



6.7. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

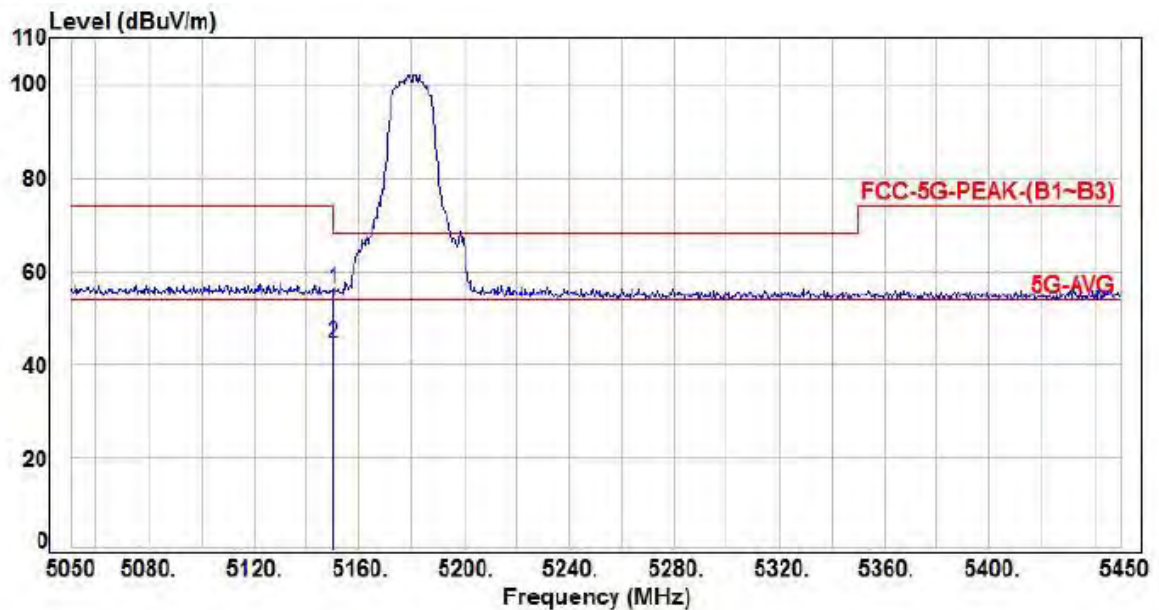
MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



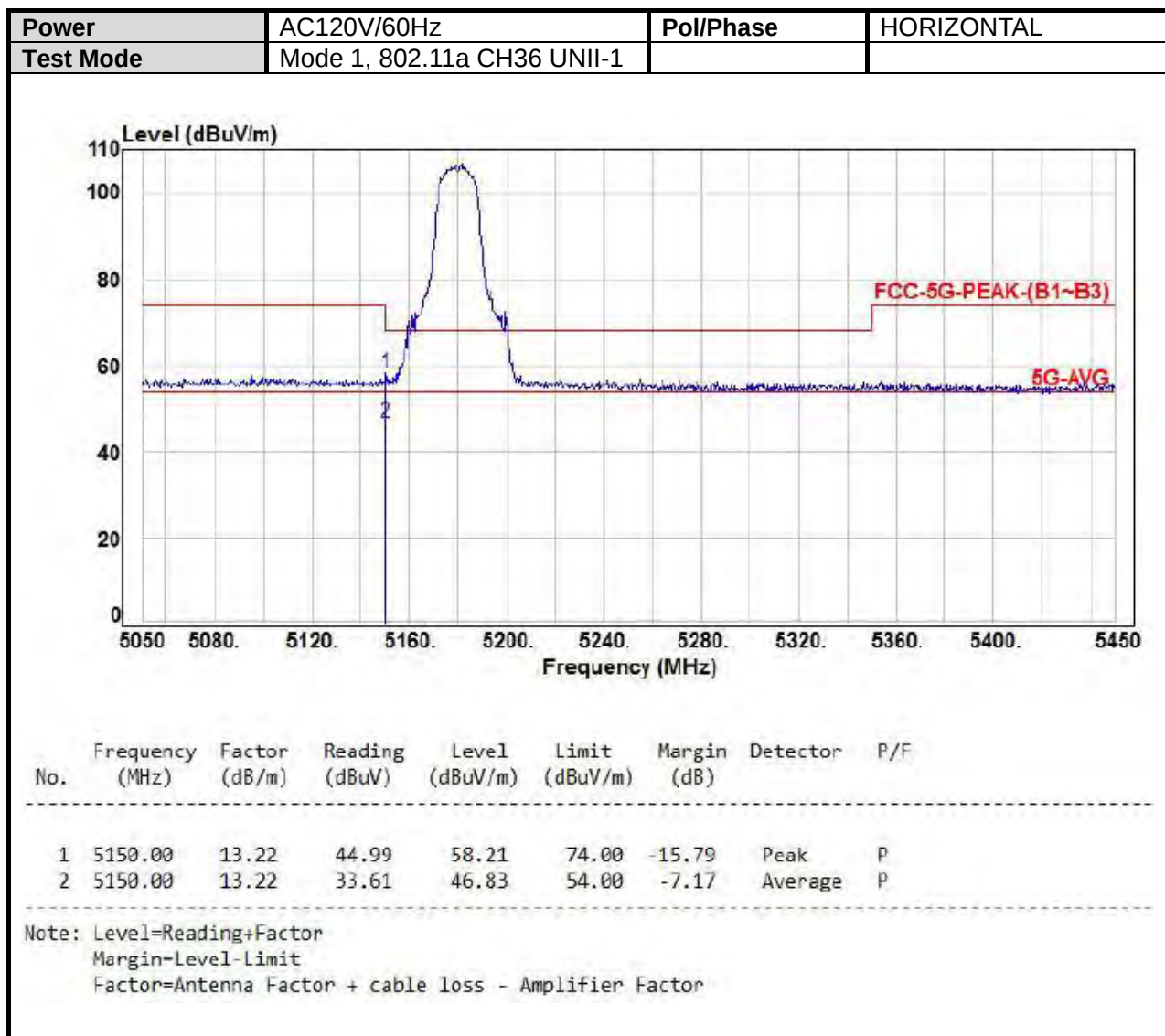
UNII-1

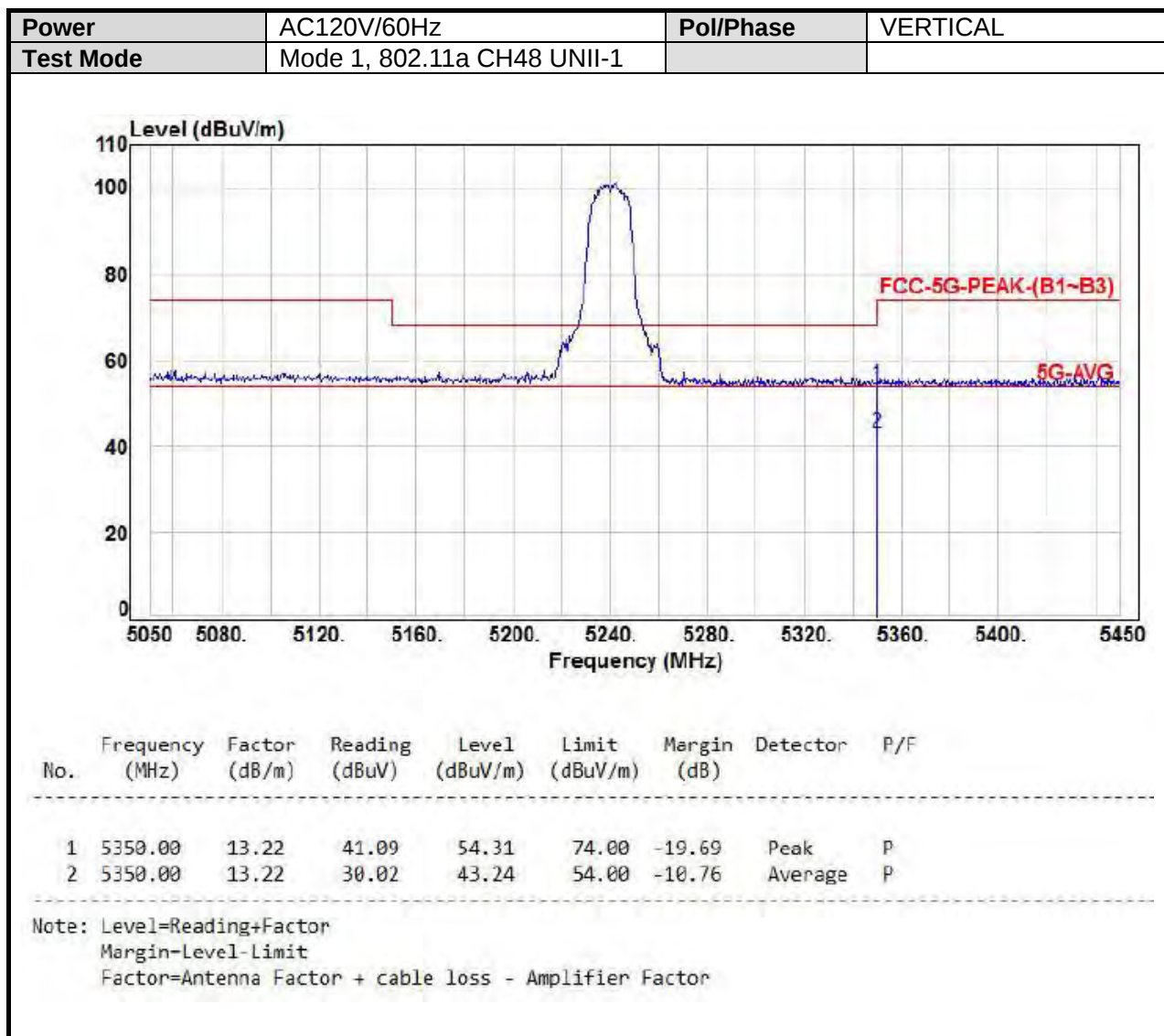
Power	AC120V/60Hz	Pol/Phase	VERTICAL
Test Mode	Mode 1, 802.11a CH36 UNII-1		

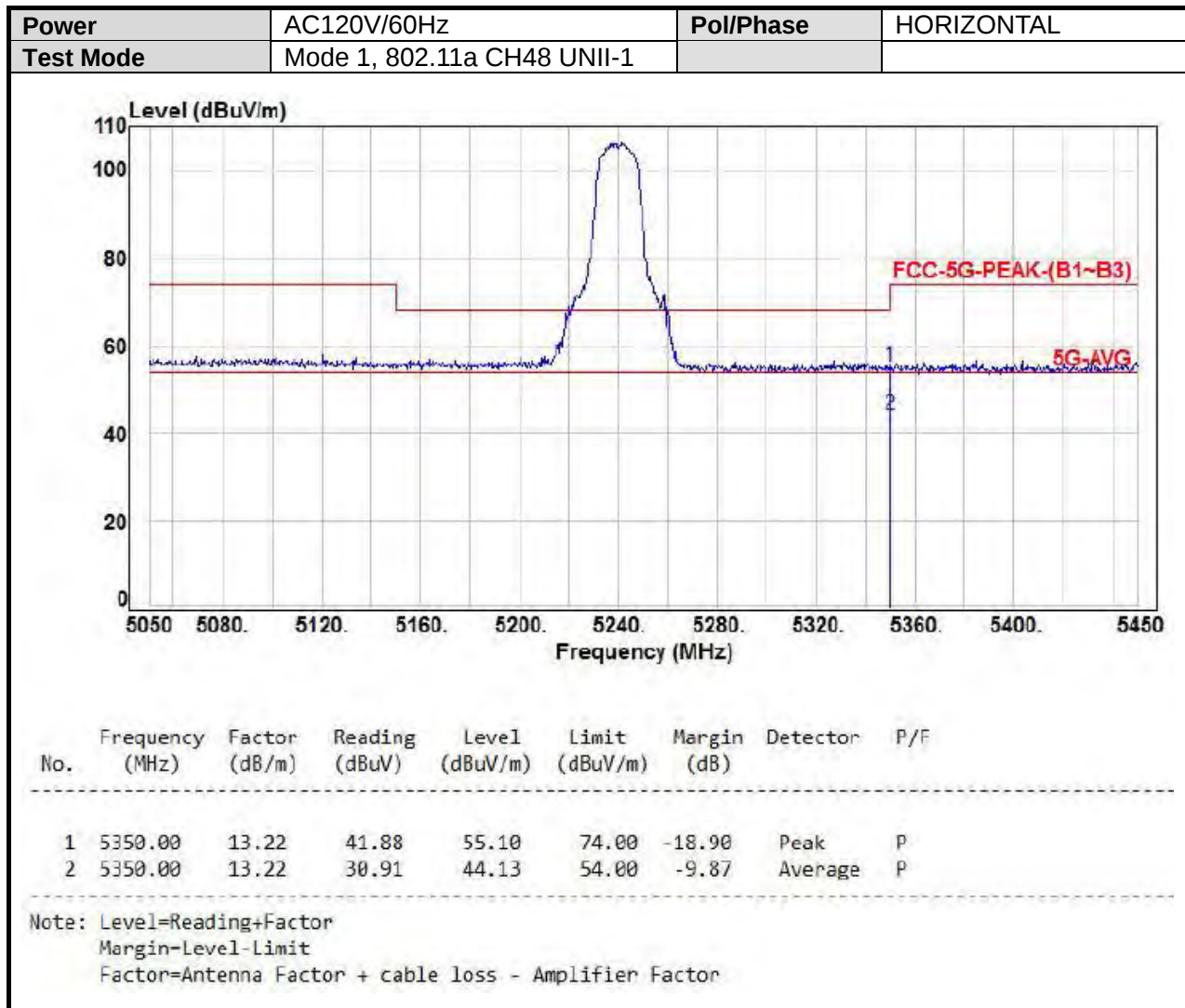


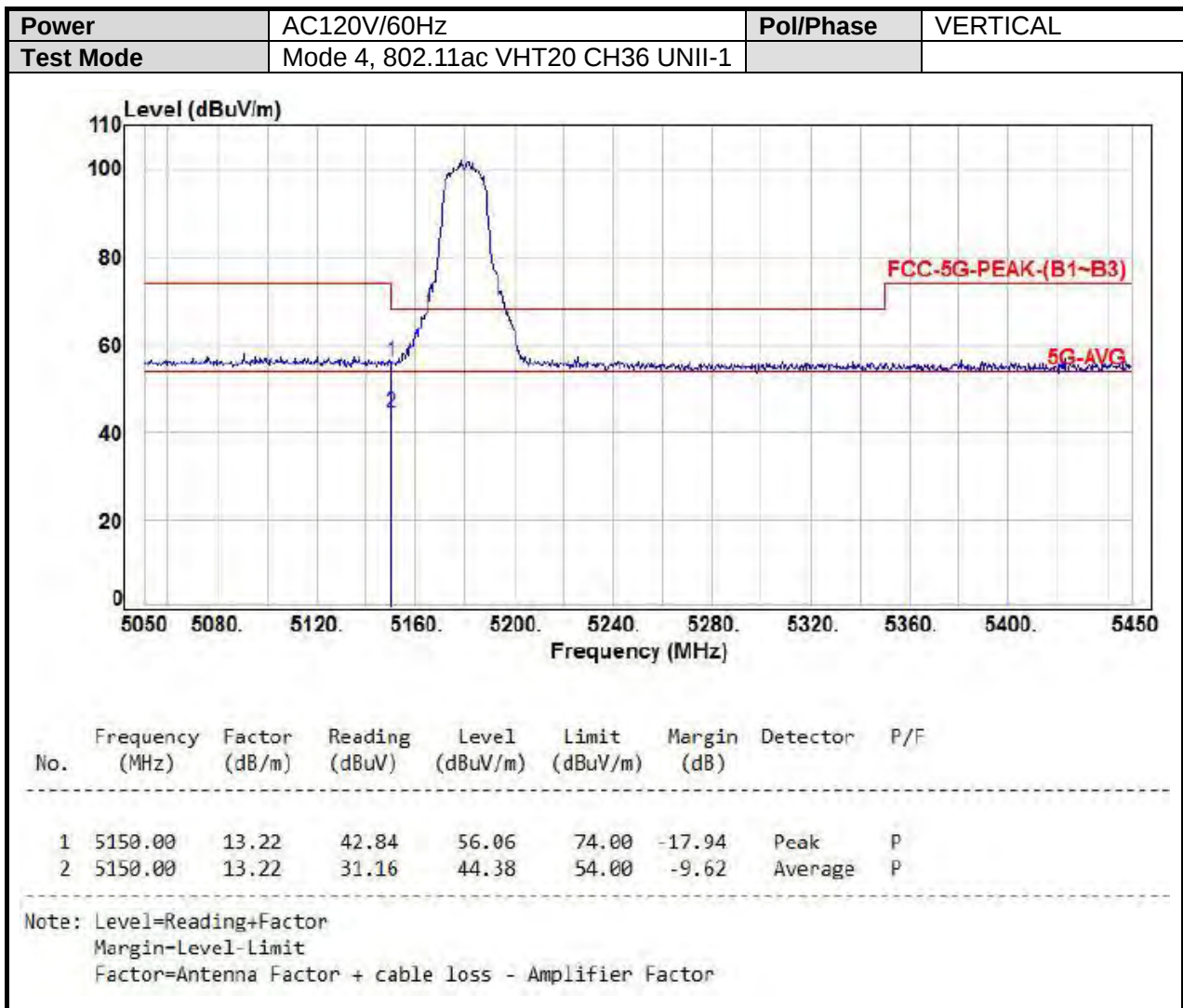
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5150.00	13.22	42.90	56.12	74.00	-17.88	Peak	P
2	5150.00	13.22	31.36	44.58	54.00	-9.42	Average	P

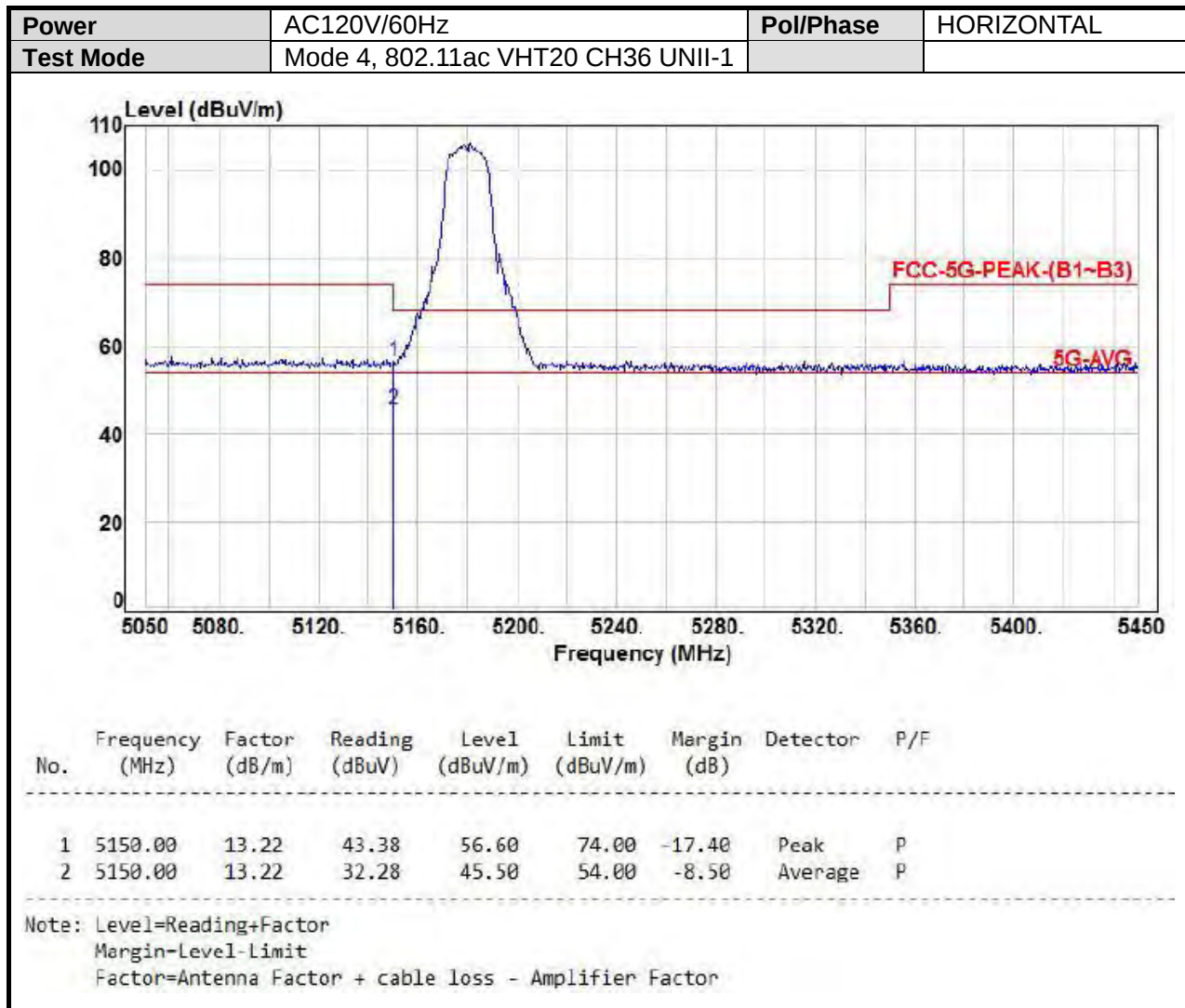
Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

