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**Test Report Number:** ETR-PR066470  
**Reference Standard:** CFR Title 47, FCC Part 15, Class B  
ICES-003, Issue 5, August 2012  
**Date of Test:** 24 July – 27 September 2017  
**Date of Report:** 12 October 2017  
**Product Name:** ClearCast/ClearAccess Voting Machine  
**Model Number:** ClearCast, ClearAccess  
**Manufacturer:** Pro V&V  
**Representative:** Stephen Han  
**Report Type:** Radiated and Conducted Emissions  
**Test Result:** Compliant

**Approved By:**

A handwritten signature in black ink, appearing to read "Stephen Han".

<b>FCC</b> DN: US5316 TSRN: 735190 FRN: 0015264914	<b>BSMI</b> SL2-IN-E-1134R	<b>VCCI</b> Member #: 1211 Registration #: 0009	<b>MSIP</b> US0168	<b>MIC</b> US0168
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**Prepared for:**

Pro V&V  
700 Boulevard South, Suite 102  
Phone: (256) 713-1111  
Fax: (256) 713-1112  
Email: stephen.han@provandv.com

**Customer Representative:**

Stephen Han  
Project Engineer

**Tested at:**

NTS Longmont  
1736 Vista View Drive  
Longmont, Colorado 80504

**Tested by:**

Kevin Johnson – EMI Test Engineer  
Mike Tidquist – EMI Test Technician  
Steve Cristanelli – EMI Test Technician  
Casey Lockhart – EMI Test Technician

**Report Prepared by:**

Kellie Barnes  
Technical Writer

**Report Approved by:**

Pat Schroepfer  
AE/Program Manager

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## 1.0 TEST SUMMARY

### 1.1 Product Description

Product Name	Model #	Serial #	Manufacturer
ClearCast, ClearAccess	ClearCast, ClearAccess	*See test log & data sheets	Clear Ballot Group (Pro V&V -client)

These products are: a Precinct Tabulator and a 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.

### 1.2 Purpose

This report documents the test efforts performed on the ClearCast and ClearAccess 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 select dates from 24 July – 27 September 2017.

### 1.3 Test Standards Used

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.

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

**Table 1-1**

CFR Title 47 FCC Part 15	ICES-003, Issue 6, August 2016
ANSI C63.4: 2014	

### 1.4 Test Results

The UUT **complied** with the Class B emission requirements defined in Table 1-1. Test data is contained in the appropriate appendices of this report.

### 1.5 Modifications Required for Compliance

Radiated Emissions: Wurth Ferrite added to printer USB cable 742-716-33S Computer End (Configuration 3)

## 2.0 TEST ENVIRONMENT

### 2.1 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 ANSI C63.4. 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.

For emission measurements above 1 GHz, the antenna is changed to a double-ridged horn equipped with a preamplifier and run directly into the spectrum analyzer. The antenna spacing is reduced from 10 meters to 3 meters and RF absorber is placed on the floor between the antenna and the UUT such that the site VSWR requirements of CISPR 16 are achieved. The QP adapter and RF preselector 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.

## 2.2 Conducted Emissions Test Site

Conducted emissions testing was performed on a 10' by 10' ground plane, which is bonded to the wall of the 10-meter chamber, using its wall as the vertical coupling plane. Line impedance stabilization networks (LISNs) were inserted in series with both the UUT and the support equipment. The LISNs used were standard 50 Ω/50 uH LISNs which complied with the requirements of ANSI C63.4. These LISNs are calibrated annually for both complex impedance and insertion loss. Measurement equipment used was an HP 8566B spectrum analyzer with an HP 85650A QP adapter. In addition, a transient limiter and a high-pass filter are used to protect the front-end of the receiver from transients and low-frequency noise, respectively.

## 2.3 Measurement Uncertainty

The measurement uncertainty for NTS'semissions test facility complies with the requirements defined in CISPR 16. The complete calculations 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**

<b>Test</b>	<b>Requirement</b>	<b>Actual</b>
Conducted Emissions	3.60 dB	3.04 dB
Radiated Emissions – Horizontal Polarity	5.20 dB	4.67 dB
Radiated Emissions – Vertical Polarity	5.20 dB	5.01 dB

## 3.0 Radiated Emissions

### 3.1 Summary of Test Results

Radiated electric field emissions were measured on the UUT over the frequency range from 30 MHz to 18 GHz. The UUT was powered from 120 Vac/60 Hz, 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. Average detection was performed for all signals that were maximized above 1 GHz.

Test Input Voltage	Test Result	Margin dB	Frequency MHz
120 Vac/60 Hz Config #1	Compliant	0.29	923.991
120 Vac/60 Hz Config #2	Compliant	3.43	5951.463
120 Vac/60 Hz Config #3	Compliant	1.42	5952.561
120 Vac/60 Hz Config #4	Compliant	7.86	42.504
120 Vac/60 Hz Config #5	Compliant	4.71	875.003

### 3.2 Test Setup

The UUT was set up in accordance with ANSI C63.4 and tested to the Class A limits specified for unintentional transmitters in FCC 15.109.

### 3.3 Special Configurations

Not applicable.

### 3.4 Deviations from Test Procedures

Not applicable.

### 3.5 Test Data

See APPENDIX A for all test data sheets, test setup pictures and test equipment used.

## 4.0 Conducted Emissions

### 4.1 Summary of 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 120 Vac/60 Hz. The input power to both the UUT and the support equipment was run through standard 50 Ω/50 uH 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
120 Vac/60 Hz Config #1	Compliant	16.18	0.432
120 Vac/60 Hz Config #2	Compliant	8.65	0.157
120 Vac/60 Hz Config #3	Compliant	11.02	0.150
120 Vac/60 Hz Config #4	Compliant	2.86	0.152
120 Vac/60 Hz Config #5	Compliant	6.28	14.644

### 4.2 Test Setup

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

### 4.3 Special Configurations

Not applicable.

### 4.4 Deviations from Test Procedures

Not applicable.

### 4.5 Test Data

See APPENDIX B for all test data sheets, test setup pictures and test equipment used.

## **APPENDIX A**

### **Radiated Emissions Test Data**



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017
Temperature:	22°C	Humidity:	40%
Input Voltage:	120Vac/60Hz	Pressure:	846 mb
Configuration of Unit:	Scanning 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	36.324	17.9	20.7	-29.6	9.0	315/H-Pole/1.00	20.53
QP	152.296	29.6	16.3	-30.1	15.8	260/V-Pole/1.05	17.29
QP	395.996	40.1	19.4	-29.1	30.3	48/H-Pole/1.55	5.23
QP	437.996	39.5	20.7	-29.3	30.9	1/V-Pole/2.82	4.67
QP	479.996	39.2	21.7	-29.1	31.8	10/V-Pole/2.95	3.74
QP	623.994	40.0	23.4	-28.6	34.8	202/V-Pole/2.10	0.71
QP	659.994	34.2	23.8	-28.5	29.4	207/V-Pole/2.06	6.12
QP	923.991	35.8	26.5	-27.0	35.2	351/V-Pole/3.00	0.29



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017
Temperature:	22°C	Humidity:	40%
Input Voltage:	120Vac/60Hz	Pressure:	846 mb
Configuration of Unit:	Scanning 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	1858.689	80.5	27.2	-71.0	36.7	319/V-Pole/1.00	-	17.28
PK	1858.689	93.9	27.2	-71.0	50.1	319/V-Pole/1.00	23.83	-
AV	2058.051	82.5	28.0	-70.8	39.7	86/V-Pole/1.60	-	14.29
PK	2058.051	94.8	28.0	-70.8	52.0	86/V-Pole/1.60	21.94	-
AV	3999.116	68.8	32.9	-73.3	28.4	68/V-Pole/1.00	-	25.55
PK	3999.116	91.7	32.9	-73.3	51.3	68/V-Pole/1.00	22.65	-
AV	4992.118	71.7	34.0	-75.1	30.6	45/V-Pole/1.14	-	23.34
PK	4992.118	97.2	34.0	-75.1	56.1	45/V-Pole/1.14	17.84	-
AV	11999.927	65.0	39.1	-67.5	36.6	338/V-Pole/1.00	-	17.37
PK	11999.927	70.1	39.1	-67.5	41.7	338/V-Pole/1.00	32.27	-
AV	17456.805	41.8	45.6	-61.1	26.2	68/H-Pole/1.00	-	27.74
PK	17456.805	55.1	45.6	-61.1	39.6	68/H-Pole/1.00	34.39	-

The highest emission measured was at **923.991 MHz**, which was **0.29 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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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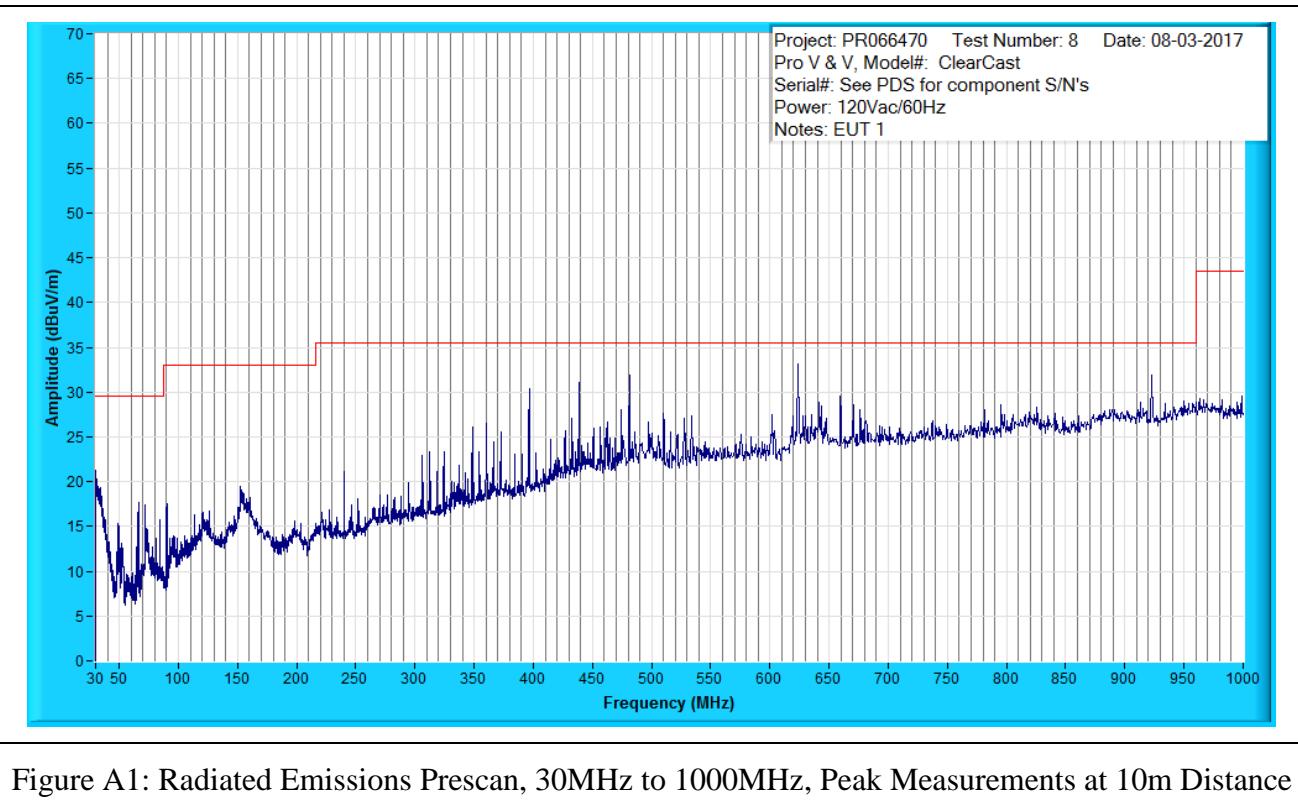


Figure A1: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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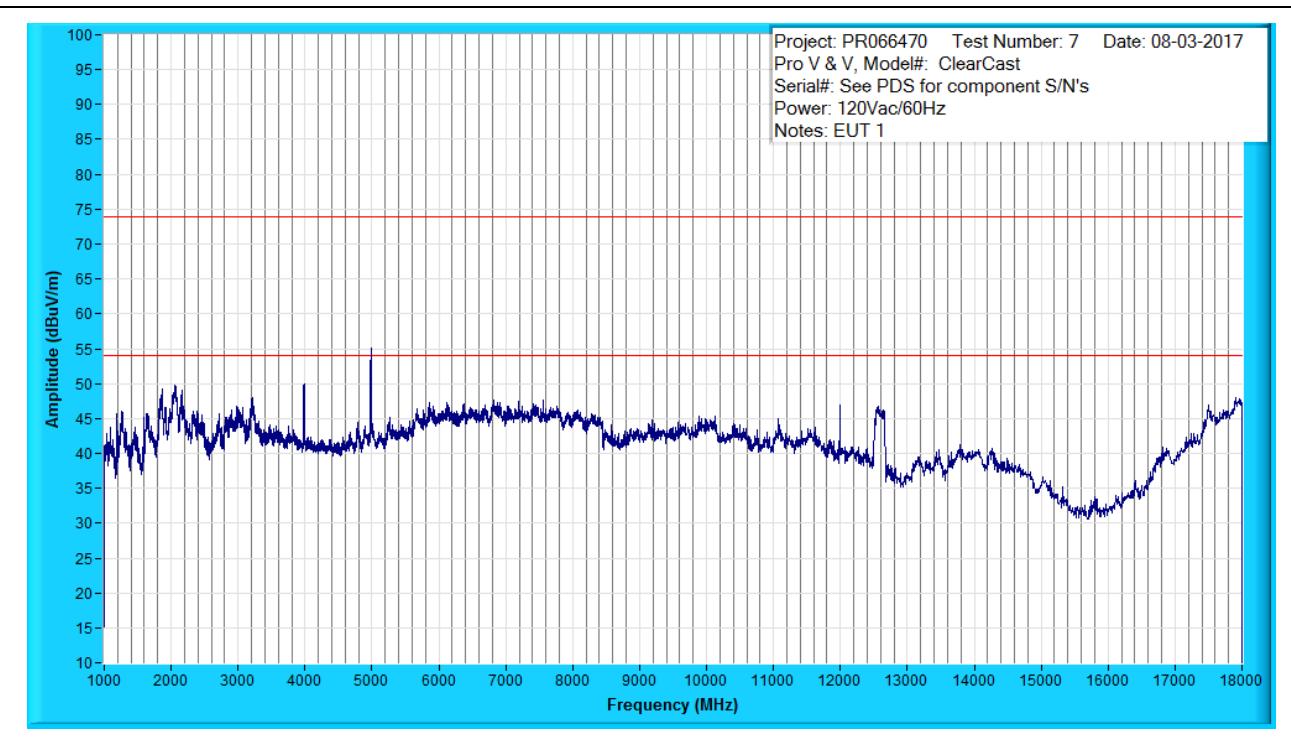


Figure A2: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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Figure A3: Radiated Emissions Test Setup – Front Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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Figure A4: Radiated Emissions Test Setup – Right Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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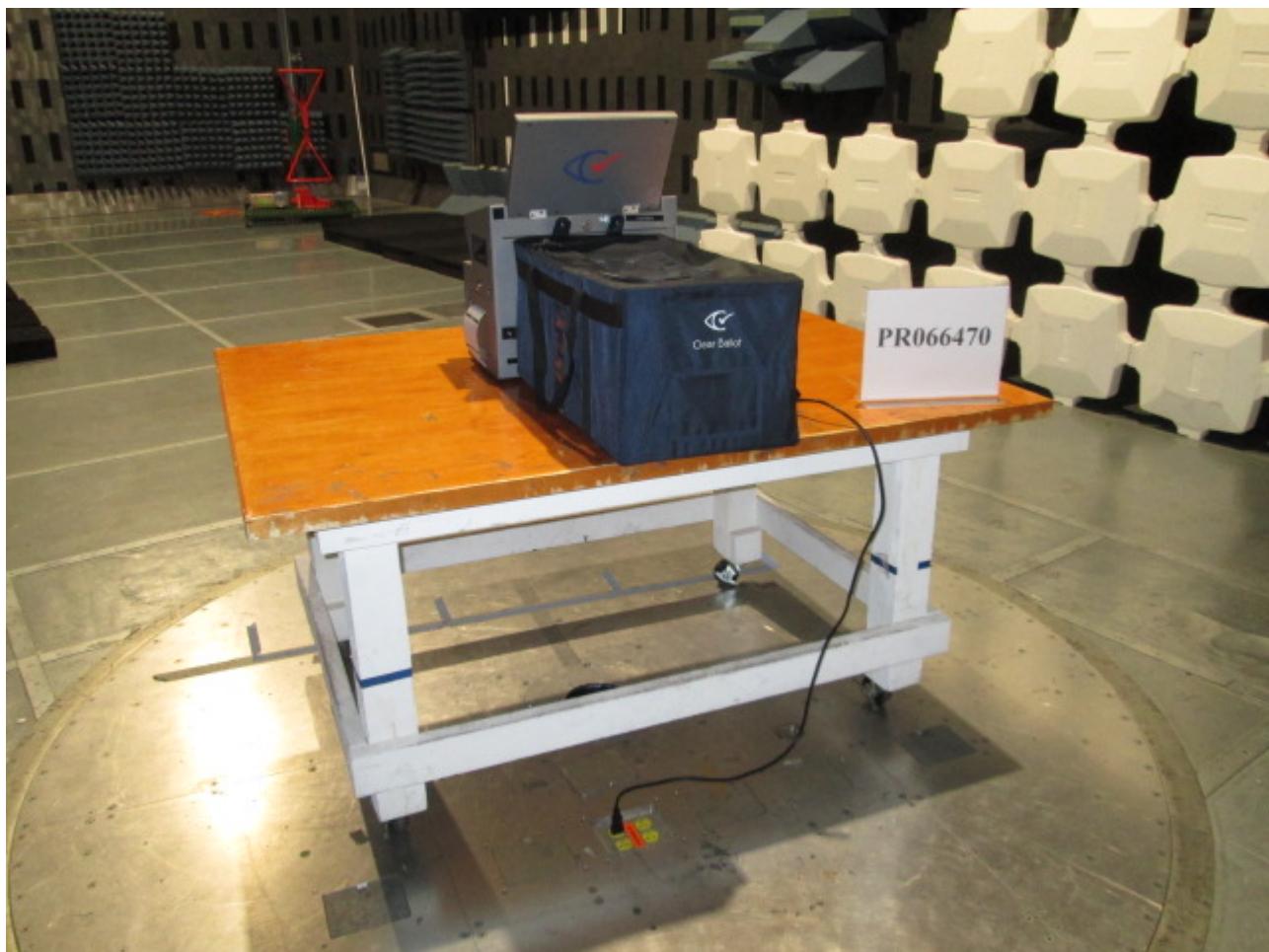


Figure A5: Radiated Emissions Test Setup – Back Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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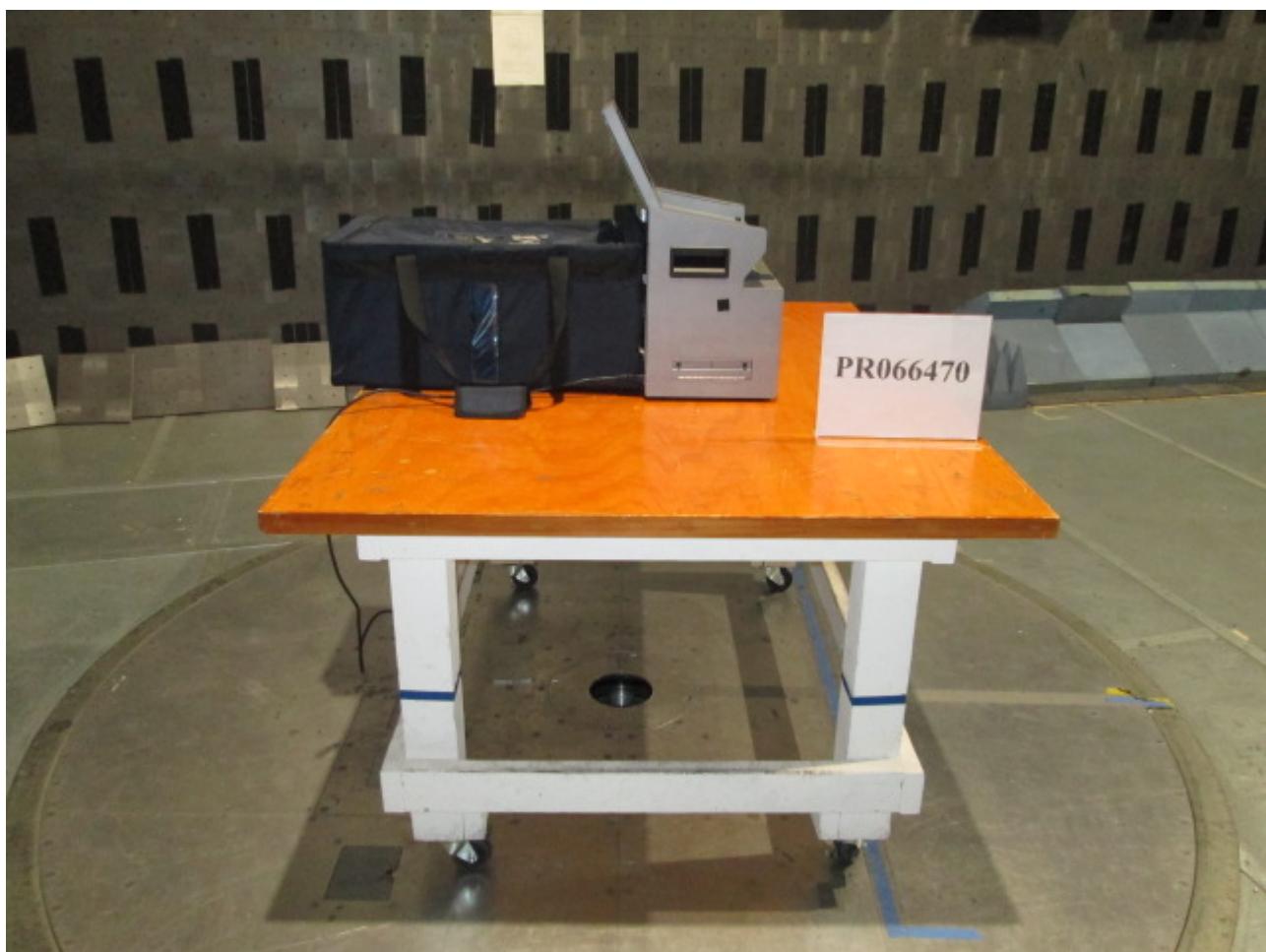


