Appendix B: Test Results

APPENDIX B: TEST RESULTS 1

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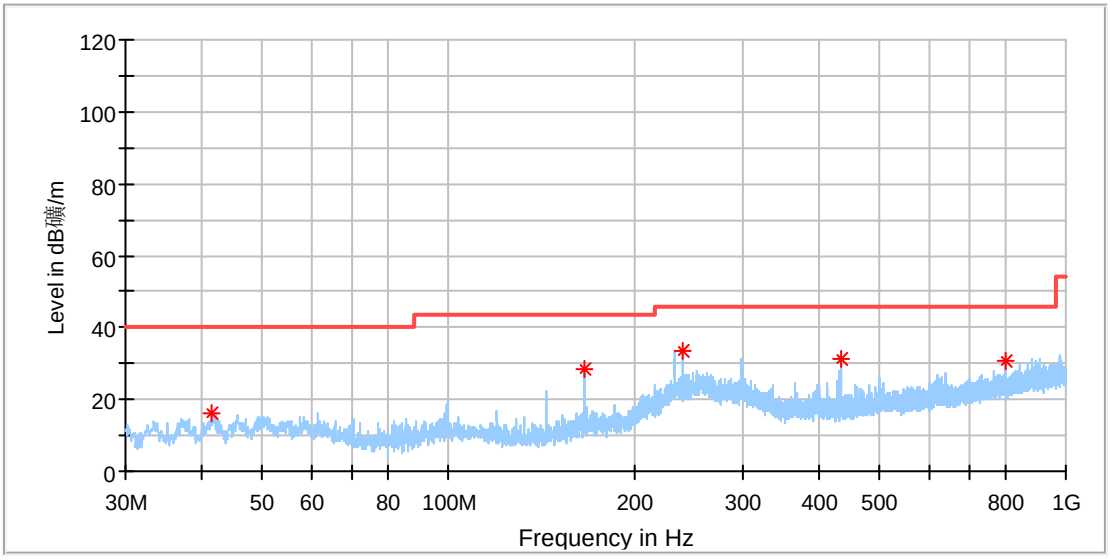
Note: The testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz to 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix B.1: Test Results of Field strength of fundamental & harmonics

30MHz - 1GHz

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

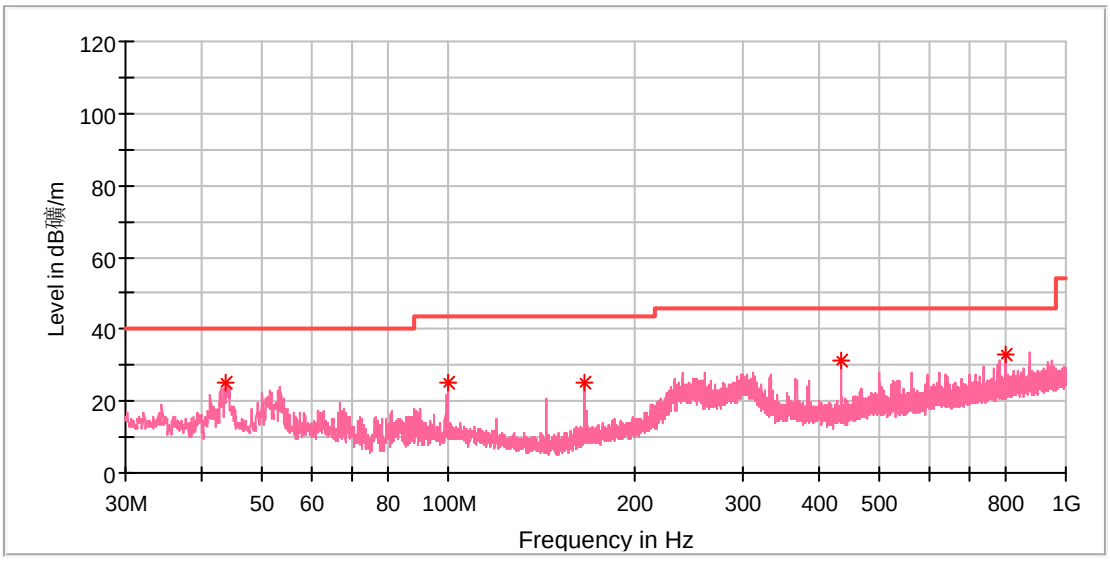


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.446000	16.11	40.00	23.89	100.0	H	3.0	-19.7
166.285000	28.19	43.50	15.31	100.0	H	152.0	-21.4
240.005000	33.42	46.00	12.58	100.0	H	244.0	-17.7
432.016500	31.38	46.00	14.62	100.0	H	25.0	-13.3
798.288500	30.55	46.00	15.45	100.0	H	219.0	-6.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

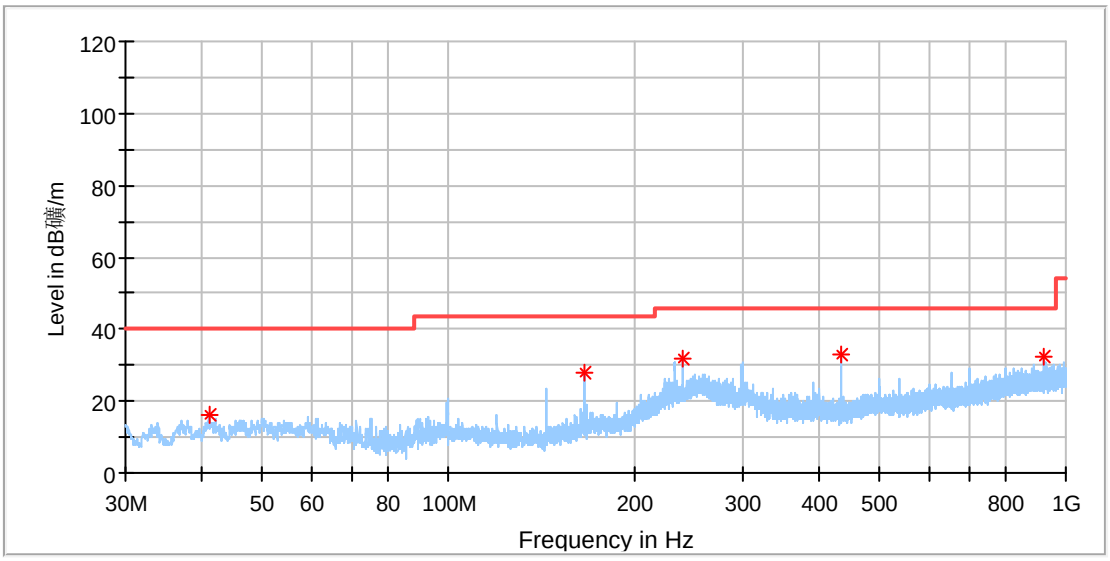


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
43.725500	25.01	40.00	14.99	100.0	V	195.0	-19.1
99.743000	25.03	43.50	18.47	100.0	V	231.0	-19.0
165.945500	25.17	43.50	18.33	100.0	V	260.0	-21.4
432.016500	31.22	46.00	14.78	100.0	V	278.0	-13.3
796.639500	32.95	46.00	13.05	100.0	V	270.0	-6.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

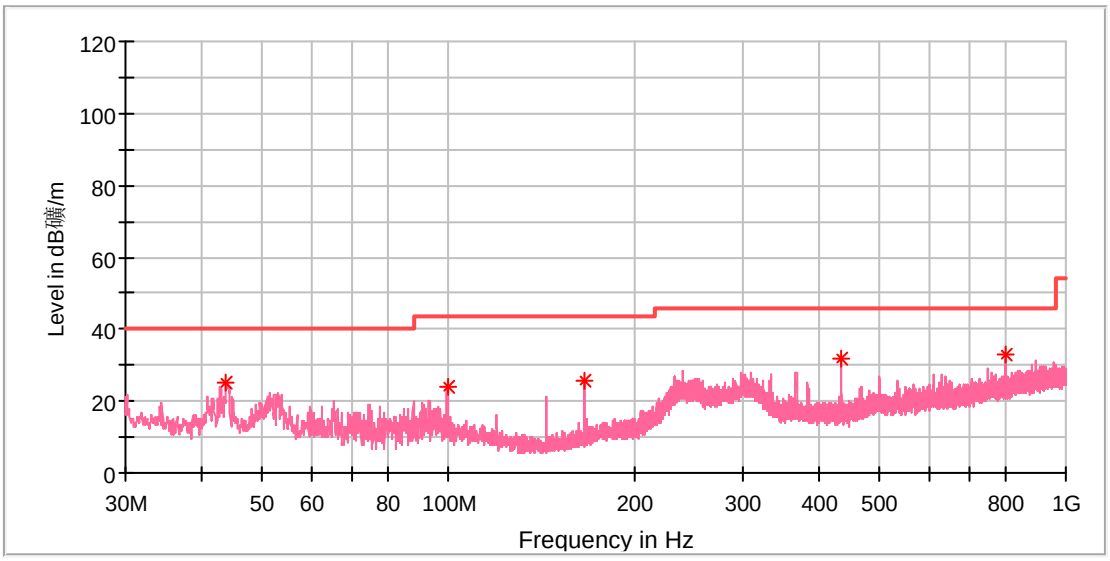


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.009500	16.02	40.00	23.98	100.0	H	260.0	-19.8
165.994000	27.88	43.50	15.62	100.0	H	134.0	-21.4
240.005000	32.07	46.00	13.93	100.0	H	239.0	-17.7
432.016500	32.69	46.00	13.31	100.0	H	20.0	-13.3
924.146000	32.55	46.00	13.45	100.0	H	212.0	-4.8

