Test Report of

Radiated and Conducted Emissions Testing Performed on Clear Access Ballot Marking Device

Issue Date: 11 June 2018

Prepared for: **Pro V&V**
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ACCREDITED

Certificate Number: 0214.43

SIGNATURES

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REVISIONS

Revision	Reason for Revision	Date
NR	Initial Release	08 May 2018

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ADMINISTRATIVE DATA

A. PURPOSE OF TESTS

This report documents the test efforts performed on the Clear Access ballot marking device to verify compliance to the Class B limits of FCC Part 15 and ICES-003. This was a formal qualification test and was conducted on selected dates from May 8 thru May 14, 2018.

The normative references of this standard define the test methods used for the emissions testing. These standards are defined in Table 1.

Table 1. Standards Table	
CFR Title 47 FCC Part 15	ICES-003, Issue 6, 2016
ANSI C63.4: 2014	VVSG 1.0

B. DESCRIPTION OF TEST ITEM

These products are a Clear Access ballot marking device designed for use in commercial and office environments. The products were continually exercised during testing, as documented in the “configuration” field of the test data sheets.

C. MANUFACTURER

Clear Ballot Group
Boston, MA

D. REFERENCES

1. Pro V&V’s Product Data Sheet – 15 May 2018
2. ISO 17025:2005

E. QUANTITY OF ITEMS TESTED

Quantity	Test Item Description	Model Numbers	Serial Numbers
Configuration 1			
1	AIO Touchscreen	ESY15E2	A18C004079
1	Printer	HL-L2350DW	U64964AN263525
1	UPS	SMT-2200	AS1638230963
Configuration 2			
1	AIO Touchscreen	ESY15E2	D18Q000334
1	Printer	B432dn	AK7A044093A0
1	UPS	SMT-2200	AS1721132721
Configuration 3			
1	AIO Touchscreen	ESY20X2	D18Q000335
1	Printer	HL-L2350DW	U64964A8N263531
1	UPS	SMT-2200	AS1721142050
Configuration 4			
1	AIO Touchscreen	ESY20X2	A18C004071
1	Printer	B432dn	AK7A044083A0
1	UPS	SMT-2200	AS1721132721

F. SECURITY CLASSIFICATION

Unclassified

G. TESTS CONDUCTED BY

National Technical Systems
NTS Longmont
1736 Vista View Drive
Longmont, Colorado 80504

H. DISPOSITION OF TEST ITEMS

Returned to:

Pro V&V
700 Boulevard South, Suite 102
Huntsville, AL 35802

I. TEST ENVIRONMENT

Radiated Emissions Test Site

Radiated emissions testing was performed at a distance of 10-meters in a semi-anechoic 10-meter chamber. This chamber is calibrated annually and meets the volumetric site attenuation requirements of CISPR 16 at a distance of 10 meters. For measurements from 30 MHz to 1 GHz, a biconilog antenna is used in conjunction with a high-gain, low-noise preamplifier. This is connected to an HP 8566B spectrum analyzer with an HP 85650A Quasi-Peak (QP) Adapter, via an HP 85685 RF Preselector.

Radiated emissions testing is broken into two parts: pre-scan and QP/maximization. Pre-scanning a product from 30 MHz to 1 GHz consists of measuring peak emissions from eight radials (every 45 degrees), at four antenna heights (1 m, 2 m, 3 m and 4 m) for both antenna polarities. Data is recorded in a graph showing amplitude vs. frequency of the emissions, and frequencies for QP/maximization are chosen based on this graph. The procedure for maximizing emissions is as follows:

1. The analyzer is tuned to the frequency associated with the emissions having the least margin.
2. The turntable and antenna mast are moved to the location where the maximum emission was measured during the pre-scan.
3. Both are then oriented such that the maximum emission is obtained.
4. Cables on the UUT are manually manipulated to achieve the maximum emission.
5. The turntable and antenna mast are then re-adjusted to ensure a maximum reading.
6. If the signal in question is less than 1 GHz, quasi-peak detection is performed on the signal for a minimum of 10 seconds. For signals greater than 1 GHz, video averaging is performed.
7. Turntable/antenna mast maximization and QP detection are performed on all other signals within 6 dB of the limit. In the event that there are not six signals within 6 dB of the limit, the highest six signals are maximized. This ensures that a minimum of six signals are maximized and appear in the final data table.

In the event that emission measurements are required above 1 GHz, the antenna is changed to a double-ridged horn equipped with a preamplifier and run directly into the spectrum analyzer. The QP adapter and RF pre-selector are not used above 1 GHz.

Pre-scanning a product from 1-18 GHz is performed similarly, except that 16 radials (every 22.5 degrees) and three antenna heights (1 m, 1.5 m and 2 m) are used. A similar maximization process is used as for the lower frequency range, except that average measurements are performed, rather than QP measurements.

J. Measurement Uncertainty

The measurement uncertainty for NTS's emissions test facility complies with the requirements defined in CISPR 16. The complete calculation of NTS's measurement uncertainty is contained in an NTS memo, which is available upon request. However, a summary of NTS's measurement uncertainty is given in Table 2-1.

Table 2-1

Test	Requirement	Actual
Radiated Emissions – Horizontal Polarity	5.20 dB	4.67 dB
Radiated Emissions – Vertical Polarity	5.20 dB	5.01 dB

K. TEST APPARATUS

The instrumentation used in the performance of these tests is periodically calibrated and standardized within manufacturer's rated accuracies and are traceable to the National Institute of Standards and Technology. The calibration procedures and practices are in accordance with ISO 17025:2005. Certification of calibration is on file subject to inspection by authorized personnel.

L. SOURCE INSPECTION

NTS QA

M. PURCHASE ORDER NUMBER

2018-008

TEST SUMMARY

The test program may be chronologically summarized as follows:

Paragraph	Test Title	Specification	Test Dates	Results
1.0	Radiated Emissions Test	CFR Title 47 FCC Part 15	May 8 through May 14, 2018	Pass
2.0	Conducted Emissions	CFR Title 47 FCC Part 15	May 8 through May 14, 2018	Pass

FACTUAL DATA

1.0 RADIATED EMISSIONS TEST

References and Requirements

CFR Title 47 FCC Part 15

1.1 Test Requirements

1.1.1 The UUT(s) shall be subjected to Radiated Emissions Test in accordance with the referenced documents.

1.2 Test Procedure

The emission limits applied to the product tested are defined in CFR Title 47, FCC Parts 15.107 and 15.109. This is the U.S. document which governs electromagnetic emissions from computing devices for conducted and radiated emissions, respectively. The UUT was set up as specified in ANSI C63.4: 2014.

1.2.1 **Special Configurations:** Four different equipment array configurations were tested.

1.3 Test Results

1.3.1 Radiated electric field emissions were measured on the UUT over the frequency range from 30 MHz to 1 GHz. The UUT was powered from 120Vac/60Hz, configured in its normal operating mode, and exercised continually during testing. Cables were oriented such that the maximum emission was achieved and quasi-peak detection was performed on all signals (minimum of six) used in the final data table.

Test Input Voltage	Test Result	Margin dB	Frequency MHz
Configuration 1			
120Vac/60Hz	Compliant	7.83	666.673
Configuration 2			
120Vac/60Hz	Compliant	3.22	1333.333
Configuration 3			
120Vac/60Hz	Compliant	3.75	104.304
Configuration 4			
120Vac/60Hz	Compliant	0.15	73.99

1.3.2 The Radiated Emissions Test Data is presented in Appendix A.

2.0 CONDUCTED EMISSIONS TEST

References and Requirements

CFR Title 47 FCC Part 15

2.1 Test Requirements

2.1.1 The UUT(s) shall be subjected to the Conducted Emissions Test accordance with the referenced document.

2.2 Test Procedure

The UUT was set up in accordance with ANSI C63.4 and tested to the Class A limits specified in FCC 15.107.

2.2.1 **Special Configurations**: Four different equipment array configurations were tested.

2.3 Test Results

Conducted emissions were measured on the AC power input of the UUT over the frequency range from 150 kHz to 30 MHz. With the UUT configured in its normal operating mode, testing was performed with UUT powered from 120Vac/60Hz. The input power to both the UUT and the support equipment was run through standard 50 Ω/50 µH line impedance stabilization networks (LISNs) which complied with the requirements of ANSI C63.4. Emissions were compared to both quasi-peak (QP) and average limits, with QP detection and averaging performed on the six highest signals.

Test Input Voltage	Test Result	Margin dB	Frequency MHz
Configuration 1			
120Vac/60Hz	Compliant	6.38	0.156
Configuration 2			
120Vac/60Hz	Compliant	4.21	0.151
Configuration 3			
120Vac/60Hz	Compliant	2.46	0.151
Configuration 4			
120Vac/60Hz	Compliant	9.46	0.151

2.3.1 The visual inspections revealed no anomalies.

2.3.2 The Conducted Emissions Test Data is presented in Appendix B.

APPENDIX A - RADIATED EMISSIONS TEST DATA

CONFIGURATION 1

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018
Temperature:	25˚C Humidity: 30%	Pressure:	841 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol /Hgt(m)	Margin: FCC Class B QP (dB)	Margin: FCC Class B AV (dB)
QP	40.701	21.2	13.3	-30.9	3.6	135/V-Pole/2.00	25.94	-
QP	52.001	39.3	7.4	-31.1	15.6	20/V-Pole/1.00	13.98	-
QP	112.011	36.0	13.2	-30.9	18.3	0/V-Pole/1.55	14.73	-
QP	228.652	28.1	10.9	-30.4	8.6	107/H-Pole/4.00	26.91	-
QP	341.130	25.0	13.9	-30.0	9.0	27/H-Pole/2.31	26.58	-
QP	378.980	24.6	14.9	-30.0	9.5	270/H-Pole/3.00	26.04	-
QP	400.004	34.6	15.6	-29.9	20.3	147/H-Pole/2.47	15.25	-
QP	666.673	37.3	19.3	-28.9	27.7	166/H-Pole/1.50	7.83	-
QP	825.625	22.4	21.3	-28.3	15.4	225/H-Pole/2.00	20.10	-

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018
Temperature:	25˚C Humidity: 30%	Pressure:	841 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B >1GHz PK (dB)	Margin: FCC Class B >1GHz AV (dB)
AV	1824.003	86.8	27.7	-70.9	43.7	322/H-Pole/1.96	-	10.27
PK	1824.003	99.2	27.7	-70.9	56.0	322/H-Pole/1.96	17.92	-
AV	3000.029	86.2	30.9	-71.0	46.1	202/V-Pole/1.27	-	7.85
PK	3000.029	91.9	30.9	-71.0	51.8	202/V-Pole/1.27	22.15	-
AV	3333.359	81.5	32.0	-71.1	42.4	192/V-Pole/1.82	-	11.57
PK	3333.359	89.1	32.0	-71.1	50.0	192/V-Pole/1.82	23.92	-
AV	9155.169	66.4	38.1	-68.6	35.9	292/V-Pole/2.50	-	18.05
PK	9155.169	79.6	38.1	-68.6	49.1	292/V-Pole/2.50	24.85	-
AV	10147.621	65.0	38.3	-67.5	35.9	318/H-Pole/2.50	-	18.10
PK	10147.621	78.0	38.3	-67.5	48.9	318/H-Pole/2.50	25.10	-
AV	17601.334	52.1	46.7	-59.8	39.1	300/H-Pole/4.00	-	14.86
PK	17601.334	65.5	46.7	-59.8	52.5	300/H-Pole/4.00	21.51	-

The highest emission measured was at **666.673 MHz,** which was **7.83 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log. (Sample Calculation: 49.6 dBuV + 11.4 dB/m – 28.8 dB = 32.2 dBuV/m. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "Azm/Pol/Hgt" indicates the turn-table *azimuth*, the antenna *polarity*, and the antenna *height* where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz

to 1

- GHz), and the RBW set to 1 MHz, VBW set to 100 kHz (> 1 GHz)

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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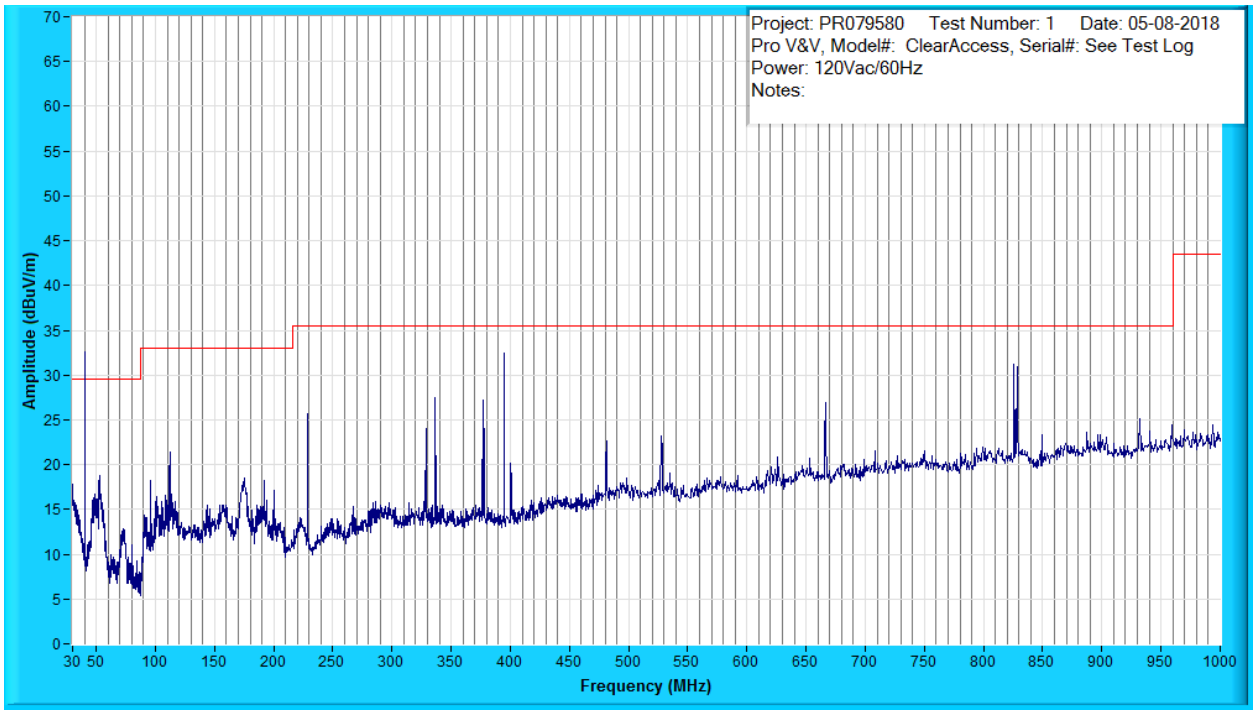

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess ELO ESY15E2 Brother HL-L2350DW APC SMT-2200	S/N:	A18C004079 U64964AN263525 AS1638230963
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure A1: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance

