



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109

RADIATED EMISSIONS BELOW 1 GHz

TEST SETUP PHOTOS (Site 3)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz



Radiated Below 1 GHz - Site 3 - Front



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
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Radiated Below 1 GHz - Site 3 - Back



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
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Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109

RADIATED EMISSIONS BELOW 1 GHz

TEST SETUP PHOTOS (Site 2)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz



Radiated Below 1 GHz - Site 2 - Front



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz



Radiated Below 1 GHz - Site 2 - Back



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109 DATA

RADIATED EMISSIONS BELOW 1 GHz

WIRELESS UNIT - AC POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 65 deg. F; 22% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wireless unit
Comment: Continuous Print and Cut
Date: 02-25-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

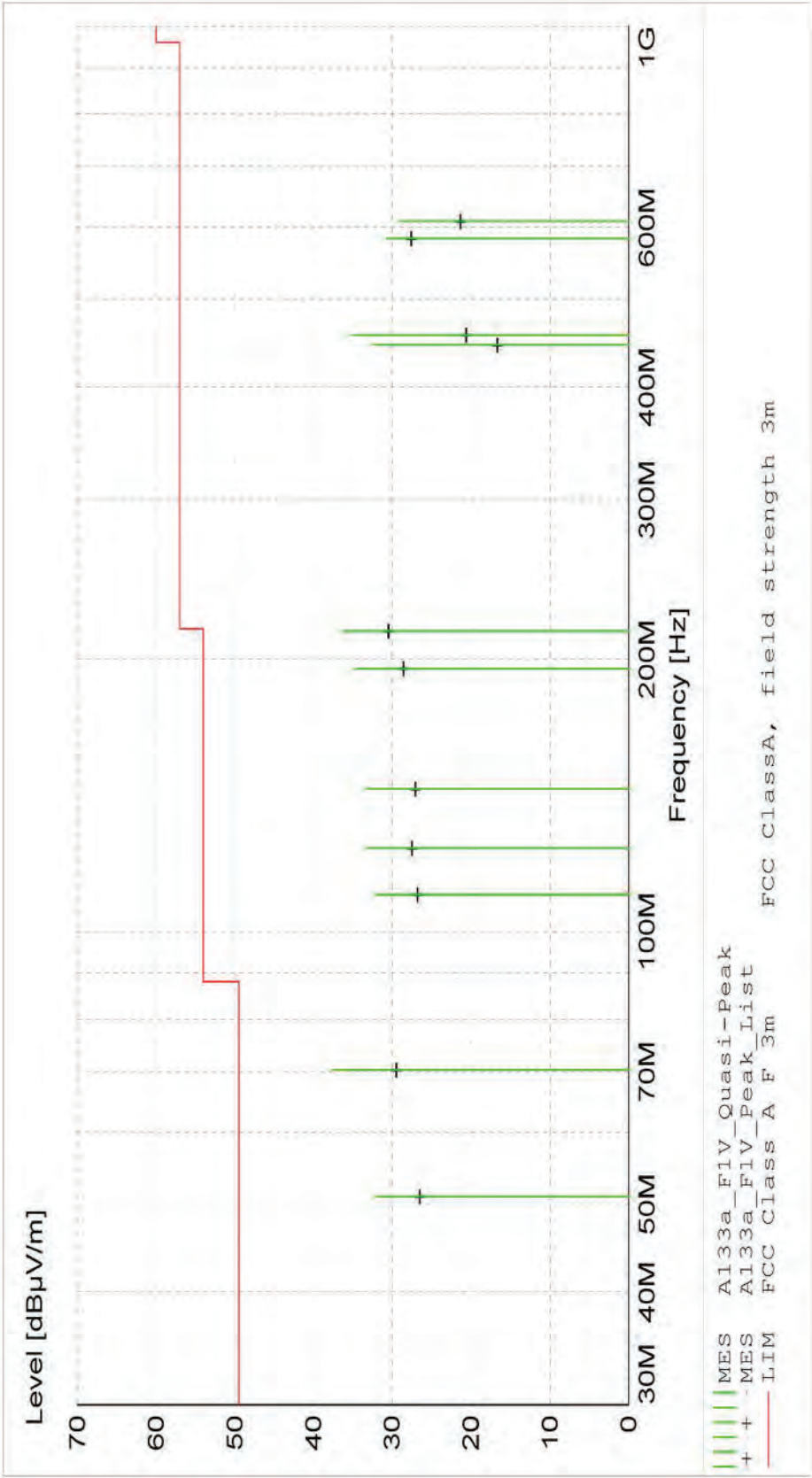
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: $\text{Total Level (dB}\mu\text{V/m)} = \text{Level (dB}\mu\text{V)} + \text{System Loss (dB)} + \text{Antenna Factor (dB/m)}$
24.6 = 35.51 + (-22.1)
 $\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector



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MEASUREMENT RESULT: "A133a_F1V_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
2/25/2022 12:00PM										
70.305000	53.05	7.44	-23.0	37.5	49.5	12.0	1.00	225	QUASI-PEAK	None
50.970000	44.43	11.40	-23.7	32.1	49.5	17.4	1.00	135	QUASI-PEAK	None
214.670000	46.11	11.50	-21.4	36.2	54.0	17.8	1.00	270	QUASI-PEAK	None
195.120000	39.04	17.30	-21.6	34.8	54.0	19.2	1.00	100	QUASI-PEAK	None
143.730000	43.37	12.00	-22.0	33.4	54.0	20.6	1.00	180	QUASI-PEAK	None
123.570000	42.81	12.80	-22.3	33.3	54.0	20.7	1.00	20	QUASI-PEAK	None
109.815000	42.12	12.38	-22.4	32.1	54.0	21.9	1.00	45	QUASI-PEAK	None
456.020000	37.59	17.10	-19.6	35.1	57.0	21.9	2.16	120	QUASI-PEAK	None
444.635000	35.23	16.80	-19.6	32.4	57.0	24.6	1.00	160	QUASI-PEAK	None
582.620000	30.55	19.30	-19.1	30.7	57.0	26.3	1.00	160	QUASI-PEAK	None
609.110000	28.52	19.61	-19.0	29.2	57.0	27.8	1.00	180	QUASI-PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 65 deg. F; 22% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wireless unit
Comment: Continuous Print and Cut
Date: 02-25-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

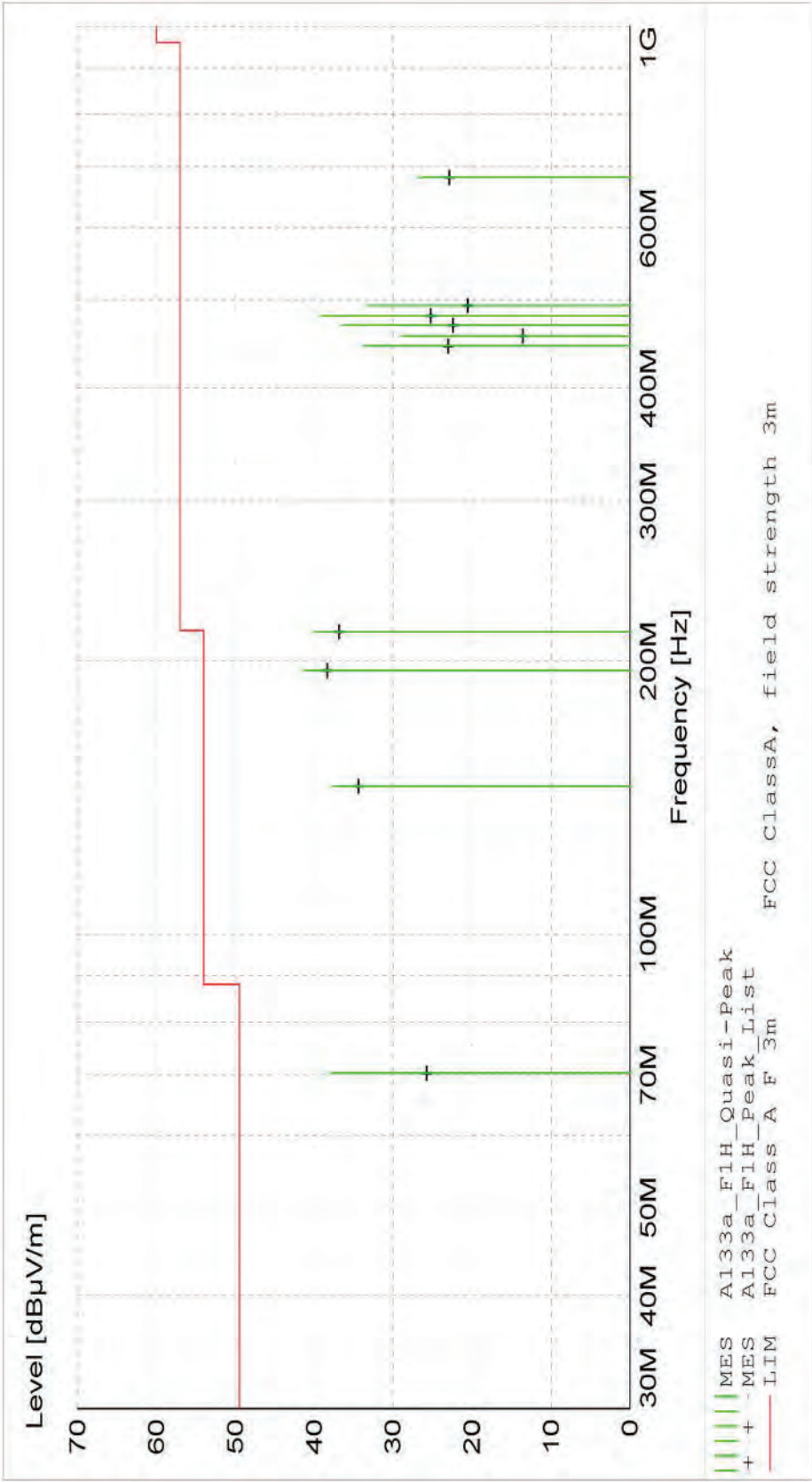
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dB/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector



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Test: Section 15.109 Radiated Emissions Below 1 GHz

MEASUREMENT RESULT: "A133a_F1H_Final"

Frequency MHz	Level dBμV	Antenna Factor dBμV/m	System Loss dB	Total Level dBμV/m	Limit dBμV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
2/25/2022 11:41AM										
70.260000	53.49	7.45	-23.0	37.9	49.5	11.6	2.67	160	QUASI-PEAK	None
195.075000	45.56	17.30	-21.6	41.3	54.0	12.7	1.64	180	QUASI-PEAK	None
215.240000	49.87	11.50	-21.4	40.0	54.0	14.0	1.68	180	QUASI-PEAK	None
145.545000	47.58	12.05	-21.9	37.7	54.0	16.3	2.28	195	QUASI-PEAK	None
480.005000	41.00	17.70	-19.5	39.2	57.0	17.8	1.86	160	QUASI-PEAK	None
468.600000	38.58	17.40	-19.6	36.4	57.0	20.6	1.97	170	QUASI-PEAK	None
444.600000	36.61	16.80	-19.6	33.8	57.0	23.2	2.06	170	QUASI-PEAK	None
492.600000	34.78	17.90	-19.5	33.2	57.0	23.8	1.69	180	QUASI-PEAK	None
456.195000	31.39	17.10	-19.6	28.9	57.0	28.1	1.86	165	QUASI-PEAK	None
681.935000	24.12	21.10	-18.5	26.8	57.0	30.2	1.12	150	QUASI-PEAK	None



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FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109 DATA

RADIATED EMISSIONS BELOW 1 GHz

WIRELESS UNIT - BATTERY POWERED



Company: Brady Corporation
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Project Number: 12133
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FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg. F; 23% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: Battery powered; Unit with wireless
Comment: Continuous Print and Cut
Date: 03-01-2022

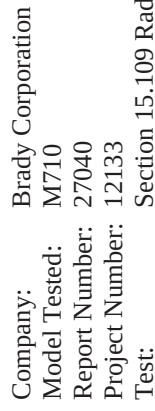
TEXT: "Vert 3 meters"

Short Description: Test Set-up

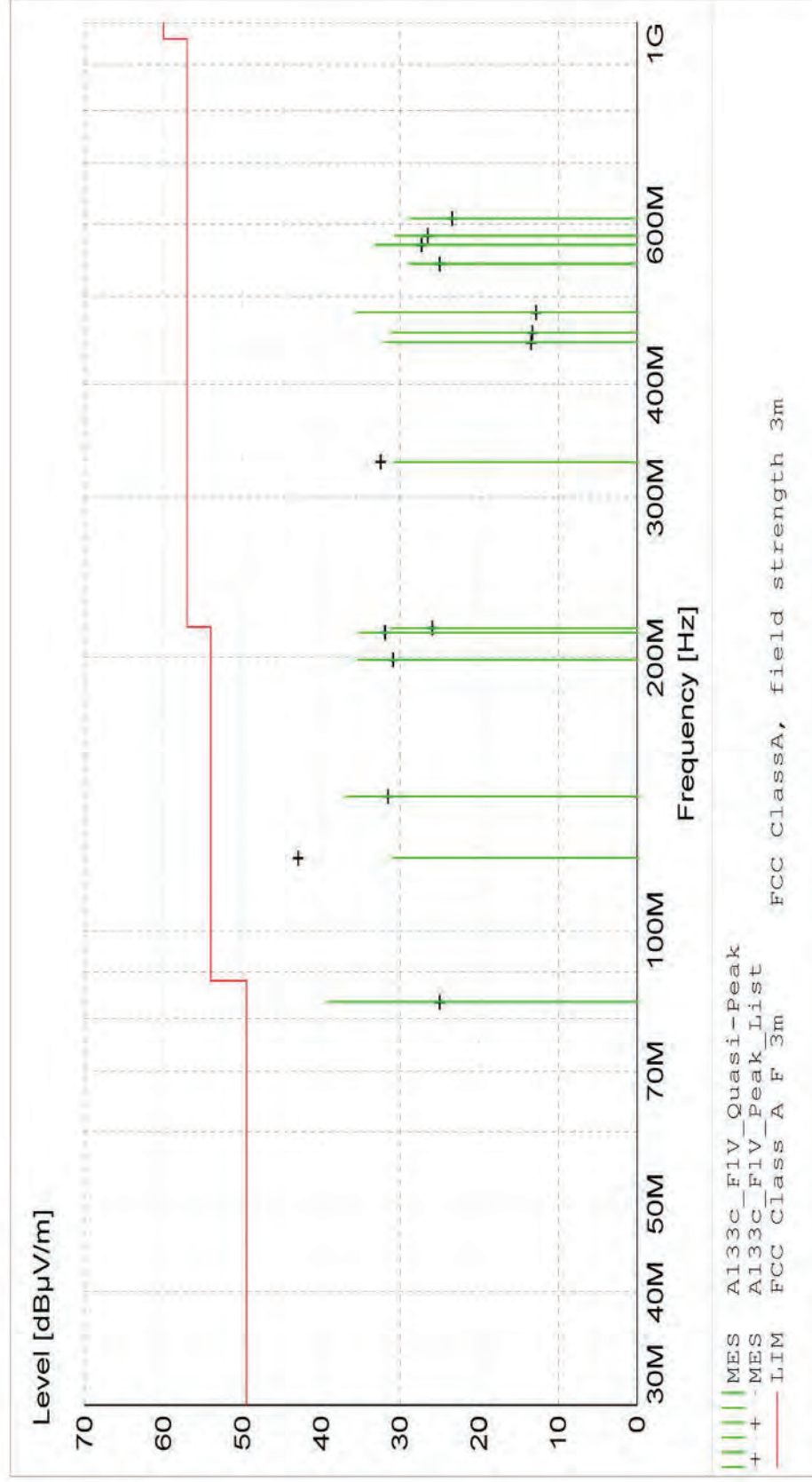
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dB/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector



Section 15.109 Radiated Emissions Below 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

MEASUREMENT RESULT: "A133c_FIV_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
83.390000	54.83	6.82	-22.4	39.2	49.5	10.3	1.00	135	QUASI-PEAK	None
140.505000	46.78	12.10	-22.0	36.9	54.0	17.1	1.00	15	QUASI-PEAK	None
198.825000	39.55	17.30	-21.5	35.3	54.0	18.7	1.00	315	QUASI-PEAK	None
212.960000	44.91	11.50	-21.4	35.0	54.0	19.0	1.00	90	QUASI-PEAK	None
480.005000	37.52	17.70	-19.5	35.7	57.0	21.3	1.90	45	QUASI-PEAK	None
215.375000	41.03	11.50	-21.4	31.2	54.0	22.8	1.00	75	QUASI-PEAK	None
120.210000	40.37	12.90	-22.3	31.0	54.0	23.0	1.00	45	QUASI-PEAK	None
569.375000	33.32	19.00	-19.2	33.2	57.0	23.8	1.22	180	QUASI-PEAK	None
444.620000	34.80	16.80	-19.6	32.0	57.0	25.0	1.07	150	QUASI-PEAK	None
455.975000	33.62	17.10	-19.6	31.1	57.0	25.9	2.04	0	QUASI-PEAK	None
328.400000	36.01	14.90	-20.2	30.7	57.0	26.3	1.00	160	QUASI-PEAK	None
582.620000	30.41	19.30	-19.1	30.6	57.0	26.4	1.16	195	QUASI-PEAK	None
542.885000	29.82	18.50	-19.3	29.0	57.0	28.0	1.22	180	QUASI-PEAK	None
609.095000	28.13	19.61	-19.0	28.8	57.0	28.2	1.00	170	QUASI-PEAK	None



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FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg. F; 23% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: Battery powered; Unit with wireless
Comment: Continuous Print and Cut
Date: 03-01-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

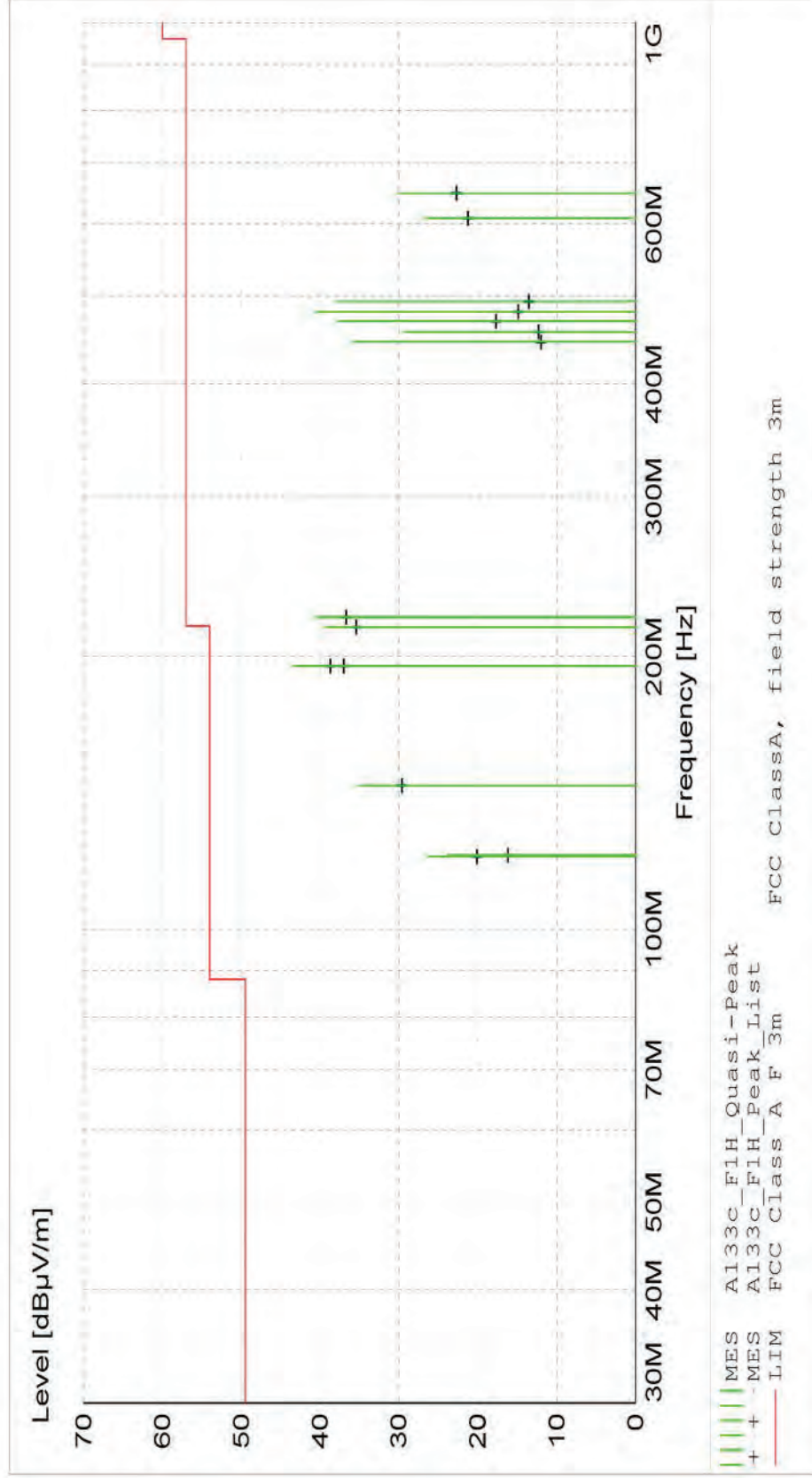
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dB/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
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MEASUREMENT RESULT: "A133c_F1H_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
195.150000	47.59	17.30	-21.6	43.3	54.0	10.7	1.86	180	QUASI-PEAK	None
195.135000	46.93	17.30	-21.6	42.7	54.0	11.3	1.68	225	QUASI-PEAK	None
215.450000	49.16	11.50	-21.4	39.3	54.0	14.7	1.67	165	QUASI-PEAK	None
480.005000	42.42	17.70	-19.5	40.6	57.0	16.4	1.95	110	QUASI-PEAK	None
220.940000	50.36	11.50	-21.3	40.5	57.0	16.5	1.56	165	QUASI-PEAK	None
144.030000	45.09	12.00	-22.0	35.1	54.0	18.9	2.42	35	QUASI-PEAK	None
492.575000	39.67	17.90	-19.5	38.1	57.0	18.9	1.97	270	QUASI-PEAK	None
468.530000	40.01	17.40	-19.6	37.8	57.0	19.2	1.92	90	QUASI-PEAK	None
444.605000	38.72	16.80	-19.6	35.9	57.0	21.1	2.34	90	QUASI-PEAK	None
648.830000	28.35	20.30	-18.6	30.1	57.0	26.9	1.67	158	QUASI-PEAK	None
120.270000	35.82	12.90	-22.3	26.4	54.0	27.6	1.71	160	QUASI-PEAK	None
456.140000	31.86	17.10	-19.6	29.3	57.0	27.7	1.00	300	QUASI-PEAK	None
120.660000	33.13	12.90	-22.3	23.7	54.0	30.3	1.66	225	QUASI-PEAK	None
609.110000	25.95	19.61	-19.0	26.6	57.0	30.4	1.68	265	QUASI-PEAK	None