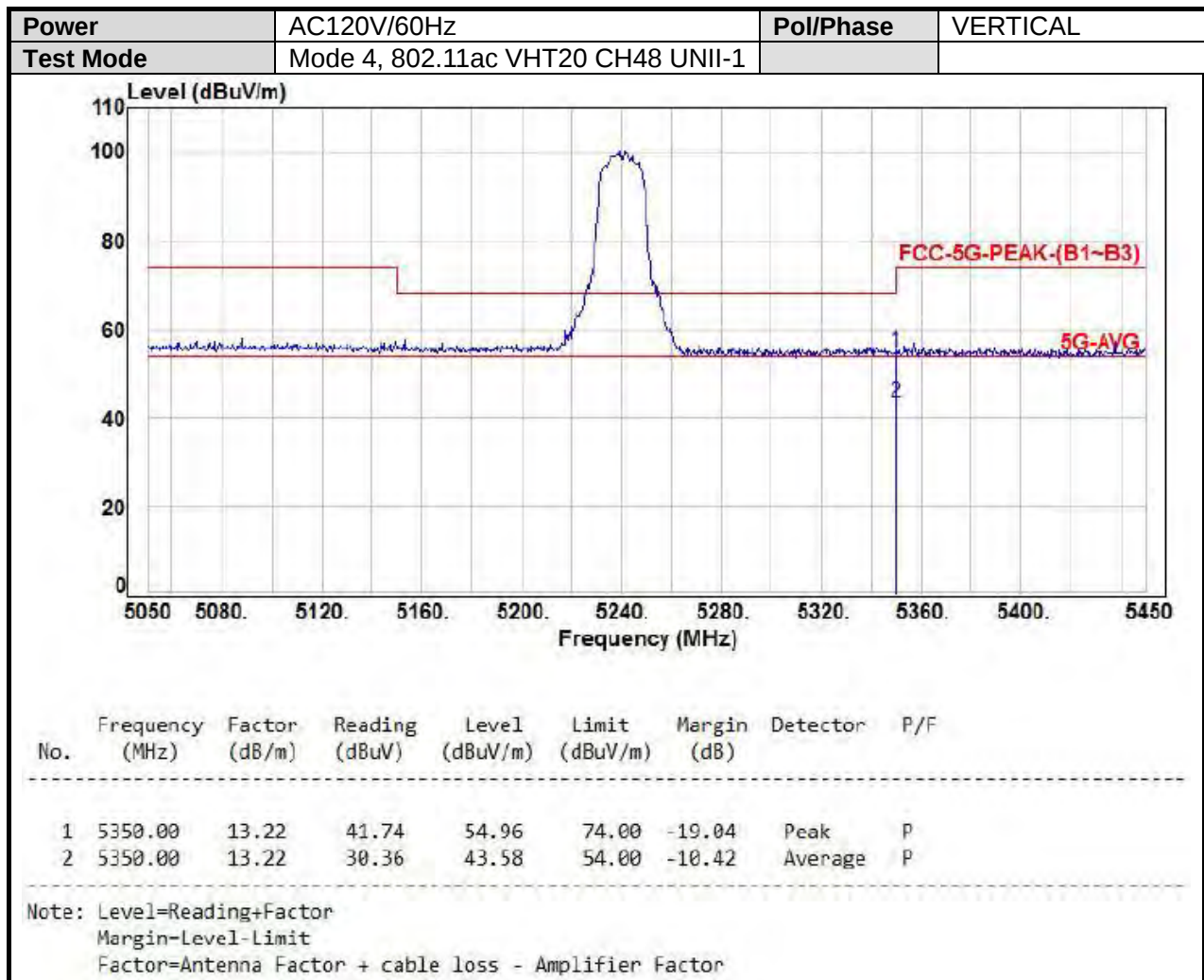


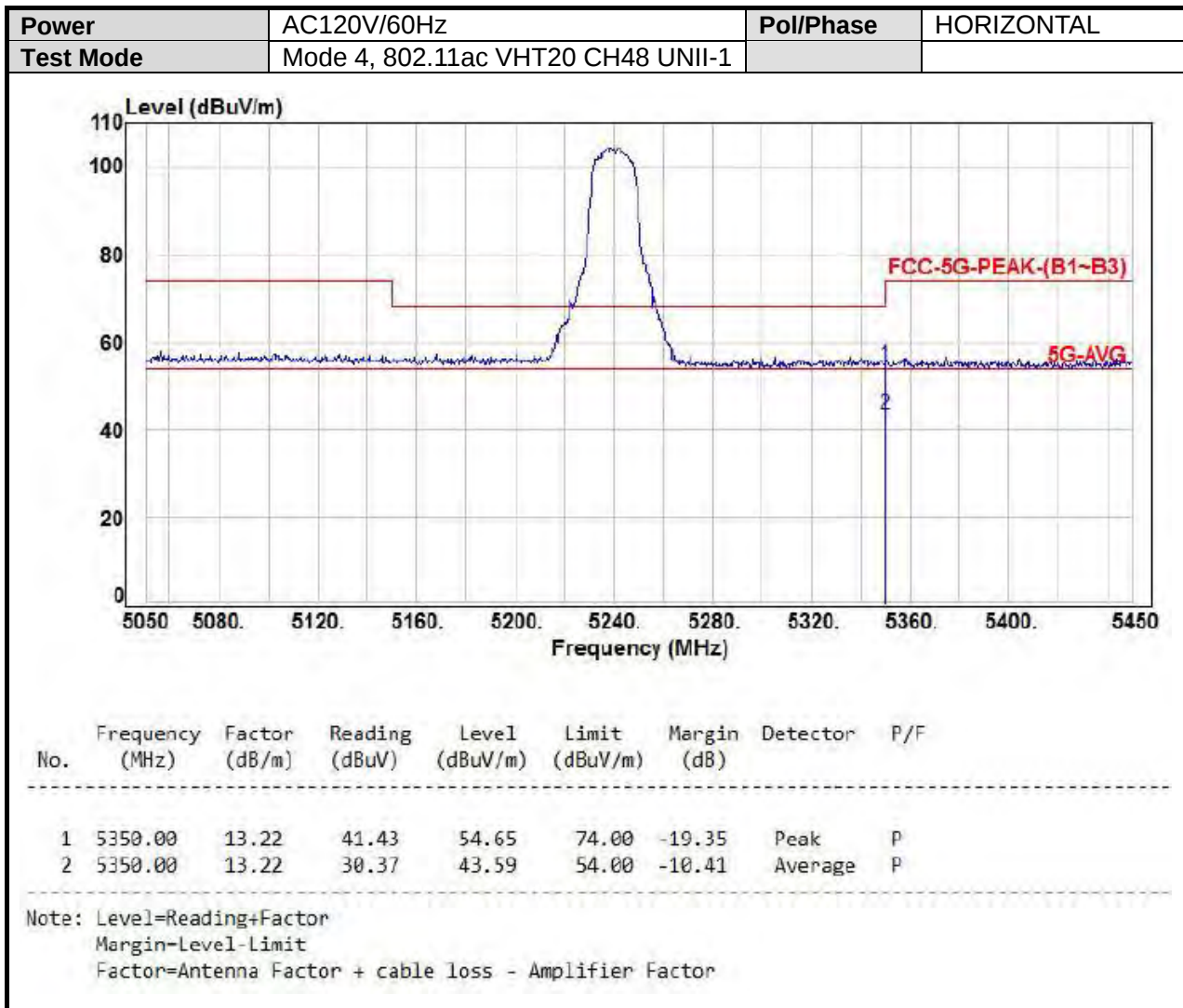


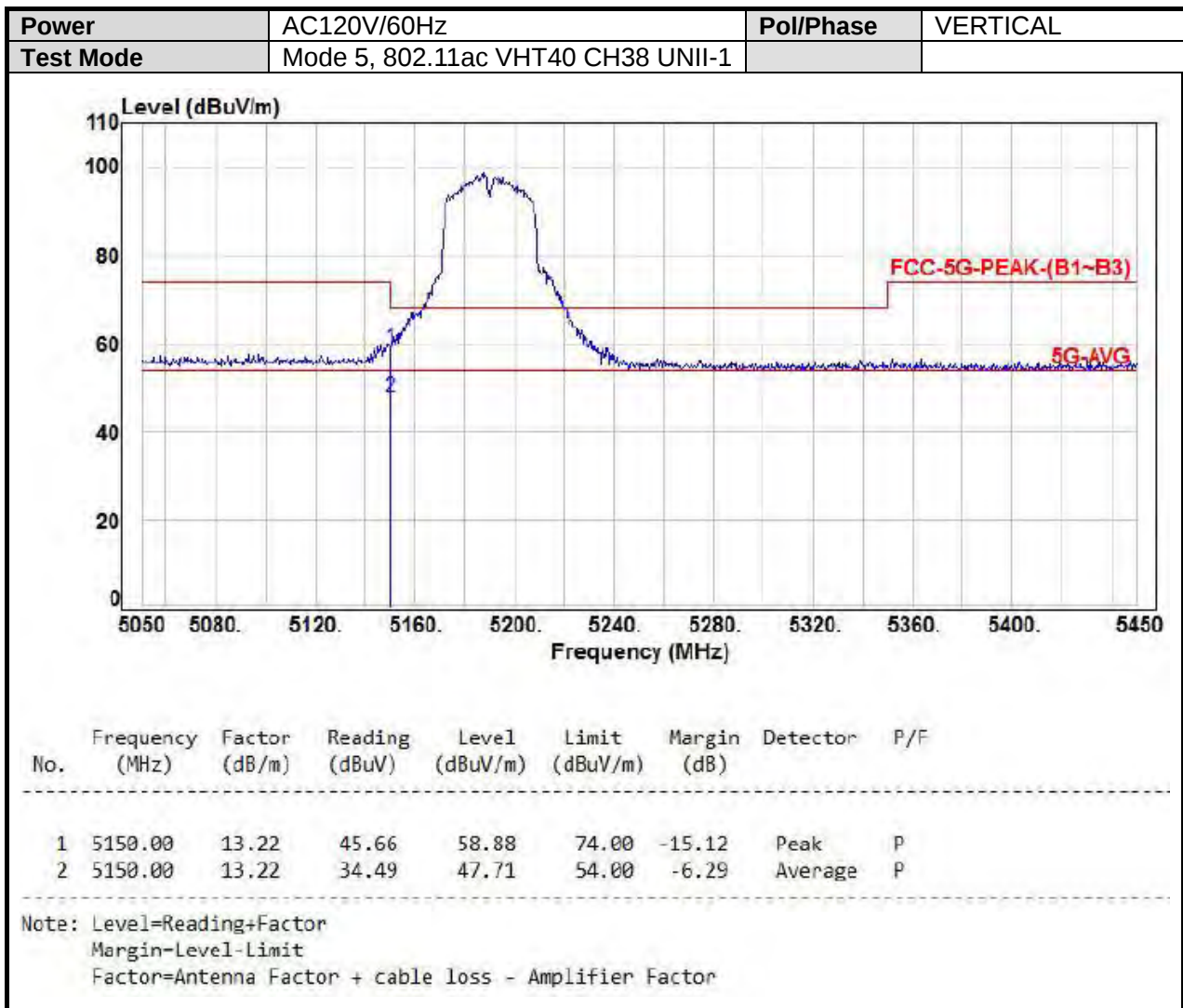


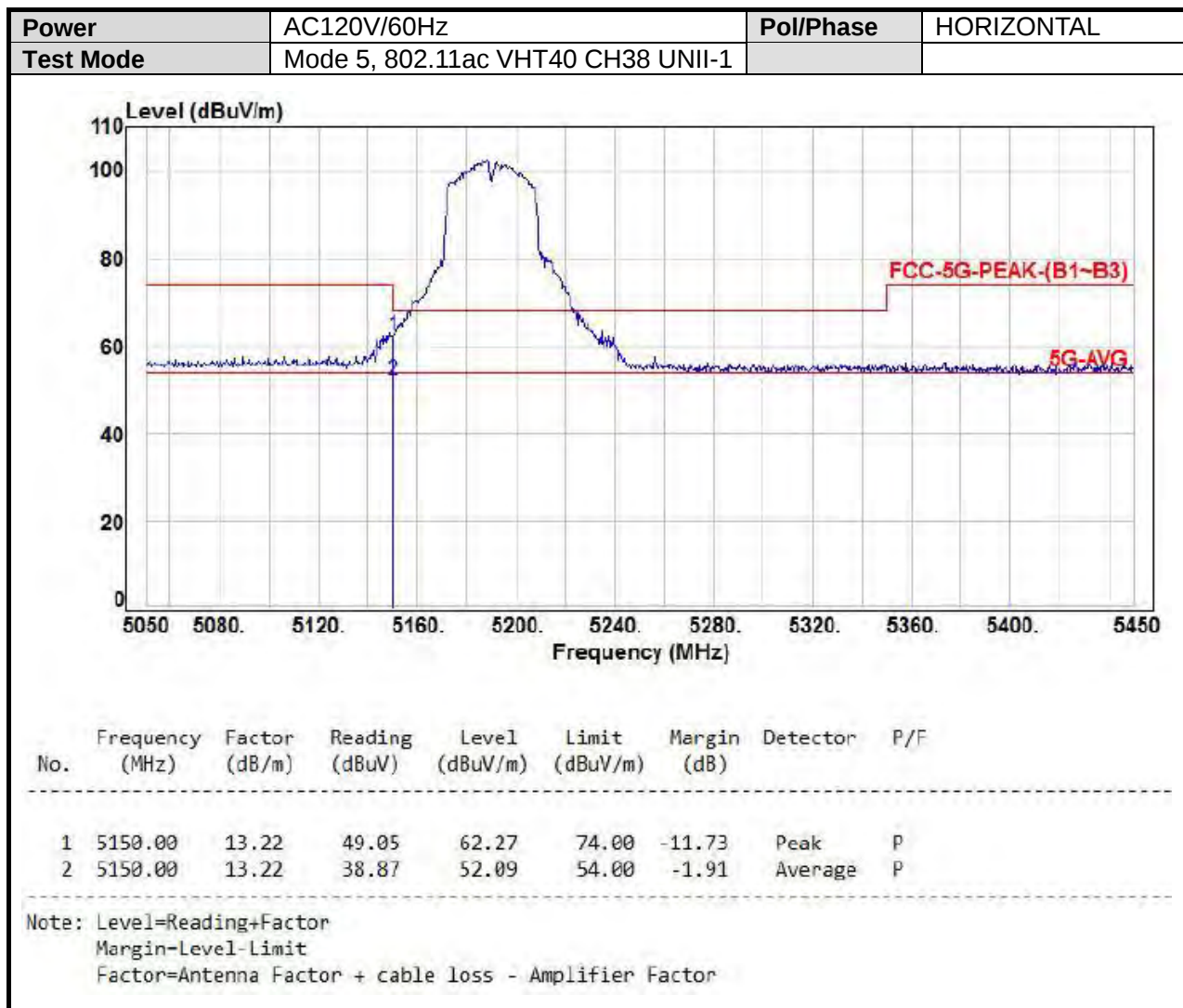


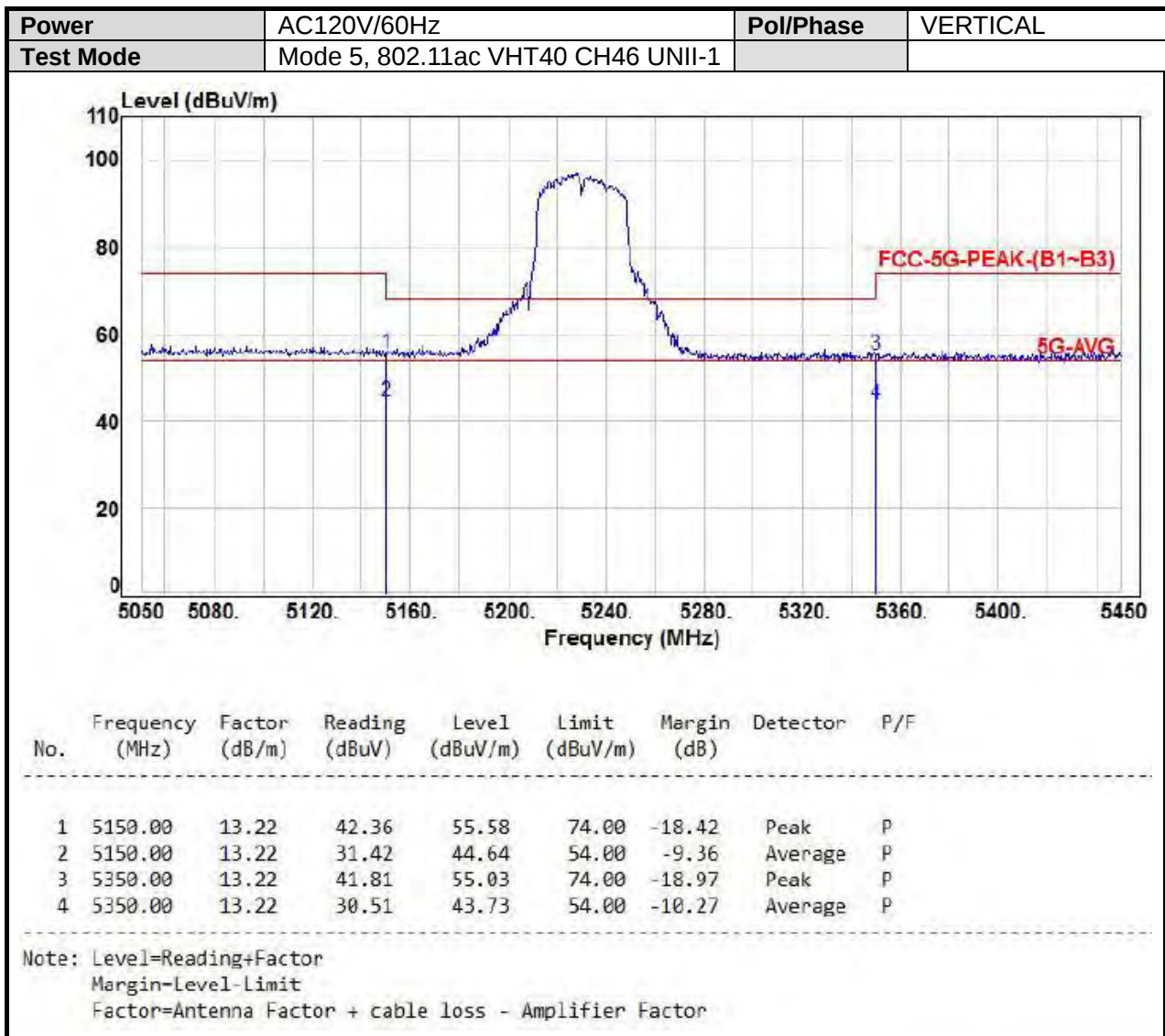


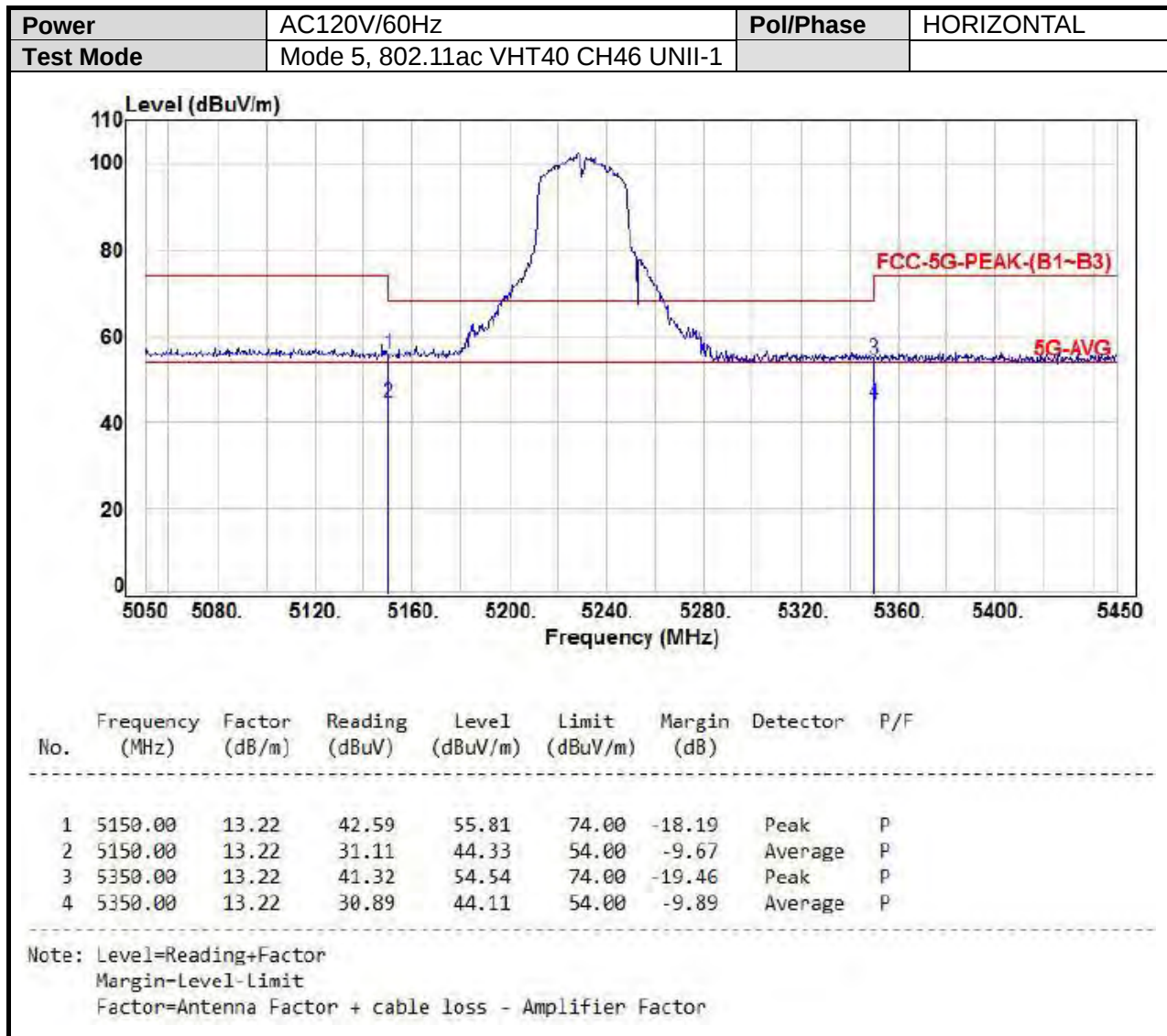


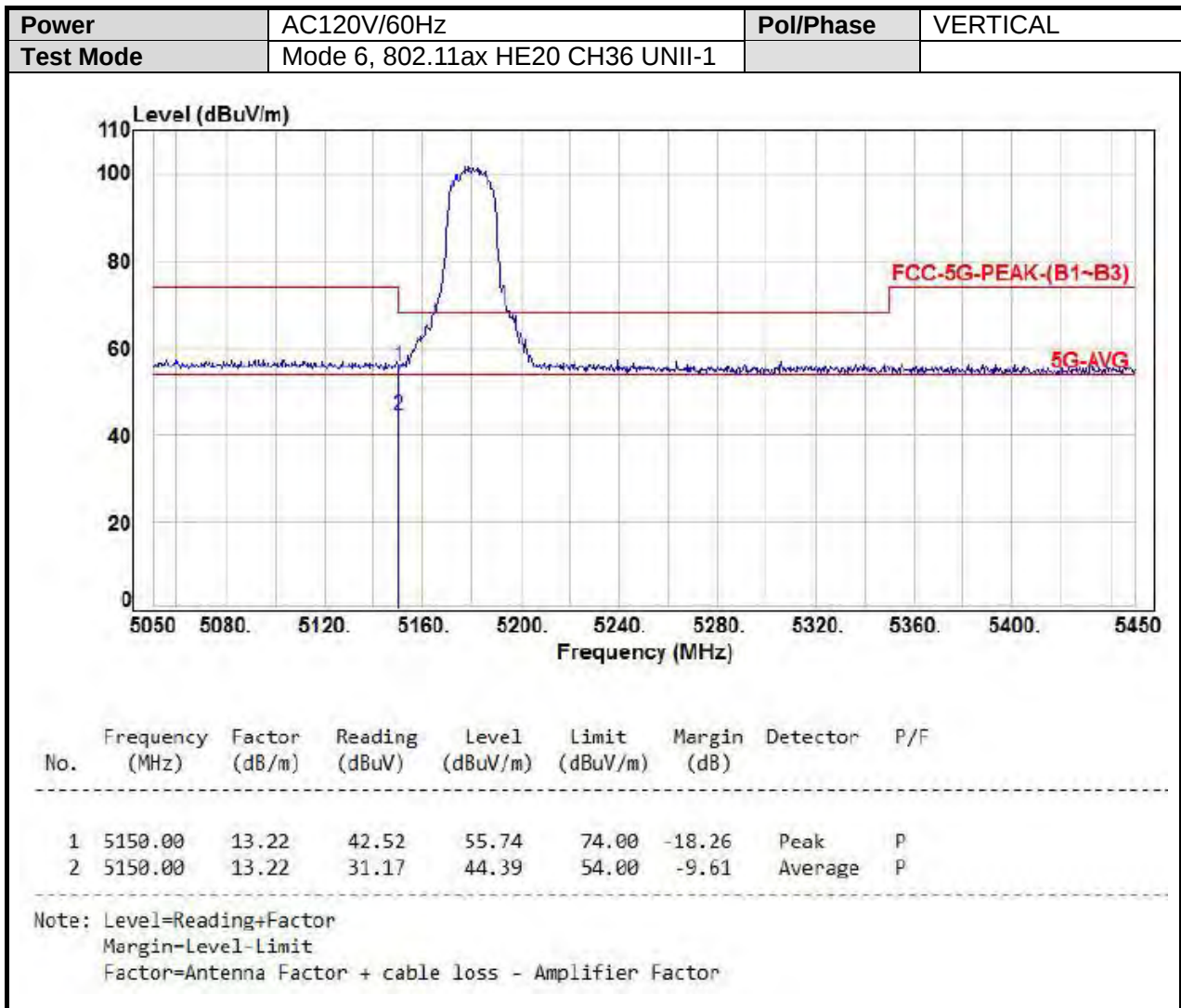


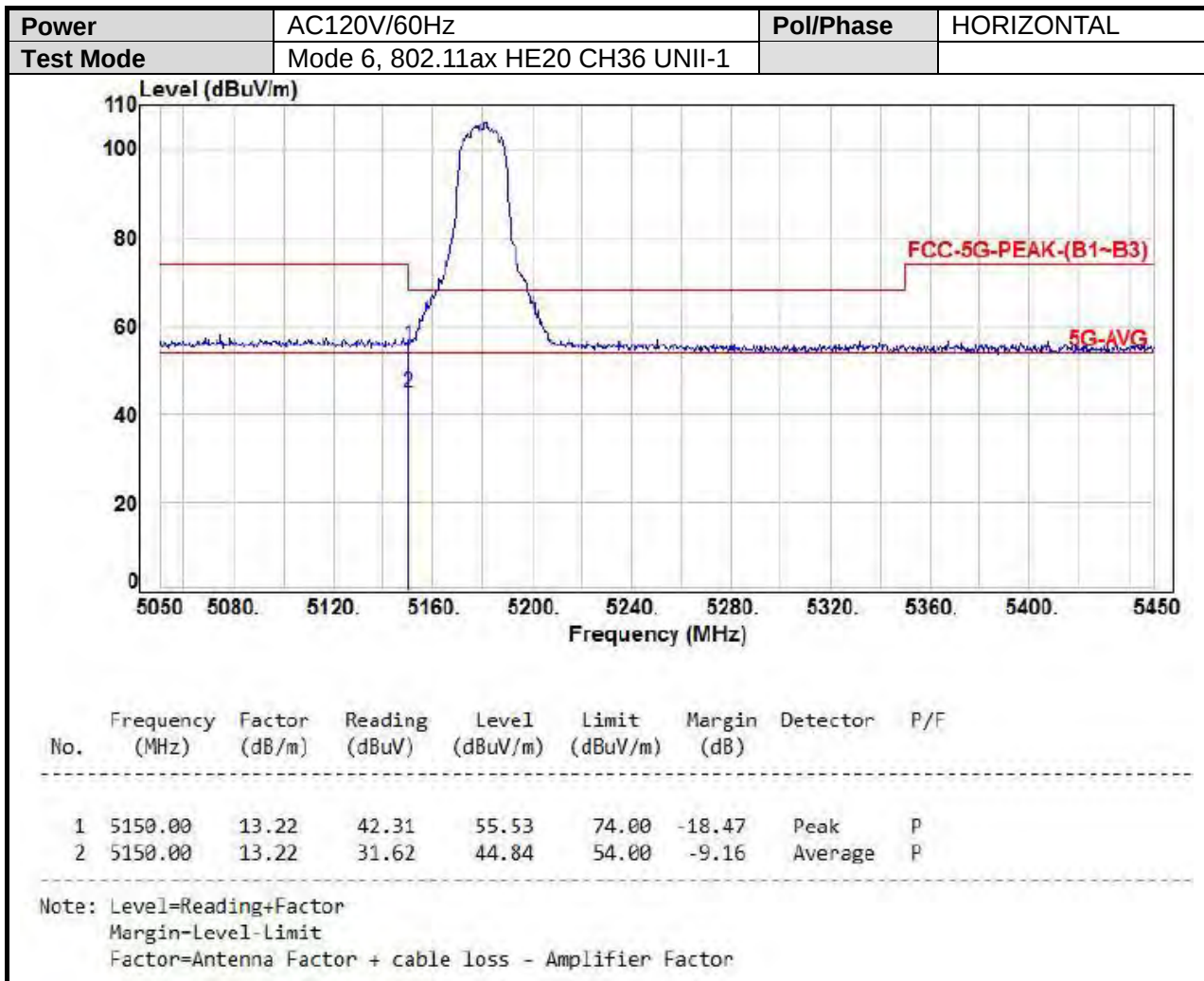


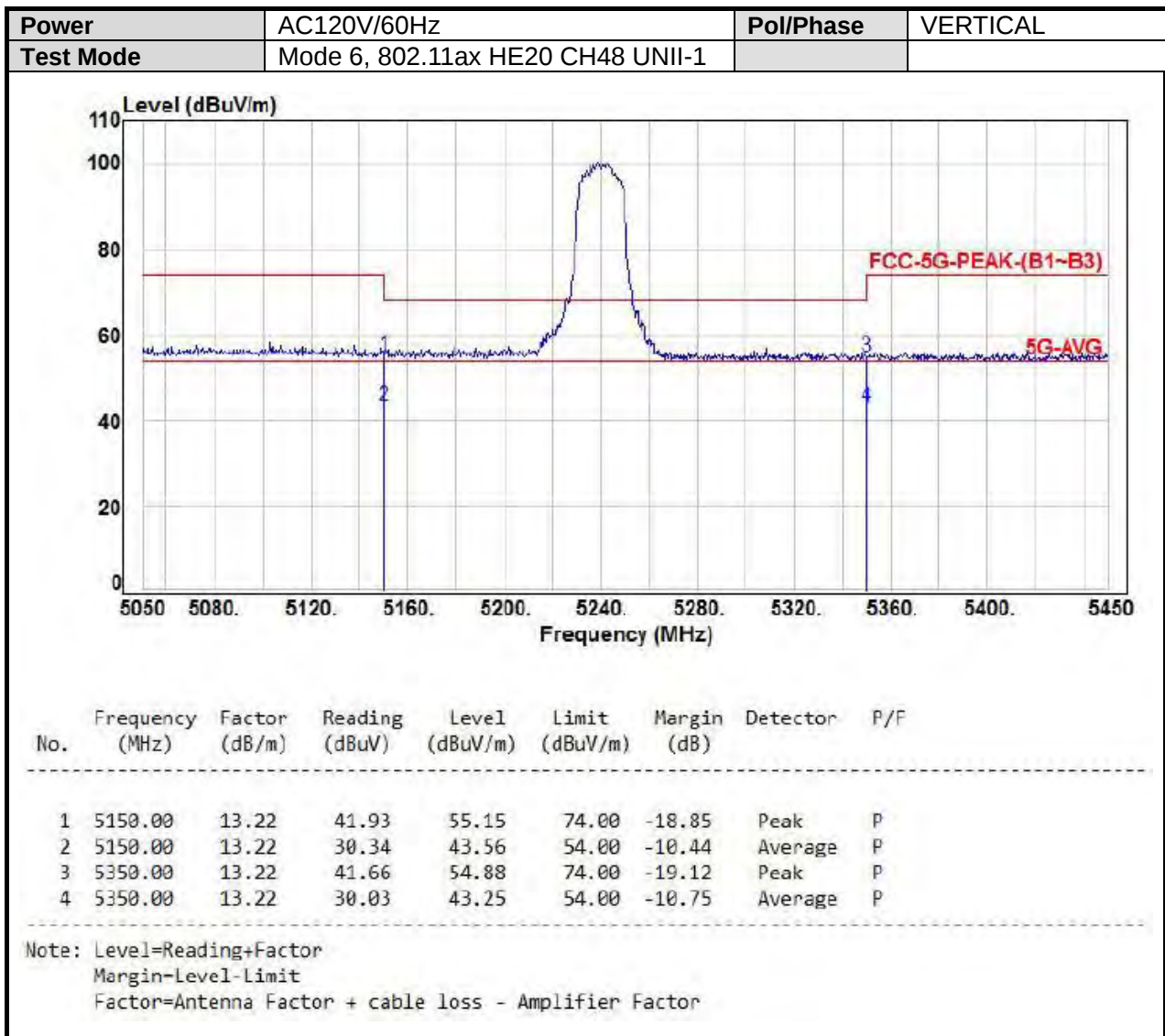


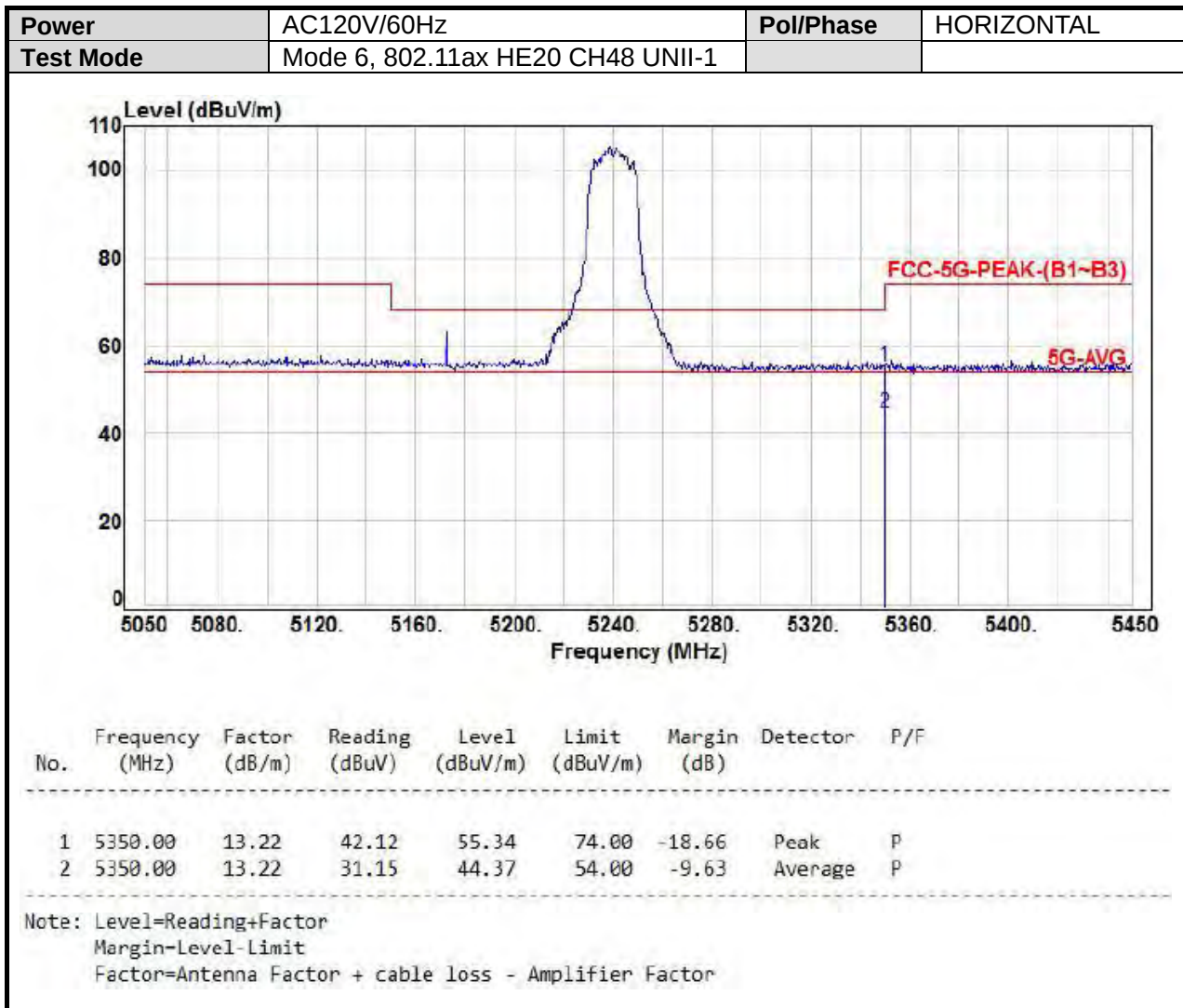


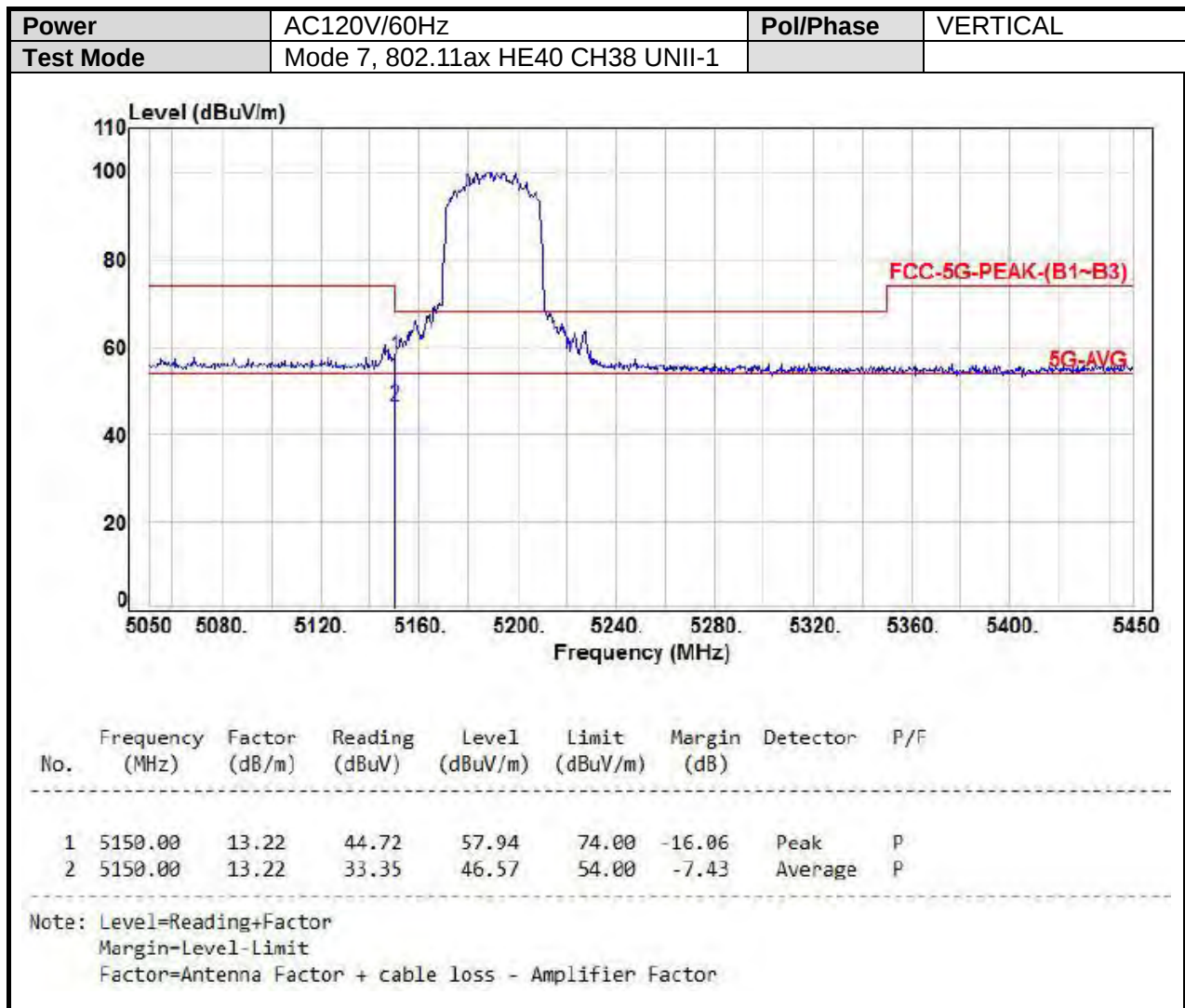


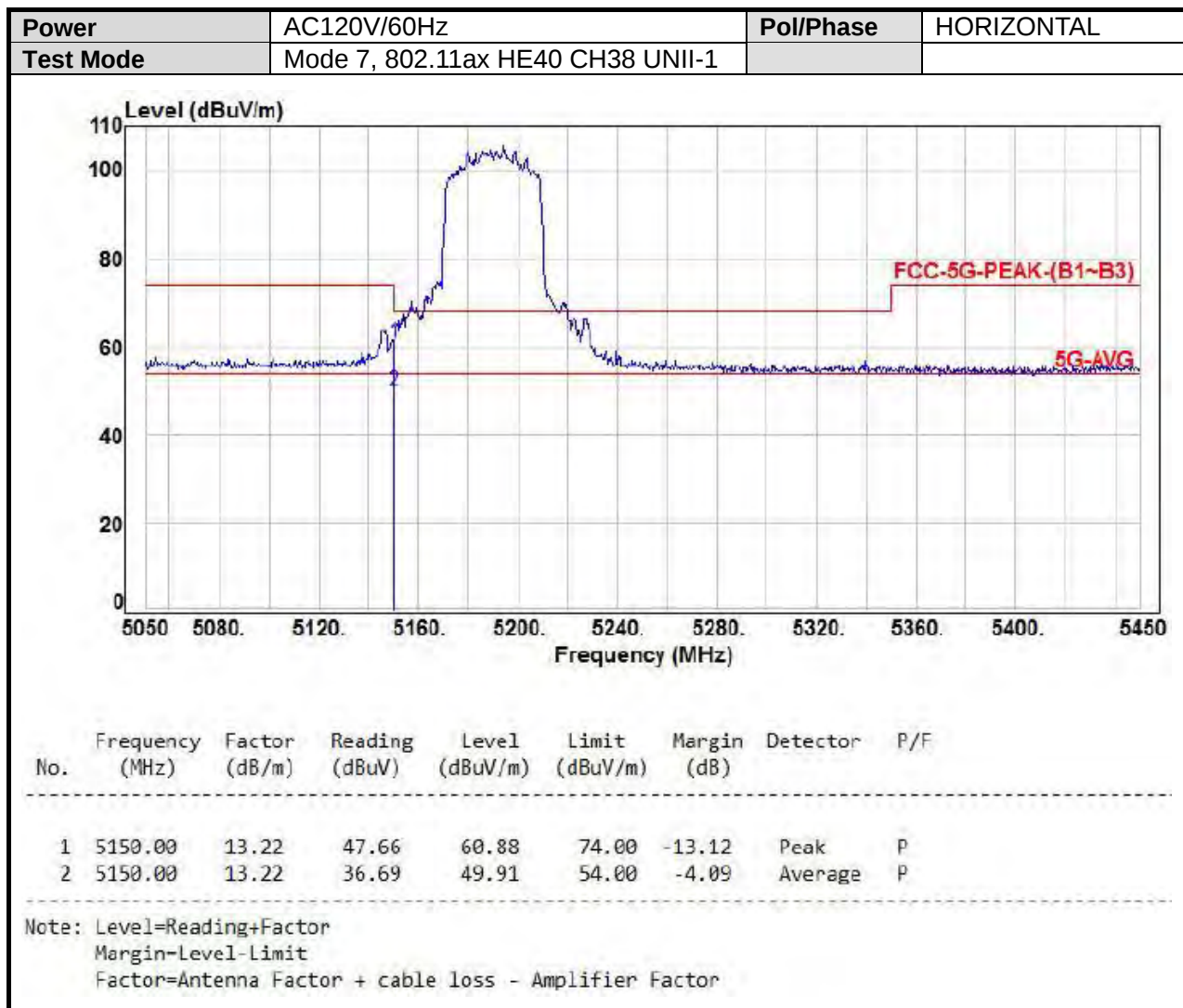


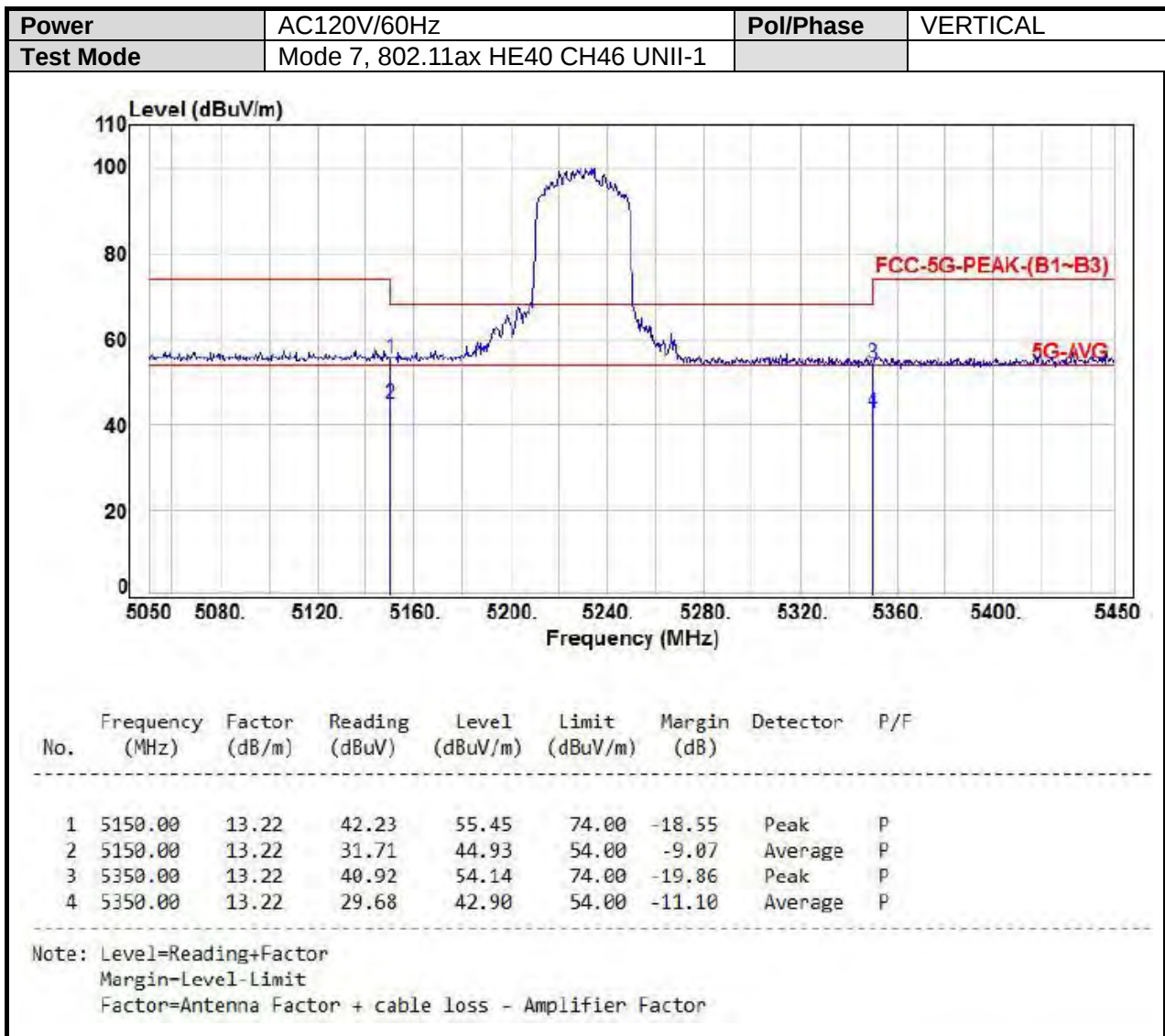


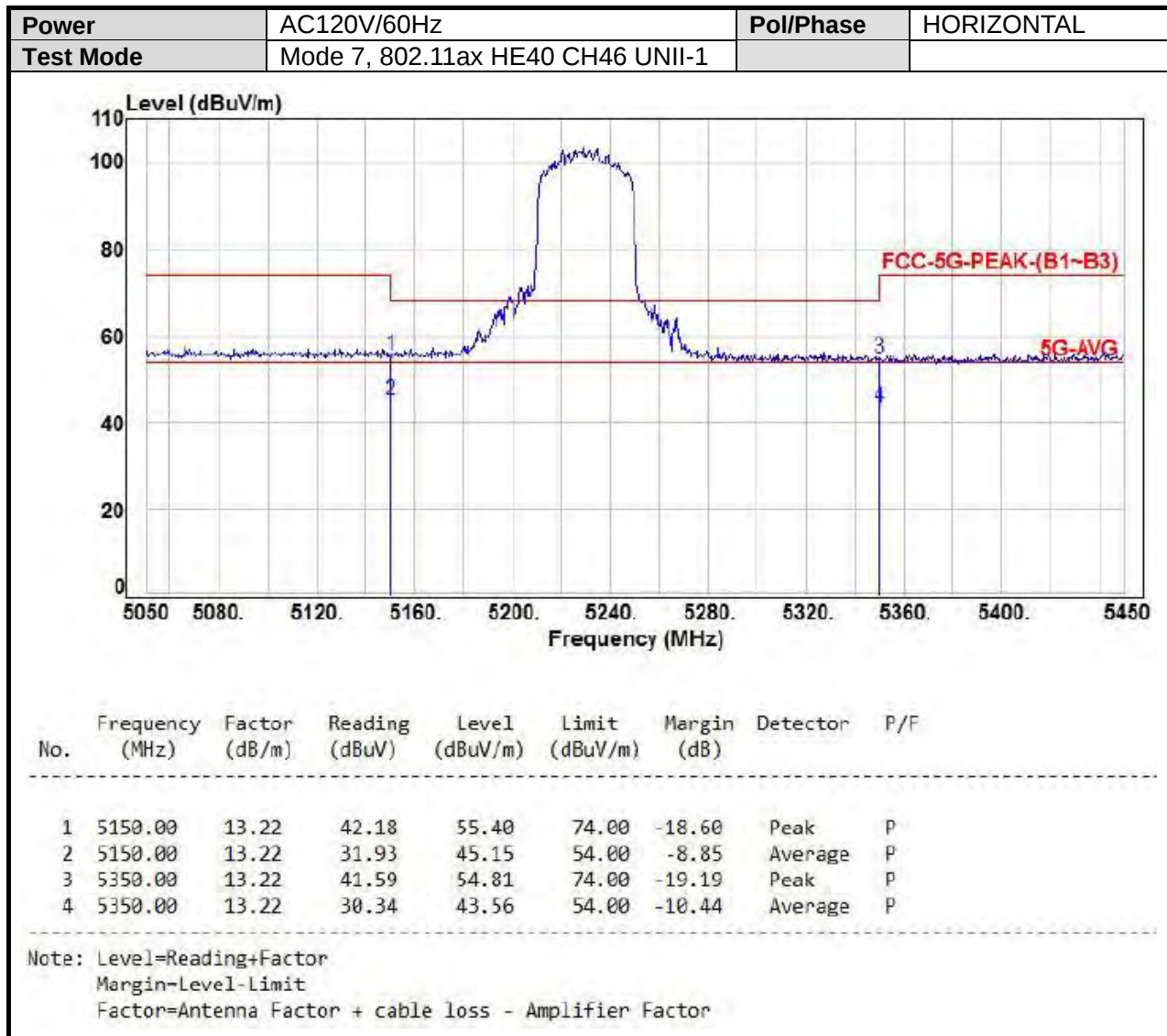






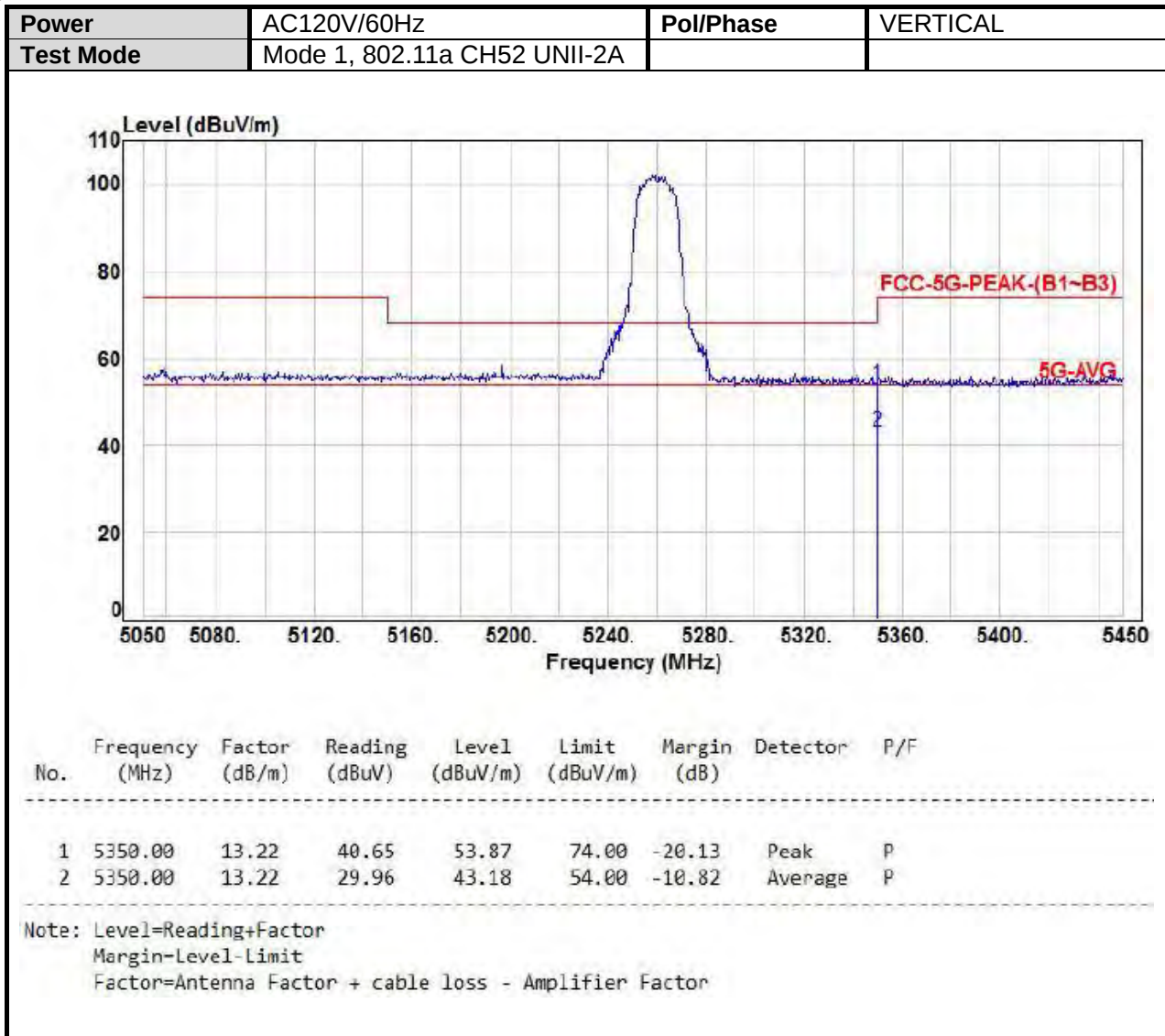


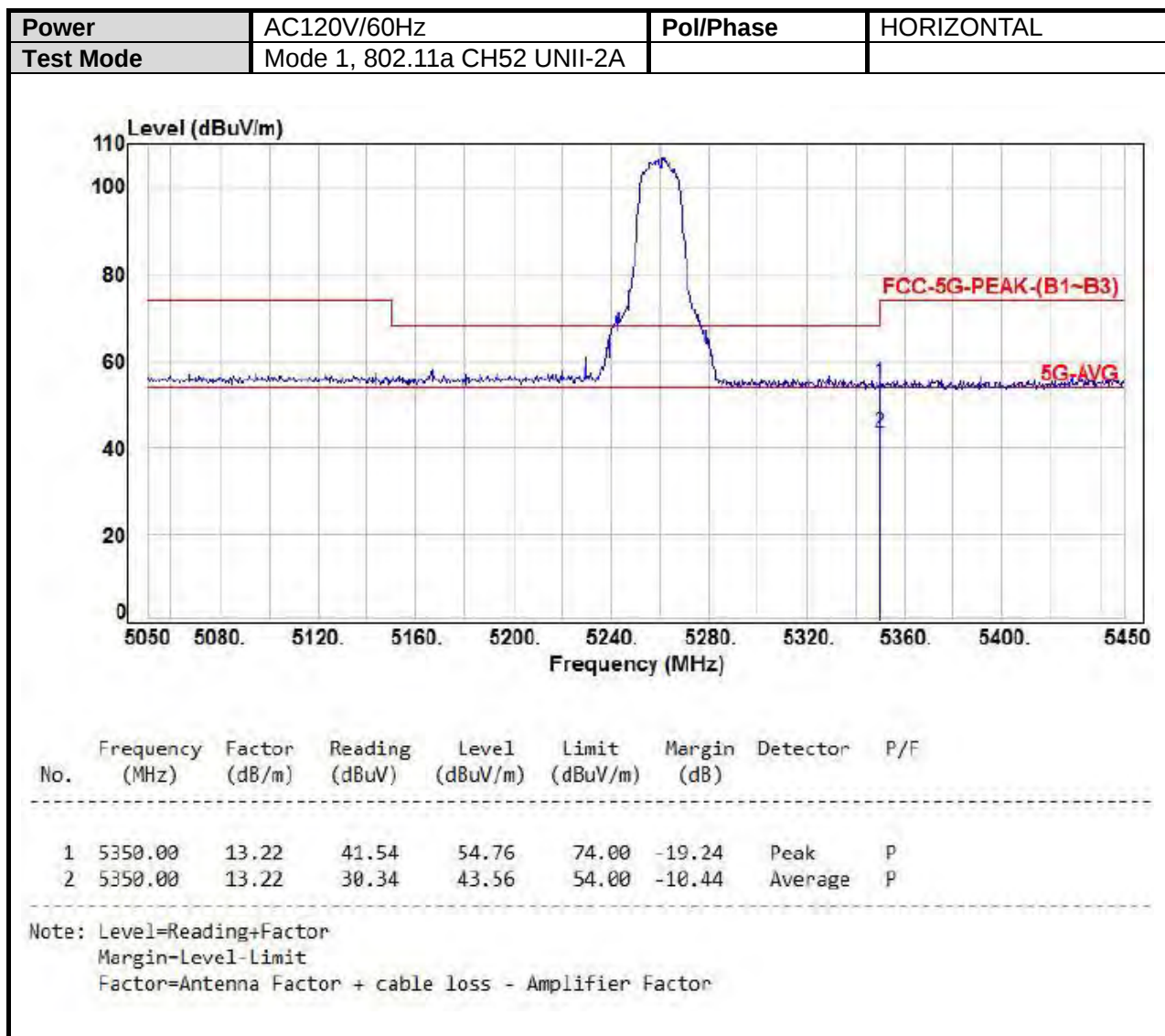


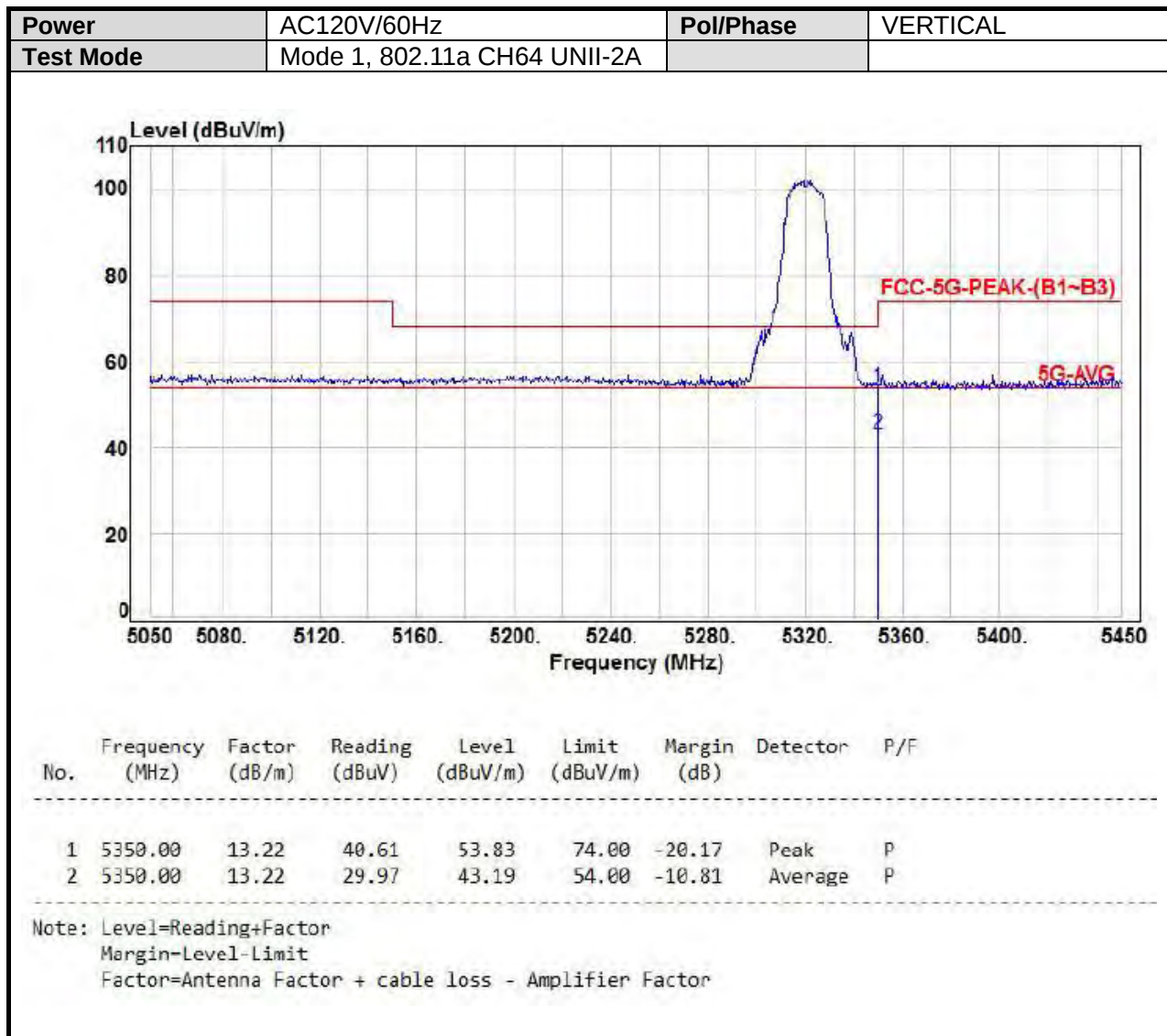


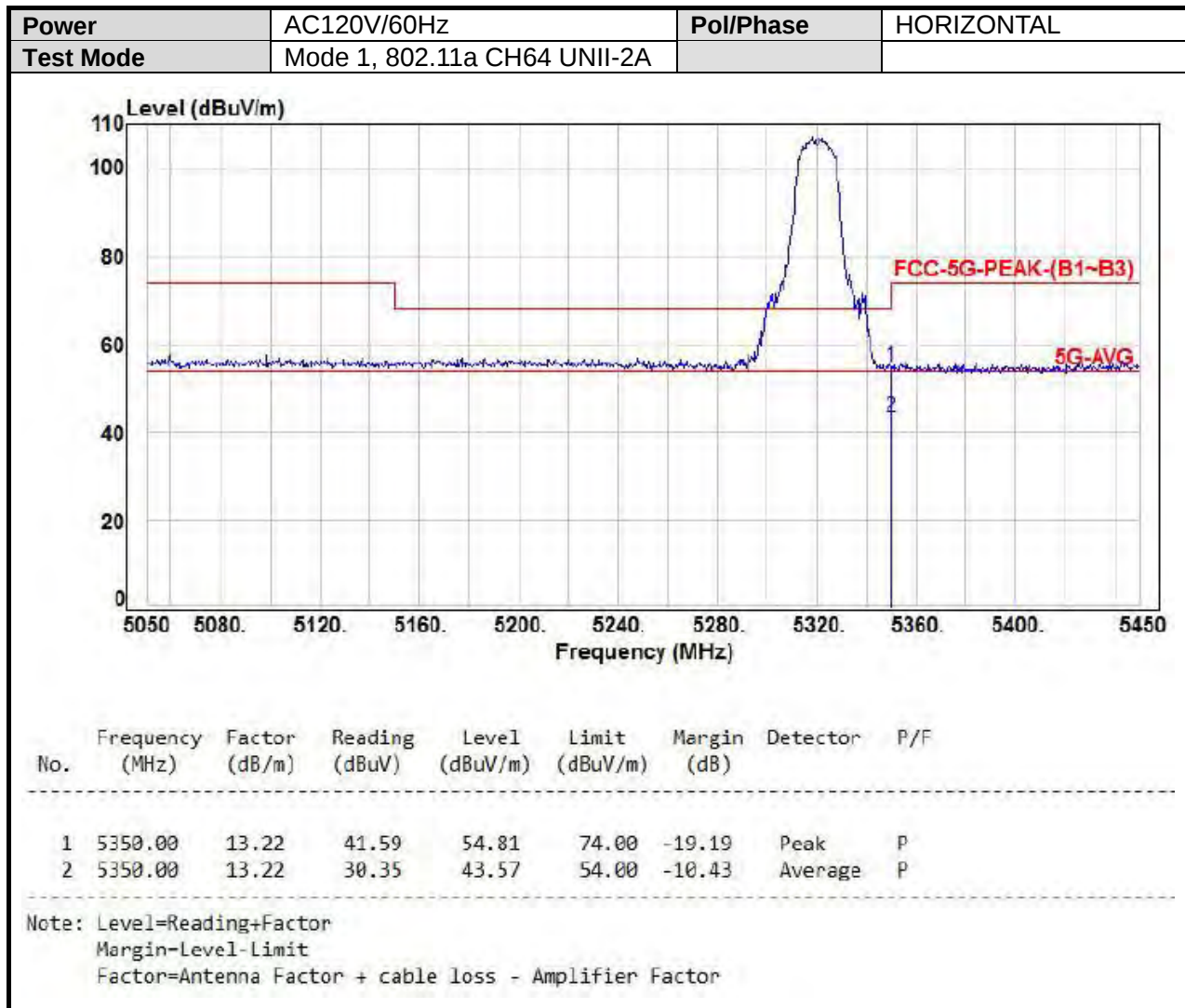


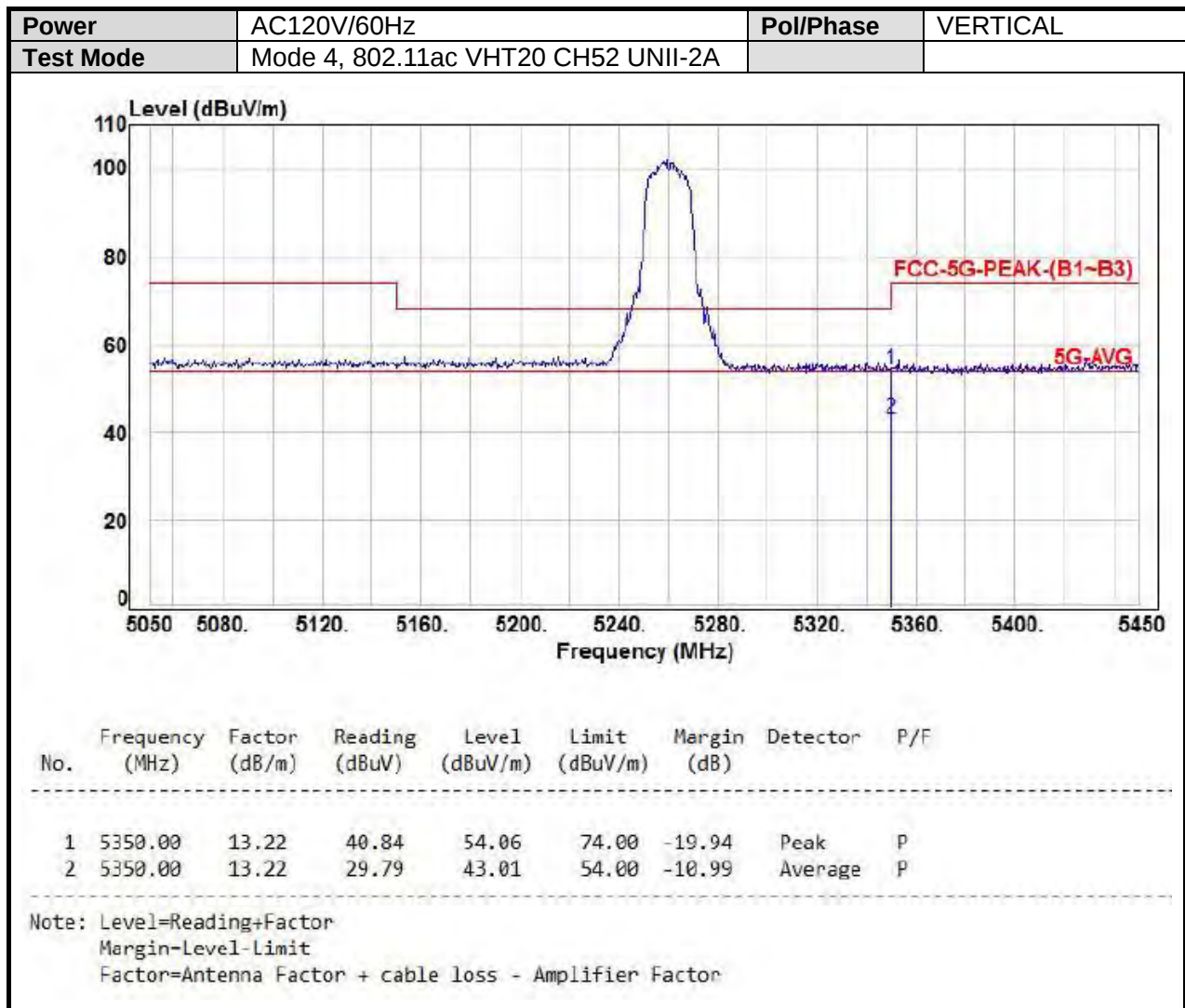
UNII-2A

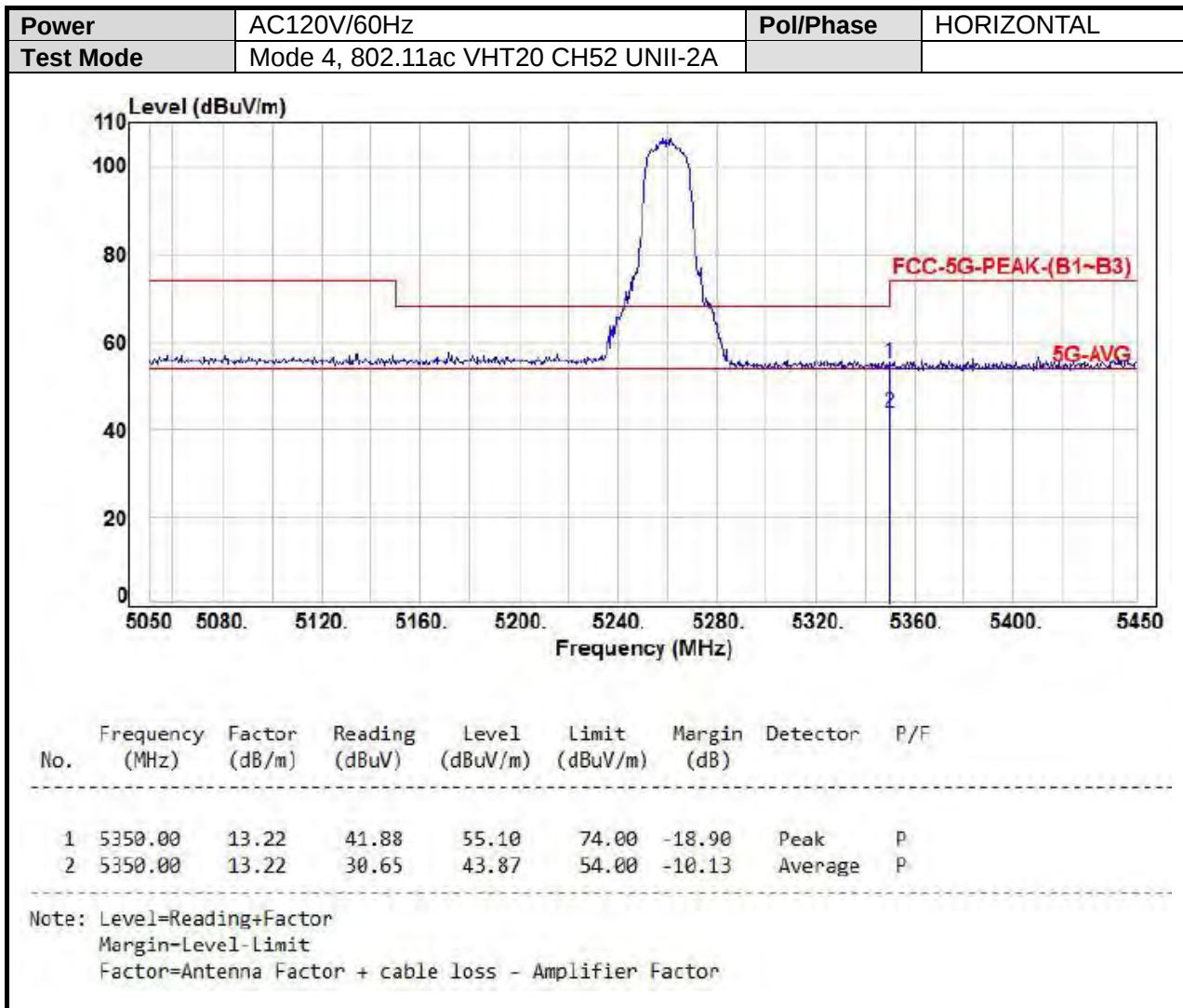


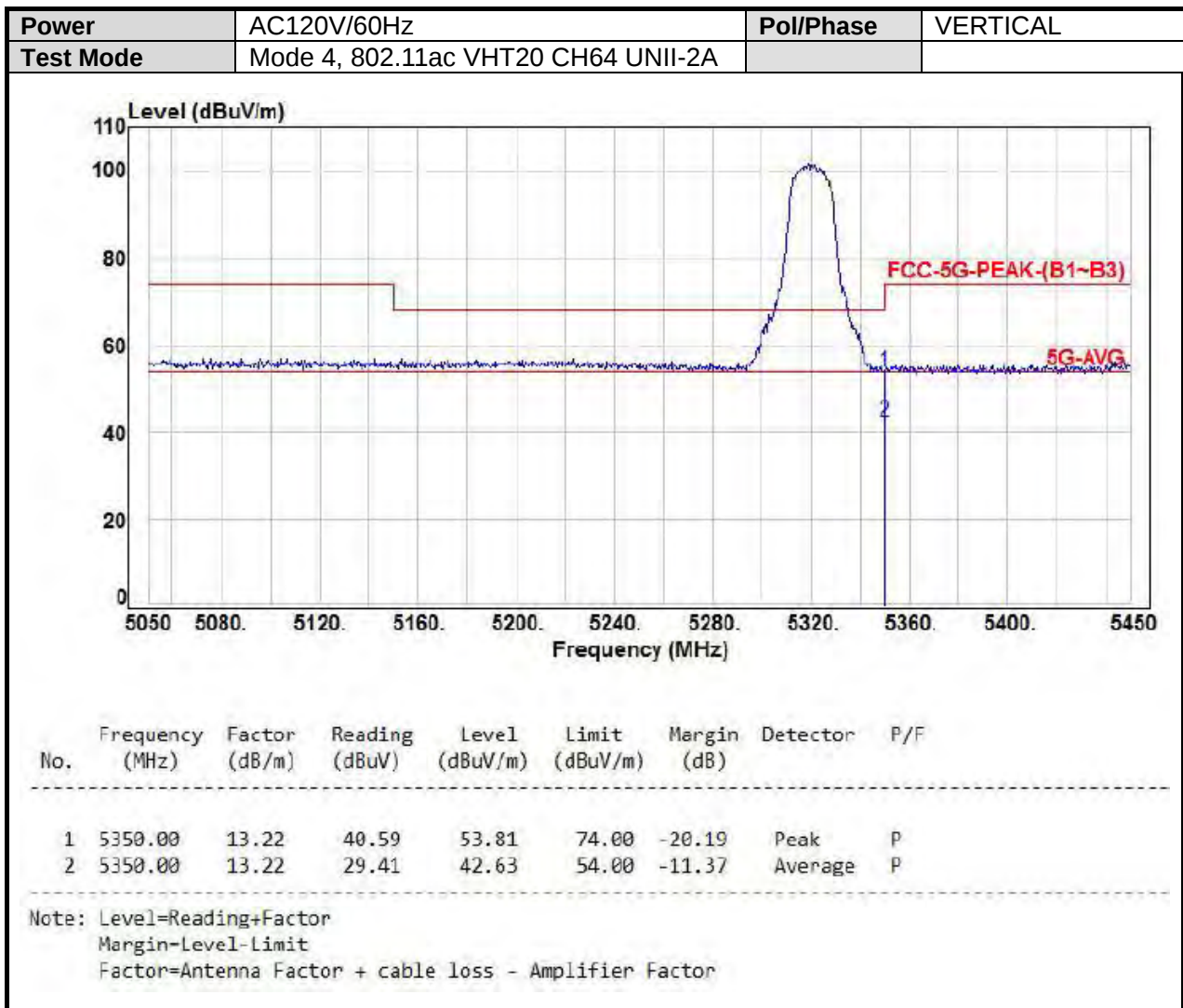


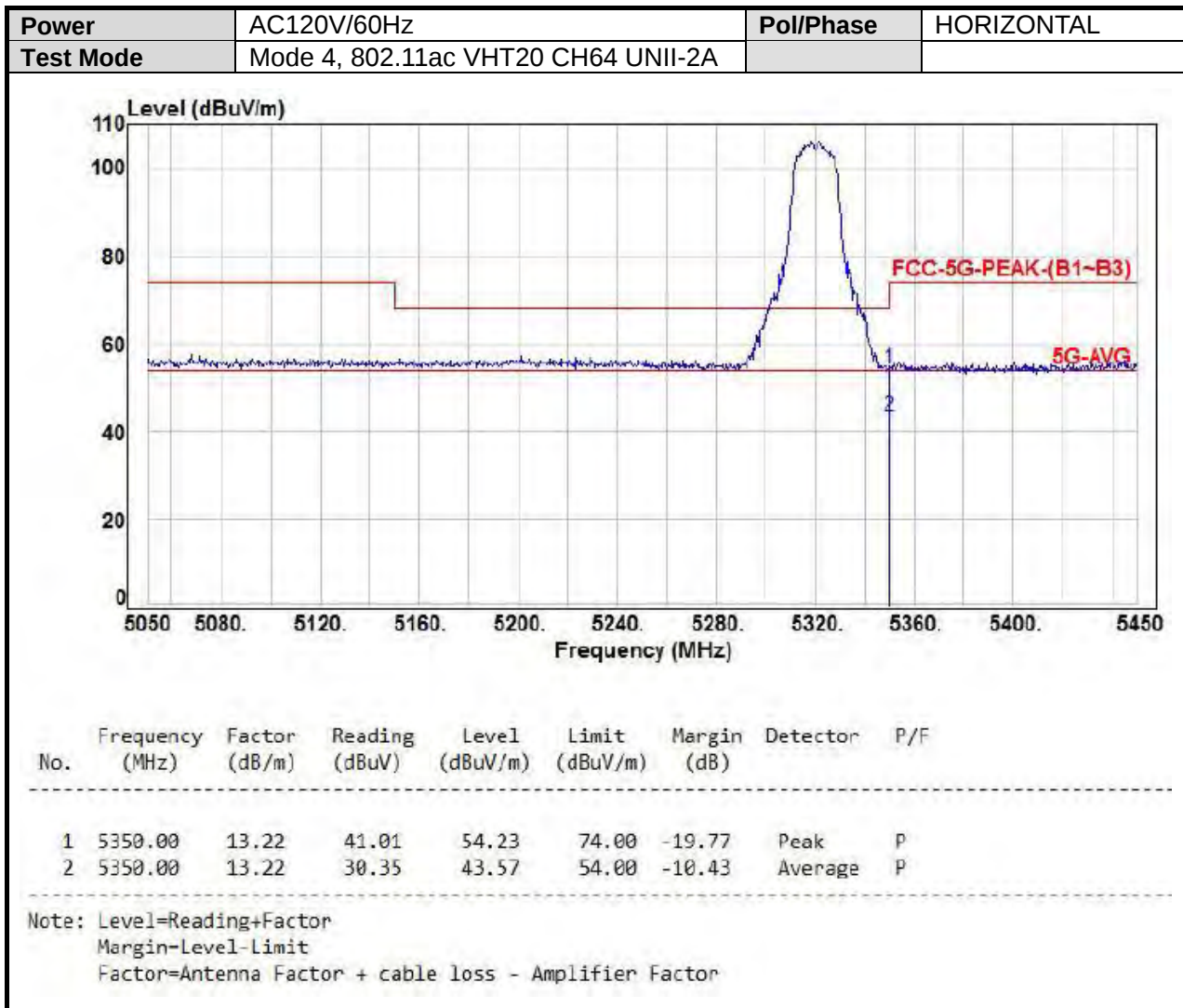


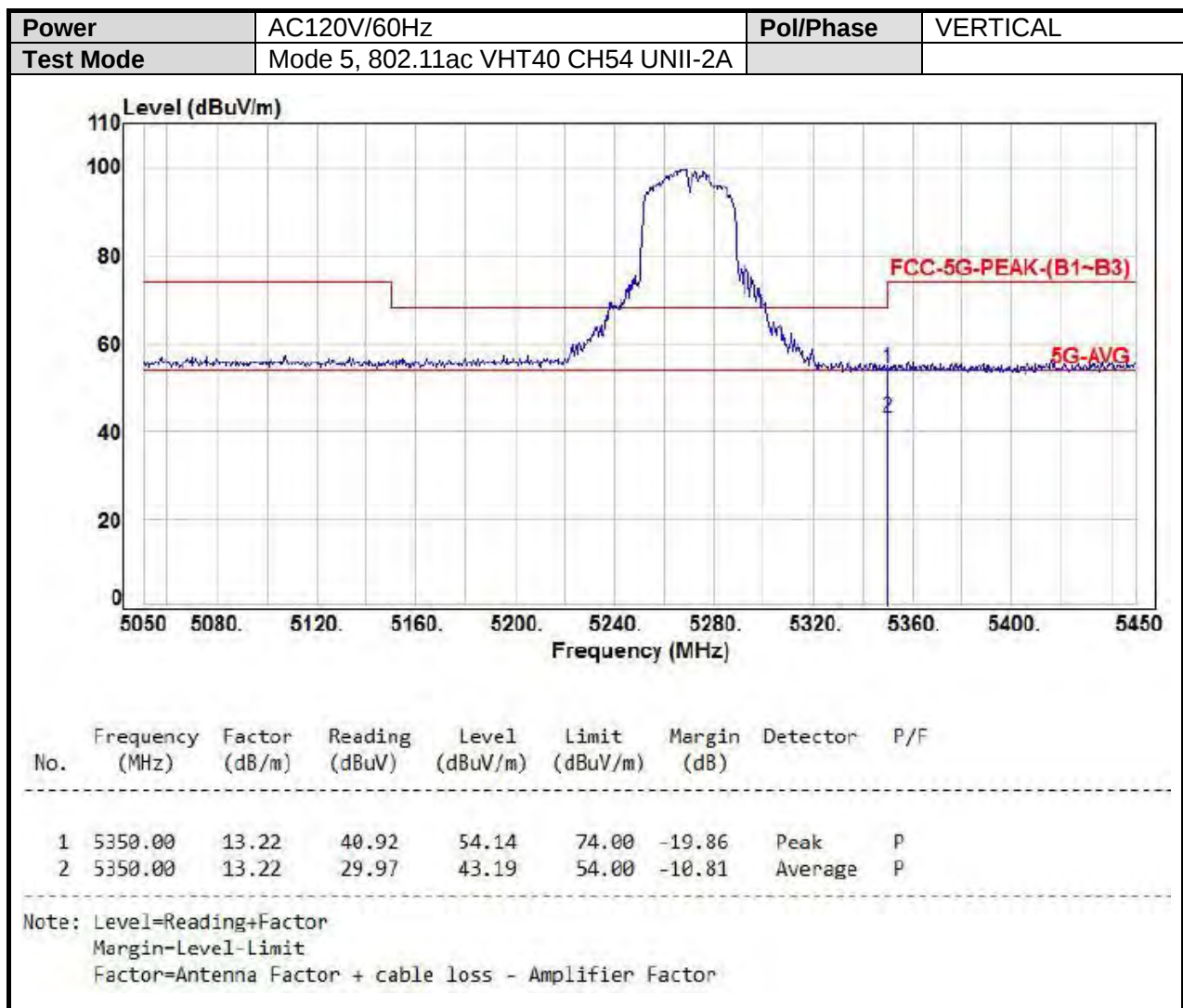


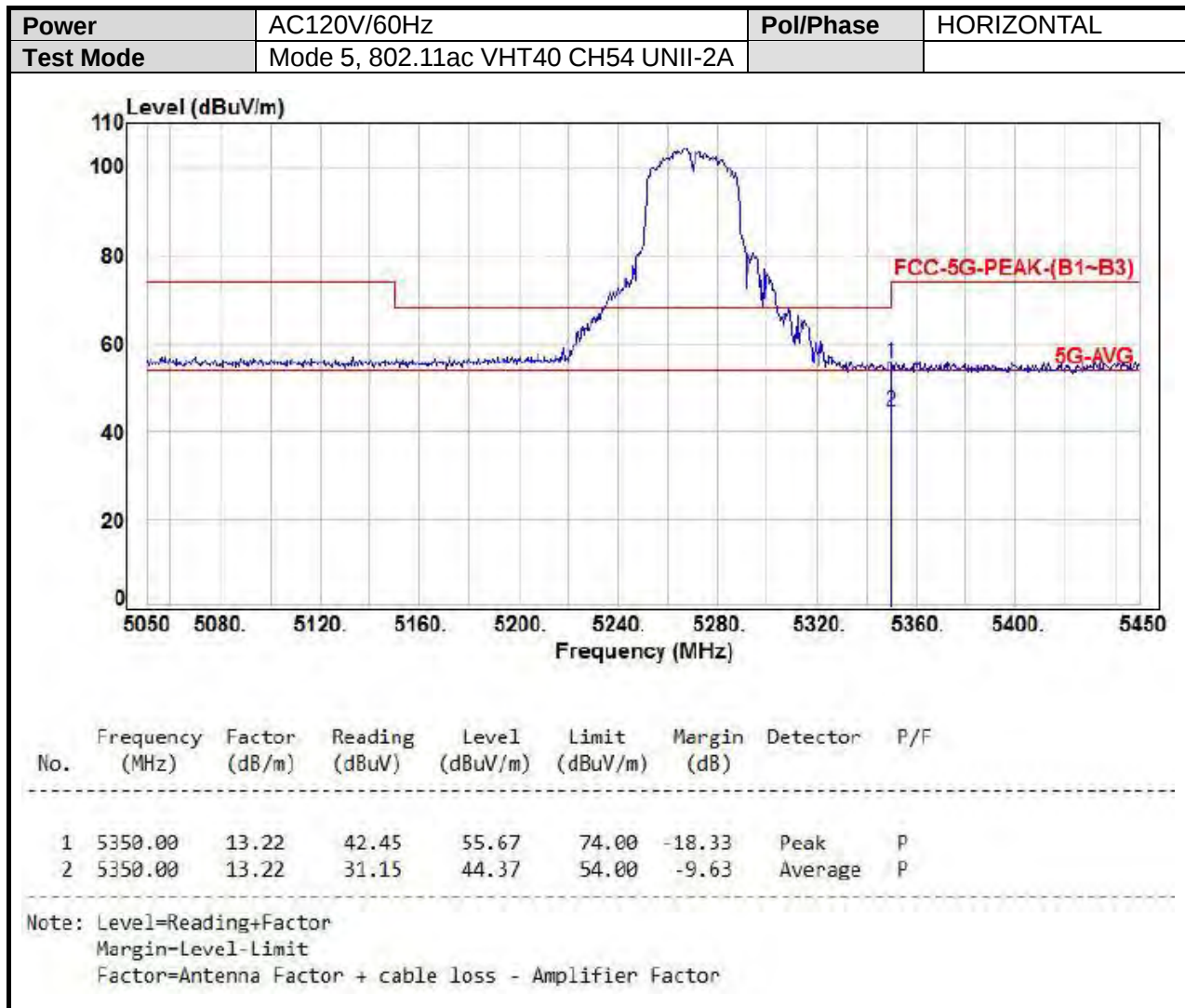


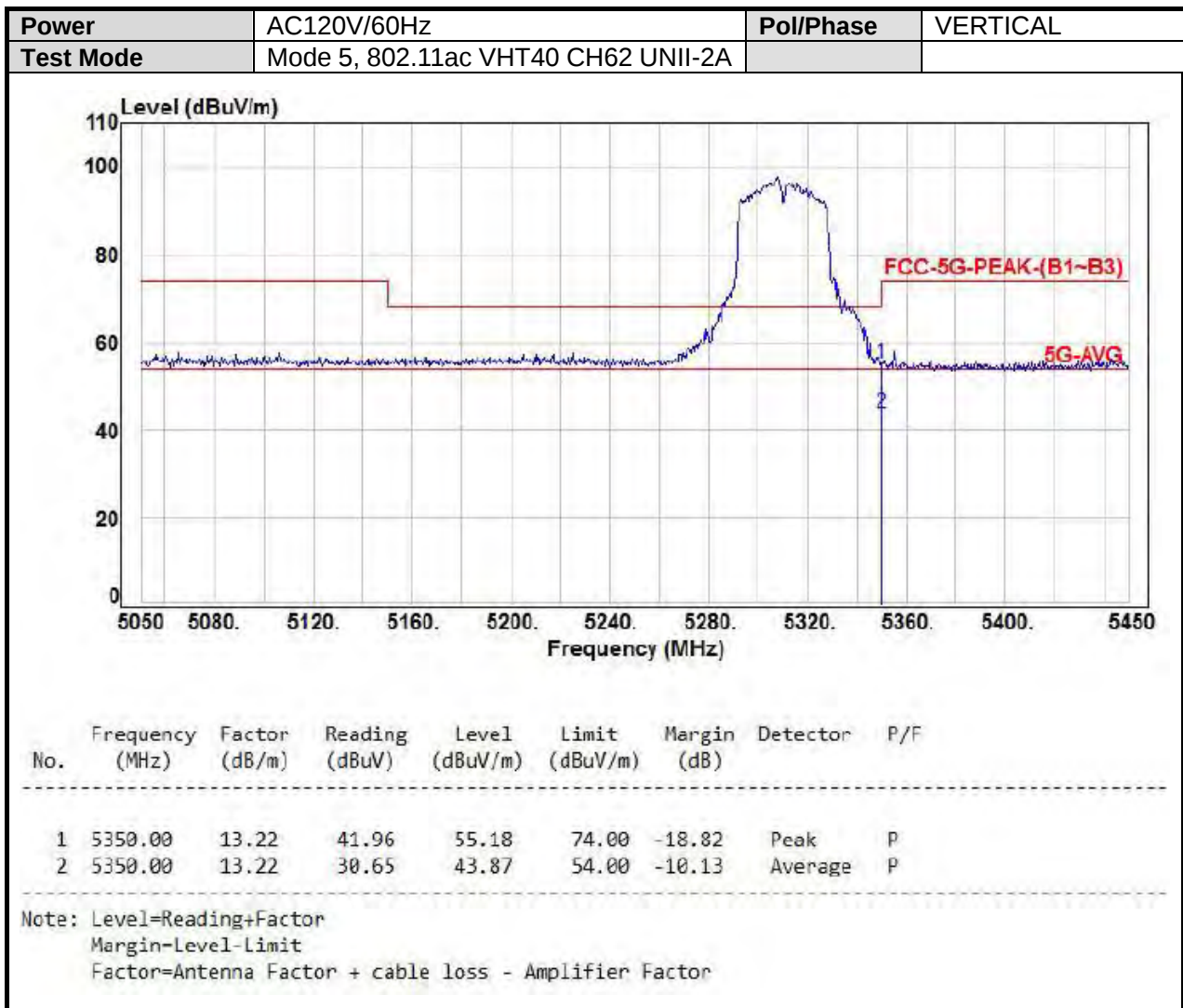


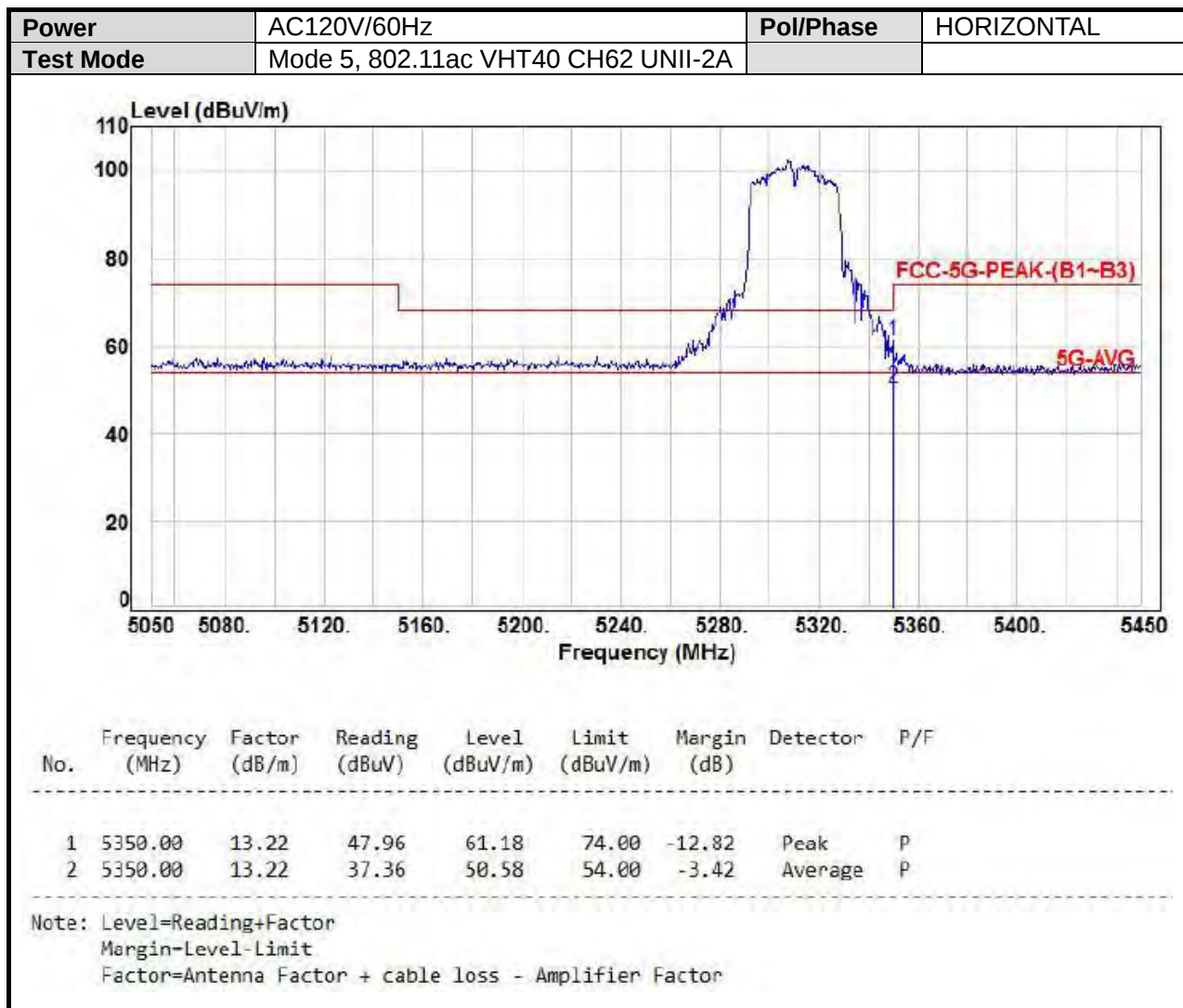


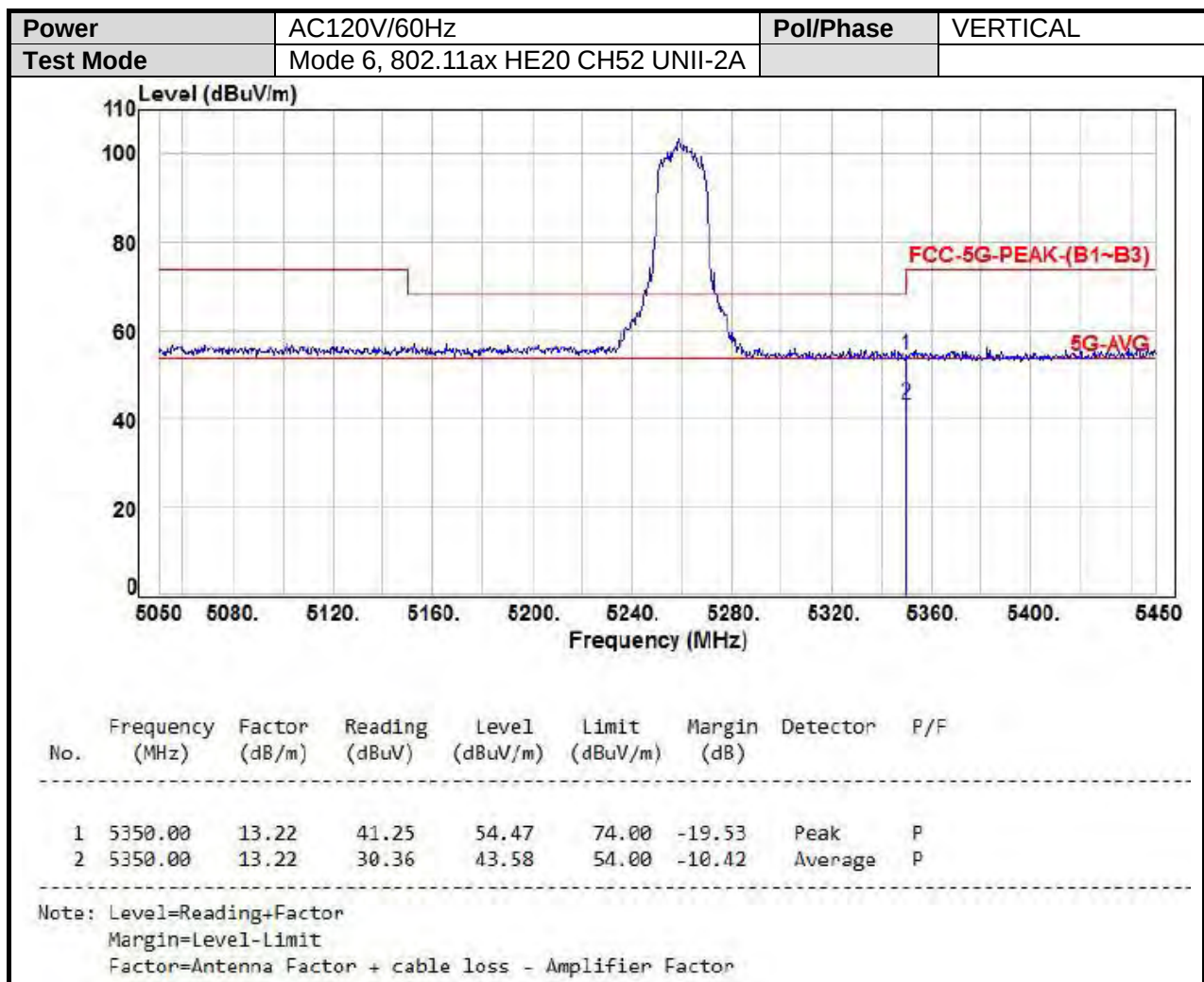


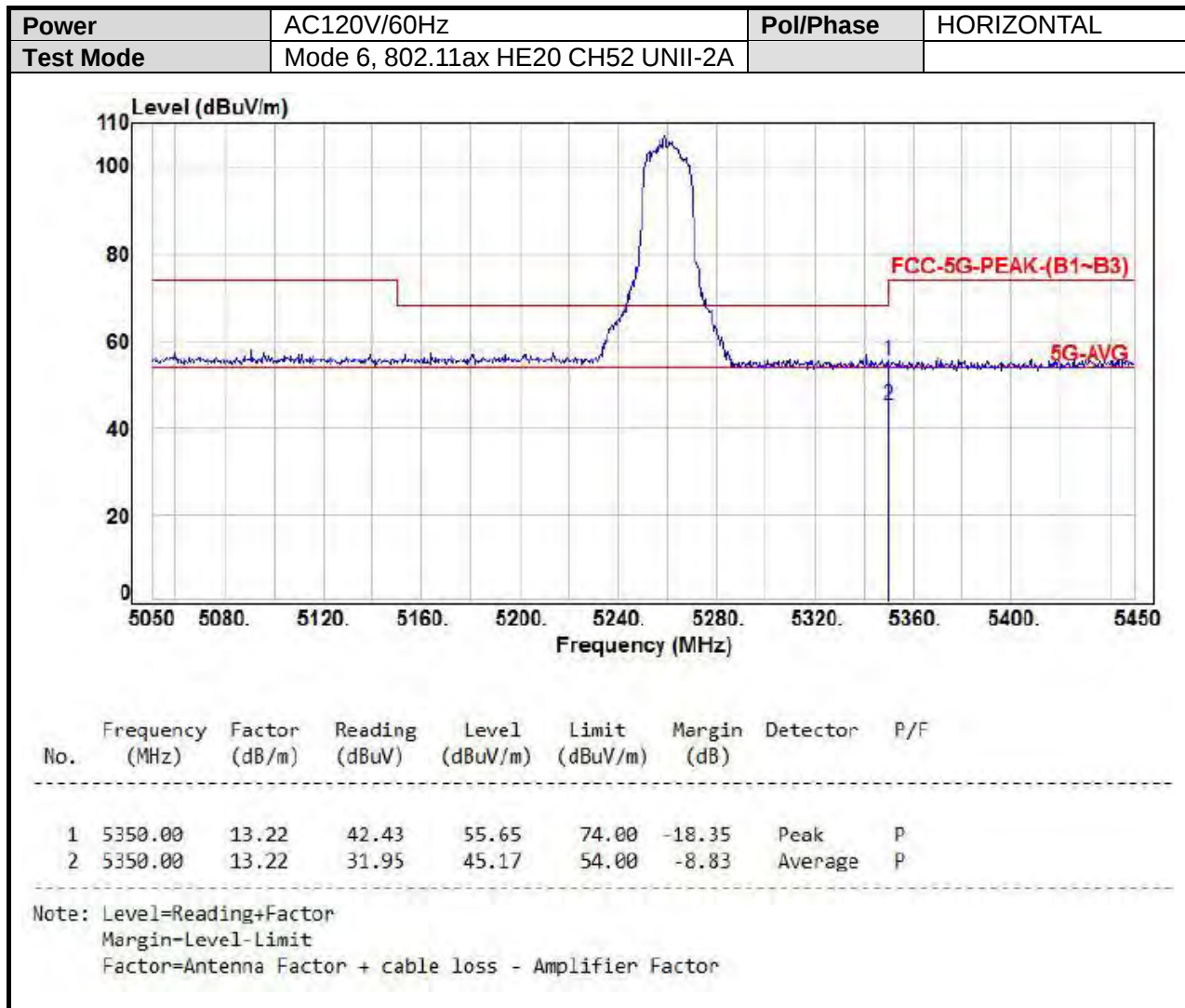


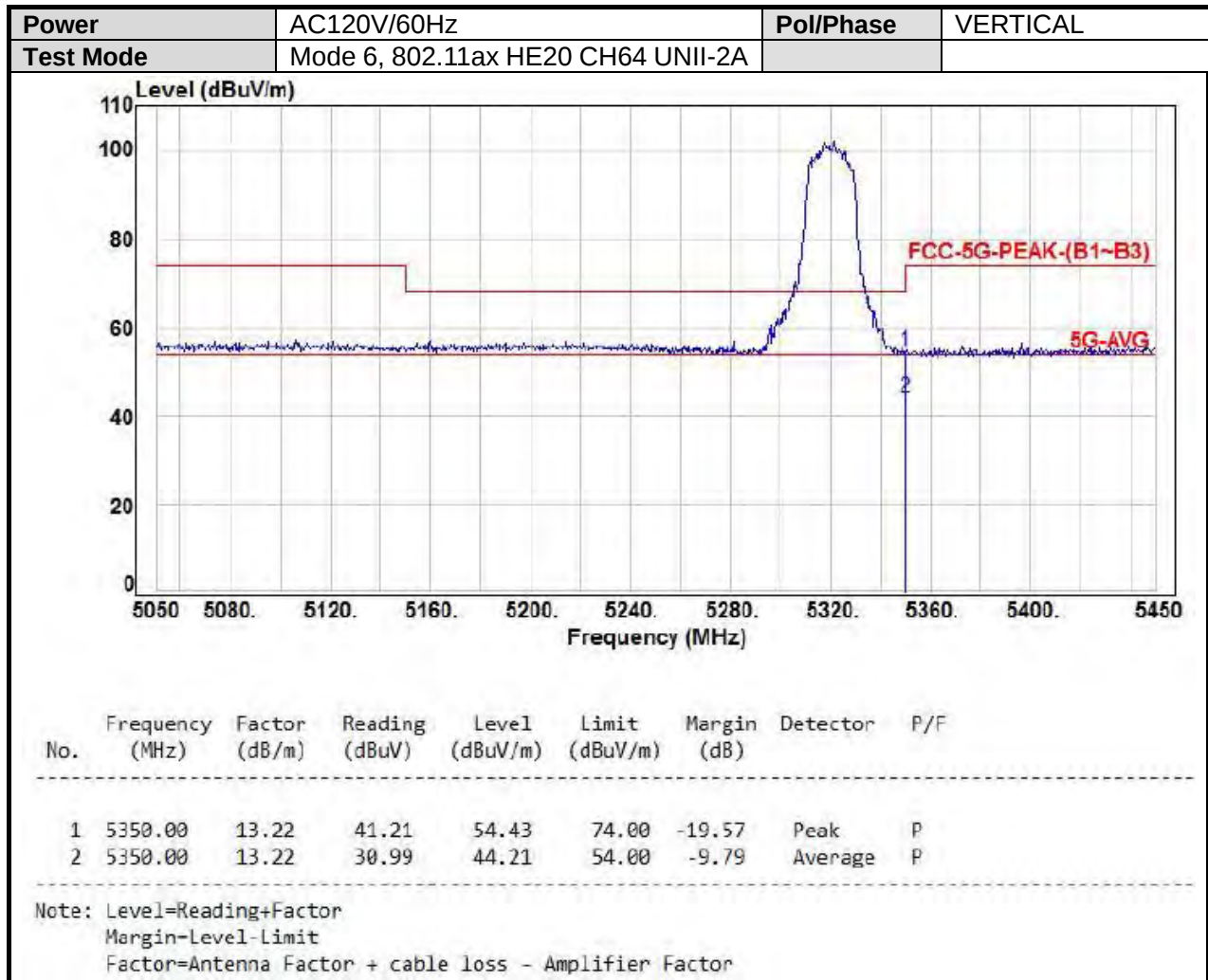


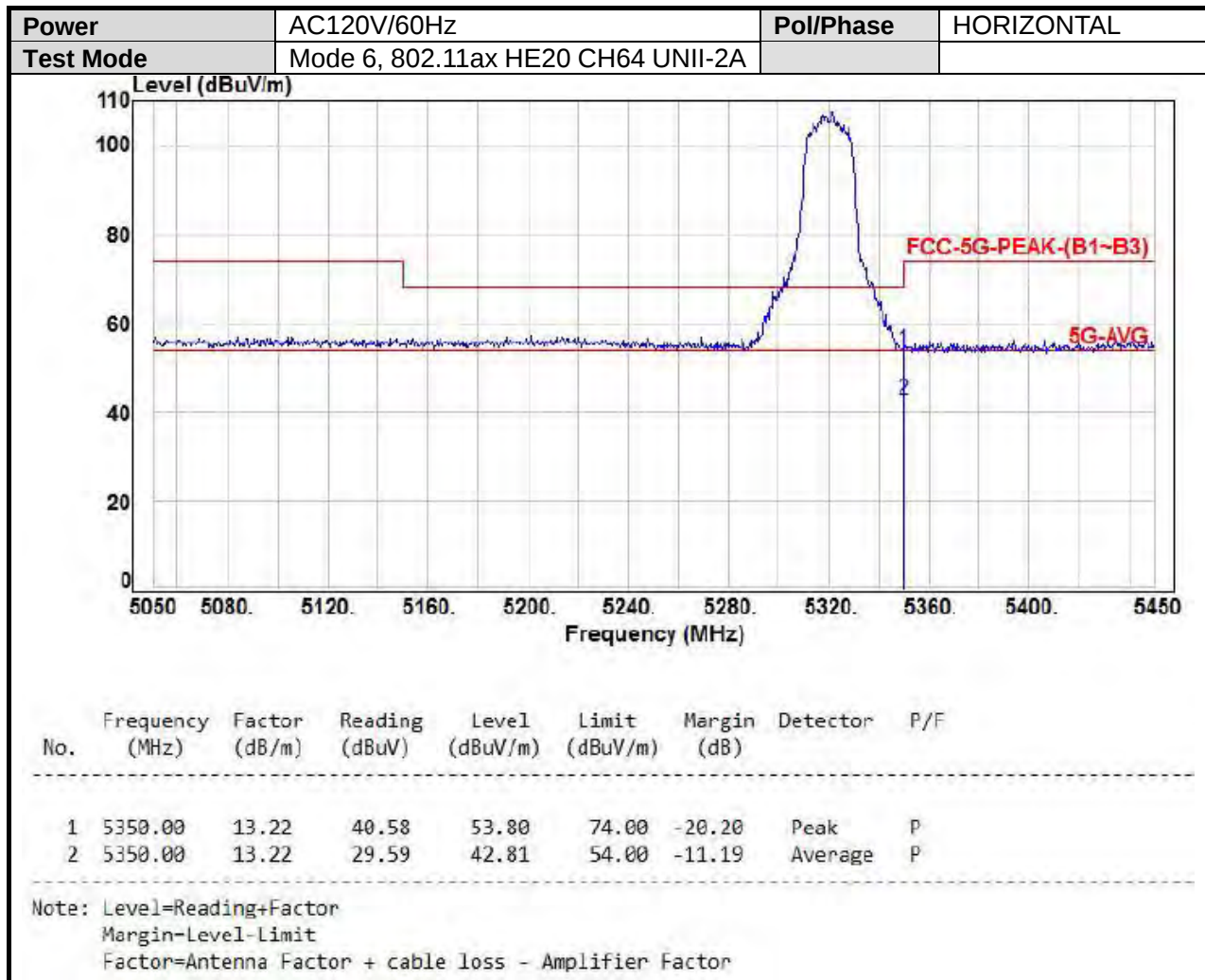


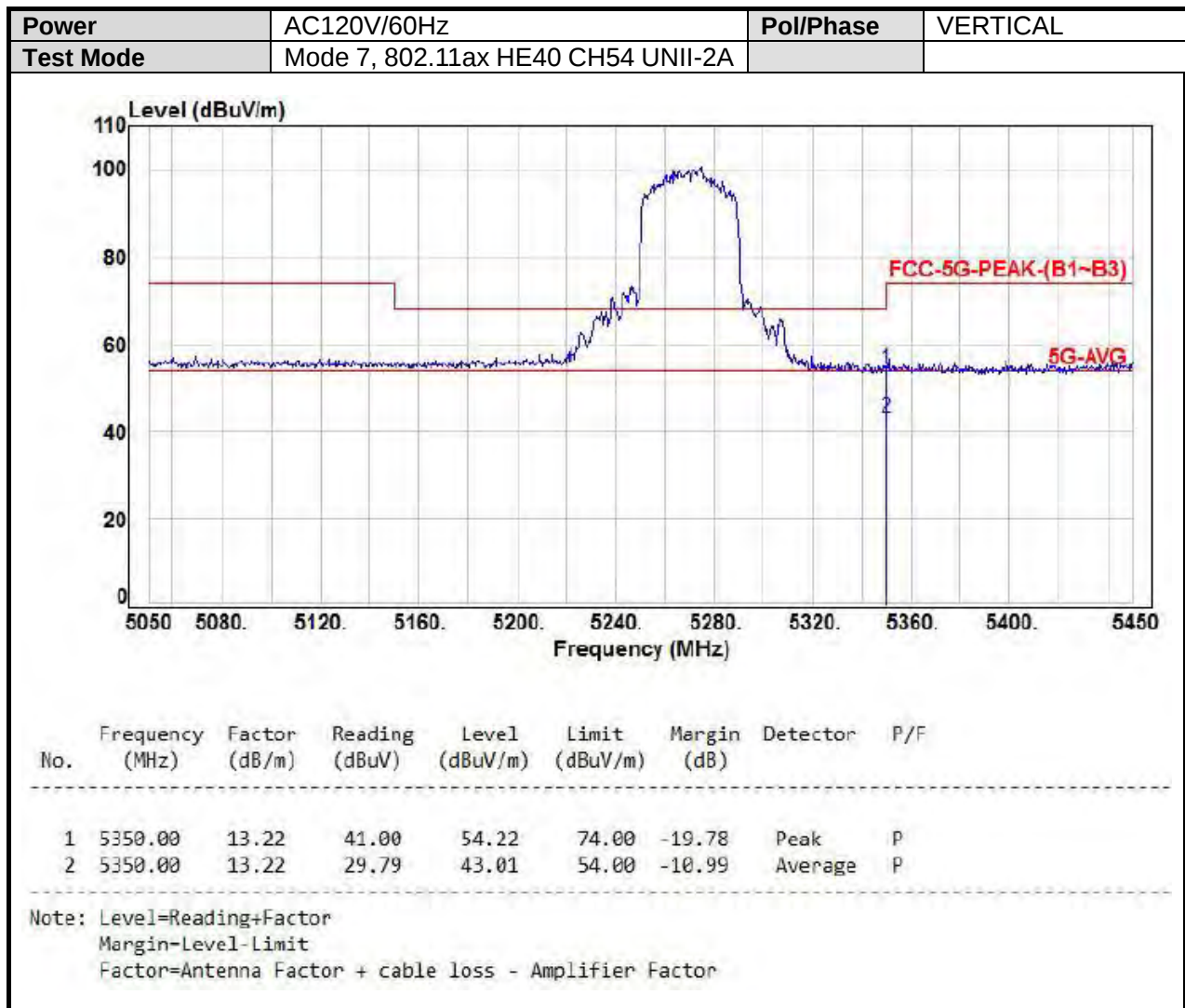


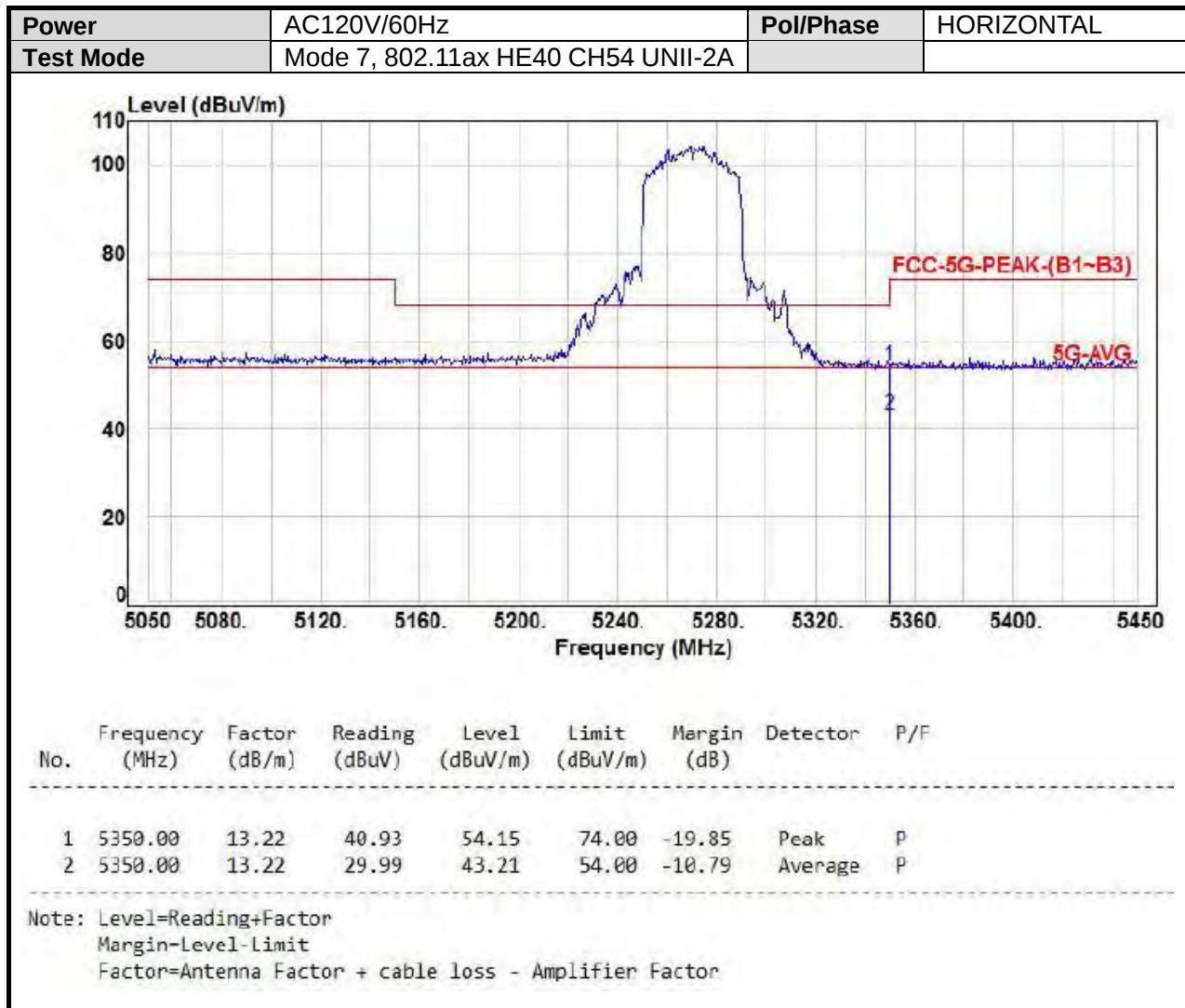


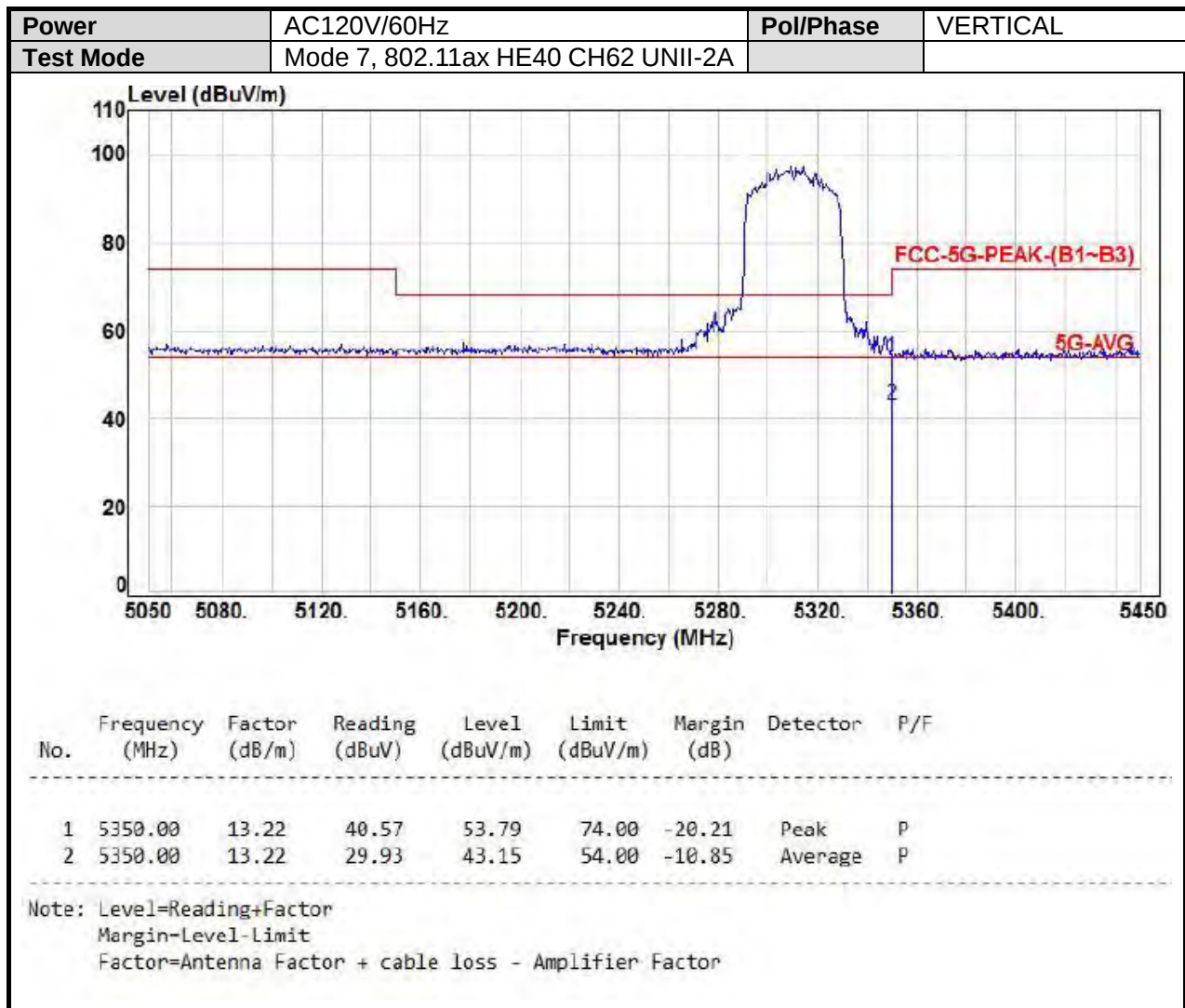


