

# TÜV SÜD Canada Inc.

## EMC Test Report

As per

FCC Part 15 Subpart B:2015 / ICES-003:2016

VVSG 1.0 (2005) Volume 1

Subsection 4.1.2.5 to 4.1.2.12

For Information Technology

Class B Equipment

on the

AVALUE & ICX 15" / 21" / SAMSUNG

PCOS 320C

Jandrew Gonzales

Project Engineer  
TÜV SÜD Canada Inc.  
11 Gordon Collins Dr,  
Gormley, ON, L0H 1G0  
Canada  
Ph: (905) 883-8189

Testing produced for

**PRO V&V**



See Appendix A for full client & EUT details.



REGISTRATION #6844A-3



Testing Laboratory  
Certificate #2955.02



R-4023, G-506  
C-4498, T-1246



REG#377448

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



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Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Report Scope

This report addresses the EMC verification testing and test results of the **AVALUE & ICX 15" / 21" / SAMSUNG and PCOS 320C / ICP** herein referred to as EUT (Equipment Under Test). Results in this report are applicable to all units, except where indicated as otherwise or individually. The EUT was tested for emissions compliance against the following standards:

FCC Part 15 Subpart B:2016

ICES-003:2016

VVSG 1.0 (2005) Volume 1: Subsection 4.1.2.5 to 4.1.2.12

EN61000-4-2

EN61000-4-3

EN61000-4-4

EN61000-4-5

EN61000-4-6

EN61000-4-8

EN61000-4-11

For a more detailed list of the standards and the revision used, see the "Applicable Standards, Specifications and Methods" section of this report.

Test procedures, results, justifications, and engineering considerations, if any, follow later in this report.

This report does not imply product endorsement by any government, accreditation agency, or TÜV SÜD Canada Inc.

Opinions or interpretations expressed in this report, if any, are outside the scope of TÜV SÜD Canada Inc accreditations. Any opinions expressed do not necessarily reflect the opinions of TÜV SÜD Canada Inc, unless otherwise stated.

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## Summary

The results contained in this report relate only to the item(s) tested.

Equipment Under Test (EUT)	AVALUE & ICX 15" / 21" / SAMSUNG, PCOS 320C
EUT passed all tests performed	Yes
Testing conducted by	Jandrew Gonzales

For testing dates, see 'Testing Environmental Conditions and Dates'.

### Test Results Summary

Standard/ Method	Description	Criteria	Class / Level	Result
FCC 15.107 ICES-003 VVSG 1.0 Vol. 1 4.1.2.9	Power Line Conducted Emissions	N/A	Class B	Pass
FCC 15.109 ICES-003 VVSG 1.0 Vol. 1 4.1.2.9	Radiated Emissions	N/A	Class B	Pass
EN61000-4-11 VVSG 1.0 Vol. 1 4.1.2.5	Electrical Power Disturbance	Normal Operation & No Data Loss	Various	Pass
EN61000-4-4 VVSG 1.0 Vol. 1 4.1.2.6	Electrical Fast Transient	Normal Operation & No Data Loss	±2kV - Mains ±1kV - I/O	Pass
EN61000-4-5 VVSG 1.0 Vol. 1 4.1.2.7	Lightning Surge	Normal Operation & No Data Loss	±2kV Line - Line ±2kV Line - Ground	Pass
EN61000-4-2 VVSG 1.0 Vol. 1 4.1.2.8	Electrostatic Disruption	Normal Operation & No Data Loss	±8kV Contact ±15kV Air	Pass

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Standard/ Method	Description	Criteria	Class / Level	Result
EN61000-4-3 VVSG 1.0 Vol. 1 4.1.2.10	Electromagnetic Susceptibility	Normal Operation & No Data Loss	10 V/m, 80 MHz – 1 GHz	Pass
EN61000-4-6 VVSG 1.0 Vol. 1 4.1.2.11	Conducted RF Immunity	Normal Operation & No Data Loss	10 Vrms, 150 kHz – 80 MHz	Pass
EN61000-4-8 VVSG 1.0 Vol. 1 4.1.2.12	Magnetic Immunity	Normal Operation & No Data Loss	30 A/m	Pass
<b>Overall Result</b>				<b>Pass</b>

If the product as tested complies with the specification or requirement, the EUT is deemed to comply and is issued a 'PASS' grade. If not, 'FAIL' grade is issued.

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## **Notes, Justifications, or Deviations**

The following notes, justifications for tests not performed or deviations from the above listed specifications apply:

There are 4 configurations that are considered to be the EUT:

1. AVALUE 15" / ICX 15"
2. AVALUE 21" / ICX 21"
3. AVALUE SAMSUNG / ICX SAMSUNG
4. PCOS 320C / ICP

All serial numbers and configurations are listed in Appendix A in the EUT Configuration section of this report.

Conducted Electromagnetic Emissions required AC input filtering in order to comply with Class B FCC limits. Two types of passive EMI filters were used and included as part of the EUT in order to pass Conducted Electromagnetic Emissions.

Delta Filter P/N#: 16PDCG5C

CORCOM Filter P/N#: 15EMC1

Ferrites were placed within the AVALUE SAMSUNG / ICX SAMSUNG unit to comply with FCC Part 15 Subpart B Radiated Emission Limits. Placement of the ferrites can be found in Appendix B, Figure 4 within this report.

Ferrite: Steward 28A0392-0A2

- 2 Turns near the headphone jack of the tablet
- 1 Turn near the USB connector of the tablet

AVALUE SAMSUNG / ICX SAMSUNG had performance issues while testing EFT/B and Radiated Immunity. Manufacturer provided a software fix to prevent data loss

A later revision of the standard may have been substituted in place of the previous dated referenced revision. The year of the specification used is listed under applicable standards. Using the later revision accomplishes the goal of ensuring compliance to the intent of the previous specification, while allowing the laboratory to incorporate the extensions and clarifications made available by a later revision.

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## **Sample Calculation(s)**

### **Radiated Emission Test**

Margin = Limit – (Received Signal + Antenna Factor + Cable Loss – Pre-Amp Gain)

Margin = 50.5dB $\mu$ V/m – (50dB $\mu$ V + 10dB + 2.5dB – 20dB)

Margin = 8.0 dB (pass)

### **Power Line Conducted Emission Test**

Margin = Limit – (Received Signal + Attenuation Factor + Cable Loss + LISN Factor)

Margin = 73.0dB $\mu$ V – (50dB $\mu$ V + 10dB + 2.5dB + 0.5dB)

Margin = 10.0 dB (pass)

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## Applicable Standards, Specifications and Methods

- ANSI C63.4:2014 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
- CFR47 FCC Part 15 Subpart B:2016 Code of Federal Regulations – Radio Frequency Devices
- ICES-003, Issue 6 2016 Information Technology Equipment (ITE) – Limits and Methods of Measurement.
- VVSG 1.0 (2005) Volume 1 United States Election Assistance Commission – Voluntary Voting System Guidelines – Version 1.0 Volume 1
- ISO 17025:2005 General requirements for the competence of testing and calibration laboratories
- IEC 61000-4-2:2008 Testing and Measurement Techniques -  
EN 61000-4-2:2009 Electrostatic Discharge Immunity Test
- IEC/EN 61000-4-3:2006/  
A2:2010 Testing and Measurement Techniques -  
Radiated, Radio-Frequency, Electromagnetic Field Immunity Test
- IEC/EN 61000-4-4:2004 Testing and Measurement Techniques -  
Electrical Fast Transient/Burst Immunity Test
- IEC 61000-4-5:2005 Testing and Measurement Techniques - Surge Immunity Test  
EN 61000-4-5:2006
- IEC 61000-4-6:2008 Testing and Measurement Techniques - Immunity to  
EN 61000-4-6:2009 Conducted Disturbances, Induced by Radio-Frequency Fields
- IEC 61000-4-8:2009 Testing and Measurement Techniques -  
EN 61000-4-8:2010 Power Frequency Magnetic Field Immunity Test
- IEC/EN 61000-4-11:2004 Testing and Measurement Techniques - Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
- ISO 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories

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## Document Revision Status

Revision 1    June 29, 2016  
 Initial Release

Revision 2    December 29, 2016  
 -    Changed standard to VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

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## Definitions and Acronyms

The following definitions and acronyms are applicable in this report.  
See also ANSI C63.14.

**AE** – Auxiliary Equipment. A digital accessory that feeds data into or receives data from another device (host) that in turn, controls its operation.

**Class A device** – A device that is marketed for use in a commercial, industrial or business environment. A 'Class A' device should not be marketed for use by the general public . A 'Class A' device should contain the following warning in its user manual: "**Warning:** This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures."

**Class B device** – A device that is marketed for use in a residential environment and may also be used in a commercial, business or industrial environments. NOTE: A residential environment is an environment where the use of broadcast radio and television receivers may be expected within a distance of 10m of the device concerned.

**EMC** – Electro-Magnetic Compatibility. The ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.

**EUT** – Equipment Under Test. A device or system being evaluated for compliance that is representative of a product to be marketed.

**ITE** – Information Technology Equipment - Has a primary function of entry, storage, display, retrieval, transmission, processing, switching, or control, of data and of telecommunication messages and which may be equipped with one or more terminal ports typically operated for information transfer.

**LISN** – Line Impedance Stabilization Network

**NCR** – No Calibration Required

**RF** – Radio Frequency

**EMC Test Plan** – An EMC test plan established prior to testing. See 'Appendix A – EUT & Client Provided Details'

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## Testing Facility

Testing for EMC on the EUT was carried out at TÜV SÜD Canada testing lab near Toronto, Ontario. The testing lab has a calibrated 3m semi-anechoic chamber which allows measurements on an EUT that has a maximum width or length of up to 2m and a height of up to 3m. The chamber is equipped with a turntable that is capable of testing devices up to 3300lb in weight. This facility is capable of testing products that are rated for 120Vac and 240Vac single phase, or devices that are rated for a 208Vac 3 phase input. DC capability is also available for testing. The chamber is equipped with a mast that controls the polarization and height of the antenna. Control of the mast occurs in the control room adjoining the shielded chamber. Radiated emission measurements are performed using a BiLog antenna and a Horn antenna where applicable. Conducted emissions, unless otherwise stated, are performed using a LISN and using the Vertical Ground plane if applicable.

### ***Calibrations and Accreditations***

The 3m semi-anechoic chamber is registered with Federal Communications Commission (FCC, 377448), Industry Canada (IC, 6844A-3) and Voluntary Control Council for Interference (VCCI, R-4023, G-506, C-4498, and T-1246). This chamber was calibrated for Normalized Site Attenuation (NSA) using test procedures outlined in ANSI C63.4 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz". The chamber is lined with ferrite tiles and absorption cones to minimize any undesired reflections. The NSA data is kept on file at TÜV SÜD Canada. For radiated susceptibility testing, a 16 point field calibration has been performed on the chamber. The field uniformity data is kept on file at TÜV SÜD Canada. TÜV SÜD Canada Inc is accredited to ISO 17025 by A2LA with Testing Certificate #2955.02. The laboratory's current scope of accreditation listing can be found as listed on the A2LA website. All measuring equipment is calibrated on an annual or bi-annual basis as listed for each respective test.

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## ***Testing Environmental Conditions and Dates***

Following environmental conditions were recorded in the facility during time of testing:

Date	Test	Initials	Temperature (°C)	Humidity (%)	Pressure (kPa)
May 27, 2016	Power Line Conducted Emissions	JG	20 – 24	40 – 51	98.0 – 102.0
May 26-27, 2016	Radiated Emissions	JG	20 – 24	40 – 51	98.0 – 102.0
June 03, 2016	Electrostatic Disruption	JG	21 – 24	40 – 51	98.0 – 102.0
May 30-31, 2016	Electromagnetic Susceptibility	JG	21 – 24	40 – 51	98.0 – 102.0
June 01, 2016	Electrical Fast Transient	JG	21 – 24	40 – 51	98.0 – 102.0
June 02, 2016	Lightning Surge	JG	21 – 24	40 – 51	98.0 – 102.0
May 30, 2016	Conducted RF Immunity	JG	21 – 24	40 – 51	98.0 – 102.0
June 02, 2016	Magnetic Fields Immunity	JG	21 – 24	40 – 51	98.0 – 102.0
June 03, 2016	Electrical Power Disturbance	JG	21 – 24	40 – 51	98.0 – 102.0

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## Detailed Test Result Section

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## **Power Line Conducted Emissions – 4.1.2.9**

### **Purpose**

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT's power line does not exceed the limits listed below as defined in the applicable test standard and measured from a LISN. This helps protect lower frequency radio services such as AM radio, shortwave radio, amateur radio, maritime radio, CB radio, and so on, from unwanted interference.

### **Limits & Method**

The method is as defined in ANSI C63.4:2014. The limits are as defined in FCC Part 15 Section 15.107 and ICES-003 Issue 6 Section 6.1:

#### **CLASS B**

<b>Average Limits</b>		<b>Quasi-Peak Limits</b>	
150 kHz – 500 kHz	56 to 46* dB $\mu$ V	150 kHz – 500 kHz	66 to 56* dB $\mu$ V
500 kHz – 5 MHz	46 dB $\mu$ V	500 kHz – 5 MHz	56 dB $\mu$ V
5 MHz – 30 MHz	50 dB $\mu$ V	5 MHz – 30 MHz	60 dB $\mu$ V

\* Decreases linearly with the logarithm of the frequency

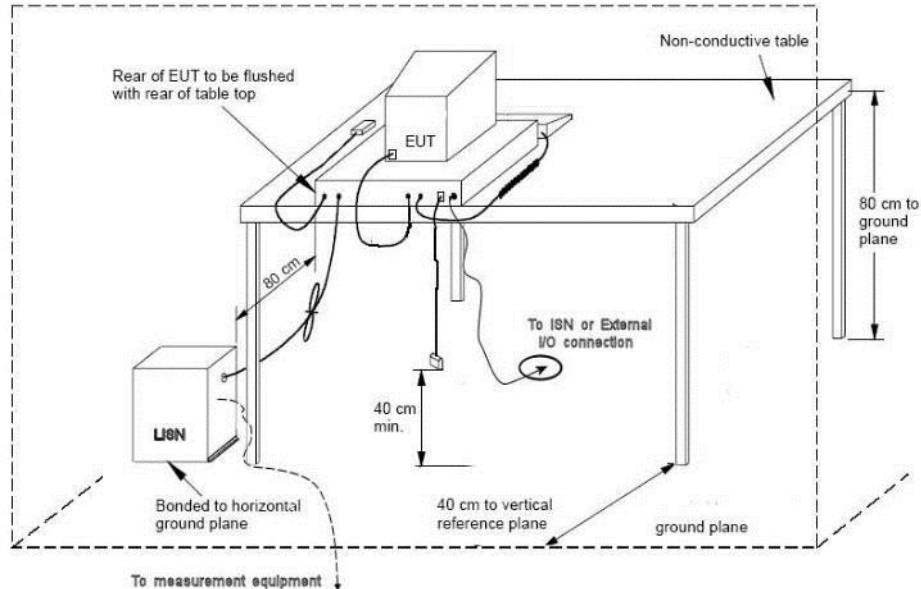
Both Quasi-Peak and Average limits are applicable and each is specified as being measured with a resolution bandwidth of 9 kHz. For Quasi-Peak, a video bandwidth at least three times greater than the resolution bandwidth is used.

Based on ANSI C63.4 Section 4.2, if the Peak or Quasi-Peak detector measurements do not exceed the Average limits, then the EUT is deemed to have passed the requirements.

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### Typical Setup Diagram



### Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is  $\pm 2.91\text{dB}$  with a 'k=2' coverage factor and a 95% confidence level.

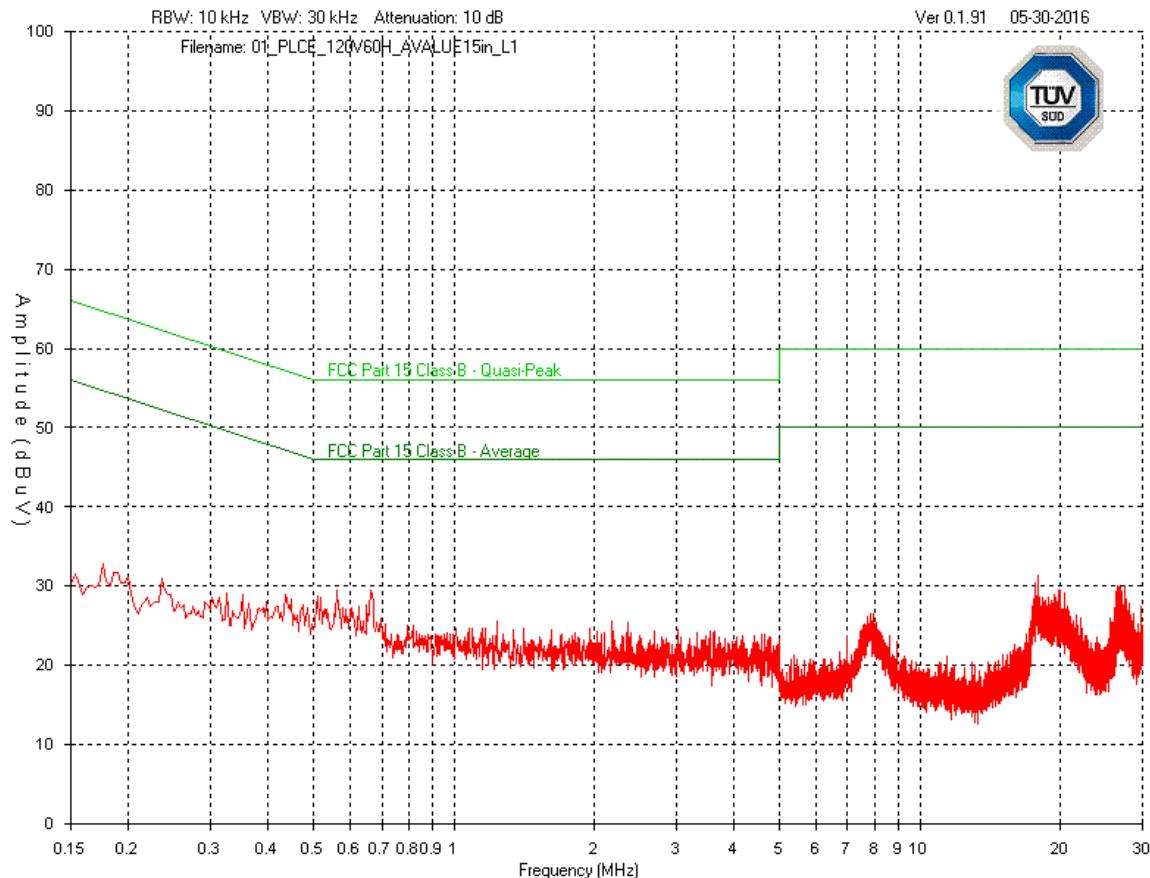
### Preliminary Graphs

The graphs shown below are maximized peak measurement graphs measured with a resolution bandwidth greater than or equal to the final required detector. This peaking process is done as a worst case measurement and enables the detection of frequencies of concern for final measurement. For final measurements with the appropriate detector, where applicable, please refer to the tables under Final Measurements.

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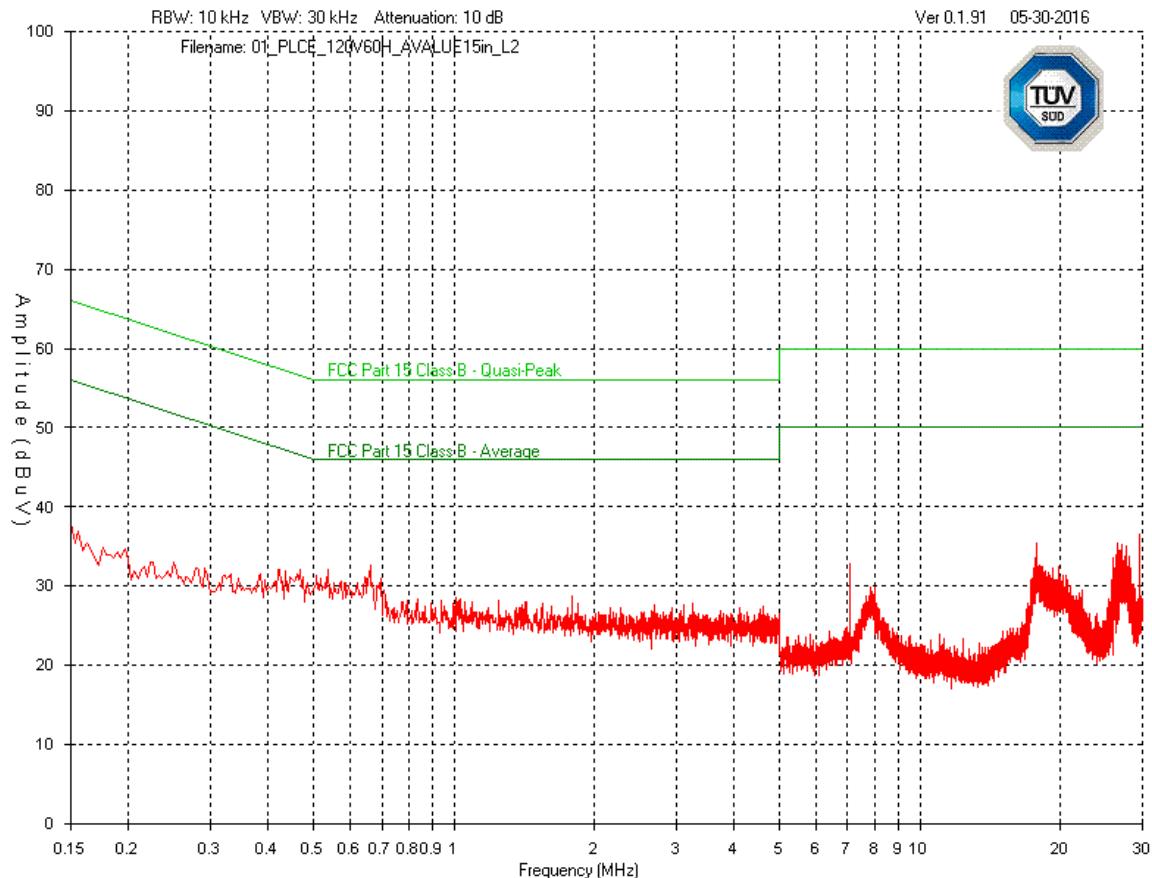
### Line (L1) – 120Vac 60Hz – AVALUE 15" / ICX 15" – CORCOM Filter



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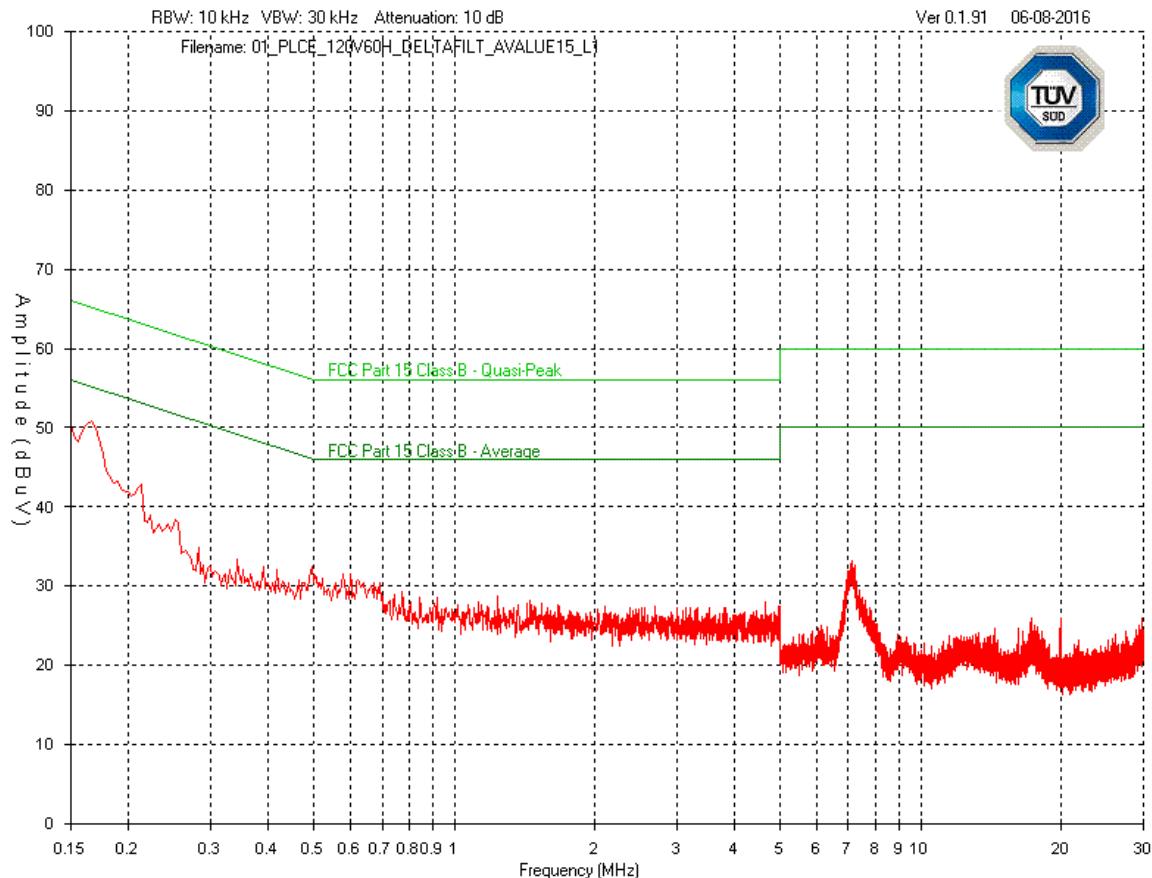
### Neutral (L2) – 120Vac 60Hz – AVALUE 15" / ICX 15" – CORCOM Filter



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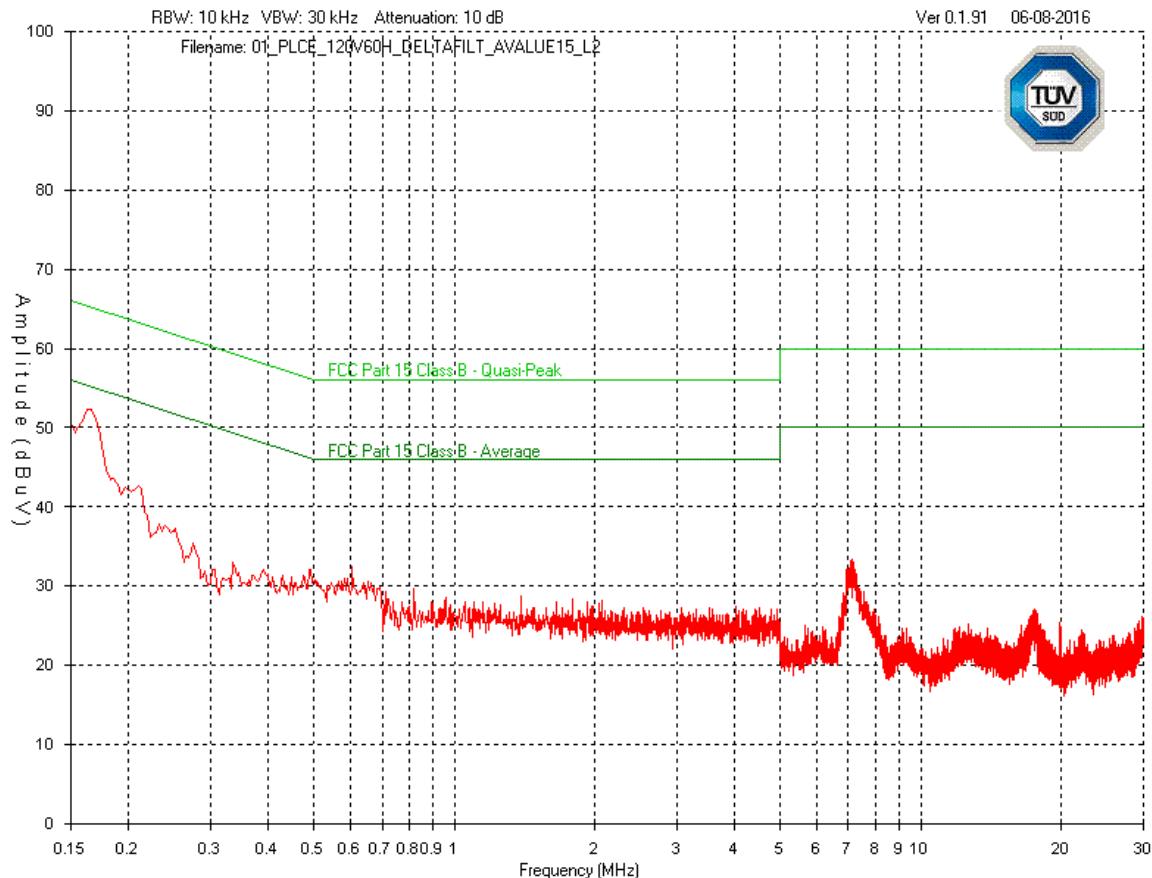
### Line (L1) – 120Vac 60Hz – AVALUE 15" / ICX 15" – Delta Filter



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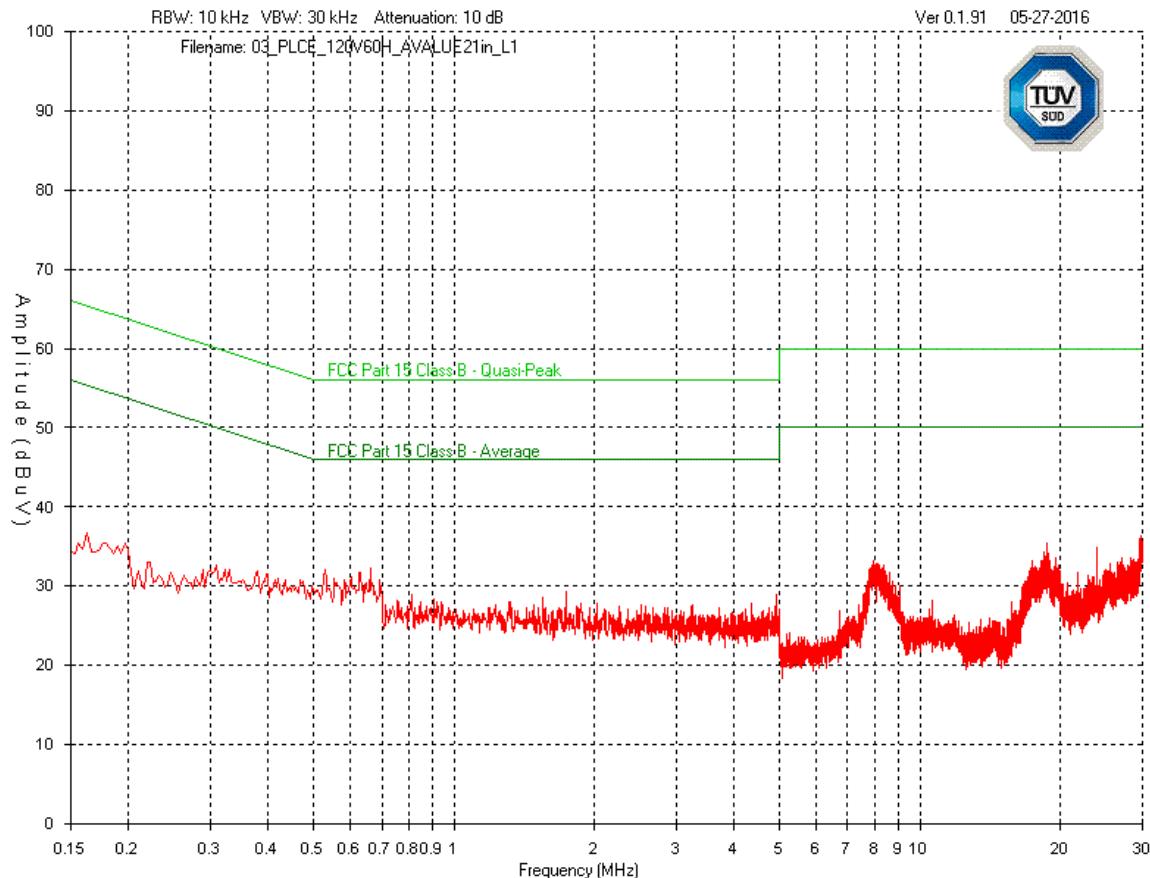
### Neutral (L2) – 120Vac 60Hz – AVALUE 15" / ICX 15" – Delta Filter



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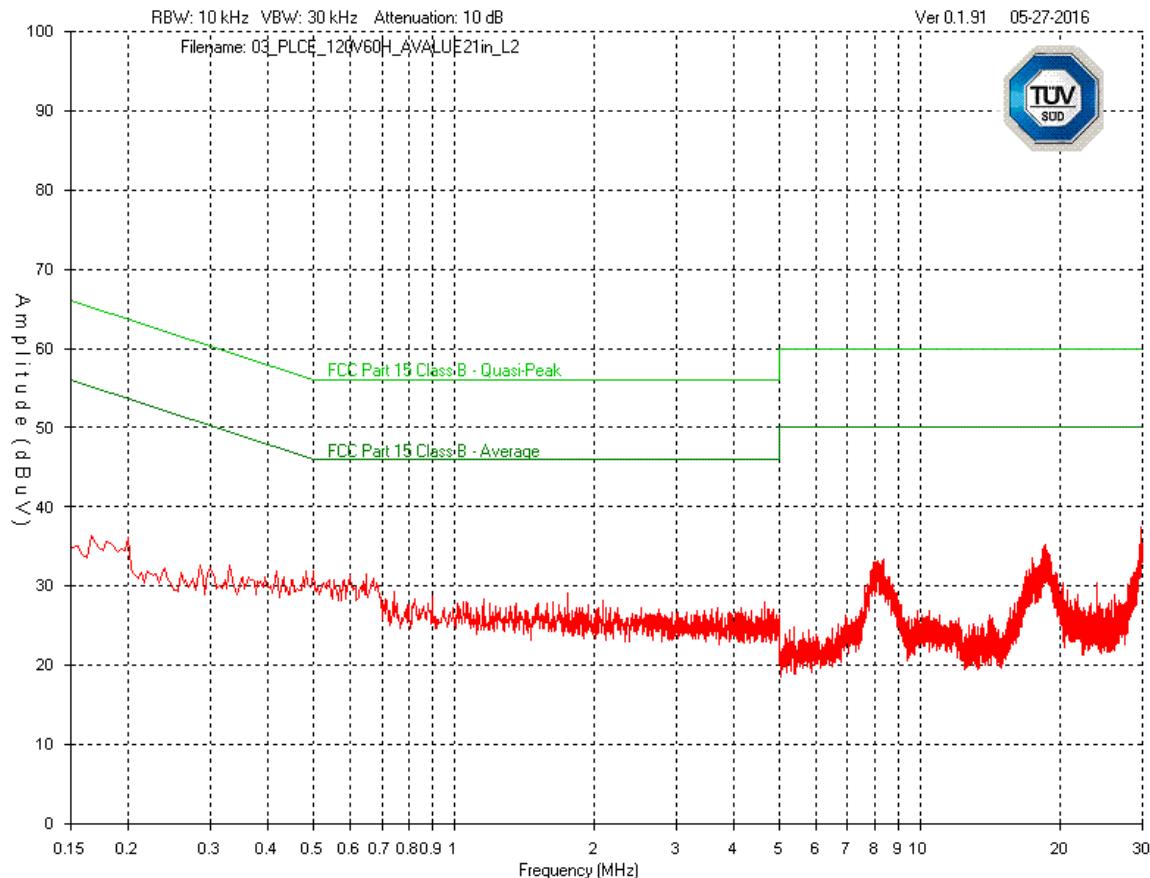
### Line (L1) – 120Vac 60Hz – AVALUE 21" / ICX 21" – CORCOM Filter



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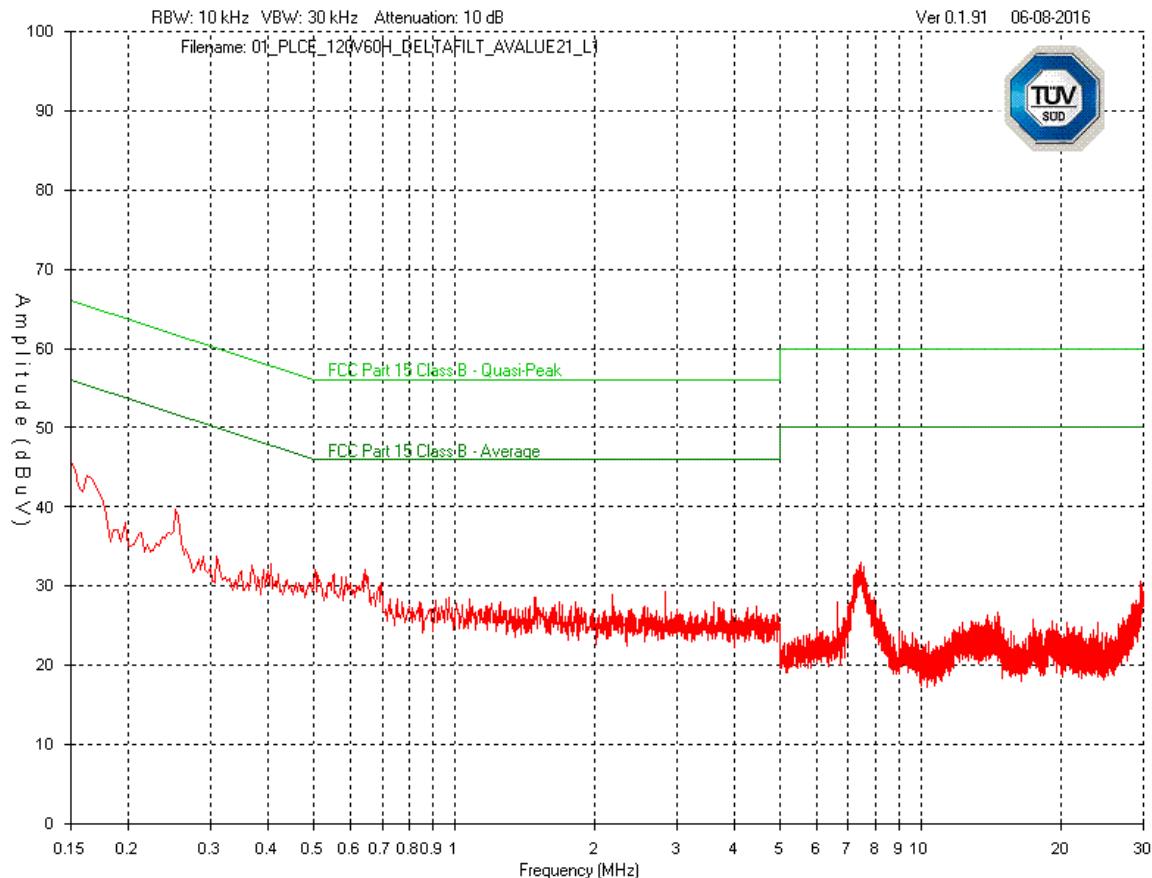
### Neutral (L2) – 120Vac 60Hz – AVALUE 21" / ICX 21" – CORCOM Filter



