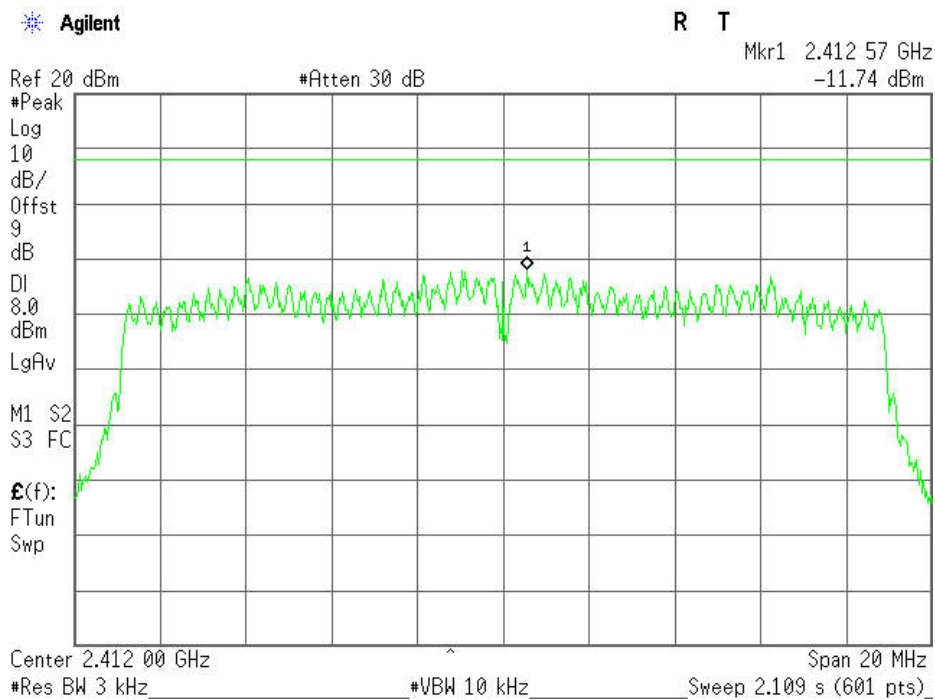


PPSD (CH High)



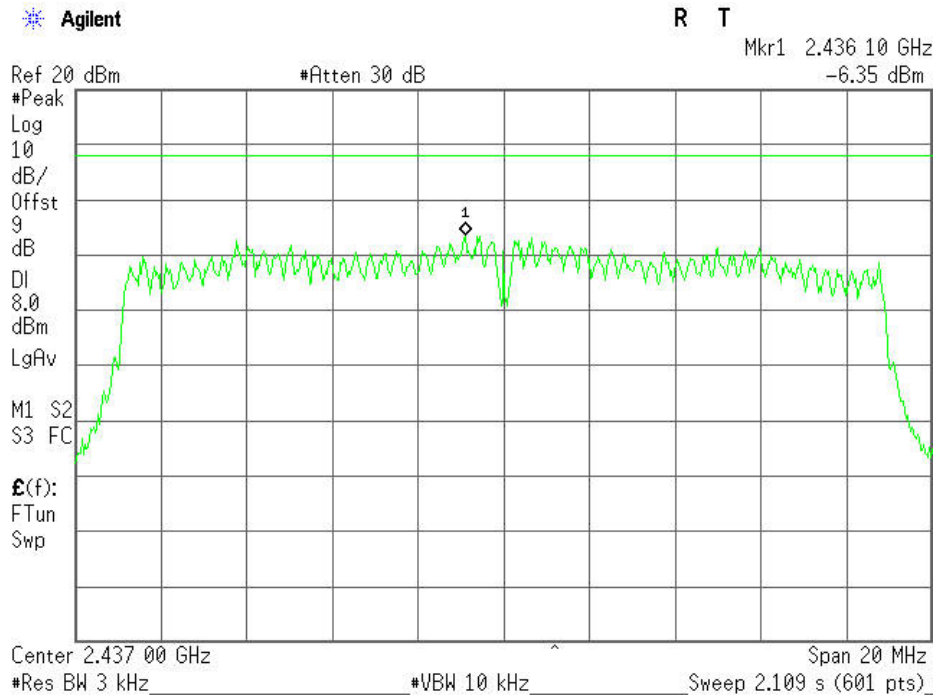
IEEE 802.11n HT20 MHz(Combine with antenna 1 and antenna 2)mode

PPSD (CH Low)

