



5250~5350MHz

Low Channel



High Channel





5470~5725MHz

Low Channel



Mid Channel





High Channel





IEEE802.11ax HE80 mode

5150~5250MHz



5250~5350MHz





5470~5725MHz

Low Channel



High Channel





IEEE802.11ax HE160 mode

5150~5350MHz



5470~5725MHz

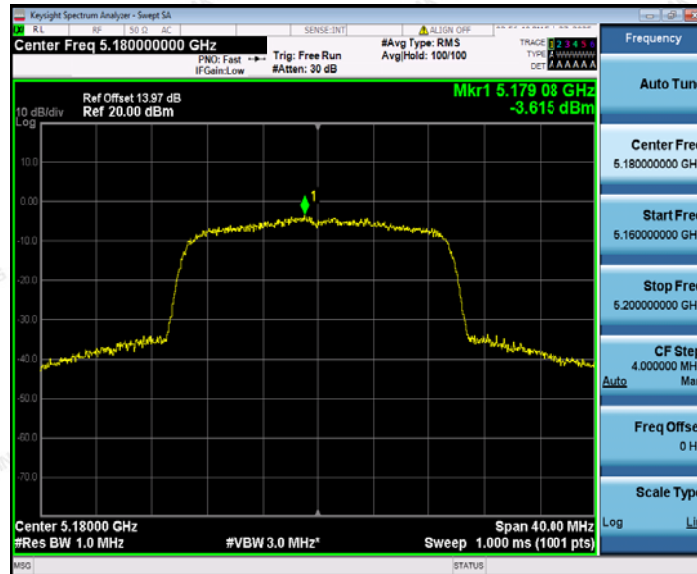




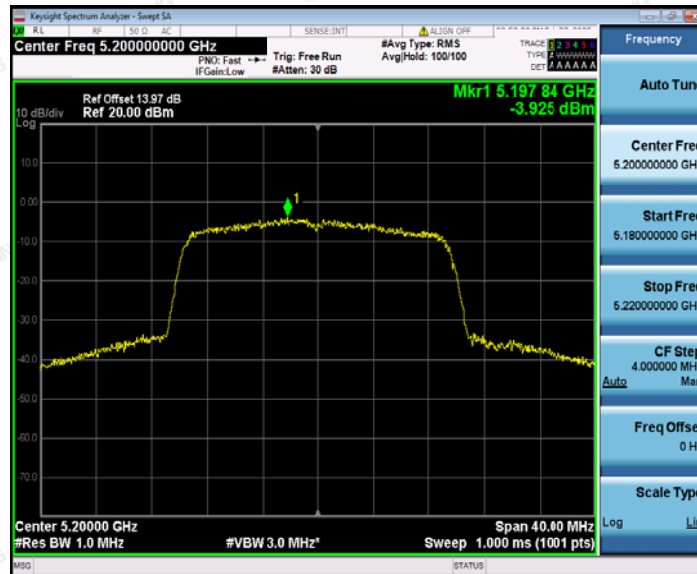
IEEE802.11be EHT20 mode

5150~5250MHz

Low Channel

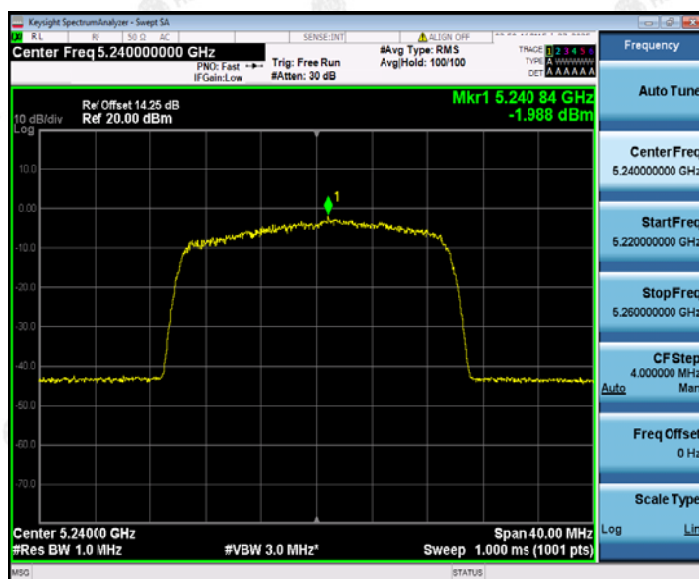


Mid Channel





High Channel



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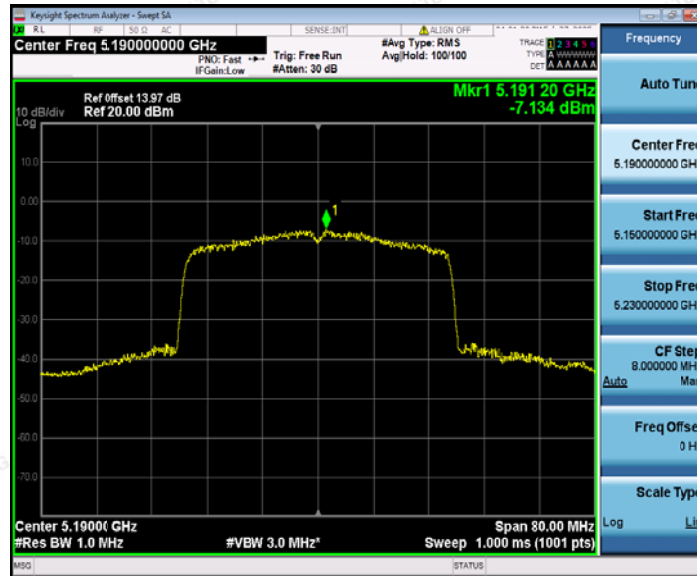
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IEEE802.11be EHT40 mode

5150~5250MHz

Low Channel



High Channel





IEEE802.11be EHT80 mode

5150~5250MHz





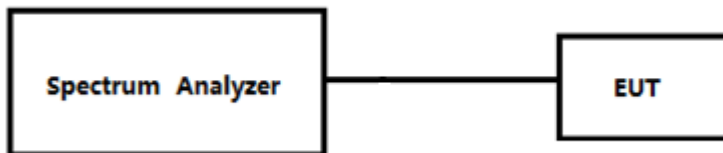
6.5 Duty Cycle

LIMIT

All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x , and maximum-power transmission duration, T , are required for each tested mode of operation.