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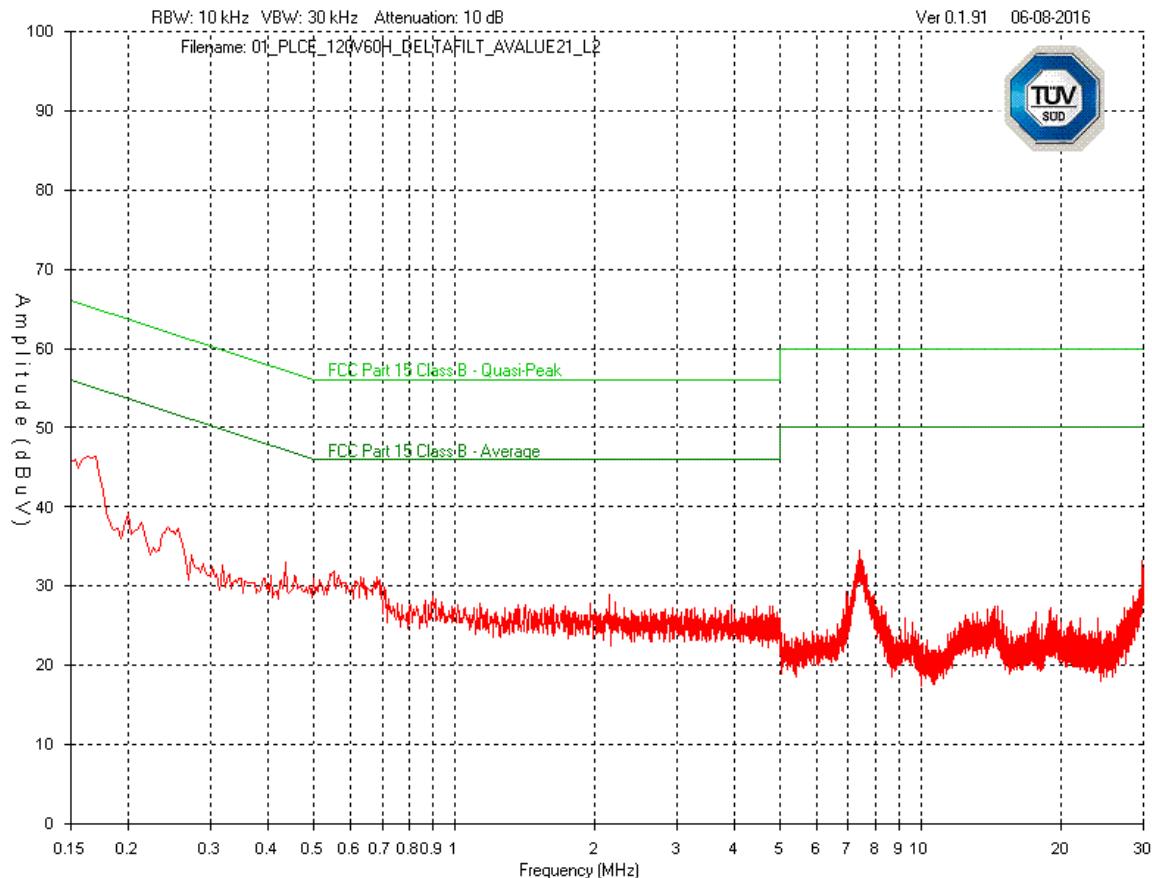
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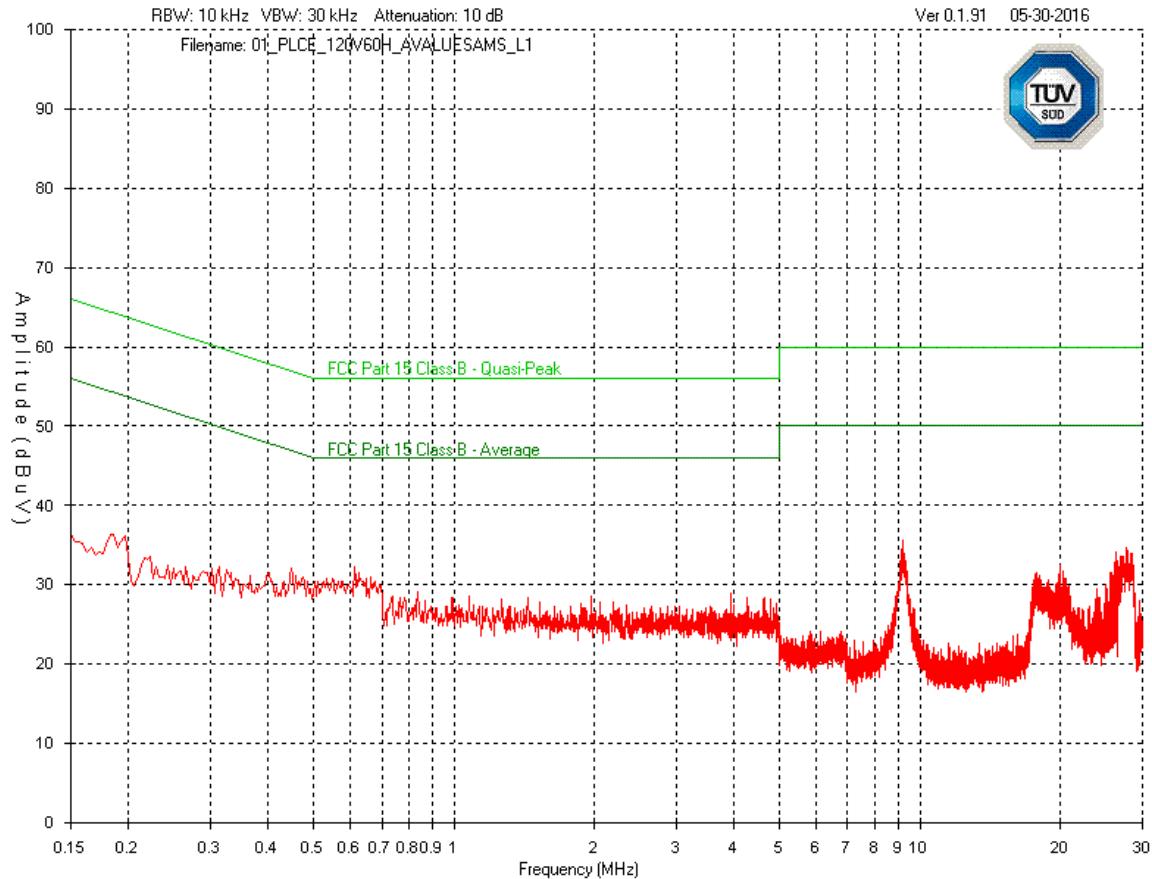
### Neutral (L2) – 120Vac 60Hz – AVALUE 21" / ICX 21" – Delta Filter



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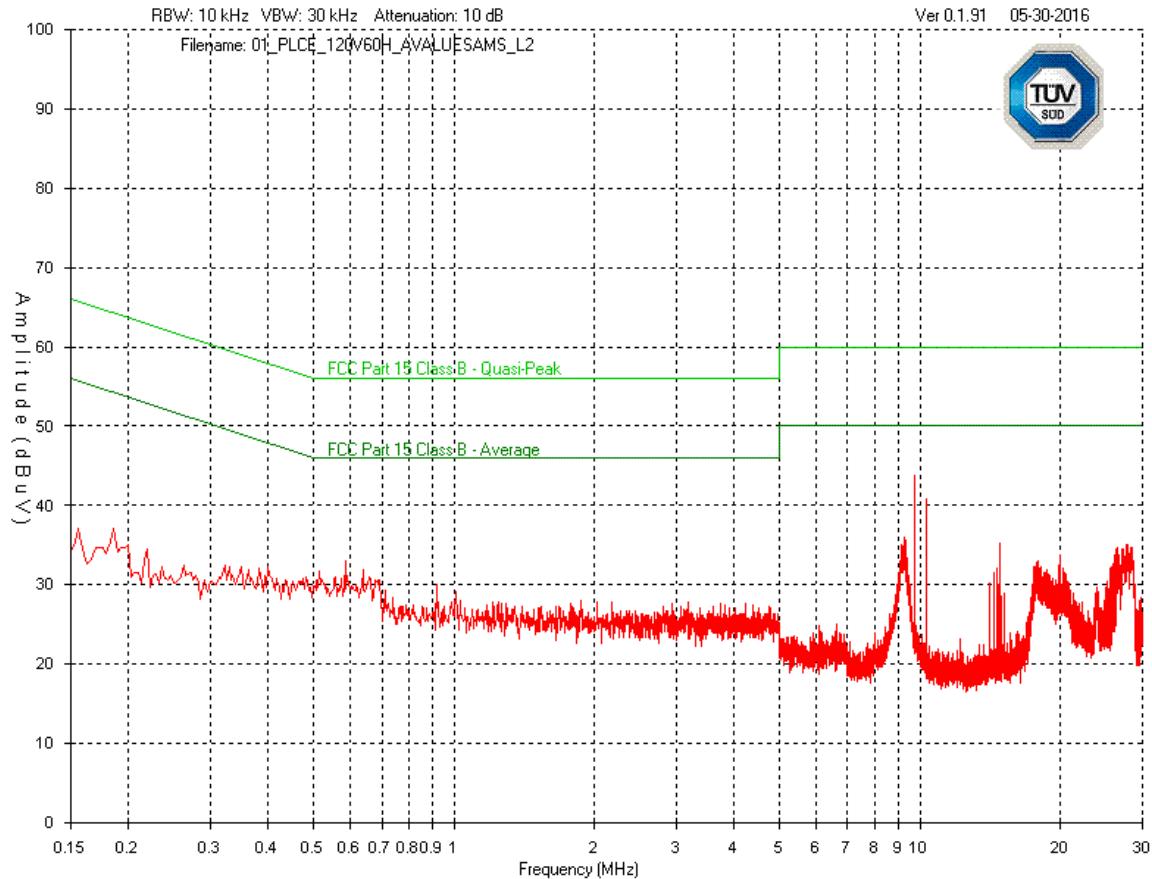
**Line (L1) – 120Vac 60Hz – AVALUE SAMSUNG / ICX SAMSUNG CORCOM Filter**



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Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



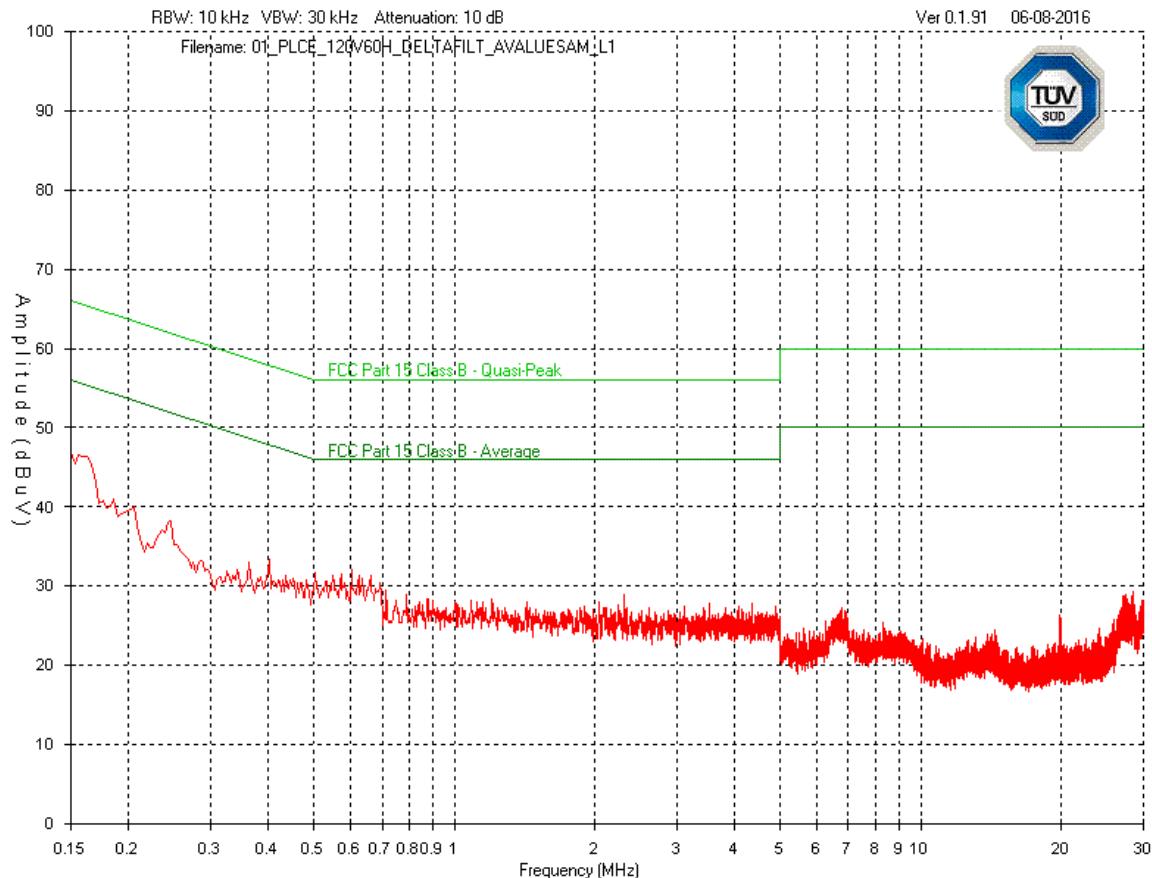
**Neut. (L2) – 120Vac 60Hz – AVALUE SAMSUNG / ICX SAMSUNG CORCOM Filter**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

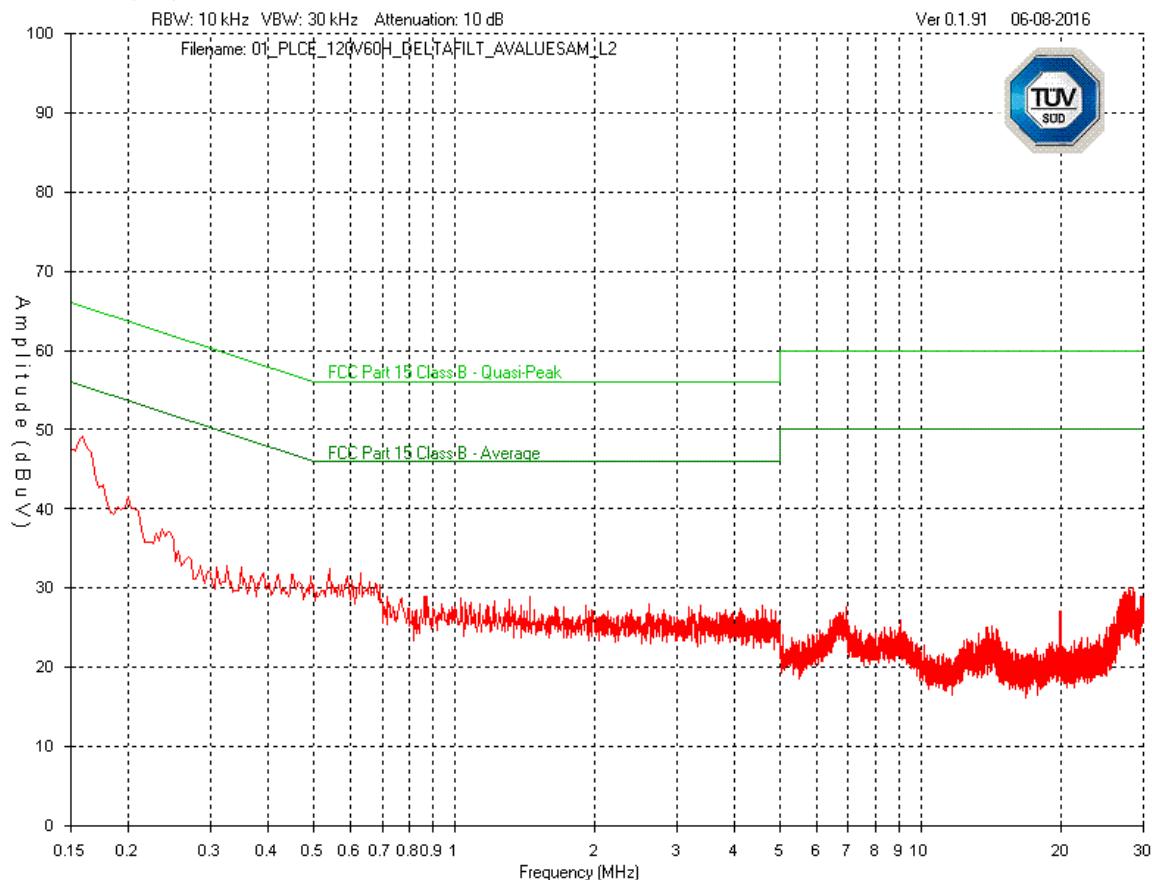


### Line (L1) – 120Vac 60Hz – AVALUE SAMSUNG / ICX SAMSUNG – Delta Filter



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

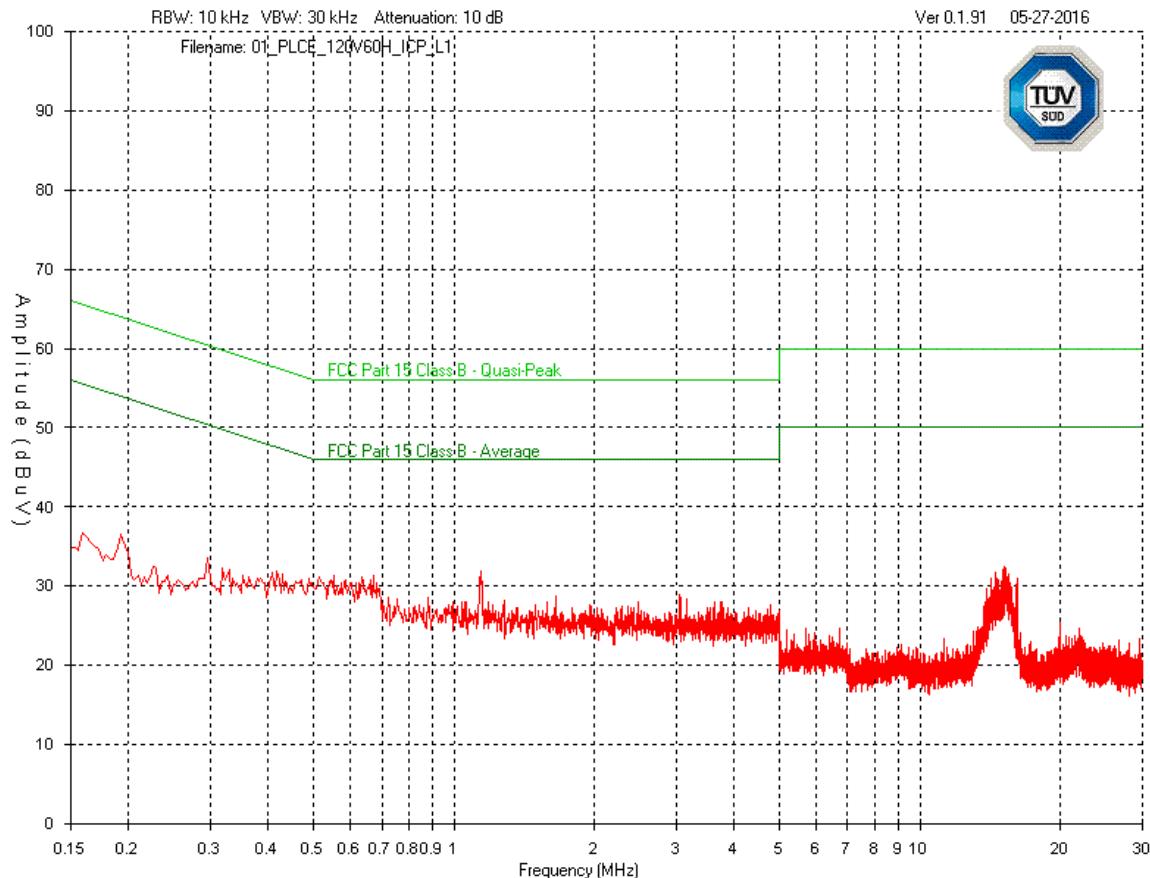
### Neutral (L2) – 120Vac 60Hz – AVALUE SAMSUNG / ICX SAMSUNG – Delta Filter



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



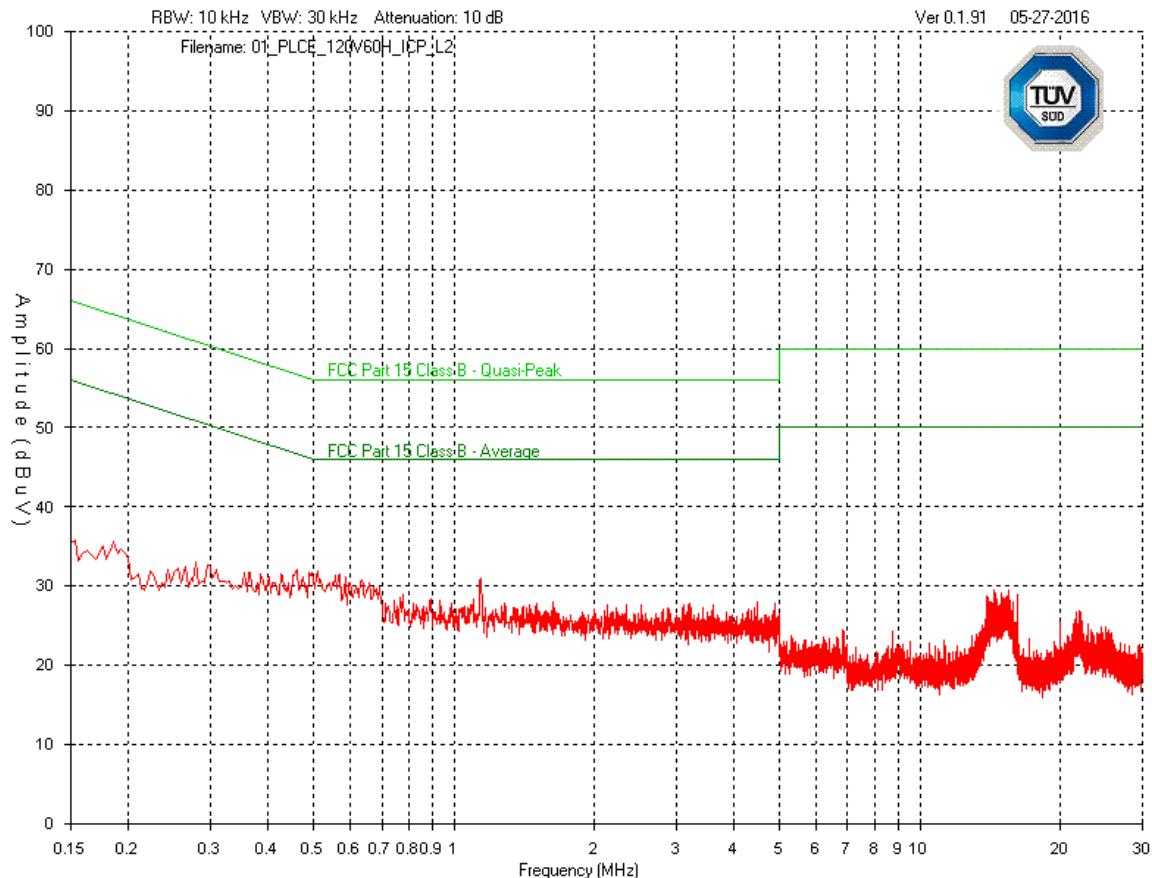
### Line (L1) – 120Vac 60Hz – PCOS 320C / ICP



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Neutral (L2) – 120Vac 60Hz – PCOS 320C / ICP



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Final Measurements

Product Category			Class B								
EUT			AVALUE 15" / ICX 15"								
Supply			120Vac 60Hz – CORCOM Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dBμV)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dBμV)	QP Limit (dBμV)	Avg Limit (dBμV)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
17.917	PEAK	21.2	10.0	0.2	0.1	31.5	60.0	50.0	28.5	18.5	Pass
17.728	PEAK	20.1	10.0	0.2	0.1	30.4	60.0	50.0	29.6	19.6	Pass
17.977	PEAK	20.0	10.0	0.2	0.1	30.3	60.0	50.0	29.7	19.7	Pass
27.489	PEAK	19.8	10.0	0.3	0.1	30.2	60.0	50.0	29.8	19.8	Pass
26.634	PEAK	19.7	10.0	0.3	0.1	30.1	60.0	50.0	29.9	19.9	Pass
26.667	PEAK	19.6	10.0	0.3	0.1	30.0	60.0	50.0	30.0	20.0	Pass
Neutral											
29.678	PEAK	26.3	10.0	0.3	0.1	36.7	60.0	50.0	23.3	13.3	Pass
26.640	PEAK	25.2	10.0	0.3	0.1	35.6	60.0	50.0	24.4	14.4	Pass
17.825	PEAK	25.2	10.0	0.2	0.1	35.5	60.0	50.0	24.5	14.5	Pass
27.221	PEAK	25.0	10.0	0.3	0.1	35.4	60.0	50.0	24.6	14.6	Pass
27.778	PEAK	24.8	10.0	0.3	0.1	35.2	60.0	50.0	24.8	14.8	Pass
26.604	PEAK	24.2	10.0	0.3	0.1	34.6	60.0	50.0	25.4	15.4	Pass

Average and Quasi-Peak Emissions Table

Client	Pro V&V	
Product	AVALUE & ICX 15" / 21" / SAMSUNG, PCOS 320C	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE 15" / ICX 15"								
Supply			120Vac 60Hz – Delta Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
0.167	PEAK	40.6	10.0	0.1	0.0	50.7	65.1	55.1	14.4	4.4	Pass
7.132	PEAK	23.0	10.0	0.2	0.0	33.2	60.0	50.0	26.8	16.8	Pass
17.294	PEAK	15.7	10.0	0.2	0.1	26.0	60.0	50.0	34.0	24.0	Pass
19.957	PEAK	15.6	10.0	0.2	0.1	25.9	60.0	50.0	34.1	24.1	Pass
17.851	PEAK	14.6	10.0	0.2	0.1	24.9	60.0	50.0	35.1	25.1	Pass
14.389	PEAK	14.5	10.0	0.2	0.1	24.8	60.0	50.0	35.2	25.2	Pass
Neutral											
0.167	PEAK	42.1	10.0	0.1	0.0	52.2	65.1	55.1	12.9	2.9	Pass
7.148	PEAK	23.2	10.0	0.2	0.0	33.4	60.0	50.0	26.6	16.6	Pass
17.509	PEAK	16.9	10.0	0.2	0.1	27.2	60.0	50.0	32.8	22.8	Pass
17.858	PEAK	15.8	10.0	0.2	0.1	26.1	60.0	50.0	33.9	23.9	Pass
19.891	PEAK	15.1	10.0	0.2	0.1	25.4	60.0	50.0	34.6	24.6	Pass
18.120	PEAK	15.0	10.0	0.2	0.1	25.3	60.0	50.0	34.7	24.7	Pass

Average and Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE 21" / ICX 21"								
Supply			120Vac 60Hz – CORCOM Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
18.810	PEAK	25.2	10.0	0.2	0.1	35.5	60.0	50.0	24.5	14.5	Pass
23.994	PEAK	24.6	10.0	0.2	0.1	34.9	60.0	50.0	25.1	15.1	Pass
19.642	PEAK	23.3	10.0	0.2	0.1	33.6	60.0	50.0	26.4	16.4	Pass
1.742	PEAK	19.1	10.0	0.1	0.0	29.2	56.0	46.0	26.8	16.8	Pass
7.954	PEAK	23.0	10.0	0.2	0.0	33.2	60.0	50.0	26.8	16.8	Pass
4.933	PEAK	18.9	10.0	0.1	0.0	29.0	56.0	46.0	27.0	17.0	Pass
Neutral											
18.634	PEAK	24.9	10.0	0.2	0.1	35.2	60.0	50.0	24.8	14.8	Pass
8.382	PEAK	23.2	10.0	0.2	0.0	33.4	60.0	50.0	26.6	16.6	Pass
0.167	PEAK	26.3	10.0	0.1	0.0	36.4	65.1	55.1	28.7	18.7	Pass
24.004	PEAK	20.1	10.0	0.2	0.1	30.4	60.0	50.0	29.6	19.6	Pass
27.940	PEAK	20.0	10.0	0.3	0.1	30.4	60.0	50.0	29.6	19.6	Pass
20.730	PEAK	19.2	10.0	0.2	0.1	29.5	60.0	50.0	30.5	20.5	Pass

Average and Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE 21" / ICX 21"								
Supply			120Vac 60Hz – Delta Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
0.153	PEAK	34.5	10.0	0.1	0.0	44.6	65.8	55.8	21.2	11.2	Pass
2.833	PEAK	19.1	10.0	0.1	0.0	29.2	56.0	46.0	26.8	16.8	Pass
7.463	PEAK	22.8	10.0	0.2	0.0	33.0	60.0	50.0	27.0	17.0	Pass
2.180	PEAK	18.8	10.0	0.1	0.0	28.9	56.0	46.0	27.1	17.1	Pass
6.614	PEAK	17.9	10.0	0.1	0.0	28.0	60.0	50.0	32.0	22.0	Pass
14.641	PEAK	16.4	10.0	0.2	0.1	26.7	60.0	50.0	33.3	23.3	Pass
Neutral											
0.170	PEAK	36.3	10.0	0.1	0.0	46.4	65.0	55.0	18.6	8.6	Pass
7.377	PEAK	24.4	10.0	0.2	0.0	34.6	60.0	50.0	25.4	15.4	Pass
6.929	PEAK	19.2	10.0	0.1	0.0	29.3	60.0	50.0	30.7	20.7	Pass
14.405	PEAK	17.2	10.0	0.2	0.1	27.5	60.0	50.0	32.5	22.5	Pass
19.058	PEAK	17.0	10.0	0.2	0.1	27.3	60.0	50.0	32.7	22.7	Pass
27.327	PEAK	16.9	10.0	0.3	0.1	27.3	60.0	50.0	32.7	22.7	Pass

Average and Quasi-Peak Emissions Table

Client	Pro V&V	
Product	AVALUE & ICX 15" / 21" / SAMSUNG, PCOS 320C	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE SAMSUNG / ICX SAMSUNG								
Supply			120Vac 60Hz – CORCOM Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
9.218	PEAK	25.5	10.0	0.2	0.0	35.7	60.0	50.0	24.3	14.3	Pass
27.848	PEAK	24.3	10.0	0.3	0.1	34.7	60.0	50.0	25.3	15.3	Pass
26.368	PEAK	23.8	10.0	0.2	0.1	34.1	60.0	50.0	25.9	15.9	Pass
26.418	PEAK	23.1	10.0	0.2	0.1	33.4	60.0	50.0	26.6	16.6	Pass
26.312	PEAK	22.8	10.0	0.2	0.1	33.1	60.0	50.0	26.9	16.9	Pass
26.597	PEAK	22.7	10.0	0.3	0.1	33.1	60.0	50.0	26.9	16.9	Pass
Neutral											
9.735	PEAK	33.5	10.0	0.2	0.0	43.7	60.0	50.0	16.3	6.3	Pass
10.306	PEAK	30.6	10.0	0.2	0.0	40.8	60.0	50.0	19.2	9.2	Pass
9.294	PEAK	25.9	10.0	0.2	0.0	36.1	60.0	50.0	23.9	13.9	Pass
14.863	PEAK	25.0	10.0	0.2	0.1	35.3	60.0	50.0	24.7	14.7	Pass
27.725	PEAK	24.8	10.0	0.3	0.1	35.2	60.0	50.0	24.8	14.8	Pass
26.508	PEAK	24.4	10.0	0.3	0.1	34.8	60.0	50.0	25.2	15.2	Pass

Average and Quasi-Peak Emissions Table

Client	Pro V&V	
Product	AVALUE & ICX 15" / 21" / SAMSUNG, PCOS 320C	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE SAMSUNG / ICX SAMSUNG								
Supply			120Vac 60Hz – Delta Filter								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
0.157	PEAK	36.4	10.0	0.1	0.0	46.5	65.6	55.6	19.1	9.1	Pass
2.319	PEAK	18.9	10.0	0.1	0.0	29.0	56.0	46.0	27.0	17.0	Pass
28.504	PEAK	19.1	10.0	0.3	0.1	29.5	60.0	50.0	30.5	20.5	Pass
27.493	PEAK	18.7	10.0	0.3	0.1	29.1	60.0	50.0	30.9	20.9	Pass
6.763	PEAK	17.1	10.0	0.1	0.0	27.2	60.0	50.0	32.8	22.8	Pass
19.881	PEAK	16.1	10.0	0.2	0.1	26.4	60.0	50.0	33.6	23.6	Pass
Neutral											
0.160	PEAK	39.1	10.0	0.1	0.0	49.2	65.5	55.5	16.3	6.3	Pass
28.650	PEAK	19.7	10.0	0.3	0.1	30.1	60.0	50.0	29.9	19.9	Pass
27.937	PEAK	19.7	10.0	0.3	0.1	30.1	60.0	50.0	29.9	19.9	Pass
6.909	PEAK	17.4	10.0	0.1	0.0	27.5	60.0	50.0	32.5	22.5	Pass
19.891	PEAK	16.9	10.0	0.2	0.1	27.2	60.0	50.0	32.8	22.8	Pass
14.233	PEAK	14.9	10.0	0.2	0.1	25.2	60.0	50.0	34.8	24.8	Pass

Average and Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			PCOS 320C / ICP								
Supply			120Vac 60Hz								
Frequency (MHz)	Detector Peak/Avg/QP	Received Signal (dB $\mu$ V)	Atten Factor (dB)	Cable Factor (dB)	LISN Factor (dB)	Level (dB $\mu$ V)	QP Limit (dB $\mu$ V)	Avg Limit (dB $\mu$ V)	QP Margin (dB)	Avg Margin (dB)	Pass/Fail
Line											
1.142	PEAK	21.8	10.0	0.1	0.0	31.9	56.0	46.0	24.1	14.1	Pass
3.059	PEAK	18.9	10.0	0.1	0.0	29.0	56.0	46.0	27.0	17.0	Pass
15.155	PEAK	22.2	10.0	0.2	0.1	32.5	60.0	50.0	27.5	17.5	Pass
15.208	PEAK	22.2	10.0	0.2	0.1	32.5	60.0	50.0	27.5	17.5	Pass
14.551	PEAK	21.5	10.0	0.2	0.1	31.8	60.0	50.0	28.2	18.2	Pass
0.160	PEAK	26.6	10.0	0.1	0.0	36.7	65.5	55.5	28.8	18.8	Pass
Neutral											
1.142	PEAK	20.9	10.0	0.1	0.0	31.0	56.0	46.0	25.0	15.0	Pass
4.903	PEAK	17.7	10.0	0.1	0.0	27.8	56.0	46.0	28.2	18.2	Pass
0.153	PEAK	25.8	10.0	0.1	0.0	35.9	65.8	55.8	29.9	19.9	Pass
15.470	PEAK	19.2	10.0	0.2	0.1	29.5	60.0	50.0	30.5	20.5	Pass
14.435	PEAK	19.2	10.0	0.2	0.1	29.5	60.0	50.0	30.5	20.5	Pass
16.156	PEAK	18.6	10.0	0.2	0.1	28.9	60.0	50.0	31.1	21.1	Pass

Average and Quasi-Peak Emissions Table

Note:

Peak = Peak measurement

Avg = Average measurement

QP = Quasi-Peak measurement

See 'Appendix B – EUT, Peripherals and Test Setup Photos' for photos showing the test set-up for the highest line conducted emission

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	ESL 6	Rohde & Schwarz	Nov. 25, 2015	Nov. 25, 2017	GEMC 160
LISN	FCC-LISN-50/250-16-2-01	FCC	Jan. 15, 2015	Jan. 15, 2017	GEMC 65
RF Cable 7m	LMR-400-7M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 28
RF Cable 1m	LMR-400-1M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 29
10dB Attenuator	FP-50-10	Trilithic	NCR	NCR	GEMC 42
Emissions Software	0.1.91	Global EMC	NCR	NCR	GEMC 58

This report module is based on report template 'FCC\_ICES003\_CE\_Rev1'

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## **Radiated Emissions – 4.1.2.9**

### **Purpose**

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the limits listed below as defined in the applicable test standard and measured from a receiving antenna. This helps protect broadcast radio services such as television, FM radio, pagers, cellular telephones, emergency services, and so on, from unwanted interference.

### **Limit(s)**

The method is as defined in ANSI C63.4:2014. The limits are as defined in FCC Part 15 Section 15.109 and ICES-003 Issue 6 Section 6.2:

#### CLASS B

#### FCC Part 15, Subpart B and ICES-003 Limits - 30MHz – 1GHz

Frequency Range <sup>a</sup>	Quasi-Peak Limits - 3m <sup>b</sup>
30 MHz – 88 MHz	40 dB $\mu$ V/m
88 MHz – 216 MHz	43.5 dB $\mu$ V/m
216 MHz – 960 GHz	46 dB $\mu$ V/m
960 MHz – 1 GHz	54 dB $\mu$ V/m

Frequency Range <sup>a</sup>	Average Limit - 3m <sup>c</sup>	Peak Limit - 3m <sup>d</sup>
1 GHz and Up	54 dB $\mu$ V/m	74 dB $\mu$ V/m

<sup>a</sup>The frequency range scanned is in accordance to FCC Part 15 Section 15.33(b).

<sup>b</sup>Limit is with a resolution bandwidth of 120 kHz, a video bandwidth at least three times greater than the resolution bandwidth, and using a Quasi-Peak detector.

<sup>c</sup>Limit is with a resolution bandwidth of 1 MHz and using an Average detector.

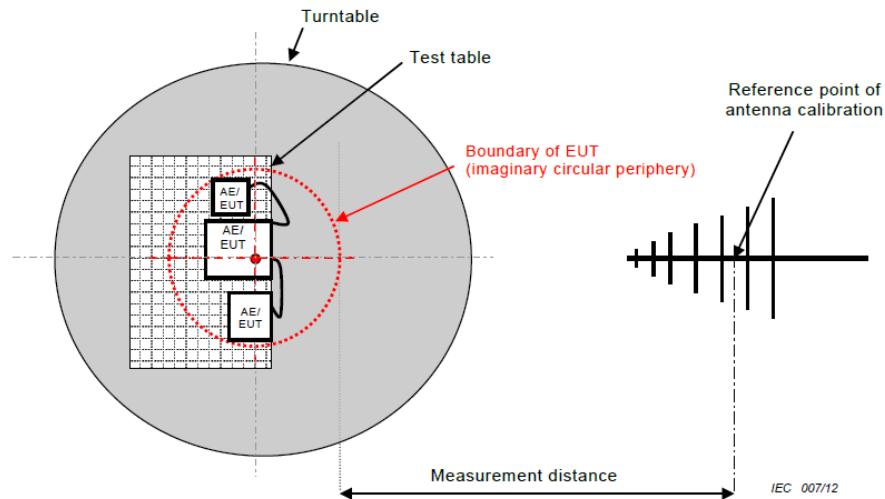
<sup>d</sup>Limit is with a resolution bandwidth of 1 MHz, a video bandwidth at least three times greater than the resolution bandwidth, and using a Peak detector.

Based on ANSI C63.4 Section 4.2, if the Peak detector measurements do not exceed the Quasi-Peak limits, where defined, then the EUT is deemed to have passed the requirements.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical Radiated Emissions Setup



Note: In accordance with FCC Part 15, section 15.31(f)(1), testing was performed at a 3 meter test distance and an extrapolation factor, if applicable, of 20 dB/decade was applied. For example, an extrapolation of 10m to 3m is  $20\log(10/3) = 10.5$  dB.

### Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is  $\pm 4.25$  dB for 30MHz – 1GHz and  $\pm 4.93$  dB for 1GHz – 18GHz with a 'k=2' coverage factor and a 95% confidence level.

