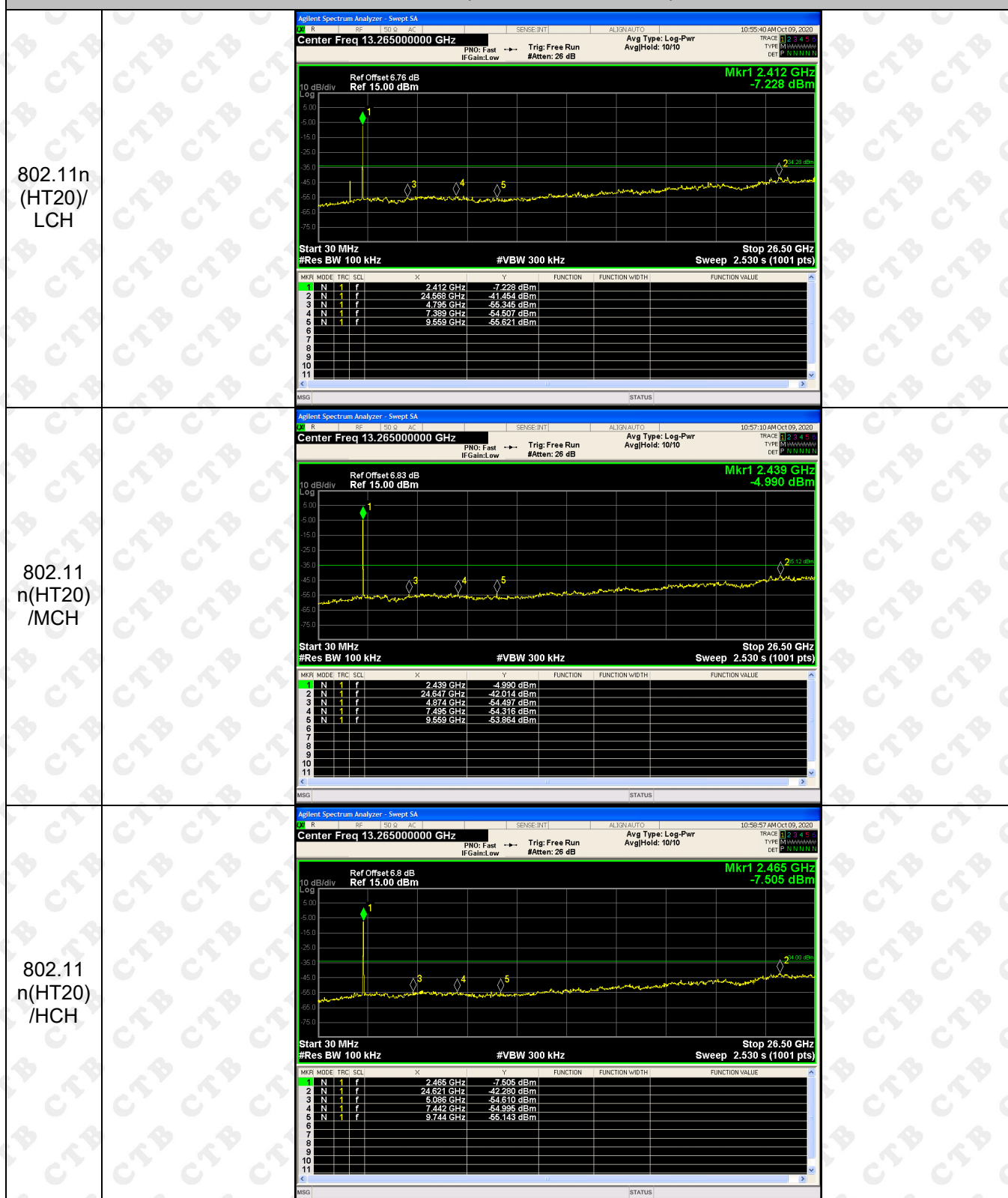
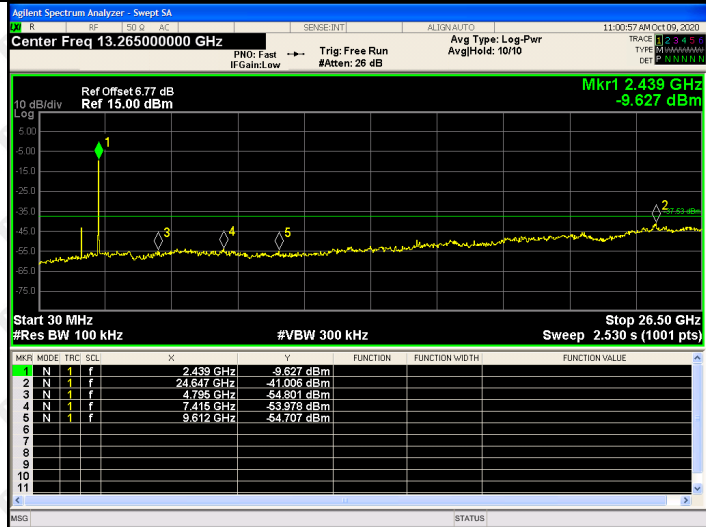
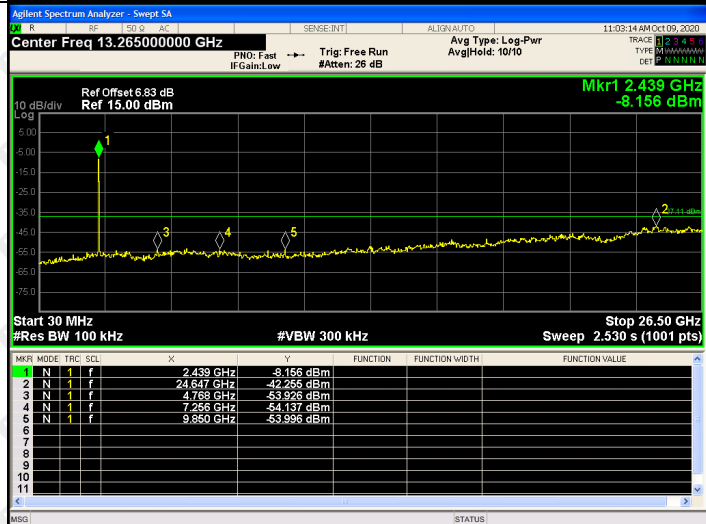
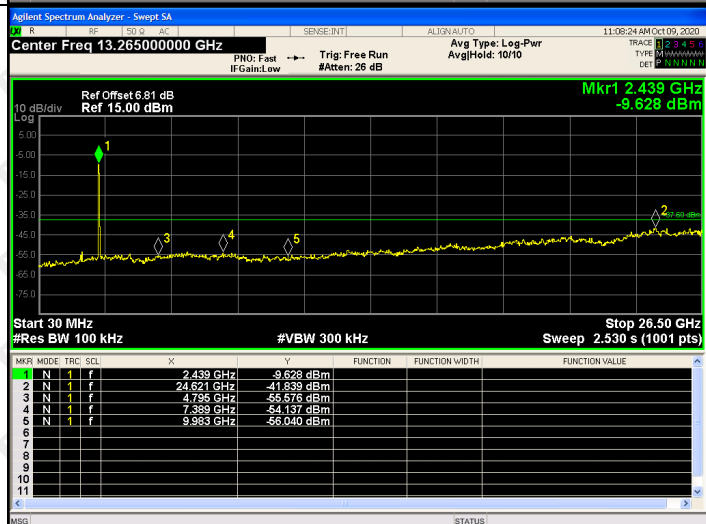


RF Conducted Spurious Emissions Graphs

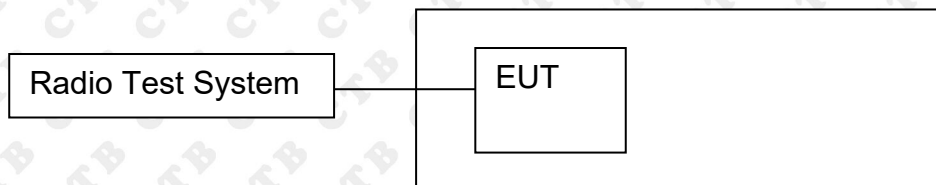


RF Conducted Spurious Emissions Graphs

802.11
n(HT40)
/LCH

802.11
n(HT40)
/MCH

802.11
n(HT40)
/HCH


9. COUDUCTED OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

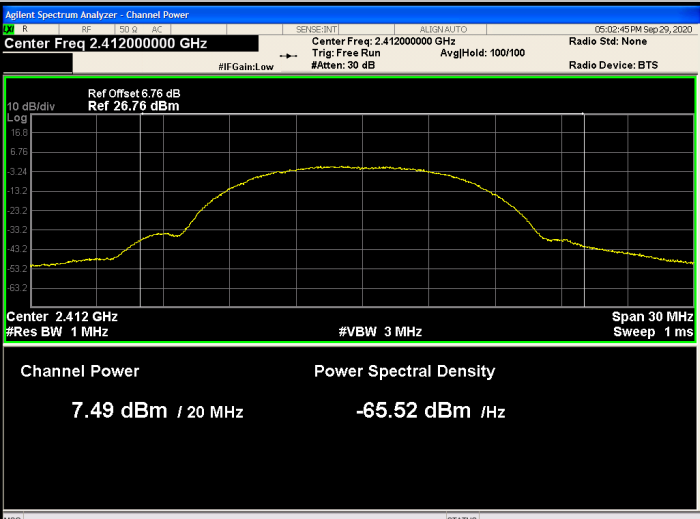
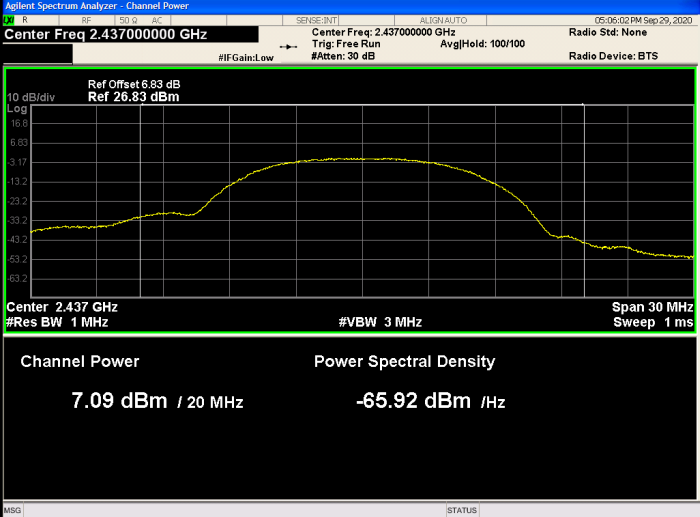
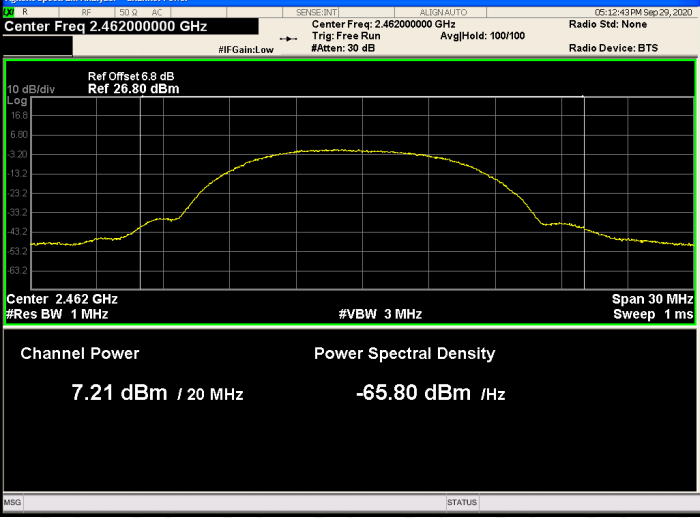
9.3 Test procedure