- a) T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
- b) Duty cycle (x), as used in this document, refers to the fraction of time over which the transmitter is on and is transmitting at its maximum power control level.
- c) The term “maximum power control level” is intended to distinguish between operating power levels of the EUT and differences in power levels of individual symbols that occur with some modulation types such as quadrature amplitude modulation (QAM). During testing, the EUT is not required to transmit continuously its highest possible *symbol* power level. Rather, it shall transmit all of the symbols and shall do so at the highest power control level (i.e., highest operating power level) of the EUT.

TESTCONFIGURATION



TEST METHOD

Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

- a) A diode detector and an oscilloscope that together have sufficiently short response time to permit accurate measurements of the on and off times of the transmitted signal.
789033 D02 General UNII Test Procedures New Rules v02r01 Page 3 .
- b) The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq EBW$ if possible; otherwise, set RBW to the largest available value. Set $VBW \geq RBW$. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

TEST RESULTS

PASS

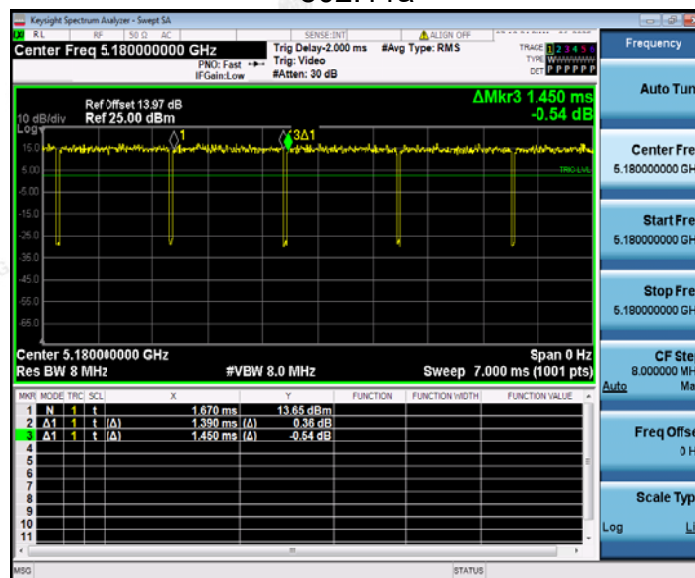


Antenna 1:

Mode Test Duty Cycle: 5150-5250MHz

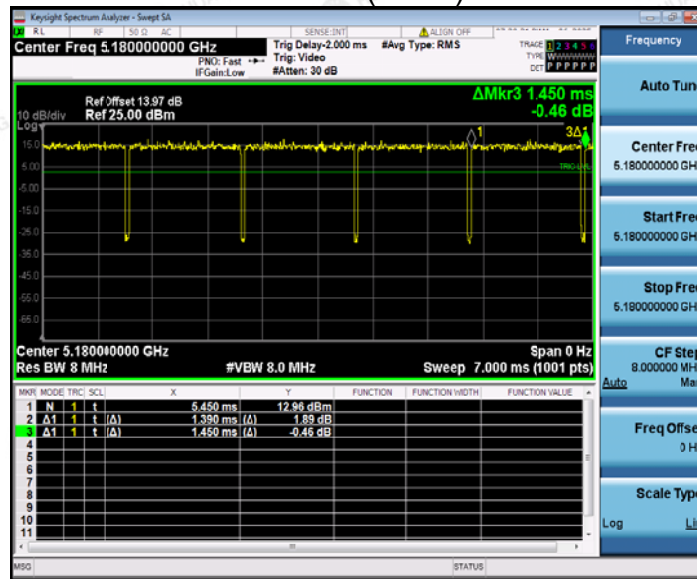
Mode	Duty Cycle
802.11a	0.96
802.11n(HT20)	0.96
802.11n(HT40)	0.96
802.11ac(HT20)	0.96
802.11ac(HT40)	0.96
802.11ac(HT80)	0.96
802.11ax(HE20)	0.96
802.11ax(HE40)	0.96
802.11ax(HE80)	0.97
802.11be(EHT20)	0.96
802.11be(EHT40)	0.97
802.11be(EHT80)	0.96

802.11a

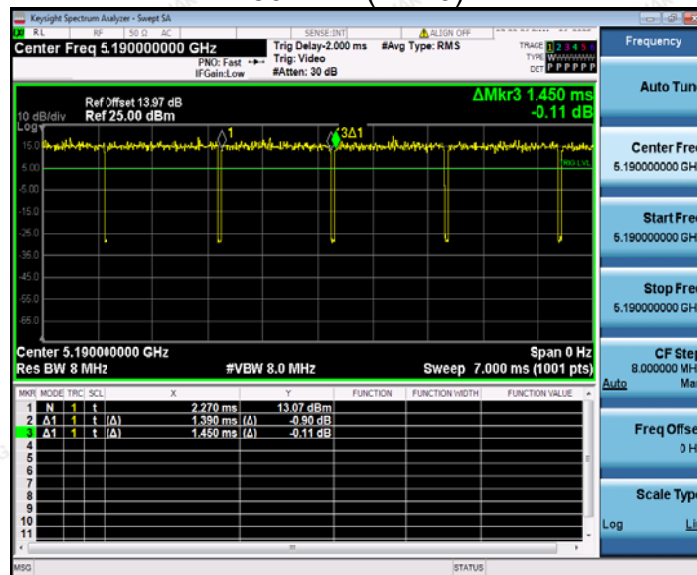




802.11n(HT20)

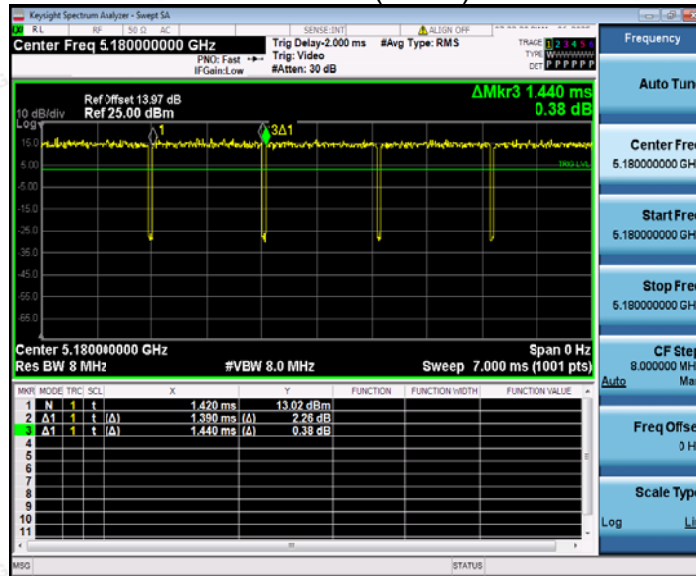


802.11n(HT40)