### Preliminary Graphs

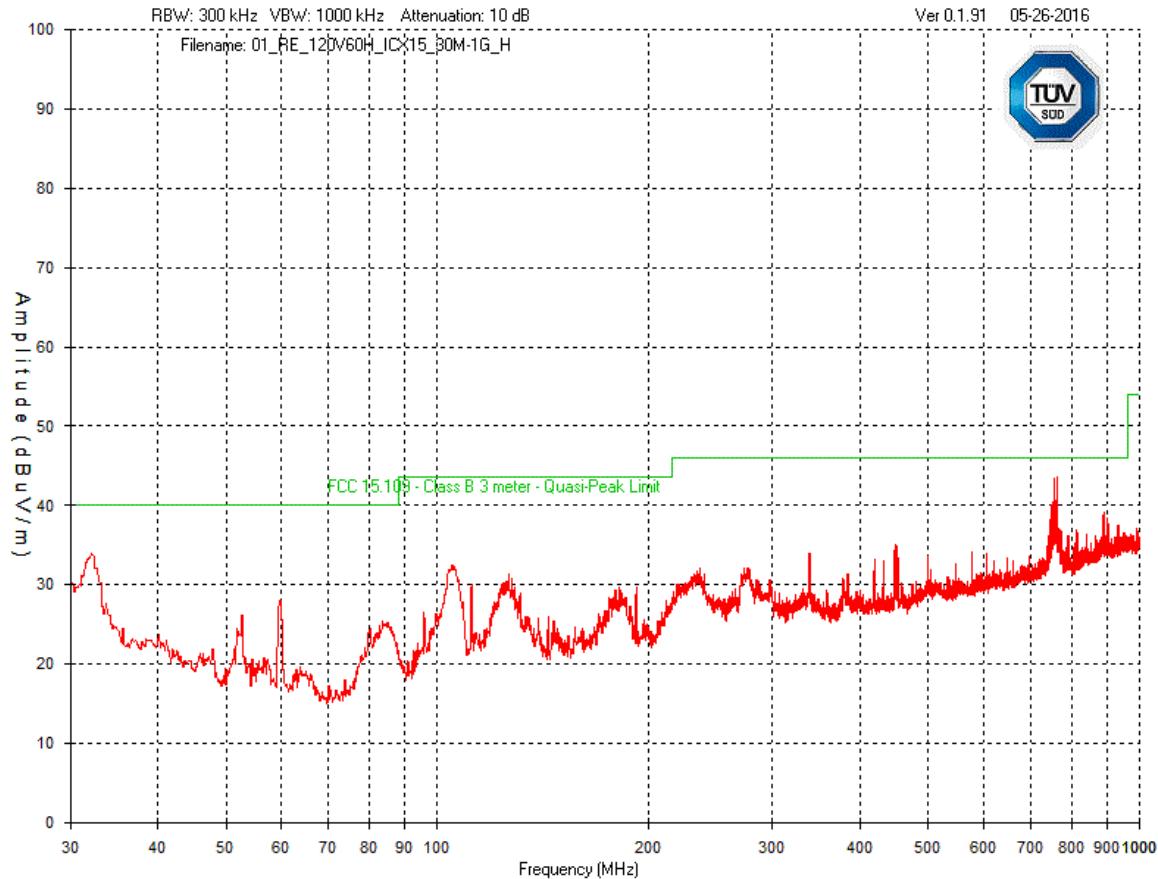
The graphs shown below are maximized peak measurement graphs measured with a resolution bandwidth greater than or equal to the final required detector over a full 0-360°. This peaking process is done as a worst case measurement and enables the detection of frequencies of concern for final measurement. For final measurements with the appropriate detector, where applicable, please refer to the tables under Final Measurements.

In accordance with FCC Part 15, Subpart A, Section 15.33, the device was scanned to a minimum of a 1 GHz. For devices containing clocks higher than 108 MHz, they were scanned above 1 GHz to meet the requirements of FCC Part 15, Section 15.33.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



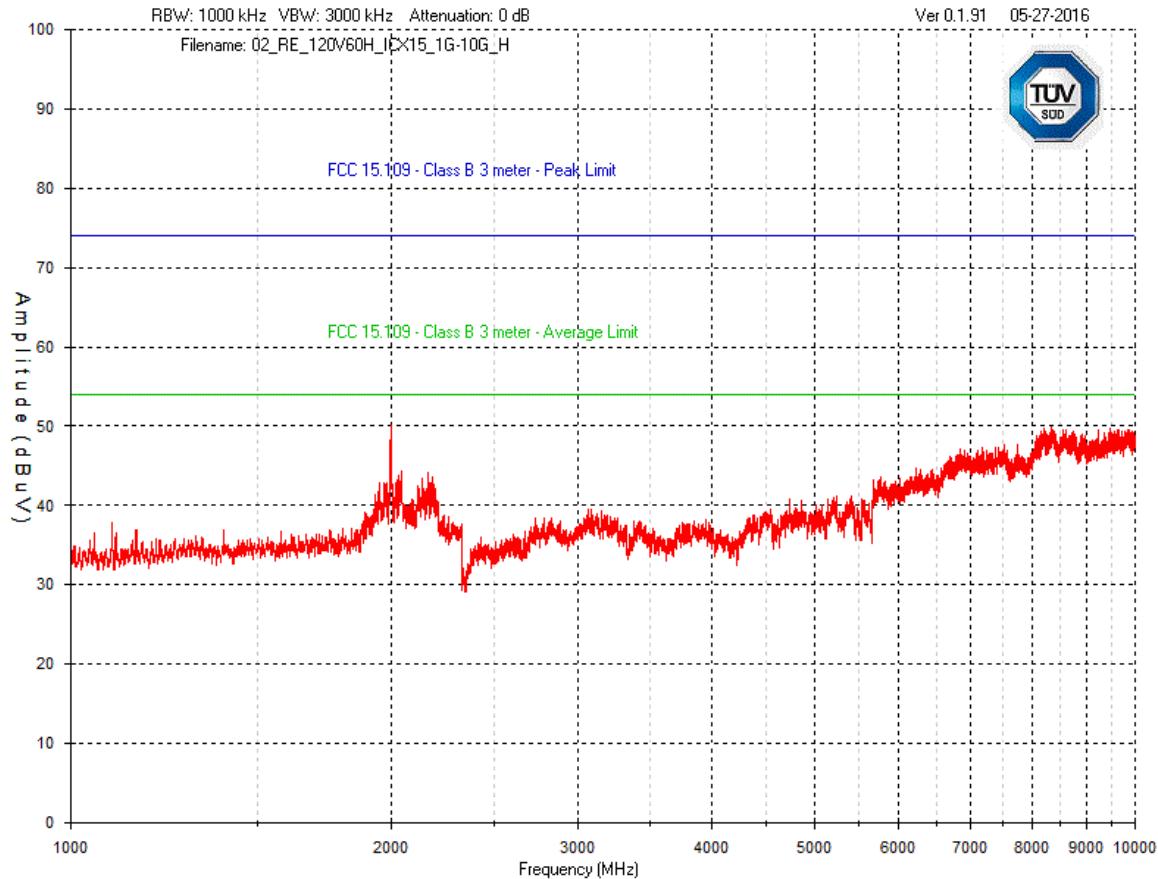
**Horizontal - Peak Emissions Graph – AVALUE 15" / ICX 15"**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



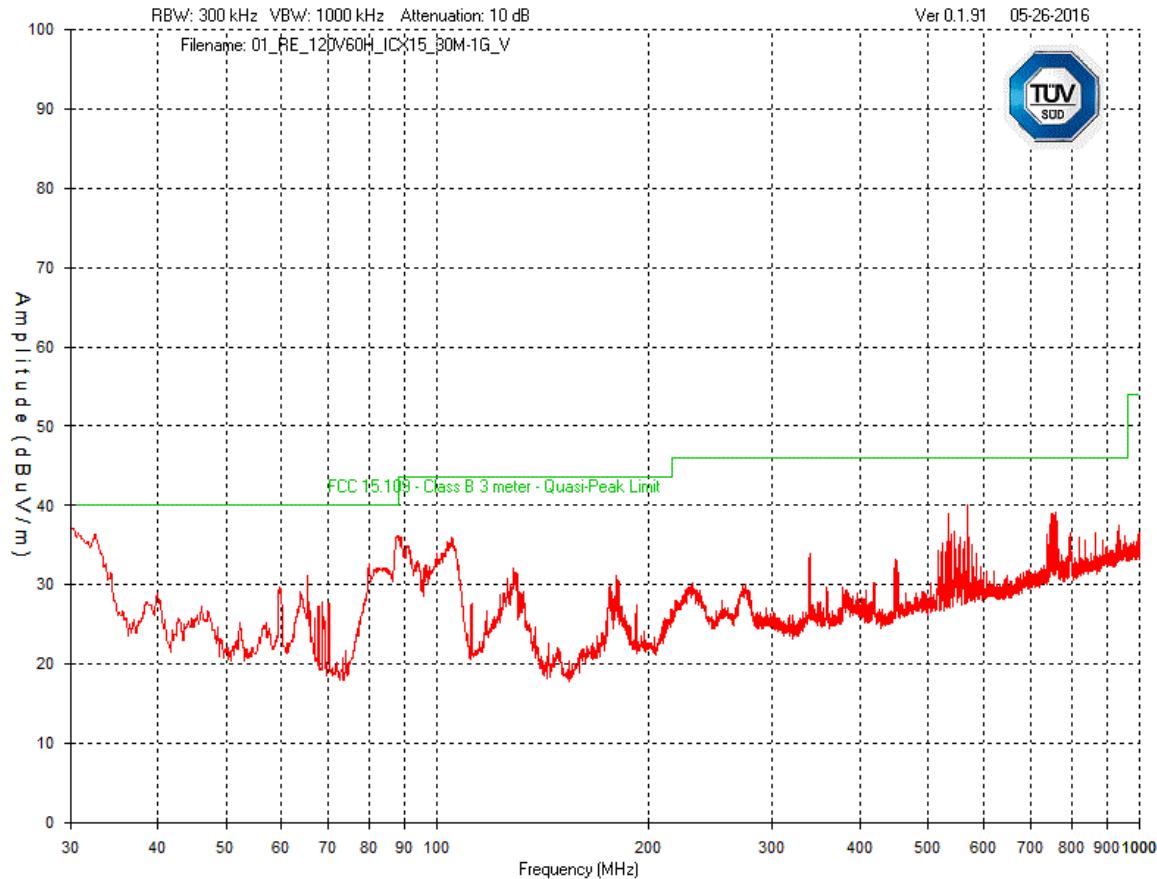
**Horizontal - Peak Emissions Graph – AVALUE 15" / ICX 15"**  
**120Vac 60Hz – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



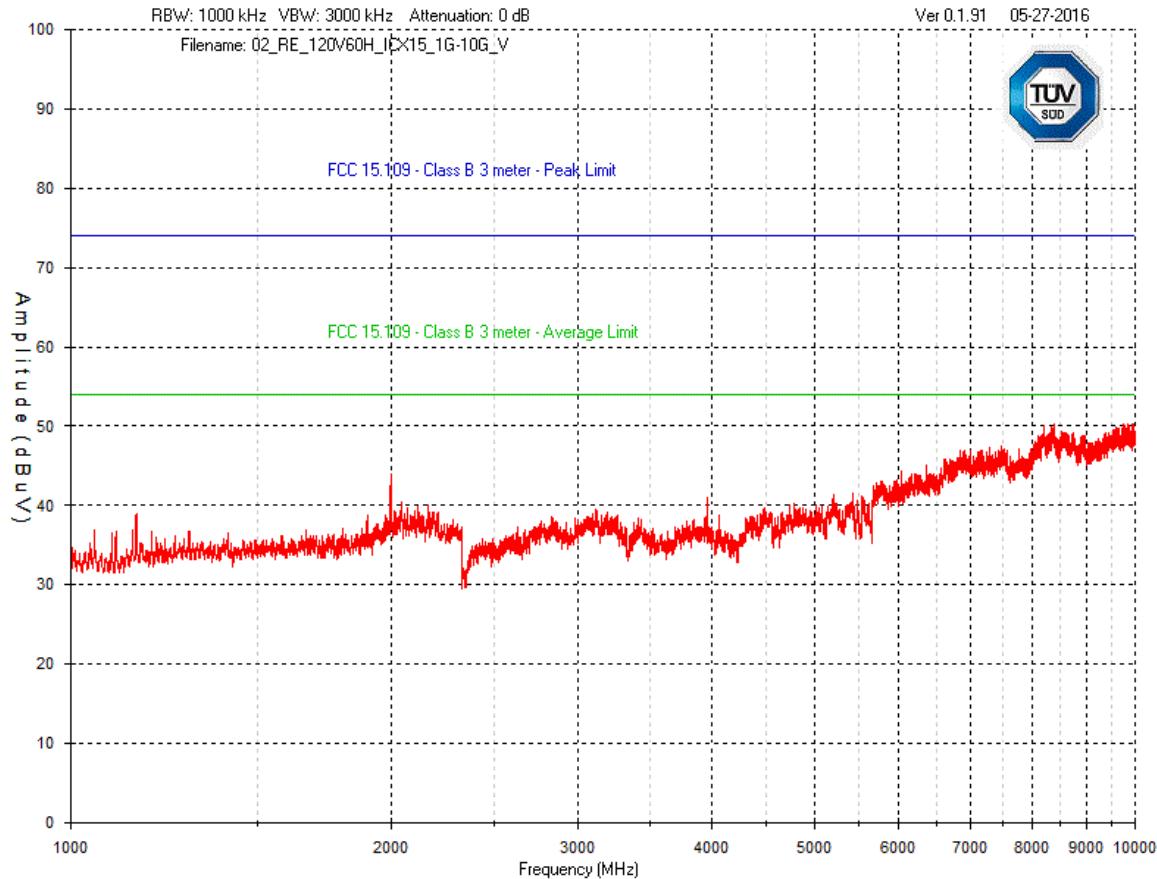
**Vertical - Peak Emissions Graph – AVALUE 15" / ICX 15"**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

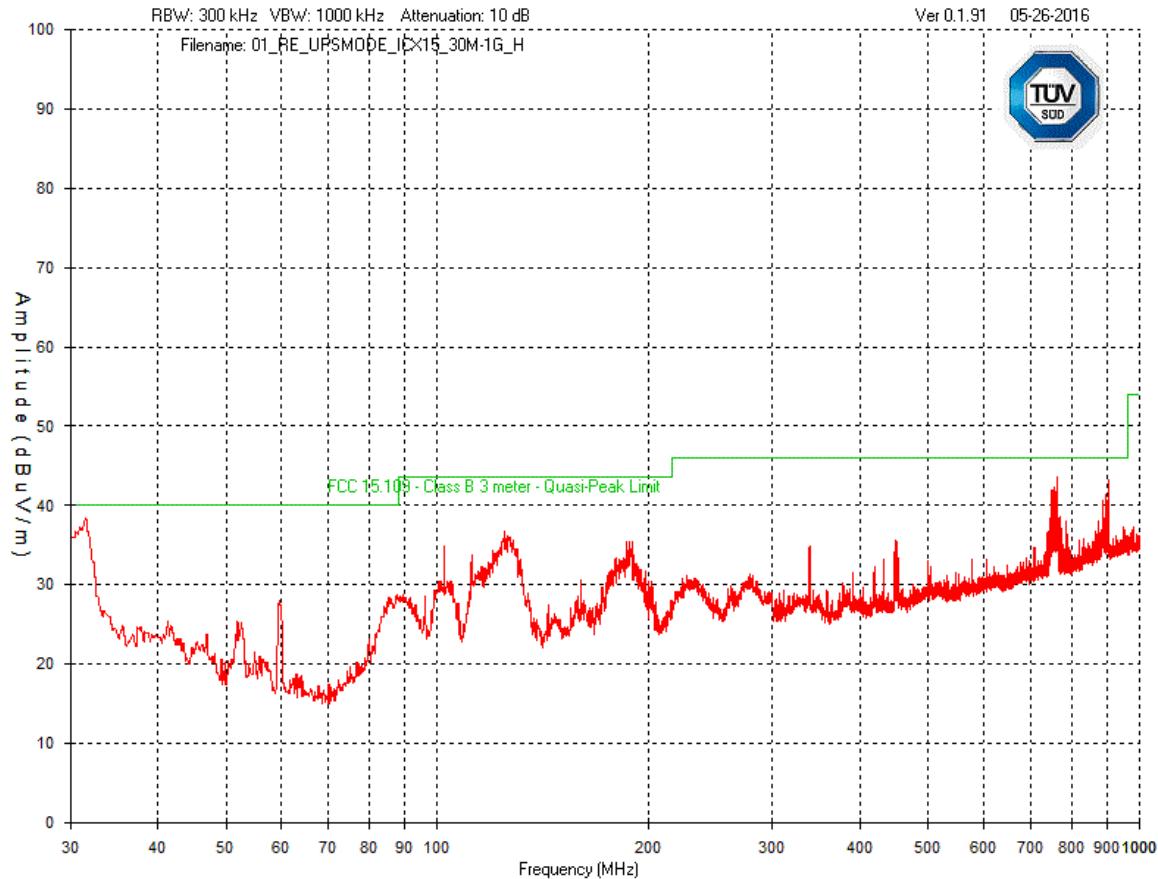


**Vertical - Peak Emissions Graph – AVALUE 15" / ICX 15"**  
**120Vac 60Hz – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

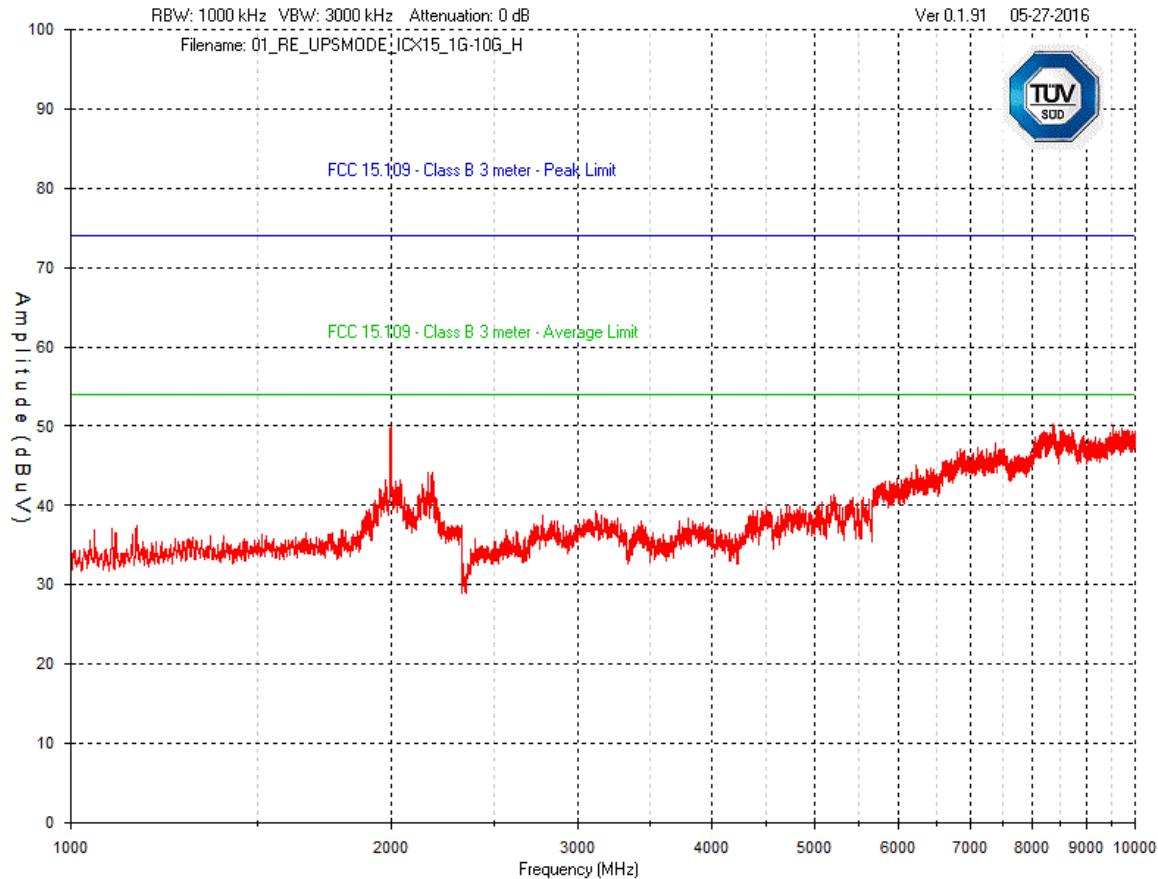
**Horizontal - Peak Emissions Graph – AVALUE 15" / ICX 15"  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



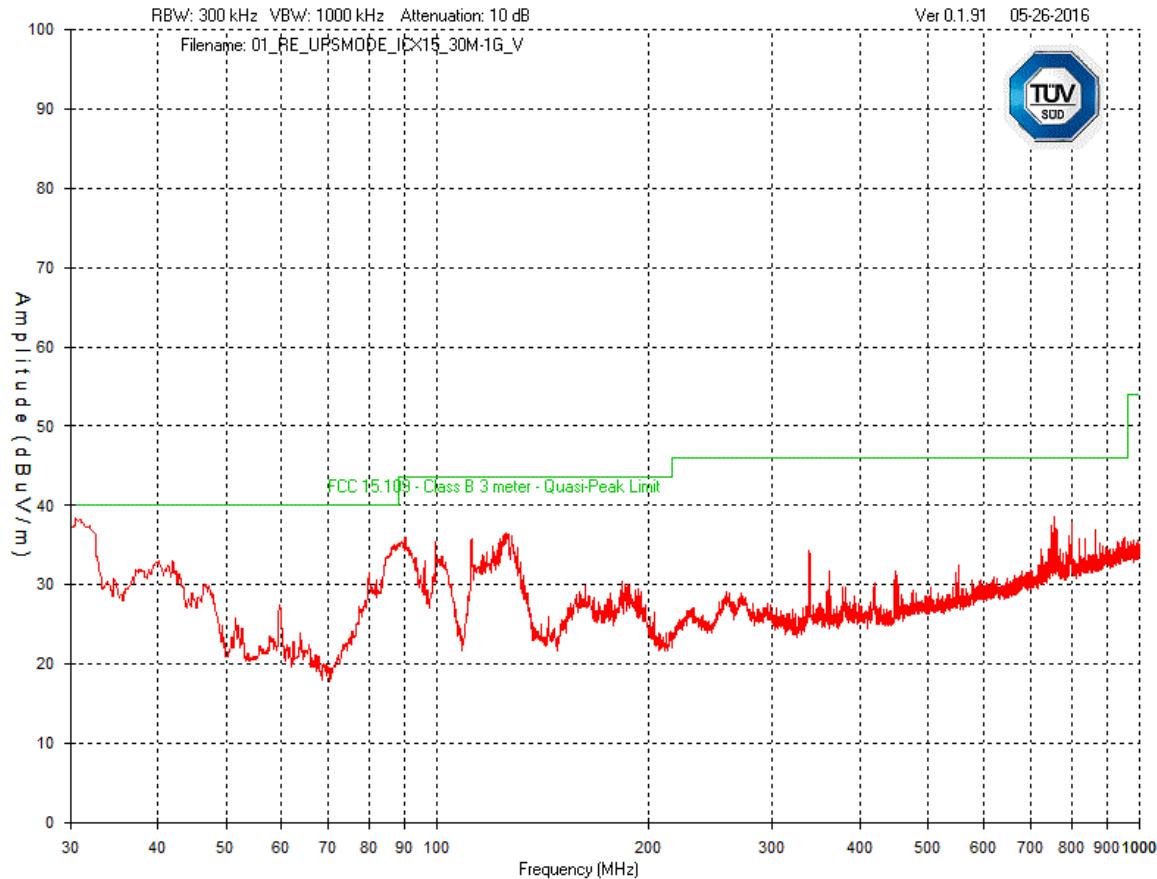
**Horizontal - Peak Emissions Graph – AVALUE 15" / ICX 15"  
Battery Mode – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



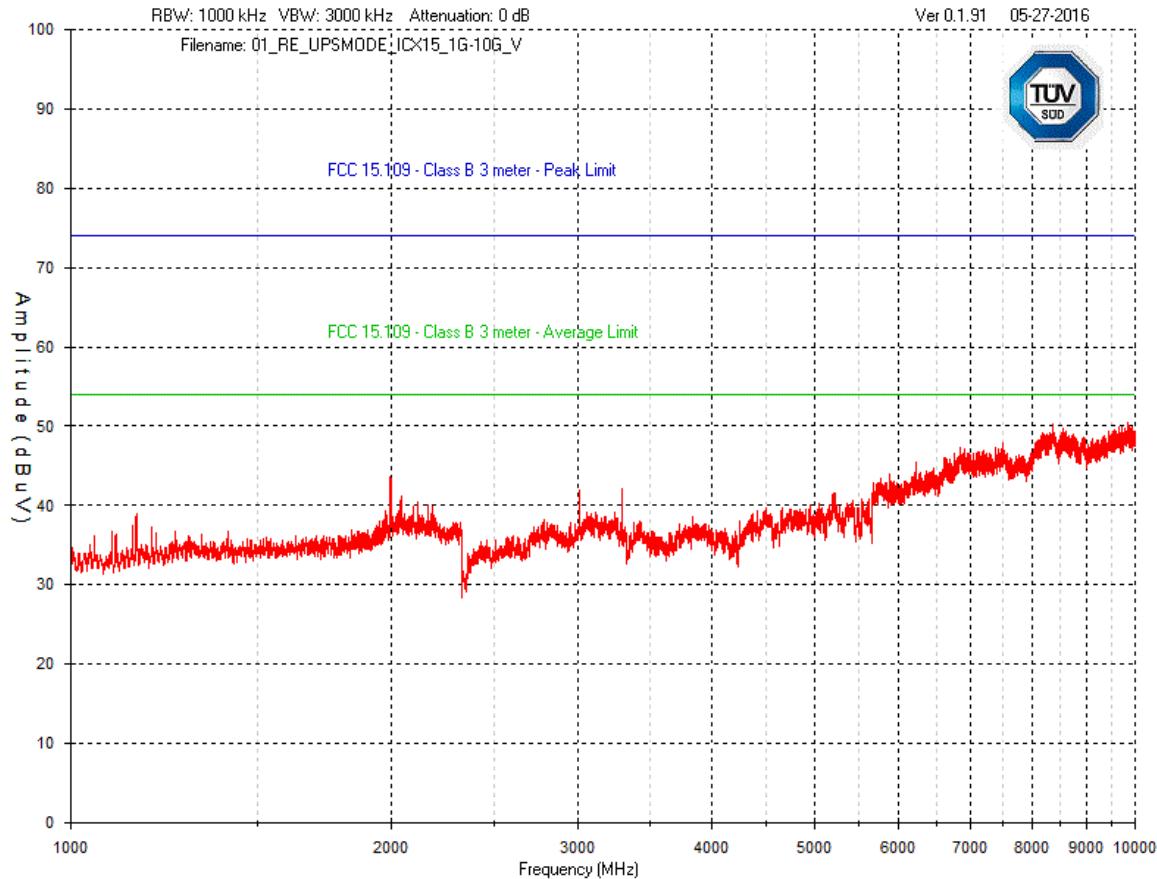
**Vertical - Peak Emissions Graph – AVALUE 15" / ICX 15"  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

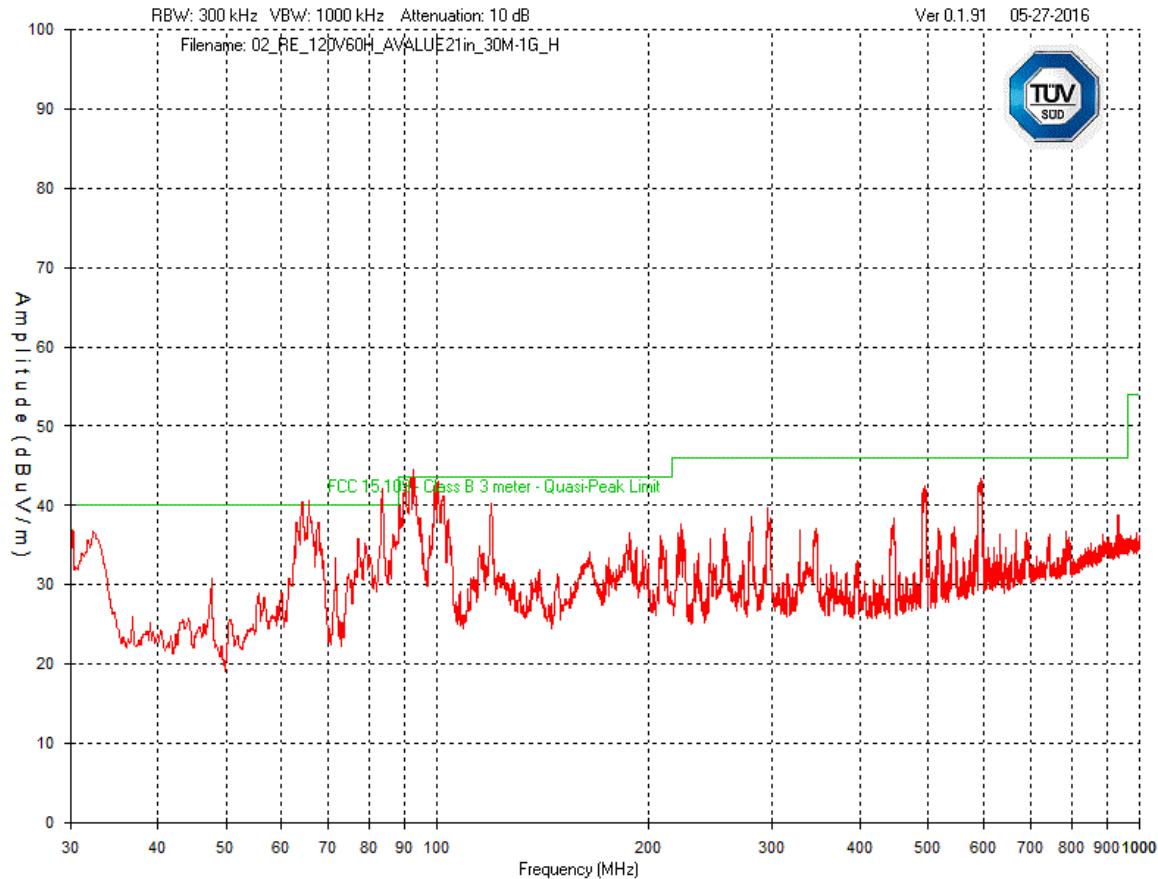


**Vertical - Peak Emissions Graph – AVALUE 15" / ICX 15"  
Battery Mode – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

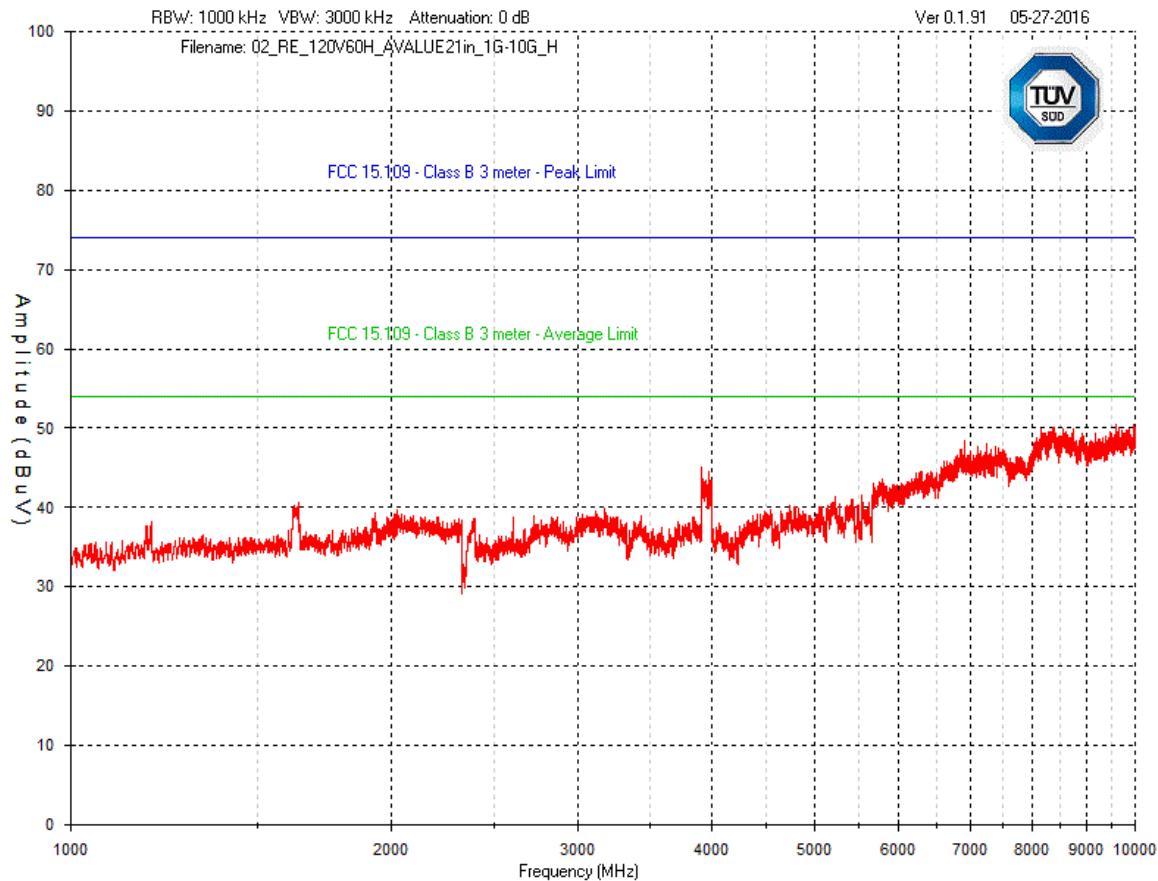
**Horizontal - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

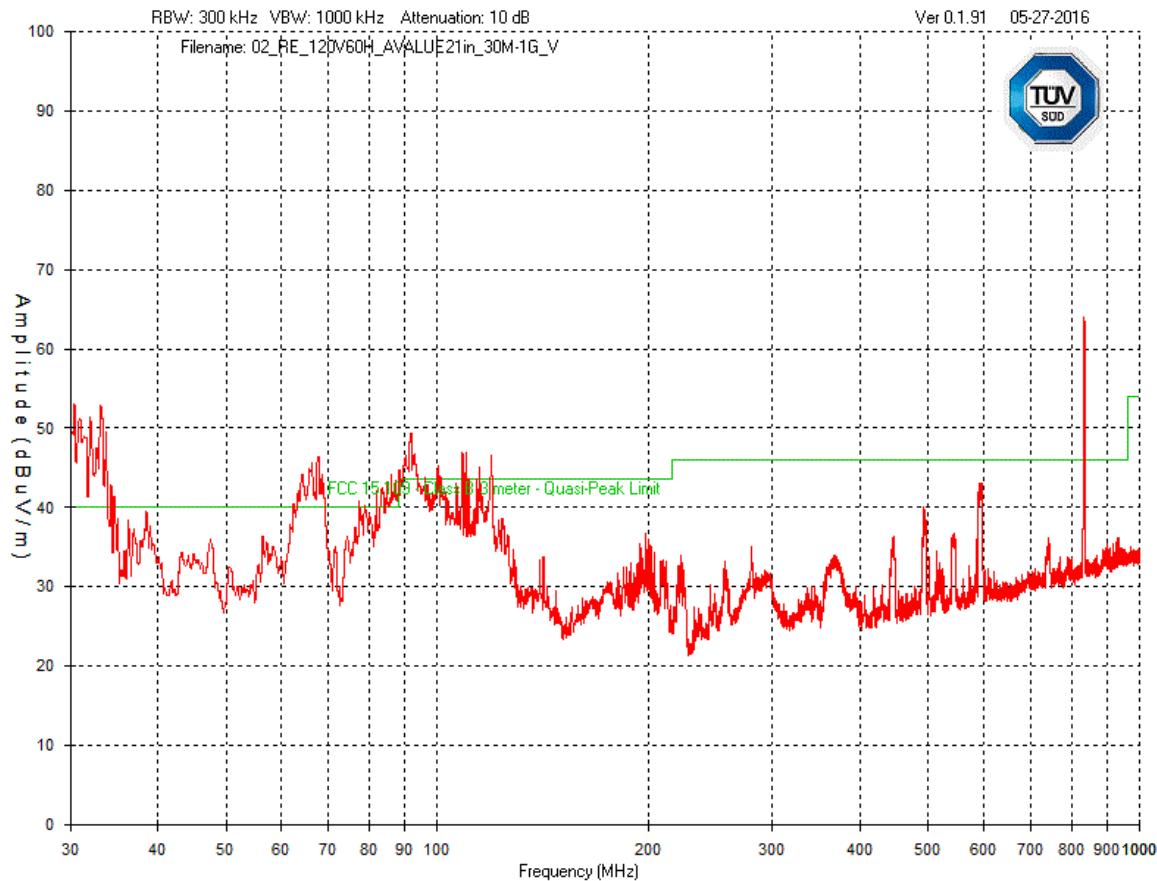


**Horizontal - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**120Vac 60Hz – 1GHz – 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

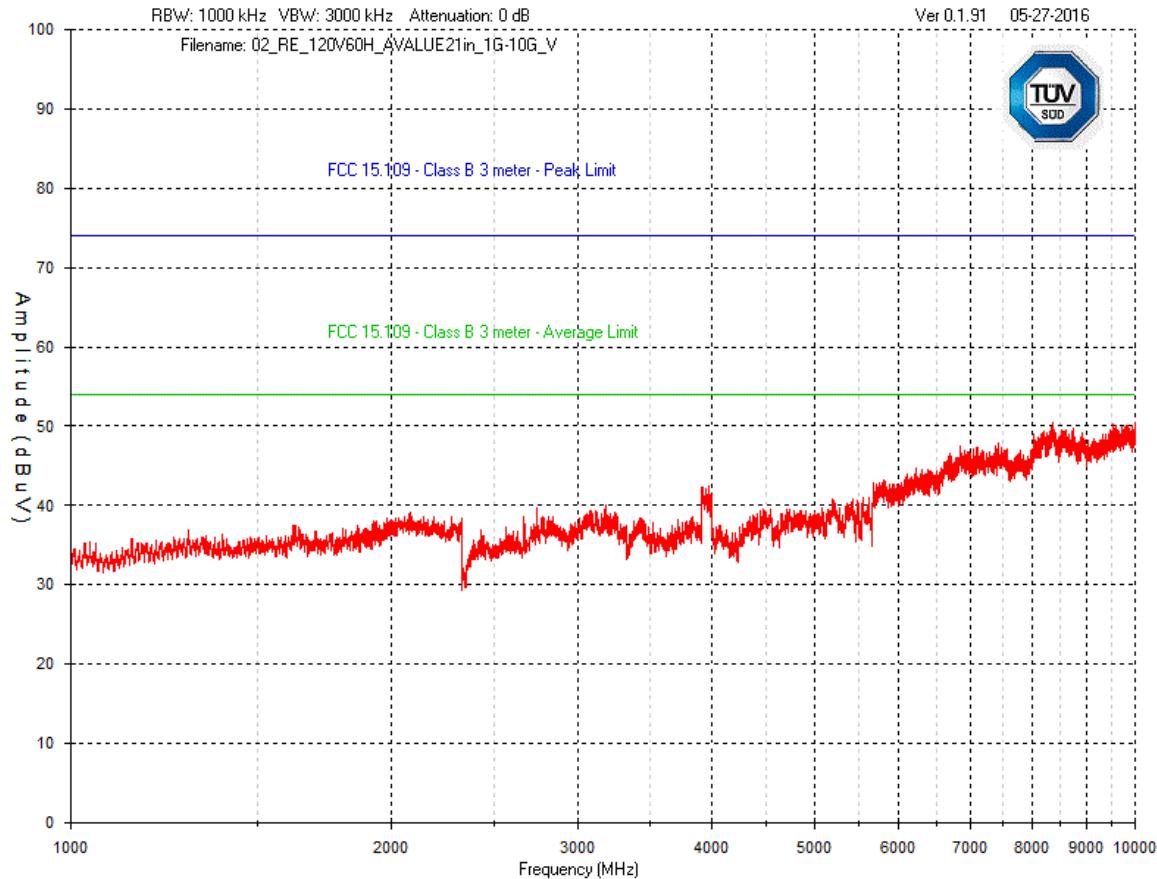
**Vertical - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