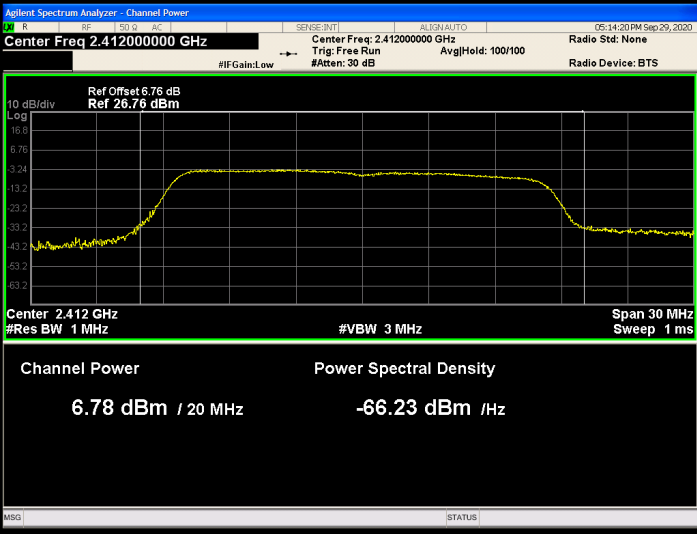
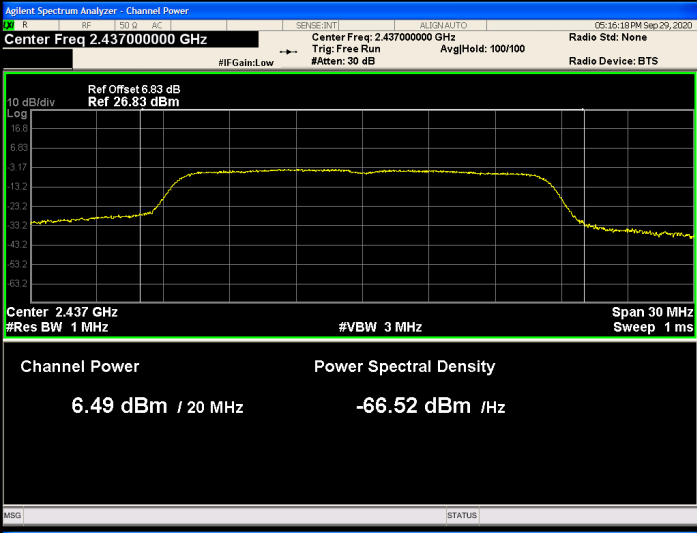
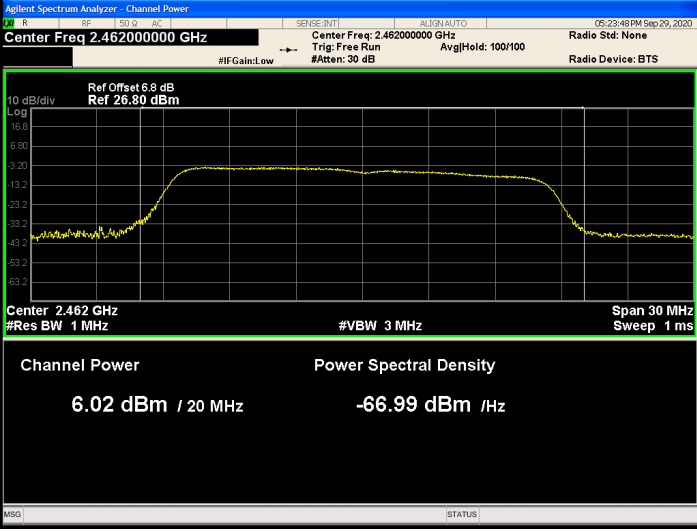
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = RMS. Channel power function is used
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

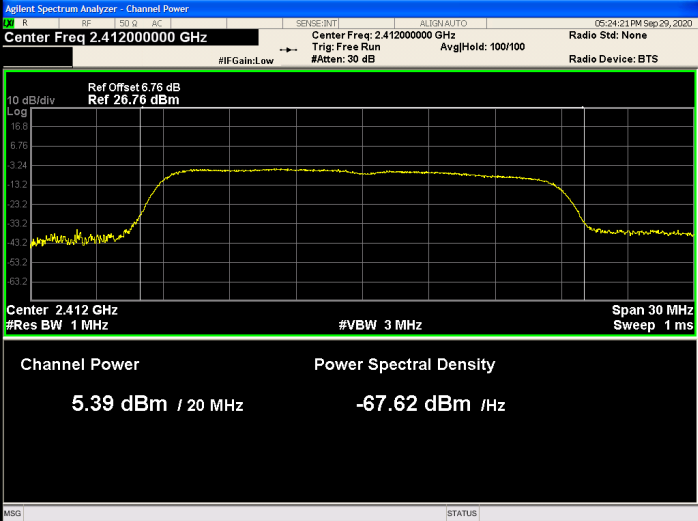
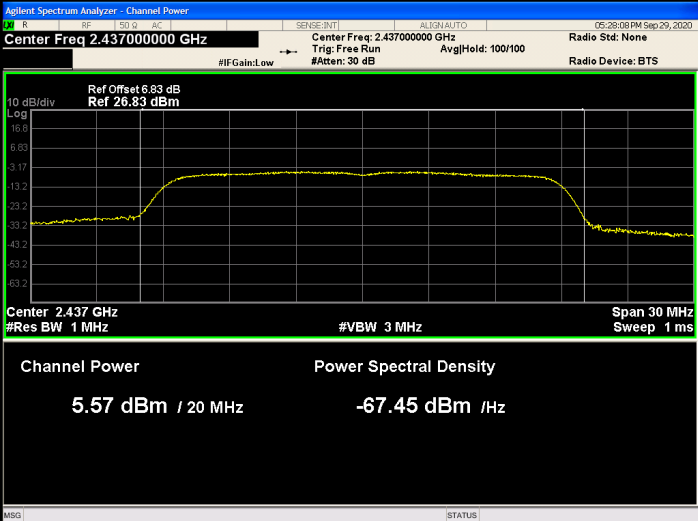
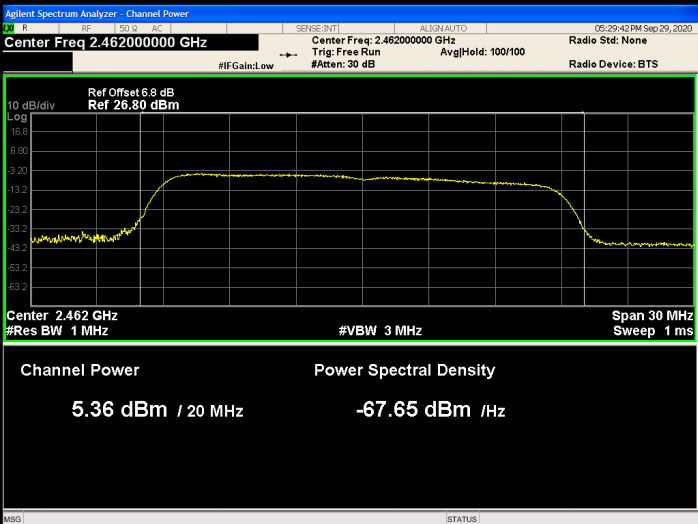
9.4 Test Result

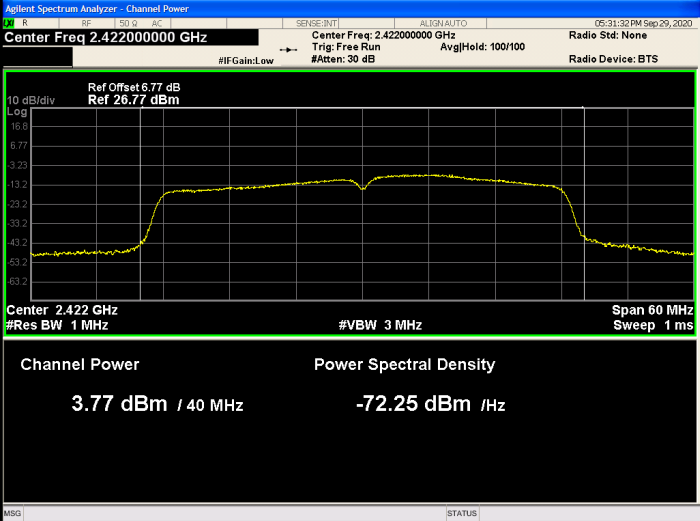
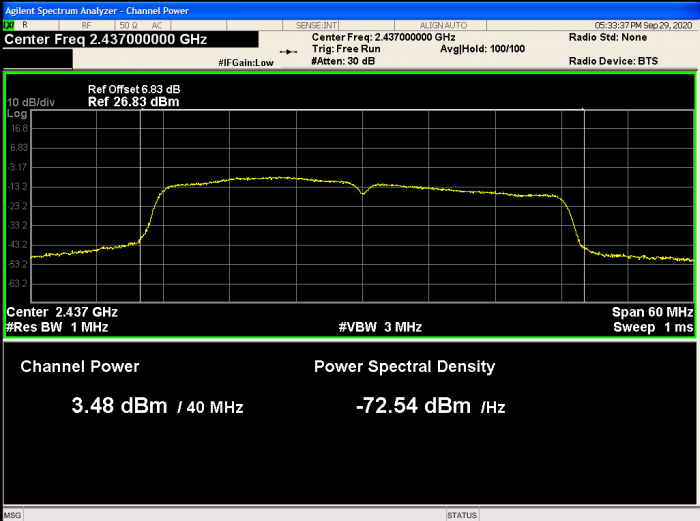
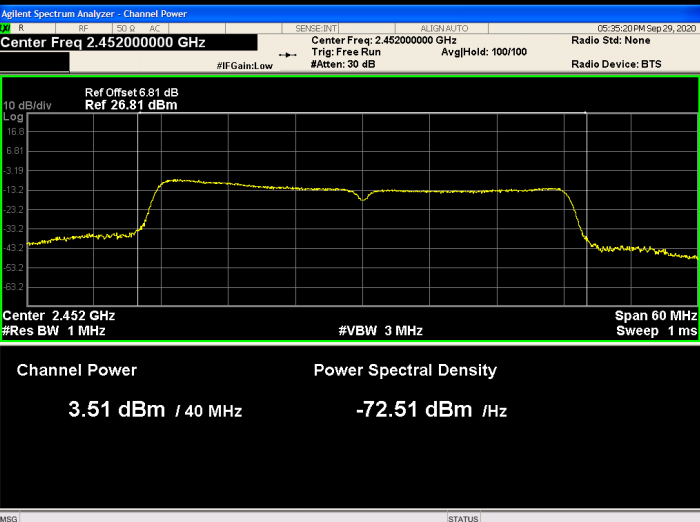
Mode	Channel.	Maximum Output Power [dBm] ant 1	Maximum Output Power [dBm] ant 2	Total Power Conducted Output Power(PK)	Limit[dBm]
802.11b	LCH	7.488	7.849	/	30
	MCH	7.093	7.323	/	30
	HCH	7.208	7.758	/	30
802.11g	LCH	6.781	6.756	/	30
	MCH	6.486	6.341	/	30
	HCH	6.019	6.546	/	30
802.11n(HT20)	LCH	5.393	5.656	8.537	30
	MCH	5.565	5.647	8.616	30
	HCH	5.357	5.602	8.492	30
802.11n(HT40)	LCH	3.77	3.63	6.711	30
	MCH	3.482	3.564	6.533	30
	HCH	3.511	3.187	6.362	30

ANT1:

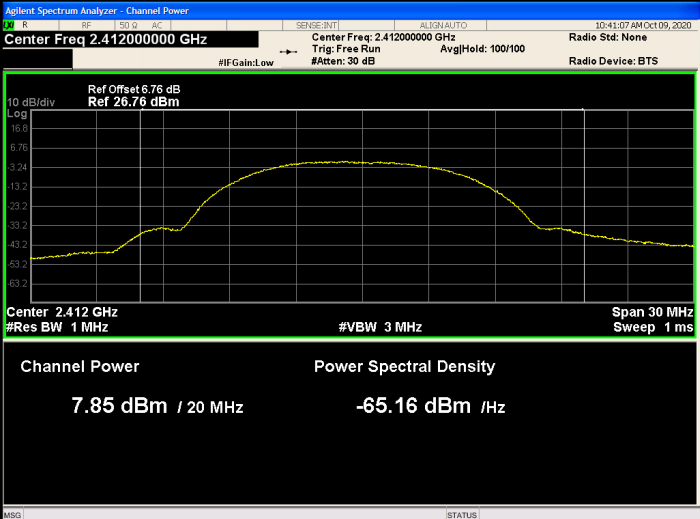
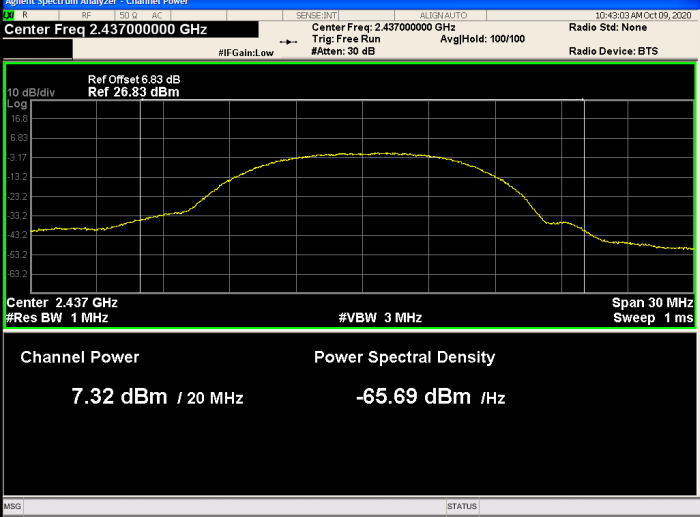
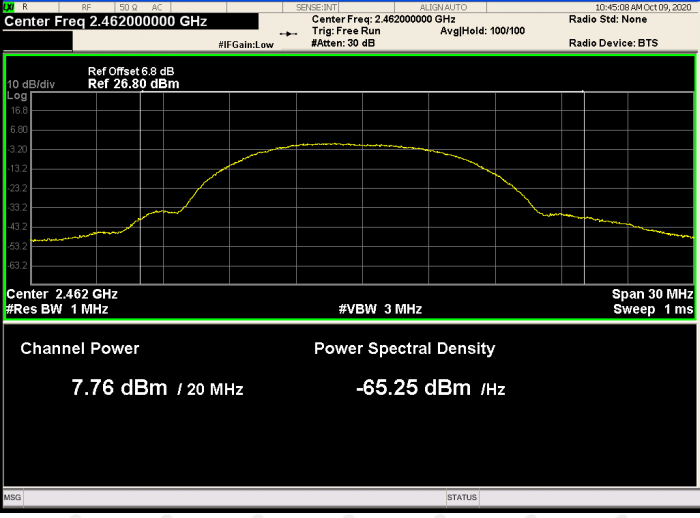
Mode	Channel.	Maximum Output Power [dBm]
802.11b	LCH	
	MCH	
	HCH	