Figure A6: Radiated Emissions Test Setup – Left Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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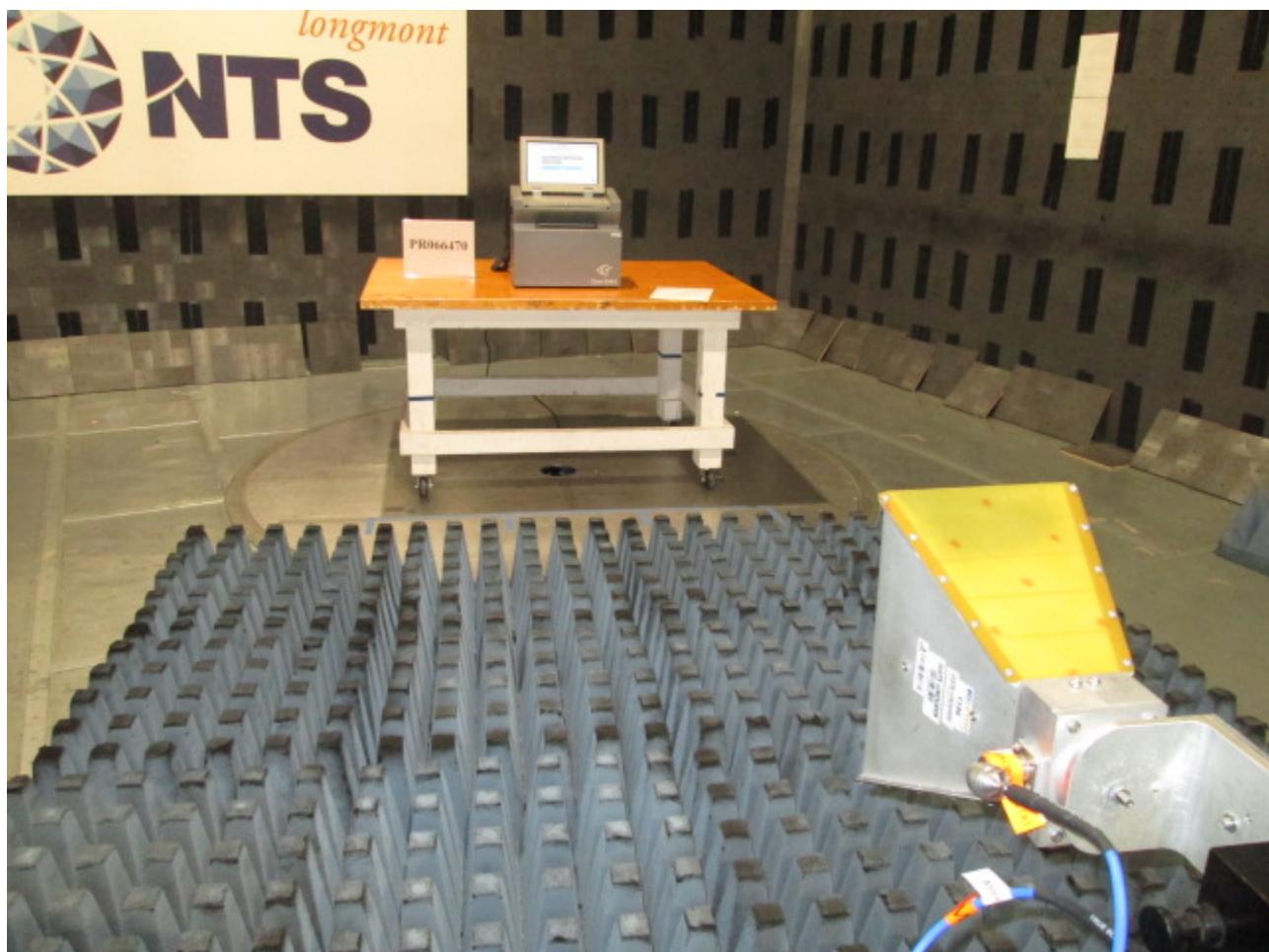


Figure A7: Radiated Emissions Test Setup – Front Side @ 3M



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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### Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1038	Fluke	85	66180455	Multimeter/Frequency Meter	08/09/2016	08/09/2017
1196	EMCO	3115	00034810	DRG Horn 1-18 GHz	08/29/2016	08/29/2017
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/07/2017	03/07/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1231	Sunol Sciences	JB1	A071605-1	Bilog Antenna, 30 MHz to 2.0 GHz	12/20/2016	12/20/2017
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	04/10/2017	04/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	02/15/2017	02/15/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
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	10/03/2016	10/03/2017
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1561	EMCO	4610	9012-1162	Field site Source	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017
Temperature:	23°C	Humidity:	44%
Input Voltage:	120Vac/60Hz	Pressure:	840 mb
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	30.605	20.3	24.9	-29.5	15.8	90/H-Pole/4.00	13.78
QP	37.162	16.8	20.1	-29.6	7.3	225/V-Pole/3.00	22.25
QP	96.005	42.9	12.9	-30.2	25.6	288/V-Pole/1.00	7.40
QP	112.011	37.2	16.5	-30.1	23.6	110/V-Pole/1.00	9.48
QP	176.017	31.4	15.1	-29.8	16.7	328/V-Pole/1.36	16.37
QP	218.966	30.6	14.7	-29.9	15.4	5/V-Pole/1.00	20.15
QP	873.700	23.8	26.1	-27.4	22.4	180/H-Pole/2.00	13.11
QP	982.751	22.1	27.2	-26.8	22.4	270/H-Pole/4.00	21.03



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017
Temperature:	23°C	Humidity:	44%
Input Voltage:	120Vac/60Hz	Pressure:	840 mb
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	1413.614	84.3	25.0	-70.3	39.0	112/H-Pole/1.00	-	14.97
PK	1413.614	105.0	25.0	-70.3	59.7	112/H-Pole/1.00	14.27	-
AV	1774.673	77.7	26.4	-70.8	33.3	158/H-Pole/1.00	-	20.63
PK	1774.673	100.9	26.4	-70.8	56.6	158/H-Pole/1.00	17.38	-
AV	1943.179	80.5	27.2	-70.8	36.9	106/H-Pole/1.00	-	17.10
PK	1943.179	102.6	27.2	-70.8	59.0	106/H-Pole/1.00	14.95	-
AV	2311.209	73.5	28.3	-71.1	30.7	90/H-Pole/1.00	-	23.29
PK	2311.209	95.8	28.3	-71.1	53.0	90/H-Pole/1.00	20.99	-
AV	5951.463	85.8	34.8	-70.0	50.5	118/V-Pole/1.04	-	3.43
PK	5951.463	88.3	34.8	-70.0	53.0	118/V-Pole/1.04	20.93	-
AV	13007.897	58.8	39.9	-71.1	27.5	309/V-Pole/1.26	-	26.43
PK	13007.897	71.5	39.9	-71.1	40.3	309/V-Pole/1.26	33.68	-
AV	17992.673	40.2	45.6	-57.6	28.3	45/H-Pole/1.00	-	25.69
PK	17992.673	53.6	45.6	-57.6	41.6	45/H-Pole/1.00	32.34	-

The highest emission measured was at **5951.463 MHz**, which was **3.43 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, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017

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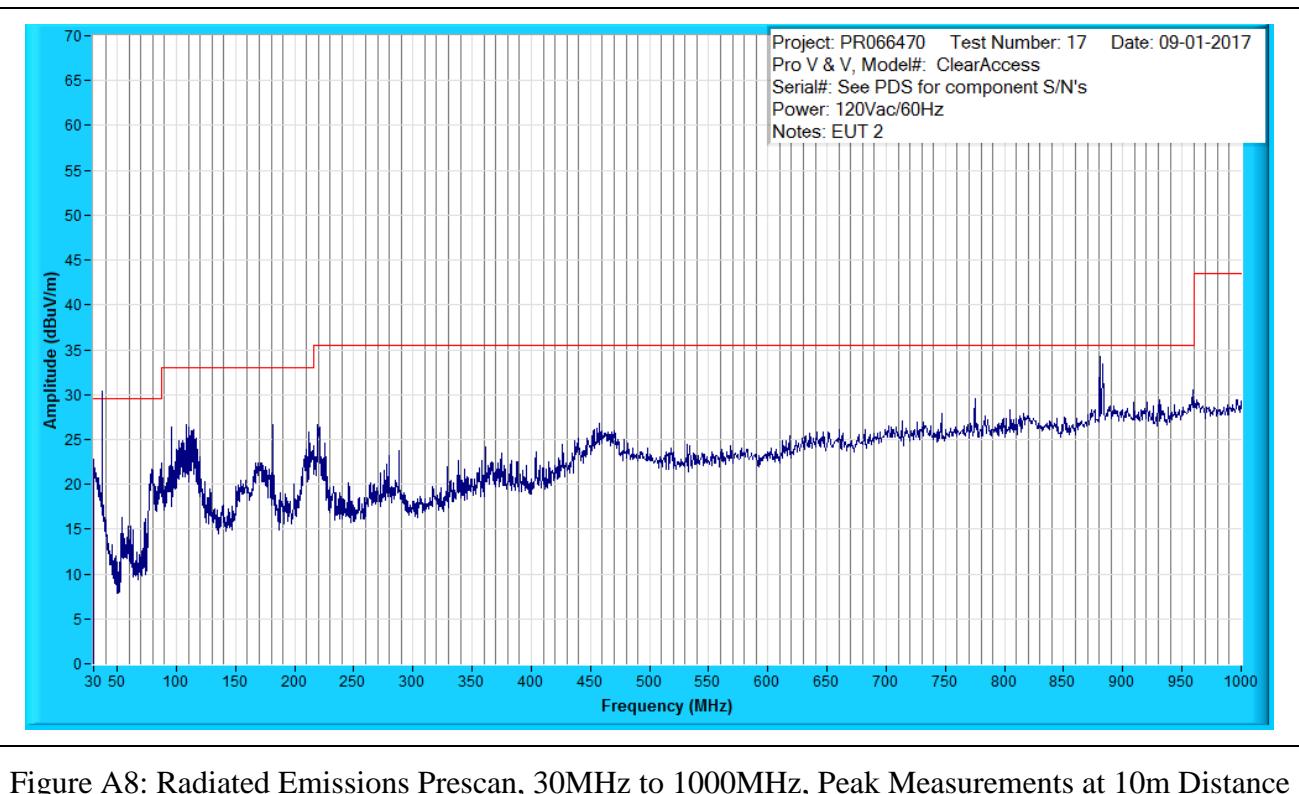


Figure A8: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017

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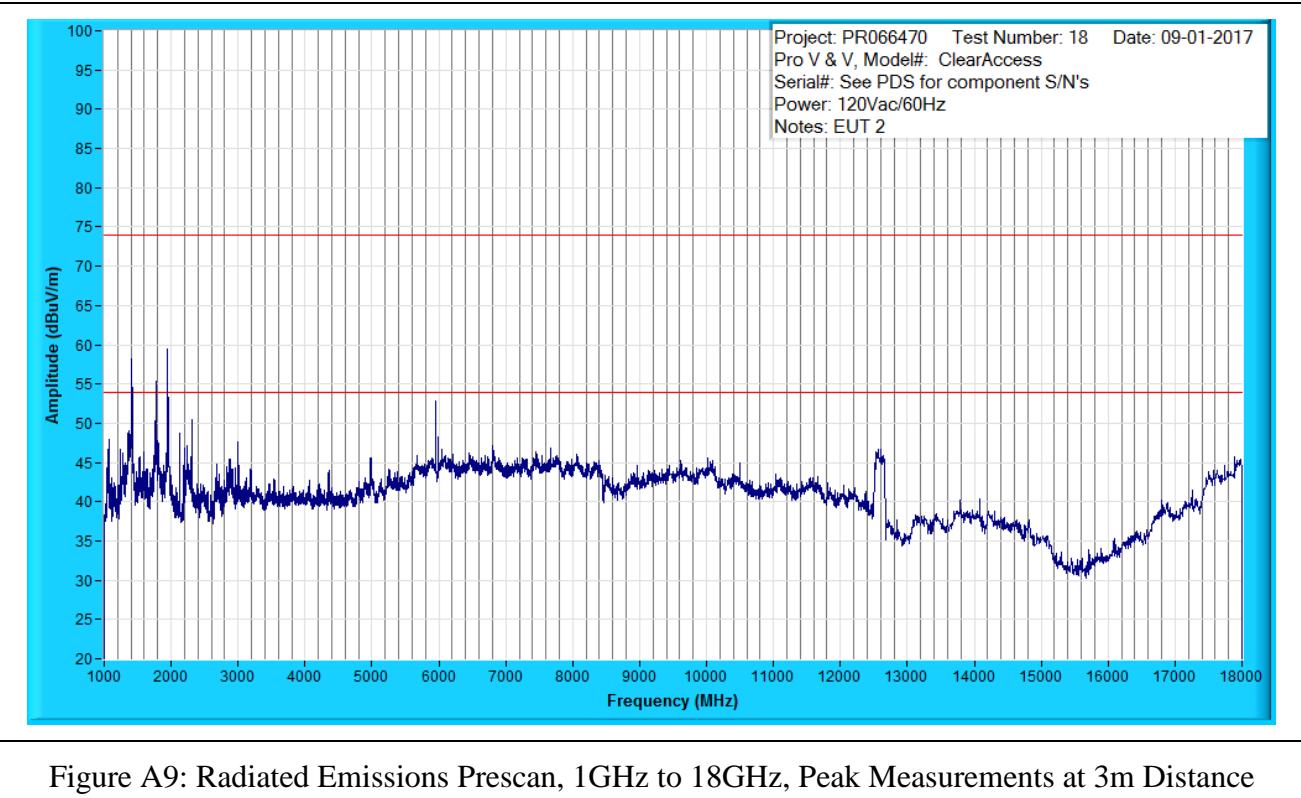


Figure A9: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure A10: Radiated Emissions Test Setup – Front Side



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure A11: Radiated Emissions Test Setup – Right Side



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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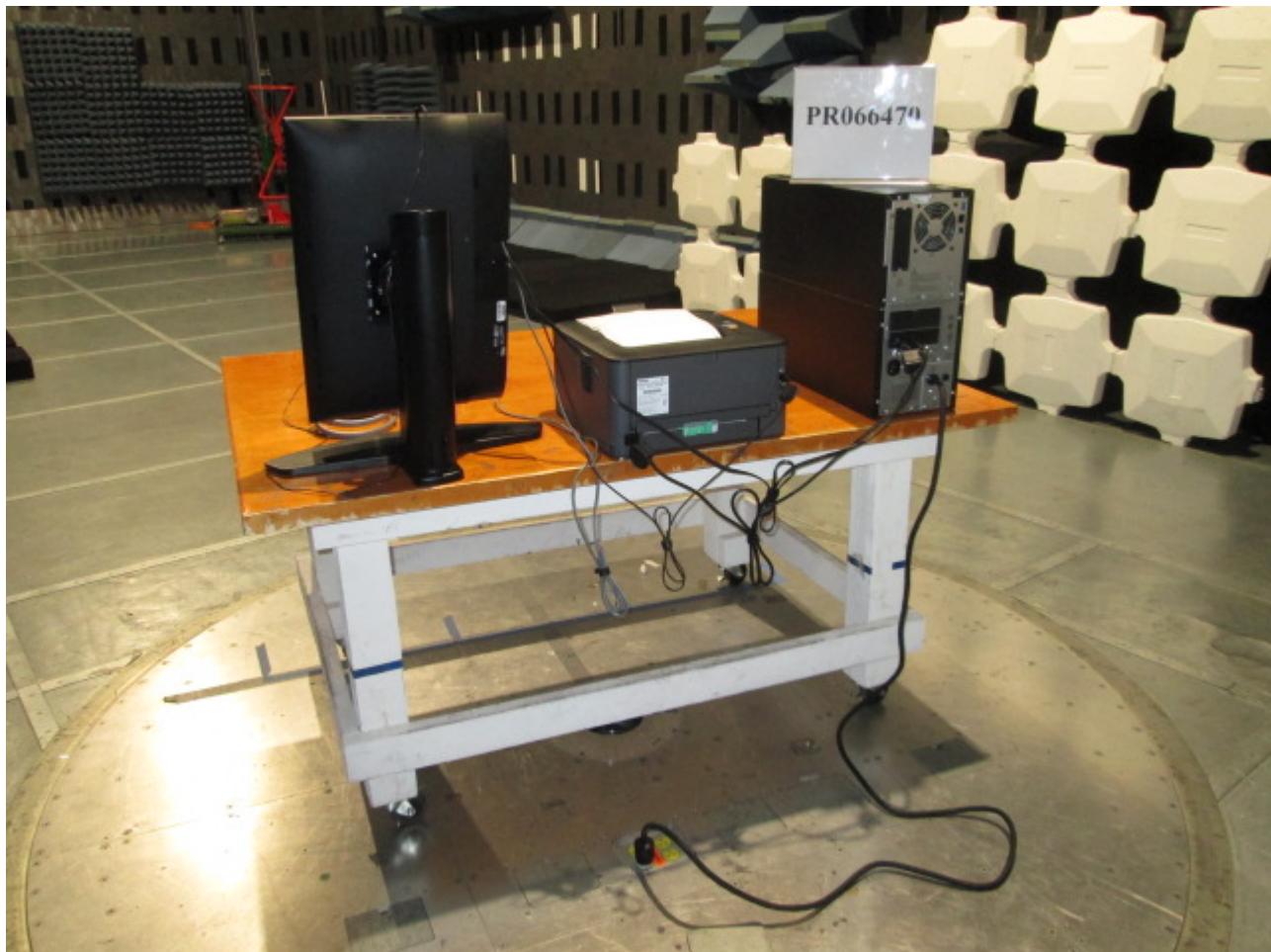


Figure A12: Radiated Emissions Test Setup – Back Side



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure A13: Radiated Emissions Test Setup – Left Side



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017

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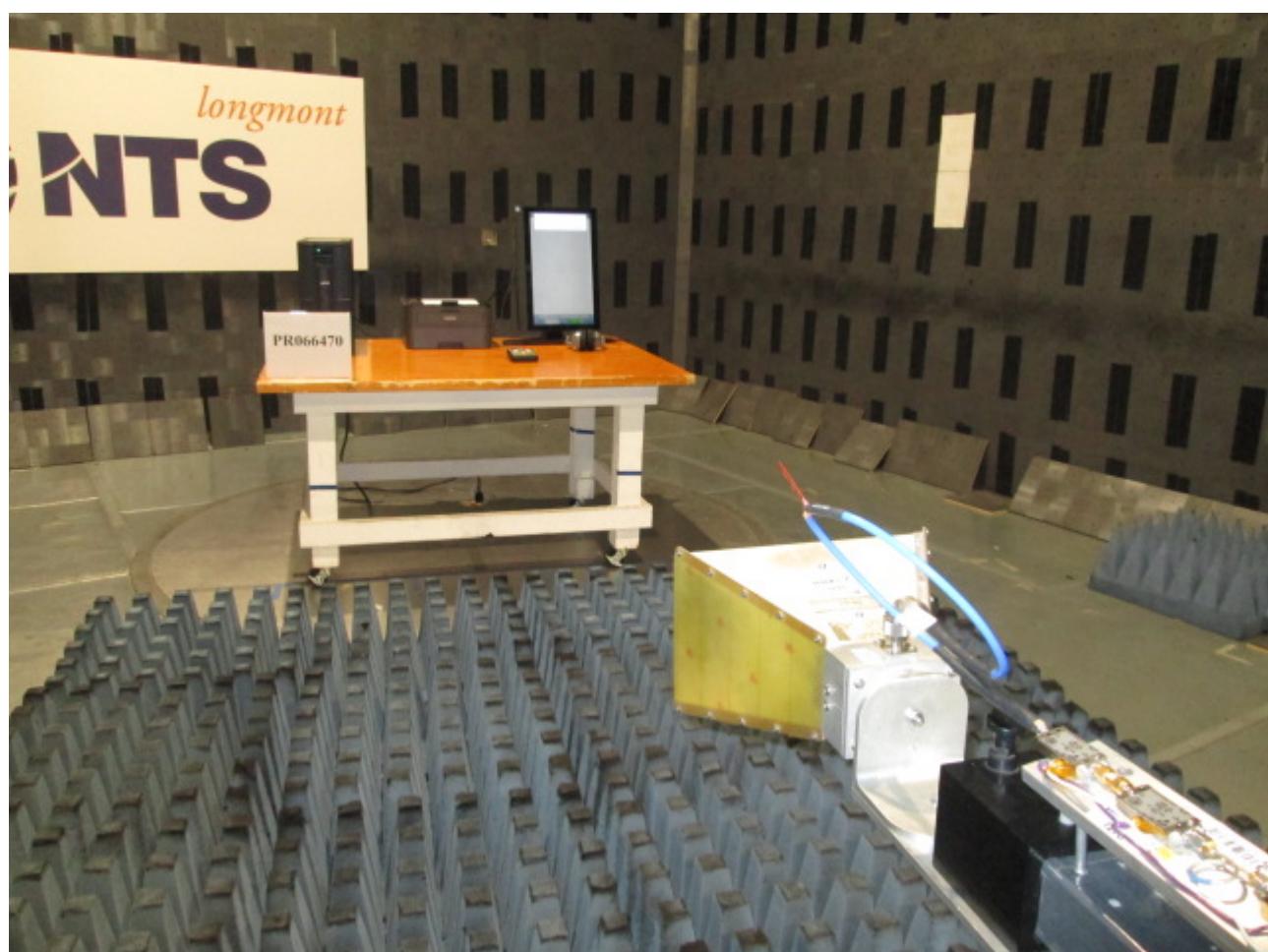