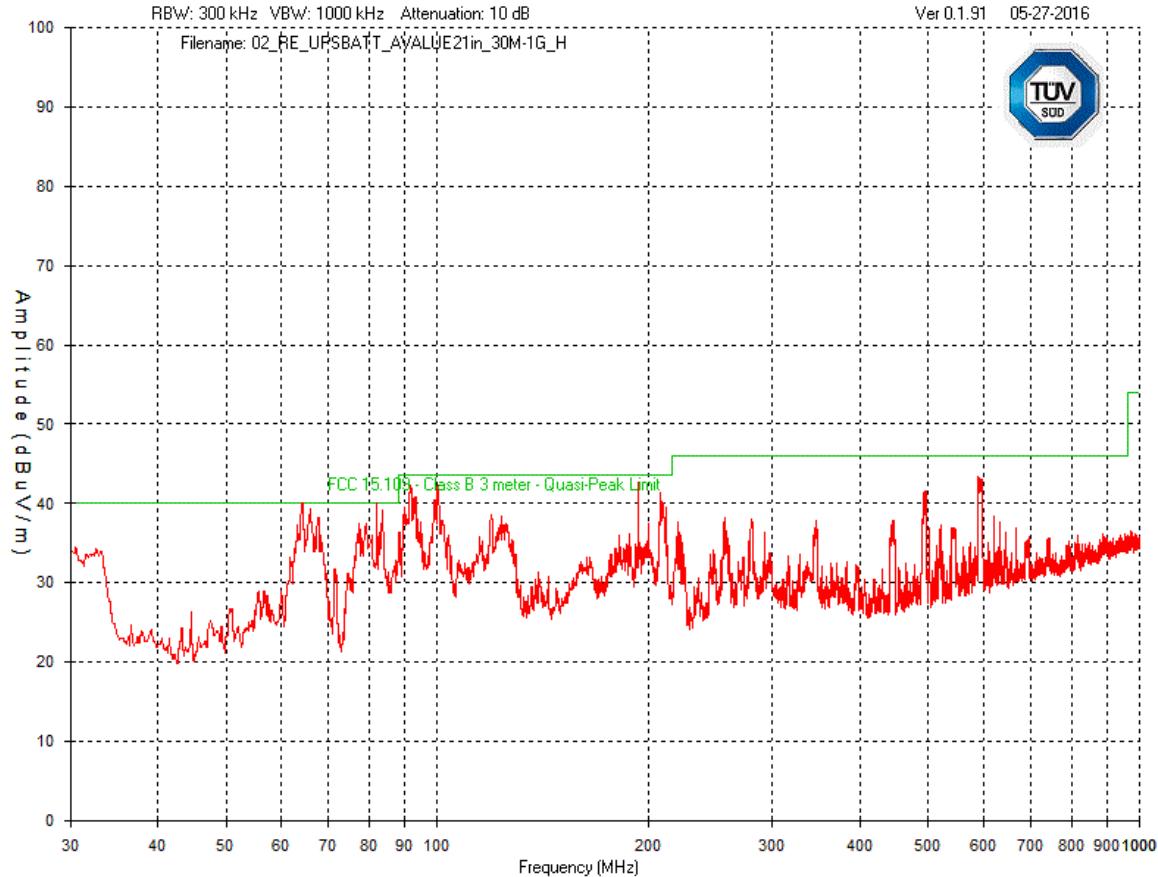
**Vertical - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**120Vac 60Hz – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



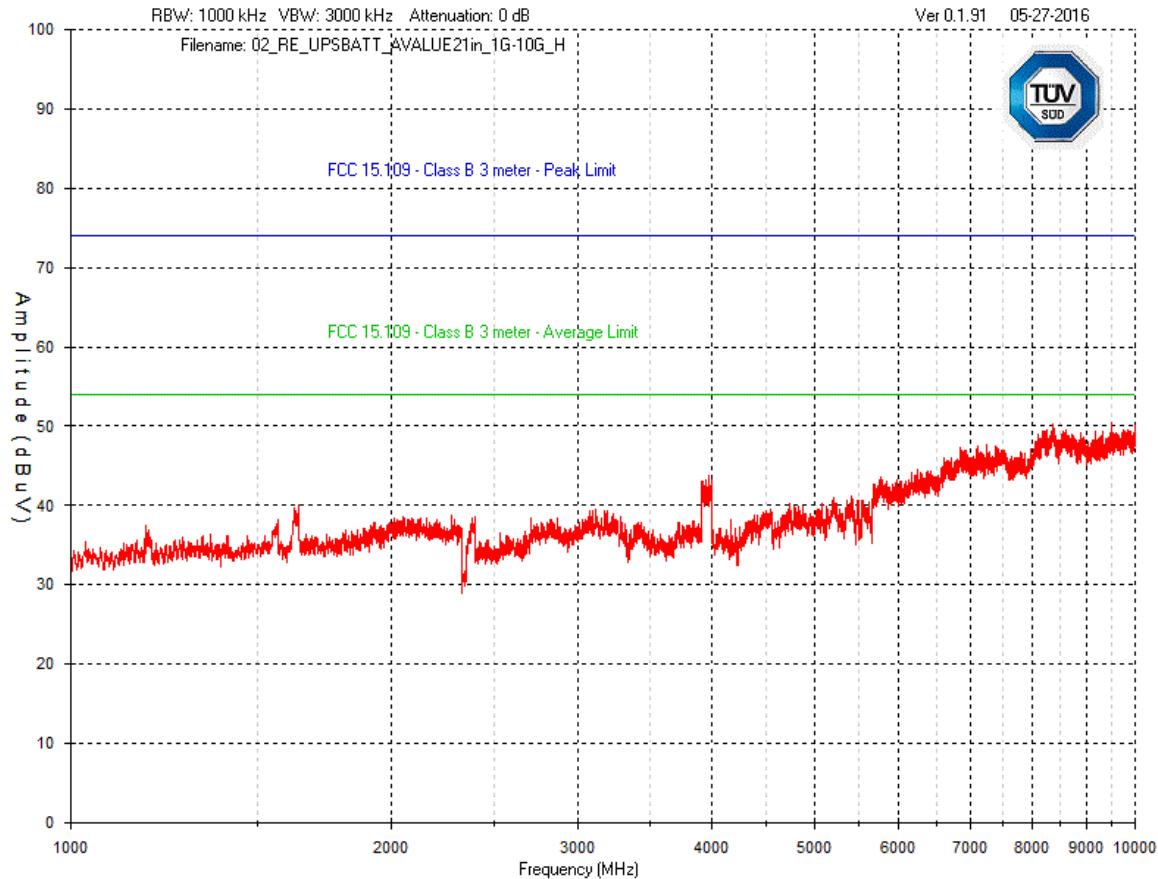
**Horizontal - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

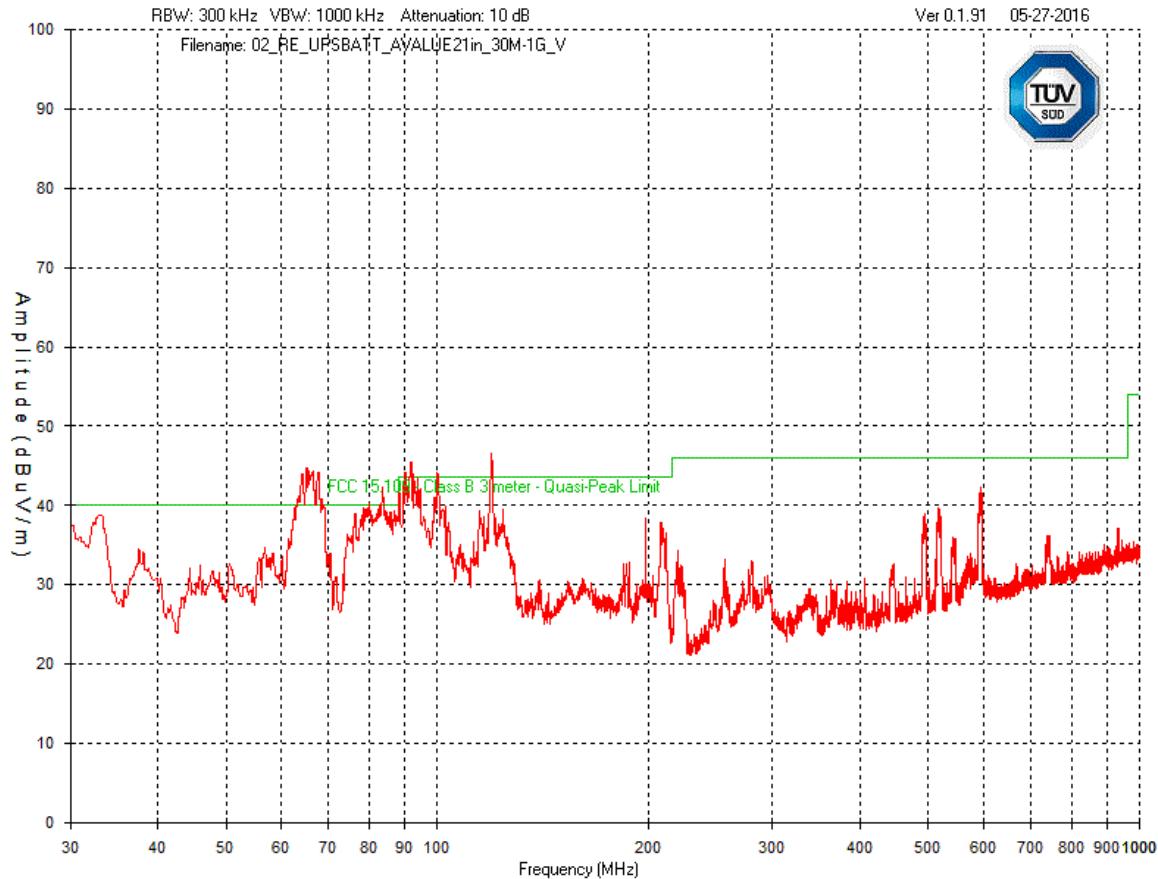


**Horizontal - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**Battery Mode – 1GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

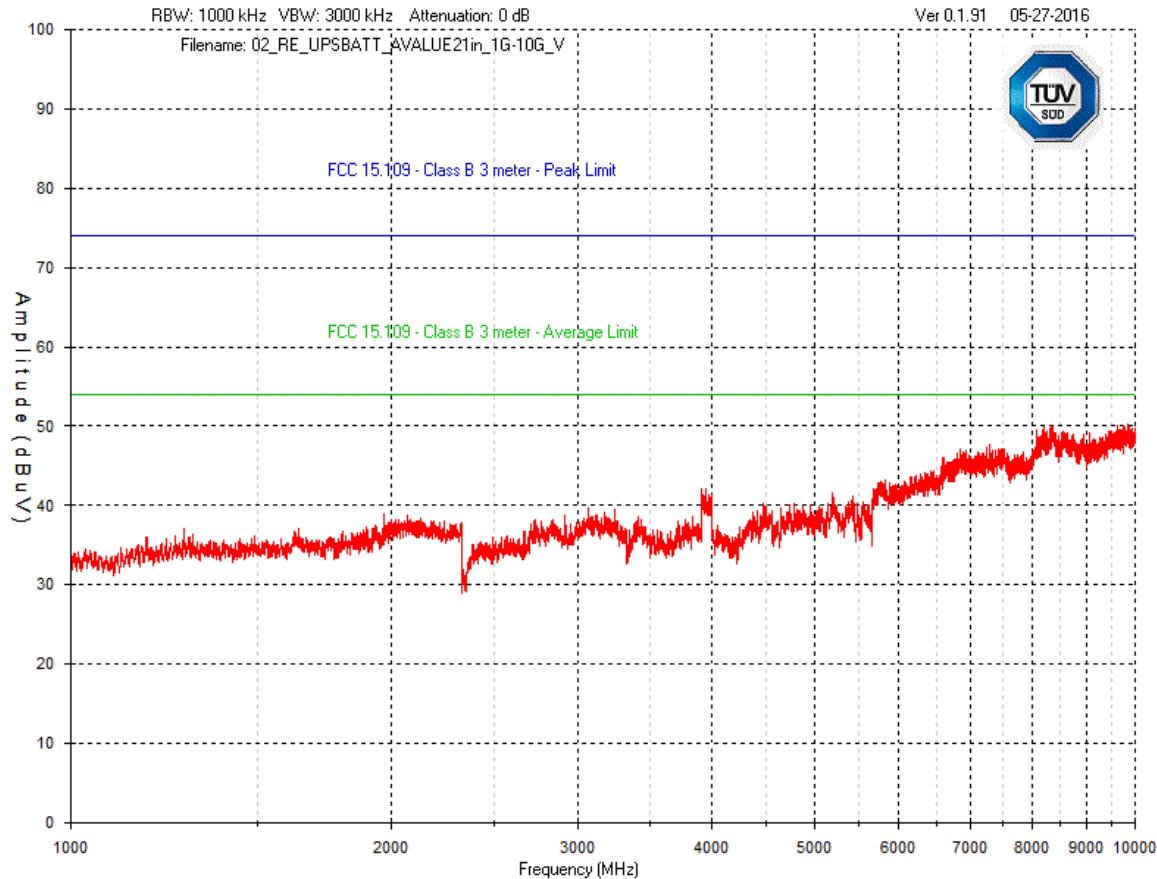
**Vertical - Peak Emissions Graph – AVALUE 21" / ICX 21"  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

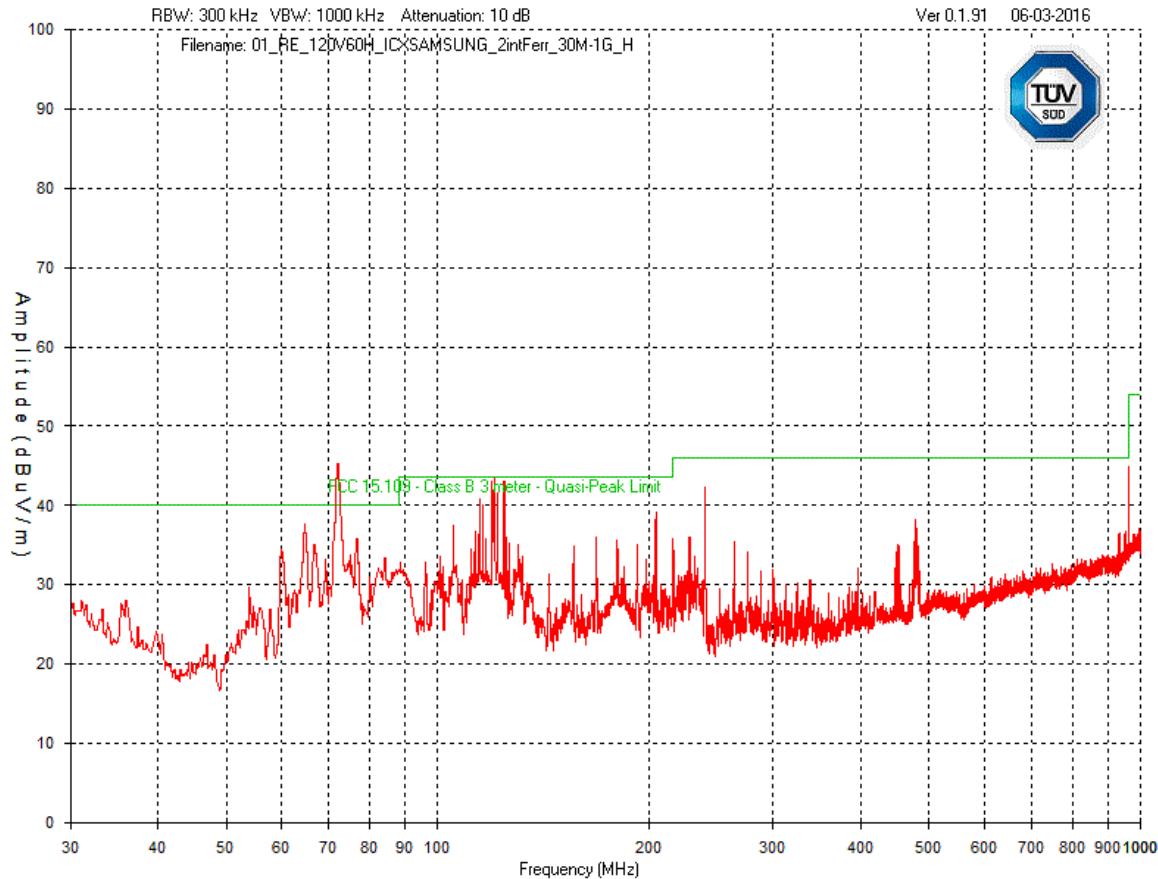


**Vertical - Peak Emissions Graph – AVALUE 21" / ICX 21"**  
**Battery Mode – 1GHz - 10GHz**



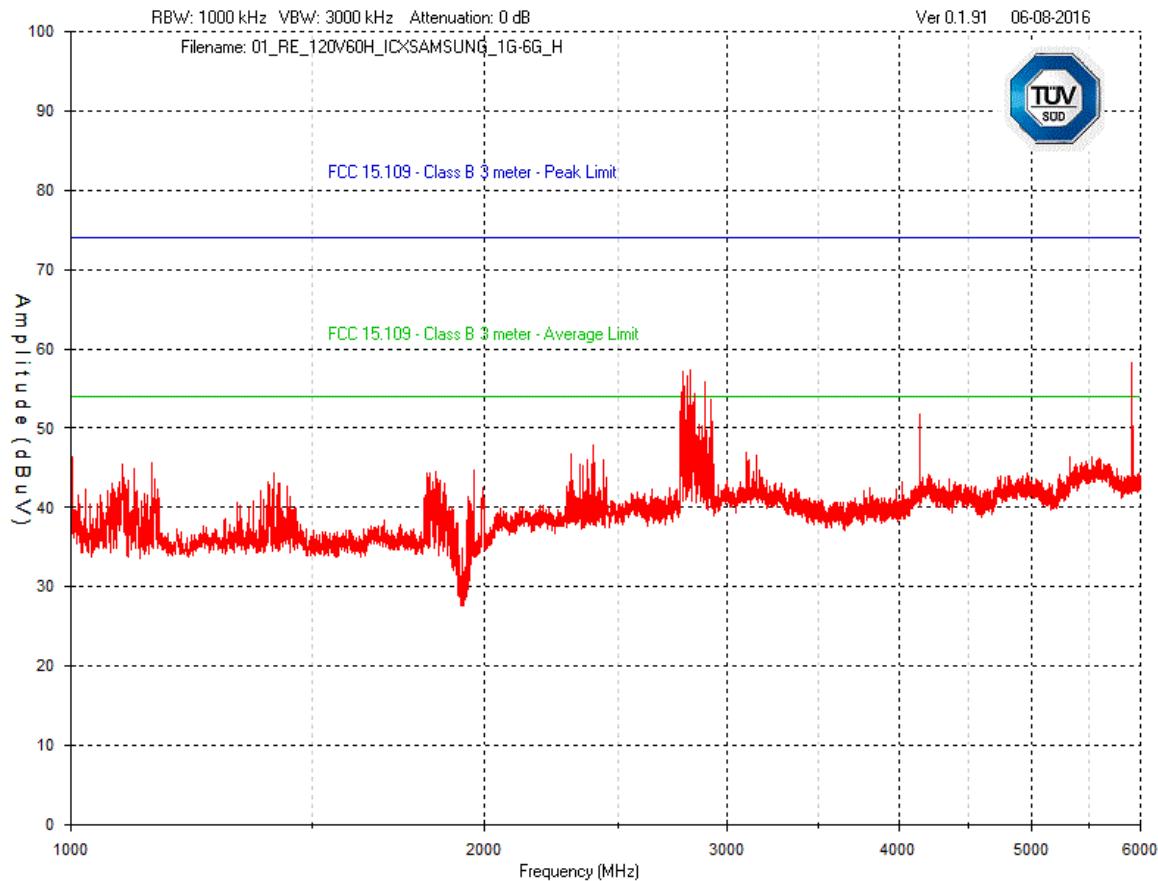
Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

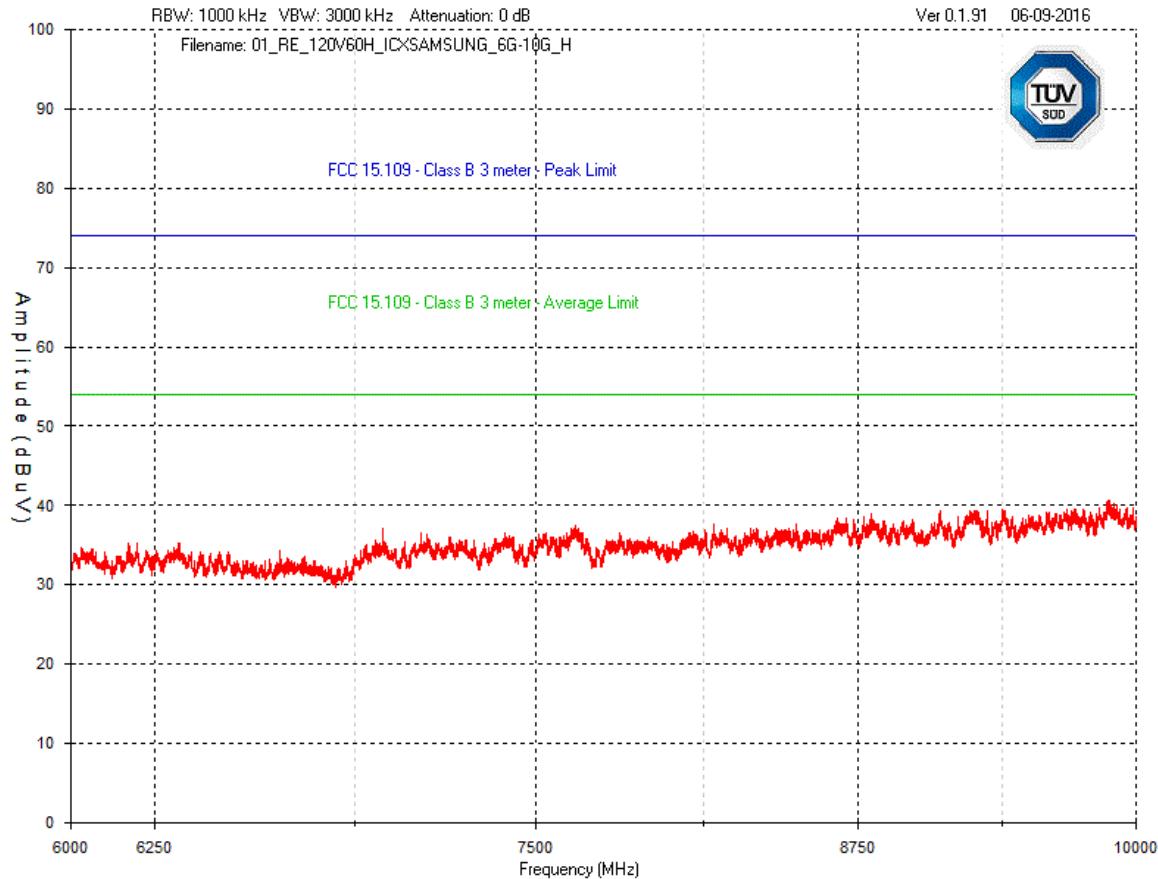
**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 1GHz - 6GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

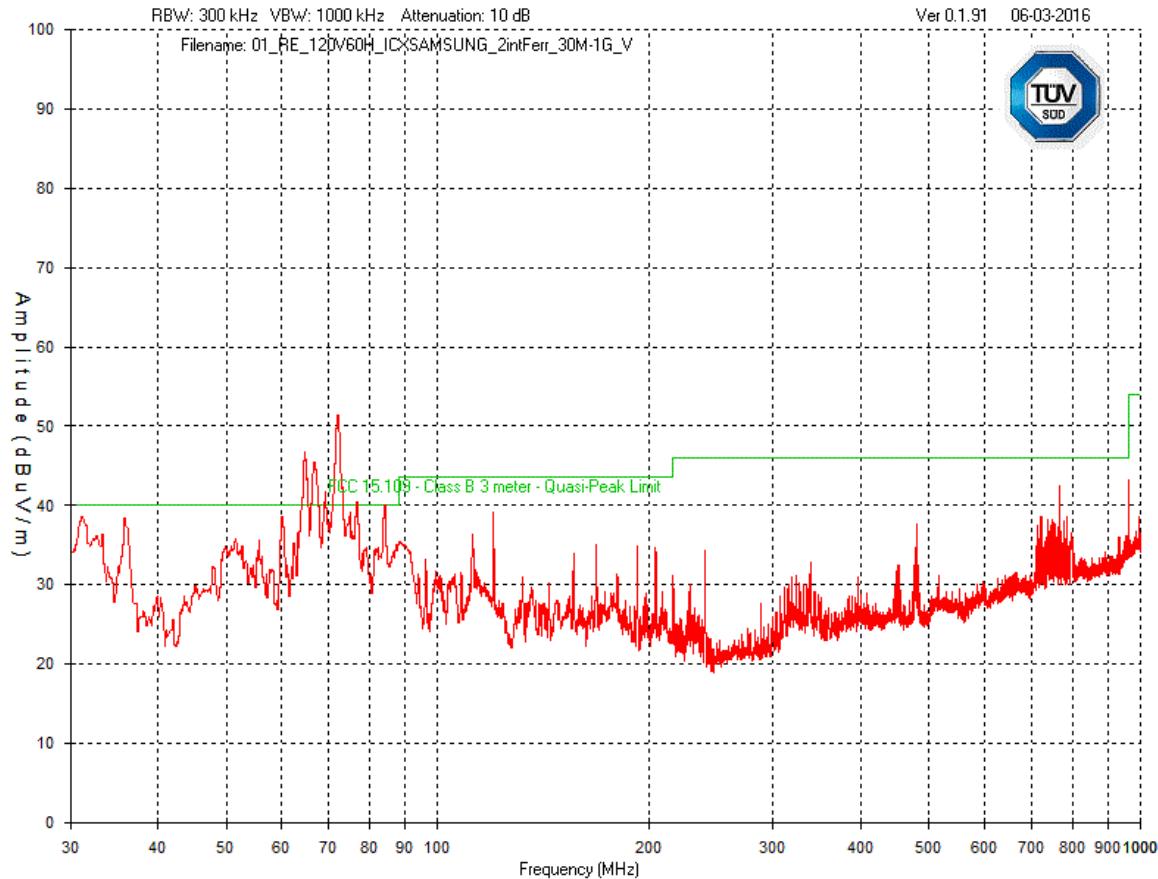


**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 6GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

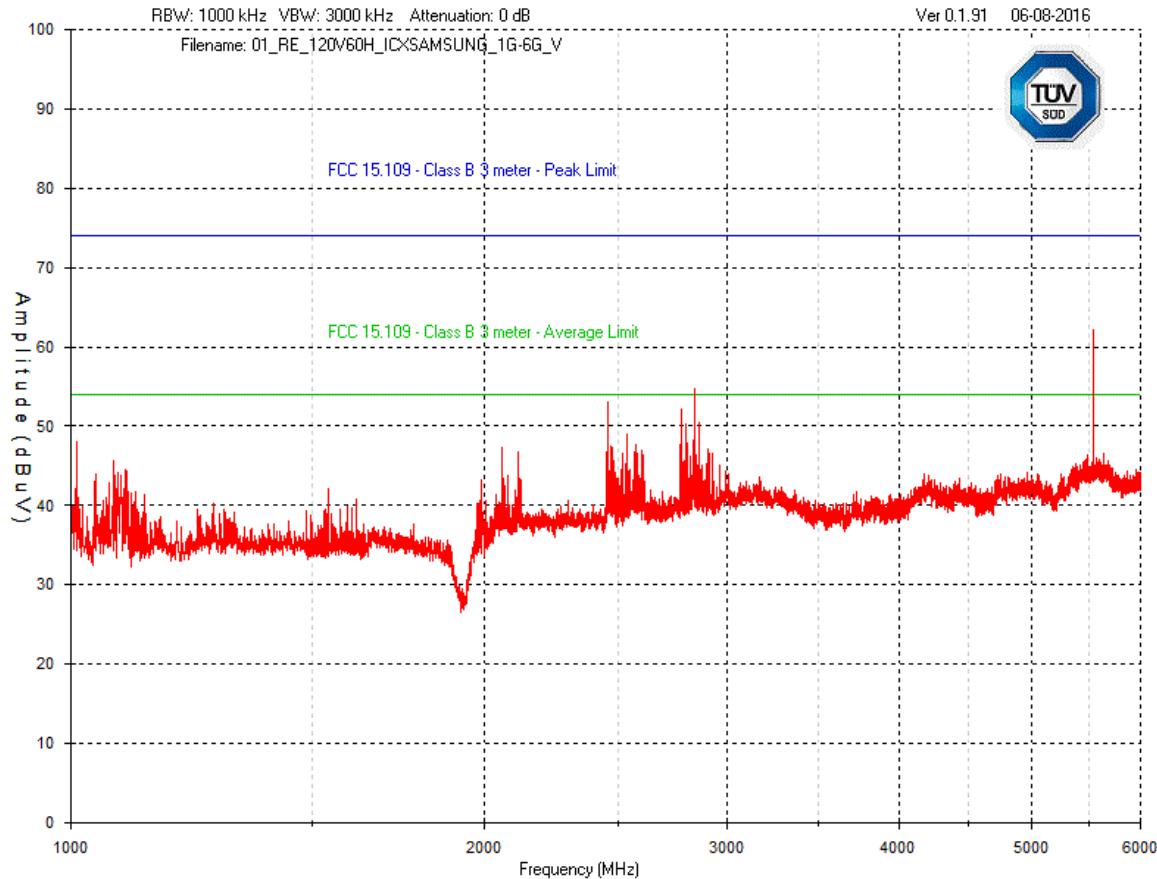
**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



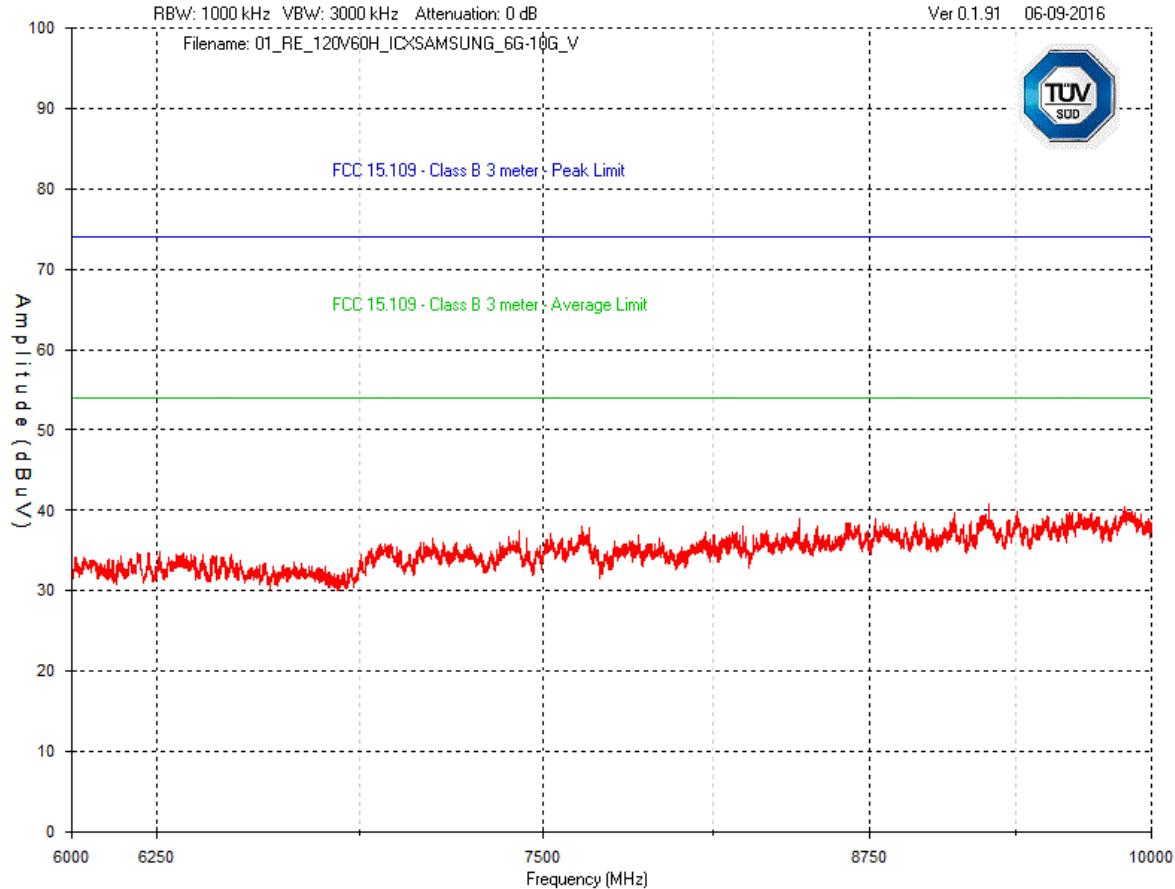
**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 1GHz - 6GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

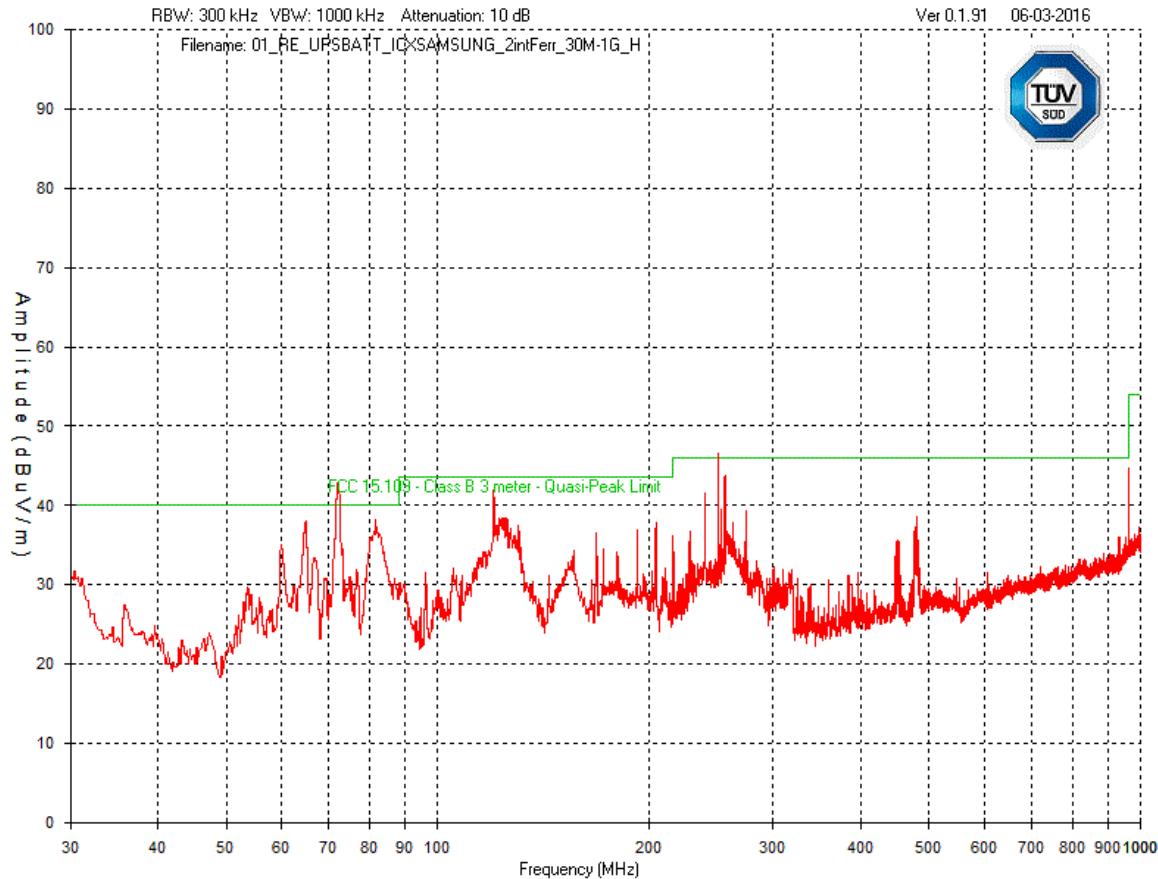


**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
120Vac 60Hz – 6GHz - 10GHz**



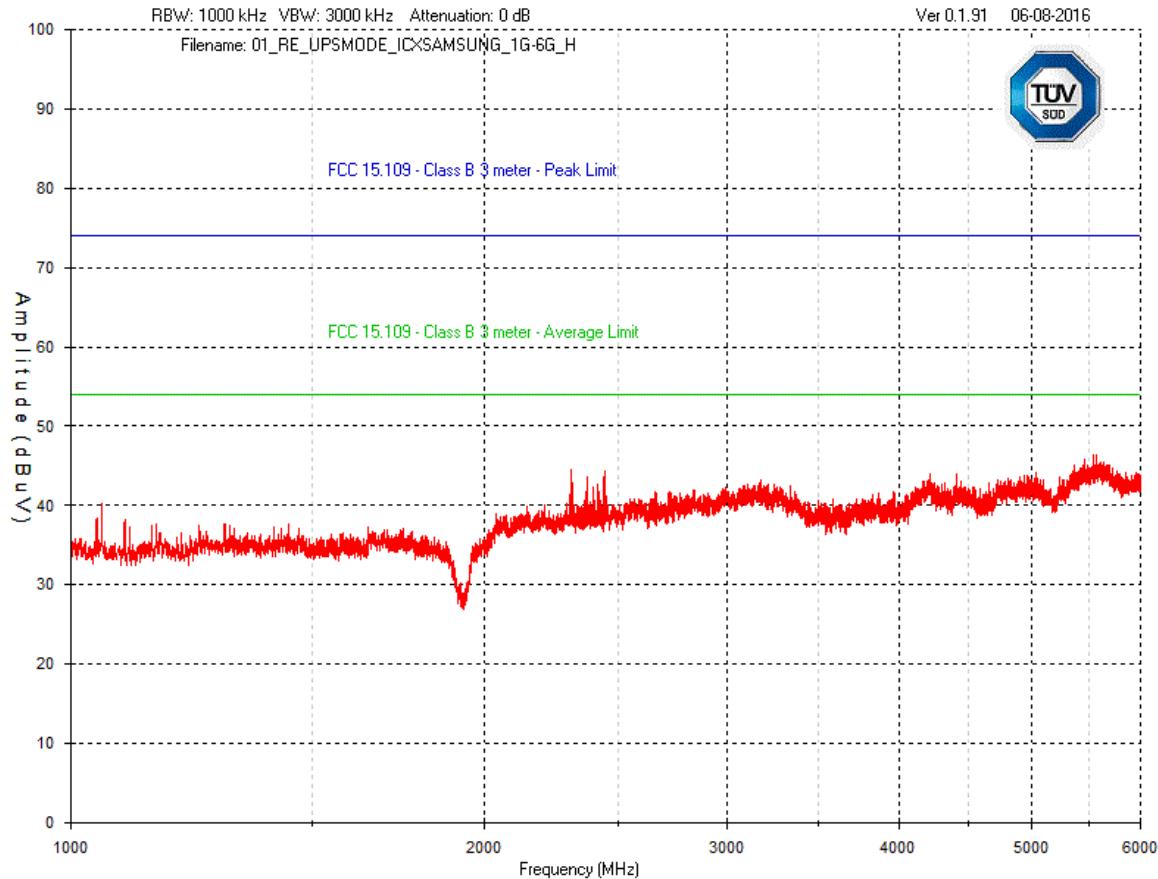
Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