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



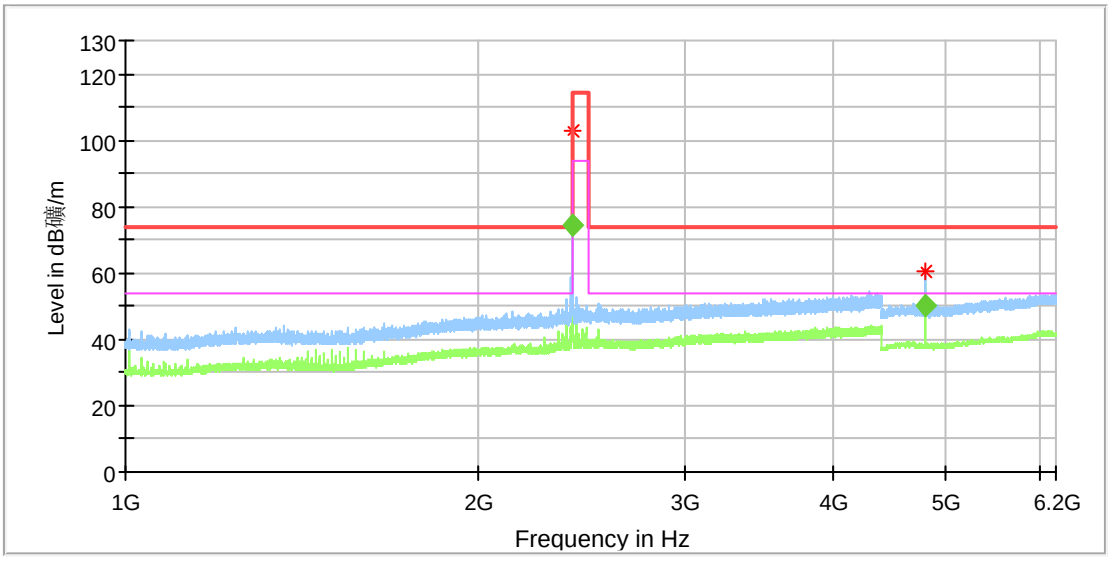
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
43.677000	25.35	40.00	14.65	100.0	V	327.0	-19.1
99.646000	23.73	43.50	19.77	100.0	V	251.0	-19.1
165.945500	25.71	43.50	17.79	100.0	V	237.0	-21.4
432.016500	31.82	46.00	14.18	100.0	V	272.0	-13.3
796.688000	33.09	46.00	12.91	100.0	V	251.0	-6.4

1GHz - 18GHz
Note: The highest waveform in the figure is 2.4GHz Fundamental.

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

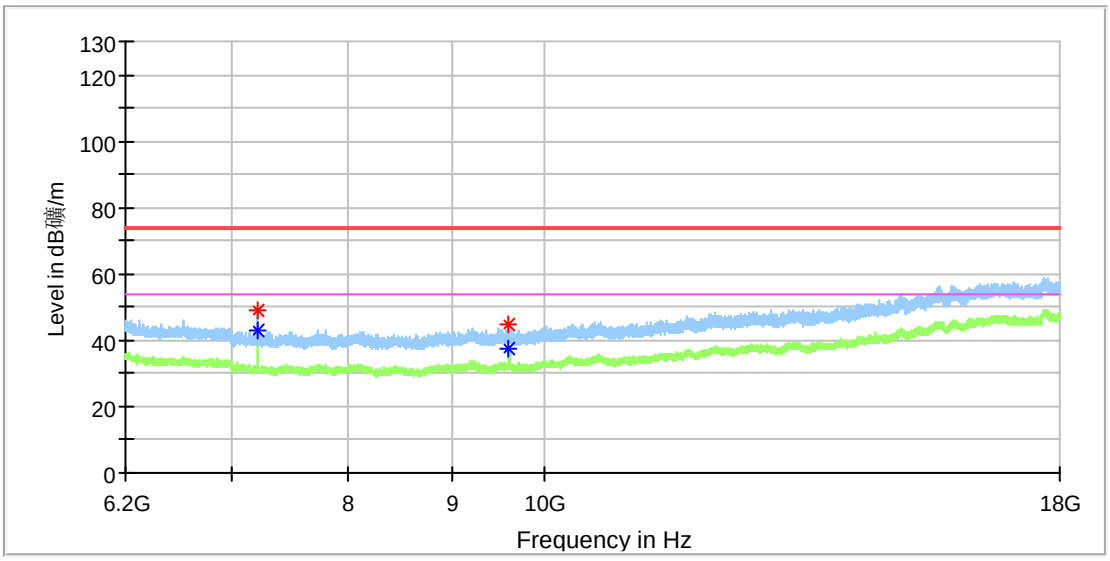
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2401.820000	102.89	---	114.00	11.11	100.0	H	203.0	7.0
4803.500000	60.34	---	74.00	13.66	100.0	H	216.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2402.000500	74.42	94.00	19.58	100.0	H	203.0	7.0
4803.883333	50.18	54.00	3.82	100.0	H	216.0	11.8

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

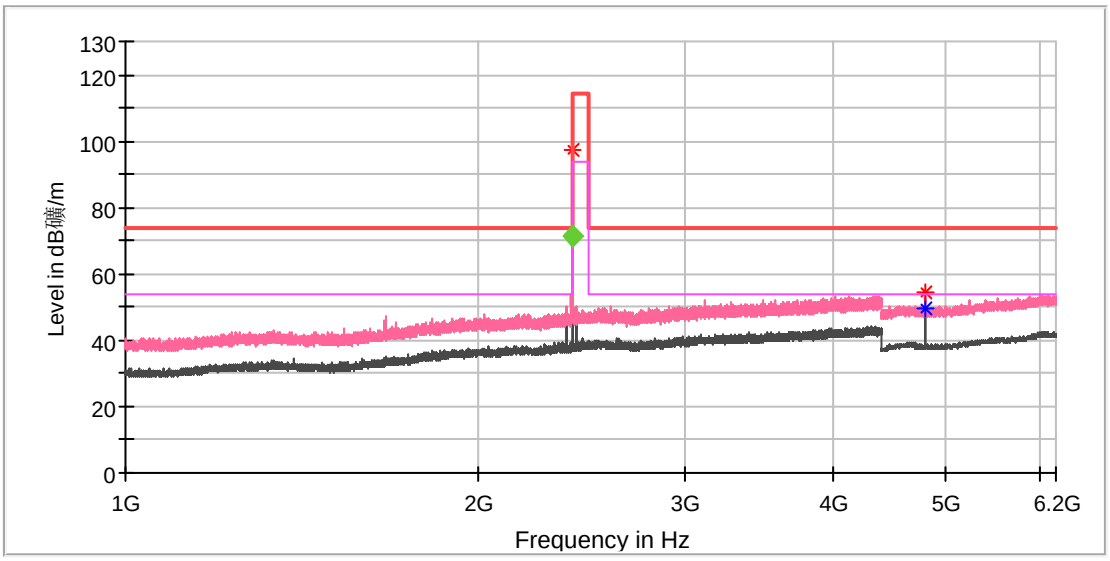


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7205.950000	48.91	---	74.00	25.09	100.0	H	108.0	8.8
7206.441667	---	42.82	54.00	11.18	100.0	H	86.0	8.8
9606.758333	44.78	---	74.00	29.22	100.0	H	170.0	10.4
9607.250000	---	37.42	54.00	16.58	100.0	H	170.0	10.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

