

5.1.5 Peak Power Density

RESULT:
Passed

Test standard : FCC Part 15.247(e) , RSS-247 5.2(2)
 Basic standard : ANSI C63.10:2013, KDB558074 D01v04
 Limit : FCC Part 15.247(e) , RSS-247 5.2(b)
 Kind of test site : Shielded room/Conducted room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A

Table 20: Test result of Peak Power Density (802.11b)

Channel	Channel Frequency (MHz)	PPSD ANT1	PPSD ANT2	Limit
		(dBm)	(dBm)	(dBm)
Low Channel	2412	-5.32	-5.719	8
Middle Channel	2437	-4.91	-6.35	8
High Channel	2462	-4.54	-5.43	8

Table 21: Test result of Peak Power Density (802.11g)

Channel	Channel Frequency (MHz)	PPSD ANT1	PPSD ANT2	Limit
		(dBm)	(dBm)	(dBm)
Low Channel	2412	-12.16	-14.81	8
Middle Channel	2437	-5.42	-6.63	8
High Channel	2462	-15.48	-15.32	8

Table 22: Test result of Peak Power Density (802.11n HT20)

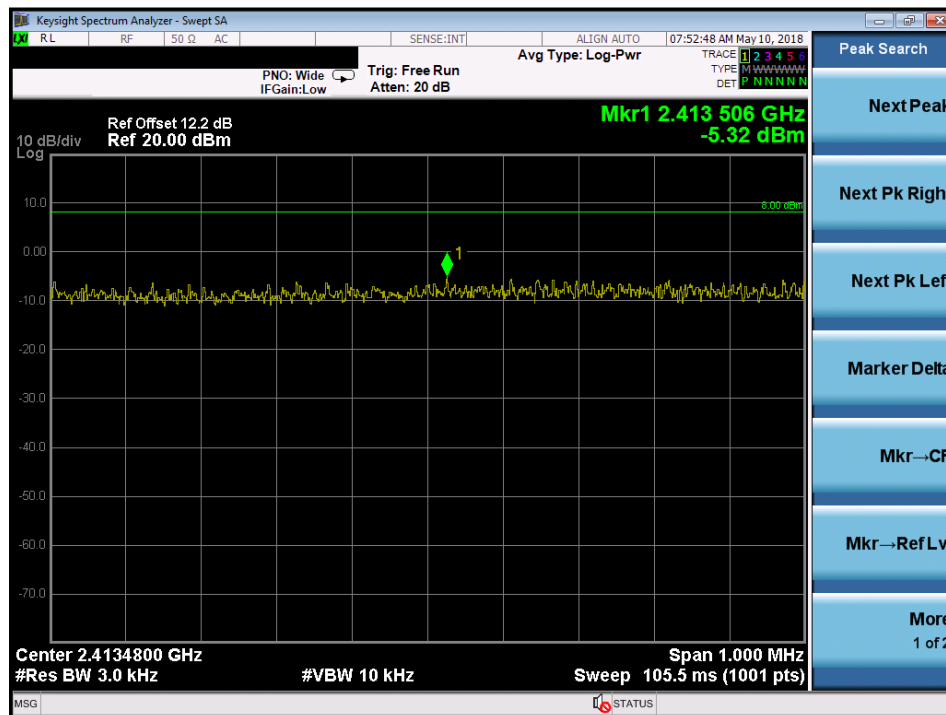
Channel	Channel Frequency (MHz)	PPSD ANT1	PPSD ANT2	PPSD ANT1+ANT2	Limit
		(dBm)	(dBm)	(dBm)	(dBm)
Low Channel	2412	-10.097	-12.04	-7.95	8
Middle Channel	2437	-9.92	-11.17	-7.49	8
High Channel	2462	-10.47	-11.43	-7.91	8

Table 23: Test result of Peak Power Density (802.11n HT40)

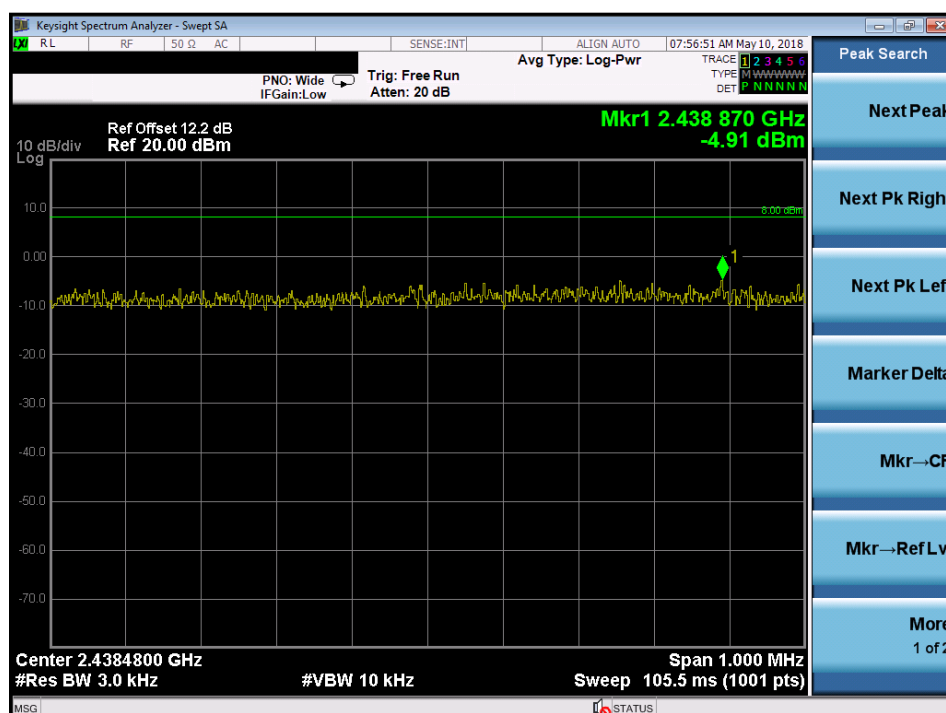
Channel	Channel Frequency (MHz)	PPSD ANT1	PPSD ANT2	PPSD ANT1+ANT2	Limit
		(dBm)	(dBm)	(dBm)	(dBm)
Low Channel	2412	-20.59	-20.919	-17.74	8
Middle Channel	2437	-10.77	-14.19	-9.14	8
High Channel	2462	-20.45	-20.19	-17.31	8

