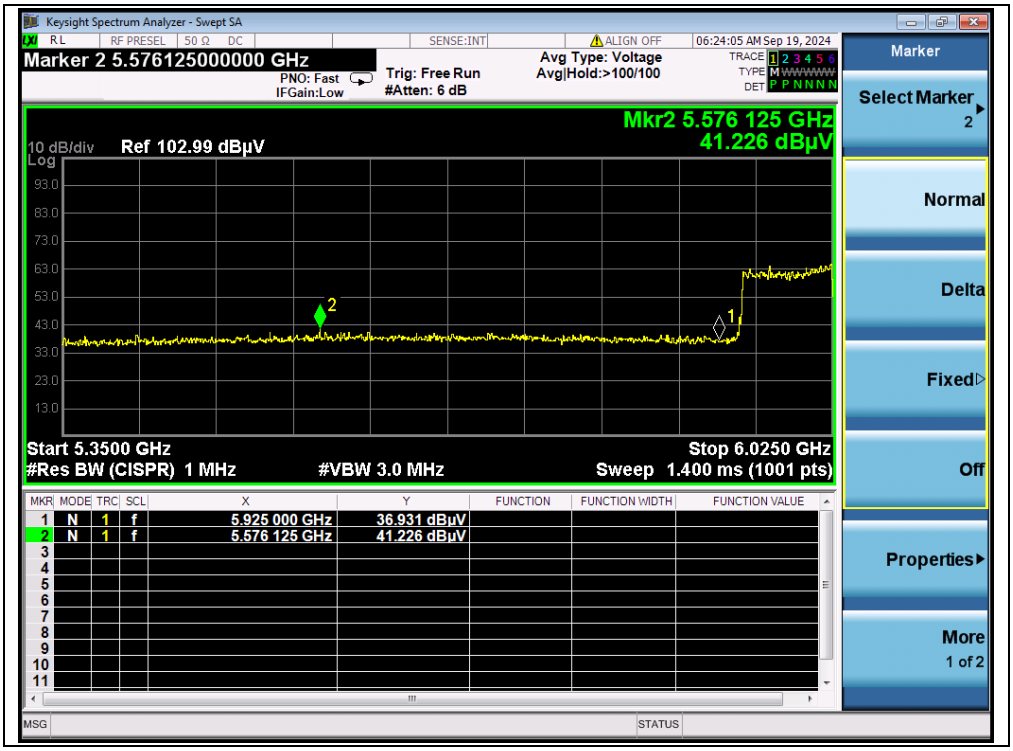
A.11. Restricted Frequency Bands

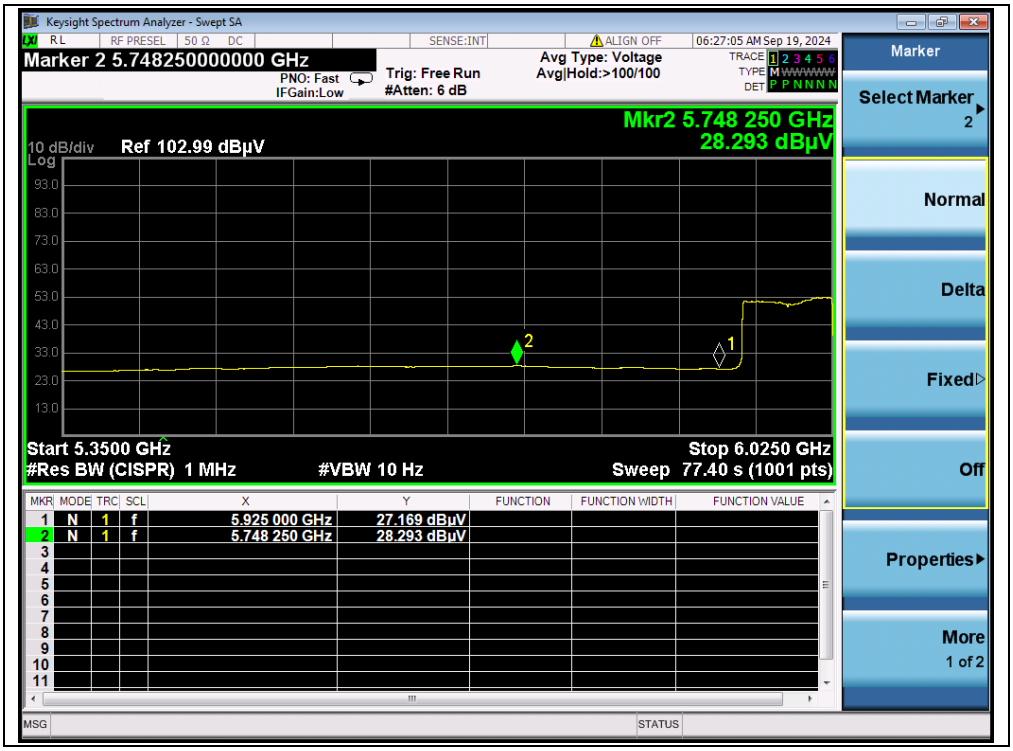
The lowest and highest channels are tested to verify the Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [dB]
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3m
Note 1: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (horizontal) was recorded in this test report.
Note 2: Restricted Frequency Bands were performed in X, Y, Z axis direction, and only the worst axis (X axis) test condition was recorded in this test report.
Note 3: All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

802.11be (EHT160) Mode

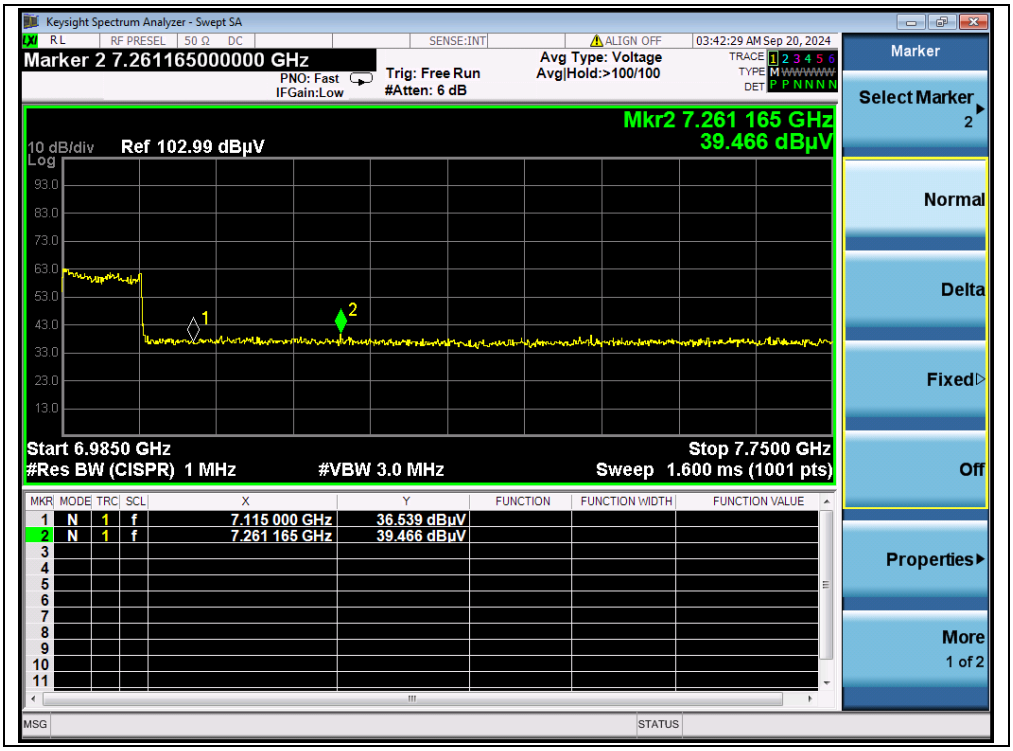
Ch.	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
15	5576.13	PK	41.23	-19.57	32.20	53.86	88.63	PASS
15	5748.25	AV	28.29	-19.57	32.20	40.92	68.26	PASS
207	7261.17	PK	39.47	-17.84	32.20	53.83	88.63	PASS
207	7143.36	AV	27.17	-17.84	32.20	41.53	68.26	PASS