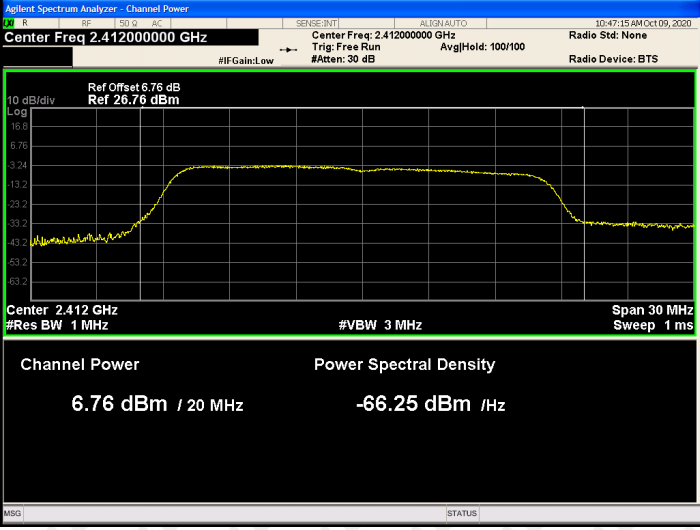
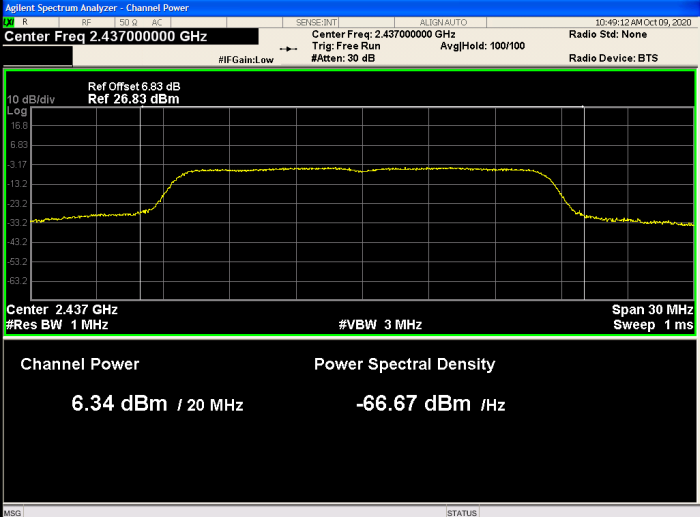
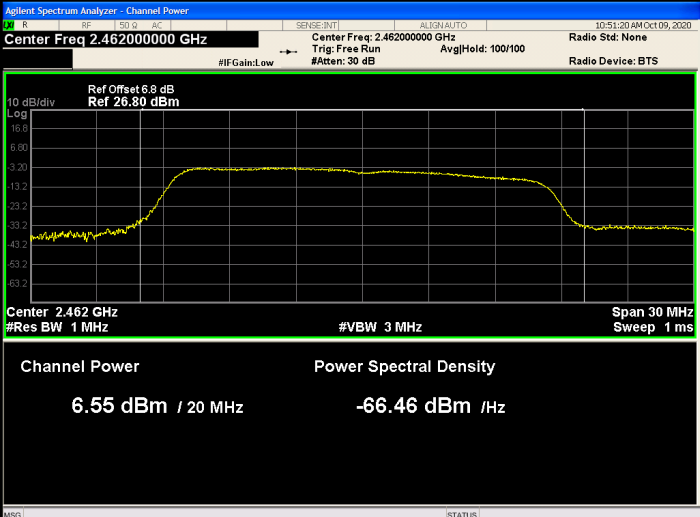
	LCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.412000000 GHz Channel Power: 6.78 dBm / 20 MHz Power Spectral Density: -66.23 dBm / Hz
802.11g	MCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.437000000 GHz Channel Power: 6.49 dBm / 20 MHz Power Spectral Density: -66.52 dBm / Hz
	HCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.462000000 GHz Channel Power: 6.02 dBm / 20 MHz Power Spectral Density: -66.99 dBm / Hz

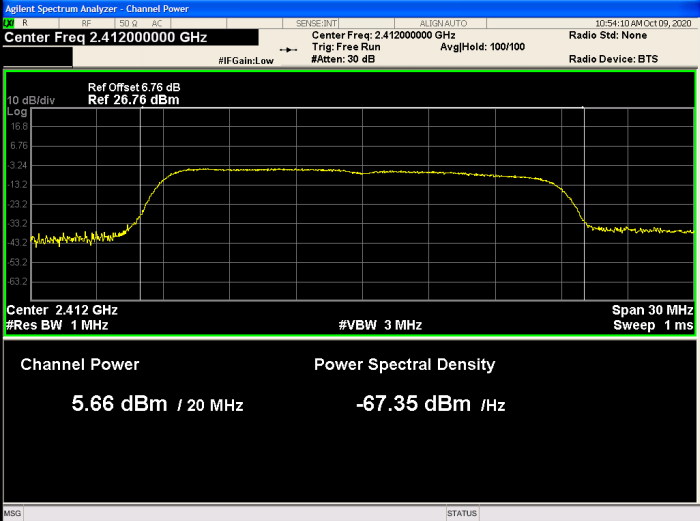
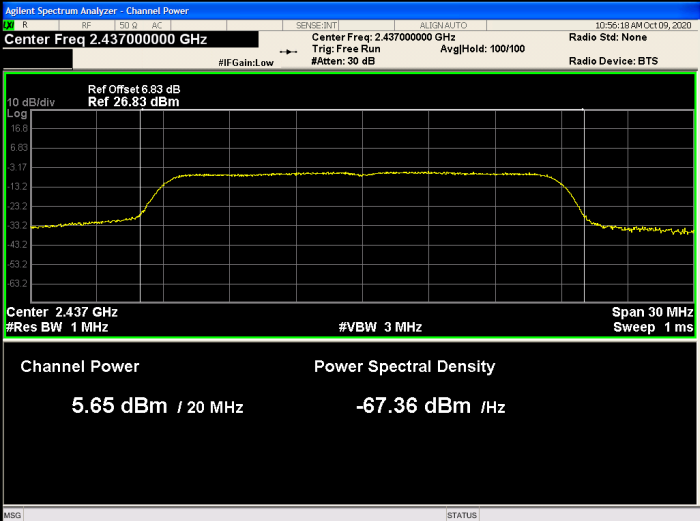
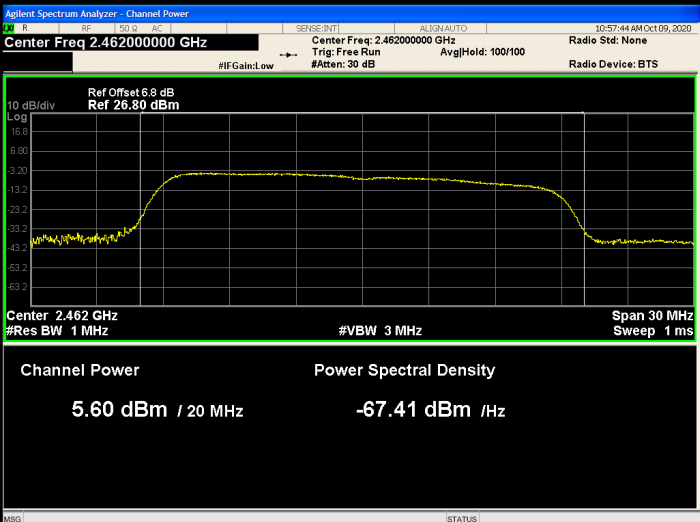
	LCH		
802.11n(HT20)	MCH		
	HCH		

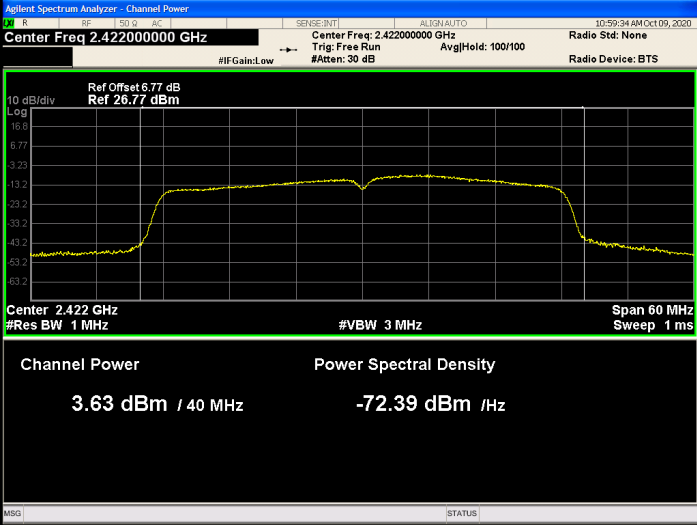
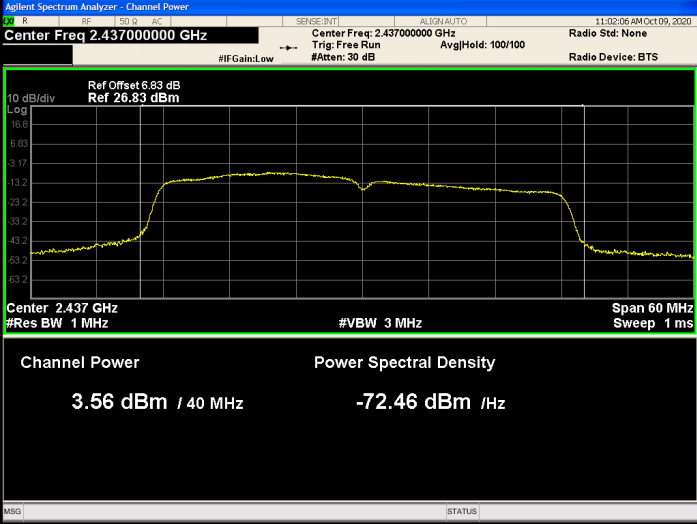
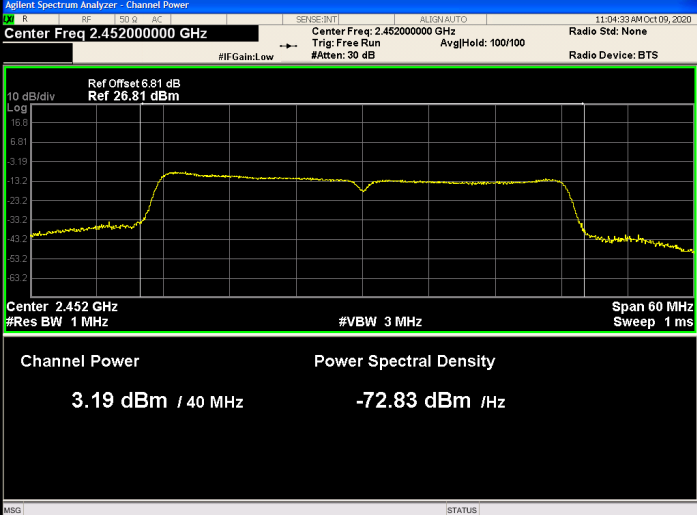
	LCH	
802.11n(HT40)	MCH	
	HCH	

ANT2:

Mode	Channel.	Maximum Output Power [dBm]
802.11b	LCH	
	MCH	
	HCH	

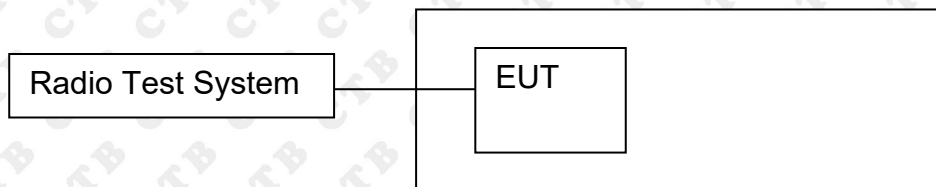
	LCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.412000000 GHz Ref Offset 6.76 dB Ref 26.76 dBm Channel Power: 6.76 dBm / 20 MHz Power Spectral Density: -66.25 dBm / Hz
802.11g	MCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.437000000 GHz Ref Offset 6.83 dB Ref 26.83 dBm Channel Power: 6.34 dBm / 20 MHz Power Spectral Density: -66.67 dBm / Hz
	HCH	 Agilent Spectrum Analyzer - Channel Power Center Freq: 2.462000000 GHz Ref Offset 6.8 dB Ref 26.80 dBm Channel Power: 6.55 dBm / 20 MHz Power Spectral Density: -66.46 dBm / Hz