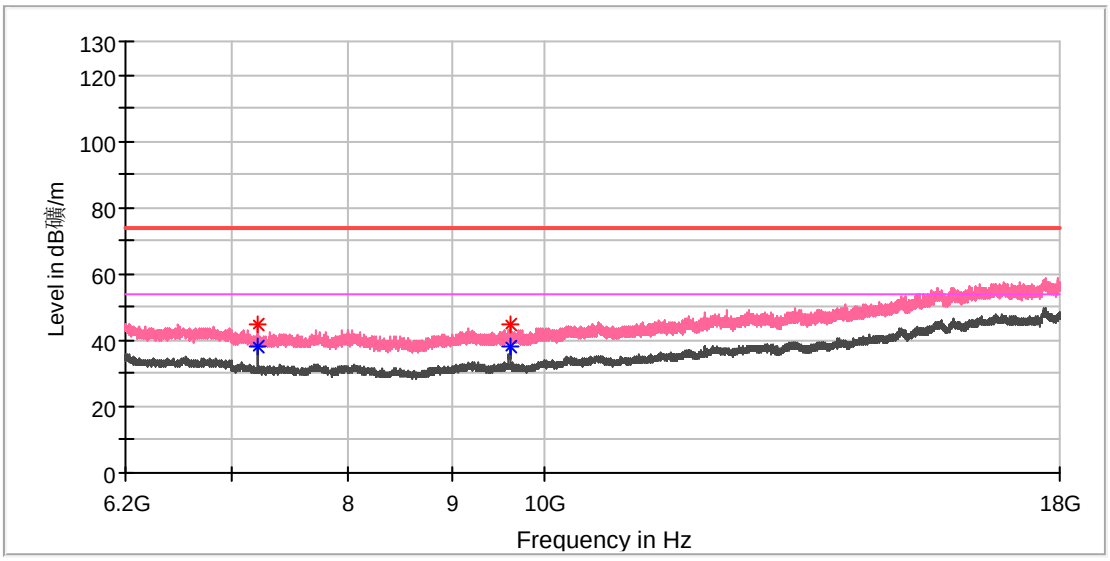
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2401.820000	97.36	---	114.00	16.64	100.0	V	170.0	7.0
4804.000000	54.27	---	74.00	19.73	100.0	V	202.0	11.8
4804.000000	---	49.74	54.00	4.26	100.0	V	202.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2402.025500	71.62	94.00	22.38	100.0	V	170.0	7.0

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

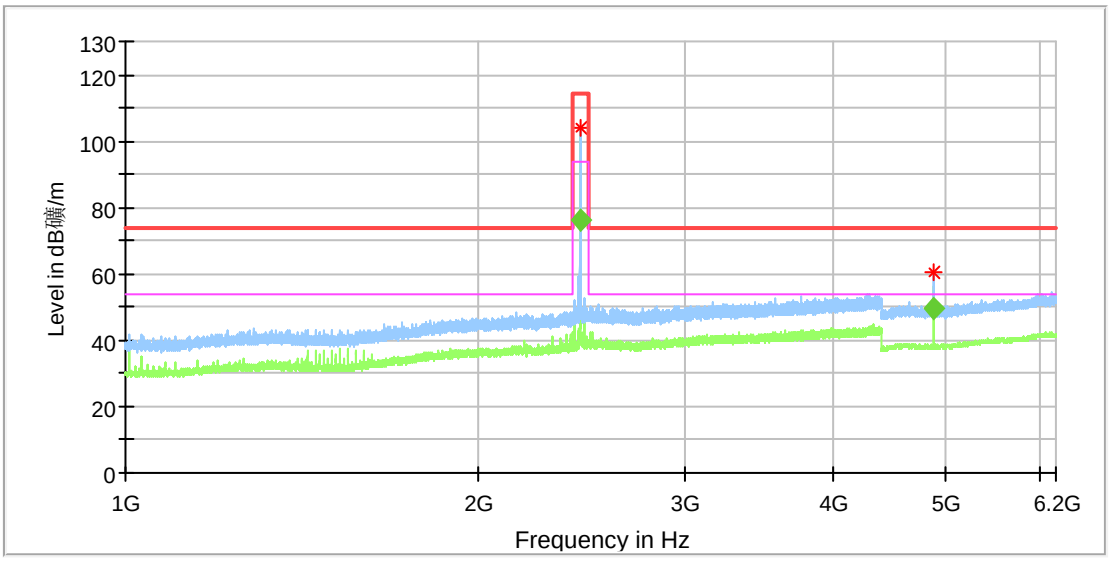


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7204.966667	44.87	---	74.00	29.13	100.0	V	139.0	8.8
7205.950000	---	38.19	54.00	15.81	100.0	V	139.0	8.8
9608.725000	---	38.24	54.00	15.76	100.0	V	206.0	10.4
9608.725000	44.67	---	74.00	29.33	100.0	V	206.0	10.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2440MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

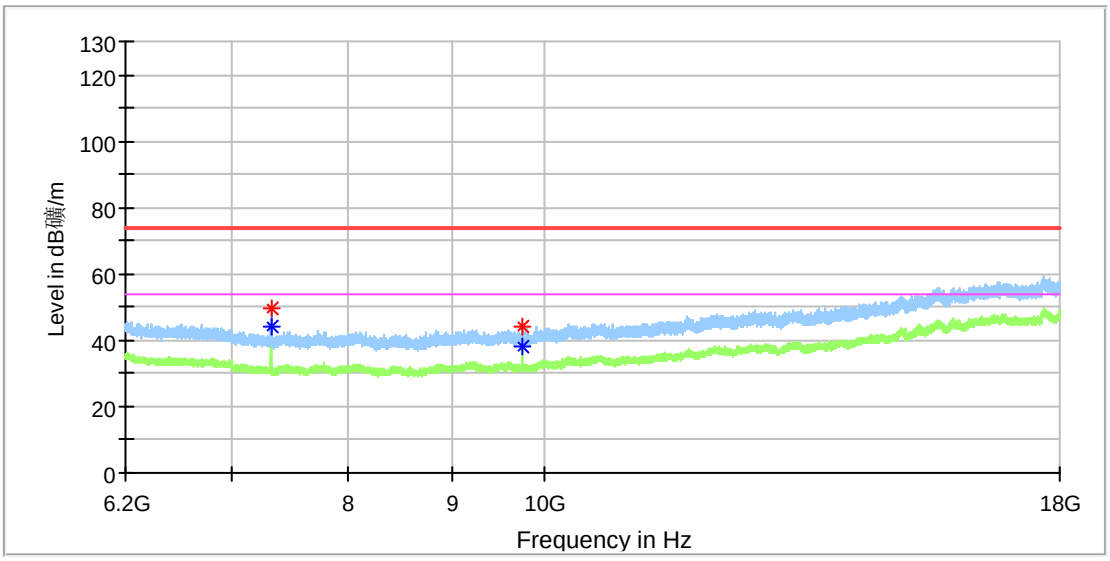
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2439.560000	103.99	---	114.00	10.01	100.0	H	204.0	7.4
4879.500000	60.51	---	74.00	13.49	100.0	H	195.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2439.992500	76.14	94.00	17.86	100.0	H	204.0	7.4
4879.802778	49.52	54.00	4.48	100.0	H	195.0	11.8

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2440MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