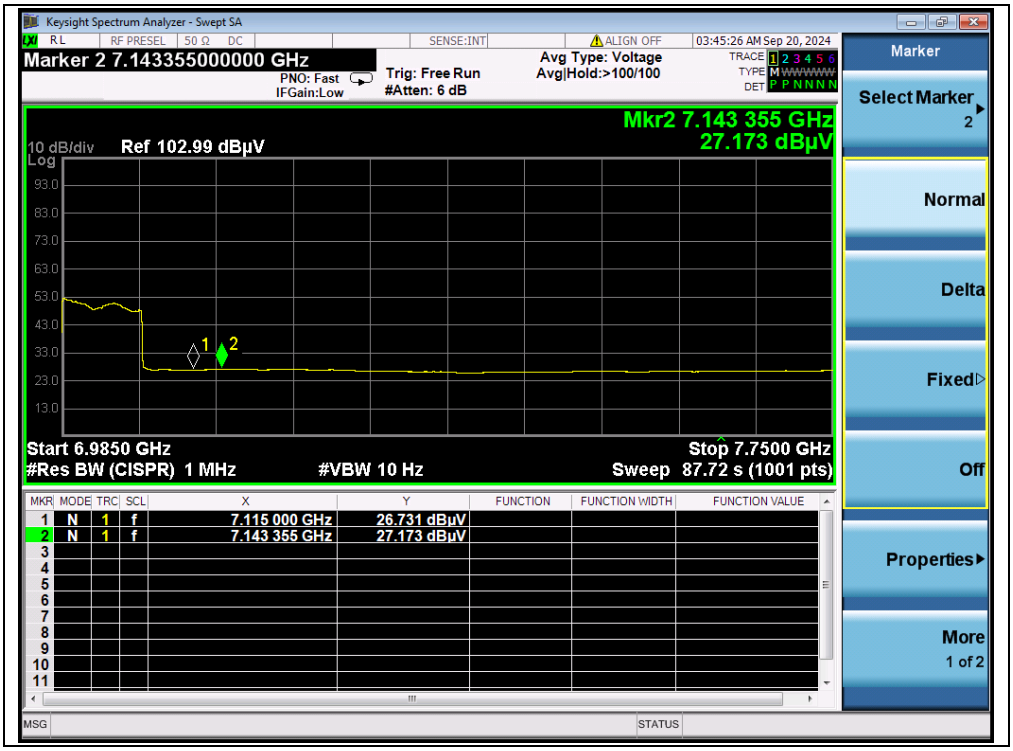
(PEAK, Channel 15, 802.11be (EHT160))



(AVERAGE, Channel 15, 802.11be (EHT160))



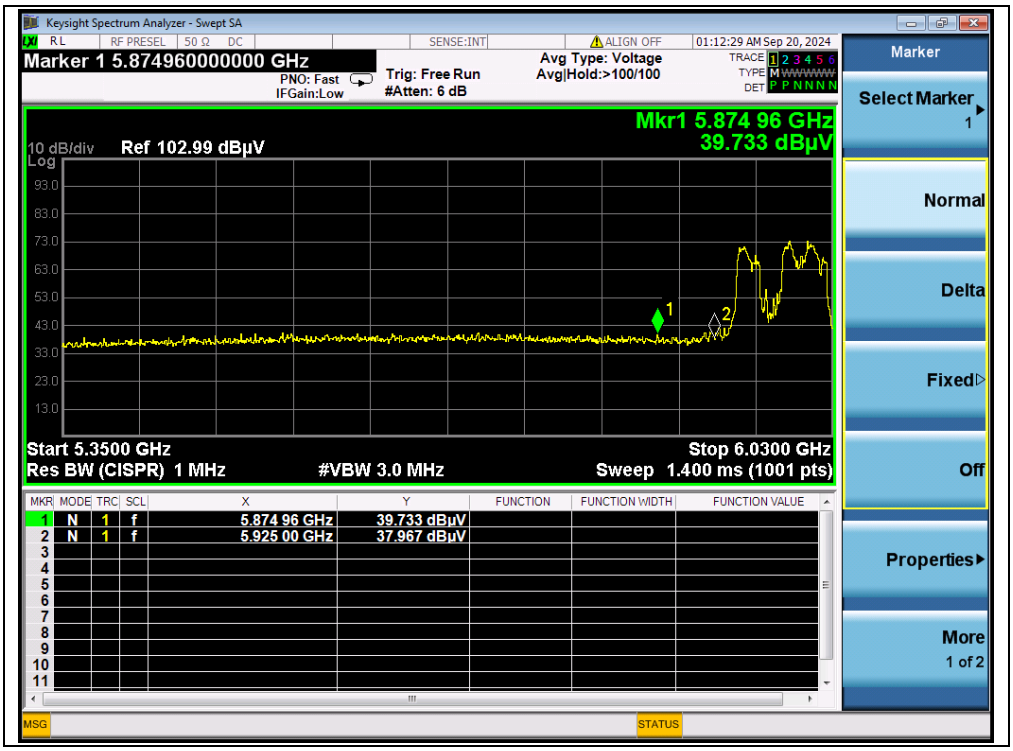
(PEAK, Channel 207, 802.11be (EHT160))



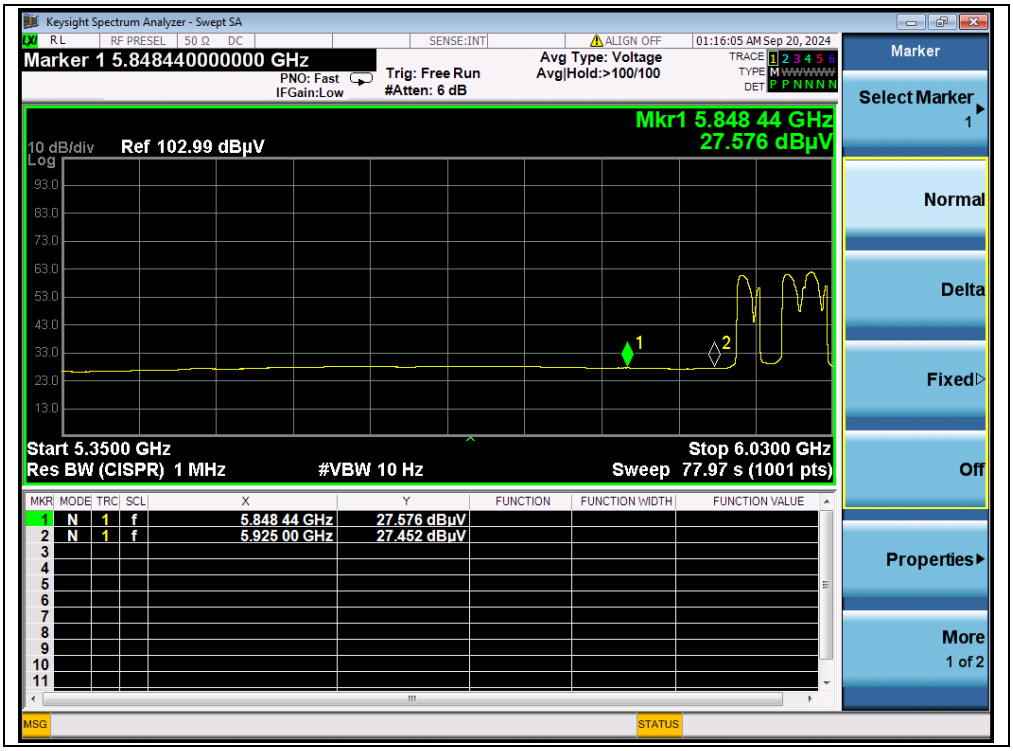
(AVERAGE, Channel 207, 802.11be (EHT160))

11BE80_Puncturing 20M

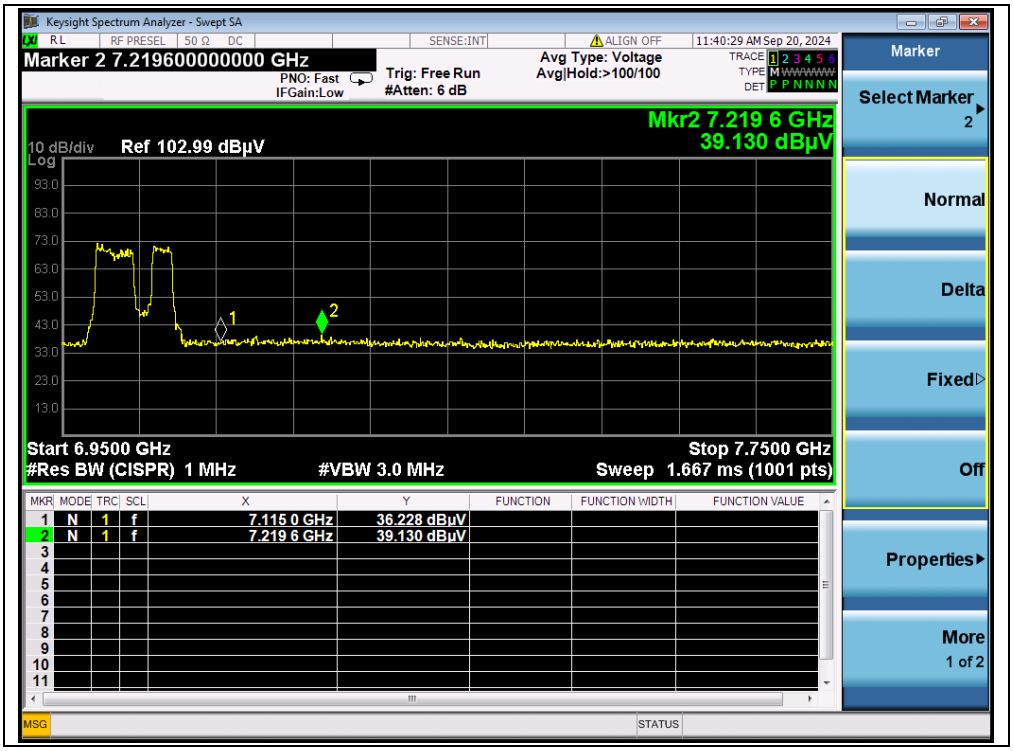
Ch.	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
7	5774.96	PK	39.73	-19.57	32.20	52.36	88.63	PASS
7	5848.44	AV	27.58	-19.57	32.20	40.21	68.26	PASS
215	7219.60	PK	39.13	-17.84	32.20	53.49	88.63	PASS
215	7144.40	AV	26.93	-17.84	32.20	41.29	68.26	PASS



