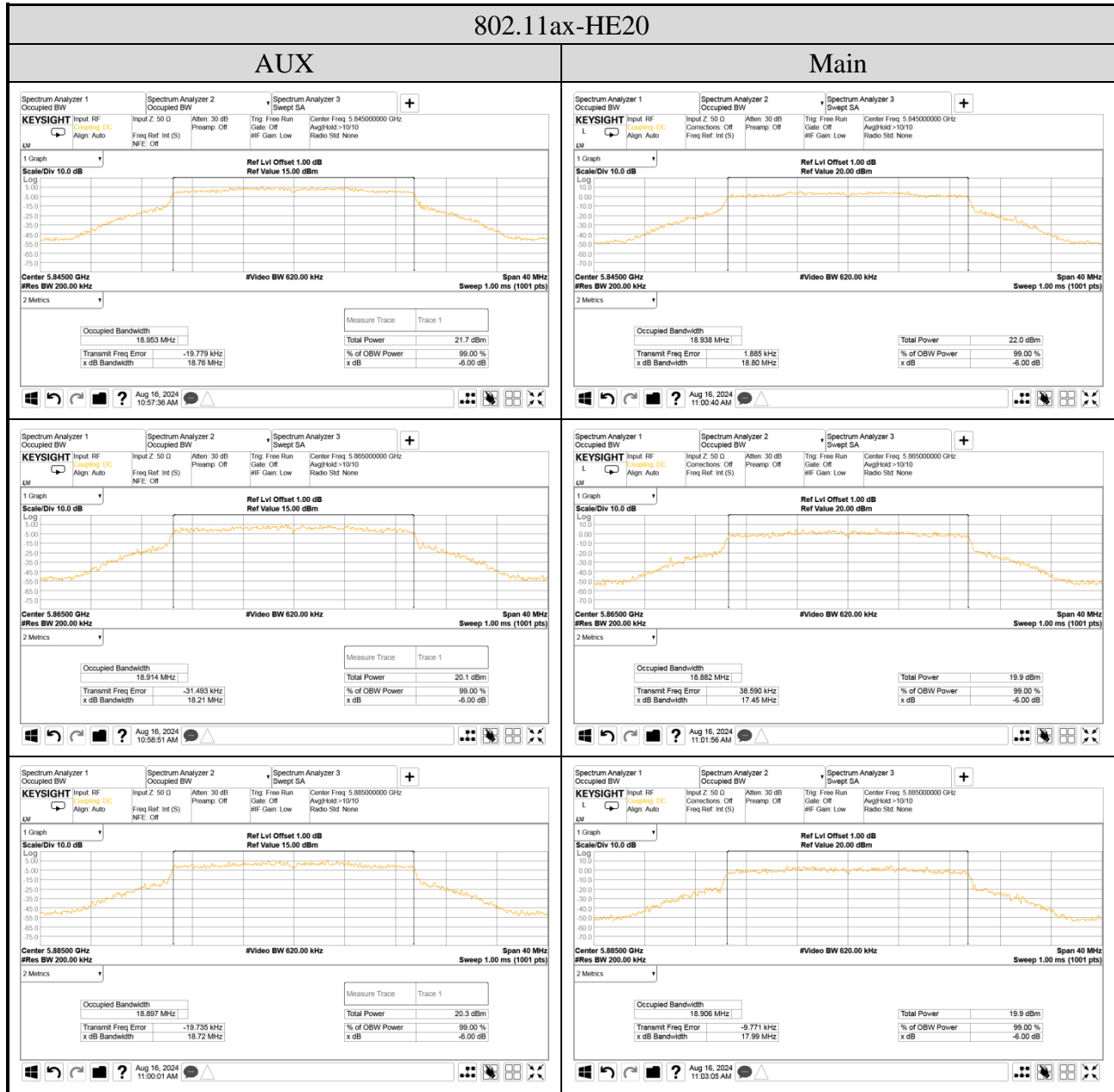
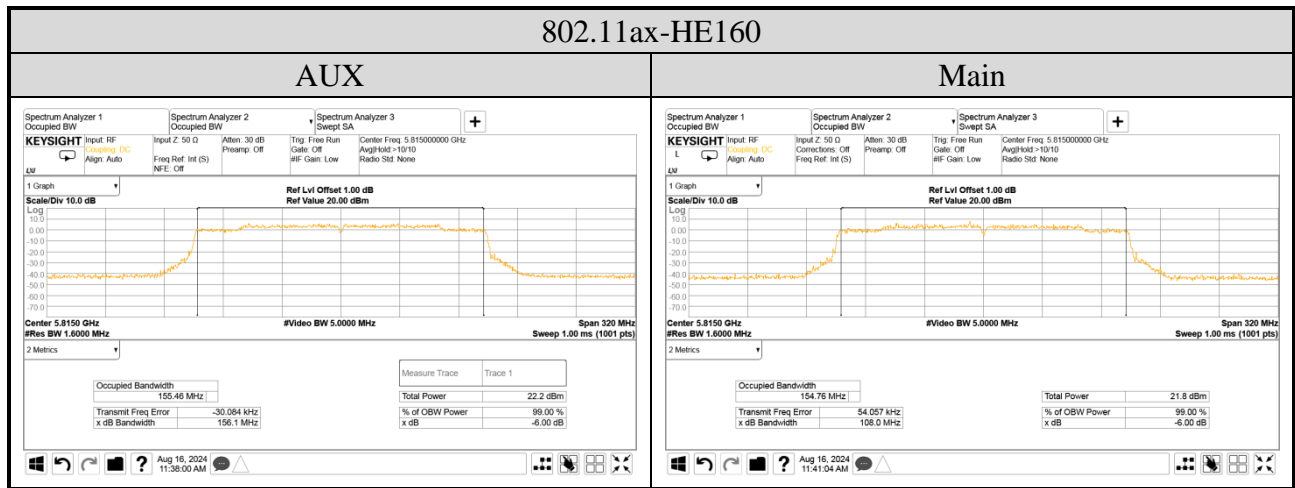
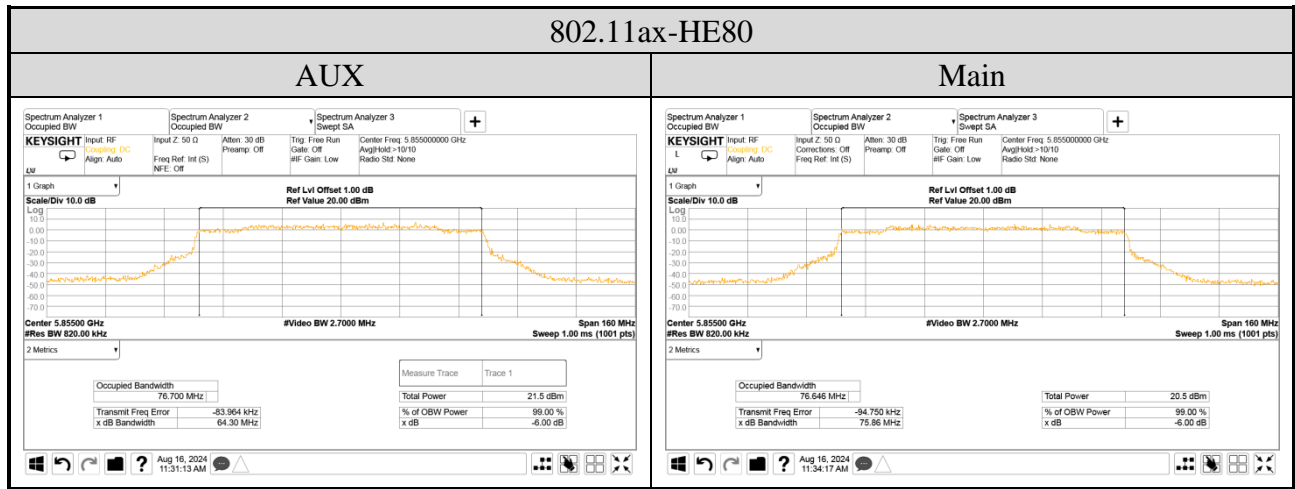
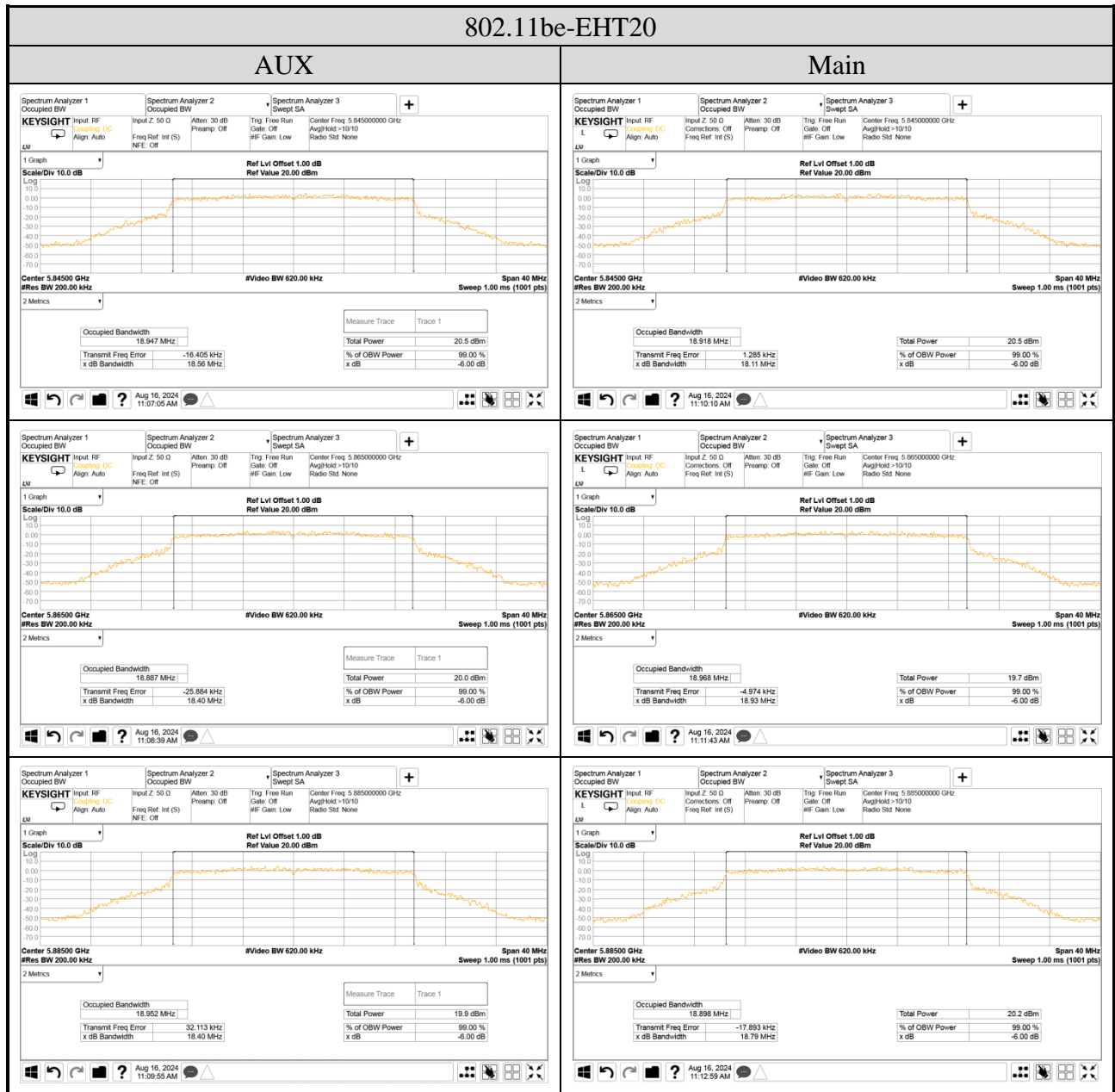