Figure A14: Radiated Emissions Test Setup – Front Side @ 3M



## Radiated Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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### Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1030	EMCO	3115	9906-5816	Double-ridged Horn (1 - 18 GHz)	04/05/2017	04/05/2018
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/07/2017	03/07/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1231	Sunol Sciences	JB1	A071605-1	Bilog Antenna, 30 MHz to 2.0 GHz	12/20/2016	12/20/2017
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	04/10/2017	04/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	02/15/2017	02/15/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
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	10/03/2016	10/03/2017
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1561	EMCO	4610	9012-1162	Field site Source	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
Temperature:	23°C	Humidity:	45%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	30.215	20.0	25.2	-29.4	15.8	180/H-Pole/1.00	13.75
QP	96.005	42.3	12.9	-30.2	25.0	320/V-Pole/1.01	8.02
QP	104.547	37.5	15.3	-30.1	22.6	38/V-Pole/1.00	10.44
QP	112.010	43.5	16.5	-30.1	29.9	14/V-Pole/1.30	3.15
QP	176.016	35.9	15.1	-29.8	21.1	70/V-Pole/1.20	11.94
QP	290.732	34.0	17.3	-29.5	21.8	28/H-Pole/2.64	13.76
QP	625.002	34.3	23.5	-28.6	29.2	124/H-Pole/1.00	6.34
QP	884.577	26.8	26.3	-27.2	26.0	188/H-Pole/3.00	9.56



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
Temperature:	23°C	Humidity:	45%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	1440.002	77.9	25.2	-70.3	32.8	46/V-Pole/2.37	-	21.14
PK	1440.002	84.6	25.2	-70.3	39.5	46/V-Pole/2.37	34.44	-
AV	1776.901	80.5	26.8	-70.8	36.6	138/H-Pole/1.00	-	17.40
PK	1776.901	101.9	26.8	-70.8	57.9	138/H-Pole/1.00	16.05	-
AV	1945.258	82.5	27.6	-70.8	39.3	227/H-Pole/1.00	-	14.67
PK	1945.258	106.4	27.6	-70.8	63.2	227/H-Pole/1.00	10.72	-
AV	2133.267	75.4	28.1	-71.1	32.4	225/H-Pole/1.00	-	21.52
PK	2133.267	95.0	28.1	-71.1	52.0	225/H-Pole/1.00	21.92	-
AV	2313.766	75.5	28.5	-71.1	32.8	248/H-Pole/2.50	-	21.14
PK	2313.766	97.0	28.5	-71.1	54.4	248/H-Pole/2.50	19.59	-
AV	3535.493	77.2	31.9	-71.5	37.5	202/H-Pole/1.00	-	16.42
PK	3535.493	90.6	31.9	-71.5	50.9	202/H-Pole/1.00	23.02	-
AV	4996.429	72.5	34.0	-75.0	31.5	130/V-Pole/1.38	-	22.44
PK	4996.429	88.6	34.0	-75.0	47.6	130/V-Pole/1.38	26.39	-
AV	5952.561	87.7	34.9	-70.1	52.5	196/V-Pole/2.30	-	1.42
PK	5952.561	89.4	34.9	-70.1	54.2	196/V-Pole/2.30	19.72	-
AV	13040.000	55.0	40.8	-71.0	24.8	112/H-Pole/1.00	-	29.12
PK	13040.000	67.4	40.8	-71.0	37.2	112/H-Pole/1.00	36.72	-
AV	17958.406	40.9	48.2	-57.6	31.5	68/H-Pole/4.00	-	22.47
PK	17958.406	53.6	48.2	-57.6	44.2	68/H-Pole/4.00	29.77	-

The highest emission measured was at **5952.561 MHz**, which was **1.42 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 dB<sub>uV</sub> + 11.4 dB/m – 28.8 dB = 32.2 dB<sub>uV/m</sub>. **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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
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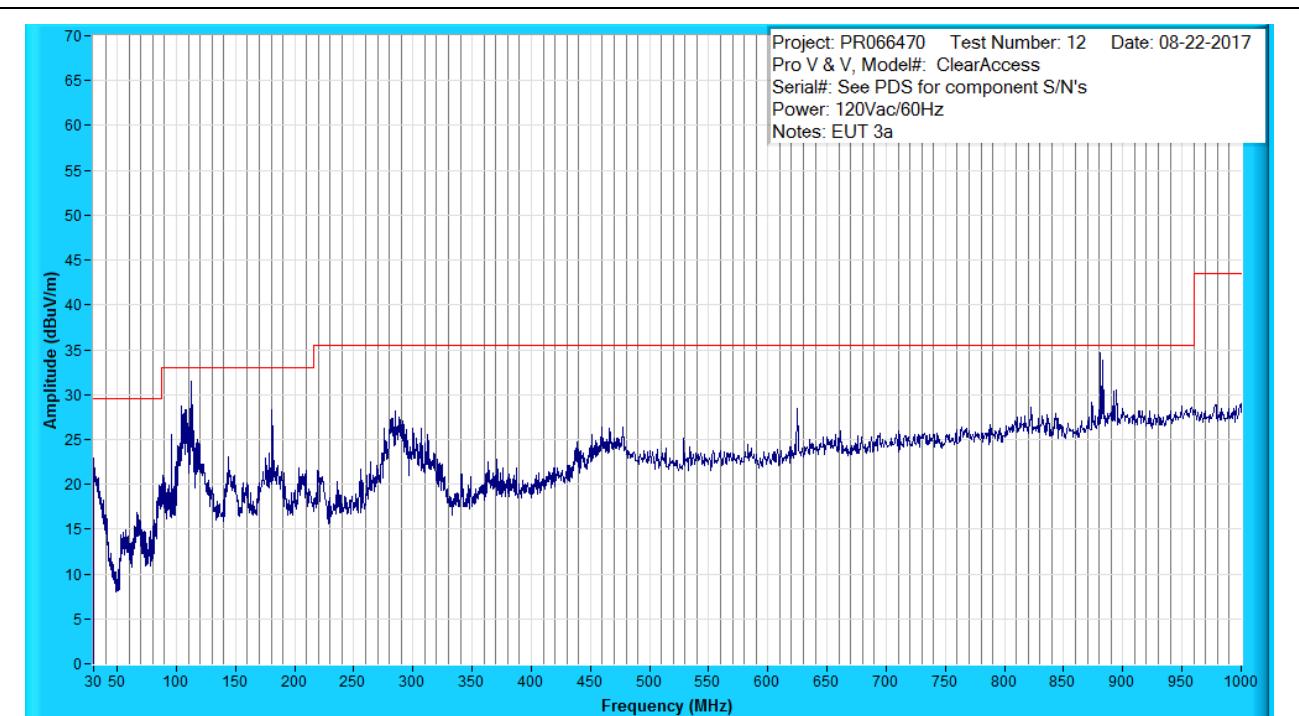


Figure A16: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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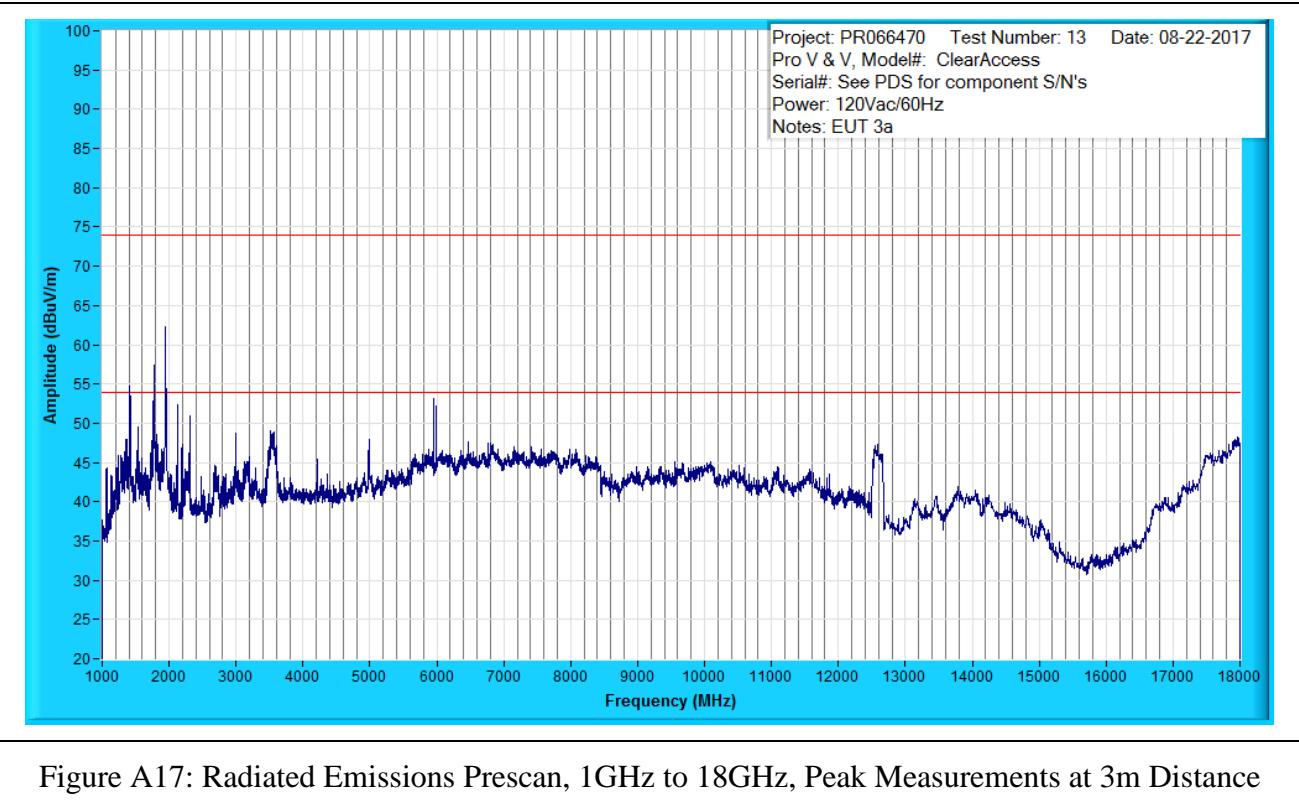


Figure A17: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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Figure A18: Radiated Emissions Test Setup – Front Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017 FR0100

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Figure A19: Radiated Emissions Test Setup – Right Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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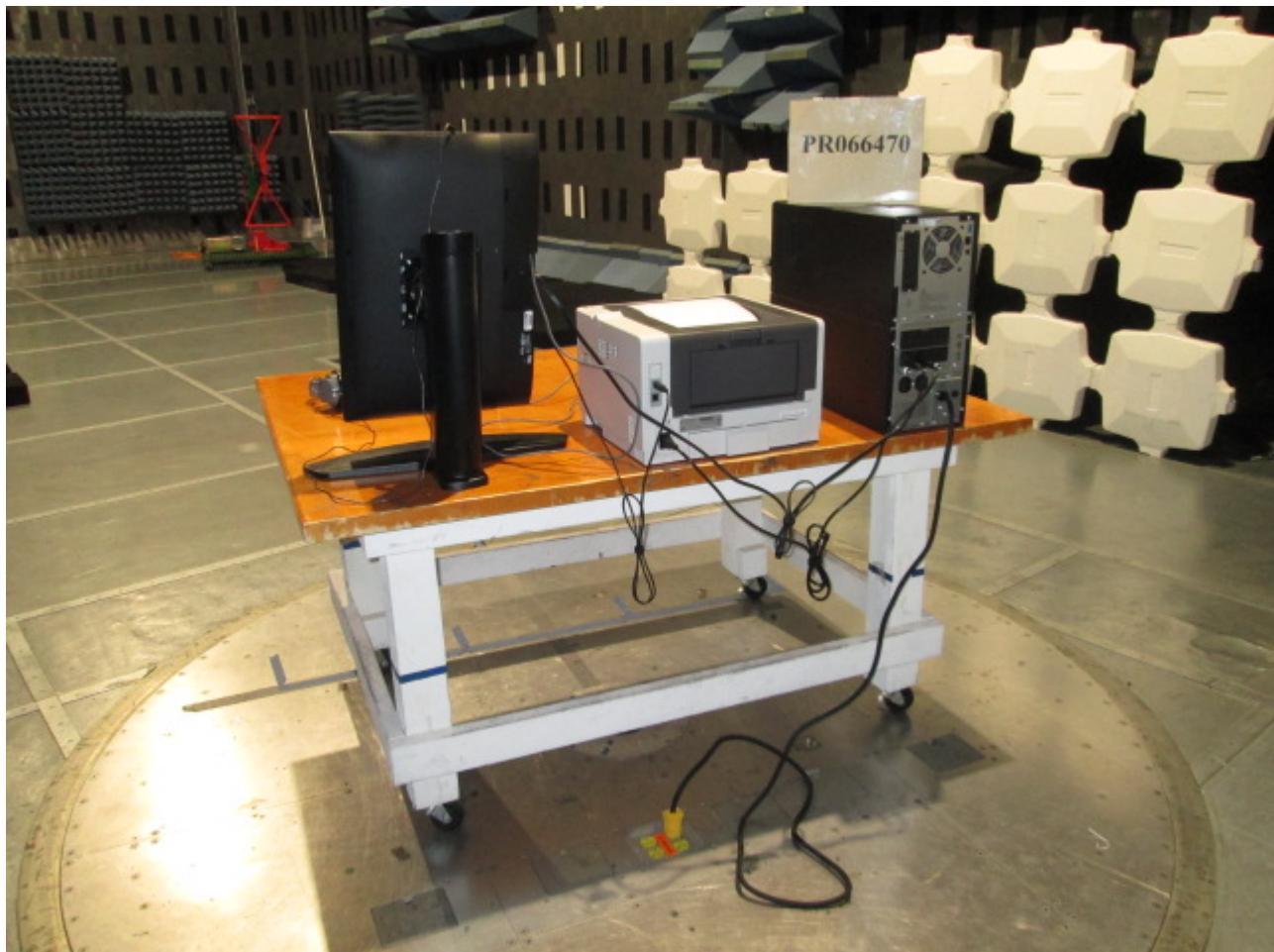


Figure A20: Radiated Emissions Test Setup – Back Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017 FR0100

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Figure A21: Radiated Emissions Test Setup – Left Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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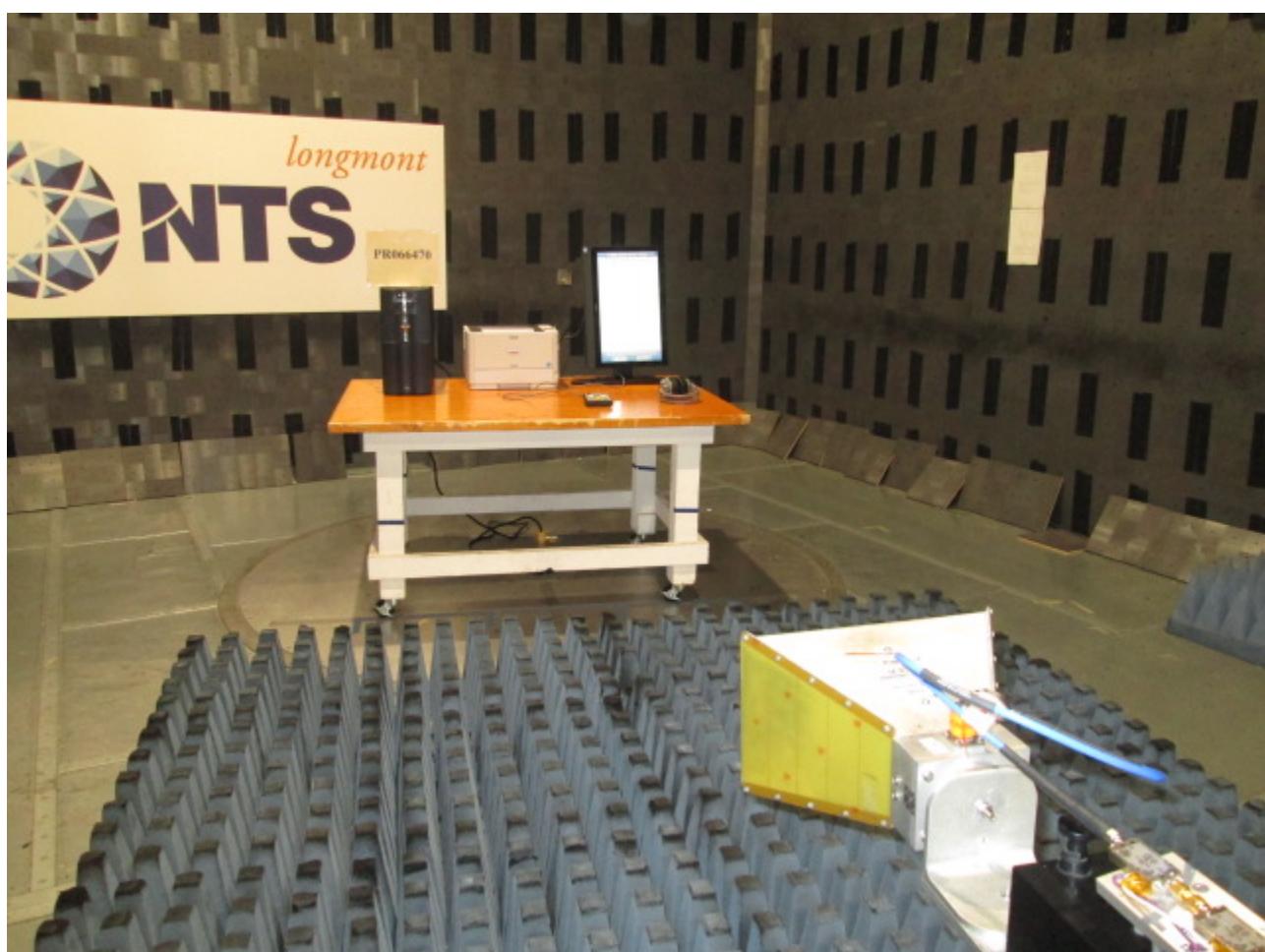


Figure A22: Radiated Emissions Test Setup – Front Side @ 3M



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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### Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1196	EMCO	3115	00034810	DRG Horn 1-18 GHz	08/29/2016	08/29/2017
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/07/2017	03/07/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1231	Sunol Sciences	JB1	A071605-1	Bilog Antenna, 30 MHz to 2.0 GHz	12/20/2016	12/20/2017
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	04/10/2017	04/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	02/15/2017	02/15/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
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	10/03/2016	10/03/2017
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1561	EMCO	4610	9012-1162	Field site Source	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017
Temperature:	22°C	Humidity:	47%
Input Voltage:	120Vac/60Hz	Pressure:	843 mb
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	30.519	21.4	25.0	-29.4	16.9	315/V-Pole/1.00	12.65
QP	42.504	35.3	16.0	-29.7	21.7	265/V-Pole/1.00	7.86
QP	54.068	37.3	11.2	-30.0	18.5	70/V-Pole/1.03	11.04
QP	112.012	36.9	16.5	-30.1	23.3	120/V-Pole/1.46	9.71
QP	143.910	34.1	16.8	-30.0	20.9	20/V-Pole/1.00	12.09
QP	428.853	28.4	20.6	-29.3	19.7	0/V-Pole/1.50	15.80
QP	655.506	23.6	23.8	-28.5	18.9	20/V-Pole/2.17	16.63
QP	713.362	23.8	24.3	-28.2	19.9	12/H-Pole/1.00	15.63
QP	987.092	21.6	27.2	-26.8	22.0	180/V-Pole/1.00	21.43