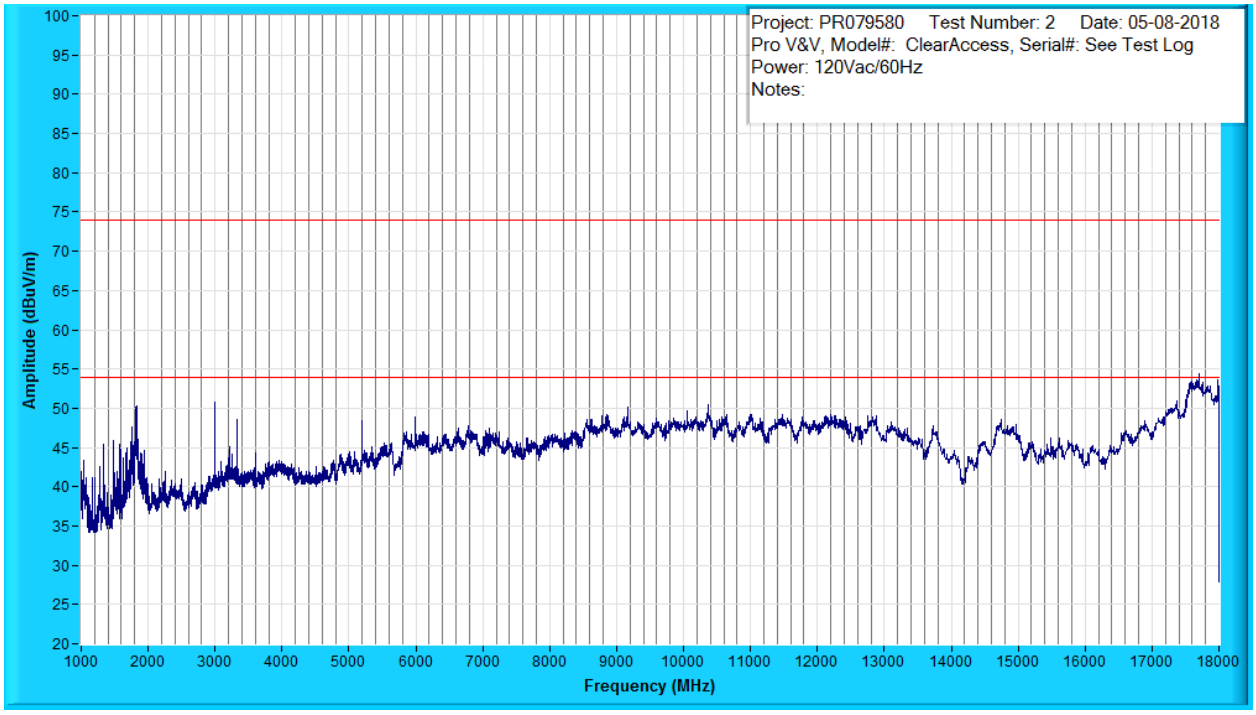

Figure A2: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure A3: Radiated Emissions Test Setup – Front Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure A4: Radiated Emissions Test Setup – Right Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure A5: Radiated Emissions Test Setup – Back Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure A6: Radiated Emissions Test Setup – Left Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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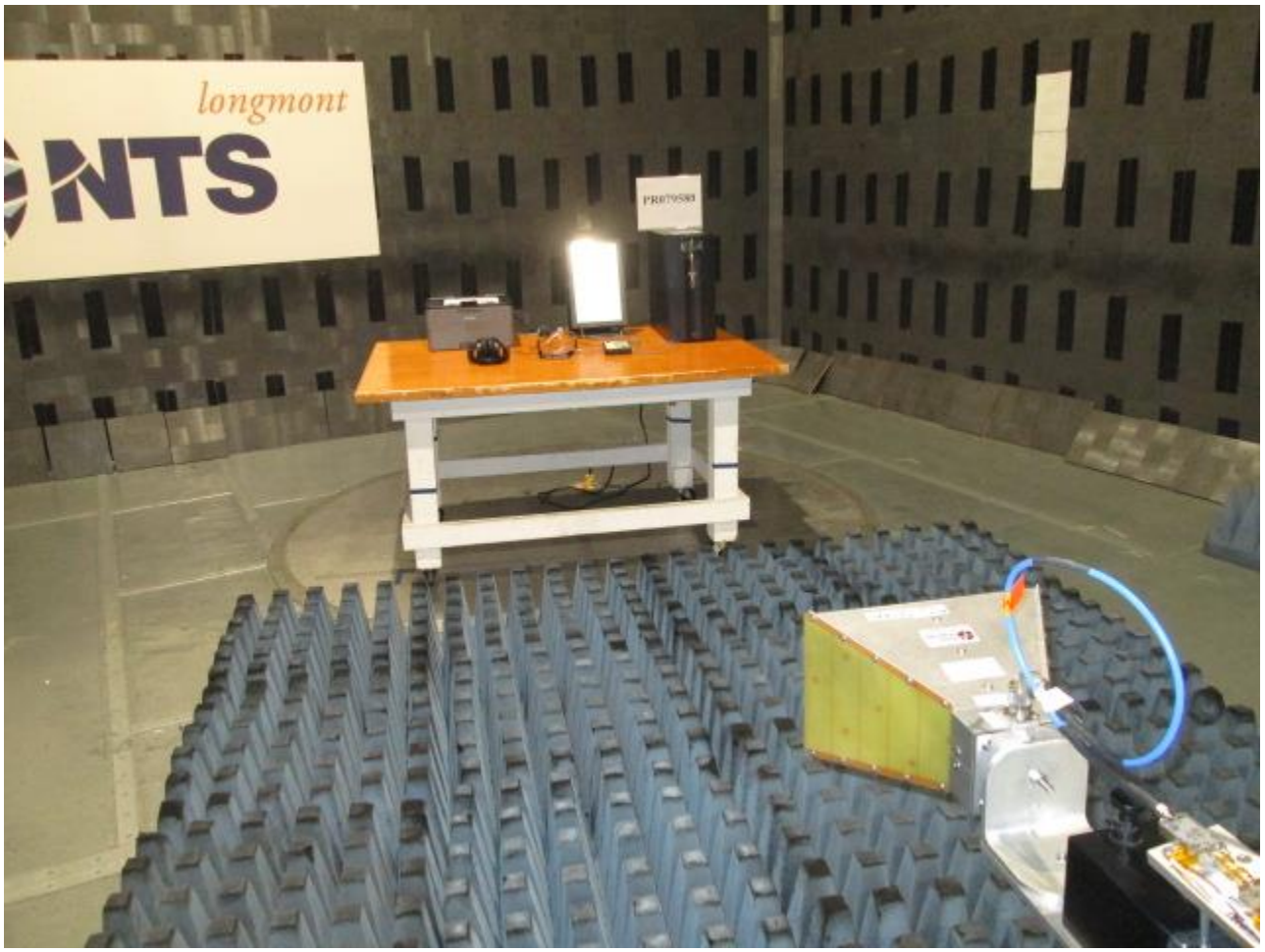

Figure A7: Radiated Emissions Test Setup – Front Side @ 3M

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/02/2018	03/02/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1232	Sunol Sciences	JB1	A071605-2	Bilog Antenna, 30 MHz to 2.0 GHz	06/20/2017	06/20/2018
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	05/10/2017	05/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	01/26/2018	01/26/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1276	Ciao Wireless	CA118-3010	116, 117 and 118	1GHz to 18GHz Preamplifier, 70dB gain nominal	10/09/2017	10/09/2018
1392	Sunol	DRH-118	A020311	1-18 GHz Double-Ridged Horn Antenna	12/07/2017	12/07/2018
1538	Extech Instruments	445715	Z315812	Hygro-Thermometer	05/09/2017	05/09/2018
1555	Com-Power	CGO - 505	301314	5 MHz Step Comb Generator	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

RADIATED EMISSIONS TEST DATA

CONFIGURATION 2

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	23˚C Humidity: 25%	Pressure:	831 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B QP (dB)
QP	93.993	51.4	8.6	-31.0	29.0	82/H-Pole/4.00	4.06
QP	155.538	41.9	12.3	-30.6	23.6	264/V-Pole/1.01	9.49
QP	276.475	40.1	13.3	-30.2	23.1	285/H-Pole/2.82	12.40
QP	375.000	40.3	15.1	-30.0	25.4	197/H-Pole/2.33	10.12
QP	469.872	41.4	17.1	-29.7	28.7	176/V-Pole/2.90	6.80
QP	720.042	33.4	20.1	-28.7	24.8	146/H-Pole/1.01	10.76
QP	874.999	34.0	21.7	-27.9	27.8	31/V-Pole/1.87	7.72
QP	960.055	36.6	22.4	-27.5	31.5	0/H-Pole/3.52	11.93

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	23˚C Humidity: 25%	Pressure:	831 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B >1GHz PK (dB)	Margin: FCC Class B >1GHz AV (dB)
AV	1333.333	95.5	25.3	-70.1	50.7	12/V-Pole/1.00	-	3.22
PK	1333.333	98.3	25.3	-70.1	53.5	12/V-Pole/1.00	20.47	-
AV	1656.729	88.0	26.4	-70.5	43.9	138/V-Pole/1.00	-	10.07
PK	1656.729	98.8	26.4	-70.5	54.7	138/V-Pole/1.00	19.27	-
AV	1877.861	78.0	28.0	-70.9	35.0	225/H-Pole/1.00	-	18.93
PK	1877.861	92.6	28.0	-70.9	49.6	225/H-Pole/1.00	24.33	-
AV	4974.749	87.3	33.9	-75.2	46.0	179/V-Pole/1.39	-	7.99
PK	4974.749	94.2	33.9	-75.2	52.9	179/V-Pole/1.39	21.09	-
AV	10023.748	73.7	38.2	-67.6	44.2	176/V-Pole/1.56	-	9.76
PK	10023.748	82.5	38.2	-67.6	53.0	176/V-Pole/1.56	20.91	-
AV	17698.512	50.5	47.7	-58.8	39.5	315/H-Pole/1.00	-	14.51
PK	17698.512	63.6	47.7	-58.8	52.5	315/H-Pole/1.00	21.46	-

The highest emission measured was at **1333.333 MHz,** which was **3.22 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log. (Sample Calculation: 49.6 dBuV + 11.4 dB/m – 28.8 dB = 32.2 dBuV/m. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "Azm/Pol/Hgt" indicates the turn-table *azimuth*, the antenna *polarity*, and the antenna *height* where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz

to 1

- GHz), and the RBW set to 1 MHz, VBW set to 100 kHz (> 1 GHz)

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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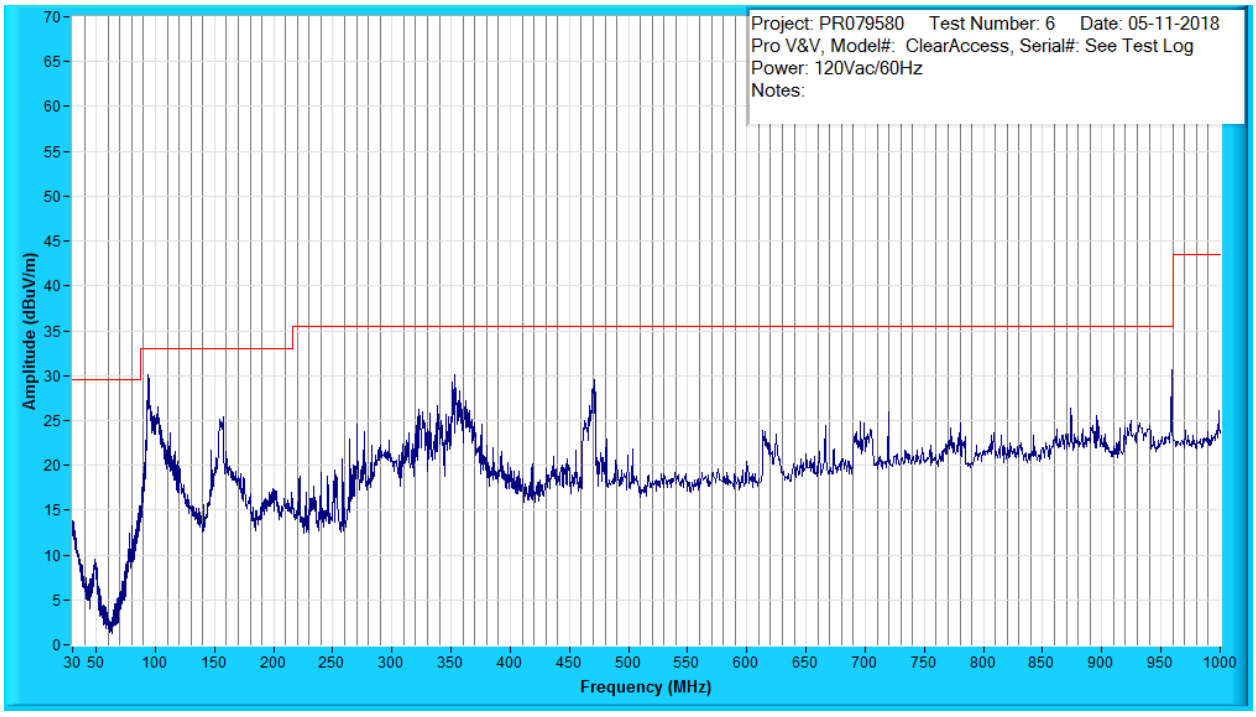

Figure A1: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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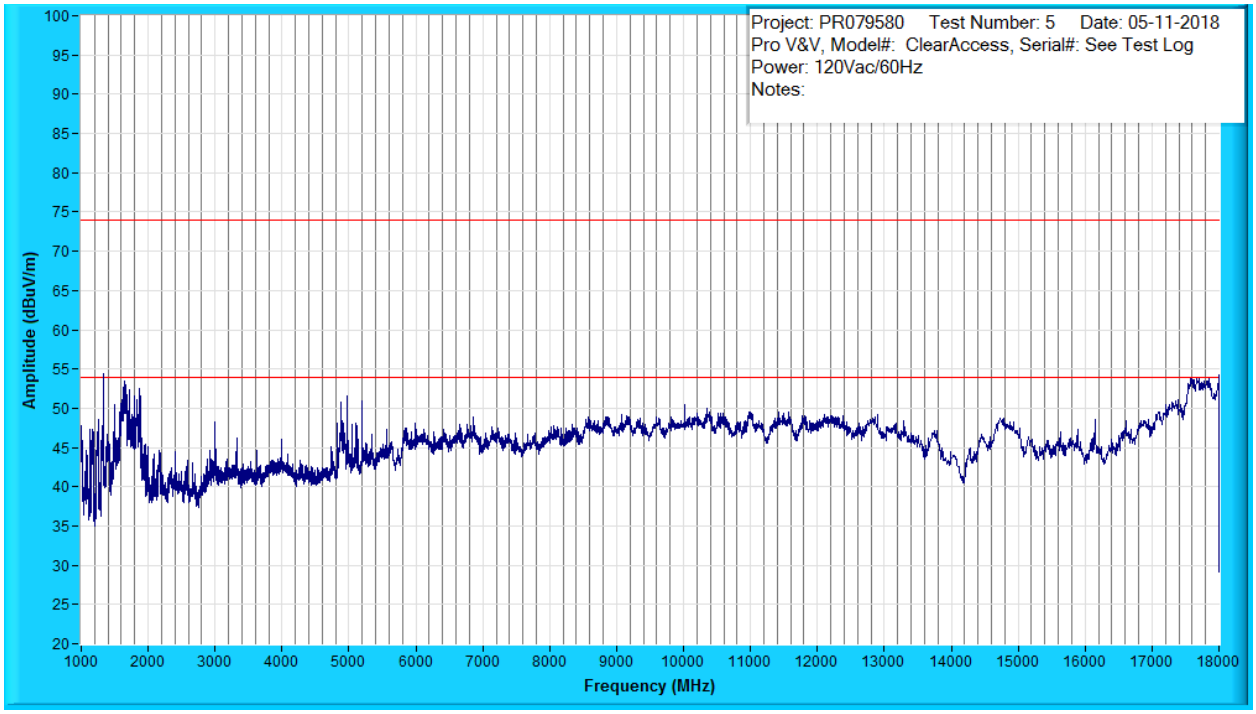

Figure A2: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A3: Radiated Emissions Test Setup – Front Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A4: Radiated Emissions Test Setup – Right Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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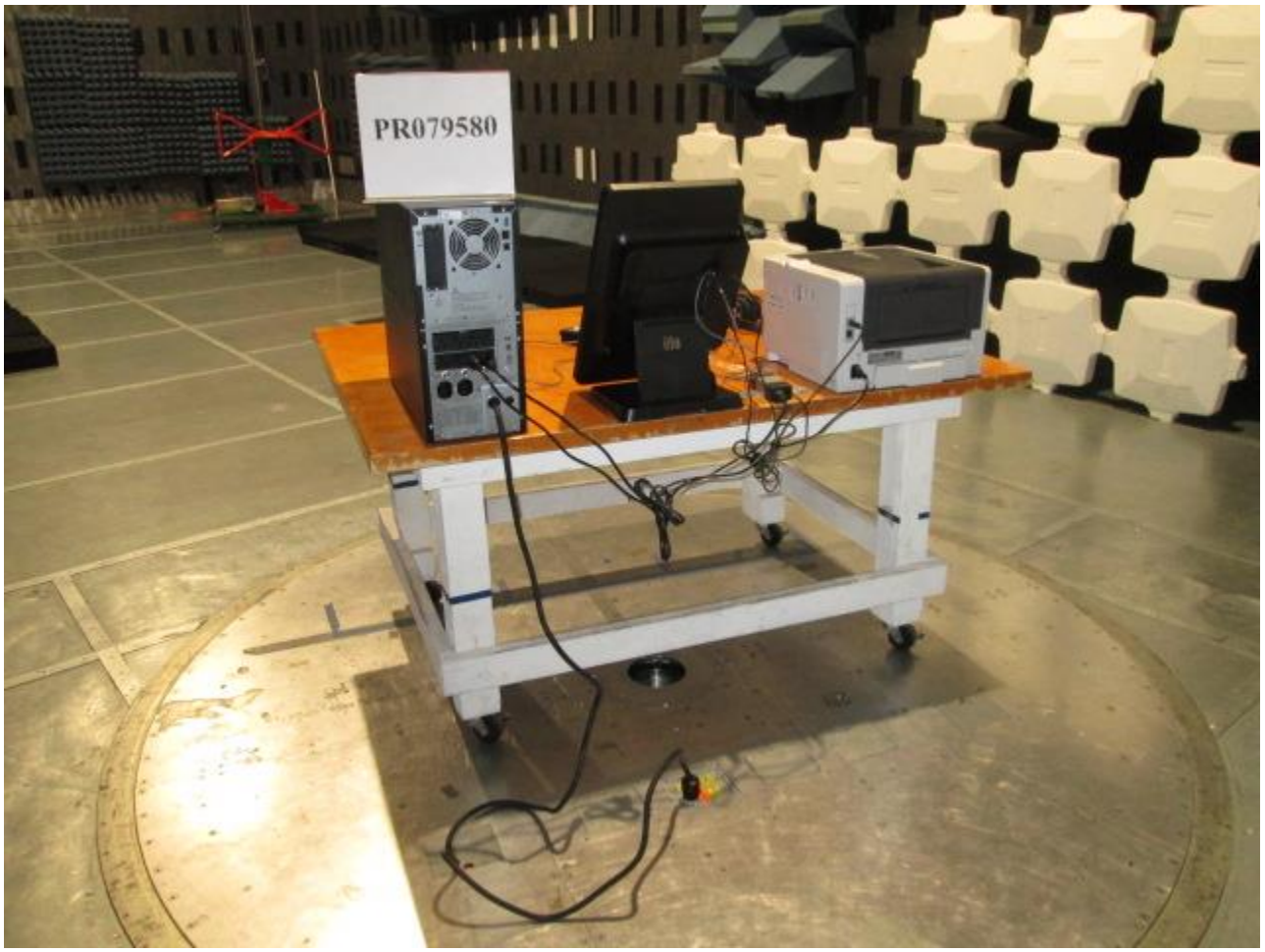