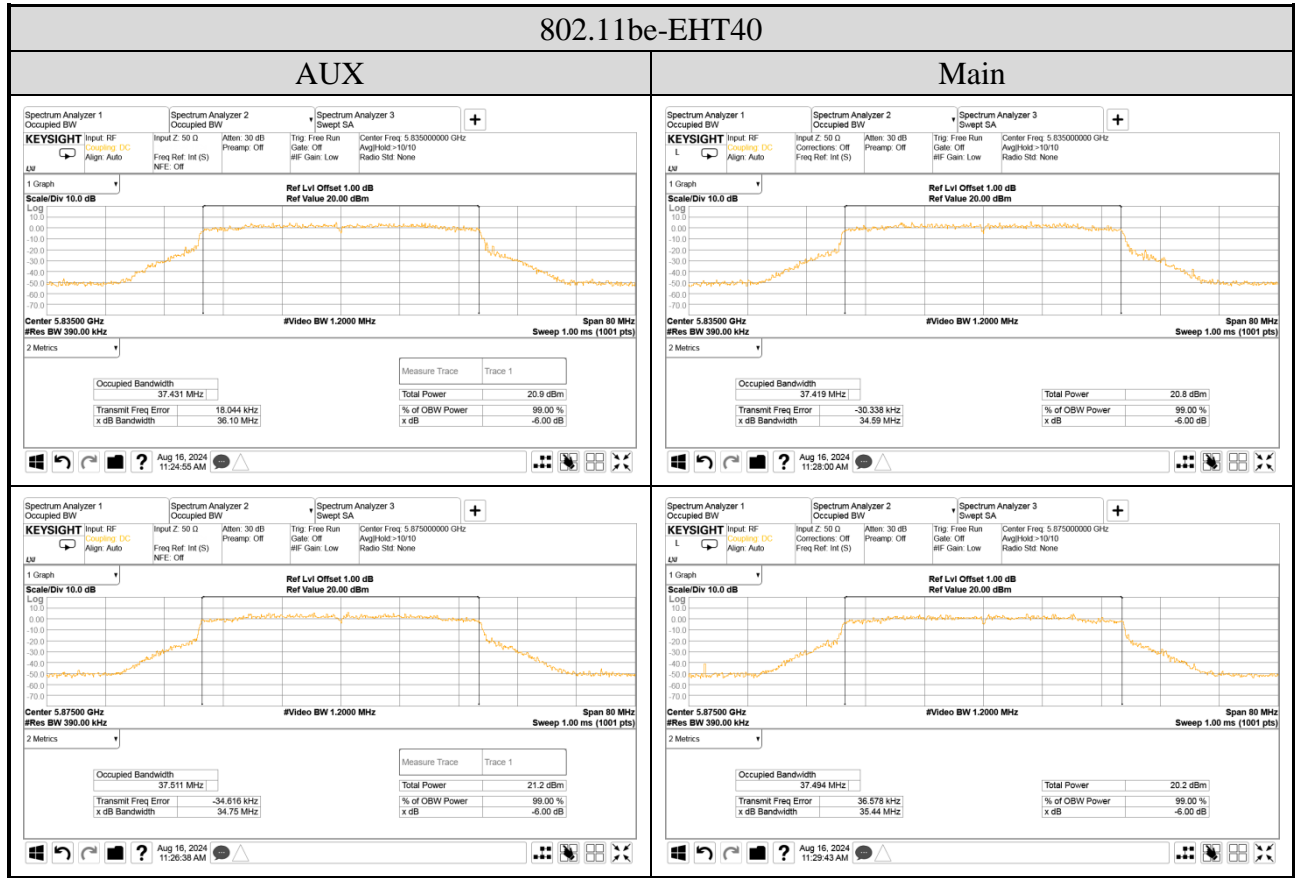
802.11ax-HE20

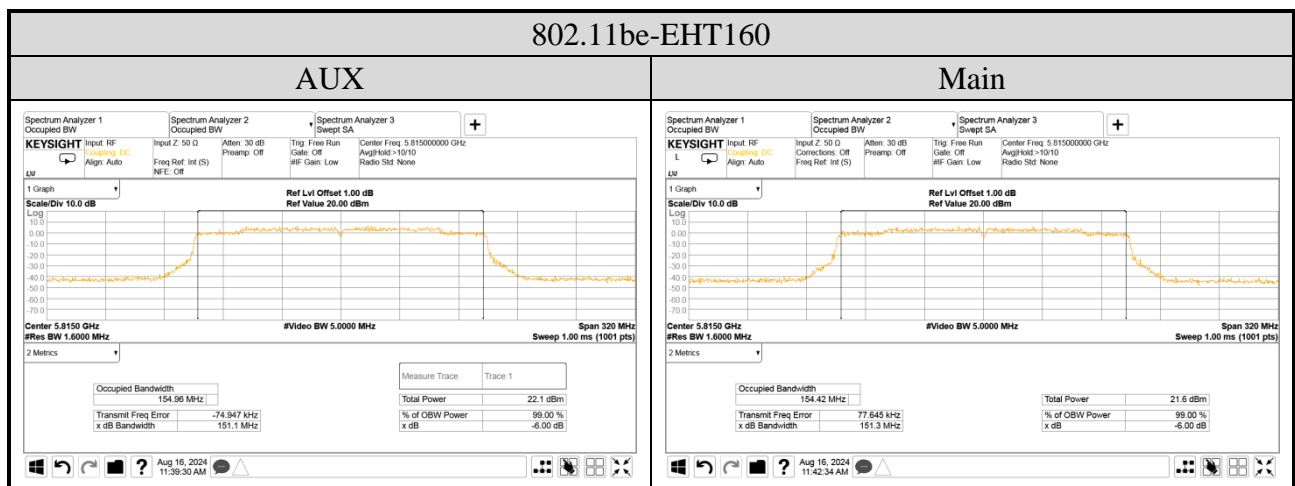
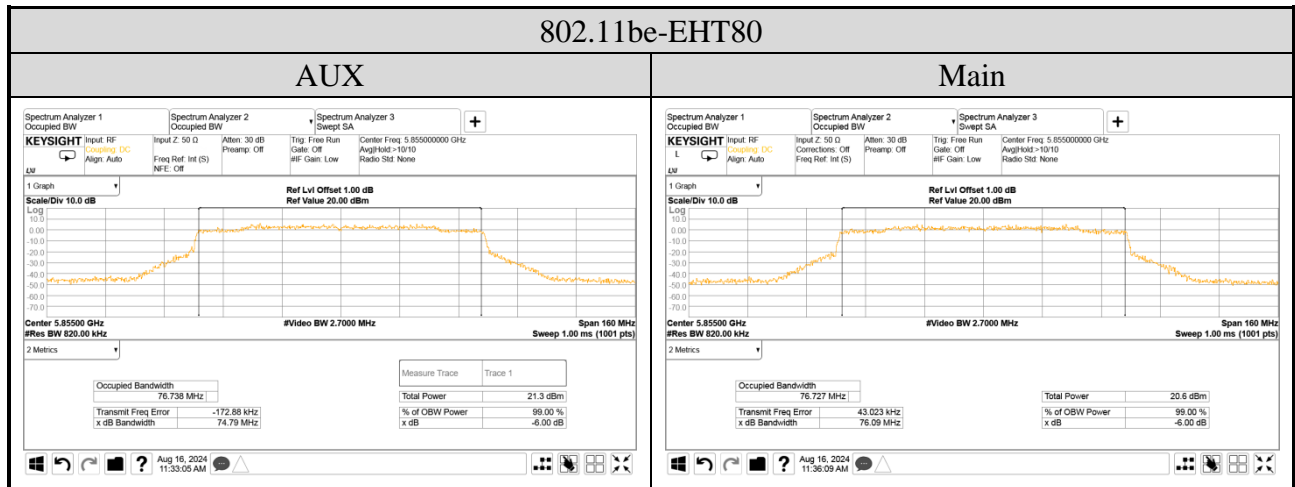












A.4 POWER SPECTRAL DENSITY

Test Date	2024/08/22 ~ 23	Temp./Hum.	24 ~ 25°C /48 ~ 55%
Cable Loss	1.00dB	Tested By	Harry Huang
Test Voltage	AC 120V 60Hz (Via AC Adapter)		

A.4.1 Power Spectral Density Result

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Antenna Gain (dBi)		Max. Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
			AUX	Main		AUX	Main		
802.11a	4	5845	3.341	3.364	0.101	2.1	0.1	5.542	14dBm/MHz (E.I.R.P.)
		5865	3.397	3.216		2.1	0.1	5.598	
		5885	3.455	3.468		2.1	0.1	5.656	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 4}	Total Power Spectral Density (dBm/1MHz) ^{Note 3}	Limit
			AUX	Main				
802.11n-HT20	4	5845	3.301	3.034	N/A	1.21	7.390	14dBm/MHz (E.I.R.P.)
		5865	3.082	2.984		1.21	7.254	
		5885	3.301	3.085		1.21	7.415	

Note :1. All results have been included cable loss.

2. Max. Power Spectral Density (dBm/1MHz) (EIRP) = Max of each PSD (dBm/1MHz) (AUX or Main) + Antenna Gain (dBi) + Duty Cycle Factor(dB) when duty cycle is less than 98%.
3. According to KDB 662911 D01 E)2)a), Total Power Spectral Density (dBm/1MHz) (EIRP)= Sum to individual PSD (dBm/1MHz) + Directional Gain (dBi) + Duty Cycle Factor (dB) when duty cycle is less than 98%.
4. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
 Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/N_{ANT}]$ dBi
 Directional gain = $10 \log[(10^{0.1/10} + 10^{2.1/10})/2] = 1.21$ dBi
 The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only. This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11n-HT40	4	5835	-1.323	-0.275	N/A	1.21	3.453	14dBm/MHz (E.I.R.P.)
		5875	-1.991	-0.316		1.21	3.147	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ac-VHT80	4	5855	-4.793	-2.624	N/A	1.21	0.646	14dBm/MHz (E.I.R.P.)

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ac-VHT160	4	5815	-6.859	-5.721	N/A	1.21	-2.033	14dBm/MHz (E.I.R.P.)

Note :1. All results have been included cable loss.

