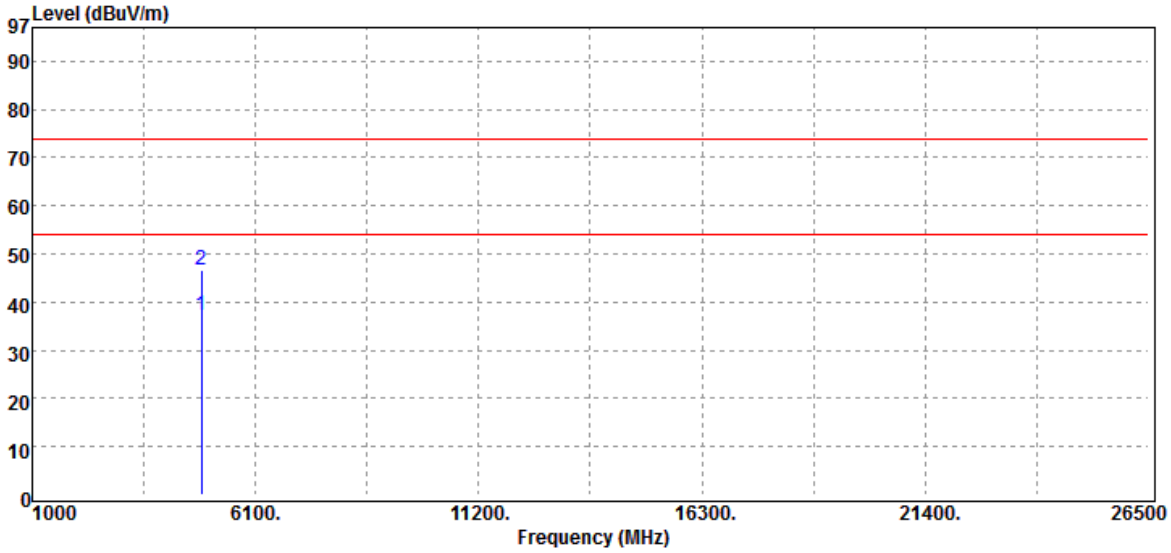
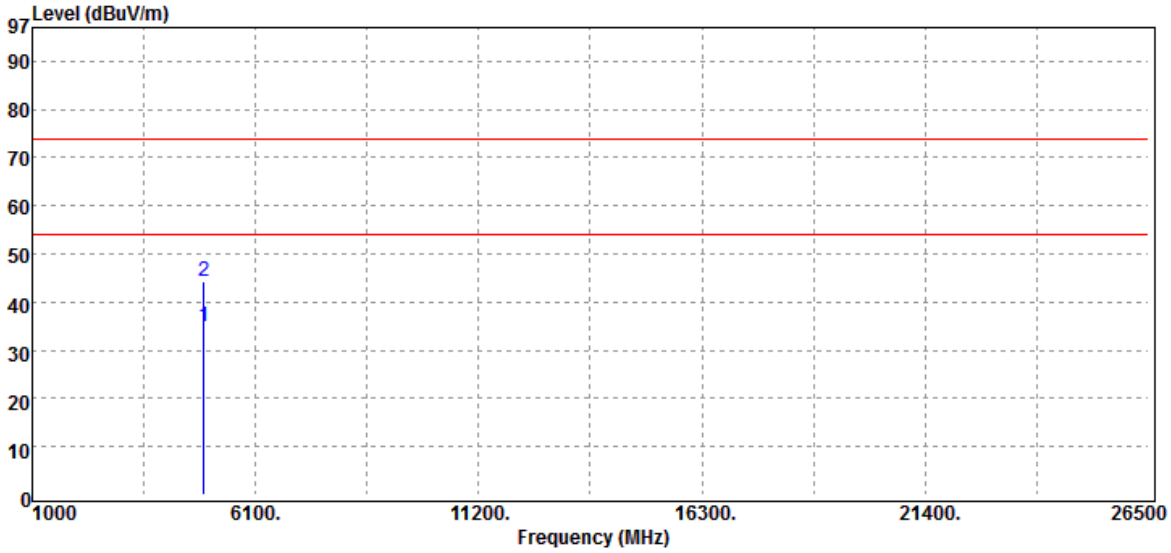
Operation Band	:802.11n20	Test Date	:2018-07-16
Fundamental Frequency	:2437 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



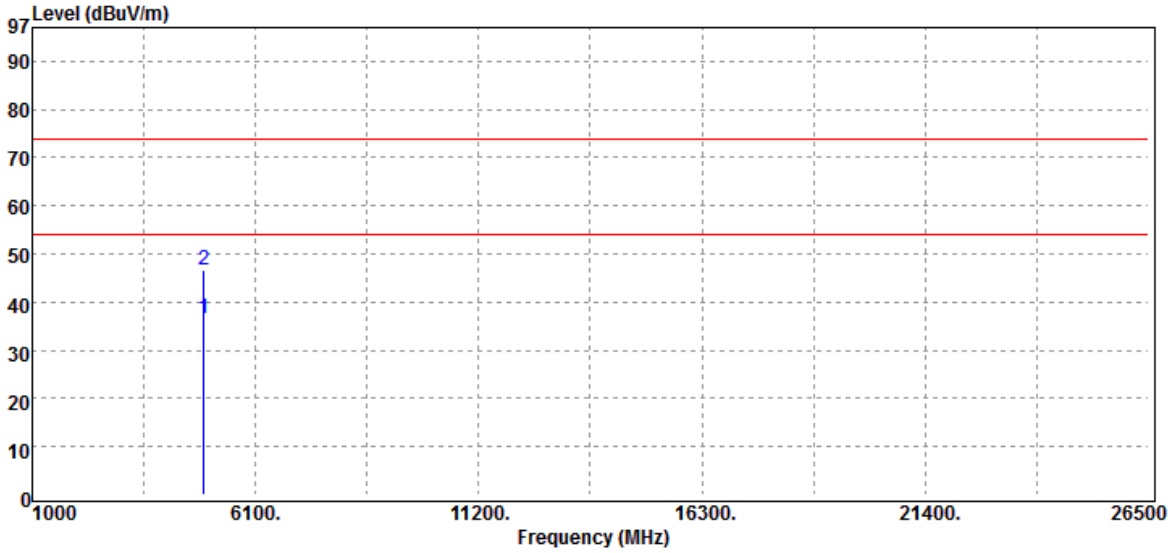
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	31.47	5.85	37.32	54.00	-16.68
4874.00	Peak	40.94	5.85	46.79	74.00	-27.21