Test Plot of Power Density (802.11b), ANT1

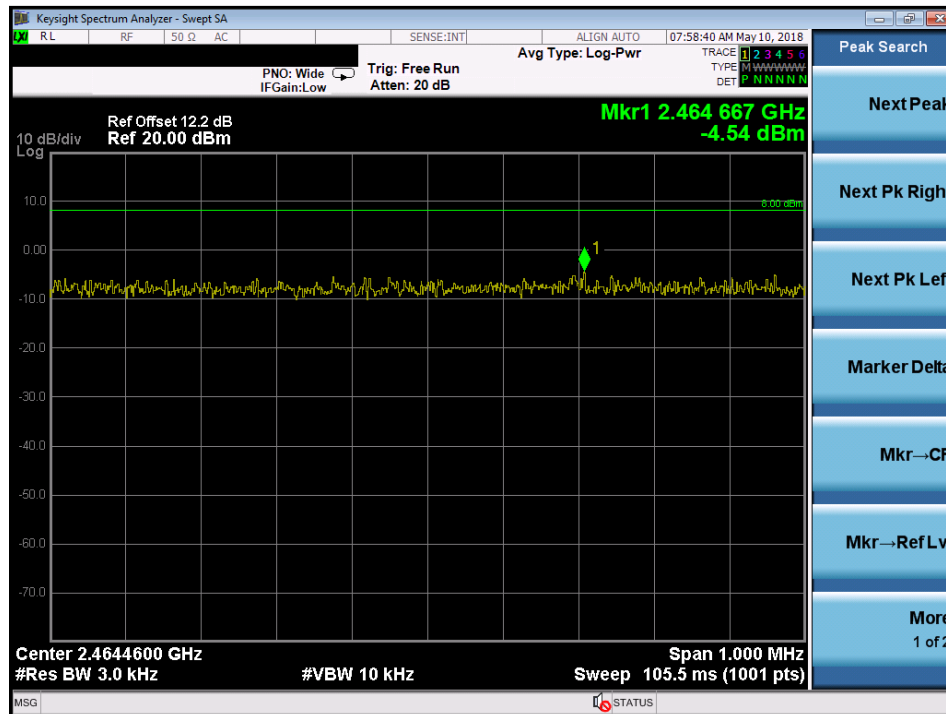
Low Channel

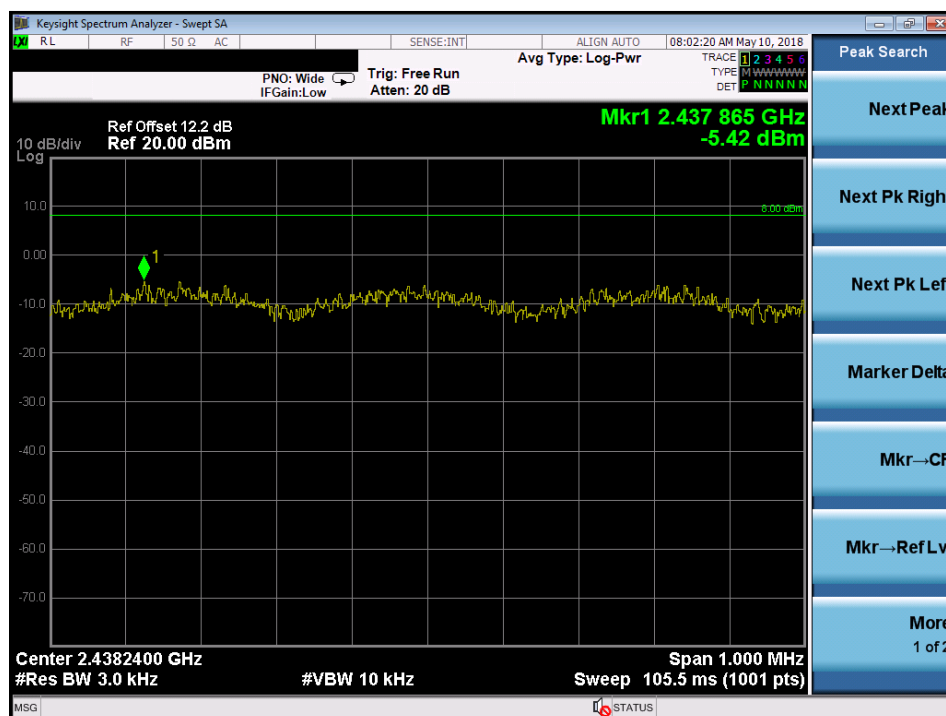


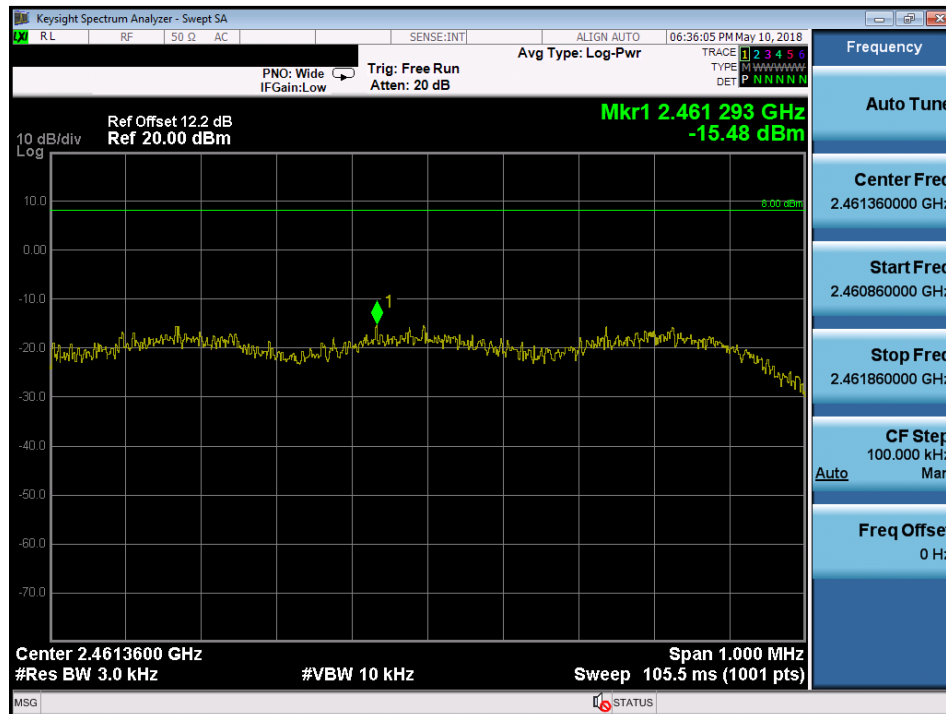
Middle Channel



High Channel

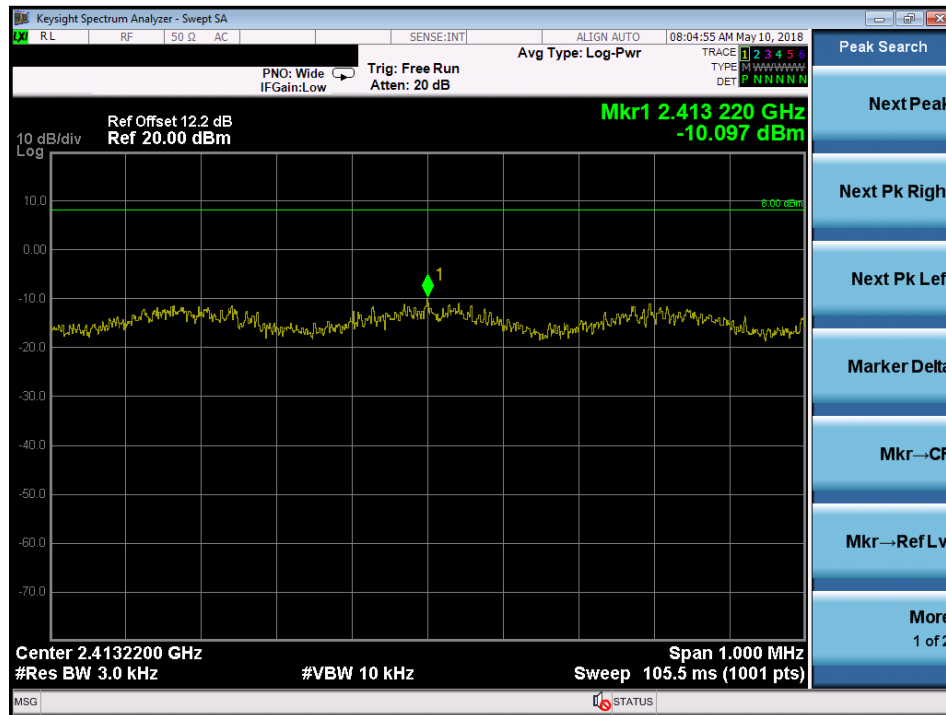




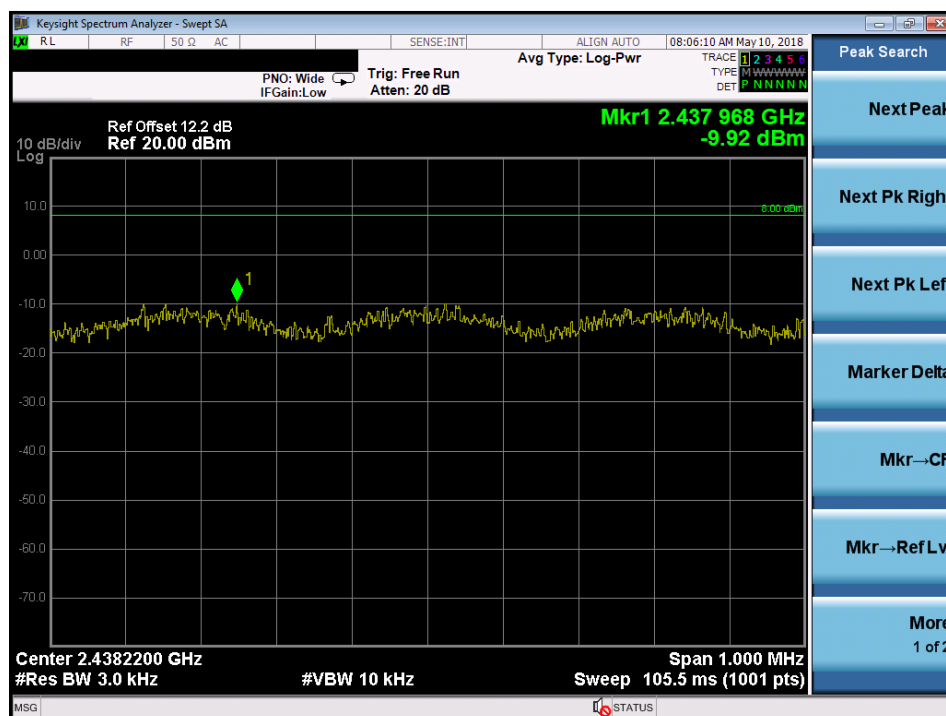


Test Plot of Power Density (802.11n HT20), ANT1

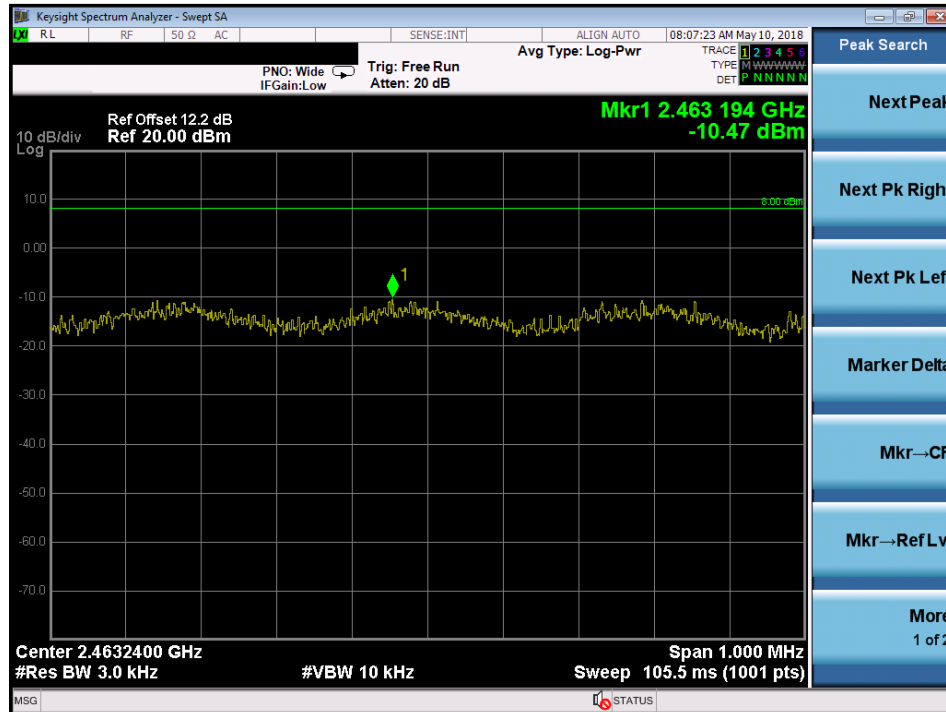
Low Channel



Middle Channel

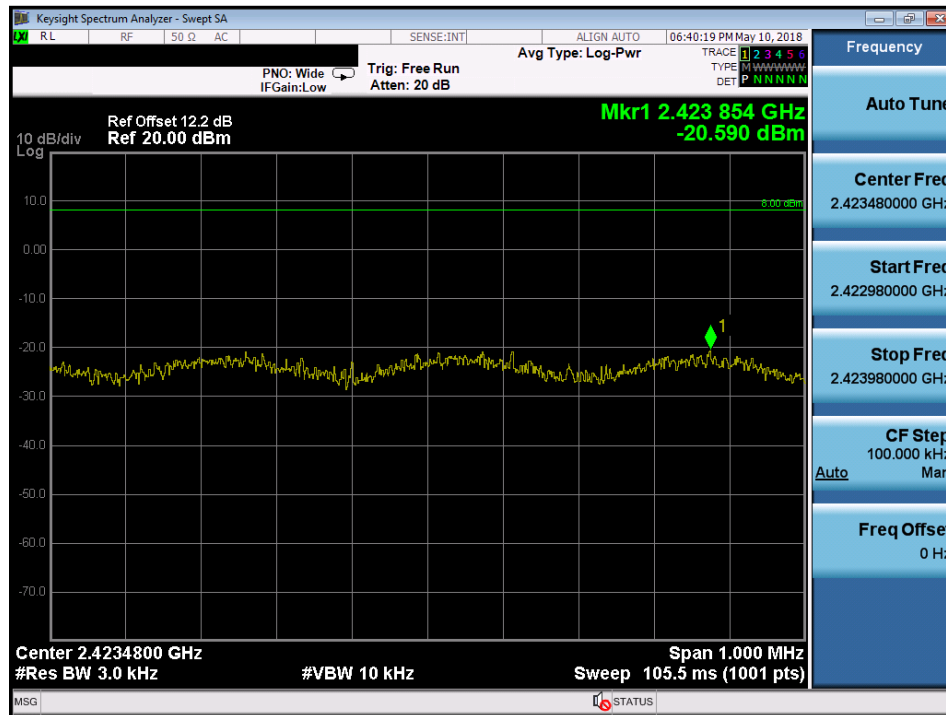


High Channel

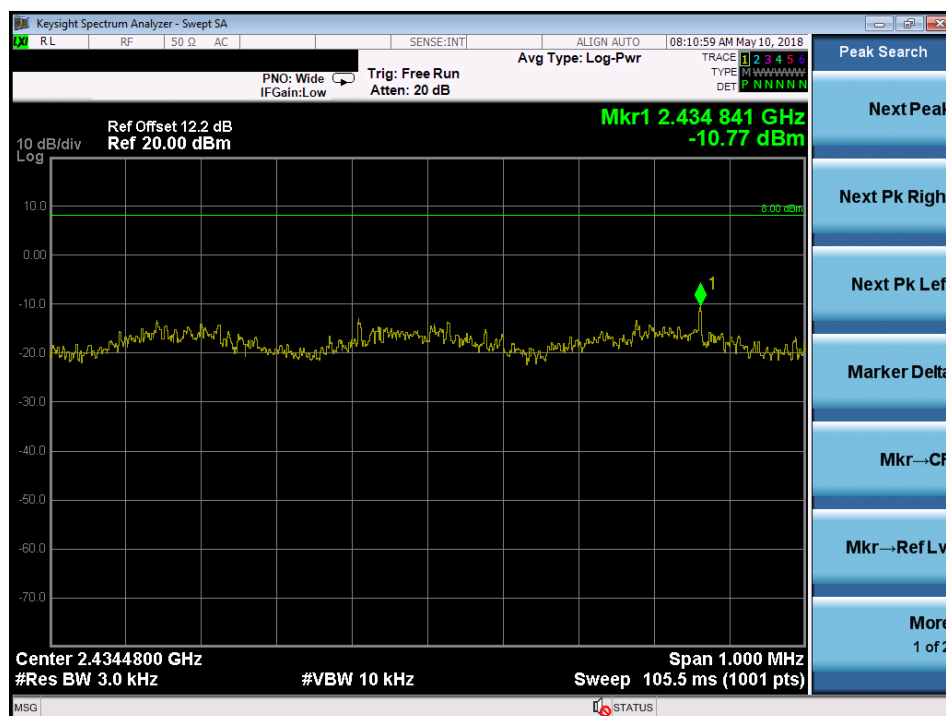


Test Plot of Power Density (802.11n HT40), ANT1

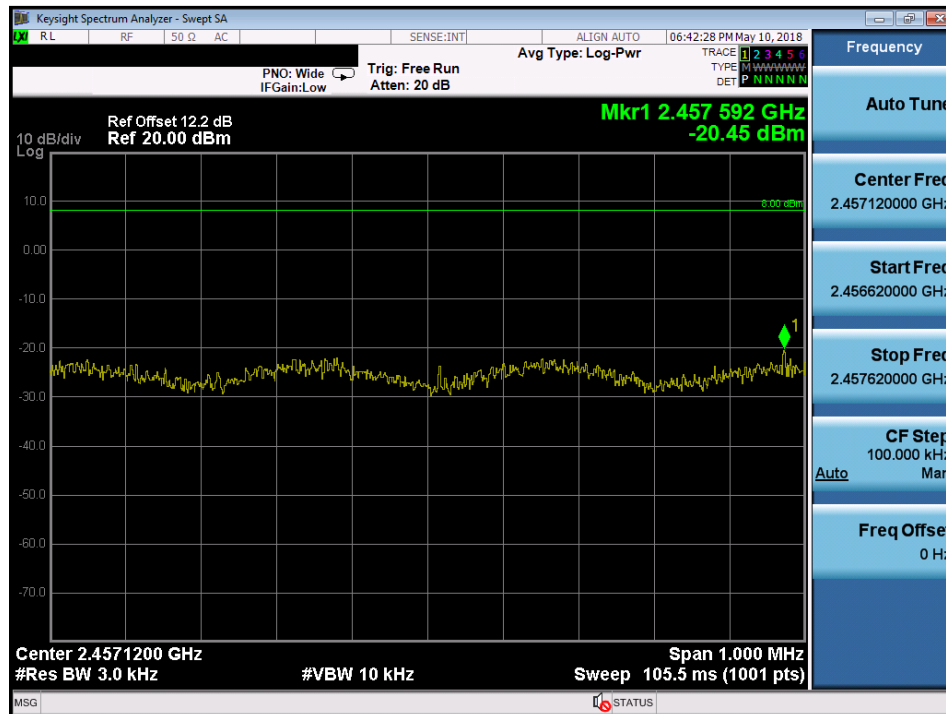
Low Channel



Middle Channel

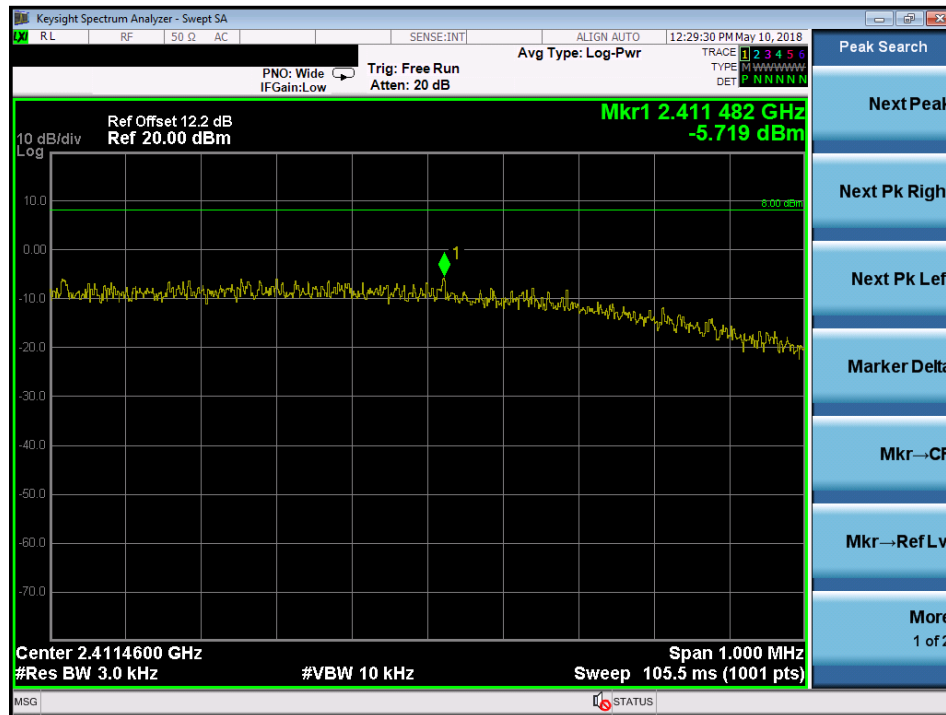


High Channel