Figure A5: Radiated Emissions Test Setup – Back Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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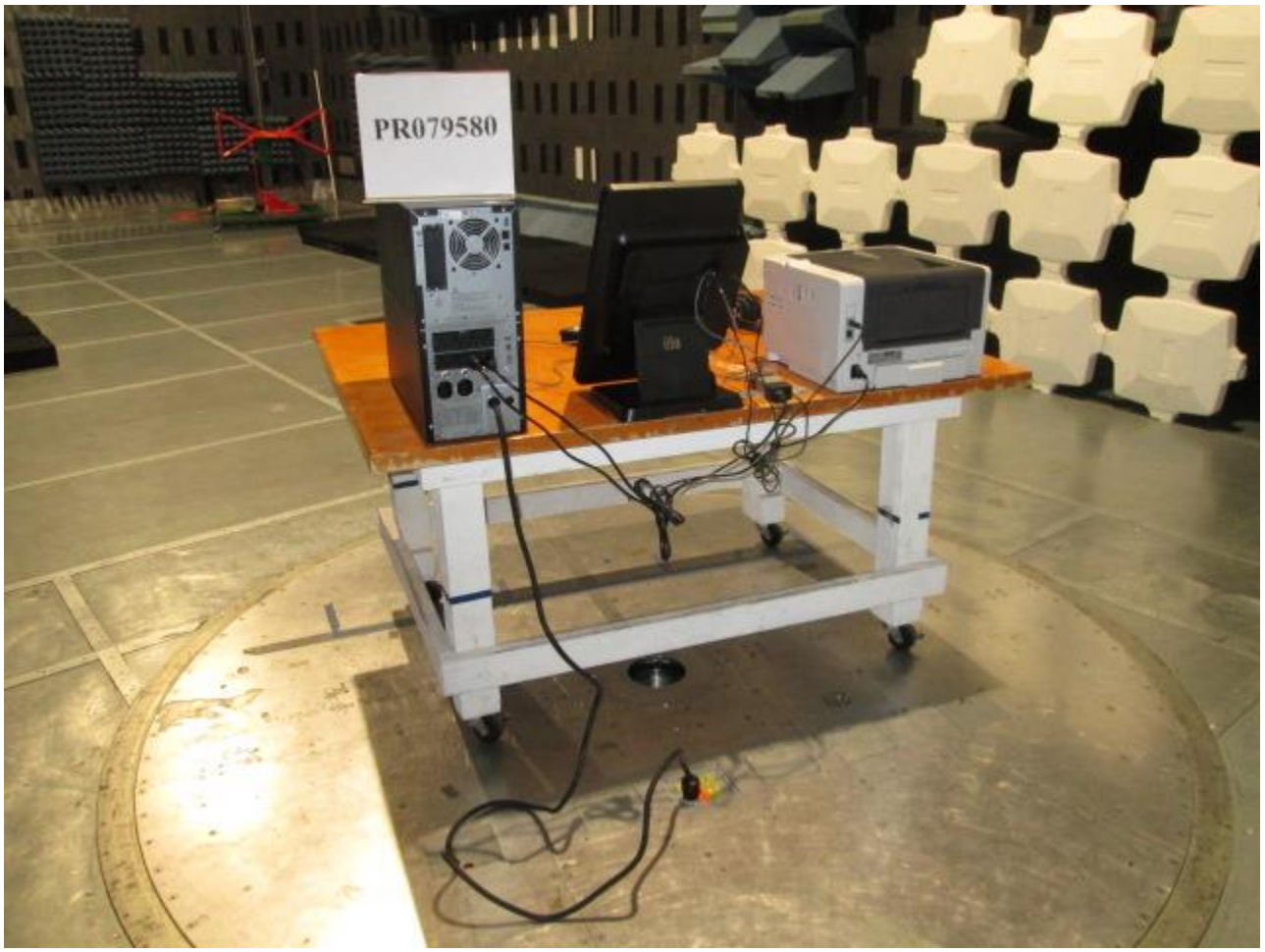

Figure A6: Radiated Emissions Test Setup – Left Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A7: Radiated Emissions Test Setup – Front Side @ 3M

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-RE.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/02/2018	03/02/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1232	Sunol Sciences	JB1	A071605-2	Bilog Antenna, 30 MHz to 2.0 GHz	06/20/2017	06/20/2018
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	05/10/2017	06/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	01/26/2018	01/26/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1276	Ciao Wireless	CA118-3010	116, 117 and 118	1GHz to 18GHz Preamplifier, 70dB gain nominal	10/09/2017	10/09/2018
1392	Sunol	DRH-118	A020311	1-18 GHz Double-Ridged Horn Antenna	12/07/2017	12/07/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1555	Com-Power	CGO - 505	301314	5 MHz Step Comb Generator	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

RADIATED EMISSIONS TEST DATA

CONFIGURATION 3

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	24˚C Humidity: 22%	Pressure:	831mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B QP (dB)
QP	82.703	35.4	7.5	-31.2	11.8	174/H-Pole/4.00	17.77
QP	104.304	48.7	11.5	-30.9	29.3	243/V-Pole/1.11	3.75
QP	163.089	39.5	12.2	-30.6	21.1	20/V-Pole/2.06	11.98
QP	276.480	35.0	13.3	-30.2	18.1	309/H-Pole/1.94	17.46
QP	307.199	38.3	13.4	-30.2	21.6	0/H-Pole/2.26	13.96
QP	585.397	26.1	18.8	-29.3	15.6	174/H-Pole/3.76	19.99
QP	839.954	28.5	21.1	-28.1	21.5	136/H-Pole/1.03	14.01
QP	960.058	38.2	22.4	-27.5	33.2	138/H-Pole/3.52	10.29

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	24˚C Humidity: 22%	Pressure:	831mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B >1GHz PK (dB)	Margin: FCC Class B >1GHz AV (dB)
AV	1500.160	91.4	25.5	-70.3	46.6	153/V-Pole/1.20	-	7.36
PK	1500.160	98.9	25.5	-70.3	54.1	153/V-Pole/1.20	19.86	-
AV	1673.388	88.9	26.5	-70.6	44.9	157/V-Pole/1.00	-	9.10
PK	1673.388	99.6	26.5	-70.6	55.6	157/V-Pole/1.00	18.40	-
AV	4974.744	86.5	33.9	-75.2	45.2	166/V-Pole/1.11	-	8.74
PK	4974.744	91.7	33.9	-75.2	50.4	160/V-Pole/1.11	23.59	-
AV	5197.514	87.8	34.3	-74.2	48.0	185/V-Pole/1.08	-	6.01
PK	5197.514	93.6	34.3	-74.2	53.7	185/V-Pole/1.08	20.26	-
AV	6000.097	81.3	35.6	-70.2	46.8	173/V-Pole/1.92	-	7.21
PK	6000.097	86.5	35.6	-70.2	51.9	173/V-Pole/1.92	22.06	-
AV	11457.651	63.0	39.0	-66.3	35.8	225/V-Pole/4.00	-	18.21
PK	11457.651	76.4	39.0	-66.3	49.1	225/V-Pole/4.00	24.81	-
AV	17695.249	50.6	47.6	-58.8	39.5	22/H-Pole/2.49	-	14.48
PK	17695.249	63.5	47.6	-58.8	52.3	22/H-Pole/2.49	21.63	-

The highest emission measured was at **104.304 MHz,** which was **3.75 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log. (Sample Calculation: 49.6 dBuV + 11.4 dB/m – 28.8 dB = 32.2 dBuV/m. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "Azm/Pol/Hgt" indicates the turn-table *azimuth*, the antenna *polarity*, and the antenna *height* where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.

- The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz to 1 GHz), and the RBW set to 1 MHz, VBW set to 100 kHz (> 1 GHz)

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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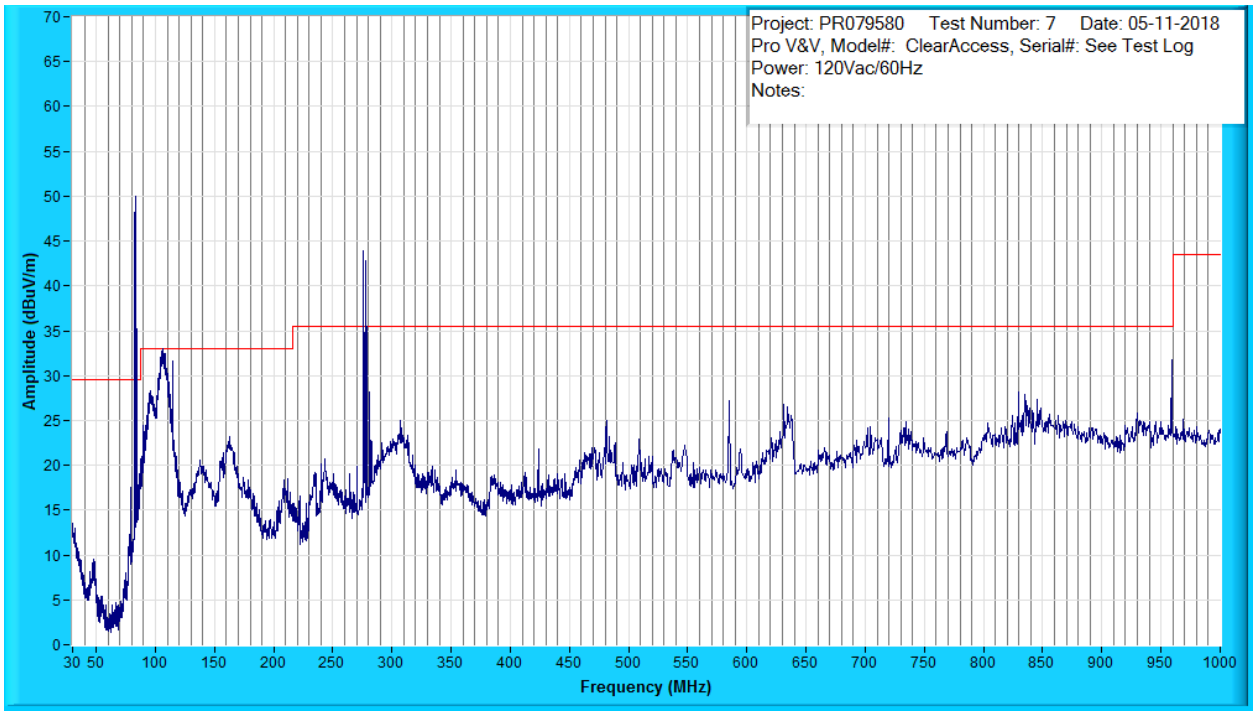

Figure A1: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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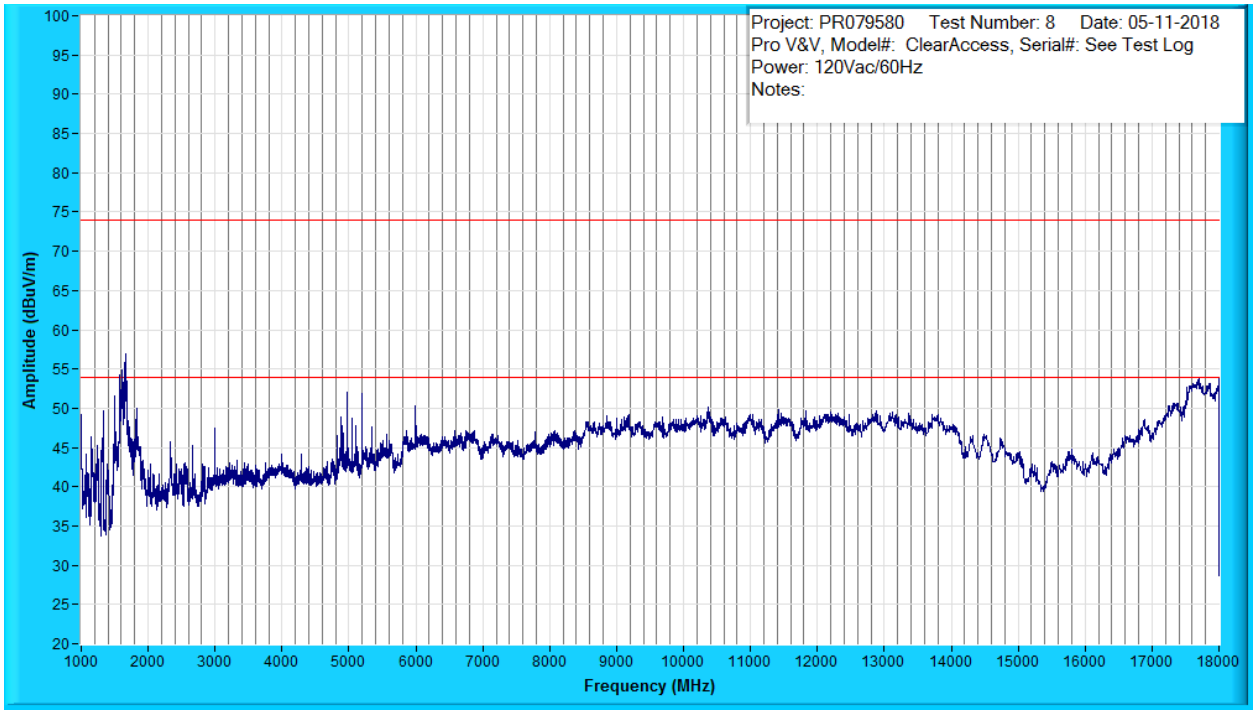

Figure A2: Radiated Emissions Prescan, 1GHz to 18 GHz, Peak Measurements at 3m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A3: Radiated Emissions Test Setup – Front Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A4: Radiated Emissions Test Setup – Right Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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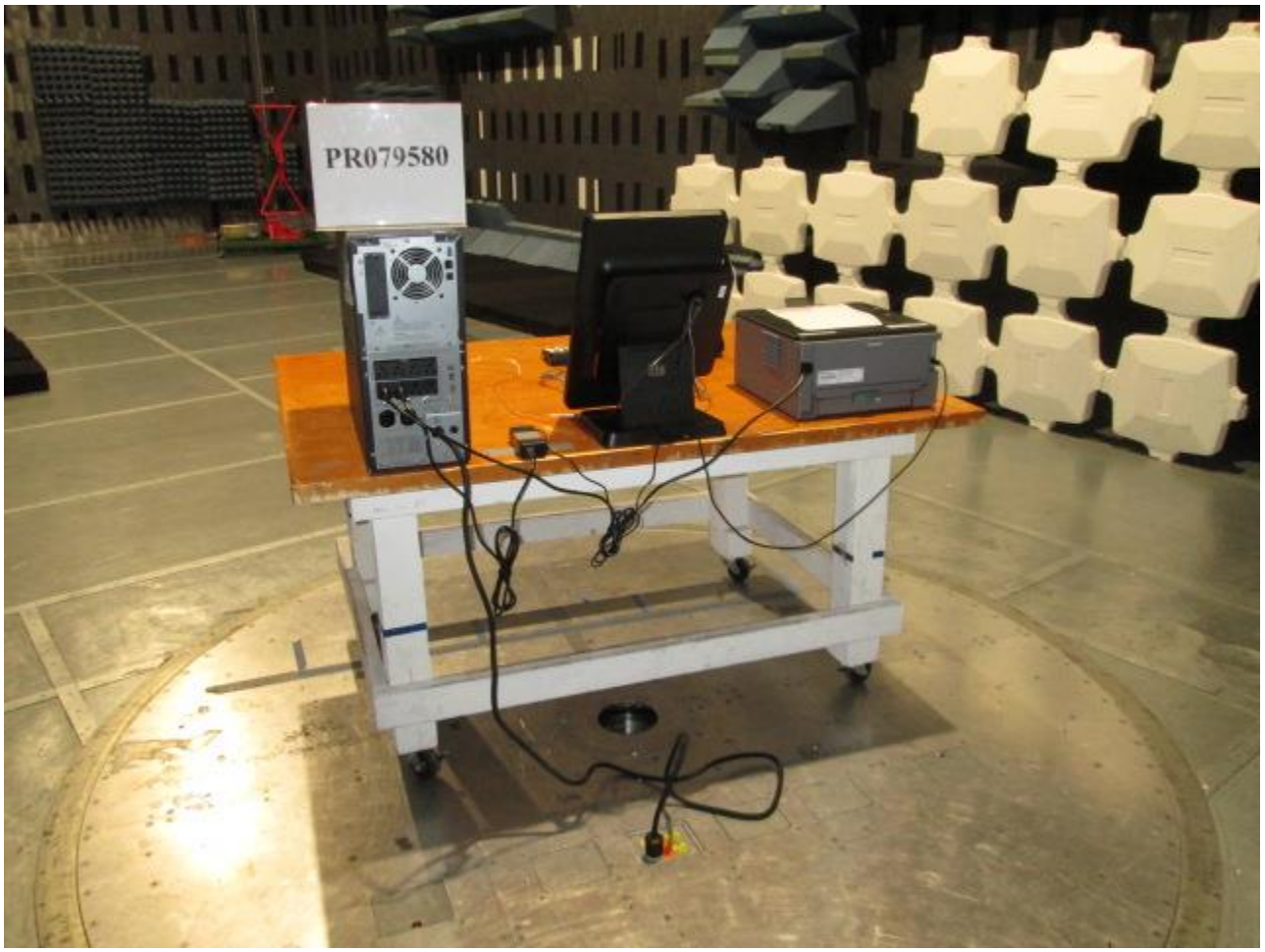