Operation Band	:802.11n20	Test Date	:2018-07-16
Fundamental Frequency	:2462 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



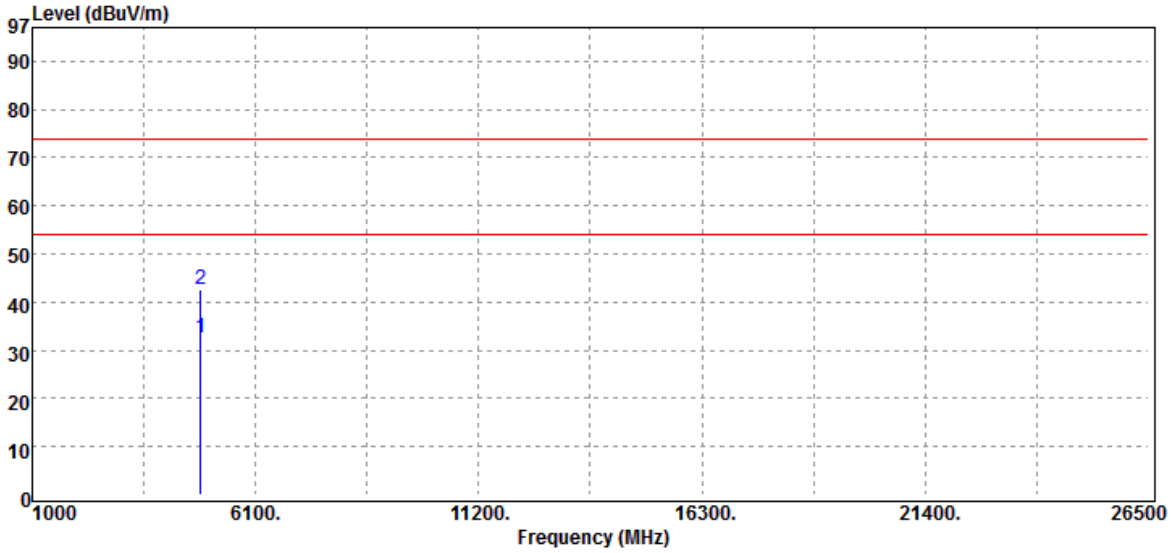
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	28.93	5.82	34.75	54.00	-19.25
4924.00	Peak	38.63	5.82	44.45	74.00	-29.55

Operation Band	:802.11n20	Test Date	:2018-07-16
Fundamental Frequency	:2462 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



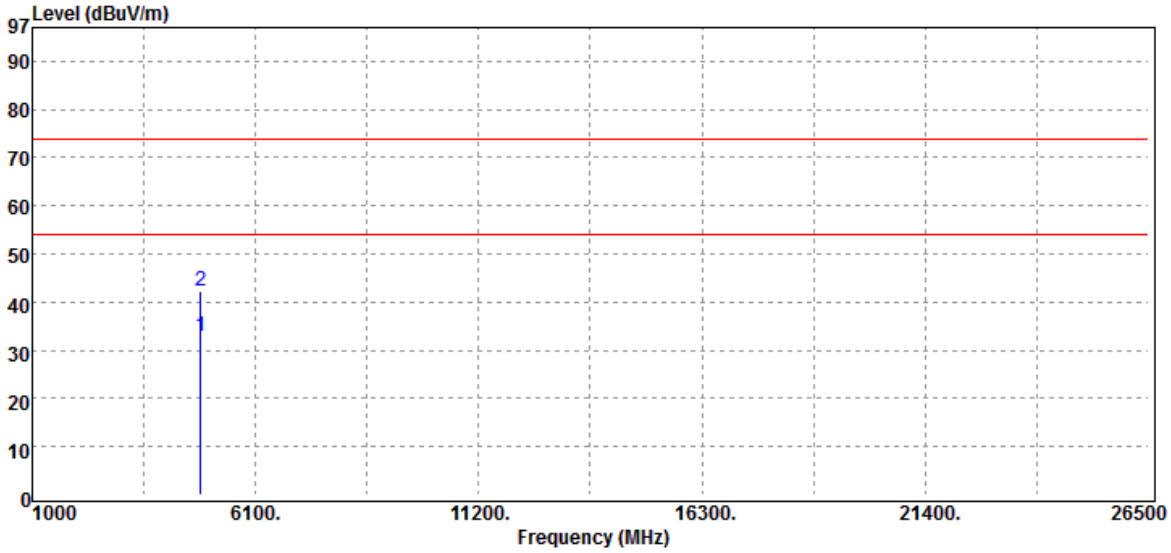
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	30.79	5.82	36.61	54.00	-17.39
4924.00	Peak	40.74	5.82	46.56	74.00	-27.44

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2422 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