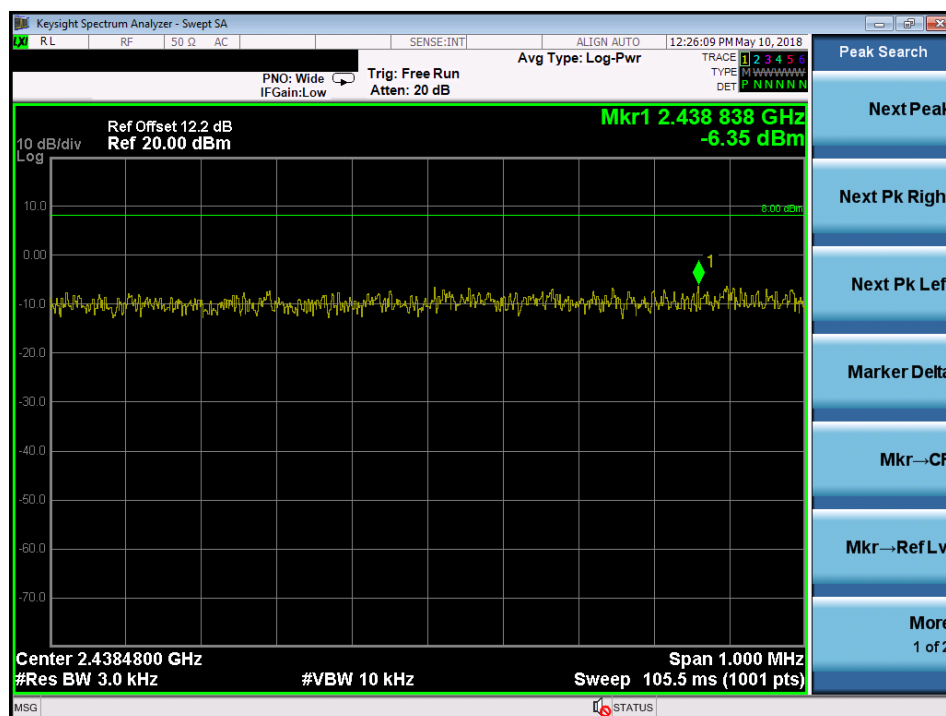


Test Plot of Power Density (802.11b), ANT2

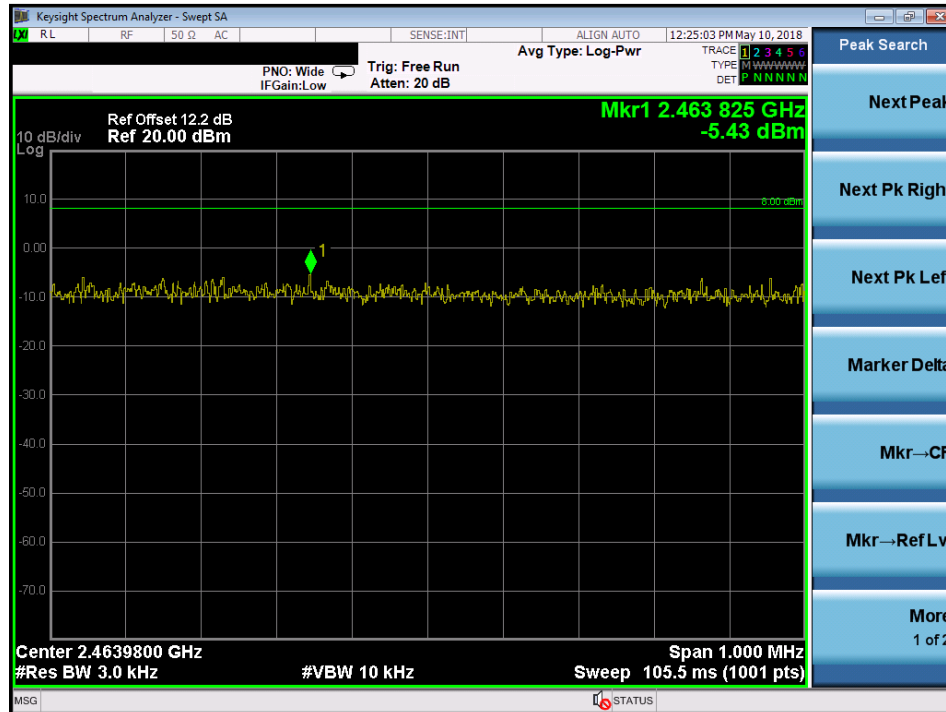
Low Channel



Middle Channel

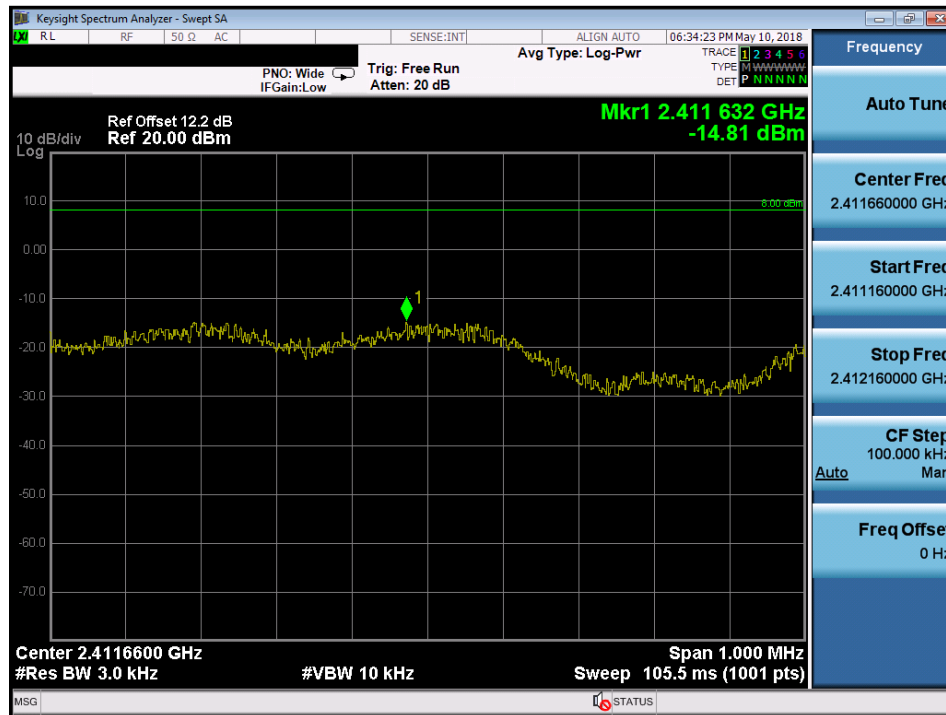


High Channel

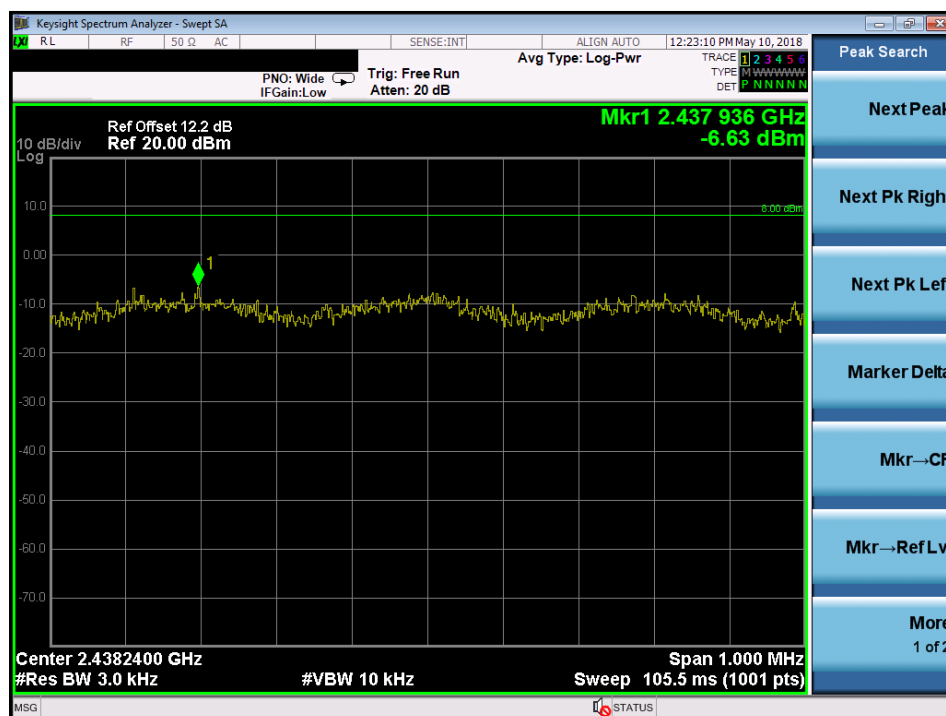


Test Plot of Power Density (802.11g), ANT2

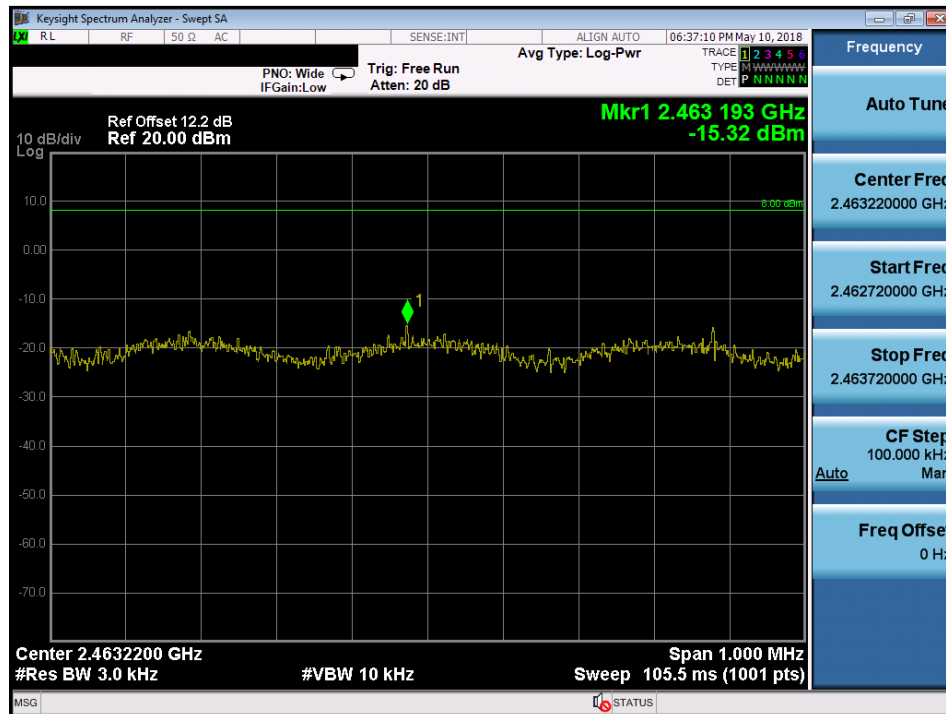
Low Channel



Middle Channel

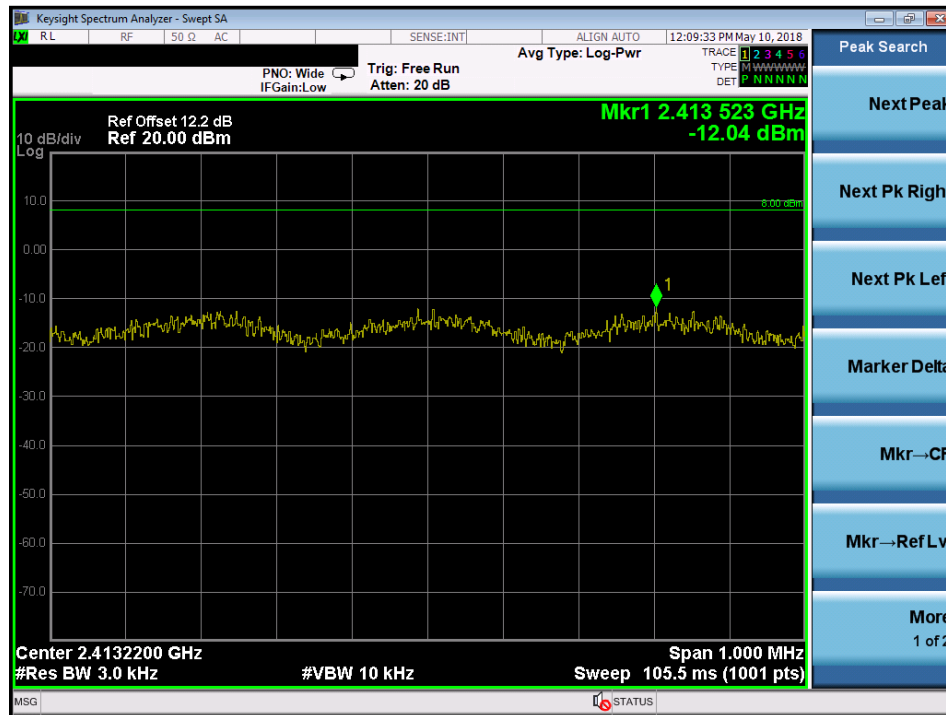


High Channel

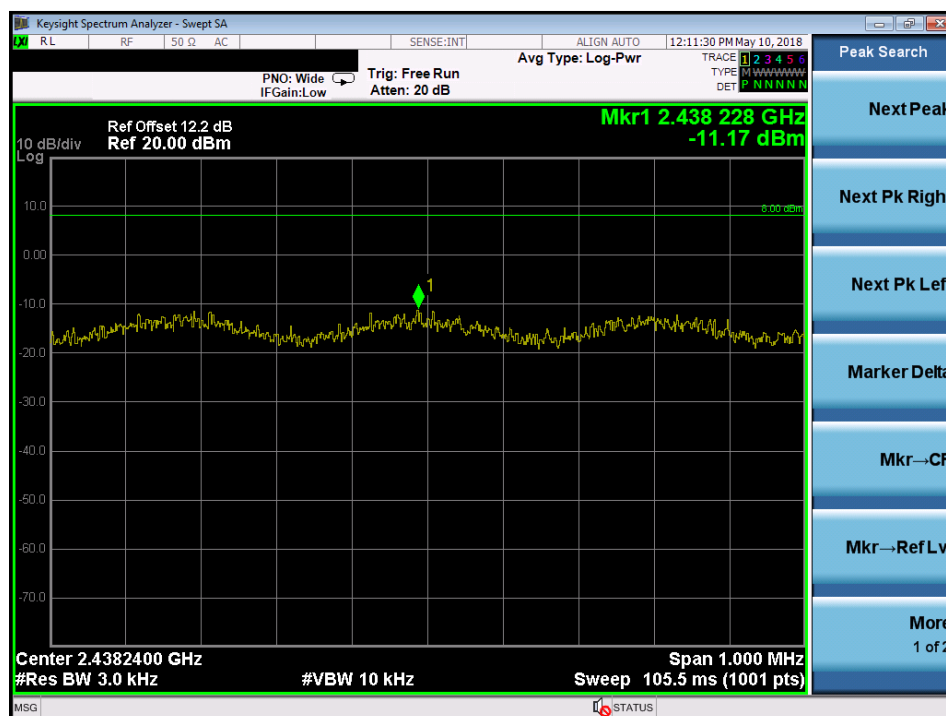


Test Plot of Power Density (802.11n HT20), ANT2

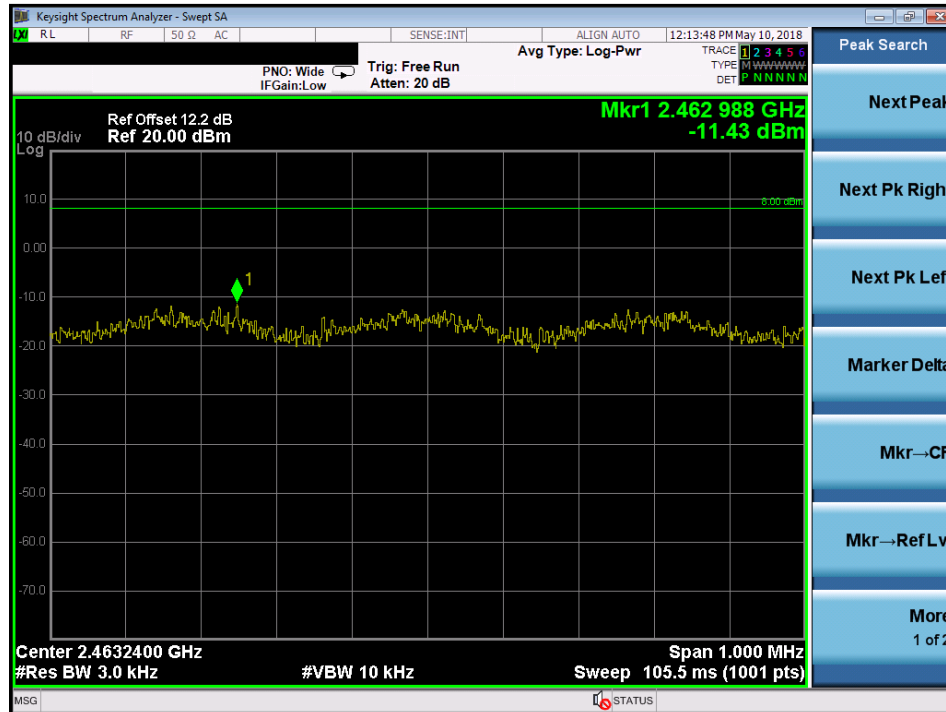
Low Channel



Middle Channel

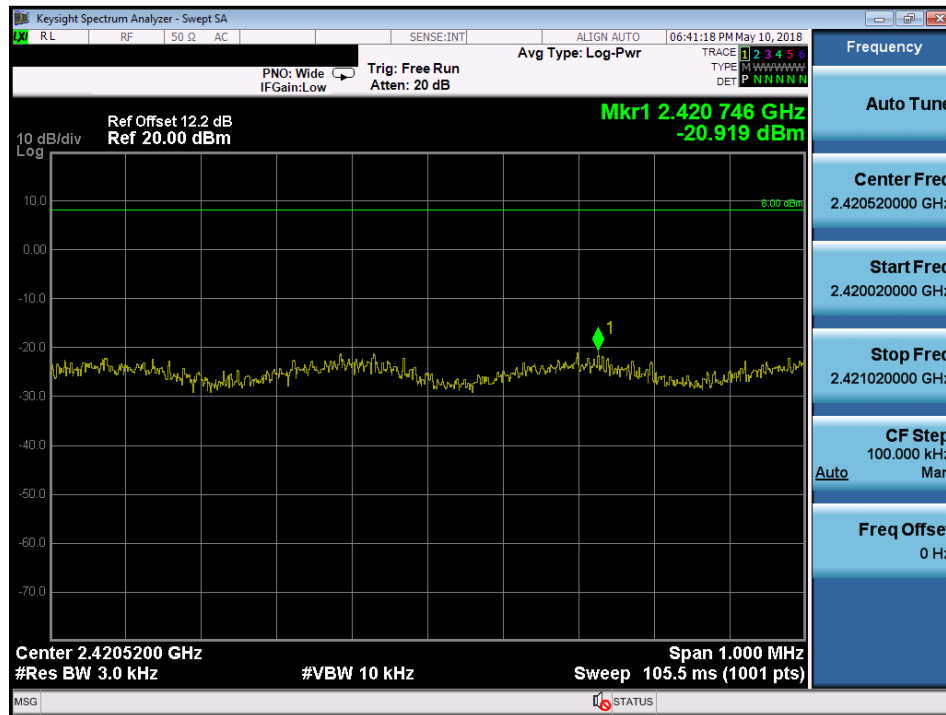


High Channel

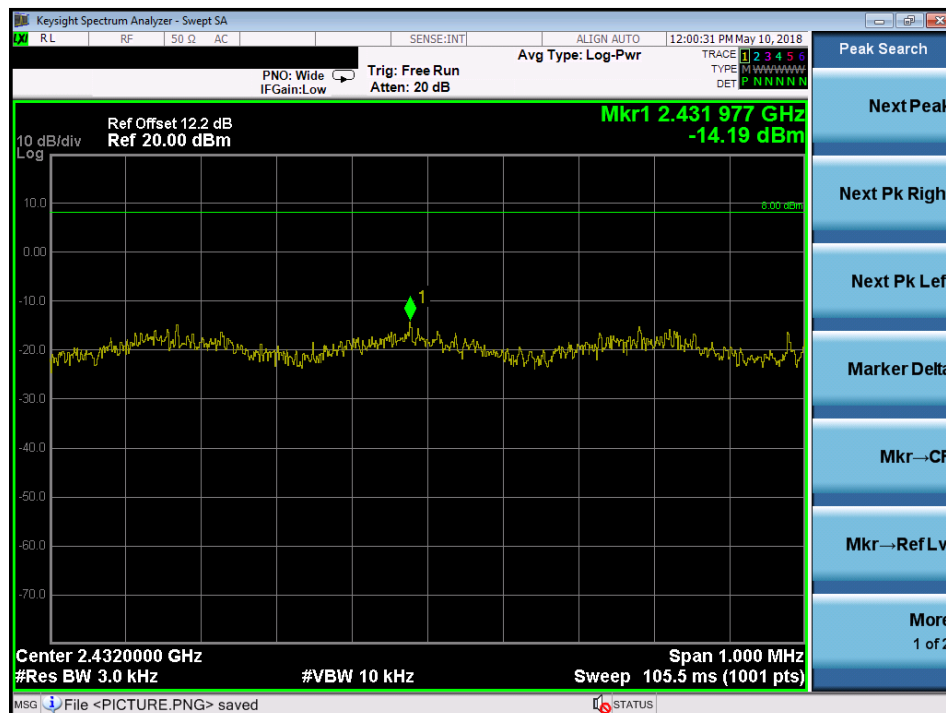