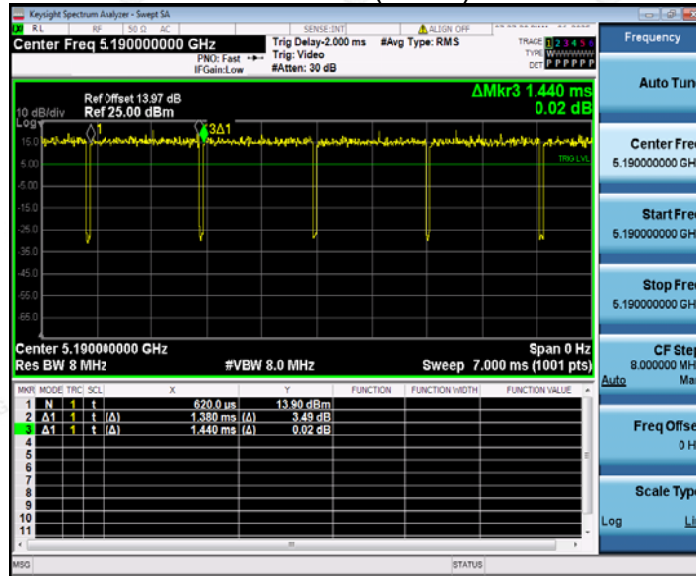




802.11ac(HT20)

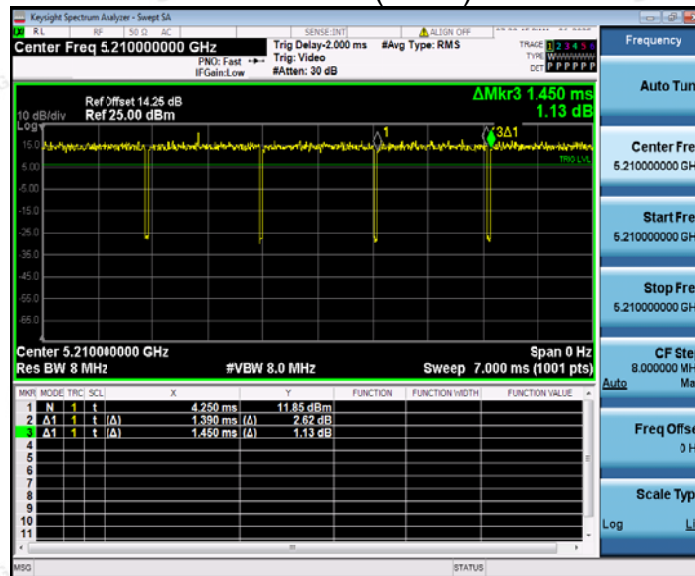


802.11ac(HT40)

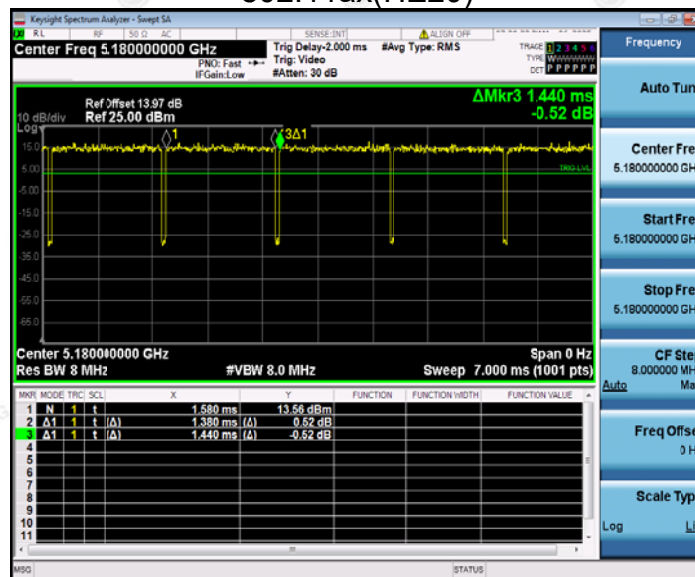




802.11ac(HT80)

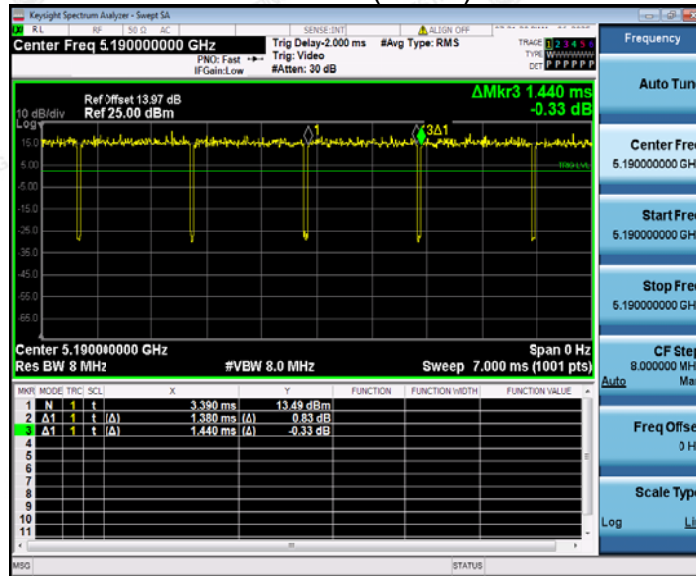


802.11ax(HE20)

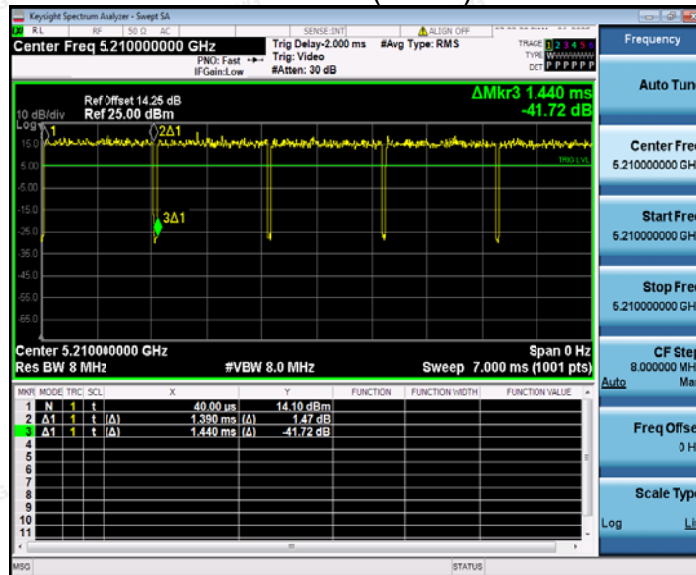




802.11ax(HE40)