2. According to KDB 662911 D01 E)2)a), Total Power Spectral Density (dBm/1MHz) (EIRP)= Sum to individual PSD (dBm/1MHz) + Directional Gain (dBi) + Duty Cycle Factor (dB) when duty cycle is less than 98%.

3. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then

$$\text{Directional gain} = 10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/N_{\text{ANT}}] \text{ dBi}$$

$$\text{Directional gain} = 10 \log[(10^{0.1/10} + 10^{2.1/10})/2] = 1.21 \text{ dBi}$$

The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only. This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ax-HE20	4	5845	2.787	2.846	N/A	1.21	7.037	14dBm/MHz (E.I.R.P.)
		5865	2.790	2.801		1.21	7.016	
		5885	3.063	3.087		1.21	7.295	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ax-HE40	4	5835	-1.588	-0.273	N/A	1.21	3.339	14dBm/MHz (E.I.R.P.)
		5875	-1.995	-0.598		1.21	2.980	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ax-HE80	4	5855	-4.841	-2.586	N/A	1.21	0.652	14dBm/MHz (E.I.R.P.)

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11ax-HE160	4	5815	-7.106	-5.846	0.092	1.21	-2.118	14dBm/MHz (E.I.R.P.)

Note :1. All results have been included cable loss.

2. According to KDB 662911 D01 E)2)a), Total Power Spectral Density (dBm/1MHz) (EIRP)= Sum to individual PSD (dBm/1MHz) + Directional Gain (dBi) + Duty Cycle Factor (dB) when duty cycle is less than 98%.

3. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then

$$\text{Directional gain} = 10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/N_{\text{ANT}}] \text{ dBi}$$

$$\text{Directional gain} = 10 \log[(10^{0.1/10} + 10^{2.1/10})/2] = 1.21\text{dBi}$$

The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only. This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11be-HHT20	4	5845	2.910	2.780	N/A	1.21	7.066	14dBm/MHz (E.I.R.P.)
		5865	2.847	2.957		1.21	7.123	
		5885	2.835	2.954		1.21	7.115	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11be-HHT40	4	5835	-1.519	-0.609	N/A	1.21	3.180	14dBm/MHz (E.I.R.P.)
		5875	-1.957	-0.452		1.21	3.081	

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11be-HHT80	4	5855	-4.936	-2.586	N/A	1.21	0.616	14dBm/MHz (E.I.R.P.)