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FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109 DATA

RADIATED EMISSIONS BELOW 1 GHz

NON-WIRELESS UNIT - AC POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 64 deg. F; 37% R.H.
Test Site: DLS OF Site 2
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-05-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

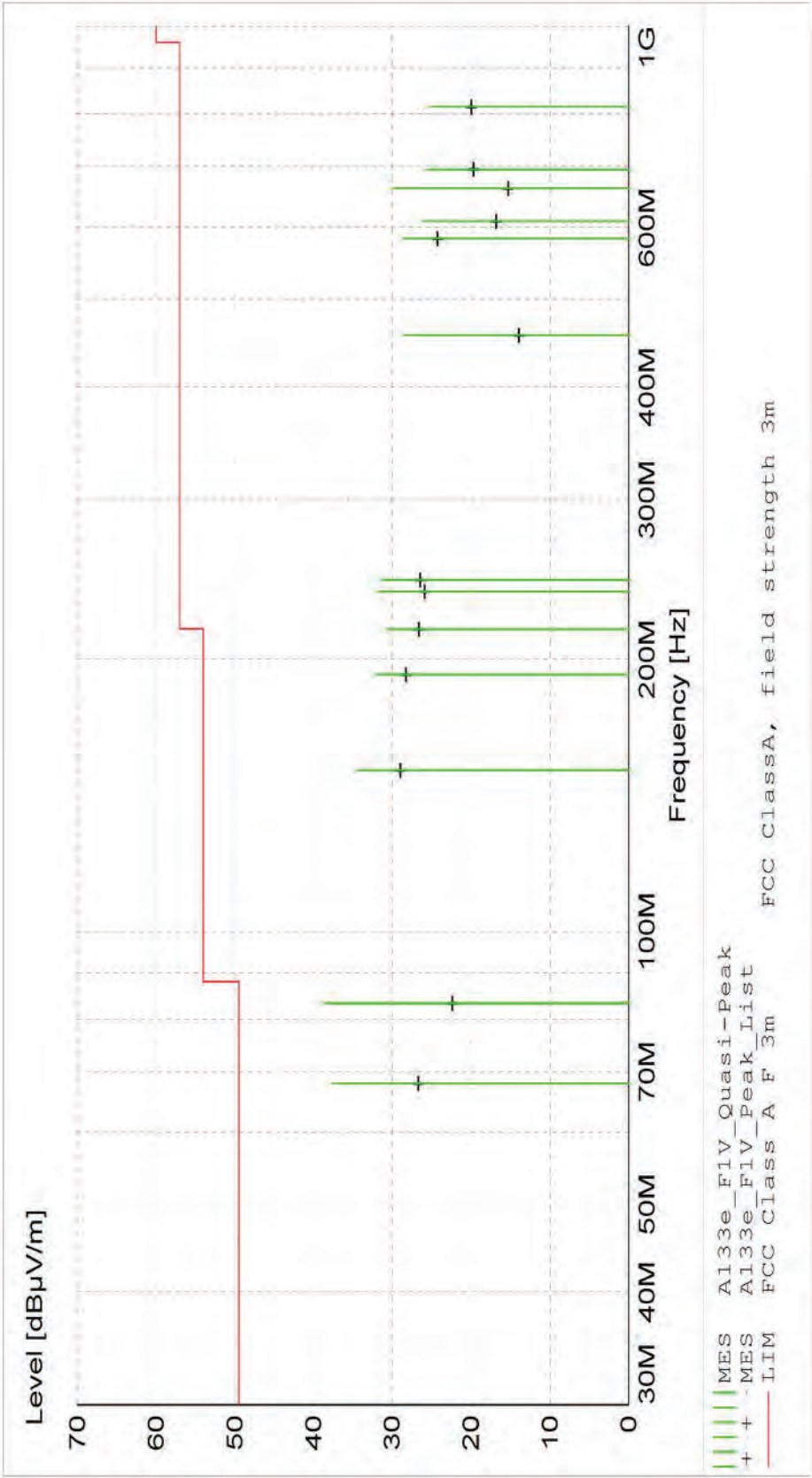
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Equations: $\text{Total Level (dBuV/m)} = \text{Level (dBuV)} + \text{System Loss (dB)} + \text{Antenna Factor (dBuV/m)}$
 $\text{Margin (dB)} = \text{Limit (dBuV/m)} - \text{Total Level (dBuV/m)}$

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector



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MEASUREMENT RESULT: "A133e_F1V_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
5/5/2022 11:26AM										
83.310000	54.75	7.10	-23.3	38.6	49.5	10.9	1.00	225	QUASI-PEAK	None
67.980000	53.24	7.81	-23.5	37.6	49.5	11.9	1.00	0	QUASI-PEAK	None
150.740000	44.43	12.54	-22.5	34.5	54.0	19.5	1.00	160	QUASI-PEAK	None
192.250000	36.75	17.40	-22.1	32.1	54.0	21.9	1.00	270	QUASI-PEAK	None
215.800000	41.76	10.80	-21.9	30.6	54.0	23.4	1.00	25	QUASI-PEAK	None
237.530000	41.75	11.70	-21.7	31.7	57.0	25.3	1.00	160	QUASI-PEAK	None
244.670000	40.70	12.27	-21.6	31.4	57.0	25.6	1.00	45	QUASI-PEAK	None
662.060000	28.57	20.31	-18.9	30.0	57.0	27.0	1.00	180	QUASI-PEAK	None
662.635000	29.49	18.60	-19.4	28.6	57.0	27.3	1.00	180	QUASI-PEAK	None
456.000000	32.21	16.50	-20.1	28.6	57.0	28.4	1.08	330	QUASI-PEAK	None
609.110000	26.46	18.90	-19.2	26.2	57.0	30.8	1.17	330	QUASI-PEAK	None
695.180000	23.04	21.20	-18.6	25.6	57.0	31.4	1.43	110	QUASI-PEAK	None
814.355000	21.63	21.40	-17.9	25.2	57.0	31.8	1.33	150	QUASI-PEAK	None



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Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 64 deg. F; 37% R.H.
Test Site: DLS OF Site 2
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-05-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

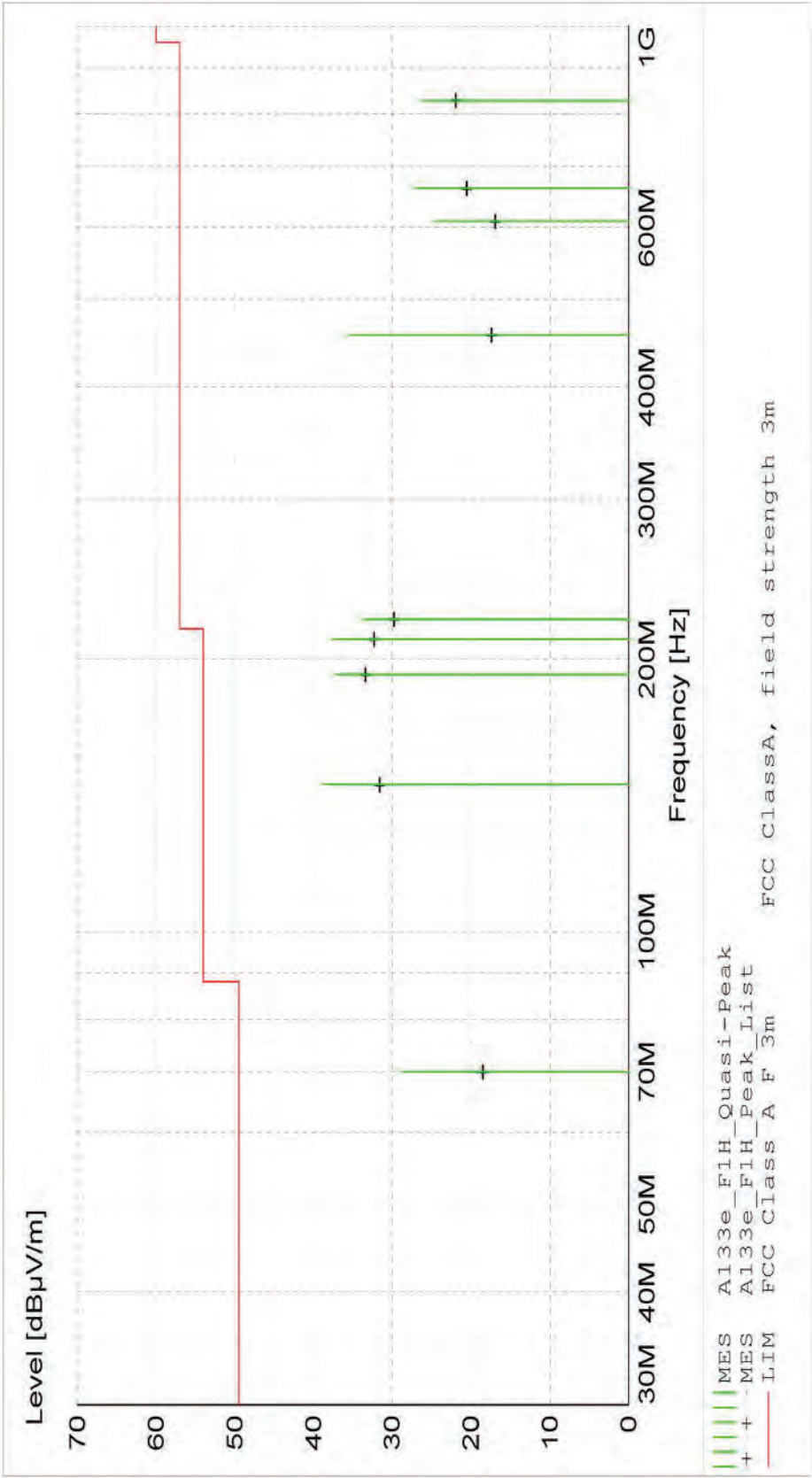
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Equations: $\text{Total Level (dBuV/m)} = \text{Level (dBuV)} + \text{System Loss (dB)} + \text{Antenna Factor (dBuV/m)}$
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Graph Markers: + Frequency marker (Level of marker not related to final level)
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MEASUREMENT RESULT: "A133e_F1H_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
145.280000	49.20	12.12	-22.6	38.7	54.0	15.3	2.26	225	QUASI-PEAK	None
210.270000	48.56	10.97	-22.0	37.6	54.0	16.4	1.45	285	QUASI-PEAK	None
192.250000	41.89	17.40	-22.1	37.2	54.0	16.8	1.65	180	QUASI-PEAK	None
70.010000	44.92	7.34	-23.5	28.8	49.5	20.7	3.15	135	QUASI-PEAK	None
456.010000	39.15	16.50	-20.1	35.5	57.0	21.5	1.99	315	QUASI-PEAK	None
221.210000	44.89	10.70	-21.9	33.7	57.0	23.3	1.53	75	QUASI-PEAK	None
662.075000	25.61	20.31	-18.9	27.0	57.0	30.0	1.43	180	QUASI-PEAK	None
827.600000	22.31	21.70	-17.8	26.2	57.0	30.8	1.13	70	QUASI-PEAK	None
609.095000	25.01	18.90	-19.2	24.7	57.0	32.3	1.45	250	QUASI-PEAK	None



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FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109 DATA

RADIATED EMISSIONS BELOW 1 GHz

NON-WIRELESS UNIT - BATTERY POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
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Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg. F; 22% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: Battery powered; Unit without wireless
Comment: Continuous Print and Cut
Date: 02-28-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

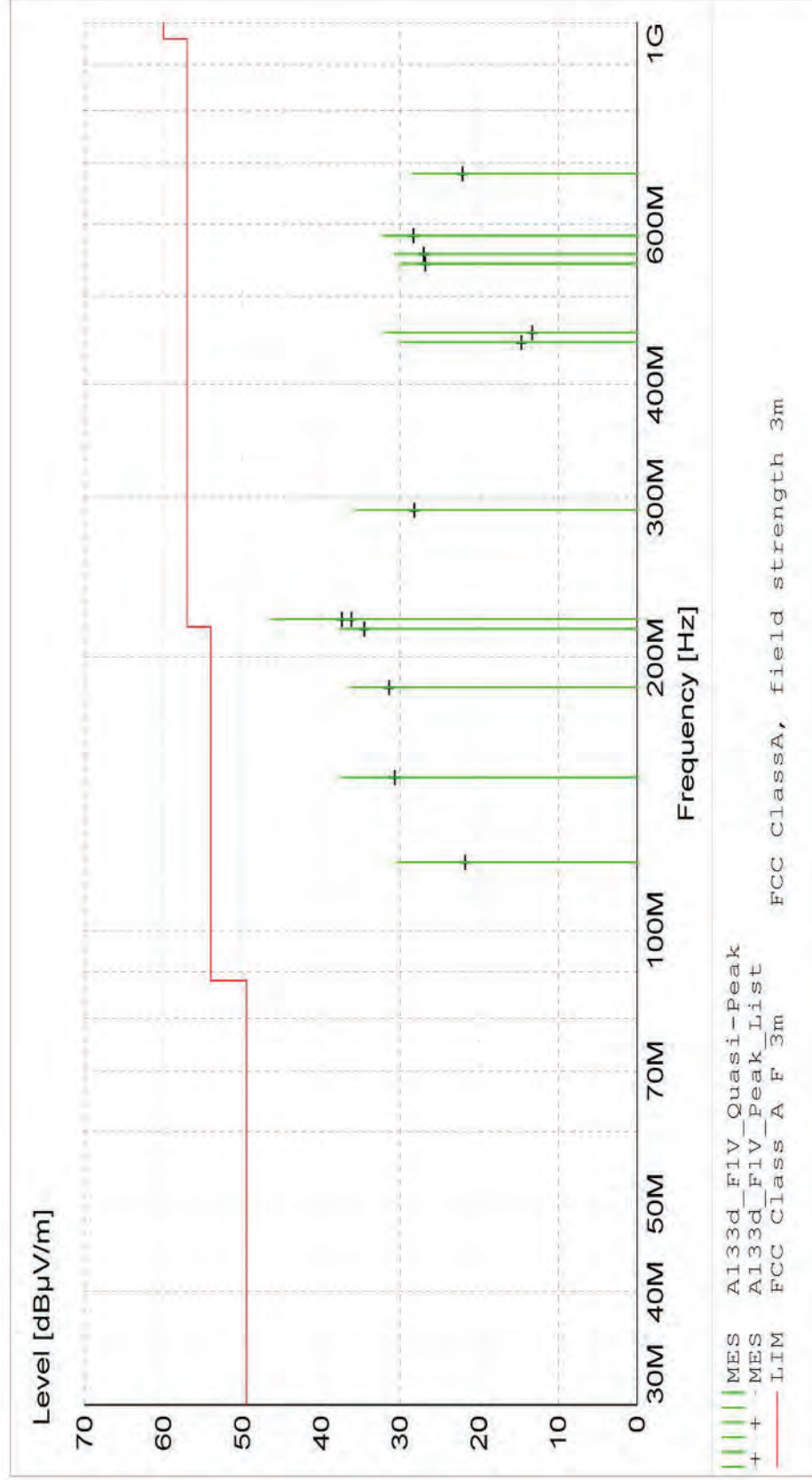
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: $\text{Total Level (dB}\mu\text{V/m)} = \text{Level (dB}\mu\text{V)} + \text{System Loss (dB)} + \text{Antenna Factor (dB/m)}$
24.6 = 35.51 + (-22.1)
 $\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector



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Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

MEASUREMENT RESULT: "A133d_F1V_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	EUT Angle deg	Final Detector	Comment
220.130000	56.22	11.50	-21.3	46.4	57.0	10.6	1.62	225	QUASI-PEAK	None
220.175000	51.71	11.50	-21.3	41.9	57.0	15.1	1.00	350	QUASI-PEAK	None
214.910000	47.46	11.50	-21.4	37.6	54.0	16.4	1.00	45	QUASI-PEAK	None
147.420000	47.25	12.10	-21.9	37.4	54.0	16.6	1.00	60	QUASI-PEAK	None
185.205000	41.22	16.62	-21.6	36.3	54.0	17.7	1.00	70	QUASI-PEAK	None
290.525000	41.84	14.35	-20.5	35.7	57.0	21.3	1.00	135	QUASI-PEAK	None
118.890000	39.69	12.90	-22.3	30.3	54.0	23.7	1.00	225	QUASI-PEAK	None
582.620000	31.93	19.30	-19.1	32.1	57.0	24.9	1.00	180	QUASI-PEAK	None
456.005000	34.46	17.10	-19.6	31.9	57.0	25.1	1.00	130	QUASI-PEAK	None
556.145000	31.24	18.70	-19.2	30.7	57.0	26.3	1.08	180	QUASI-PEAK	None
542.900000	30.75	18.50	-19.3	29.9	57.0	27.1	1.18	165	QUASI-PEAK	None
444.620000	32.73	16.80	-19.6	29.9	57.0	27.1	1.24	135	QUASI-PEAK	None
681.935000	25.65	21.10	-18.5	28.3	57.0	28.7	1.00	315	QUASI-PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

FCC Part 15.109 Class A @ 3 meters

Electric Field Strength

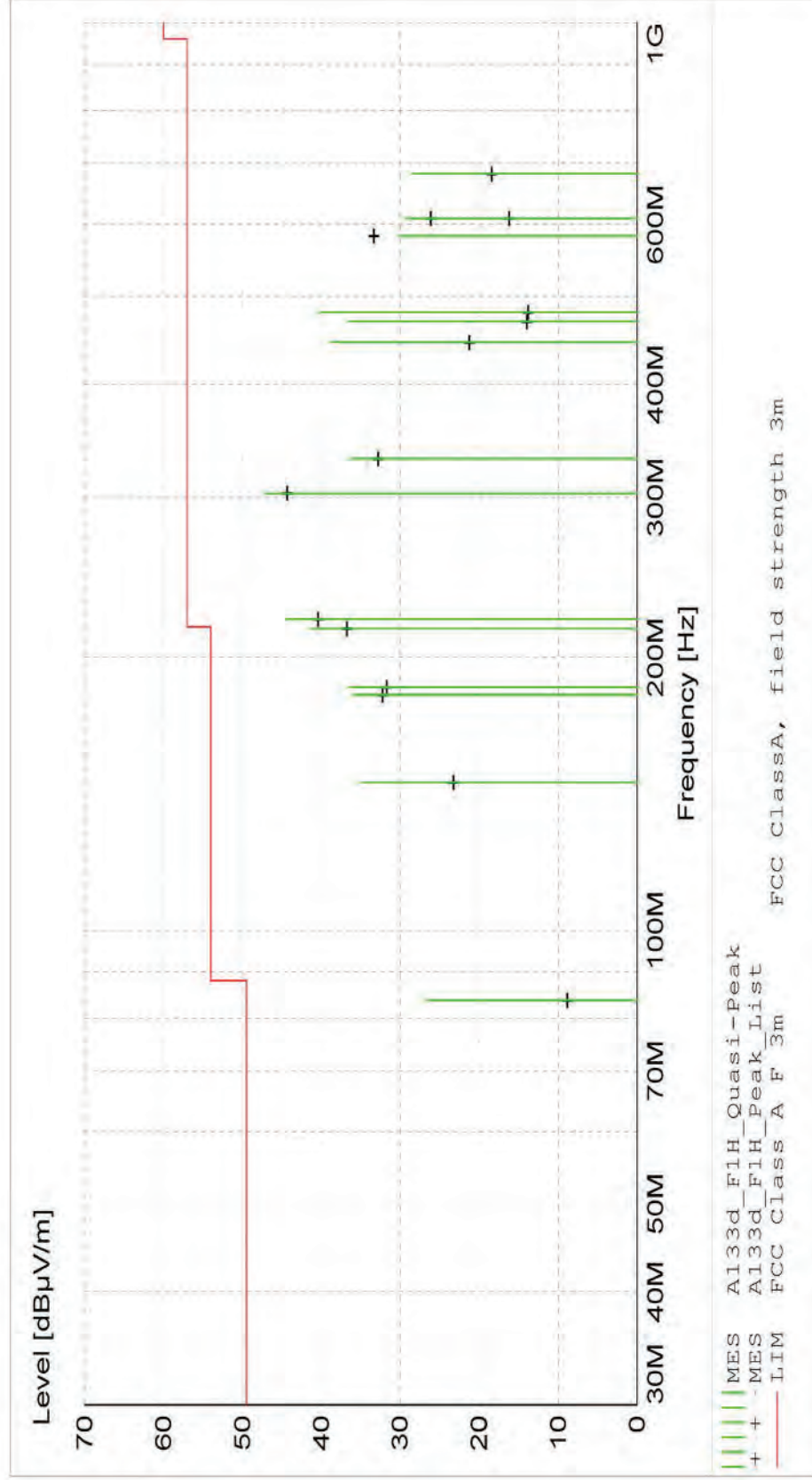
EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg. F; 22% R.H.
Test Site: DLS OARS Site 3
Operator: cbrandt #12133
Test Specification: Battery powered; Unit without wireless
Comment: Continuous Print and Cut
Date: 02-28-2022