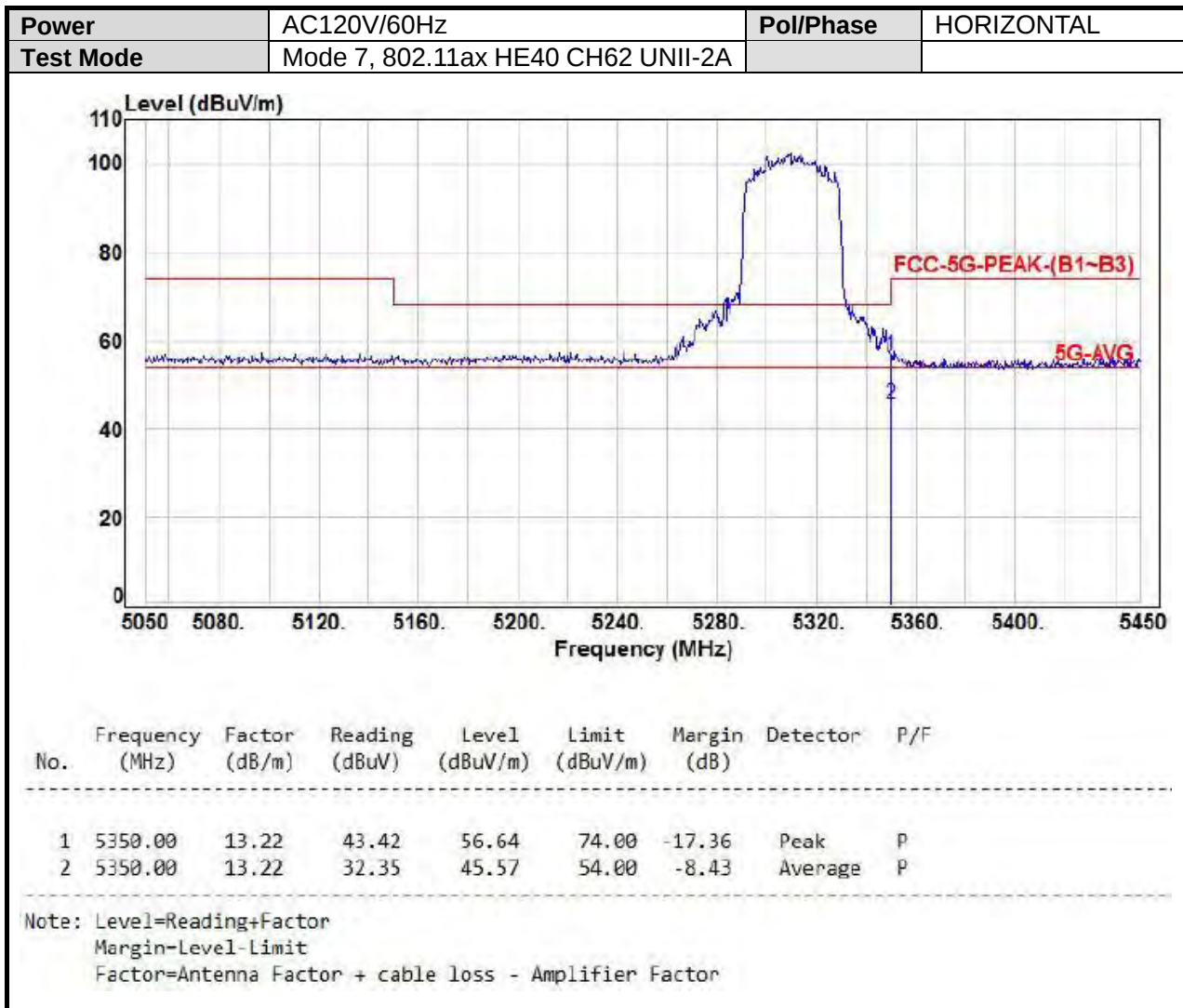






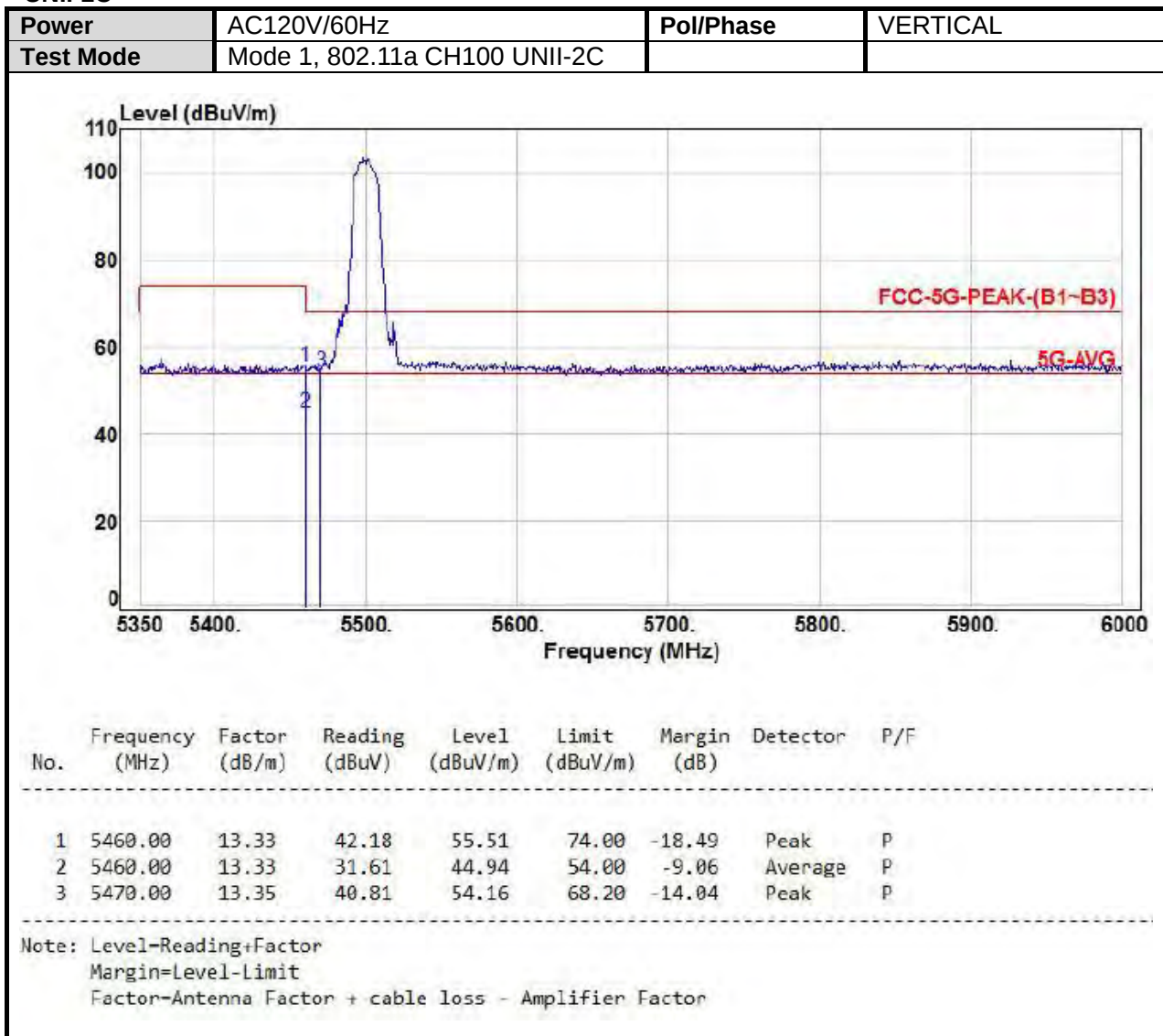


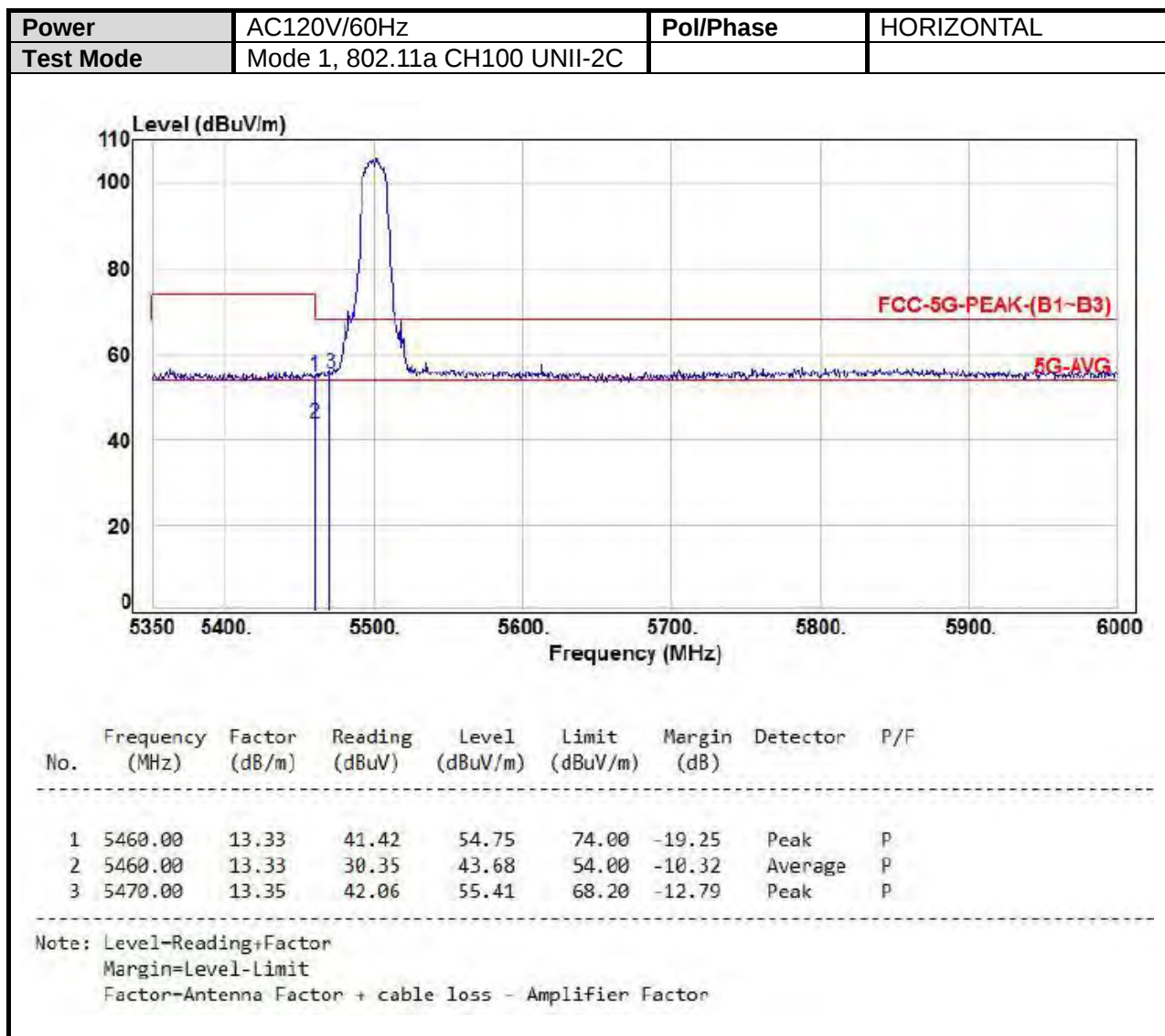


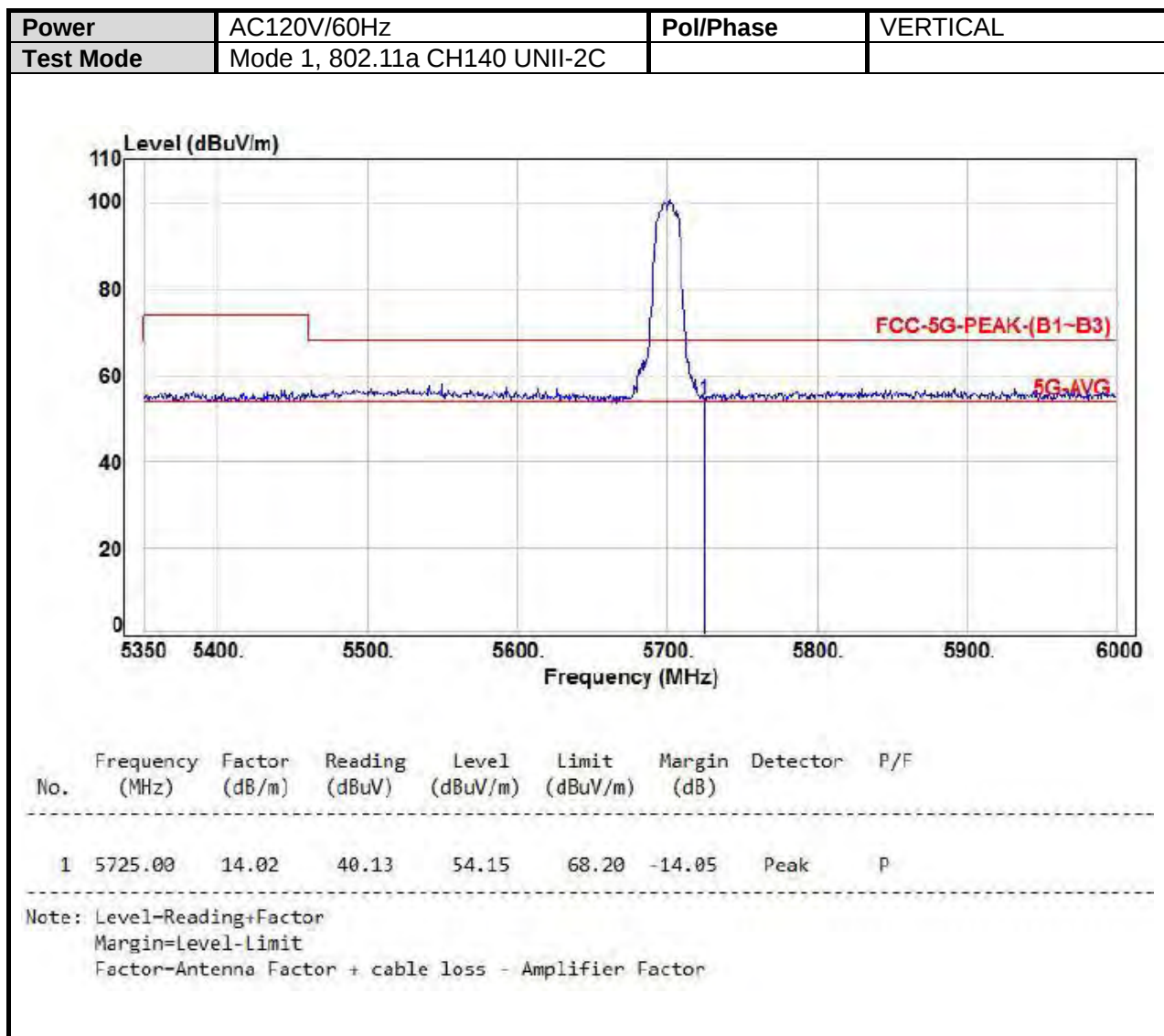


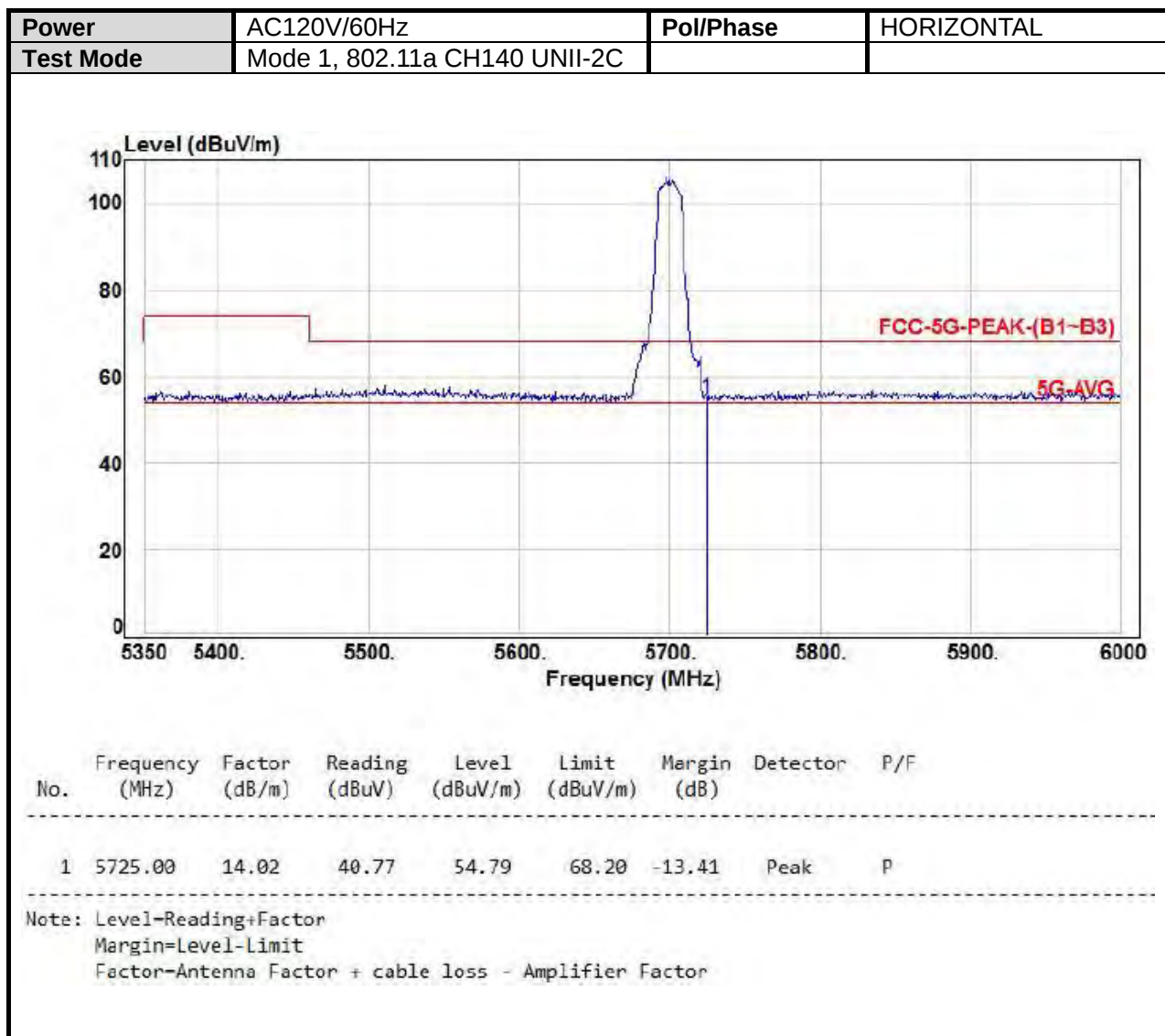


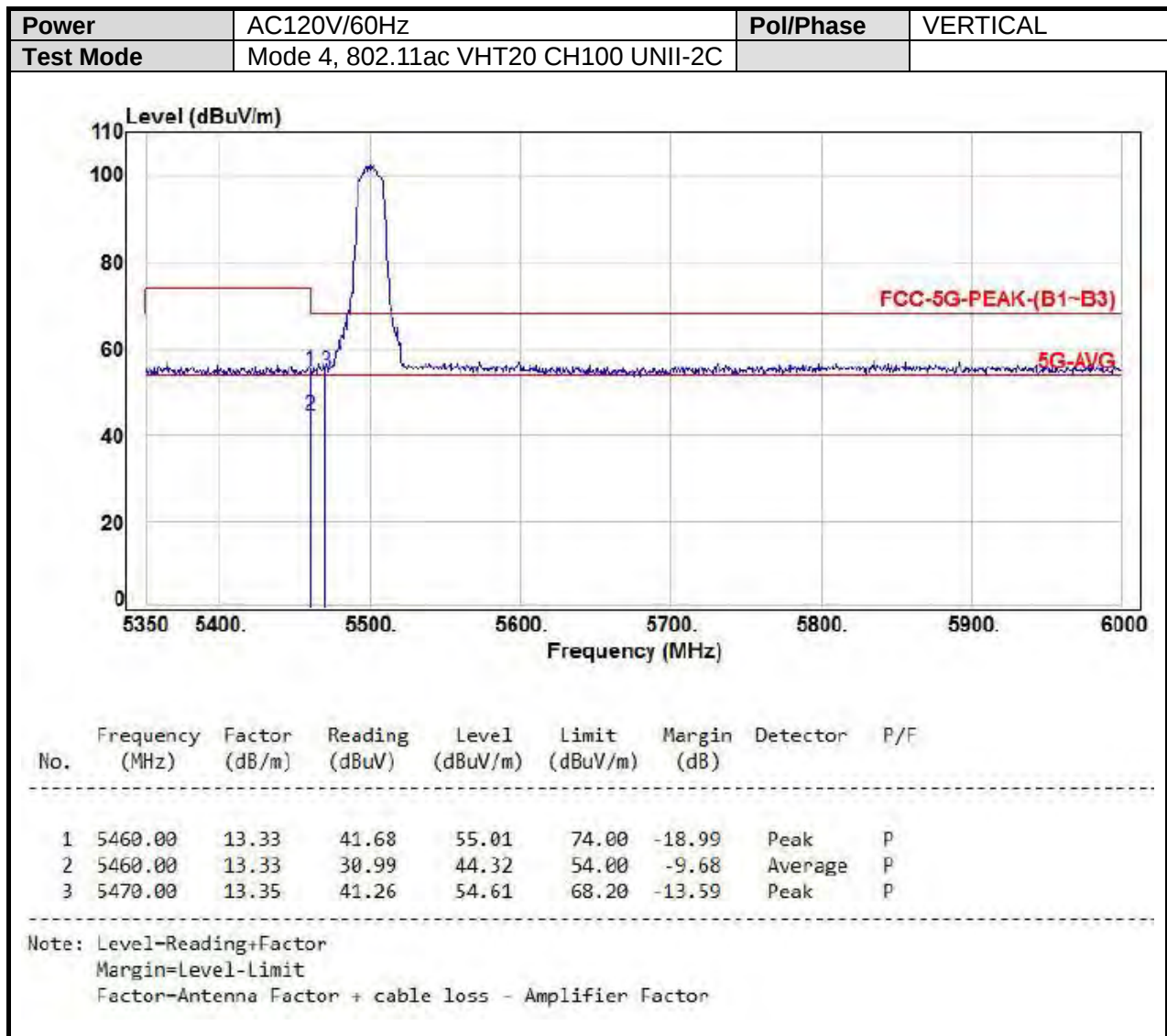
UNII-2C

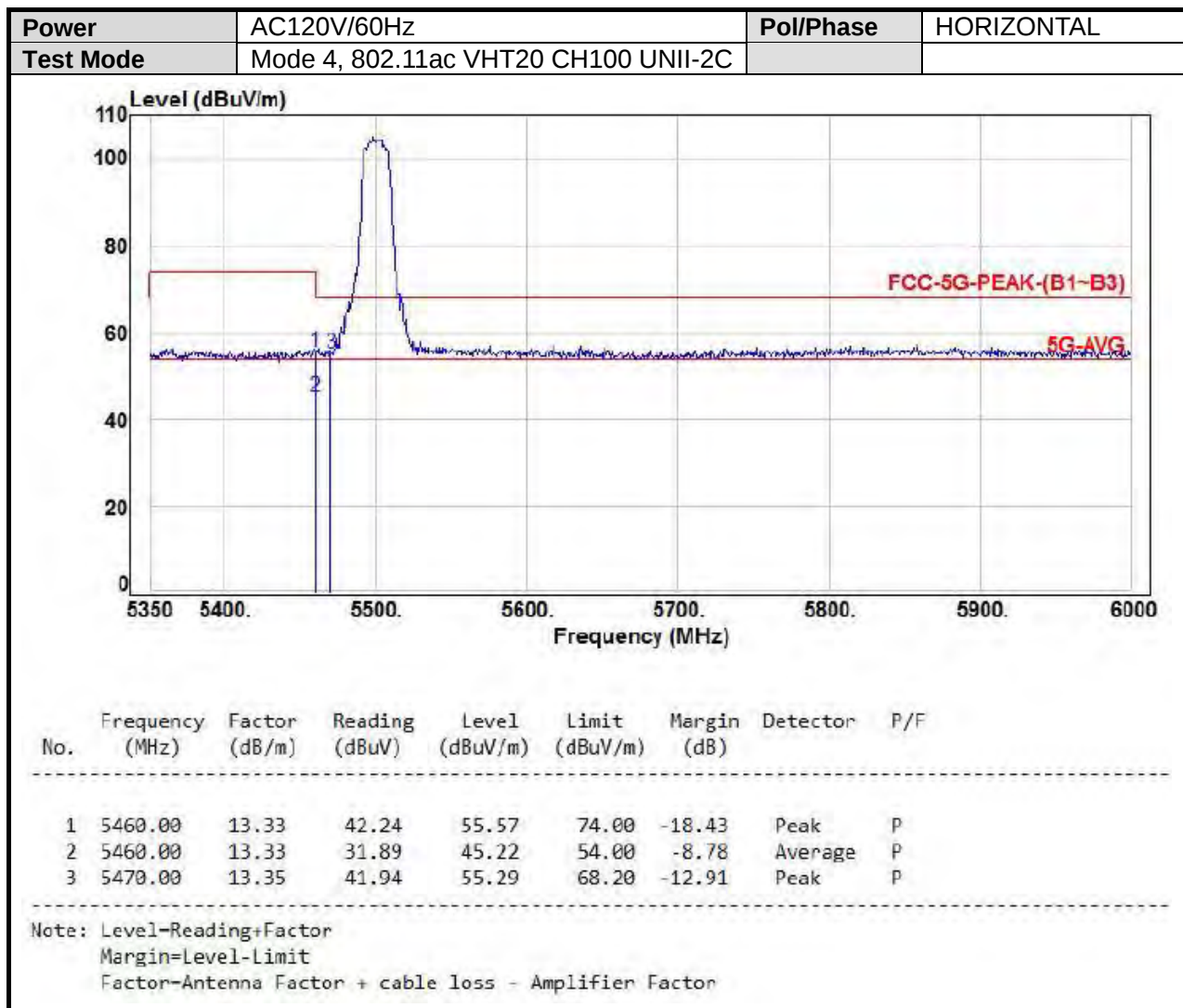


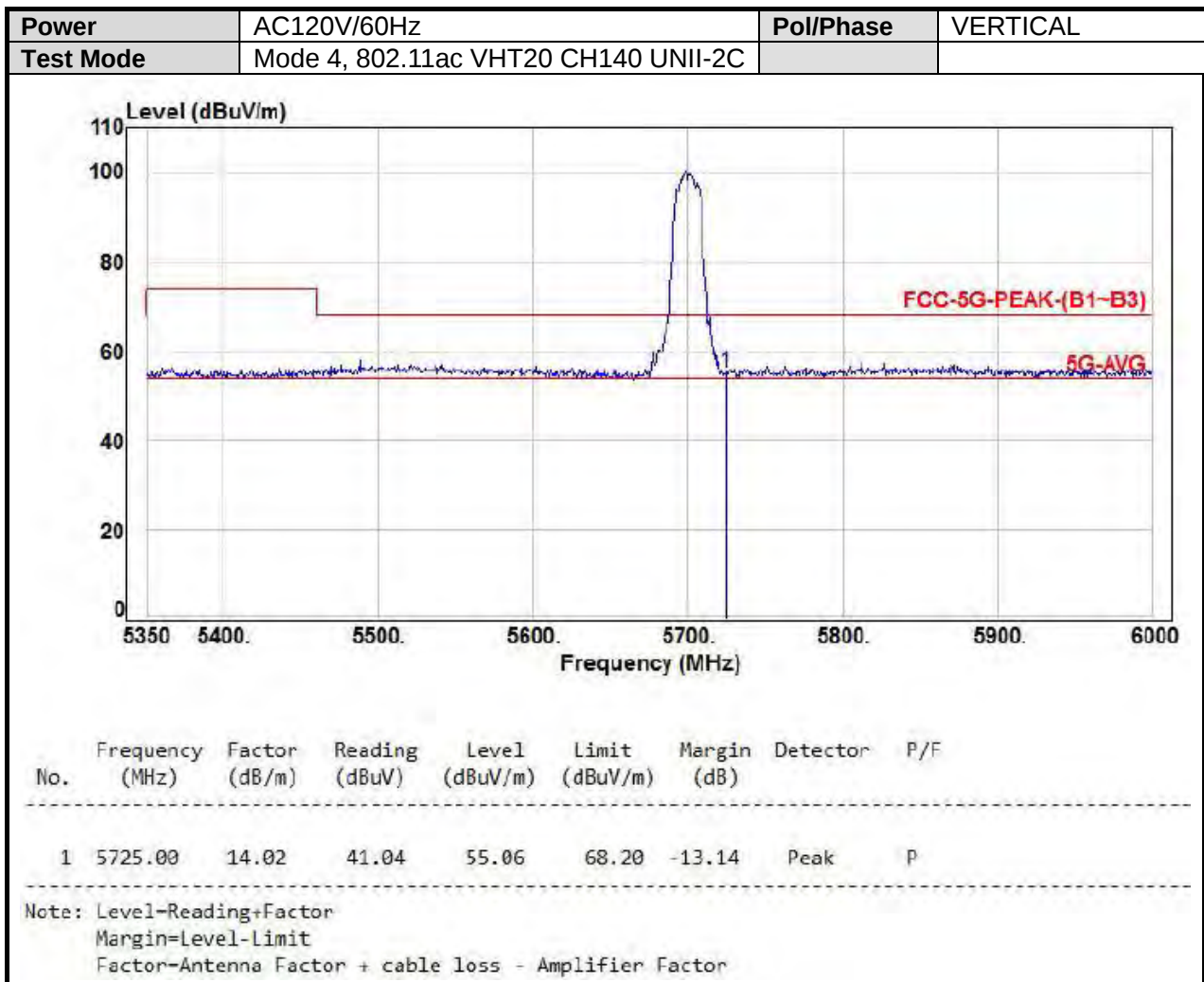


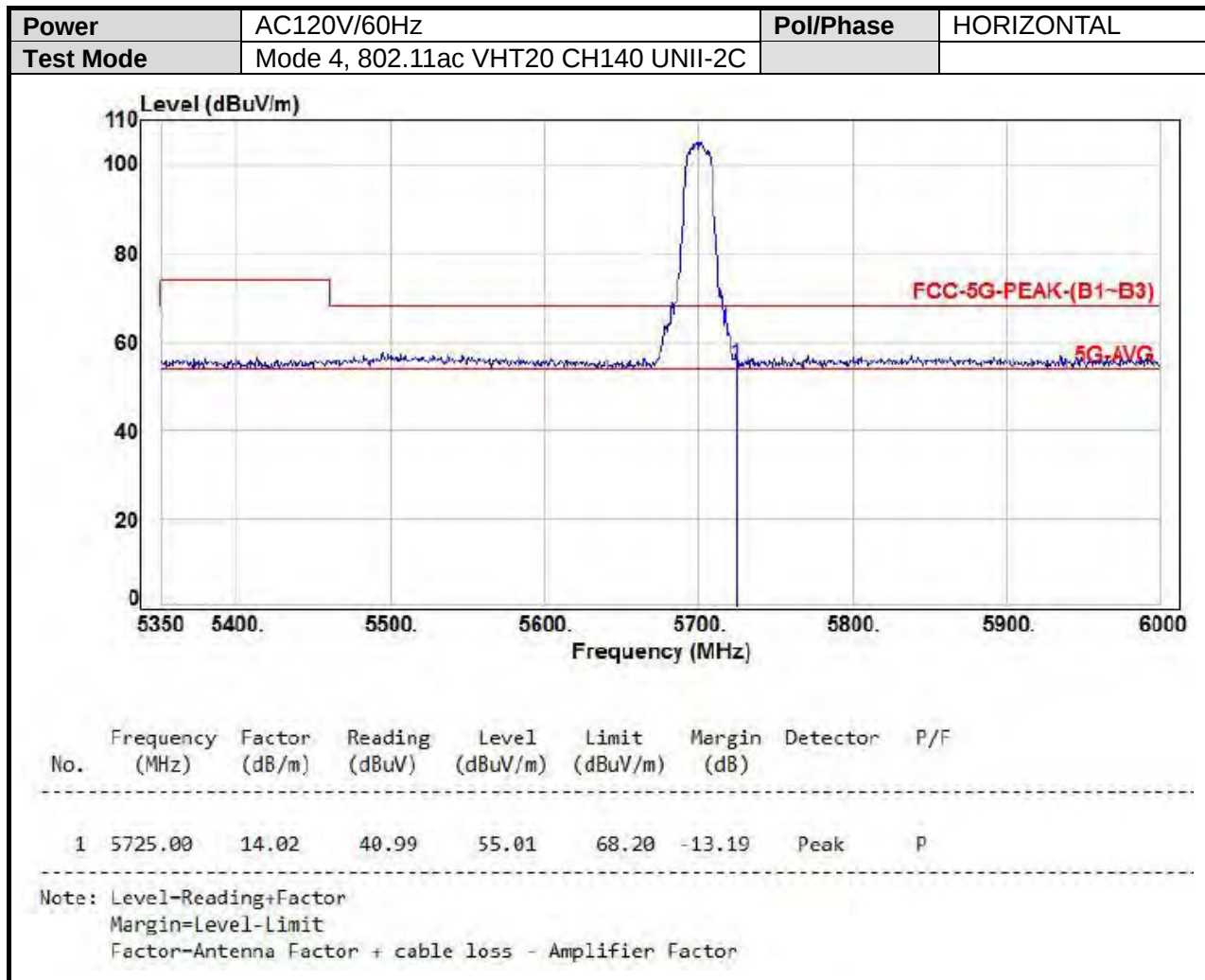


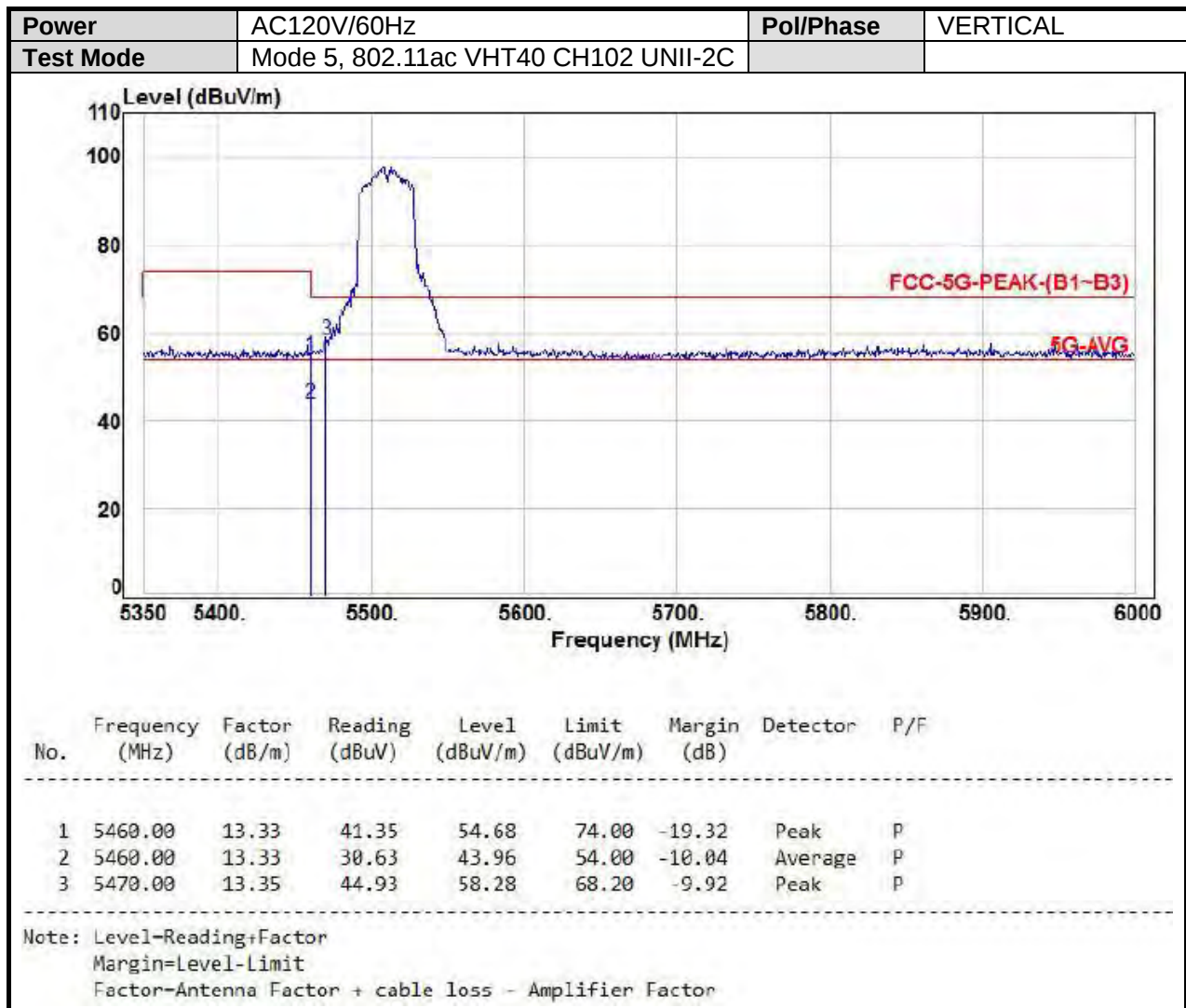


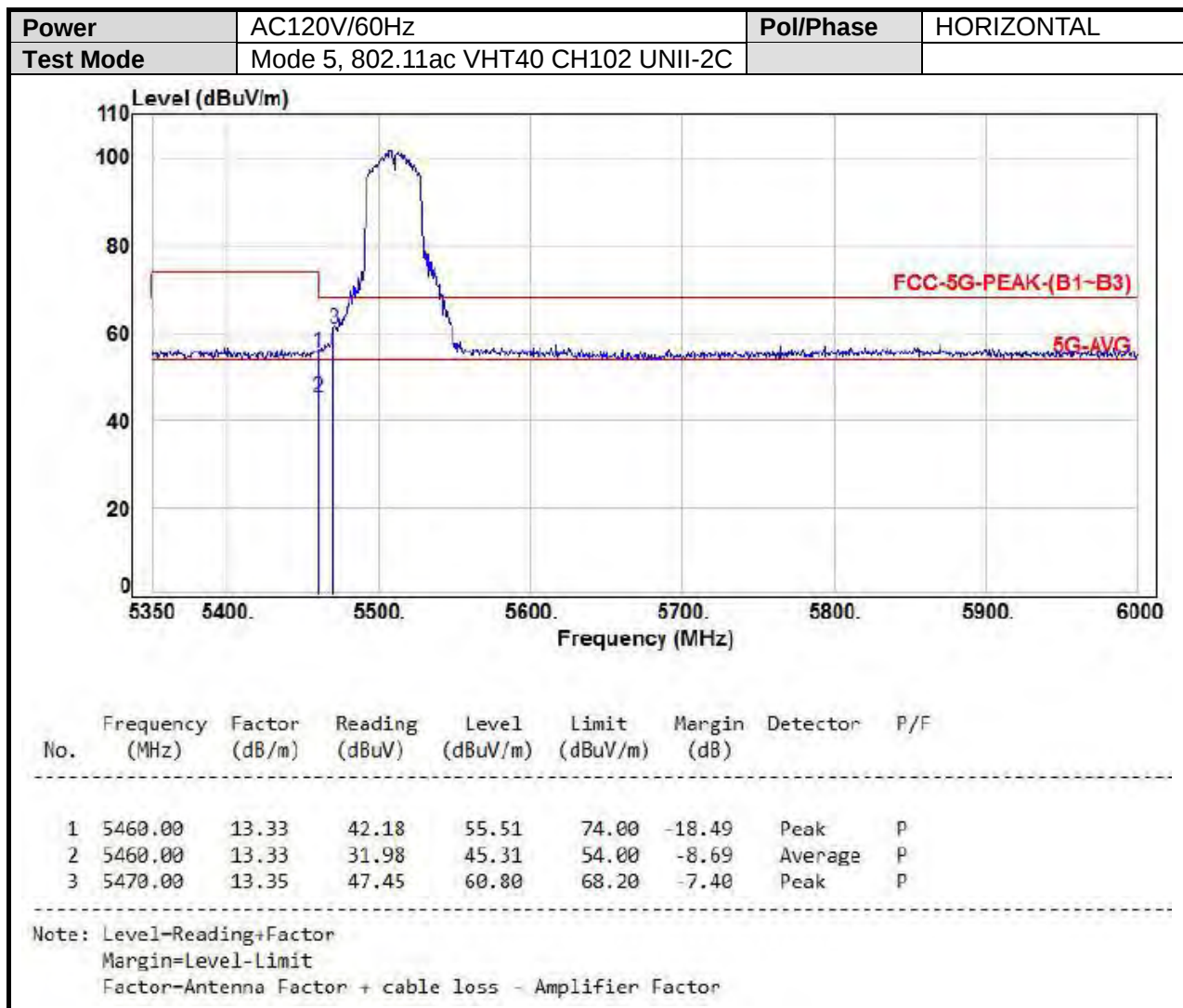


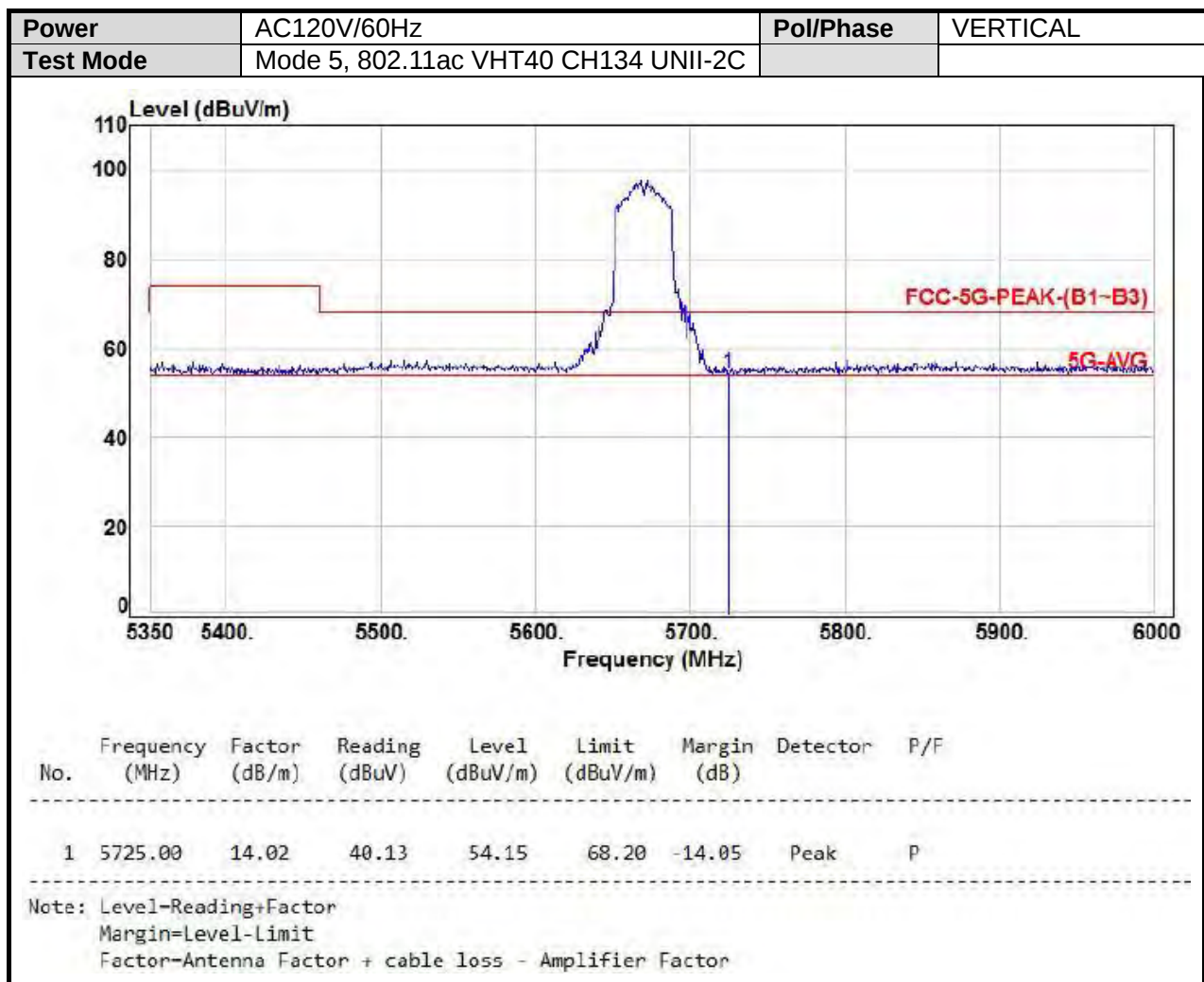


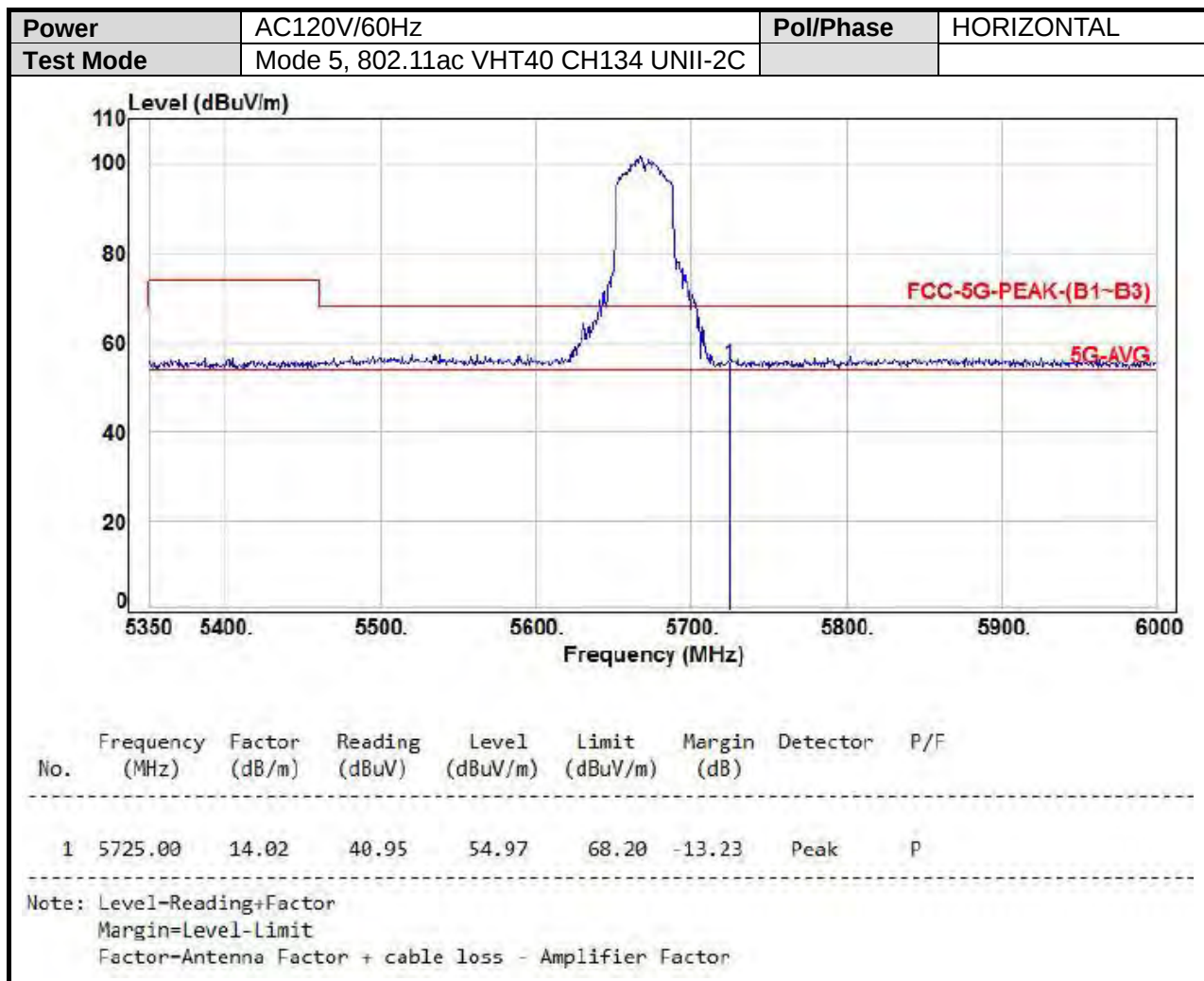


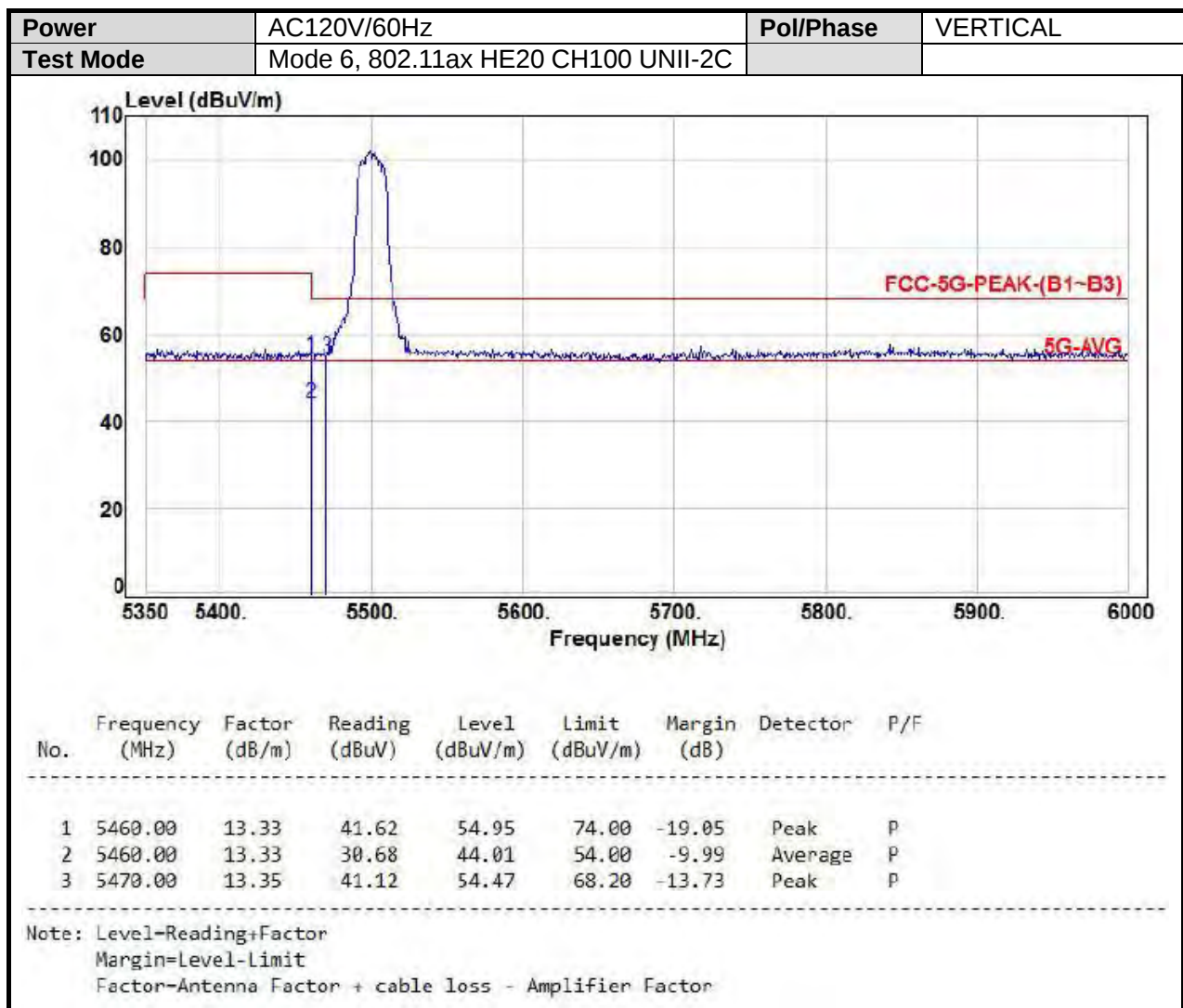


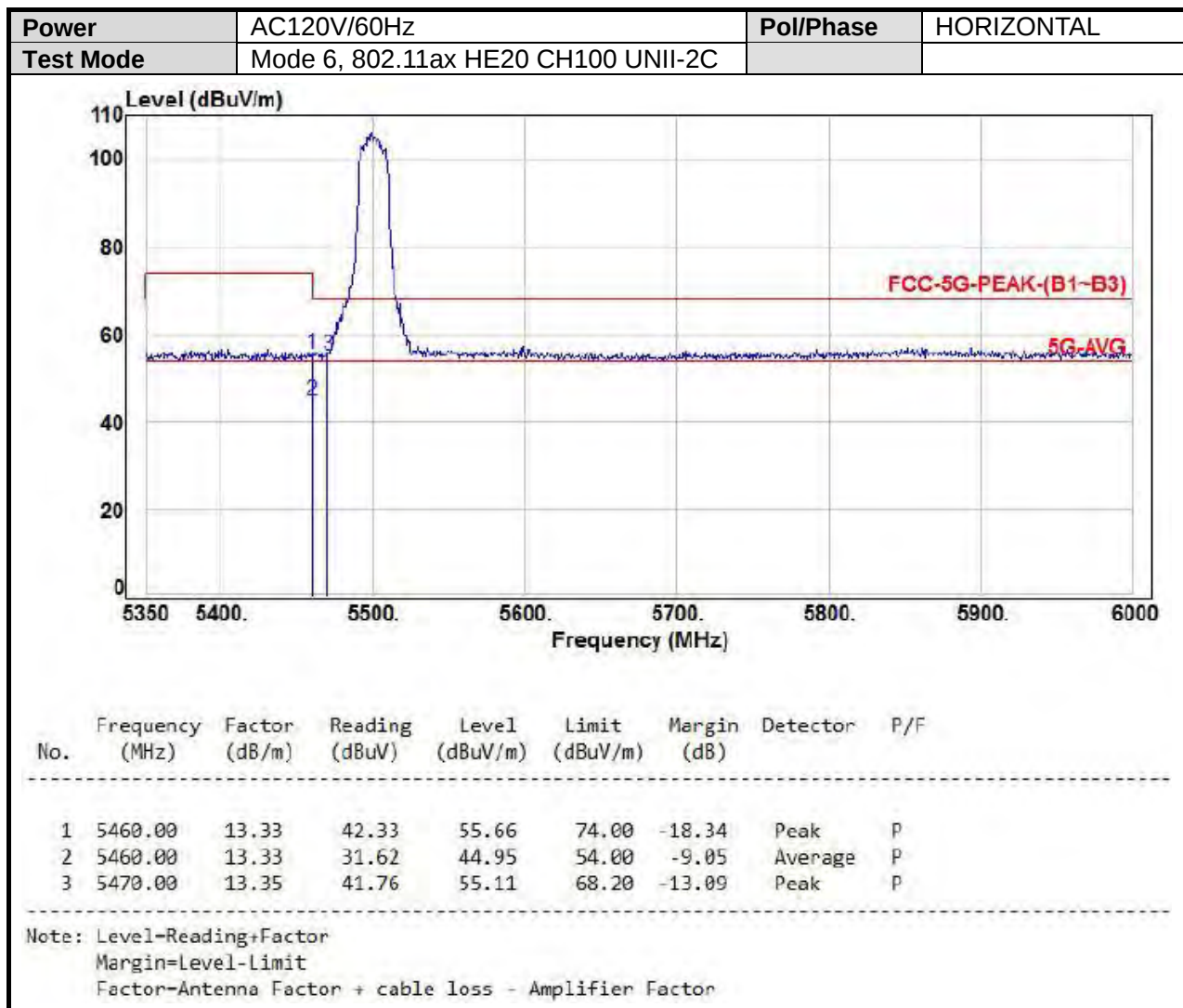


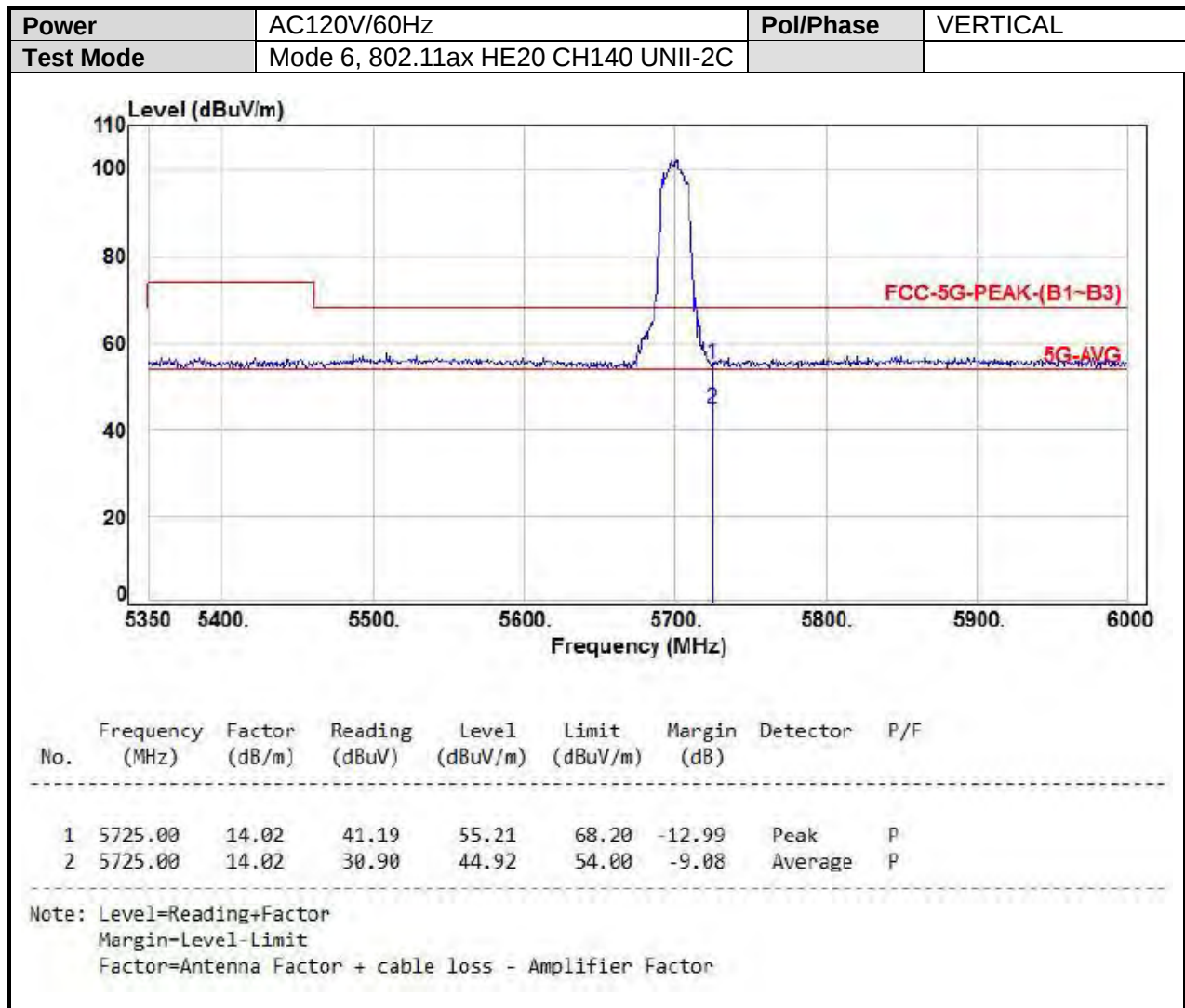


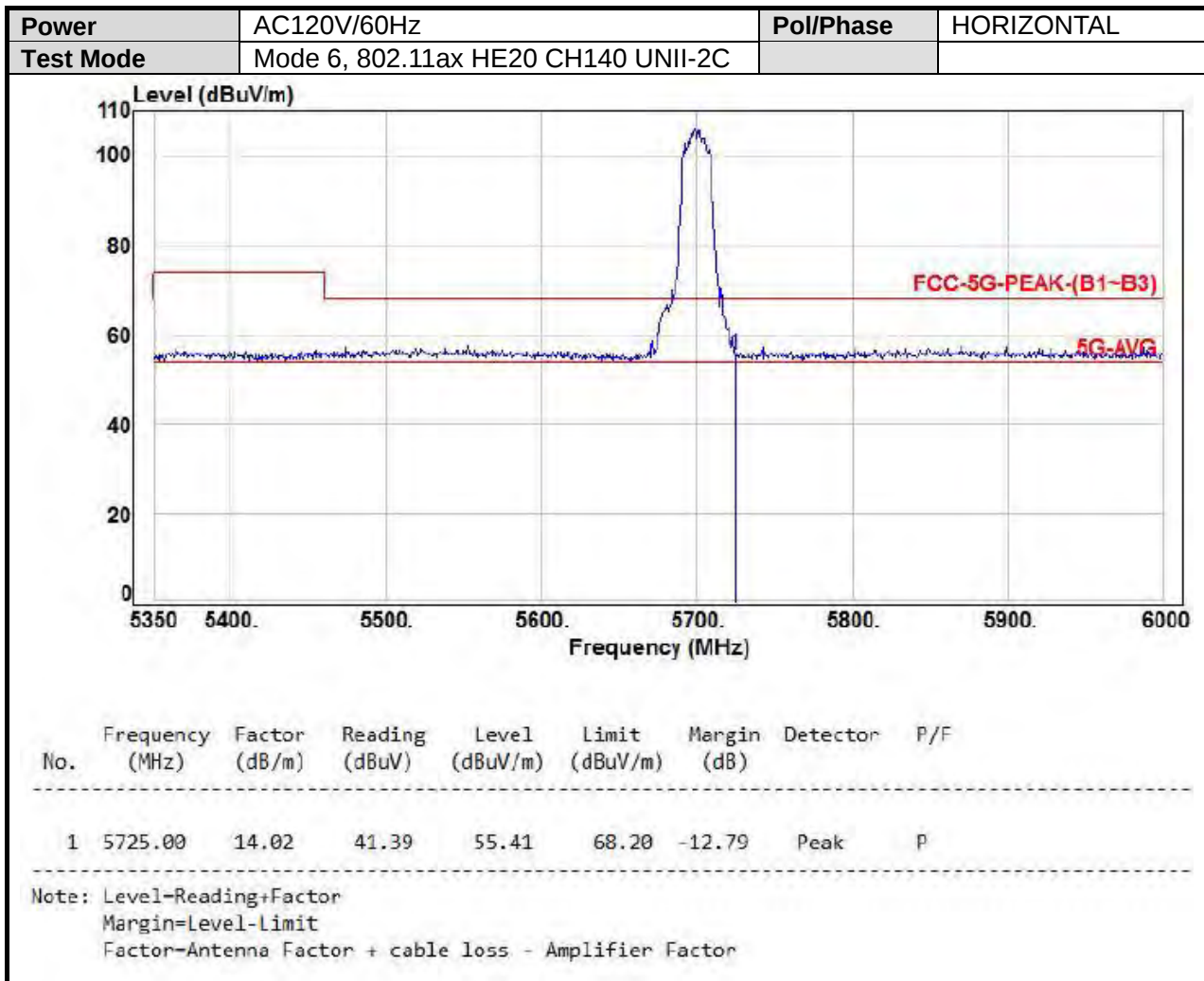


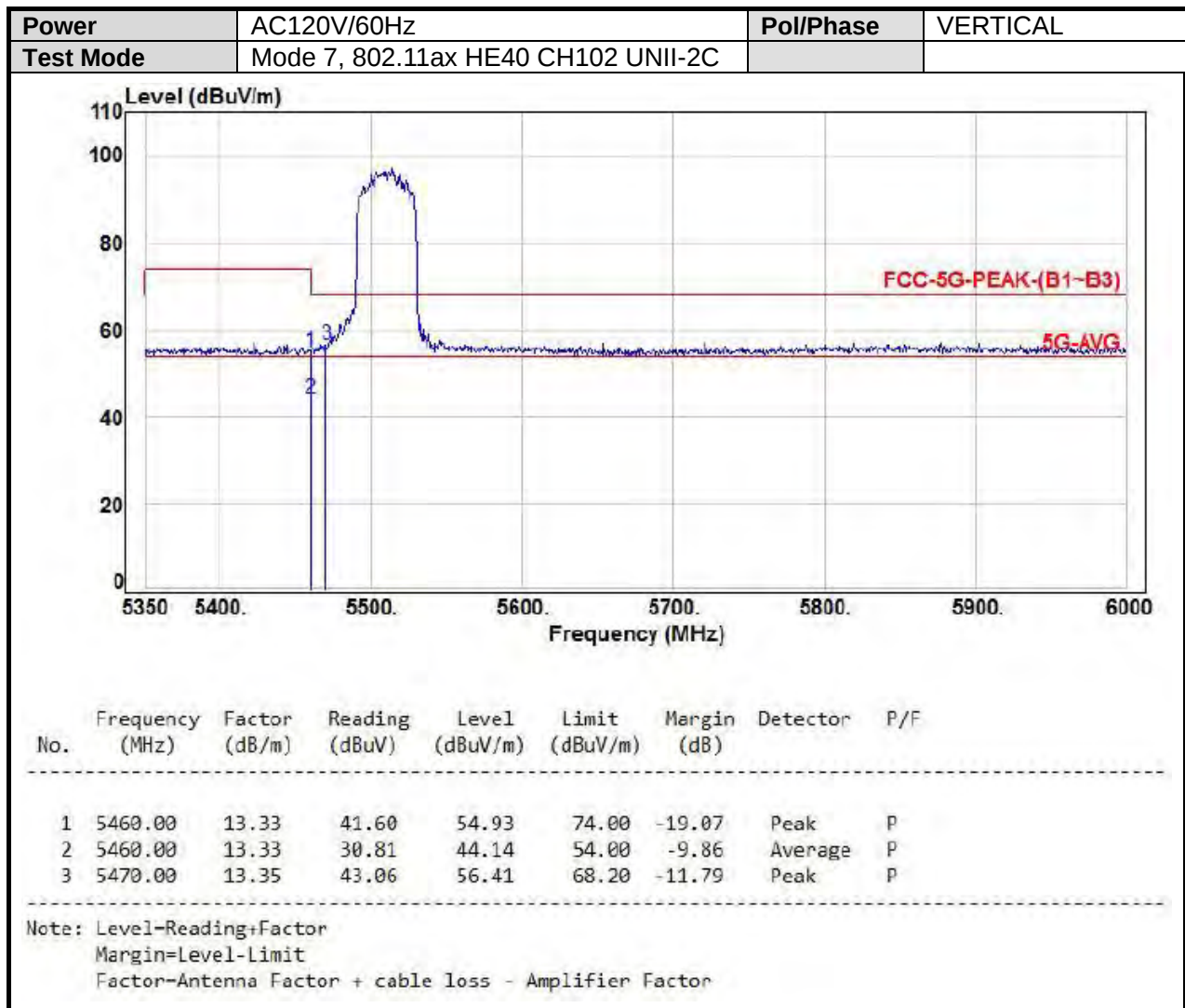


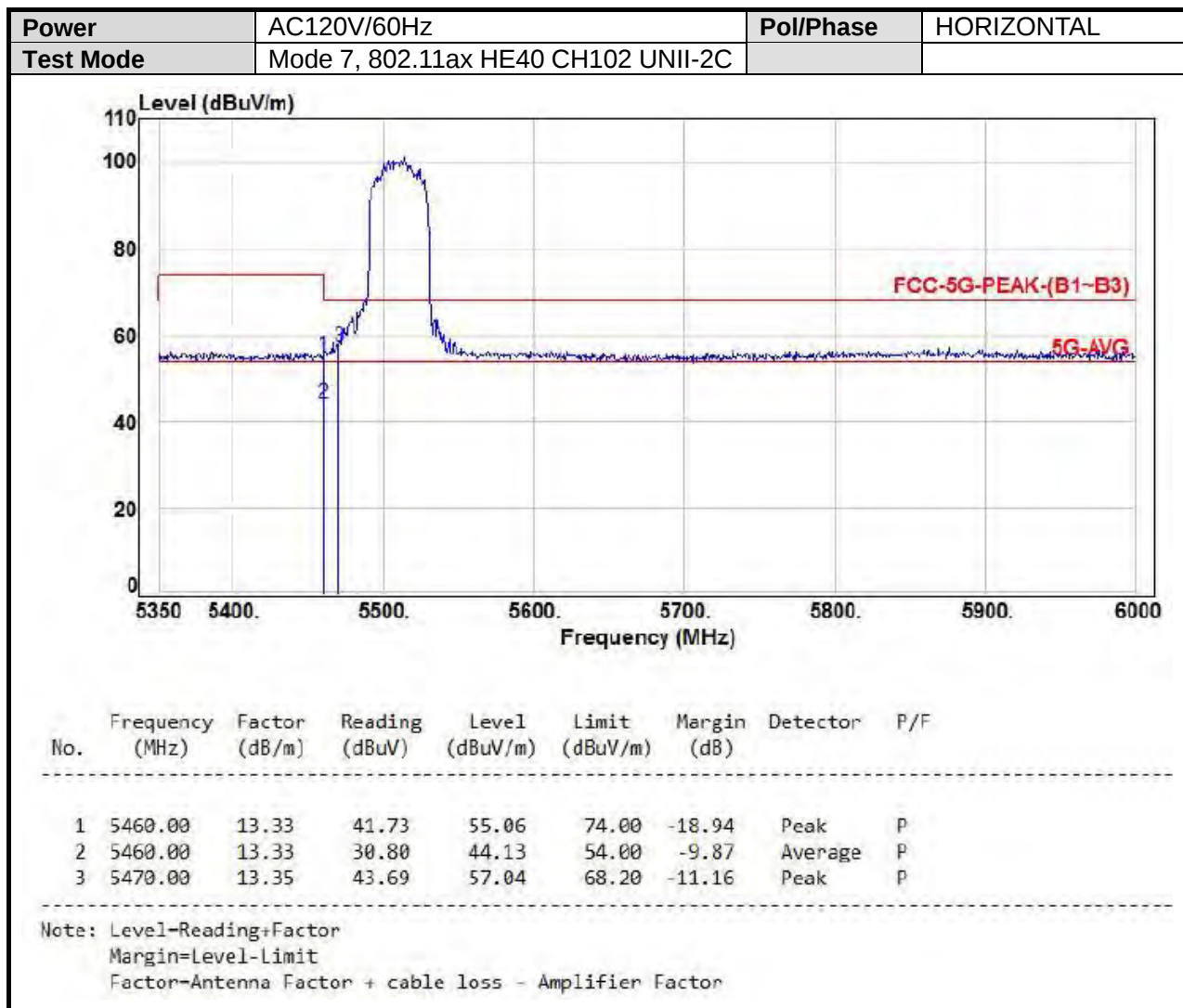


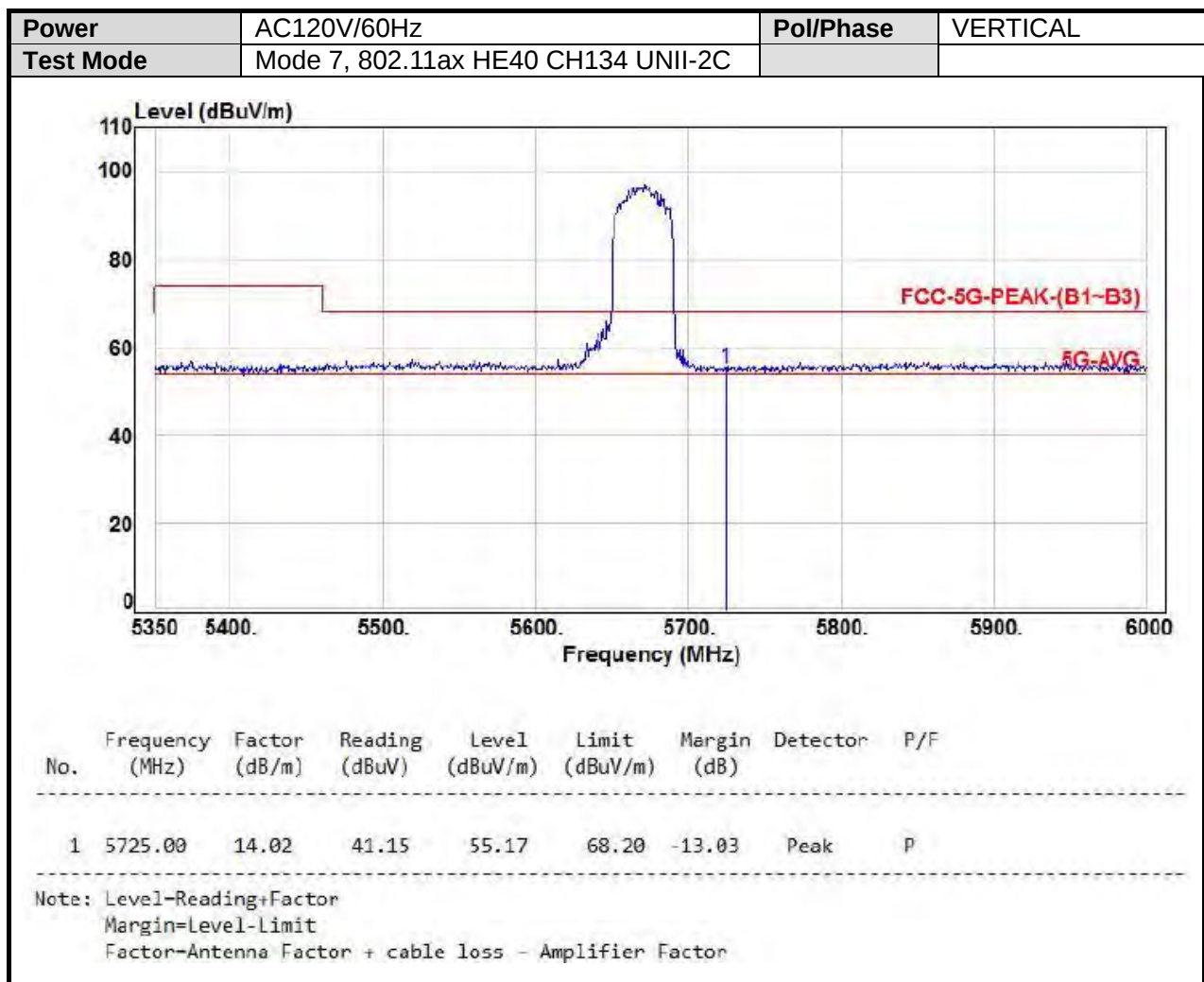


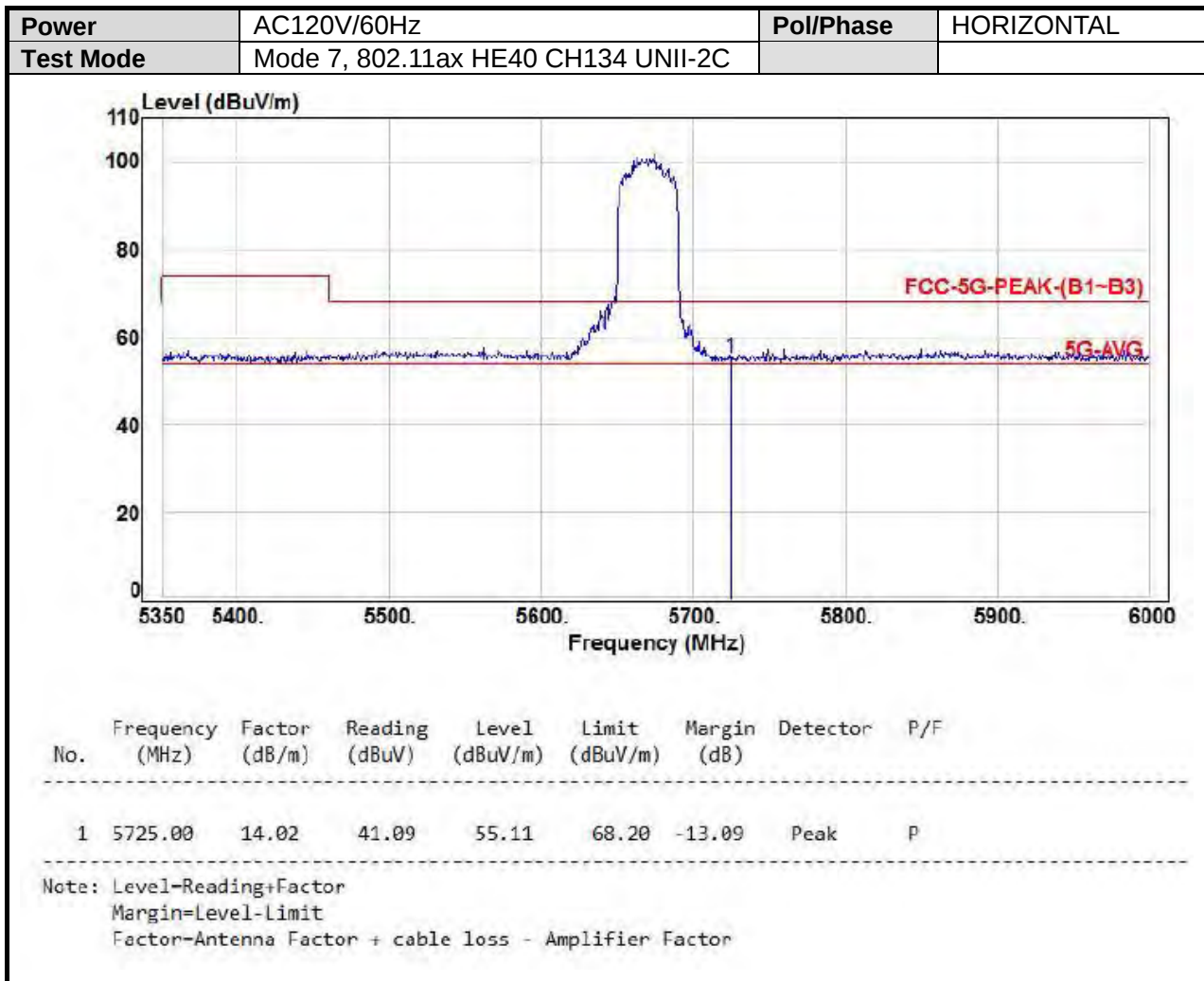






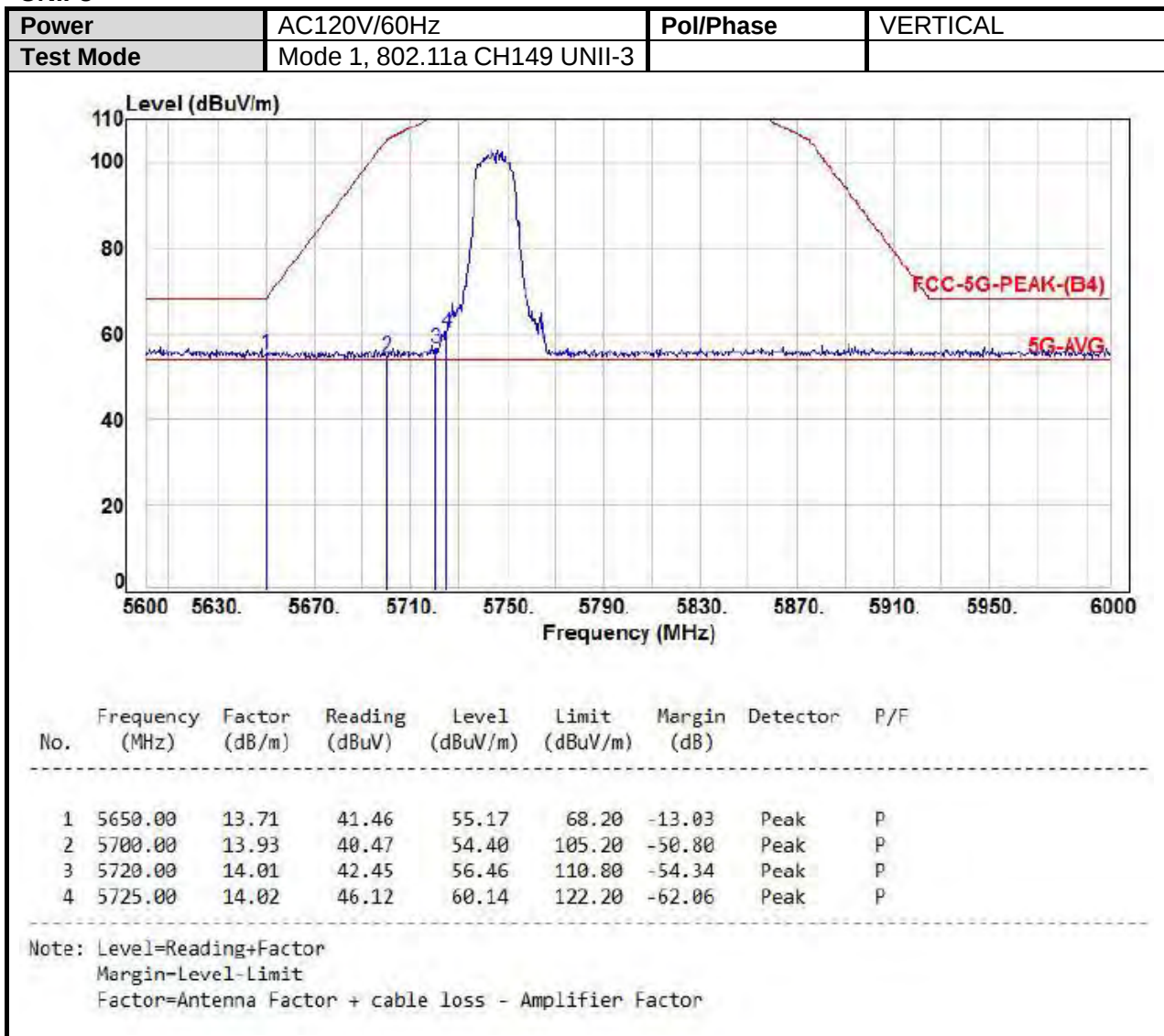


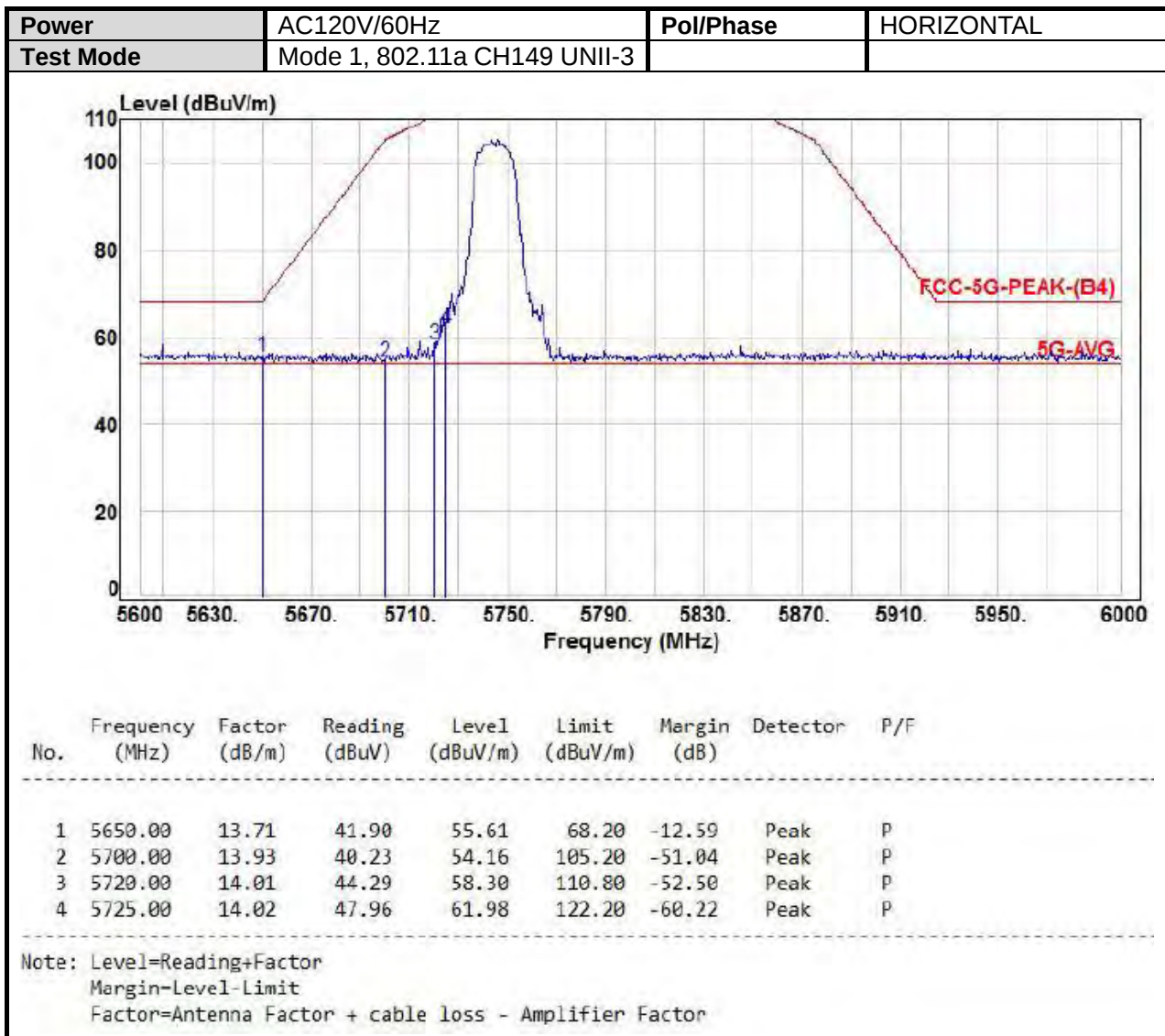


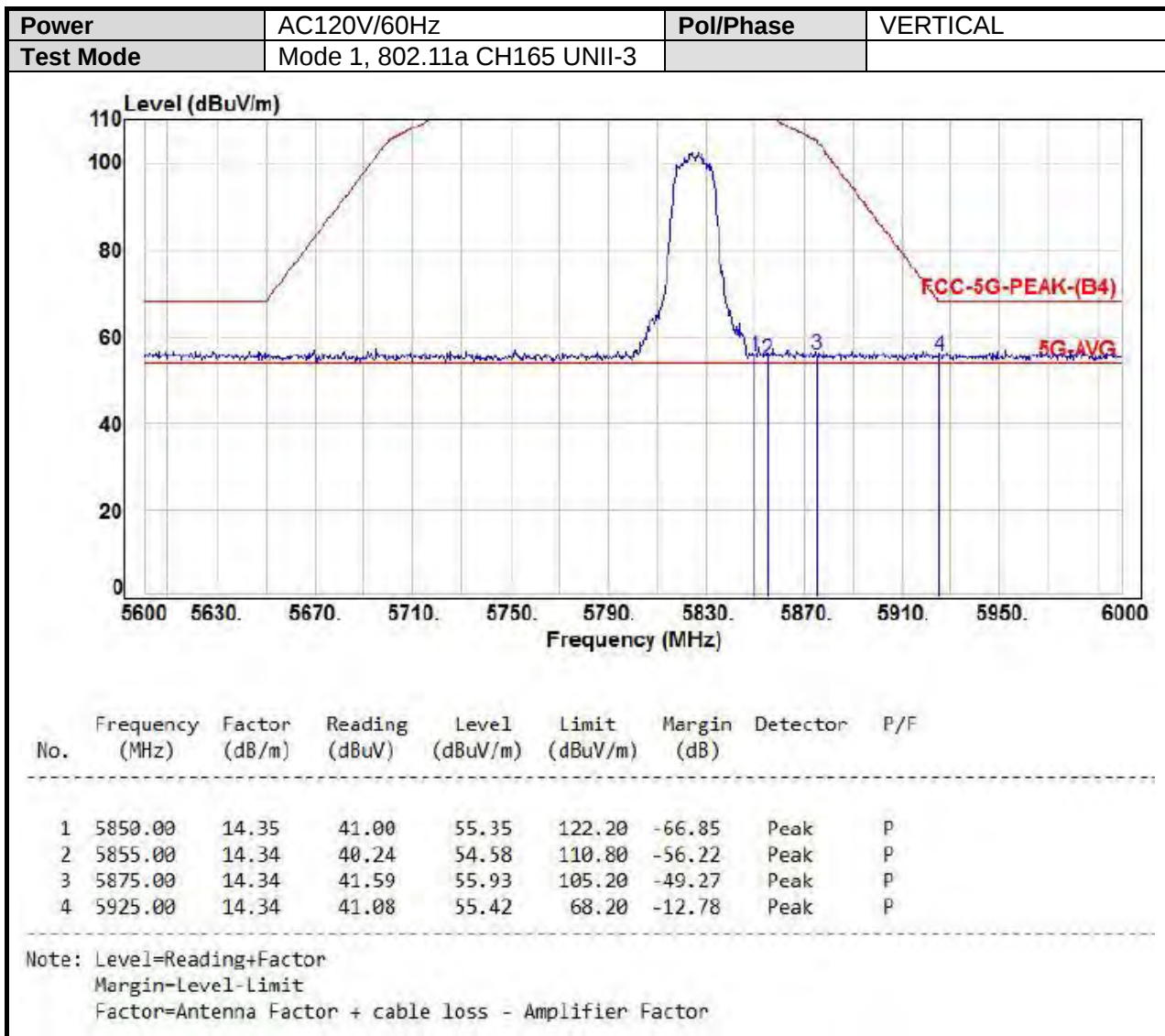


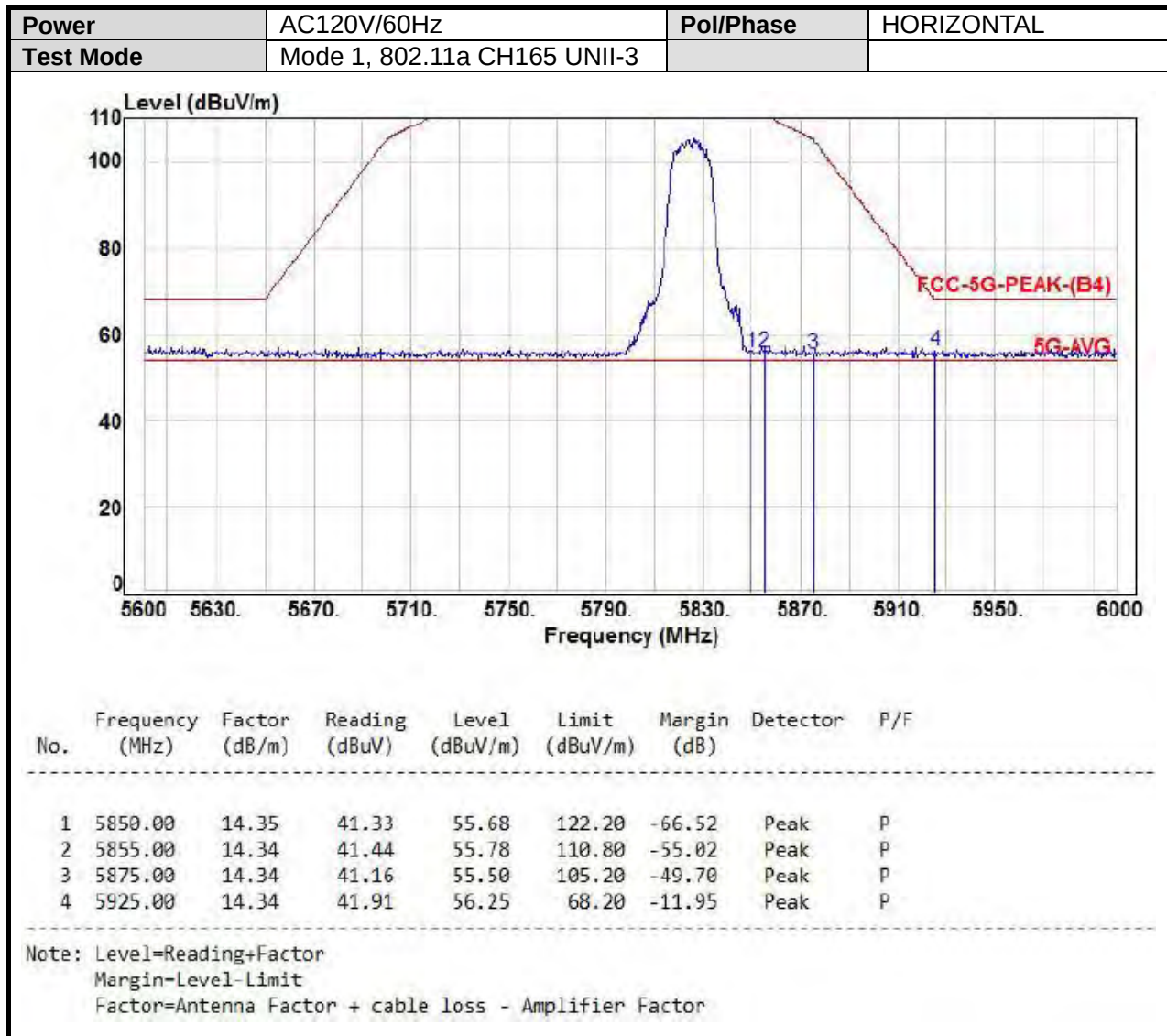


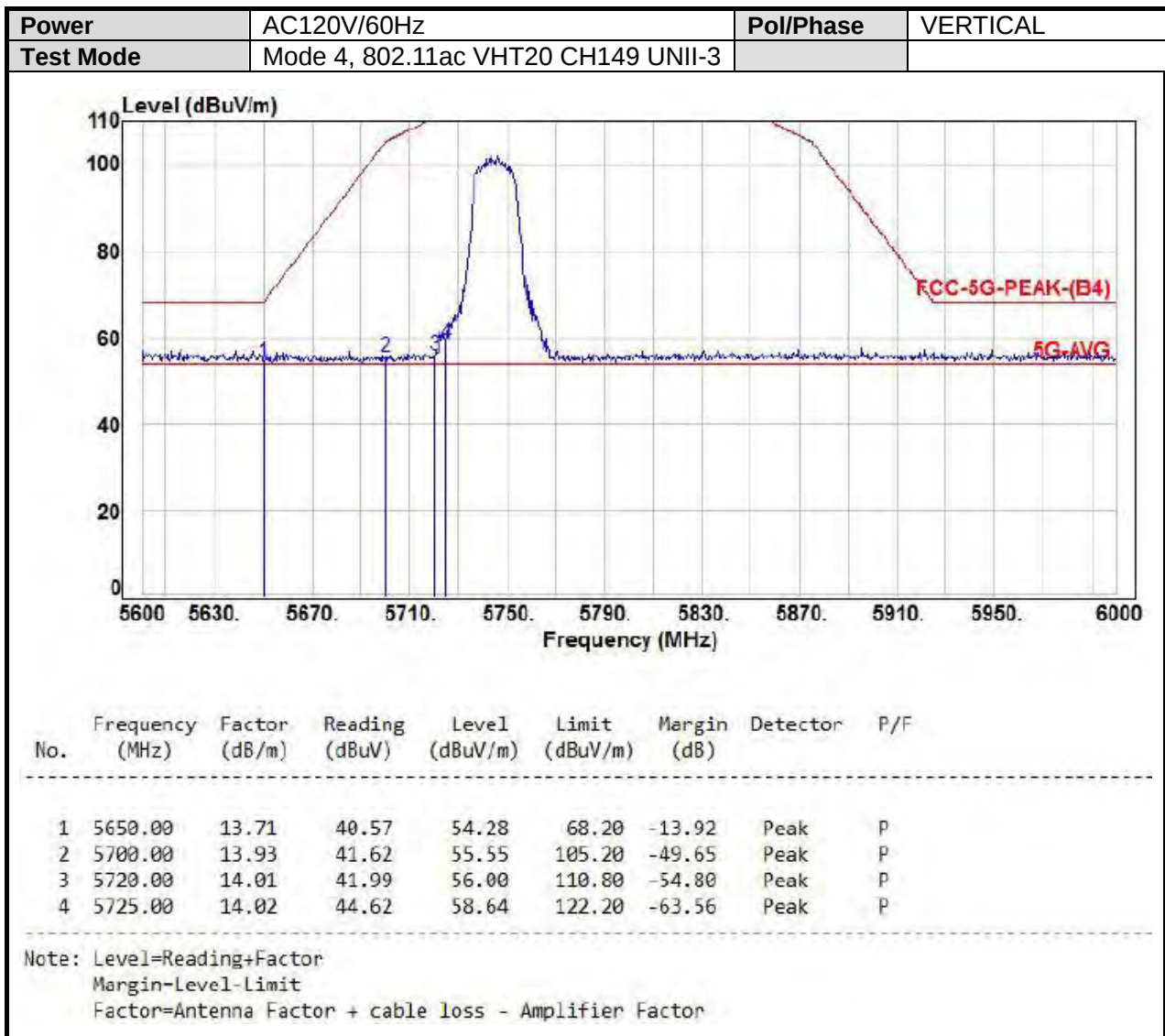
UNII-3

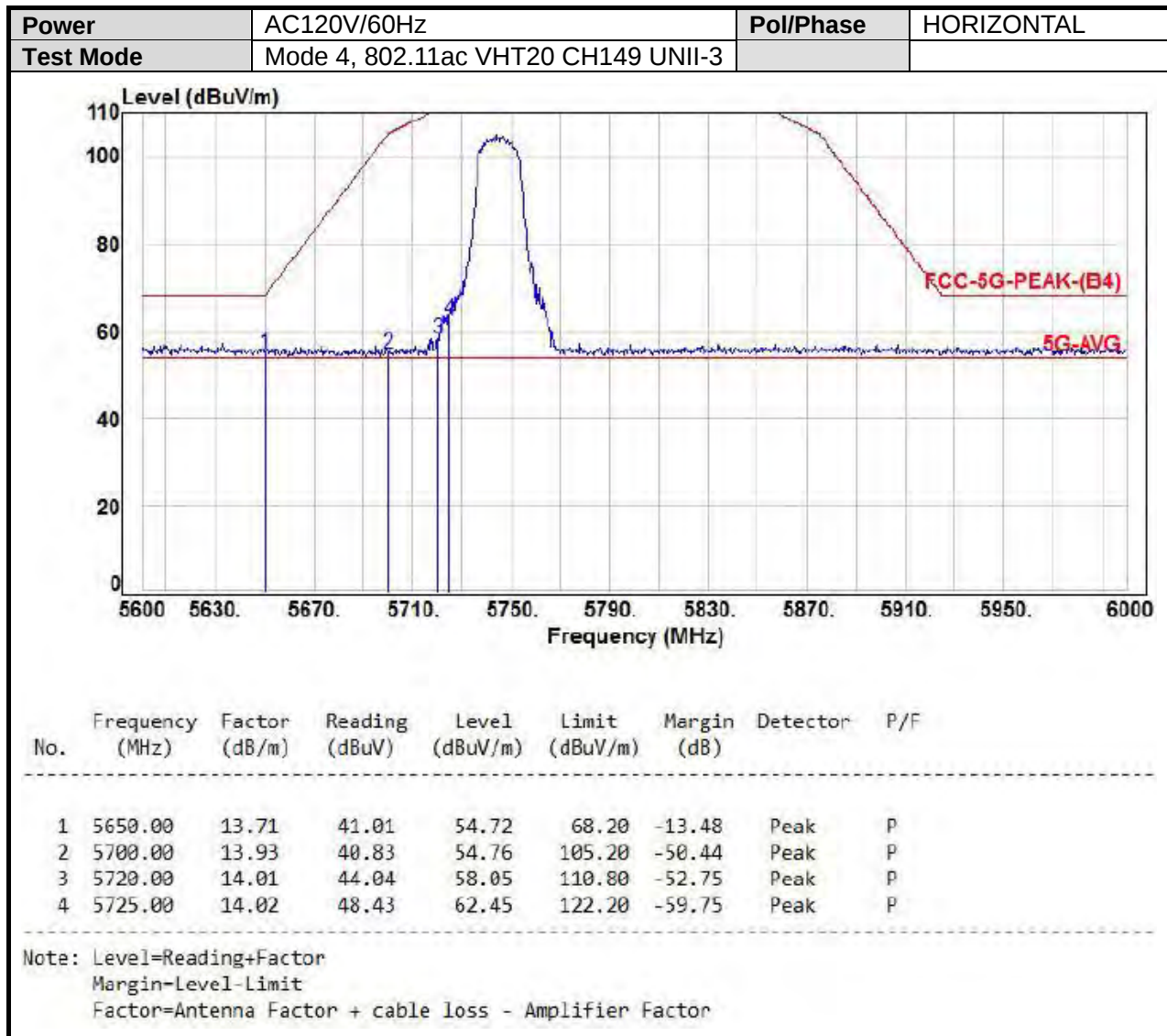


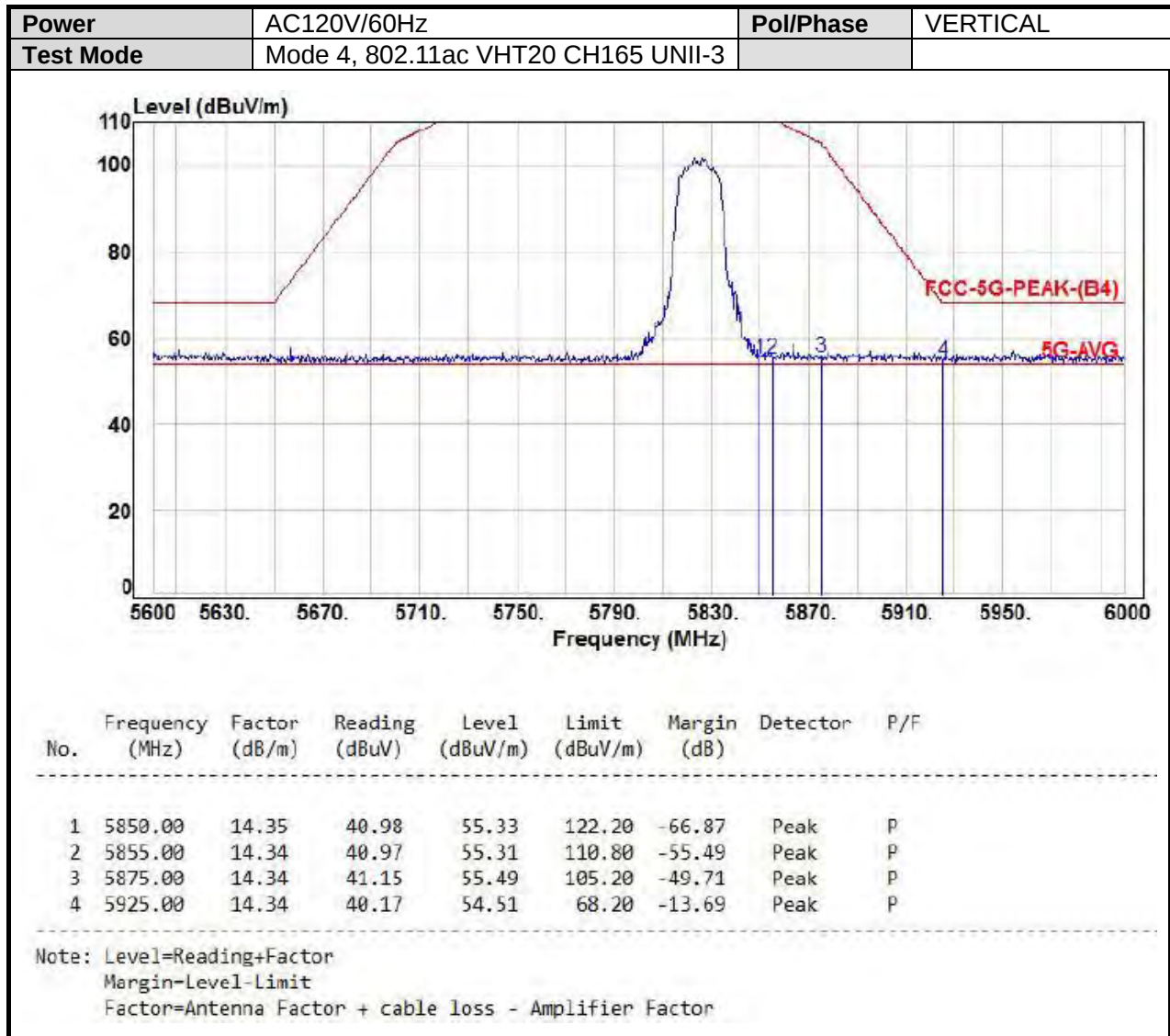


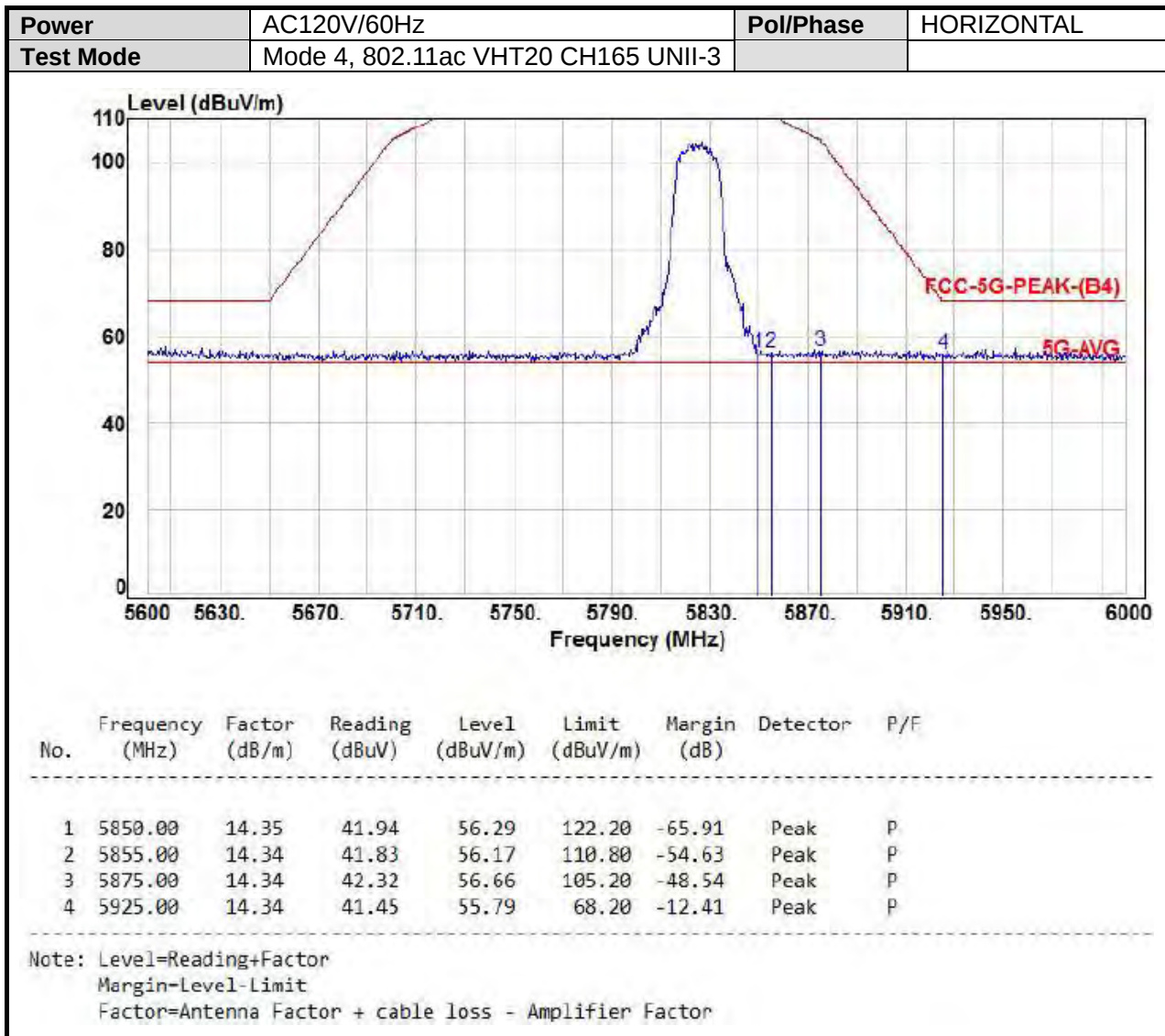


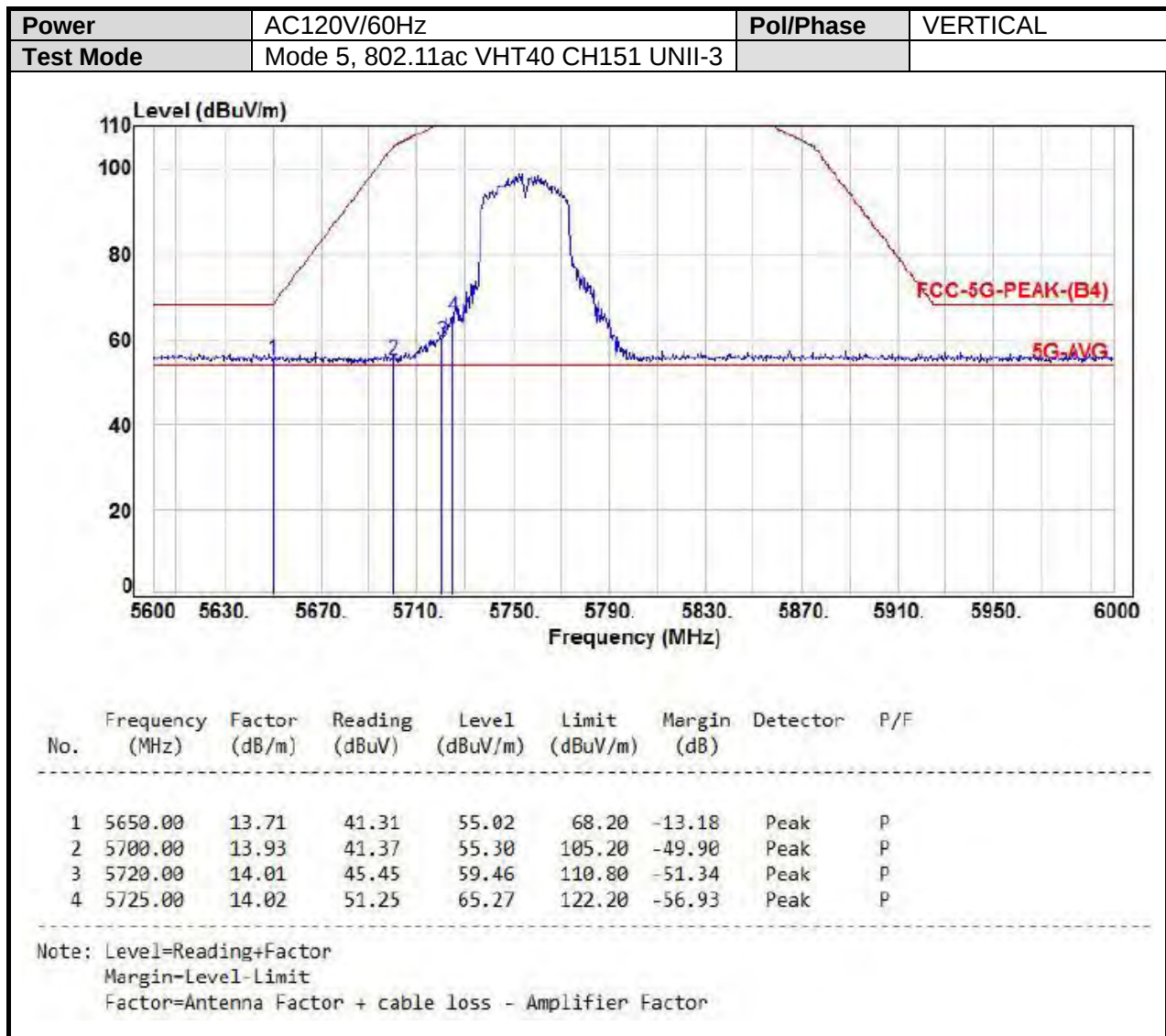


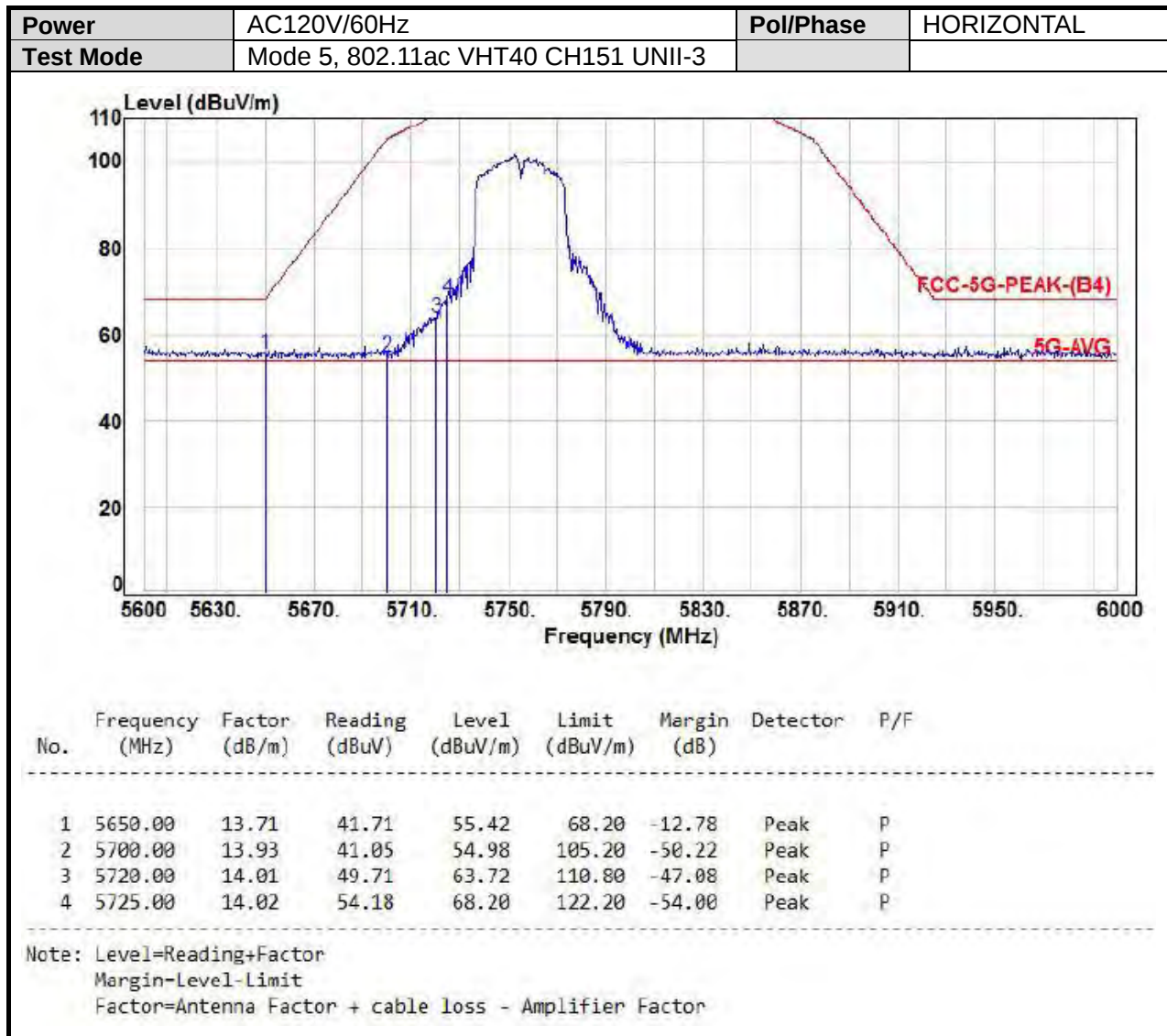


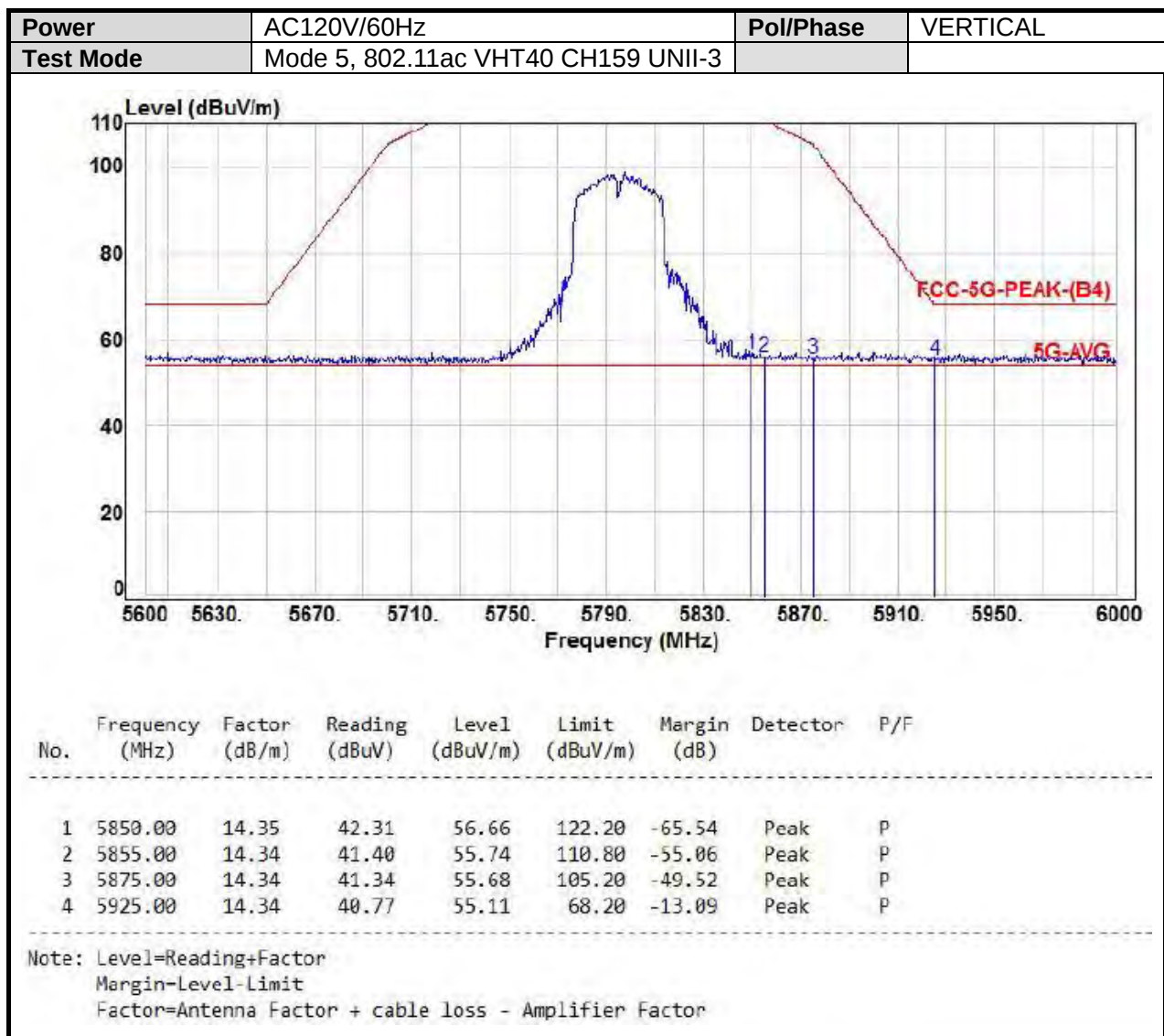


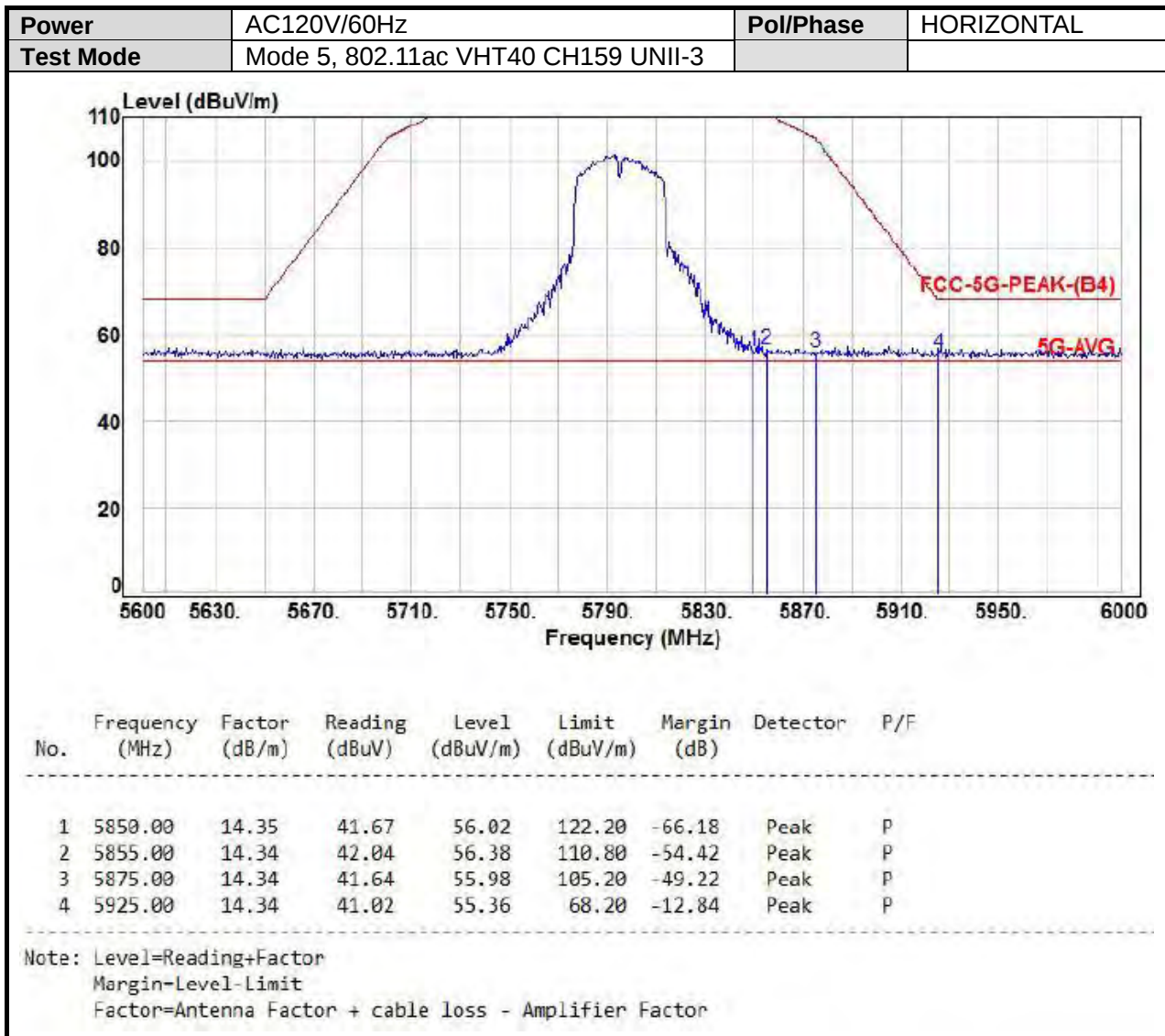