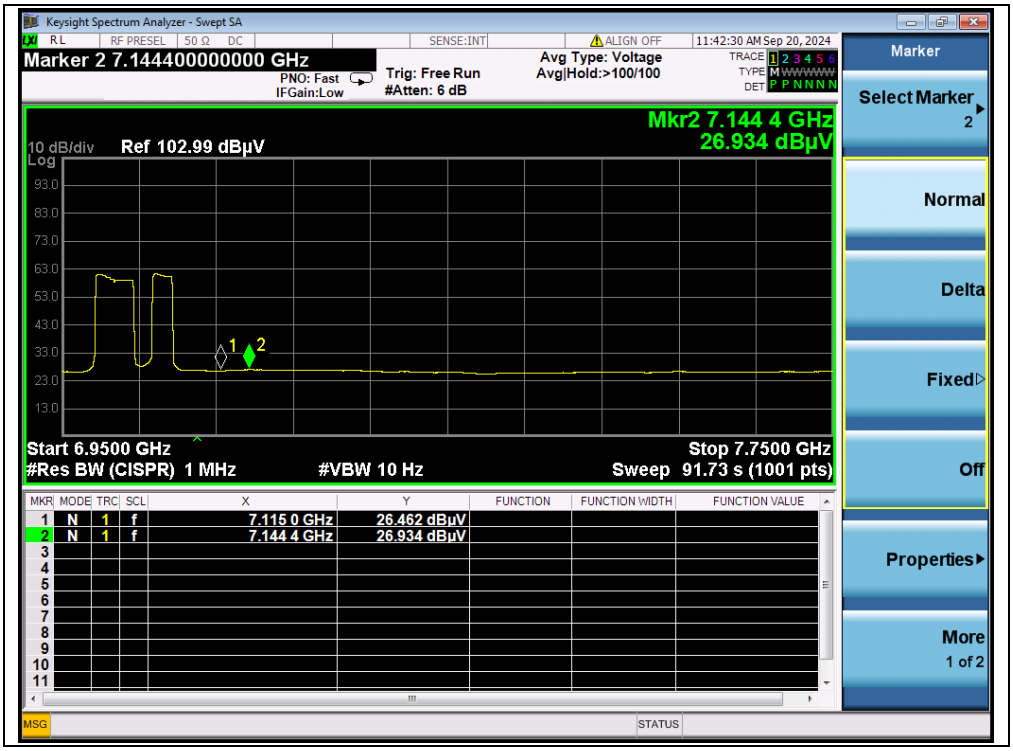
(PEAK, 11BE80-5985_Puncturing 20M@2)



(AVERAGE, 11BE80-5985_Puncturing 20M@2)



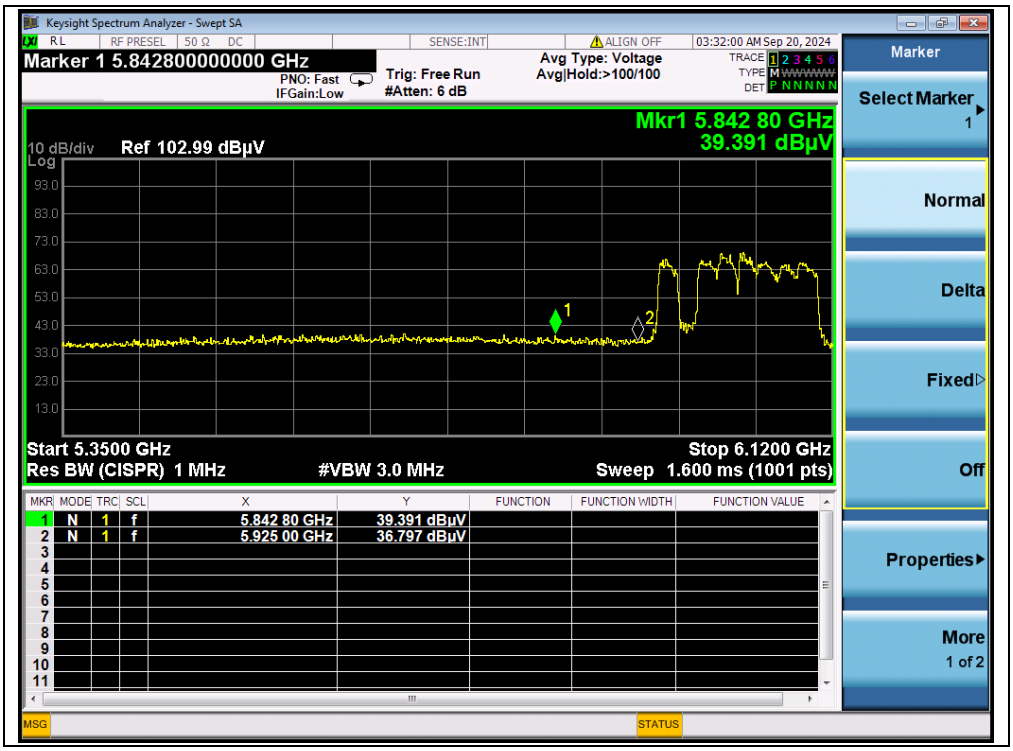
(PEAK, 11BE80-7025_Puncturing 20M@4)



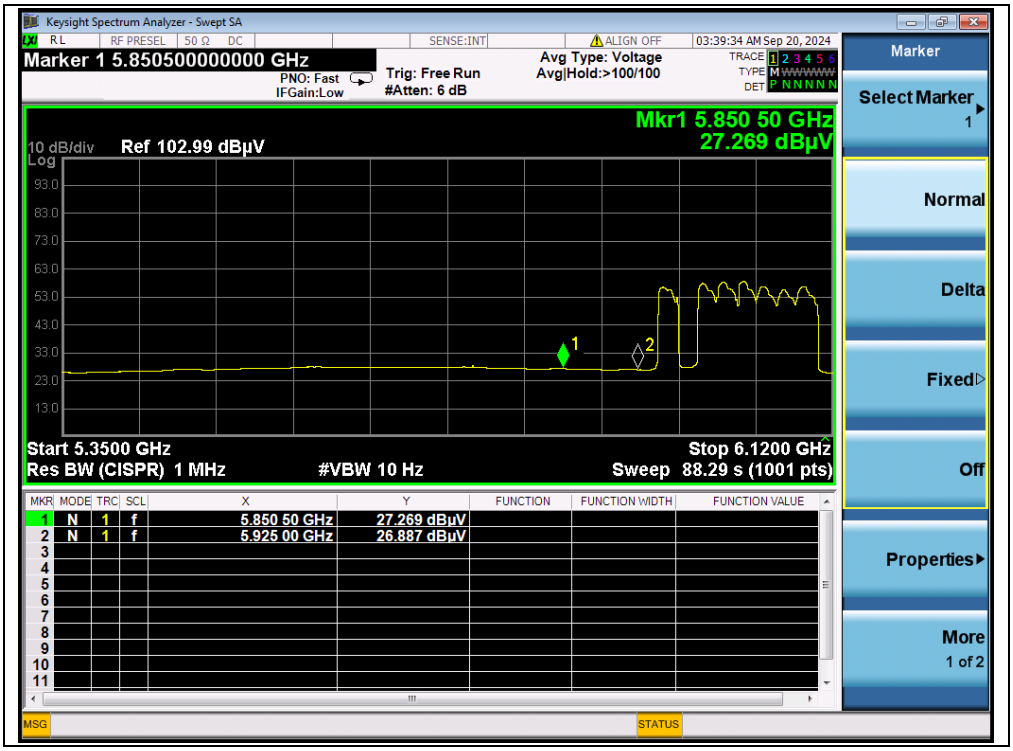
(AVERAGE, 11BE80-7025_Puncturing 20M@4)