Mode	U-NII Band	Centre Frequency (MHz)	Power Spectral Density (dBm/1MHz)		Duty Cycle Factor 10log(1/X)	Directional Gain (dBi) ^{Note 3}	Total Power Spectral Density (dBm/1MHz) ^{Note 2}	Limit
802.11be-HHT160	4	5815	-6.883	-5.872	0.092	1.21	-2.128	14dBm/MHz (E.I.R.P.)

Note :1. All results have been included cable loss.

2. According to KDB 662911 D01 E)2)a), Total Power Spectral Density (dBm/1MHz) (EIRP)= Sum to individual PSD (dBm/1MHz) + Directional Gain (dBi) + Duty Cycle Factor (dB) when duty cycle is less than 98%.

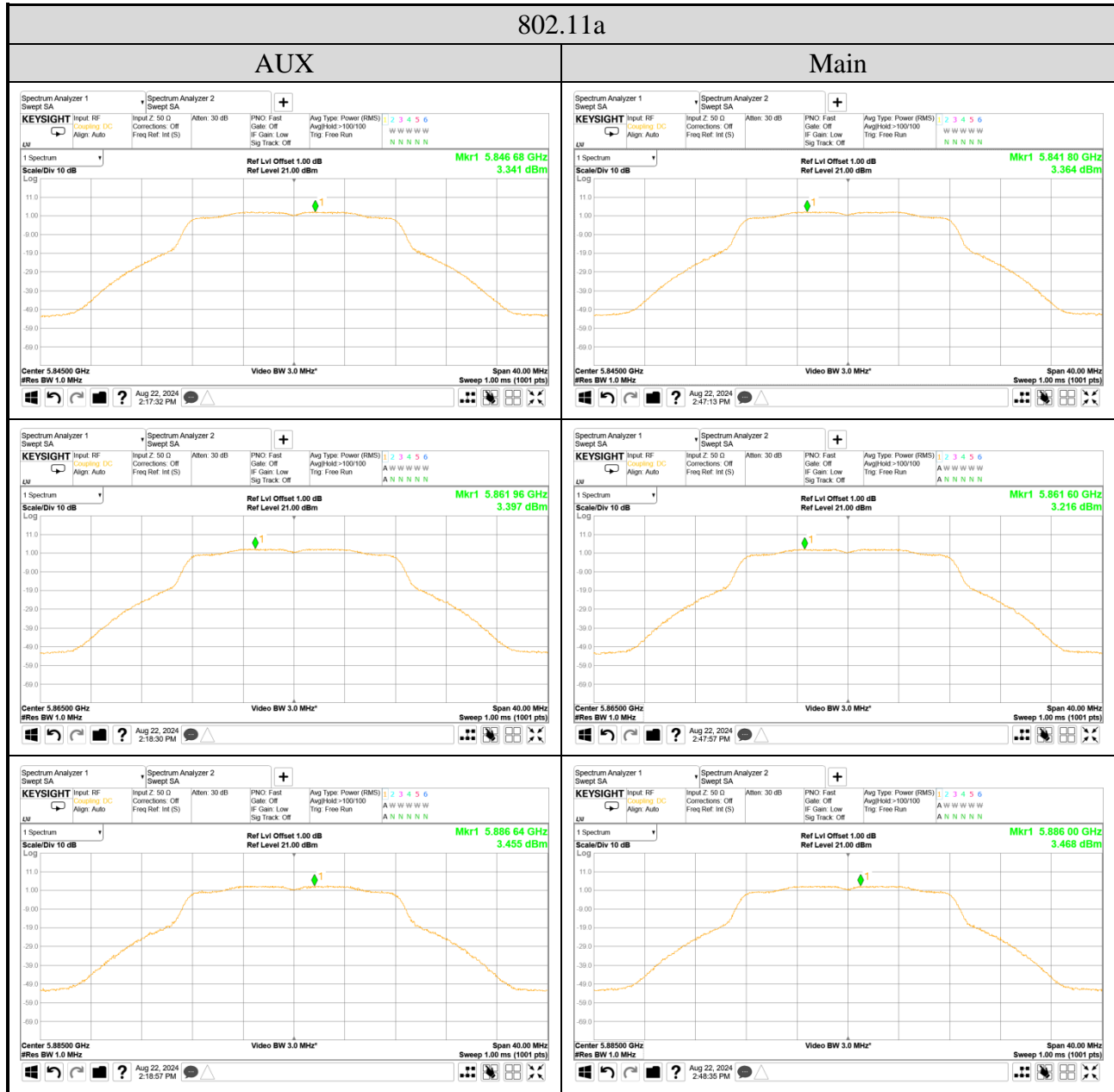
3. According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then

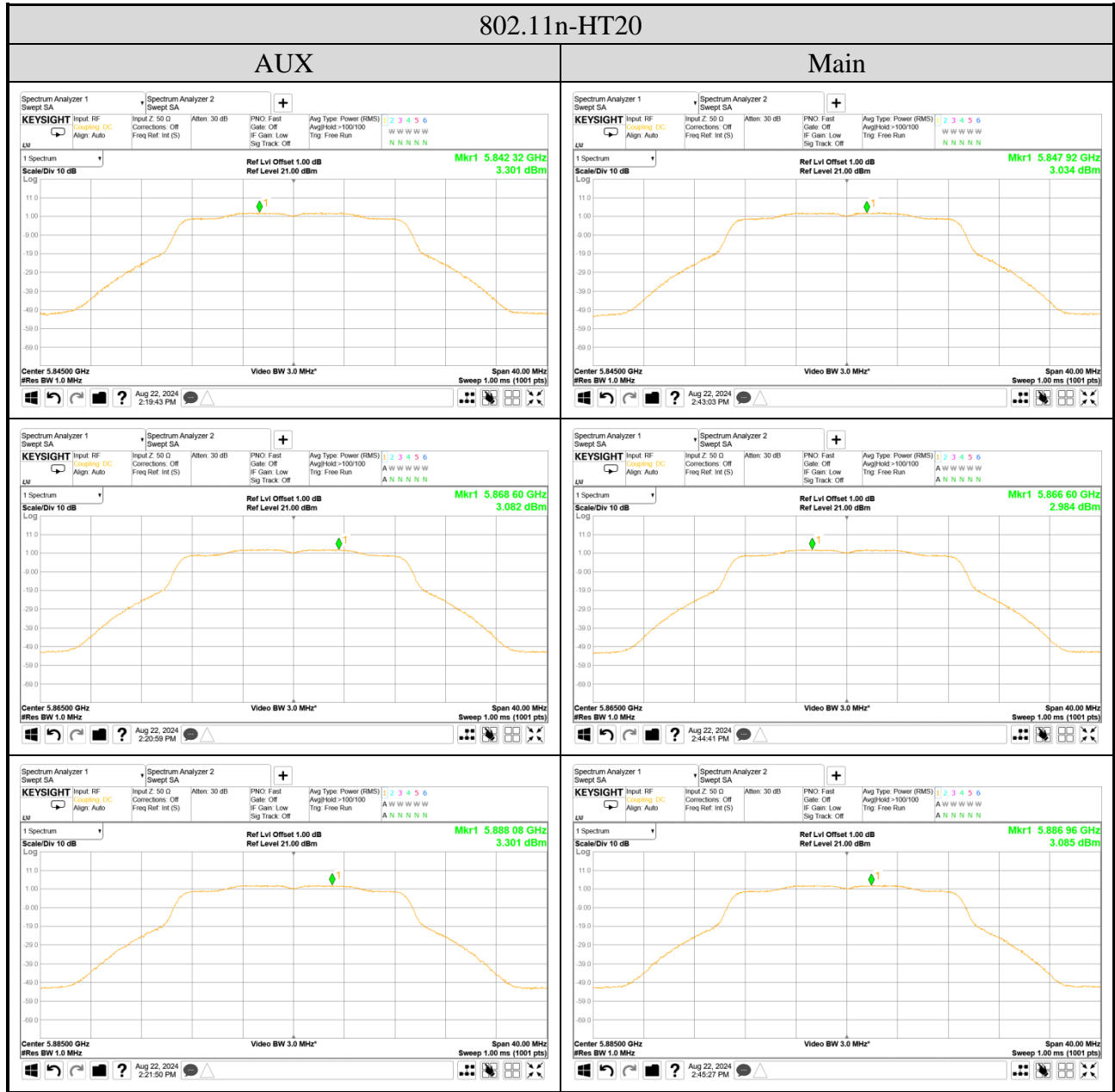
$$\text{Directional gain} = 10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})/N_{\text{ANT}}] \text{ dBi}$$