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017
Temperature:	22°C	Humidity:	47%
Input Voltage:	120Vac/60Hz	Pressure:	843 mb
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	1594.105	68.5	25.9	-70.3	24.1	90/V-Pole/1.00	-	29.90
PK	1594.105	81.3	25.9	-70.3	36.9	90/V-Pole/1.00	37.10	-
AV	1667.435	73.5	26.2	-70.5	29.2	120/V-Pole/1.13	-	24.76
PK	1667.435	82.4	26.2	-70.5	38.1	120/V-Pole/1.13	35.86	-
AV	2166.028	70.8	28.2	-71.1	27.9	22/V-Pole/1.93	-	26.11
PK	2166.028	87.4	28.2	-71.1	44.5	22/V-Pole/1.93	29.46	-
AV	2996.856	69.5	30.5	-71.0	29.1	20/V-Pole/2.49	-	24.89
PK	2996.856	93.8	30.5	-71.0	53.3	20/V-Pole/2.49	20.64	-
AV	6828.069	66.9	36.0	-71.8	31.2	315/V-Pole/4.00	-	22.76
PK	6828.069	79.8	36.0	-71.8	44.1	315/V-Pole/4.00	29.86	-
AV	12603.374	58.4	39.5	-70.0	27.9	268/V-Pole/3.97	-	26.11
PK	12603.374	70.8	39.5	-70.0	40.2	268/V-Pole/3.97	33.71	-
AV	17978.441	37.1	48.3	-57.6	27.8	338/V-Pole/4.00	-	26.17
PK	17978.441	50.1	48.3	-57.6	40.8	338/V-Pole/4.00	33.17	-

The highest emission measured was at **42.504 MHz**, which was **7.86 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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-RE.doc	Date: August 2, 2017		
	FR0100		

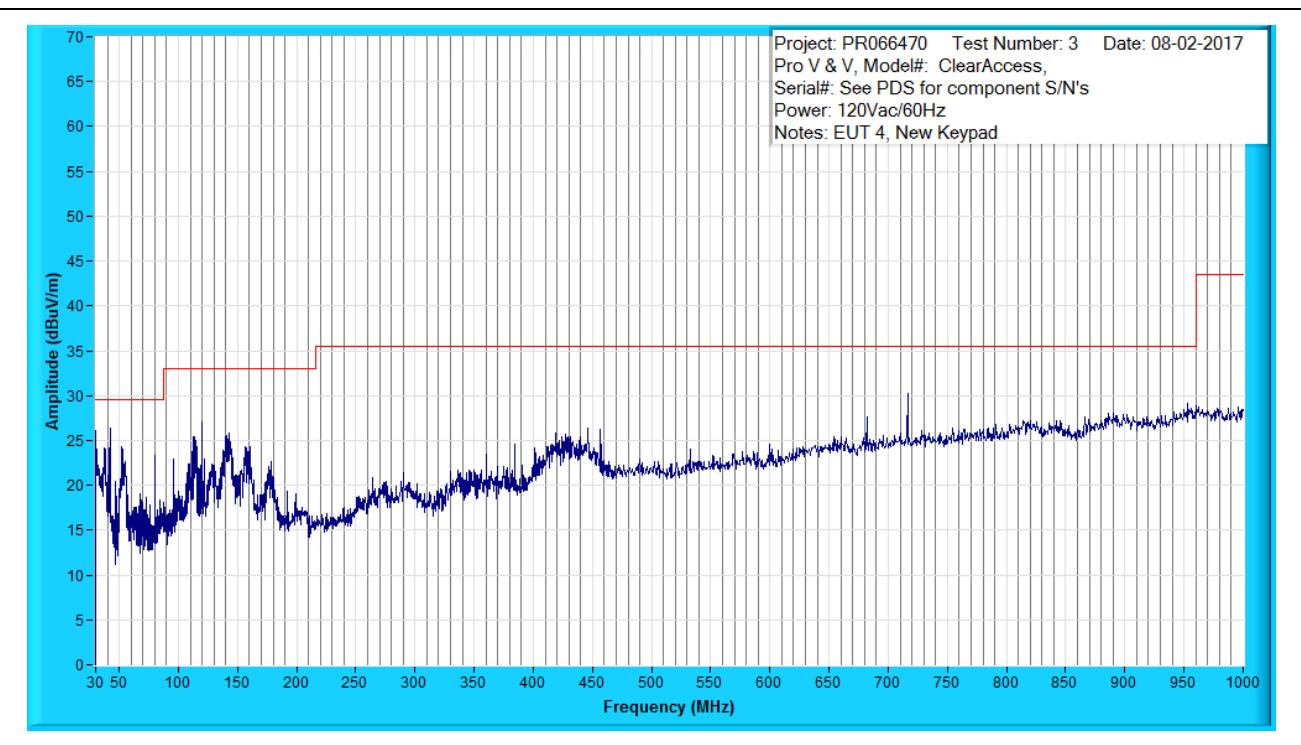


Figure A23: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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FR0100

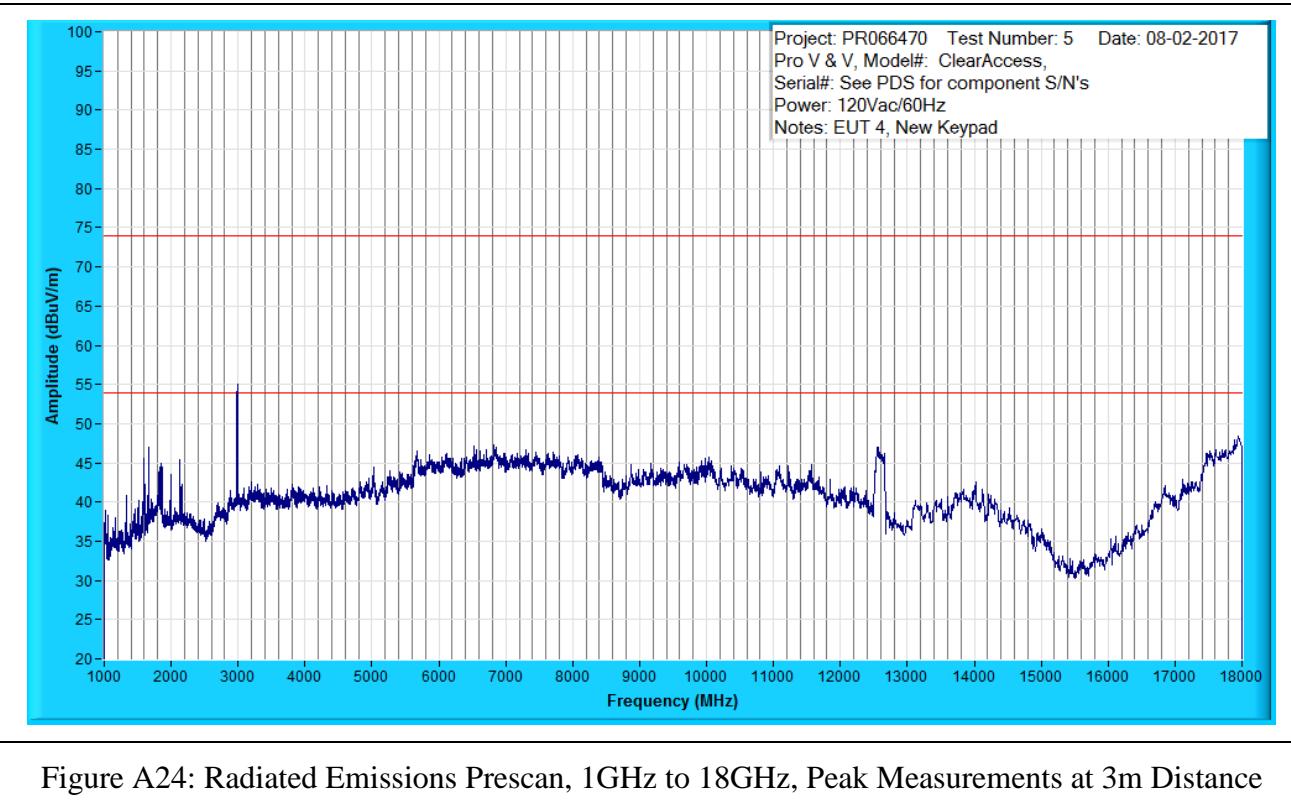


Figure A24: Radiated Emissions Prescan, 1GHz to 18GHz, Peak Measurements at 3m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

PR066470-22-RE.doc

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Figure A25: Radiated Emissions Test Setup – Front Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-RE.doc	Date: August 2, 2017		
FR0100			



Figure A26: Radiated Emissions Test Setup – Right Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-RE.doc			
	Date: August 2, 2017		
	FR0100		



Figure A27: Radiated Emissions Test Setup – Back Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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FR0100



Figure A28: Radiated Emissions Test Setup – Left Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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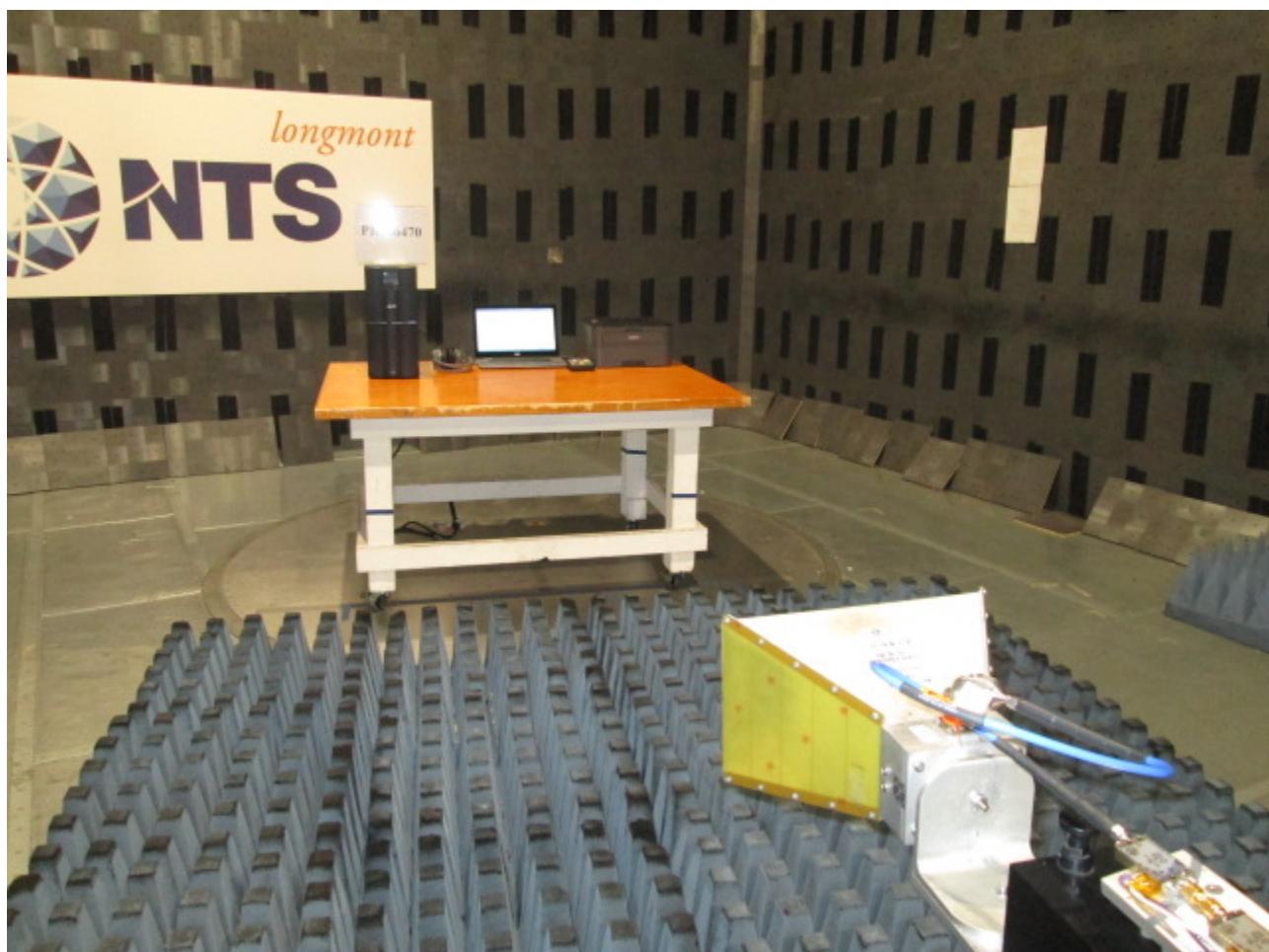


Figure A29: Radiated Emissions Test Setup – Front Side @3M



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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### Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1038	Fluke	85	66180455	Multimeter/Frequency Meter	08/09/2016	08/09/2017
1196	EMCO	3115	00034810	DRG Horn 1-18 GHz	08/29/2016	08/29/2017
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/07/2017	03/07/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1231	Sunol Sciences	JB1	A071605-1	Bilog Antenna, 30 MHz to 2.0 GHz	12/20/2016	12/20/2017
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	04/10/2017	04/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	02/15/2017	02/15/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
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	10/03/2016	10/03/2017
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1561	EMCO	4610	9012-1162	Field site Source	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
Temperature:	25°C	Humidity:	48%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	38.912	33.7	18.9	-29.7	22.9	55/V-Pole/1.00	6.68
QP	43.008	38.9	15.7	-29.8	24.8	50/V-Pole/1.00	4.72
QP	96.009	42.4	12.9	-30.2	25.2	1/V-Pole/1.28	7.88
QP	112.010	40.5	16.5	-30.1	26.9	48/V-Pole/1.00	6.12
QP	310.912	33.1	17.7	-29.5	21.3	216/H-Pole/2.17	14.27
QP	791.995	31.7	25.3	-27.9	29.1	52/V-Pole/2.58	6.42
QP	875.003	32.1	26.1	-27.4	30.8	46/V-Pole/3.36	4.71
QP	1000.000	27.6	27.4	-26.9	28.2	55/H-Pole/2.54	15.28



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
Temperature:	25°C	Humidity:	48%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	1827.555	76.6	27.0	-70.9	32.7	122/H-Pole/1.04	-	21.22
PK	1827.555	92.0	27.0	-70.9	48.1	122/H-Pole/1.04	25.82	-
AV	1997.346	77.1	27.9	-70.9	34.1	68/V-Pole/1.01	-	19.88
PK	1997.346	94.7	27.9	-70.9	51.7	68/V-Pole/1.01	22.28	-
AV	2129.419	74.8	28.1	-71.1	31.9	68/V-Pole/1.01	-	22.07
PK	2129.419	93.8	28.1	-71.1	50.8	68/V-Pole/1.01	23.12	-
AV	2986.182	69.5	30.4	-71.0	28.9	171/V-Pole/1.01	-	25.06
PK	2986.182	100.2	30.4	-71.0	59.6	171/V-Pole/1.01	14.31	-
AV	9679.252	75.7	38.4	-69.5	44.5	262/V-Pole/2.46	-	9.46
PK	9679.252	69.7	38.4	-69.5	38.5	262/V-Pole/2.46	35.41	-
AV	15607.294	43.6	38.1	-66.4	15.3	22/H-Pole/1.01	-	38.60
PK	15607.294	56.6	38.1	-66.4	28.3	22/H-Pole/1.01	45.65	-
AV	17991.186	40.4	48.4	-57.6	31.1	338/H-Pole/1.00	-	22.85
PK	17991.186	53.5	48.4	-57.6	44.2	338/H-Pole/1.00	29.70	-

The highest emission measured was at **875.003 MHz**, which was **4.71 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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
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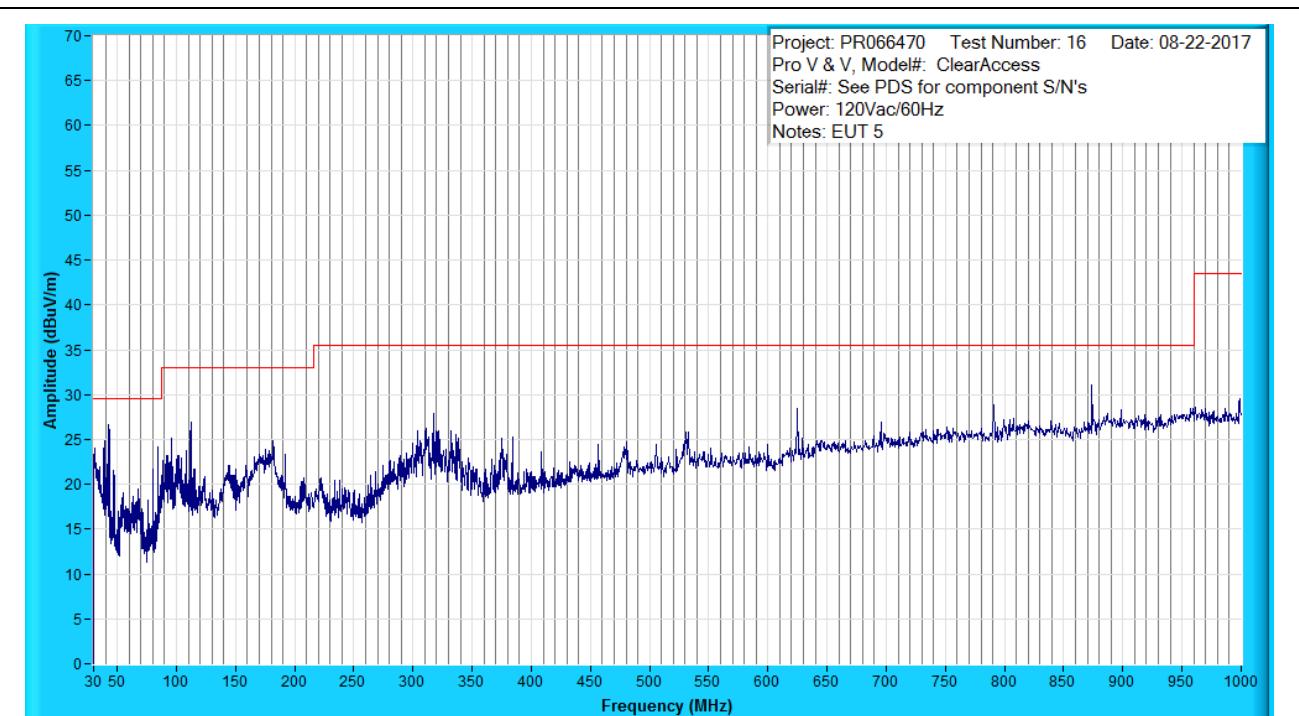
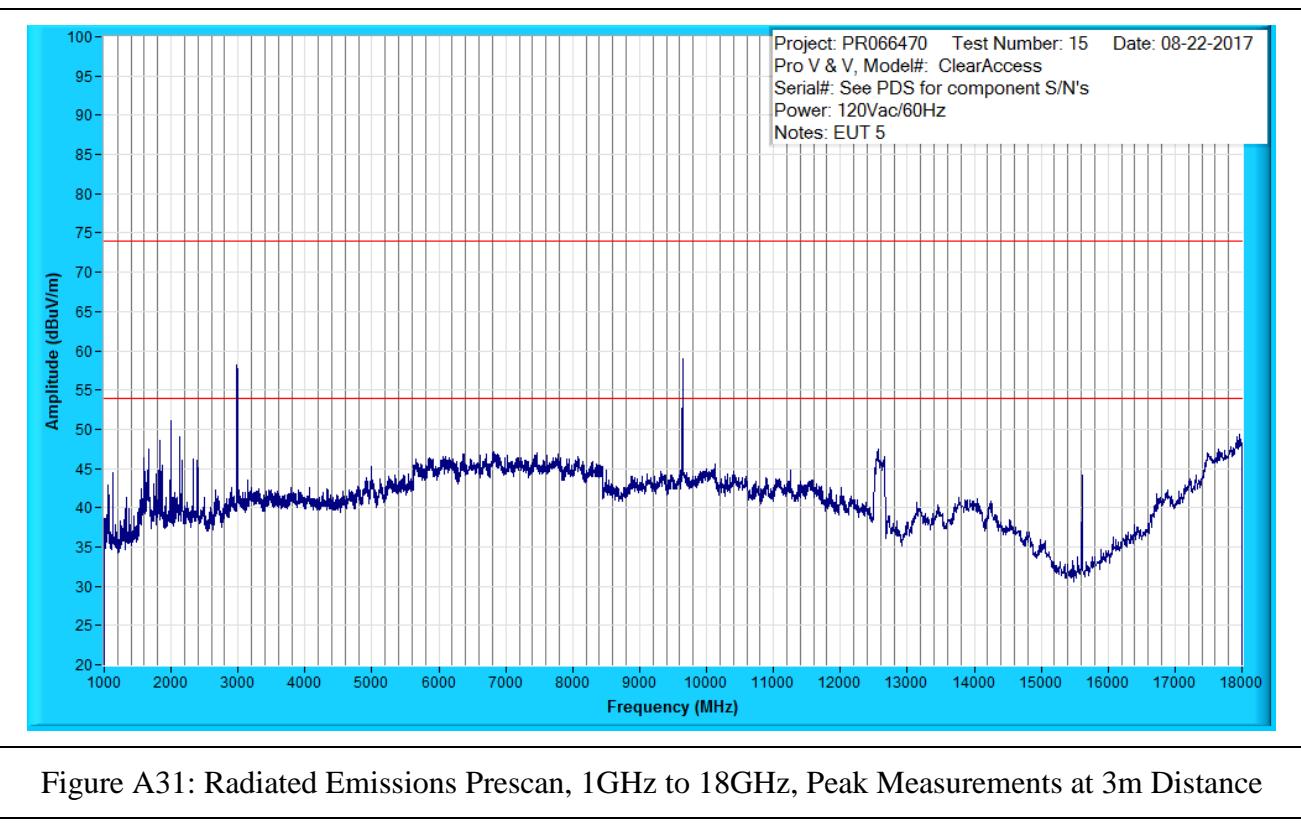


Figure A30: Radiated Emissions Prescan, 30MHz to 1000MHz, Peak Measurements at 10m Distance