11BE160_Puncturing 20M

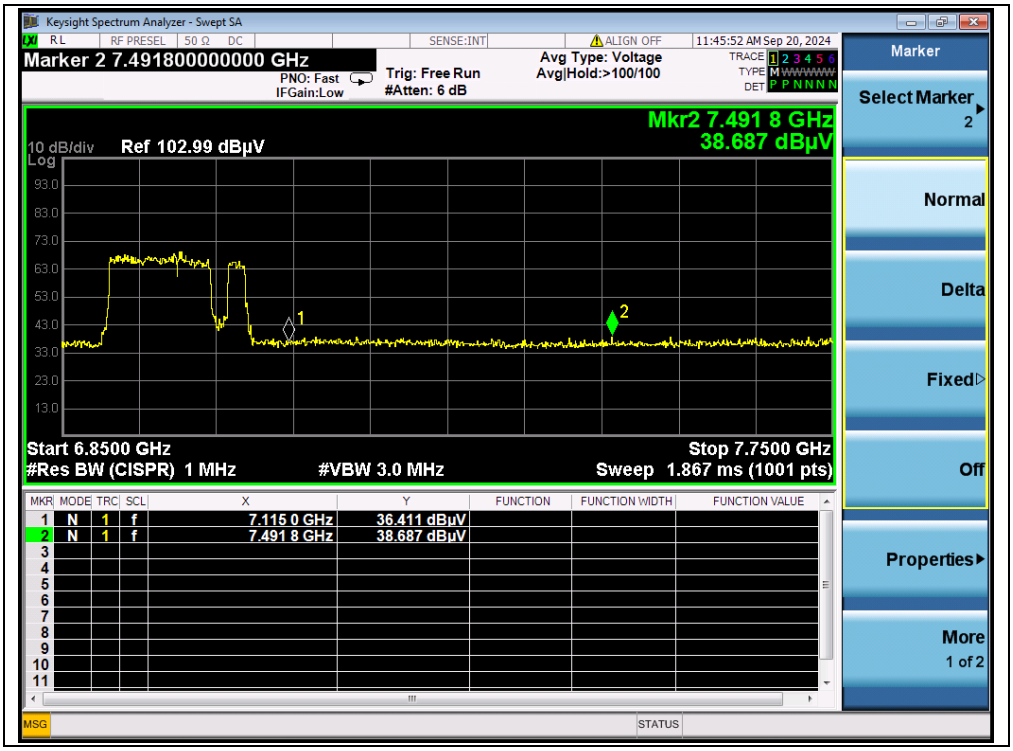
Ch.	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
15	5742.80	PK	39.39	-19.57	32.20	52.02	88.63	PASS
15	5850.50	AV	27.27	-19.57	32.20	39.90	68.26	PASS
207	7491.80	PK	38.69	-17.84	32.20	53.05	88.63	PASS
207	7146.20	AV	26.91	-17.84	32.20	41.27	68.26	PASS



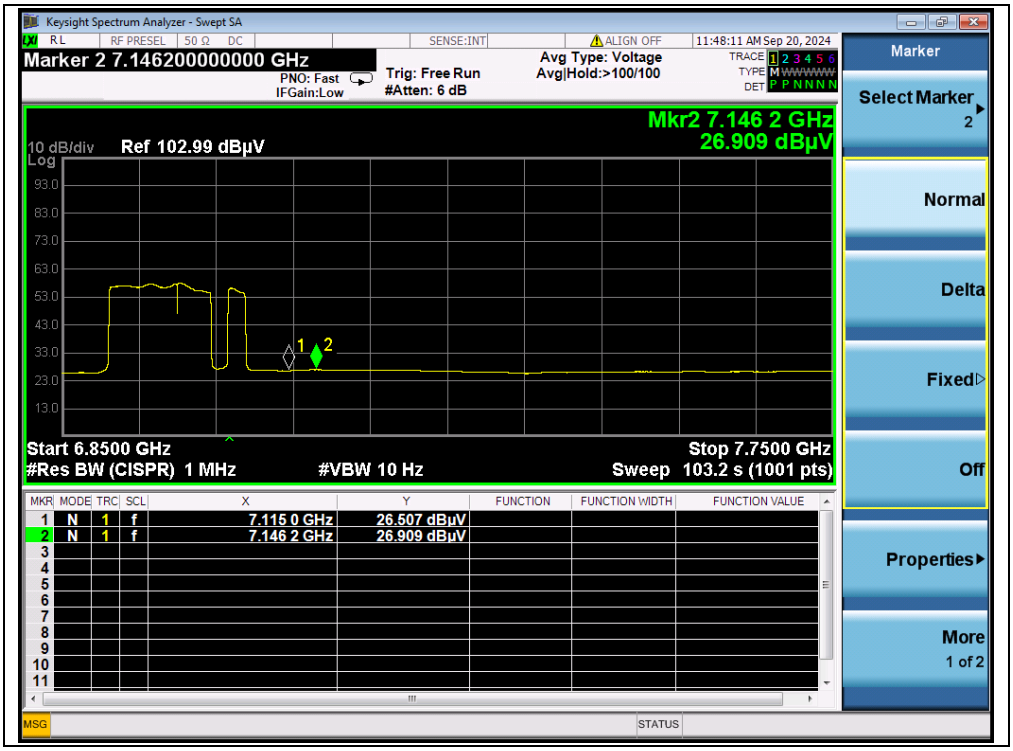
(PEAK, 11BE160-6025_Puncturing 20M@2)



(AVERAGE, 11BE160-6025_Puncturing 20M@2)



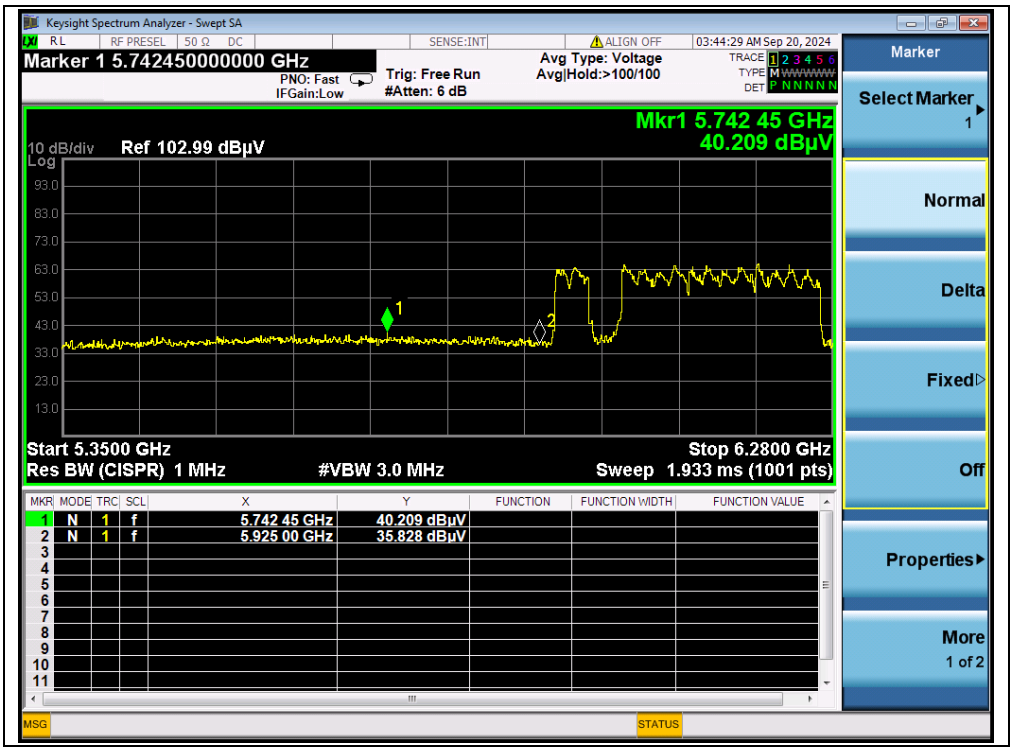
(PEAK, 11BE160-6985_Puncturing 20M@7)