	LCH	
802.11n(HT20)	MCH	
	HCH	

	LCH		
802.11n(HT40)	MCH		
	HCH		

10. 6DB OCCUPIED BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

10.3 Test procedure

1. Rem1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

10.4 Test Result

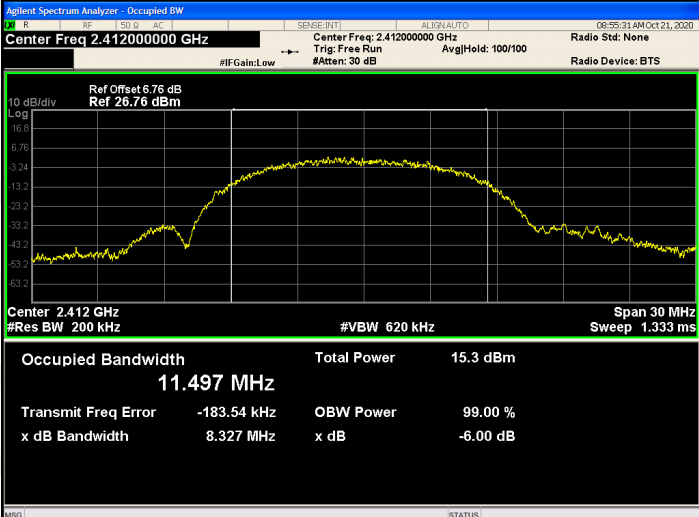
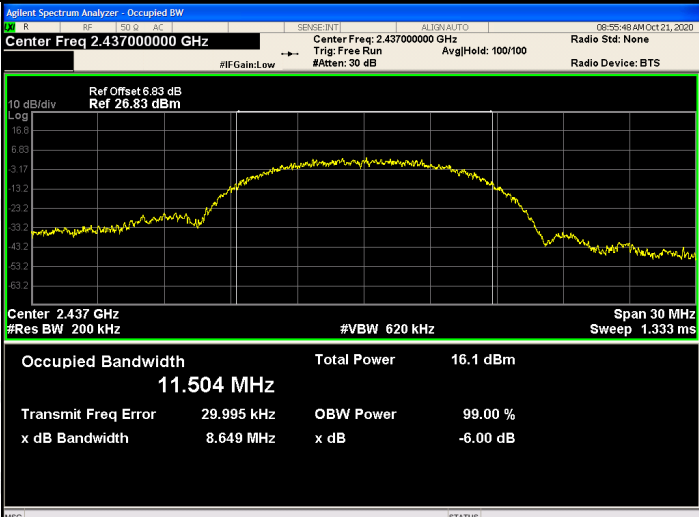
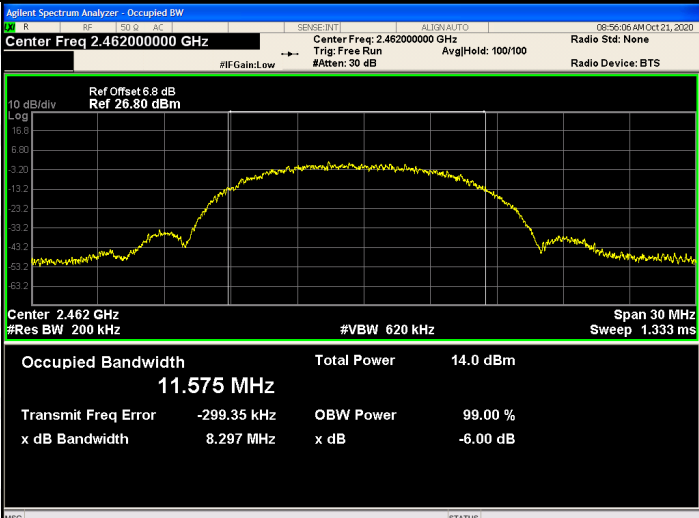
ANT1:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	8.327	500	PASS
	MCH	8.649	500	PASS
	HCH	8.297	500	PASS
802.11g	LCH	15.91	500	PASS
	MCH	16.01	500	PASS
	HCH	15.28	500	PASS
802.11n(HT20)	LCH	16.24	500	PASS
	MCH	17.03	500	PASS
	HCH	16.22	500	PASS
802.11n(HT40)	LCH	35.31	500	PASS
	MCH	35.72	500	PASS
	HCH	36.11	500	PASS

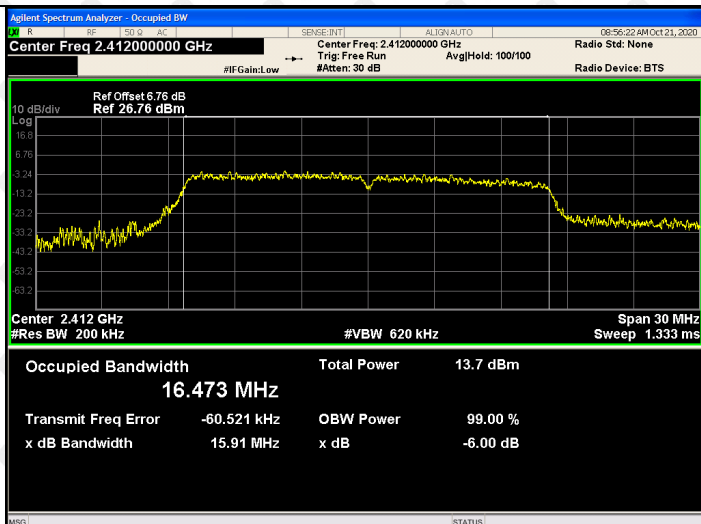
ANT2:

Test Mode	Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Result
802.11b	LCH	7.896	500	PASS
	MCH	8.715	500	PASS
	HCH	8.200	500	PASS
802.11g	LCH	15.34	500	PASS
	MCH	15.94	500	PASS
	HCH	14.91	500	PASS
802.11n(HT20)	LCH	16.32	500	PASS
	MCH	17.08	500	PASS
	HCH	15.83	500	PASS
802.11n(HT40)	LCH	35.42	500	PASS
	MCH	35.99	500	PASS
	HCH	35.79	500	PASS

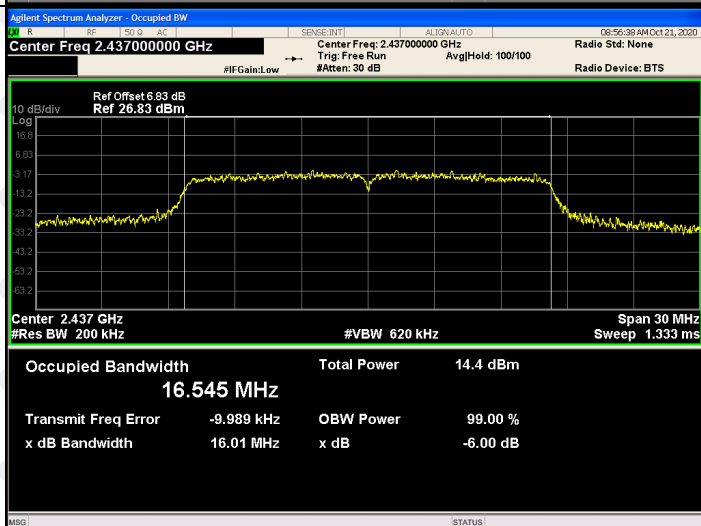
ANT1: Test Graph:

Graphs	
802.11b /LCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.412000000 GHz Span 30 MHz Occupied Bandwidth: 11.497 MHz Total Power: 15.3 dBm
802.11b /MCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.437000000 GHz Span 30 MHz Occupied Bandwidth: 11.504 MHz Total Power: 16.1 dBm
802.11b/HCH	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.462000000 GHz Span 30 MHz Occupied Bandwidth: 11.575 MHz Total Power: 14.0 dBm

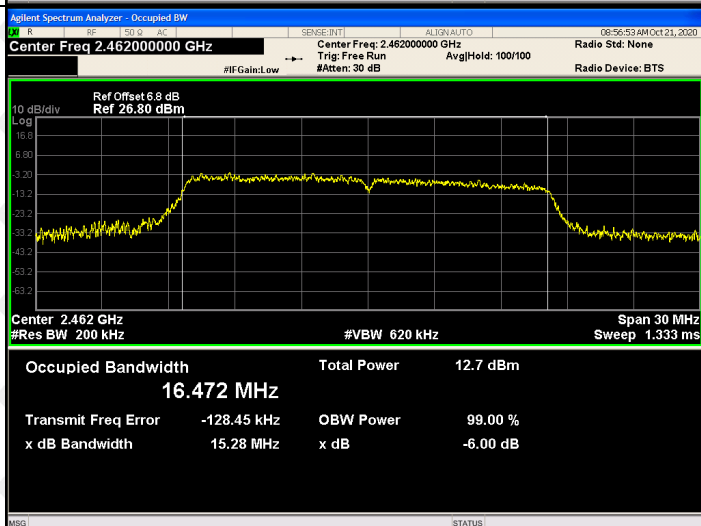
802.11g/LCH

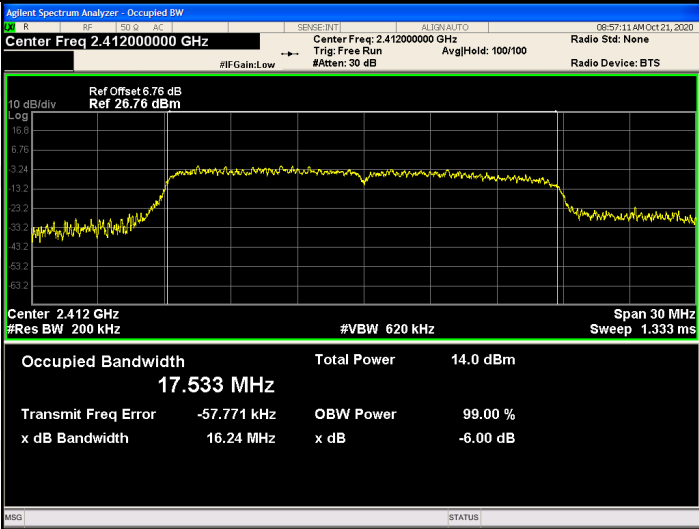
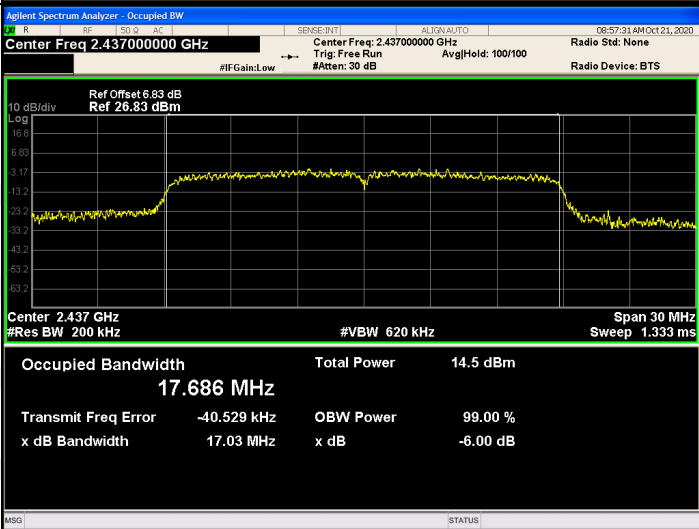
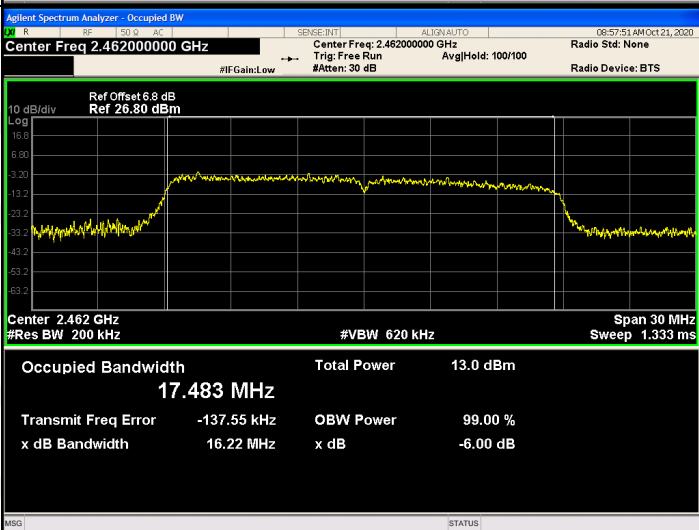