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
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## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017 FR0100

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Figure A32: Radiated Emissions Test Setup – Front Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017

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Figure A33: Radiated Emissions Test Setup – Right Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
PR066470-22-RE.doc			FR0100

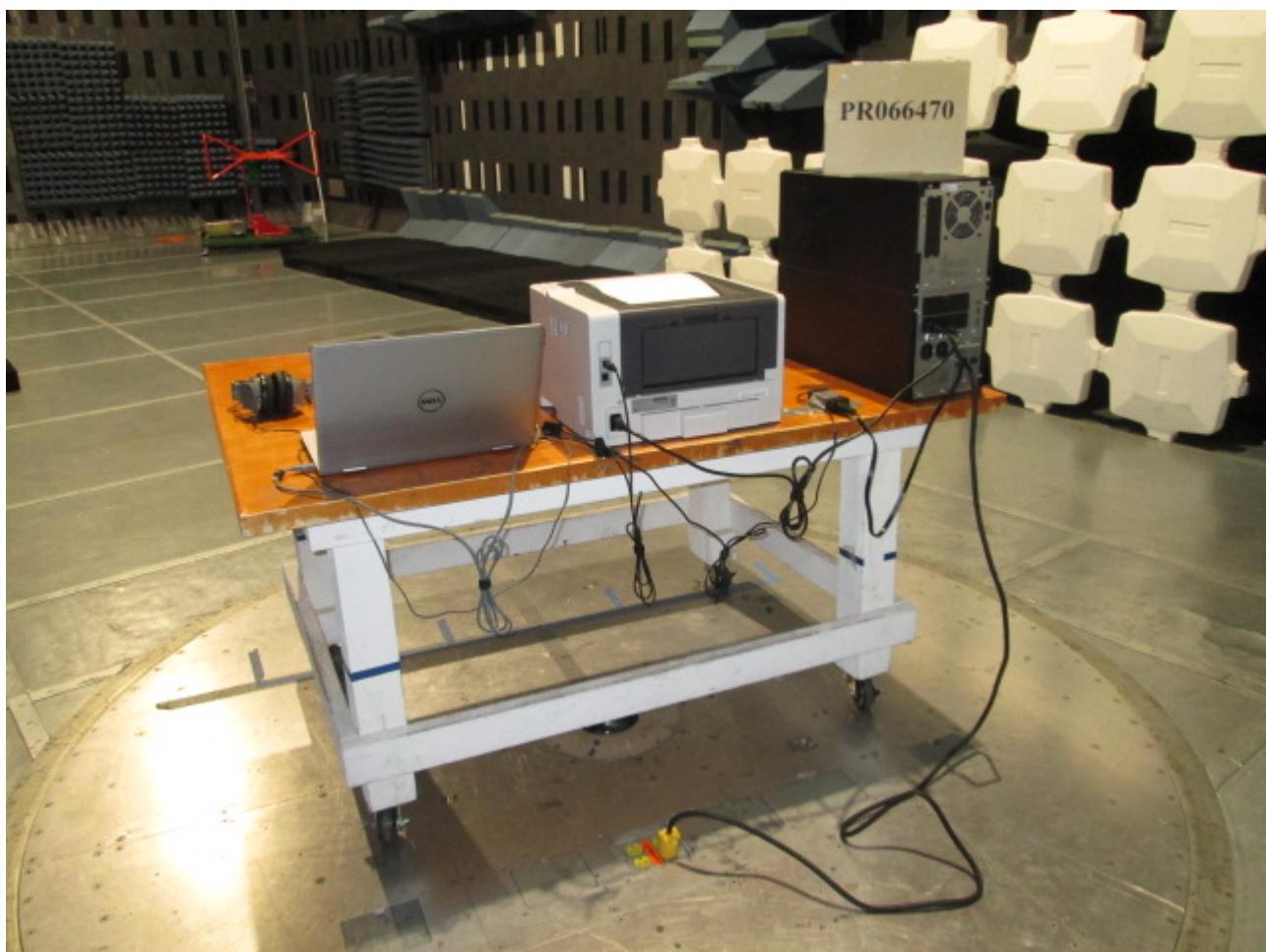


Figure A34: Radiated Emissions Test Setup – Back Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017
PR066470-22-RE.doc			FR0100



Figure A35: Radiated Emissions Test Setup – Left Side



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	August 22, 2017 FR0100

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Figure A36: Radiated Emissions Test Setup – Front Side @ 3M



## Radiated Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG PR066470-22-RE.doc	Date:	August 22, 2017 FR0100

### Test Equipment List

ID Number	Manufacturer	Model #	Serial #	Description	Cal Date	Cal Due
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1196	EMCO	3115	00034810	DRG Horn 1-18 GHz	08/29/2016	08/29/2017
1219	Mini-Circuits	ZKL-2	062905	Preamp, 10 - 2000 MHz, 30 dB	03/07/2017	03/07/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1231	Sunol Sciences	JB1	A071605-1	Bilog Antenna, 30 MHz to 2.0 GHz	12/20/2016	12/20/2017
1233	Sunol Sciences	SC104V	110305-1	Positioning Controller	NA	NA
1234	CIR Enterprises	10m Chamber	001	10m Chamber with 2.5m turntable	04/10/2017	04/10/2018
1238	Sunol Sciences	TWR95-4	110305-3	Antenna Mast	NA	NA
1239	Sunol Sciences	FM2522VS	110305-2	Turn Table, 2.5m Diameter	02/15/2017	02/15/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
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	10/03/2016	10/03/2017
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1561	EMCO	4610	9012-1162	Field site Source	NA	NA
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA

## **APPENDIX B**

### **Conducted Emissions Test Data**



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017
Temperature:	22°C	Humidity:	42%
Input Voltage:	120Vac/60Hz	Pressure:	846 mb
Configuration of Unit:	Scanning 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	0.185	23.3	-1.2	16.1	38.2	Line 1	16.79	-
QP	0.185	26.2	-1.2	16.1	41.2	Line 1	-	23.85
AV	0.245	18.2	-0.9	16.1	33.4	Line 1	19.85	-
QP	0.245	22.4	-0.9	16.1	37.6	Line 1	-	25.67
AV	0.439	8.6	-0.5	16.1	24.2	Line 1	23.56	-
QP	0.439	19.1	-0.5	16.1	34.7	Line 1	-	23.07
AV	0.503	6.4	-0.5	16.1	22.0	Line 1	23.97	-
QP	0.503	17.3	-0.5	16.1	32.9	Line 1	-	23.09
AV	1.354	4.8	-0.3	16.1	20.6	Line 1	25.43	-
QP	1.354	13.0	-0.3	16.1	28.8	Line 1	-	27.20
AV	15.454	3.5	-0.3	15.7	18.9	Line 1	31.10	-
QP	15.454	8.8	-0.3	15.7	24.2	Line 1	-	35.82
AV	0.249	13.4	-0.8	16.1	28.7	Neutral	24.53	-
QP	0.249	21.3	-0.8	16.1	36.6	Neutral	-	26.63
AV	0.307	9.9	-0.7	16.1	25.3	Neutral	26.23	-
QP	0.307	19.2	-0.7	16.1	34.6	Neutral	-	26.96
AV	0.432	16.2	-0.5	16.1	31.8	Neutral	16.18	-
QP	0.432	20.1	-0.5	16.1	35.7	Neutral	-	22.29
AV	0.553	9.7	-0.4	16.1	25.3	Neutral	20.69	-
QP	0.553	16.8	-0.4	16.1	32.5	Neutral	-	23.52
AV	0.753	5.2	-0.4	16.2	20.9	Neutral	25.09	-
QP	0.753	15.9	-0.4	16.2	31.7	Neutral	-	24.29
AV	22.052	2.9	-0.4	15.9	18.4	Neutral	31.60	-
QP	22.052	8.1	-0.4	15.9	23.6	Neutral	-	36.43

The highest emission measured was at **0.432 MHz**, which was **16.18 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

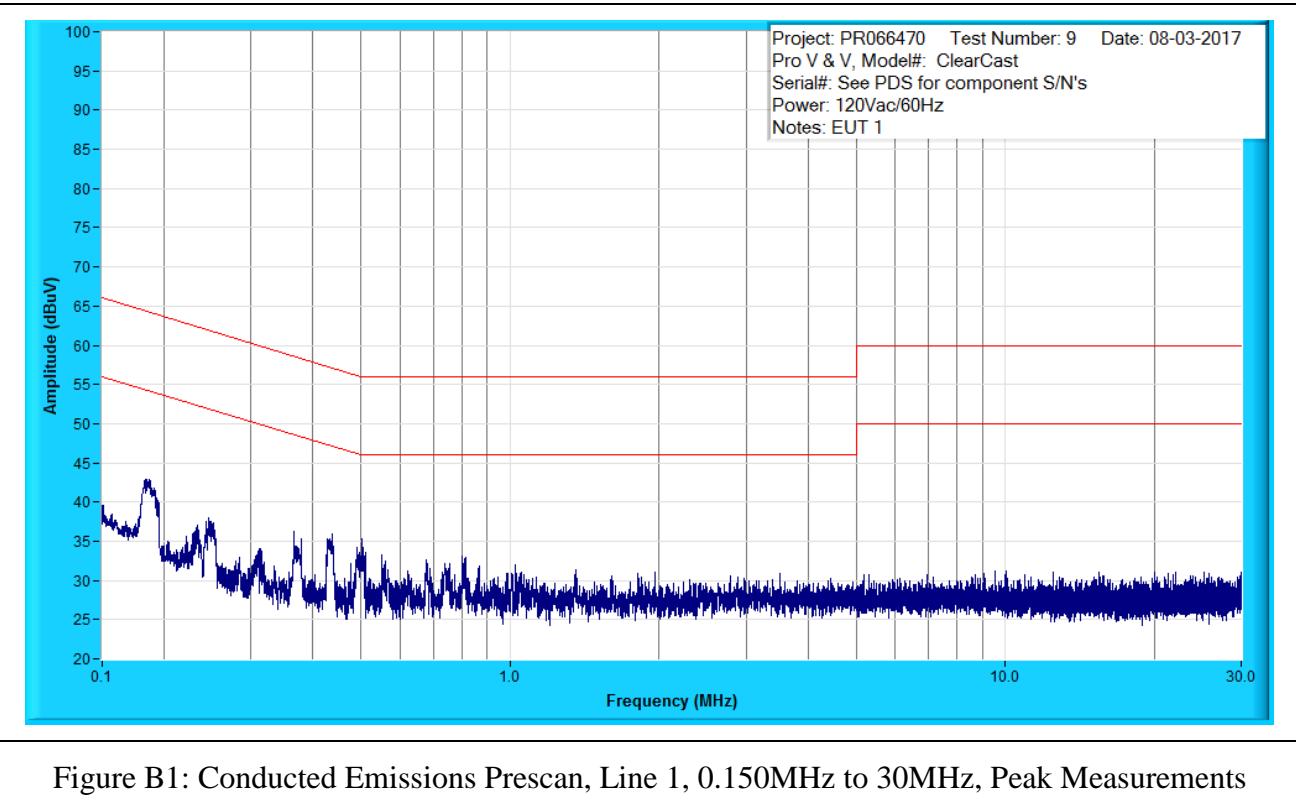


## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

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## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

PR066470-22-CE.doc

FR0100

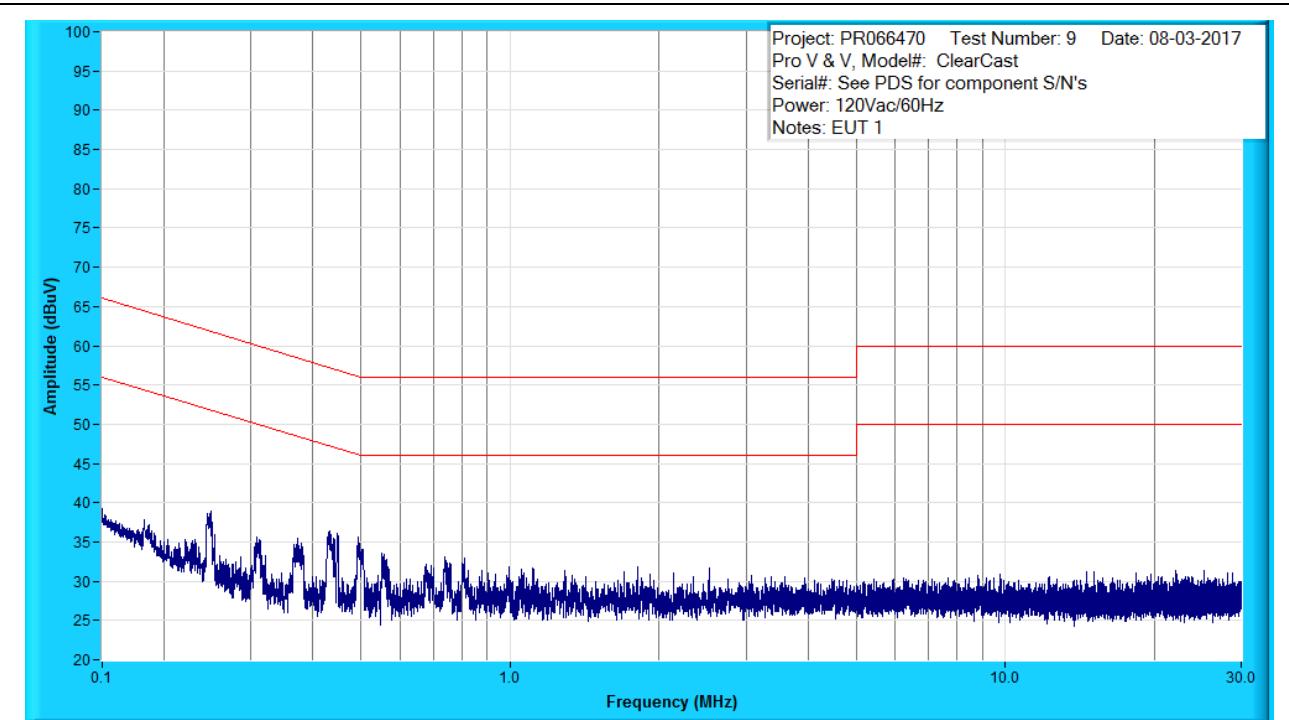


Figure B2: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

PR066470-22-CE.doc

FR0100



Figure B3: Conducted Emissions Test Setup – Front Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

PR066470-22-CE.doc

FR0100



Figure B4: Conducted Emissions Test Setup – Right Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

PR066470-22-CE.doc

FR0100



Figure B5: Conducted Emissions Test Setup – Back Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017

PR066470-22-CE.doc

FR0100



Figure B6: Conducted Emissions Test Setup – Left Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	Clear Cast	S/N:	CAST00018
Standard Referenced:	FCC Part 15	Date:	August 3, 2017
PR066470-22-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
1038	Fluke	85	66180455	Multimeter/Frequency Meter	08/09/2016	08/09/2017
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	12/06/2016	12/06/2017
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/06/2017	02/06/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1559	EMCI	EMCI, 2 Phase LISN	13	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/27/2017	02/27/2018
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017
Temperature:	25°C	Humidity:	39%
Input Voltage:	120Vac/60Hz	Pressure:	840 mb
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	0.150	32.3	-1.4	16.0	46.9	Line 1	9.07	-
QP	0.150	41.5	-1.4	16.0	56.1	Line 1	-	9.88
AV	0.175	27.4	-1.2	16.1	42.3	Line 1	12.99	-
QP	0.175	36.8	-1.2	16.1	51.6	Line 1	-	13.64
AV	0.189	24.6	-1.1	16.1	39.5	Line 1	15.33	-
QP	0.189	33.0	-1.1	16.1	47.9	Line 1	-	16.98
AV	1.142	9.7	-0.3	16.1	25.4	Line 1	20.57	-
QP	1.142	17.6	-0.3	16.1	33.4	Line 1	-	22.60
AV	1.433	8.1	-0.3	16.1	23.9	Line 1	22.08	-
QP	1.433	17.8	-0.3	16.1	33.6	Line 1	-	22.36
AV	8.657	5.4	-0.3	16.1	21.2	Line 1	28.81	-
QP	8.657	15.2	-0.3	16.1	31.0	Line 1	-	29.00
AV	25.053	2.6	-0.4	16.1	18.3	Line 1	31.72	-
QP	25.053	7.4	-0.4	16.1	23.1	Line 1	-	36.92
AV	0.157	32.5	-1.3	16.0	47.1	Neutral	8.65	-
QP	0.157	41.1	-1.3	16.0	55.8	Neutral	-	9.95
AV	0.172	25.9	-1.2	16.0	40.8	Neutral	14.61	-
QP	0.172	36.6	-1.2	16.0	51.4	Neutral	-	13.96
AV	0.192	24.4	-1.1	16.1	39.4	Neutral	15.43	-
QP	0.192	32.3	-1.1	16.1	47.3	Neutral	-	17.50
AV	0.365	15.4	-0.6	16.1	30.9	Neutral	18.96	-
QP	0.365	21.4	-0.6	16.1	36.9	Neutral	-	23.00
AV	1.129	7.7	-0.3	16.1	23.4	Neutral	22.57	-
QP	1.129	16.5	-0.3	16.1	32.3	Neutral	-	23.70
AV	8.757	13.3	-0.3	16.1	29.1	Neutral	20.90	-
QP	8.757	15.6	-0.3	16.1	31.4	Neutral	-	28.57
AV	17.364	4.6	-0.4	15.7	19.9	Neutral	30.05	-
QP	17.364	10.4	-0.4	15.7	25.7	Neutral	-	34.26

The highest emission measured was at **0.157 MHz**, which was **8.65 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, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017
PR066470-22-CE.doc		FR0100	

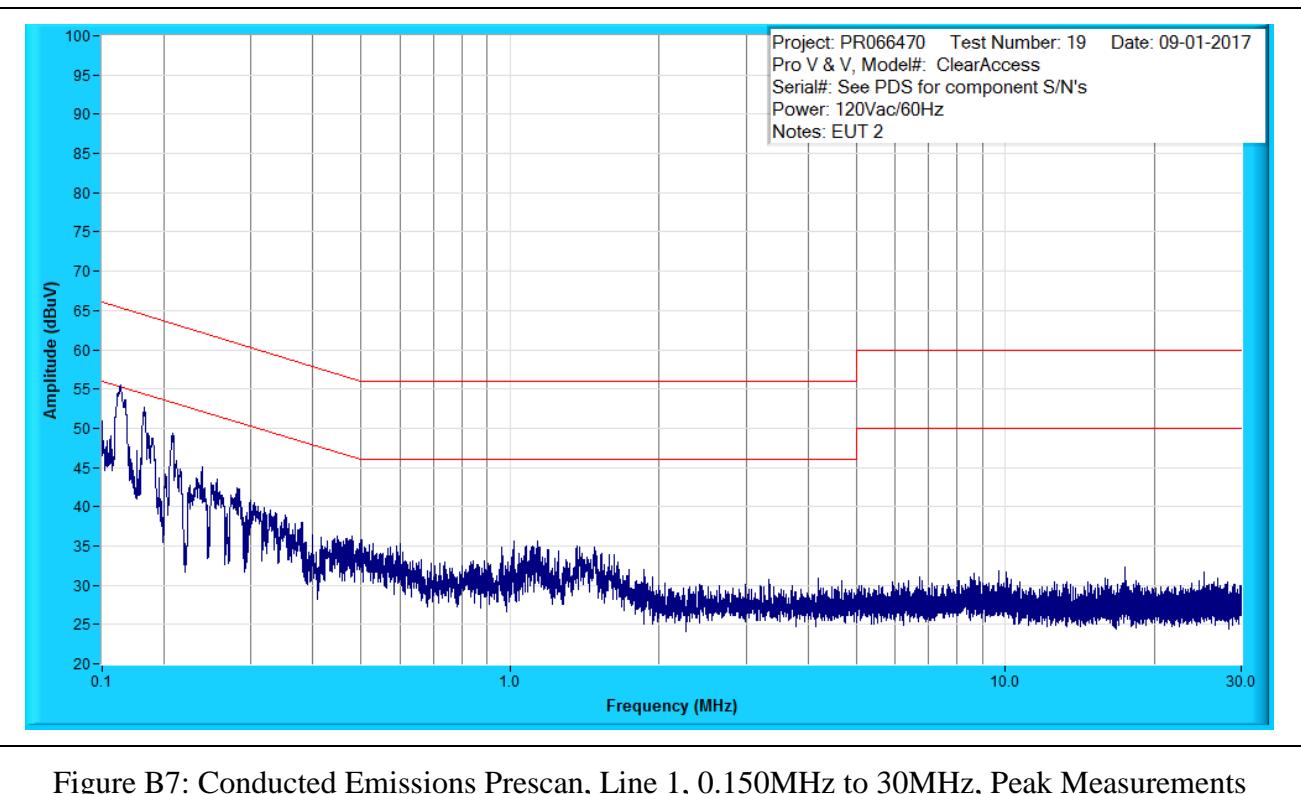


Figure B7: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements

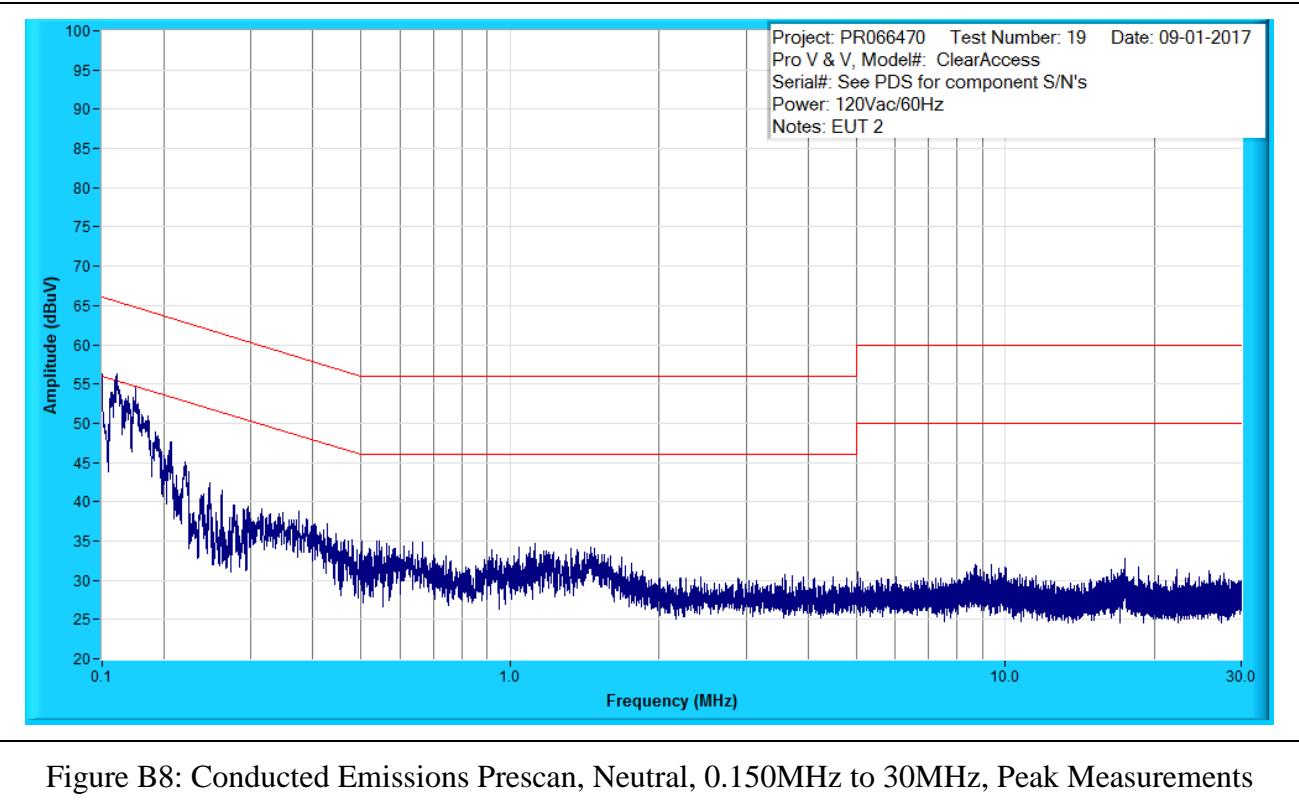


## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017

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FR0100





## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure B9: Conducted Emissions Test Setup – Front Side



## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure B10: Conducted Emissions Test Setup – Right Side



## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure B11: Conducted Emissions Test Setup – Back Side



## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100

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Figure B12: Conducted Emissions Test Setup – Left Side



## Conducted Emissions, CISPR / EN 55022

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO 5250 Brother HL-L2340DW APC SMT-2200	S/N:	HGCMGK2 U63879A7N420249 AS1721132721
Standard Referenced:	FCC Part 15	Date:	September 1, 2017 FR0100
PR066470-22-CE.doc			

### 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
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	12/06/2016	12/06/2017
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/06/2017	02/06/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1559	EMCI	EMCI, 2 Phase LISN	13	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/27/2017	02/27/2018
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
Temperature:	24°C	Humidity:	49%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	0.150	30.4	-1.4	16.0	45.0	Line 1	11.02	-
QP	0.150	39.4	-1.4	16.0	54.0	Line 1	-	11.97
AV	0.174	27.9	-1.2	16.0	42.7	Line 1	12.65	-
QP	0.174	35.3	-1.2	16.0	50.1	Line 1	-	15.23
AV	0.210	21.3	-1.0	16.1	36.4	Line 1	17.89	-
QP	0.210	30.4	-1.0	16.1	45.5	Line 1	-	18.79
AV	0.374	16.4	-0.6	16.1	31.9	Line 1	17.69	-
QP	0.374	21.2	-0.6	16.1	36.7	Line 1	-	22.93
AV	1.221	9.5	-0.3	16.1	25.3	Line 1	20.70	-
QP	1.221	19.6	-0.3	16.1	35.4	Line 1	-	20.60
AV	1.618	9.2	-0.3	16.2	25.1	Line 1	20.90	-
QP	1.618	17.3	-0.3	16.2	33.2	Line 1	-	22.83
AV	9.223	8.2	-0.3	16.1	24.0	Line 1	26.00	-
QP	9.223	16.6	-0.3	16.1	32.4	Line 1	-	27.61
AV	0.158	28.1	-1.3	16.0	42.8	Neutral	12.99	-
QP	0.158	35.5	-1.3	16.0	50.2	Neutral	-	15.55
AV	0.182	27.1	-1.2	16.1	42.0	Neutral	13.03	-
QP	0.182	32.1	-1.2	16.1	47.0	Neutral	-	18.09
AV	0.196	22.9	-1.1	16.1	37.9	Neutral	16.84	-
QP	0.196	29.4	-1.1	16.1	44.4	Neutral	-	20.32
AV	0.315	16.9	-0.7	16.1	32.3	Neutral	18.98	-
QP	0.315	21.2	-0.7	16.1	36.6	Neutral	-	24.67
AV	1.196	11.9	-0.3	16.1	27.7	Neutral	18.31	-
QP	1.196	18.8	-0.3	16.1	34.6	Neutral	-	21.44
AV	1.599	8.5	-0.3	16.2	24.3	Neutral	21.66	-
QP	1.599	16.9	-0.3	16.2	32.7	Neutral	-	23.26
AV	9.022	8.7	-0.3	16.1	24.5	Neutral	25.50	-
QP	9.022	17.6	-0.3	16.1	33.3	Neutral	-	26.65

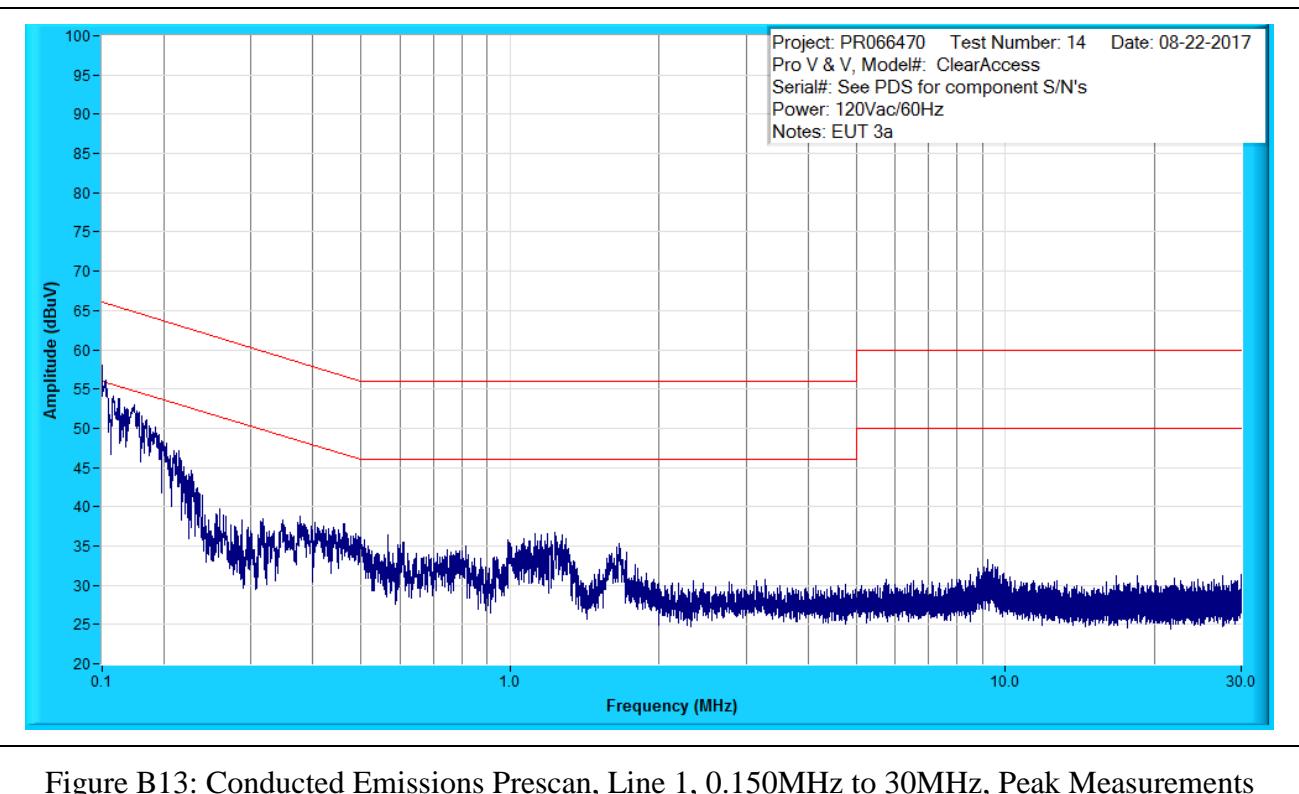
The highest emission measured was at **0.150 MHz**, which was **11.02 dB** below the limit.

- “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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
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## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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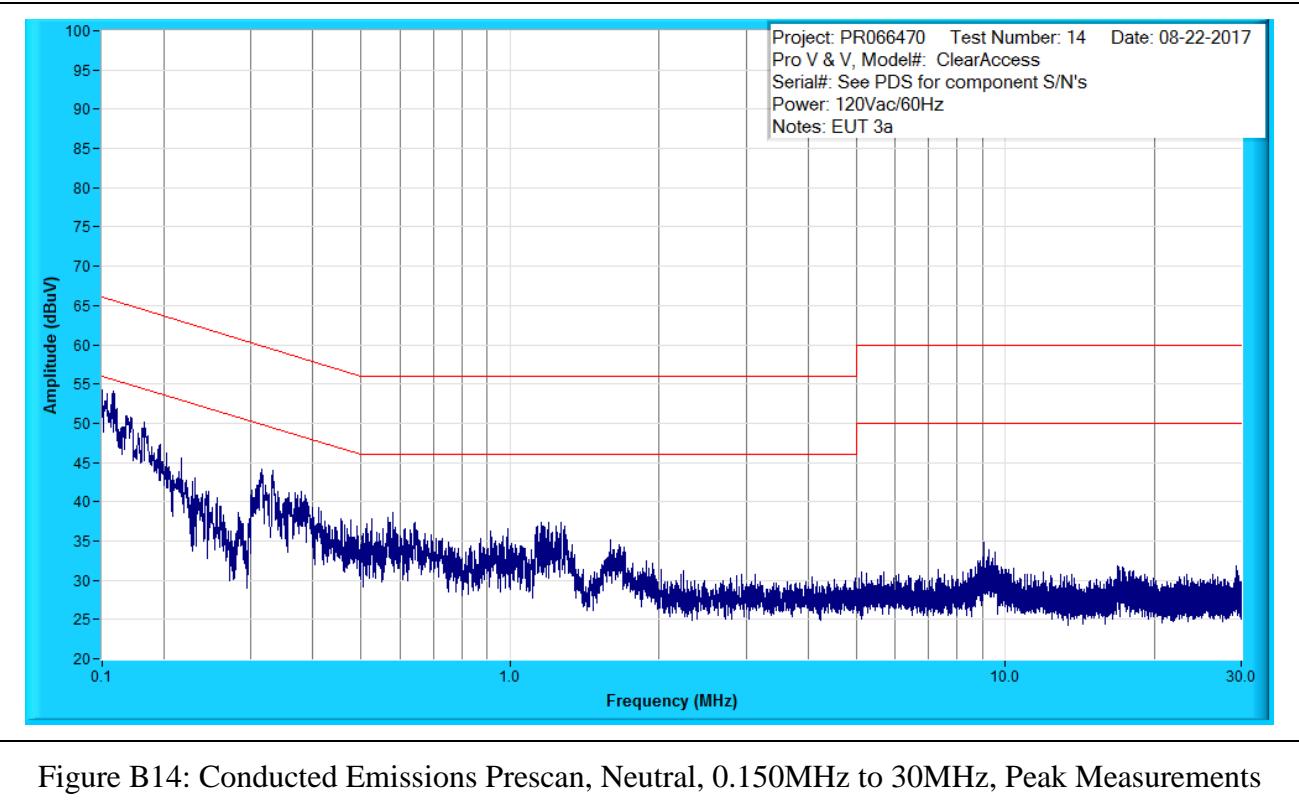


Figure B14: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
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Figure B15: Conducted Emissions Test Setup – Front Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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Figure B16: Conducted Emissions Test Setup – Right Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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Figure B17: Conducted Emissions Test Setup – Back Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017

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Figure B18: Conducted Emissions Test Setup – Left Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell AIO:5250 Oki: B432 APC:SMT-2200	S/N:	HGCMGK2 AK5B007647A0 AS1638230963
Standard Referenced:	FCC Part 15	Date:	August 22, 2017
PR066470-22-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	12/06/2016	12/06/2017
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/06/2017	02/06/2018
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1559	EMCI	EMCI, 2 Phase LISN	13	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/27/2017	02/27/2018
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017
Temperature:	22°C	Pressure:	846 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	0.164	37.5	-1.3	16.0	52.2	Line 1	3.40	-
QP	0.164	44.3	-1.3	16.0	59.0	Line 1	-	6.58
AV	0.192	29.9	-1.1	16.1	44.9	Line 1	9.86	-
QP	0.192	39.9	-1.1	16.1	54.8	Line 1	-	9.96
AV	0.224	26.2	-0.9	16.1	41.4	Line 1	12.47	-
QP	0.224	32.9	-0.9	16.1	48.1	Line 1	-	15.81
AV	0.251	32.4	-0.8	16.1	47.6	Line 1	5.50	-
QP	0.251	26.8	-0.8	16.1	42.1	Line 1	-	21.05
AV	0.286	18.2	-0.8	16.1	33.5	Line 1	18.56	-
QP	0.286	25.2	-0.8	16.1	40.6	Line 1	-	21.51
AV	1.451	15.6	-0.3	16.1	31.4	Line 1	14.63	-
QP	1.451	22.9	-0.3	16.1	38.8	Line 1	-	17.24
AV	13.574	15.4	-0.3	15.7	30.9	Line 1	19.13	-
QP	13.574	21.6	-0.3	15.7	37.0	Line 1	-	23.03
AV	0.152	38.5	-1.4	16.0	53.1	Neutral	2.86	-
QP	0.152	43.8	-1.4	16.0	58.4	Neutral	-	7.52
AV	0.164	33.5	-1.3	16.0	48.2	Neutral	7.36	-
QP	0.164	41.0	-1.3	16.0	55.8	Neutral	-	9.85
AV	0.182	31.1	-1.2	16.1	45.9	Neutral	9.14	-
QP	0.182	39.1	-1.2	16.1	54.0	Neutral	-	11.09
AV	0.205	30.8	-1.0	16.1	45.8	Neutral	8.62	-
QP	0.205	36.3	-1.0	16.1	51.4	Neutral	-	13.05
AV	0.228	31.4	-0.9	16.1	46.6	Neutral	7.11	-
QP	0.228	36.1	-0.9	16.1	51.3	Neutral	-	12.50
AV	1.374	16.4	-0.3	16.1	32.3	Neutral	13.73	-
QP	1.374	26.2	-0.3	16.1	42.1	Neutral	-	13.93
AV	12.849	17.4	-0.3	15.8	32.9	Neutral	17.12	-
QP	12.849	26.5	-0.3	15.8	42.0	Neutral	-	17.99

The highest emission measured was at **0.152 MHz**, which was **2.86 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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017
PR066470-22-CE.doc			FR0100

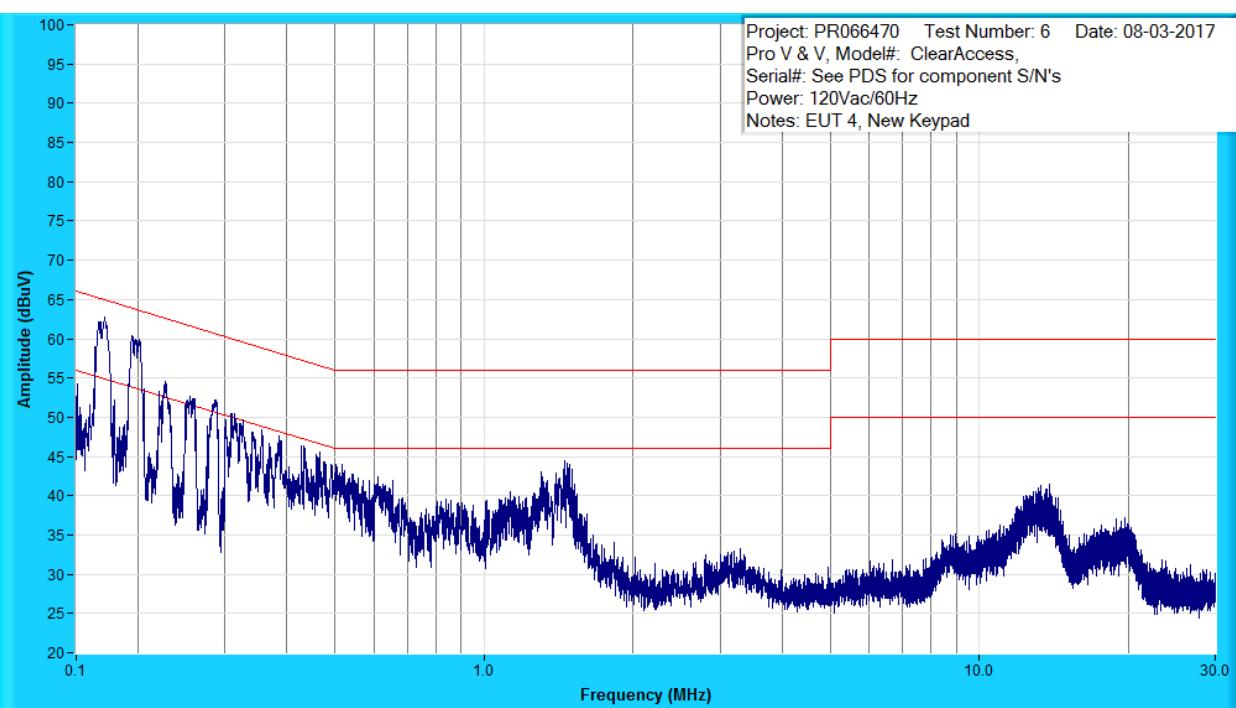


Figure B19: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	7TT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-CE.doc			
	Date: August 2, 2017		
	FR0100		

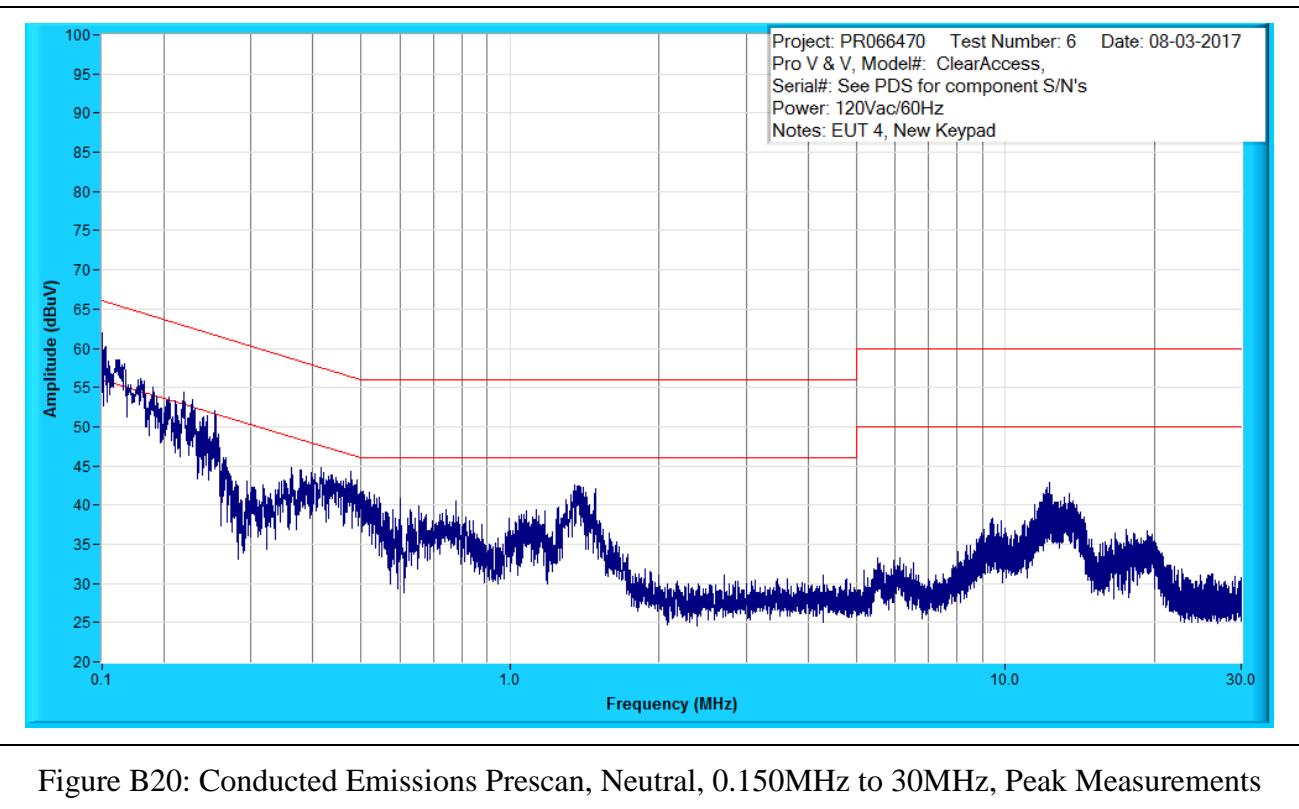


Figure B20: Conducted Emissions Prescan, Neutral, 0.150MHz to 30MHz, Peak Measurements