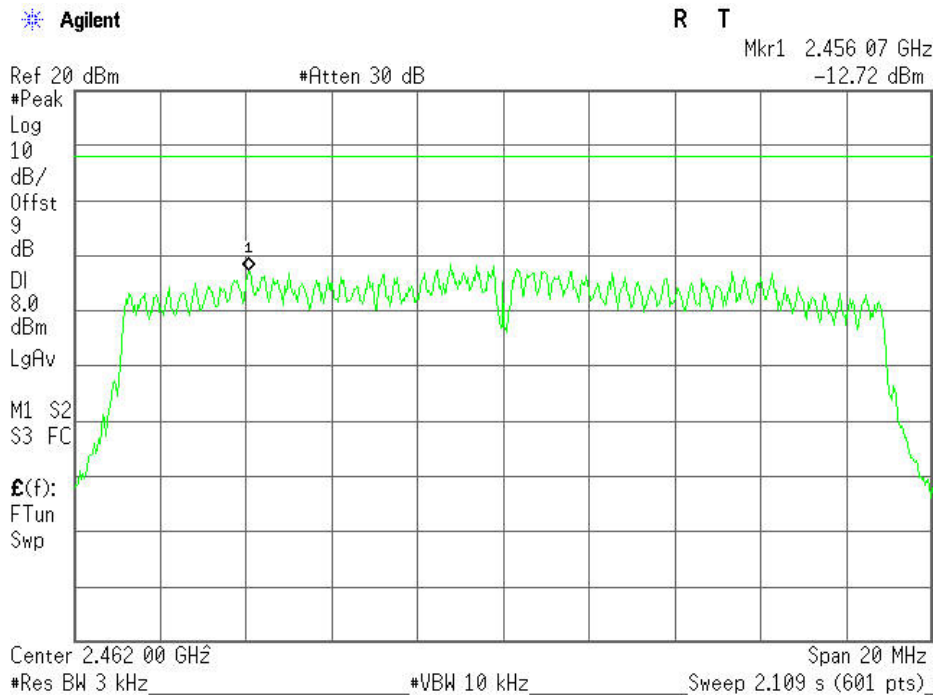




PPSD (CH Mid)



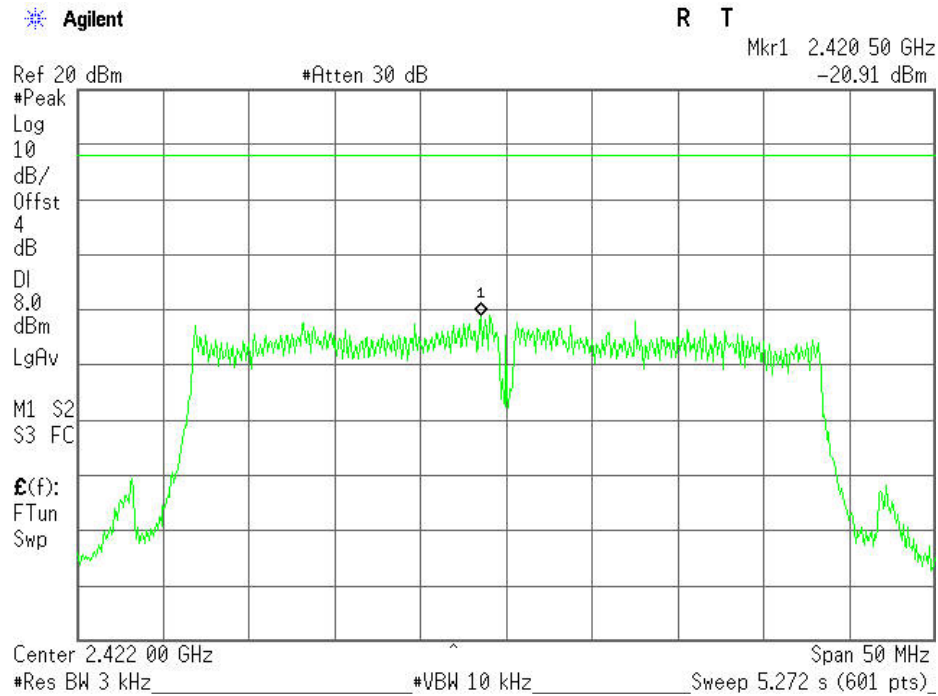
PPSD (CH High)