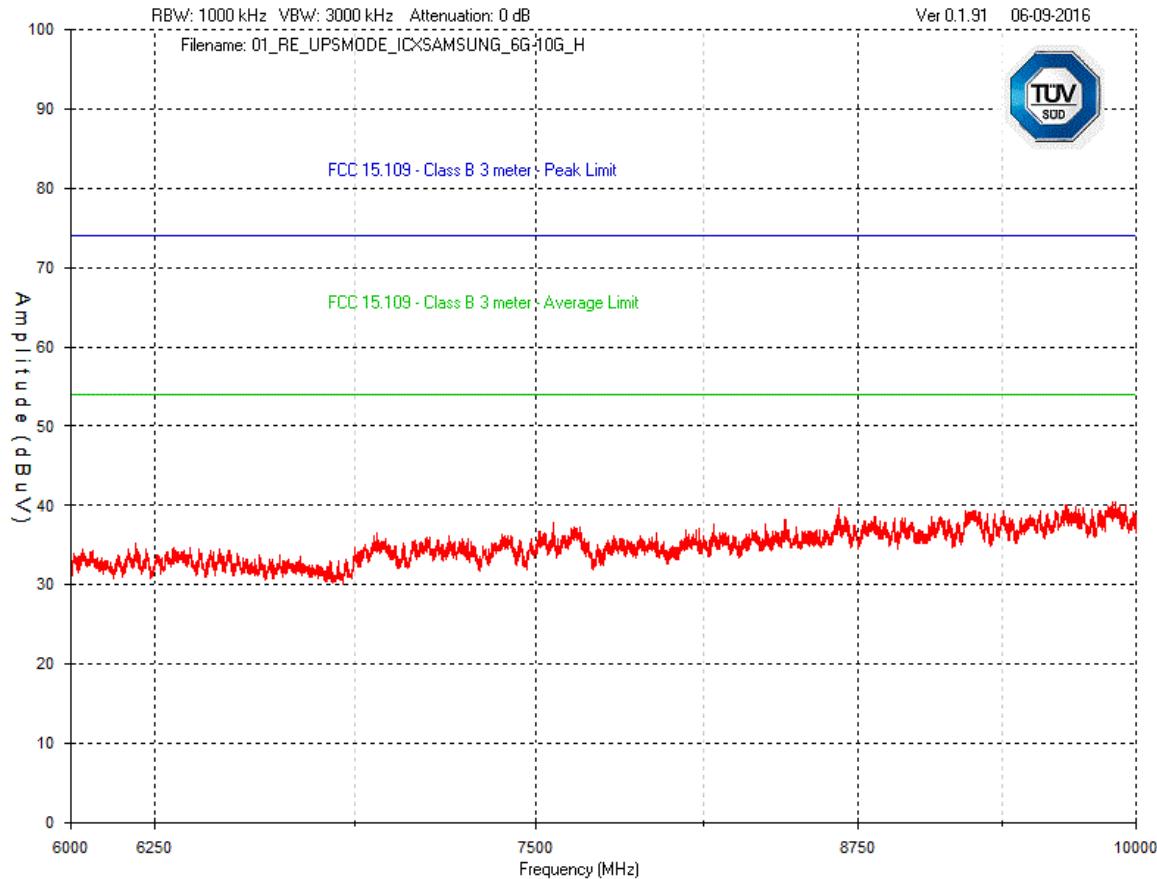
**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 1GHz - 6GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

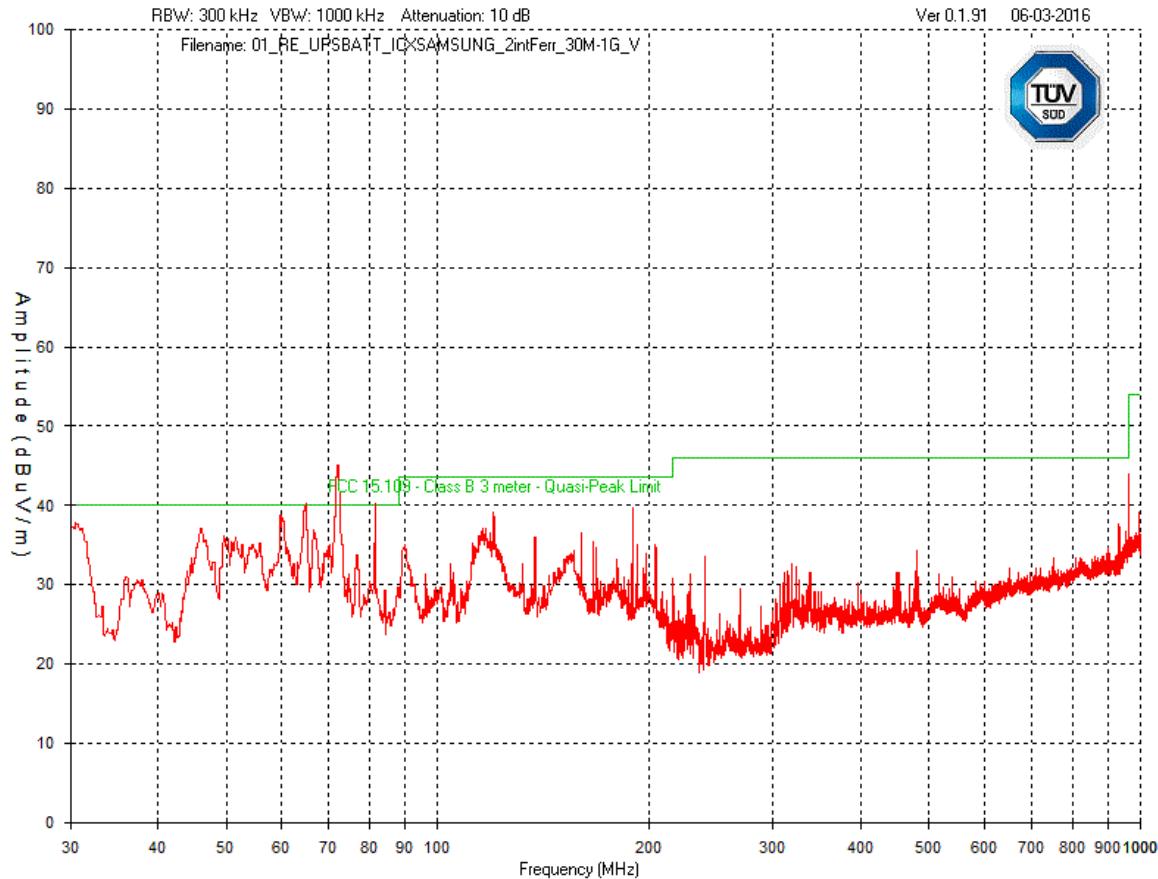


**Horizontal - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 6GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

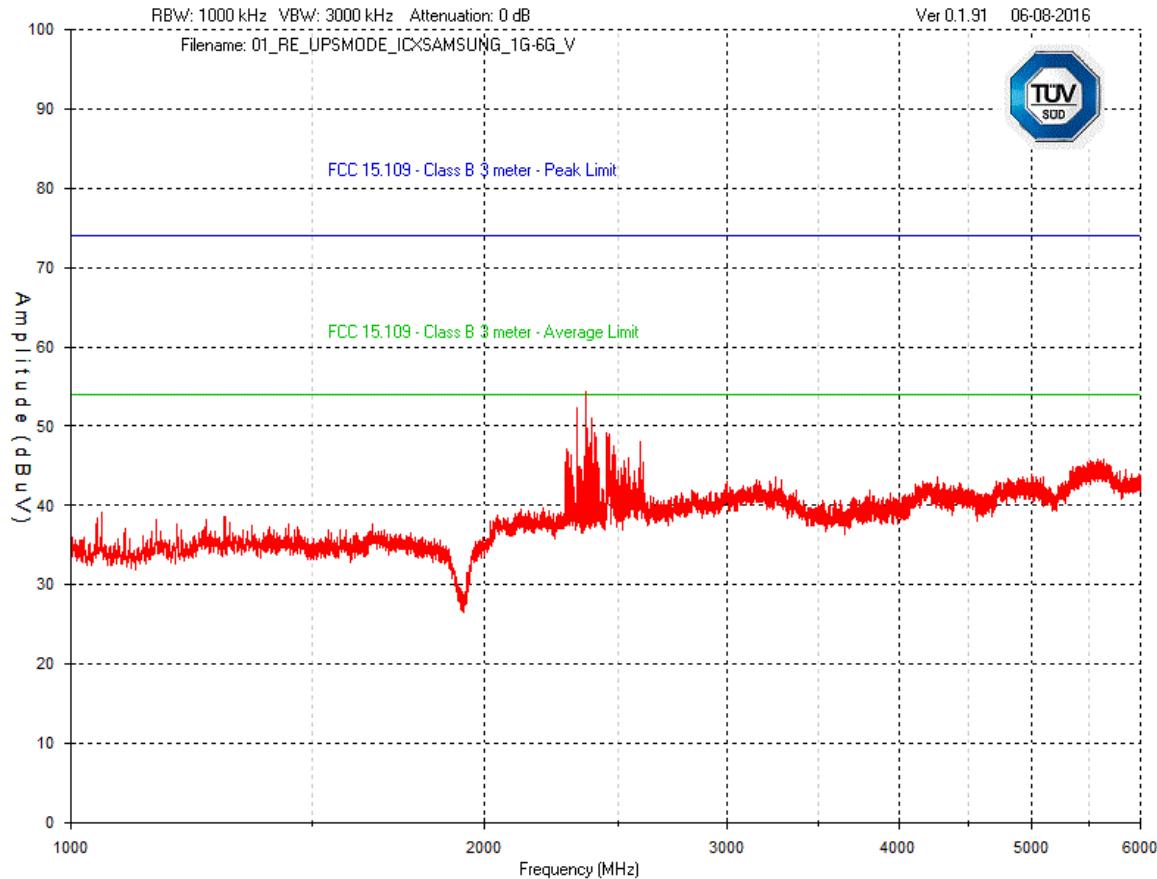
**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



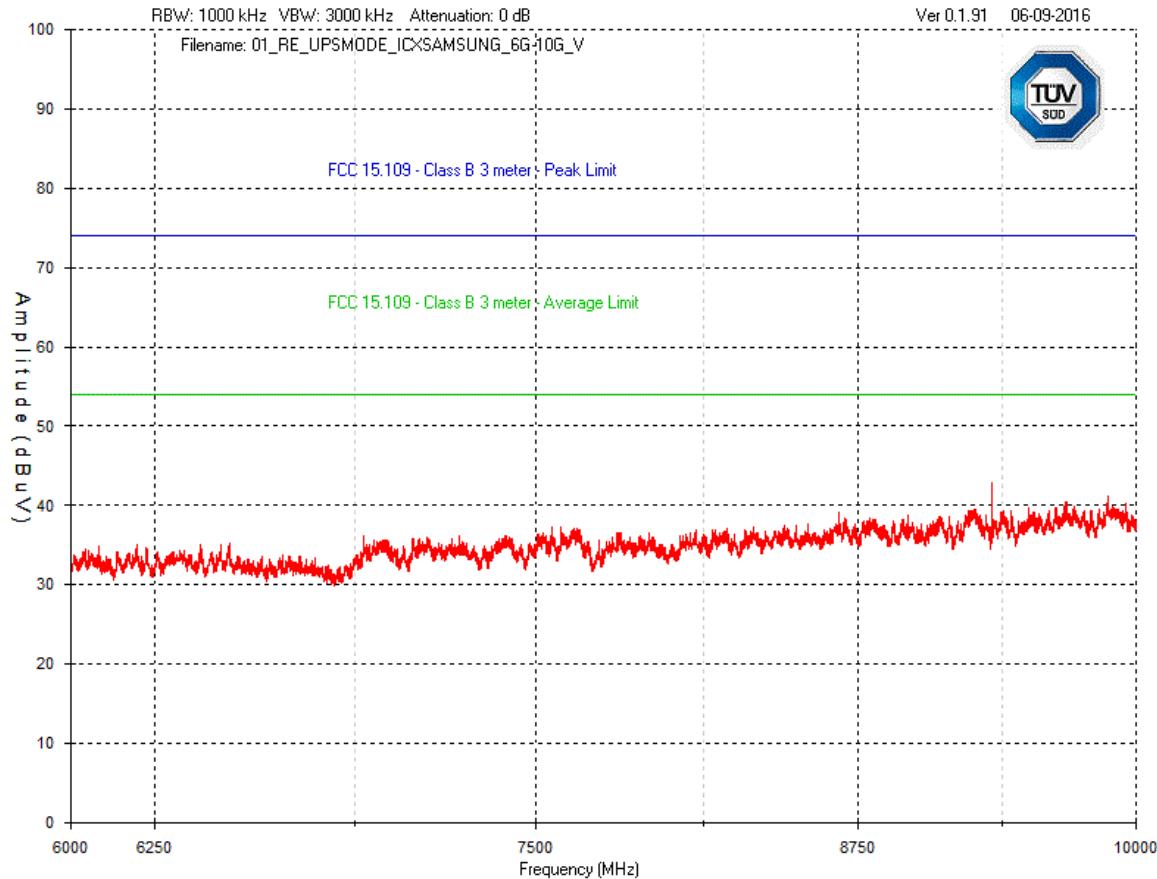
**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 1GHz - 6GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

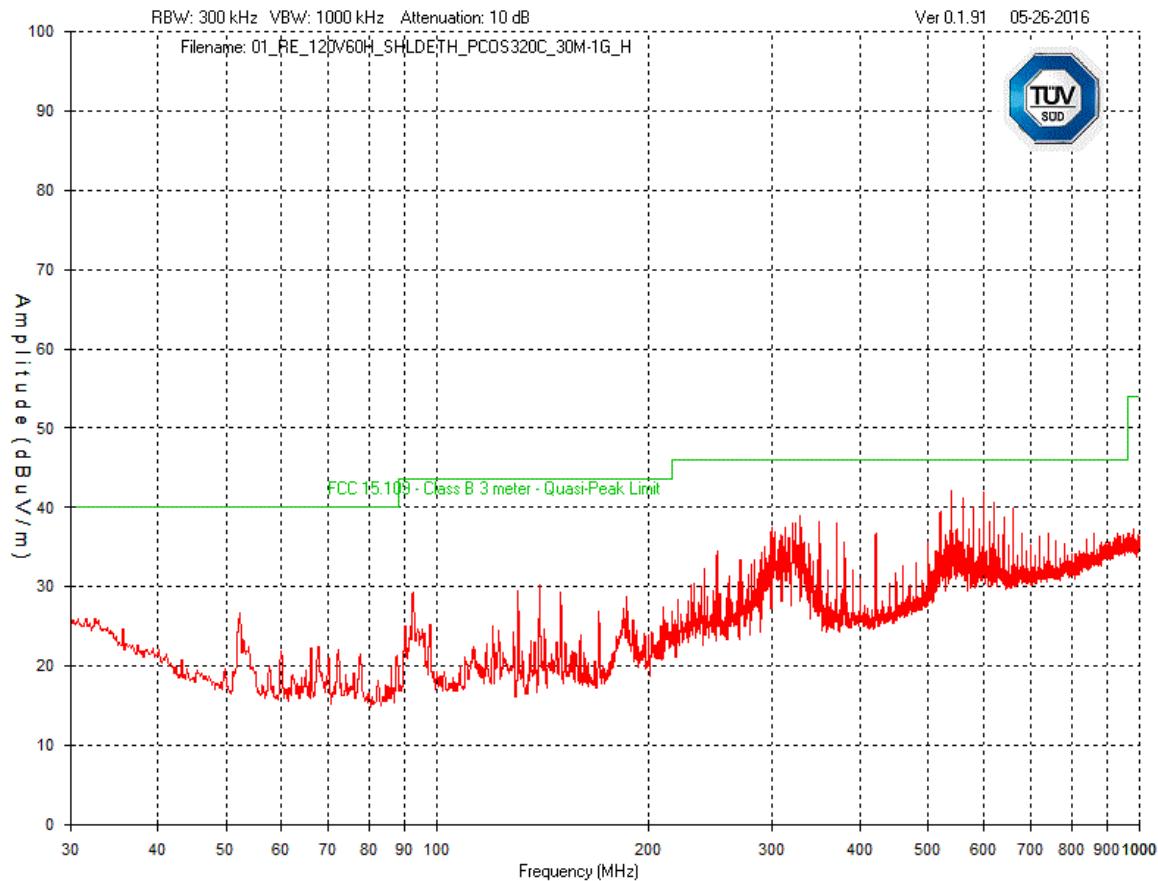


**Vertical - Peak Emissions Graph – AVALUE SAMSUNG / ICX SAMSUNG  
Battery Mode – 6GHz - 10GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

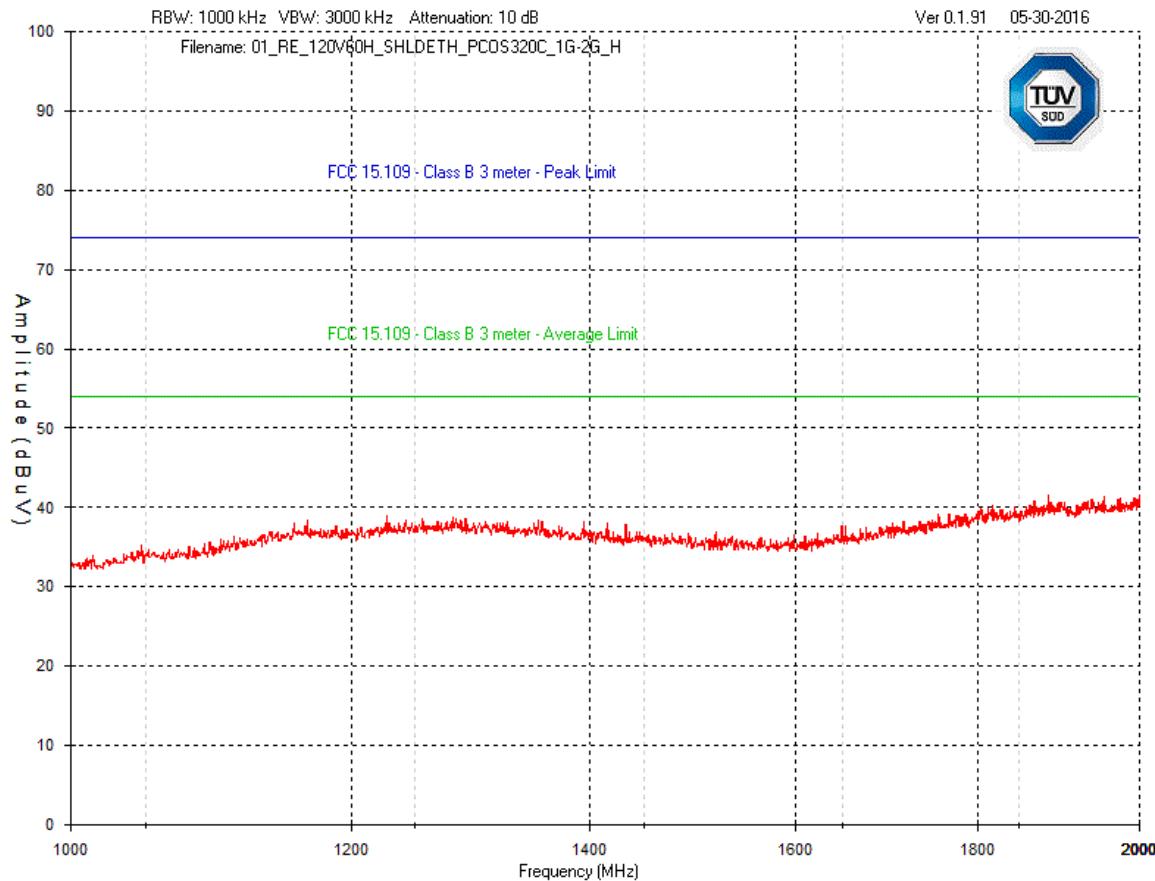
**Horizontal - Peak Emissions Graph – PCOS 320C / ICP**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

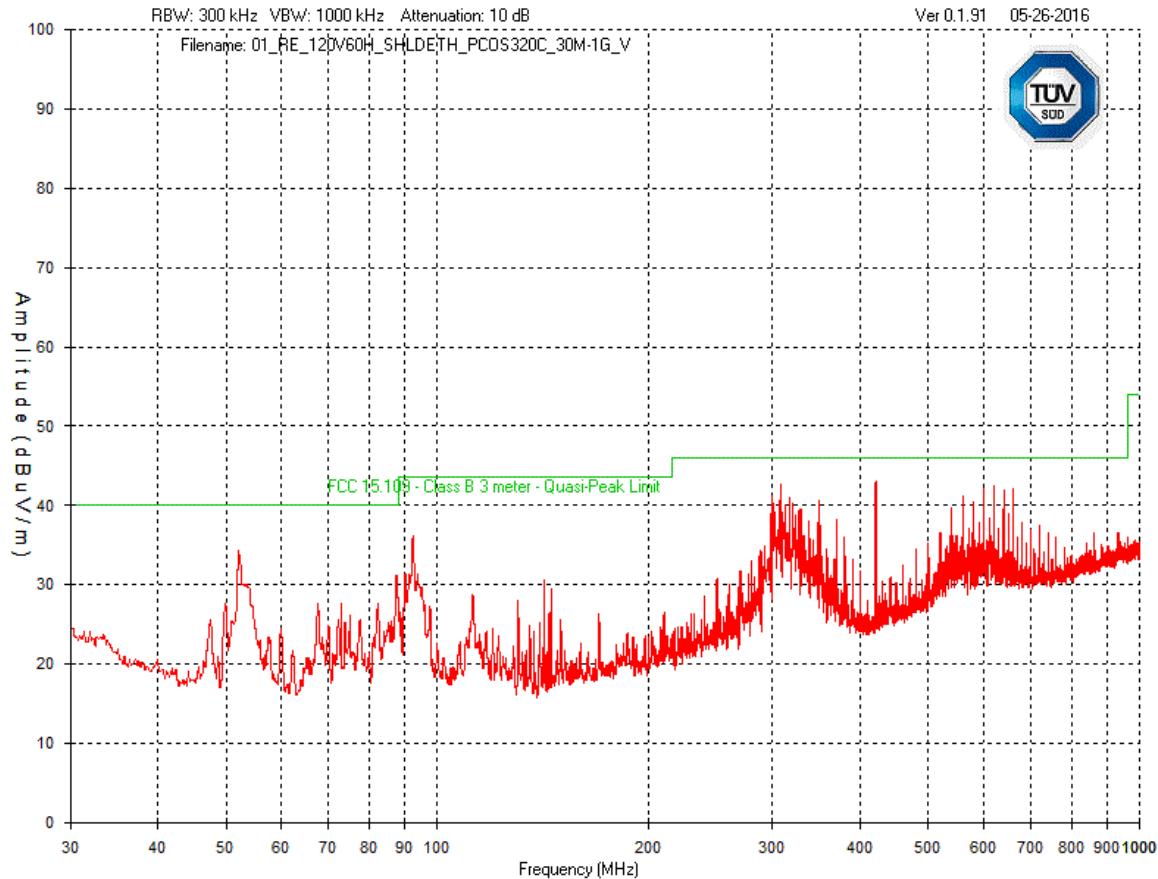


### **Horizontal - Peak Emissions Graph – PCOS 320C / ICP 120Vac 60Hz – 1GHz - 2GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

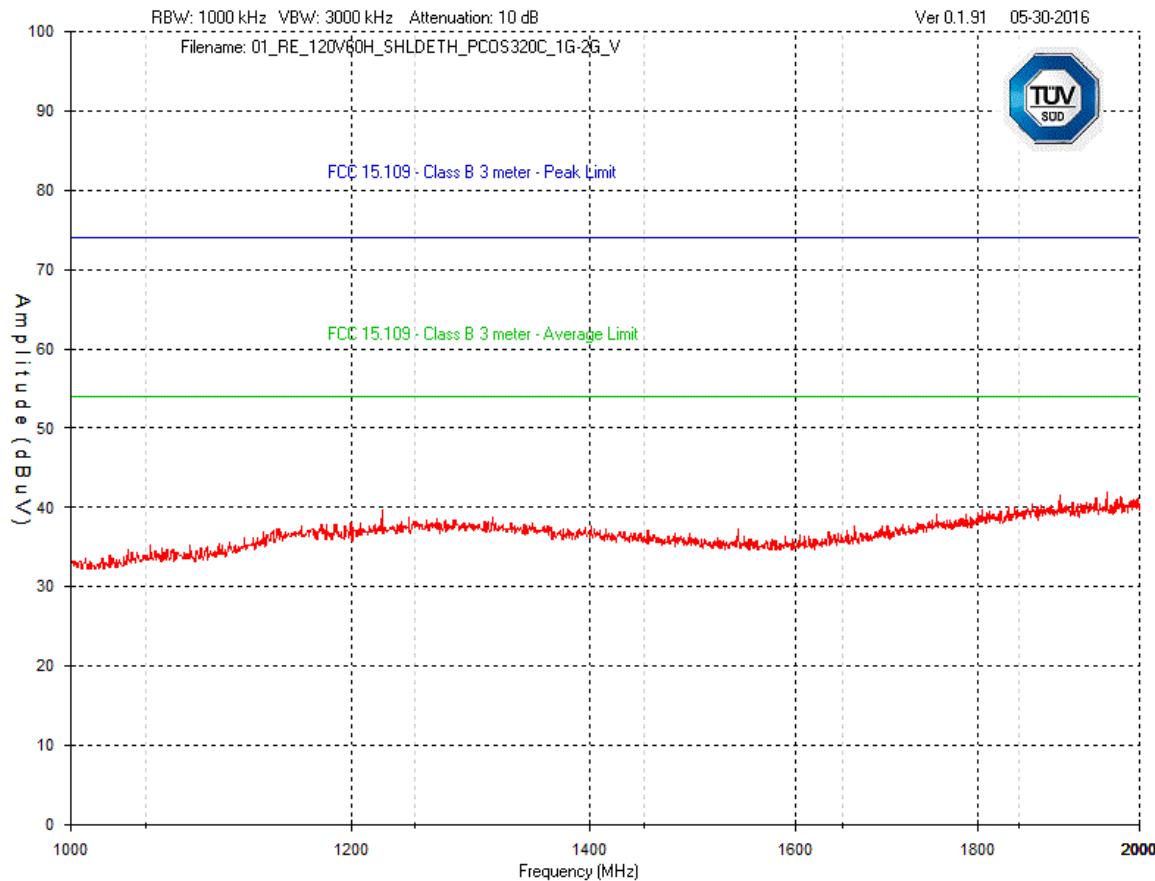
**Vertical - Peak Emissions Graph – PCOS 320C / ICP**  
**120Vac 60Hz – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

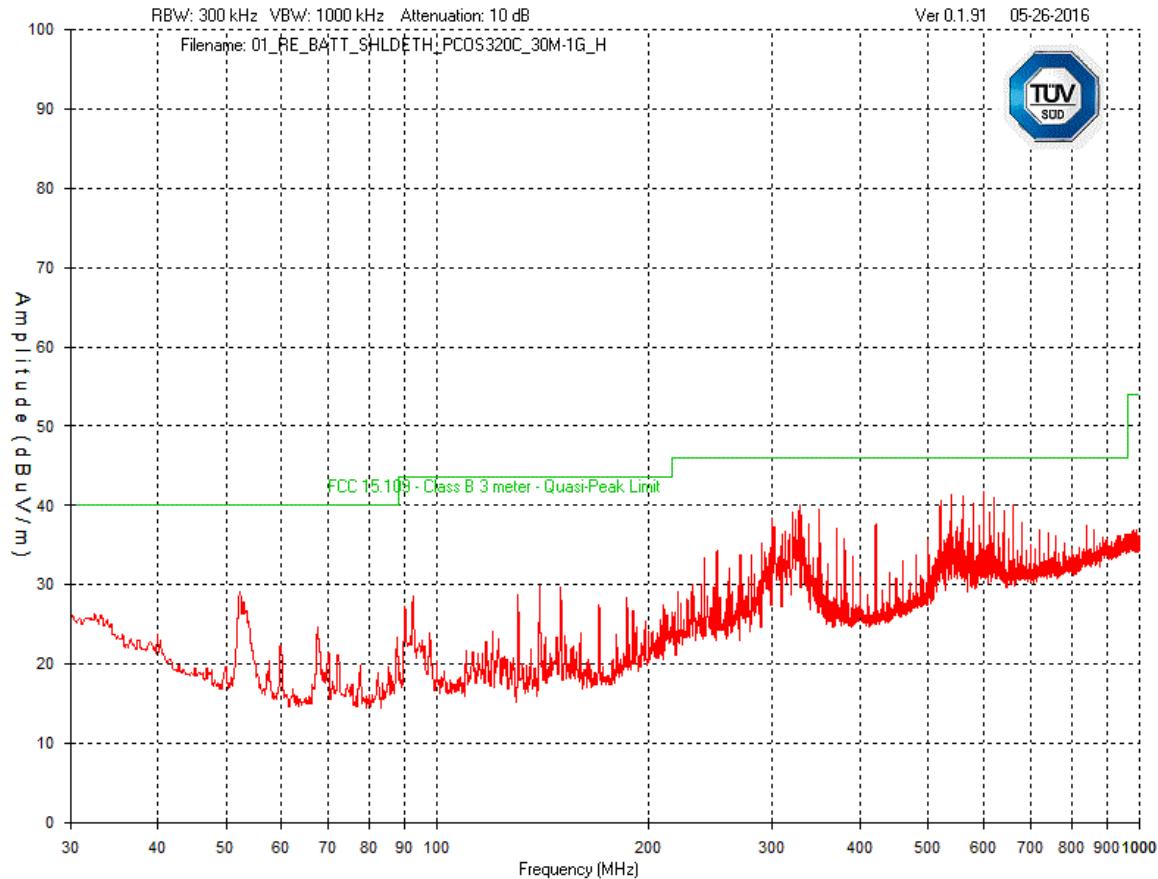


**Vertical - Peak Emissions Graph – PCOS 320C / ICP  
120Vac 60Hz – 1GHz - 2GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

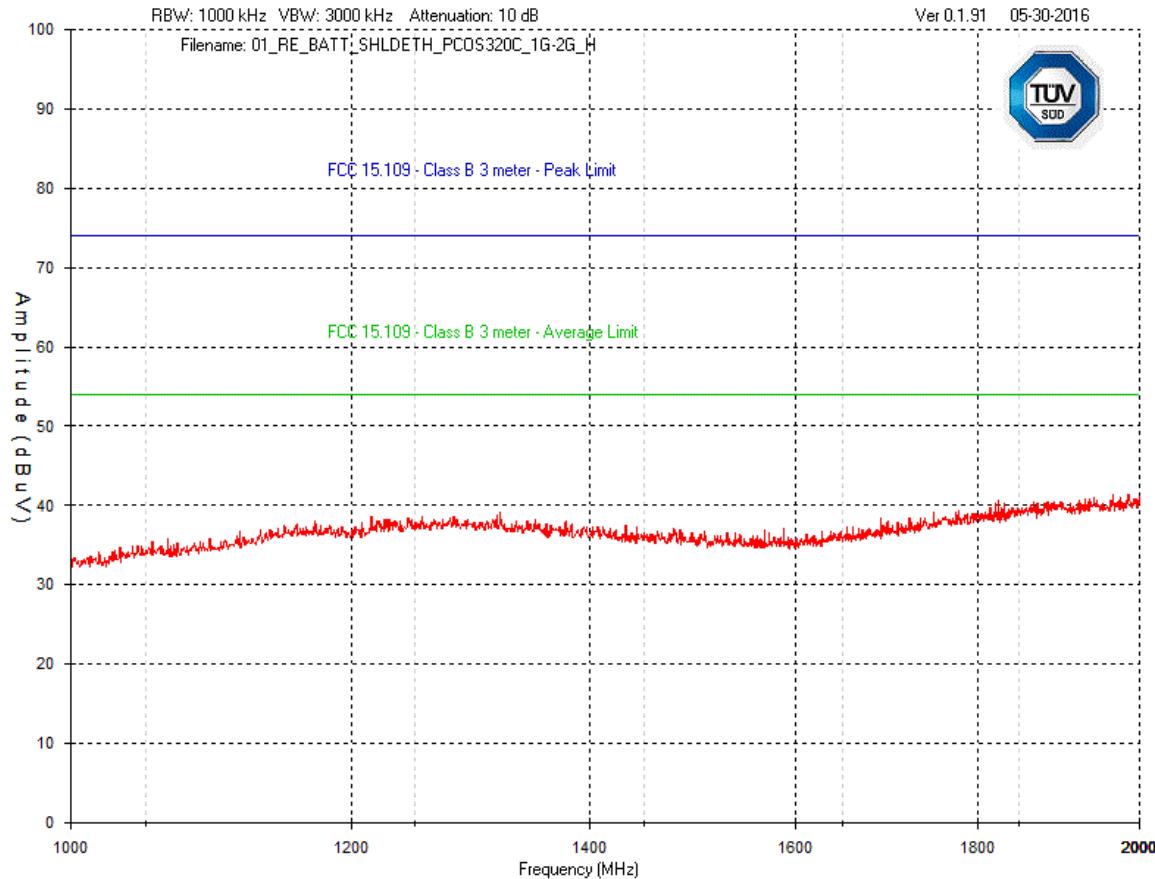
**Horizontal - Peak Emissions Graph – PCOS 320C / ICP  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

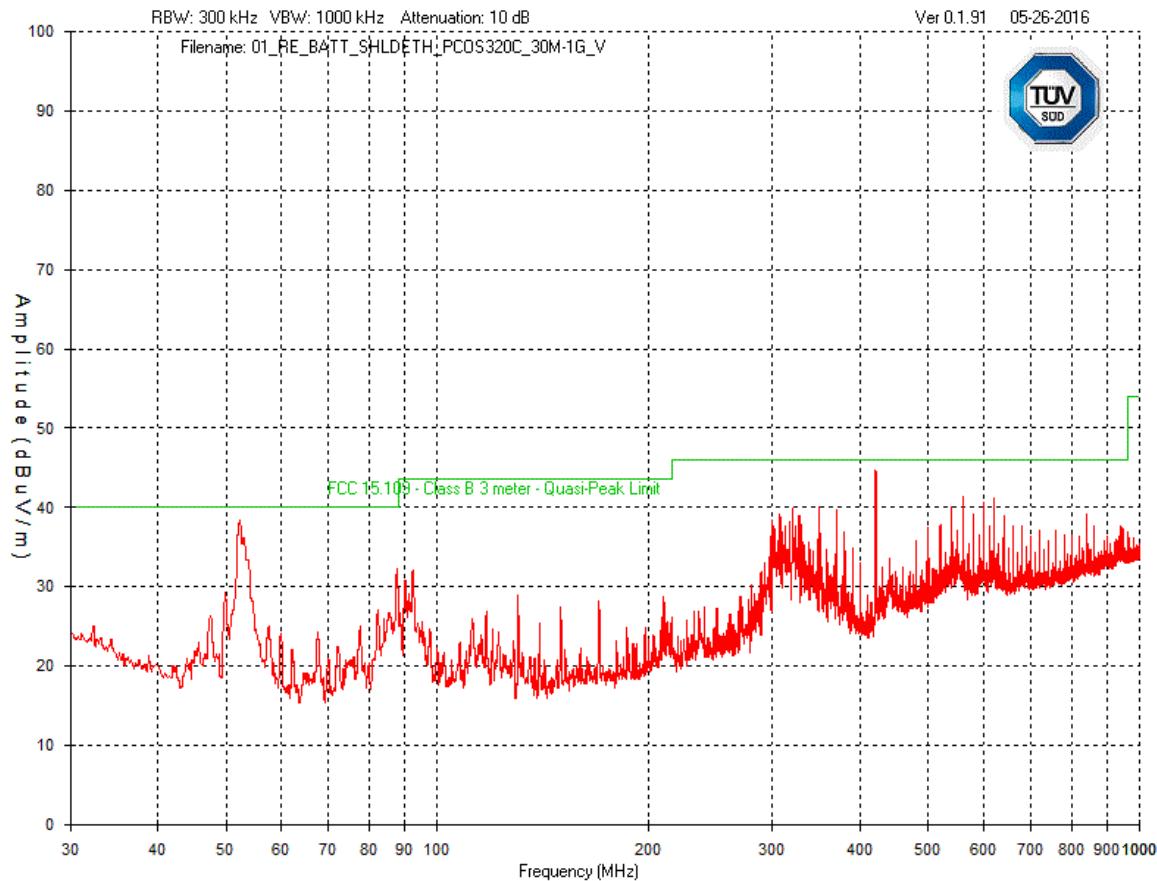


### **Horizontal - Peak Emissions Graph – PCOS 320C / ICP Battery Mode – 1GHz - 2GHz**



Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

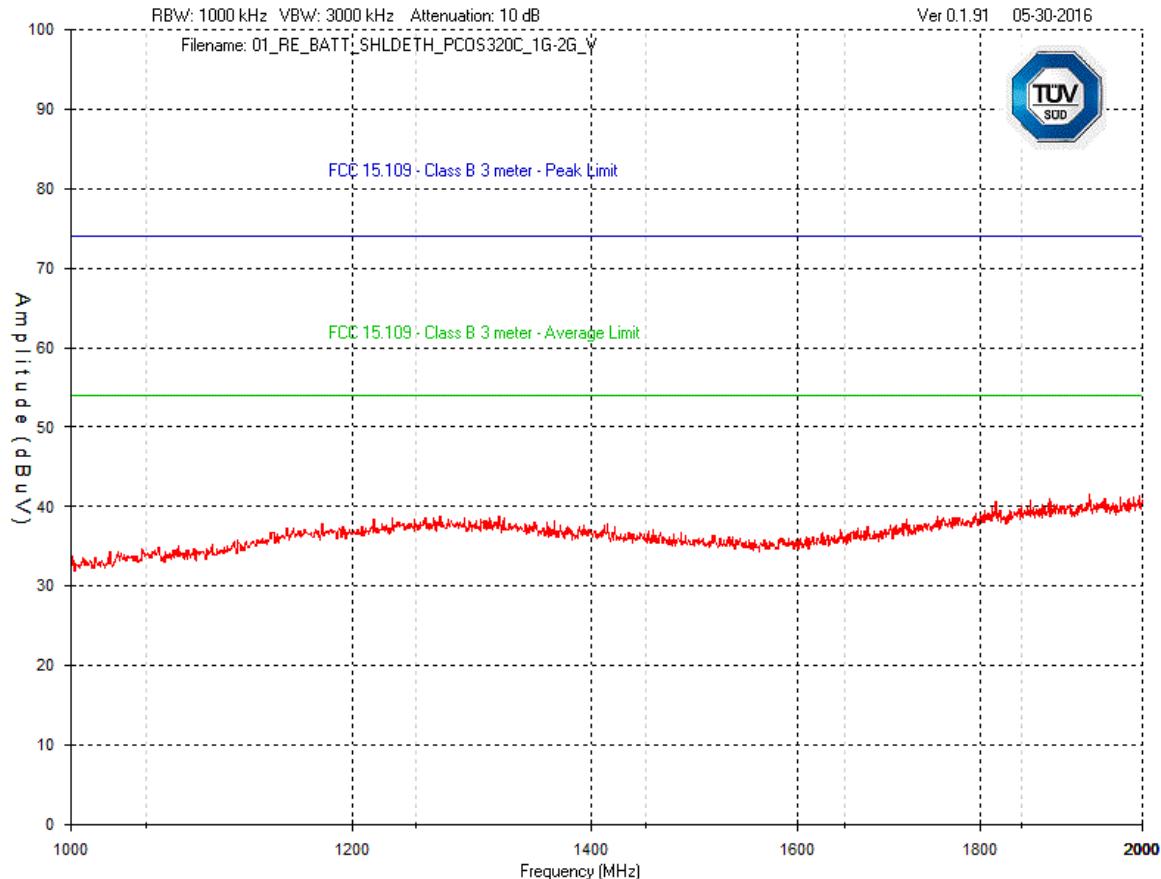
**Vertical - Peak Emissions Graph – PCOS 320C / ICP  
Battery Mode – 30MHz - 1GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### **Vertical - Peak Emissions Graph – PCOS 320C / ICP Battery Mode – 1GHz - 2GHz**



Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Final Measurements

The worst case measurement, for the AVALUE 15" / ICX 15", as listed in the table below appeared at 120Vac and a vertical antenna height of 100 cm and a table azimuth of 0 degrees.