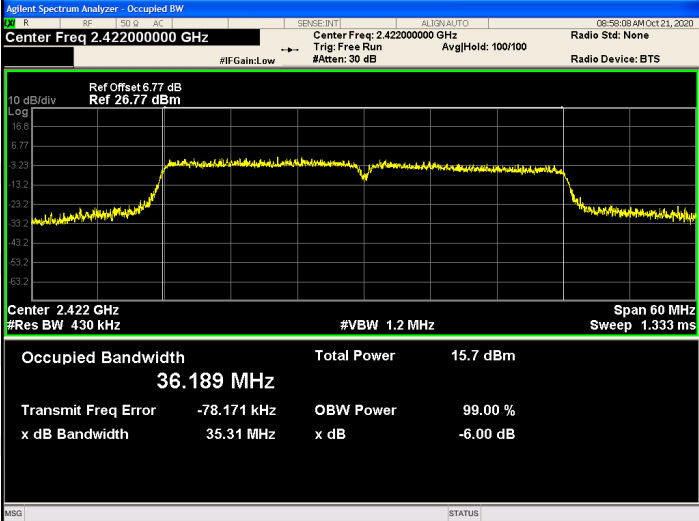
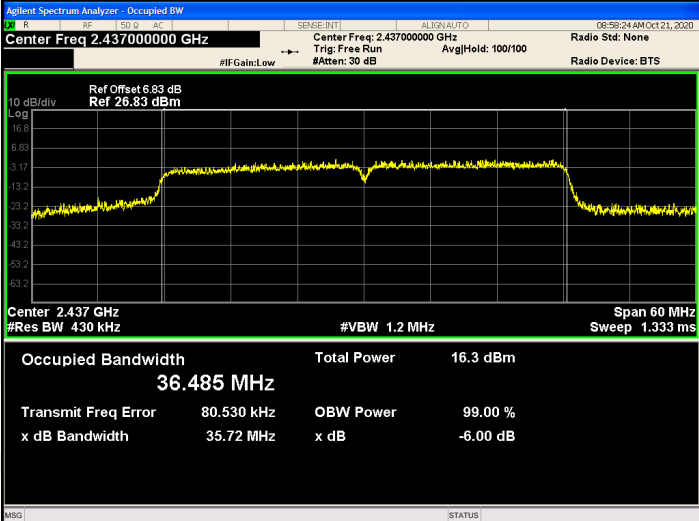
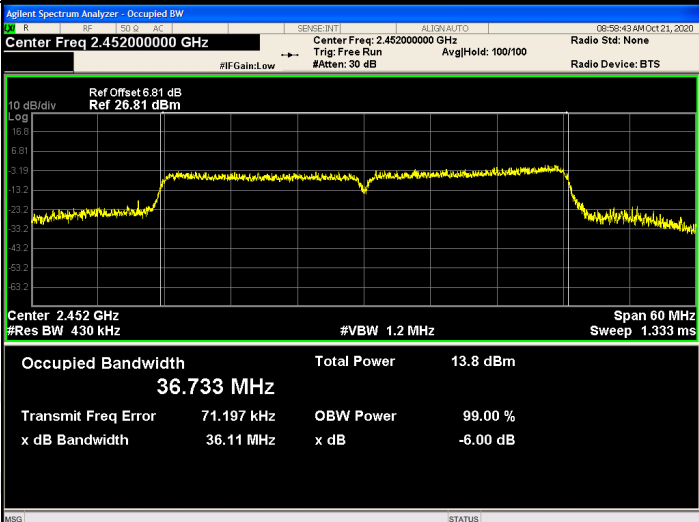
802.11g/MCH



802.11g/HCH



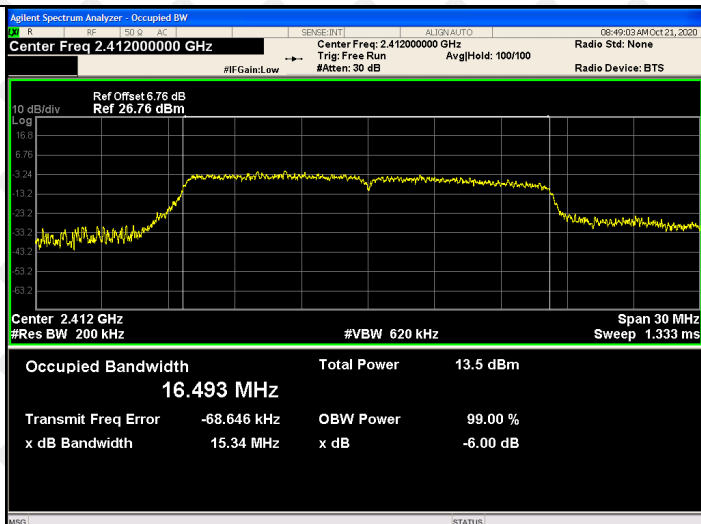
802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 6.76 dB Ref 26.76 dBm Center 2.412 GHz #Res BW 200 kHz Occupied Bandwidth 17.533 MHz Total Power 14.0 dBm Transmit Freq Error -57.771 kHz OBW Power 99.00 % x dB Bandwidth 16.24 MHz x dB -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 6.83 dB Ref 26.83 dBm Center 2.437 GHz #Res BW 200 kHz Occupied Bandwidth 17.686 MHz Total Power 14.5 dBm Transmit Freq Error -40.529 kHz OBW Power 99.00 % x dB Bandwidth 17.03 MHz x dB -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 6.8 dB Ref 26.80 dBm Center 2.462 GHz #Res BW 200 kHz Occupied Bandwidth 17.483 MHz Total Power 13.0 dBm Transmit Freq Error -137.55 kHz OBW Power 99.00 % x dB Bandwidth 16.22 MHz x dB -6.00 dB

802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.42200000 GHz Center Freq: 2.42200000 GHz Trig: Free Run #IF Gain: Low #Atten: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.77 dB Ref 26.77 dBm Center 2.422 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.189 MHz Total Power 15.7 dBm Transmit Freq Error -78.171 kHz OBW Power 99.00 % x dB Bandwidth 35.31 MHz x dB -6.00 dB
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Center Freq: 2.43700000 GHz Trig: Free Run #IF Gain: Low #Atten: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.83 dB Ref 26.83 dBm Center 2.437 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.485 MHz Total Power 16.3 dBm Transmit Freq Error 80.530 kHz OBW Power 99.00 % x dB Bandwidth 35.72 MHz x dB -6.00 dB
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.45200000 GHz Center Freq: 2.45200000 GHz Trig: Free Run #IF Gain: Low #Atten: 30 dB Avg/Hold: 100/100 Radio Std: None Radio Device: BTS Ref Offset: 6.81 dB Ref 26.81 dBm Center 2.452 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.733 MHz Total Power 13.8 dBm Transmit Freq Error 71.197 kHz OBW Power 99.00 % x dB Bandwidth 36.11 MHz x dB -6.00 dB

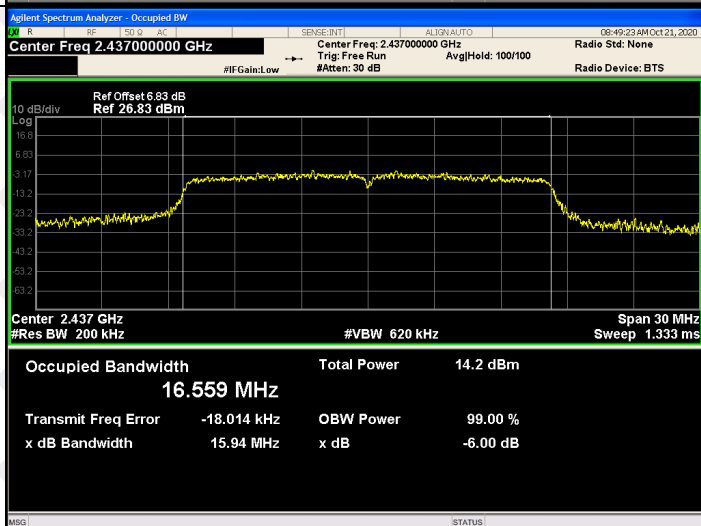
ANT2: Test Graph:

Graphs	
802.11b /LCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.41200000 GHz Ref Offset 6.76 dB Ref 26.76 dBm Center 2.412 GHz #Res BW 200 kHz Span 30 MHz Sweep 1.333 ms Occupied Bandwidth 11.495 MHz Total Power 15.1 dBm Transmit Freq Error -163.91 kHz OBW Power 99.00 % x dB Bandwidth 7.896 MHz x dB -6.00 dB
802.11b /MCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.43700000 GHz Ref Offset 6.83 dB Ref 26.83 dBm Center 2.437 GHz #Res BW 200 kHz Span 30 MHz Sweep 1.333 ms Occupied Bandwidth 11.463 MHz Total Power 16.2 dBm Transmit Freq Error 40.213 kHz OBW Power 99.00 % x dB Bandwidth 8.715 MHz x dB -6.00 dB
802.11b/HCH	Agilent Spectrum Analyzer - Occupied BW Center Freq 2.46200000 GHz Ref Offset 6.8 dB Ref 26.80 dBm Center 2.462 GHz #Res BW 200 kHz Span 30 MHz Sweep 1.333 ms Occupied Bandwidth 11.665 MHz Total Power 13.9 dBm Transmit Freq Error -250.76 kHz OBW Power 99.00 % x dB Bandwidth 8.200 MHz x dB -6.00 dB

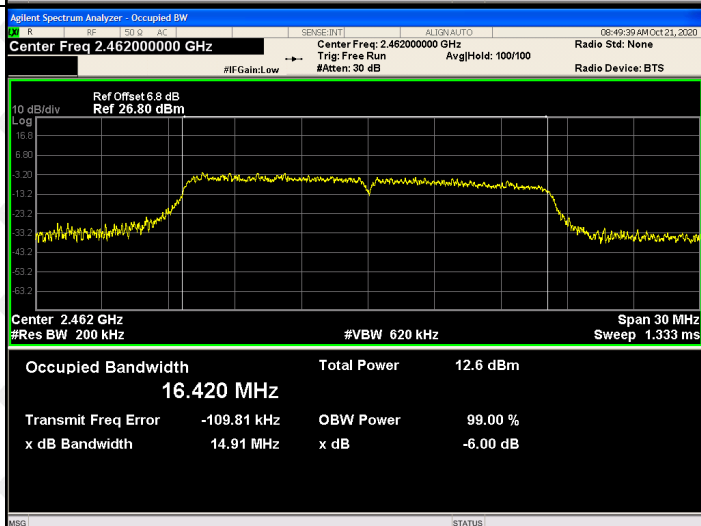
802.11g/LCH

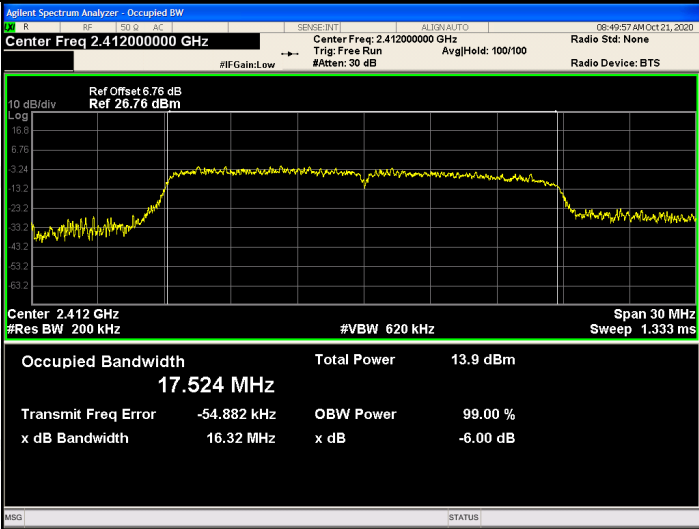
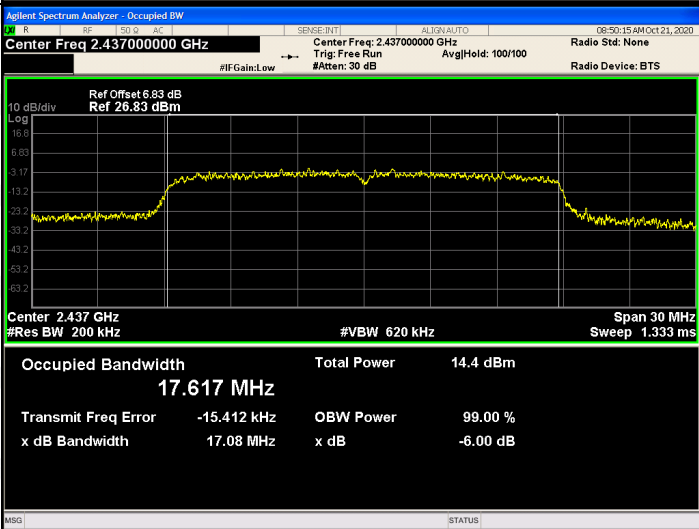
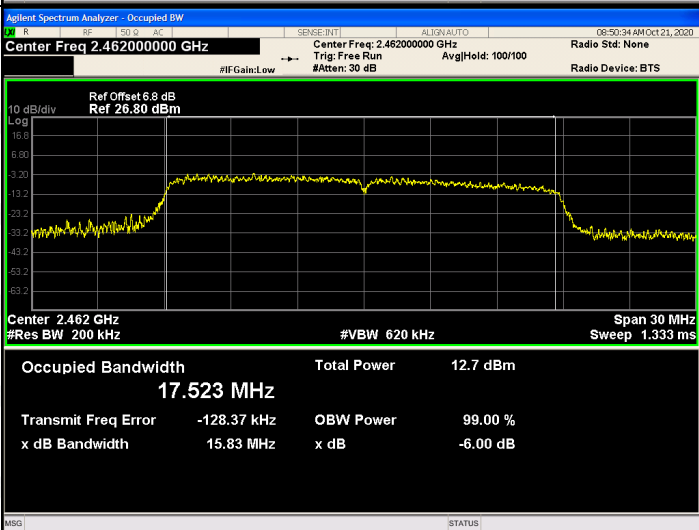