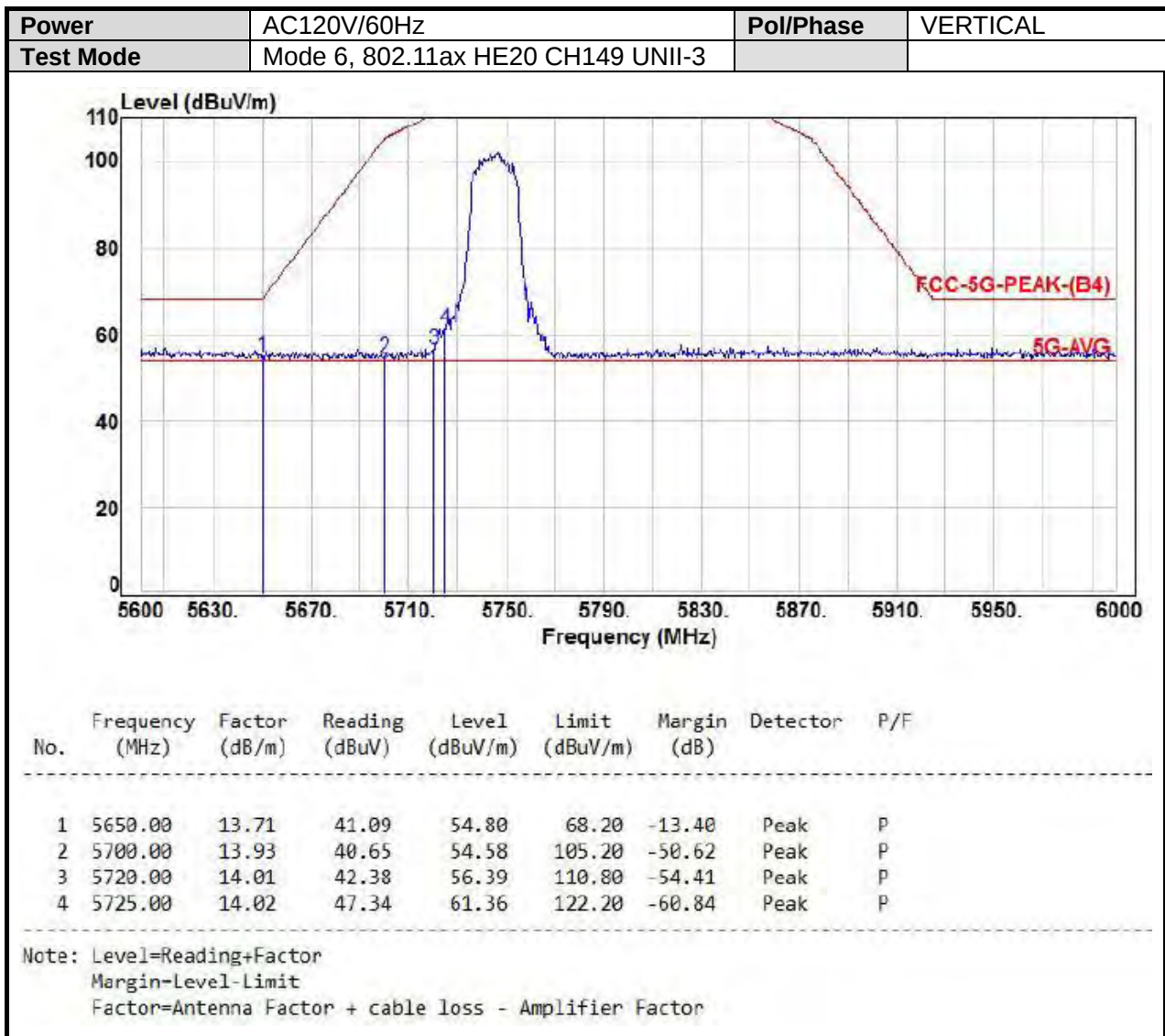


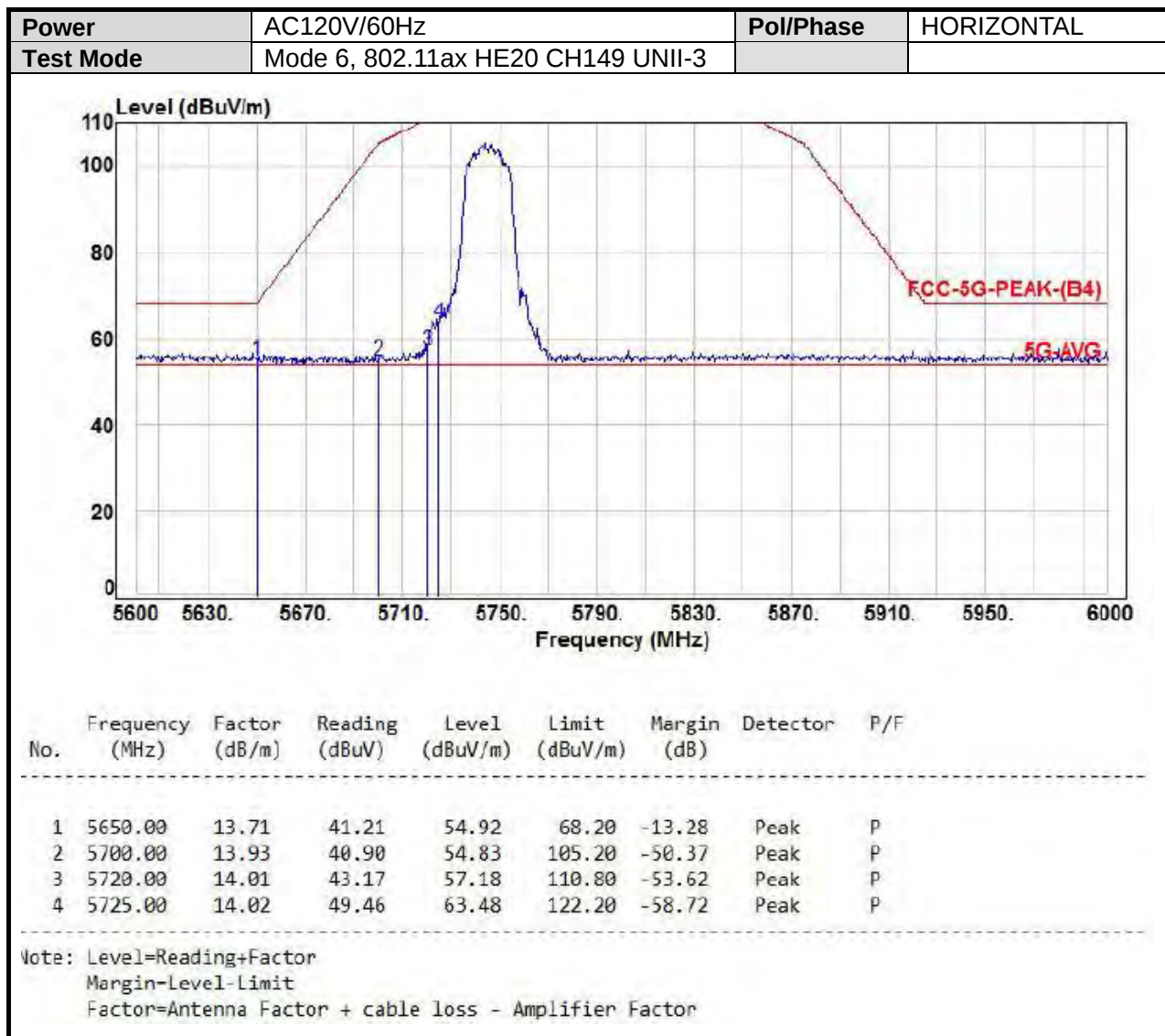


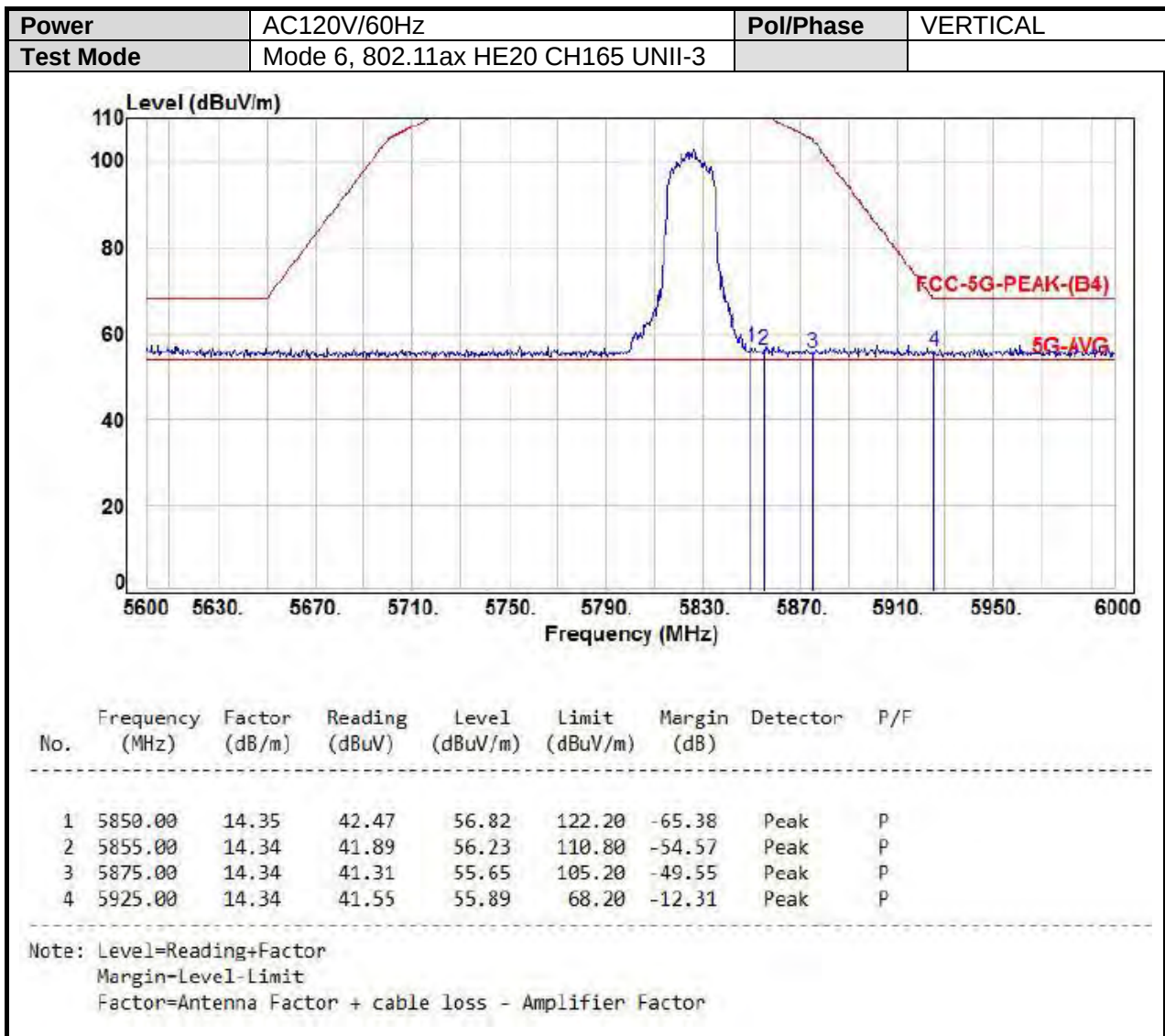


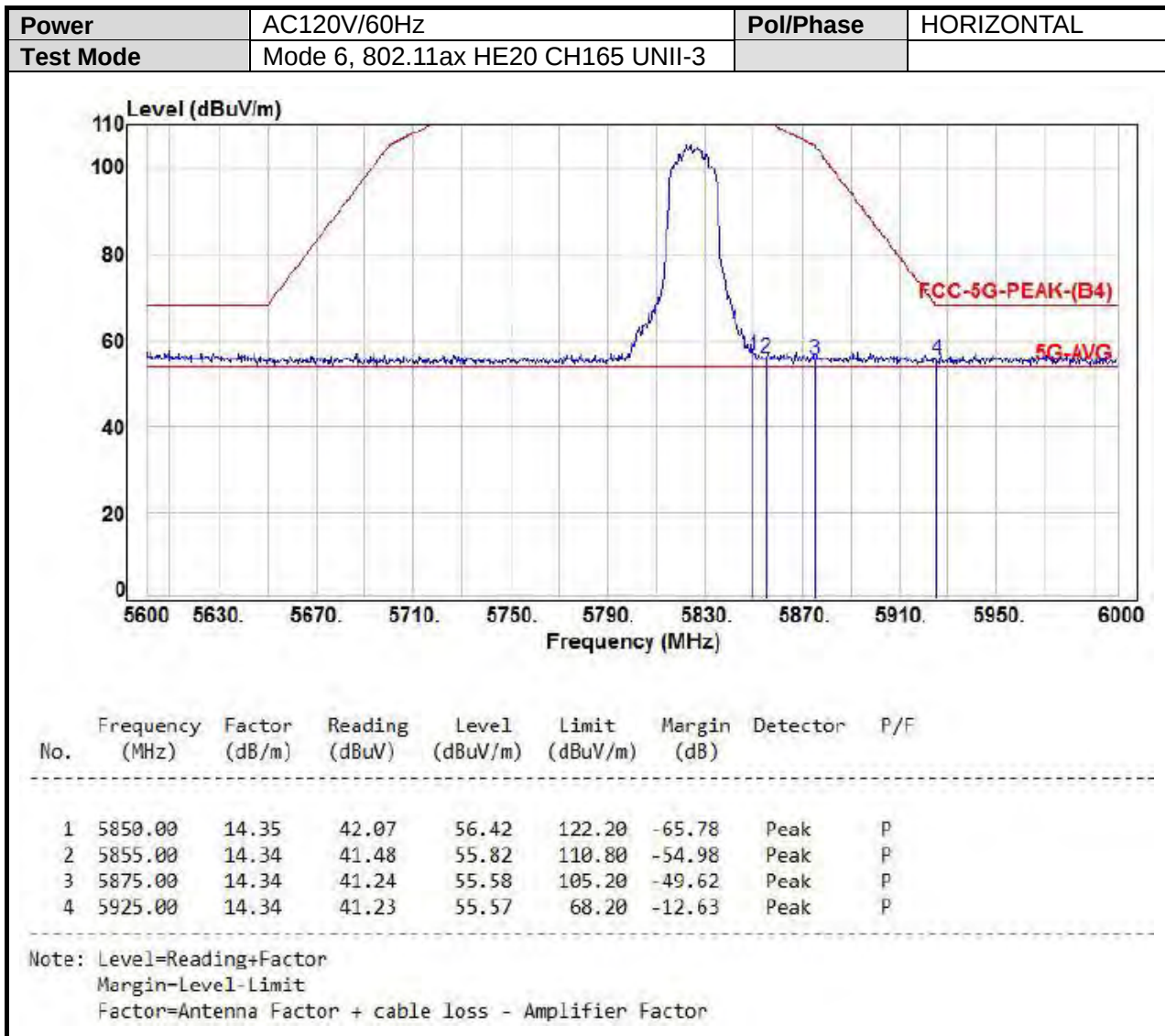


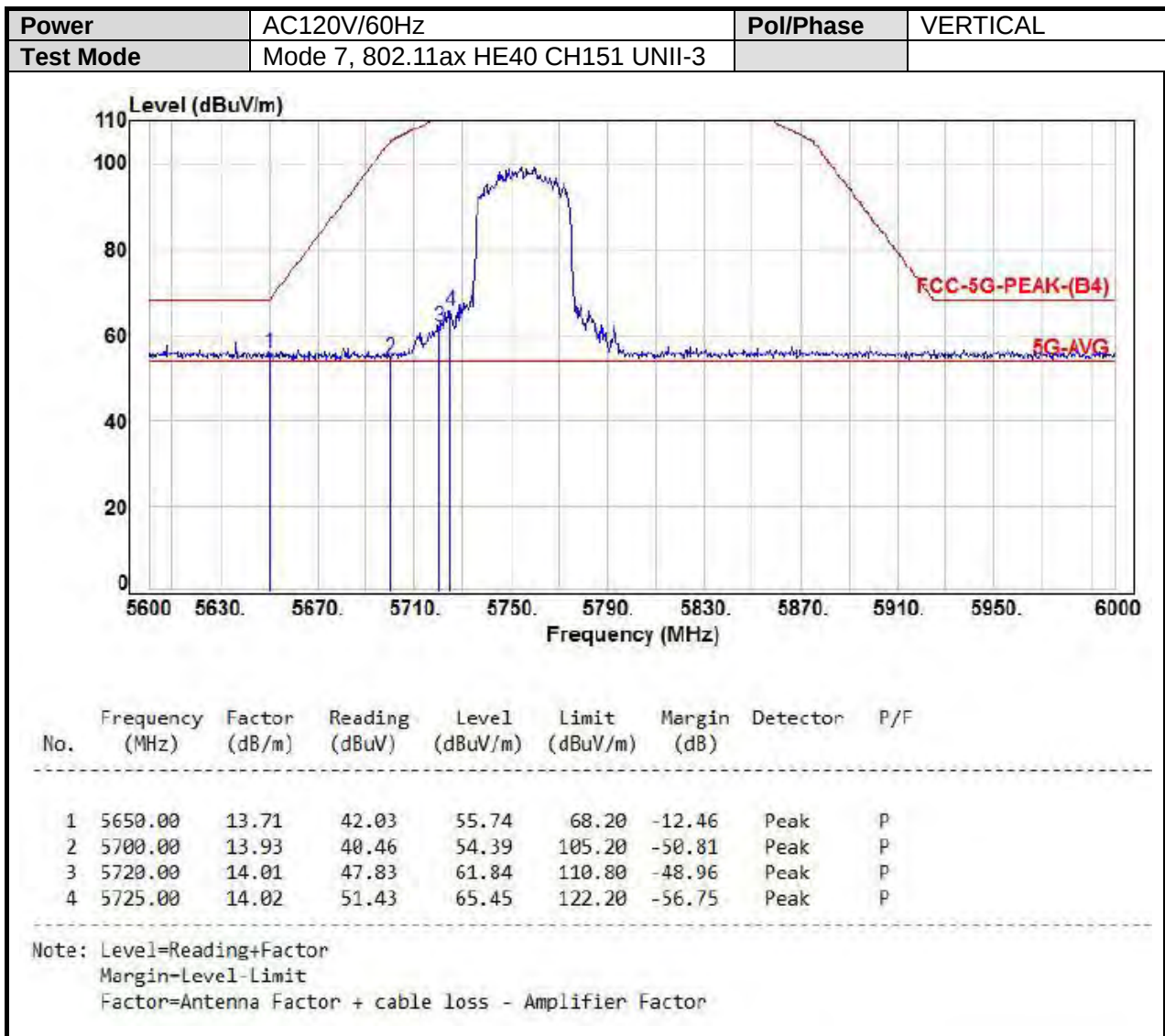


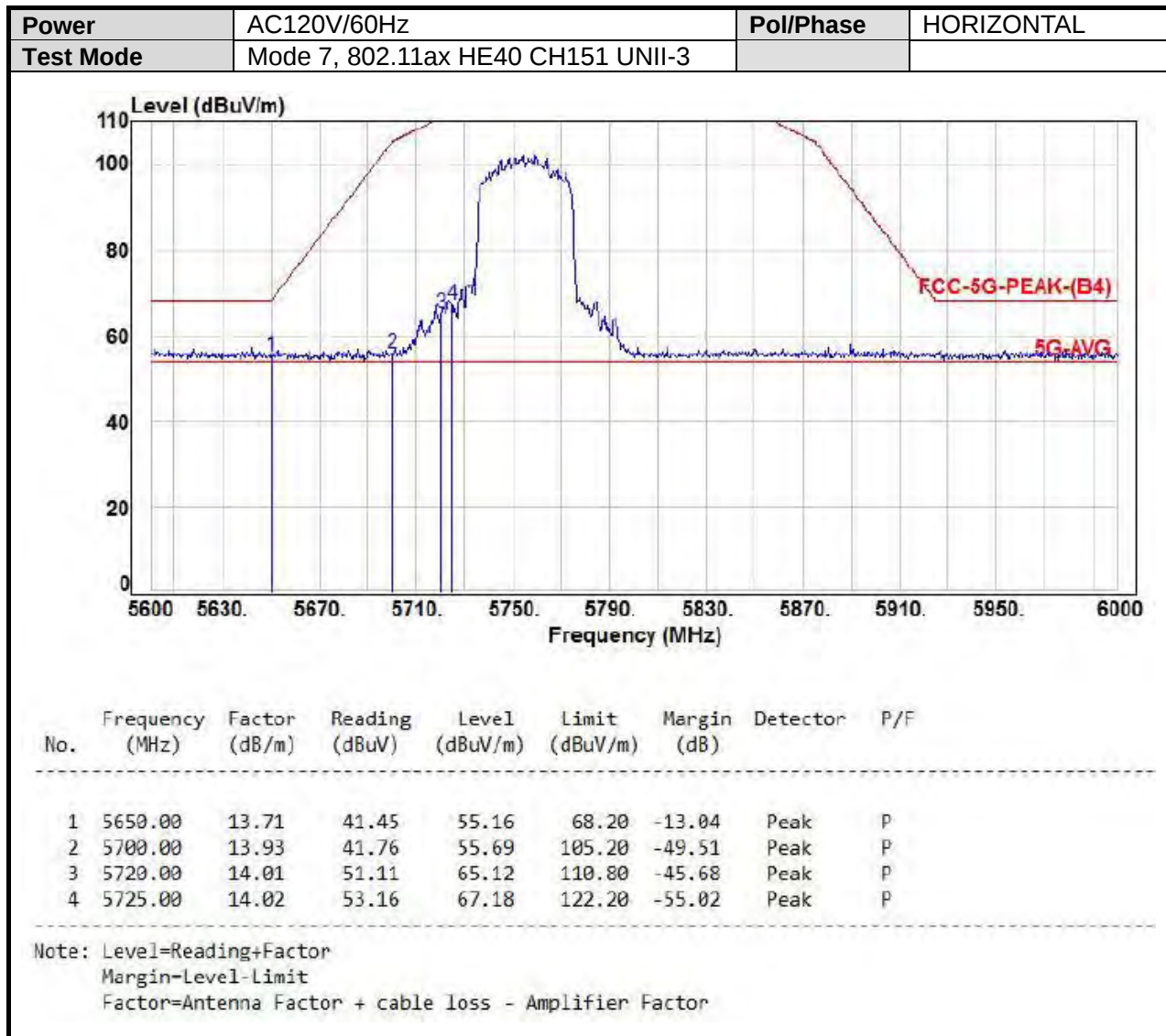


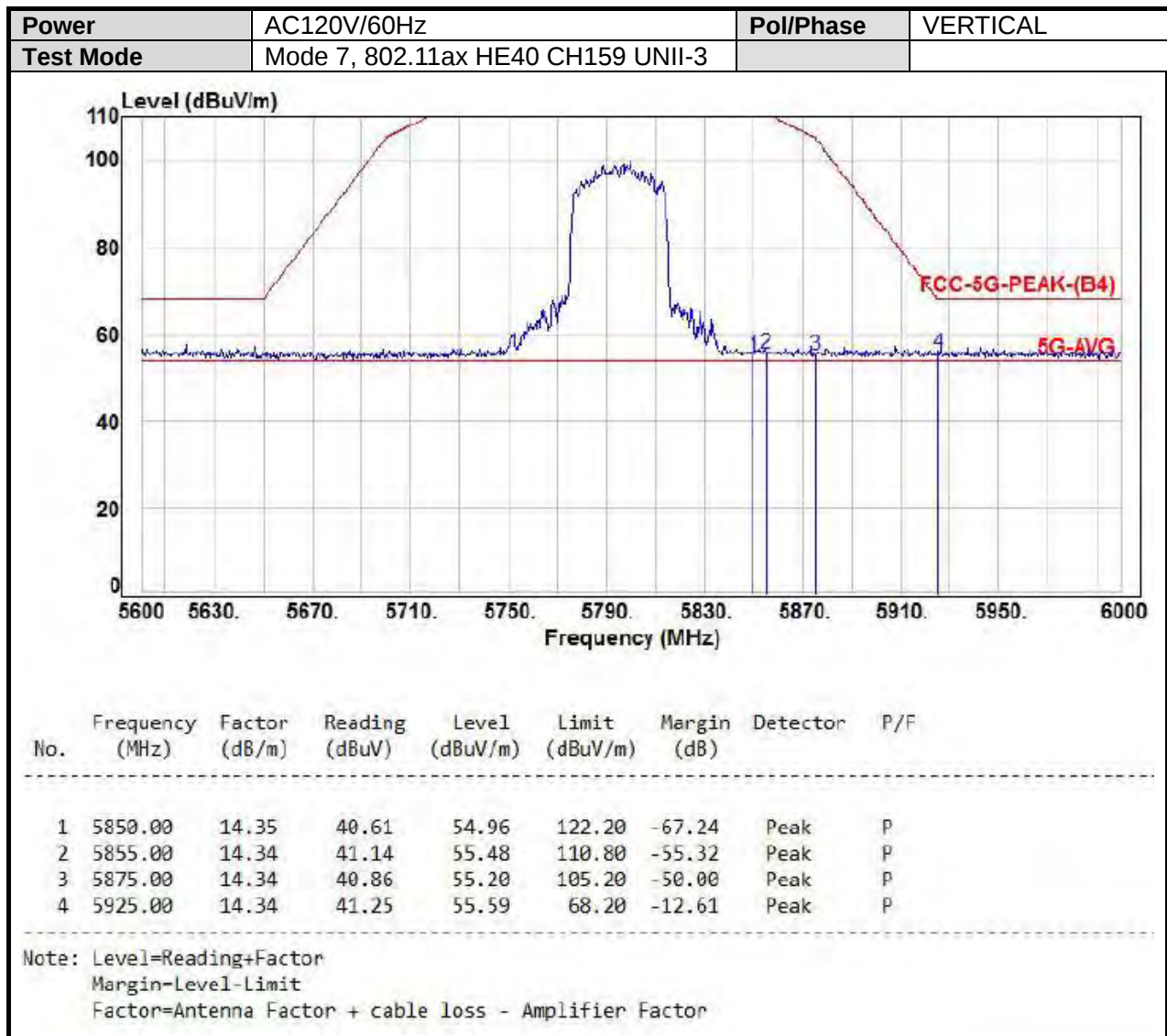


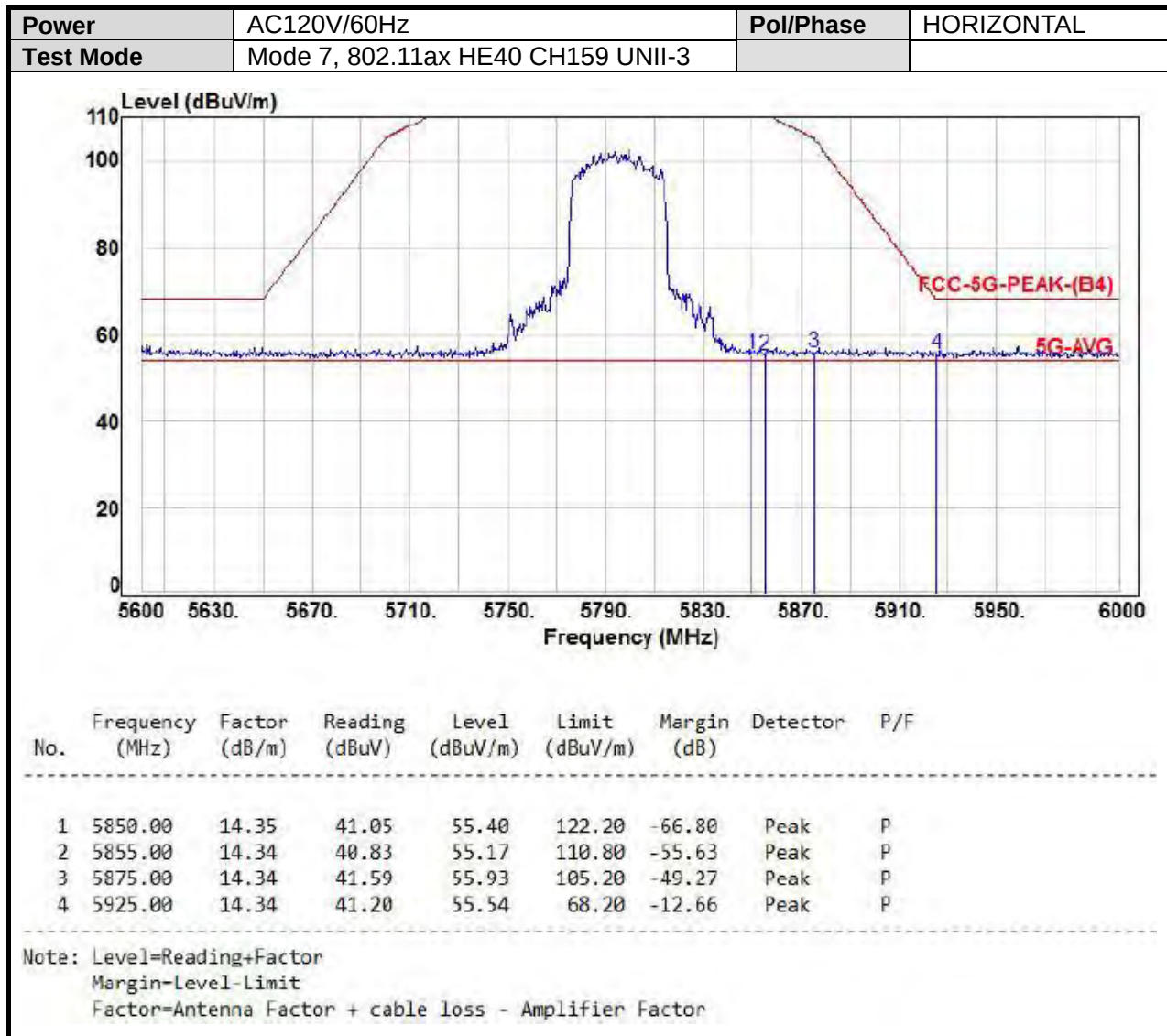














7. On Time, Duty Cycle and Measurement methods

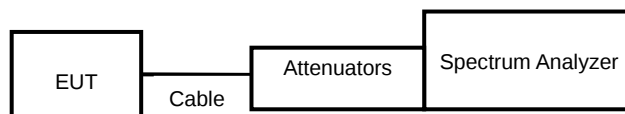
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

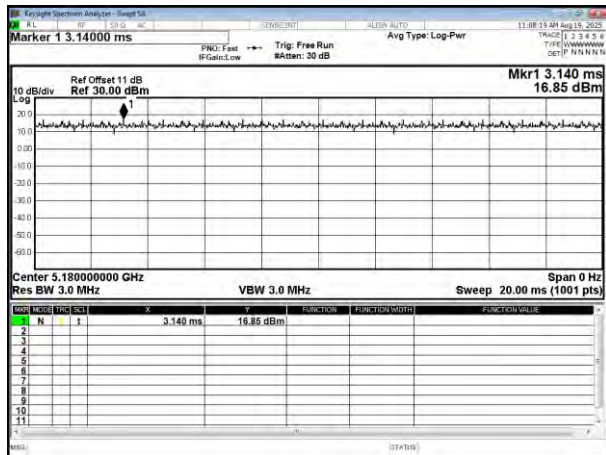
Modulation Mode	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11a	100.000	100.000	100.00%
802.11ac VHT20	100.000	100.000	100.00%
802.11ac VHT40	100.000	100.000	100.00%
802.11ax HE20	100.000	100.000	100.00%
802.11ax HE40	100.000	100.000	100.00%

7.5. Measurement Methods

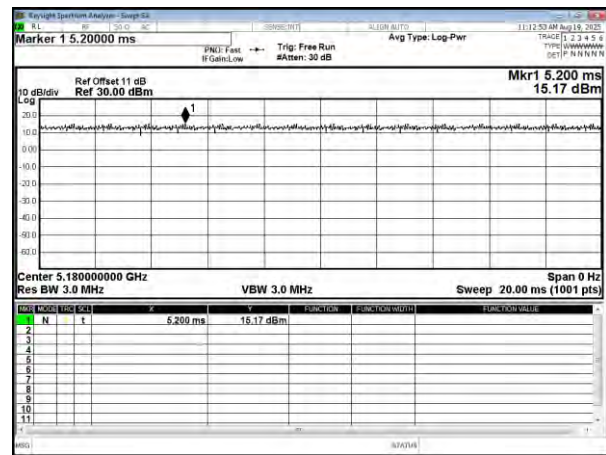
26 dB and 6dB Emission BW	KDB 789033 v02r01, Section C
99% Occupied BW	KDB 789033 v02r01, Section D
Conducted Output Power	KDB 789033 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 v02r01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 v02r01, Sections G and H



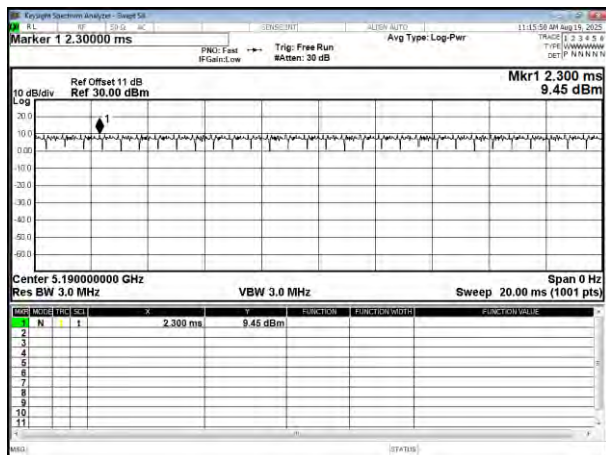
Modulation Type: 802.11a



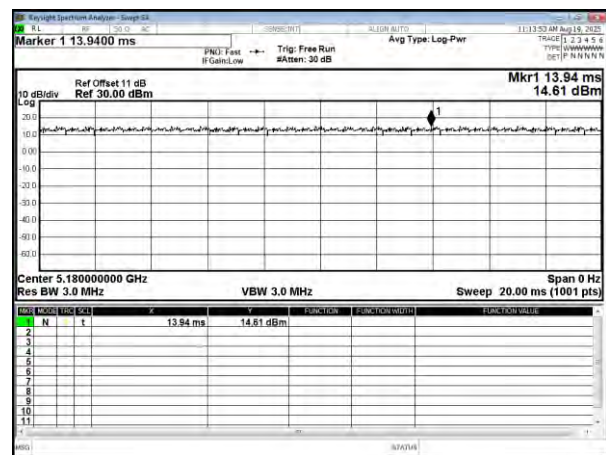
Modulation Type: 802.11ac VHT20



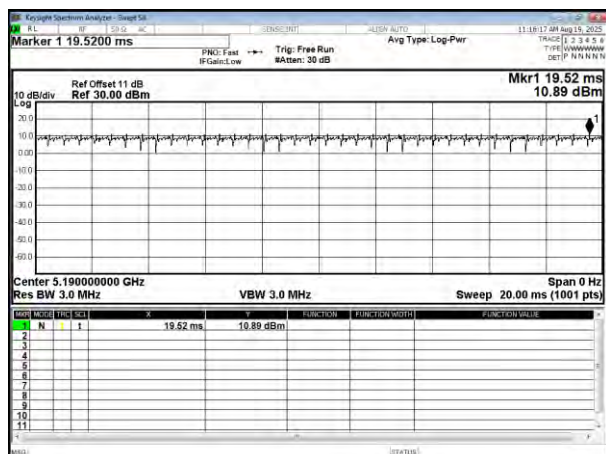
Modulation Type: 802.11ac VHT40



Modulation Type: 802.11ax HE20