Figure A5: Radiated Emissions Test Setup – Back Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure A6: Radiated Emissions Test Setup – Left Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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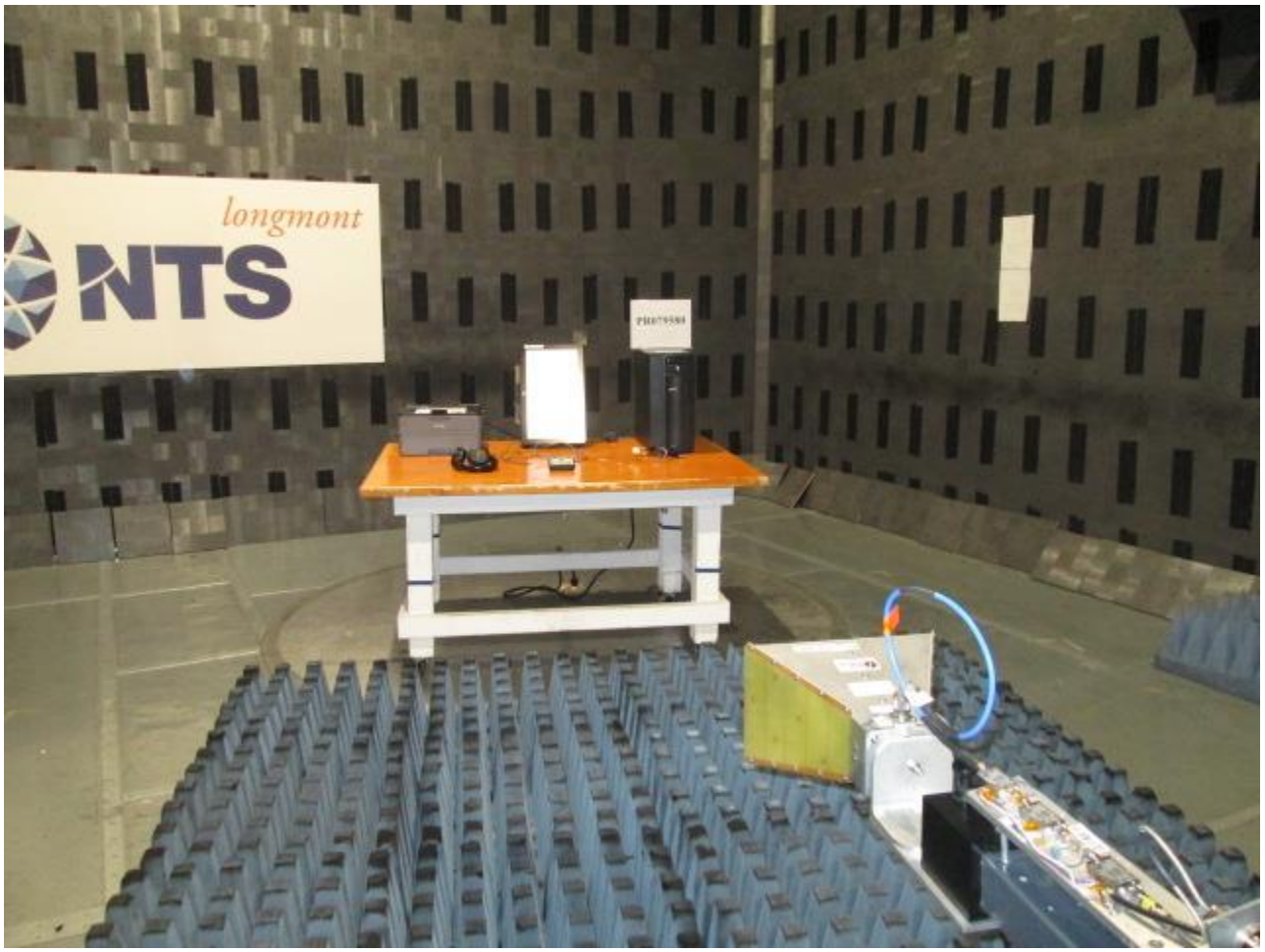

Figure A7: Radiated Emissions Test Setup – Front Side @ 3M

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/02/2018	03/02/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1232	Sunol Sciences	JB1	A071605-2	Bilog Antenna, 30 MHz to 2.0 GHz	06/20/2017	06/20/2018
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	05/10/2017	0610/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	01/26/2018	01/26/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1276	Ciao Wireless	CA118-3010	116, 117 and 118	1GHz to 18GHz Preamplifier, 70dB gain nominal	10/09/2017	10/09/2018
1392	Sunol	DRH-118	A020311	1-18 GHz Double-Ridged Horn Antenna	12/07/2017	12/07/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1555	Com-Power	CGO - 505	301314	5 MHz Step Comb Generator	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

RADIATED EMISSIONS TEST DATA

CONFIGURATION 4

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018
Temperature:	20˚C Humidity: 48%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B QP (dB)
QP	70.348	52.0	8.2	-31.1	29.1	159/V-Pole/3.65	0.43
QP	73.944	52.5	8.1	-31.2	29.4	150/V-Pole/3.47	0.15
QP	266.669	43.8	12.9	-30.2	26.4	2/H-Pole/2.88	9.16
QP	324.998	38.2	13.9	-30.1	22.0	93/H-Pole/3.56	13.52
QP	528.000	43.7	18.3	-29.6	32.4	178/H-Pole/1.57	3.10
QP	666.624	39.1	19.3	-28.9	29.5	216/H-Pole/1.31	6.05
QP	874.995	35.6	21.7	-27.9	29.4	3/H-Pole/1.00	6.14
QP	999.994	28.0	22.9	-27.6	23.3	227/V-Pole/3.86	20.14

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018
Temperature:	20˚C Humidity: 48%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB/m)	Gain / Loss (dB)	Final (dBuV/m)	Azm(deg)/Pol/Hgt(m)	Margin: FCC Class B >1GHz PK (dB)	Margin: FCC Class B >1GHz AV (dB)
AV	1584.000	93.6	25.8	-70.4	49.0	161/V-Pole/2.52	-	4.91
PK	1584.000	96.1	25.8	-70.4	51.5	161/V-Pole/2.52	22.41	-
AV	2333.299	76.5	29.1	-71.1	34.4	160/H-Pole/1.00	-	19.55
PK	2333.299	93.4	29.1	-71.1	51.4	160/H-Pole/1.00	22.60	-
AV	3000.033	84.8	30.9	-71.0	44.7	220/V-Pole/1.06	-	9.25
PK	3000.033	90.7	30.9	-71.0	50.6	220/V-Pole/1.06	23.35	-
AV	9182.828	66.3	38.1	-68.5	36.0	22/H-Pole/1.00	-	18.00
PK	9182.828	79.7	38.1	-68.5	49.3	22/H-Pole/1.00	24.65	-
AV	12283.412	65.5	40.0	-69.5	36.1	292/V-Pole/2.50	-	17.87
PK	12283.412	79.2	40.0	-69.5	49.7	292/V-Pole/2.50	24.22	-
AV	17677.294	50.4	47.5	-59.0	38.9	68/H-Pole/1.00	-	15.09
PK	17677.294	63.0	47.5	-59.0	51.5	68/H-Pole/1.00	22.49	-

The highest emission measured was at **73.994 MHz,** which was **0.15 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 120kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 120kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 1 MHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. Final measurements are made with the Azimuth, Polarity, Height, and EUT Cables positioned for maximum radiation. If applicable, cables positions are noted in the test log. (Sample Calculation: 49.6 dBuV + 11.4 dB/m – 28.8 dB = 32.2 dBuV/m. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "Azm/Pol/Hgt" indicates the turn-table *azimuth*, the antenna *polarity*, and the antenna *height* where the maximum emissions level was measured.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 120 kHz, VBW set to 3 MHz (30 MHz

to 1

- GHz), and the RBW set to 1 MHz, VBW set to 100 kHz (> 1 GHz)

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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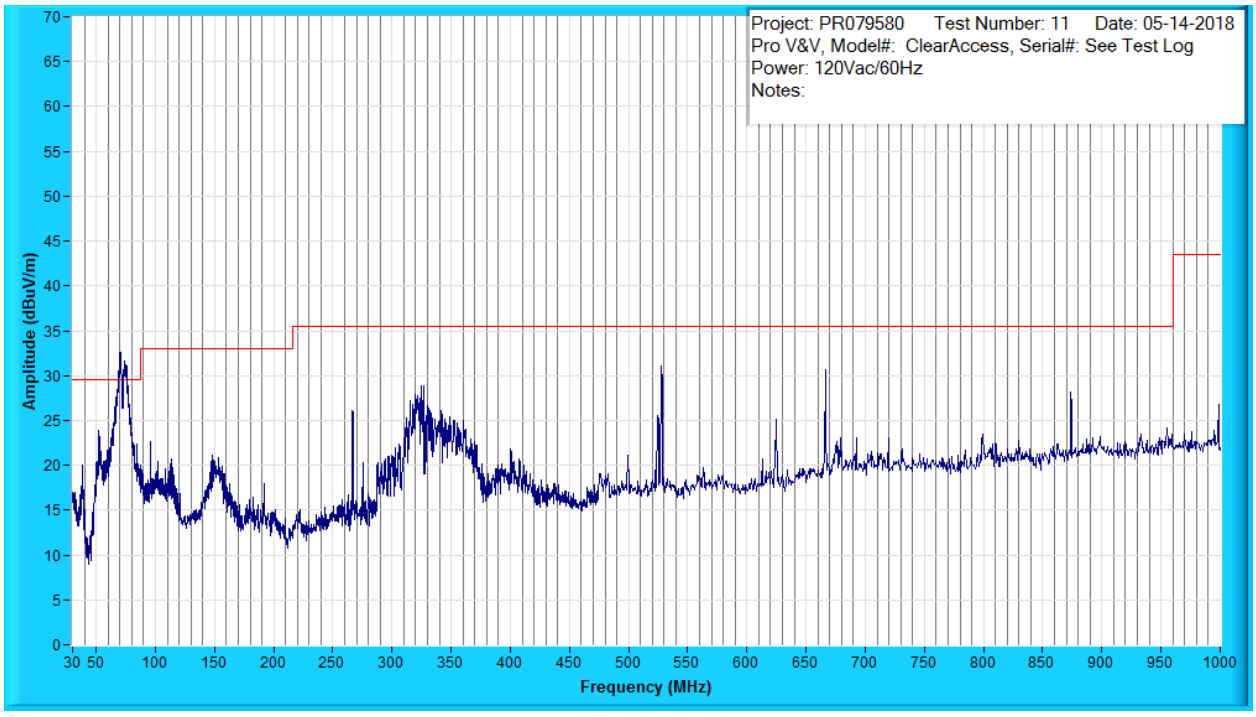

Figure A1: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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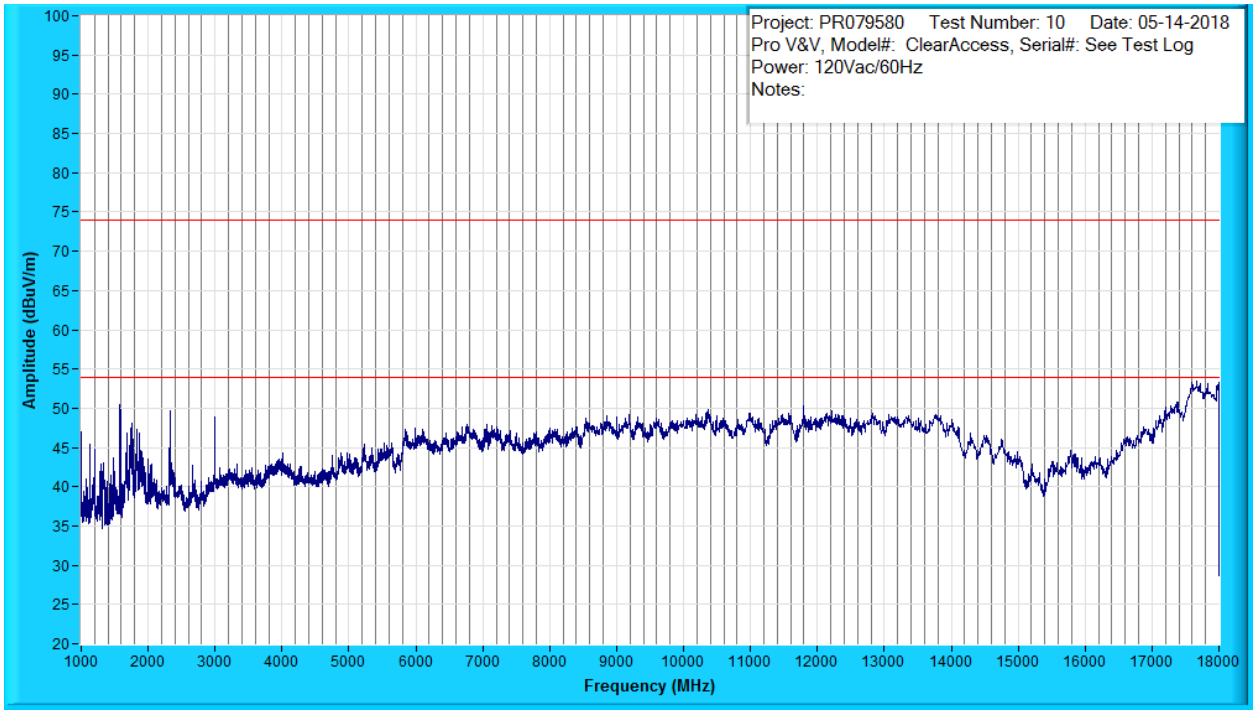

Figure A2: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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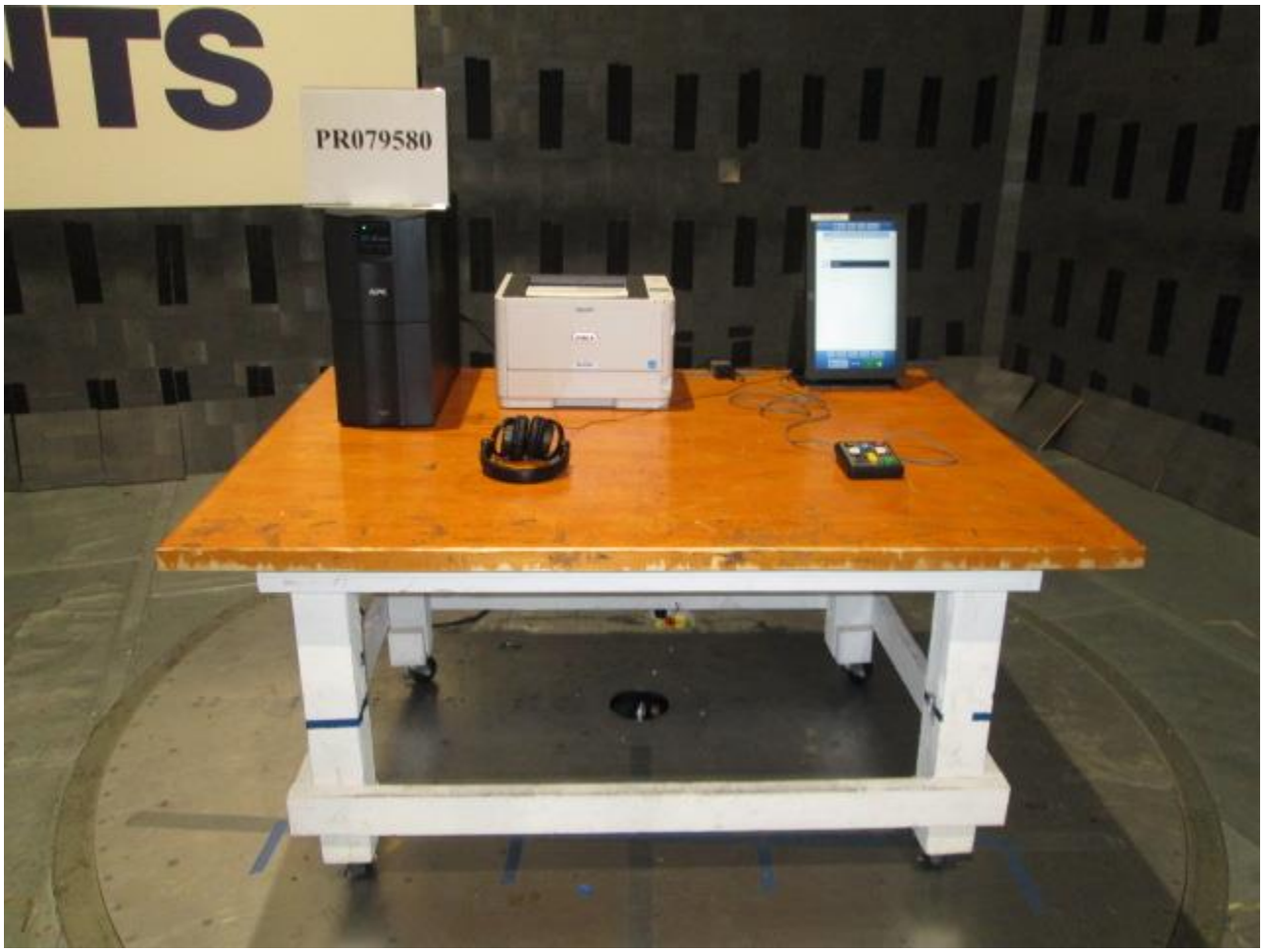

Figure A3: Radiated Emissions Test Setup – Front Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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Figure A4: Radiated Emissions Test Setup – Right Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-RE.doc FR0100