The worst case measurement, for the AVALUE 21" / ICX 21", as listed in the table below appeared at 120Vac and a vertical antenna height of 100 cm and a table azimuth of 50 degrees.

The worst case measurement, for the AVALUE SAMSUNG / ICX SAMSUNG, as listed in the table below appeared at 120Vac and a vertical antenna height of 223 cm and a table azimuth of 283 degrees.

The worst case measurement, for the PCOS 320C / ICP, as listed in the table below appeared at 120Vac and a vertical antenna height of 100 cm and a table azimuth of 0 degrees.

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE 15" / ICX 15"							
Supply			120Vac 60Hz							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
760.94	QP	34.0	21.6	3.0	2.1	-32.9	27.8	46.0	18.2	Pass
757.00	QP	35.3	21.8	3.0	2.1	-32.9	29.3	46.0	16.7	Pass
763.90	QP	33.7	21.5	3.0	2.1	-32.9	27.4	46.0	18.6	Pass
32.13	PEAK	46.3	17.3	3.0	0.5	-33.1	34.0	40.0	6.0	Pass
447.97	PEAK	47.1	17.3	3.0	1.6	-33.9	35.1	46.0	10.9	Pass
105.37	PEAK	53.0	8.9	3.0	0.8	-33.2	32.5	43.5	11.0	Pass
Vertical Antenna Polarization										
30.00	QP	40.7	16.3	3.0	0.5	-33.1	27.4	40.0	12.6	Pass
86.98	QP	41.9	7.1	3.0	0.8	-33.2	19.6	40.0	20.4	Pass
568.84	PEAK	50.5	18.5	3.0	1.8	-33.8	40.0	46.0	6.0	Pass
758.37	PEAK	46.0	21.0	3.0	2.1	-32.9	39.2	46.0	6.8	Pass
534.11	PEAK	49.9	18.2	3.0	1.8	-33.9	39.0	46.0	7.0	Pass
750.03	PEAK	46.0	20.8	3.0	2.1	-33.0	38.9	46.0	7.1	Pass

### Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE 15" / ICX 15"							
Supply			120Vac 60Hz - UPS Mode							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
30.37	QP	39.4	17.7	3.0	0.5	-33.1	27.5	40.0	12.5	Pass
761.20	QP	36.7	21.6	3.0	2.1	-32.9	30.5	46.0	15.5	Pass
902.78	QP	29.2	23.4	3.0	2.3	-31.9	26.0	46.0	20.0	Pass
757.11	PEAK	48.3	21.8	3.0	2.1	-32.9	42.3	46.0	3.7	Pass
750.03	PEAK	47.9	21.9	3.0	2.1	-33.0	41.9	46.0	4.1	Pass
759.83	PEAK	48.0	21.6	3.0	2.1	-32.9	41.8	46.0	4.2	Pass
Vertical Antenna Polarization										
31.00	QP	40.7	16.1	3.0	0.5	-33.1	27.2	40.0	12.8	Pass
125.06	PEAK	58.1	7.8	3.0	0.9	-33.2	36.6	43.5	6.9	Pass
90.04	PEAK	57.6	7.9	3.0	0.8	-33.2	36.1	43.5	7.4	Pass
757.02	PEAK	45.4	21.0	3.0	2.1	-32.9	38.6	46.0	7.4	Pass
99.26	PEAK	55.7	9.2	3.0	0.8	-33.2	35.5	43.5	8.0	Pass
801.34	PEAK	44.0	21.3	3.0	2.2	-32.6	37.9	46.0	8.1	Pass

Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE 21" / ICX 21"							
Supply			120Vac 60Hz							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
83.55	QP	55.2	7.0	3.0	0.7	-33.2	32.7	40.0	7.3	Pass
90.17	QP	54.4	8.1	3.0	0.8	-33.2	33.1	43.5	10.4	Pass
65.88	QP	52.1	6.9	3.0	0.7	-33.2	29.5	40.0	10.5	Pass
100.03	QP	54.8	8.9	3.0	0.8	-33.2	34.3	43.5	9.2	Pass
592.38	QP	43.9	20.2	3.0	1.9	-33.7	35.3	46.0	10.7	Pass
32.21	QP	37.2	18.5	3.0	0.5	-33.1	26.1	40.0	13.9	Pass
119.38	QP	51.7	7.9	3.0	0.9	-33.3	30.2	43.5	13.3	Pass
494.34	QP	36.7	18.4	3.0	1.7	-33.9	25.9	46.0	20.1	Pass
Vertical Antenna Polarization										
833.45	QP	28.9	21.9	3.0	2.2	-32.3	23.7	46.0	22.3	Pass
32.34	QP	49.3	16.2	3.0	0.5	-33.1	35.9	40.0	4.1	Pass
65.56	QP	58.6	6.6	3.0	0.7	-33.2	35.7	40.0	4.3	Pass
92.42	QP	51.5	8.4	3.0	0.8	-33.2	30.5	43.5	13.0	Pass
39.00	QP	40.8	11.7	3.0	0.5	-33.1	22.9	40.0	17.1	Pass
596.25	QP	40.9	19.4	3.0	1.9	-33.7	31.5	46.0	14.5	Pass
83.51	QP	53.1	6.6	3.0	0.7	-33.2	30.2	40.0	9.8	Pass
107.60	QP	45.0	8.6	3.0	0.8	-33.2	24.2	43.5	19.3	Pass
119.37	QP	55.9	7.9	3.0	0.9	-33.3	34.4	43.5	9.1	Pass

### Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE 21" / ICX 21"							
Supply			120Vac 60Hz - UPS Mode							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
82.11	QP	46.1	6.9	3.0	0.7	-33.2	23.5	40.0	16.5	Pass
64.35	QP	56.6	7.0	3.0	0.7	-33.1	34.2	40.0	5.8	Pass
83.59	QP	53.6	7.0	3.0	0.7	-33.2	31.1	40.0	8.9	Pass
193.51	QP	39.9	10.9	3.0	1.1	-33.4	21.5	43.5	22.0	Pass
91.69	QP	57.7	8.0	3.0	0.8	-33.2	36.3	43.5	7.2	Pass
100.36	QP	55.9	8.9	3.0	0.8	-33.2	35.4	43.5	8.1	Pass
208.32	QP	48.3	11.0	3.0	1.1	-33.4	30.0	43.5	13.5	Pass
593.02	QP	44.8	20.1	3.0	1.9	-33.7	36.1	46.0	9.9	Pass
Vertical Antenna Polarization										
65.93	QP	57.4	6.9	3.0	0.7	-33.2	34.8	40.0	5.2	Pass
119.20	QP	54.9	7.9	3.0	0.9	-33.3	33.4	43.5	10.1	Pass
83.31	QP	51.2	6.3	3.0	0.7	-33.2	28.0	40.0	12.0	Pass
91.29	QP	51.5	8.4	3.0	0.8	-33.2	30.5	43.5	13.0	Pass
99.97	QP	51.9	9.2	3.0	0.8	-33.2	31.7	43.5	11.8	Pass
32.38	QP	43.1	14.7	3.0	0.5	-33.1	28.2	40.0	11.8	Pass
593.24	QP	40.3	19.4	3.0	1.9	-33.7	30.9	46.0	15.1	Pass

### Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE SAMSUNG / ICX SAMSUNG – 30MHz to 1GHz							
Supply			120Vac 60Hz							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
71.90	QP	52.2	6.4	3.0	0.7	-33.2	29.1	40.0	10.9	Pass
120.50	QP	38.4	11.7	3.0	0.9	-33.3	20.7	43.5	22.8	Pass
124.00	QP	37.8	11.6	3.0	0.9	-33.2	20.1	43.5	23.4	Pass
960.08	QP	46.1	24.3	3.0	2.4	-31.5	44.3	46.0	1.7	Pass
64.85	QP	51.8	5.8	3.0	0.7	-33.1	28.2	40.0	11.8	Pass
113.39	QP	37.9	11.6	3.0	0.8	-33.2	20.1	43.5	23.4	Pass
240.03	QP	59.8	10.5	3.0	1.2	-33.5	41.0	46.0	5.0	Pass
Vertical Antenna Polarization										
71.91	QP	61.5	6.4	3.0	0.7	-33.2	38.4	40.0	1.6	Pass
64.91	QP	56.5	5.8	3.0	0.7	-33.1	32.9	40.0	7.1	Pass
84.00	QP	45.2	8.0	3.0	0.7	-33.2	23.7	40.0	16.3	Pass
59.71	QP	47.0	5.8	3.0	0.6	-33.1	23.3	40.0	16.7	Pass
30.65	QP	36.4	18.4	3.0	0.5	-33.1	25.2	40.0	14.8	Pass
35.90	QP	38.9	16.0	3.0	0.5	-33.1	25.3	40.0	14.7	Pass
960.06	QP	44.5	24.3	3.0	2.4	-31.5	42.7	46.0	3.3	Pass
766.00	QP	28.4	21.5	3.0	2.1	-32.9	22.1	46.0	23.9	Pass

Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B								
EUT			AVALUE SAMSUNG / ICX SAMSUNG – 1GHz to 10GHz								
Supply			120Vac 60Hz								
Frequency (MHz)	Detector Peak / AVG	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	AVG Limit (dBμV/m)	AVG Margin (dB)	Pass/Fail	
Horizontal Antenna Polarization											
5995.00	AVG	36.4	34.0	0.0	1.4	-31.9	39.9	54.0	14.1	Pass	
2816.71	AVG	37.2	29.4	0.0	0.9	-32.1	35.4	54.0	18.6	Pass	
2789.19	AVG	45.9	29.5	0.0	0.9	-32.3	44.0	54.0	10.0	Pass	
2808.18	AVG	46.7	29.4	0.0	0.9	-32.3	44.7	54.0	9.3	Pass	
2400.87	PEAK	52.4	28.3	0.0	0.8	-33.5	48.0	54.0	6.0	Pass	
2898.31	PEAK	48.9	29.4	0.0	0.9	-31.8	47.4	54.0	6.6	Pass	
3097.10	PEAK	47.3	30.0	0.0	0.9	-31.2	47.0	54.0	7.0	Pass	
Vertical Antenna Polarization											
5538.43	AVG	37.8	34.0	0.0	1.3	-31.6	41.5	54.0	12.5	Pass	
2841.42	AVG	44.7	29.4	0.0	0.9	-31.7	43.3	54.0	10.7	Pass	
2459.41	AVG	37.5	28.7	0.0	0.8	-33.2	33.8	54.0	20.2	Pass	
2778.80	AVG	45.2	29.5	0.0	0.9	-32.2	43.4	54.0	10.6	Pass	
2808.78	PEAK	49.8	29.4	0.0	0.9	-32.2	47.9	54.0	6.1	Pass	
2576.06	PEAK	50.4	29.5	0.0	0.8	-33.0	47.7	54.0	6.3	Pass	
2473.59	PEAK	51.2	28.8	0.0	0.8	-33.3	47.5	54.0	6.5	Pass	
2060.18	PEAK	52.0	28.4	0.0	0.7	-33.7	47.4	54.0	6.6	Pass	

Average Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE SAMSUNG / ICX SAMSUNG – 30MHz to 1GHz							
Supply			120Vac 60Hz - UPS Mode							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
72.05	QP	54.8	6.4	3.0	0.7	-33.2	31.7	40.0	8.3	Pass
250.00	QP	33.0	11.9	3.0	1.2	-33.6	15.5	46.0	30.5	Pass
960.00	QP	47.0	24.3	3.0	2.4	-31.5	45.2	46.0	0.8	Pass
119.99	QP	60.4	11.7	3.0	0.9	-33.3	42.7	43.5	0.8	Pass
80.95	QP	38.6	7.7	3.0	0.7	-33.2	16.8	40.0	23.2	Pass
64.77	QP	51.4	5.8	3.0	0.7	-33.1	27.8	40.0	12.2	Pass
254.01	QP	36.9	12.8	3.0	1.2	-33.6	20.3	46.0	25.7	Pass
Vertical Antenna Polarization										
71.99	QP	54.9	6.4	3.0	0.7	-33.2	31.8	40.0	8.2	Pass
64.50	QP	48.1	5.8	3.0	0.7	-33.1	24.5	40.0	15.5	Pass
79.97	QP	51.2	7.7	3.0	0.7	-33.2	29.4	40.0	10.6	Pass
60.00	QP	54.2	5.9	3.0	0.6	-33.1	30.6	40.0	9.4	Pass
960.05	QP	44.4	24.3	3.0	2.4	-31.5	42.6	46.0	3.4	Pass
30.09	QP	37.9	18.7	3.0	0.5	-33.1	27.0	40.0	13.0	Pass
46.59	QP	47.3	10.8	3.0	0.6	-33.1	28.6	40.0	11.4	Pass
62.48	QP	44.8	6.0	3.0	0.7	-33.2	21.3	40.0	18.7	Pass
48.99	QP	38.8	8.9	3.0	0.6	-33.2	18.1	40.0	21.9	Pass
187.26	QP	41.8	8.9	3.0	1.0	-33.4	21.3	43.5	22.2	Pass

### Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			AVALUE SAMSUNG / ICX SAMSUNG – 1GHz to 10GHz							
Supply			120Vac 60Hz - UPS Mode							
Frequency (MHz)	Detector Peak / AVG	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	AVG Limit (dBμV/m)	AVG Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
2310.04	PEAK	48.9	28.1	0.0	0.8	-33.2	44.6	54.0	9.4	Pass
2450.32	PEAK	48.1	28.6	0.0	0.8	-33.1	44.4	54.0	9.6	Pass
2373.39	PEAK	48.2	28.2	0.0	0.8	-33.5	43.7	54.0	10.3	Pass
2441.59	PEAK	47.5	28.6	0.0	0.8	-33.2	43.7	54.0	10.3	Pass
3176.61	PEAK	43.4	30.1	0.0	0.9	-31.4	43.0	54.0	11.0	Pass
1054.63	PEAK	51.0	24.3	0.0	0.5	-35.6	40.2	54.0	13.8	Pass
Vertical Antenna Polarization										
2369.84	AVG	38.0	28.2	0.0	0.8	-33.5	33.5	54.0	20.5	Pass
2340.29	AVG	45.2	28.2	0.0	0.8	-33.4	40.8	54.0	13.2	Pass
2392.46	PEAK	55.4	28.2	0.0	0.8	-33.5	50.9	54.0	3.1	Pass
2374.68	PEAK	54.2	28.2	0.0	0.8	-33.5	49.7	54.0	4.3	Pass
2407.98	PEAK	53.5	28.3	0.0	0.8	-33.4	49.2	54.0	4.8	Pass
2453.55	PEAK	52.8	28.7	0.0	0.8	-33.1	49.2	54.0	4.8	Pass

Average Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			PCOS 320C / ICP							
Supply			120Vac 60Hz							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
539.93	PEAK	52.1	19.1	3.0	1.8	-33.8	42.2	46.0	3.8	Pass
600.26	PEAK	50.5	20.3	3.0	1.9	-33.7	42.0	46.0	4.0	Pass
560.01	PEAK	51.1	19.2	3.0	1.8	-33.8	41.3	46.0	4.7	Pass
619.86	PEAK	48.7	20.7	3.0	1.9	-33.7	40.6	46.0	5.4	Pass
580.09	PEAK	49.1	19.9	3.0	1.8	-33.8	40.0	46.0	6.0	Pass
660.02	PEAK	47.6	20.8	3.0	2.0	-33.5	39.9	46.0	6.1	Pass
Vertical Antenna Polarization										
420.21	QP	45.3	15.6	3.0	1.6	-34.0	31.5	46.0	14.5	Pass
307.61	PEAK	57.9	14.2	3.0	1.3	-33.7	42.7	46.0	3.3	Pass
619.86	PEAK	51.5	19.8	3.0	1.9	-33.7	42.5	46.0	3.5	Pass
660.02	PEAK	51.0	19.7	3.0	2.0	-33.5	42.2	46.0	3.8	Pass
599.97	PEAK	51.7	19.3	3.0	1.9	-33.7	42.2	46.0	3.8	Pass
640.03	PEAK	51.0	19.6	3.0	1.9	-33.7	41.8	46.0	4.2	Pass

### Quasi-Peak Emissions Table

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

Product Category			Class B							
EUT			PCOS 320C / ICP							
Supply			Internal Battery							
Frequency (MHz)	Detector Peak/QP	Received Signal (dBμV)	Antenna Factor (dB/m)	Atten Factor (dB)	Cable Factor (dB)	Pre-Amp (dB)	Level (dBμV/m)	QP Limit (dBμV/m)	QP Margin (dB)	Pass/Fail
Horizontal Antenna Polarization										
600.26	PEAK	50.4	20.3	3.0	1.9	-33.7	41.9	46.0	4.1	Pass
539.93	PEAK	51.4	19.1	3.0	1.8	-33.8	41.5	46.0	4.5	Pass
560.01	PEAK	51.0	19.2	3.0	1.8	-33.8	41.2	46.0	4.8	Pass
619.86	PEAK	49.1	20.7	3.0	1.9	-33.7	41.0	46.0	5.0	Pass
520.04	PEAK	50.8	18.9	3.0	1.8	-33.9	40.6	46.0	5.4	Pass
580.09	PEAK	49.3	19.9	3.0	1.8	-33.8	40.2	46.0	5.8	Pass
Vertical Antenna Polarization										
420.38	QP	58.4	15.6	3.0	1.6	-34.0	44.6	46.0	1.4	Pass
52.69	QP	46.3	7.6	3.0	0.6	-33.2	24.3	40.0	15.7	Pass
560.40	PEAK	52.0	18.4	3.0	1.8	-33.8	41.4	46.0	4.6	Pass
619.86	PEAK	50.2	19.8	3.0	1.9	-33.7	41.2	46.0	4.8	Pass
600.26	PEAK	50.3	19.3	3.0	1.9	-33.7	40.8	46.0	5.2	Pass
349.91	PEAK	54.4	15.0	3.0	1.4	-33.8	40.0	46.0	6.0	Pass

### Quasi-Peak Emissions Table

Note:

Peak = Peak measurement

QP = Quasi-Peak measurement

All peak values are under peak limits where peak limits are defined (> 1GHz).

See ‘Appendix B – EUT, Peripherals, and Test Setup Photos’ for photos showing the test set-up for the highest radiated emission.

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Spectrum Analyzer	8566B	HP	Nov 27, 2015	Nov 27, 2017	GEMC 190
Quasi-Peak Adapter	85650A	HP	Nov 27, 2015	Nov 27, 2017	GEMC 191
BiLog Antenna	3142-C	ETS	Sept. 8, 2014	Sept. 8, 2016	GEMC 8
Attenuator 3 dB	612-03-1	Meca Electronics, Inc	NCR	NCR	GEMC 222
Pre-Amp 9 kHz - 1 GHz	LNA 6901	Teseq	Jan 30, 2015	Jan 30, 2017	GEMC 168
Horn Antenna 2 - 18 GHz	WBH218HN	Q-par	Feb. 12, 2016	Feb. 12, 2018	GEMC 6375
Horn Antenna 1 – 18 GHz	AH-118	Com-Power Corporation	July 1, 2015	July 1, 2017	GEMC 214
Pre-Amp 1 - 26.5 GHz	HP 8449B	HP	Sept 09, 2014	Sept 09, 2016	GEMC 6351
RF Cable 7m	LMR-400-7M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 28
RF Cable 10m	LMR-400-10M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 29
RF Cable 0.5m	LMR-400-0.5M-50Ω-MN-MN	LexTec	NCR	NCR	GEMC 31
Emissions Software	0.1.91	Global EMC	NCR	NCR	GEMC 58

This report module is based on report template 'FCC\_ICES003\_RE-CLASS-B\_Rev1'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Electrical Power Disturbance – 4.1.2.5**

### **Purpose**

An AC powered device may be subjected to voltage dips, short interruptions or other voltage variations in the power line. Such conditions are mainly caused by faults or changes in the network due to sudden large changes in load, or when a brown out or a black out condition occurs. These voltage dips can also occur with power supplies that are not well regulated such as emergency diesel AC generators. This test simulates the occurrence of these conditions and subjects the EUT to this phenomenon.

### **Application Level Requirements**

This test is performed in accordance with the methodology defined in IEC 61000-4-11. As per VVSG 1.0 (2005) Vol. 1 the following disturbance levels apply:

Voltage Dip Level	Duration	Duration @ 60Hz [Cycles]
30% (0 Vac)	0.01s	0.6
60% (0 Vac)	0.1s / 1.0s	6 / 60
100% (0 Vac)	0.5	300

Voltage Surge Level	Duration	Duration @ 60Hz [Cycles]
85% (102 Vac)	4 hours	14400
115% (138 Vac)	4 hours	14400

Surges of +15% line variations of nominal line voltage and electrical power increases of 7.5% and reductions of 12.5% of nominal specified power supply for a period of up to four hours at each level tests were combined together.

The voltage level in brackets is the residual voltage of the voltage dip applied and presumes a normal operating voltage of 120 Vac and a frequency of 60Hz. This should be scaled appropriately for other values of operating voltage.

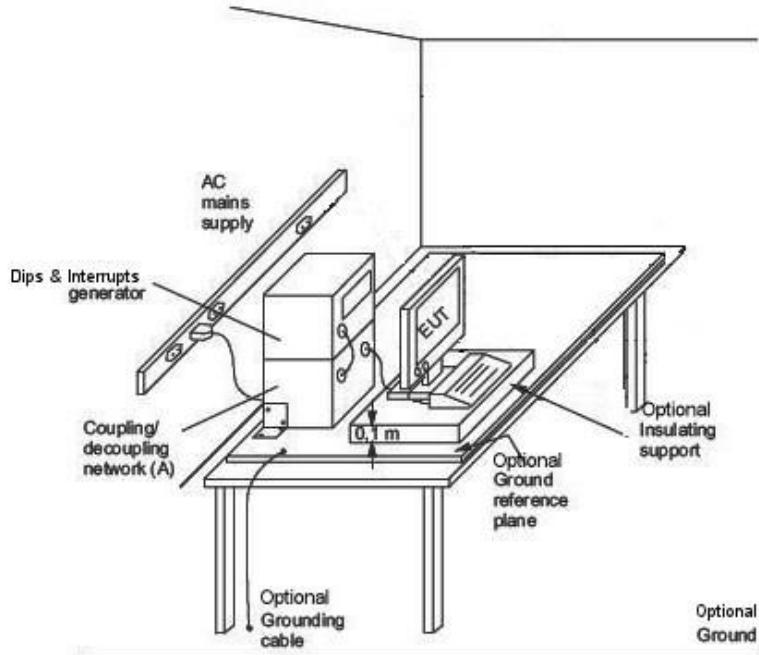
The test is carried out at phase angles of 0°, 90°, and 270° of the AC with 5 repetitions applied at each of the dips and interruption listed in the table above.

No disruption of normal operation or loss of data is applied to this test.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical Test Setup



### Application Level Accuracy

As per IEC 61000-4-11, the voltage must be  $\pm 5\%$  of the voltage stated to be applied. The frequency must be kept within  $\pm 2\%$  of the stated frequency.

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Test Results

The EUTs passed the requirements. The EUTs met the criteria's listed above in the application level requirements. During the 5 second interruption (0% for 300 cycles), the EUT UPSs powered off and rebooted but returned to normal operating state automatically after the test, other parts of the EUTs were not affected. For the other test levels, the EUTs operated normally and no anomalies were observed.

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Immunity Generator	EMC Pro Plus	KeyTek Thermo Corp.	Feb. 10, 2015	Feb. 10, 2017	GEMC 4
Variac	PWRSTA 3PN126	Powerstat	NCR	NCR	GEMC 6032
Immunity Software	CEWare 32 V4.1	Thermo Fisher Scientific	NCR	NCR	GEMC 182
AC Power Source	5000 iX	California Instruments	Feb. 4, 2015	Feb. 4, 2017	GEMC 47
California Instruments CTS SW1	CIGuiSII V4.19	Ametek Programmable Power Division	NCR	NCR	GEMC 183

This report module is based on report template 'IEC61000-4-11\_DipsImmunity-IEC\_Rev1'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## ***Electrical Fast Transient – 4.1.2.6***

### **Purpose**

Electrical Fast Transients is a series of bursts consisting of a number of fast transients, which in a typical application environment, can be coupled into the supply and onto the I/O lines of the EUT. These transient signals usually arise from nearby switching circuitry such as a light switch, relay bounces, electric motor noise, interruption of inductive loads, etc. This test is to verify that the EUT is immune to such transient disturbances based on the applicable test levels. This test, however, does not guarantee that the EUT will not experience higher level burst impulses during its operation, which may cause the EUT to fail.

### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-4. The voltage waveform applied has the following characteristics:

- Pulse rise time:  $5\text{ns} \pm 30\%$
- Pulse duration (to 50% value):  $50\text{ns} \pm 30\%$
- Pulse repetition frequency 100kHz
- Burst duration should be  $15\text{ms} \pm 20\%$
- Burst period should be  $300\text{ms} \pm 20\%$

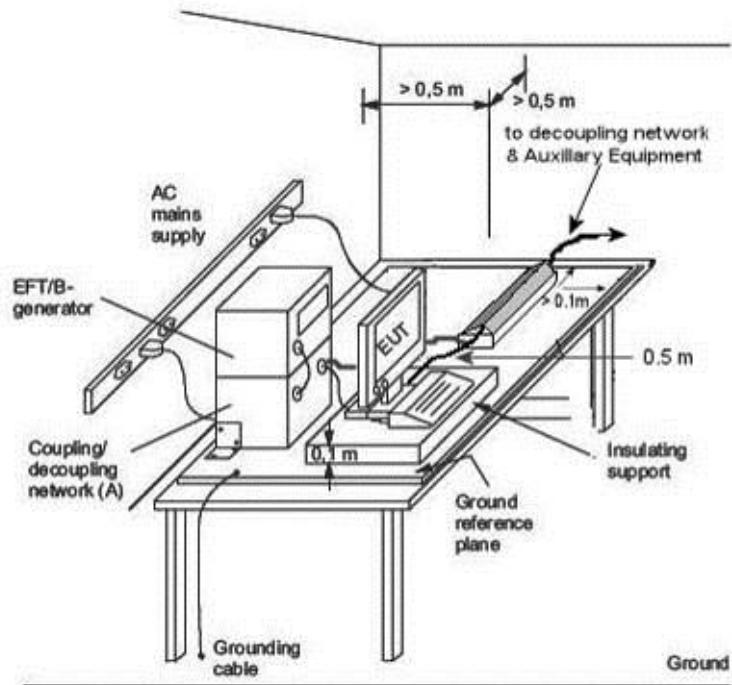
Bursts are applied for 1 minute each at the positive and the negative polarity to Common Mode and to each applicable I/O line.

A test level of  $\pm 2\text{kV}$  is applied to the power supply port(s) via a coupling and decoupling network and  $\pm 1\text{kV}$  to each applicable I/O line via a Capacitive Coupling Clamp. No disruption of normal operation or loss of data is to occur during the performance of this test.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical Test Setup



### Application Level Accuracy

As per IEC 61000-4-4, the test level is specified as being within  $\pm 10\%$  into a  $50\Omega$  load and  $\pm 20\%$  into a  $1000\Omega$  load.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs were not disrupted from their normal operation and did not lose any data during the test. The AVALUE SAMSUNG / ICX SAMSUNG displayed momentary error messages indicating that peripherals were disconnected but was able to run its test program as intended. This does not deviate from normal operation.

### AVALUE 15" / ICX 15"

Test Voltage	Repetition Rate	Coupling Lines	Result
±2kV	100kHz	L – N – PE	Pass

### AVALUE 21" / ICX 21"

Test Voltage	Repetition Rate	Coupling Lines	Result
±2kV	100kHz	L – N – PE	Pass

### AVALUE SAMSUNG / ICX SAMSUNG

Test Voltage	Repetition Rate	Coupling Lines	Result
±2kV	100kHz	L – N – PE	Pass
±1kV	100kHz	I/O Ethernet Cable to Headphone Box	Pass

### PCOS 320C / ICP

Test Voltage	Repetition Rate	Coupling Lines	Result
±2kV	100kHz	L – N – PE	Pass
±2kV	100kHz	Ethernet Cable to Headphone Adapter	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Immunity Generator	EMC Pro Plus	Keytek Thermo Corp.	Feb. 10, 2015	Feb. 10, 2017	GEMC 4
Immunity Generator	CE Master	Keytek Thermo Corp.	Nov. 13, 2014	Nov. 13, 2016	GEMC 140
Immunity Software	CEWare 32 V4.1	Thermo Fisher Scientific	NCR	NCR	GEMC 182

This report module is based on report template 'IEC61000-4-4\_EFTB\_Rev3'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## ***Lightning Surge – 4.1.2.7***

### **Purpose**

Surge occurs when a high energy disturbance takes place on the power lines, or less frequently, I/O lines and can cause significant temporary increase in current and/or voltage. These disturbances can arise during a nearby lightning strike, circuit trips, short-circuits on the same power line that the equipment is connected to, etc. The sudden rise in voltage over a very short period of time could cause damage to the components of the EUT and this test assesses the immunity of the EUT to such transient waves. This test differs from Electrical Fast Transients / Bursts in that this waveform, characterized by the rapid increase of current and/or voltage followed by a slower decrease, has a longer wave duration that could allow damage to the EUT. This test does not guarantee that the EUT will not be exposed to a higher level of surge energy during its operation, which may cause the EUT to fail. This test also does not ensure operation of the EUT in the presence of direct lightning effects.

### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-5. Surges are simulated using a waveform generator and the characteristics of the waveform generated are as follows:

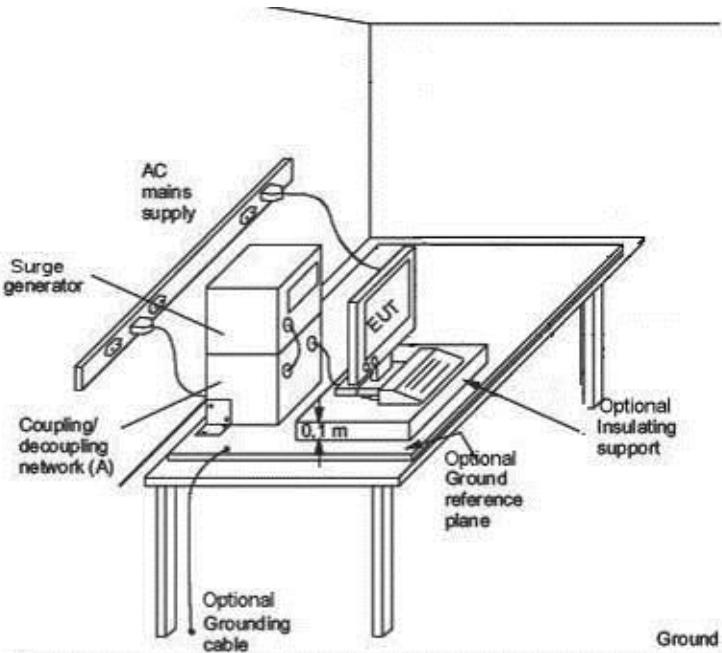
- Rise time of 1.2µs and wave duration of 50µs (to 50% value) into an open circuit.
- Rise time of 8µs and wave duration of 20µs (to 50% value) into a short circuit.
- Dwell time of 60 seconds between each surge.
- 5 surges in the positive and 5 surges in the negative polarity.
- For AC systems, the surge pulses are applied at 0°, 90°, 180° and 270°.
- For AC systems, Line to Ground is performed at the same amount as the Line to Line voltage.

For AC mains supply, a test level of  $\pm 2\text{kV}$  Line to Line and  $\pm 2\text{kV}$  Line to Ground is applied to the power supply port(s) via a coupling and decoupling network. Lower test levels are evaluated first before applying the required test level. No disruption of normal operation or data loss is allowed as applied to this test.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical Test Setup



### Application Level Accuracy

As per IEC 61000-4-5, the level is specified as being within  $\pm 10\%$  for open circuit voltage calibration or  $\pm 10\%$  for short circuit current calibration. The EUT's input impedance, or whether Line – PE or Line – Line is being performed, combined with the calibrated generators output impedance, will affect the timing and voltage/current of the waveform applied to the EUT.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs did not encounter any deviation from normal operation or data loss. The table below is representative of all configurations.

Test Voltages	Phase Angles	Number of Surges	Coupling Lines	Result
±0.5kV, ±1kV, ±2kV	0°, 90°, 180°, 270°	5 per polarity	L – PE	Pass
±0.5kV, ±1kV, ±2kV	0°, 90°, 180°, 270°	5 per polarity	N – PE	Pass
±0.5kV, ±1kV, ±2kV	0°, 90°, 180°, 270°	5 per polarity	L – N	Pass

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Immunity Generator	EMC Pro Plus	Keytek Thermo Corp.	Feb. 10, 2015	Feb. 10, 2017	GEMC 4
Immunity Software	CEWare 32 V4.1	Thermo Fisher Scientific	NCR	NCR	GEMC 182

This report module is based on report template 'IEC61000-4-5\_Surge\_Rev3'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## ***Electrostatic Disruption – 4.1.2.8***

### **Purpose**

The purpose of this immunity test is to apply a static electricity discharge from the operator to the EUT or create a nearby discharge field. An example of this discharge can be seen in low humidity conditions when a person touches an object and creates a small spark. This spark could potentially be harmful to the operation of the EUT. The contact method, with related reduced voltages, has been shown to be roughly equivalent to air discharges in severity and due to its reproducibility, contact is the preferred test method. Air discharge is used where contact discharge cannot be applied since the discharge point is significantly insulated and the insulation cannot be easily broken through. This test ensures a minimum level of immunity which is likely to occur in a normal usage environment. This test does not guarantee that the EUT will not be exposed to higher discharge levels which could cause it to fail.

### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-2. Ten hits in the positive and negative polarity are applied at each defined discharge point on the EUT. These are called direct discharges, regardless of contact or air being applied.

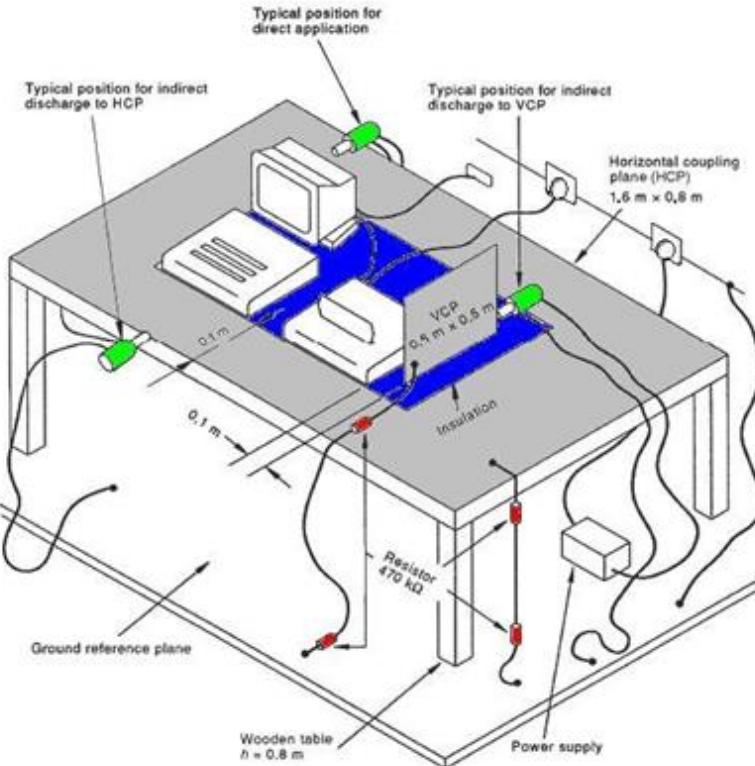
Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP) discharges are also applied and these are called indirect discharges. A typical test setup representation is shown on the following page. A photograph of the actual test setup is shown in Appendix B. See the results table under Test Results for the actual EUT discharge points.

A level of  $\pm 8\text{kV}$  contact or  $\pm 15\text{kV}$  air, where applicable, is applied to each defined discharge point. For air discharge testing, the test is applied at the lower test levels first. No disruption to normal operation or loss of data is applied to this test. However, all anomalies, if any, are noted.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical ESD Setup



### Application Level Accuracy

Contact discharge:  $\pm 15\%$  for the first peak current,  $\pm 5\%$  for the output voltage and  $\pm 25\%$  for the rise time as measured at the discharge electrode tip of ESD generator.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs encountered no disruption of normal operation and no loss of data. The UPS LCD when performing Air Discharge turned off when applying a +/- 15kV charge but was able to return after pressing any button on the UPS. This does not deviate from normal operation.