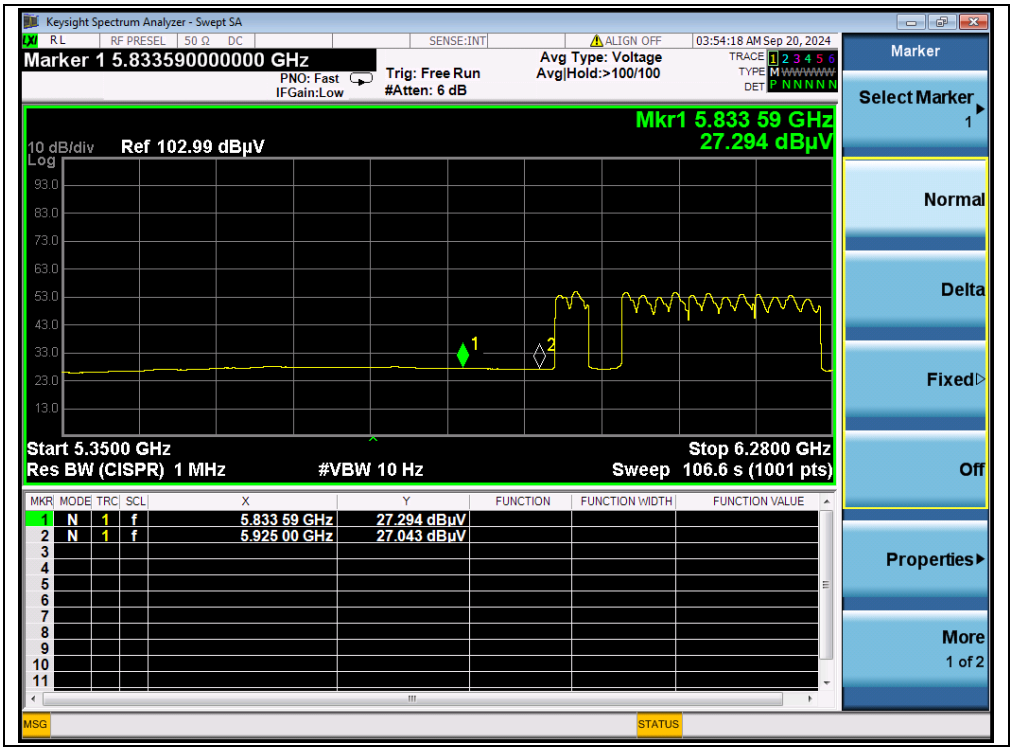
(AVERAGE, 11BE160-6985_Puncturing 20M@7)

11BE320_Puncturing 40M

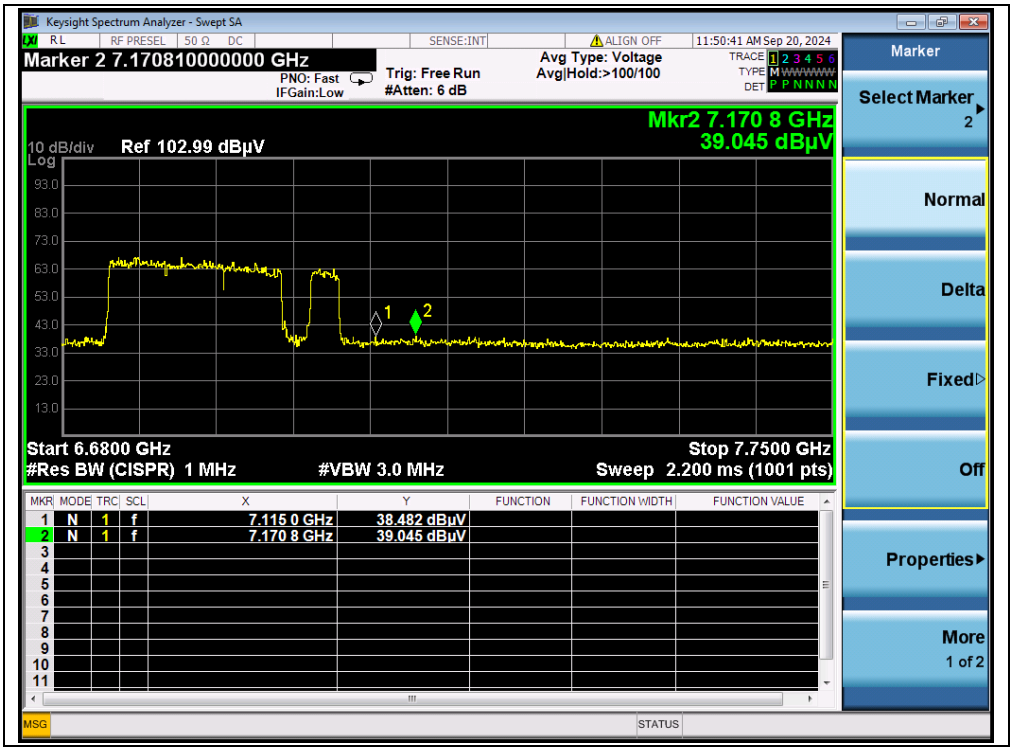
Ch.	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
31	5742.45	PK	40.21	-19.57	32.20	52.84	88.63	PASS
31	5833.59	AV	27.29	-19.57	32.20	39.92	68.26	PASS
191	7170.80	PK	39.05	-17.84	32.20	53.41	88.63	PASS
191	7140.90	AV	26.97	-17.84	32.20	41.33	68.26	PASS



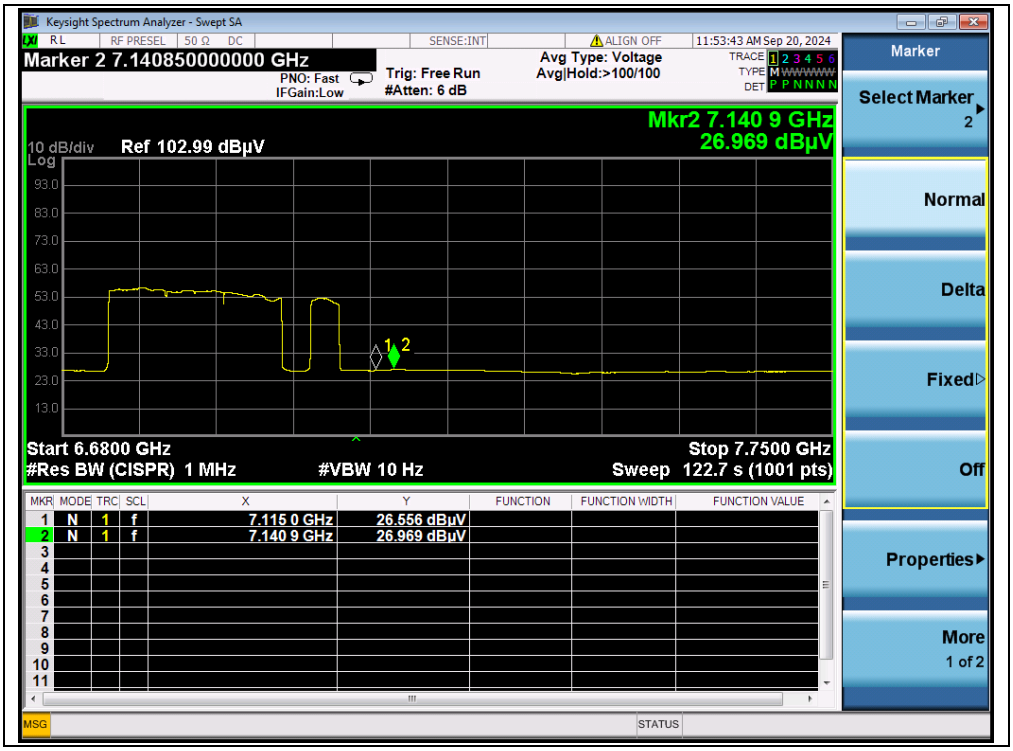
(PEAK, 11BE320-6105_Puncturing 40M@2)



(AVERAGE, 11BE320-6105_Puncturing 40M@2)



(PEAK, 11BE320-6905_Puncturing 40M@7)



(AVERAGE, 11BE320-6905_Puncturing 40M@7)

A.12. Radiated Emission

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak (or average) limit, it is unnecessary to perform a quasi-peak measurement (or average).

The measurement results are obtained as below:

E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

During the test, the total correction Factor A_T and A_{Factor} were built in test software.

Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis (X axis) test condition was recorded in this test report.

Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note3: For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note 4: All test modes, bandwidth and channel were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

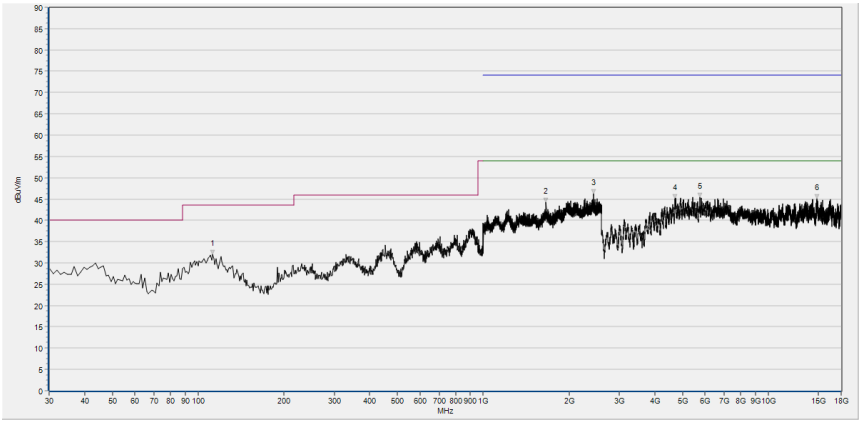
Field strength of fundamental:

Frequency (MHz)	Reading_Peak (dBμV/m)	Antenna Factor (dB)	Path Loss (dB)	Final_Peak (dBμV/m)	Antenna Polarity
6181.00	68.59	32.20	-19.57	81.22	Horizontal

The field strength (the lowest) of fundamental is more than 20dB higher than the unwanted emissions, in accordance with FCC part 15.215(b).

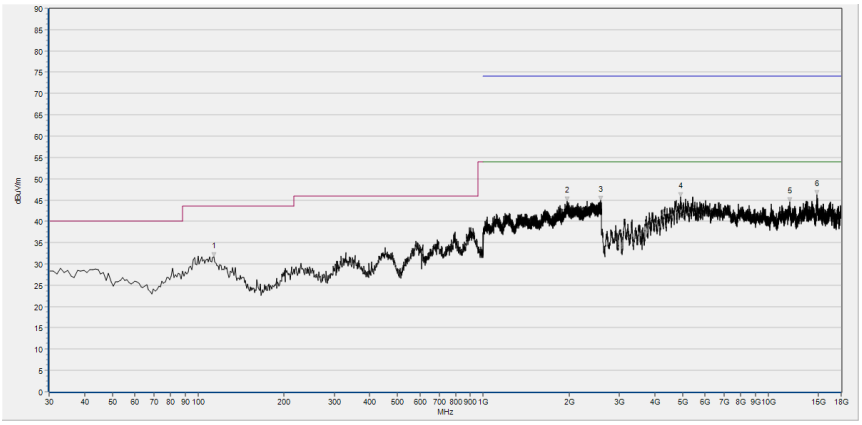
802.11ax (HEW20) Mode

Plot for Channel 45



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	31.97	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1660.800	44.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2431.467	46.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4709.800	45.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5741.600	45.34	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14809.120	45.11	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

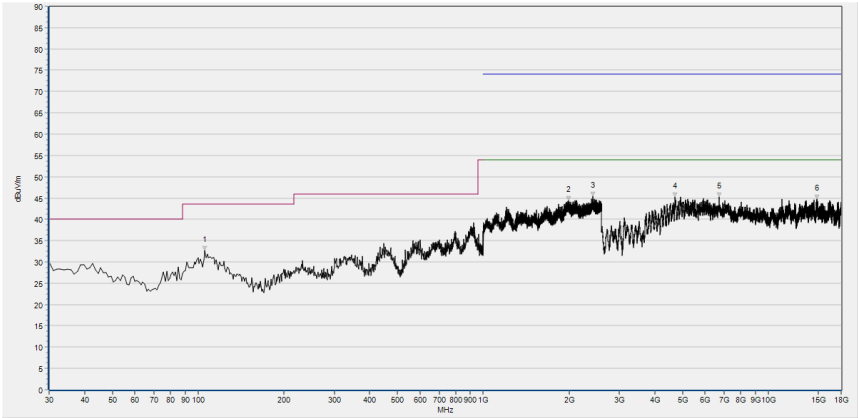
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.420	31.62	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1971.200	44.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2574.400	44.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4928.480	45.78	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
11861.560	44.56	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14827.600	46.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

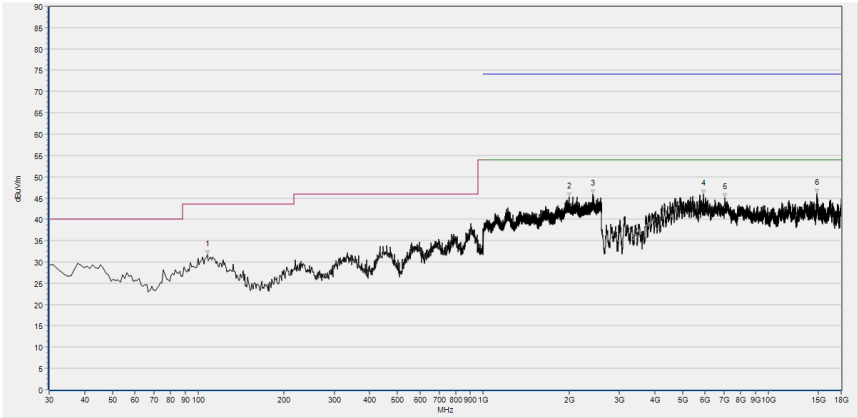
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 105



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	32.63	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1987.733	44.44	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2426.667	45.39	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4712.880	45.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6714.880	45.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14756.760	44.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

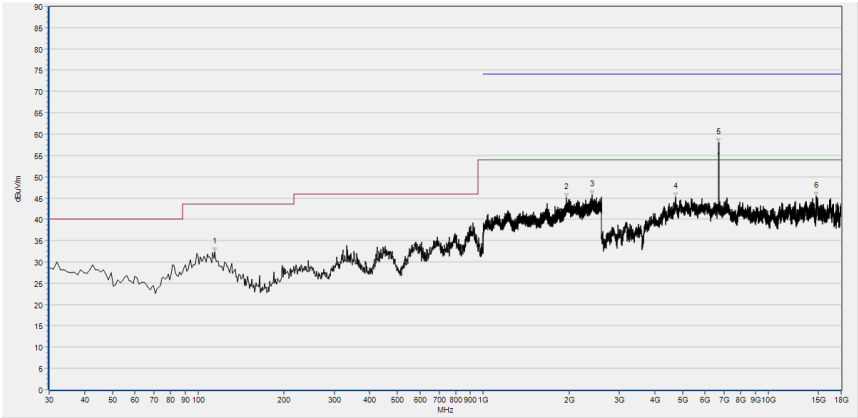
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	31.68	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1997.333	45.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2428.267	45.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5923.320	45.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7044.440	45.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14818.360	46.08	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

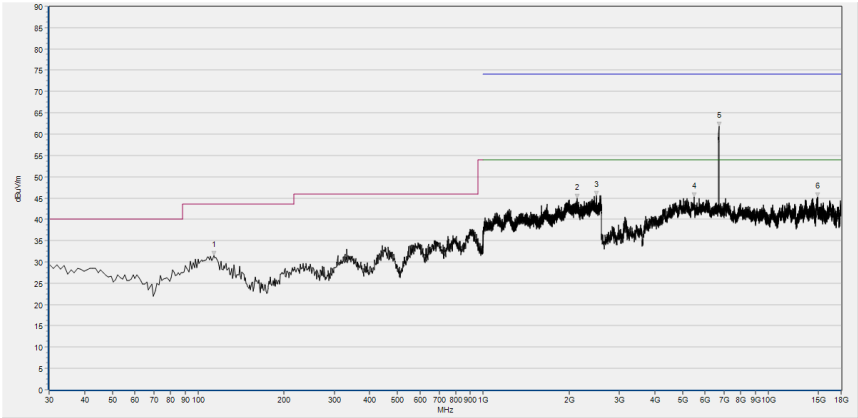
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 149



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
114.390	32.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1957.333	45.08	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2409.067	45.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4734.440	45.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6696.400	58.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14735.200	45.46	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

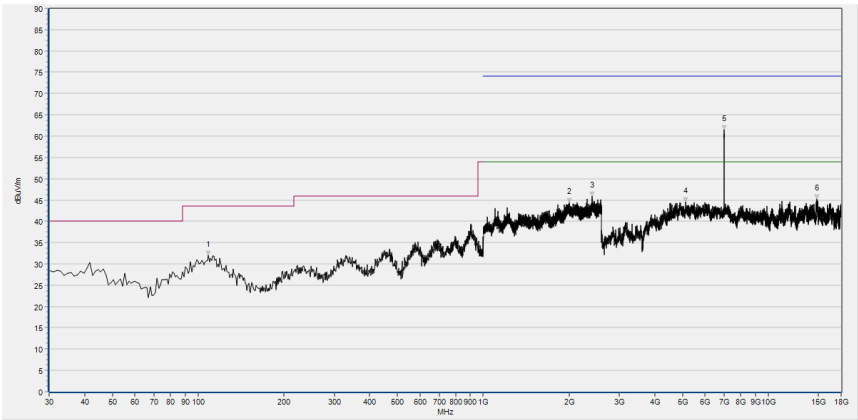
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.420	31.53	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2138.667	44.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2486.400	45.62	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5482.880	45.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6699.480	61.79	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14864.560	45.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