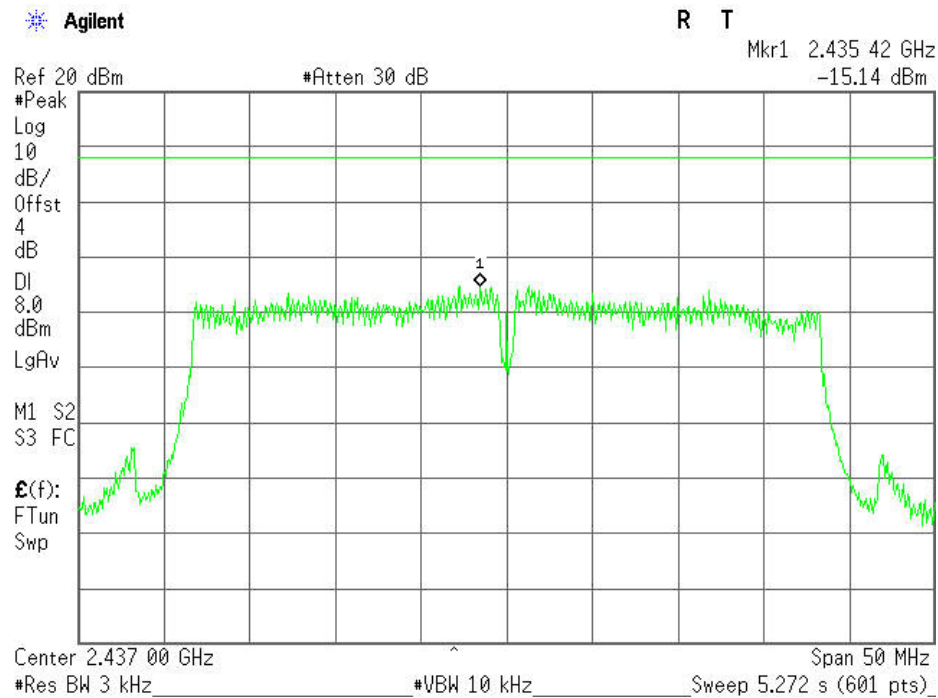


IEEE 802.11n HT40 MHz(Antenna 1)mode

PPSD (CH Low)

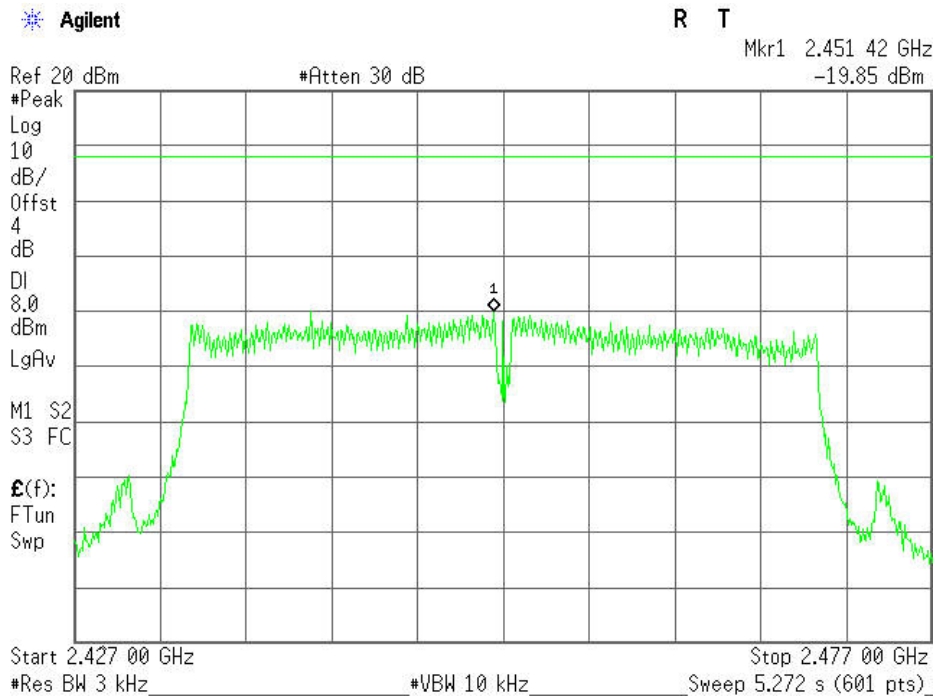


PPSD (CH Mid)