Test Plot of Power Density (802.11n HT40), ANT2

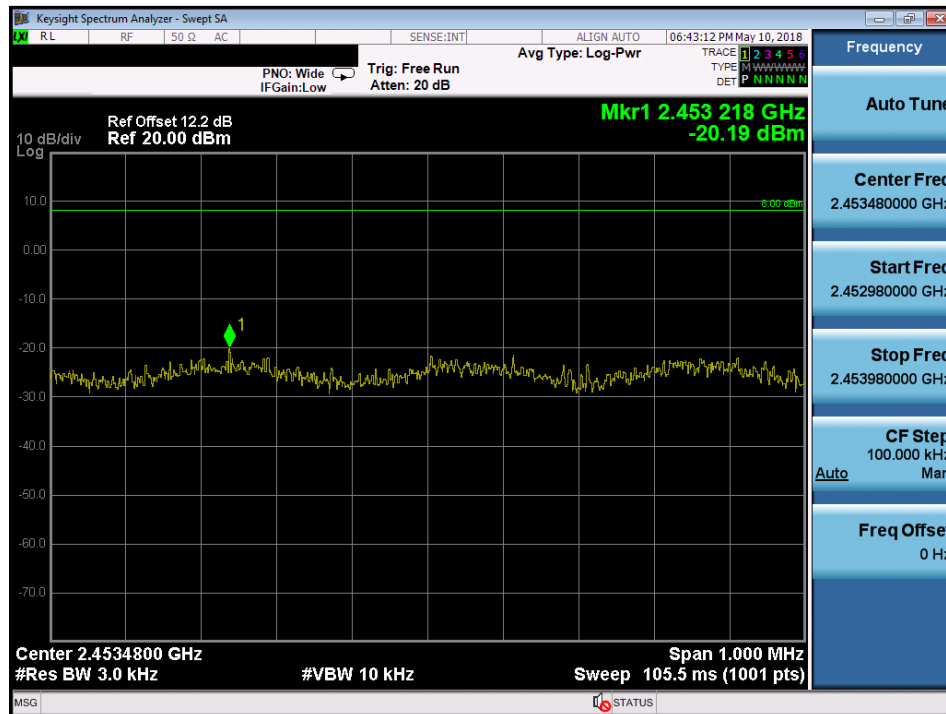
Low Channel



Middle Channel



High Channel



5.1.6 Conducted spurious emissions and Frequency Band Edge measured in 100kHz Bandwidth

RESULT:**Passed**

Test standard	:	FCC part 15.247(d), RSS-247 5.5
Basic standard	:	ANSI C63.10:2013, KDB558074
Limit	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power)
Kind of test site	:	Shielded room/Conducted room

Test setup

Test Channel	:	Low/ High for Band Edge, Low/Mid/High for spurious emissions
Operation mode	:	A

All emissions are more than 20dB below fundamental, details refer to following test plot, and compliance is achieved as well.

Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

Test Plot 100kHz Conducted Emissions (802.11b), ANT1

Low Channel



Middle Channel



High Channel



Test Plot 100kHz Conducted Emissions (802.11g), ANT1

Low Channel



Middle Channel



High Channel



Test Plot 100kHz Conducted Emissions (802.11n HT20), ANT1

Low Channel



Middle Channel



High Channel



Test Plot 100kHz Conducted Emissions (802.11n HT40), ANT1

Low Channel



Middle Channel



High Channel



Test Plot 100kHz Conducted Emissions (802.11b), ANT2

Low Channel



Middle Channel



High Channel





High Channel



Test Plot 100kHz Conducted Emissions (802.11n HT20), ANT2

Low Channel



Middle Channel



High Channel



Test Plot 100kHz Conducted Emissions (802.11n HT40), ANT2

Low Channel



Middle Channel

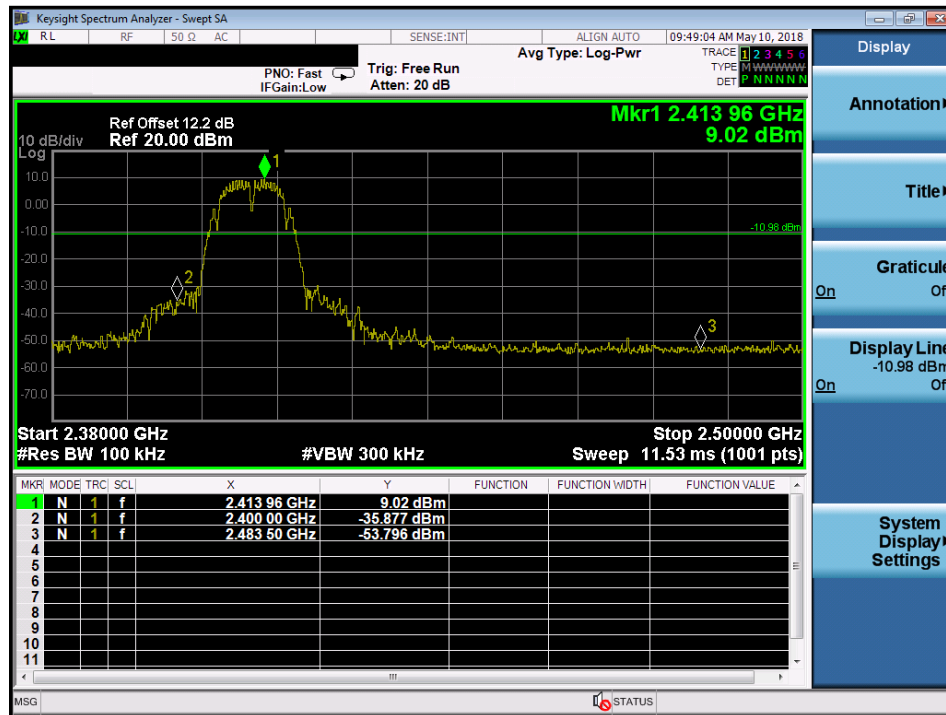


High Channel

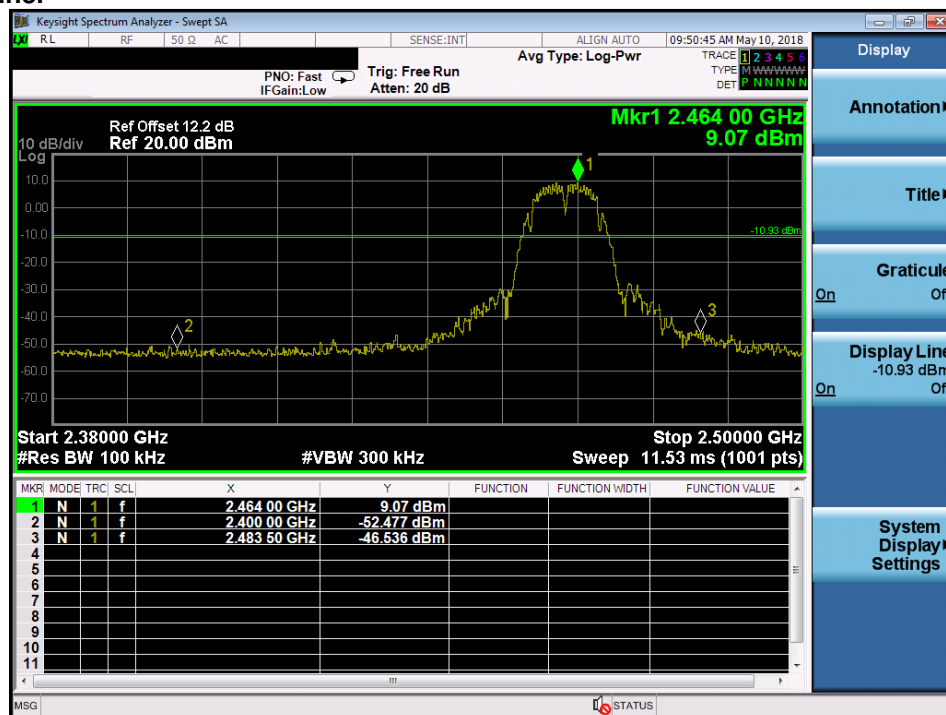


Test Plot 100kHz RBW of Band Edge (802.11b), ANT1

Low Channel

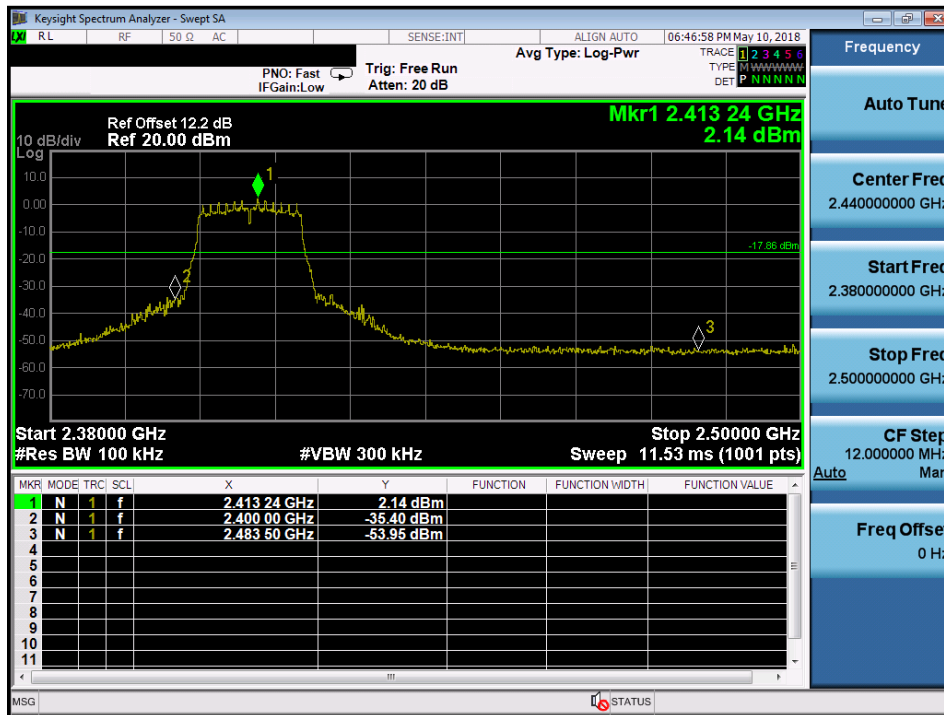


High Channel

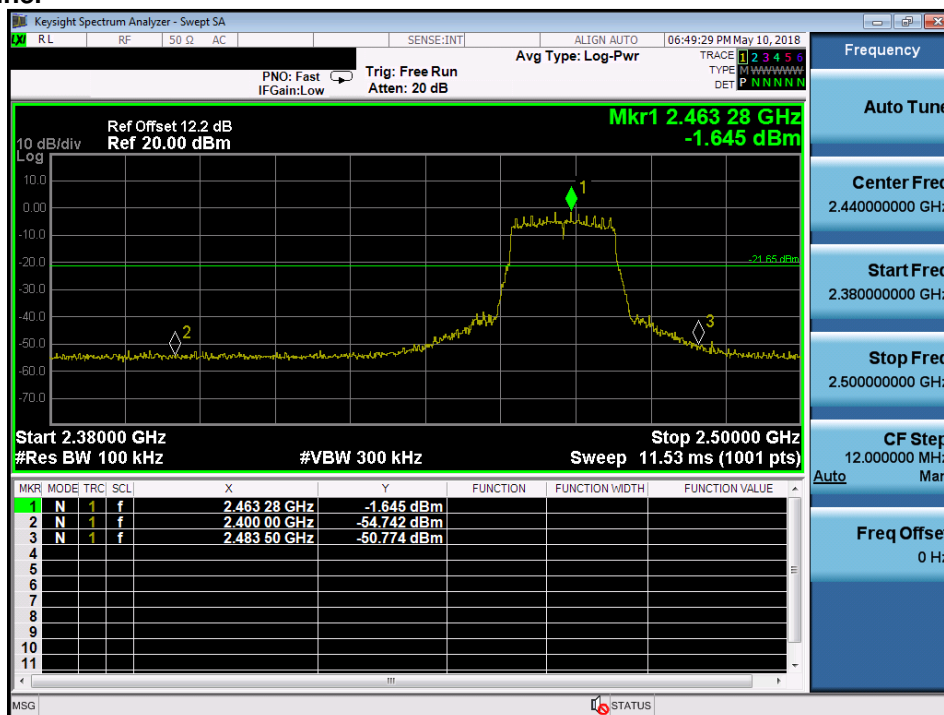


Test Plot 100kHz RBW of Band Edge (802.11g), ANT1

Low Channel

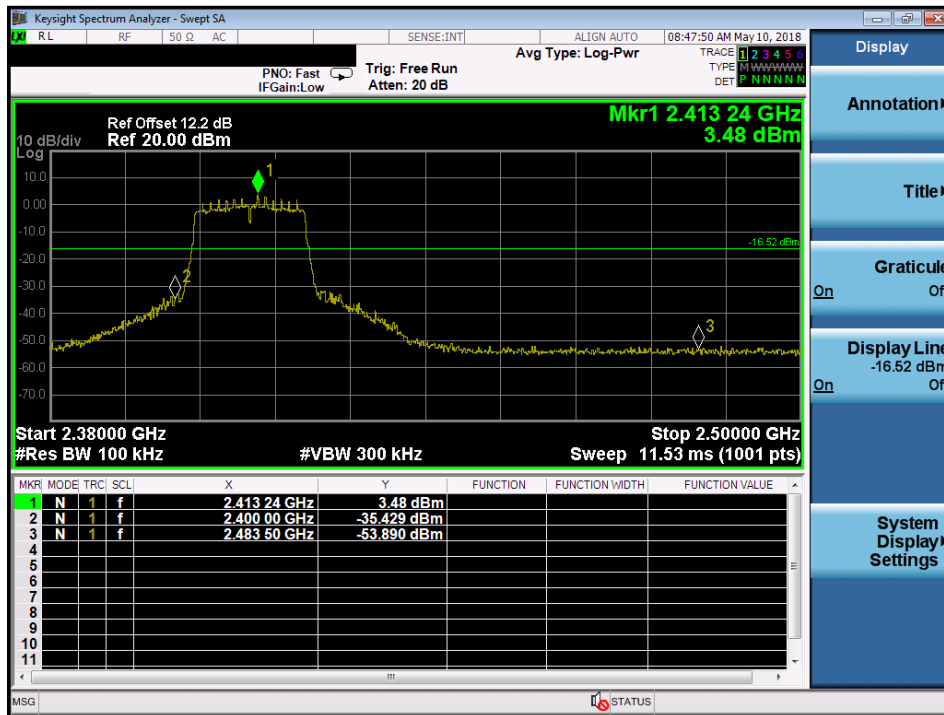


High Channel

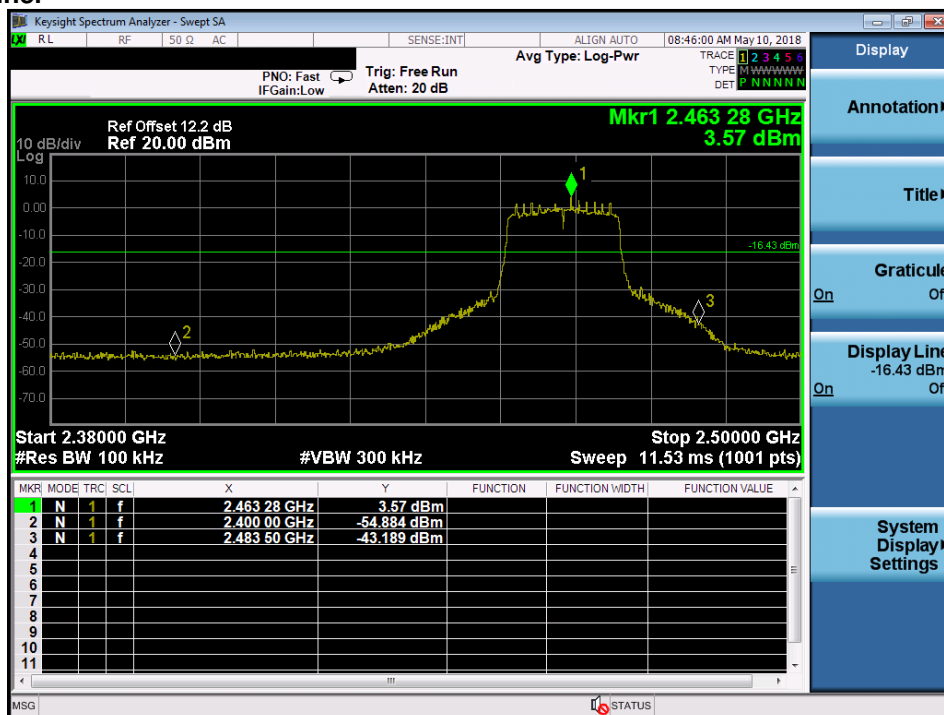


Test Plot 100kHz RBW of Band Edge (802.11n HT20), ANT1

Low Channel



High Channel

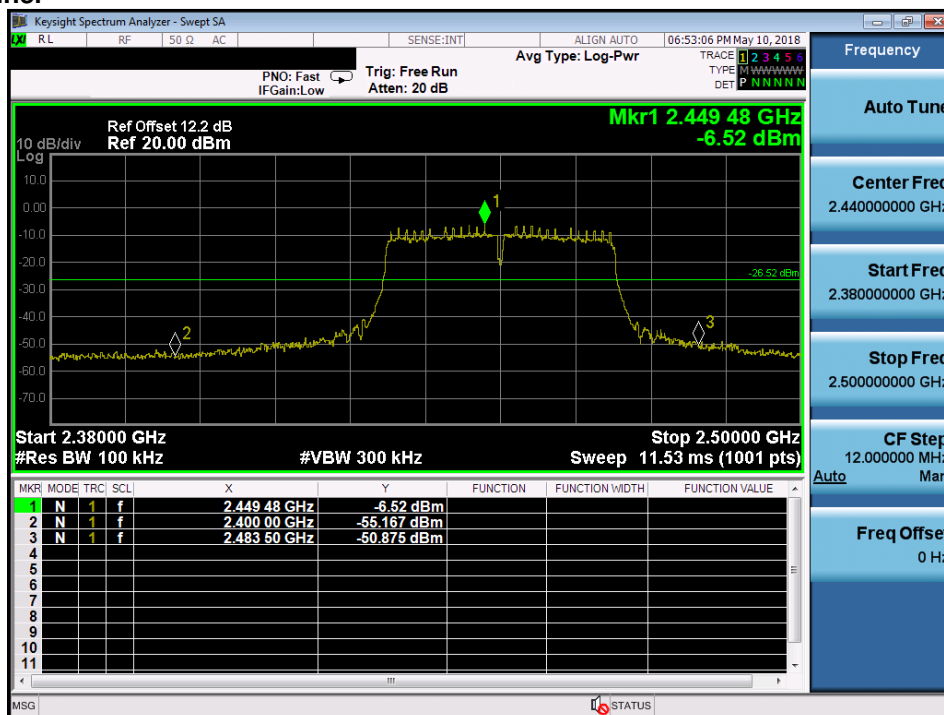


Test Plot 100kHz RBW of Band Edge (802.11n HT40), ANT1