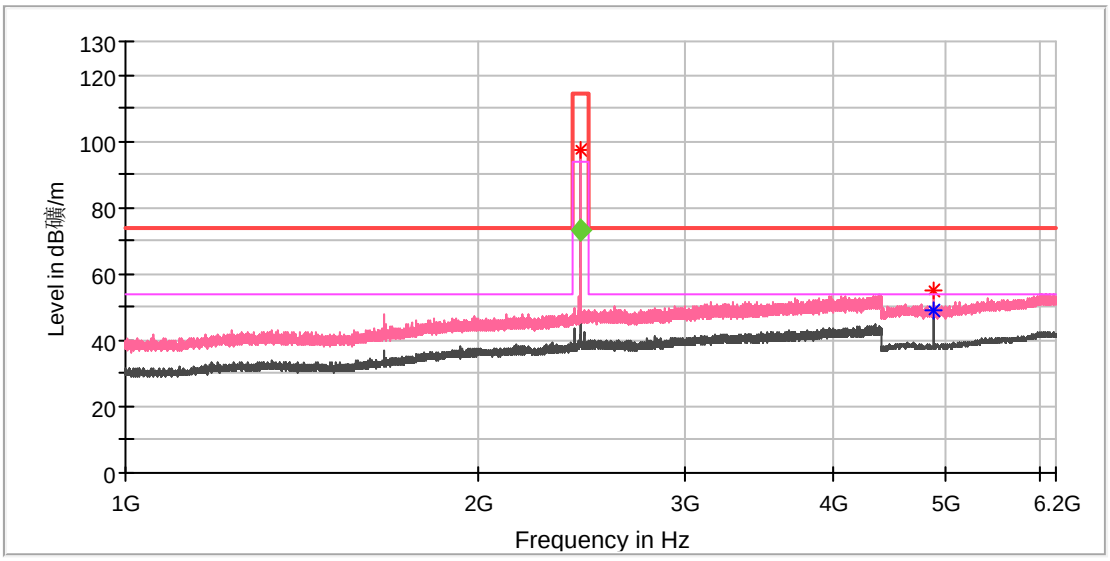


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7320.508333	49.30	---	74.00	24.70	100.0	H	118.0	8.2
7320.508333	---	44.40	54.00	9.60	100.0	H	118.0	8.2
9758.683333	---	38.29	54.00	15.71	100.0	H	138.0	10.4
9759.666667	44.33	---	74.00	29.67	100.0	H	138.0	10.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2440MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

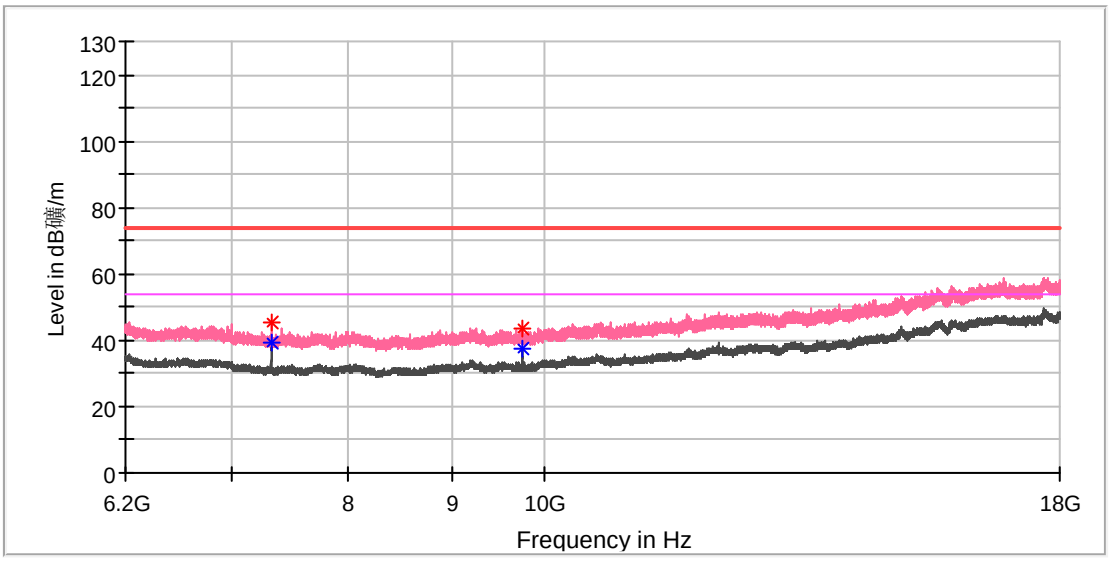
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2439.560000	97.05	---	114.00	16.95	100.0	V	138.0	7.4
4880.000000	54.85	---	74.00	19.15	100.0	V	200.0	11.8
4880.000000	---	48.77	54.00	5.23	100.0	V	200.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2440.079500	73.45	94.00	20.55	100.0	V	138.0	7.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2440MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

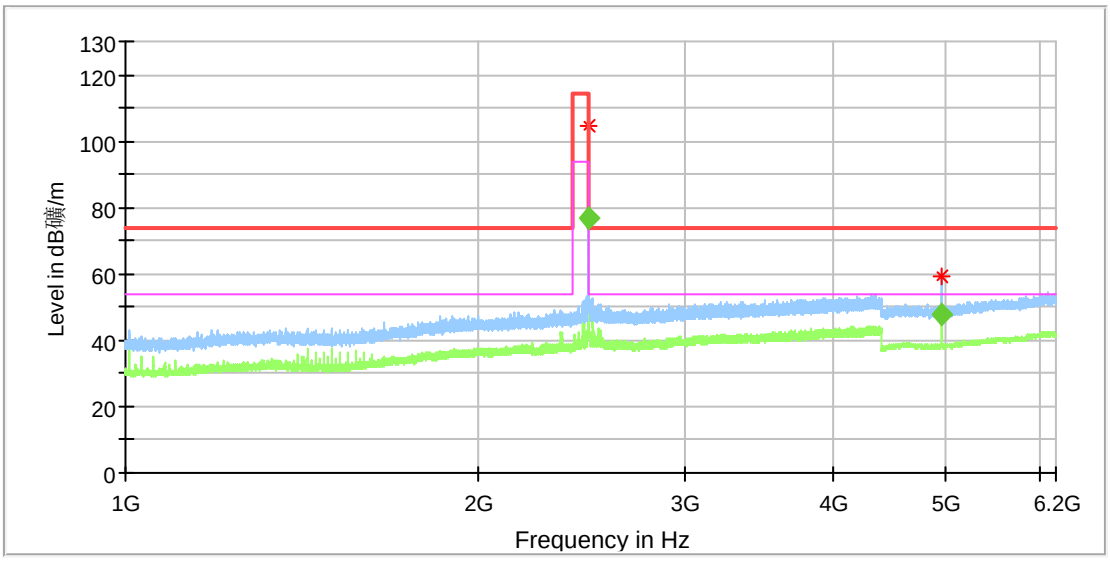


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7320.508333	---	39.02	54.00	14.98	100.0	V	47.0	8.2
7320.508333	45.07	---	74.00	28.93	100.0	V	47.0	8.2
9758.683333	43.65	---	74.00	30.35	100.0	V	286.0	10.4
9759.175000	---	37.28	54.00	16.72	100.0	V	286.0	10.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

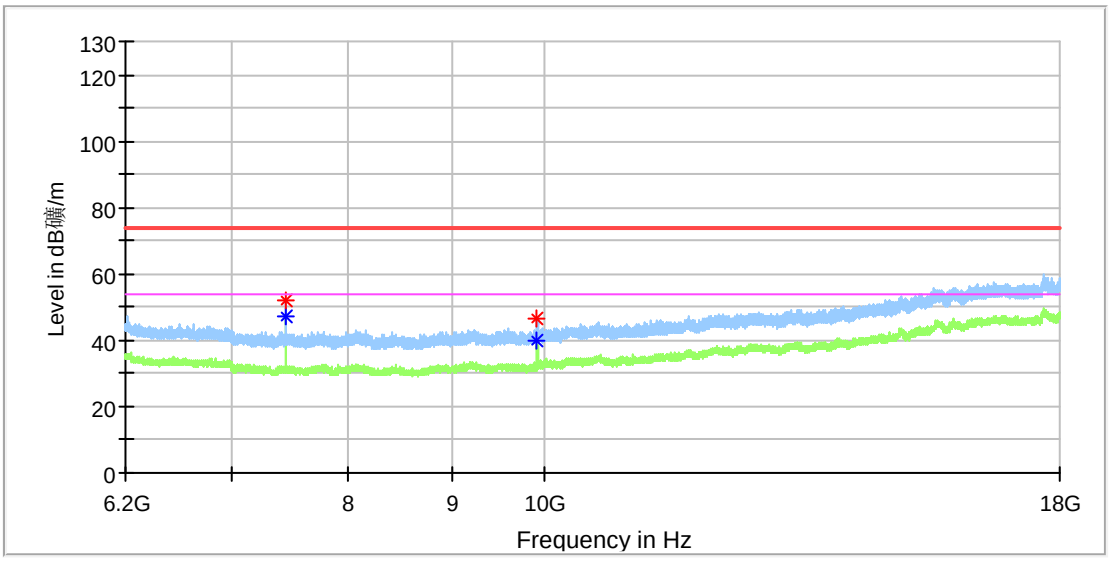
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2480.020000	104.82	---	114.00	9.18	100.0	H	205.0	7.4
4959.500000	59.45	---	74.00	14.55	100.0	H	12.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2480.110000	76.50	94.00	17.50	100.0	H	205.0	7.4
4959.802778	47.99	54.00	6.01	100.0	H	0.0	11.8