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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Figure B21: Conducted Emissions Test Setup – Front Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-CE.doc			
FR0100			



Figure B22: Conducted Emissions Test Setup – Right Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15		
PR066470-22-CE.doc			
	Date: August 2, 2017		
	FR0100		



Figure B23: Conducted Emissions Test Setup – Back Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017

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Figure B24: Conducted Emissions Test Setup – Left Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess (Dell Laptop 7000 Series, Brother HL-L2340DW, APC SMT-2200)	S/N:	TTT1YD2 U63879M4N628612 AS1650232215
Standard Referenced:	FCC Part 15	Date:	August 2, 2017
PR066470-22-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
1038	Fluke	85	66180455	Multimeter/Frequency Meter	08/09/2016	08/09/2017
1200	Agilent Technology	11947A	3107A03807	Transient Limiter, 9 kHz to 200 MHz	12/06/2016	12/06/2017
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/06/2017	02/06/2018
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1559	EMCI	EMCI, 2 Phase LISN	13	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/27/2017	02/27/2018
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017
Temperature:	21°C	Humidity:	38%
Input Voltage:	120Vac/60Hz	Pressure:	845 mb
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	0.164	31.4	-1.3	16.0	46.2	Line 1	9.39	-
QP	0.164	39.6	-1.3	16.0	54.4	Line 1	-	11.19
AV	0.196	29.4	-1.1	16.1	44.4	Line 1	10.34	-
QP	0.196	30.0	-1.1	16.1	45.0	Line 1	-	19.73
AV	0.222	31.3	-0.9	16.1	46.5	Line 1	7.48	-
QP	0.222	33.7	-0.9	16.1	48.9	Line 1	-	15.05
AV	0.248	27.4	-0.9	16.1	42.7	Line 1	10.49	-
QP	0.248	33.2	-0.9	16.1	48.4	Line 1	-	14.76
AV	1.360	16.9	-0.3	16.1	32.7	Line 1	13.28	-
QP	1.360	24.5	-0.3	16.1	40.3	Line 1	-	15.66
AV	8.205	16.9	-0.3	16.1	32.8	Line 1	17.25	-
QP	8.205	25.6	-0.3	16.1	41.4	Line 1	-	18.58
AV	15.140	28.2	-0.3	15.7	43.6	Line 1	6.44	-
QP	15.140	34.5	-0.3	15.7	49.9	Line 1	-	10.11
AV	0.155	34.4	-1.3	16.0	49.0	Neutral	6.84	-
QP	0.155	37.9	-1.3	16.0	52.6	Neutral	-	13.27
AV	0.180	30.1	-1.2	16.1	45.0	Neutral	10.15	-
QP	0.180	35.8	-1.2	16.1	50.7	Neutral	-	14.41
AV	0.210	29.6	-1.0	16.1	44.7	Neutral	9.55	-
QP	0.210	33.9	-1.0	16.1	49.0	Neutral	-	15.31
AV	0.286	27.6	-0.8	16.1	42.9	Neutral	9.20	-
QP	0.286	30.4	-0.8	16.1	45.8	Neutral	-	16.34
AV	1.382	16.6	-0.3	16.1	32.5	Neutral	13.53	-
QP	1.382	24.0	-0.3	16.1	39.8	Neutral	-	16.17
AV	8.128	17.9	-0.3	16.1	33.6	Neutral	16.35	-
QP	8.128	27.2	-0.3	16.1	43.0	Neutral	-	16.98
AV	14.644	28.4	-0.3	15.7	43.7	Neutral	6.28	-
QP	14.644	34.7	-0.3	15.7	50.1	Neutral	-	9.90

The highest emission measured was at **14.644 MHz**, which was **6.28 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:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017
PR066470-22-CE.doc			FR0100

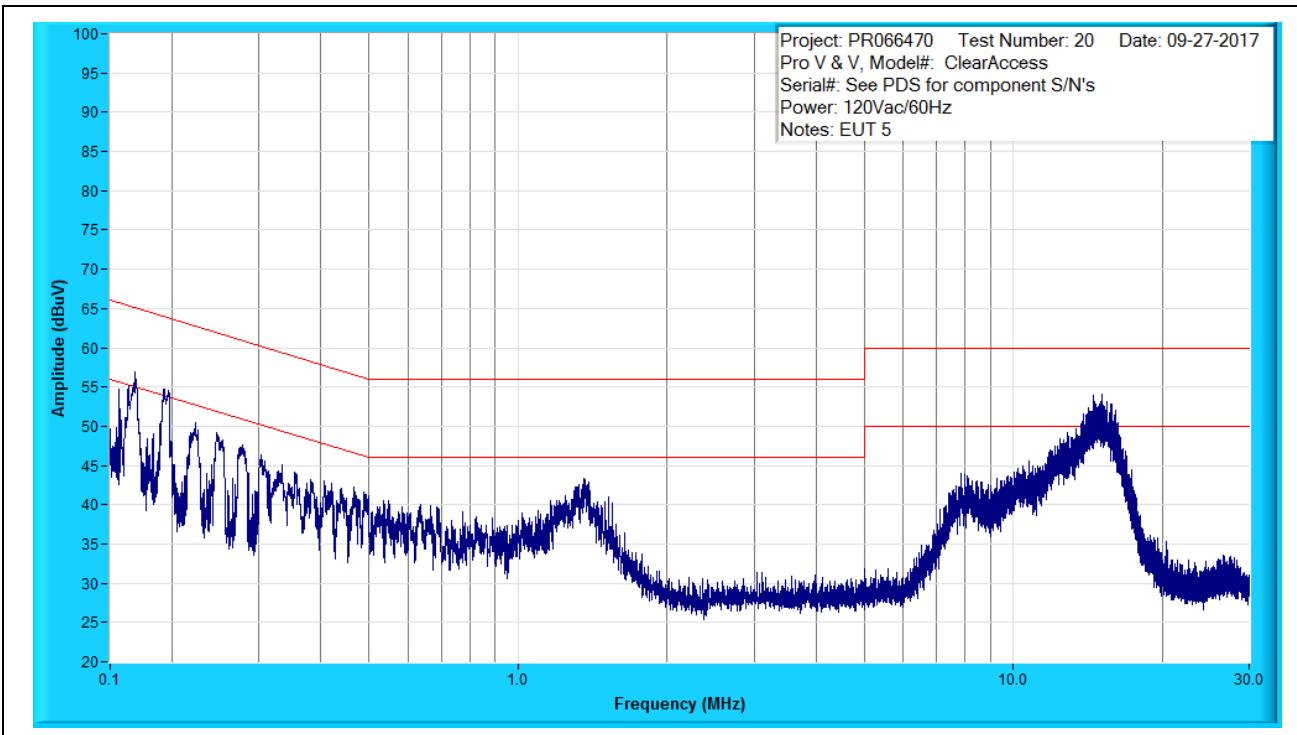
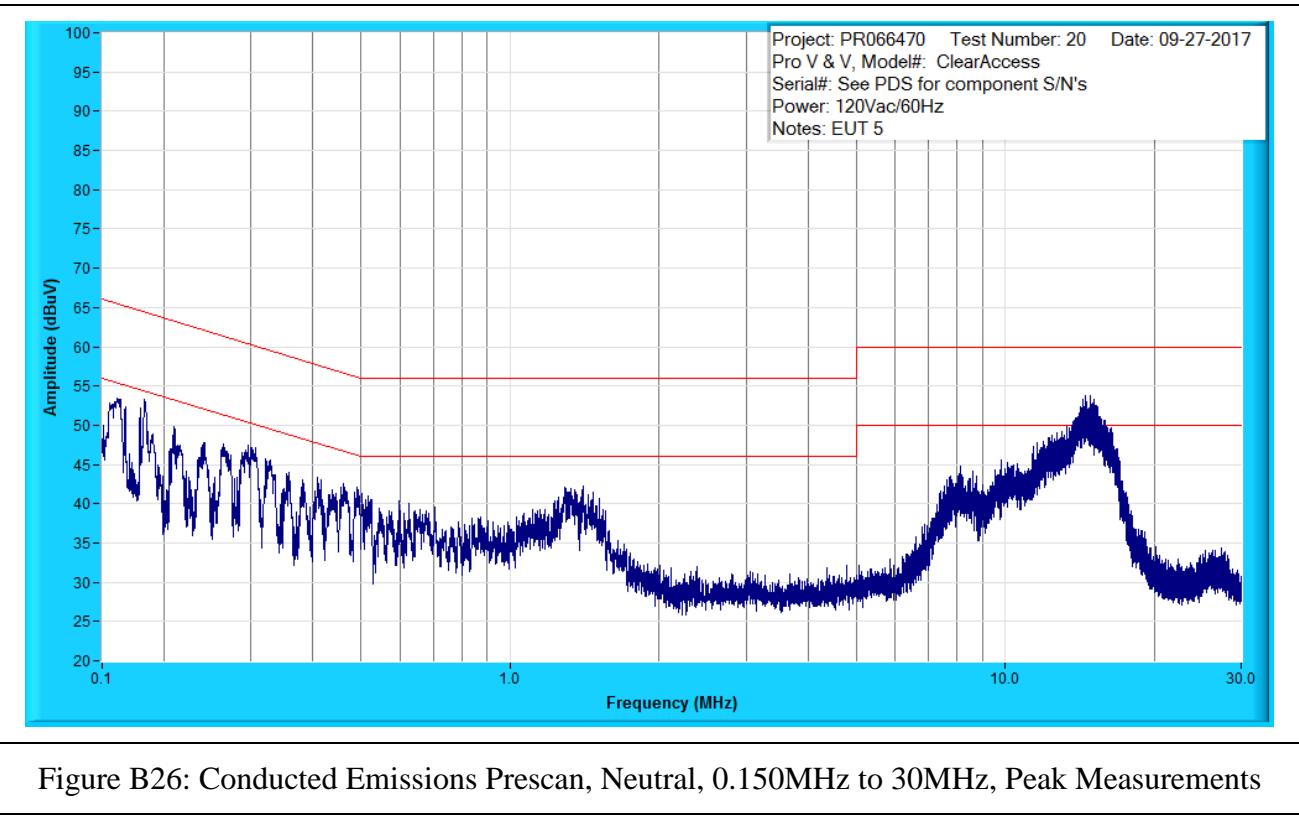


Figure B25: Conducted Emissions Prescan, Line 1, 0.150MHz to 30MHz, Peak Measurements



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017
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## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017 FR0100

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Figure B27: Conducted Emissions Test Setup – Front Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017 FR0100

PR066470-22-CE.doc

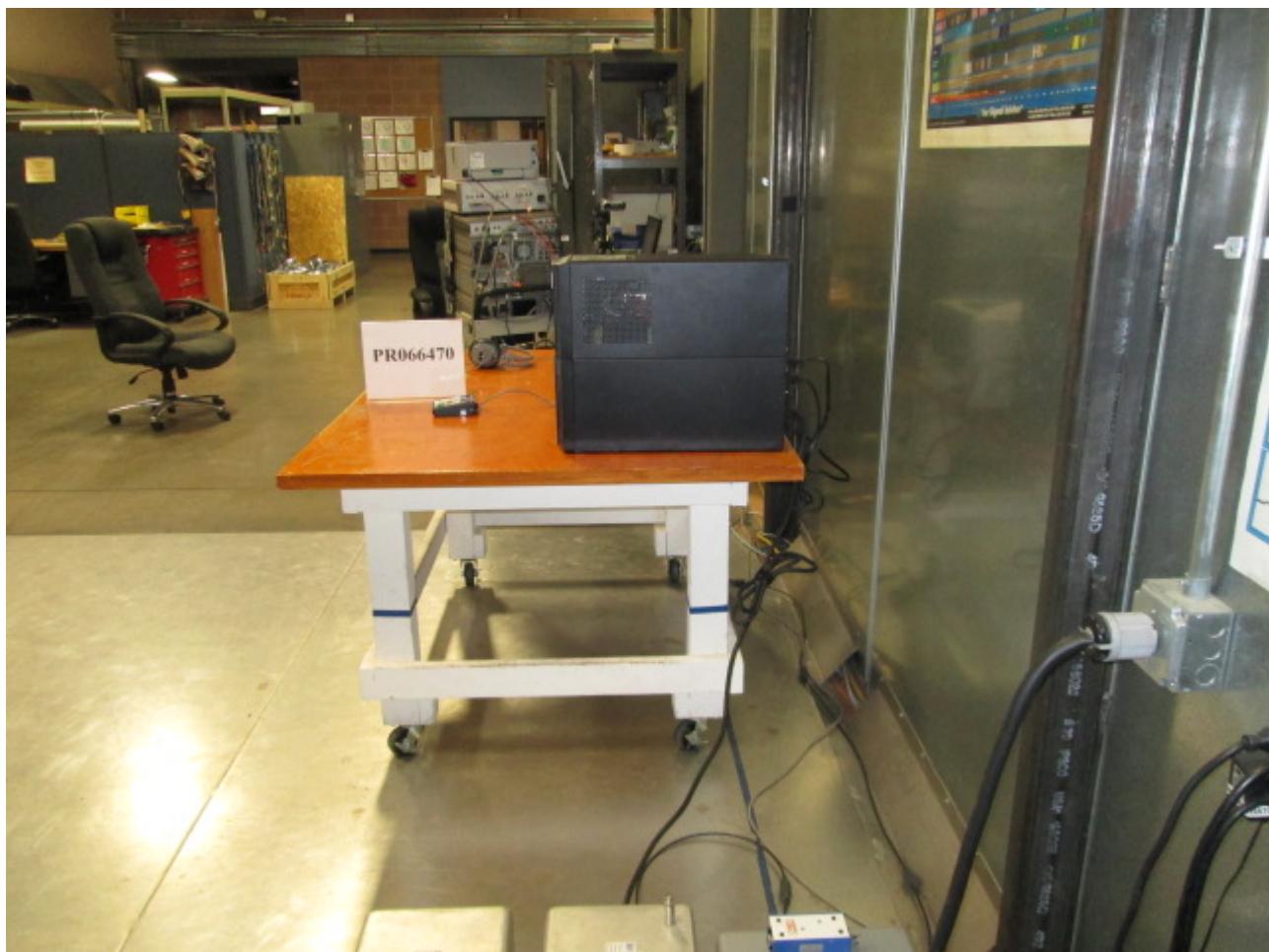


Figure B28: Conducted Emissions Test Setup – Right Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017 FR0100

PR066470-22-CE.doc



Figure B29: Conducted Emissions Test Setup – Back Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG	Date:	September 27, 2017 FR0100

PR066470-22-CE.doc



Figure B30: Conducted Emissions Test Setup – Left Side



## Conducted Emissions, FCC Part 15

Manufacturer:	Clear Ballot Group (manufacturer) Pro V&V (client)	Project Number:	PR066470
Customer Representative:	Stephen Han	Test Area:	10M #1
Model:	ClearAccess Dell Laptop:7000 Series Oki: B432 APC:SMT-2200	S/N:	22S1YD2 AK5B007647A0 AS1638230963
Standard Referenced:	EAC 2005 VVSG PR066470-22-CE.doc	Date:	September 27, 2017 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	12/06/2016	12/06/2017
1213	Solar	7930-100	885210	High Pass Filter, fc: 100kHz, -100dB @ 33kHz	02/06/2017	02/06/2018
1407	EXTECH Instruments	445715	NA	Hygro-Thermometer	11/11/2016	11/11/2017
1040	Fluke	83-3	69811230	Multimeter/Frequency Meter	06/23/2017	06/23/2018
1559	EMCI	EMCI, 2 Phase LISN	13	150 kHz to 30 MHz, 277 Vac/400 Vdc, 50/60 Hz, 16 A	02/27/2017	02/27/2018
1591	EMCI	CEAS	V4.1.1	Commercial Emissions Automation Software - 10 M#1	NA	NA
1229	Hewlett Packard	85685A	3010A01077	RF Preselector	01/18/2017	01/18/2018
1263	Hewlett Packard	8566B	2747A05127	Spectrum Analyzer, 100 Hz to 22 GHz	01/18/2017	01/18/2018
1264	Hewlett Packard	85662A	2848A18247	Spectrum Analyzer Display	01/18/2017	01/18/2018
1265	Hewlett Packard	85650A	2521A00641	Quasi-Peak Adapter	01/18/2017	01/18/2018
1332	Com-Power	CGC-510	311636	Conducted Comb Generator	NA	NA

## **APPENDIX C**

### **EMI Test Log**



## EMI\ENV Test Log

Manufacturer:	Pro V&V	Project Number:	PR066470
Model:	Various	S/N:	Various
Customer Representative:	Michael Walker		
Standard Referenced:	FCC Part 15, Class B EAC 2005 VVSG		

FR0105

### 10m Emissions

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
RE	13412	August 1, 2017 0800-1200	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 EUT 1: Clear Cast EUT Fails @ 500MHz per client stopping test and moving to another EUT		4.0	Fail	MT
RE		1200-1630	Test #2: 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 EUT 4: ClearAccess Will rerun test when another keypad arrives		4.0	---	MT

**Client needed Keypad to continue Radiated Immunity testing, RE testing is on hold until 8-2 when another keypad is delivered**

RE		August 2, 2017 1030-1200	Test #3: 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 EUT 4: ClearAccess		1.5	Pass	MT
		1200-1230	Lunch		---	---	MT

**Waiting for client to return from lunch**

RE	1356	1330-1500	Test #4: 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 EUT 4: ClearAccess EUT Stopped printing will rerun scan		1.5	---	MT
		1500-1600	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 EUT 4: ClearAccess		1.0	Pass	MT

## 10m Emissions

<b>Test</b>	<b>Test Code</b>	<b>Date</b>	<b>Event</b>	<b>OT</b>	<b>Time (hrs)</b>	<b>Result</b>	<b>Initials</b>
CE	2346	October 12, 2017 0800-0900	Test #6: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz EUT 4: ClearAccess		1.0	Pass	MT
RE		0930-1030	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 EUT 1: Clear Cast		1.0	Pass	MT
RE		1030-1200	Test #8: 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 EUT 1: Clear Cast		1.5	---	MT
		1200-1230	Lunch		---	---	MT
RE		1230-1300	Continue: Test #8: 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 EUT 1: Clear Cast		0.5	Pass	MT
CE		1300-1400	Test #9: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz EUT 1: ClearCast		1.0	Pass	MT
RE		August 16, 2017 0800-1000	Test #10: 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 EUT 3: ClearAccess		2.0	Pass	MT
RE		1000-1100	Test #11: 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 EUT 3: ClearAccess EUT Failed @ 5.952GHz waiting on client with further instructions		1.0	Fail	MT
Ferrite added to Printer USB Cable (Wurth 742-716-33S)							

**10m Emissions**

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
							
RE	---	August 22, 2017 0900-1100	Test #12: 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 EUT 3: ClearAccess		2.0	Pass	MT
RE	---	1100-1200	Test #13: 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 EUT 3: ClearAccess		1.0	Pass	MT
---		1200-1230	Lunch		---	---	MT
CE	---	1230-1300	Test #14: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz EUT 3: ClearAccess		0.5	Pass	MT
RE	---	1330-1430	Test #15: 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 EUT 5: ClearAccess		1.0	Pass	MT
RE	---	1430-1630	Test #16: 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 EUT 5: ClearAccess		2.0	Pass	MT
RE	---	September 1, 2017 0800-1000	Test #17: 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 EUT 2: ClearAccess		2.0	Pass	MT

## 10m Emissions

Test	Test Code	Date	Event	OT	Time (hrs)	Result	Initials
RE		1000-1100	Test #18: 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 EUT 2: ClearAccess		1.0	Pass	MT
CE		1100-1200	Test #19: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz EUT 2: ClearAccess		1.0	Pass	MT
CE		September 26, 2017 0900-1000	Test #20: Conducted Emissions, 150 kHz - 30 MHz (4.1.2.9) 120 VAC / 60 Hz EUT 5: ClearAccess		1.0	Pass	MT

Regular hours:	31.5
Overtime/Prem hours:	
Total hours:	31.5

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-3	6003	July 24, 2017 0800-1100	Initial Product Set-up & Configuration Product Set-up & Configuration		3.0	Complete	KJ
4-3	6005	1100-1630	Initial Product Set-up & Configuration Product Set-up & Configuration UUT Troubleshooting		5.0	Complete	KJ
4-3	43936	July 25, 2017 0800-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz UUT=Clear Cast NOTE: client left from 1130 until 1500. Unable to run from 1200 to 1500 because client not available to restart unit. Client is at the environmental lab Finished front, right and back sides both polarities.		8.0	Complete	KJ
4-3		July 26, 2017 0800-0930	Continuing RF Immunity on Clear Cast Clear Cast complete		1.5	Pass	KJ
4-3		0930-1330	Setup for next UUT		3.5	Complete	KJ