Low Channel

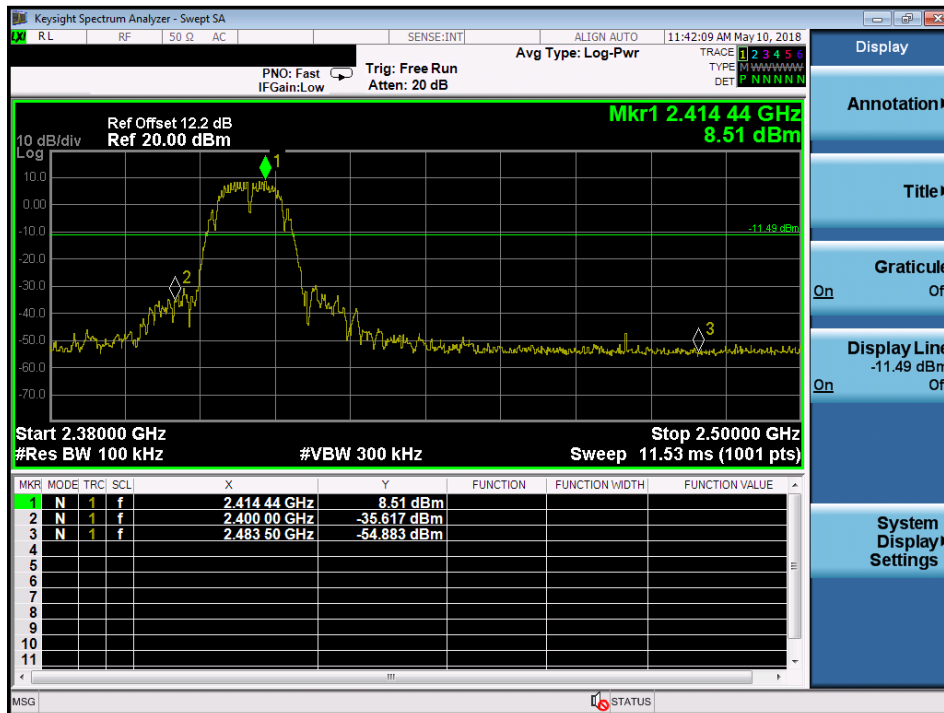


High Channel

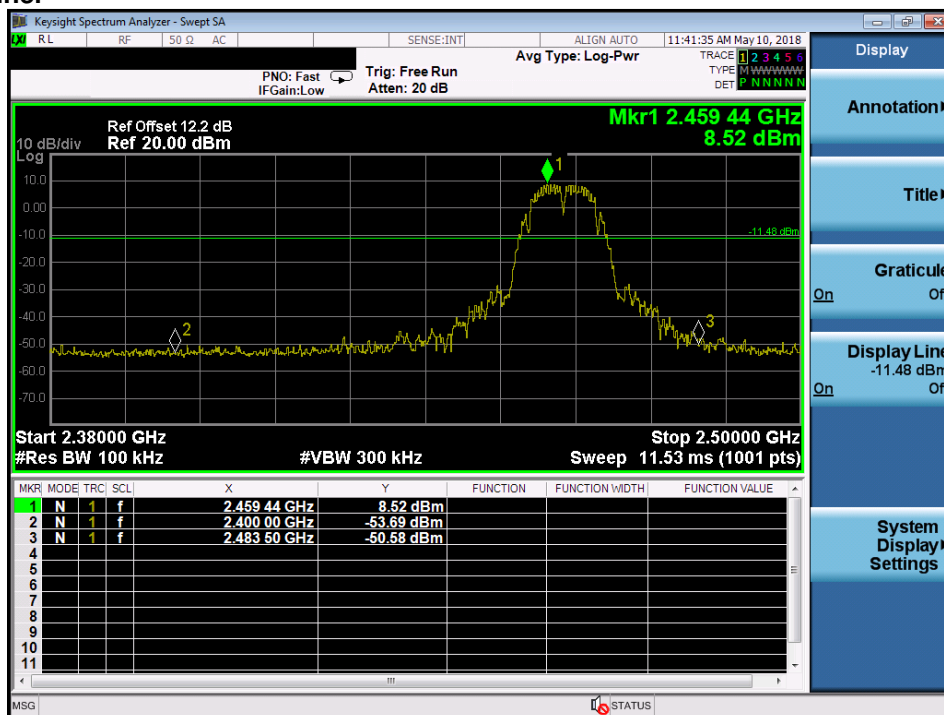


Test Plot 100kHz RBW of Band Edge (802.11b), ANT2

Low Channel

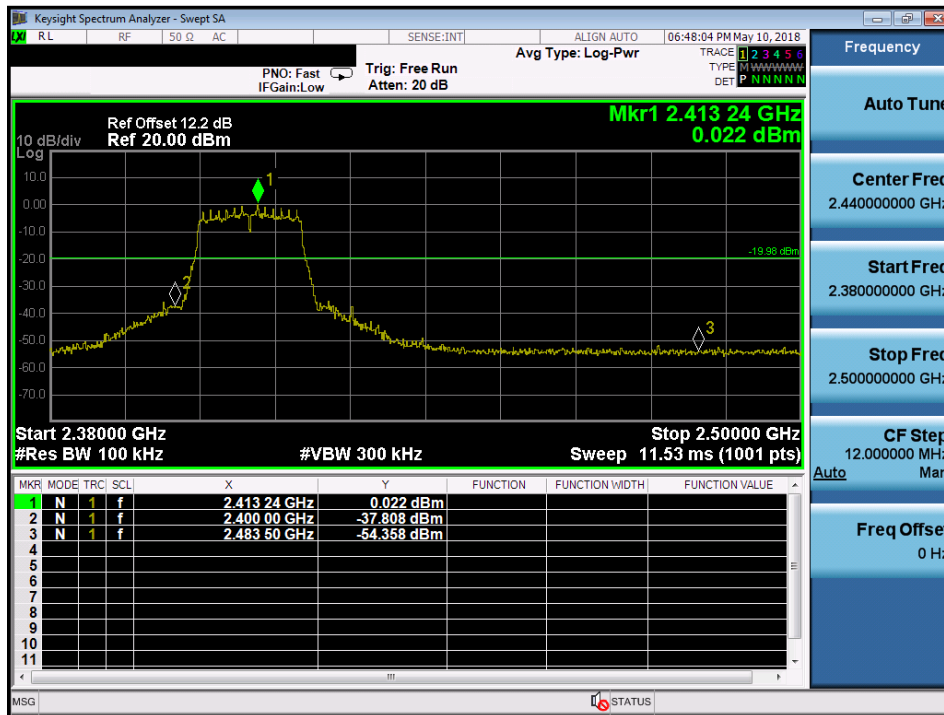


High Channel

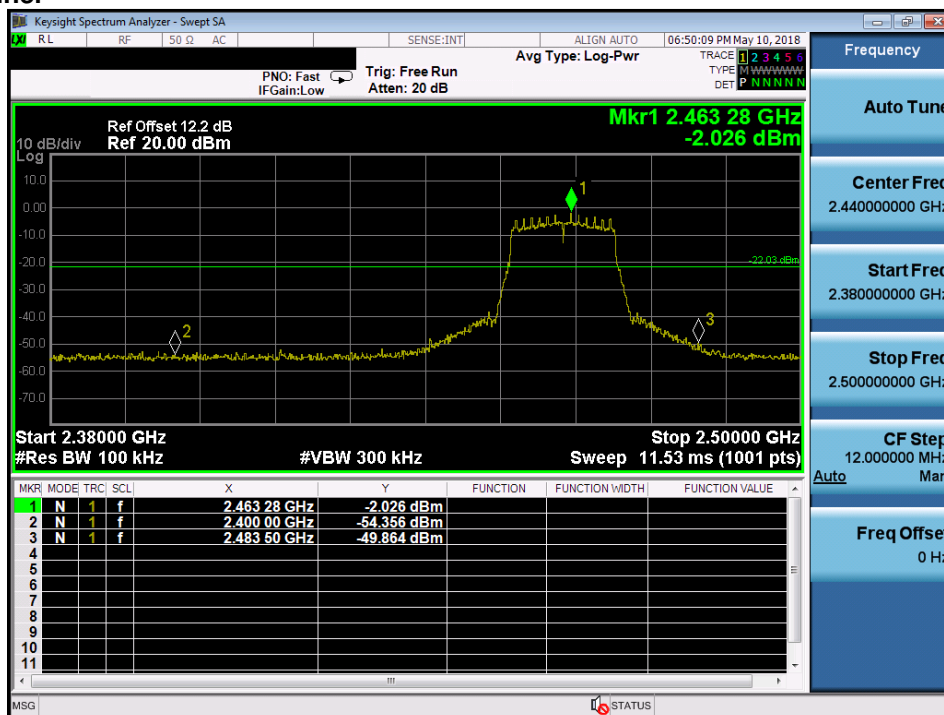


Test Plot 100kHz RBW of Band Edge (802.11g), ANT2

Low Channel



High Channel

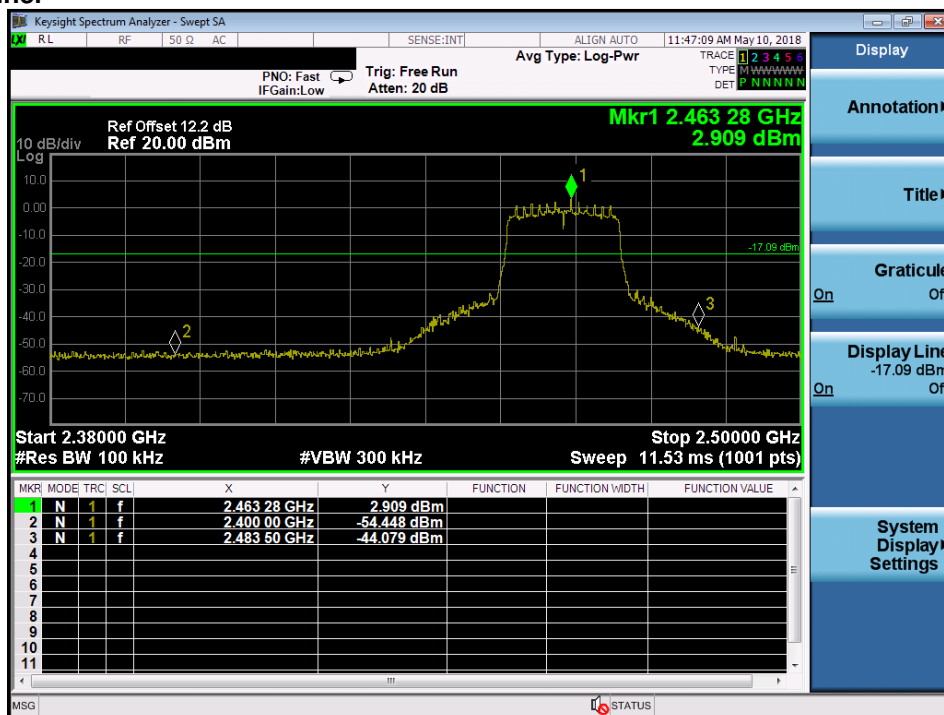


Test Plot 100kHz RBW of Band Edge (802.11n HT20), ANT2

Low Channel



High Channel

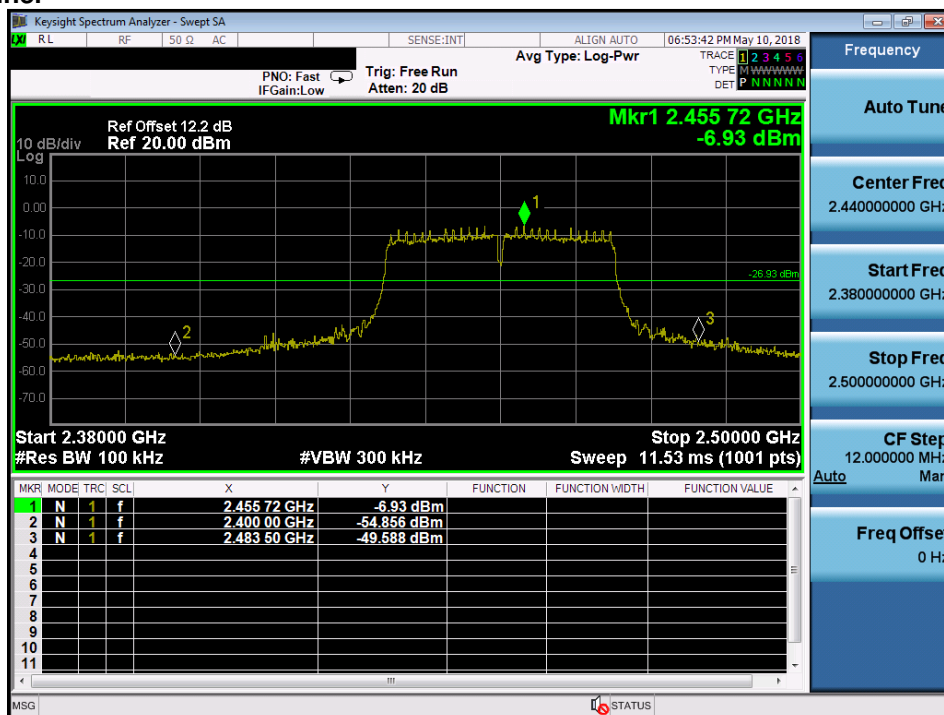


Test Plot 100kHz RBW of Band Edge (802.11n HT40), ANT2

Low Channel



High Channel



5.1.7 Spurious Emission

RESULT:**Passed**

Test standard : FCC part 15.247(d), FCC 15.205, FCC 15.209, RSS-210 2.2, RSS-247 5.5 and RSS-Gen 8.9

Basic standard : ANSI C63.10:2013
Limits : Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) and RSS-Gen i4, 8.9 (Table 6), must comply with the radiated emission limits specified in FCC 15.209(a) and RSS-Gen i4, 8.9 (Table 4 and 5).
Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in FCC 15.209(a) and FCC 15.249(a), RSS-Gen i4, 8.9 (Table 4 and 5) and RSS-210 A2.9(a).

Kind of test site : 3m Semi-Anechoic Chamber

Test setup

Test Channel : Low/ Middle/ High
Operation mode : A, B

Remark: Testing was carried out within frequency range 30MHz to the tenth harmonic.

For details refer to Appendix D.