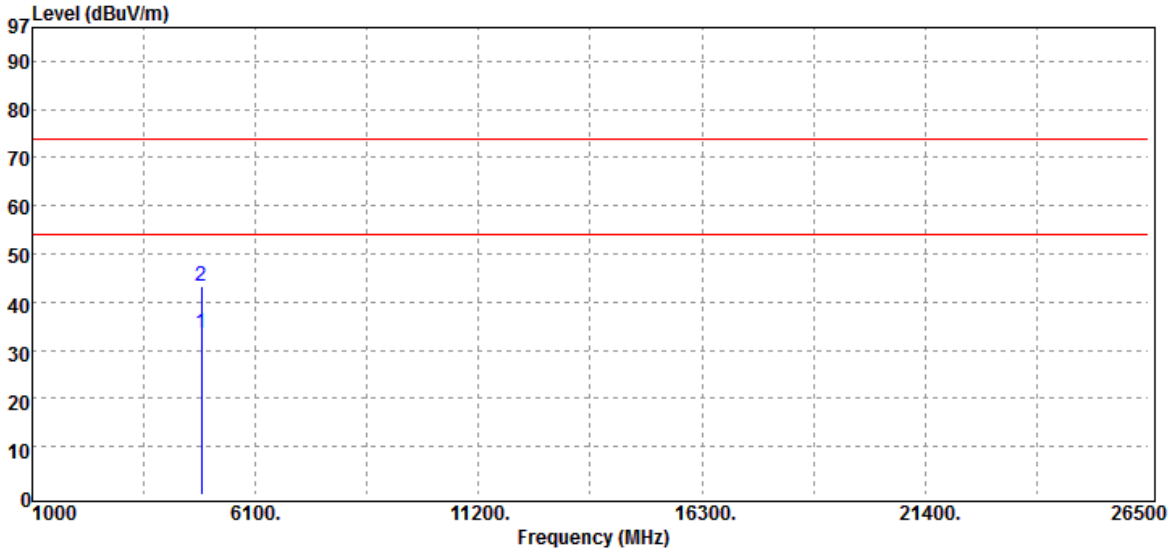
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4844.00	Average	27.03	5.60	32.63	54.00	-21.37
4844.00	Peak	36.92	5.60	42.52	74.00	-31.48

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2422 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH LOW	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



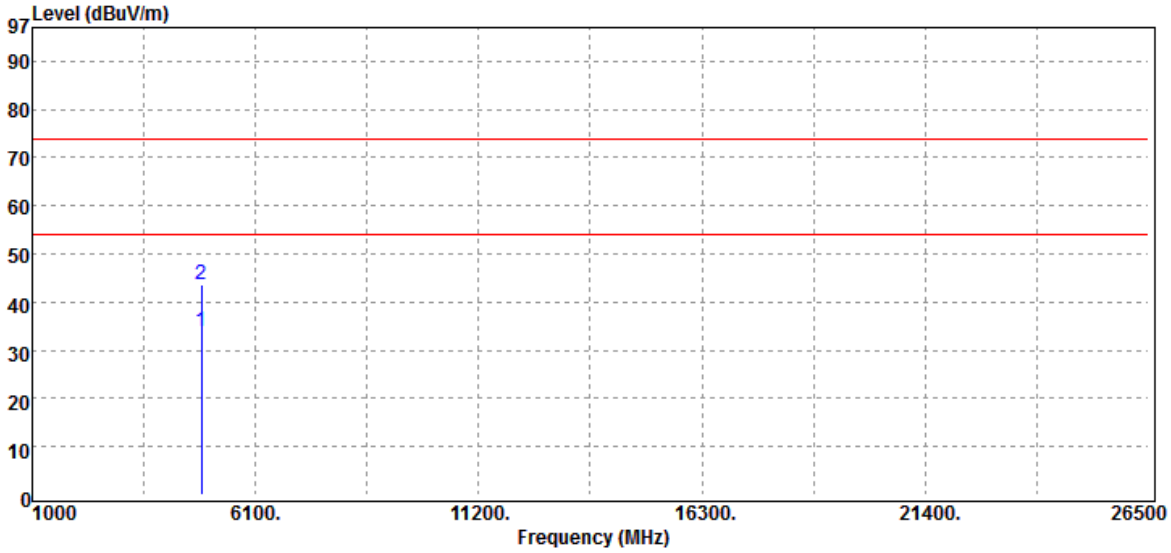
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4844.00	Average	27.34	5.60	32.94	54.00	-21.06
4844.00	Peak	36.85	5.60	42.45	74.00	-31.55

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2437 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



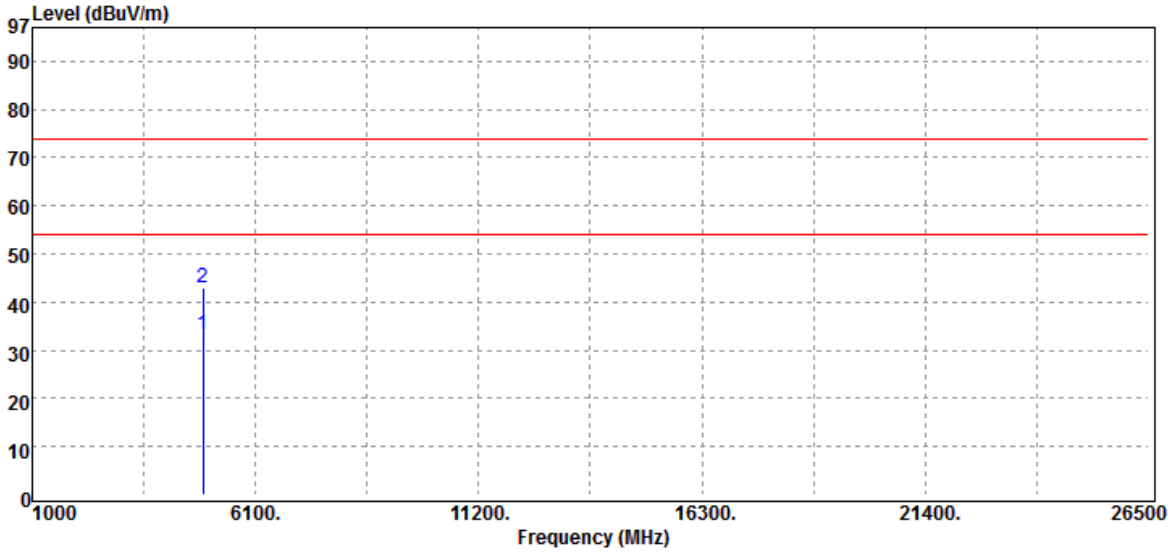
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	27.69	5.85	33.54	54.00	-20.46
4874.00	Peak	37.52	5.85	43.37	74.00	-30.63