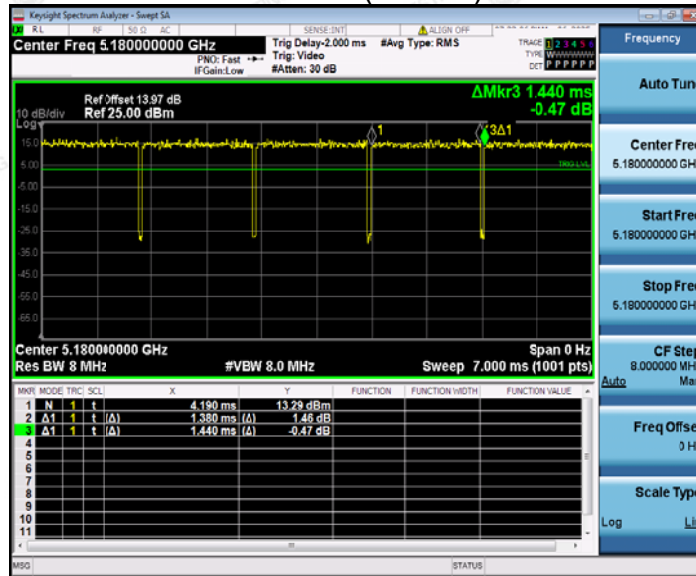


802.11ax(HE80)

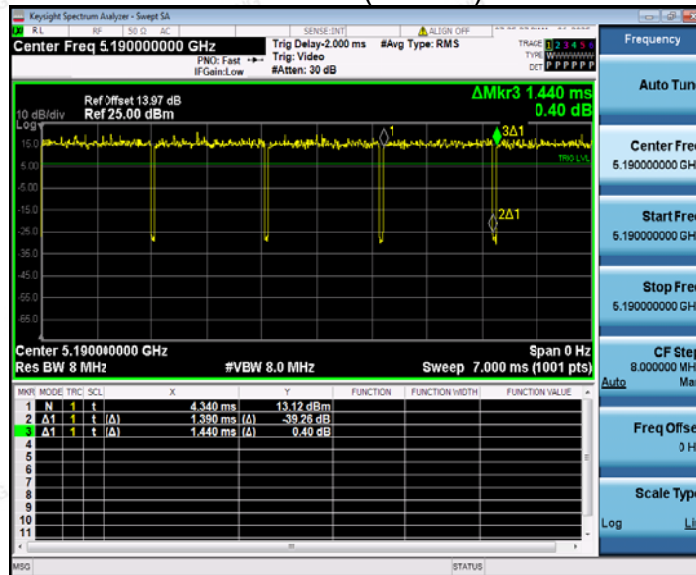




802.11be(EHT20)

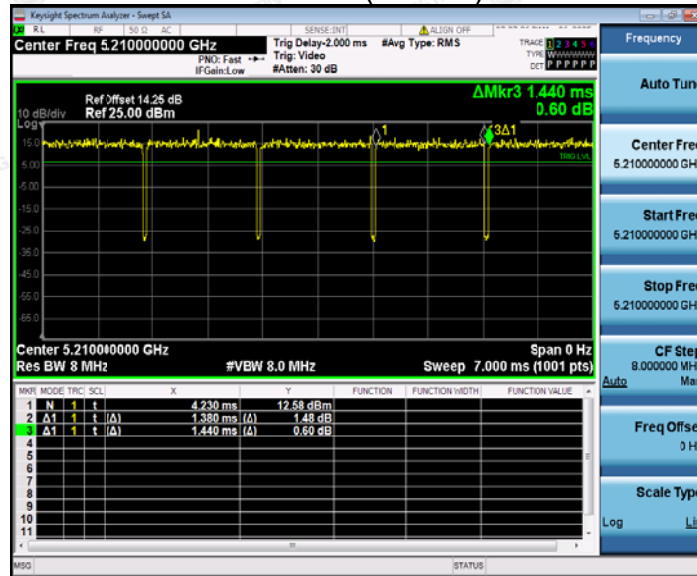


802.11be(EHT40)





802.11be(EHT80)

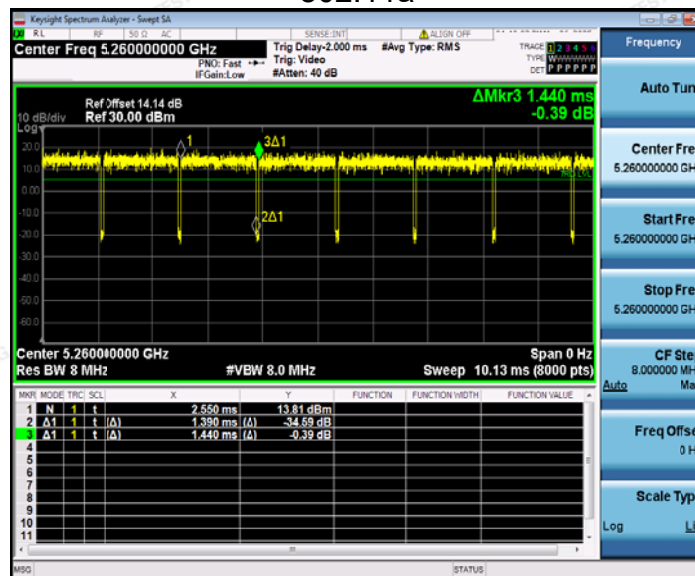




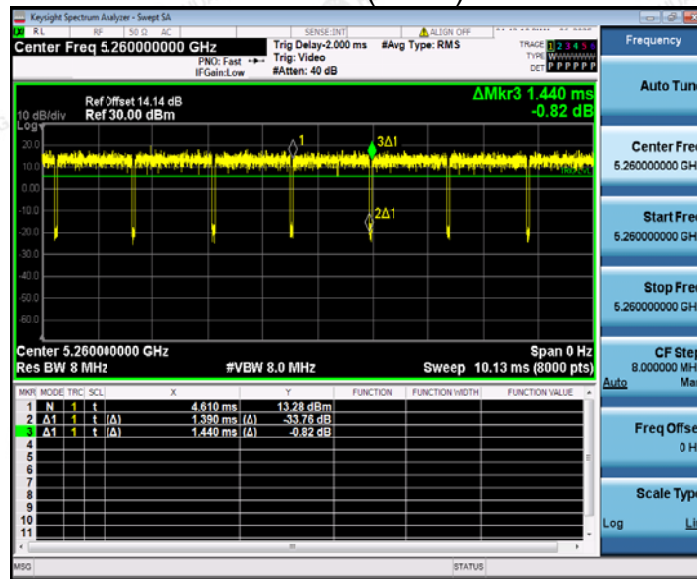
Mode Test Duty Cycle: 5260-5320MHz

Mode	Duty Cycle
802.11a	0.97
802.11n(HT20)	0.97
802.11n(HT40)	0.97
802.11ac(HT20)	0.96
802.11ac(HT40)	0.97
802.11ac(HT80)	0.97
802.11ac(HT160)	0.97
802.11ax(HE20)	0.96
802.11ax(HE40)	0.97
802.11ax(HE80)	0.97
802.11ax(HE160)	0.97