Modulation Type: 802.11ax HE40





8. 6dB Bandwidth & 99% Occupied Bandwidth

8.1. Test Limit

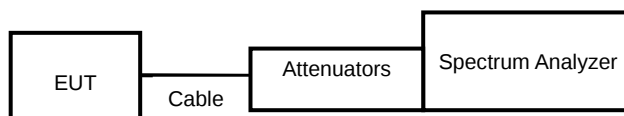
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

8.3. Test Setup Layout



**8.4. Test Result and Data (6dB Bandwidth)****In the 5.8GHz Band**

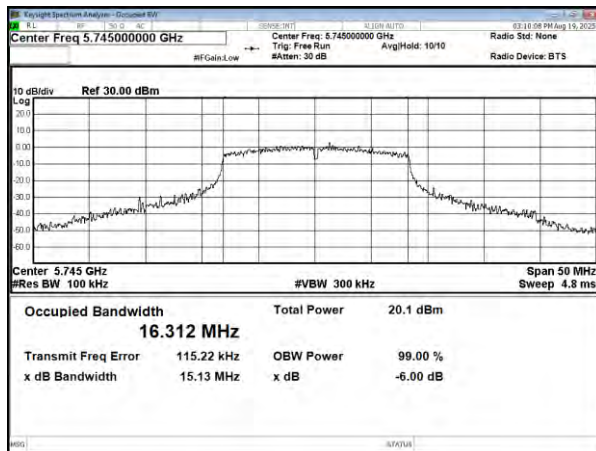
Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
802.11a	149	5745	15.13	0.50
	157	5785	13.51	0.50
	165	5825	16.34	0.50
802.11ac VHT20	149	5745	15.06	0.50
	157	5785	13.94	0.50
	165	5825	17.27	0.50
802.11ac VHT40	155	5755	33.82	0.50
	159	5795	35.03	0.50
802.11ax HE20	149	5745	16.36	0.50
	157	5785	12.28	0.50
	165	5825	18.21	0.50
802.11ax HE40	155	5755	31.37	0.50
	159	5795	33.85	0.50

8.5. Test Result and Data (99% Occupied Bandwidth)**In the 5.8GHz Band**

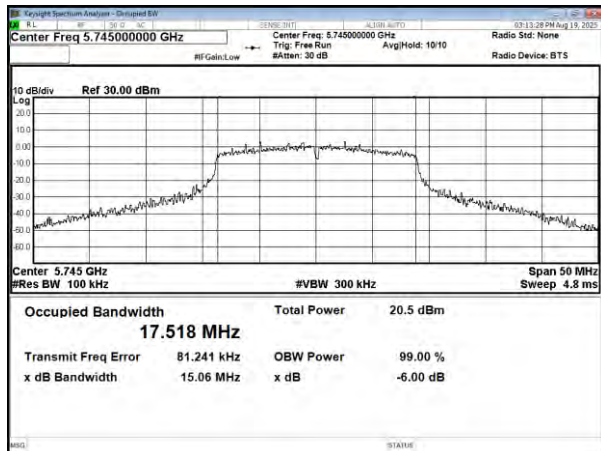
Mode	Channel	Frequency (MHz)	99% Bandwidth(MHz)
802.11a	149	5745	16.36
	157	5785	16.33
	165	5825	16.36
802.11ac VHT20	149	5745	17.60
	157	5785	17.53
	165	5825	17.52
802.11ac VHT40	155	5755	35.81
	159	5795	35.75
802.11ax HE20	149	5745	18.80
	157	5785	18.71
	165	5825	18.83
802.11ax HE40	155	5755	37.33
	159	5795	37.52



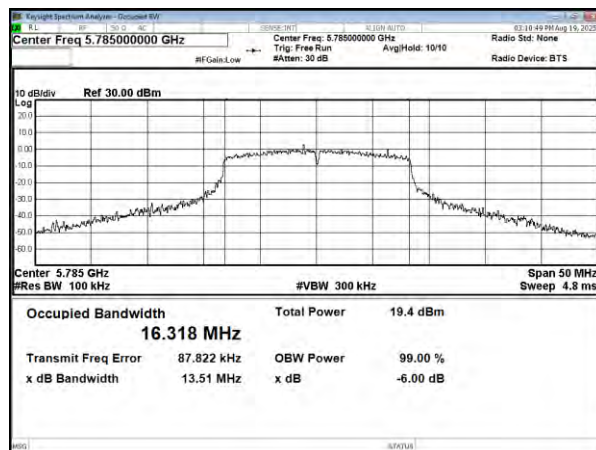
6dB Bandwidth
Modulation Type: 802.11a
CH149



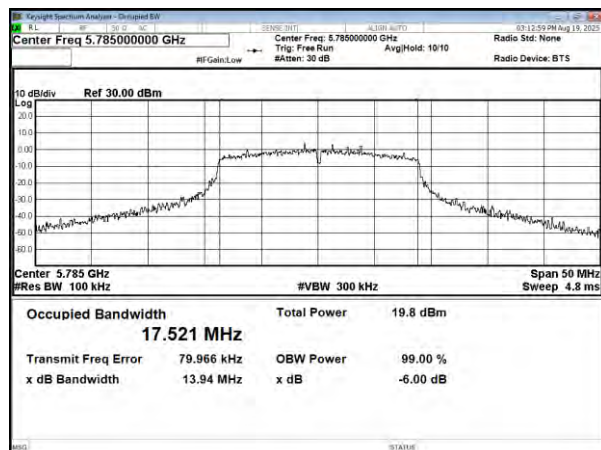
Modulation Type: 802.11ac, VHT20
CH149



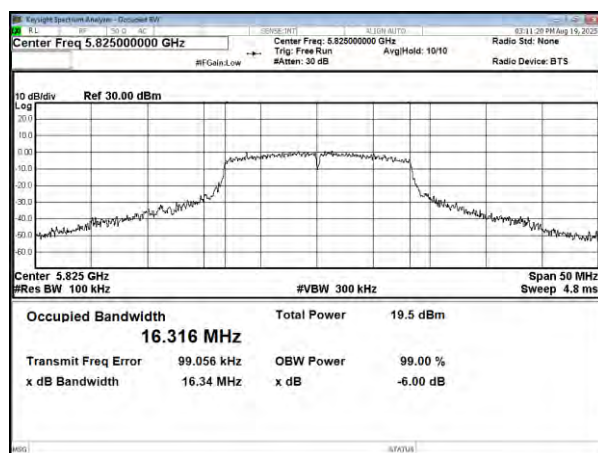
CH157



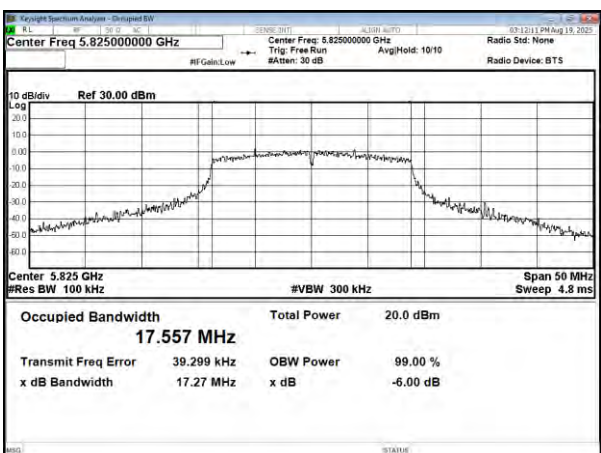
CH157



CH165