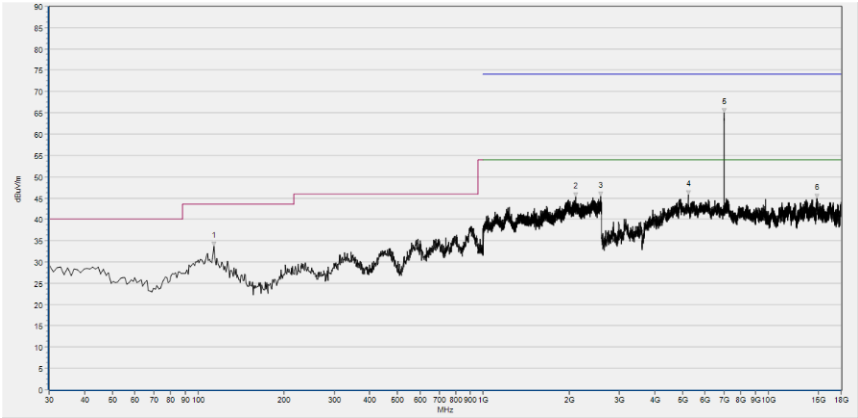
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 209



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	32.00	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2004.800	44.33	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2403.200	45.96	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5134.840	44.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6992.080	61.43	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14790.640	45.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

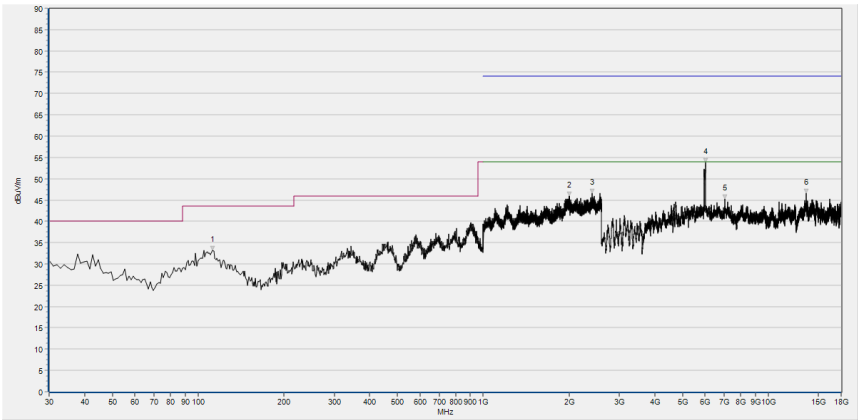
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.420	33.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2104.000	45.26	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2579.733	45.46	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5230.320	45.81	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6992.080	65.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14827.600	44.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

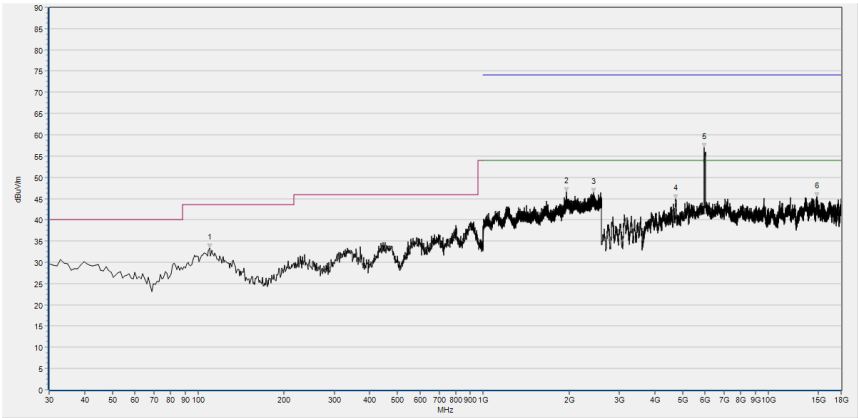
(Antenna Vertical, 30MHz to 18GHz)

11BE80-5985_Puncturing 20M@2



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	33.25	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1998.400	45.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2404.267	46.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6015.720	53.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7035.200	45.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13549.400	46.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

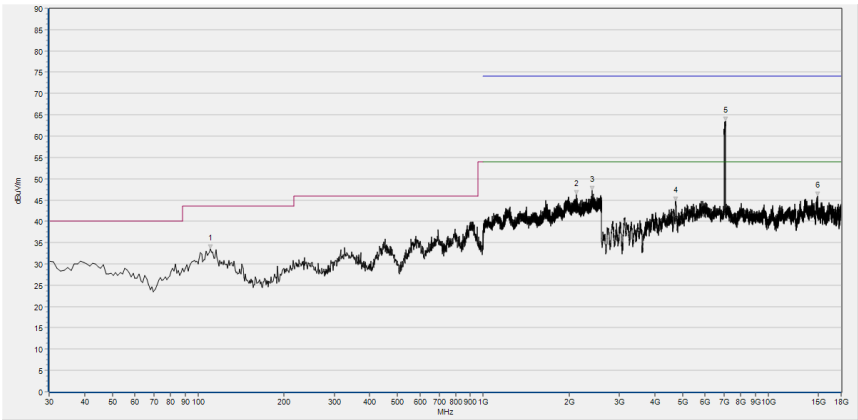
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
109.540	33.41	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1957.333	46.52	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2438.933	46.42	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4737.520	44.96	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5960.280	56.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14784.480	45.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

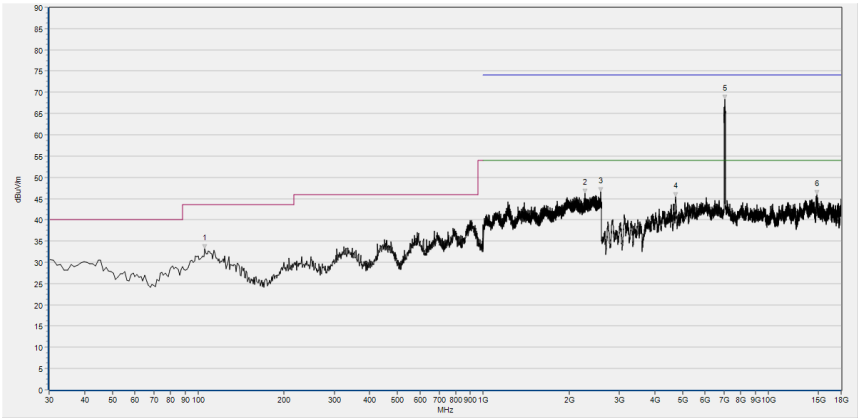
(Antenna Vertical, 30MHz to 18GHz)

11BE80-7025_Puncturing 20M@3



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
110.510	33.46	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2122.133	46.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2413.867	47.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4728.280	44.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7062.920	63.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14886.120	45.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

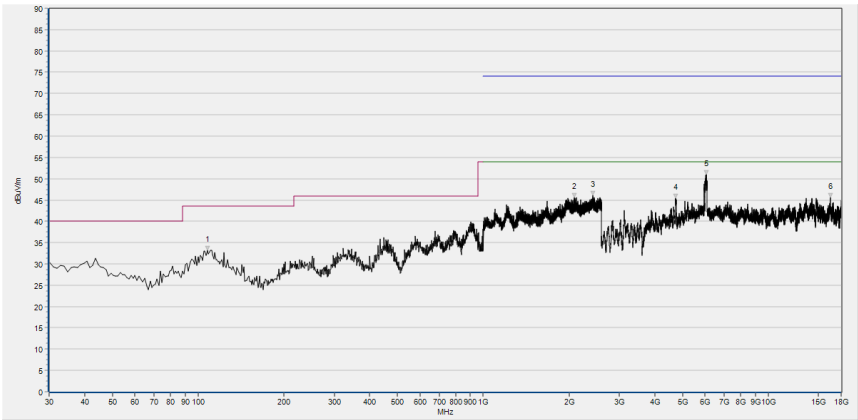
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	33.17	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2279.467	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2585.067	46.56	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4734.440	45.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7050.600	68.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14796.800	45.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

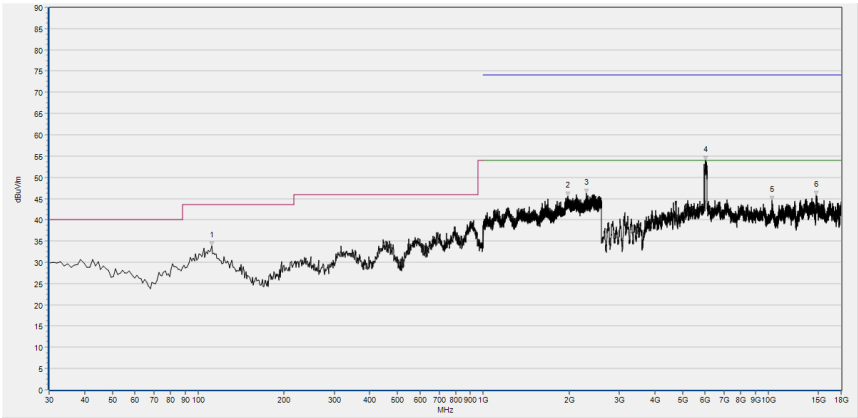
(Antenna Vertical, 30MHz to 18GHz)