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2437 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH MID	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



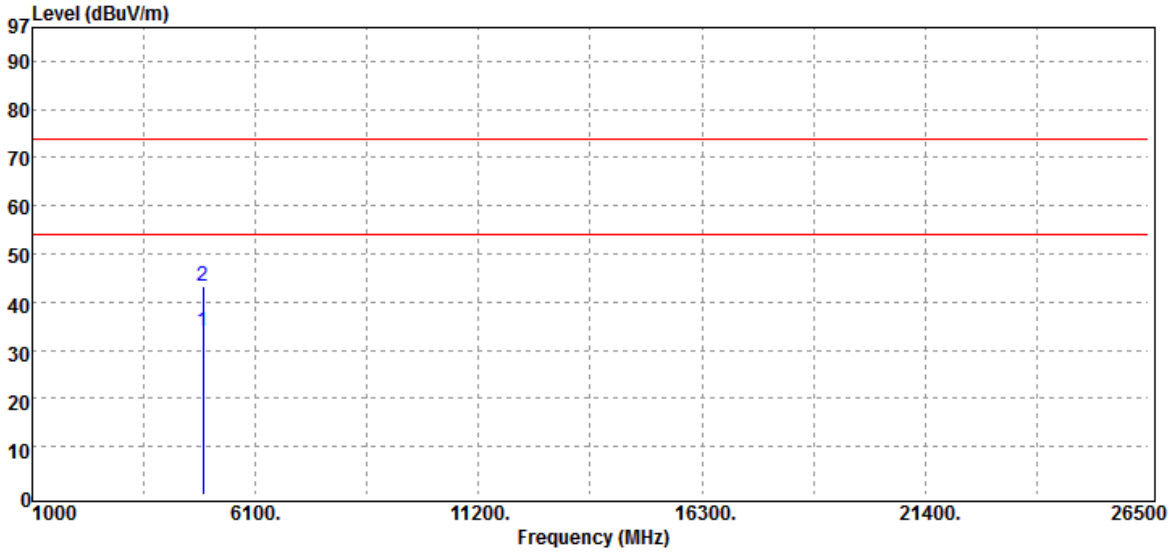
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	27.88	5.85	33.73	54.00	-20.27
4874.00	Peak	37.71	5.85	43.56	74.00	-30.44

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2452 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:VERTICAL



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4904.00	Average	27.46	5.85	33.31	54.00	-20.69
4904.00	Peak	37.25	5.85	43.10	74.00	-30.90

Operation Band	:802.11n40	Test Date	:2018-07-16
Fundamental Frequency	:2452 MHz	Temp./Humi.	:21 deg_C / 62 RH
Operation Mode	:Tx CH HIGH	Engineer	:Kane
EUT Pol.	:E1 Plane	Measurement Antenna Pol.	:HORIZONTAL



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4904.00	Average	27.89	5.85	33.74	54.00	-20.26
4904.00	Peak	37.50	5.85	43.35	74.00	-30.65

12 MAXIMUM POWER SPECTRAL DENSITY

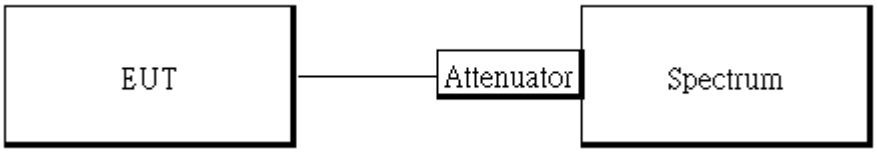
12.1 Standard Applicable

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

12.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	2018/05/03	2018/08/28
Attenuator	Mini-Circuit	BW-S10W2+	2	2017/11/29	2018/11/28
DC Block	Mini-Circuits	BLK-18-S+	1	2018/01/04	2019/01/03
Coaxial Cables	N/A	WK CE Cable	N/A	2017/12/20	2018/12/19
Notebook	Lenovo	L420	LR-7HXZA	2017/12/29	2018/12/28

12.3 Test Set-up



12.4 Measurement Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 3 kHz & VBW = 10 kHz.
5. For defining Restricted Band Edge Limit:
   Set the RBW = 100kHz & VBW = 300 kHz
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. 802.11n MIMO mode: offset is set following “measure and add 10 Log (N)” on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna. N=2 for this given application.

As per FCC KDB 662911 D01
Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, …, GN dBi.
(i) If transmit signals are correlated, then Directional gain
= 10 log[(10G1 /20 + 10G2 /20 + … + 10GN /20) 2 /NANT] dBi
[Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