TEXT: "Horz 3 meters"

Short Description:	Test Set-up
Test Set-up:	EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization
Sample Equations:	Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dB/m) 24.6 = 35.51 + (-22.1)
	Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m) 15.4 = 40 - 24.6
Graph Markers:	+ Frequency marker (Level of marker not related to final level)
	Final maximized level using Quasi-Peak detector
	X Final maximized level using Average detector
	# Final maximized level using Peak detector



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Below 1 GHz

MEASUREMENT RESULT: "A133d_F1H_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
2/28/2022 3:50PM										
303.050000	51.84	15.60	-20.2	47.2	57.0	9.8	1.00	180	QUASI-PEAK	None
220.190000	54.24	11.50	-21.3	44.4	57.0	12.6	1.74	135	QUASI-PEAK	None
214.955000	51.16	11.50	-21.4	41.3	54.0	12.7	1.29	160	QUASI-PEAK	None
480.005000	42.29	17.70	-19.5	40.4	57.0	16.6	1.00	315	QUASI-PEAK	None
185.310000	41.35	16.63	-21.6	36.4	54.0	17.6	2.38	180	QUASI-PEAK	None
181.710000	41.06	16.37	-21.5	36.0	54.0	18.0	2.27	225	QUASI-PEAK	None
444.605000	41.61	16.80	-19.6	38.8	57.0	18.2	1.00	280	QUASI-PEAK	None
145.620000	44.86	12.06	-19.6	35.0	54.0	19.0	2.16	190	QUASI-PEAK	None
468.590000	38.67	17.40	-21.9	36.5	57.0	19.0	1.00	290	QUASI-PEAK	None
330.935000	41.61	14.90	-20.2	36.3	57.0	20.5	1.00	80	QUASI-PEAK	None
83.775000	42.21	6.93	-22.4	26.8	49.5	22.7	2.38	315	QUASI-PEAK	None
582.605000	29.96	19.30	-19.1	30.2	57.0	26.8	1.50	200	QUASI-PEAK	None
609.110000	28.68	19.61	-19.0	29.3	57.0	27.7	1.54	250	QUASI-PEAK	None
681.935000	25.87	21.10	-18.5	28.5	57.0	28.5	1.38	225	QUASI-PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.109

RADIATED EMISSIONS ABOVE 1 GHz



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

1.0 TEST PROCEDURE AND SETUP

The M710 Label Printer was set up according to the general testing requirements of ANSI C63.4 & ANSI C63.10.

All test measurements were made with the following mode of operation:

Continuous print and cut mode, with both radios powered but not continuously transmitting. Powered with AC adapter, and battery powered with power cord plugged into printer but not into AC outlet.

2.0 TEST RESULTS

The M710 Label Printer Model Number: M710 **meets** the requirements of FCC Part 15, Subpart B & Subpart C for Section 15.109 Radiated Emissions Above 1 GHz. Plots and tabular data can be viewed at the end of this section.

Summary: No non-compliant emissions were observed.

3.0 SAMPLE CALCULATIONS

Radiated emissions: Emissions measurements include all system transducers and are compared against the appropriate limit requirement. See sample calculation below.

$$\begin{array}{lcl} \text{Equations:} & \text{Total Level(dB}\mu\text{V/m)} = & \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB/m)} \\ \text{Sample:} & 24.6 & = 35.51 + (-22.1) + 11.20 \end{array}$$

$$\begin{array}{lcl} \text{Margin(dB)} = & \text{Limit(dB}\mu\text{V/m)} - & \text{Total Level(dB}\mu\text{V/m)} \\ 15.4 & = 40 & - 24.6 \end{array}$$



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

4.0 D.L.S. ELECTRONIC SYSTEMS, INC. MEASUREMENT UNCERTAINTY

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Radiated Emission Uncertainty										
		(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)
Contribution	Probability Distribution	3M	3M	3M	3M	3M	3M	10M	10M	10M
		30-100 MHz	100-700 MHz	700-1000 MHz	1- 4.5 GHz	4.5 – 7 GHz	7 – 18 GHz	30-100 MHz	100-700 MHz	700-1000 MHz
Combined Standard Uncertainty	Normal	1.70	1.62	1.66	2.13	2.48	2.85	1.64	1.58	1.66
Expanded Uncertainty	Normal (k=2)	3.40	3.23	3.33	4.26	4.95	5.69	3.29	3.16	3.31



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

Registration Number: 90531

TABLE 1 / TEST INSTRUMENTATION

Description	Manufacturer	Model Number	Serial Number	Range	Firmware/Software Version	Cal On	Cal Due Dates
Antenna, Horn	EMCO	3115	6204	1GHz-18GHz	N/A	10/7/2021	10/7/2023
N->N, 10m, High Frequency	Micro-Coax	UFB311A	CBL-100	30Mhz-18GHz	N/A	4/26/2022	4/26/2023
Preamplifier, RF	Com-Power	PAM-118A	18040154	500 MHz-18 GHz	N/A	3/18/2022	3/18/2023
Receiver, RF, Tuned	Rohde & Schwarz	ESI 26	837491/010	20Hz – 26GHz	4.34.3:11/17/2000	3/28/2022	3/28/2023

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

TABLE 2 / TEST EQUIPMENT

Description	Manufacturer	Model Number	Firmware/Software Version
EMI Test Software	Rohde & Schwarz	ESK1	1.7.1:11/17/2000

The test equipment above is verified with calibrated equipment.



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B

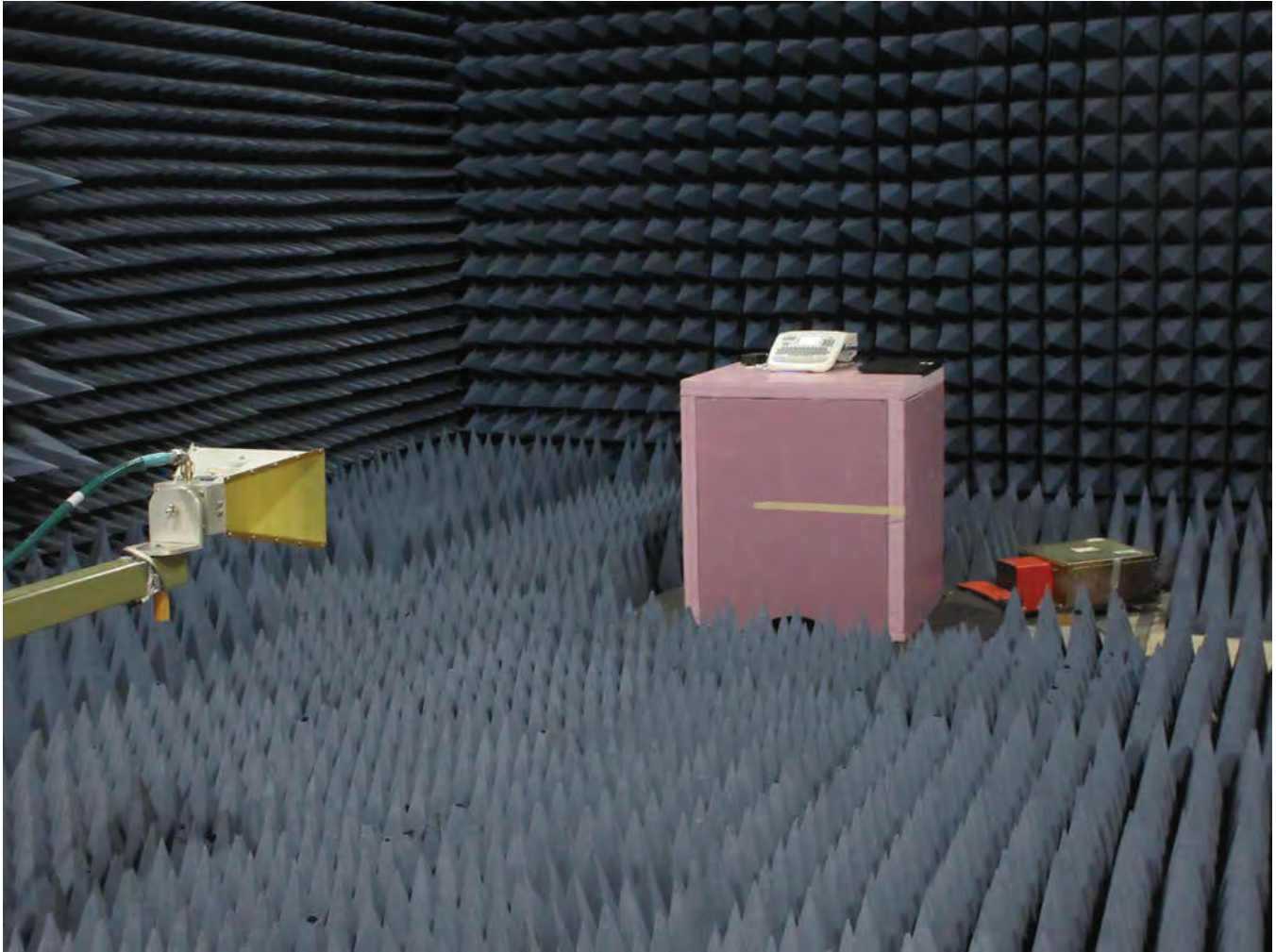
SECTION 15.109

RADIATED EMISSIONS ABOVE 1 GHz

TEST SETUP PHOTOS



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz



Radiated Above 1 GHz



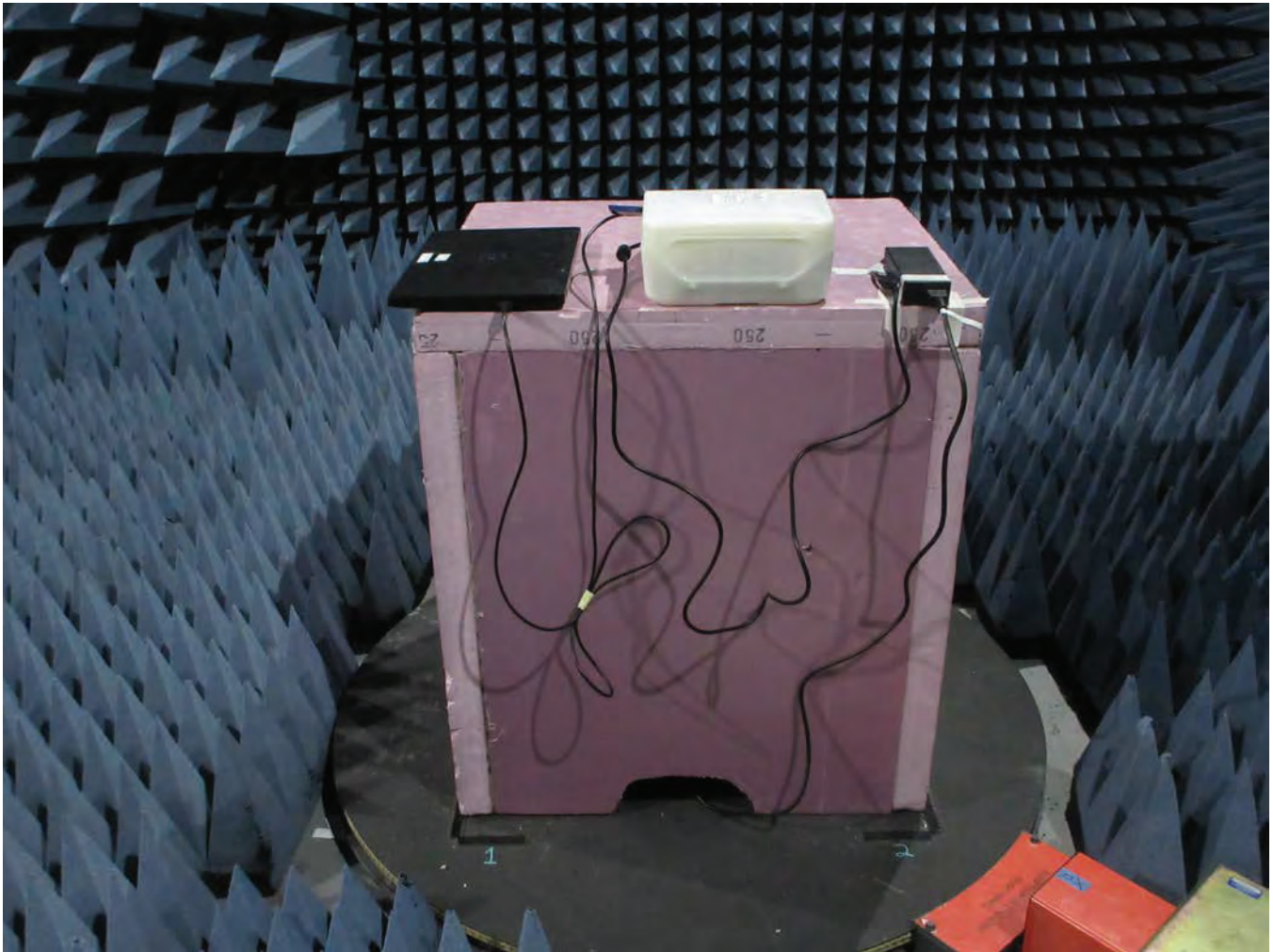
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz



Radiated Above 1 GHz - Front



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz



Radiated Above 1 GHz - Back



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B

SECTION 15.109 DATA

RADIATED EMISSIONS ABOVE 1 GHz

WIRELESS UNIT - AC POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

**FCC Part 15.109 Class A
Electric Field Strength**

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wireless Unit
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

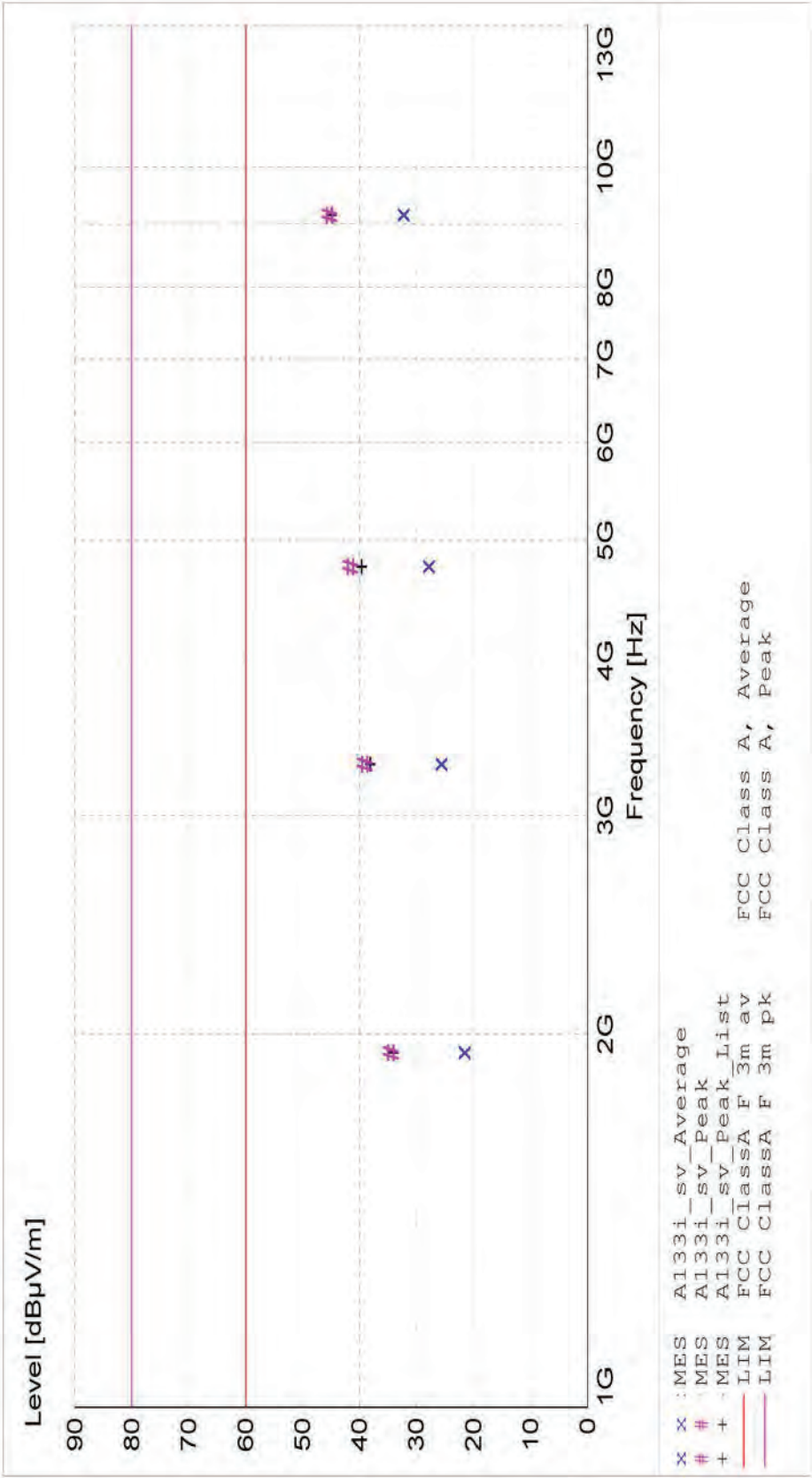
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133i_sv_Final"

Frequency MHz	Level dBμV	Antenna Factor dBμV/m	System Loss dB	Total Level dBμV/m	Limit dBμV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
9146.000000	34.52	37.49	-39.5	32.5	60.0	27.5	1.30	170	AVERAGE	noise floor
4760.750000	35.95	32.85	-40.7	28.1	60.0	31.9	1.10	0	AVERAGE	noise floor
3298.750000	36.23	30.92	-41.3	25.9	60.0	34.1	1.35	155	AVERAGE	noise floor
9146.000000	47.22	37.49	-39.5	45.2	80.0	34.8	1.30	170	MAX PEAK	noise floor
1931.500000	34.86	27.17	-40.2	21.8	60.0	38.2	1.96	179	AVERAGE	noise floor
4760.750000	49.39	32.85	-40.7	41.5	80.0	38.5	1.10	0	MAX PEAK	noise floor
3298.750000	49.39	30.92	-41.3	39.0	80.0	41.0	1.35	155	MAX PEAK	noise floor
1931.500000	47.47	27.17	-40.2	34.4	80.0	45.6	1.96	179	MAX PEAK	noise floor



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wireless Unit
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