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

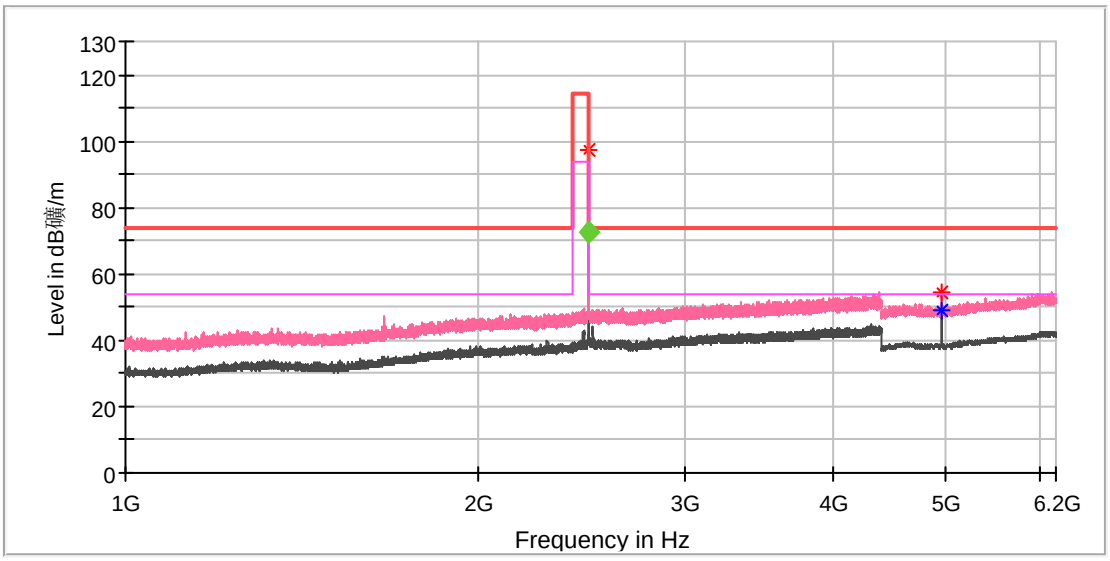


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.491667	---	47.14	54.00	6.86	100.0	H	90.0	8.4
7440.475000	51.91	---	74.00	22.09	100.0	H	90.0	8.4
9919.458333	46.49	---	74.00	27.51	100.0	H	261.0	10.8
9919.950000	---	39.66	54.00	14.34	100.0	H	174.0	10.8

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

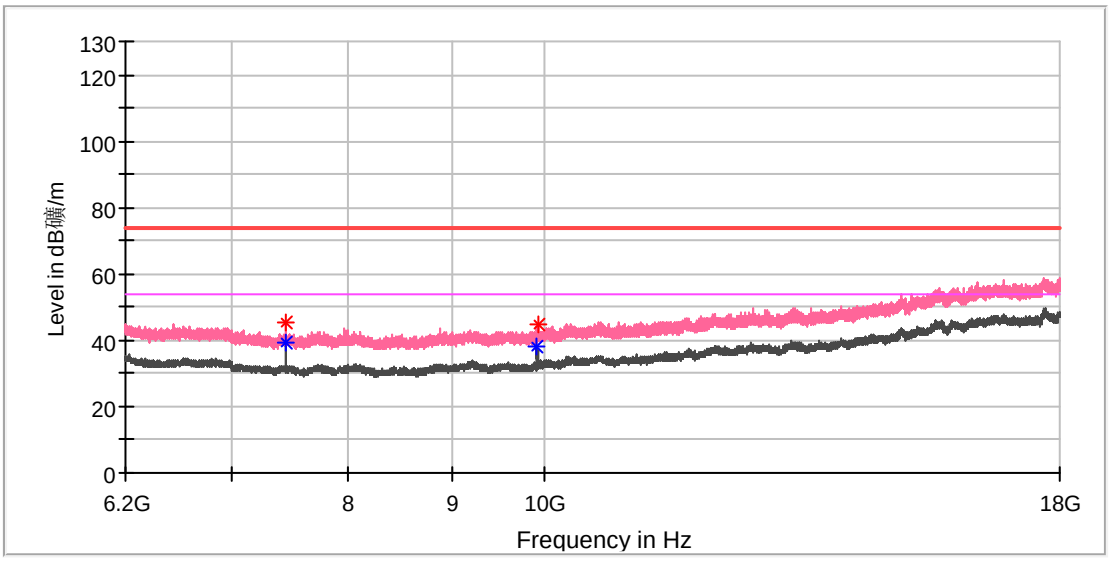
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2479.680000	97.18	---	114.00	16.82	100.0	V	152.0	7.4
4960.000000	---	49.05	54.00	4.95	100.0	V	174.0	11.8
4960.500000	54.46	---	74.00	19.54	100.0	V	197.0	11.8

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2479.977500	72.74	94.00	21.26	100.0	V	152.0	7.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

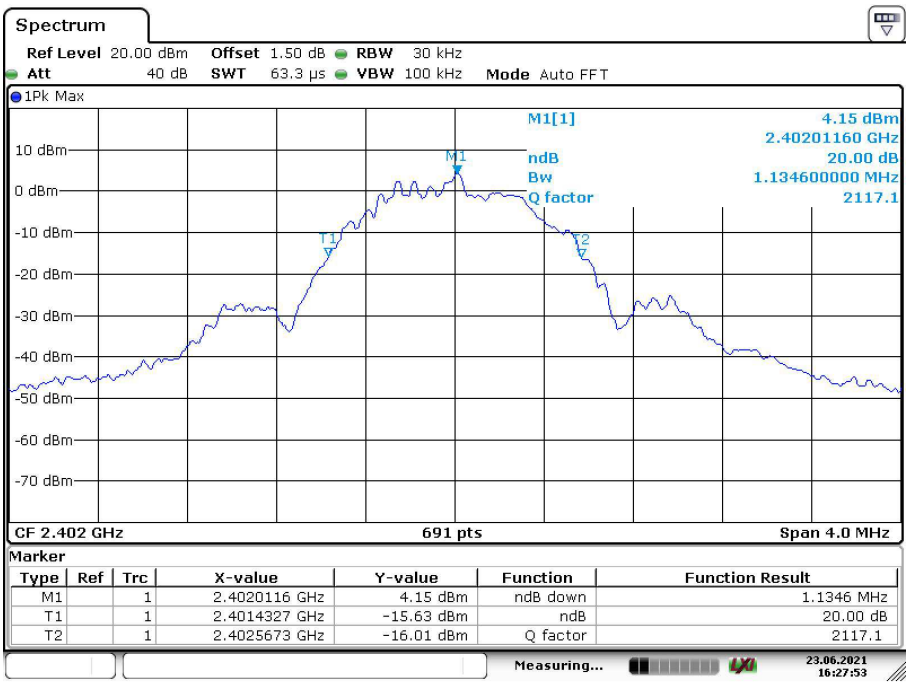


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7439.000000	---	39.20	54.00	14.80	100.0	V	141.0	8.4
7440.475000	45.24	---	74.00	28.76	100.0	V	161.0	8.4
9918.966667	---	37.80	54.00	16.20	100.0	V	317.0	10.8
9920.933333	44.95	---	74.00	29.05	100.0	V	317.0	10.8