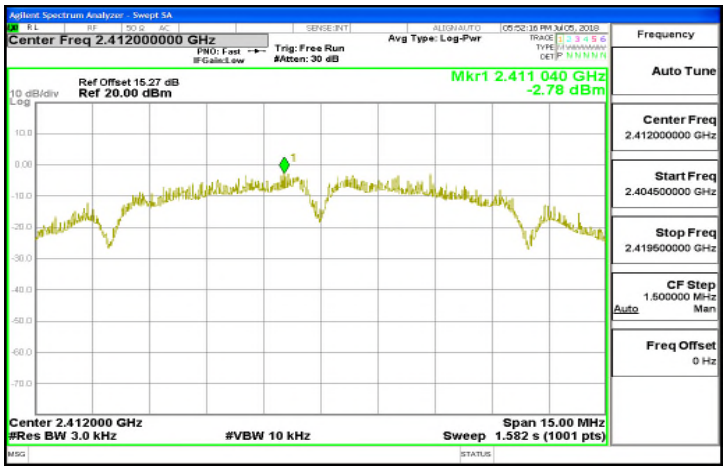
12.5 Measurement Result

POWER DENSITY 802.11b			
Freq. (MHz)	PPSD (dBm)	Limit (dBm)	Result
2412	-2.78	8.00	PASS
2437	-2.15	8.00	PASS
2462	-3.12	8.00	PASS
POWER DENSITY 802.11g			
Freq. (MHz)	PPSD (dBm)	Limit (dBm)	Result
2412	-7.23	8.00	PASS
2417	-6.68	8.00	PASS
2437	-5.65	8.00	PASS
2457	-6.48	8.00	PASS
2462	-7.67	8.00	PASS
POWER DENSITY 802.11n HT20			
Freq. (MHz)	PPSD (dBm)	Limit (dBm)	Result
2412	-9.46	8.00	PASS
2417	-6.83	8.00	PASS
2437	-5.80	8.00	PASS
2457	-5.56	8.00	PASS
2462	-7.98	8.00	PASS
POWER DENSITY 802.11n HT40			
Freq. (MHz)	PPSD (dBm)	Limit (dBm)	Result
2422	-14.49	8.00	PASS
2427	-14.67	8.00	PASS
2432	-13.92	8.00	PASS
2437	-13.07	8.00	PASS
2442	-11.98	8.00	PASS
2447	-11.91	8.00	PASS
2452	-11.32	8.00	PASS

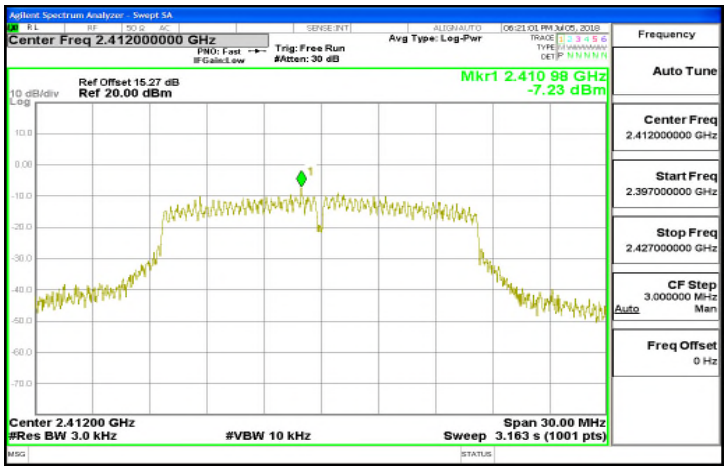
offset 12.26 dB for MIMO mode

*Refer to next page for plots

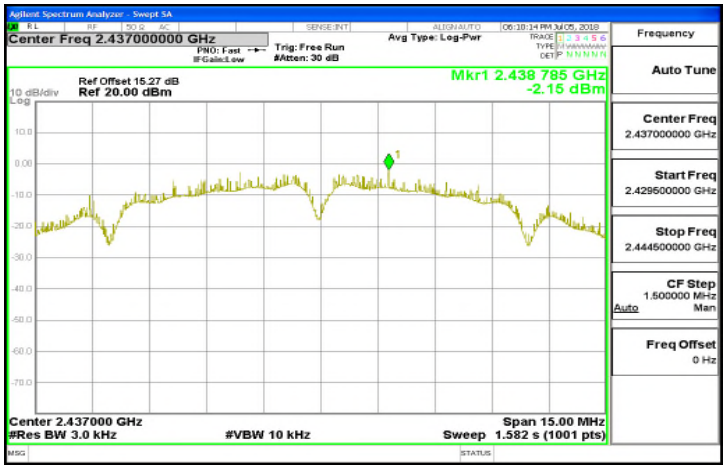
802.11b PSD(CH-Low) (2412MHz)



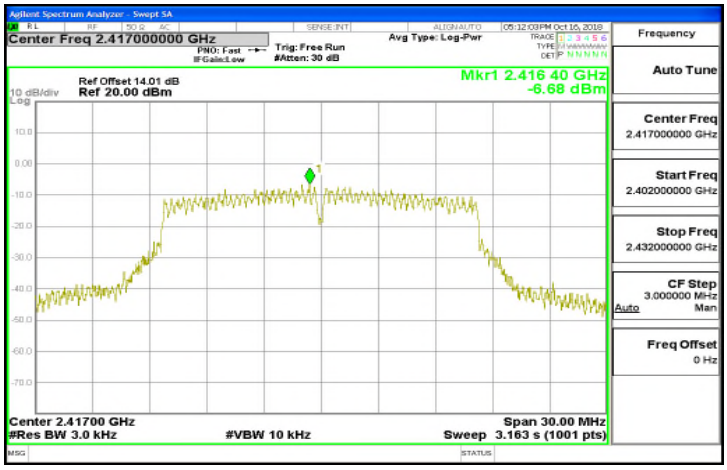
802.11g PSD(CH-Low) (2412MHz)



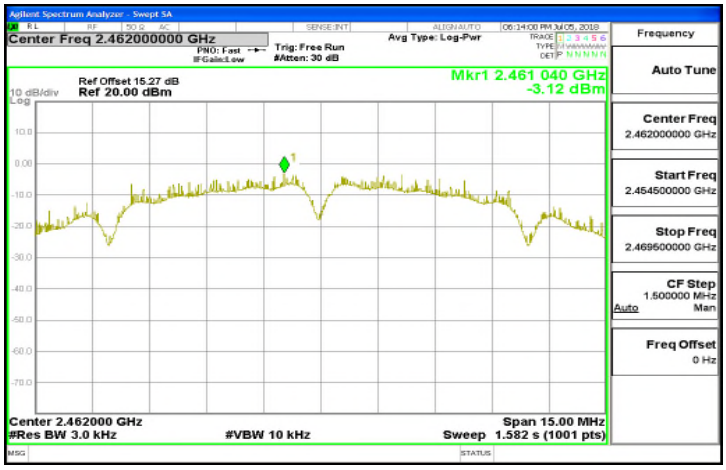
802.11b PSD (CH-Mid) (2437MHz)