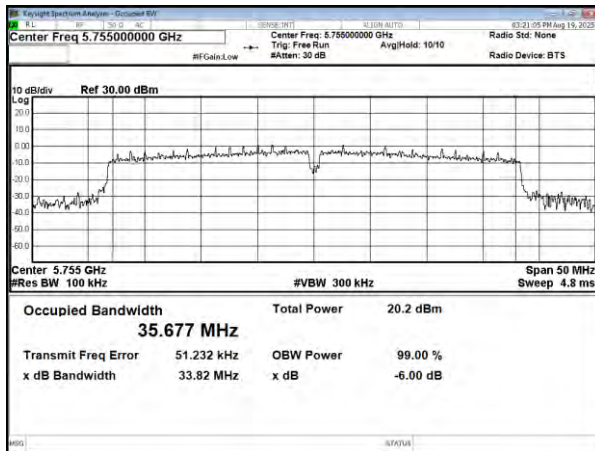


CH165

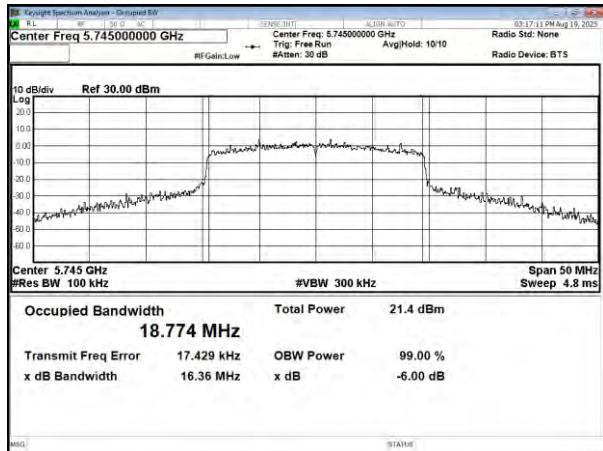




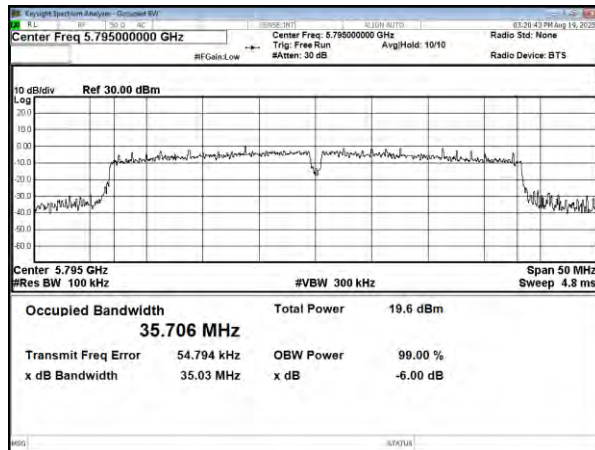
Modulation Type: 802.11ac, VHT40
CH151



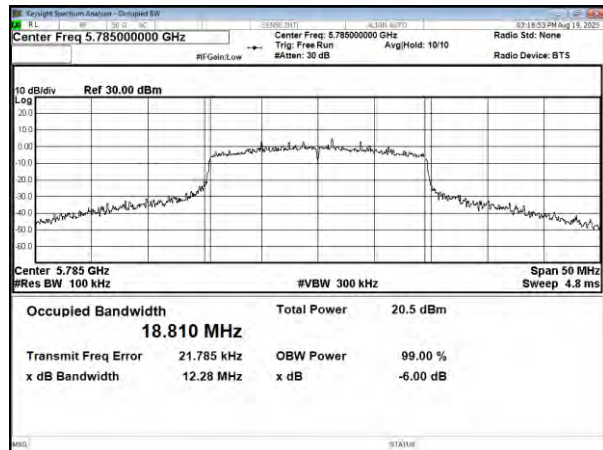
Modulation Type: 802.11ax, HE20
CH149



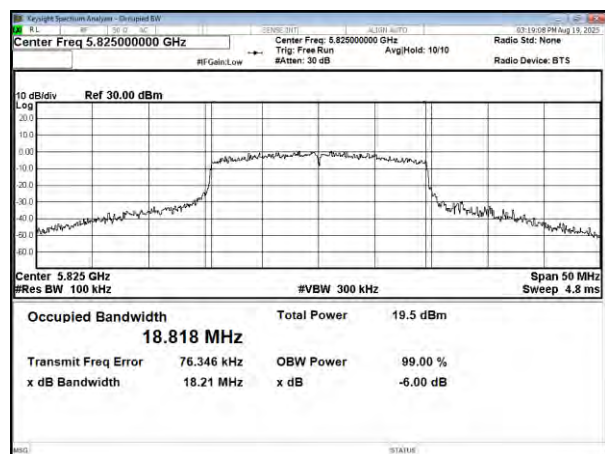
CH159



CH157

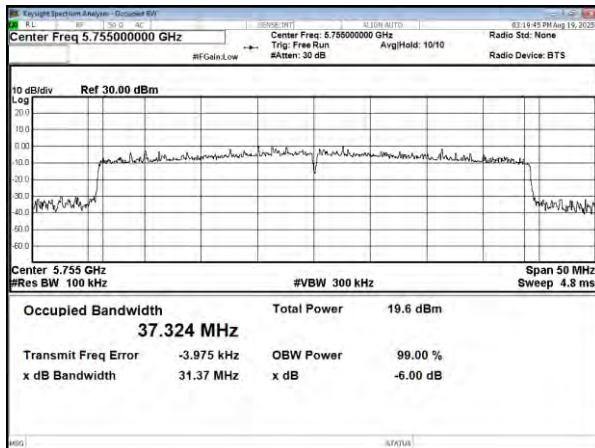


CH165

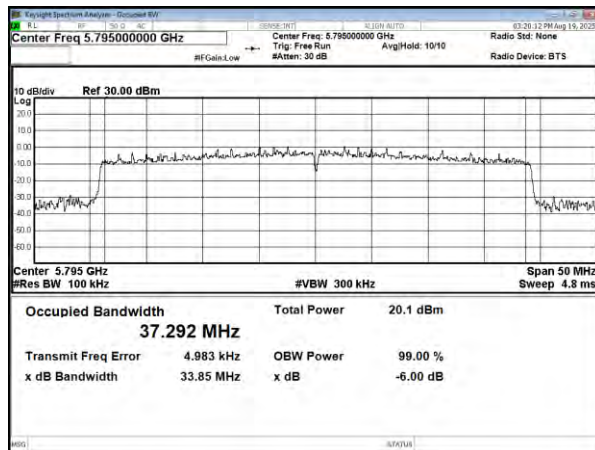




Modulation Type: 802.11ax, HE40
CH151

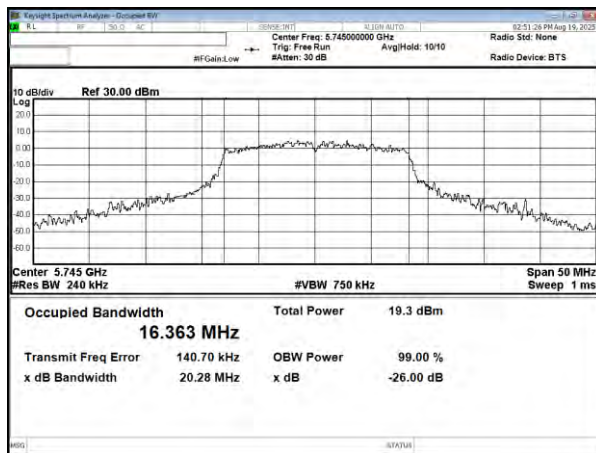


CH159

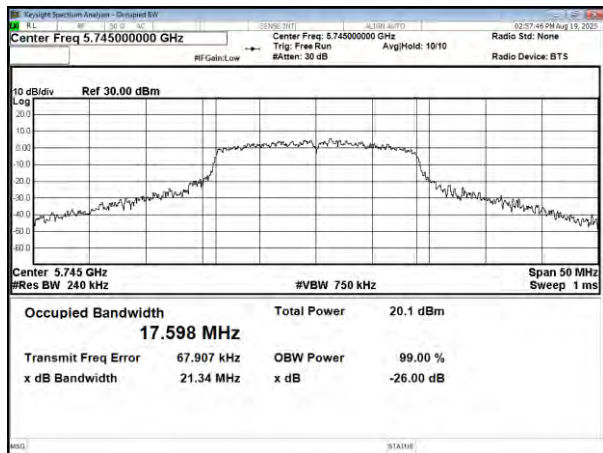




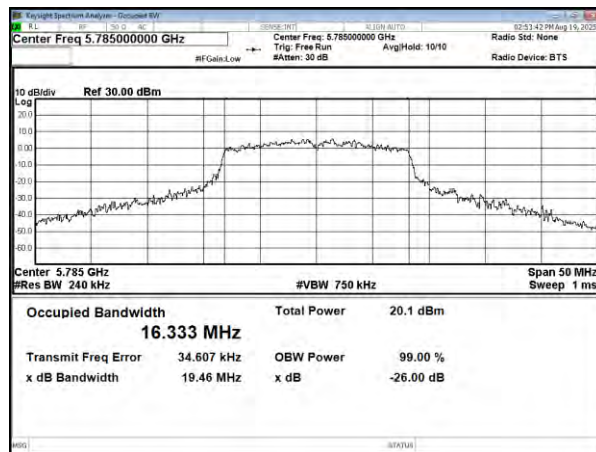
99% Occupied Bandwidth
Modulation Type: 802.11a
CH149



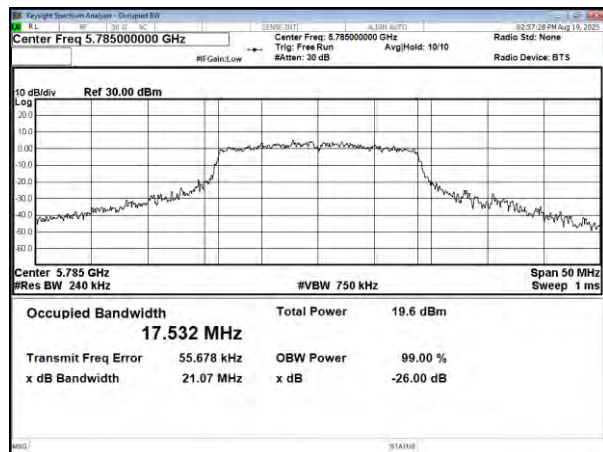
Modulation Type: 802.11ac, VHT20
CH149



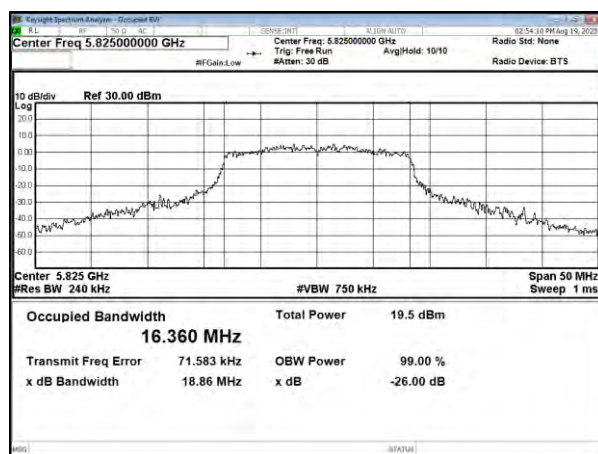
CH157



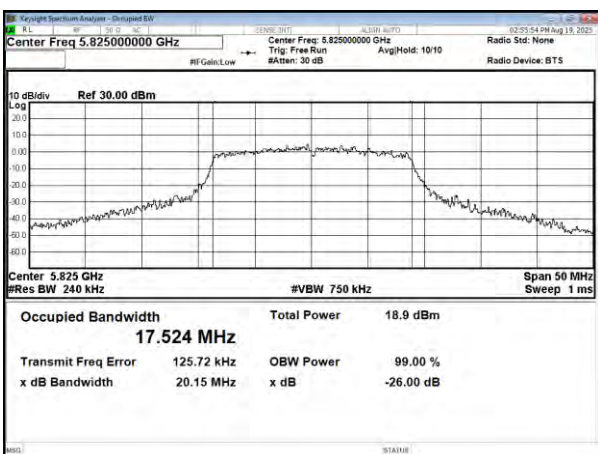
CH157



CH165

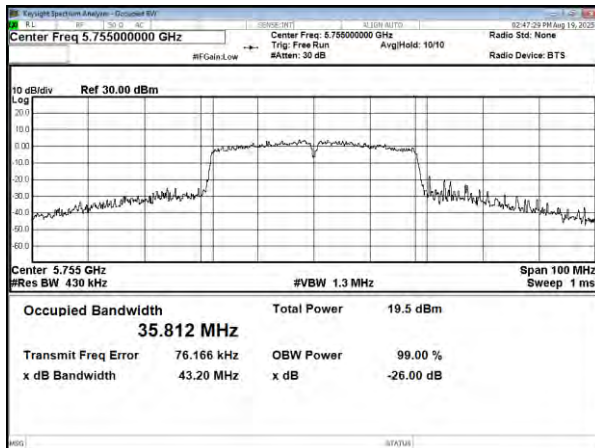


CH165

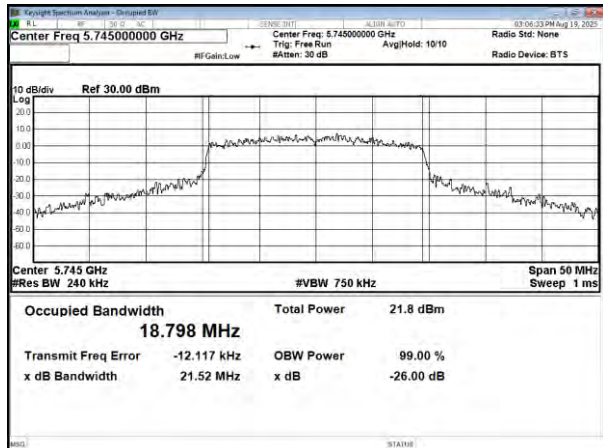




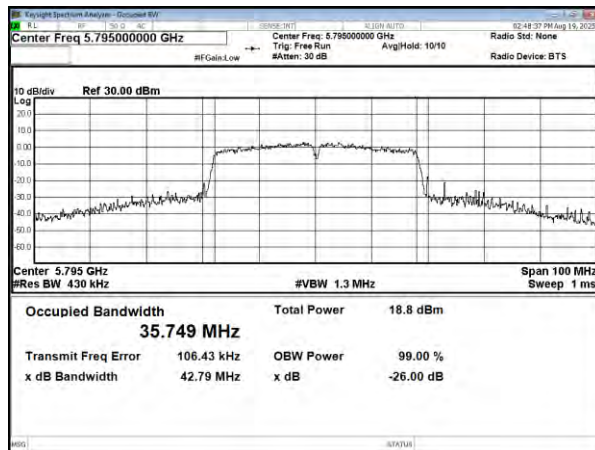
Modulation Type: 802.11ac, VHT40
CH151



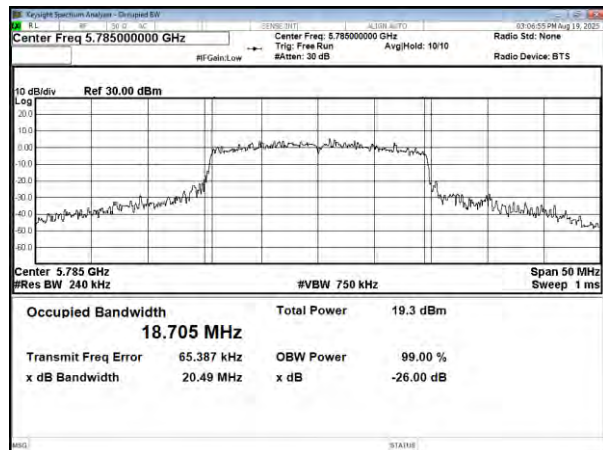
Modulation Type: 802.11ax, HE20
CH149



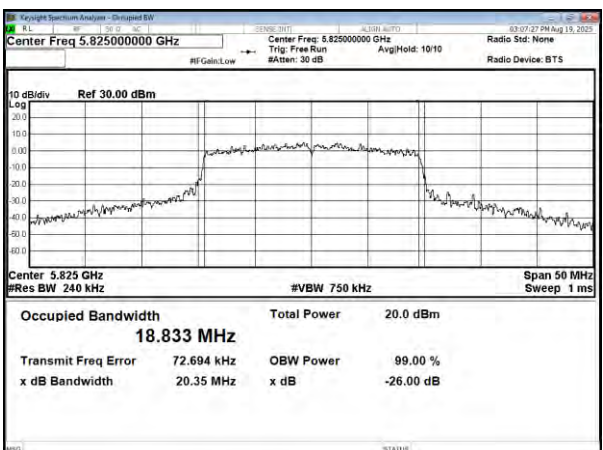
CH159



CH157

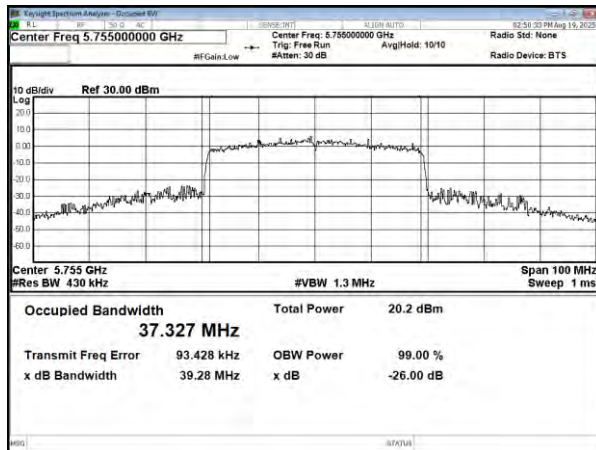


CH165

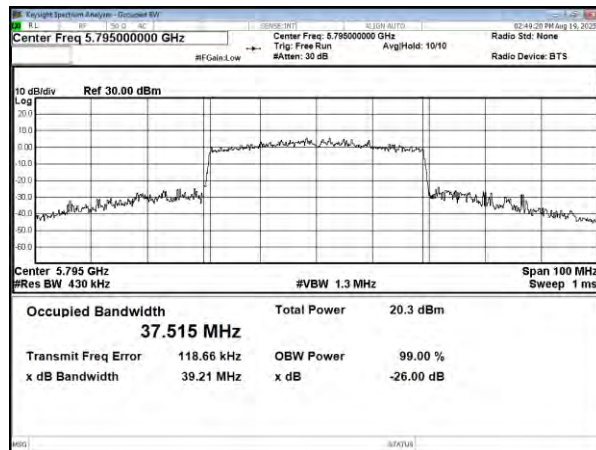




Modulation Type: 802.11ax, HE40
CH151



CH159





9. 26dB Bandwidth & 99% Occupied Bandwidth

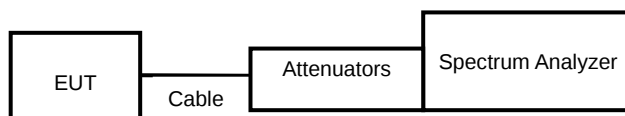
9.1. Test Limit

None; for reporting purposes only.