11BE160-6025_Puncturing 20M@2



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	33.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2086.400	45.58	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2420.800	46.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4734.440	45.35	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6040.360	50.93	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
16463.080	45.51	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

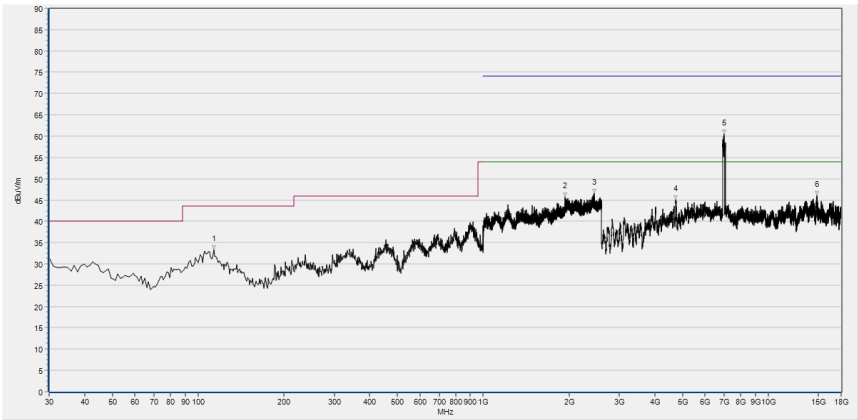
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	33.85	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1980.267	45.56	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2296.000	46.28	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6009.560	53.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10300.000	44.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14729.040	45.79	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

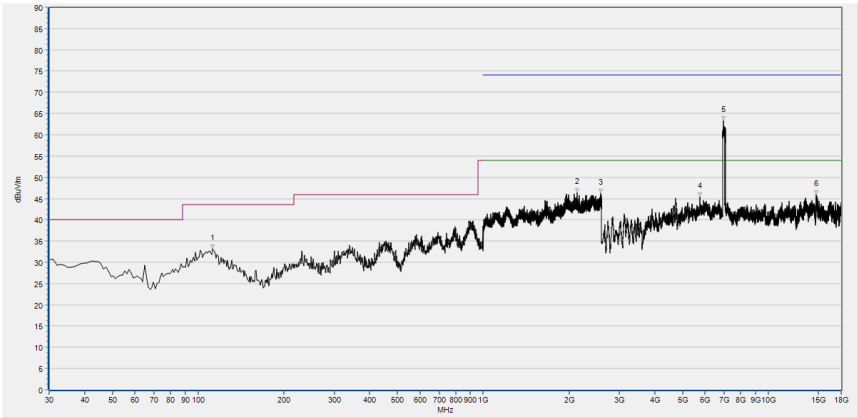
(Antenna Vertical, 30MHz to 18GHz)

11BE160-6985_Puncturing 20M@7



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.420	33.34	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1939.200	45.73	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2446.400	46.51	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4734.440	45.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6982.840	60.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14775.240	46.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

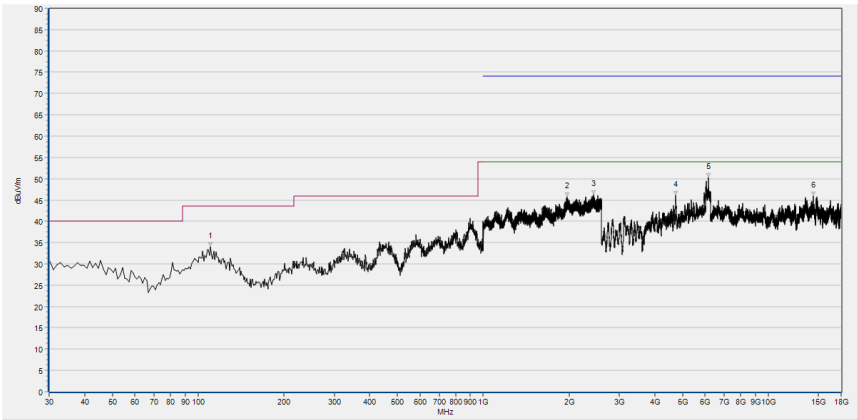
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	33.23	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2138.667	46.44	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2579.733	46.28	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5741.600	45.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6964.360	63.30	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14729.040	45.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

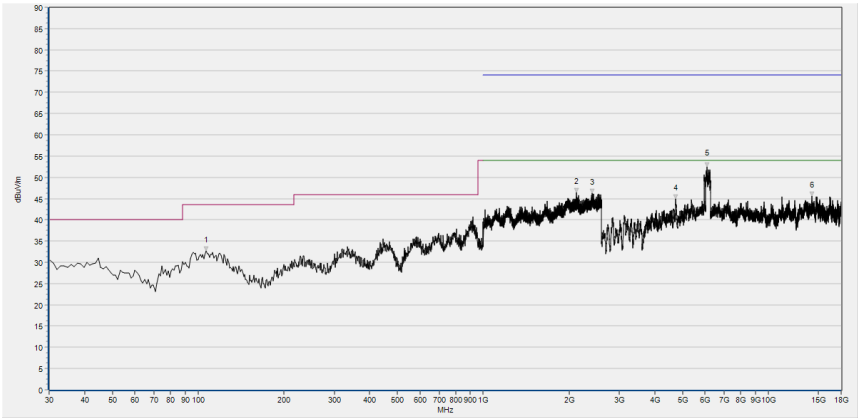
(Antenna Vertical, 30MHz to 18GHz)

11BE320-6105_Puncturing 40M@2



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
110.510	34.08	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1963.733	45.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2429.867	46.21	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4734.440	46.02	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6172.800	50.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14371.760	45.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

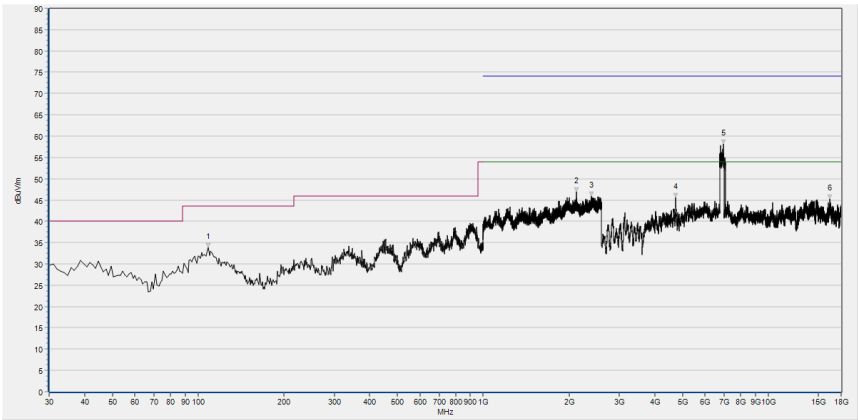
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
106.630	32.64	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2121.067	46.42	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2408.000	46.24	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4734.440	44.91	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6089.640	52.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14190.040	45.62	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

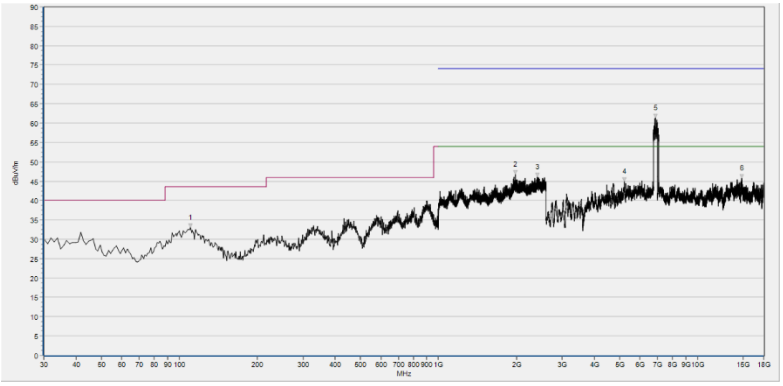
(Antenna Vertical, 30MHz to 18GHz)

11BE320-6905_Puncturing 40M@7



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	33.86	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2121.600	46.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2395.200	45.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4728.280	45.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6964.360	58.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
16460.000	45.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
110.510	33.09	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1980.800	46.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2412.800	46.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5208.760	44.99	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6878.120	61.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14775.240	45.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

——— END OF REPORT ———