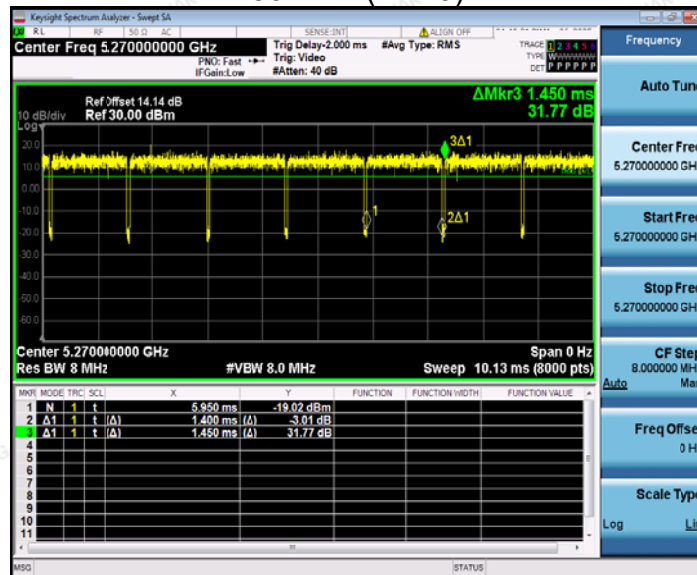
802.11a



802.11n(HT20)



802.11n(HT40)



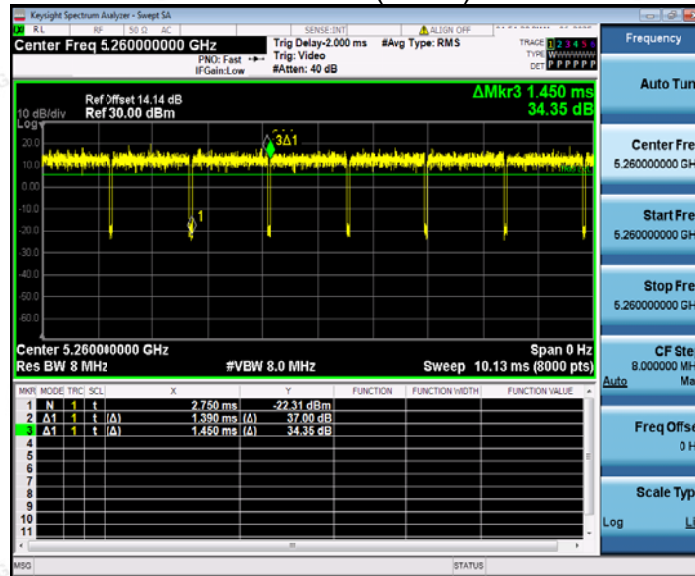
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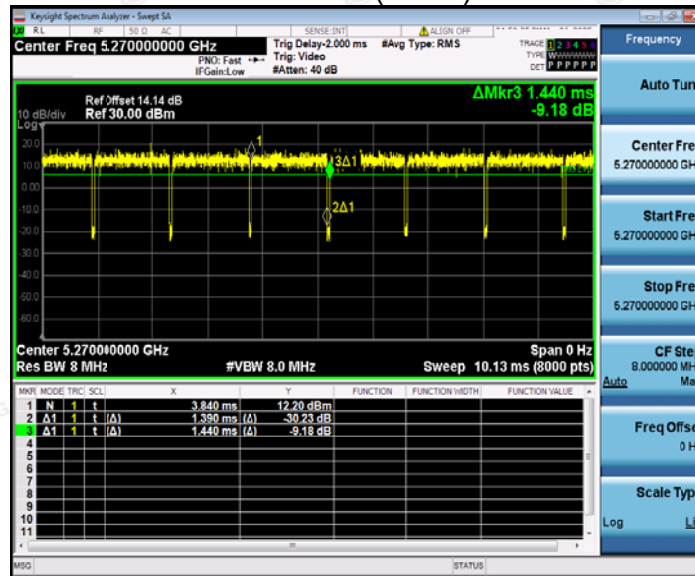
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802.11ac(HT20)

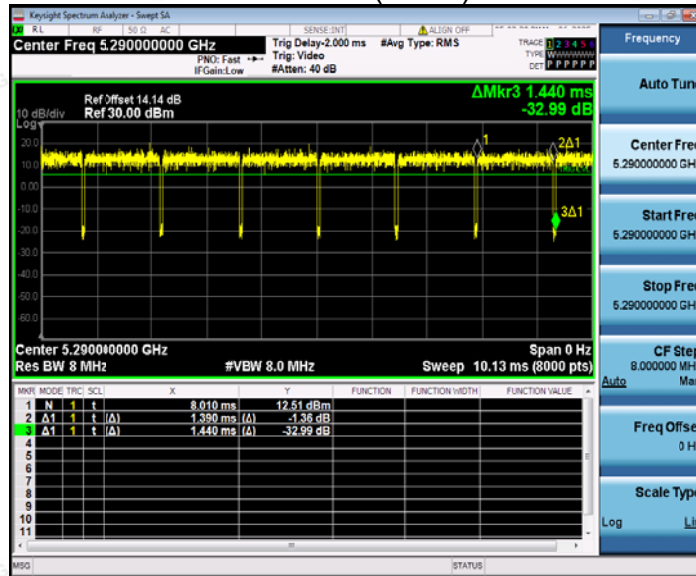


802.11ac(HT40)