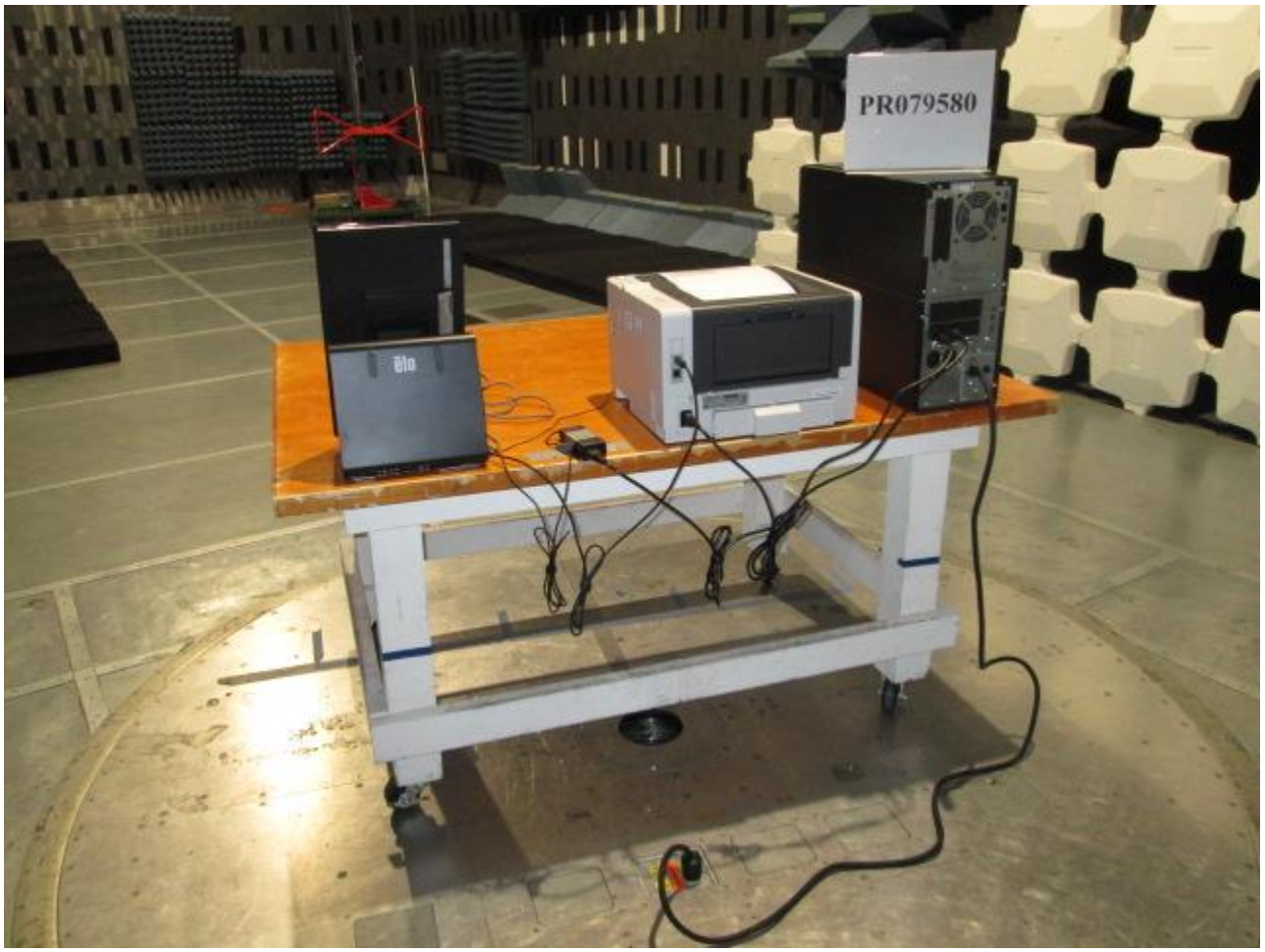

Figure A5: Radiated Emissions Test Setup – Back Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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Figure A6: Radiated Emissions Test Setup – Left Side

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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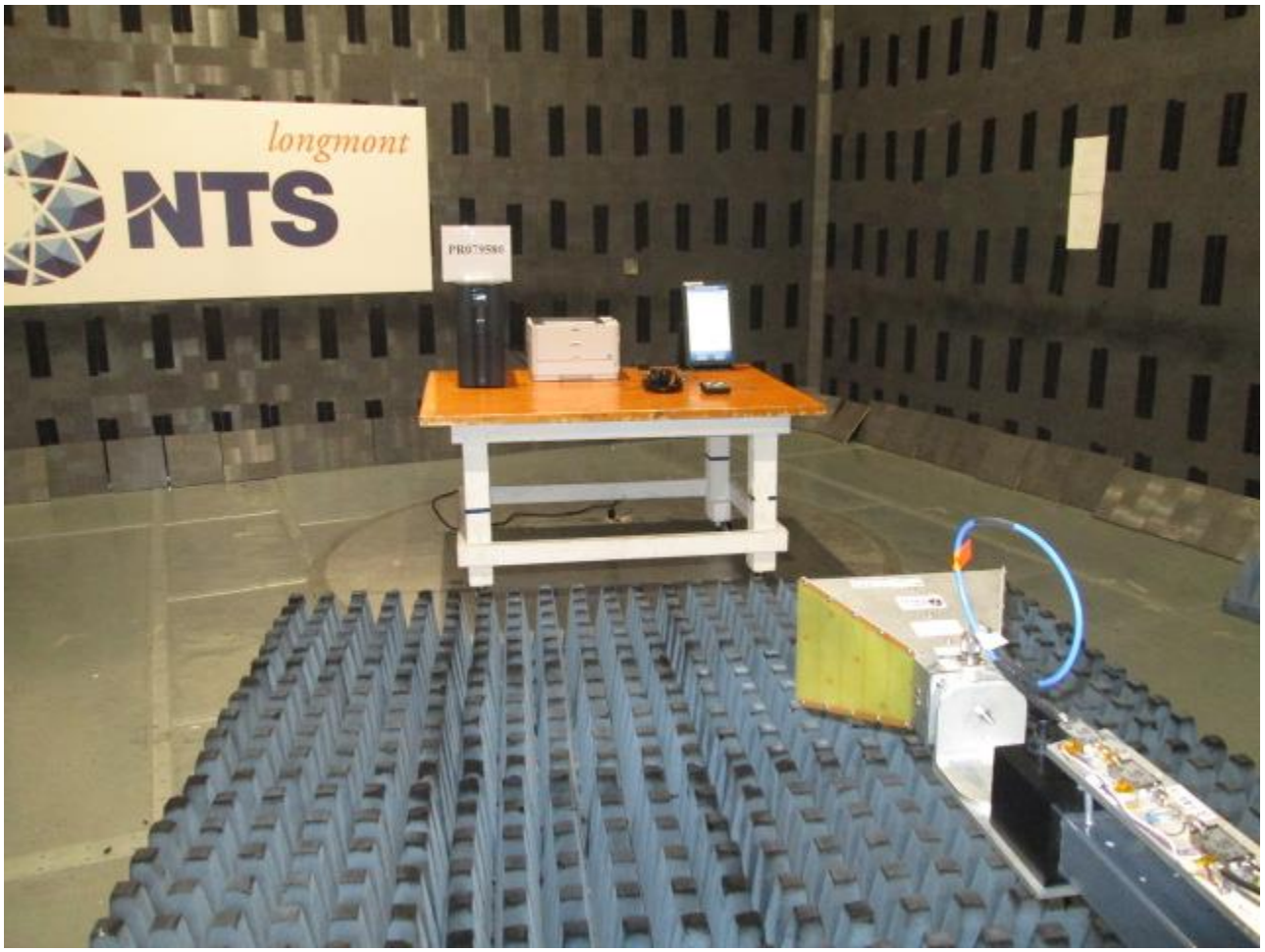

Figure A7: Radiated Emissions Test Setup – Front Side @ 3M

Radiated Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-RE.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/02/2018	03/02/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1232	Sunol Sciences	JB1	A071605-2	Bilog Antenna, 30 MHz to 2.0 GHz	06/20/2017	06/20/2018
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	05/10/2017	06/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	01/26/2018	01/26/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1266	California Instruments	MX15-1	57961	AC Power Source, 0 - 300 VAC / 16 - 819 Hz / 15kVA	NA	NA
1276	Ciao Wireless	CA118-3010	116, 117 and 118	1GHz to 18GHz Preamplifier, 70dB gain nominal	10/09/2017	10/09/2018
1392	Sunol	DRH-118	A020311	1-18 GHz Double-Ridged Horn Antenna	12/07/2017	12/07/2018
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1555	Com-Power	CGO - 505	301314	5 MHz Step Comb Generator	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

APPENDIX B - CONDUCTED EMISSIONS TEST DATA

CONFIGURATION 1

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018
Temperature:	27˚C Humidity: 29%	Pressure:	841 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB)	Gain / Loss (dB)	Final (dBuV)	Test Point	Margin: FCC Class B AV (dB)	Margin: FCC Class B QP (dB)
AV	0.156	34.8	-1.4	16.0	49.4	Line 1	6.38	-
QP	0.156	40.6	-1.4	16.0	55.3	Line 1	-	10.54
AV	0.190	28.9	-1.2	16.1	43.8	Line 1	11.04	-
QP	0.190	38.7	-1.2	16.1	53.6	Line 1	-	11.25
AV	0.221	30.6	-1.0	16.1	45.7	Line 1	8.30	-
QP	0.221	35.9	-1.0	16.1	51.1	Line 1	-	12.92
AV	1.374	15.6	-0.3	16.1	31.4	Line 1	14.58	-
QP	1.374	25.0	-0.3	16.1	40.8	Line 1	-	15.17
AV	3.048	4.2	-0.3	16.2	20.1	Line 1	25.90	-
QP	3.048	13.1	-0.3	16.2	29.0	Line 1	-	27.00
AV	9.220	8.9	-0.3	16.1	24.7	Line 1	25.31	-
QP	9.220	17.7	-0.3	16.1	33.5	Line 1	-	26.53
AV	0.159	34.4	-1.3	16.0	49.1	Neutral	6.65	-
QP	0.159	40.1	-1.3	16.0	54.8	Neutral	-	10.92
AV	0.176	30.2	-1.2	16.1	45.0	Neutral	10.23	-
QP	0.176	34.0	-1.2	16.1	48.9	Neutral	-	16.38
AV	0.199	28.3	-1.1	16.1	43.3	Neutral	11.30	-
QP	0.199	30.9	-1.1	16.1	45.9	Neutral	-	18.65
AV	0.299	24.1	-0.7	16.1	39.5	Neutral	12.22	-
QP	0.299	27.5	-0.7	16.1	42.9	Neutral	-	18.83
AV	1.374	17.4	-0.3	16.1	33.3	Neutral	12.73	-
QP	1.374	25.5	-0.3	16.1	41.3	Neutral	-	14.68
AV	8.980	7.7	-0.3	16.1	23.5	Neutral	26.50	-
QP	8.980	18.2	-0.3	16.1	34.0	Neutral	-	25.96

The highest emission measured was at **0.156 MHz,** which was **6.38 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 9 kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 9 kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 9 kHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. (Sample Calculation: 40.2 dBuV + 1.6 dB + 16.3 dB = 58.1 dBuV. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "TestPoint" indicates which AC or DC input power line or which I/O cable the measurement was made on.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 9 kHz, and the VBW set to 3 MHz

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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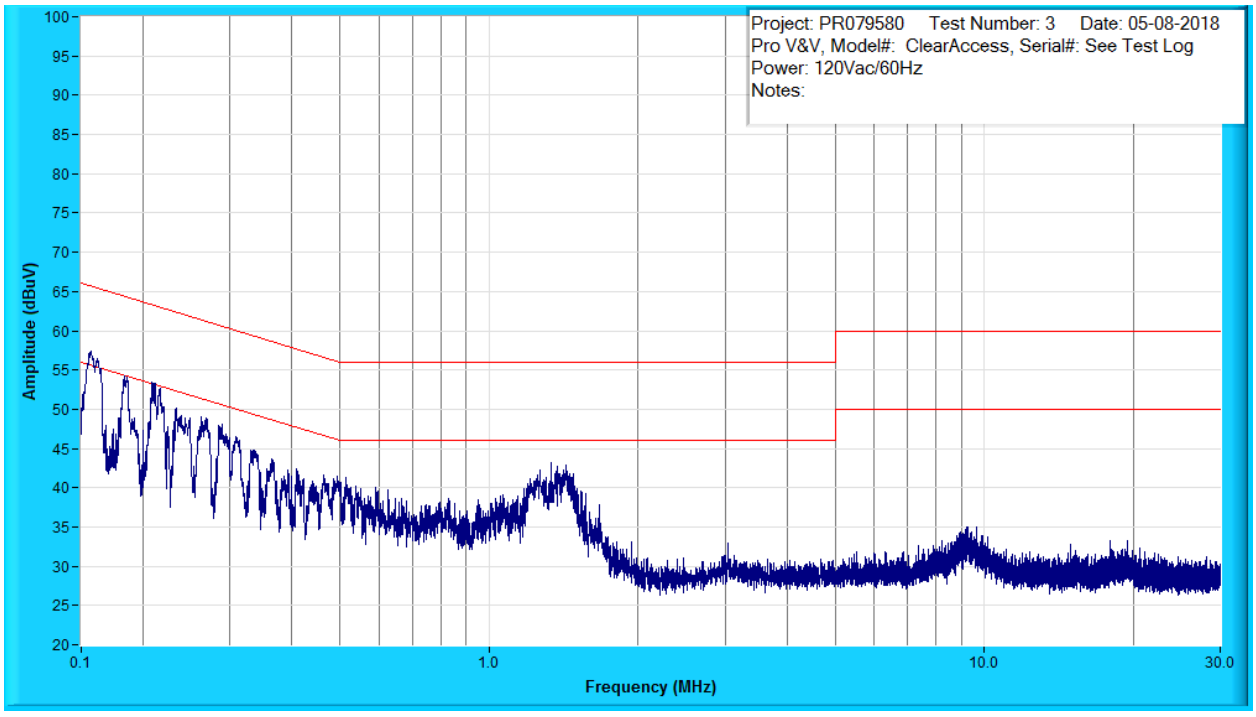

Figure B1: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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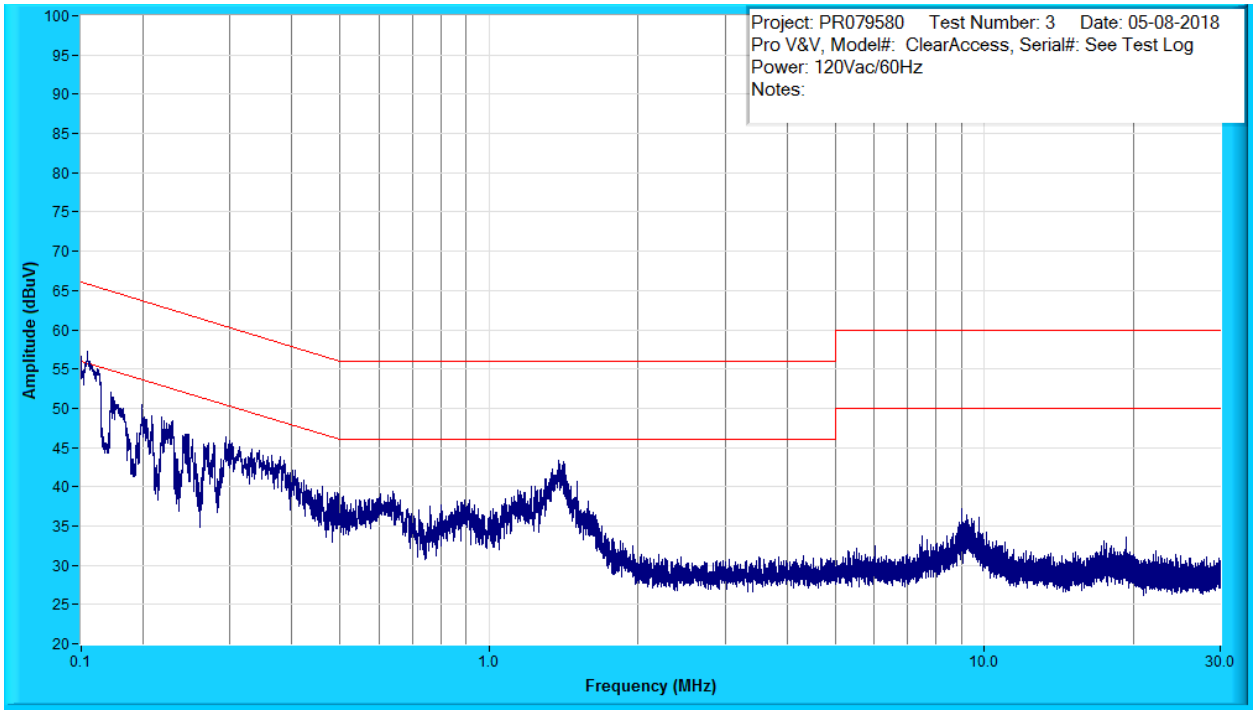

Figure B2: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure B3: Conducted Emissions Test Setup – Front Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure B4: Conducted Emissions Test Setup – Right Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure B5: Conducted Emissions Test Setup – Back Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Figure B6: Conducted Emissions Test Setup – Left Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 8, 2018

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Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1017	Pacific Power	TMX 140	0256	4 kVA, 50 Hz Power Source	NA	NA
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	11/27/2017	11/27/2018
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/07/2018	02/07/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1245	Fluke	87V	91600341	True RMS MultiMeter with Temp	06/23/2017	06/23/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	02/09/2018	02/09/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1538	Extech Instruments	445715	Z315812	Hygro-Thermometer	05/09/2017	05/09/2018
1557	EMCI	EMCI, 2 Phase LISN	11	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/22/2018	02/22/2019
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

CONDUCTED EMISSIONS TEST DATA

CONFIGURATION 2

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	26˚C Humidity: 30%	Pressure:	831 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB)	Gain / Loss (dB)	Final (dBuV)	Test Point	Margin: FCC Class B AV (dB)	Margin: FCC Class B QP (dB)
AV	0.162	32.4	-1.3	16.0	47.0	Line 1	8.62	-
QP	0.162	40.3	-1.3	16.0	55.0	Line 1	-	10.71
AV	0.187	29.2	-1.2	16.1	44.2	Line 1	10.79	-
QP	0.187	37.6	-1.2	16.1	52.5	Line 1	-	12.48
AV	0.209	20.6	-1.0	16.1	35.7	Line 1	18.60	-
QP	0.209	34.4	-1.0	16.1	49.4	Line 1	-	14.88
AV	0.238	18.9	-0.9	16.1	34.1	Line 1	19.33	-
QP	0.238	26.7	-0.9	16.1	41.9	Line 1	-	21.62
AV	1.346	15.8	-0.3	16.1	31.7	Line 1	14.33	-
QP	1.346	22.7	-0.3	16.1	38.5	Line 1	-	17.51
AV	2.967	2.6	-0.3	16.2	18.5	Line 1	27.50	-
QP	2.967	11.1	-0.3	16.2	27.0	Line 1	-	28.97
AV	9.345	12.1	-0.3	16.0	27.8	Line 1	22.18	-
QP	9.345	17.9	-0.3	16.0	33.7	Line 1	-	26.35
AV	0.151	37.1	-1.4	16.0	51.8	Neutral	4.21	-
QP	0.151	41.8	-1.4	16.0	56.4	Neutral	-	9.60
AV	0.174	29.2	-1.3	16.0	44.0	Neutral	11.33	-
QP	0.174	37.8	-1.3	16.0	52.6	Neutral	-	12.77
AV	0.201	28.8	-1.1	16.1	43.8	Neutral	10.73	-
QP	0.201	36.7	-1.1	16.1	51.7	Neutral	-	12.81
AV	0.216	23.2	-1.0	16.1	38.3	Neutral	15.82	-
QP	0.216	32.6	-1.0	16.1	47.7	Neutral	-	16.46
AV	1.307	14.5	-0.3	16.1	30.3	Neutral	15.69	-
QP	1.307	22.2	-0.3	16.1	38.0	Neutral	-	17.99
AV	9.142	12.1	-0.3	16.1	27.9	Neutral	22.14	-
QP	9.142	19.0	-0.3	16.1	34.8	Neutral	-	25.25
AV	15.753	5.3	-0.3	15.7	20.7	Neutral	29.30	-
QP	15.753	11.0	-0.3	15.7	26.3	Neutral	-	33.68