Appendix B.2: Test Results of 20dB Bandwidth

2402MHz



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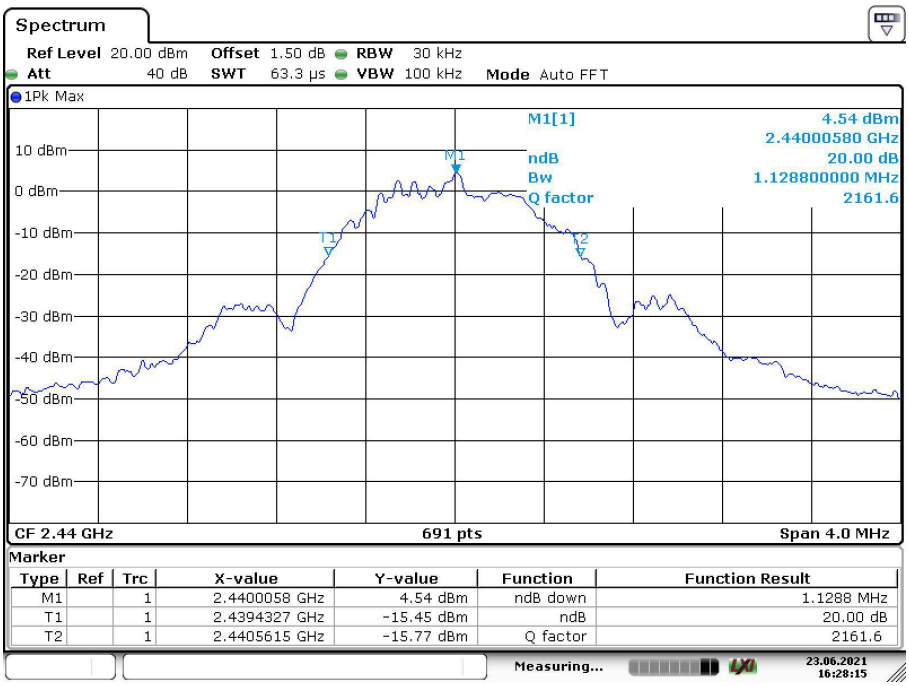
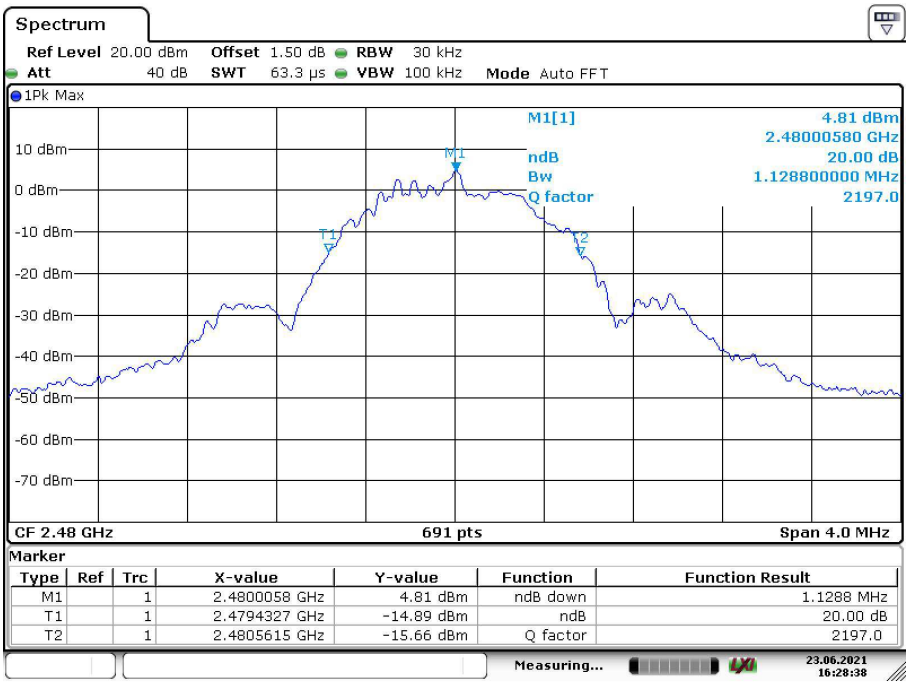
2440MHz



Date: 23.JUN.2021 16:28:15

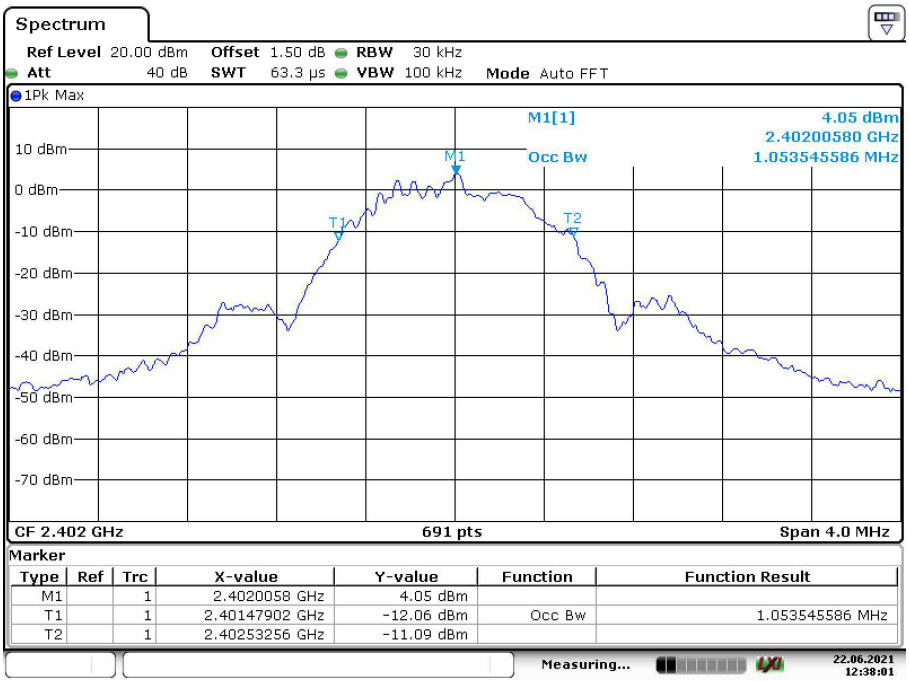
2480MHz



Date: 23.JUN.2021 16:28:38

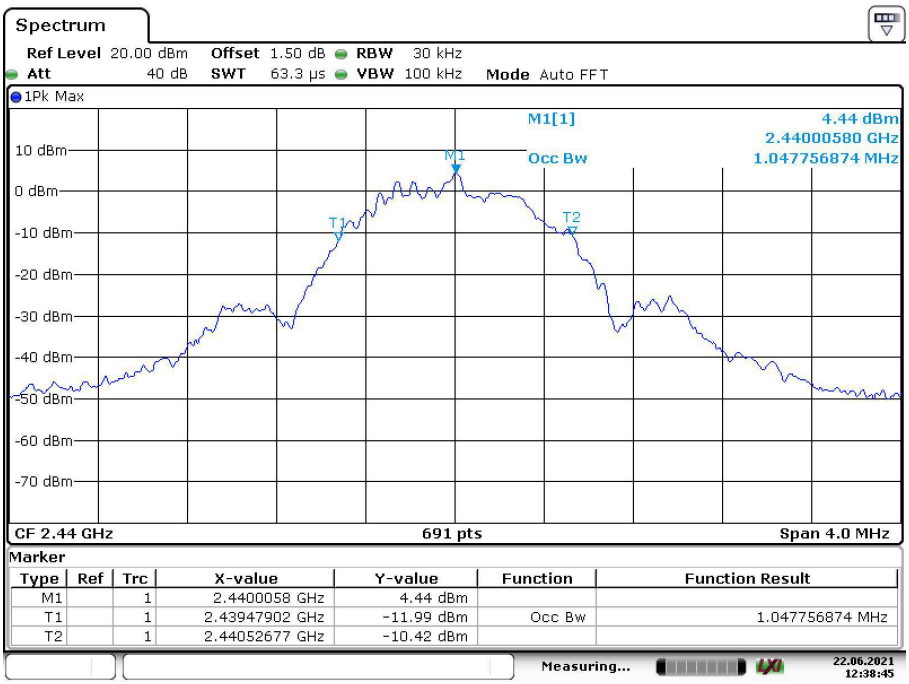
Appendix B.3: Test Results of 99% Bandwidth