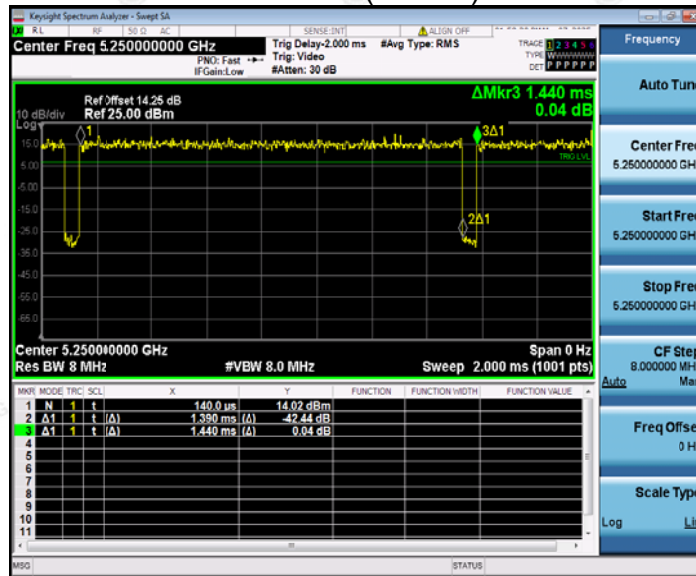




802.11ac(HT80)

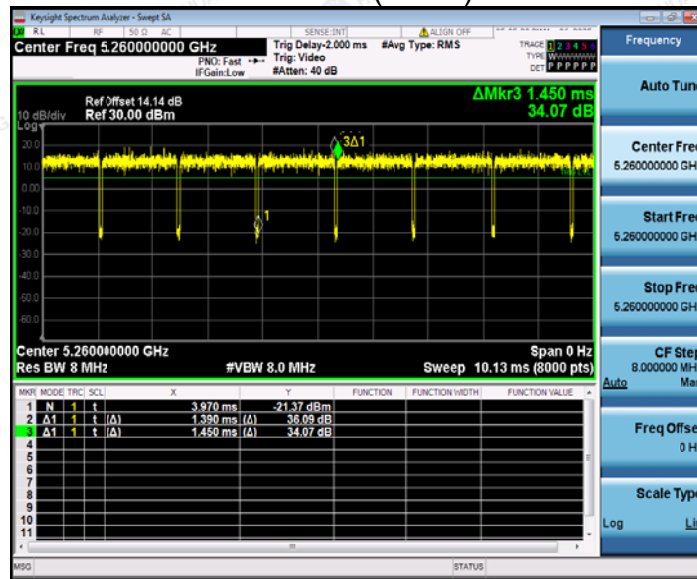


802.11ac(HT160)

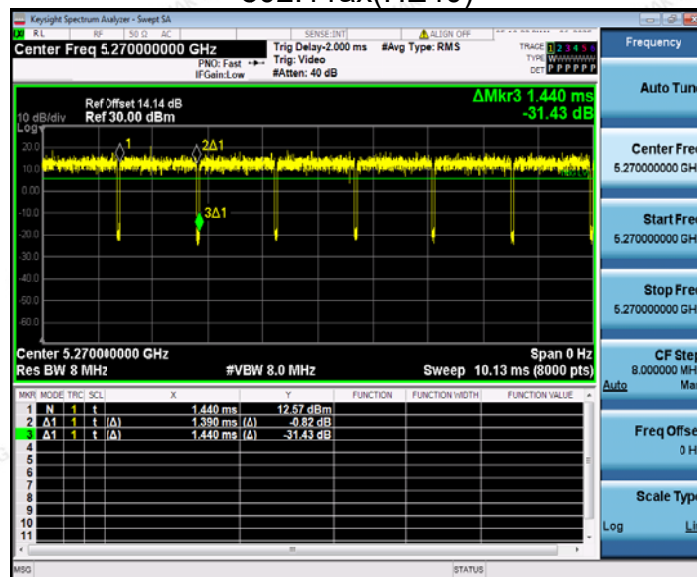




802.11ax(HE20)

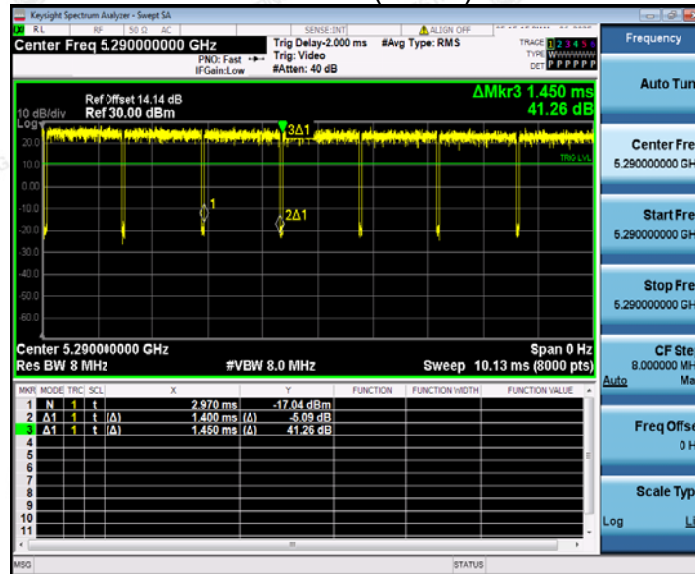


802.11ax(HE40)

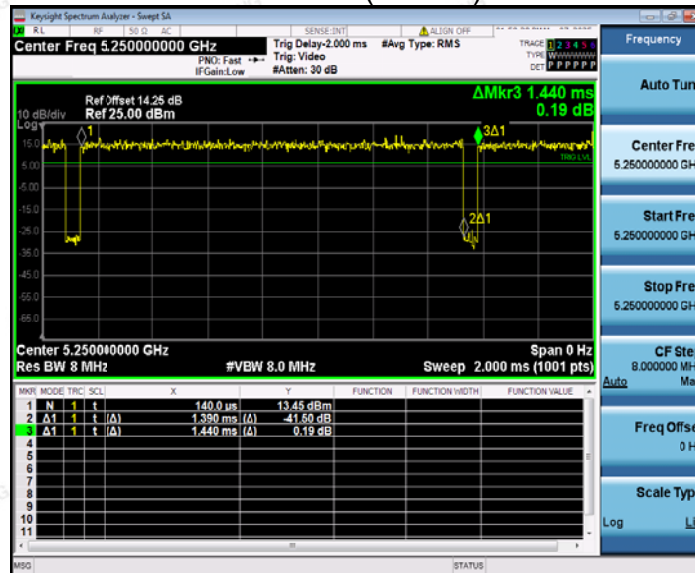




802.11ax(HE80)



802.11ax(HE160)