The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The X Axis orientation is the worst-case and recorded in this test report. Due to the small size of the product and that there are no inductive components of significant size, 9kHz to 30MHz frequency range is not tested based on technical judgment.

5.2 Mains Emissions

5.2.1 Mains Conducted Emissions

RESULT:**Passed**

Test standard : FCC Part 15.207
FCC Part 15.107
RSS-Gen 8.8

Limits : Mains Conducted emissions as defined in
above standards

Kind of test site : Shielded Room

Test setup

Test Channel : Middle
Operation mode : A

Remark: For details refer to Appendix D.

6. Safety Human exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:
Passed

Test standard : FCC 47 CFR Part 2: Subpart J Section 2.1091
 RSS-102 Issue 5

Separation distance is more than 20 cm, thus mobile device exposure limits can be applied.

Note: 2.4G Wi-Fi cannot be transmitting at same time with 5G Wi-Fi.

Maximum Exposure (Worst Case):

Power to Antenna (mW)	49.7 mW
Power to Antenna (dBm)	17.0 dBm
Antenna Gain	2.41 dBi
Power+Ant Gain	86.6 mW
Distance	20 cm
S=	0.017 mW/cm ²

Limit FCC:

0.3-1.34 MHz (100) mW/cm²
 1.34-30 MHz (180/f²) mW/cm²
 30-300 MHz 0.2 mW/cm²
 300-1500 MHz f/1500 mW/cm²
1500-100,000 MHz 1.0 mW/cm²

Limit Canada: 0.543 mW/cm²

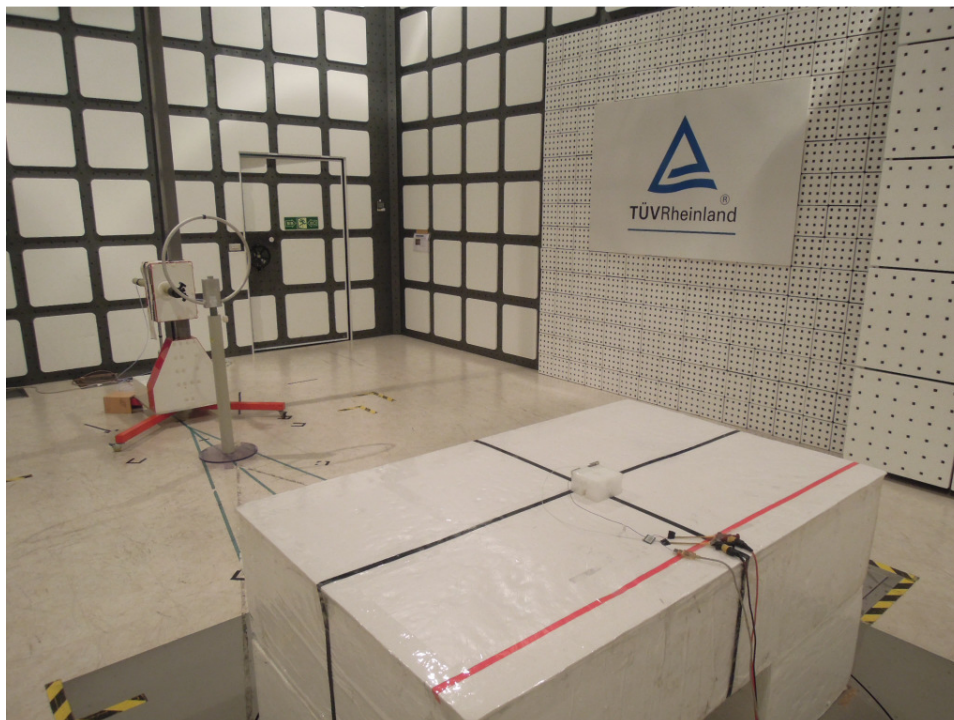
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Photographs of the Test Set-Up