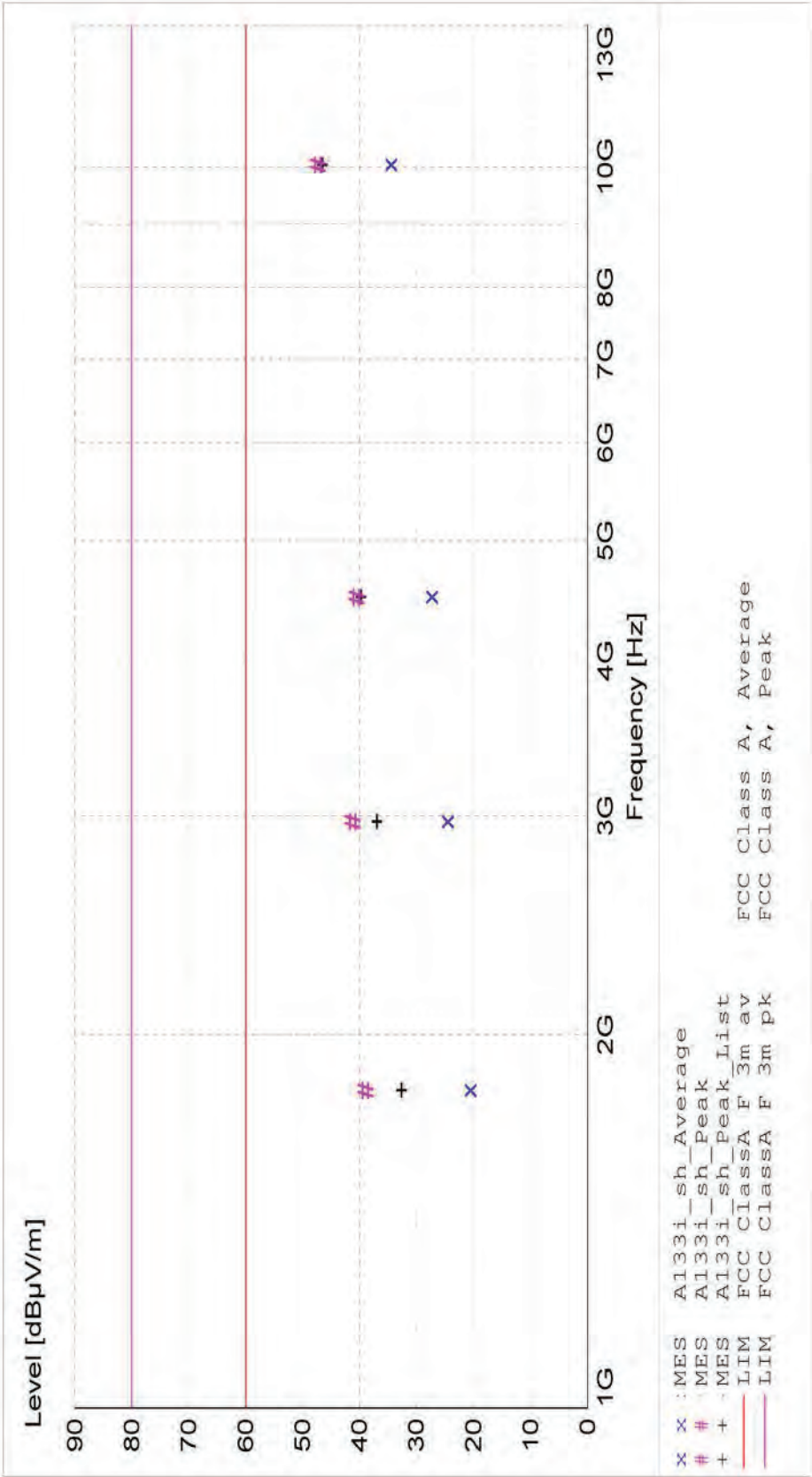
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133i_sh_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
5/6/2022 9:45AM										
10038.000000	35.72	37.87	-38.9	34.7	60.0	25.3	1.20	200	AVERAGE	noise floor
4501.250000	36.16	32.27	-40.9	27.5	60.0	32.5	1.20	200	AVERAGE	noise floor
10038.000000	48.23	37.87	-38.9	47.2	80.0	32.8	1.20	200	MAX PEAK	noise floor
2968.000000	35.80	30.03	-41.1	24.7	60.0	35.3	1.20	200	AVERAGE	noise floor
2968.000000	52.19	50.03	-41.1	41.1	80.0	38.9	1.20	200	MAX PEAK	noise floor
1802.500000	34.35	26.49	-40.1	20.8	60.0	39.2	1.20	200	AVERAGE	noise floor
4501.250000	49.11	32.27	-40.9	40.5	80.0	39.5	1.20	200	MAX PEAK	noise floor
1802.500000	52.45	26.49	-40.1	38.9	80.0	41.1	1.20	200	MAX PEAK	noise floor



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B

SECTION 15.109 DATA

RADIATED EMISSIONS ABOVE 1 GHz

WIRELESS UNIT - BATTERY POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: Battery Powered; Wireless Unit
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

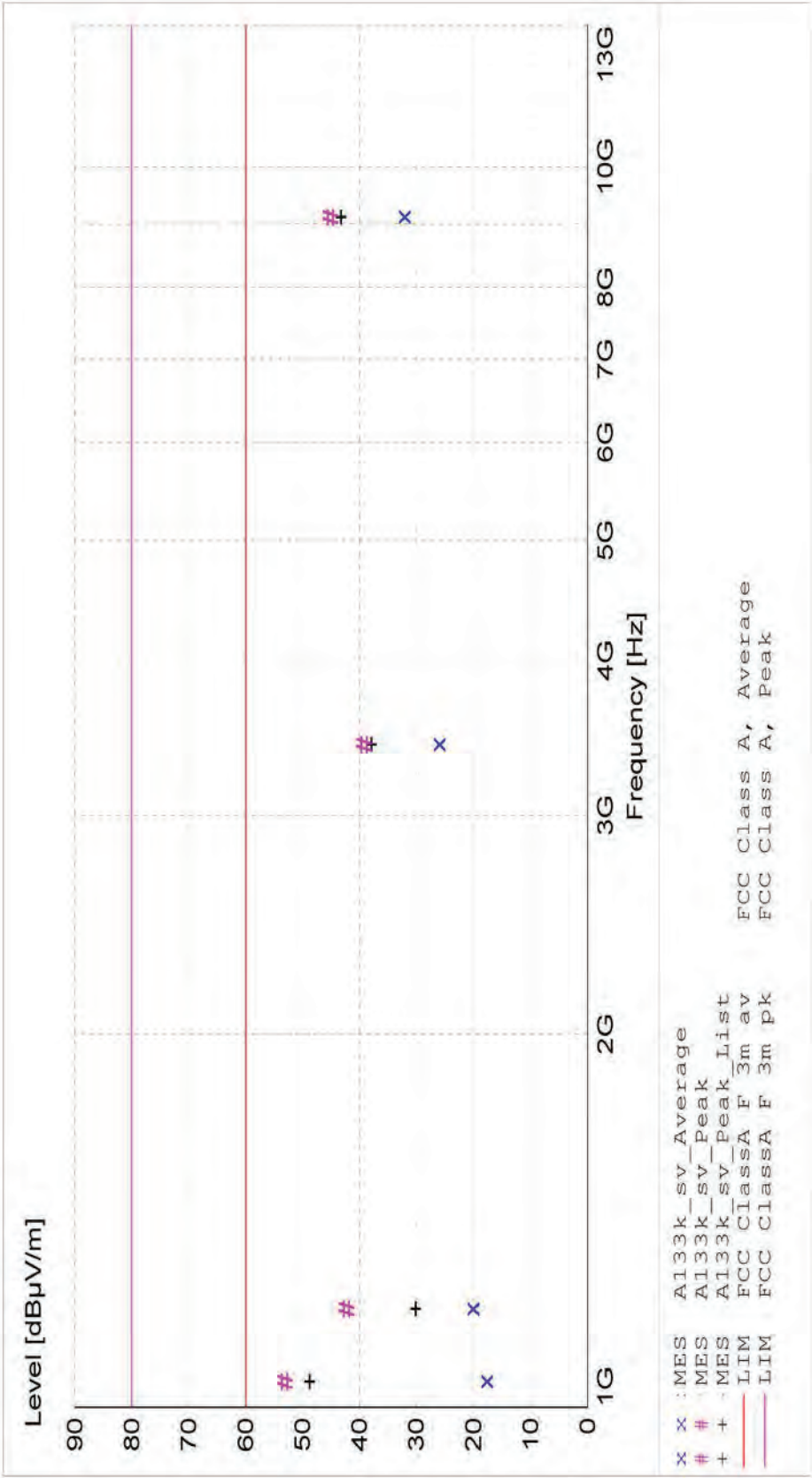
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133k_sv_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
1048.500000	68.32	24.19	-39.4	53.1	80.0	26.9	1.19	146	MAX PEAK	None
9109.000000	34.26	37.57	-39.5	32.3	60.0	27.7	1.40	210	AVERAGE	noise floor
3420.750000	36.30	31.20	-41.3	26.2	60.0	33.8	1.24	85	AVERAGE	noise floor
9109.000000	46.97	37.57	-39.5	45.0	80.0	35.0	1.40	210	MAX PEAK	noise floor
1200.000000	57.00	24.98	-39.8	42.2	80.0	37.8	1.78	283	MAX PEAK	None
1200.000000	35.10	24.98	-39.8	20.3	60.0	39.7	1.78	283	AVERAGE	None
3420.750000	49.25	31.20	-41.3	39.1	80.0	40.9	1.24	85	MAX PEAK	noise floor
1048.500000	33.23	24.19	-39.4	18.0	60.0	42.0	1.19	146	AVERAGE	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

**FCC Part 15.109 Class A
Electric Field Strength**

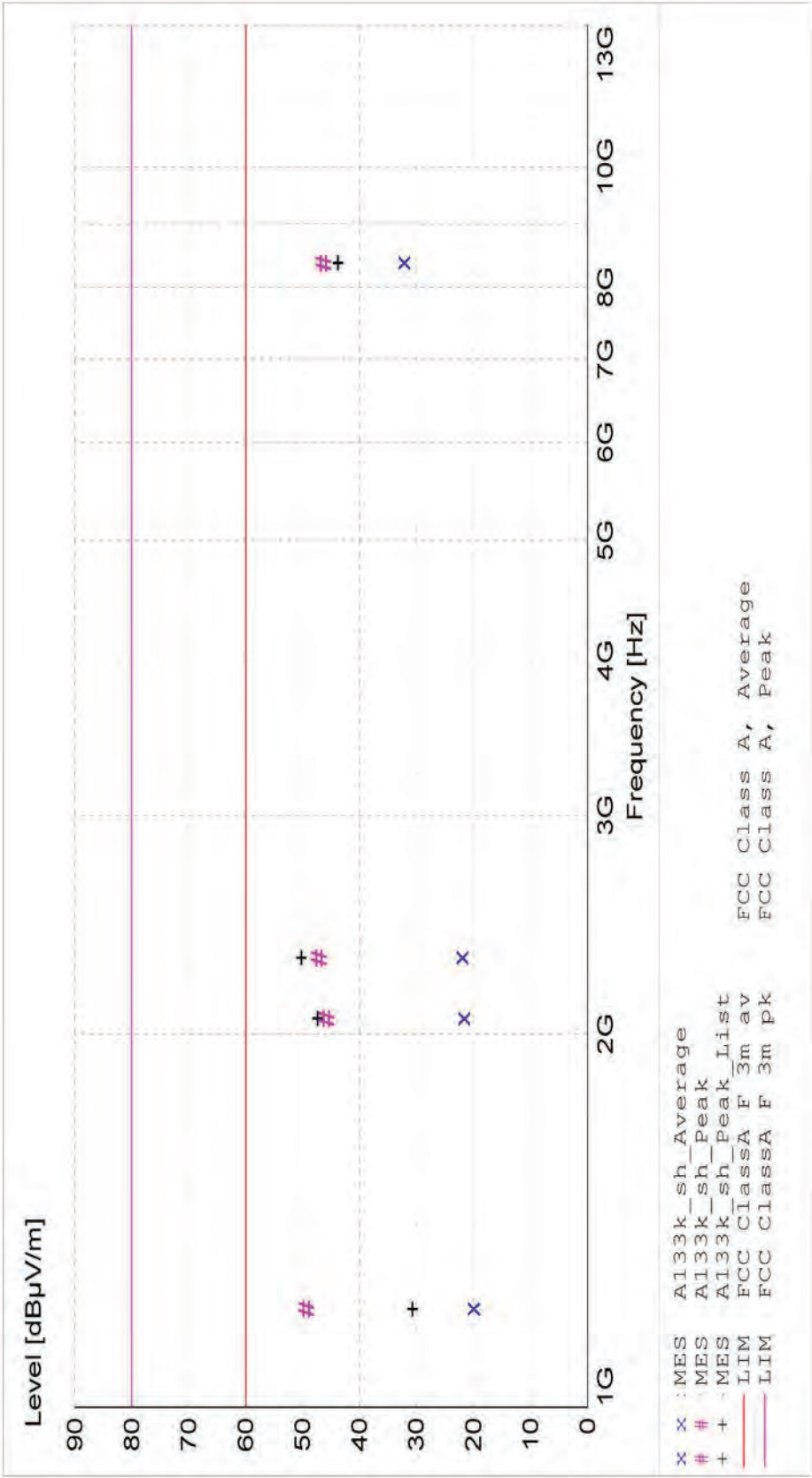
EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: Battery Powered; Wireless Unit
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Horz 3 meters"

Short Description:		Test Set-up
Test Set-up:	EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization	
Sample Equations:	Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)	
	24.6 = 35.51 + (-22.1)	
Margin (dB)	= Limit (dBµV/m) - Total Level (dBµV/m)	
	15.4 = 40 - 24.6	
Graph Markers:	+	Frequency marker (Level of marker not related to final level)
		Final maximized level using Quasi-Peak detector
	X	Final maximized level using Average detector
	#	Final maximized level using Peak detector
	-	Background Scan Peak Detector (Optional)
	-	Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133k_sh_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
8364.750000	33.23	37.12	-37.9	32.4	60.0	27.6	1.10	210	AVERAGE	noise floor
1200.000000	64.03	24.98	-39.8	49.3	80.0	30.7	1.50	20	MAX PEAK	None
2303.000000	59.90	27.78	-40.6	47.1	80.0	32.9	2.10	250	MAX PEAK	None
8364.750000	47.09	37.12	-37.9	46.3	80.0	33.7	1.10	210	MAX PEAK	noise floor
2057.750000	58.70	27.42	-40.4	45.8	80.0	34.2	1.20	111	MAX PEAK	None
2303.000000	35.02	27.78	-40.6	22.2	60.0	37.8	2.10	250	AVERAGE	None
2057.750000	34.86	27.42	-40.4	21.9	60.0	38.1	1.20	111	AVERAGE	None
1200.000000	35.02	24.98	-39.8	20.2	60.0	39.8	1.50	20	AVERAGE	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B

SECTION 15.109 DATA

RADIATED EMISSIONS ABOVE 1 GHz

NON-WIRELESS UNIT - AC POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A
Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-05-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

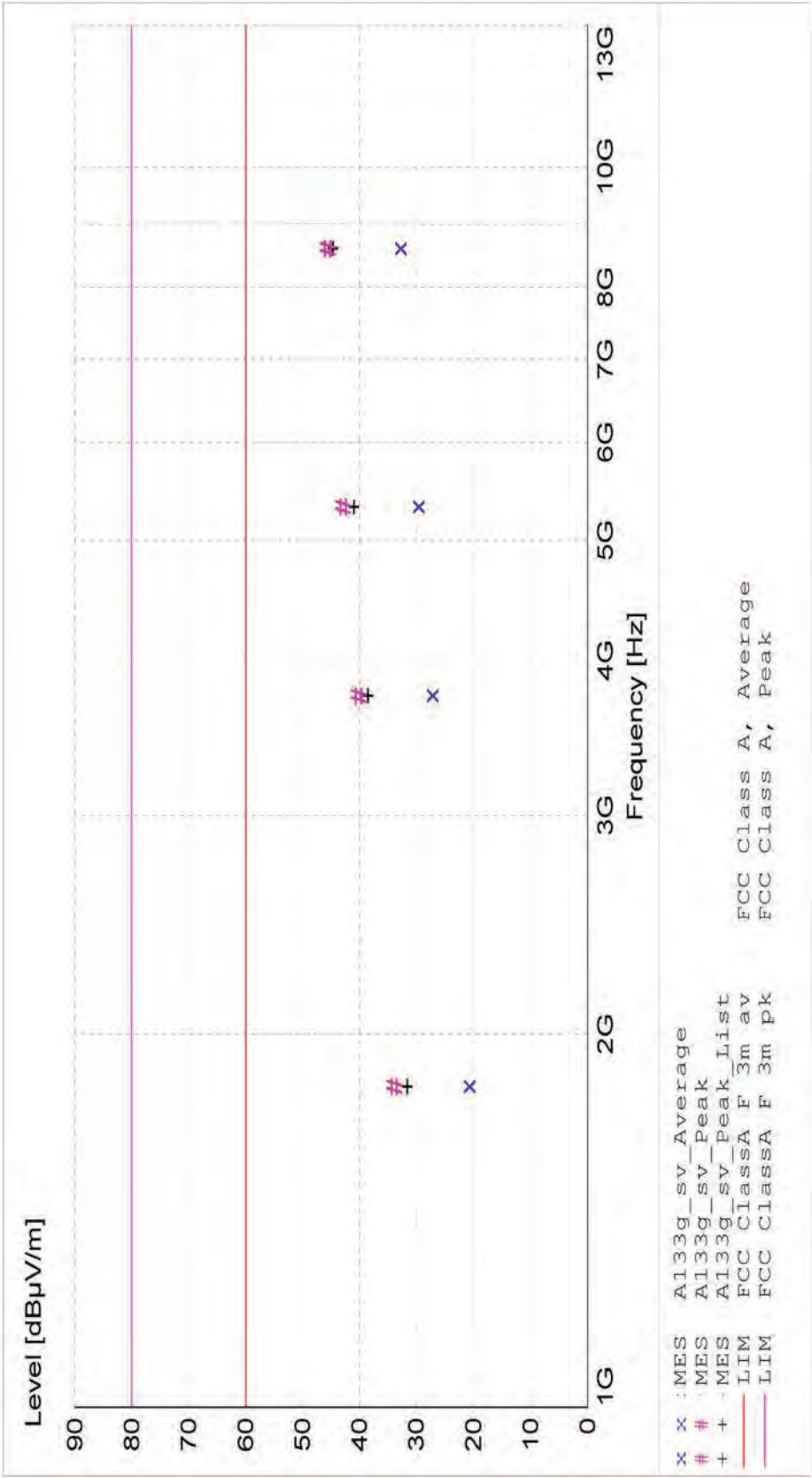
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133g_sv_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
5/6/2022 8:54AM										
8593.500000	33.80	37.43	-38.2	33.0	60.0	27.0	1.10	160	AVERAGE	noise floor
5320.500000	36.02	33.91	-40.1	29.9	60.0	30.1	1.10	160	AVERAGE	noise floor
3747.500000	36.16	32.63	-41.4	27.4	60.0	32.6	1.10	160	AVERAGE	noise floor
8593.500000	46.35	37.43	-38.2	45.5	80.0	34.5	1.10	160	MAX PEAK	noise floor
5320.500000	48.97	33.91	-40.1	42.8	80.0	37.2	1.10	160	MAX PEAK	noise floor
1813.750000	34.43	26.57	-40.1	20.9	60.0	39.1	1.10	160	AVERAGE	noise floor
3747.500000	48.85	32.63	-41.4	40.1	80.0	39.9	1.10	160	MAX PEAK	noise floor
1813.750000	47.35	26.57	-40.1	33.8	80.0	46.2	1.10	160	MAX PEAK	noise floor



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-05-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