The highest emission measured was at **0.151 MHz,** which was **4.21 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 9 kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 9 kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 9 kHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. (Sample Calculation: 40.2 dBuV + 1.6 dB + 16.3 dB = 58.1 dBuV. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "TestPoint" indicates which AC or DC input power line or which I/O cable the measurement was made on.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 9 kHz, and the VBW set to 3 MHz

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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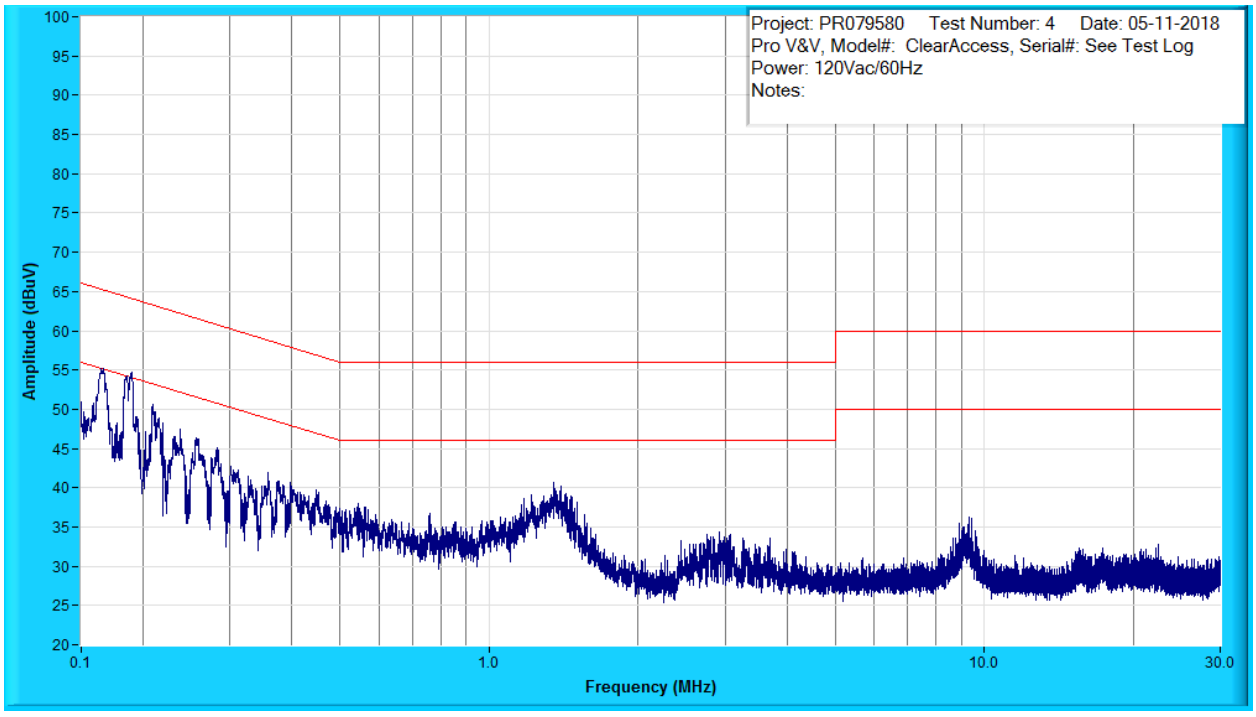

Figure B1: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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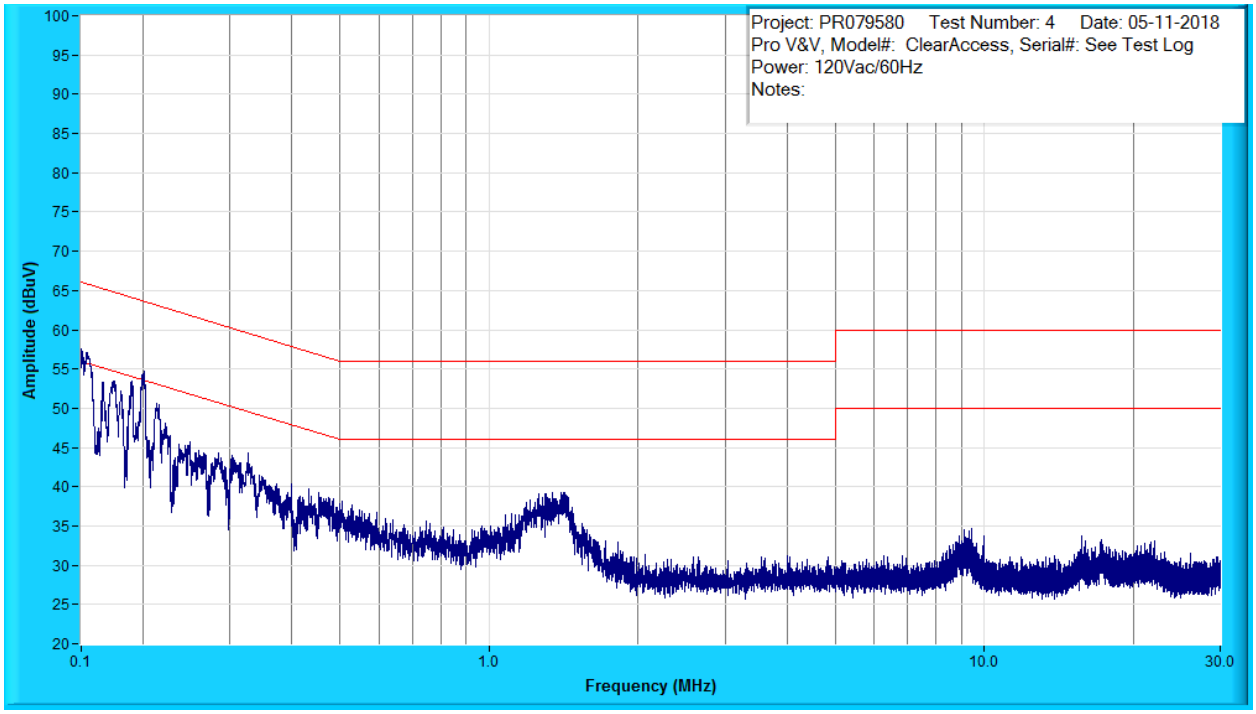

Figure B2: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Figure B3: Conducted Emissions Test Setup – Front Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Figure B4: Conducted Emissions Test Setup – Right Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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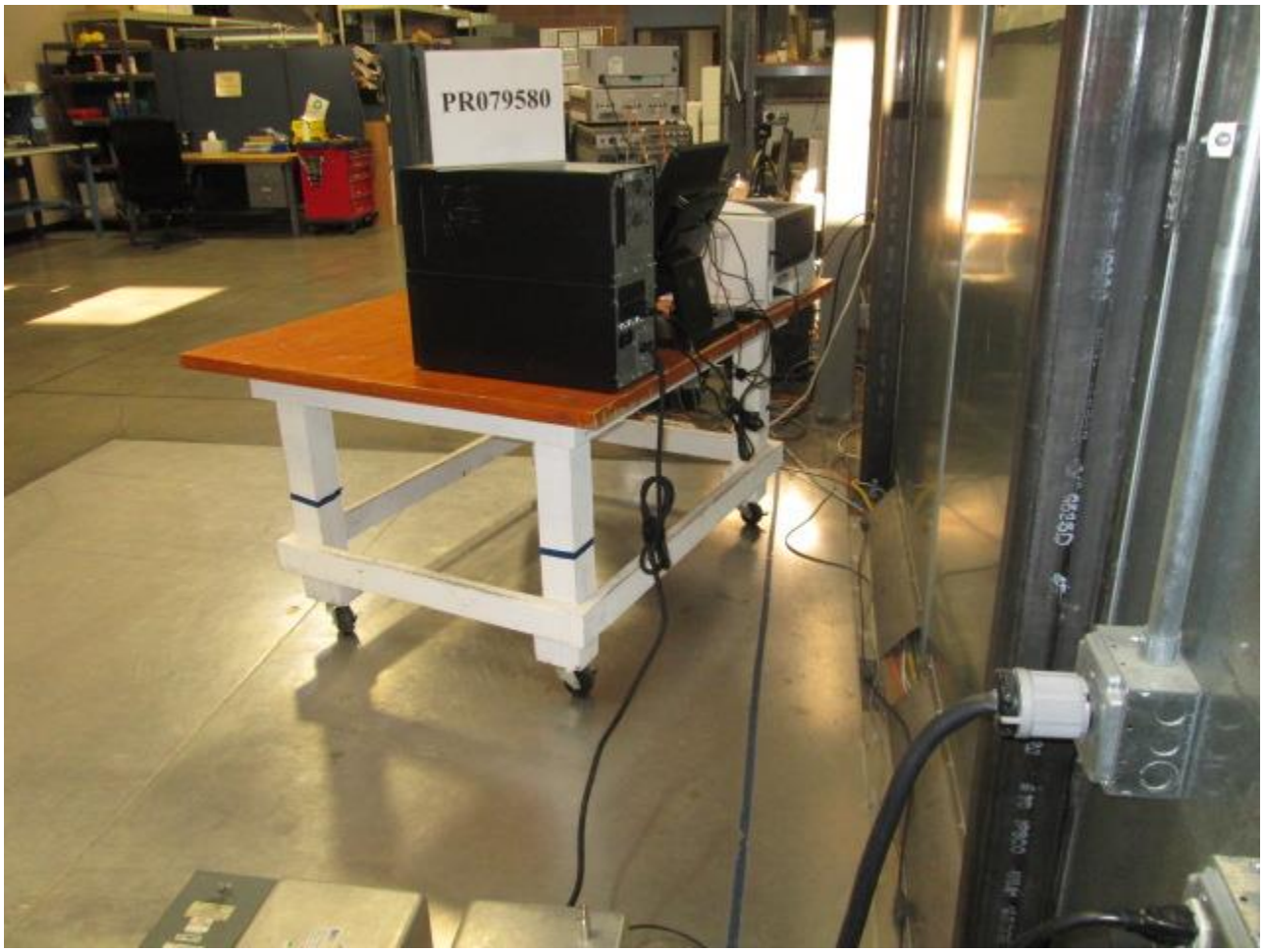

Figure B5: Conducted Emissions Test Setup – Back Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Figure B6: Conducted Emissions Test Setup – Left Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1017	Pacific Power	TMX 140	0256	4 kVA, 50 Hz Power Source	NA	NA
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	11/27/2017	11/27/2018
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/07/2018	02/07/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1245	Fluke	87V	91600341	True RMS MultiMeter with Temp	06/23/2017	06/23/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	02/09/2018	02/09/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1557	EMCI	EMCI, 2 Phase LISN	11	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/22/2018	02/22/2019
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

CONDUCTED EMISSIONS TEST DATA

CONFIGURATION 3

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018
Temperature:	25˚C Humidity: 23%	Pressure:	831 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB)	Gain / Loss (dB)	Final (dBuV)	Test Point	Margin: FCC Class B AV (dB)	Margin: FCC Class B QP (dB)
AV	0.151	38.9	-1.4	16.0	53.5	Line 1	2.46	-
QP	0.151	43.0	-1.4	16.0	57.6	Line 1	-	8.40
AV	0.168	34.0	-1.3	16.0	48.8	Line 1	6.68	-
QP	0.168	41.6	-1.3	16.0	56.4	Line 1	-	9.09
AV	0.199	26.4	-1.1	16.1	41.4	Line 1	13.23	-
QP	0.199	38.3	-1.1	16.1	53.3	Line 1	-	11.31
AV	0.267	27.1	-0.8	16.1	42.4	Line 1	10.28	-
QP	0.267	27.6	-0.8	16.1	42.9	Line 1	-	19.79
AV	1.307	17.9	-0.3	16.1	33.7	Line 1	12.29	-
QP	1.307	26.2	-0.3	16.1	42.0	Line 1	-	14.01
AV	8.319	16.1	-0.3	16.1	31.8	Line 1	18.16	-
QP	8.319	14.9	-0.3	16.1	30.7	Line 1	-	29.31
AV	16.294	5.7	-0.4	15.7	21.0	Line 1	29.00	-
QP	16.294	11.5	-0.4	15.7	26.8	Line 1	-	33.15
AV	0.151	36.9	-1.4	16.0	51.5	Neutral	4.48	-
QP	0.151	44.3	-1.4	16.0	58.9	Neutral	-	7.12
AV	0.163	34.1	-1.3	16.0	48.8	Neutral	6.81	-
QP	0.163	41.4	-1.3	16.0	56.1	Neutral	-	9.48
AV	0.179	34.4	-1.2	16.1	49.2	Neutral	5.93	-
QP	0.179	38.2	-1.2	16.1	53.0	Neutral	-	12.16
AV	0.226	24.9	-0.9	16.1	40.1	Neutral	13.77	-
QP	0.226	33.2	-0.9	16.1	48.4	Neutral	-	15.47
AV	1.352	17.0	-0.3	16.1	32.8	Neutral	13.18	-
QP	1.352	25.1	-0.3	16.1	40.9	Neutral	-	15.12
AV	7.050	8.6	-0.3	16.1	24.4	Neutral	25.60	-
QP	7.050	17.3	-0.3	16.1	33.1	Neutral	-	26.92
AV	18.178	6.5	-0.4	15.7	21.9	Neutral	28.13	-
QP	18.178	11.7	-0.4	15.7	27.1	Neutral	-	32.90

The highest emission measured was at **0.151 MHz,** which was **2.46 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 9 kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 9 kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 9 kHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. (Sample Calculation: 40.2 dBuV + 1.6 dB + 16.3 dB = 58.1 dBuV. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "TestPoint" indicates which AC or DC input power line or which I/O cable the measurement was made on.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 9 kHz, and the VBW set to 3 MHz

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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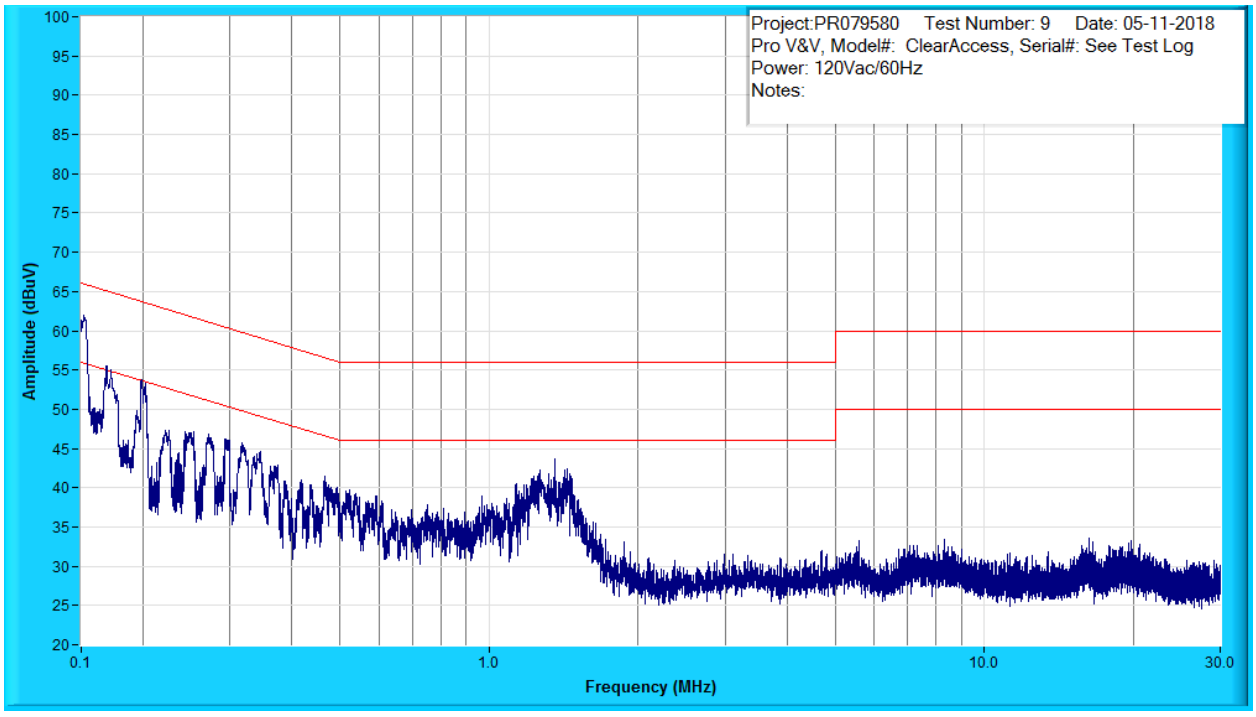