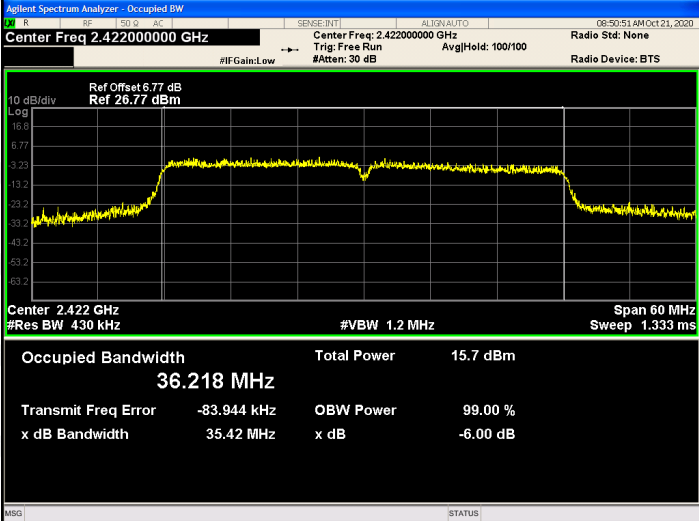
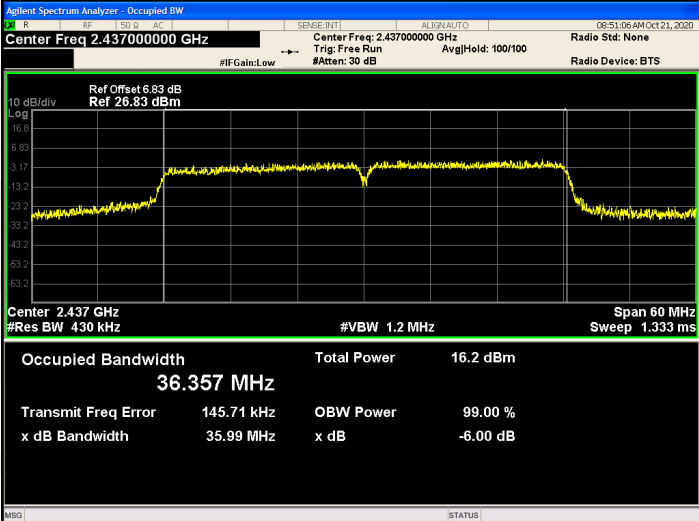
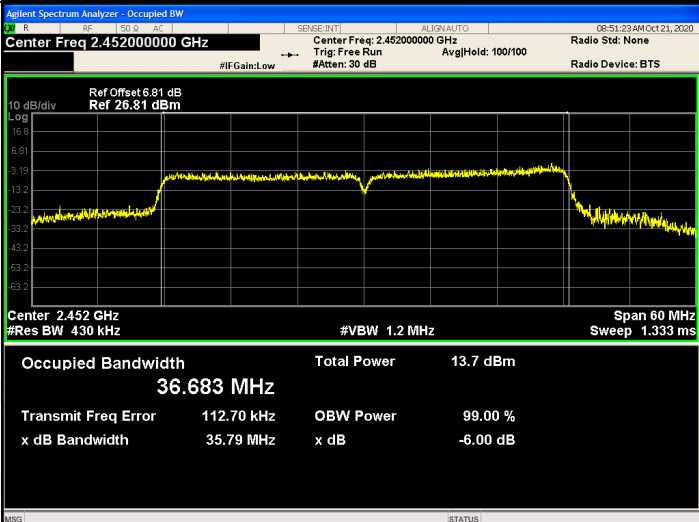
802.11g/MCH



802.11g/HCH

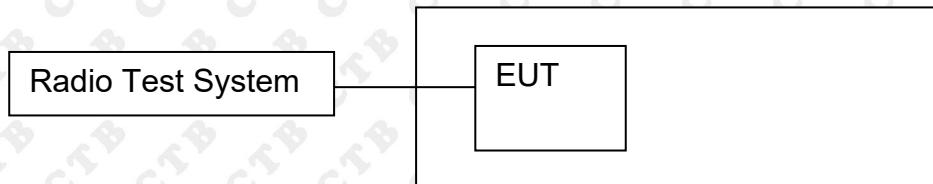


802.11n(HT20)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.412000000 GHz Ref Offset 6.76 dB Ref 26.76 dBm Center 2.412 GHz #Res BW 200 kHz Occupied Bandwidth 17.524 MHz Total Power 13.9 dBm Transmit Freq Error -54.882 kHz OBW Power 99.00 % x dB Bandwidth 16.32 MHz x dB -6.00 dB
802.11n(HT20)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset 6.83 dB Ref 26.83 dBm Center 2.437 GHz #Res BW 200 kHz Occupied Bandwidth 17.617 MHz Total Power 14.4 dBm Transmit Freq Error -15.412 kHz OBW Power 99.00 % x dB Bandwidth 17.08 MHz x dB -6.00 dB
802.11n(HT20)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.462000000 GHz Ref Offset 6.8 dB Ref 26.80 dBm Center 2.462 GHz #Res BW 200 kHz Occupied Bandwidth 17.523 MHz Total Power 12.7 dBm Transmit Freq Error -128.37 kHz OBW Power 99.00 % x dB Bandwidth 15.83 MHz x dB -6.00 dB

802.11n(HT40)/LC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.422000000 GHz Ref Offset: 6.77 dB Ref 26.77 dBm Center 2.422 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.218 MHz Total Power 15.7 dBm Transmit Freq Error -83.944 kHz OBW Power 99.00 % x dB Bandwidth 35.42 MHz x dB -6.00 dB
802.11n(HT40)/MC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.437000000 GHz Ref Offset: 6.83 dB Ref 26.83 dBm Center 2.437 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.357 MHz Total Power 16.2 dBm Transmit Freq Error 145.71 kHz OBW Power 99.00 % x dB Bandwidth 35.99 MHz x dB -6.00 dB
802.11n(HT40)/HC H	 Agilent Spectrum Analyzer - Occupied BW Center Freq 2.452000000 GHz Ref Offset: 6.81 dB Ref 26.81 dBm Center 2.452 GHz #Res BW 430 kHz #VBW 1.2 MHz Span 60 MHz Sweep 1.333 ms Occupied Bandwidth 36.683 MHz Total Power 13.7 dBm Transmit Freq Error 112.70 kHz OBW Power 99.00 % x dB Bandwidth 35.79 MHz x dB -6.00 dB

11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

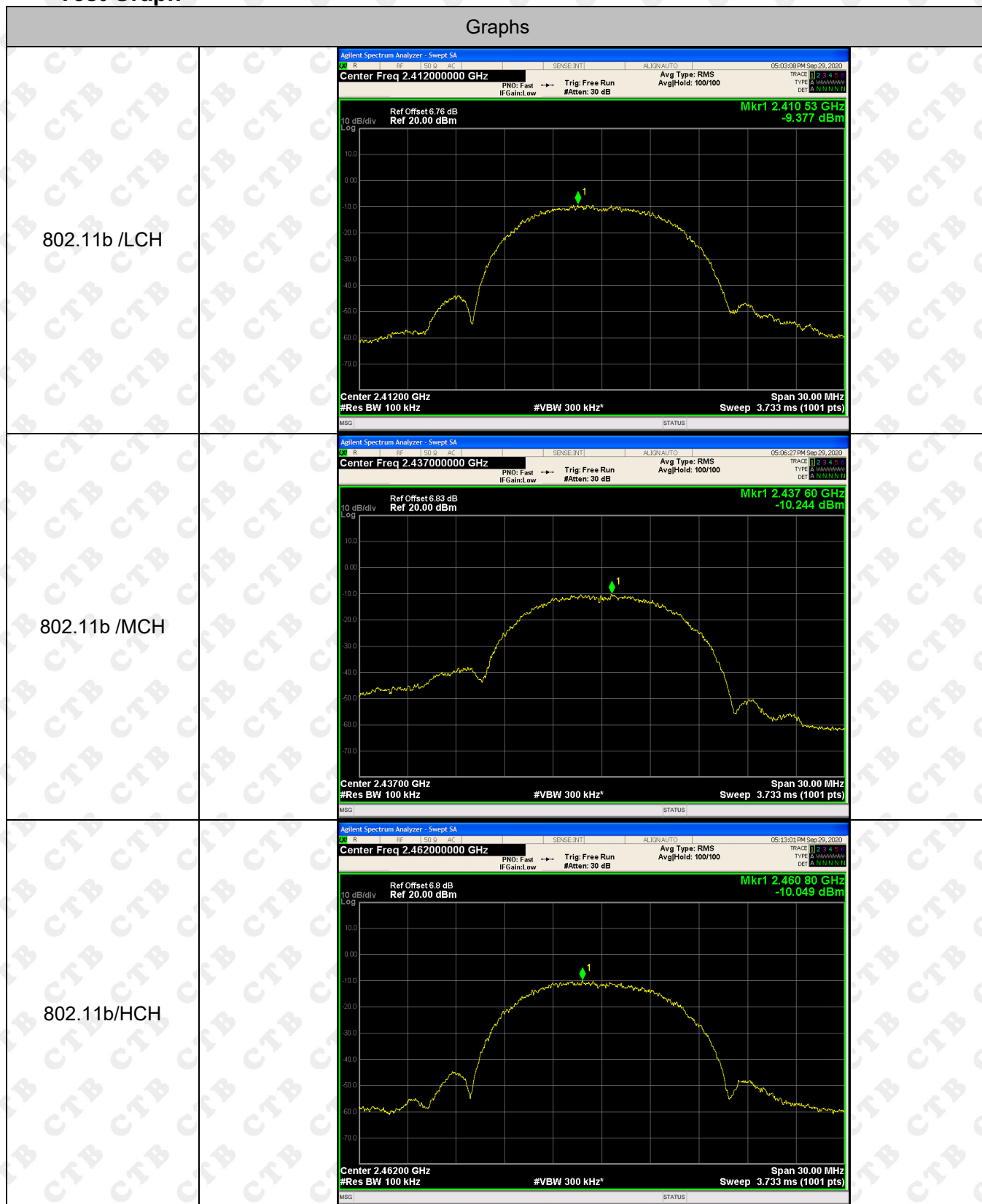
11.3 Test procedure

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 = RMS.
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.

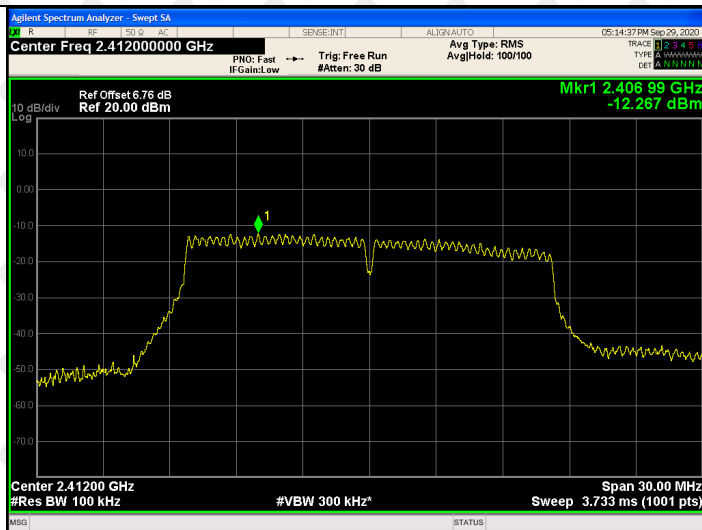
11.4 Test Result

Mode	Channel.	Power Spectral Density [dBm /100KHz] ANT 1	Power Spectral Density [dBm /100KHz] ANT 2	Power Spectral Density [dBm /100KHz]Total	Limit(dBm)
802.11b	LCH	-9.377	-9.021	/	8
	MCH	-10.244	-9.801	/	8
	HCH	-10.049	-9.442	/	8
802.11g	LCH	-12.267	-12.657	/	8
	MCH	-13.282	-13.574	/	8
	HCH	-13.834	-12.25	/	8
802.11n(H T20)	LCH	-13.794	-13.486	-10.627	6.99
	MCH	-14.468	-14.651	-11.548	6.99
	HCH	-14.073	-13.053	-10.523	6.99
802.11n(H T40)	LCH	-16.956	-16.838	-13.886	6.99
	MCH	-16.379	-17.078	-13.704	6.99
	HCH	-17.198	-17.451	-14.312	6.99