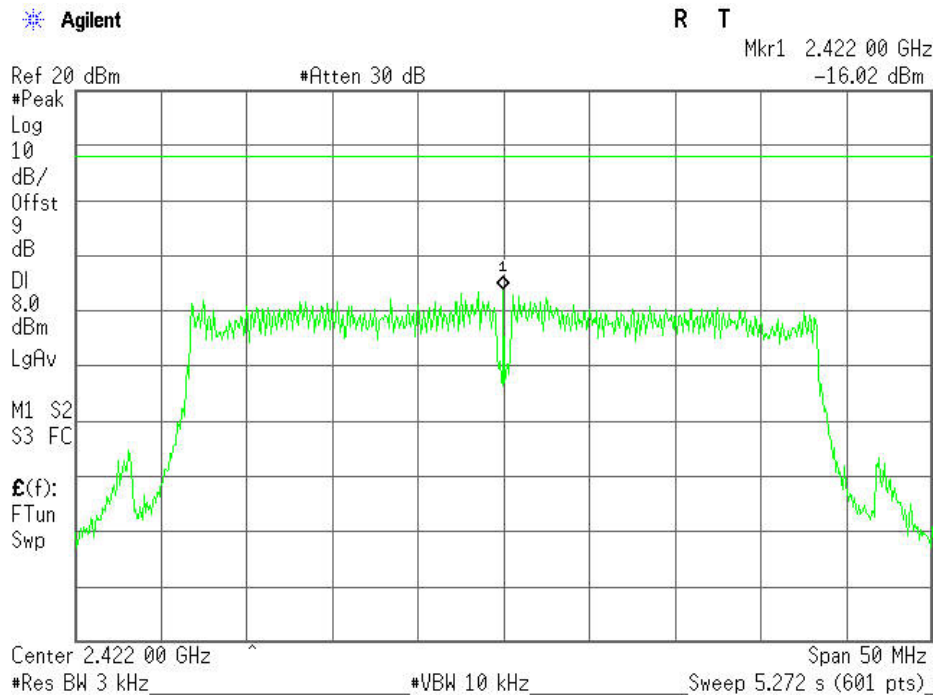


PPSD (CH High)



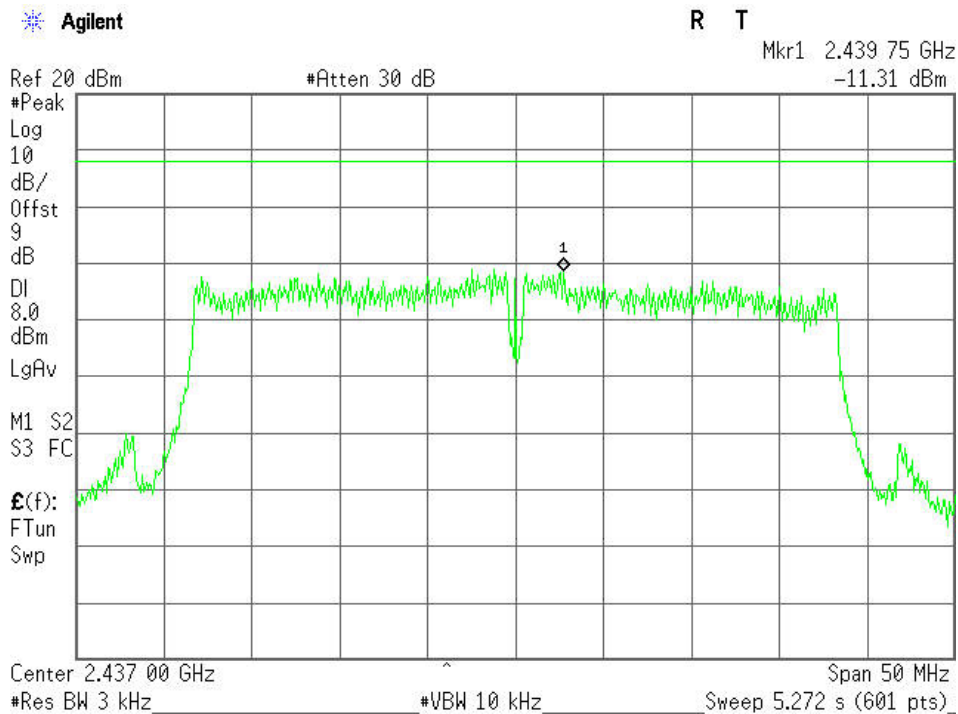
IEEE 802.11n HT40 MHz (Combine with antenna 1 and antenna 2) mode

PPSD (CH Low)





PPSD (CH Mid)



PPSD (CH High)