9.2. Test Procedure

Reference to 789033 v02r01 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

9.3. Test Setup Layout





9.4. Test Result and Data (26dB Bandwidth)

In the 5.2G Band

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	36	5180	21.31
	44	5220	19.21
	48	5240	19.12
802.11ac VHT20	36	5180	21.26
	44	5220	21.64
	48	5240	21.29
802.11ac VHT40	38	5190	43.3
	46	5230	43.34
802.11ax HE20	36	5180	20.3
	44	5220	20.21
	48	5240	20.59
802.11ax HE40	38	5190	39.11
	46	5230	39.14

In the 5.3G Band

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	52	5260	19.29
	60	5300	21.11
	64	5320	19.93
802.11ac VHT20	52	5260	20.99
	60	5300	20.61
	64	5320	21.56
802.11ac VHT40	54	5270	44.64
	62	5310	38.17
802.11ax HE20	52	5260	20.41
	60	5300	20.71
	64	5320	21.04
802.11ax HE40	54	5270	39.16
	62	5310	39.23

**In the 5.5G Band**

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	100	5500	18.98
	116	5580	18.86
	140	5700	20.11
802.11ac VHT20	100	5500	20.97
	116	5580	21.29
	140	5700	20.65
802.11ac VHT40	102	5510	39.25
	110	5550	40.91
	134	5670	43.62
802.11ax HE20	100	5500	20.43
	116	5580	20.31
	140	5700	21.2
802.11ax HE40	102	5510	39.25
	110	5550	39.17
	134	5670	39.25

**9.5. Test Result and Data (99% Occupied Bandwidth)****In the 5.2G Band**

Mode	Channel	Frequency (MHz)	99% Bandwidth(MHz)
802.11a	36	5180	16.51
	44	5220	16.32
	48	5240	16.34
802.11ac VHT20	36	5180	17.60
	44	5220	17.59
	48	5240	17.59
802.11ac VHT40	38	5190	35.75
	46	5230	35.68
802.11ax HE20	36	5180	18.81
	44	5220	18.79
	48	5240	18.81
802.11ax HE40	38	5190	37.59
	46	5230	37.33

In the 5.3G Band

Mode	Channel	Frequency (MHz)	99% Bandwidth(MHz)
802.11a	52	5260	16.35
	60	5300	16.38
	64	5320	16.37
802.11ac VHT20	52	5260	17.53
	60	5300	17.54
	64	5320	17.59
802.11ac VHT40	54	5270	35.70
	62	5310	35.70
802.11ax HE20	52	5260	18.84
	60	5300	18.78
	64	5320	18.78
802.11ax HE40	54	5270	37.43
	62	5310	37.49

**In the 5.5G Band**

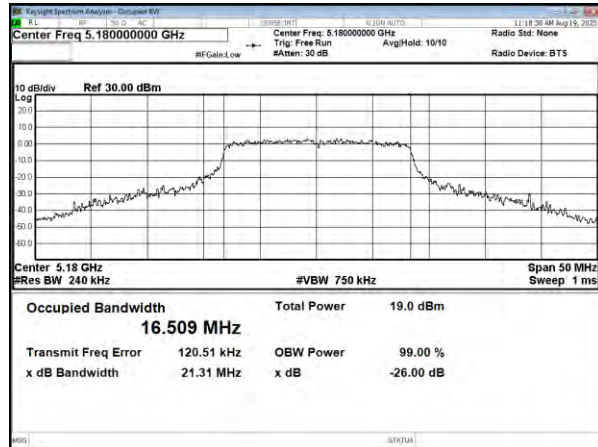
Mode	Channel	Frequency (MHz)	99% Bandwidth(MHz)
802.11a	100	5500	16.32
	116	5580	16.29
	140	5700	16.36
802.11ac VHT20	100	5500	17.51
	116	5580	17.55
	140	5700	17.57
802.11ac VHT40	102	5510	35.73
	110	5550	35.64
	134	5670	35.78
802.11ax HE20	100	5500	18.79
	116	5580	18.84
	140	5700	18.72
802.11ax HE40	102	5510	37.40
	110	5550	37.44
	134	5670	37.55



26dB Bandwidth & 99% Occupied Bandwidth, UNII-1

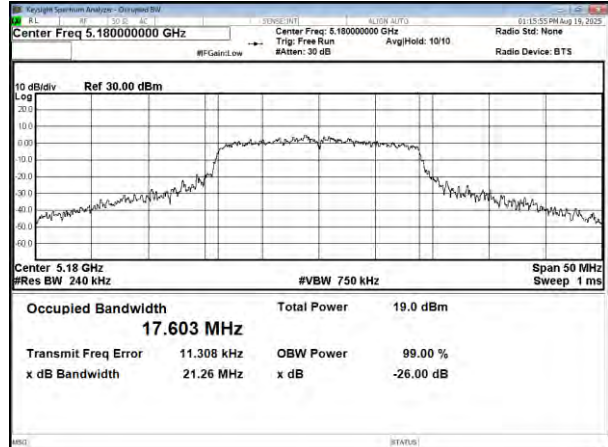
Modulation Standard: 802.11a

CH36

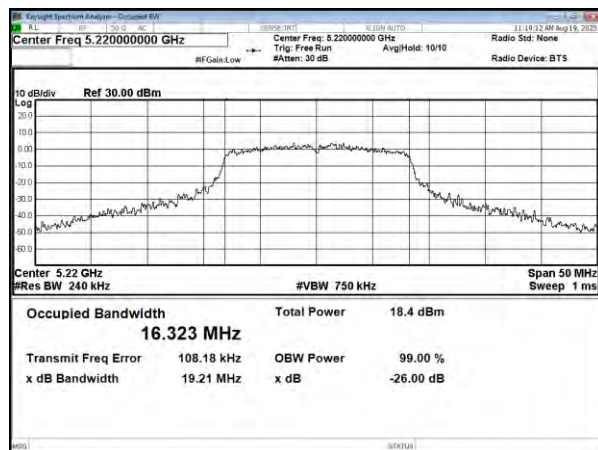


Modulation Standard: 802.11ac VHT20

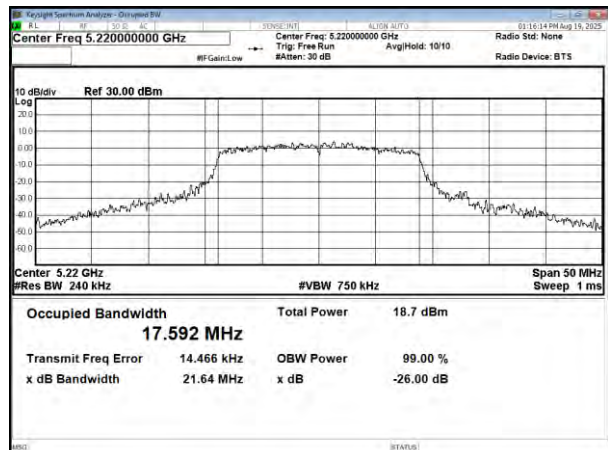
CH36



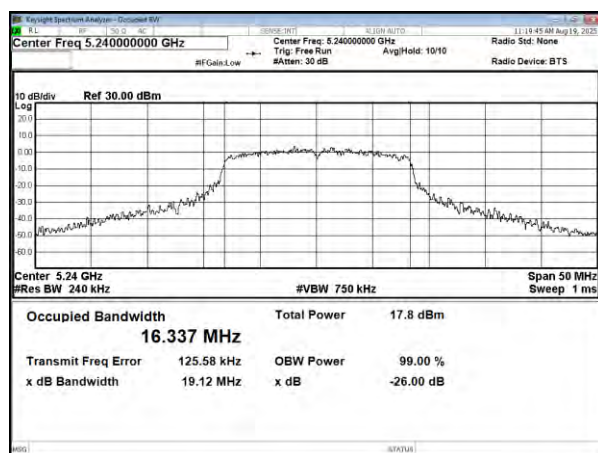
CH44



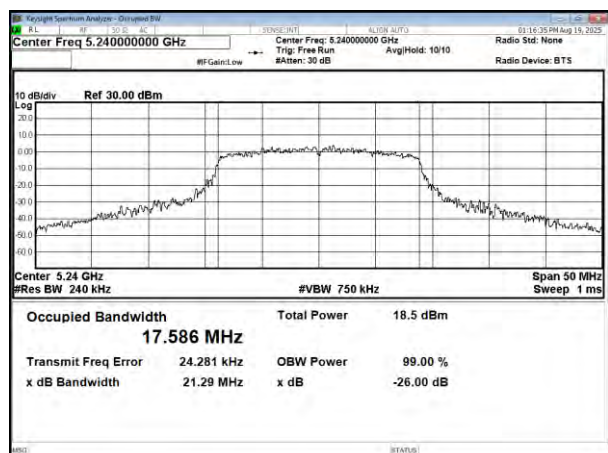
CH44



CH48

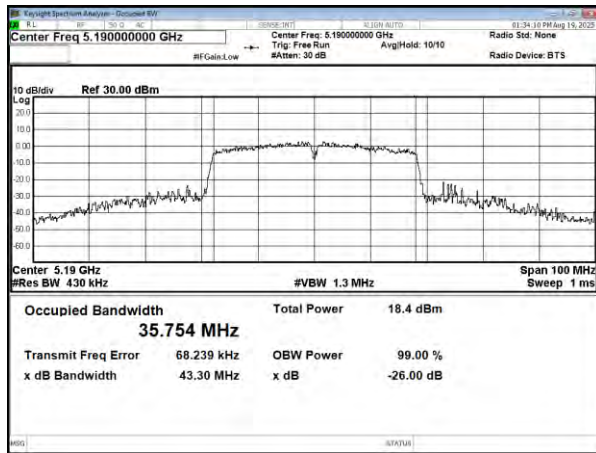


CH48

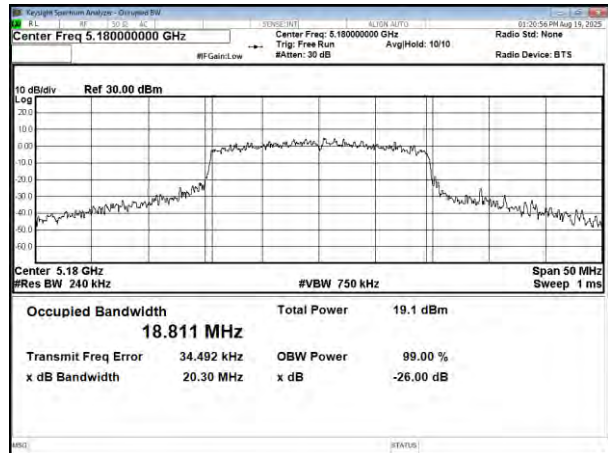




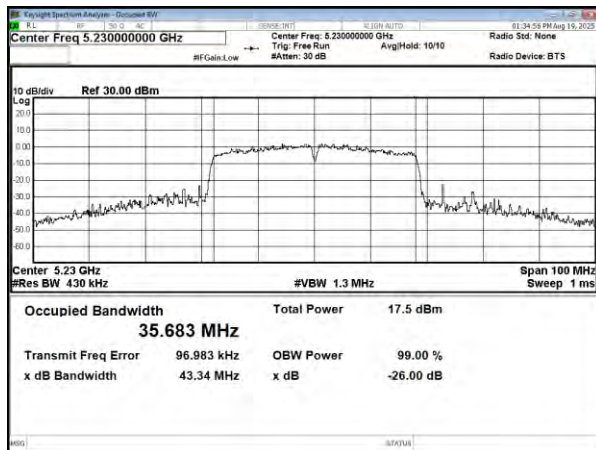
Modulation Standard: 802.11ac VHT40
CH38



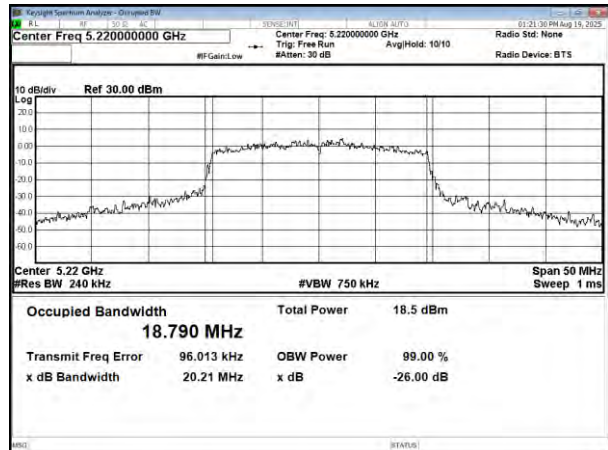
Modulation Standard: 802.11 ax HE20
CH36



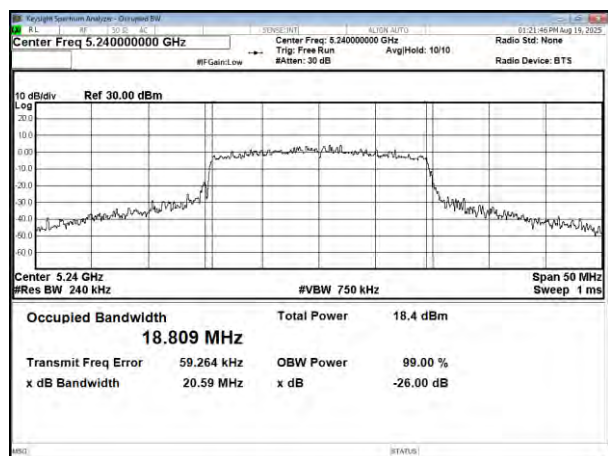
CH46



CH44

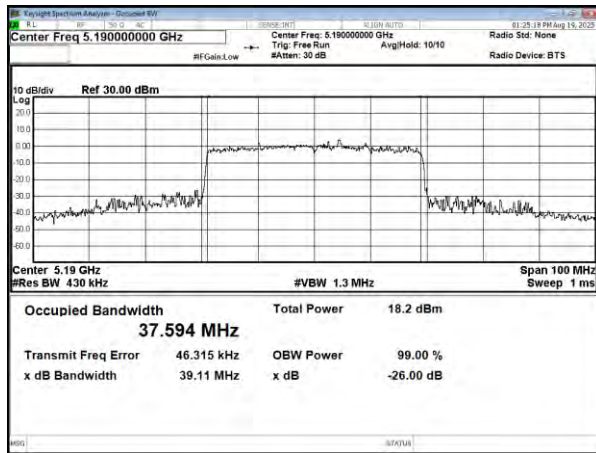


CH48

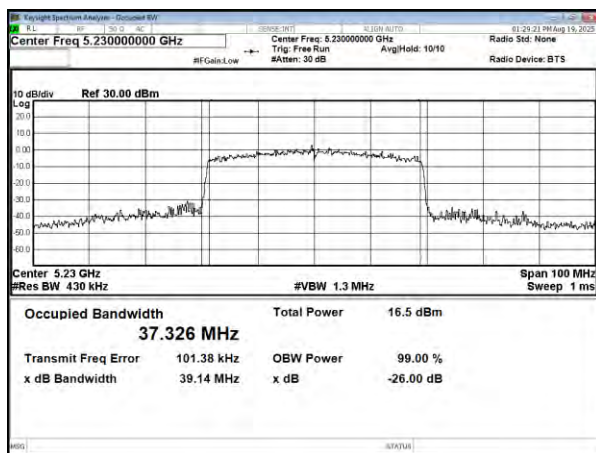




Modulation Standard: 802.11 ax HE40
CH38



CH46





26dB Bandwidth & 99% Occupied Bandwidth, UNII-2A

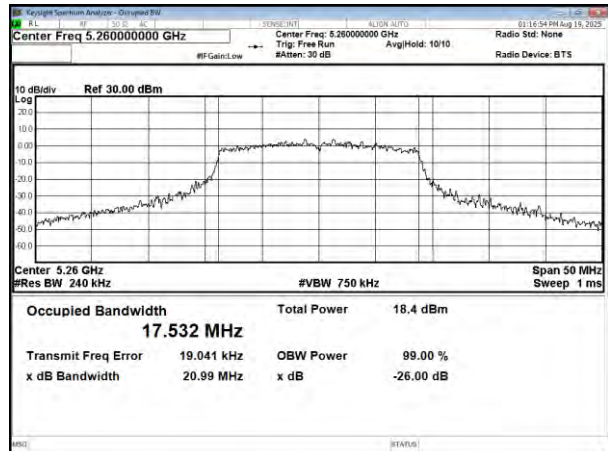
Modulation Standard: 802.11a

CH52

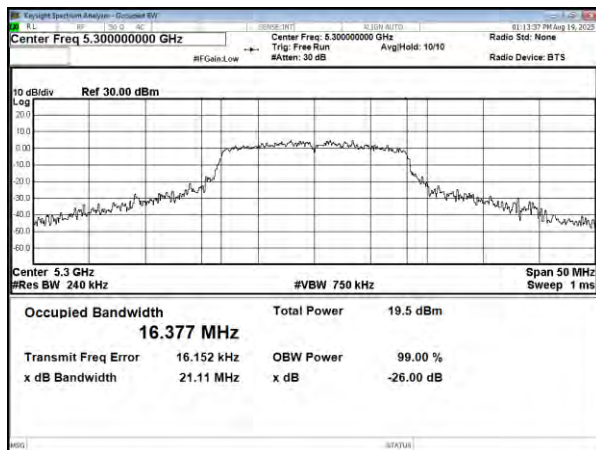


Modulation Standard: 802.11ac VHT20

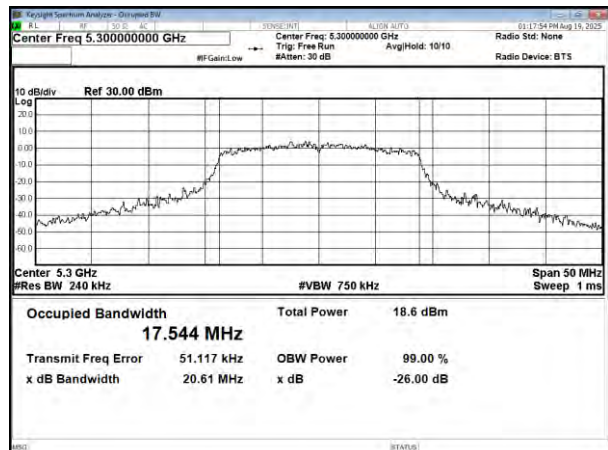
CH52



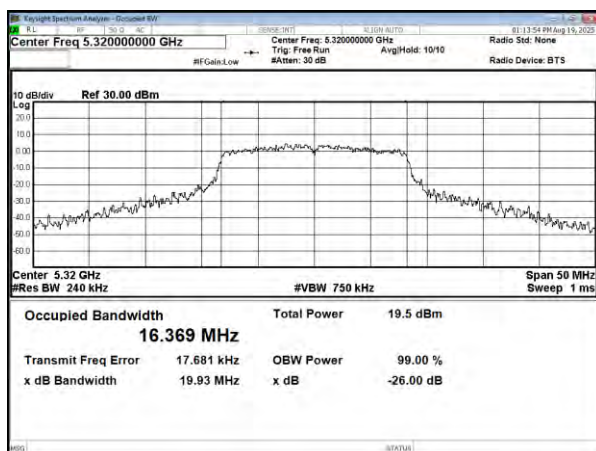
CH60



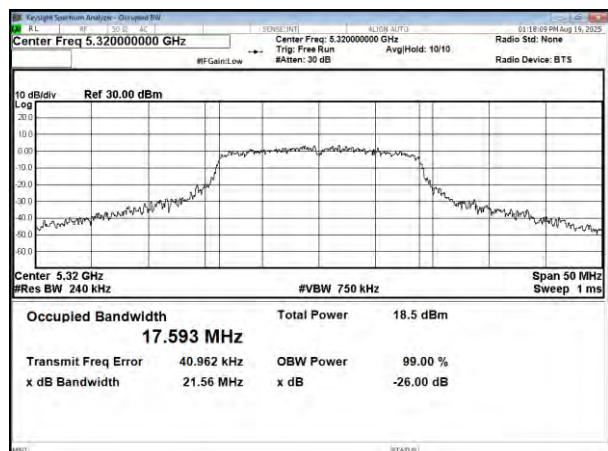
CH60



CH64



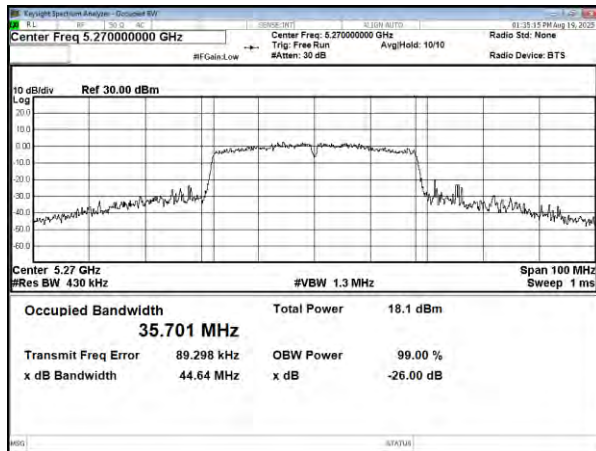
CH64





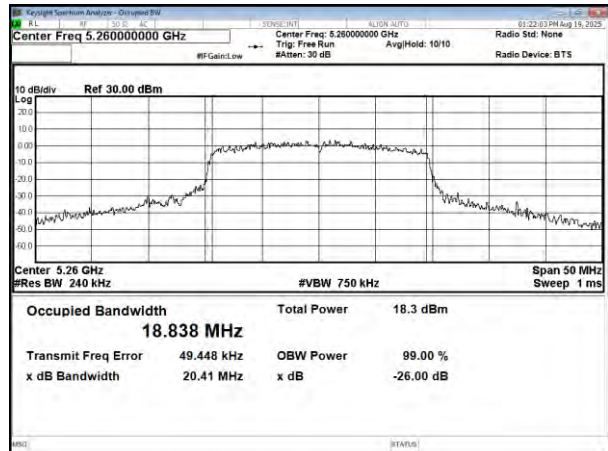
Modulation Standard: 802.11ac VHT40

CH54

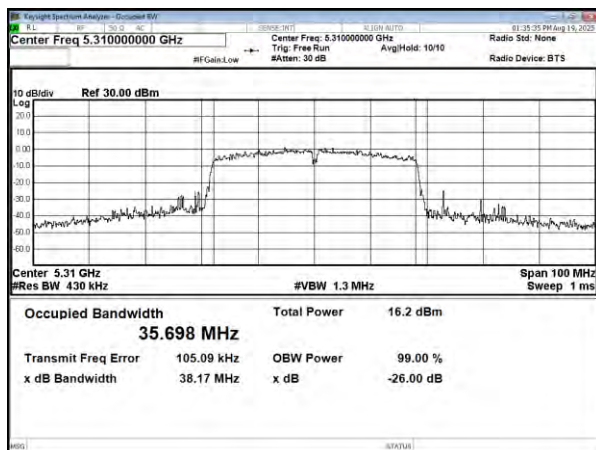


Modulation Standard: 802.11 ax HE20

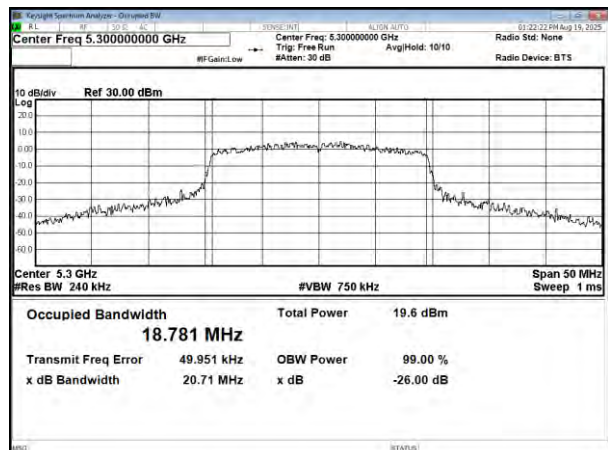
CH52



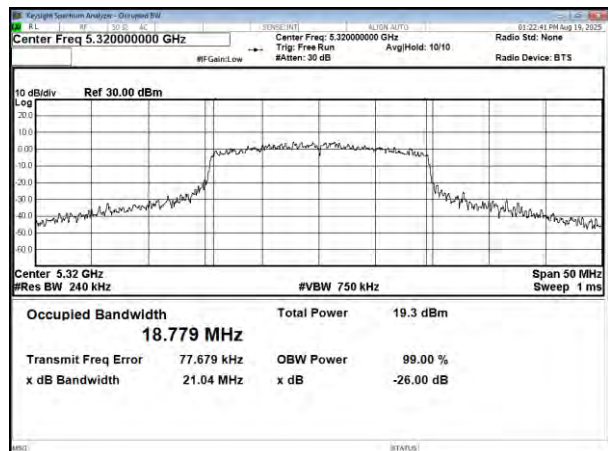
CH62



CH60



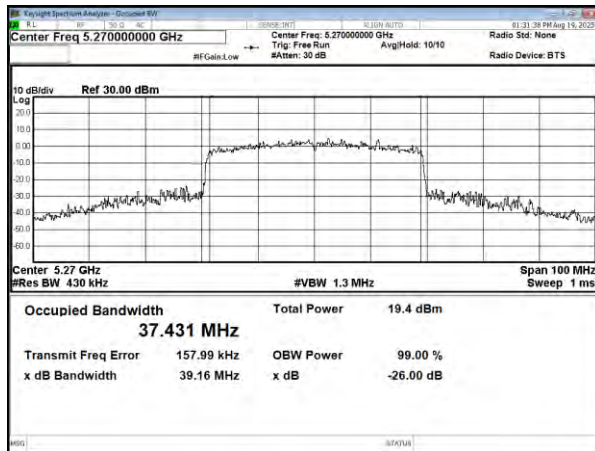
CH64



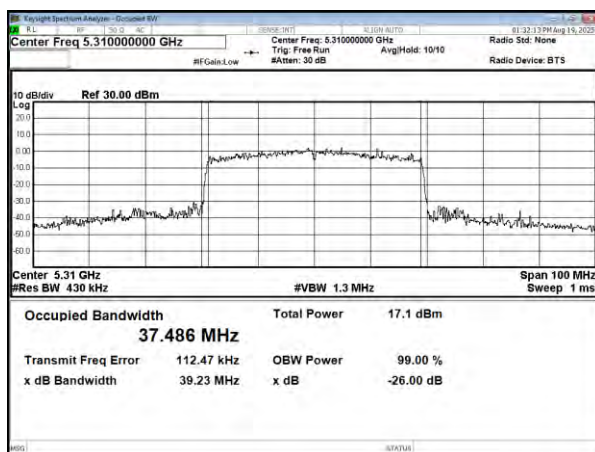


Modulation Standard: 802.11 ax HE40

CH54



CH62





26dB Bandwidth & 99% Occupied Bandwidth, UNII-2C

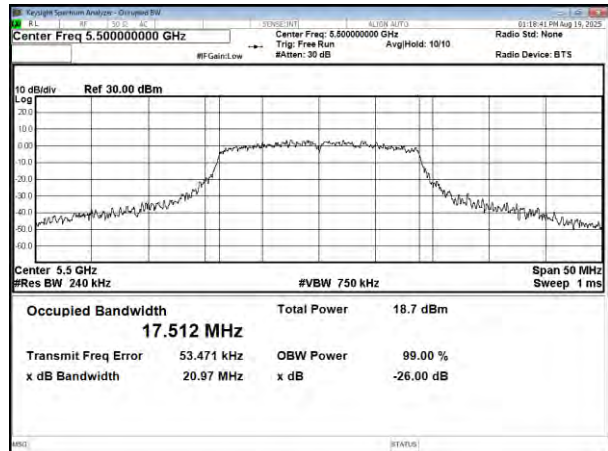
Modulation Standard: 802.11a

CH100

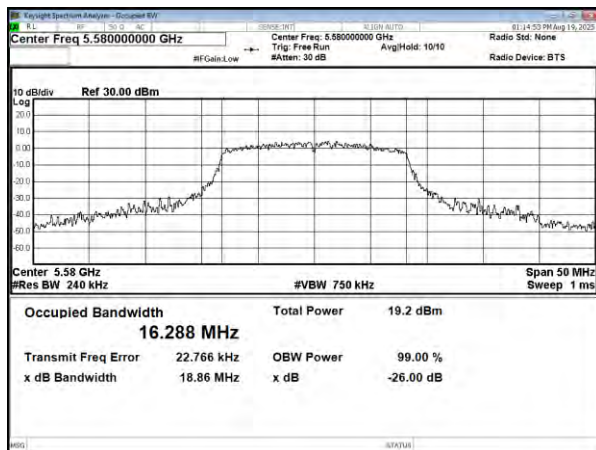


Modulation Standard: 802.11ac VHT20

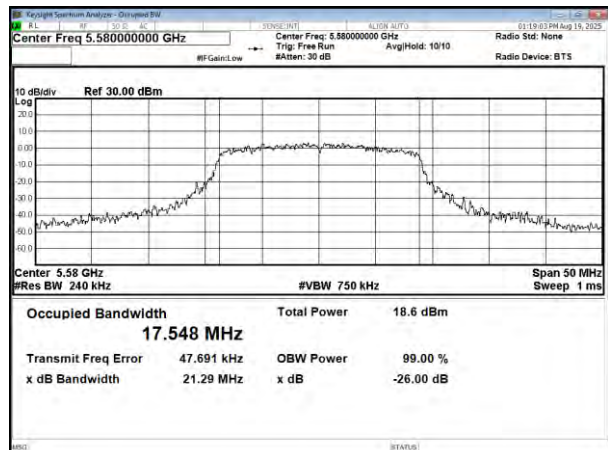
CH100



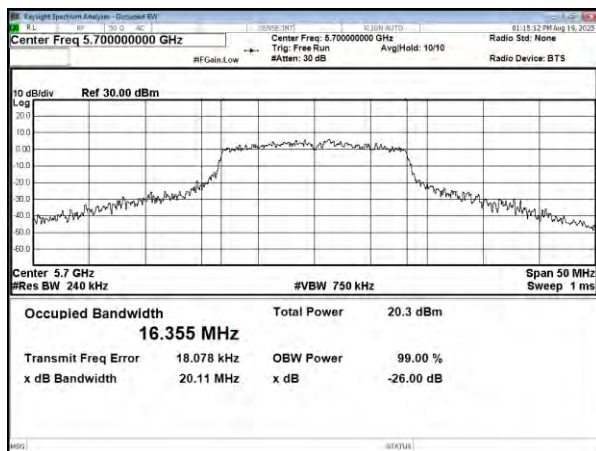
CH116



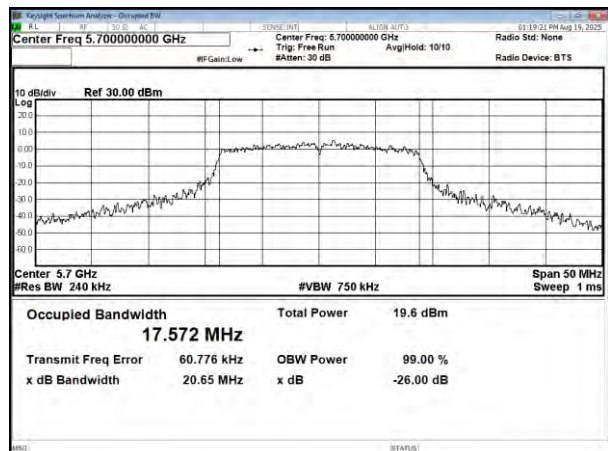
CH116



CH140



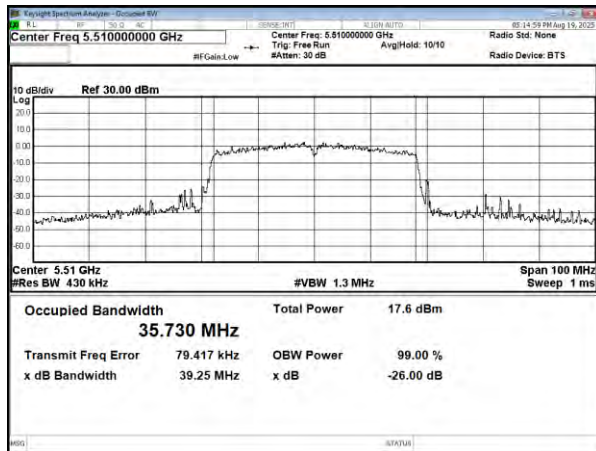
CH140





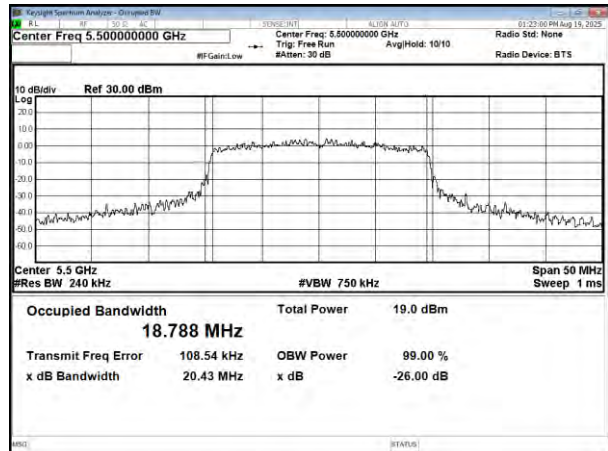
Modulation Standard: 802.11ac VHT40

CH102

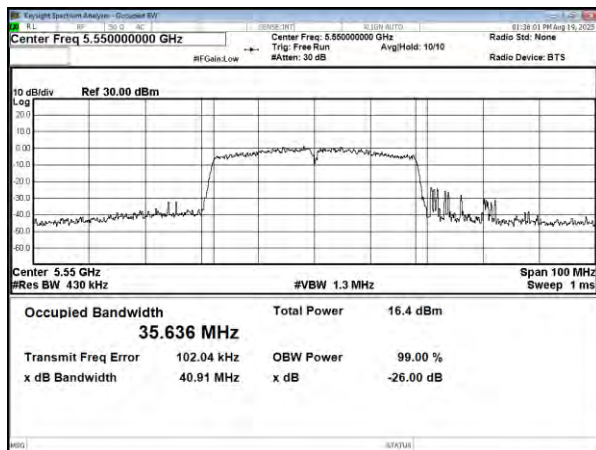


Modulation Standard: 802.11 ax HE20

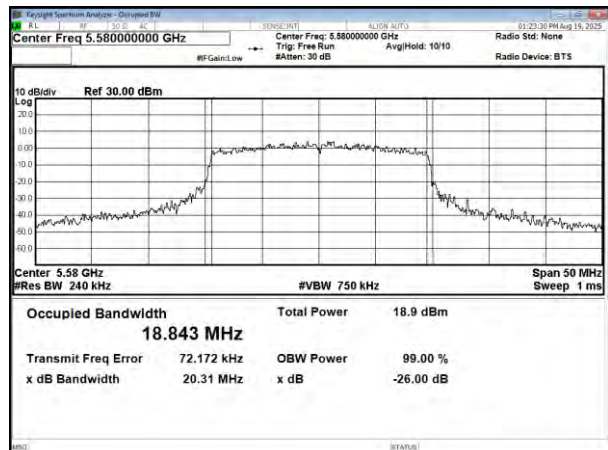
CH100



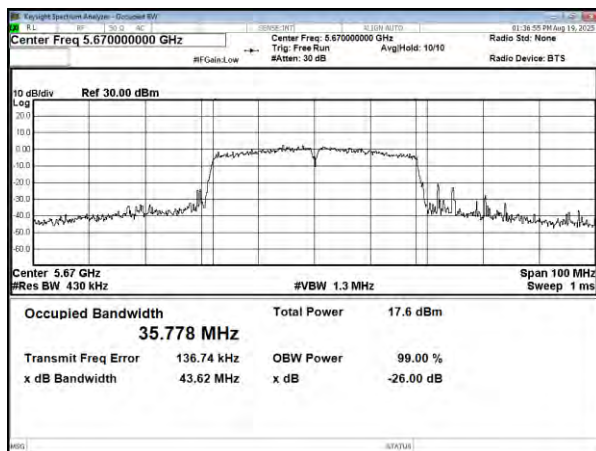
CH110



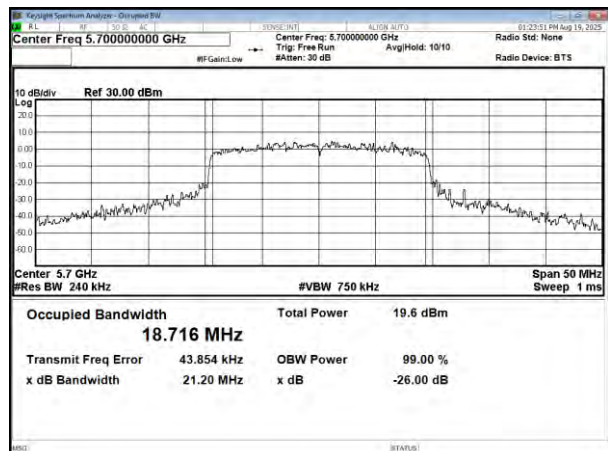
CH116



CH134



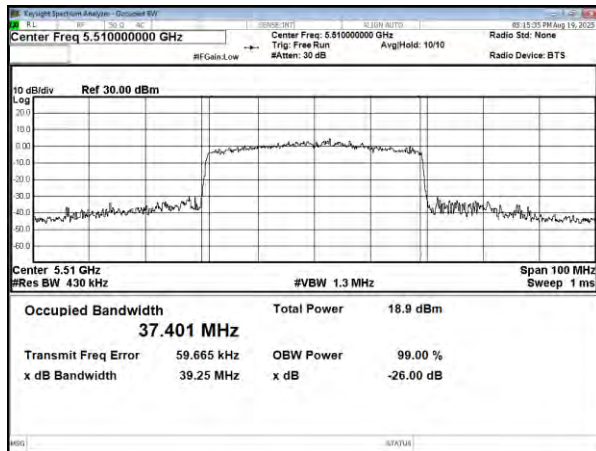
CH140



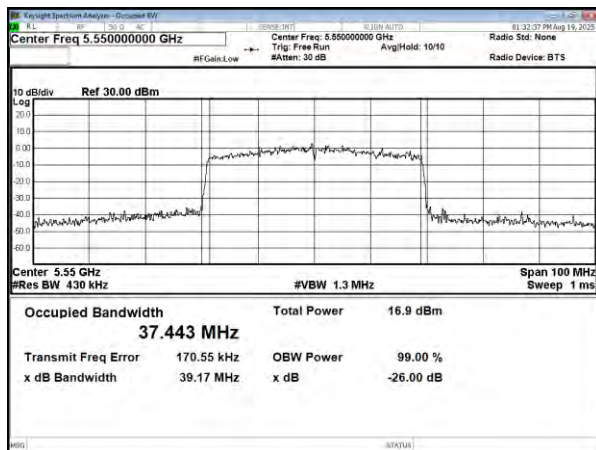


Modulation Standard: 802.11 ax HE40

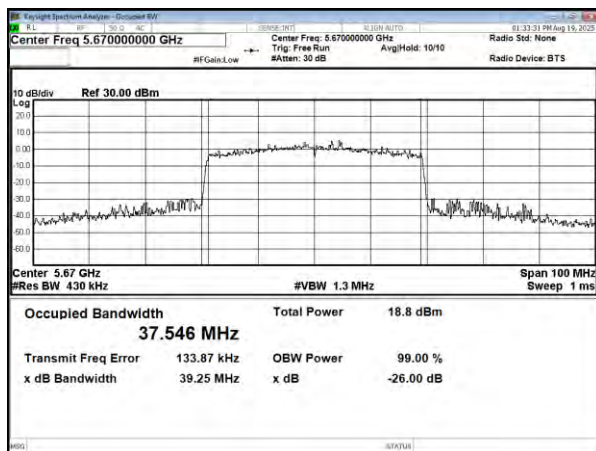
CH102



CH110



CH134





10. Average Power

10.1. Test Limit

Output Power:

Frequency Band		Limit
☒	5.15~5.25GHz	
	Operating Mode	
☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed 125 mW (21 dBm).
☐	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
☒	client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



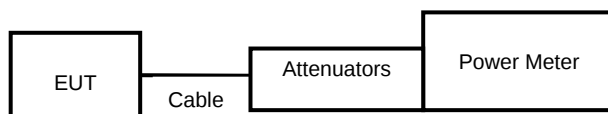
Frequency Band		Limit
☒	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☒	5.470-5.725 GHz	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

10.2. Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

10.3. Test Setup Layout



**10.4. Test Result and Data****In the 5.2G Band**

Modulation Type	Data Rate	Channel	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	36	5180	15.50	35.481	24.00
11a	6 Mbps	44	5220	14.61	28.907	24.00
11a	6 Mbps	48	5240	14.28	26.792	24.00
11n HT20	MCS 0	36	5180	12.720	18.707	24.00
11n HT20	MCS 0	44	5220	12.550	17.989	24.00
11n HT20	MCS 0	48	5240	12.010	15.885	24.00
11n HT40	MCS 0	38	5190	12.030	15.959	24.00
11n HT40	MCS 0	46	5230	11.890	15.453	24.00
11ac VHT20	NSS1-MCS0	36	5180	13.550	22.646	24.00
11ac VHT20	NSS1-MCS0	44	5220	12.920	19.588	24.00
11ac VHT20	NSS1-MCS0	48	5240	12.370	17.258	24.00
11ac VHT40	NSS1-MCS0	38	5190	12.550	17.989	24.00
11ac VHT40	NSS1-MCS0	46	5230	12.020	15.922	24.00
11ax HE20	NSS1-MCS0	36	5180	12.880	19.409	24.00
11ax HE20	NSS1-MCS0	40	5200	13.250	21.135	24.00
11ax HE20	NSS1-MCS0	48	5240	12.640	18.365	24.00
11ax HE40	NSS1-MCS0	38	5190	10.790	11.995	24.00
11ax HE40	NSS1-MCS0	46	5230	10.660	11.641	24.00

In the 5.3G Band

Modulation Type	Data Rate	Channel	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	52	5260	14.480	28.054	23.85
11a	6 Mbps	60	5300	14.510	28.249	24.00
11a	6 Mbps	64	5320	14.240	26.546	24.00
11n HT20	MCS 0	52	5260	11.890	15.453	24.00
11n HT20	MCS 0	60	5300	12.890	19.454	24.00
11n HT20	MCS 0	64	5320	12.510	17.824	24.00
11n HT40	MCS 0	54	5270	12.543	17.960	24.00
11n HT40	MCS 0	62	5310	10.370	10.889	24.00
11ac VHT20	NSS1-MCS0	52	5260	12.130	16.331	24.00
11ac VHT20	NSS1-MCS0	60	5300	13.110	20.464	24.00
11ac VHT20	NSS1-MCS0	64	5320	12.880	19.409	24.00
11ac VHT40	NSS1-MCS0	54	5270	12.670	18.493	24.00
11ac VHT40	NSS1-MCS0	62	5310	10.760	11.912	24.00
11ax HE20	NSS1-MCS0	52	5260	12.200	16.596	24.00
11ax HE20	NSS1-MCS0	60	5300	13.110	20.464	24.00
11ax HE20	NSS1-MCS0	64	5320	12.860	19.320	24.00
11ax HE40	NSS1-MCS0	54	5270	13.240	21.086	24.00
11ax HE40	NSS1-MCS0	62	5310	10.930	12.388	24.00

**In the 5.5G Band**

Modulation Type	Data Rate	Channel	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	100	5500	15.340	34.198	23.78
11a	6 Mbps	116	5580	13.550	22.646	23.76
11a	6 Mbps	140	5700	14.670	29.309	24.00
11n HT20	MCS 0	100	5500	12.970	19.815	24.00
11n HT20	MCS 0	116	5580	12.510	17.824	24.00
11n HT20	MCS 0	140	5700	13.890	24.491	24.00
11n HT40	MCS 0	102	5510	12.730	18.750	24.00
11n HT40	MCS 0	110	5550	11.240	13.305	24.00
11n HT40	MCS 0	134	5670	12.250	16.788	24.00
11ac VHT20	NSS1-MCS0	100	5500	13.200	20.893	24.00
11ac VHT20	NSS1-MCS0	116	5580	12.940	19.679	24.00
11ac VHT20	NSS1-MCS0	140	5700	14.210	26.363	24.00
11ac VHT40	NSS1-MCS0	102	5510	13.020	20.045	24.00
11ac VHT40	NSS1-MCS0	110	5550	11.680	14.723	24.00
11ac VHT40	NSS1-MCS0	134	5670	12.620	18.281	24.00
11ax HE20	NSS1-MCS0	100	5500	13.040	20.137	24.00
11ax HE20	NSS1-MCS0	116	5580	12.650	18.408	24.00
11ax HE20	NSS1-MCS0	140	5700	13.720	23.550	24.00
11ax HE40	NSS1-MCS0	102	5510	12.910	19.543	24.00
11ax HE40	NSS1-MCS0	110	5550	10.490	11.194	24.00
11ax HE40	NSS1-MCS0	134	5670	12.760	18.880	24.00

In the 5.8G Band

Modulation Type	Data Rate	Channel	Frequency (MHz)	Measured value of each antenna port (dBm)	Total power (mW)	FCC Limit (dBm)
11a	6 Mbps	149	5745	14.810	30.269	30.00
11a	6 Mbps	157	5785	14.470	27.990	30.00
11a	6 Mbps	165	5825	14.570	28.642	30.00
11n HT20	MCS 0	149	5745	13.730	23.605	30.00
11n HT20	MCS 0	157	5785	13.110	20.464	30.00
11n HT20	MCS 0	165	5825	13.240	21.086	30.00
11n HT40	MCS 0	151	5755	13.760	23.768	30.00
11n HT40	MCS 0	159	5795	13.010	19.999	30.00
11ac VHT20	NSS1-MCS0	149	5745	14.230	26.485	30.00
11ac VHT20	NSS1-MCS0	157	5785	13.670	23.281	30.00
11ac VHT20	NSS1-MCS0	165	5825	13.790	23.933	30.00
11ac VHT40	NSS1-MCS0	151	5755	14.020	25.235	30.00
11ac VHT40	NSS1-MCS0	159	5795	13.540	22.594	30.00
11ax HE20	NSS1-MCS0	149	5745	13.930	24.717	30.00
11ax HE20	NSS1-MCS0	157	5785	13.470	22.233	30.00
11ax HE20	NSS1-MCS0	165	5825	13.590	22.856	30.00
11ax HE40	NSS1-MCS0	151	5755	13.540	22.594	30.00
11ax HE40	NSS1-MCS0	159	5795	12.980	19.861	30.00



11. Maximum Power Spectral Density

11.1. Test Limit

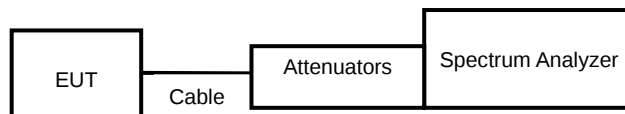
PSD:

Frequency Band		Limit
☒	5.15~5.25GHz	
	Operating Mode	
☐	Outdoor access point	17 dBm/MHz
☐	Indoor access point	17 dBm/MHz
☐	Fixed point-to-point access points	17 dBm/MHz
☒	client devices	11 dBm/MHz
☒	5.250~5.350 GHz	11 dBm/MHz
☒	5.470~5.725 GHz	11 dBm/MHz
☒	5.725~5.85 GHz	30 dBm/500kHz

11.2. Test Procedure

Reference to KDB789033 v02r01 General UNII Test Procedures New Rules.