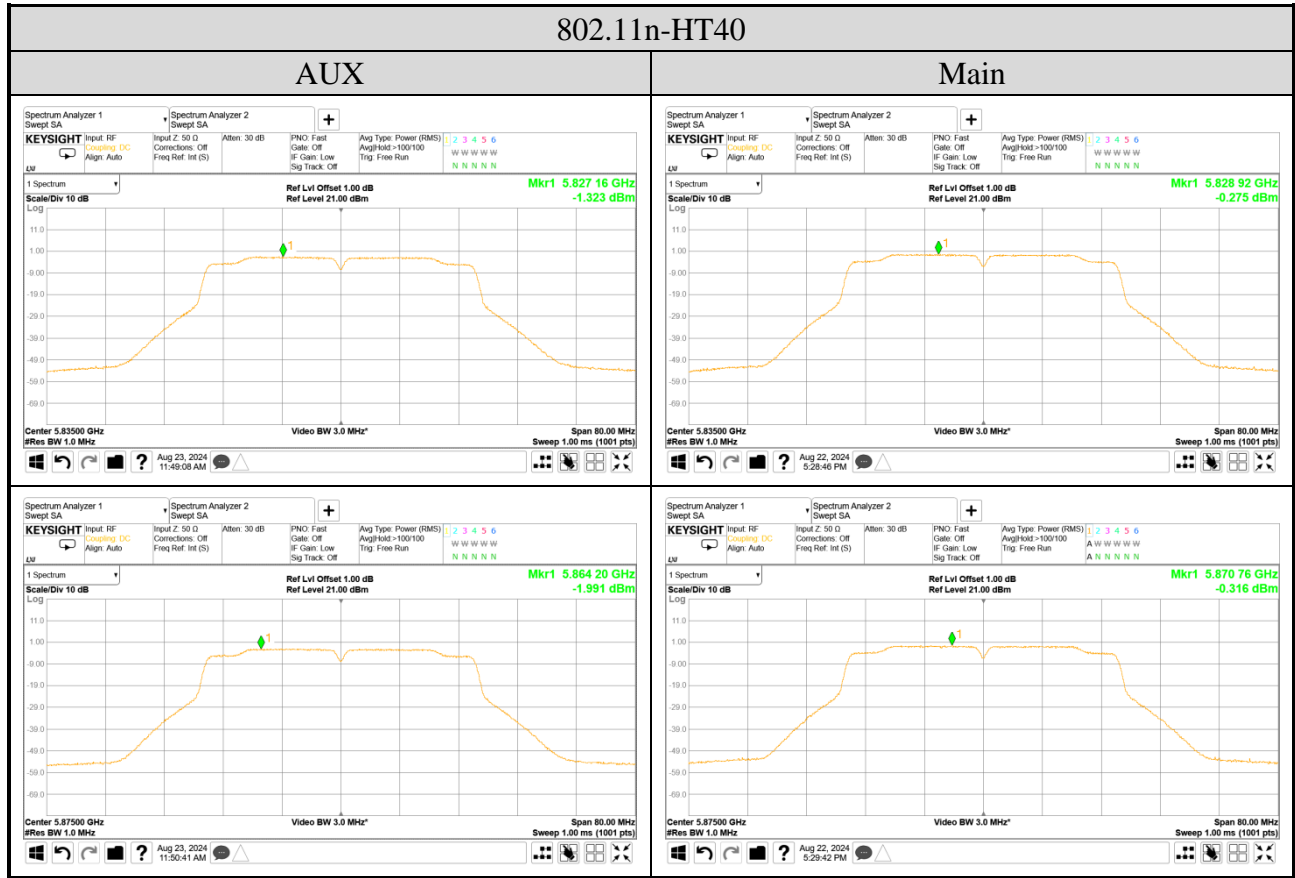
$$\text{Directional gain} = 10 \log[(10^{0.1/10} + 10^{2.1/10})/2] = 1.21\text{dBi}$$

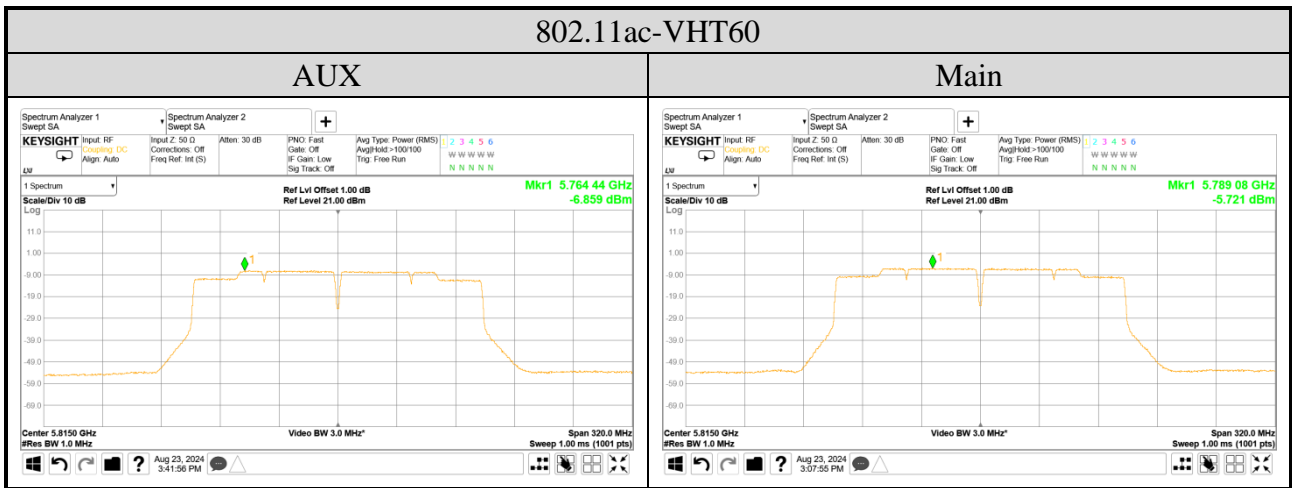
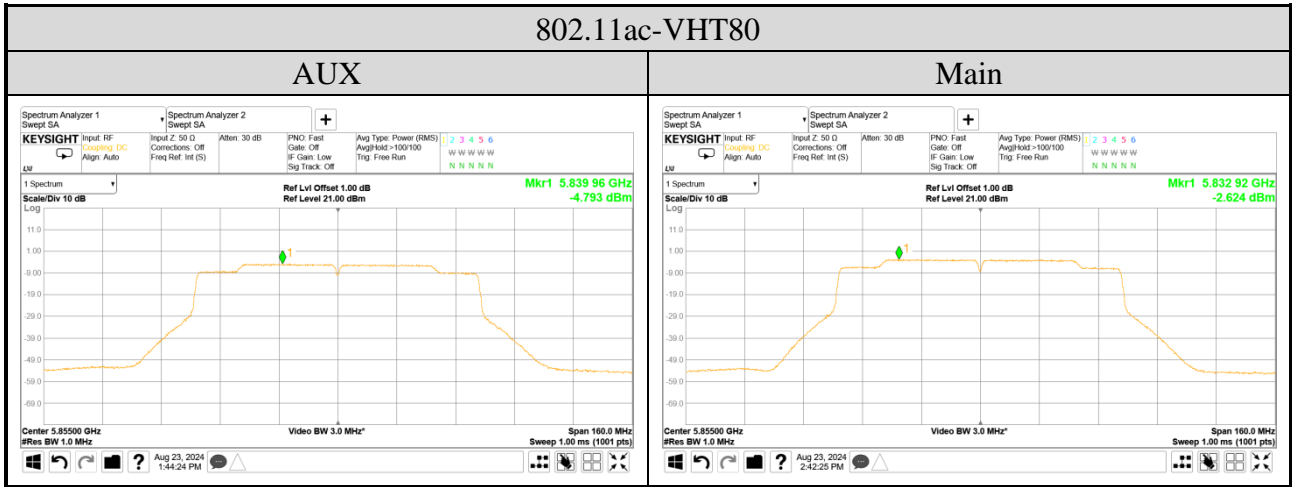
The MIMO is uncorrelated and supported SDM(Spatial Division Multiplexing) mode only. This radio device doesn't support beamforming and Cyclic Delay Diversity (CDD).