2402MHz



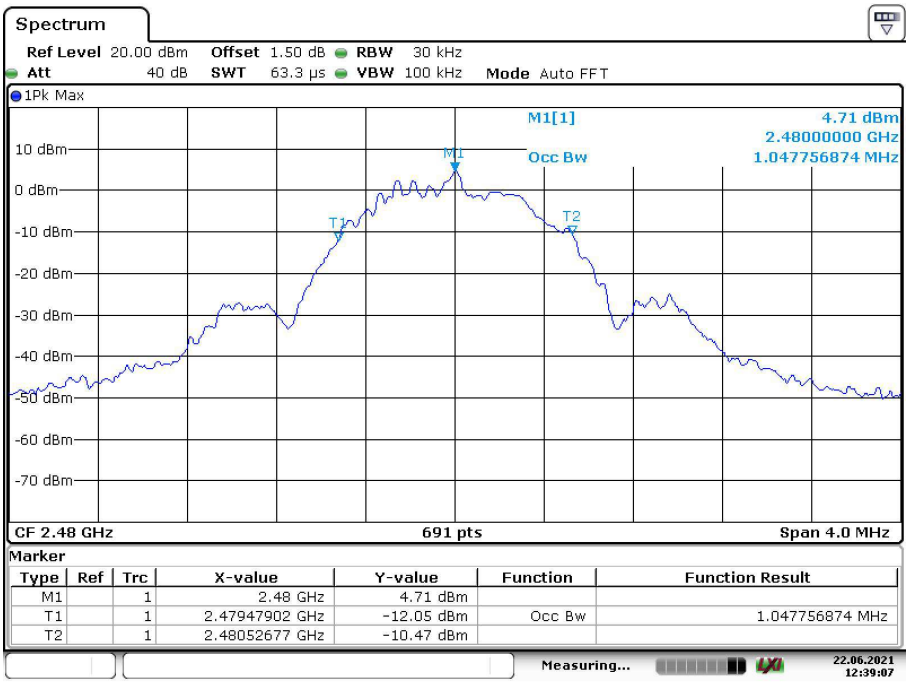
Date: 22.JUN.2021 12:38:01

2440MHz



Date: 22.JUN.2021 12:38:45

2480MHz

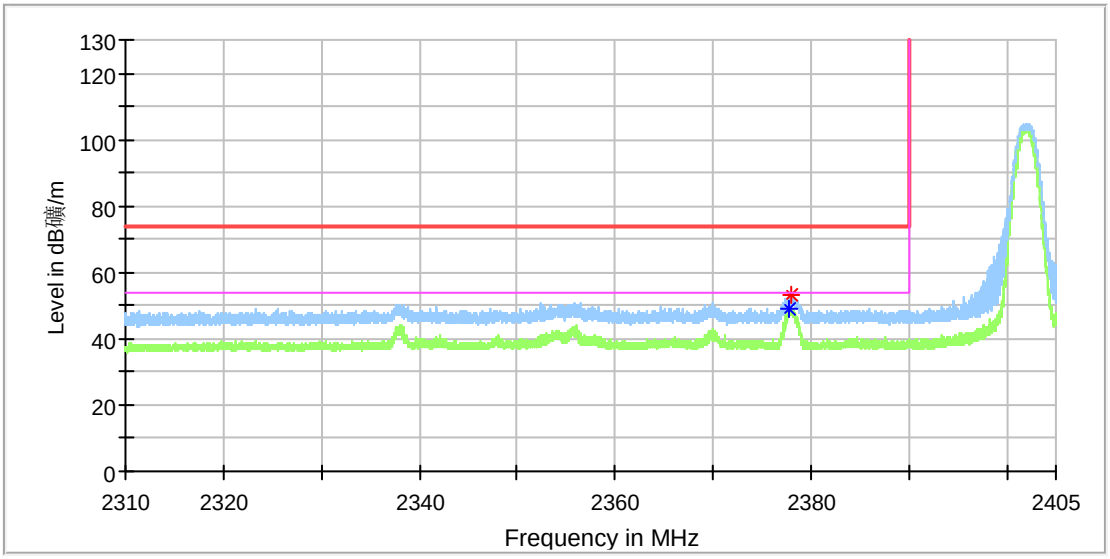


Date: 22.JUN.2021 12:39:07

Appendix B.4: Test Results of Band Edge

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

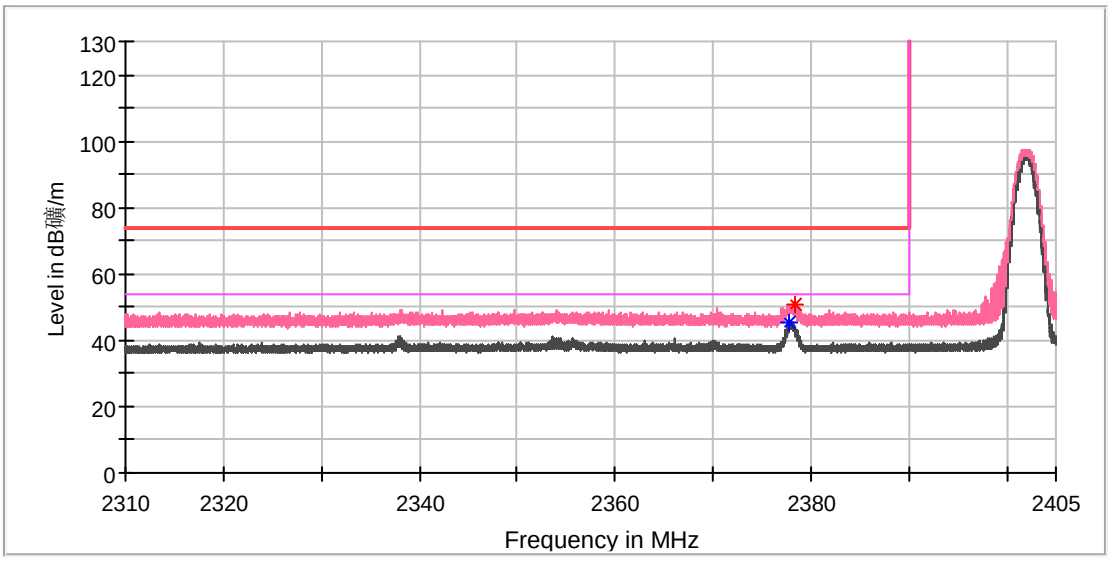


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2377.855750	---	48.91	54.00	5.09	100.0	H	40.0	6.9
2377.947750	52.93	---	74.00	21.07	100.0	H	40.0	6.9

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2402MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

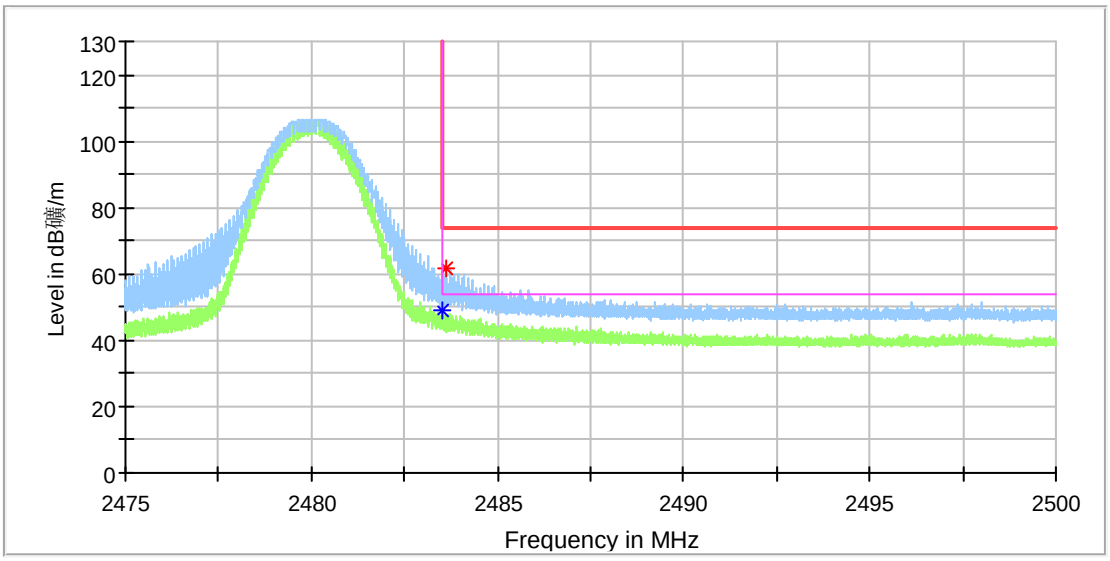


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2377.855750	---	45.46	54.00	8.54	100.0	V	331.0	6.9
2378.373250	50.95	---	74.00	23.05	100.0	V	331.0	6.9