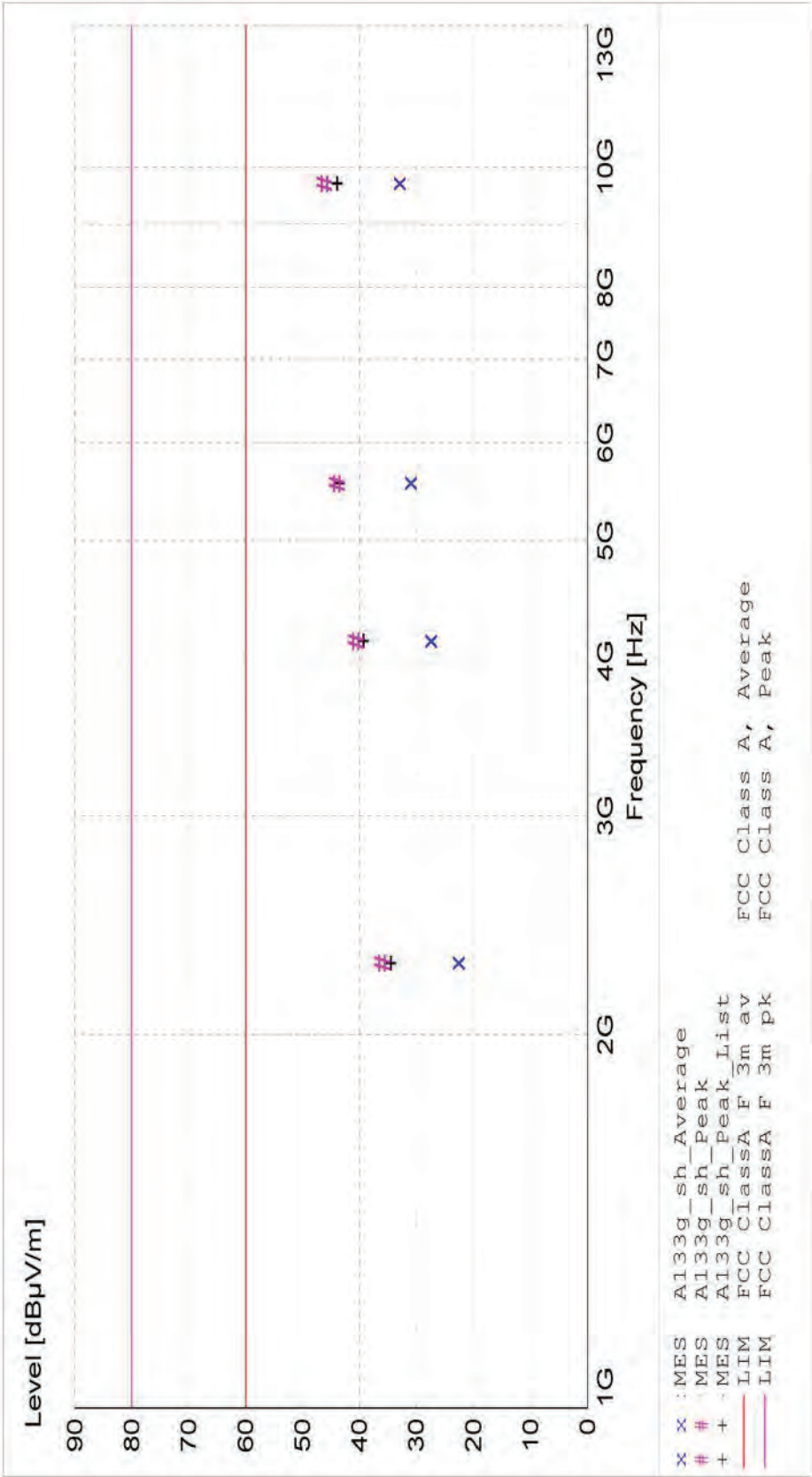
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1)
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133g_sh_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
5/5/2022 4:00PM										
9698.400000	35.10	37.42	-39.3	33.2	60.0	26.8	1.20	180	AVERAGE	noise floor
5559.200000	36.85	34.12	-39.7	31.2	60.0	28.8	1.20	180	AVERAGE	noise floor
4148.600000	36.78	32.14	-41.2	27.7	60.0	32.3	1.20	180	AVERAGE	noise floor
9698.400000	48.00	37.42	-39.3	46.1	80.0	33.9	1.20	180	MAX PEAK	noise floor
5559.200000	49.53	34.12	-39.7	43.9	80.0	36.1	1.20	180	MAX PEAK	noise floor
2282.800000	35.72	27.69	-40.6	22.8	60.0	37.2	1.20	180	AVERAGE	noise floor
4148.600000	49.66	32.14	-41.2	40.6	80.0	39.4	1.20	180	MAX PEAK	noise floor
2282.800000	48.87	27.69	-40.6	36.0	80.0	44.0	1.20	180	MAX PEAK	noise floor



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC PART 15, SUBPART B

SECTION 15.109 DATA

RADIATED EMISSIONS ABOVE 1 GHz

NON-WIRELESS UNIT - BATTERY POWERED



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A
Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: Battery Powered; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

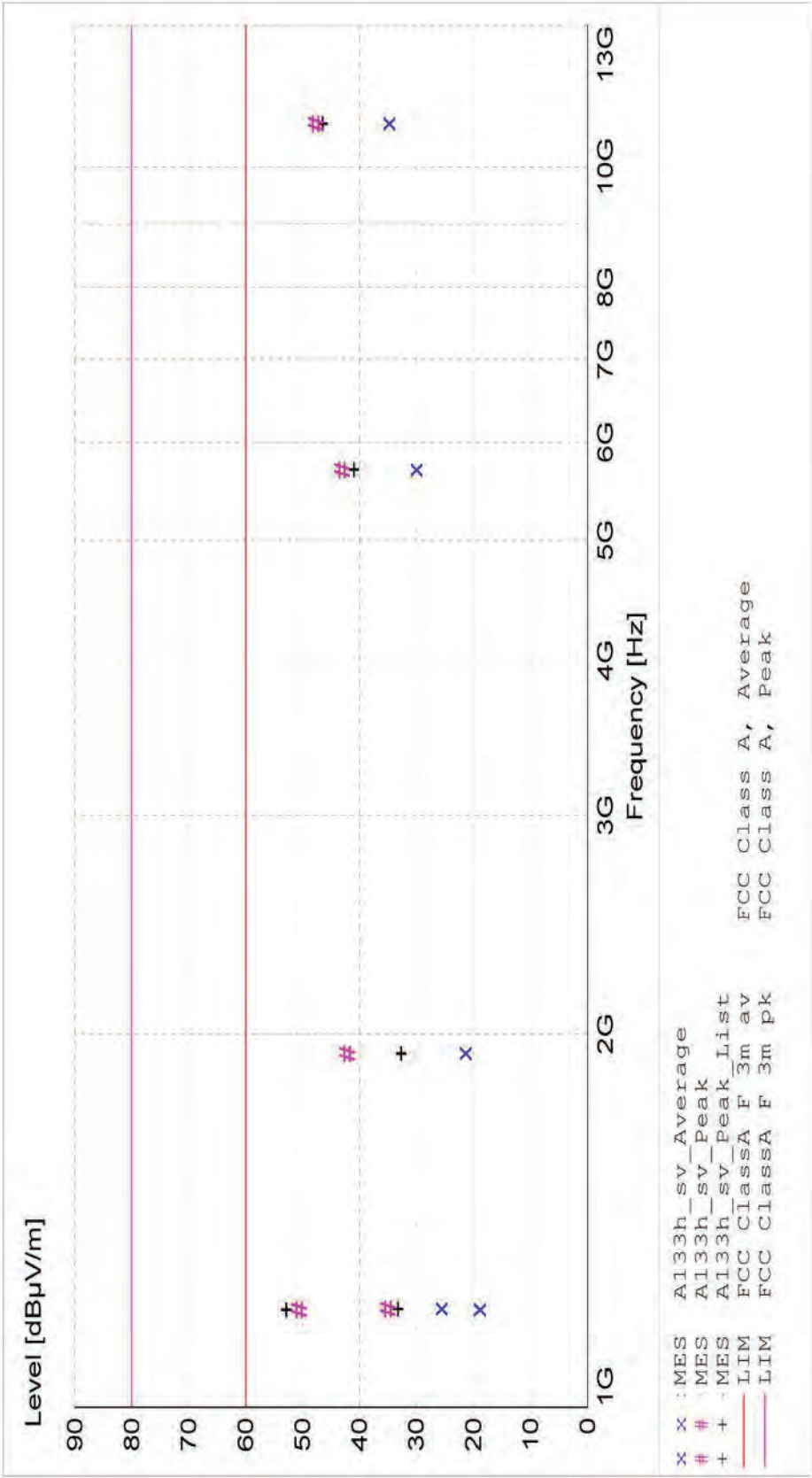
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: $\text{Total Level (dB}\mu\text{V/m)} = \text{Level (dB}\mu\text{V)} + \text{System Loss (dB)} + \text{Antenna Factor (dB}\mu\text{V/m)}$
24.6 = 35.51 + (-22.1)
 $\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133h_sv_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	EuT Angle deg	Final Detector	Comment
5/6/2022 9:17AM										
10832.000000	35.72	38.18	-38.9	35.0	60.0	25.0	1.20	135	AVERAGE	noise floor
1198.000000	65.34	24.96	-39.8	50.5	80.0	29.5	1.10	131	MAX PEAK	None
5698.250000	35.95	33.93	-39.6	30.2	60.0	29.8	1.20	135	AVERAGE	noise floor
10832.000000	48.35	38.18	-38.9	47.6	80.0	32.4	1.20	135	MAX PEAK	noise floor
1200.000000	40.58	24.98	-39.8	25.8	60.0	34.2	2.03	303	AVERAGE	None
5698.250000	48.72	33.93	-39.6	43.0	80.0	37.0	1.20	135	MAX PEAK	noise floor
1927.250000	55.14	27.16	-40.2	42.1	80.0	37.9	1.70	168	MAX PEAK	None
1198.000000	34.69	27.16	-40.2	21.6	60.0	38.4	1.70	168	AVERAGE	None
1198.000000	33.99	24.96	-39.8	19.2	60.0	40.8	1.10	131	AVERAGE	None
1200.000000	49.67	24.98	-39.8	34.9	80.0	45.1	2.03	303	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

FCC Part 15.109 Class A

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 70 deg F; 29% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: Battery Powered; Unit without wireless
Comment: Continuous Print and Cut
Date: 05-06-2022

TEXT: "Horz 3 meters"

Short Description: Test Set-up

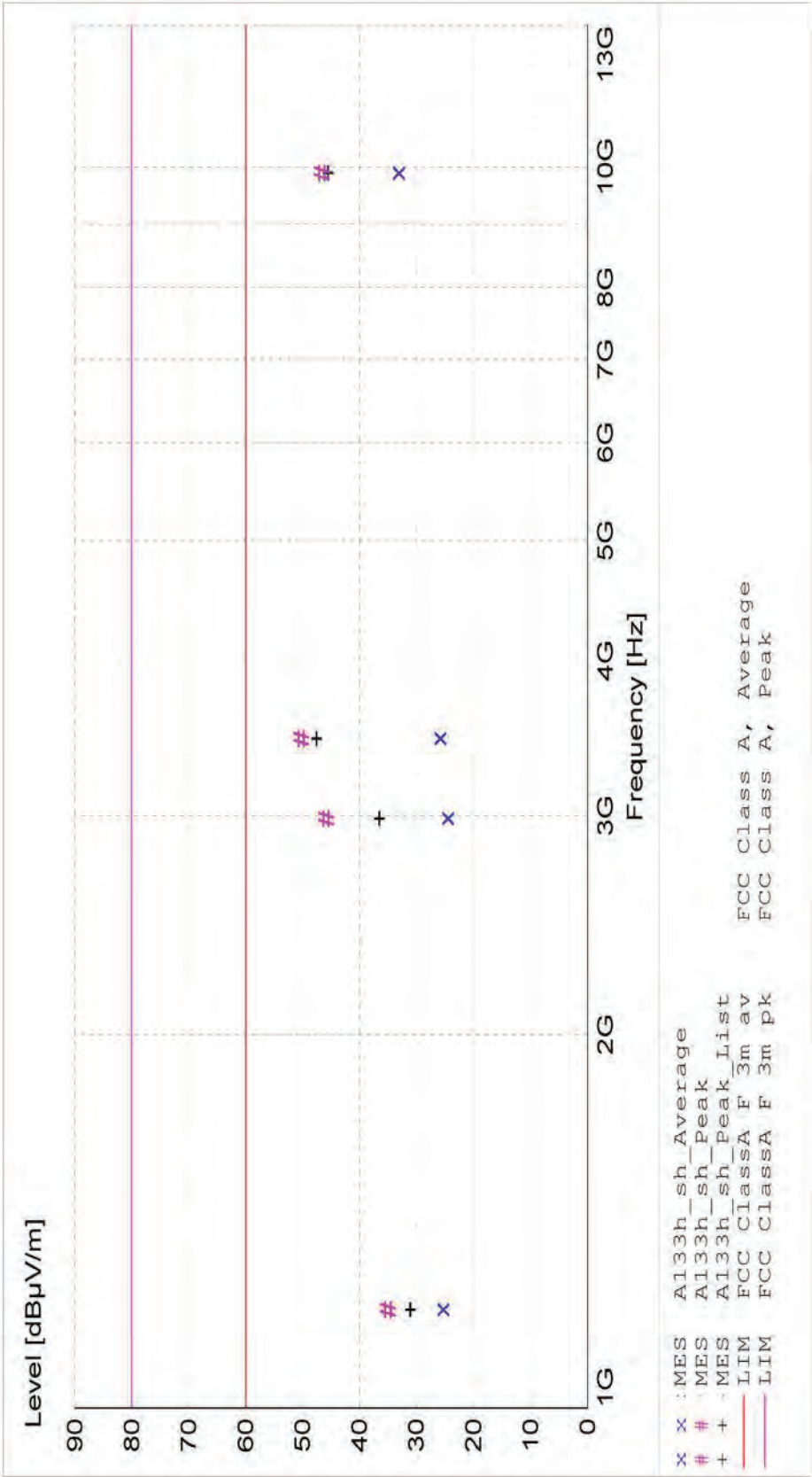
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: $\text{Total Level (dB}\mu\text{V/m)} = \text{Level (dB}\mu\text{V)} + \text{System Loss (dB)} + \text{Antenna Factor (dB}\mu\text{V/m)}$
 $24.6 = 35.51 + (-22.1)$
 $\text{Margin (dB)} = \text{Limit (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$
 $15.4 = 40 - 24.6$

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.109 Radiated Emissions Above 1 GHz

MEASUREMENT RESULT: "A133h_sh_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
5/6/2022 9:33AM										
9885.000000	34.78	37.67	-39.1	33.3	60.0	26.7	1.40	180	AVERAGE	noise floor
3462.250000	60.30	31.23	-41.3	50.2	80.0	29.8	1.25	214	MAX PEAK	None
9885.000000	47.98	37.67	-39.1	46.6	80.0	33.4	1.40	180	MAX PEAK	noise floor
3462.250000	36.16	31.23	-41.3	26.0	60.0	34.0	1.25	214	AVERAGE	None
2985.000000	56.74	30.15	-41.1	45.8	80.0	34.2	1.52	178	MAX PEAK	None
1200.000000	40.32	24.98	-39.8	25.5	60.0	34.5	1.00	179	AVERAGE	None
2985.000000	35.65	30.15	-41.1	24.7	60.0	35.3	1.52	178	AVERAGE	None
1200.000000	49.67	24.98	-39.8	34.9	80.0	45.1	1.00	179	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz

FCC PART 15, SUBPART C

SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS BELOW 1 GHz



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz

1.0 TEST PROCEDURE AND SETUP

The M710 Label Printer was set up according to the general testing requirements of FCC Part 15, Subpart C & ANSI C63.10.

All test measurements were made with the following mode of operation:

Tested with Wi-Fi and Bluetooth modules both in continuous transmit mode transmitting simultaneously. Tested with simultaneous continuous transmission with each radio transmitting on its middle channel, with the modulation type and data rate that was shown to be worst-case in the radios' modular certification test reports.

2.0 TEST RESULTS

The M710 Label Printer Model Number: M710 **meets** the requirements of FCC Part 15, Subpart B & Subpart C for Section 15.209 Radiated Emissions in Restricted Bands Below 1 GHz. Plots and tabular data can be viewed at the end of this section.

Summary: No non-compliant emissions were observed.

3.0 SAMPLE CALCULATIONS

Radiated emissions: Emissions measurements include all system transducers and are compared against the appropriate limit requirement. See sample calculation below.

$$\begin{array}{lcl} \text{Equations:} & \frac{\text{Total Level(dB}\mu\text{V/m)}}{24.6} = & \frac{\text{Level(dB}\mu\text{V)}}{35.51} + \frac{\text{System Loss(dB)}}{+ (-22.1)} + \frac{\text{Antenna Factor(dB/m)}}{+ 11.20} \\ \text{Sample:} & & \end{array}$$

$$\begin{array}{lcl} \frac{\text{Margin(dB)}}{15.4} = & \frac{\text{Limit(dB}\mu\text{V/m)}}{40} - & \frac{\text{Total Level(dB}\mu\text{V/m)}}{- 24.6} \end{array}$$



Company: Brady Corporation
 Model Tested: M710
 Report Number: 27040
 Project Number: 12133
 Test: Section 15.209 Radiated Emissions in Restricted Bands
 Below 1 GHz

4.0 D.L.S. ELECTRONIC SYSTEMS, INC. MEASUREMENT UNCERTAINTY

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Radiated Emission Uncertainty										
Contribution	Probability Distribution	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)
		3M	3M	3M	3M	3M	3M	10M	10M	10M
		30-100 MHz	100-700 MHz	700-1000 MHz	1- 4.5 GHz	4.5 – 7 GHz	7 – 18 GHz	30-100 MHz	100-700 MHz	700-1000 MHz
Combined Standard Uncertainty	Normal	1.70	1.62	1.66	2.13	2.48	2.85	1.64	1.58	1.66
Expanded Uncertainty	Normal (k=2)	3.40	3.23	3.33	4.26	4.95	5.69	3.29	3.16	3.31



Company: Brady Corporation
 Model Tested: M710
 Report Number: 27040
 Project Number: 12133
 Test: Section 15.209 Radiated Emissions in Restricted Bands
 Below 1 GHz

Registration Number: 90531

TABLE 1 / TEST INSTRUMENTATION

Description	Manufacturer	Model Number	Serial Number	Range	Firmware/Software Version	Cal On	Cal Due Dates
Antenna, Biconical	EMCO	3104C	0005-4891	20MHz-200MHz	N/A	5/13/2021	5/13/2023
Antenna, Log Periodic	Electro-Metrics	LPA-25	1114	200MHz-1GHz	N/A	4/1/2022	3/31/2024
Beldin 9273; N-BNC; 2 Meter; Receiver Hook-Up	Beldin	9273	CBL-028	9 kHz-1000MHz	N/A	2/2/2022	2/2/2023
Beldin 9914; N-N; 3 Meter Test	Beldin	9914	CBL-005	9kHz-1000MHz	N/A	2/2/2022	2/2/2023
Preamplifier, RF, w/CBL-039	Rohde & Schwarz	TS-PR10	032001/004	9kHz - 1GHz	N/A	10/28/2021	10/28/2022
Receiver, RF, Tuned	Rohde & Schwarz	ESI 40	837808/005	20Hz – 40 GHz	4.34.3:12/13/2000	2/8/2022	2/8/2023
RG-223/U; N-BNC; 10Meter; Antenna Hook-Up	Coleman Cable	991079 / RG-223/U	CBL-051	9kHz-1GHz	N/A	2/2/2022	2/2/2023

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

TABLE 2 / TEST EQUIPMENT

Description	Manufacturer	Model Number	Firmware/Software Version
EMI Test Software	Rohde & Schwarz	ESK1	1.7.1:12/13/2000

The test equipment above is verified with calibrated equipment.



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz

FCC PART 15 SUBPART C

SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS BELOW 1 GHz

TEST SETUP PHOTOS



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz



Radiated Below 1 GHz - Site 2 - Front



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz



Radiated Below 1 GHz - Site 2 - Back



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz

FCC PART 15 SUBPART C

SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS BELOW 1 GHz

TEST DATA



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Below 1 GHz

All Transceiver Module Radiated Emissions Inside the Restricted Bands from the

M710 Printer with pre-certified Wi-Fi and Bluetooth (BLE) Transceivers

from 30 to 1000 MHz

**with the transceivers in continuous transmit
mode (both on middle channel and
transmitting simultaneously),**

**were ≥ 20 dB under the FCC Part 15.209
limits.**

05-05-2022



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15 SUBPART C

SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 1 GHz



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

1.0 TEST PROCEDURE AND SETUP

The M710 Label Printer was set up according to the general testing requirements of FCC Part 15, Subpart C.

All test measurements were made with the following mode of operation:

Tested with Wi-Fi and Bluetooth modules both in continuous transmit mode transmitting simultaneously. Tested channels, modulation types, and data rates that were shown to be worst-case in the radios' modular certification test reports. Also tested with simultaneous transmission with each radio transmitting on the same frequency, and with the radios transmitting near the same frequency to look for any intermodulation products that might be produced.

2.0 TEST RESULTS

The M710 Label Printer Model Number: M710 **meets** the requirements of FCC Part 15, Subpart B & Subpart C for Section 15.209 Radiated Emissions in Restricted Bands Above 1 GHz. Plots and tabular data can be viewed at the end of this section.

Summary: No non-compliant emissions were observed.

3.0 SAMPLE CALCULATIONS

Radiated emissions: Emissions measurements include all system transducers and are compared against the appropriate limit requirement. See sample calculation below.

$$\begin{array}{lcl} \text{Equations:} & \text{Total Level(dB}\mu\text{V/m)} = & \text{Level(dB}\mu\text{V)} + \text{System Loss(dB)} + \text{Antenna Factor(dB/m)} \\ \text{Sample:} & 24.6 & = 35.51 + (-22.1) + 11.20 \end{array}$$

$$\begin{array}{lcl} \text{Margin(dB)} = & \text{Limit(dB}\mu\text{V/m)} - & \text{Total Level(dB}\mu\text{V/m)} \\ 15.4 & = 40 & - 24.6 \end{array}$$



Company: Brady Corporation
 Model Tested: M710
 Report Number: 27040
 Project Number: 12133
 Test: Section 15.209 Radiated Emissions in Restricted Bands
 Above 1 GHz

4.0 D.L.S. ELECTRONIC SYSTEMS, INC. MEASUREMENT UNCERTAINTY

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Radiated Emission Uncertainty										
Contribution	Probability Distribution	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)	(± dB)
		3M	3M	3M	3M	3M	3M	10M	10M	10M
		30-100 MHz	100-700 MHz	700-1000 MHz	1- 4.5 GHz	4.5 – 7 GHz	7 – 18 GHz	30-100 MHz	100-700 MHz	700-1000 MHz
Combined Standard Uncertainty	Normal	1.70	1.62	1.66	2.13	2.48	2.85	1.64	1.58	1.66
Expanded Uncertainty	Normal (k=2)	3.40	3.23	3.33	4.26	4.95	5.69	3.29	3.16	3.31



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Registration Number: 90531

TABLE 1 / TEST INSTRUMENTATION

Description	Manufacturer	Model Number	Serial Number	Range	Firmware/Software Version	Cal On	Cal Due Dates
Antenna, Horn	EMCO	3115	6204	1GHz-18GHz	N/A	10/7/2021	10/7/2023
Filter, High Pass	Q Microwave	100462	2	4.2GHz-18GHz	N/A	7/5/2021	7/5/2022
N->N, 10m, High Frequency	Micro-Coax	UFB311A	CBL-100	30Mhz-18GHz	N/A	4/26/2022	4/26/2023
Preamplifier, RF	Com-Power	PAM-118A	18040154	500 MHz-18 GHz	N/A	3/18/2022	3/18/2023
Receiver, RF, Tuned	Rohde & Schwarz	ESI 26	837491/010	20Hz – 26GHz	4.34.3:11/17/2000	3/28/2022	3/28/2023

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

TABLE 2 / TEST EQUIPMENT

Description	Manufacturer	Model Number	Firmware/Software Version
EMI Test Software	Rohde & Schwarz	ESK1	1.7.1:11/17/2000

The test equipment above is verified with calibrated equipment.