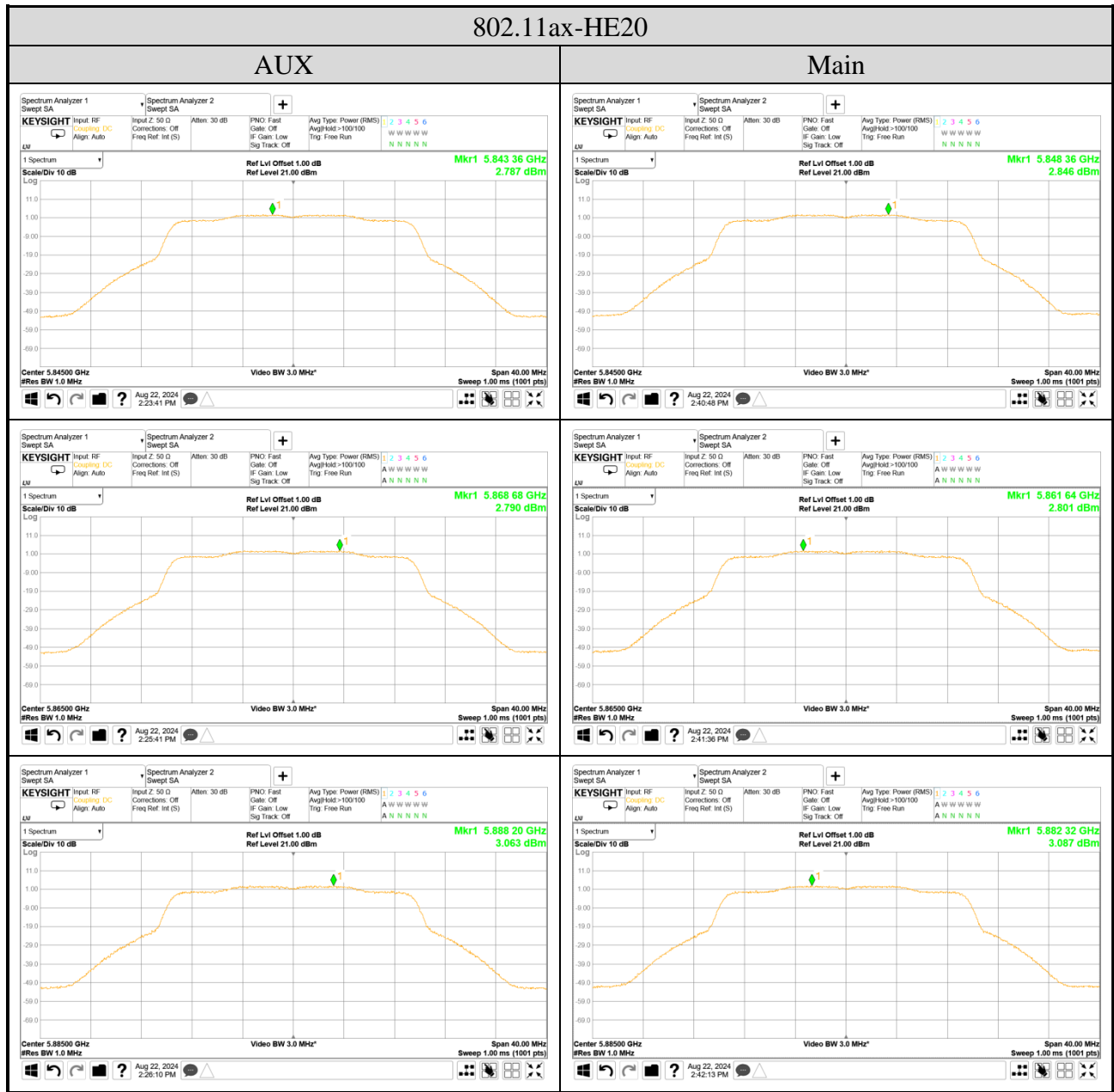
A.4.2 Measurement Plots

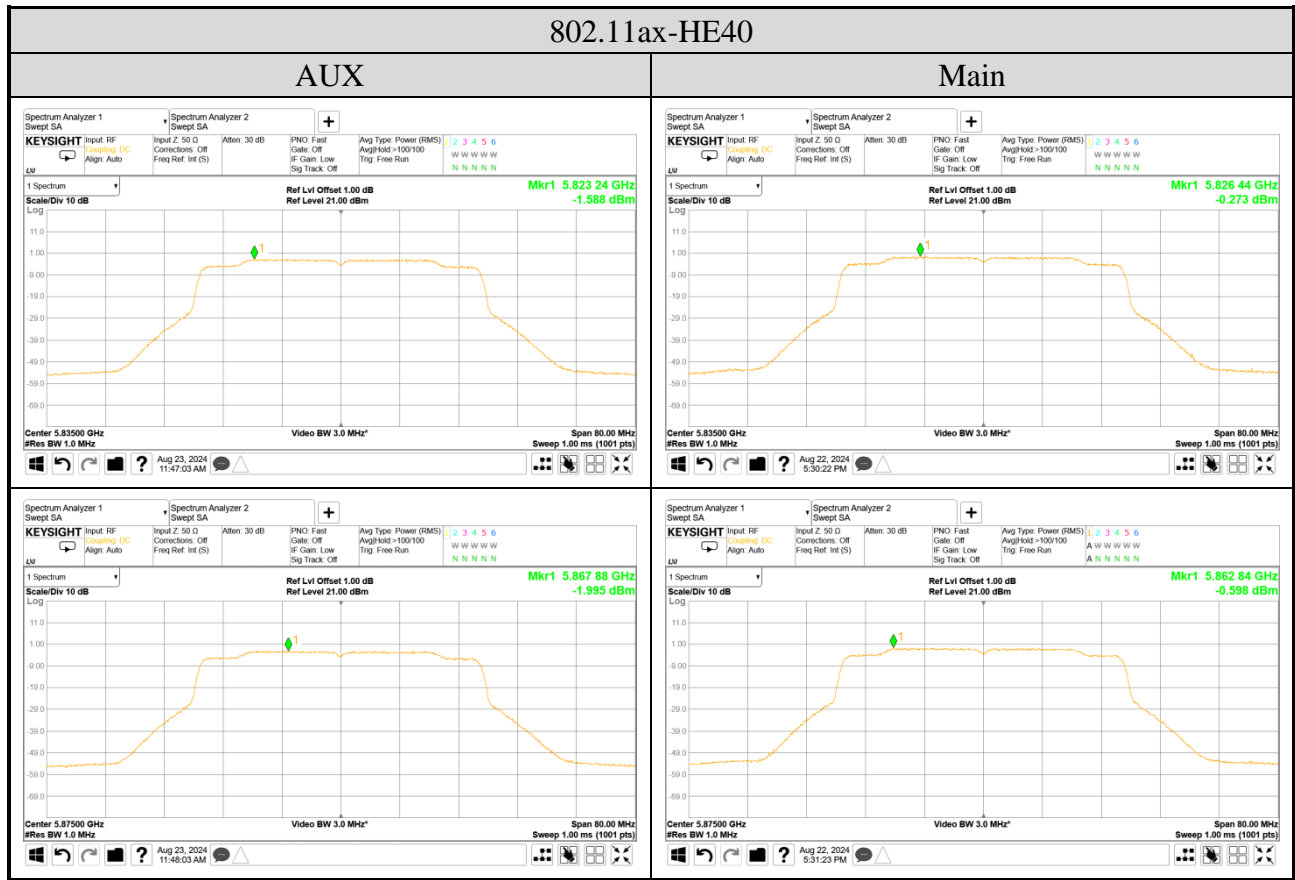


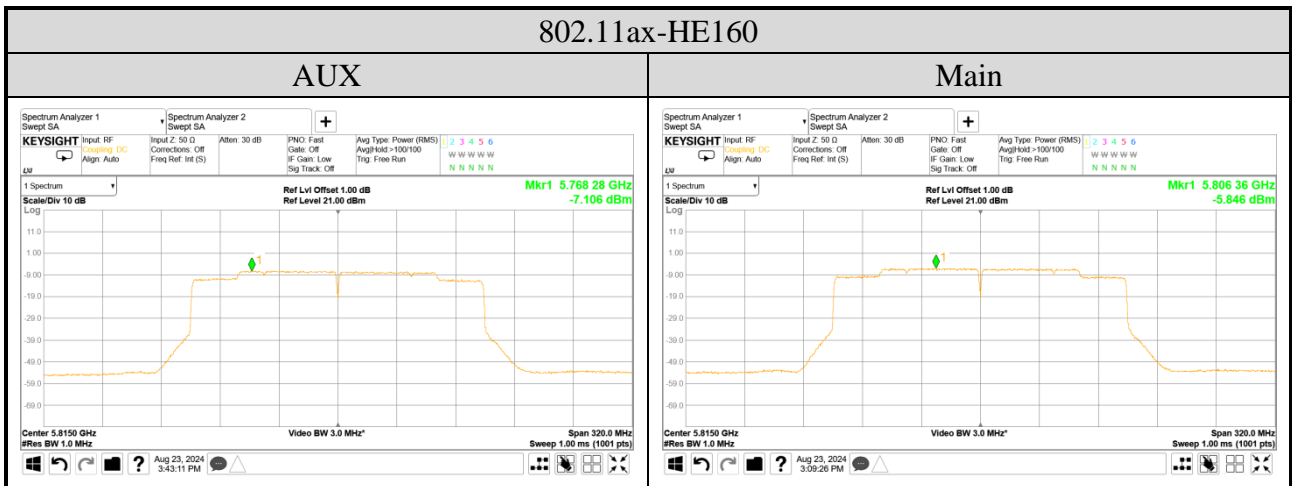
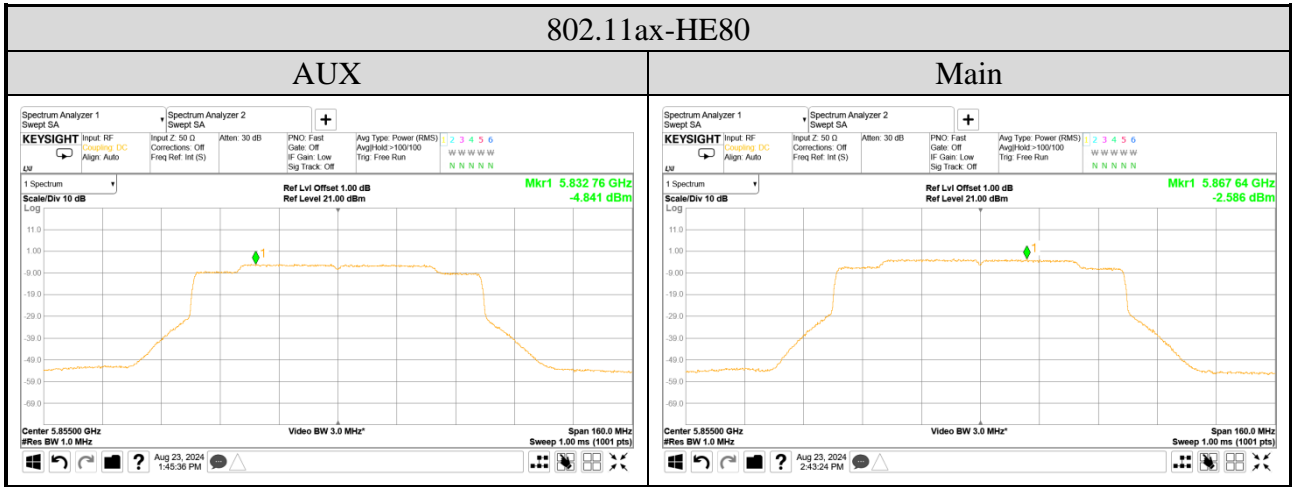