ANT1: Test Graph



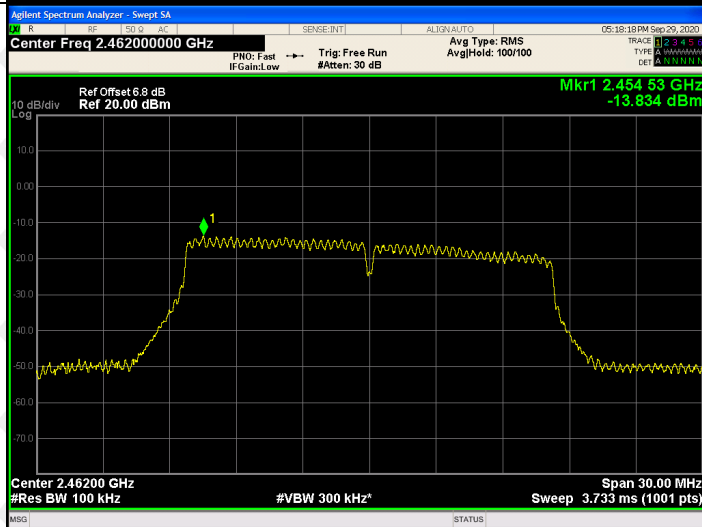
802.11g/LCH

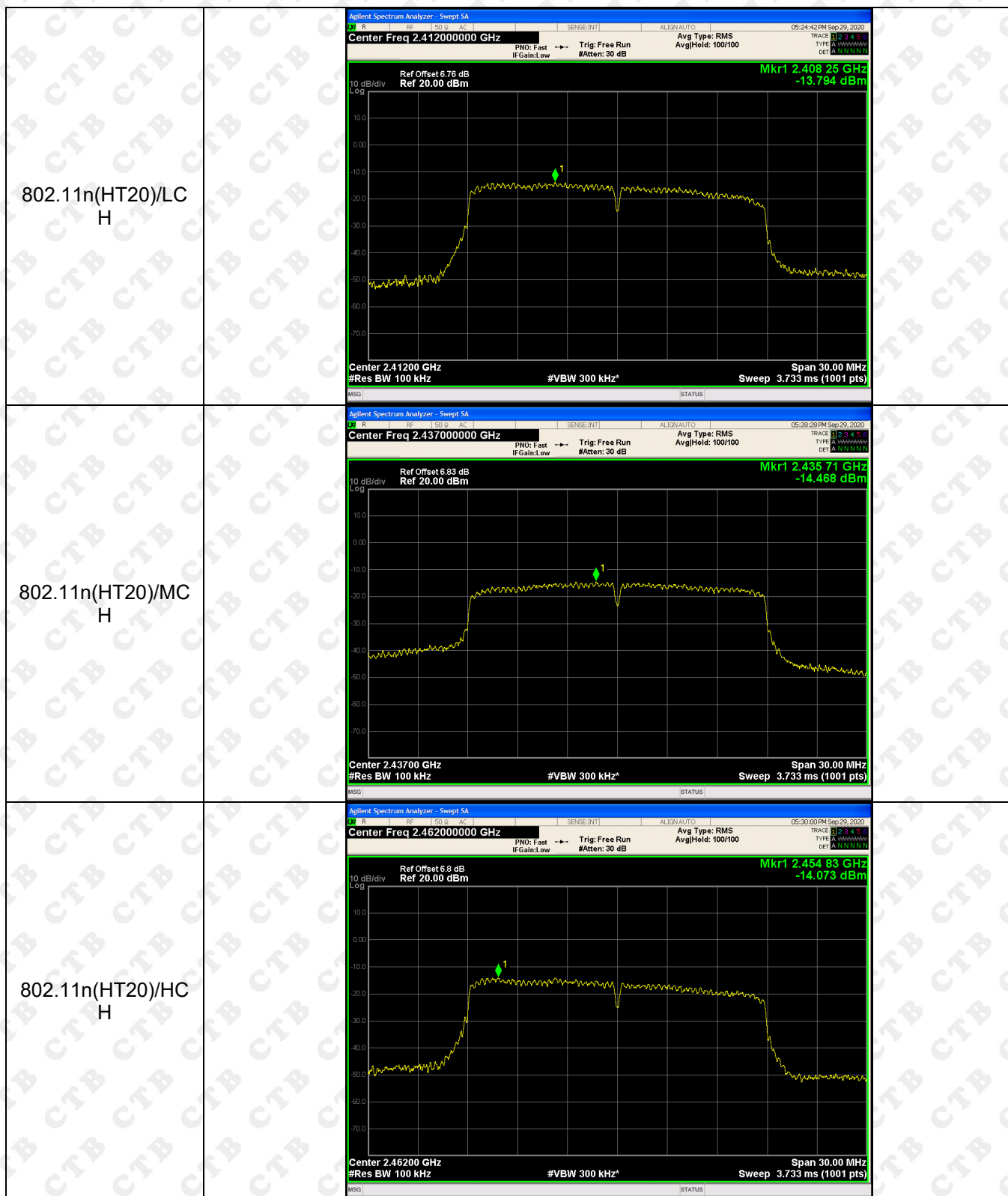


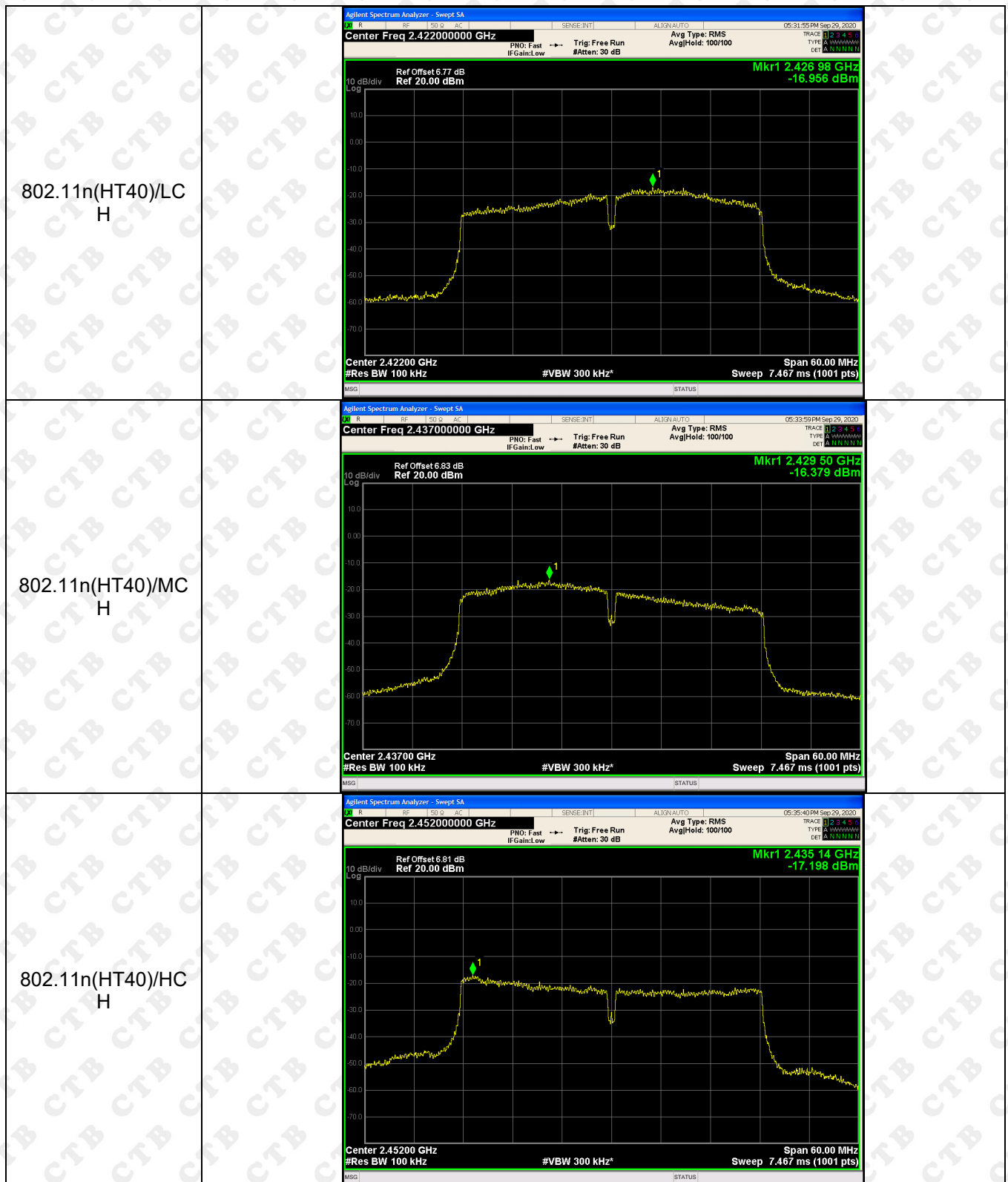
802.11g/MCH



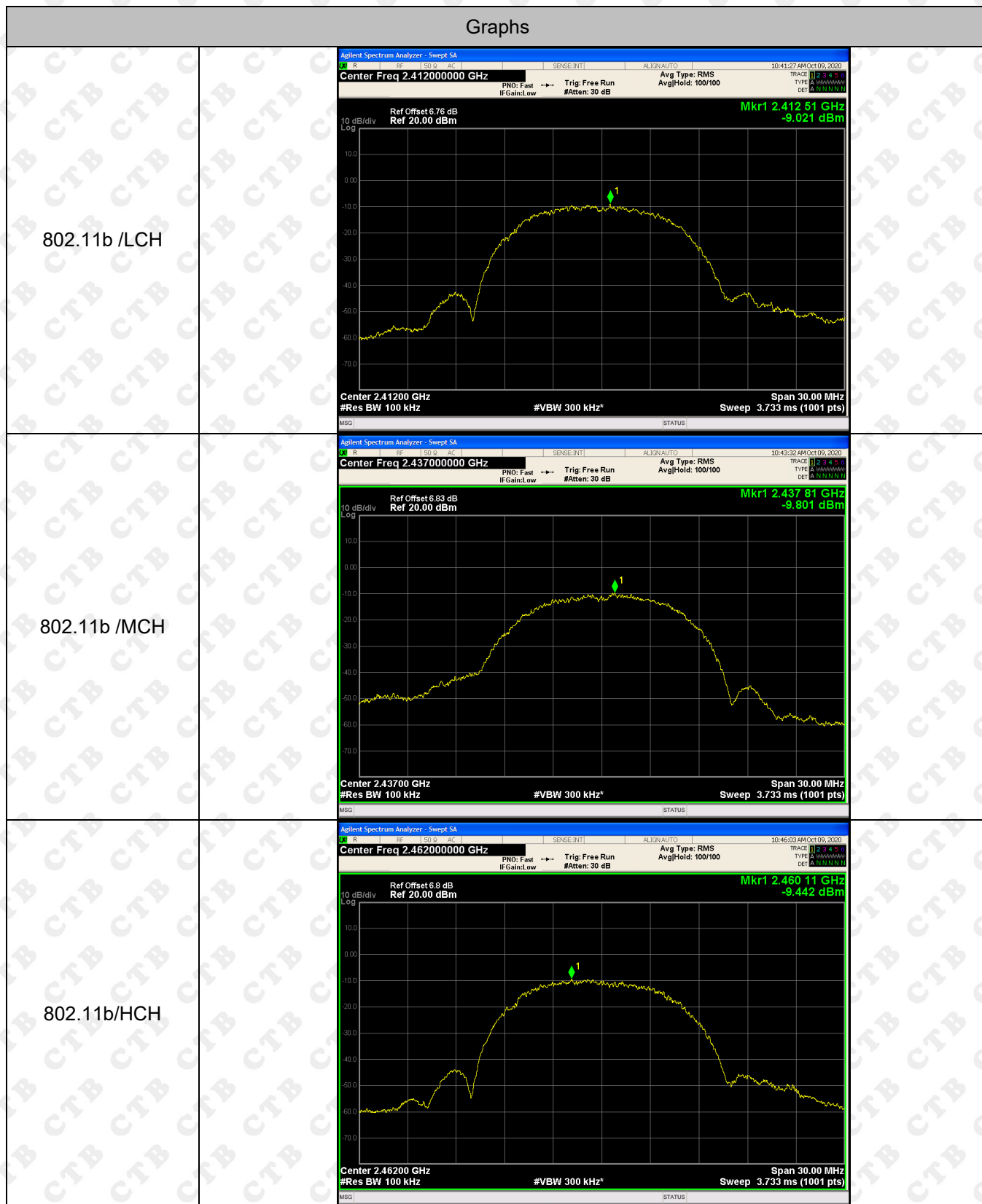
802.11g/HCH



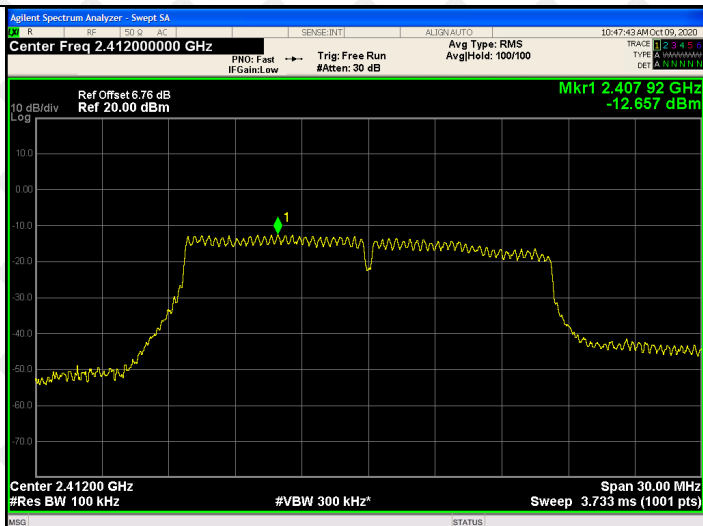




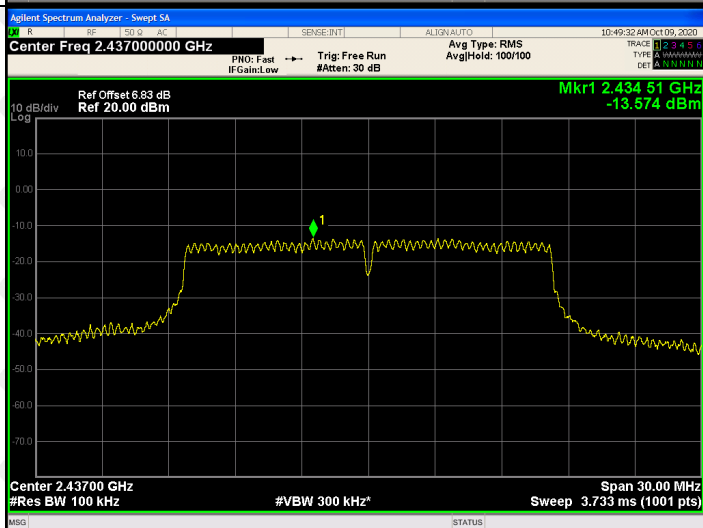
ANT 2: Test Graph



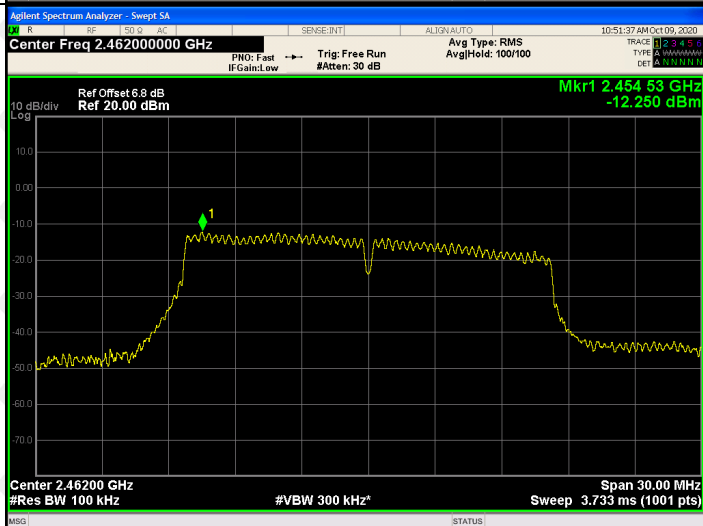
802.11g/LCH

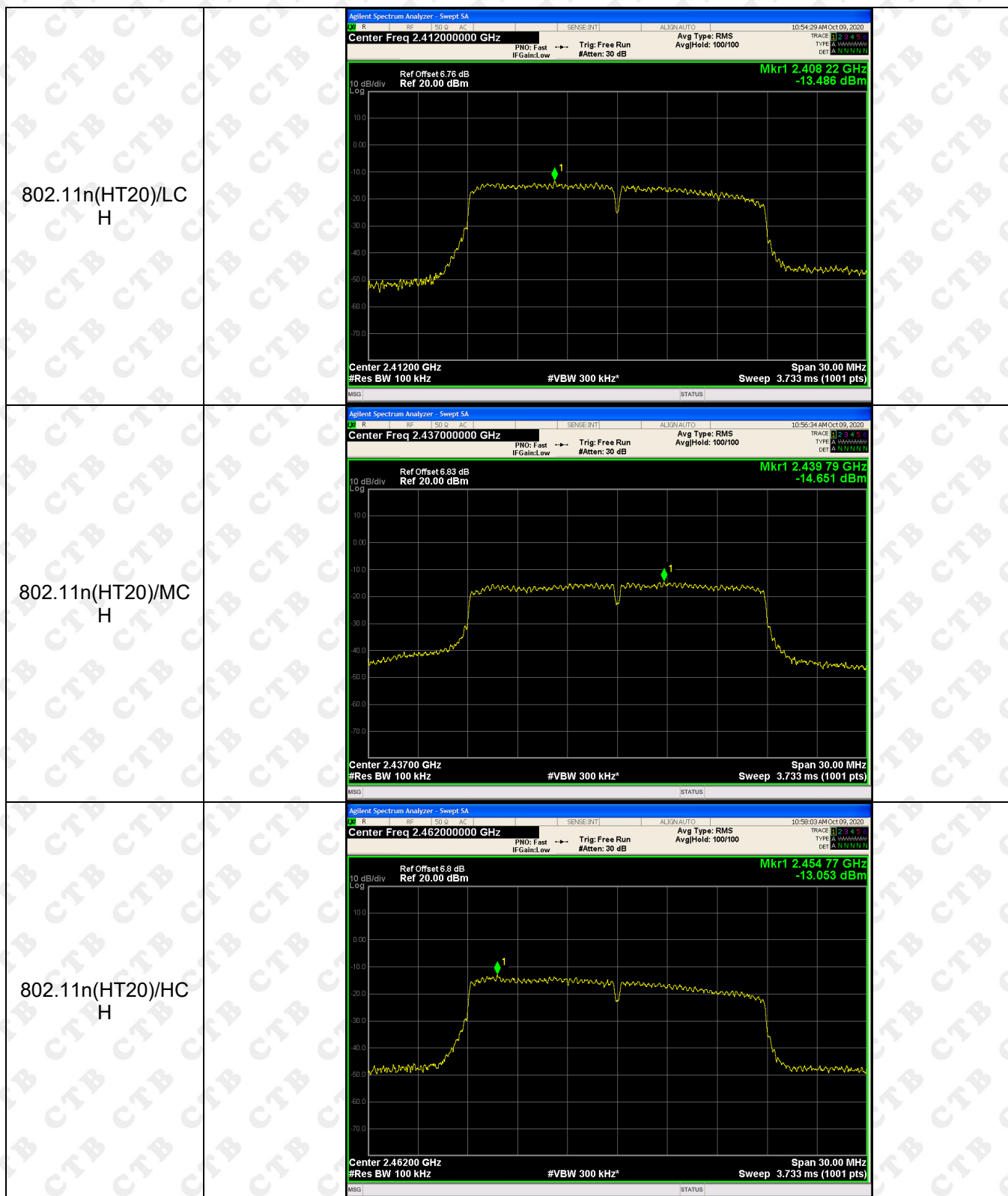


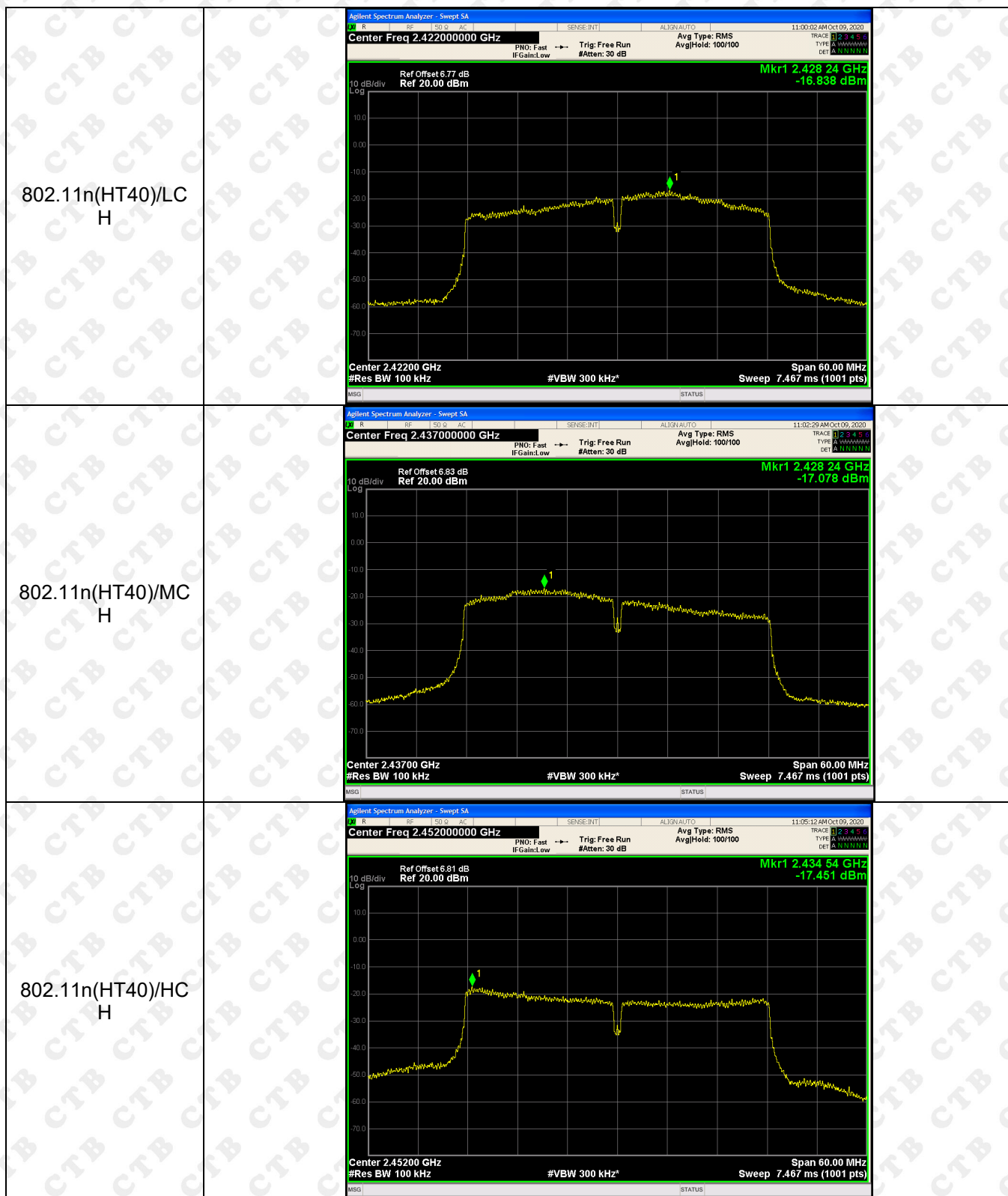
802.11g/MCH



802.11g/HCH