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

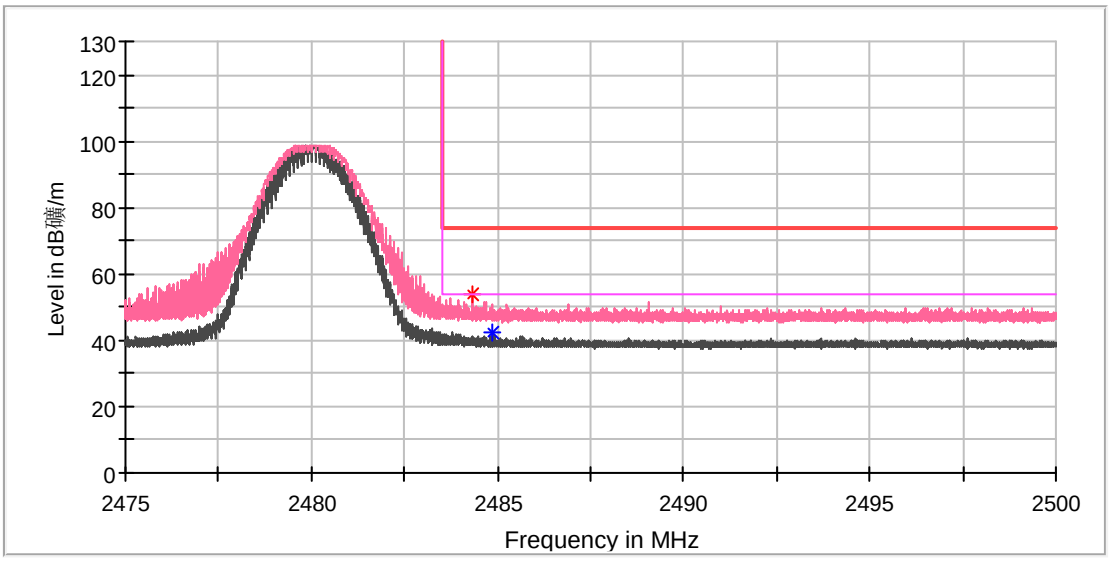


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.522500	---	48.76	54.00	5.24	100.0	H	218.0	7.4
2483.625000	61.69	---	74.00	12.31	100.0	H	218.0	7.4

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Model:	RG95
Test Mode:	2480MHz
Test Voltage::	USB operated
Remark:	Temp 23 Humi:51%
Test Standard:	FCC 15.249
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



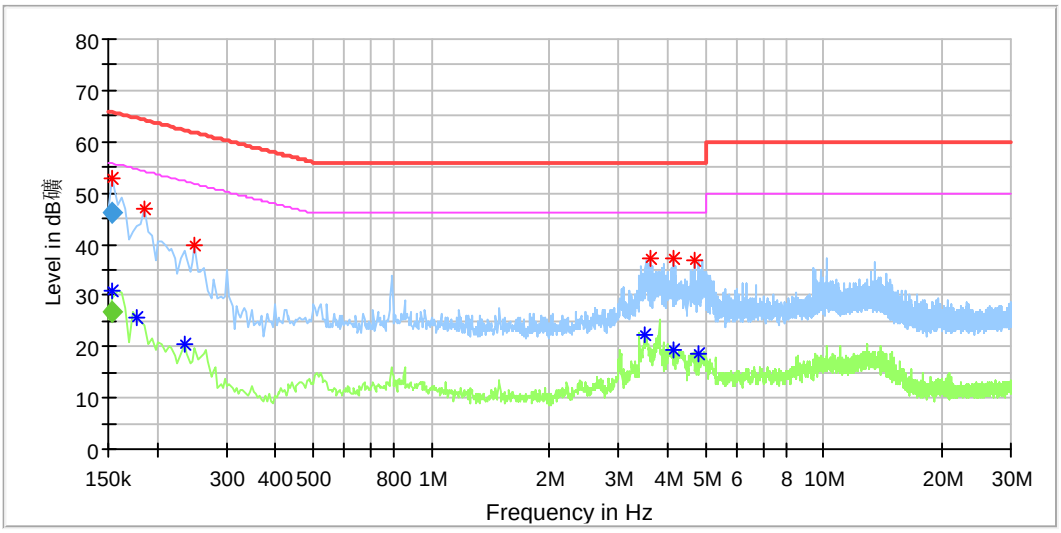
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2484.327500	53.52	---	74.00	20.48	100.0	V	131.0	7.4
2484.885000	---	42.35	54.00	11.65	100.0	V	131.0	7.4

Appendix B.5: Test Results of Conducted Emission on AC Mains

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Order Number:	168321870
Model:	RG95
Test Mode:	On (2.4GHz)
Test Voltage:	120Vac, 60Hz
Test By:	Jianhua Lu
Review By:	Gary Chen
Remark:	SR1



Critical_Freqs

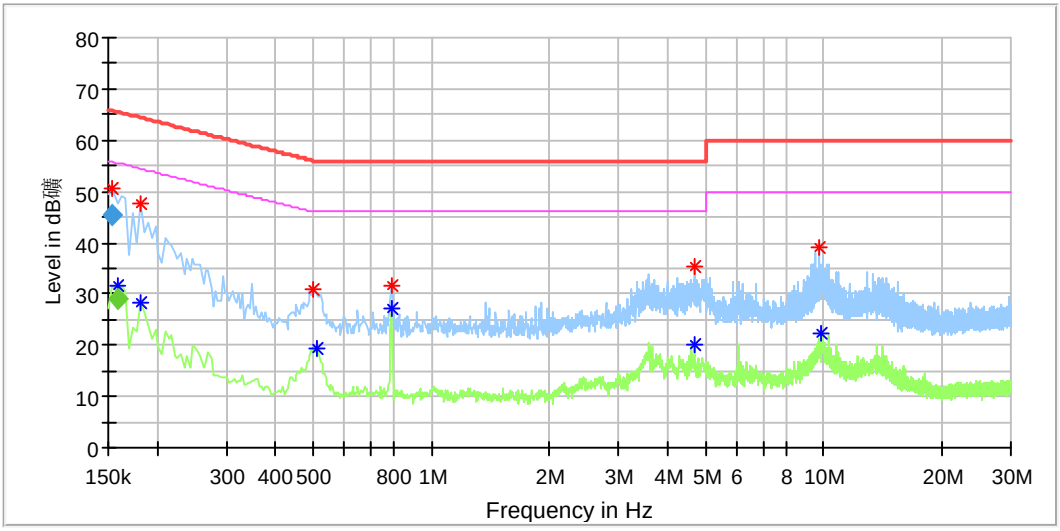
Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.153500	---	30.77	55.57	24.80	L1	9.9
0.154000	52.96	---	65.78	12.82	L1	9.9
0.178000	---	25.72	54.58	28.86	L1	9.9
0.186000	46.95	---	64.21	17.26	L1	9.9
0.234000	---	20.52	52.31	31.78	L1	9.9
0.250000	39.69	---	61.76	22.07	L1	9.9
3.518000	---	22.21	46.00	23.79	L1	10.2
3.622000	37.21	---	56.00	18.79	L1	10.2
4.122000	---	19.38	46.00	26.62	L1	10.2
4.122000	37.12	---	56.00	18.88	L1	10.2
4.698000	36.92	---	56.00	19.08	L1	10.2
4.778000	---	18.60	46.00	27.40	L1	10.2

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.153500	---	26.86	55.81	28.95	200.0	9.000	L1	9.9
0.154000	46.29	---	65.78	19.49	200.0	9.000	L1	9.9

EUT Information

EUT Name:	Lenovo USB-A Unified Pairing Receiver
Order Number:	168321870
Model:	RG95
Test Mode:	On (2.4GHz)
Test Voltage:	120Vac, 60Hz
Test By:	Jianhua Lu
Review By:	Gary Chen
Remark:	SR1



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	50.55	---	65.78	15.23	N	9.8
0.158000	---	31.77	55.78	24.01	N	9.8
0.182000	---	28.37	54.39	26.02	N	9.8
0.182000	47.74	---	64.39	16.65	N	9.8
0.502000	30.86	---	56.00	25.14	N	9.8
0.510000	---	19.34	46.00	26.66	N	9.8
0.790000	---	27.35	46.00	18.65	N	9.8
0.790000	31.69	---	56.00	24.31	N	9.8
4.670000	---	20.22	46.00	25.78	N	9.9
4.670000	35.42	---	56.00	20.58	N	9.9
9.770000	39.14	---	60.00	20.86	N	10.0
9.894000	---	22.21	50.00	27.79	N	10.0

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154000	45.47	---	65.78	20.31	200.0	9.000	N	9.8
0.158000	---	29.07	55.57	26.50	200.0	9.000	N	9.8