Mode	Duty Cycle
802.11a	0.97
802.11n(HT20)	0.97
802.11n(HT40)	0.96
802.11ac(HT20)	0.97
802.11ac(HT40)	0.97
802.11ac(HT80)	0.97
802.11ac(HT160)	0.97
802.11ax(HE20)	0.97
802.11ax(HE40)	0.97
802.11ax(HE80)	0.97
802.11ax(HE160)	0.97

Keyight Spectrum Analyzer - Swept SA

Center Freq 5.500010000 GHz

Trig Delay: 2.000 ms

#Avg Type: RMS

Ref Offset: 14.74 dB

Ref: 30.00 dBm

ΔMkr3 1.440 ms

-29.44 dB

2d1

3d1

Center 5.500010000 GHz

Res BW 8 MHz

#VBW 8.0 MHz

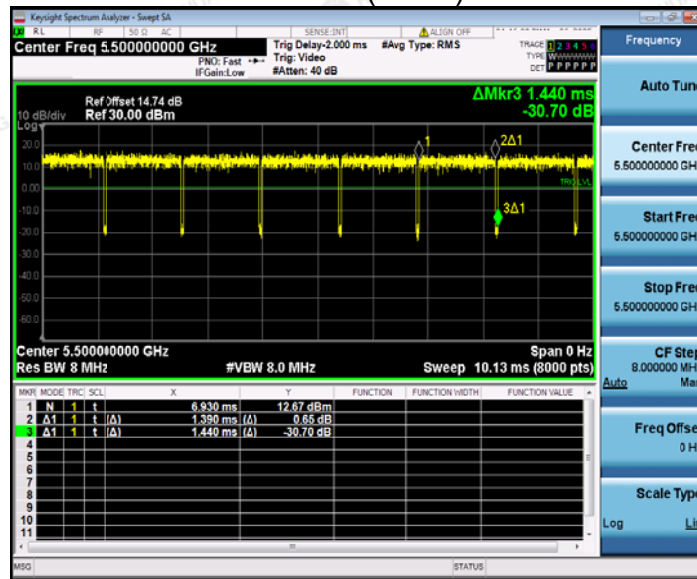
Sweep 10.13 ms (8000 pts)

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t	7.450 ms	11.81 dBm			
2	A1	1	t	1.390 ms	0.24 dB			
3	A1	1	t	1.440 ms	-29.44 dB			

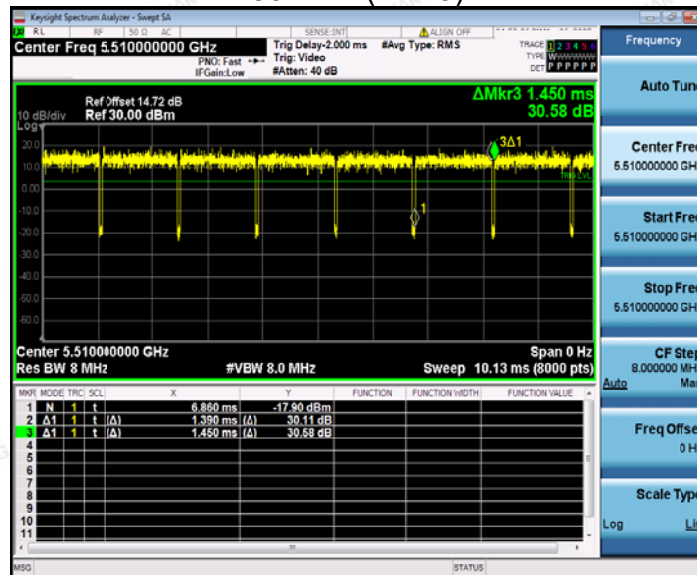
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802.11n(HT20)

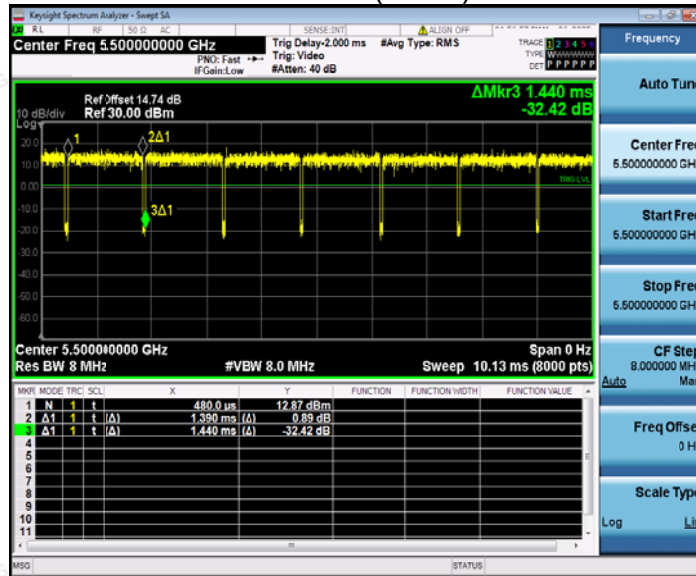


802.11n(HT40)

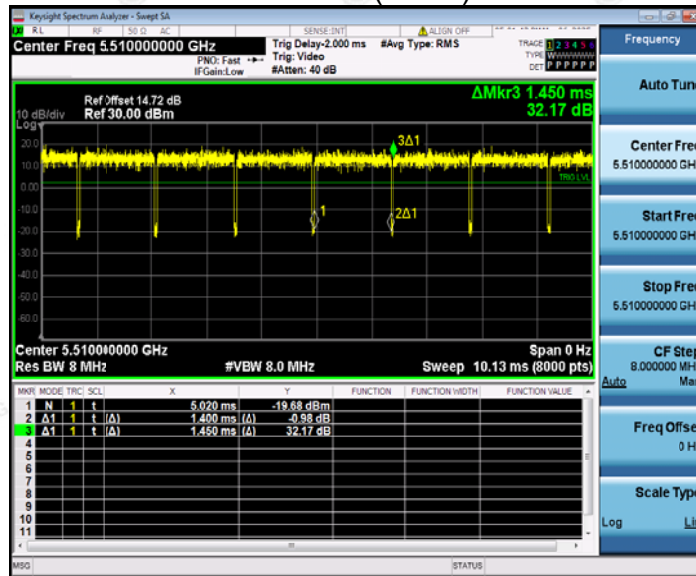




802.11ac(HT20)