12. ANTENNA REQUIREMENT

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

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.

EUT Antenna:

The antenna is Internal Antenna and no consideration of replacement. The best case gain of the antenna is 4.0dBi.

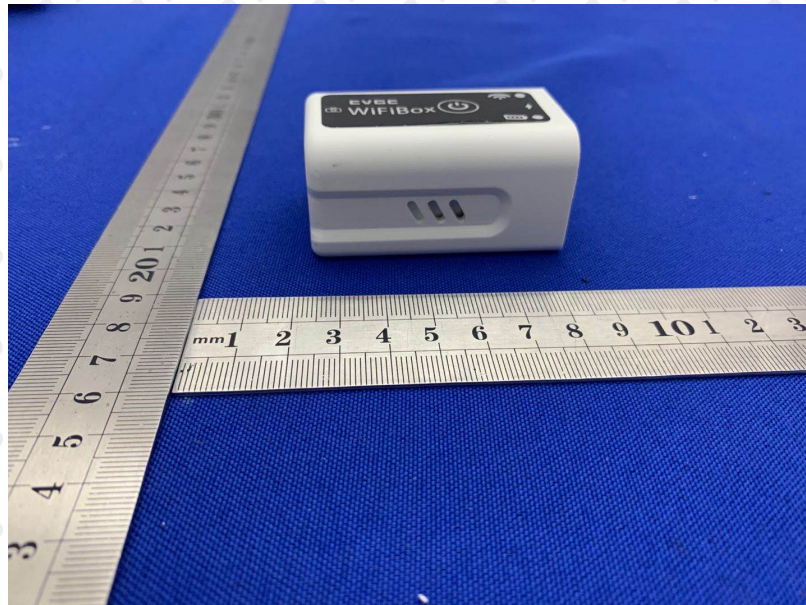
13. EUT PHOTOGRAPHS

External Photos

EUT Photo 1

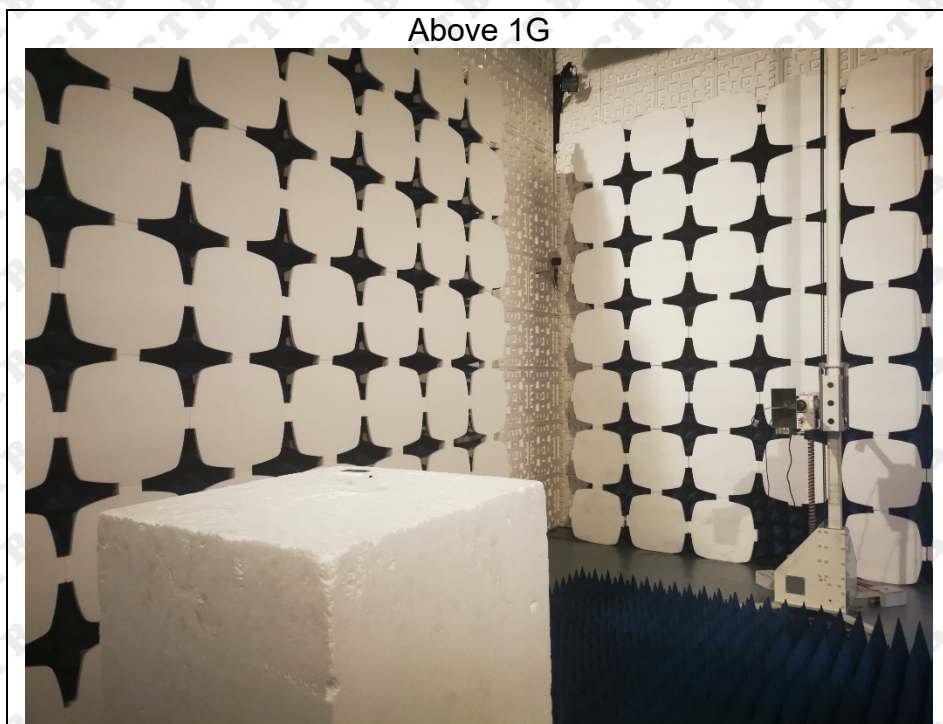


EUT Photo 2



14. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission



Conducted Emission



***** END OF REPORT *****