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15 SUBPART C

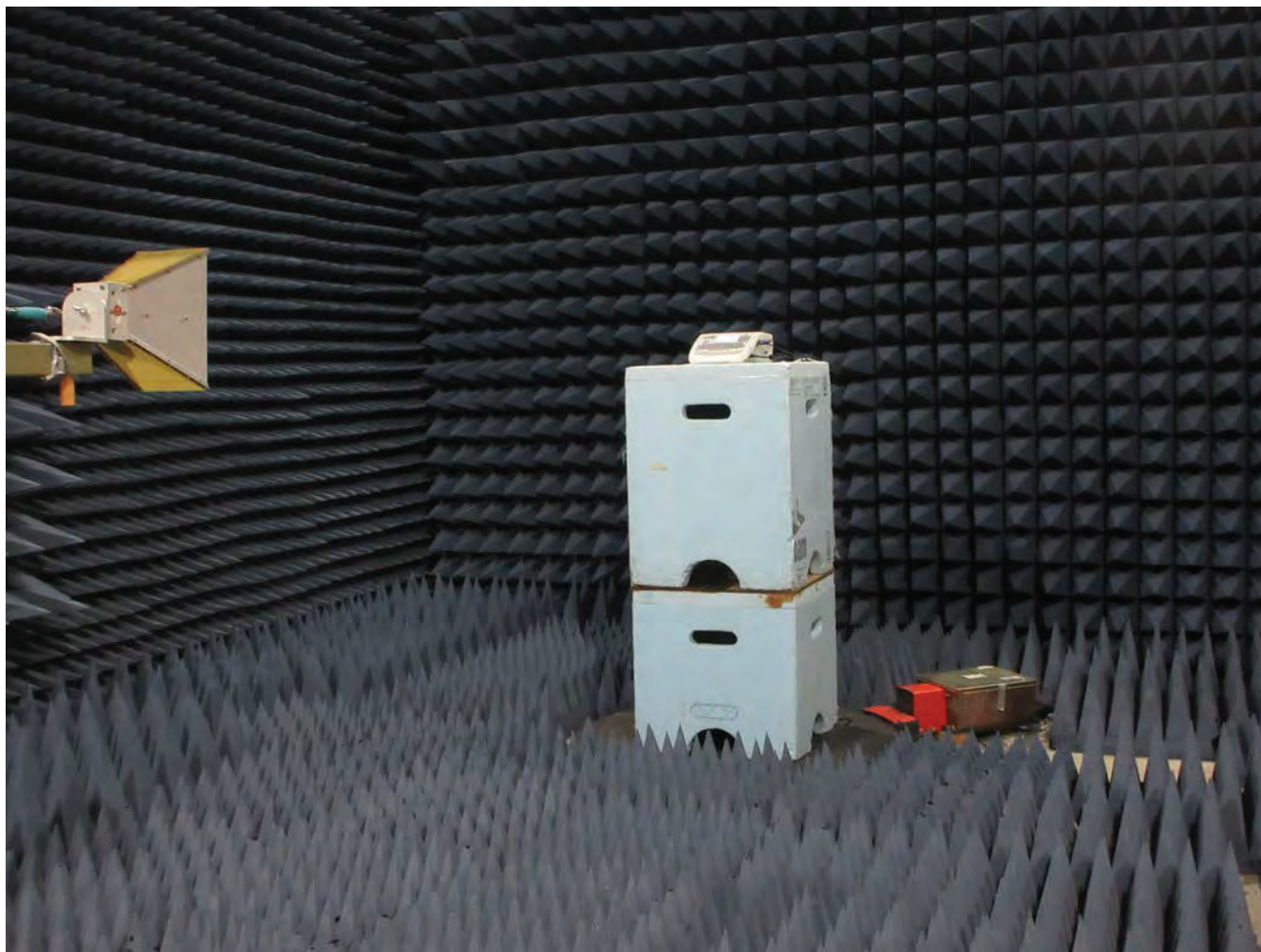
SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 1 GHz

TEST SETUP PHOTOS



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz



Radiated Above 1 GHz



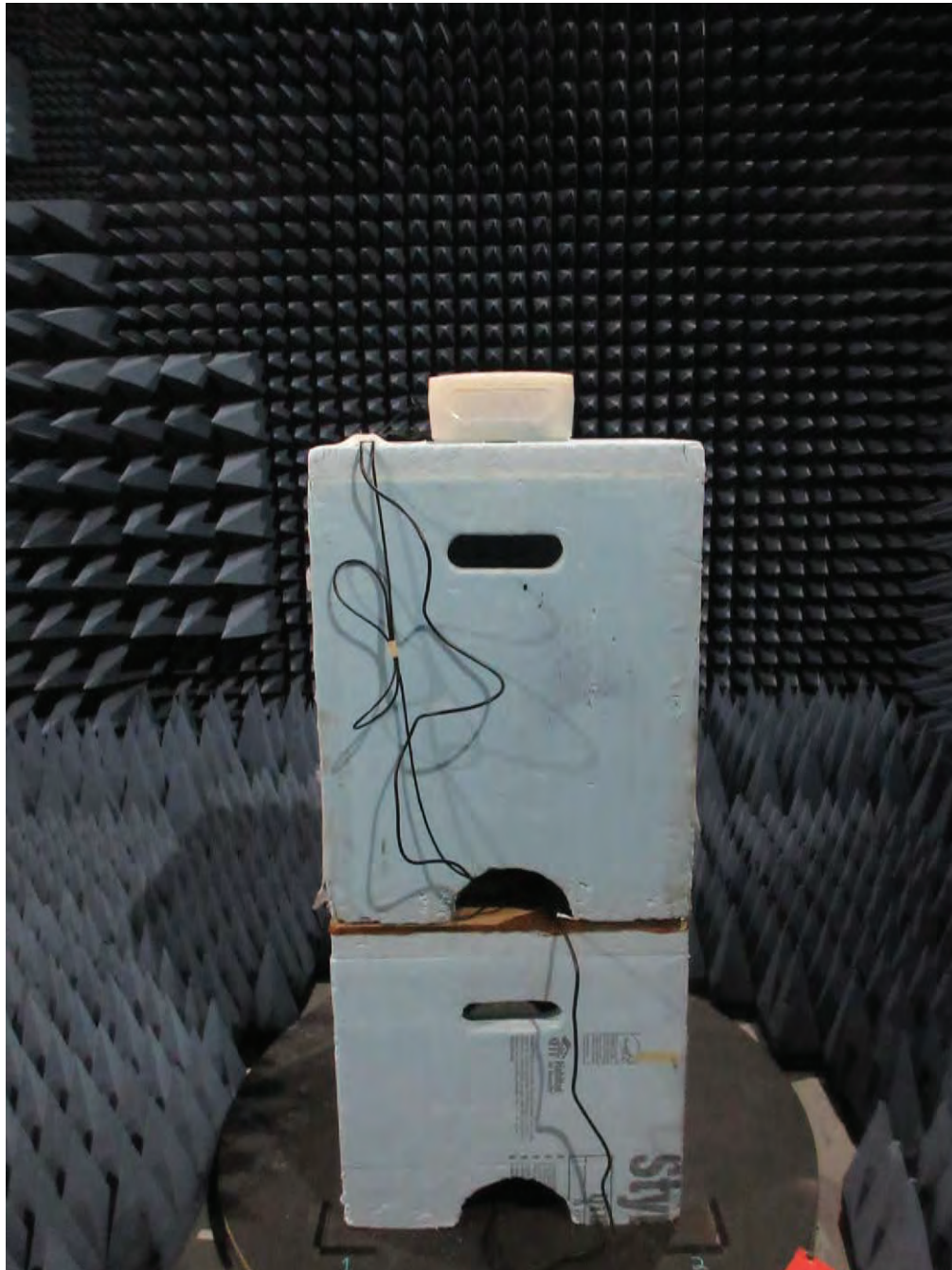
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz



Radiated Above 1 GHz - Front



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz



Radiated Above 1 GHz - Back



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz



Radiated Above 1 GHz - Side



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15 SUBPART C

SECTION 15.209 DATA

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 1 GHz

SPURIOUS - WORST-CASE CHANNELS



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC Part 15.247 / 15.205 / 15.209

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wi-Fi & BLE @ worst channels in cert reports
Comment: Wi-Fi: 2462 MHz, 802.11b, 1Mbps; BLE: 2402 MHz, 1Mbps
Date: 05-09-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

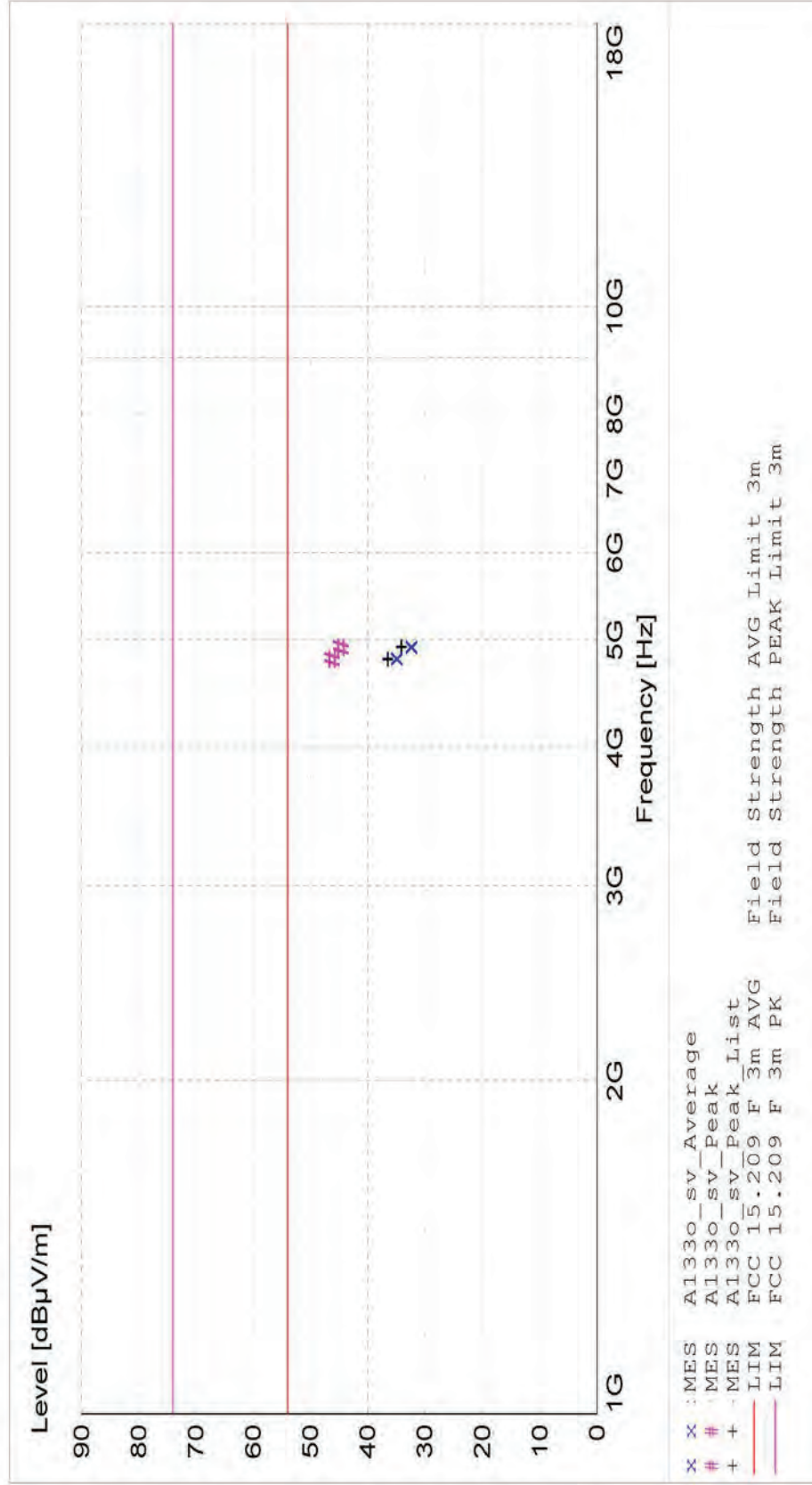
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1)
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

MEASUREMENT RESULT: "A133o_sv_Final"

Frequency MHz	Level dBμV	Antenna Factor dBμV/m	System Loss dB	Total Level dBμV/m	Limit dBμV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
4803.930000	41.32	32.90	-39.0	35.2	54.0	18.8	1.41	115	AVERAGE	None
4924.005000	38.62	33.02	-39.0	32.6	54.0	21.4	1.56	277	AVERAGE	None
4803.930000	52.30	32.90	-39.0	46.2	74.0	27.8	1.41	115	MAX PEAK	None
4924.005000	50.56	33.02	-39.0	44.6	74.0	29.4	1.56	277	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC Part 15.247 / 15.205 / 15.209

Electric Field Strength

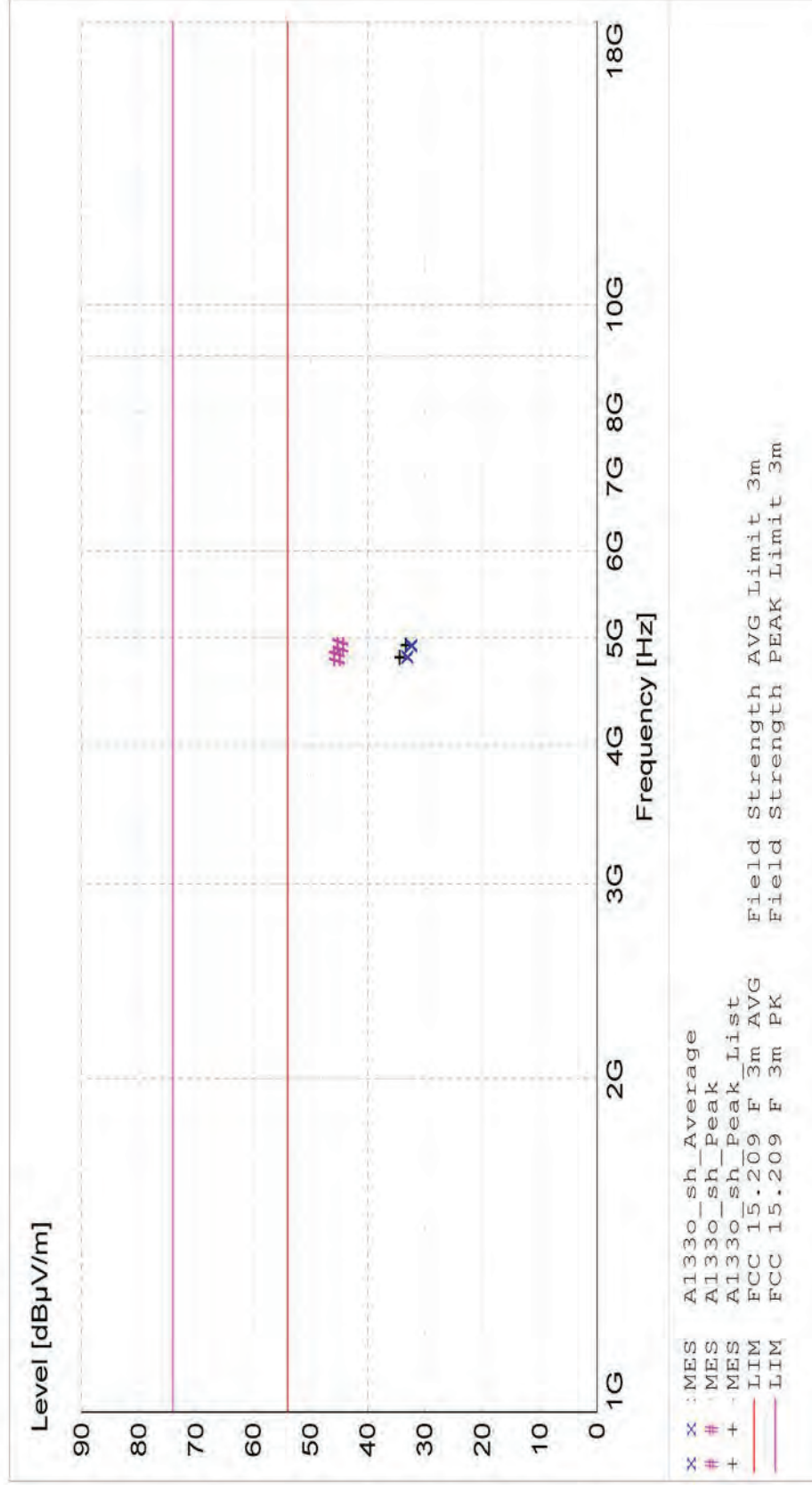
EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wi-Fi & BLE @ worst channels in cert reports
Comment: Wi-Fi: 2462 MHz, 802.11b, 1Mbps; BLE: 2402 MHz, 1Mbps
Date: 05-09-2022

TEXT: "Horz 3 meters"

Short Description:		Test Set-up
Test Set-up:	EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization	
Sample Equations:	Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)	
	24.6 = 35.51 + (-22.1)	
Margin(dB)	= Limit(dBµV/m) - Total Level(dBµV/m)	
	15.4 = 40 - 24.6	
Graph Markers:	+	Frequency marker (Level of marker not related to final level)
		Final maximized level using Quasi-Peak detector
	X	Final maximized level using Average detector
	#	Final maximized level using Peak detector
	-	Background Scan Peak Detector (Optional)
	-	Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

MEASUREMENT RESULT: "A133o_sh_Final"

Frequency MHz	Level dBμV	Antenna Factor dBμV/m	System Loss dB	Total Level dBμV/m	Limit dBμV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
4803.920000	39.44	32.90	-39.0	33.3	54.0	20.7	1.00	182	AVERAGE	None
4924.030000	38.57	33.02	-39.0	32.6	54.0	21.4	1.83	83	AVERAGE	None
4803.920000	51.42	32.90	-39.0	45.3	74.0	28.7	1.00	182	MAX PEAK	None
4924.030000	50.69	33.02	-39.0	44.7	74.0	29.3	1.83	83	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.209 DATA

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 1 GHz

SIMULTANEOUS TRANSMISSION ON SAME CHANNEL



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC Part 15.247 / 15.205 / 15.209

Electric Field Strength

EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wi-Fi & BLE Simultaneous Mid channel
Comment: Wi-Fi: 2442 MHz, 802.11b, 1Mbps; BLE: 2440 MHz, 1Mbps
Date: 05-09-2022

TEXT: "Vert 3 meters"