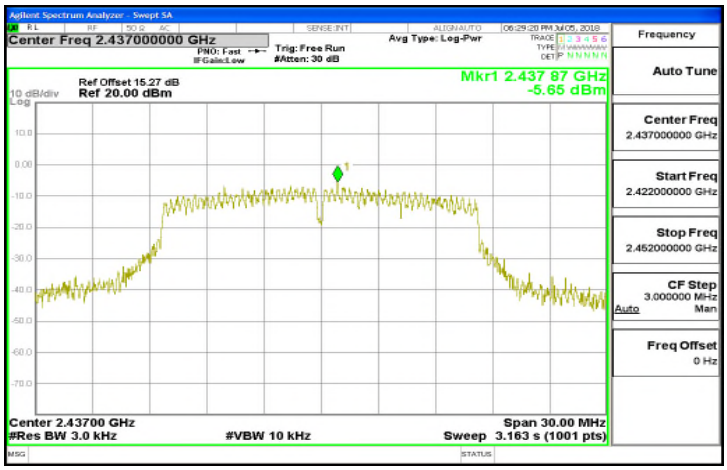
802.11g PSD(CH-Low) (2417MHz)



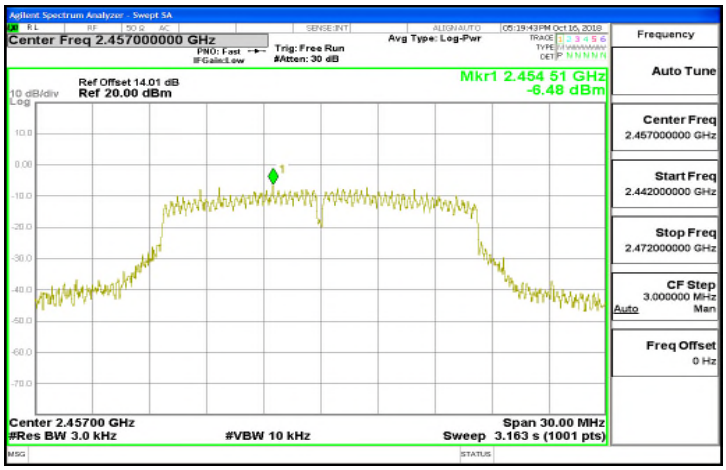
802.11b PSD (CH-High) (2462MHz)



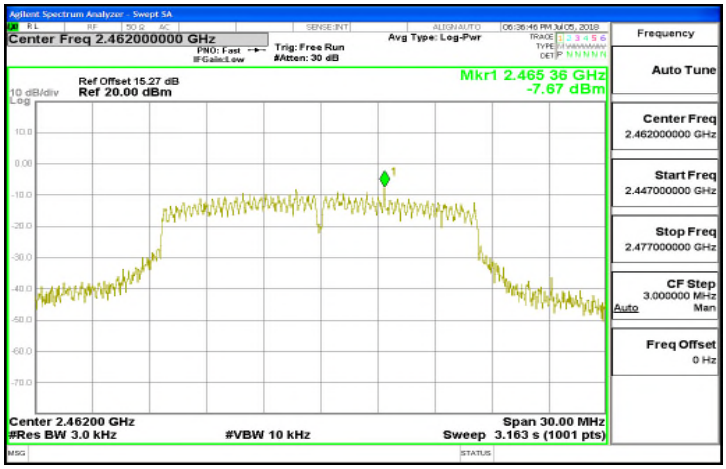
802.11g PSD (CH-Mid) (2437MHz)



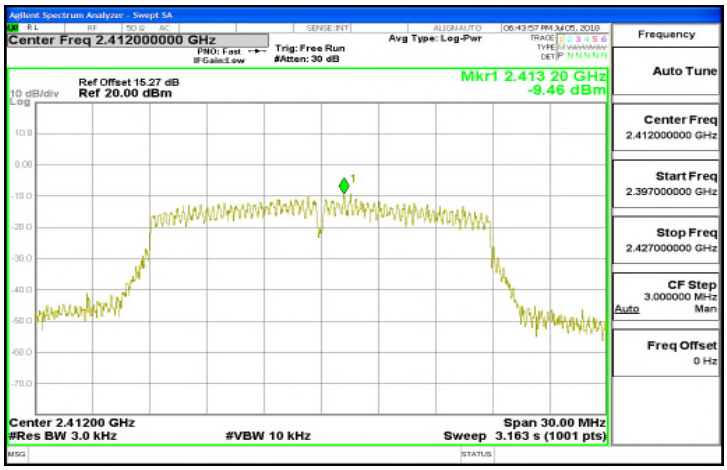
802.11g PSD (CH-High) (2457MHz)



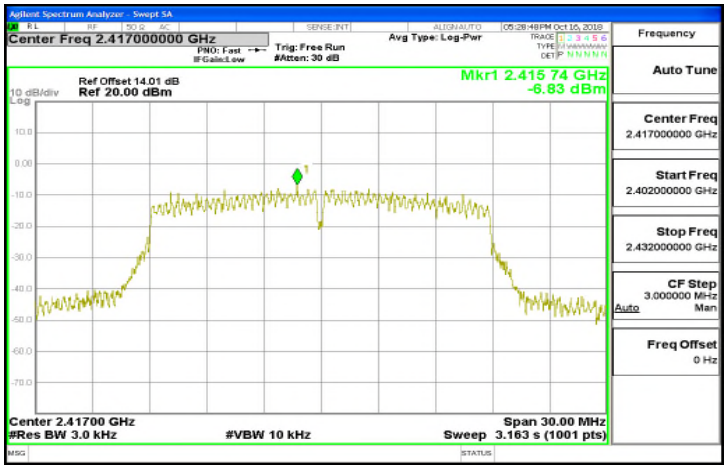
P802.11g PSD (CH-High) (2462MHz)