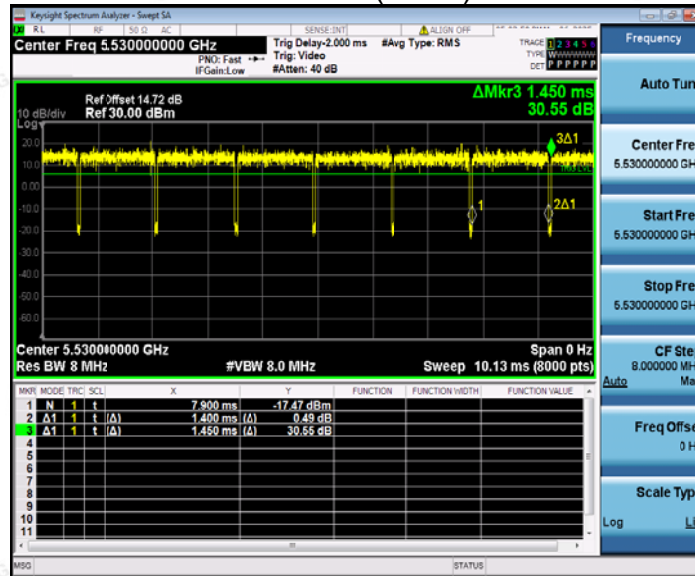


802.11ac(HT40)

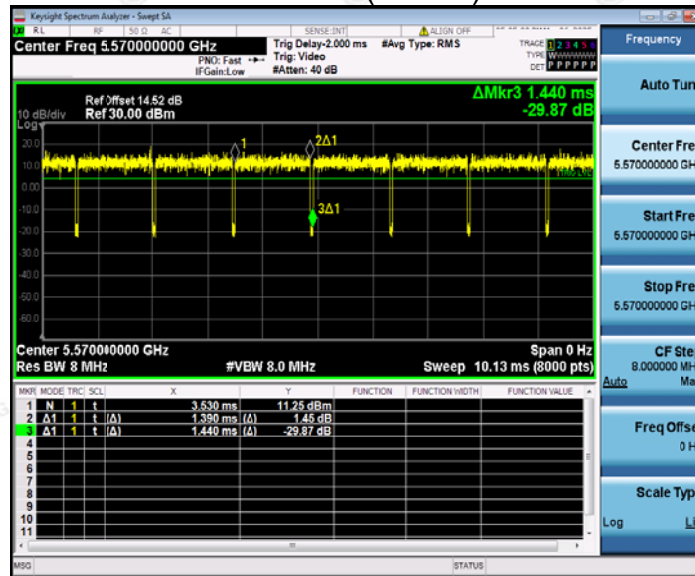




802.11ac(HT80)

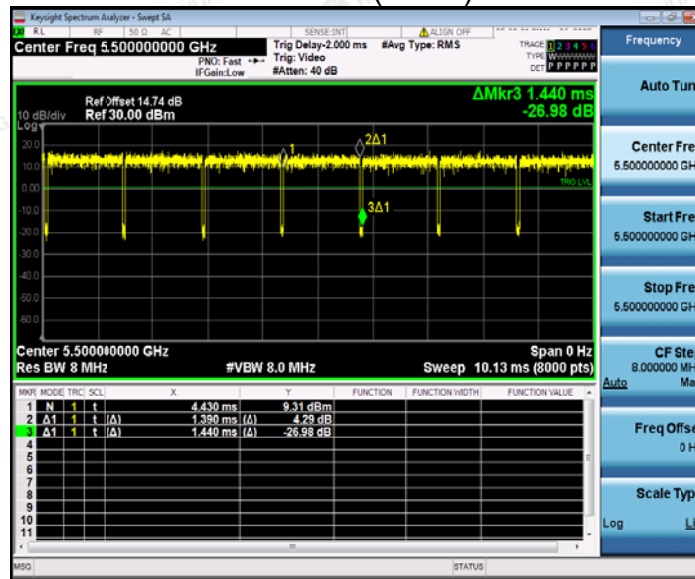


802.11ac(HT160)

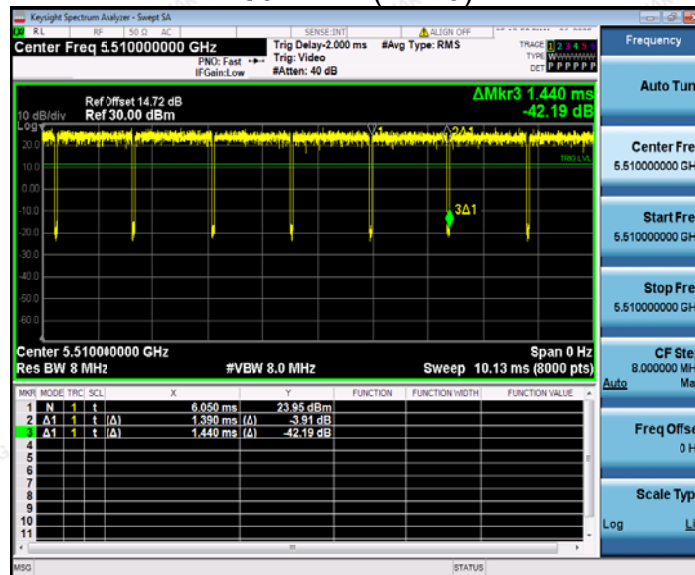




802.11ax(HE20)

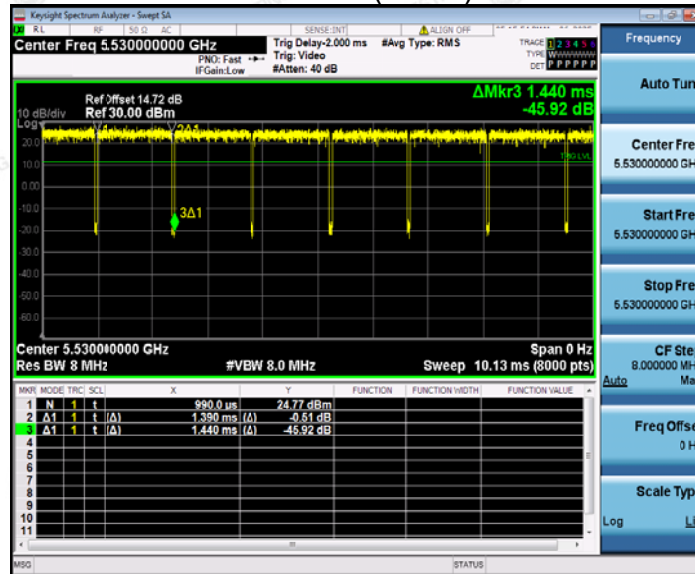


802.11ax(HE40)





802.11ax(HE80)



802.11ax(HE160)