Short Description: Test Set-up

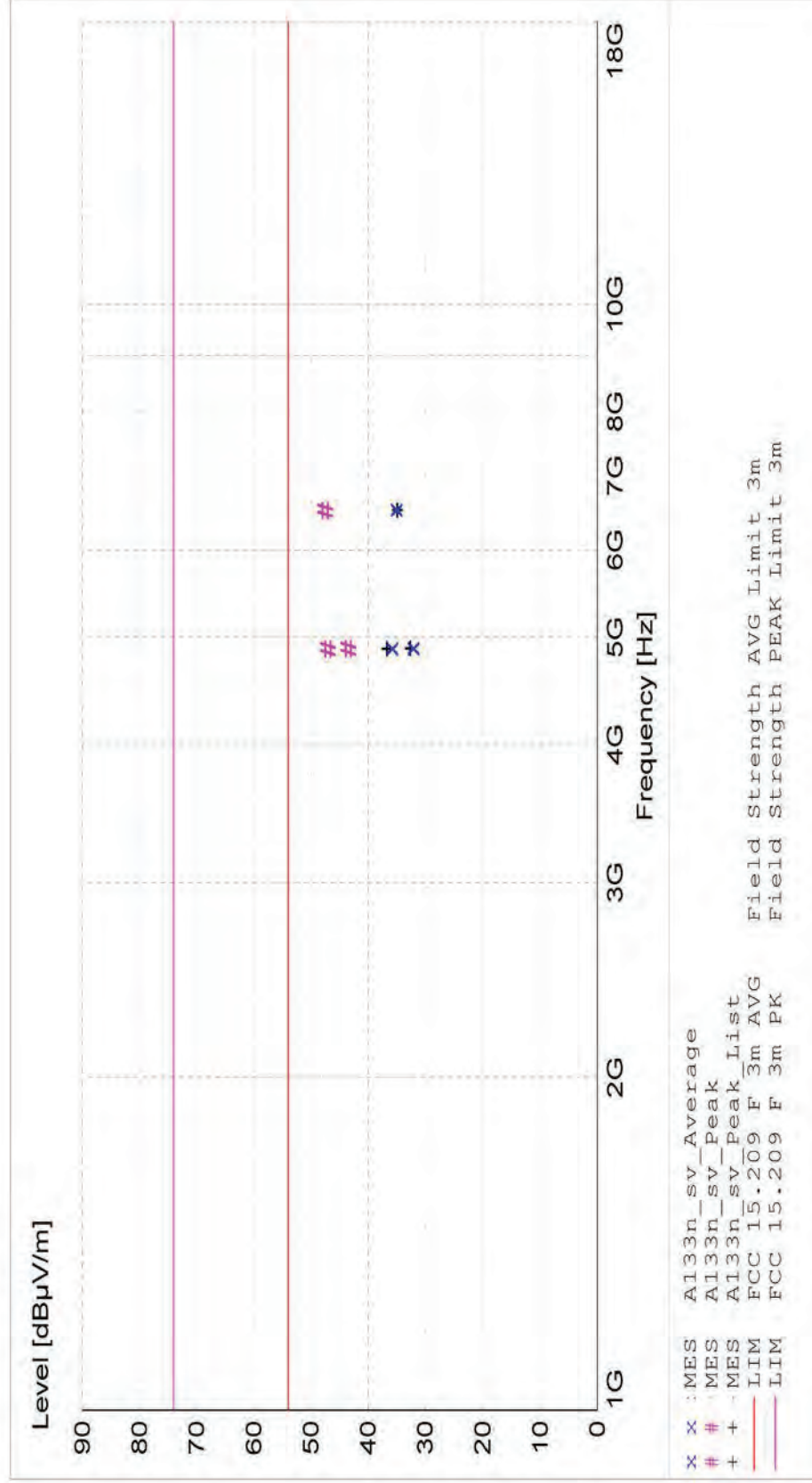
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level (dBµV/m) = Level (dBµV) + System Loss (dB) + Antenna Factor (dBµV/m)
24.6 = 35.51 + (-22.1)
Margin (dB) = Limit (dBµV/m) - Total Level (dBµV/m)
15.4 = 40 - 24.6

Graph Markers: + Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average detector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

MEASUREMENT RESULT: "A133n_sv_Final"

Frequency MHz	Level dBuV	Antenna Factor dBuV/m	System Loss dB	Total Level dBuV/m	Limit dBuV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
4879.900000	42.04	33.02	-39.0	36.0	54.0	18.0	1.21	102	AVERAGE	None
6512.150000	38.89	34.47	-38.1	35.3	54.0	18.7	2.07	148	AVERAGE	None
4883.950000	38.35	33.02	-39.0	32.3	54.0	21.7	1.65	274	AVERAGE	None
6512.150000	51.05	34.47	-38.1	47.4	74.0	26.6	2.07	148	MAX PEAK	None
4879.900000	52.96	33.02	-39.0	47.0	74.0	27.0	1.21	102	MAX PEAK	None
4883.950000	49.39	33.02	-39.0	43.4	74.0	30.6	1.65	274	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC Part 15.247 / 15.205 / 15.209

Electric Field Strength

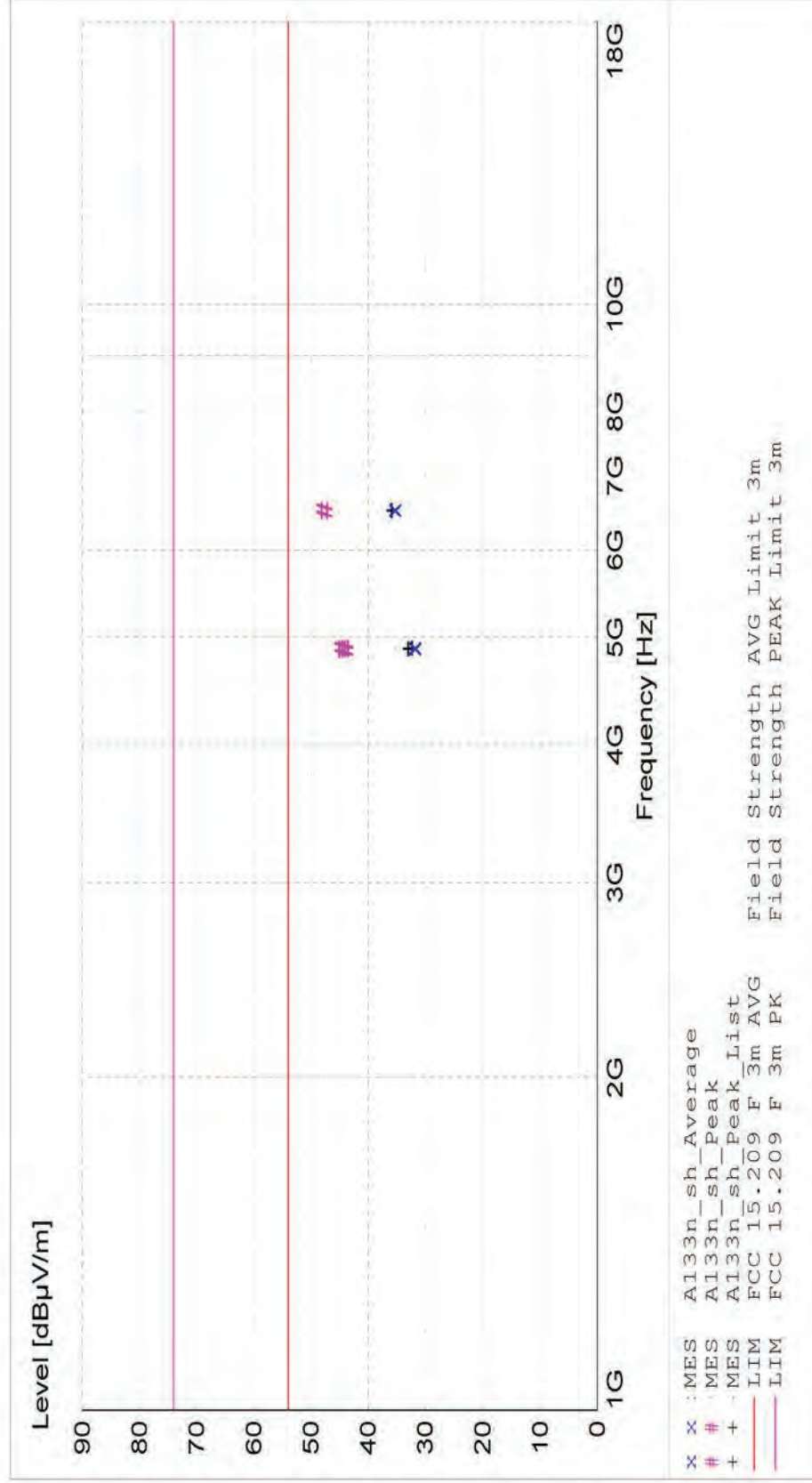
EUT: M710 Printer
Manufacturer: Brady Worldwide
Operating Condition: 68 deg F; 34% R.H.
Test Site: DLS OATS Site G1
Operator: cbrandt #12133
Test Specification: 120 V 60 Hz; Wi-Fi & BLE Simultaneous Mid channel
Comment: Wi-Fi: 2442 MHz, 802.11b, 1Mbps; BLE: 2440 MHz, 1Mbps
Date: 05-09-2022

TEXT: "Horz 3 meters"

Short Description:		Test Set-up
Test Set-up:	EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization	
Sample Equations:	Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)	
	24.6 = 35.51 + (-22.1)	
Margin(dB)	= Limit(dBµV/m) - Total Level(dBµV/m)	
	15.4 = 40 - 24.6	
Graph Markers:	+	Frequency marker (Level of marker not related to final level)
		Final maximized level using Quasi-Peak detector
	X	Final maximized level using Average detector
	#	Final maximized level using Peak detector
	-	Background Scan Peak Detector (Optional)
	-	Background Scan Average Detector (Optional)



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz





Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

MEASUREMENT RESULT: "A133n_sh_Final"

Frequency MHz	Level dBμV	Antenna Factor dBμV/m	System Loss dB	Total Level dBμV/m	Limit dBμV/m	Margin dB	Height Ant. m	Eut. Angle deg	Final Detector	Comment
6512.020000	39.15	34.47	-38.1	35.5	54.0	18.5	1.36	239	AVERAGE	None
4884.000000	38.07	33.02	-39.0	32.1	54.0	21.9	2.03	104	AVERAGE	None
4879.900000	38.01	33.02	-39.0	32.0	54.0	22.0	1.70	164	AVERAGE	None
6512.020000	51.17	34.47	-38.1	47.6	74.0	26.4	1.36	239	MAX PEAK	None
4879.900000	50.45	33.02	-39.0	44.4	74.0	29.6	1.70	164	MAX PEAK	None
4884.000000	49.96	33.02	-39.0	44.0	74.0	30.0	2.03	104	MAX PEAK	None



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.209

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 1 GHz

SPURIOUS - CO-LOCATION DATA



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Radiated Emissions – Co-location

**Brady Worldwide
Model: M710 Printer**

**No additional
Radiated Emissions
were found due to Co-location of the BLE
and Wi-Fi radio modules**

from 1 to 18 GHz

**with BLE transmitting at 2402 MHz & Wi-Fi
transmitting at 2417 MHz**

05-09



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.209 DATA

RADIATED EMISSIONS IN RESTRICTED BANDS
ABOVE 1 GHz

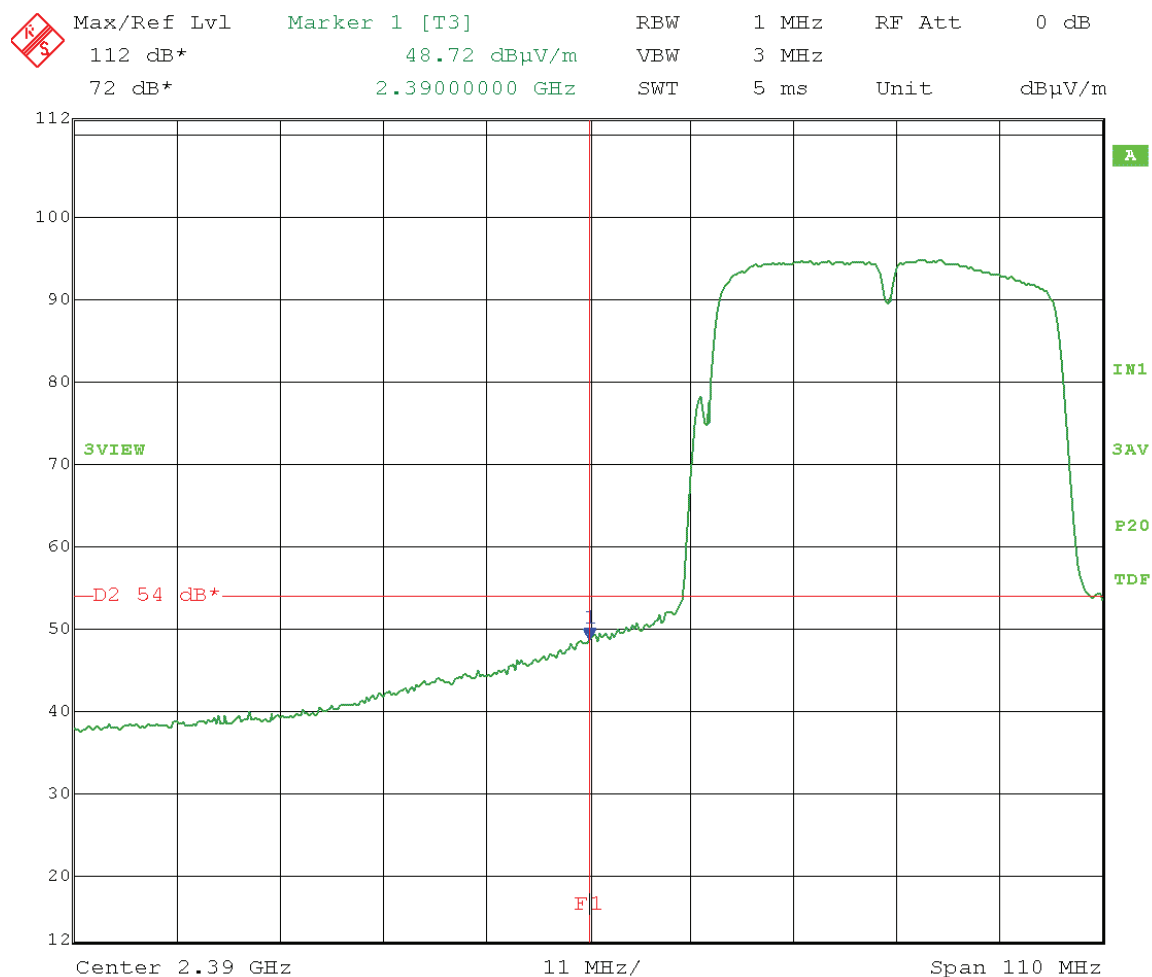
LOWER RESTRICTED BANDEDGE



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Lower Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2422 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2402 MHz, 1 Mbps
(Worst-case lower band-edge config. from module report)
VERTICAL:
AVERAGE: (Limit = 54 dB μ V/m at 3 meters):

Maximum field strength = 48.72 dB μ V/m



Date: 6.MAY.2022 12:53:08



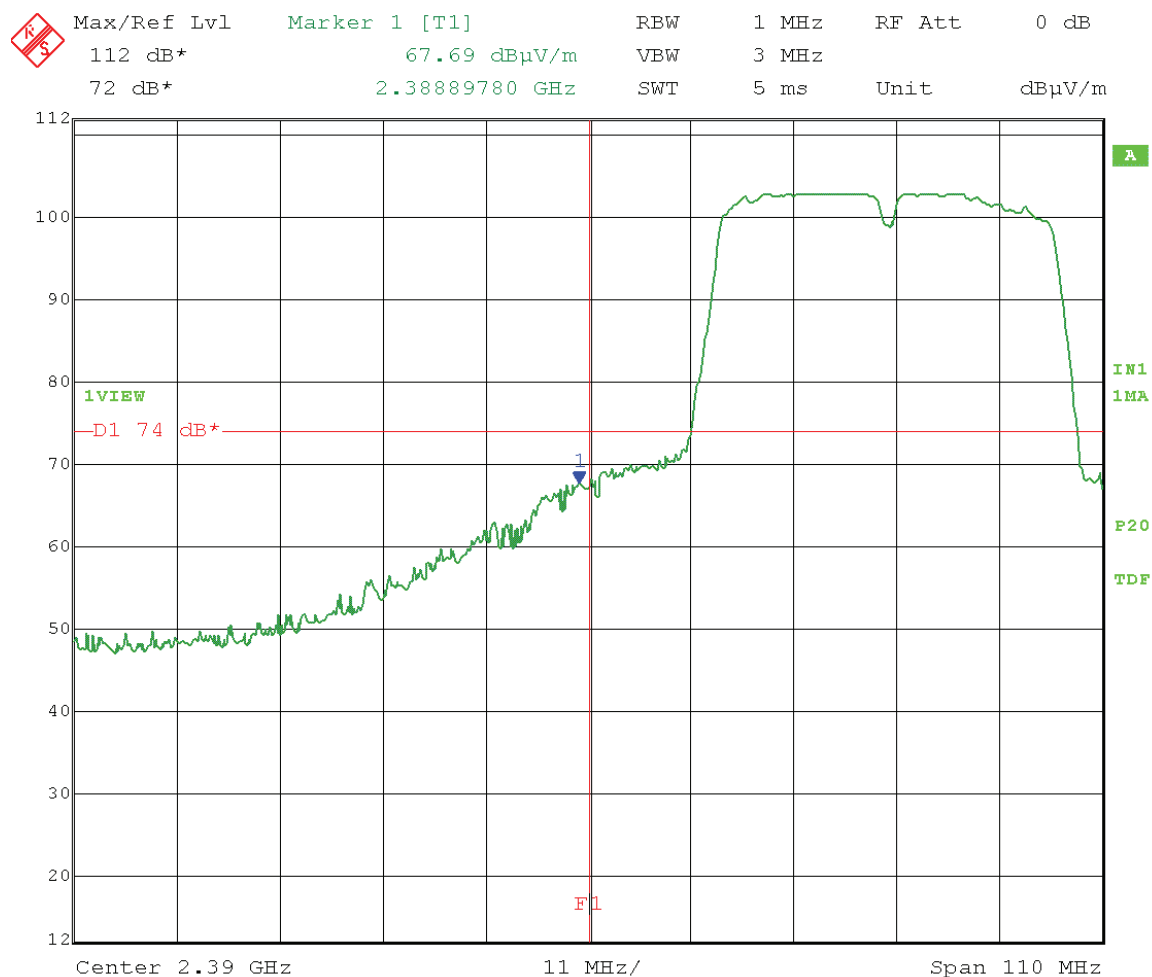
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Lower Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2422 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2402 MHz, 1 Mbps
(Worst-case lower band-edge config. from module report)

VERTICAL:

PEAK: (Limit = 74 dB μ V/m at 3 meters):

Maximum field strength = 67.69 dB μ V/m



Date: 6.MAY.2022 12:53:59



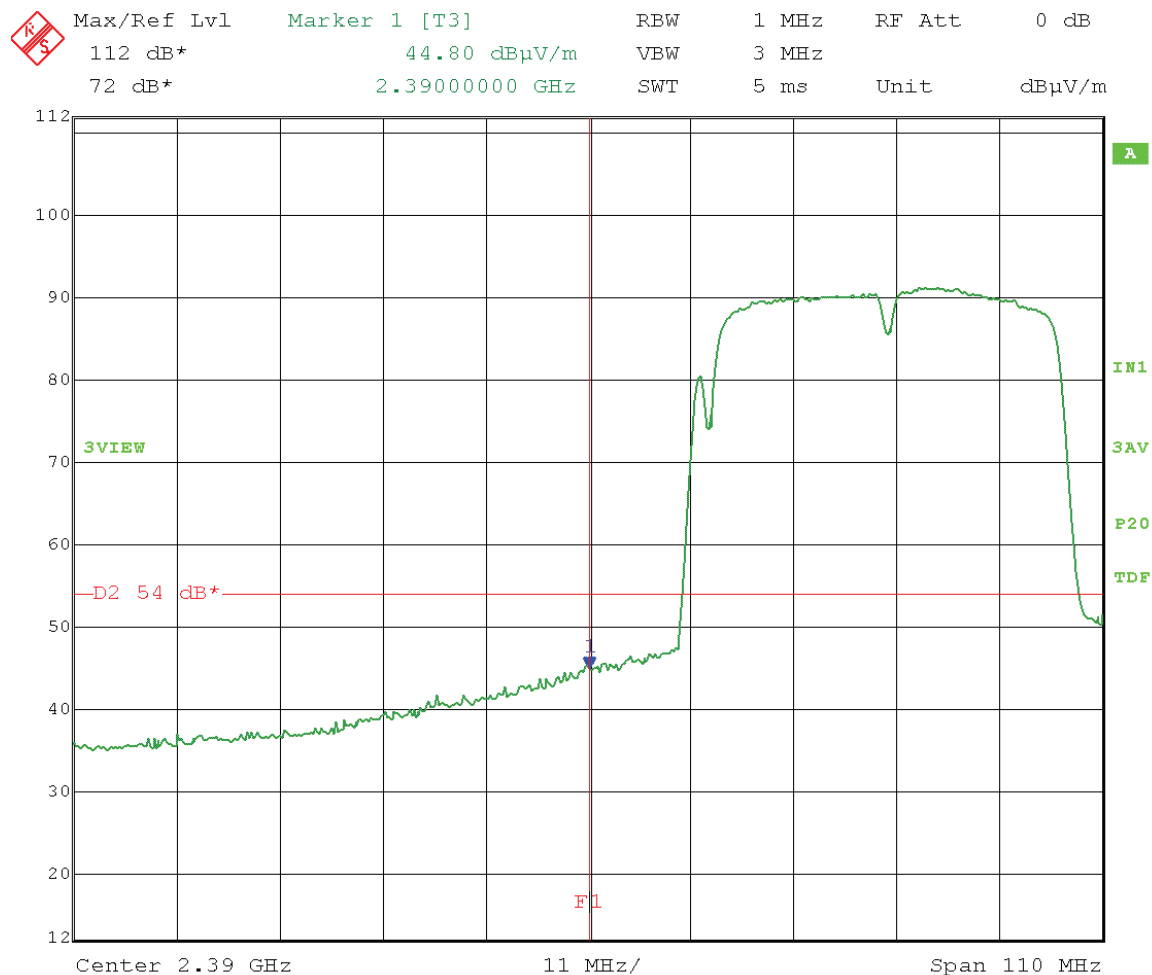
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Lower Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2422 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2402 MHz, 1 Mbps
(Worst-case lower band-edge config. from module report)