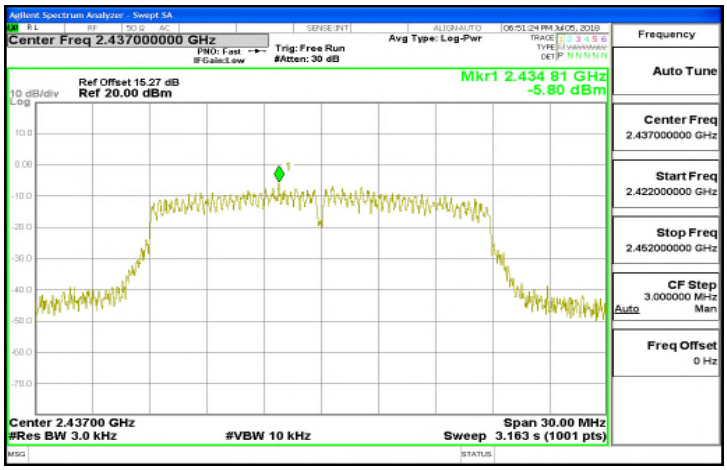
802.11n_HT20 PSD (CH-Low) (2412MHz)



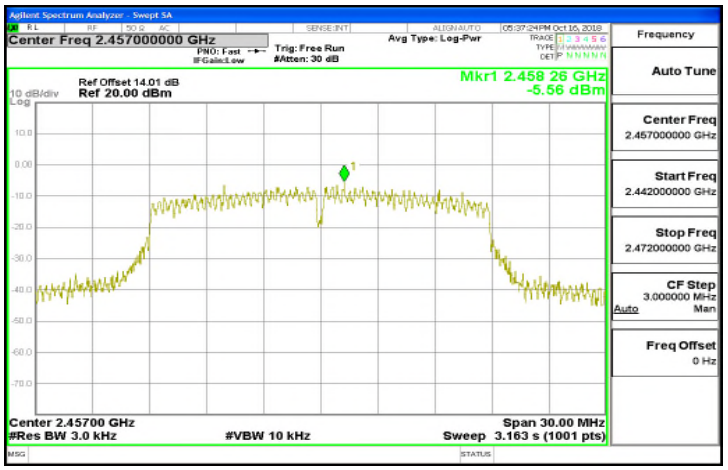
802.11n_HT20 PSD (CH-Low) (2417MHz)



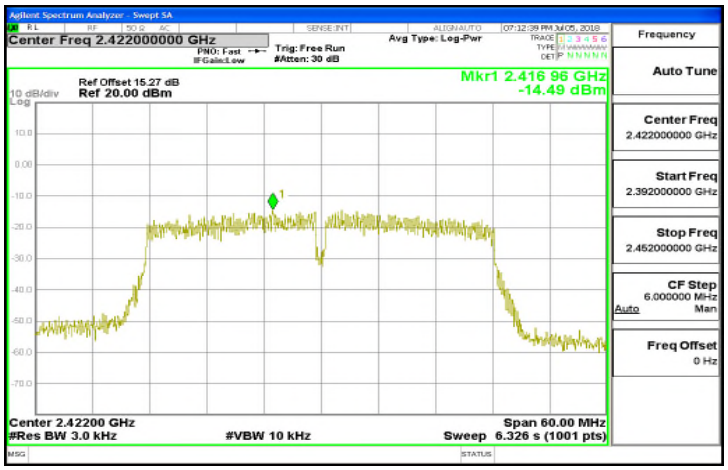
802.11n_HT20 PSD (CH-Low) (2437MHz)



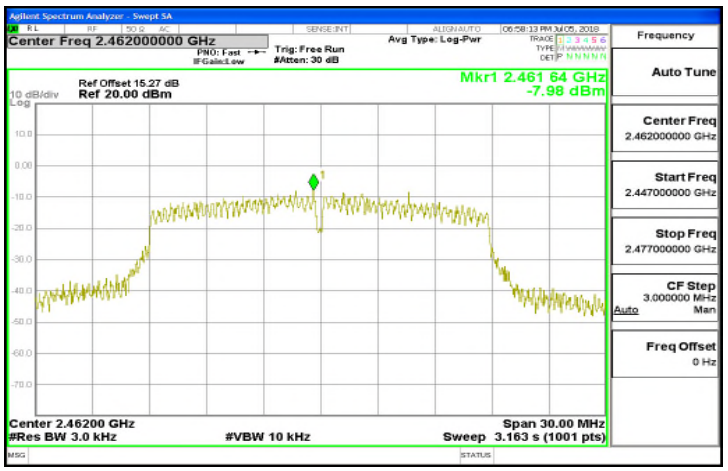
802.11n_HT20 PSD (CH-High) (2457MHz)



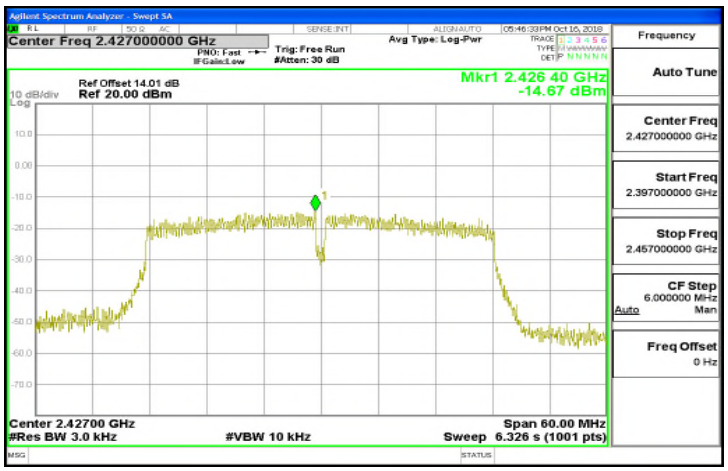
802.11n_HT40 PSD (CH-Low) (2422MHz)