11.3. Test Setup Layout



**11.4. Test Result and Data****In the 5.2G Band**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	36	5180	3.174	0.00	3.174	11.00
11a	44	5220	2.566	0.00	2.566	11.00
11a	48	5240	2.060	0.00	2.060	11.00
11ac VHT20	36	5180	2.553	0.00	2.553	11.00
11ac VHT20	44	5220	2.067	0.00	2.067	11.00
11ac VHT20	48	5240	2.083	0.00	2.083	11.00
11ac VHT40	38	5190	-0.396	0.00	-0.396	11.00
11ac VHT40	46	5230	-1.110	0.00	-1.110	11.00
11ax HE20	36	5180	2.969	0.00	2.969	11.00
11ax HE20	44	5220	1.922	0.00	1.922	11.00
11ax HE20	48	5240	1.776	0.00	1.776	11.00
11ax HE40	38	5190	-1.592	0.00	-1.592	11.00
11ax HE40	46	5230	-2.221	0.00	-2.221	11.00

In the 5.3G Band

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	52	5260	2.138	0.00	2.138	11.00
11a	60	5300	2.926	0.00	2.926	11.00
11a	64	5320	2.618	0.00	2.618	11.00
11ac VHT20	52	5260	1.460	0.00	1.460	11.00
11ac VHT20	60	5300	2.591	0.00	2.591	11.00
11ac VHT20	64	5320	2.343	0.00	2.343	11.00
11ac VHT40	54	5270	-0.283	0.00	-0.283	11.00
11ac VHT40	62	5310	-2.200	0.00	-2.200	11.00
11ax HE20	52	5260	1.528	0.00	1.528	11.00
11ax HE20	60	5300	2.526	0.00	2.526	11.00
11ax HE20	64	5320	2.856	0.00	2.856	11.00
11ax HE40	54	5270	0.012	0.00	0.012	11.00
11ax HE40	62	5310	-2.102	0.00	-2.102	11.00

**In the 5.5G Band**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	100	5500	2.673	0.00	2.673	11.00
11a	116	5580	2.484	0.00	2.484	11.00
11a	140	5700	3.512	0.00	3.512	11.00
11ac VHT20	100	5500	2.565	0.00	2.565	11.00
11ac VHT20	116	5580	2.199	0.00	2.199	11.00
11ac VHT20	140	5700	3.282	0.00	3.282	11.00
11ac VHT40	102	5510	-0.663	0.00	-0.663	11.00
11ac VHT40	110	5550	-2.543	0.00	-2.543	11.00
11ac VHT40	134	5670	-0.994	0.00	-0.994	11.00
11ax HE20	100	5500	4.164	0.00	4.164	11.00
11ax HE20	116	5580	3.247	0.00	3.247	11.00
11ax HE20	140	5700	4.118	0.00	4.118	11.00
11ax HE40	102	5510	-0.261	0.00	-0.261	11.00
11ax HE40	110	5550	-2.169	0.00	-2.169	11.00
11ax HE40	134	5670	-0.575	0.00	-0.575	11.00

In the 5.8G Band

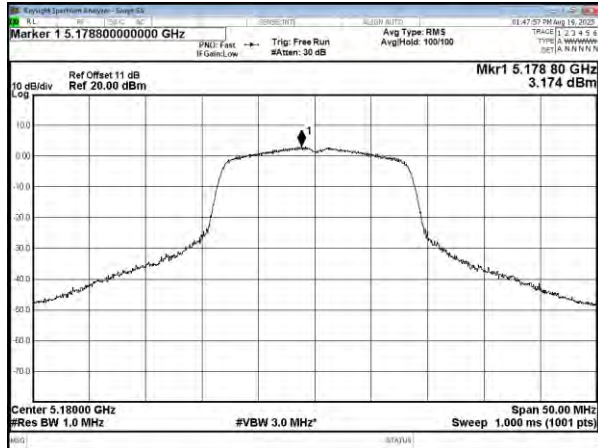
Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Duty Cycle CF(dB)	10log (500kHz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	149	5745	5.082	0.00	-3.010	2.072	30.00
11a	157	5785	3.805	0.00	-3.010	0.795	30.00
11a	165	5825	4.210	0.00	-3.010	1.200	30.00
11ac VHT20	149	5745	4.039	0.00	-3.010	1.029	30.00
11ac VHT20	157	5785	3.647	0.00	-3.010	0.637	30.00
11ac VHT20	165	5825	3.685	0.00	-3.010	0.675	30.00
11ac VHT40	151	5755	0.766	0.00	-3.010	-2.244	30.00
11ac VHT40	159	5795	0.681	0.00	-3.010	-2.329	30.00
11ax HE20	149	5745	4.190	0.00	-3.010	1.180	30.00
11ax HE20	157	5785	3.455	0.00	-3.010	0.445	30.00
11ax HE20	165	5825	3.649	0.00	-3.010	0.639	30.00
11ax HE40	151	5755	0.738	0.00	-3.010	-2.272	30.00
11ax HE40	159	5795	0.238	0.00	-3.010	-2.772	30.00



UNII-1

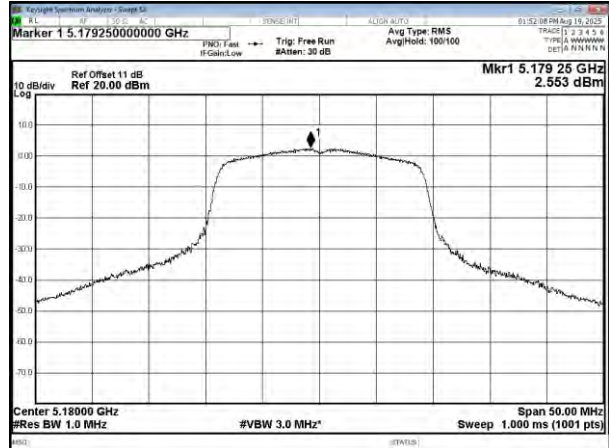
Modulation Standard: 802.11a

CH36

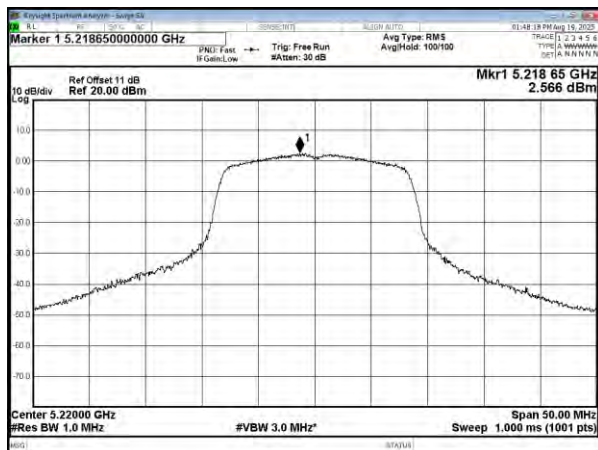


Modulation Standard: 802.11ac VHT20

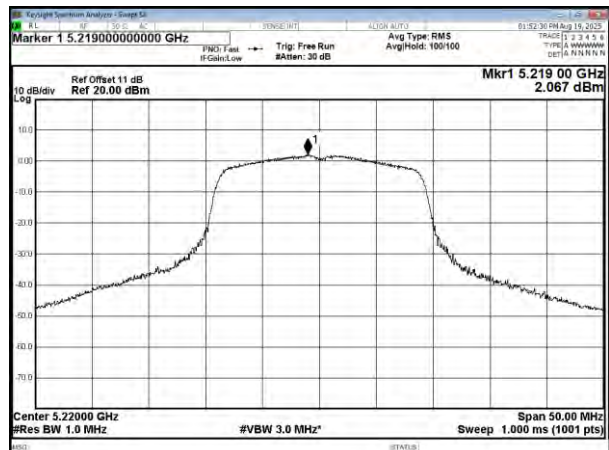
CH36



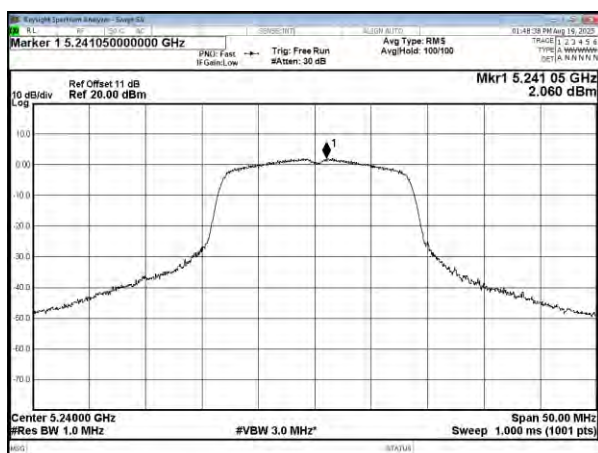
CH44



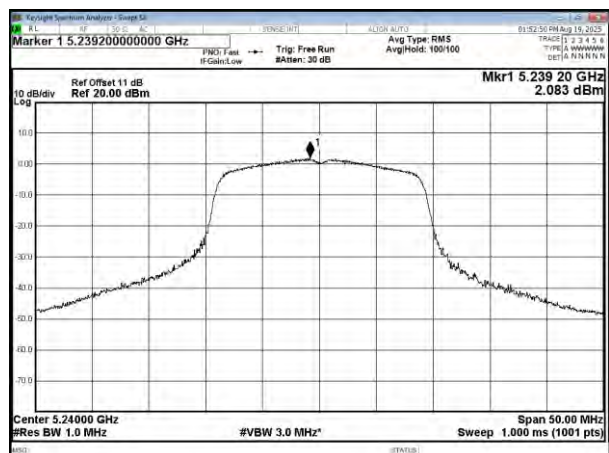
CH44



CH48

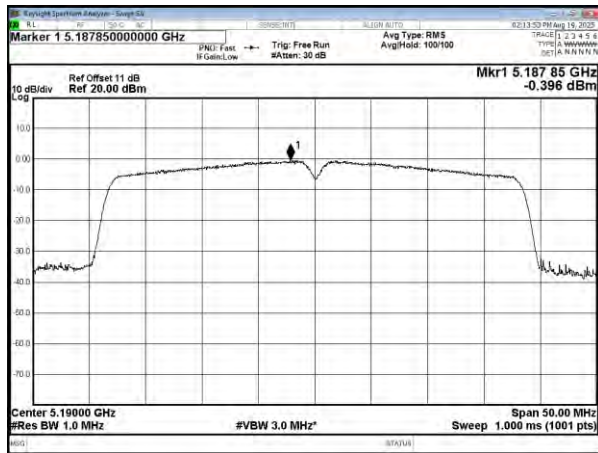


CH48

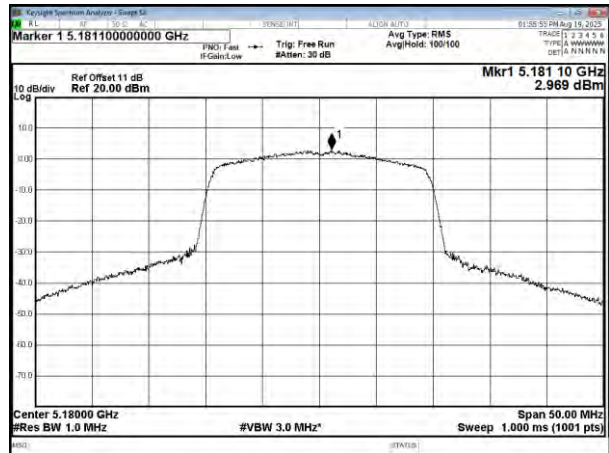




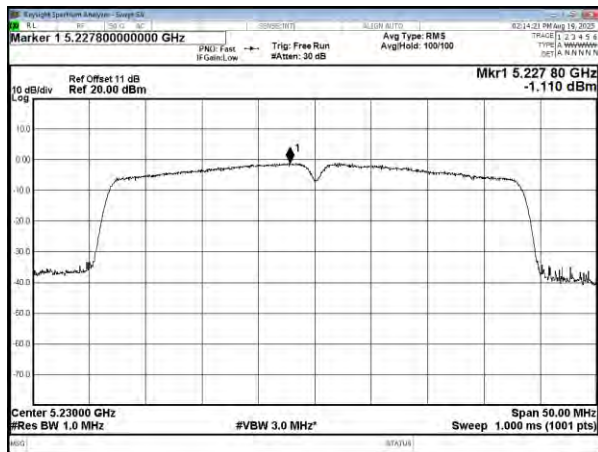
Modulation Standard: 802.11ac VHT40
CH38



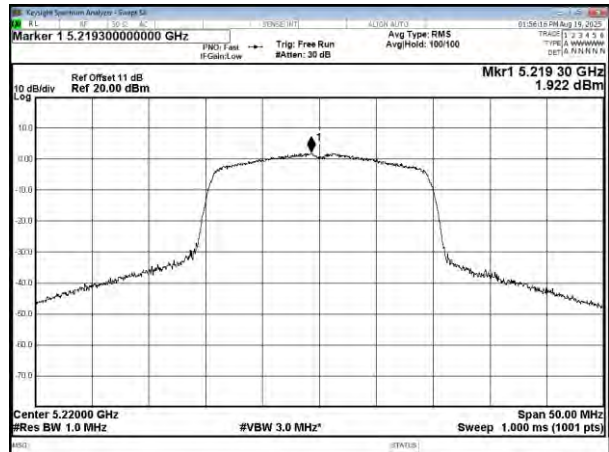
Modulation Standard: 802.11 ax HE20
CH36



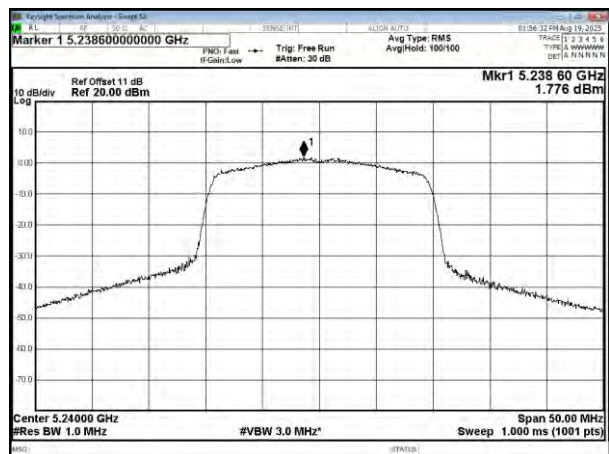
CH46



CH44

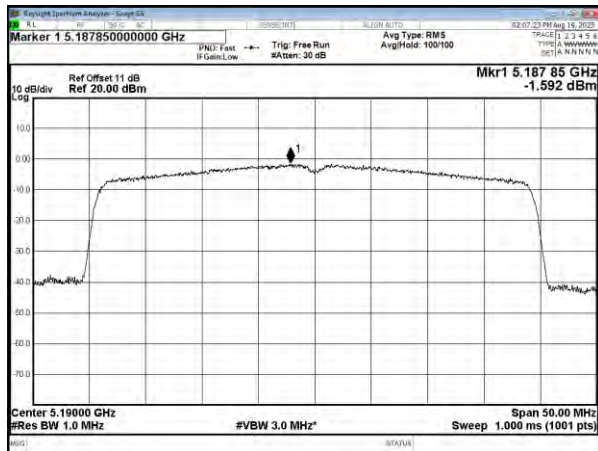


CH48

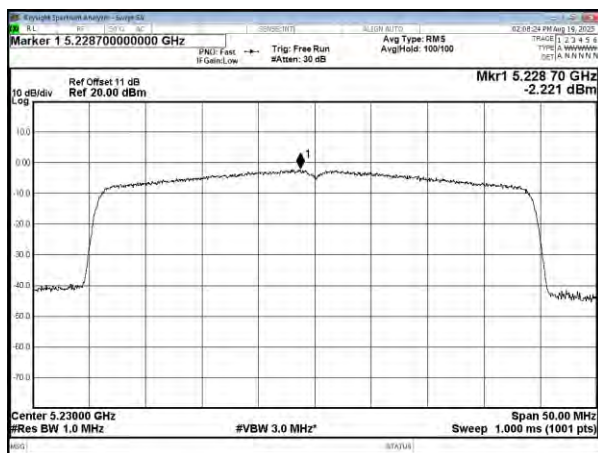




Modulation Standard: 802.11 ax HE40
CH38



CH46

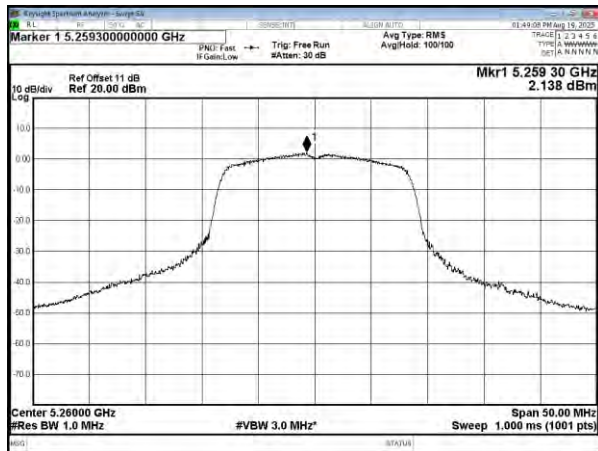




UNII-2A

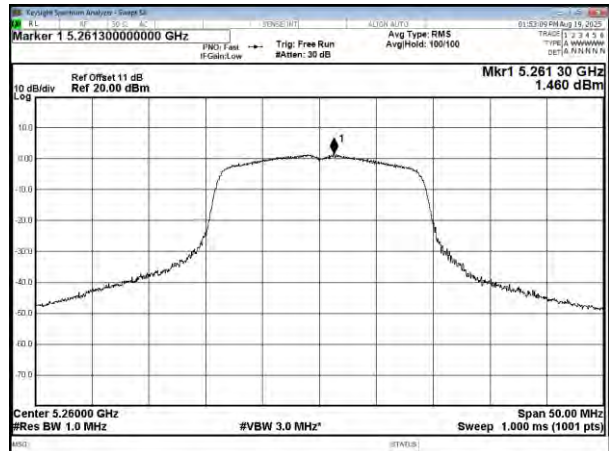
Modulation Standard: 802.11a

CH52

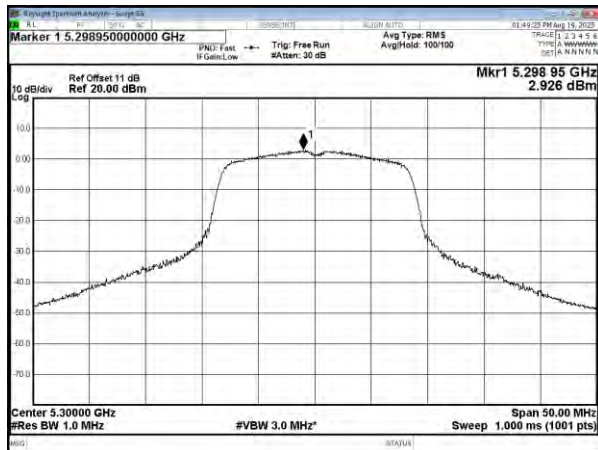


Modulation Standard: 802.11ac VHT20

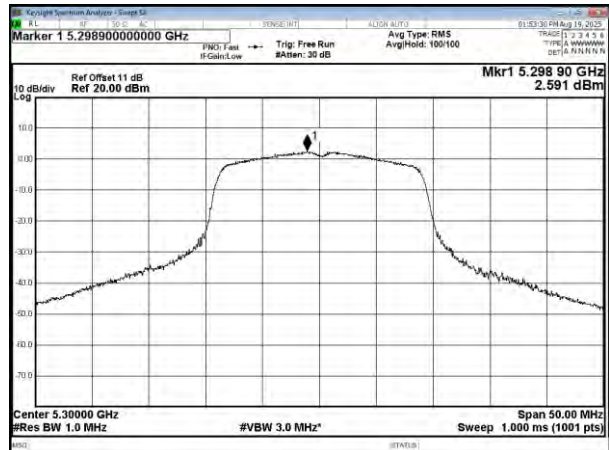
CH52



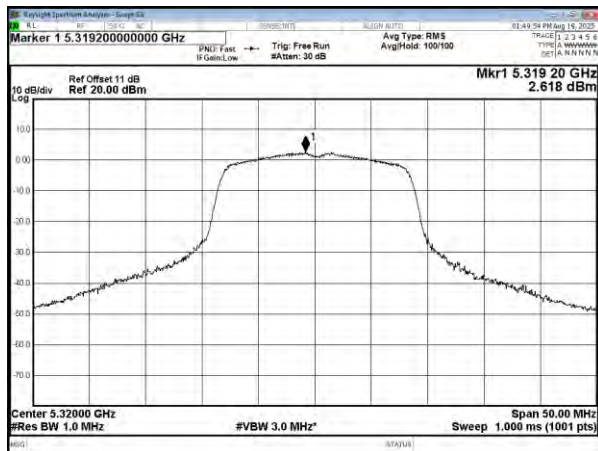
CH60



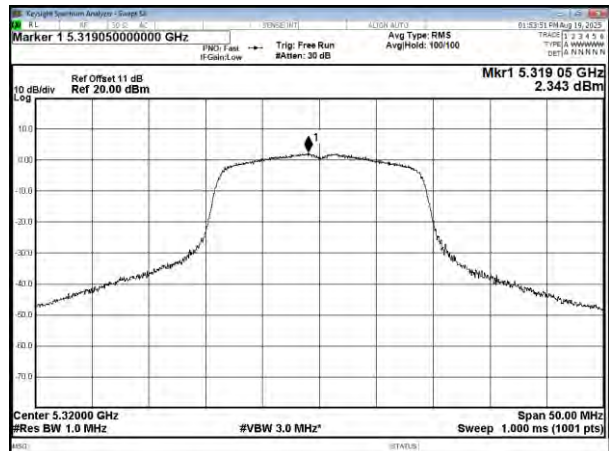
CH60



CH64



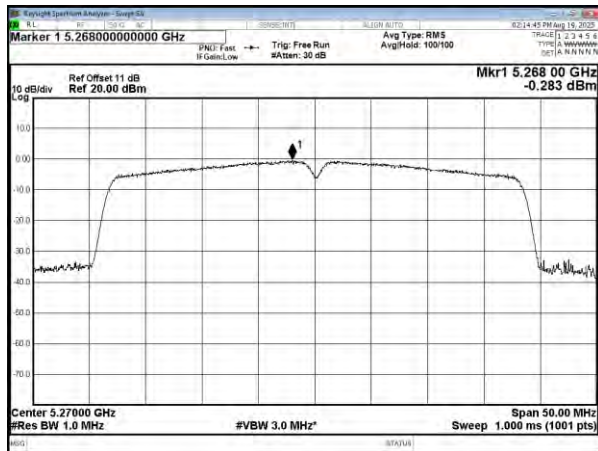
CH64





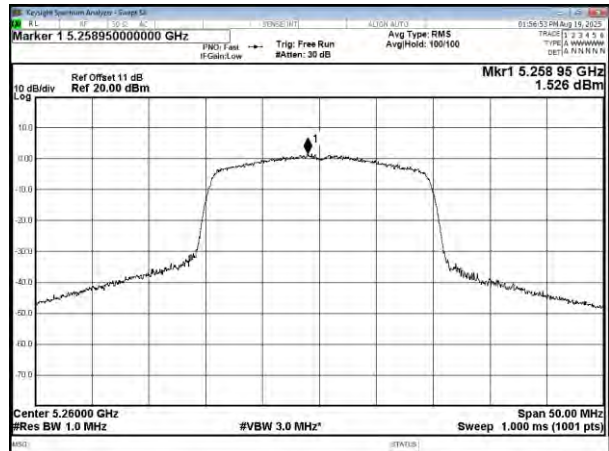
Modulation Standard: 802.11ac VHT40

CH54

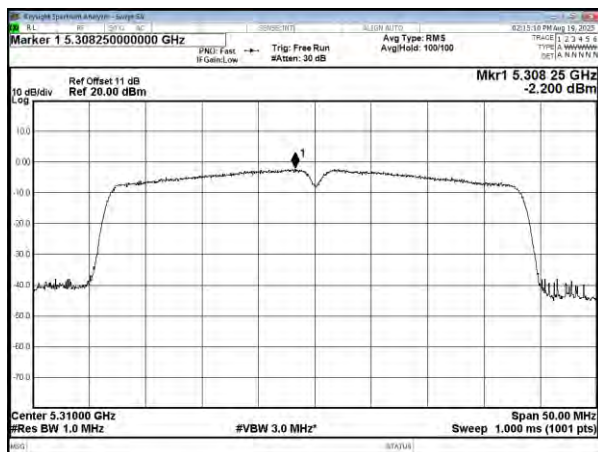


Modulation Standard: 802.11 ax HE20

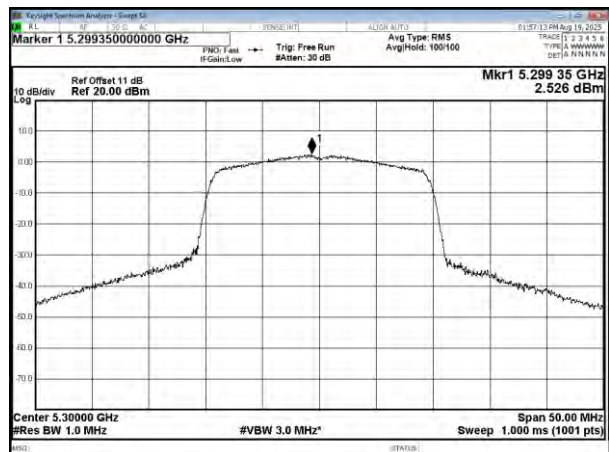
CH52



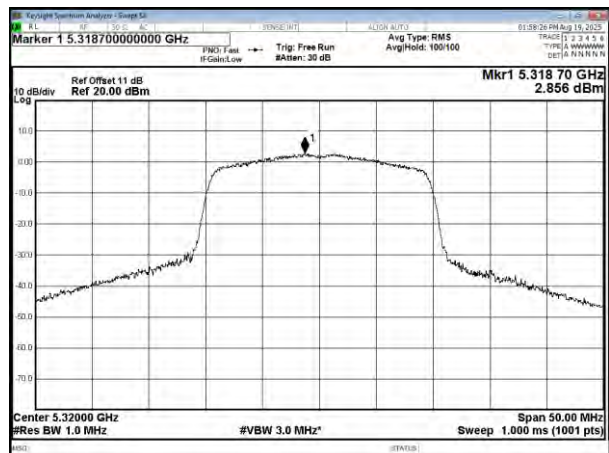
CH62



CH60



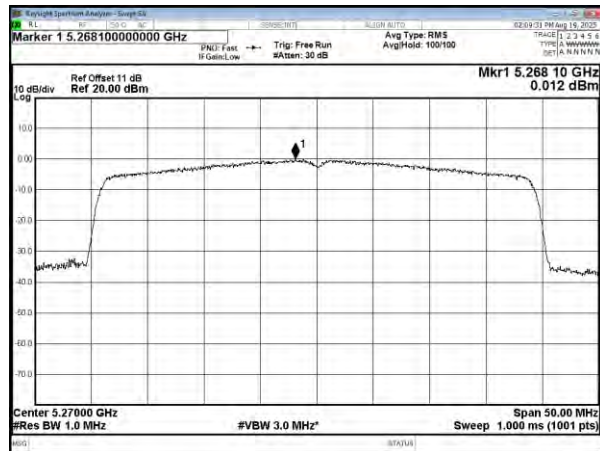
CH64



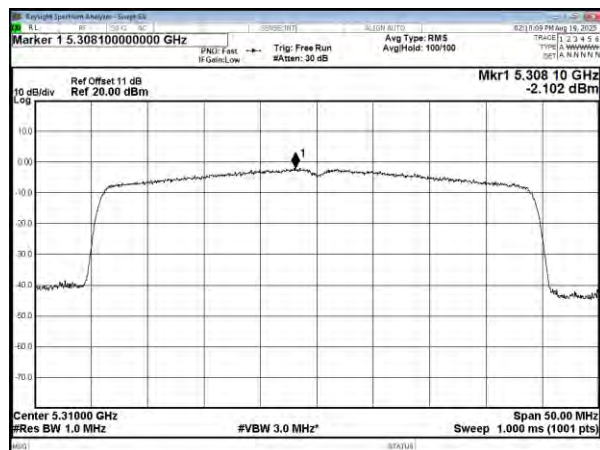


Modulation Standard: 802.11 ax HE40

CH54



CH62

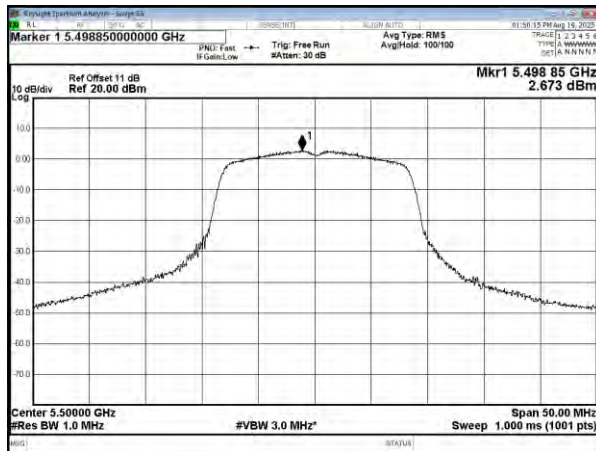




UNII-2C

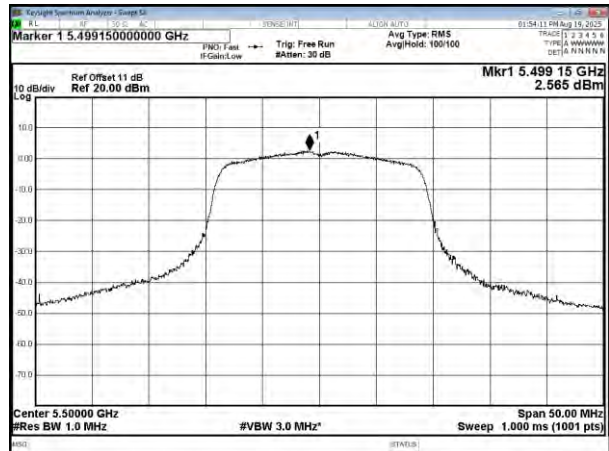
Modulation Standard: 802.11a

CH100

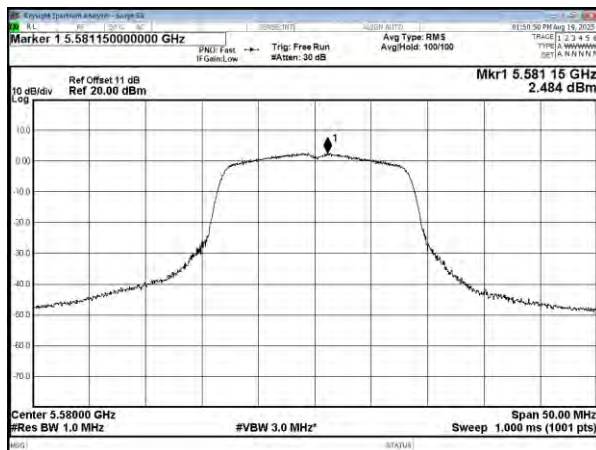


Modulation Standard: 802.11ac VHT20

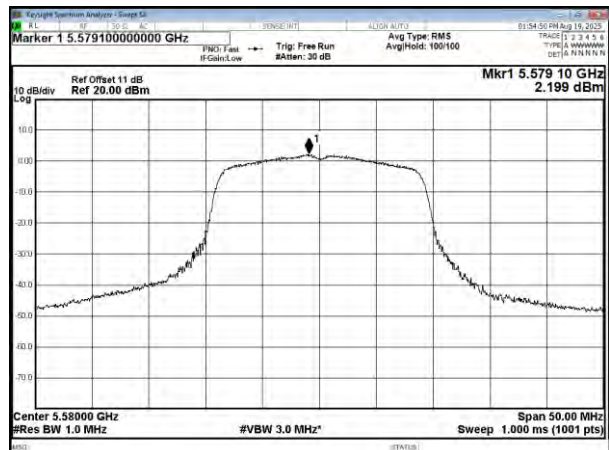
CH100



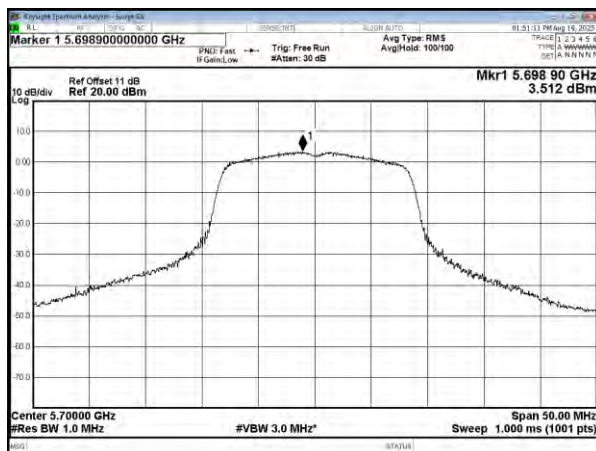
CH116



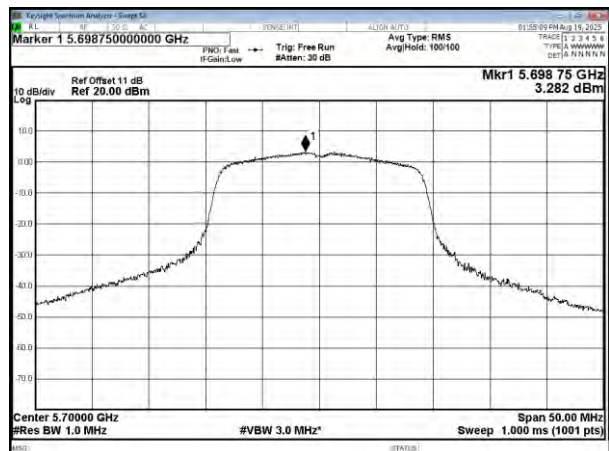
CH116



CH140



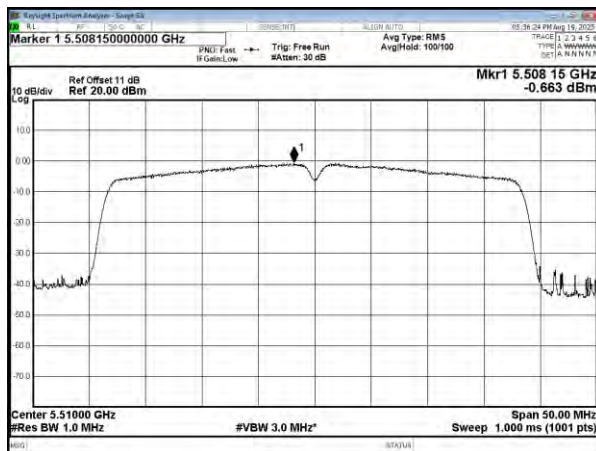
CH140





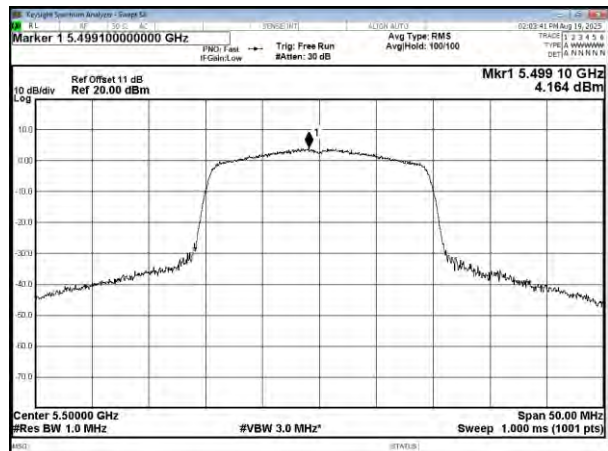
Modulation Standard: 802.11ac VHT40

CH102

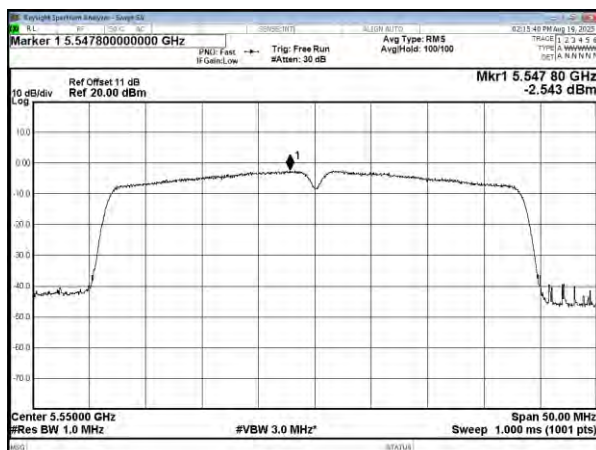


Modulation Standard: 802.11 ax HE20

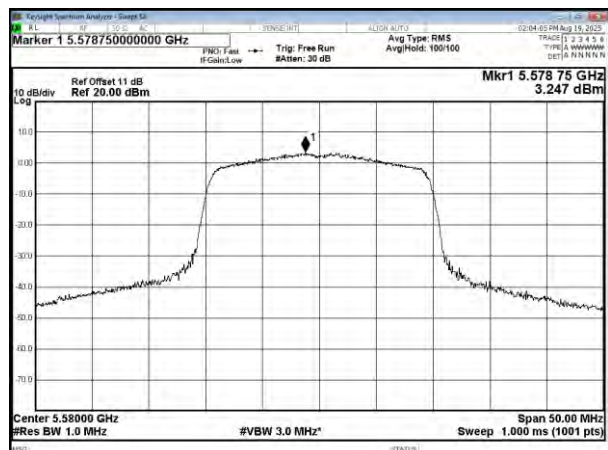
CH100



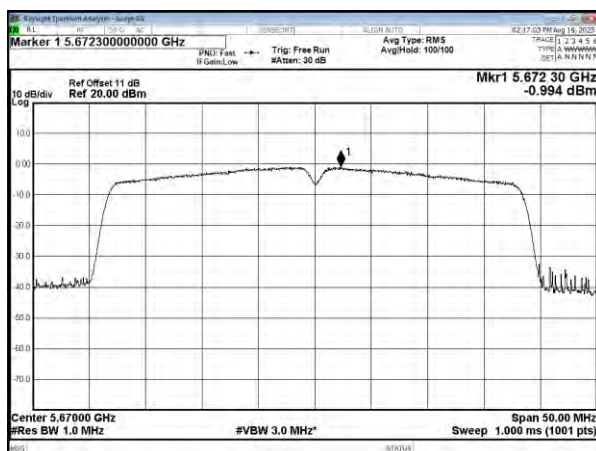
CH110



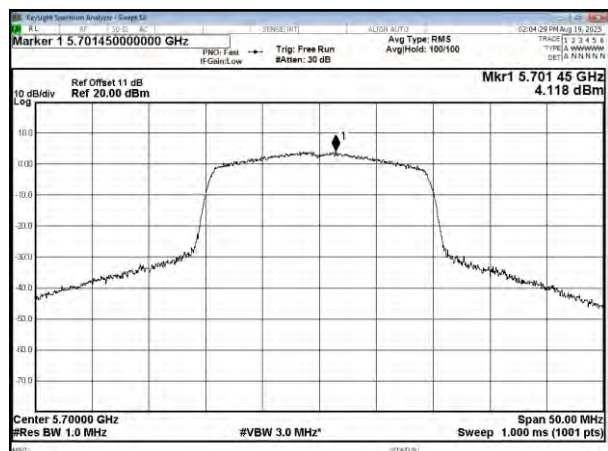
CH116



CH134



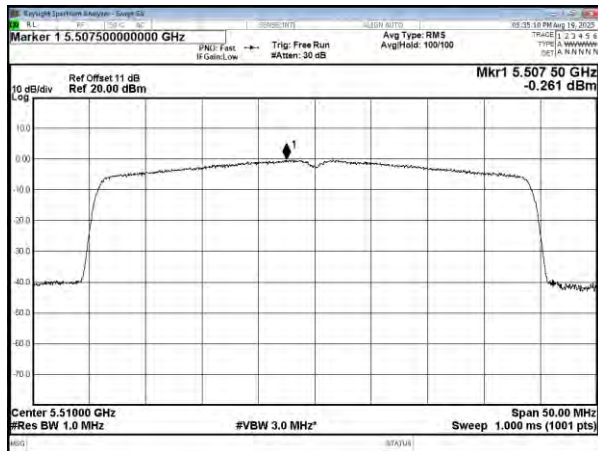
CH140



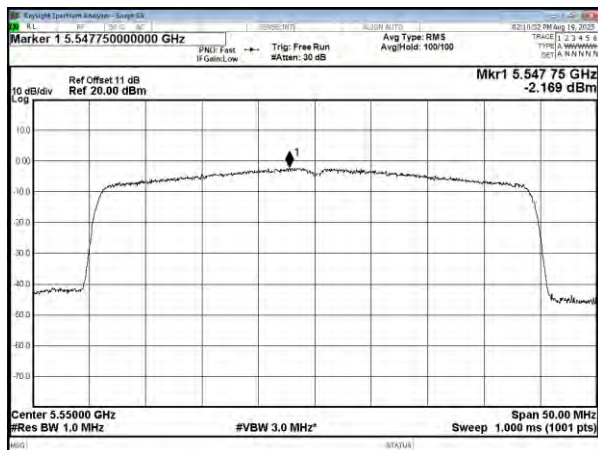


Modulation Standard: 802.11 ax HE40

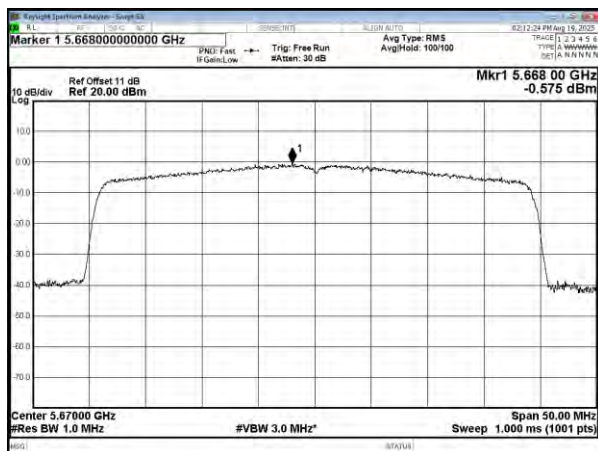
CH102



CH110



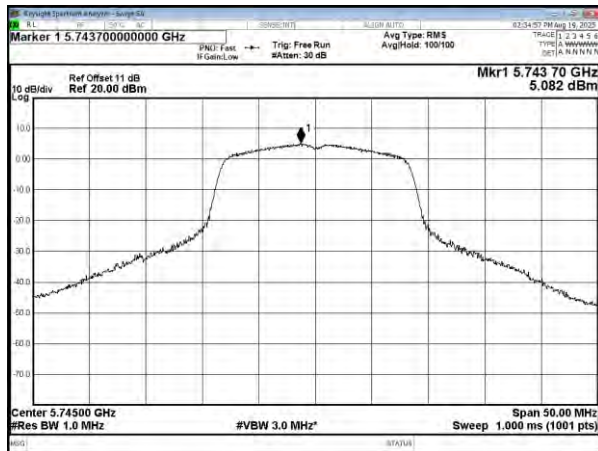
CH134



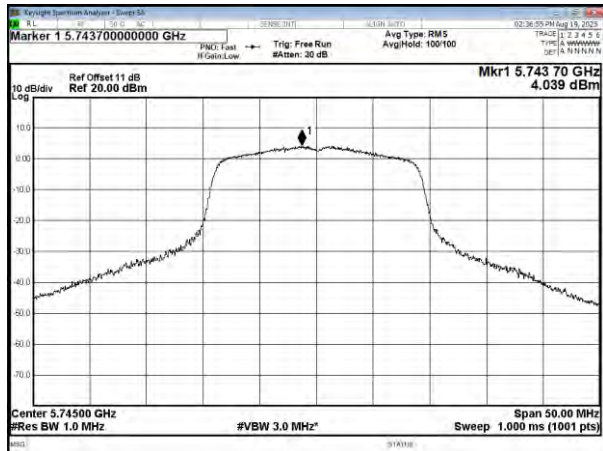


UNII-3

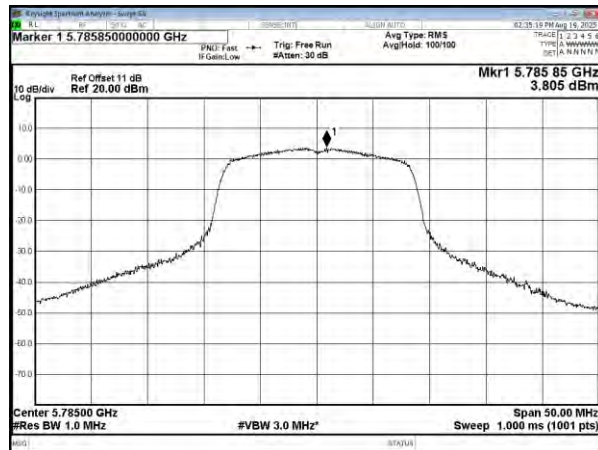
Modulation Type: 802.11a
CH149



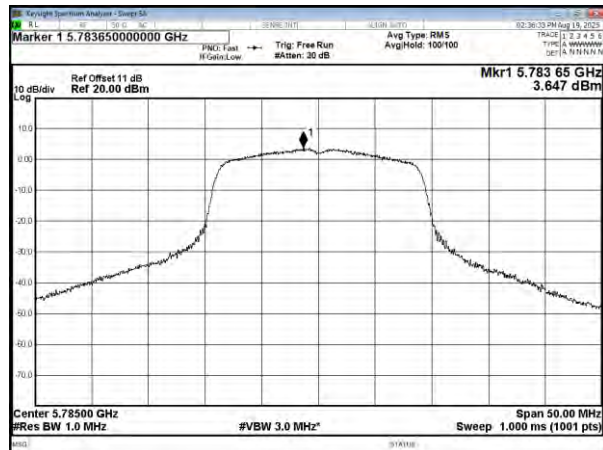
Modulation Type: 802.11ac, VHT20
CH149



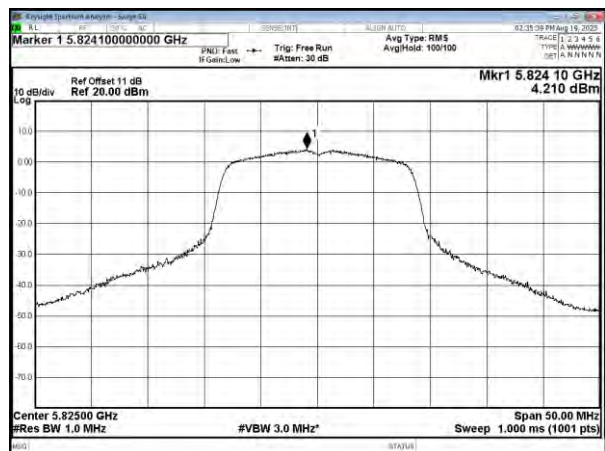
CH157



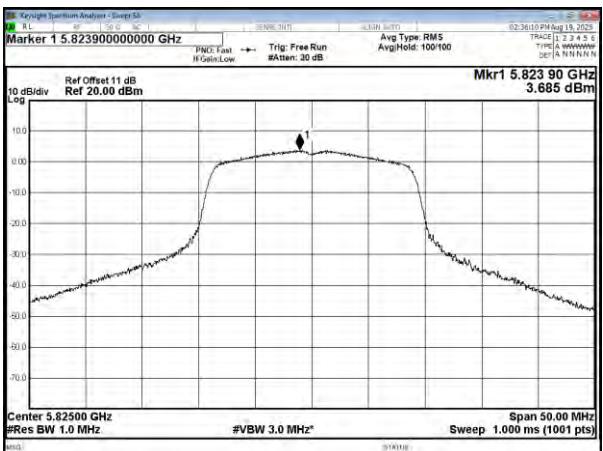
CH157



CH165

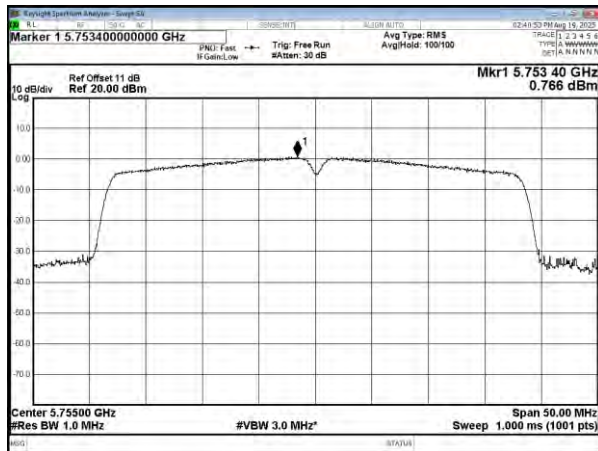


CH165

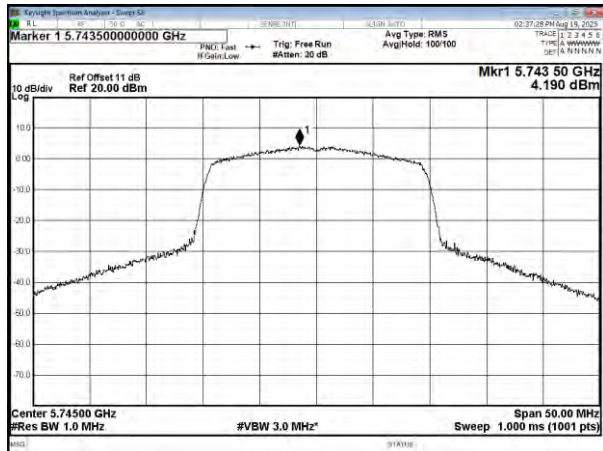




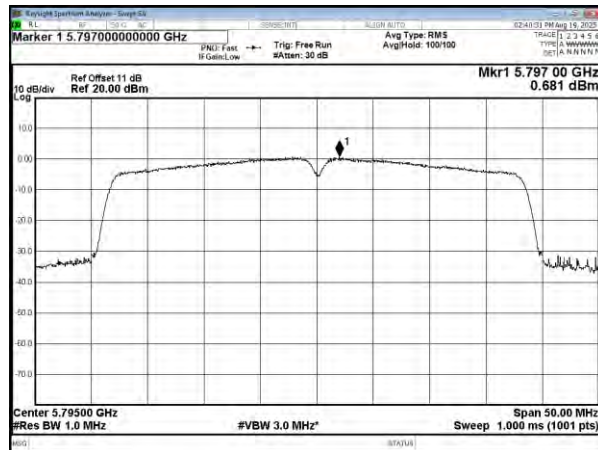
Modulation Type: 802.11ac, VHT40
CH151



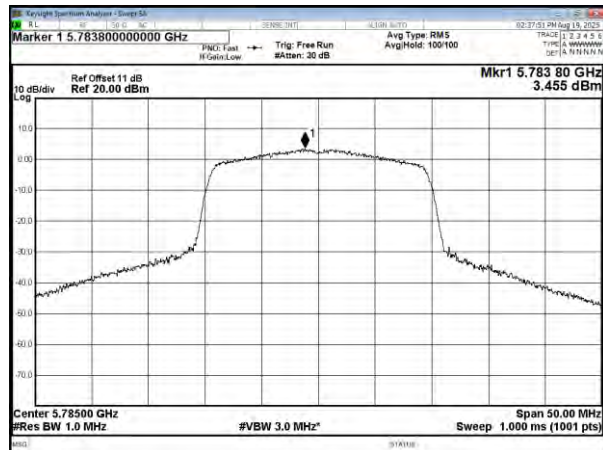
Modulation Type: 802.11ax, HE20
CH149



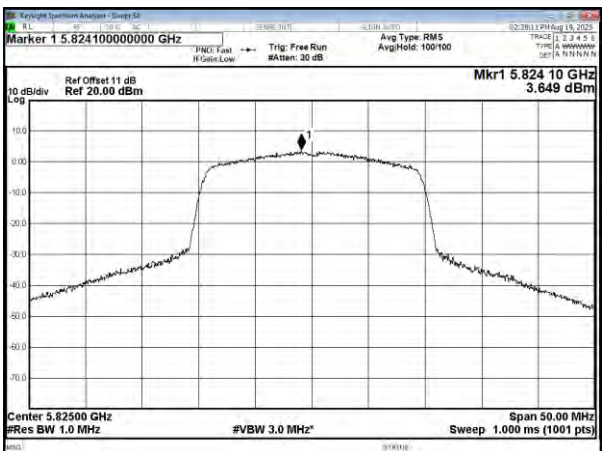
CH159



CH157

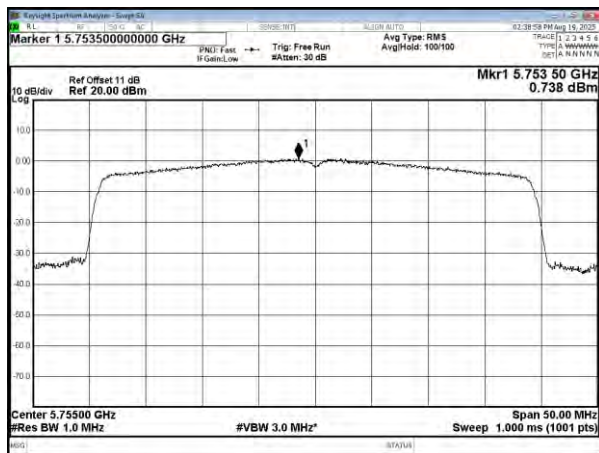


CH165

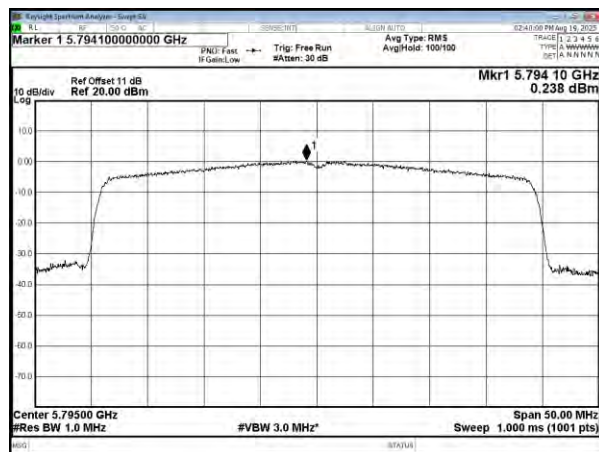




Modulation Type: 802.11ax, HE40
CH151



CH159



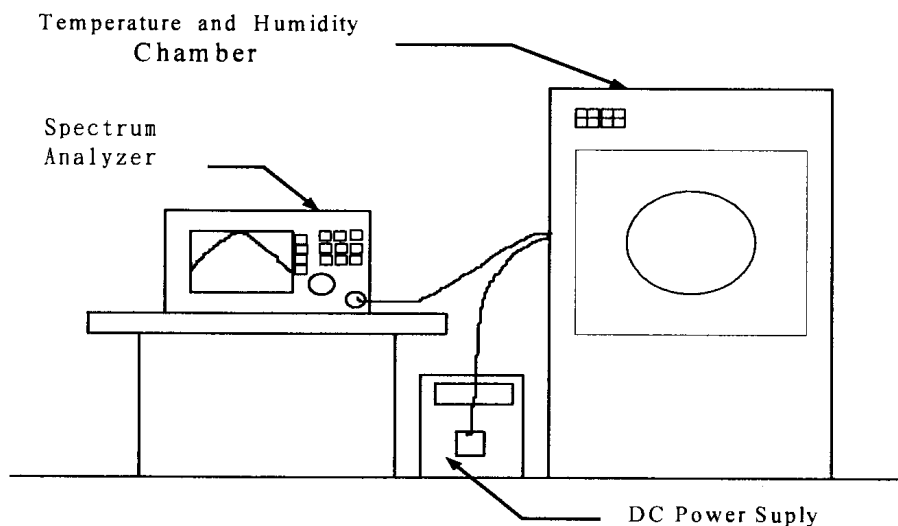


12. Frequency Stability

12.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

12.2. Test Setup Layout



**12.3. Test Result and Data**

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
60	132	5179.9801	-0.000384	5179.9813	-0.000361	5179.9818	-0.000351
	120	5179.9793	-0.000400	5179.9799	-0.000388	5179.9814	-0.000359
	108	5179.9786	-0.000413	5179.9791	-0.000403	5179.9803	-0.000380
40	132	5179.9775	-0.000434	5179.9778	-0.000429	5179.9786	-0.000413
	120	5179.9767	-0.000450	5179.9769	-0.000446	5179.9782	-0.000421
	108	5179.9759	-0.000465	5179.9763	-0.000458	5179.9776	-0.000432
20	132	5179.975	-0.000483	5179.9755	-0.000473	5179.9762	-0.000459
	120	5179.9743	-0.000496	5179.9757	-0.000469	5179.9763	-0.000458
	108	5179.9737	-0.000508	5179.9746	-0.000490	5179.9759	-0.000465
0	132	5179.973	-0.000521	5179.9738	-0.000506	5179.9749	-0.000485
	120	5179.9722	-0.000537	5179.9731	-0.000519	5179.9741	-0.000500
	108	5179.9716	-0.000548	5179.9728	-0.000525	5179.9734	-0.000514
-10	132	5179.9708	-0.000564	5179.9716	-0.000548	5179.9718	-0.000544
	120	5179.9694	-0.000591	5179.9708	-0.000564	5179.9716	-0.000548
	108	5179.9685	-0.000608	5179.9694	-0.000591	5179.9706	-0.000568
-20	132	5179.9676	-0.000625	5179.9683	-0.000612	5179.9699	-0.000581
	120	5179.9668	-0.000641	5179.9678	-0.000622	5179.9681	-0.000616
	108	5179.9653	-0.000670	5179.9665	-0.000647	5179.9673	-0.000631



Operating frequency: 5260 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
60	132	5259.9838	-0.000313	5259.9847	-0.000295	5259.9855	-0.000280
	120	5259.9827	-0.000334	5259.9836	-0.000317	5259.9846	-0.000297
	108	5259.9818	-0.000351	5259.9825	-0.000338	5259.9833	-0.000322
40	132	5259.9809	-0.000369	5259.9814	-0.000359	5259.9821	-0.000346
	120	5259.9793	-0.000400	5259.9801	-0.000384	5259.9815	-0.000357
	108	5259.9786	-0.000413	5259.9791	-0.000403	5259.9803	-0.000380
20	132	5259.9773	-0.000438	5259.9779	-0.000427	5259.9794	-0.000398
	120	5259.9761	-0.000461	5259.9766	-0.000452	5259.9777	-0.000431
	108	5259.9756	-0.000471	5259.9761	-0.000461	5259.9768	-0.000448
0	132	5259.9748	-0.000486	5259.9753	-0.000477	5259.9762	-0.000459
	120	5259.9734	-0.000514	5259.9747	-0.000488	5259.9755	-0.000473
	108	5259.9726	-0.000529	5259.9738	-0.000506	5259.9746	-0.000490
-10	132	5259.9718	-0.000544	5259.9727	-0.000527	5259.9734	-0.000514
	120	5259.9707	-0.000566	5259.9711	-0.000558	5259.9728	-0.000525
	108	5259.9693	-0.000593	5259.9699	-0.000581	5259.9716	-0.000548
-20	132	5259.9681	-0.000616	5259.9695	-0.000589	5259.9704	-0.000571
	120	5259.9677	-0.000624	5259.9682	-0.000614	5259.9691	-0.000597
	108	5259.9664	-0.000649	5259.9671	-0.000635	5259.9684	-0.000610



Operating frequency: 5500 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
60	132	5499.9825	-0.000338	5499.9837	-0.000315	5499.9841	-0.000307
	120	5499.9817	-0.000353	5499.9826	-0.000336	5499.9834	-0.000320
	108	5499.9808	-0.000371	5499.9813	-0.000361	5499.9925	-0.000145
40	132	5499.9798	-0.000390	5499.9806	-0.000375	5499.9818	-0.000351
	120	5499.9784	-0.000417	5499.9793	-0.000400	5499.9806	-0.000375
	108	5499.9773	-0.000438	5499.9786	-0.000413	5499.9799	-0.000388
20	132	5499.9767	-0.000450	5499.9776	-0.000432	5499.9782	-0.000421
	120	5499.9753	-0.000477	5499.9762	-0.000459	5499.9771	-0.000442
	108	5499.9745	-0.000492	5499.9756	-0.000471	5499.9768	-0.000448
0	132	5499.9731	-0.000519	5499.9743	-0.000496	5499.9751	-0.000481
	120	5499.9726	-0.000529	5499.9736	-0.000510	5499.9743	-0.000496
	108	5499.9711	-0.000558	5499.9725	-0.000531	5499.973	-0.000521
-10	132	5499.9706	-0.000568	5499.9717	-0.000546	5499.9728	-0.000525
	120	5499.9691	-0.000597	5499.9708	-0.000564	5499.9719	-0.000542
	108	5499.9687	-0.000604	5499.9696	-0.000587	5499.9705	-0.000569
-20	132	5499.9674	-0.000629	5499.9682	-0.000614	5499.9693	-0.000593
	120	5499.9663	-0.000651	5499.9675	-0.000627	5499.9686	-0.000606
	108	5499.9651	-0.000674	5499.9667	-0.000643	5499.9671	-0.000635



Operating frequency: 5745 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
60	132	5744.9829	-0.000330	5744.9838	-0.000313	5744.9846	-0.000297
	120	5744.9816	-0.000355	5744.9829	-0.000330	5744.9834	-0.000320
	108	5744.9808	-0.000371	5744.9815	-0.000357	5744.9826	-0.000336
40	132	5744.9799	-0.000388	5744.9803	-0.000380	5744.9813	-0.000361
	120	5744.9786	-0.000413	5744.9792	-0.000402	5744.9806	-0.000375
	108	5744.9779	-0.000427	5744.9786	-0.000413	5744.9792	-0.000402
20	132	5744.9764	-0.000456	5744.9777	-0.000431	5744.9786	-0.000413
	120	5744.9757	-0.000469	5744.9762	-0.000459	5744.9778	-0.000429
	108	5744.9749	-0.000485	5744.9753	-0.000477	5744.9761	-0.000461
0	132	5744.9736	-0.000510	5744.9748	-0.000486	5744.9754	-0.000475
	120	5744.9725	-0.000531	5744.9736	-0.000510	5744.9743	-0.000496
	108	5744.9718	-0.000544	5744.9729	-0.000523	5744.9736	-0.000510
-10	132	5744.9705	-0.000569	5744.9718	-0.000544	5744.9723	-0.000535
	120	5744.9691	-0.000597	5744.9708	-0.000564	5744.9714	-0.000552
	108	5744.9683	-0.000612	5744.9694	-0.000591	5744.9709	-0.000562
-20	132	5744.9677	-0.000624	5744.9681	-0.000616	5744.9693	-0.000593
	120	5744.9662	-0.000653	5744.9672	-0.000633	5744.9684	-0.000610
	108	5744.9654	-0.000668	5744.9663	-0.000651	5744.9678	-0.000622

Limit:

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

-----End of the report -----