Figure B1: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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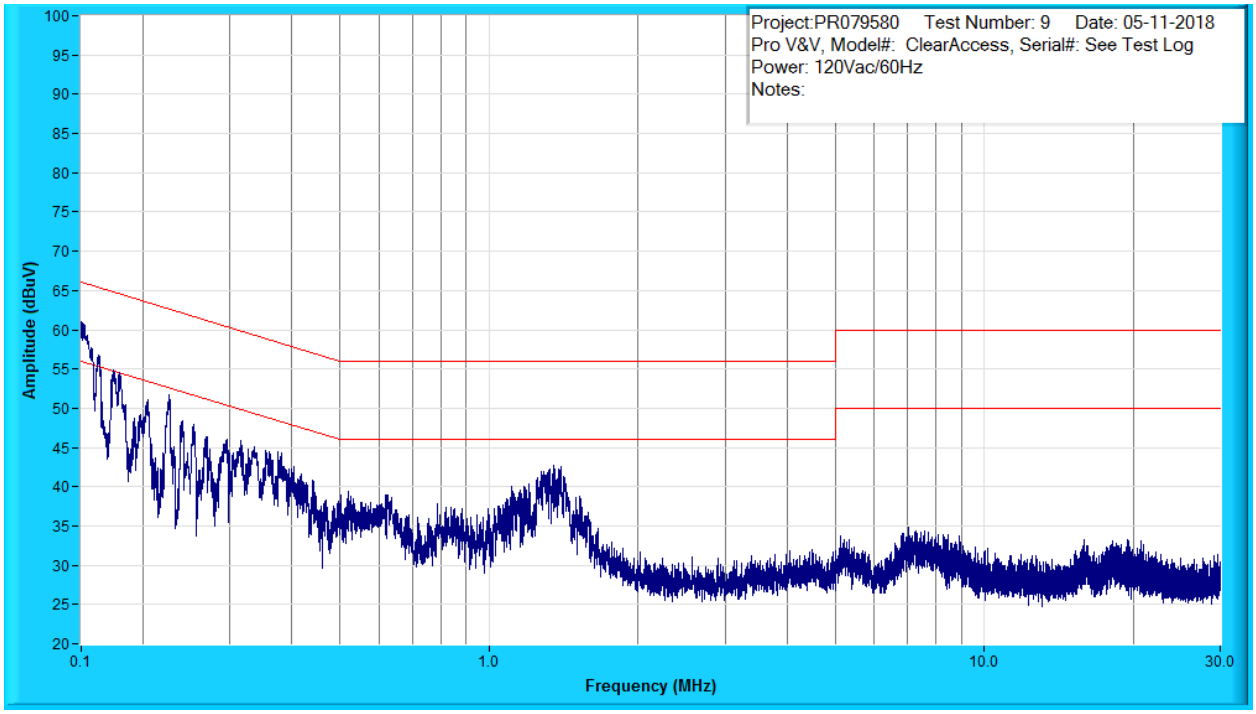

Figure B2: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Figure B3: Conducted Emissions Test Setup – Front Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure B4: Conducted Emissions Test Setup – Right Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Figure B5: Conducted Emissions Test Setup – Back Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

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Figure B6: Conducted Emissions Test Setup – Left Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 11, 2018

PR079580-22-CE.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1017	Pacific Power	TMX 140	0256	4 kVA, 50 Hz Power Source	NA	NA
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	11/27/2017	11/27/2018
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/07/2018	02/07/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1245	Fluke	87V	91600341	True RMS MultiMeter with Temp	06/23/2017	06/23/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	02/09/2018	02/09/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1557	EMCI	EMCI, 2 Phase LISN	11	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/22/2018	02/22/2019
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

CONDUCTED EMISSIONS TEST DATA

CONFIGURATION 4

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018
Temperature:	22˚C Humidity: 39%	Pressure:	839 mb
Input Voltage:	120Vac/60Hz		
Configuration of Unit:	Printing Ballots		
Test Engineer:	Mike Tidquist		

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Type	Frequency (MHz)	Level (dBuV)	Transducer (dB)	Gain / Loss (dB)	Final (dBuV)	Test Point	Margin: FCC Class B AV (dB)	Margin: FCC Class B QP (dB)
AV	0.154	30.4	-1.4	16.0	45.1	Line 1	10.82	-
QP	0.154	40.0	-1.4	16.0	54.7	Line 1	-	11.22
AV	0.159	28.9	-1.3	16.0	43.6	Line 1	12.14	-
QP	0.159	39.0	-1.3	16.0	53.6	Line 1	-	12.14
AV	0.173	27.6	-1.3	16.0	42.4	Line 1	12.96	-
QP	0.173	36.6	-1.3	16.0	51.4	Line 1	-	13.92
AV	0.280	22.1	-0.8	16.1	37.4	Line 1	14.88	-
QP	0.280	23.3	-0.8	16.1	38.6	Line 1	-	23.66
AV	0.568	9.1	-0.5	16.1	24.7	Line 1	21.26	-
QP	0.568	18.0	-0.5	16.1	33.7	Line 1	-	22.32
AV	1.313	13.2	-0.3	16.1	29.0	Line 1	17.04	-
QP	1.313	21.3	-0.3	16.1	37.1	Line 1	-	18.93
AV	9.229	10.1	-0.3	16.1	25.8	Line 1	24.21	-
QP	9.229	19.3	-0.3	16.1	35.0	Line 1	-	24.97
AV	0.151	31.9	-1.4	16.0	46.5	Neutral	9.46	-
QP	0.151	39.9	-1.4	16.0	54.5	Neutral	-	11.43
AV	0.156	29.9	-1.4	16.0	44.5	Neutral	11.34	-
QP	0.156	38.6	-1.4	16.0	53.2	Neutral	-	12.59
AV	0.175	27.9	-1.2	16.0	42.7	Neutral	12.60	-
QP	0.175	36.0	-1.2	16.0	50.8	Neutral	-	14.49
AV	0.293	13.2	-0.7	16.1	28.6	Neutral	23.32	-
QP	0.293	22.5	-0.7	16.1	37.9	Neutral	-	24.06
AV	0.594	10.9	-0.5	16.1	26.6	Neutral	19.40	-
QP	0.594	17.8	-0.5	16.1	33.4	Neutral	-	22.60
AV	1.361	12.1	-0.3	16.1	27.9	Neutral	18.13	-
QP	1.361	20.1	-0.3	16.1	36.0	Neutral	-	20.03
AV	9.252	10.8	-0.3	16.0	26.6	Neutral	23.42	-
QP	9.252	20.0	-0.3	16.0	35.7	Neutral	-	24.28

The highest emission measured was at **0.151 MHz,** which was **9.46 dB** below the limit.

- "Type" refers to the type of measurement performed. The type of measurement made is based on the requirements of the particular standard:
  - PK = Peak Measurement: RBW is 9 kHz, VBW is 3 MHz
  - QP = Quasi-Peak Measurement: RBW is 9 kHz, VBW is 3 MHz, and QP Detection is ENABLED
  - AV = Video Average Measurement: RBW is 9 kHz, VBW is 10 Hz
- The "Final" emissions level is attained by taking the "Level" and adding the "Transducer" factor and the "Gain/Loss" factor. (Sample Calculation: 40.2 dBuV + 1.6 dB + 16.3 dB = 58.1 dBuV. **Important Note**: This is a sample calculation only for the purpose of demonstration, and does not reflect data in this report.)
- The "TestPoint" indicates which AC or DC input power line or which I/O cable the measurement was made on.
- The "Margin" is with reference to the emissions limit. A positive number indicates that the emission measurement is below the limit. A negative number indicates that the emission measurement exceeds the limit.
- The PRESCAN is a peak measurement and is performed with the RBW set to 9 kHz, and the VBW set to 3 MHz

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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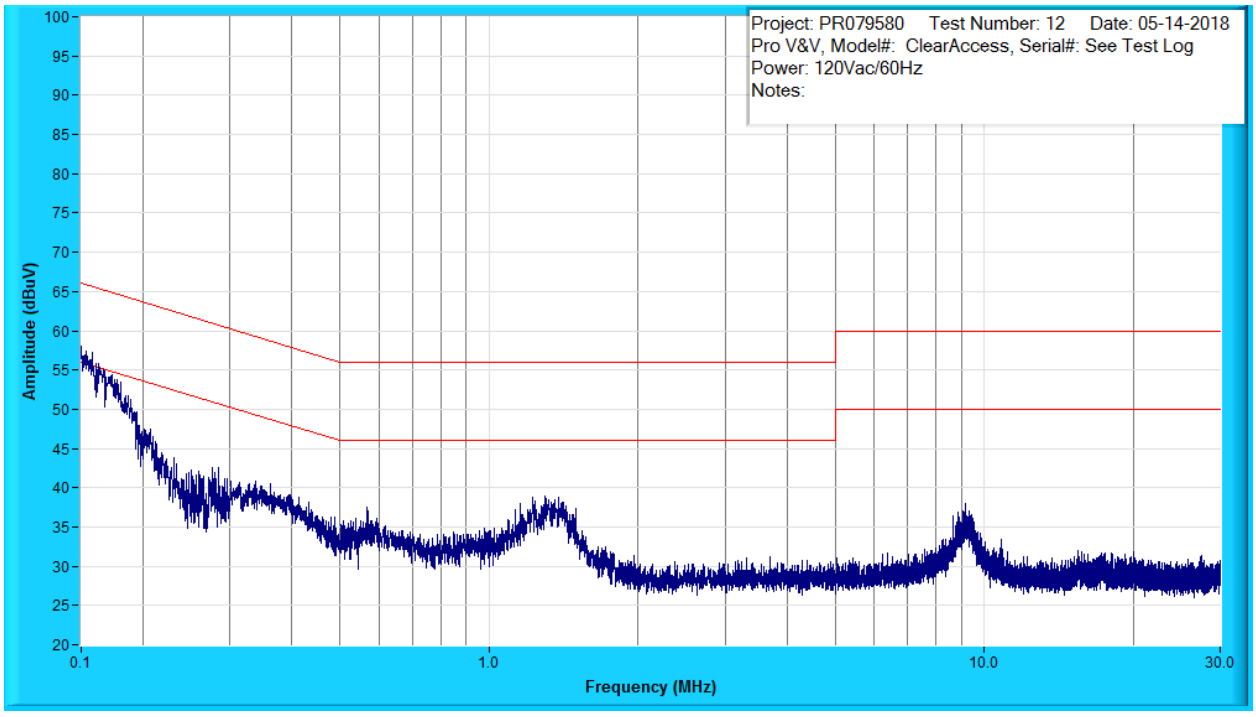

Figure B1: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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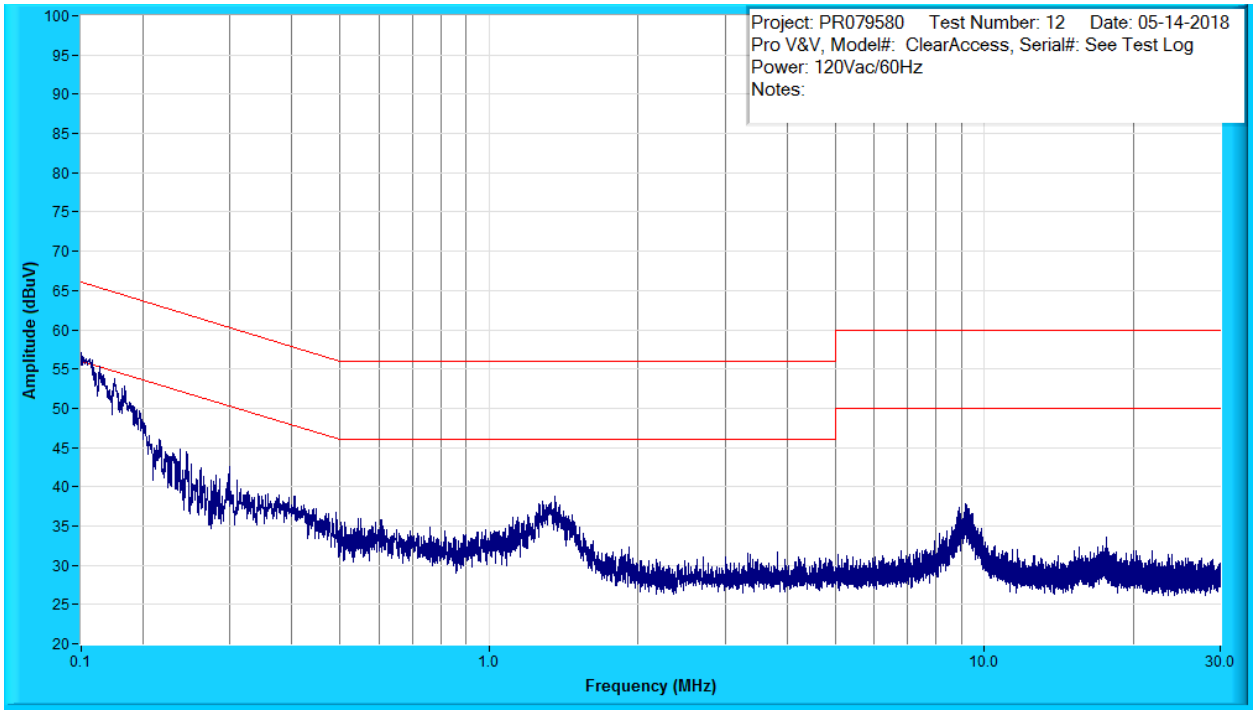

Figure B2: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-CE.doc FR0100

Figure B3: Conducted Emissions Test Setup – Front Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

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Figure B4: Conducted Emissions Test Setup – Right Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-CE.doc FR0100

Figure B5: Conducted Emissions Test Setup – Back Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-CE.doc FR0100

Figure B6: Conducted Emissions Test Setup – Left Side

Conducted Emissions, FCC Part 15

Manufacturer:	Pro V&V	Project Number:	PR079580
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess	S/N:	A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721
	APC SMT-2200		
Standard Referenced:	FCC Class B	Date:	May 14, 2018

PR079580-22-CE.doc FR0100

Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1017	Pacific Power	TMX 140	0256	4 kVA, 50 Hz Power Source	NA	NA
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	11/27/2017	11/27/2018
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/07/2018	02/07/2019
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	02/09/2018	02/09/2019
1245	Fluke	87V	91600341	True RMS MultiMeter with Temp	06/23/2017	06/23/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	02/09/2018	02/09/2019
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	02/09/2018	02/09/2019
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	02/09/2018	02/09/2019
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1552	EXTECH Instruments	445715	NA	Hygro-Thermometer	12/07/2017	12/07/2018
1557	EMCI	EMCI, 2 Phase LISN	11	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/22/2018	02/22/2019
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

APPENDIX C - PRODUCT DATA SHEET

1.0 Client Information

Client Information	
Manufacturer Name	Clear Ballot Group (manufacturer) Pro V&V (client)
Address	700 Boulevard South Suite 102
City	Huntsville
State	AL
Zip Code	35802
Client Representative	Stephen Han
Title	Sr. Project Engineer
Phone	256-713-1111
Fax	256-713-1112
Email	stephen.han@provandv.com

2.0 Product Information - General

Product Information	
Product Name (**as it should appear on test report**)	ClearAccess
Model Number (of UUT to be tested)	ClearAccess
Functional description of product (what is it, what does it do, etc.)	ballot marking device
List all modes of operation	Regular and audio
Can modes be operated simultaneously? If so, explain.	Yes
What mode(s) will be used for testing?	Both
Product type (IT, Medical, Scientific, Industrial, etc.)	IT
Is the product an intentional radiator	no
Product Dimensions	Multiple
Product Weight	Multiple
Will fork lift be required	No
Applicable Standards, if known	EAC 2005 VVSG Volumes I and II
Describe all environment(s) where product will be used (residential, commercial, industrial, etc.)	Used for voting during elections
Does product consist of multiple components?	PC, Printer, UPS

(If yes, please describe each system component)	
Cycle time > 3 seconds? (If yes, how long?)	Yes.
Highest internally generated frequency	
Product Set-up Time	15 minutes
Boot up time in the event of an unintentional power down	2 minutes but UUT will be on UPS

Identify **ALL** I/O connections on the unit(s) under test, as well as **MAXIMUM** associated cable lengths below

Model No.	Description	I/O Type		Length (m)	Patient Connect? (See Note)	QTY
		UUT-UUT	UUT - SE			
generic	USB			6 ft		
generic	power			6 ft		

Note: "Patient Connect" column applies only to medical devices.