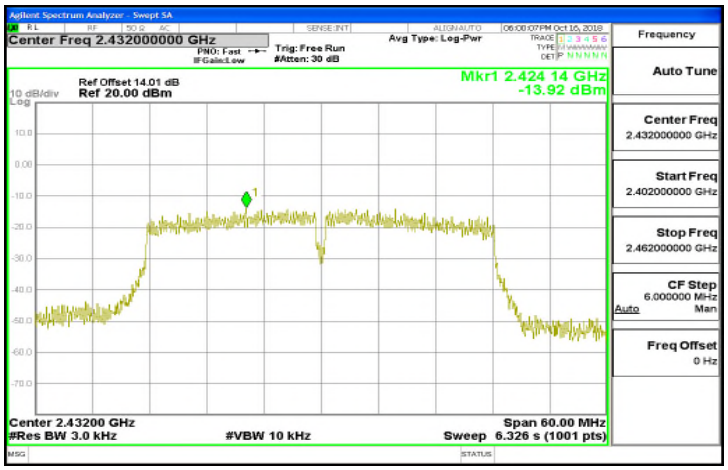
802.11n_HT20 PSD (CH-High) (2462MHz)



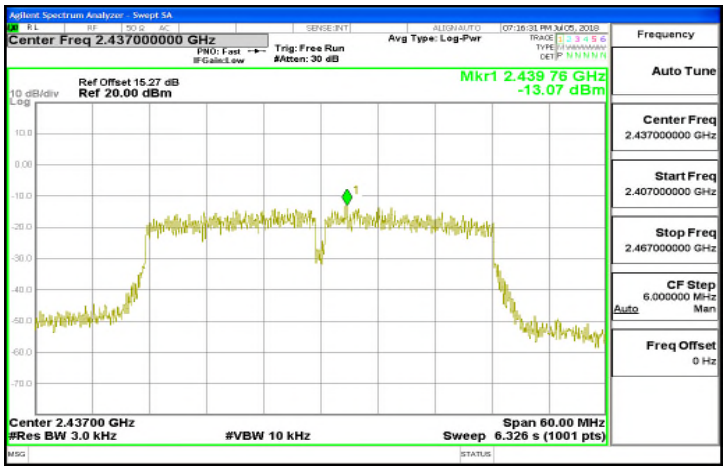
802.11n_HT40 PSD (CH-Low) (2427MHz)



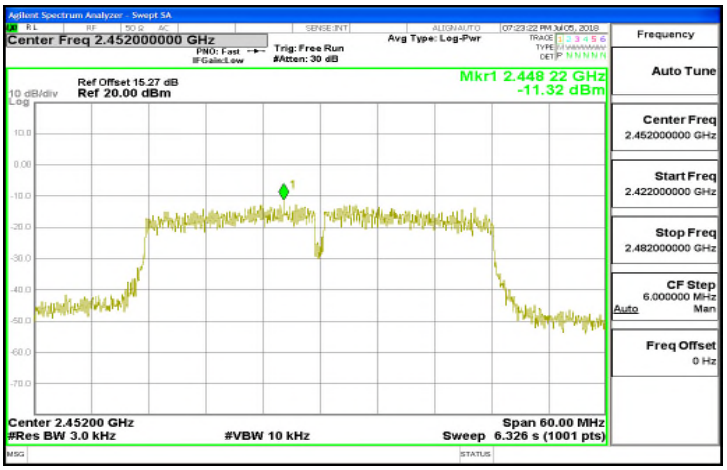
802.11n_HT40 PSD (CH-Low) (2432MHz)



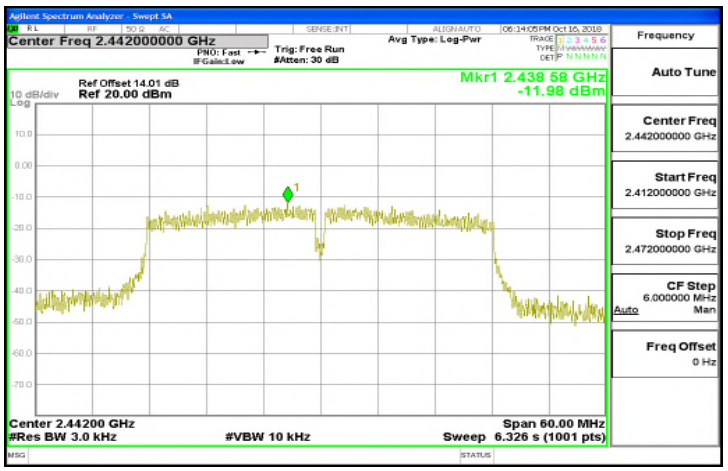
802.11n_HT40 PSD (CH-Mid) (2437MHz)



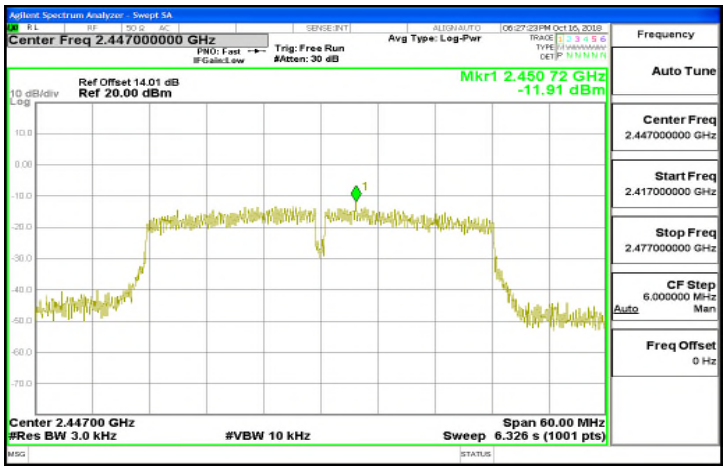
802.11n_HT20 PSD (CH-High) (2452MHz)



802.11n_HT20 PSD (CH-High) (2442MHz)



802.11n_HT20 PSD (CH-High) (2447MHz)



13 ANTENNA REQUIREMENT

13.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

If the transmitting antenna is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

13.2 Antenna Connected Construction

The antenna is designed as permanently attached and no consideration of replacement. Please see EUT phot

~ End of Report ~