### AVALUE 15" / ICX 15" 120Vac 60Hz, Mains & UPS Battery

Location	Test Voltage	Discharge Type	Pass / Fail
1. HCP	±8kV	Contact	Pass
2. VCP	±8kV	Contact	Pass
3. UPS – Ground Lug	±8kV	Contact	Pass
4. UPS – Back Chassis	±8kV	Contact	Pass
5. UPS – USB Shell	±8kV	Contact	Pass
6. UPS – Side Chassis	±8kV	Contact	Pass
7. Tablet – Handle	±8kV	Contact	Pass
8. Tablet – Border Screw	±8kV	Contact	Pass
9. Tablet – Border	±8kV	Contact	Pass
10. Tablet – Side Rivets	±8kV	Contact	Pass
11. Tablet – Base	±8kV	Contact	Pass
12. Tecla - Screws	±8kV	Contact	Pass
13. Joystick – Screw Mounts	±8kV	Contact	Pass
14. Box Screws	±8kV	Contact	Pass
15. Paddles - Screws	±8kV	Contact	Pass
16. Paddle Surface	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
17. Joystick	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
18. Joystick Box	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
19. Tecla Cables	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

### **AVALUE 15" / ICX 15" 120Vac 60Hz, Mains & UPS Battery - Continued**

Location	Test Voltage	Discharge Type	Pass / Fail
20. Tablet Touch Screen	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
21. Tablet Cables	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
22. Printer Power Button	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
23. Printer LEDs	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
24. Printer Cables	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
25. Printer Paper Tray	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
26. UPS Buttons	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
27. UPS LCD	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge, Display Turns Off but Turns On Again After Button Push	Pass
28. UPS LEDs	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
29. UPS Power Cables	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
30. Voting Card	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

### AVALUE 21" / ICX 21" 120Vac 60Hz, Mains & UPS Battery

Location	Test Voltage	Discharge Type	Pass / Fail
1. HCP	±8kV	Contact	Pass
2. VCP	±8kV	Contact	Pass
3. UPS – Ground Lug	±8kV	Contact	Pass
4. UPS – Back Chassis	±8kV	Contact	Pass
5. UPS – Side Chassis	±8kV	Contact	Pass
6. Tablet – Handle	±8kV	Contact	Pass
7. Tablet – Border Screw	±8kV	Contact	Pass
8. Tablet - Border	±8kV	Contact	Pass
9. Tablet – Side Rivets	±8kV	Contact	Pass
10. Tablet - Base	±8kV	Contact	Pass
11. Headphone Int. – Ethernet Shell	±8kV	Contact	Pass
12. Headphone Int. – Case	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
13. Headphone Int. – Ethernet Cable	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
14. Headphone Int. – Buttons	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
15. Headphone Int. – Headphone Cable	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
16. Headphone Handles	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
17. Printer – Power Button	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
18. Printer – LCD Display	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
19. Printer – Buttons	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
20. Tablet – Card	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
21. Tablet – Touch Screen	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

### **AVALUE 21" / ICX 21" 120Vac 60Hz, Mains & UPS Battery - Continued**

Location	Test Voltage	Discharge Type	Pass / Fail
22. UPS – LCD Display	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, Screen Turns Off, User Press required to turn on screen	Pass
23. UPS – LEDs	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
24. UPS – Buttons	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### AVALUE SAMSUNG / ICX SAMSUNG 120Vac 60Hz, Mains & UPS Battery

Location	Test Voltage	Discharge Type	Pass / Fail
1. HCP	±8kV	Contact	Pass
2. VCP	±8kV	Contact	Pass
3. UPS – Ground Lug	±8kV	Contact	Pass
4. UPS – Back Chassis	±8kV	Contact	Pass
5. UPS – Side Chassis	±8kV	Contact	Pass
6. Tablet – Front Screws	±8kV	Contact	Pass
7. Tablet – Rear Screws	±8kV	Contact	Pass
8. Tablet – Mount Screws	±8kV	Contact	Pass
9. Tecla – Screws	±8kV	Contact	Pass
10. Joystick – Mounts	±8kV	Contact	Pass
11. Paddles - Screws	±8kV	Contact	Pass
12. Paddle Surface	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
13. Joystick	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
14. Joystick Box	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
15. Tecla Cables	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
16. Touch Screen	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
17. Printer – Power Button	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
18. Printer – LEDs	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
19. Printer – Paper Tray	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
20. UPS – Buttons	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
21. UPS - LCD	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge, Display Turns Off, Recover by User	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

### **AVALUE SAMSUNG / ICX SAMSUNG 120Vac 60Hz, Mains & UPS Battery – Cont.**

Location	Test Voltage	Discharge Type	Pass / Fail
22. UPS – LEDs	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
23. Card Reader	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
24. Card Reader Cable	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
25. Voting Card	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### PCOS 320C / ICP mounted on Ballot Box 120Vac 60Hz, Mains & Built-In Battery

Location	Test Voltage	Discharge Type	Pass / Fail
1. VCP	±8kV	Contact	Pass
2. Screws	±8kV	Contact	Pass
3. Receipt Lock	±8kV	Contact	Pass
4. Security Key	±8kV	Contact	Pass
5. Side Locks	±8kV	Contact	Pass
6. Back Hash Clip	±8kV	Contact	Pass
7. Box Screws	±8kV	Contact	Pass
8. Ethernet Cable Shell	±8kV	Contact	Pass
9. Back Lock	±8kV	No Discharge	Pass
10. Front Lock	±8kV	No Discharge	Pass
11. Cast Button	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
12. LCD Screen	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
13. Receipt Area	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
14. ICP LEDs	±2kV, ±4kV, ±8kV, ±15kV	Discharge, No Effect	Pass
15. ICP Paper Area	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
16. Ethernet Cable	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
17. Headphones	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass
18. Headphone Cable	±2kV, ±4kV, ±8kV, ±15kV	Air Attempted, No Discharge	Pass

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
ESD Generator	NSG 437	Teseq	Nov. 6, 2015	Nov. 6, 2017	GEMC 130
ESD HCP	80CM x 160CM	Global EMC	NCR	NCR	GEMC 50
ESD VCP	50CM x 50CM	Global EMC	NCR	NCR	GEMC 51
ESD 470K A	2x470kΩ 100CM	Global EMC	NCR	NCR	GEMC 52
ESD 470K B	2x470kΩ 100CM	Global EMC	NCR	NCR	GEMC 53

This report module is based on report template 'IEC61000-4-2\_ESD\_Rev4'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## ***Electromagnetic Susceptibility – 4.1.2.10***

### **Purpose**

The EUT will likely be exposed to intentional sources of electromagnetic radiation during its regular application. Sources of such radiation can be cellular phones, FM radio, television, remote car alarms, garage door openers, and other broadcast transmissions. These sources of radiation are licensed or certified for broadcast and therefore, the EUT should be immune to their RF energy. This test assesses the immunity of the EUT to the applicable field strength test level. This test, however, does not guarantee that the EUT will not be exposed to higher level fields during its operation, which may cause it to fail.

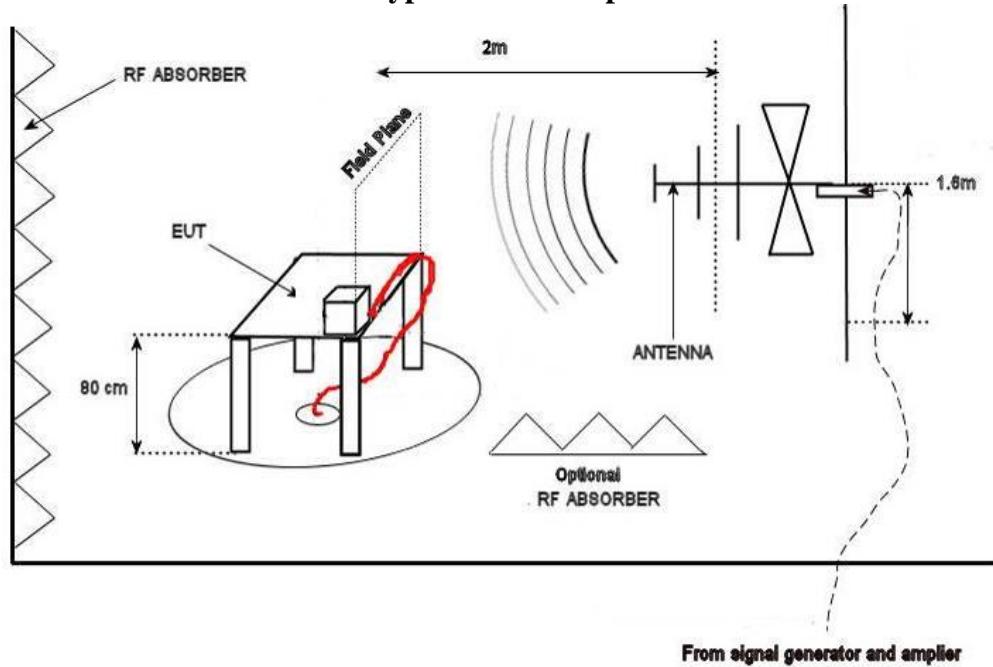
### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-3. The immunity test is performed over the frequency range of 80MHz to 1.0GHz. As the frequency range is swept incrementally, the step size used is calculated at 1% of the preceding frequency value, rounded down to the nearest kHz. Known clock frequencies, local oscillators, etc. are analyzed separately, where applicable, and these are defined in "Appendix A – EUT & Client Provided Details". The field uniformity is calibrated at 10V/m and a modulation of 80% AM 1kHz sine wave is applied during the application of the RF energy at each frequency. The RF field is applied in both horizontal and vertical antenna polarization and four sides of the EUT are subjected to this RF field. The dwell time used for each frequency is 3 seconds. Forward power is monitored and records are kept on file at TÜV SÜD Canada Inc. An isotropic field probe is also placed in near proximity of the EUT to verify the application of the RF field. No disruption of normal operation or loss of data is applied to this test.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### Typical Test Setup



From signal generator and amplifier

### Application Level Accuracy

As per IEC 61000-4-3, the RF field is specified as 0dB to +6dB for at least 12 of the 16 calibration points. For a 10 V/m field, this allows for the EUT to be subjected to a field of 10 V/m to 20 V/m with at least 75% coverage at this level.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs encountered no disruption of normal operation or data loss. The AVALUE SAMSUNG / ICX SAMSUNG peripherals disconnected momentarily but software recovered the issue. This event does not deviate from normal operation.

### AVALUE 15" / ICX 15" 120Vac 60Hz & UPS Mode

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Field Strength</b>	80MHz – 1GHz 10V/m (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>Result</b>	<b>Pass</b>

### AVALUE 21" / ICX 21" 120Vac 60Hz & UPS Mode

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Field Strength</b>	80MHz – 1GHz 10V/m (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>Result</b>	<b>Pass</b>

### AVALUE SAMSUNG / ICX SAMSUNG 120Vac 60Hz & UPS Mode

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Field Strength</b>	80MHz – 1GHz 10V/m (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>Result</b>	<b>Pass</b>

### PCOS 320C / ICP 120Vac 60Hz & Battery Mode

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Field Strength</b>	80MHz – 1GHz 10V/m (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>Result</b>	<b>Pass</b>

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Signal Generator	SMHU	Rohde & Schwarz	Jan. 21, 2015	Jan. 21, 2017	GEMC 155
BiLog Antenna	3142-C	ETS	Sept. 8, 2014	Sept. 8, 2016	GEMC 8
Power Amplifier	250W1000B	AR	NCR	NCR	GEMC 192
Field Probe	FL 7006	AR	Dec. 22, 2015	Dec. 22, 2017	GEMC 25
Field Monitor	FM 7004	AR	NCR	NCR	GEMC 13
Power Head	PH 2000	AR	Jan. 22, 2015	Jan. 22, 2017	GEMC 15
Power Meter	PM 2002	AR	Jan. 21, 2015	Jan. 21, 2017	GEMC 16
Immunity Software	V219	Global EMC	NCR	NCR	GEMC 57

This report is based upon report template 'IEC61000-4-3\_RadiatedImmunity\_Rev3'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Conducted RF Immunity – 4.1.2.11**

### **Purpose**

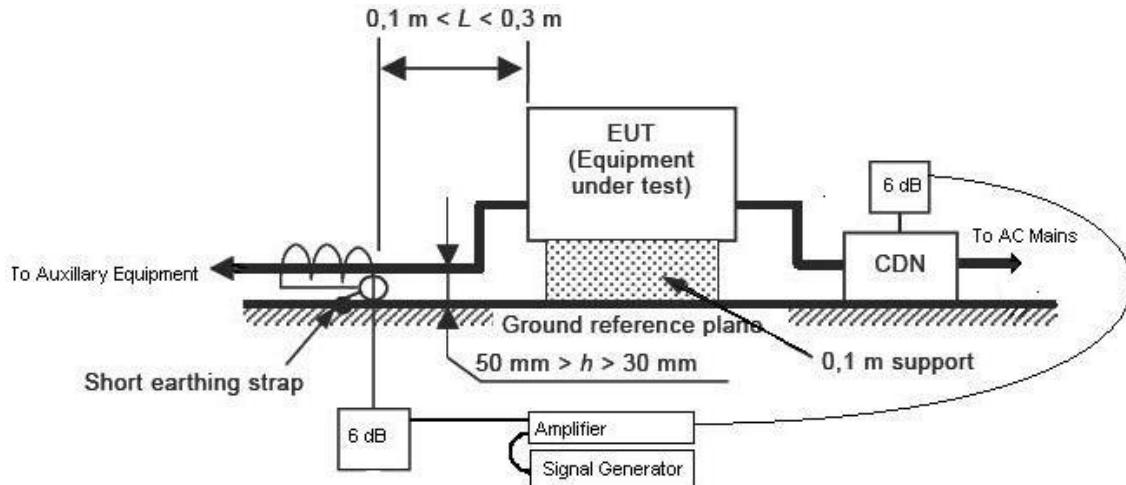
The EUT will likely be exposed, in some way, to low frequency intentional sources of RF energy during its regular application. Sources of such radiations can be AM radio, shortwave radio, CB transmissions, and other low frequency broadcast transmissions. These sources of radiations are licensed or certified for broadcast and therefore, the EUT should be immune to their RF energy. Due to the properties of radio, the power or I/O lines on the EUT would likely be the passive receiving antenna that induces the disturbance to the EUT. Since this is the main method of coupling at this frequency range, the direct application of the RF energy to the line being tested is used. At this frequency range and level, this method is easier to produce and reproduce in a laboratory environment than subjecting the EUT to an equivalent RF field.

### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-6. I/O cables are tested using a bulk current injection probe and power lines are tested using a coupling and decoupling network. The immunity test is performed over the frequency range of 150kHz to 80MHz. As the frequency range is swept incrementally, the step size used is calculated at 1% of the preceding frequency value, rounded down to the nearest kHz. Known clock frequencies, local oscillators, etc. are analyzed separately, where applicable, and these are defined in "Appendix A – EUT & Client Provided Details". The test level is calibrated at 10Vrms and a modulation of 80% AM 1kHz sine wave is applied during the application of the RF energy at each frequency. The dwell time used for each frequency is 3 seconds. A current probe is placed between the coupling device and the EUT to verify the application of the RF energy. No disruption to normal operation or data loss allowed is applied to this test.

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

### Typical Test Setup



### Application Level Accuracy

As per IEC 61000-4-6, the CDN must meet a common mode impedance  $|Z_{CE}| = 150\Omega \pm 20\Omega$  for 150kHz to 26MHz and  $|Z_{CE}| = 150\Omega + 60\Omega$  or  $150\Omega - 45\Omega$  for 26MHz to 80MHz. During tests using the bulk current injection probe, the impedance of each cable will affect the current injected and therefore, current was monitored. The calibration is performed according to IEC 61000-4-6 which allows for  $\pm 2\text{dB}$ .

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs encountered no disruption of normal operation or data loss. AVALUE SAMSUNG / ICX SAMSUNG encountered momentary disconnections of the peripherals during the test. This does not deviate from normal operation.

### AVALUE 15" / ICX 15"

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Signal Strength</b>	150kHz - 80MHz 10Vrms (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>AC Mains</b>	Pass
<b>Result</b>	<b>Pass</b>

### AVALUE 21" / ICX 21"

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Signal Strength</b>	150kHz - 80MHz 10Vrms (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>AC Mains</b>	Pass
<b>Result</b>	<b>Pass</b>

### AVALUE SAMSUNG / ICX SAMSUNG

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Signal Strength</b>	150kHz - 80MHz 10Vrms (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>AC Mains</b>	Pass
<b>Result</b>	<b>Pass</b>

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



### PCOS 320C / ICP

<b>Input Voltage and Frequency</b>	120Vac 60Hz
<b>Frequency Range and Signal Strength</b>	150kHz - 80MHz 10Vrms (80% AM)
<b>Sweep Step</b>	1% of Fundamental
<b>Dwell Time</b>	3 sec.
<b>AC Mains</b>	Pass
<b>I/O Ethernet Cable to Headphone Box</b>	Pass
<b>Result</b>	<b>Pass</b>

### Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
Power Line CDN	FCC-801-M3-16A	FCC	Feb. 10, 2016	Feb. 10, 2018	GEMC 138
Power Amplifier	75A250A	AR	NCR	NCR	GEMC 14
RF Current Probe	F-33-2	FCC	Jan. 16, 2015	Jan. 16, 2017	GEMC 19
Bulk Current Injection Probe	F-120-9A	FCC	Jan. 19, 2015	Jan. 19, 2017	GEMC 20
Signal Generator	SMHU	Rohde & Schwarz	Jan. 21, 2015	Jan. 21, 2017	GEMC 155
Power Attenuator 6dB	100-A-FFN-06	Bird	NCR	NCR	GEMC 48
Immunity Software	V219	Global EMC	NCR	NCR	GEMC 57

This report module is based on report template 'IEC61000-4-6\_ConductedImmunity\_Rev3'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Magnetic Fields Immunity – 4.1.2.12**

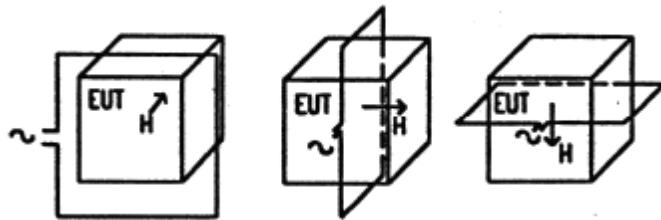
### **Purpose**

A magnetic field with the frequency of the power line is generated around the EUT. In practice, the EUT will be subjected to power frequency magnetic fields from nearby power lines, transformers, or devices such as televisions or monitors. Since the EUT is usually used in conjunction with other electrical equipment, it is subjected to the steady state magnetic fields. These are magnetic fields that the device is exposed to under normal operating conditions. These fields have lower field strengths compared to typical transient magnetic fields.

### **Application Level Requirement**

This test is performed in accordance with the methodology defined in IEC 61000-4-8. Three orthogonal axis of the EUT are subjected to the field within the magnetic loop. The transient magnetic field, if applicable, is tested for 1 minute while the steady state magnetic field is tested for 15 minutes. The frequency applied is 60 Hz. A magnetic field strength of 30 A/m is applied to the EUT in each orthogonal axis. No disruption to normal operation or loss of data is applied to this test.

**Typical Setup Diagram**



### **Application Level Accuracy**

As per IEC 61000-4-8, the field over the area that the EUT occupies within the loop must be calibrated to be within  $\pm 3\text{dB}$ . For a field strength of 3 A/m, this means that the empty calibrated field strength can be between 2.1 A/m and 4.2 A/m over the area that the EUT occupies. The field strength of this test was 30 A/m.

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Test Results

The EUTs passed the requirements. The EUTs did not encounter any disruption of normal operation or loss of data. No anomalies were observed.

When a 60 Hz field was applied, the EUT was powered at 120 Vac 60 Hz and the field strength was 30 A/m.

## Test Equipment List

Equipment	Model No.	Manufacturer	Last Calibration Date	Next Calibration Date	Asset #
80 Turn Magnetic Loop	1m x 1m	Global EMC	NCR	NCR	GEMC 136
Variac	PWRSTA 3PN126	Powerstat	NCR	NCR	GEMC 6032
Immunity Generator	EMC Pro Plus	KeyTek Thermo Corp.	Feb. 10, 2015	Feb. 10, 2017	GEMC 4
Immunity Software	CEWare 32 V4.1	Thermo Fisher Scientific	NCR	NCR	GEMC 182
Clamp Meter	365	Fluke	Nov. 10, 2015	Nov. 10, 2016	CANE00139

This report module is based on report template 'IEC61000-4-8\_MagneticImmunity\_Rev3'

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Appendix A – EUT & Client Provided Details**

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## General EUT Description

Client Details	
Organization / Address	Pro V&V 700 Boulevard South – Suite 102 Huntsville, AL 35802 United States
Contact	Michael Walker
Email	mwalker@provandv.com
Manufacturer Details (if not same as above)	
Organization / Address	Dominion Voting Systems 215 Spadina Ave – Suite 200 Toronto, ON M5T 2C7 Canada
Contact	Aamer Chaudhry
Phone	416-762-8683 ext. 227
Email	aamer.chaudhry@dominionvoting.com
EUT (Equipment Under Test) Details	
EUT Model / SN (if known)	See Appendix A – EUT Configuration
Software version	ICP: 5.0.0-0015  ICX: Democracy Suite v5.0.6008.19231 (designed for EMC testing)
Equipment category	Voting Machines
EUT is powered using	120VAC and back-up battery
Input voltage range(s) (V)	82 – 144V 50/60Hz ± 3Hz
Frequency range(s) (Hz)	Highest Frequency: 2.3GHz
Rated input current (A)	12A
Nominal power consumption (W)	1000W
Number of power supplies in EUT	1
Transmits RF energy? (describe)	N/A
Basic EUT functionality description	Voting machine

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

EUT (Equipment Under Test) Details Continued	
Modes of operation	AC mode and UPS / Battery mode
Customer to setup EUT on site?	Yes
EUT response time (ms)	5 min
EUT setup time (min)	5 min
Frequency of all clocks present in EUT	Highest Frequency: 1.9GHz
Available connectors on EUT	Ethernet, 3.5mm, Micro USB, DC Barrel
Peripherals required to exercise EUT	ICP: 5.0.0-0015
Ex. Signal generator	ICX: Democracy Suite v5.0.6008.19231 (designed for EMC testing)
Method of monitoring EUT and description of failure for immunity.	ICP: Diagnostics Ballot should be automatically fed into the EUT at a set interval of ~7mins. Check on-screen test updates and tape print-out for successful scan results.  ICX: Monitor automatic voting session on EUT to see if voting results (Selected candidates: A1, B1, C1, D1 and QR code) are correctly printed at a set interval of 5 minutes.

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

## EUT Functional Description

The AVALUE series of products and PCOS 320C are all used for electronic voting purposes.

## EUT Configuration

Please see Appendix B for a picture of the unit running in normal conditions.

- Cables and earthing were connected as per manufacturer's specification.
- Power Supply for ICX SAMSUNG: EP-TA10JWE
- Power Supply for PCOS 320C: SF57T-2002000AU

Test	Component	Model #	Serial #
Radiated Emissions AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
Radiated Emissions AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X06322
	Headset	ACM-70	[DVS-cyber-005]
Radiated Emissions AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	UPS - Low Batt. Replacement	SMT-1500	3S1536X06322
*UPS added second part of test due to other low battery			
Radiated Emissions PCOS 320C Config	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 1 – Radiated Emissions Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
Power Disturbance AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-013] & [DVS-ablenet-014]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Power Disturbance AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Power Disturbance AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-013] & [DVS-ablenet-014]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Power Disturbance PCOS 320C Config	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-013] & [DVS-ablenet-014]
	Joystick	S26	[DVS-JOY-001]

Table 2 – Electrical Power Disturbance Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	



<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
Fast Transient AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Fast Transient AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Fast Transient AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-tecla-004]
	Headset	ACM-70	[DVS-cyber-004]
	White Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	16PDG5C	[DVS-EMIFILTER-001]
Fast Transient PCOS 320C	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 3 – Electrical Fast Transients / Bursts Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	



<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
Lightning Surge AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06322
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Lightning Surge AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Lightning Surge AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Lightning Surge PCOS 320C	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 4 – Lightning Surge Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
ESD AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
ESD AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
ESD AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR39U-U1	RR374-006272
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
ESD PCOS 320C Config	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 5 – Electro-Static Disruption Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	



<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
EM Susceptibility AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
EM Susceptibility AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
EM Susceptibility AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-tecla-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	16PDG5C	[DVS-EMIFILTER-001]
EM Susceptibility PCOS 320C Config	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 6 – Electromagnetic Susceptibility Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	

<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
Conducted Immunity AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Conducted Immunity AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Conducted Immunity AVALUE SAMSUNG Config	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Conducted Immunity PCOS 320C	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 7 – Conducted Immunity Configurations

Client	<b>Pro V&amp;V</b>	
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>	
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12	



<b><u>Test</u></b>	<b><u>Component</u></b>	<b><u>Model #</u></b>	<b><u>Serial #</u></b>
Magnetic AVALUE 15" Config	A Value 15"	DVS-15-Z37-A0-03R	B033G00540008
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-003]
	UPS	SMT-1500	3S1536X06484
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Magnetic AVALUE 21" Config	A Value 21"	DVS-21-Z37-A0-03R	03G005500009
	HP Printer	M402dn	PHBQF20345
	ATI	eATI-Device	00659010100-046
	UPS	SMT-1500	3S1536X07467
	Headset	ACM-70	[DVS-cyber-005]
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Magnetic AVALUE SAMSUNG	ICX Samsung	SM-P900	RF2GB01V4HF
	Canon Printer	LBP151dw	NFJA003089
	Tecla	KOL-02001	[DVS-TECLA-004]
	Headset	ACM-70	[DVS-cyber-004]
	Card Reader	ACR384-L1	RR100-715055
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-002]
	UPS	SMT-1500	3S1536X06484
	EMI Filter	15EMC1	[DVS-CorcomEMIFilter-001]
Magnetic PCOS 320C	ICP	PCOS-320C	AAFAJFN0030
	ATI	eATI-Device	00659010100-046
	Headset	ACM-70	[DVS-cyber-003]
	Jelly Switches	10033400	[DVS-ablenet-011] & [DVS-ablenet-012]
	Joystick	S26	[DVS-JOY-001]

Table 8 – Magnetic Fields Immunity Configurations

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Operational Setup

Peripheral devices were attached to the EUT for its test operation. However, this report does not represent compliance of these peripheral device(s) in any way.

- Voting Application was provided by manufacturer to exercise the EUT to normal operating conditions

## Modifications for Compliance

The following modifications were made during testing for the sample to achieve compliance with the testing requirements:

- AVALUE SAMSUNG / ICX SAMSUNG was modified to pass Radiated Emissions
  - Steward Ferrite 28A0392-0A2 added to headphone cable (2 turns) & USB cable of tablet (1 turn)
- AVALUE SAMSUNG / ICX SAMSUNG software was updated to include de-bouncing to protect itself during Electromagnetic Susceptibility & Electrical Fast Transient tests
- AVALUE 15" / 21" & SAMSUNG configurations utilized an AC filter to comply with FCC Subpart B Class B Conducted Emission limits. Two types of filters were used to comply with these limits
  - CORCOM Filter P/N#: 15EMC1
  - Delta Filter P/N#: 16DPCG5C

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Appendix B – EUT, Peripherals, and Test Setup Photos**

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

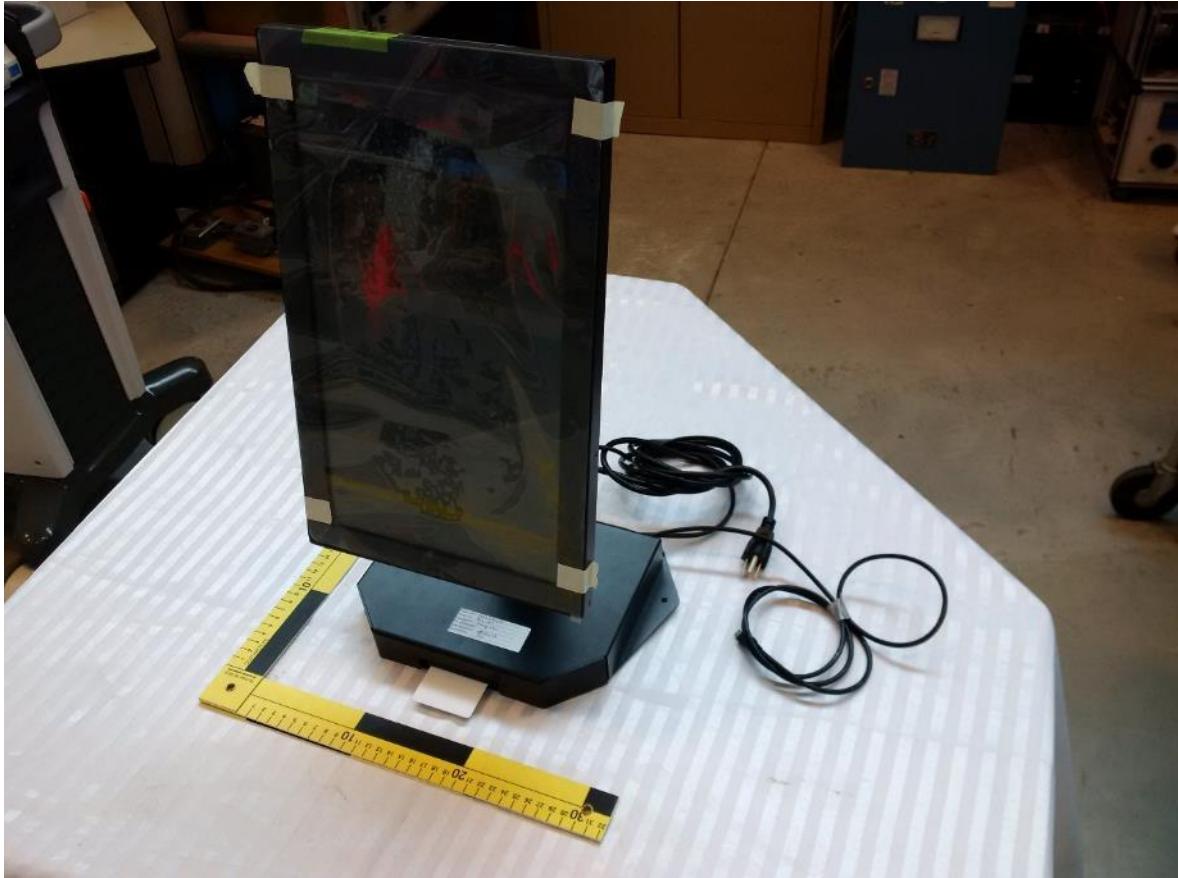


Figure 1 – EUT Close Up AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 2 – EUT Close Up AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 3 – EUT Close Up AVALUE SAMSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

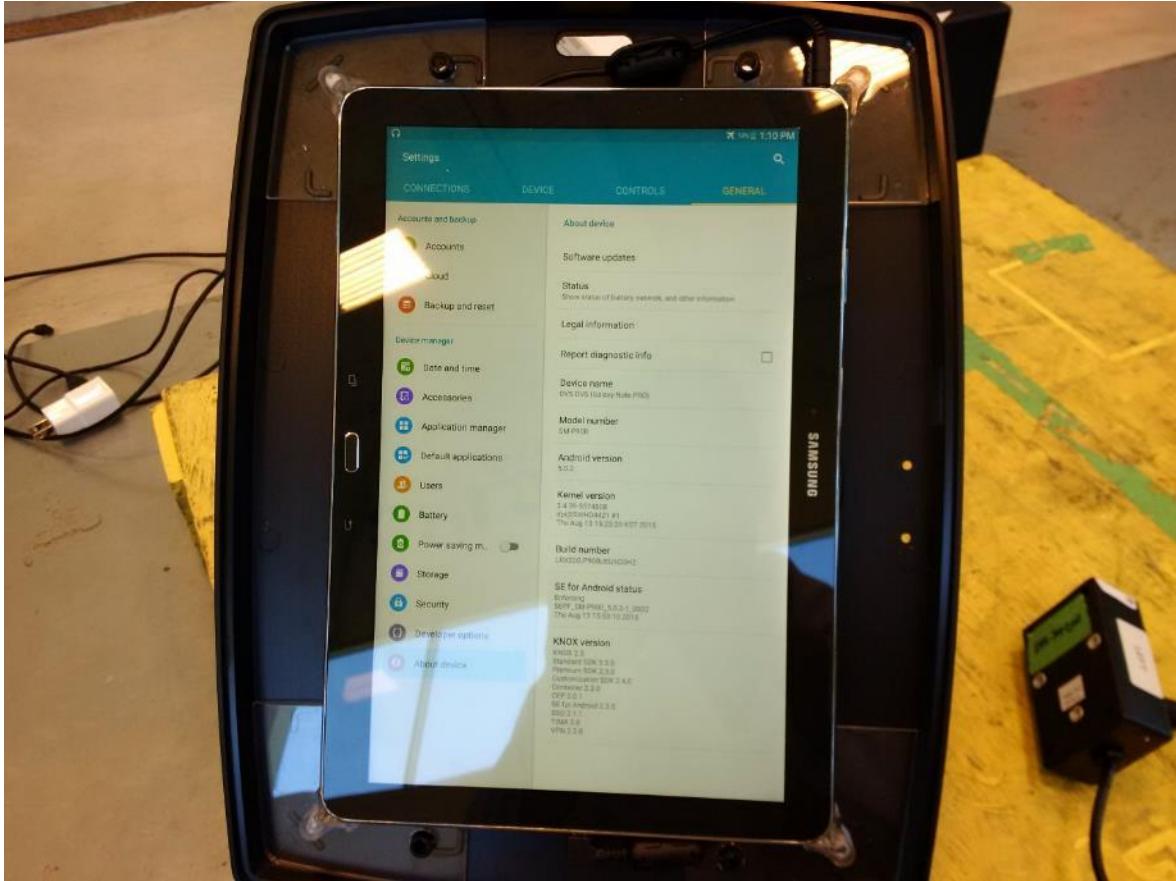


Figure 4 – EUT Close Up – Placement of Ferrites for AVALUE SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 5 – EUT Close Up AVALUE SAMSUNG / ICX SAMSUNG Power Supply

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 6 – EUT Close Up PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 7 – EUT Close Up PCOS 320C / ICP Power Supply

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 8 – EUT Close Up Front – APC UPS For AVALUE 15", 21" & SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 9 – EUT Close Up Rear – APC UPS For AVALUE 15", 21" & SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

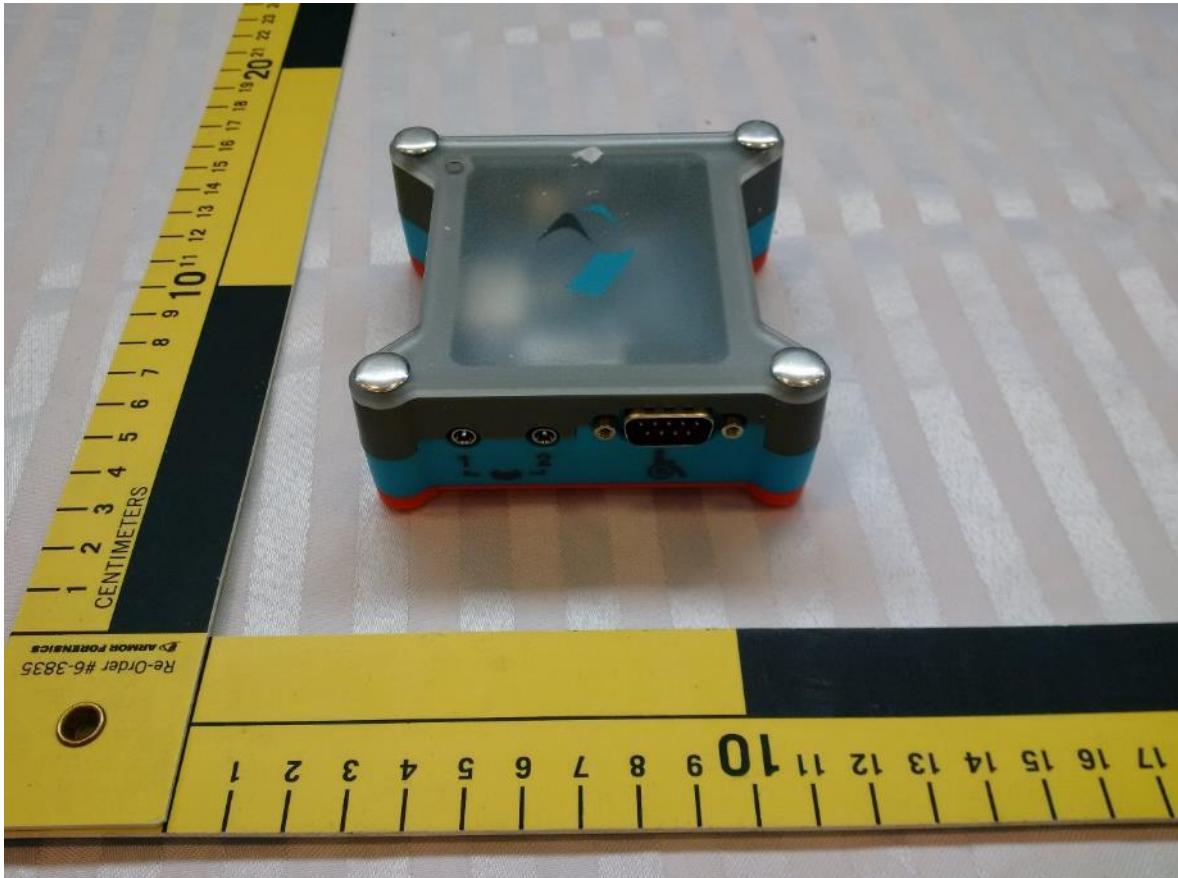


Figure 10 – EUT Close Up – Tecla Interface Box

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 11 – EUT Close Up – Headphone Interface Box

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 12 – EUT Close Up – Canon Printer

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 13 – EUT Close Up – HP Printer

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 14 – EUT Close Up – Paddle & Joystick Accessories

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 15 – EUT Close Up – Delta Filter

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 16 – EUT Close Up – CORCOM Filter

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 17 – Conducted Emissions Setup – AVALUE 15" / ICX 15" – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 18 – Conducted Emissions Setup – AVALUE 15" / ICX 15" – Photo 2

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 19 – Conducted Emissions Setup – AVALUE 21" / ICX 21" – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 20 – Conducted Emissions Setup – AVALUE 21" / ICX 21" – Photo 2

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 21 – Conducted Emissions – AVALUE SAMSUNG / ICX SAMSUNG – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 22 – Conducted Emissions – AVALUE SAMSUNG / ICX SAMSUNG – Photo 2

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

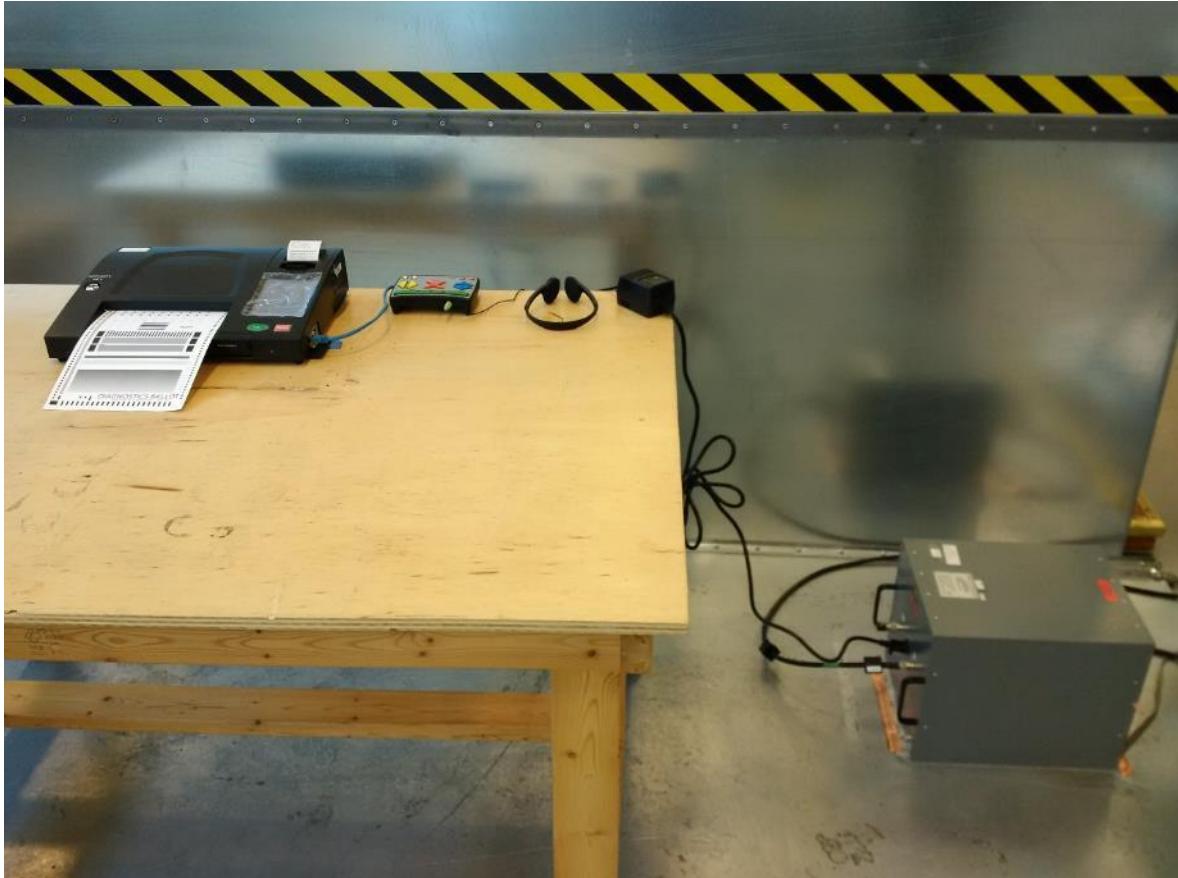


Figure 23 – Conducted Emissions – PCOS 320C / ICP – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 24 – Conducted Emissions – PCOS 320C / ICP – Photo 2