HORIZONTAL:

AVERAGE: (Limit = 54 dB μ V/m at 3 meters):

Maximum field strength = 44.80 dB μ V/m



Date: 6.MAY.2022 12:41:52



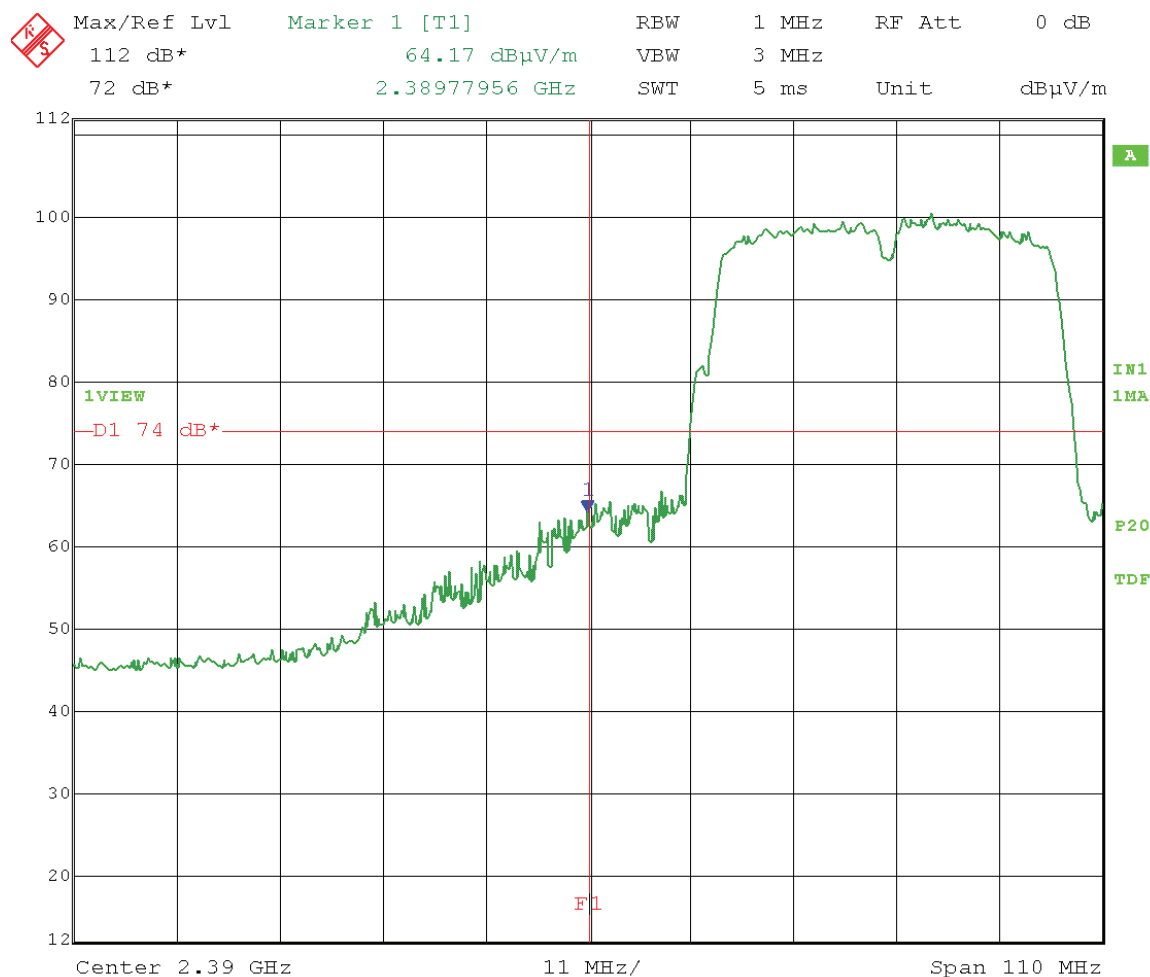
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Lower Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2422 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2402 MHz, 1 Mbps
(Worst-case lower band-edge config. from module report)

HORIZONTAL:

PEAK: (Limit = 74 dB μ V/m at 3 meters):

Maximum field strength = 64.17 dB μ V/m



Date: 6.MAY.2022 12:43:28



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.209 DATA

RADIATED EMISSIONS IN RESTRICTED BANDS
ABOVE 1 GHz

UPPER RESTRICTED BANDEDGE

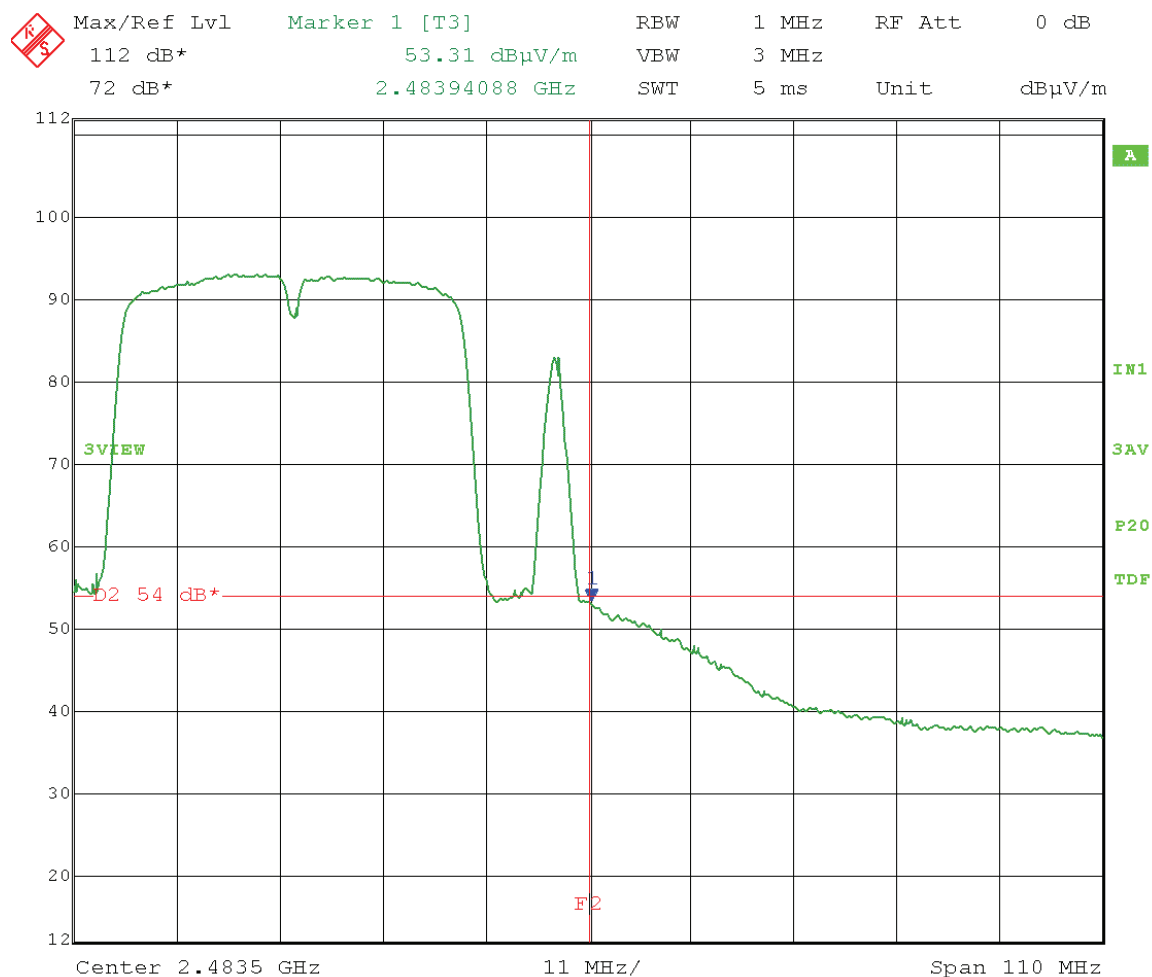


Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Upper Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2452 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2480 MHz, 2 Mbps
(Worst-case lower band-edge config. from module report)

VERTICAL:
AVERAGE: (Limit = 54 dB μ V/m at 3 meters):

Maximum field strength = 53.31 dB μ V/m



Date: 6.MAY.2022 13:19:53



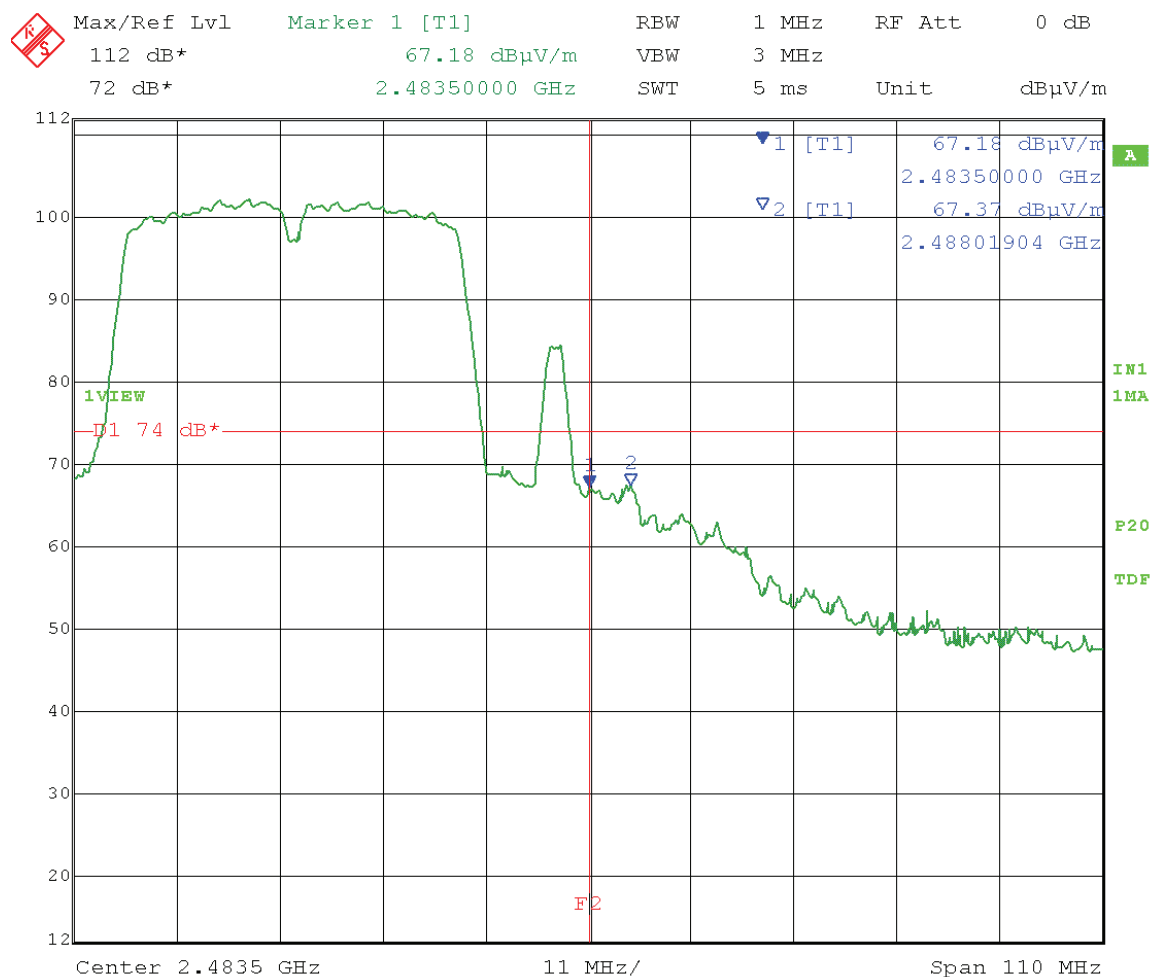
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Upper Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2452 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2480 MHz, 2 Mbps
(Worst-case lower band-edge config. from module report)

VERTICAL:

PEAK: (Limit = 74 dB μ V/m at 3 meters):

Maximum field strength = 67.37 dB μ V/m



Date: 6.MAY.2022 13:21:45



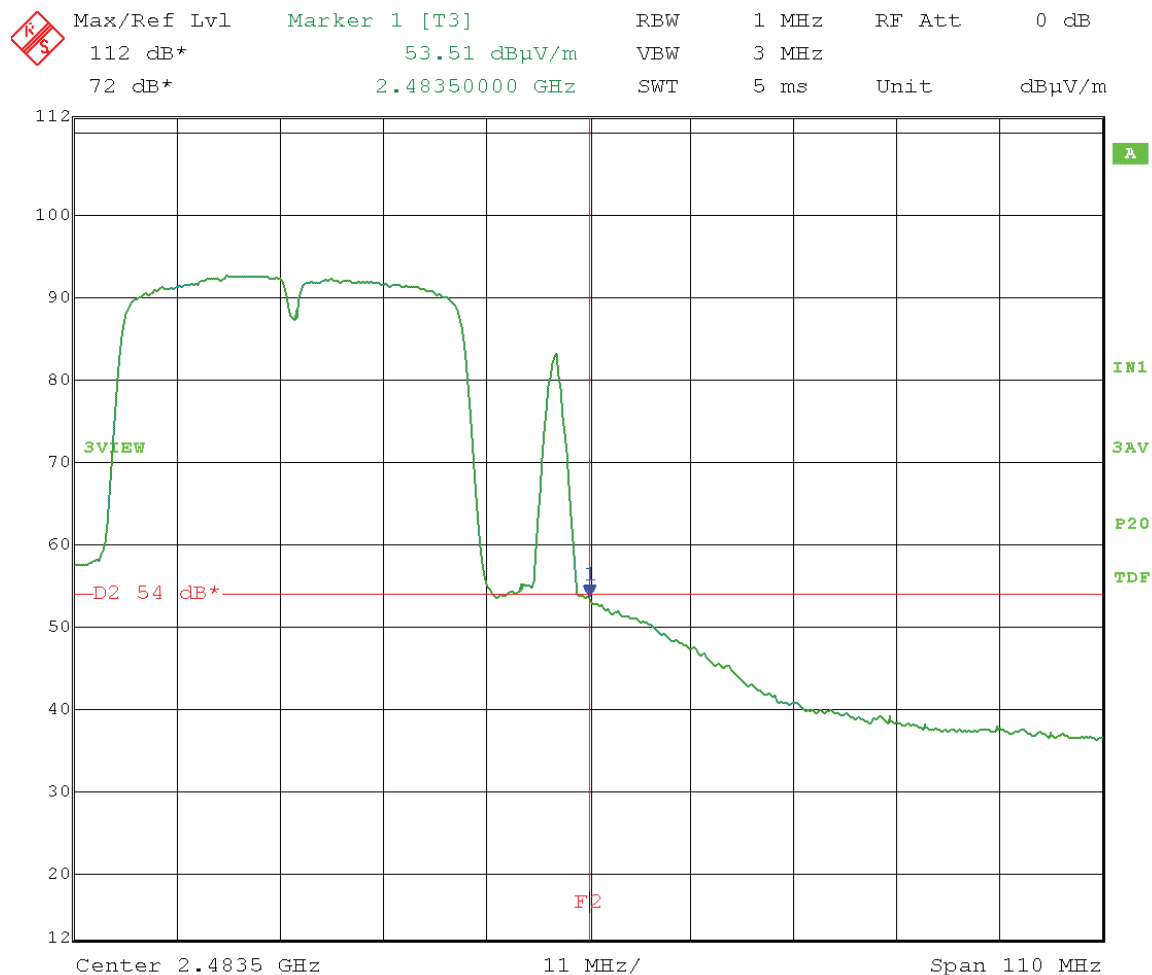
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Upper Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2452 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2480 MHz, 2 Mbps
(Worst-case lower band-edge config. from module report)

HORIZONTAL:

AVERAGE: (Limit = 54 dB μ V/m at 3 meters):

Maximum field strength = 53.51 dB μ V/m



Date: 6.MAY.2022 13:32:48



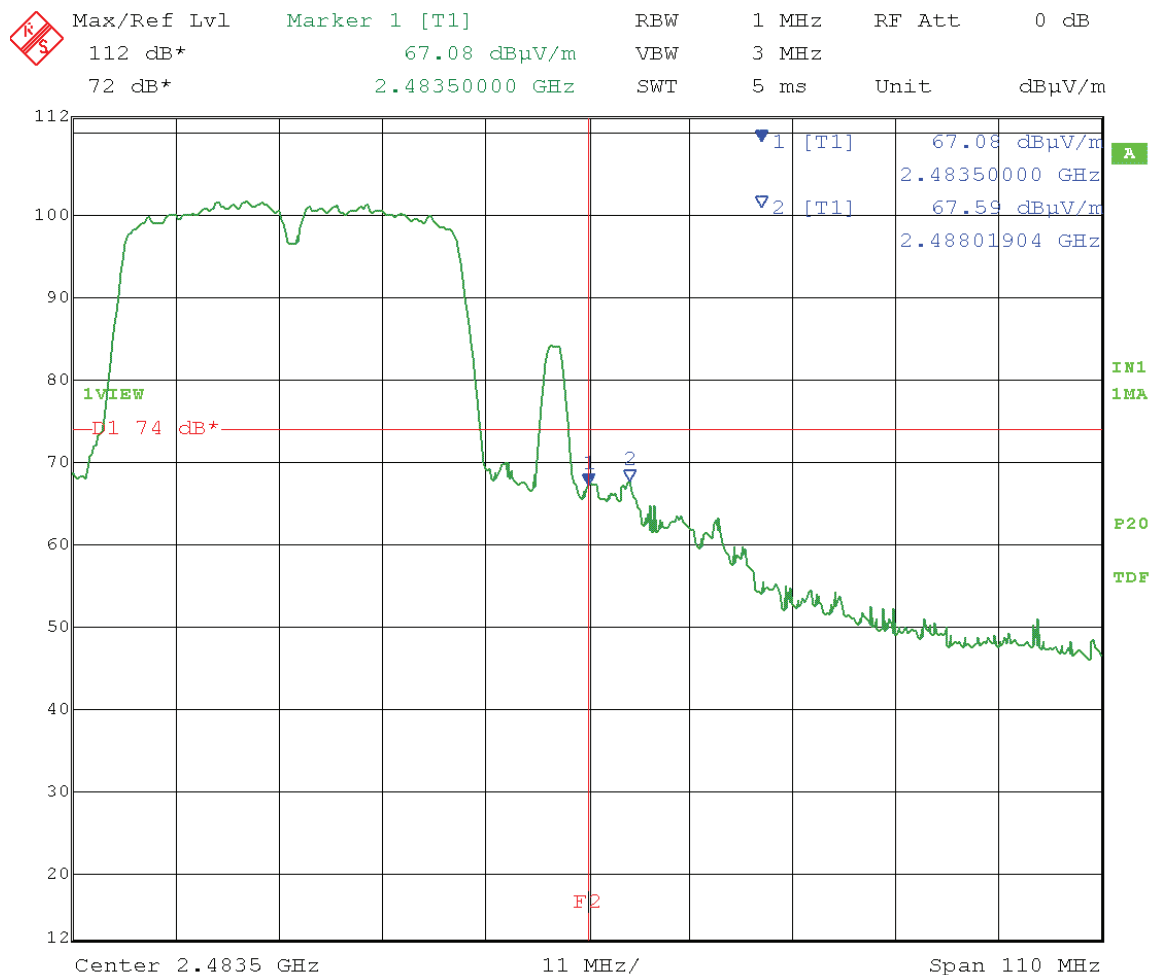
Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Test Date: 05-06-2022
Company: Brady Worldwide
EUT: M710 Printer
Test: Upper Restricted Band-Edge Radiated – 3 meter
Operator: cbrandt
Comment: Wi-Fi: Continuous Transmit, 2452 MHz, 802.11n; HT40, MCS0
(Worst-case lower band-edge config. from module report)
BLE: Continuous Transmit, 2480 MHz, 2 Mbps
(Worst-case lower band-edge config. from module report)

HORIZONTAL:

PEAK: (Limit = 74 dB μ V/m at 3 meters):

Maximum field strength = 67.59 dB μ V/m



Date: 6.MAY.2022 13:34:04



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

FCC PART 15, SUBPART B & SUBPART C

SECTION 15.209 DATA

RADIATED EMISSIONS IN RESTRICTED BANDS ABOVE 18 GHz



Company: Brady Corporation
Model Tested: M710
Report Number: 27040
Project Number: 12133
Test: Section 15.209 Radiated Emissions in Restricted Bands
Above 1 GHz

Radiated Emissions – 18-25 GHz

No emissions were recorded above the 3rd harmonic (7386 MHz) in the certification test reports for the pre-certified BLE & Wi-Fi Transceiver Modules integrated into the Brady Worldwide, Model: M710 Printer

Therefore, no radiated restricted band emissions testing was performed on the M710 Printer in the frequency range 18 to 25 GHz.