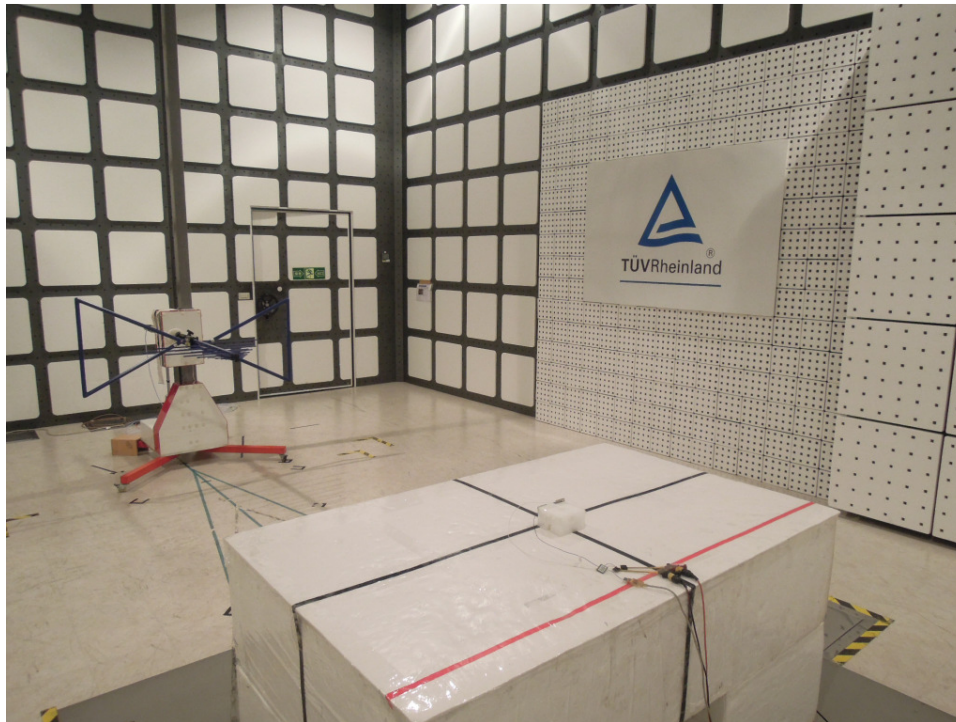
Photograph 1: Set-up for Spurious Emissions (Front View)



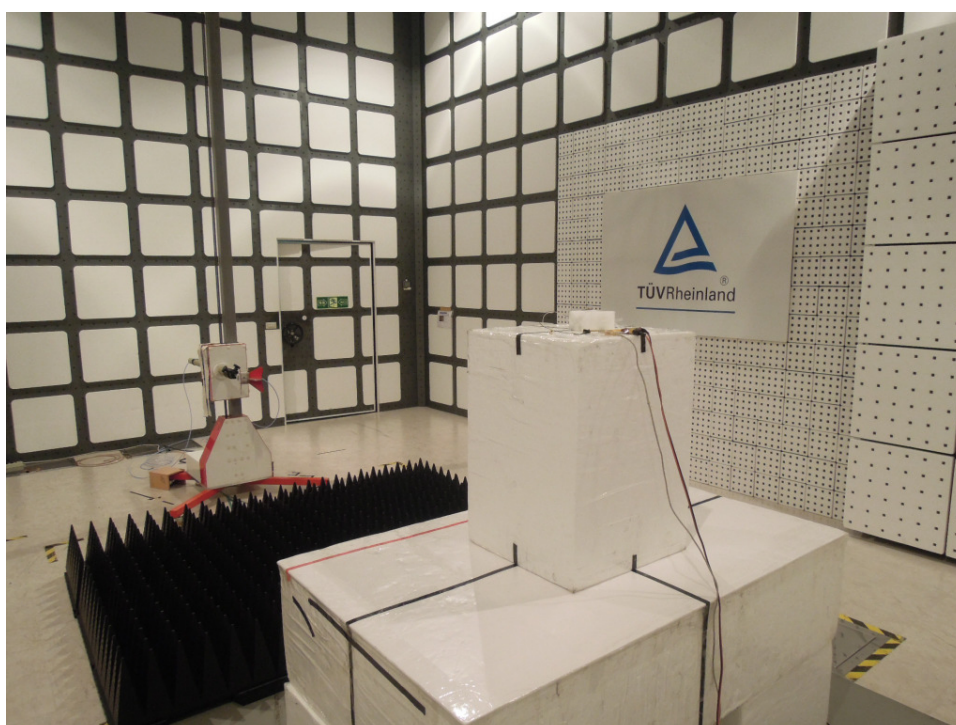
Photograph 2: Set-up for Spurious Emissions (Back View 1)



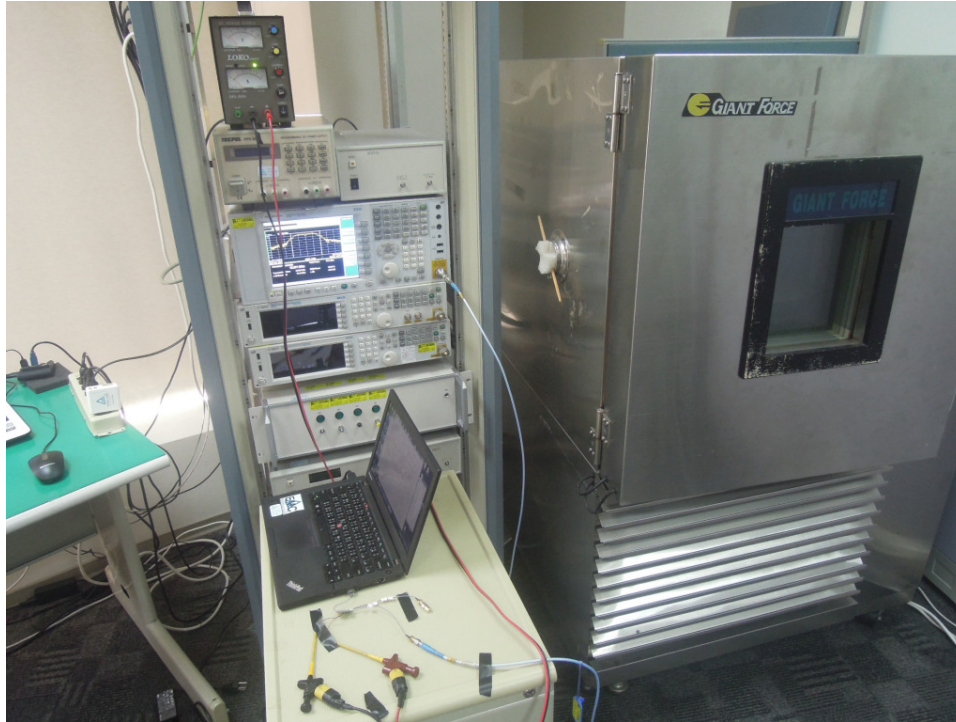
Photograph 3: Set-up for Spurious Emissions (Back View 2)



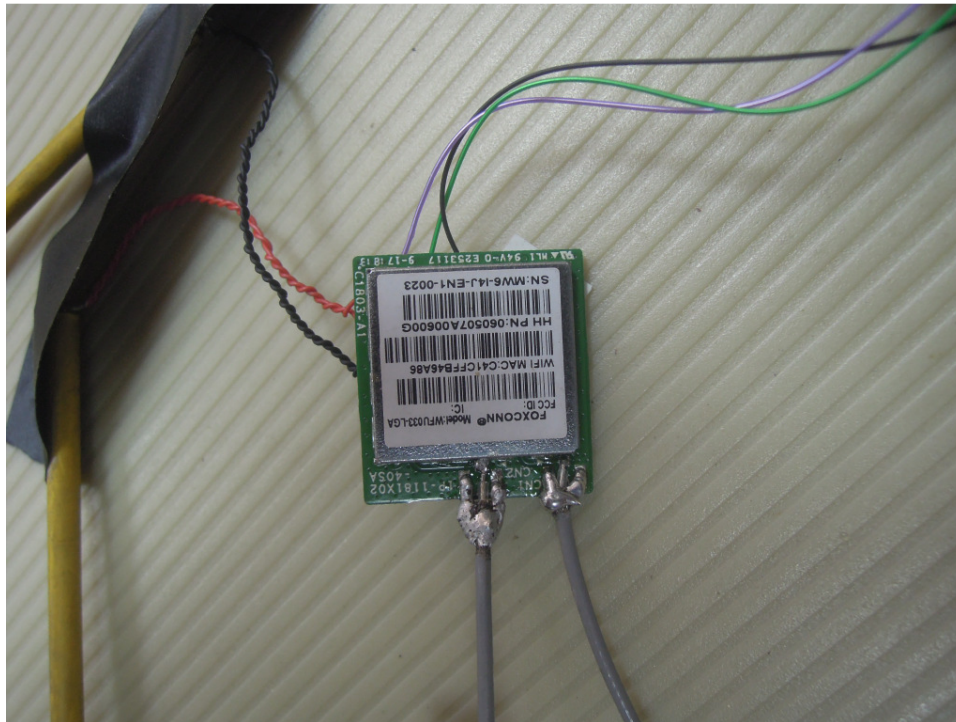
Photograph 4: Set-up for Spurious Emissions (Back View 3)



Photograph 5: Set-up for Conducted testing



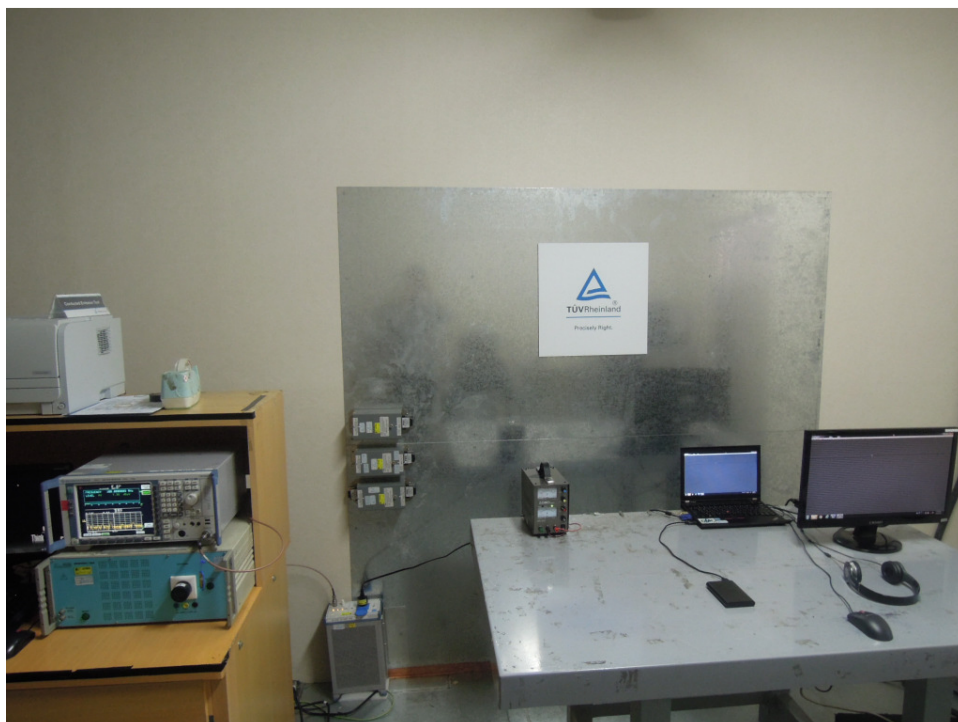
Photograph 6: Set-up for Conducted testing



Photograph 7: Set-up for Mains Conducted testing (Back View)



Photograph 8: Set-up for Mains Conducted testing (Front View)



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