3.0 Power

Power Requirements	
Does/can product connect to AC mains? (If so, can the UUT function when connected to AC?)	Yes.
Input Voltage Rating as it appears on unit, power supply, or power brick	n/a
Input Current (specify @ 230 Vac/50 Hz)	
Single or Multi-Phase (If multi-phase, specify delta or wye)	single
Is input power connector two-prong (Hot & Neutral) or 3-prong (H, N, Ground)	3 prong
Does UUT have more than 1 power cord? (If yes, explain.)	No

4.0 Unit Under Test (UUT) – Detailed Information

UUT Hardware			
Condition	New		
Configuration During Test	Printing Ballots		
Input Power	Normal AC power 120Vac/60Hz		
UUT Components			
Name	**Model No.**	**Serial No.**	**Description**
Configuration 1			
ELO	ESY15E2	A18C004079	AIO Touchscreen
Brother	HL-L2350DW	U64964AN263525	Printer
APC	SMT-2200	AS1638230963	UPS
Configuration 2			
ELO	ESY15E2	D18Q000334	AIO Touchscreen
OKI	B432dn	AK7A044093A0	Printer
APC	SMT-2200	AS1721132721	UPS
Configuration 3			
ELO	ESY20X2	D18Q000335	AIO Touchscreen
Brother	HL-L2350DW	U64964A8N263531	Printer
APC	SMT-2200	AS1721142050	UPS
Configuration 4			
ELO	ESY20X2	A18C004071	AIO Touchscreen

OKI	B432dn	AK7A044083A0	Printer
APC	SMT-2200	AS1721132721	UPS (Emissions only)
APC	SMT-2200	AS1808141143	UPS (Immunity)

I/O Cabling		
See Section 2.0 for details		
UUT Software/Firmware		
Name	**Version/Revision**	**Functionality**
ClearAccess	1.5.0e	Voting systems software

UUT Operating Conditions	
List all frequencies generated/used by the product.	n/a
How will product be exercised during test?	Printing ballots
How will product be monitored during test?	Visually
What are the product's critical parameters?	Unit keeps printing
Specify tolerance of all critical parameters.	Unit keeps printing

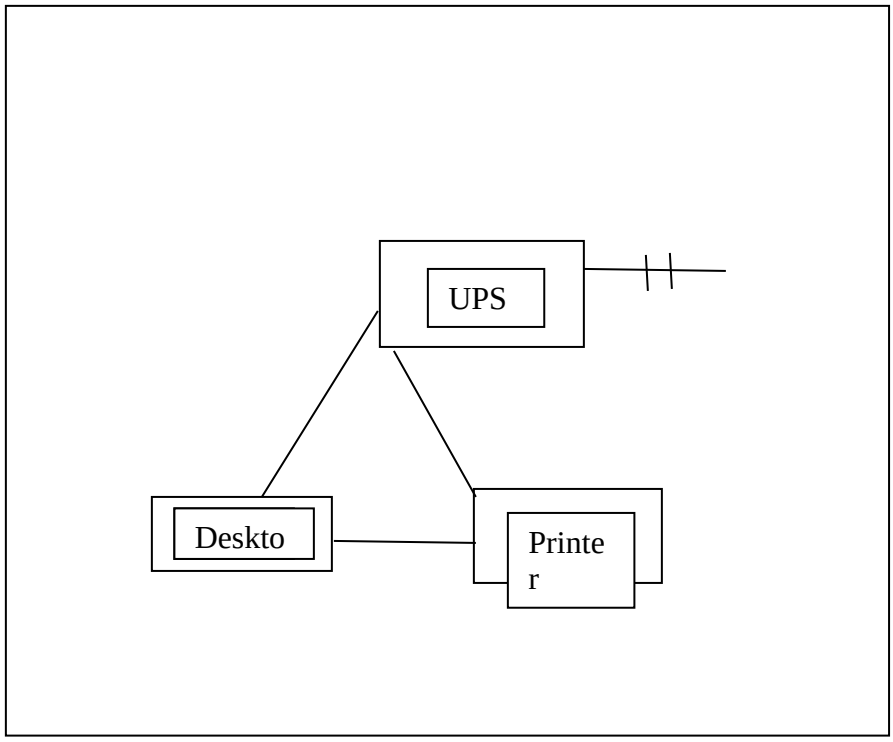
5.0 Support Equipment (SE) – Detailed Information

Support Equipment (SE)			
Name	**Model No.**	**Serial No.**	**Description**
Monoprice	108323	CBG-HP-010	Headphones
Storm	EZ08-222013	15000005	ATI
Sip & Puff	AC-0313-H2	CBG-SP-010	Sip and Puff
Zebra	DS457	CBG-Zeb-010	Bar Code Scanner

SE I/O Cabling				
Model No.	**Description**	**Shielded?**	**Length**	**Quantity**
Generic	USB	N	>3M	1
Generic	3.5mm Headphone jack	N	>3M	1

SE Software/Firmware		
Name	**Version/Revision**	**Functionality**
		n/a

6.0 Block Diagram



Important note: The product data sheet is a critical piece of documentation which is used as the basis for any test reports that EMCI will generate; it must be completed *prior* to testing. It should be reviewed carefully by the client. If incorrect information is provided resulting in revisions to test reports, the client will be subject to report revision fees.

APPENDIX D - EMI TEST LOG

EMI Test Log

Manufacturer:	Pro V&V	Project Number:	PR079580
Model:	ClearAccess	S/N:	Config 1:
	Config 1:		A18C004079
	ELO ESY15E2		U64964AN263525
	Brother HL-L2350DW		AS1638230963
	APC SMT-2200		Config 2:
	Config 2:		D18Q000334
	ELO ESY15E2		AK7A044093A0
	OKI B432dn		AS1721132721
	APC SMT-2200		Config 3:
	Config 3:		D18Q000335
	ELO ESY20X2		U64964A8N263531
	Brother HL-L2350DW		AS1721142050
	APC SMT-2200		Config 4:
	Config 4:		A18C004071
	ELO ESY20X2		AK7A044083A0
	OKI B432dn		AS1721132721(Emissions)
	APC SMT-2200		AS1808141143(Immunity)
Customer Representative:	Michael Walker		
Standard Referenced:	EAC 2005 VVSG (FCC Class B)		

FR0105

10m Emissions

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
---	6005	May 8, 2018 0800-1130	Initial Product Set-up & Configuration Engineering / Trouble-Shoot		3.5	---	MT
RE	13410	1130-1200	Test #1: Radiated Emissions, 30 MHz - 1 GHz, 8 Rads, 4 Heights, 3 sec. dwell, ref. level = 80 dBuV, 10 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 1		0.5	---	MT
		1200-1230	Lunch		---	---	MT
RE		1230-1330	Continue: Test #1: Radiated Emissions, 30 MHz - 1 GHz, 8 Rads, 4 Heights, 3 sec. dwell, ref. level = 80 dBuV, 10 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 1		1.0	Pass	MT
RE	13510	1330-1430	Test #2: Radiated Emissions, 1 GHz - 18 GHz, 16 Rads, 3 Heights, 3 sec. dwell, ref. level = 107 dBuV, 3 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 1		1.0	Pass	MT
CE	2345	1430-1530	Test #3: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz Config 1		1.0	Pass	MT
		1530-1630	Client running Post Test and setting up Config 2.		1.0	Complete	MT
	6008	May 9, 2018 0800-1200	Waiting on UPS delivery and Power Cord plugs		4.0	---	MT
		1200-1230	Lunch		---	---	MT
		1230-1630	Continue waiting on Client Incorrect UPS's were shipped, Client is determining options.		4.0	---	MT
	6008	May 10, 2018	Client had no UPS's to test with No testing performed today		8.0	---	MT
CE		May 11, 2018 0800-0900	Test #4: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz Config 2		1.0	Pass	MT
RE		0900-1030	Test #5: Radiated Emissions, 1 GHz - 18 GHz, 16 Rads, 3 Heights, 3 sec. dwell, ref. level = 107 dBuV, 3 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 2		1.5	Pass	MT

10m Emissions

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
RE		1030-1200	Test #6: Radiated Emissions, 30 MHz - 1 GHz, 8 Rads, 4 Heights, 3 sec. dwell, ref. level = 80 dBuV, 10 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 2		1.5	Pass	MT
RE		1230-1400	Test #7: Radiated Emissions, 30 MHz - 1 GHz, 8 Rads, 4 Heights, 3 sec. dwell, ref. level = 80 dBuV, 10 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 3		1.5	Pass	MT
RE		1400-1500	Test #7: Radiated Emissions, 1 GHz - 18 GHz, 16 Rads, 3 Heights, 3 sec. dwell, ref. level = 107 dBuV, 3 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 3		1.0	Pass	MT
CE		1500-1600	Test #8: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz Config 3		1.0	Pass	MT
RE		May 14, 2018 1000-1100	Test #9: Radiated Emissions, 1 GHz - 18 GHz, 16 Rads, 3 Heights, 3 sec. dwell, ref. level = 107 dBuV, 3 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 4 Printer ran out of paper will need to rerun 1-18GHz test		1.0	---	MT
RE		1100-1200	Test #10: Radiated Emissions, 1 GHz - 18 GHz, 16 Rads, 3 Heights, 3 sec. dwell, ref. level = 107 dBuV, 3 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 4		1.0	Pass	MT
		1200-1230	Lunch		---	---	MT
RE		1230-1400	Test #11: Radiated Emissions, 30 MHz - 1 GHz, 8 Rads, 4 Heights, 3 sec. dwell, ref. level = 80 dBuV, 10 meter distance (4.1.2.9) 120 VAC / 60 Hz Config 4		1.5	Pass	MT
CE		1400-1500	Test #12: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz Config 4		1.0	Pass	Mt

Regular hours:	36.0
Overtime/Prem hours:	36.0

APPENDIX E - LABORATORY ACCREDITATION

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

NATIONAL TECHNICAL SYSTEMS (NTS) - LONGMONT
1736 Vista View Drive
Longmont, CO 80504-5242
Mr. Eric Loucks Phone: 303 776 7249

ELECTRICAL

Valid To: February 28, 2018 Certificate Number: 0214.43

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Electromagnetic Compatibility/Interference (EMC/EMI), Lightning, Transient, Surge, and Product Safety tests:

Test Technology:	**Test Method(s)[1,2]:**
Emissions	
Radiated and Conducted	CFR 47 FCC, Parts 15B (using ANSI C63.4: 2014), 15C (using ANSI C63.10:2013), and 18 (using MP-5:1986); CISPR 32, Ed. 1 (2012-01); EN 55032:2012/AC:2013; AS/NZS CISPR 22 (2002); AS/NZS 3548 (1997); AS/NZS CISPR 14-1 (2003); IEC/CISPR 14-1, Ed. 4 (2003); IEC 61000-3-12, Ed. 2.0 (2011); EN 61000-3-12 (2011); IEC 61000-6-1, Ed. 2 (2005-03); IEC 61000-6-2, Ed. 2.0 (2005-01); IEC 61000-6-3 (1996); EN 61000-6-3 (2001) + A1 (2004); EN 61000-6-4 (2007); KN 32:2015 (Annex 11); KN 22; KN 11
Harmonics	IEC 61000-3-2, Ed. 2.2 (2004-11); IEC 61000-3-2, Ed. 3.0 (2005) + A1 (2008) + A2 (2009); IEC 61000-3-2, Ed. 4.0 (2014-05)
Flicker	IEC 61000-3-3, Ed. 1.1 (2002-03); EN 61000-3-3 + Al (2001); IEC 61000-3-3, Ed. 1.1 (2003) + A2 (2005); IEC 61000-3-3, Ed. 3.0 (2013-05)
Immunity	
Electrostatic Discharge (ESD)	IEC 61000-4-2 (2001); EN 61000-4-2 (2001) + A2 (2001); EN 61000-4-2 + Al (1998) + A2 (2001); IEC 61000-4-2, Ed. 2.0 (2008-12); EN 61000-4-2 (2009-05); KN 61000-4-2; KN 61000-4-2 (2008-5); KN 61000-4-2 (Annex 1-1)
Radiated	IEC/EN 61000-4-3, Ed. 2.1 (2002) + A1 (2002); EN 61000-4-3; IEC 61000-4-3 (1995) + Al (1998) + A2 (2000); EN 61000-4-3 (2002) + Al (2002); IEC 61000-4-3, Ed. 3.0 (2006-02) + Al (2007) + A2 (2010); EN 61000-4-3 (2006) + Al (2008) + A2 (2010); KN 61000-4-3; KN 61000-4-3 (2008-5); KN 61000-4-3 (Annex 1-2)

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8398 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Test Technology:	Test Method(s)[1,2]:
Immunity (cont'd)	
Electrical Fast Transient/Burst	IEC 61000-4-4, Ed. 2.0 (2004-07); EN 61000-4-4 (2004); EN 61000-4-4:2012; IEC 61000-4-4 (2012-04); KN 61000-4-4; KN 61000-4-4 (2008-5); KN 61000-4-4 (Annex 1-3)
Surge	IEC 61000-4-5, Ed. 2.0 (2005-11); EN 61000-4-5; IEC 61000-4-5, Ed. 3.0 (May 2014); BS EN 61000-4-5 (2006); EN 61000-4-5: 2014; KN 61000-4-5; KN 61000-4-5 (2008-5); KN 61000-4-5 (Annex 1-4); IEEE C62.41.1 (2002); IEEE C62.41.2 (2002); IEEE C62.25 (2002)
Conducted	IEC 61000-4-6, Ed. 2.1 (2004); EN 61000-4-6; EN 61000-4-6 (1996) + A1 (2001); IEC 61000-4-6, Ed. 2.2 (2006-05); IEC 61000-4-6, Ed. 3.0 (2008); IEC 61000-4-6, Ed. 4. 0 (2013); EN 61000-4-6 (2009); EN 61000-4-6 (2014); KN 61000-4-6; KN 61000-4-6 (2008-5); KN 61000-4-6 (Annex 1-5)
Power Frequency Magnetic Field	IEC 61000-4-8 (2001) + A1 (2000); EN 61000-4-8 (2001) + A1 (2000); EN 61000-4-8 (1993) + A1 (2001); IEC 61000-4-8 (2009); EN 61000-4-8:2010; KN 61000-4-8; KN 61000-4-8 (2008-5); KN 61000-4-8 (Annex 1-6)
Voltage Dips, Short Interruptions, and Voltage Variations	IEC 61000-4-11, Ed. 2 (2004-03); EN 61000-4-11; EN 61000-4-11 (1994) + Al (2001); EN 61000-4-11 (2004); KN 61000-4-11; KN 61000-4-11 (2008-5); KN 61000-4-11 (Annex 1-7)
Product Safety	
Medical Electrical Equipment	IEC 60601-1-2, Ed. 3.0 (2007); KN 60601-1-2 (2008-5); IEC 60601-1-2, Ed. 4, (2014-02); EN 60601-1-2 (2007); EN 60601-1-2 (2015)
Generic/Product Family Standards and Industry Standards	
Generic Standards	EN 61326-1: 2013; KN 35: 2015
Information Technology Equipment	IEC/CISPR 22 (1997); EN 55022 (1998) + A1 (2000); IEC/CISPR 22 (1993); EN 55022 (1994); IEC/CISPR 22 (1993); EN 55022 (1994) + A1 (1995) + A2 (1997); CNS 13438 (1997); IEC/CISPR 22, Ed. 4 (2003-04); EN 55022 (1998); IEC/CISPR 22, Ed. 5 (2005); EN 55022 (1998); IEC/CISPR 22, Ed. 5 (2005) + A1 (2005); EN 55022 (1998) + A1 (2000) + A2 (2003);

Test Technology:	Test Method(s)[1,2]:
Generic/Product Family Standards and Industry Standards (cont'd)	
Information Technology Equipment (cont'd)	CNS 13438 (2006) (up to 6GHz); IEC/CISPR 22, Edition 5.2 (2006-03); EN 55022 (2006); EN 55022 (2006) + A1 (2007); EN 55022:2010; IEC/CISPR 22 (2008-09); AS/NZS CISPR 22 (2009); TCVN 7189:2009 (CISPR 22:2006); VCCI V-3 (2009.04, 2011.04, 2013.04, 2014.04, 2015.04) (up to 6 GHz); VCCI-CISPR 32:2016; CISPR 24 Ed 2.0 (2010-08); EN 55024 (2010); KN 24
Industrial, Scientific, and Medical (ISM) Equipment	AS/NZS CISPR 11 (2002); IEC/CISPR 11, Ed. 4.1 (2004-06); AS/NZS CISPR 11 (2004); IEC/CISPR 11, Ed. 4.1 (2004-06) + A1 (2004); EN 55011 (1998) + A1 (1999) + A2 (2002); IEC/CISPR 11 (2003); EN 55011 (1998) + A2(2002); EN 55011 (2009) + A1 (2010); IEC/CISPR 11 Ed. 5 (2009-05); CISPR 11 Ed. 5.1 (2010)
Measure	IEC 61326-1 Ed. 2.0 (2012)
Military/Defense	MIL-STD-461F Method CE101 (30 Hz to 10 kHz); MIL-STD-461F Method CE102 (10 kHz to 10 MHz); MIL-STD-461F Method CE106 (10 kHz to 40 GHz); MIL-STD-461F Method CS101 (30 Hz to 150 kHz); MIL-STD-461F Method CS106; MIL-STD-461F Method CS114 (10 kHz to 200 MHz); MIL-STD-461F Method CS116 (10 kHz to 100 MHz); MIL-STD-461F Method RE101 (30 Hz to 100 kHz); MIL-STD-461F Method RE102 (10 kHz to 18 GHz); MIL-STD-461F Method RE103 (10 kHz to 40 GHz); MIL-STD-461F Method RS101 (30 Hz to 100 kHz); MIL-STD-461F Method RS103 (2 MHz to 40 GHz)

[1] When the date, revision or edition of a test method standard is not identified on the scope of accreditation, the laboratory is required to be using the current version within one year of the date of publication, per part C., Section 1 of A2LA *R101 - General Requirements- Accreditation of ISO-IEC 17025 Laboratories*. If a specifier/regulator imposes a different transition period, this will supersede the A2LA one-year implementation period.

[2] The laboratory is only accredited for testing activities outlined within the test methods listed above. Reference to any other activity within these standards, such as risk management or risk assessment, does not fall within the laboratory's accredited capabilities.

On the following types of products:

Telecommunication Equipment, Network Equipment, Industrial and Commercial Equipment, Electronic (Digital) Equipment, Medical, Aerospace, Military. Information Technology Equipment, Multimedia Equipment, Scientific Equipment

Testing Activities Performed in Support of FCC Declaration of Conformity and Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1[3]

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Unintentional Radiators		
Part 15B	ANSI C63.4:2014	40000
Industrial, Scientific, and Medical Equipment		
Part 18	FCC MP-5 (February 1986)	40000
Intentional Radiators		
Part 15C	ANSI C63.10:2013	40000

[3]Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (https://apps.fcc.gov/oetcf/eas/) for a listing of FCC approved laboratories.

Accredited Laboratory

A2LA has accredited

NATIONAL TECHNICAL SYSTEMS (NTS) - LONGMONT

Longmont, CO

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 28th day of October 2016.

President and CEO
For the Accreditation Council
Certificate Number 0214.43
Valid to February 28, 2018
Revised June 5, 2017

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

END OF REPORT