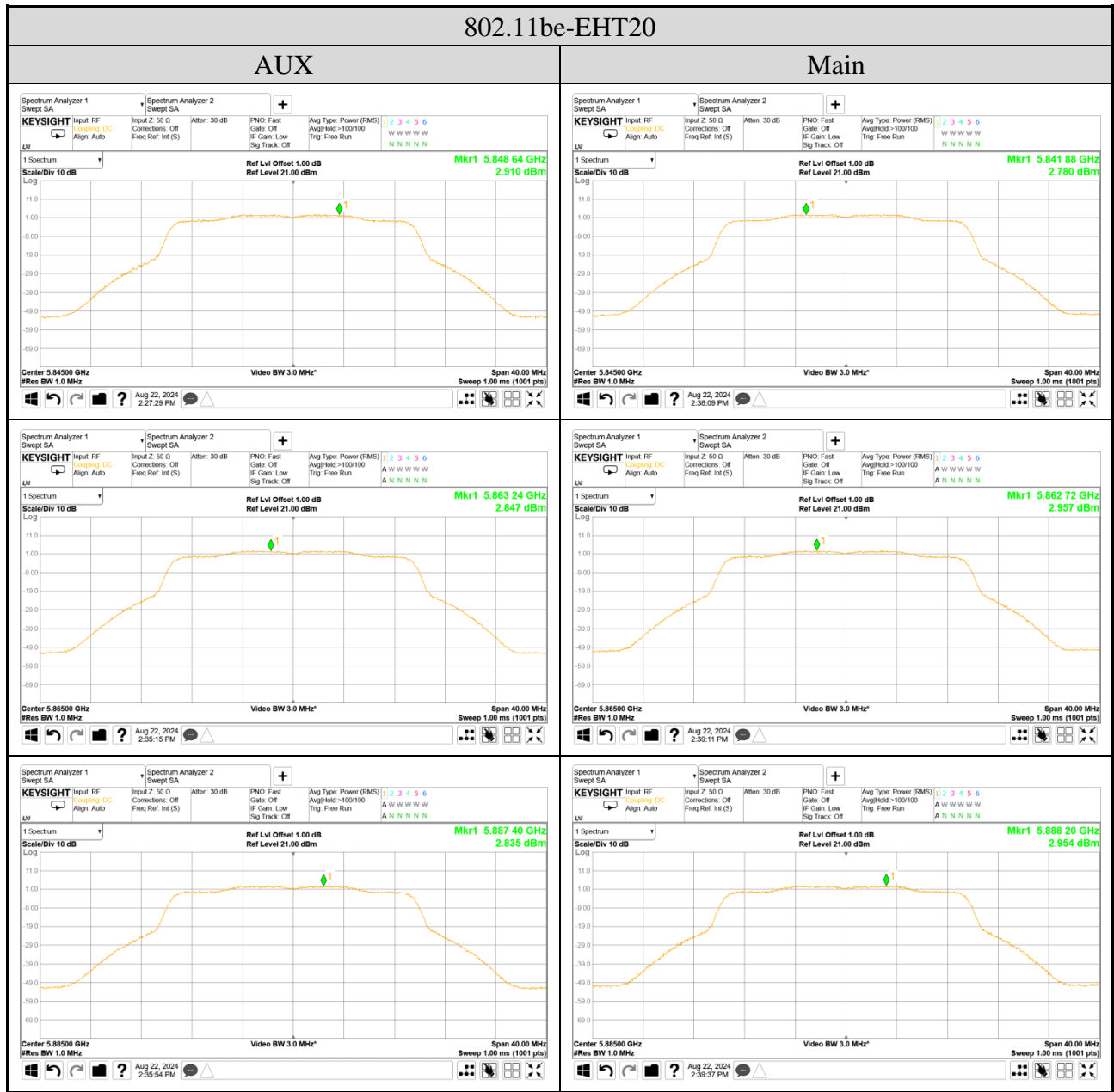


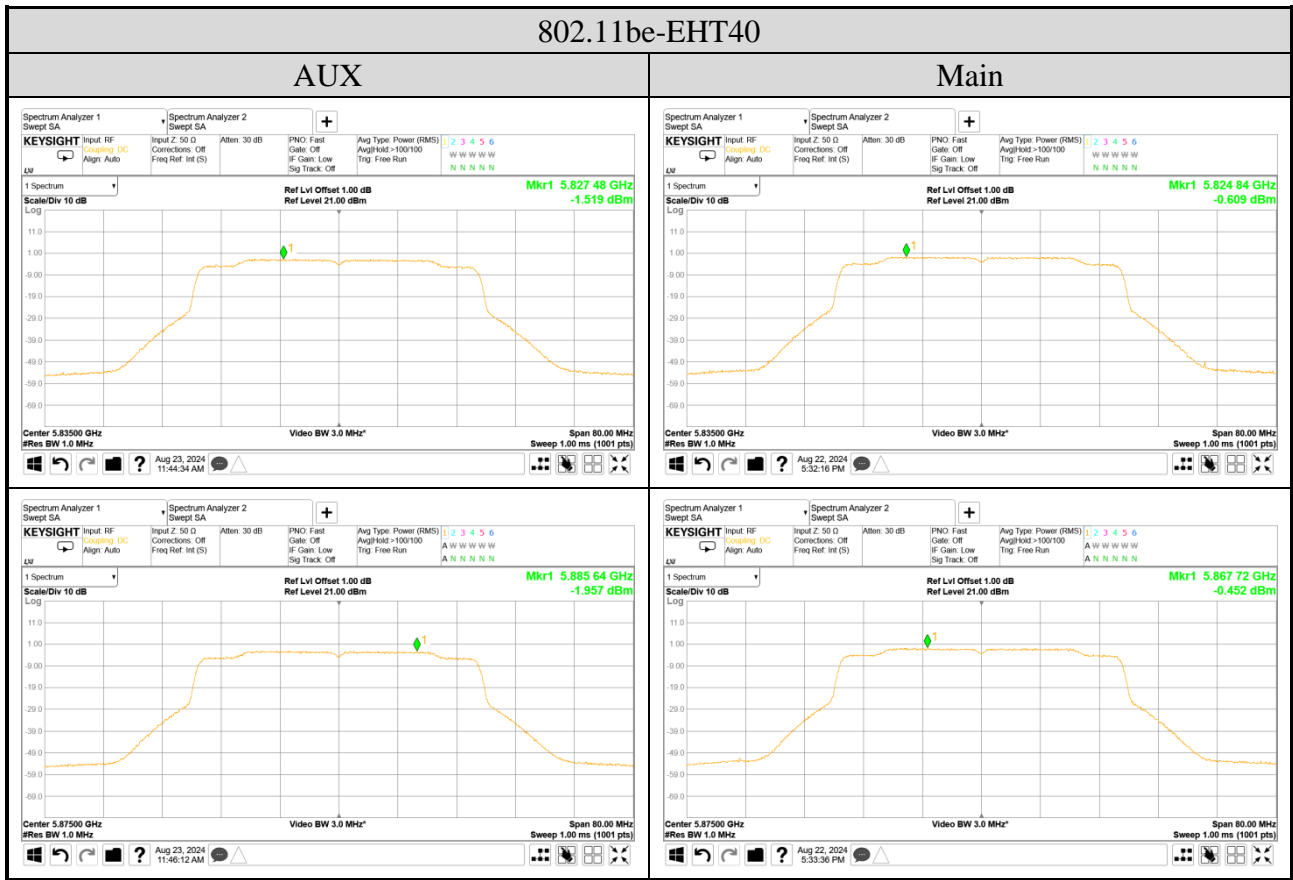


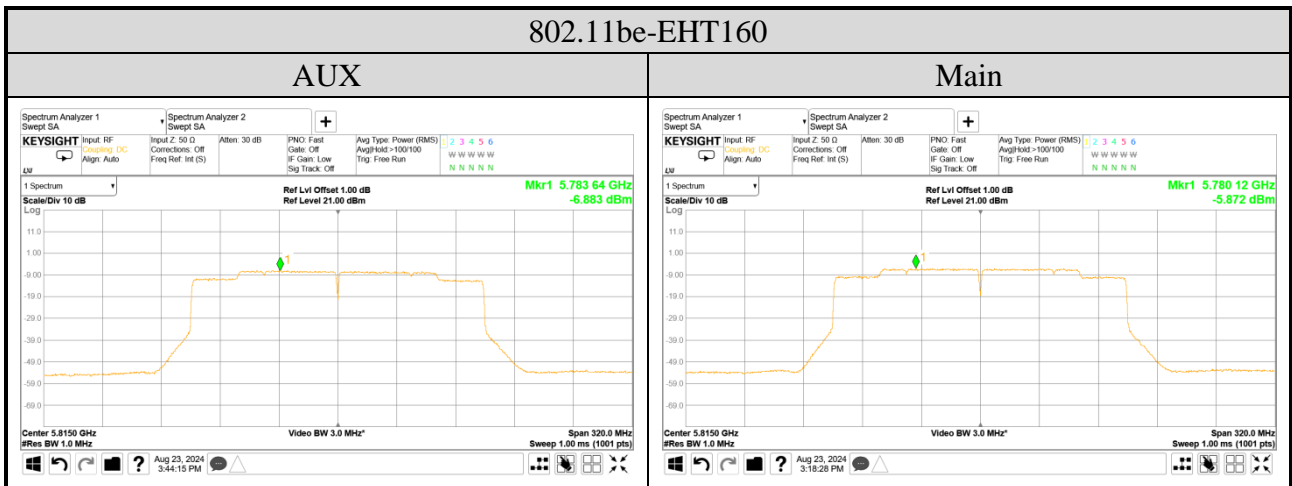
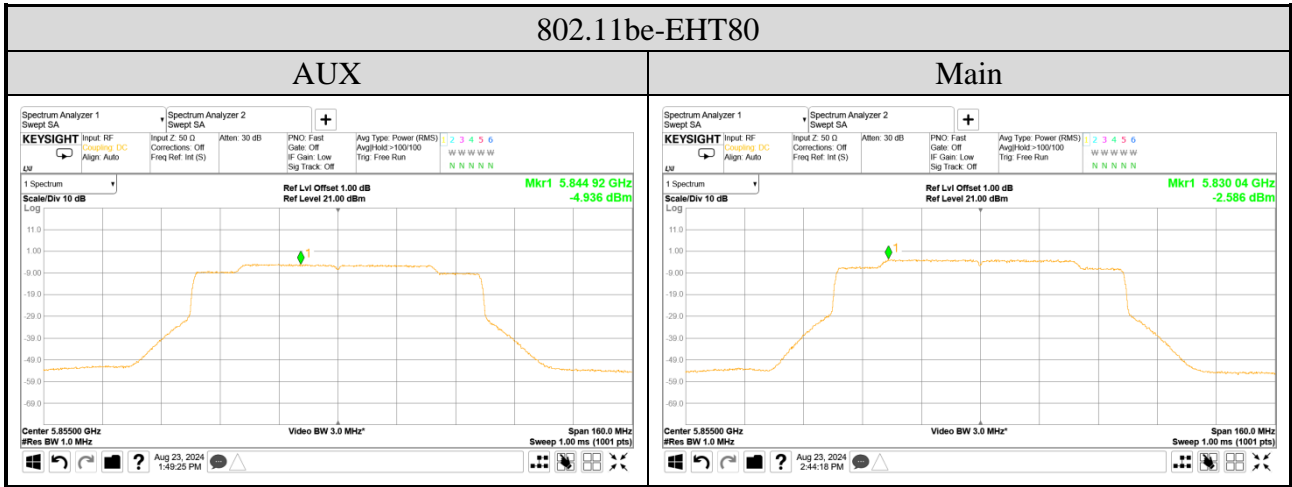












A.5 FREQUENCY STABILITY

Test Date	2024/08/23	Temp./Hum.	25°C/48%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Tested By	Harry Huang

A.5.1 Frequency stability Result

Temperature (°C)	Voltage (Vac)	Centre Frequency (MHz)	Measurement Value (MHz)	Frequency Stability (ppm)
25	120	5845	5844.997	-0.513
-30	102		5845.014	2.395
	138		5844.984	-2.737
-20	102		5845.005	0.855
	138		5844.99	-1.711
-10	102		5844.984	-2.737
	138		5844.989	-1.882
0	102		5844.997	-0.513
	138		5845.015	2.566
10	102		5845.001	0.171
	138		5845.011	1.882
20	102		5844.989	-1.882
	138		5845.005	0.855
30	102		5844.997	-0.513
	138		5845.014	2.395
40	102		5845.020	3.422
	138		5845.012	2.053
50	102		5844.994	-1.027
	138		5844.984	-2.737