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-3		1330-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz UUT=Dell AIO Unit stopped printing ballots front side, V-pole. Client re-recorded the process and we will re-test. Unit stopped printing ballots front side, V-pole at around 374MHz. Will try to run the UUT without the field on to see if the unit can run when no field is present to help determine if the field is affecting the unit or if it is failing all on its own Unit ran 7 ballots without the field on, then the field was applied and the unit failed at 154MHz, front side vertical pole. Character appeared in the search filed on the touch screen providing proof that the screen is receiving phantom touches from the field that is being applied Trying ferrites on the headphone, USB, power and EZ access cables. Also changed the timing of the "script" to be much faster. Unit ran with no problems.		3.0	Complete	KJ
4-3	43936	July 27, 2017 0800-1630	Slowed "script" down but kept the ferrites on, no sip and puff. Unit ran with no problems. Trying slow "Script" without ferrites no sip and puff. Unit ran with no problems Trying slow "Script" without ferrites and sip and puff. Unit ran with no problems Re-running the same test again. Unit ran with no problems Re-running the same test again. Unit ran with no problems Re-running the same test again. Unit ran with no problems Re-running the same test again. Unit ran with no problems After checking the tests after the above runs it was noticed that the printer had powered off Re-running the above test. Unit ran with no problems Re-running the above test. Printer has an error 06-"Unable to print, please turn power off and on again" Re-running the above test with a ferrite (Wurth 74271622S) on the printer USB cable at the printer side. Unit ran with no problems Re-running the above test with a ferrite (Wurth 74271622S) on the printer USB cable at the printer side Running H-pole front side. No problems found Finished the front side.		8.0	Complete	KJ
4-3	43936	Tuesday, August 01, 2017 0800 - 1200	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Continue – start right side of Unit #2 ClearAccess w/Brother printer Unit #2 failed for printer errors and monitor issues		4	Fail	SC
---	---	1200 - 1230	Lunch		---	---	SC

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-3	43936	1230 - 1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Start Unit #3 ClearAccess w/OkiData printer		4	---	SC
---	---	Wednesday, August 02, 2017 0800 - 1200	Continue with Unit #3 Monitor goes Black at 560-607MHz, back side. Program and printer still working. As per client this is acceptable performance.		4	Pass	SC
---	---	1200 - 1230	Lunch		---	---	SC
---	43936	1230 - 1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Start Unit #5 ClearAccess (Laptop), w/OkiData printer Finished 2 sides of unit #6		4	---	SC
			Continue testing with Front & right sides				
4-6	46212	August 3, 2017 0800 - 0930	Equipment setup. NOTE: No PDS, client is filling it out as we test.		1.5	---	CL
---	---	0930 - 1030	Conducted RF Immunity Unit#5 (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4416	1030 - 1100	Electrical Fast Transient / Burst Unit#5 (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	4196	1100 - 1130	Voltage Dips and Interruptions Unit#5 (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL
---	41924	1130 - 1330	Voltage Dips and Interruptions Unit#5 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power <b>increases of 7.5%</b> and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		2.0	Pass	CL
---	---	1330 - 1530	Voltage Dips and Interruptions Unit#5 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) 105 VAC / 60 Hz		2.0	Pass	CL
---	4196	1530 - 1630	Voltage Dips and Interruptions Unit#5 (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
---	---	August 4, 2017	Client did not test today, was out of town.			---	CL

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-5	45936	August 7, 2017 0800 - 0900	Client late.		1.0	---	CL
---	---	0900 - 1400	Surge Immunity Unit#5 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
---	---	1400 - 1430	Lunch		---	---	CL
4-8	4836	1430 - 1530	Power Frequency H-Field Immunity Unit#5 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
4-2	42524	1530 - 1630	Electrostatic Discharge Unit#5 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: Pre-test performed. Cables are .936 and .939 m ohms.		1.0	---	CL
---	---	August 8, 2017 0800 - 1200	Electrostatic Discharge Unit#5 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120 VAC / 60 Hz NOTE: Display on printer went blank, but self-recovered during +/- 15kV air.		4.0	Pass	CL
4-6	46212	1300 - 1400	Conducted RF Immunity Unit#1 (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4416	1400 - 1430	Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	4196	1430 - 1500	Voltage Dips and Interruptions Unit#1 (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL
---	---	1500 - 1600	Voltage Dips and Interruptions Unit#1 (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz. Pre-test performed. Cables are .936 and .939 m ohms.		1.0	Pass	CL
---	41924	August 9, 2017 0800 - 0830	Client late.		.5	---	CL
---	---	0830 - 1030	Voltage Dips and Interruptions Unit#1 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power <b>increases of 7.5%</b> and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		2.5	Pass	CL
---	---	1030 - 1130	Technical issue after test was completed.		1.0	---	CL

## Ground Planes / CALC

<b>Test</b>	<b>Test Code</b>	<b>Date</b>	<b>Event</b>	<b>O T</b>	<b>Time (hrs)</b>	<b>Result</b>	<b>Initials</b>
4-5	45936	1130 - 1630	Surge Immunity Unit#1 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
4-11	41924	August 10, 2017 0800 - 1000	Voltage Dips and Interruptions Unit#1 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) 105 VAC / 60 Hz		2.0	Pass	CL
4-8	4836	1030 - 1130	Power Frequency H-Field Immunity Unit#1 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL
---	---	1130 - 1230	Lunch		---	---	CL
4-2	42524	1230 - 1430	Electrostatic Discharge Unit#1 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120 VAC / 60 Hz		2.0	Pass	CL
4-6	46212	1430 - 1530	Conducted RF Immunity Unit #3 (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4416	August 11, 2017 0800 - 0830	Electrical Fast Transient / Burst Unit#3 (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	4196	0830 - 0930	Voltage Dips and Interruptions Unit#3 (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles 0% nom, 300 cycles 120 VAC / 60 Hz		1.0	Pass	CL
---	---	1000 - 1200	Voltage Dips and Interruptions Unit#3 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power <b>increases of 7.5%</b> and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		2.0	Pass	CL
---	---	1200 - 1400	Voltage Dips and Interruptions Unit#3 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) 105 VAC / 60 Hz		2.0	Pass	CL
---	---	1400 - 1500	Voltage Dips and Interruptions Unit#3 (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-8	4836	1500 - 1600	Power Frequency H-Field Immunity Unit#3 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		1.0	Pass	CL

**Ground Planes / CALC**

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-5	45936	August 12, 2017 0700 - 1230	Surge Immunity Unit#3 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.5	Pass	CL
4-2	42524	1230 - 1500	Electrostatic Discharge Unit#3 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: +/- 15kV took display out on printer. Still printing, but display did not come back. Replaced printer w/(AK62030440A0) and repeated condition. Display went out, but printer kept printing.		2.5	Fail	CL
---	---	August 14, 2017 0800 - 0900					
---	---	August 14, 2017 0800 - 0900	Equipment setup		1.0	---	CL
4-6	46212	0900 - 1000	Conducted RF Immunity Unit#4 (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4416	1000 - 1030	Electrical Fast Transient / Burst Unit#4 (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	4196	1030 - 1100	Voltage Dips and Interruptions Unit#4 (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles, 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL
---	41924	1100 - 1300	Voltage Dips and Interruptions Unit#4 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power <b>increases of 7.5%</b> and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		2.0	Pass	CL

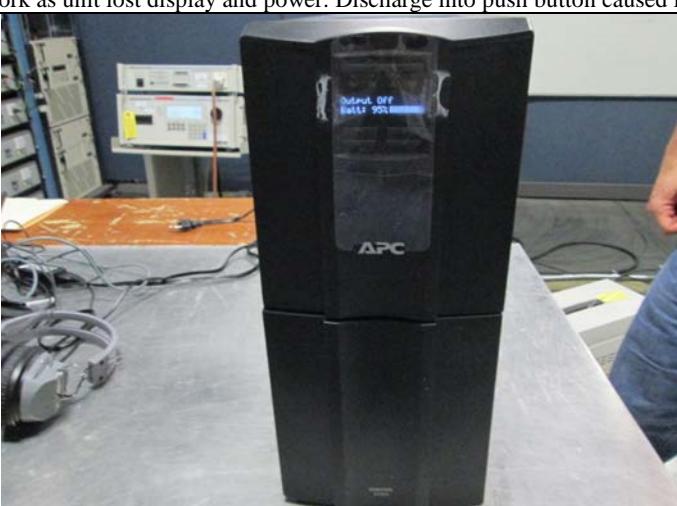
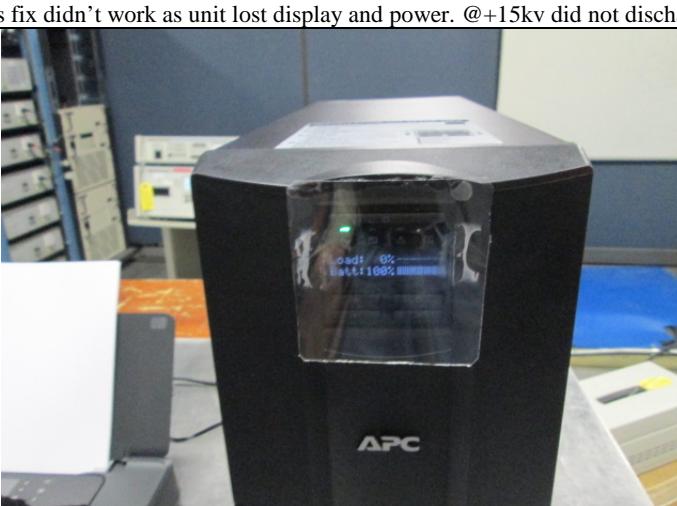
## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
---	---	1300 - 1500	Voltage Dips and Interruptions Unit#4 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) 105 VAC / 60 Hz		2.0	Pass	CL
---	---	1500 - 1600	Voltage Dips and Interruptions Unit#4 (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-5	45936	August 15, 2017 0800 - 1300	Surge Immunity Unit#4 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
---	---	1300 - 1330	Lunch		---	---	CL
4-8	4836	1330 - 1400	Power Frequency H-Field Immunity Unit#4 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		.5	Pass	CL
4-2	42524	1400 - 1630	Electrostatic Discharge Unit#4 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120 VAC / 60 Hz Note: +15kV at display on UPS caused UPS to shut down, red led on display, beeps and shuts down. No discharge on gun, just the field took it out. Replaced UPS with AS1638230963 and re-test. @ +8kV, no discharge on gun, just the field took it out. Client applied plastic to front of display. Re-tested and no discharges or any failures with plastic in place. Tested up to 15kV on re-test.		2.5	---	CL
							
---	---	August 16, 2017 0800 - 0900	Electrostatic Discharge Unit#4 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air		1.0	Pass	CL

## Ground Planes / CALC

<b>Test</b>	<b>Test Code</b>	<b>Date</b>	<b>Event</b>	<b>O T</b>	<b>Time (hrs)</b>	<b>Result</b>	<b>Initials</b>
4-6	46212	0900 - 1000	Conducted RF Immunity Unit #6 (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz		1.0	Pass	CL
4-4	4416	1000 - 1030	Electrical Fast Transient / Burst Unit #6 (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz		.5	Pass	CL
4-11	4196	1030 - 1100	Voltage Dips and Interruptions Unit#6 (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles, 0% nom, 300 cycles 120 VAC / 60 Hz		.5	Pass	CL
---	---	1100 - 1300	Voltage Dips and Interruptions Unit#6 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power <b>increases of 7.5%</b> and reductions of 12.5% of nominal specified power. (See Protocol) 129 VAC / 60 Hz		2.0	Pass	CL
---	---	1330 - 1530	Voltage Dips and Interruptions Unit#6 (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) 105 VAC / 60 Hz		2.0	Pass	CL
---	---	1530 - 1630	Voltage Dips and Interruptions Unit#6 (Surge of +/- 15%) (4.1.2.5) Surge of +/- 15% line variation of nominal line voltage 138 VAC / 60 Hz		1.0	Pass	CL
4-5	45936	August 17, 2017 0800 - 1300	Surge Immunity Unit#6 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.0	Pass	CL
4-8	4836	1300 - 1330	Power Frequency H-Field Immunity Unit#6 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		.5	Pass	CL
4-2	42524	1130 -	Electrostatic Discharge Unit#6 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120Vac/60Hz		---	---	CL

**Ground Planes / CALC**

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
							
			This fix didn't work as unit lost display and power. Discharge into push button caused failure. @ +15kV.				
							
			This fix didn't work as unit lost display and power. @+15kv did not discharge.				
							
			This fix didn't work as we lost the display and power @ +15kV, no discharge.				

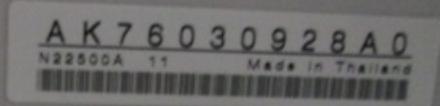
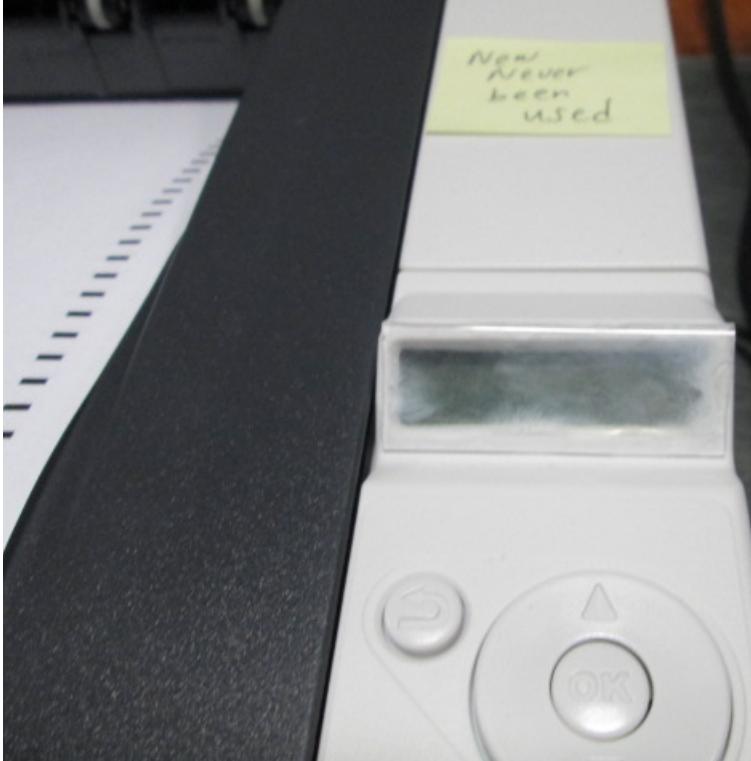
## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
							
This fix worked. Went back and tested +/- 8kV contact on this area.							
---	---	1630	ESD completed and passed with 3 <sup>rd</sup> fix.		3.5	Pass	CL
4-6	---	August 21, 2017 0800-1000	Conducted RF Immunity (4.1.2.11) 10Vrms, 0.15 - 80 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Config #2		2.0	Pass	MT
4-4	---	1000-1030	Electrical Fast Transient / Burst (4.1.2.6) Mains: +/- 2kV, I/O: +/- 1kV 120 VAC / 60 Hz Config #2		0.5	Pass	MT
4-11	---	1030-1100	Voltage Dips and Interruptions (4.1.2.12) 70% nom, 0.6 cycles / 40% nom, 6 cycles & 60 cycles, 0% nom, 300 cycles 120 VAC / 60 Hz Config #2		0.5	Pass	MT
4-11	---	1100-1200	Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) <b>Electric power increases of 7.5% and reductions of 12.5% of nominal specified power. (See Protocol)</b> 129 VAC / 60 Hz Config #2		1.0	---	MT
---		1200-1230	Lunch		---	---	MT
4-11	---	1200-1300	Continue: Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) <b>Electric power increases of 7.5% and reductions of 12.5% of nominal specified power. (See Protocol)</b> +7.5% 129 VAC / 60 Hz Config #2		2.0	Pass	MT

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-11	---	1300-1500	Voltage Dips and Interruptions (Inc./Red. of Nom. Voltage) (4.1.2.5) Electric power increases of 7.5% and <b>reductions of 12.5%</b> of nominal specified power. (See Protocol) -12.5% 105 VAC / 60 Hz Config #2		2.0	Pass	MT
4-11	---	1500-1600	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage +15% 138 VAC / 60 Hz Config #2		1.0	Pass	MT
---	---	August 22, 2017	Client was short on equipment (UPS) and couldn't test today.		8.0	---	CL
4-5	45936	August 23, 2017 0800 – 1330	Surge Immunity Config#2 (4.1.2.7) Mains: +/- 2kV CM, +/- 2kV DM, (0, 90, 180, 270) 120 VAC / 60 Hz		5.5	Pass	CL
4-11	---	1330 - 1430	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage -15% 102 VAC / 60 Hz Config #2		1.0	Pass	CL
4-8	---	1430 - 1500	Power Frequency H-Field Immunity Config#2 (4.1.2.12) 30A/m, 50 / 60 Hz, 3 axes 120 VAC / 60 Hz		.5	Pass	CL
4-2	---	1500 - 1630	Electrostatic Discharge Unit#2 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120Vac/60Hz		2.5	Pass	CL
---	---	1630 - 1730	Electrostatic Discharge Unit#3 (4.1.2.8) +/- 8kV Contact, +/- 2, 4, 8, 15kV Air 120Vac/60Hz NOTE: Re-test with new Oki printer as shown in the photo below. S/N AK76030928A0		1.0	---	CL

Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
							
---	---	---				Fail	CL

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-3	6003	August 24, 2017 0800-1100	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Config#2 Printer error. Had to power cycle printer. Printer stops printing. Printer power button would not work. Failure on rights side H-pole, 200-300MHz range		3.0	Fail	KJ
4-3		1100-1400	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Config#5 Starting Front side. Back and left side were tested in GP0.		3.0	Pass	KJ
4-3		1400-1630	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Config#4 New laptop SN: 22S1YD2 New UPS SN: AS1638230963		2.5	Complete	KJ
4-3		August 25, 2017 0800-1100	Continuing RF Immunity Config#4		3.0	Pass	KJ
4-3		1100-1630	Continuing RF Immunity Config#6		5.0	Pass	KJ
4-11	---	0930 - 1030	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage -15% 102 VAC / 60 Hz Config #3 With new UPS (AS1625141816) and new printer (AK76030928A0)		1.0	Pass	CL
---	---	1030 - 1130	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage -15% 102 VAC / 60 Hz Config #4 With New UPS "AS1625141816"		1.0	Pass	CL
---	---	1330 - 1430	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage -15% 102 VAC / 60 Hz Config #5 With new UPS "AS1625141816"		1.0	Pass	CL
---	---	1500 - 1600	Voltage Dips and Interruptions (Surge of +/- 15%) (4.1.2.5) <b>Surge of +/- 15%</b> line variation of nominal line voltage -15% 102 VAC / 60 Hz Config #6(New Laptop/printer) & #1 (Both running at the same time.)		1.0	Pass	CL

## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
4-3	---	September 1, 2017 0800-1300	Radiated RF Immunity (4.1.2.10) 10V/m, 80 - 1000 MHz, 1% Step, 80% AM, 1kHz sine, 3s dwell 120 VAC / 60 Hz Config#2		5.0	Pass	KJ
4-2	---	September 27, 2017 0800 - 1400	Electrostatic Discharge Unit#3 (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air New Printer: S/N AK5B007647A0, fails at +/-15kV at display on printer. Takes out display and did not recover.		4.0	---	CL
---	---	1130 -	Electrostatic Discharge Unit#3 (4.1.2.8) +/- 8kV Contact, +/-2, 4, 8, 15kV Air New Printer AK76030928A0 and potential fix		---	---	CL



## Ground Planes / CALC

Test	Test Code	Date	Event	O T	Time (hrs)	Result	Initials
							
---	---	---	Failed the same @+15kV air.		---	---	CL
							
---	---	---	2 <sup>nd</sup> fix, tape around display: Tried +8kV contact and -8kV contact on metal tape around display screen. Discharges cause display to go out, but UUT recovers when UUT prints.		4.0	Pass	CL

## **APPENDIX D**

### **Laboratory Accreditations**



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)<sup>1,2</sup>:**

***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 + A1 (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 + A1 (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) + A1 (1998) + A2 (2000);  
EN 61000-4-3 (2002) + A1 (2002);  
IEC 61000-4-3, Ed. 3.0 (2006-02) + A1 (2007) + A2 (2010);  
EN 61000-4-3 (2006) + A1 (2008) + A2 (2010);  
KN 61000-4-3; KN 61000-4-3 (2008-5); KN 61000-4-3 (Annex 1-2)

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<u>Test Technology:</u>	<u>Test Method(s)<sup>1,2</sup>:</u>
<b>Immunity (cont'd)</b>	
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 C62.45 (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) + A1 (2001); EN 61000-4-11 (2004); KN 61000-4-11; KN 61000-4-11 (2008-5); KN 61000-4-11 (Annex 1-7)
<b>Product Safety</b>	
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)
<b>Generic/Product Family Standards and Industry Standards</b>	
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);

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<u>Test Technology:</u>	<u>Test Method(s)<sup>1,2:</sup></u>
<b><i>Generic/Product Family Standards and Industry Standards (cont'd)</i></b>	
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); 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)

<sup>1</sup> 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.

<sup>2</sup> 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

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## 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 28<sup>th</sup> day of October 2016.

A handwritten signature in black ink, appearing to read "L. L. S." or a similar variation.

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**