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

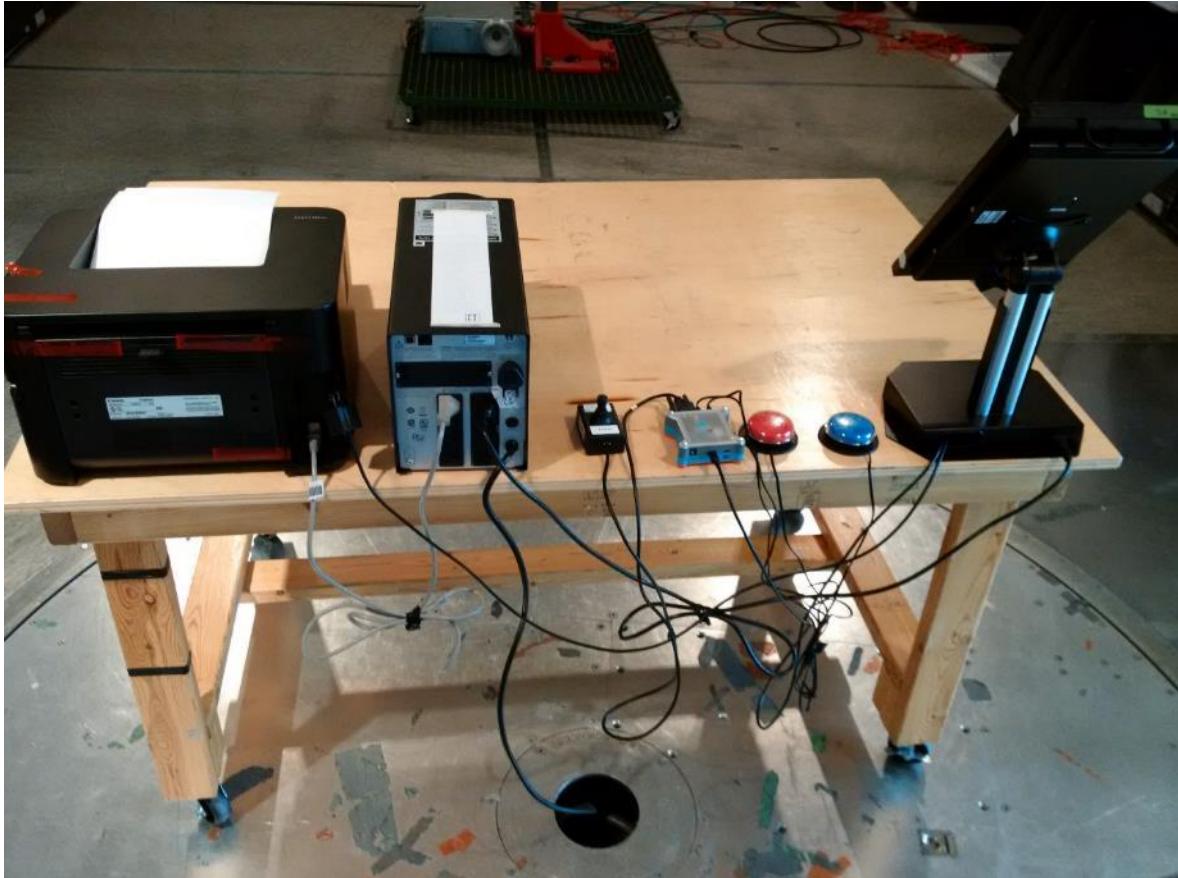


Figure 25 – Radiated Emissions Setup – AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

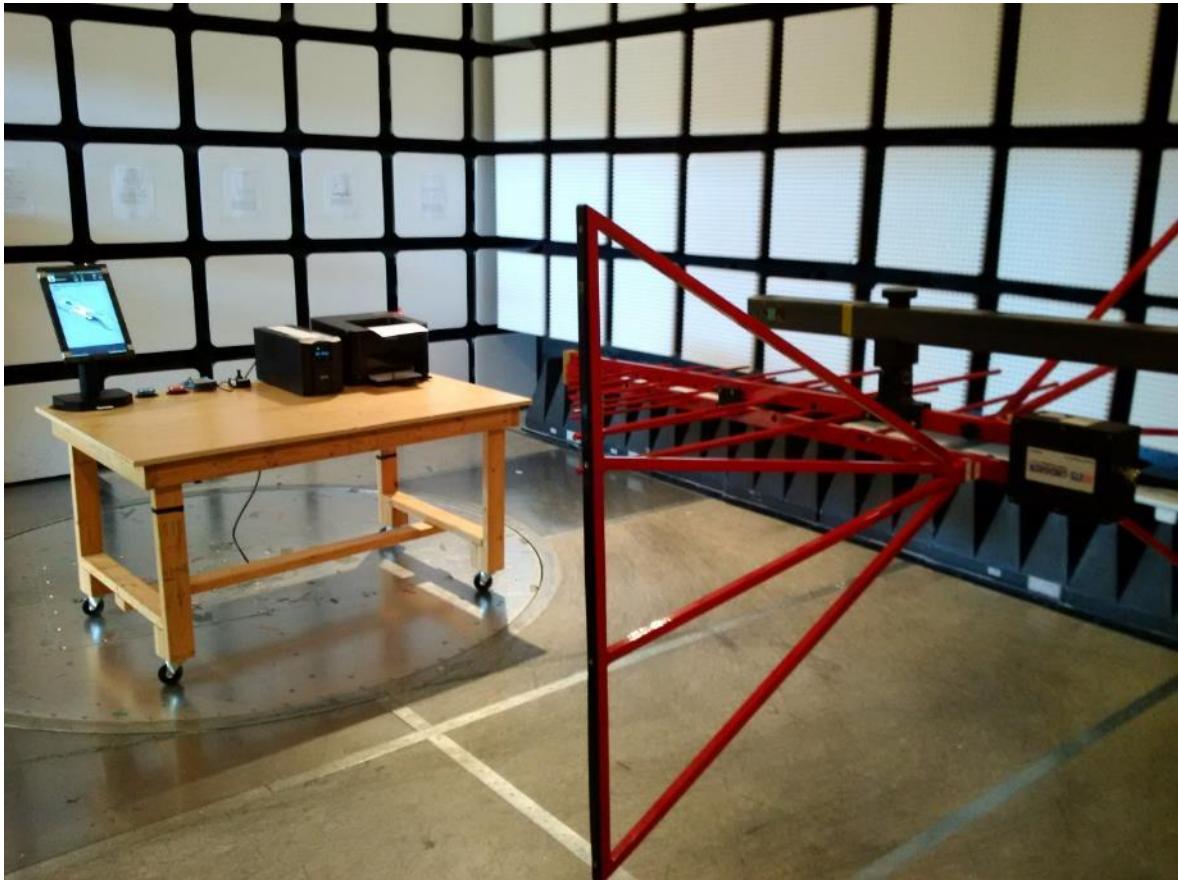


Figure 26 – Radiated Emissions Setup – AVALUE 15" / ICX 15" – Photo 1  
30MHz – 1GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

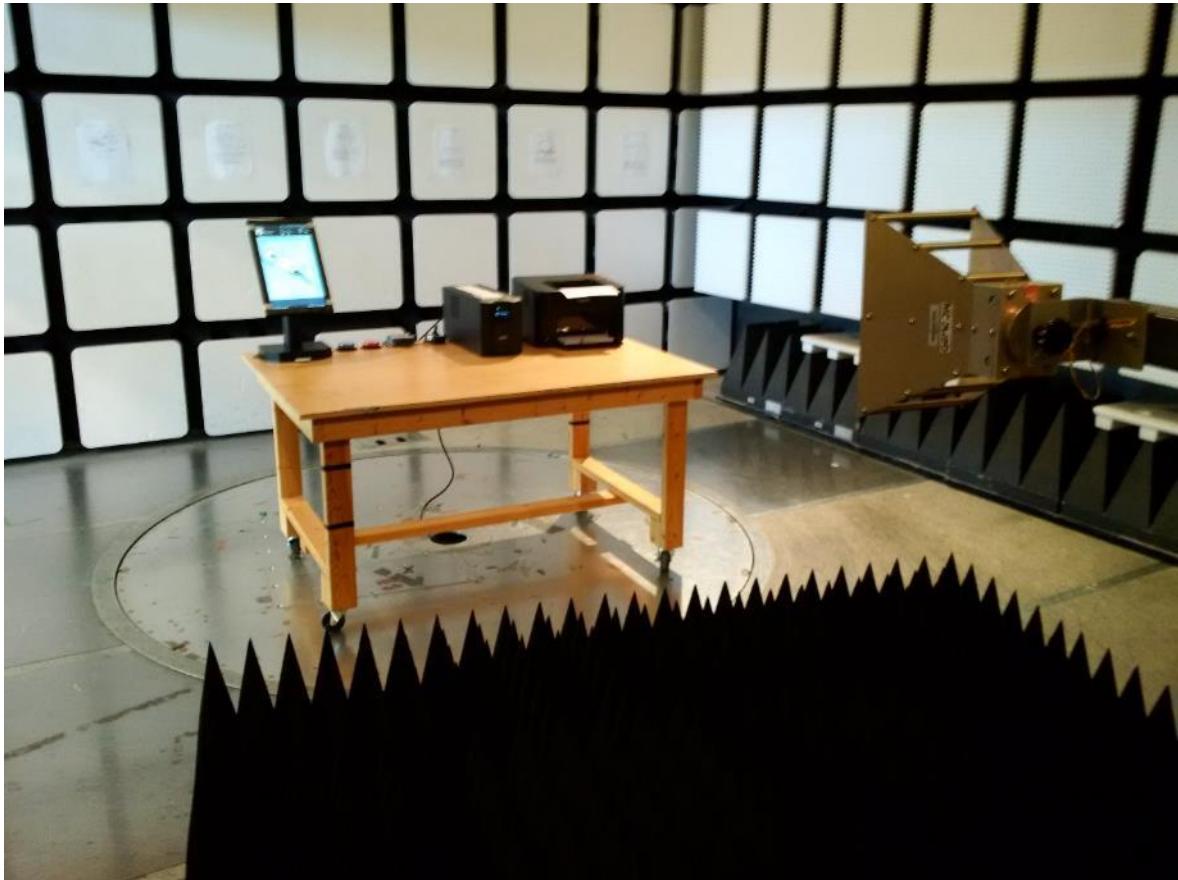


Figure 27 – Radiated Emissions Setup – AVALUE 15" / ICX 15" – Photo 2  
1GHz – 10GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 28 – Radiated Emissions Setup – AVALUE 21" / ICX 21" – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

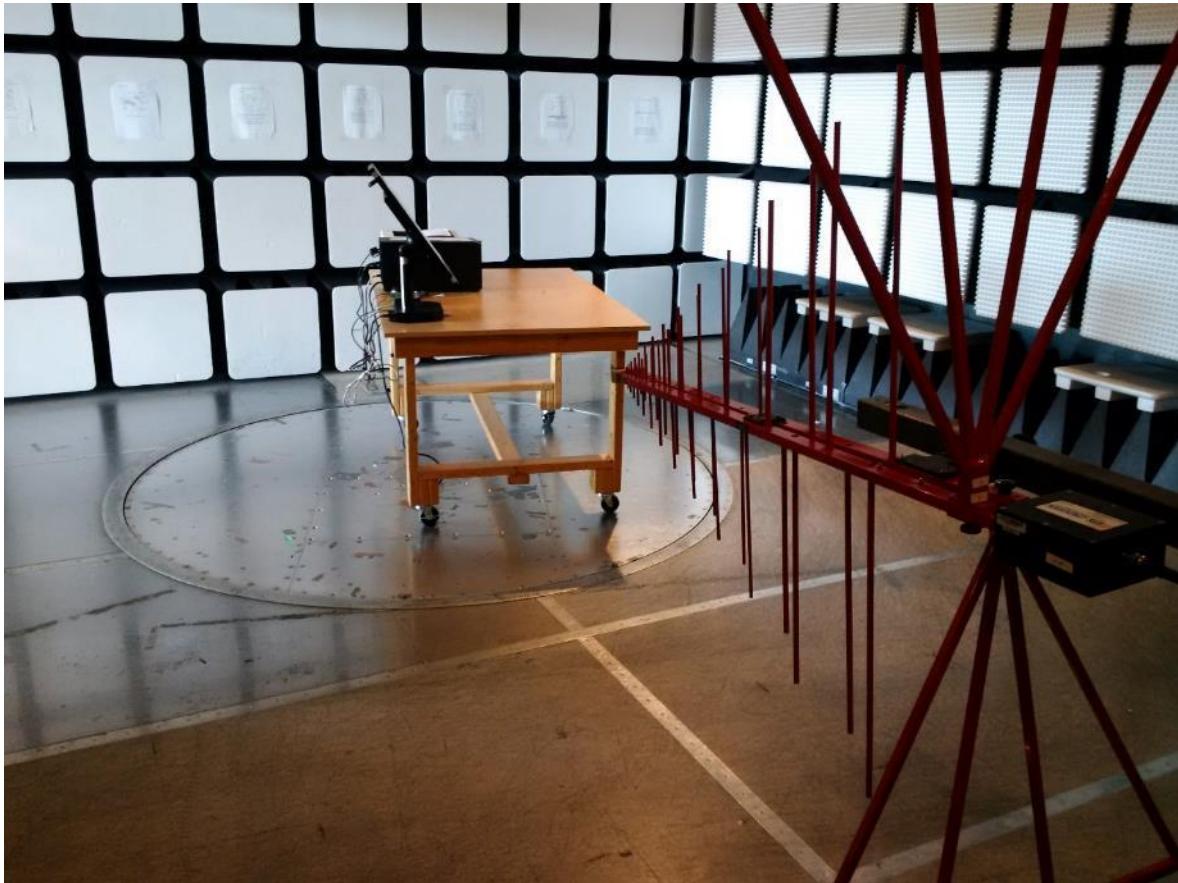


Figure 29 – Radiated Emissions Setup – AVALUE 21" / ICX 21" – Photo 2  
30MHz – 1GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

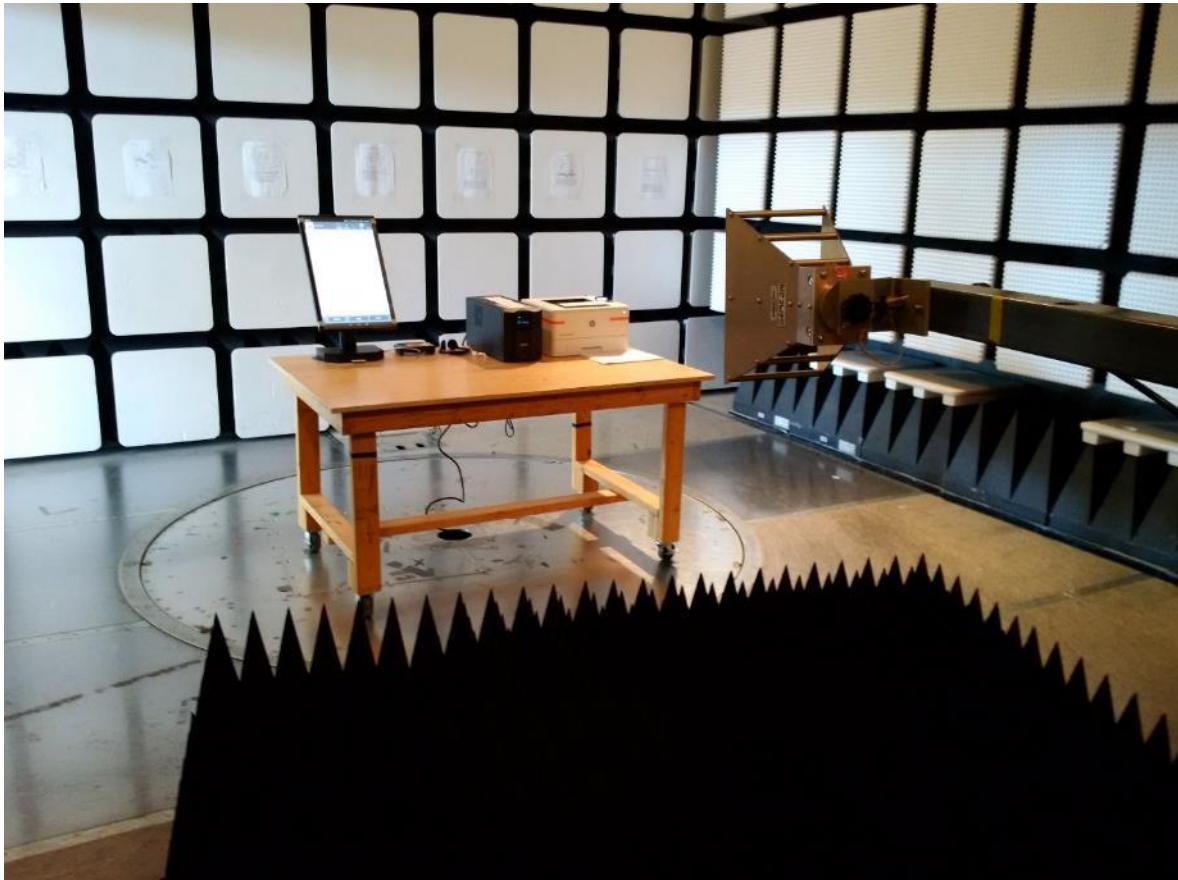


Figure 30 – Radiated Emissions Setup – AVALUE 21" / ICX 21" – Photo 3  
1GHz – 10GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

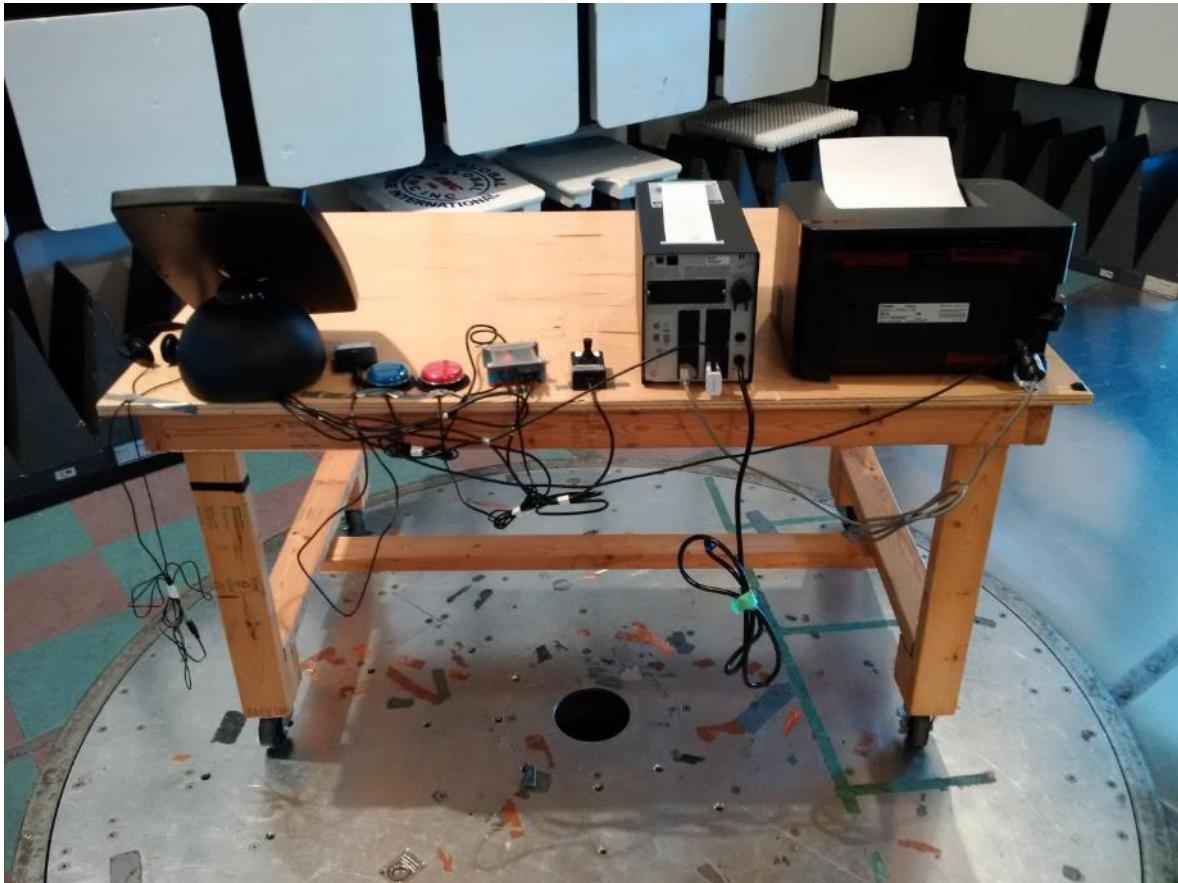


Figure 31 – Radiated Emissions Setup – AVALUE SAMSUNG / SAMSUNG – Photo 1  
30MHz – 1GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 32 – Radiated Emissions Setup – AVALUE SAMSUNG / SAMSUNG – Photo 2  
1GHz – 10GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 33 – Radiated Emissions Setup – PCOS 320C / ICP – Photo 1

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 34 – Radiated Emissions Setup – PCOS 320C / ICP – Photo 2  
30MHz – 1GHz

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 35 - Electrostatic Disruption Setup – AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

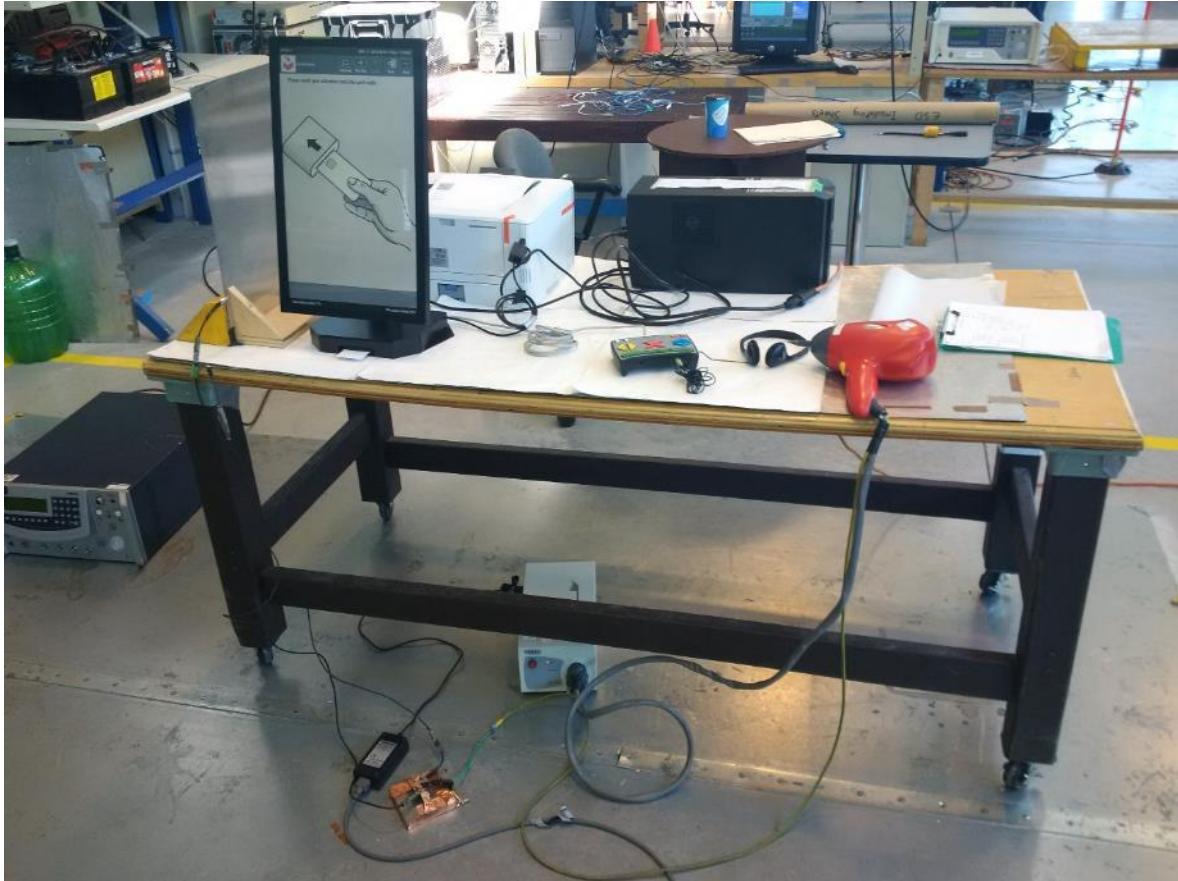


Figure 36 - Electrostatic Disruption Setup – AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 37 - Electrostatic Disruption Setup – AVALUE SAMSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 38 - Electrostatic Disruption Setup – PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

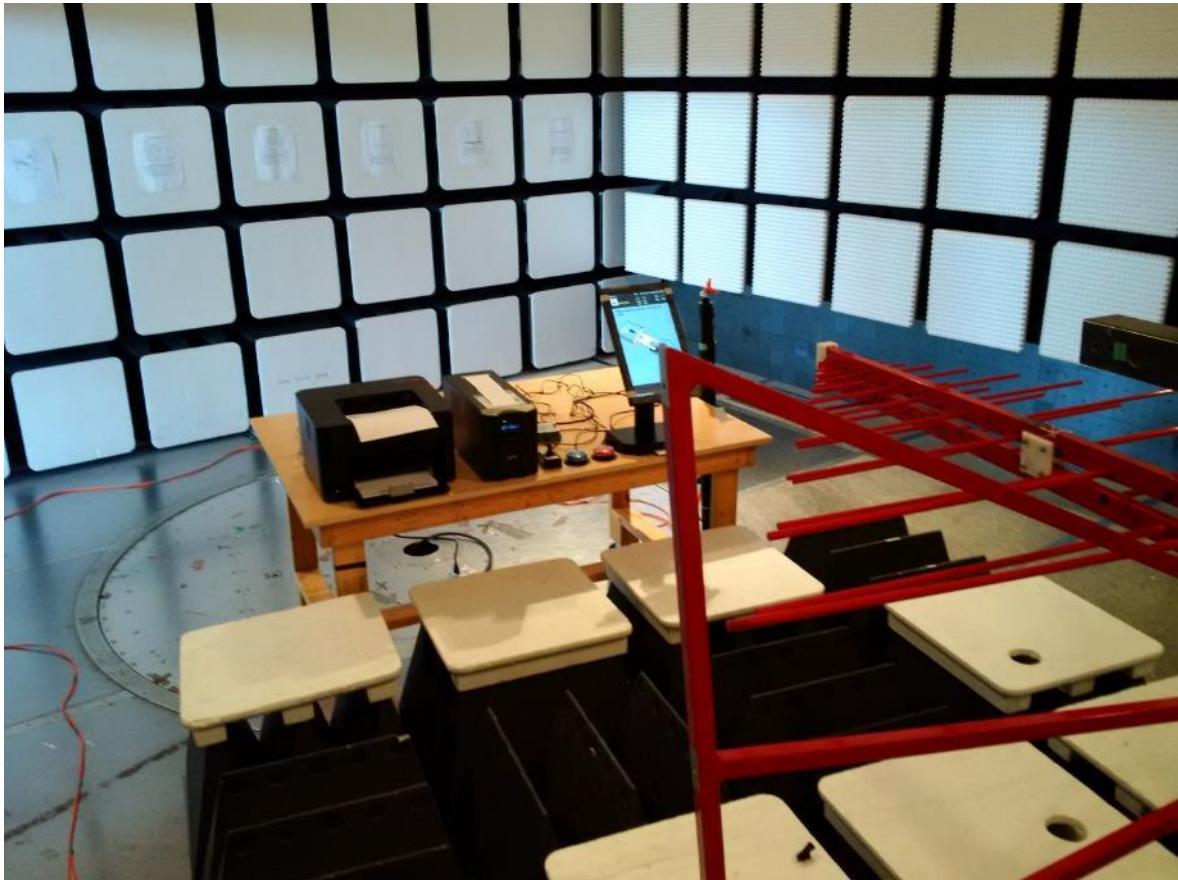


Figure 39 - Electromagnetic Susceptibility Setup – AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 40 - Electromagnetic Susceptibility Setup – AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 41 - Electromagnetic Susceptibility Setup  
AVALUE SAMSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 42 - Electromagnetic Susceptibility Setup – PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

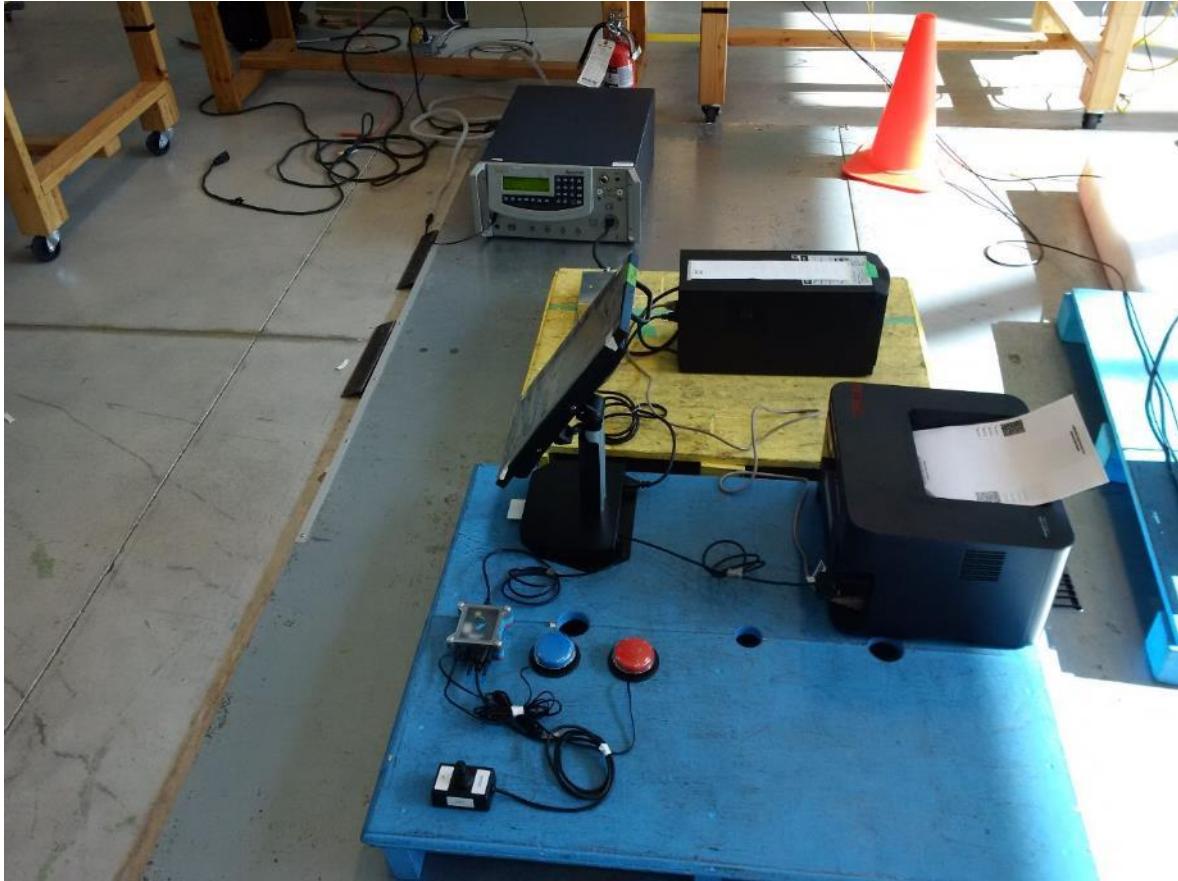


Figure 43 - Electrical Fast Transient, Lightning Surge & Electrical Power Disturbance  
AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

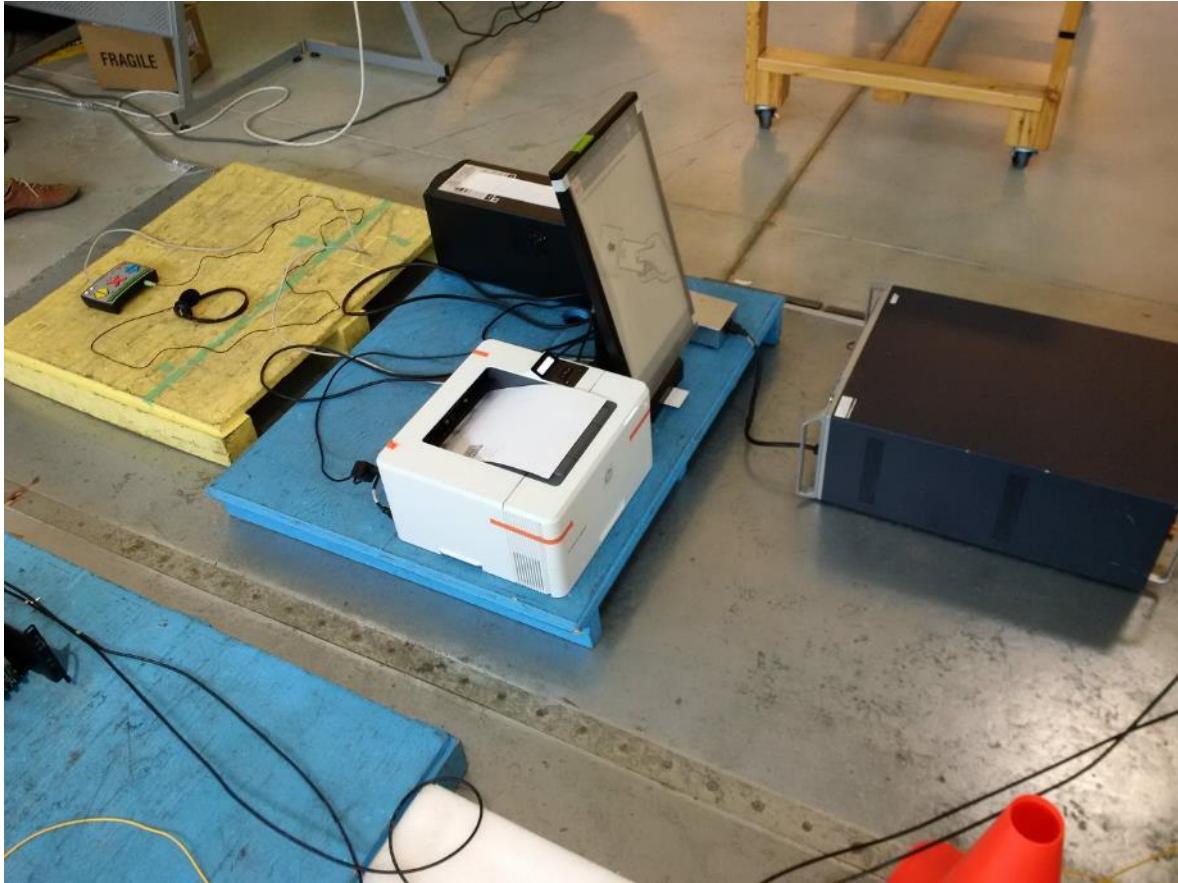


Figure 44 - Electrical Fast Transient, Lightning Surge & Electrical Power Disturbance  
AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

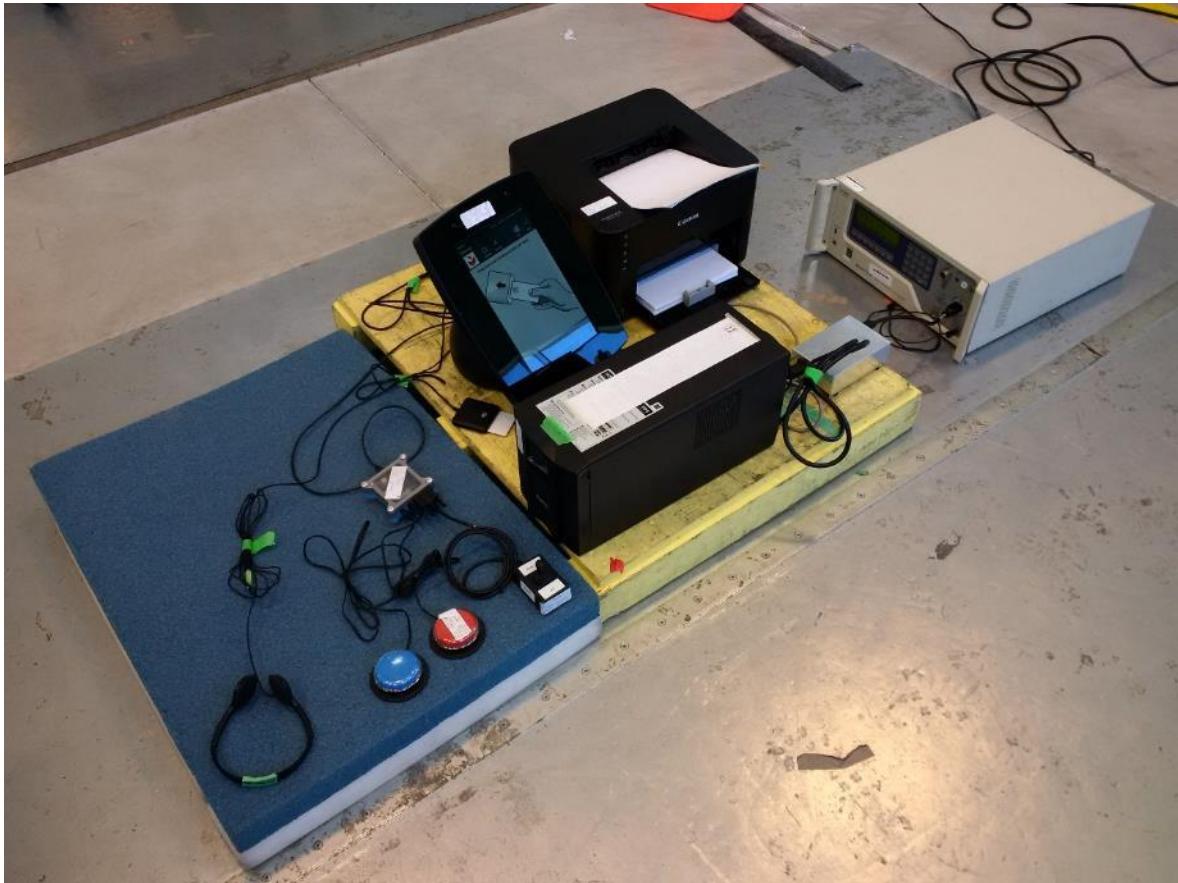


Figure 45 - Electrical Fast Transient, Lightning Surge & Electrical Power Disturbance  
AVALUE SAMSSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

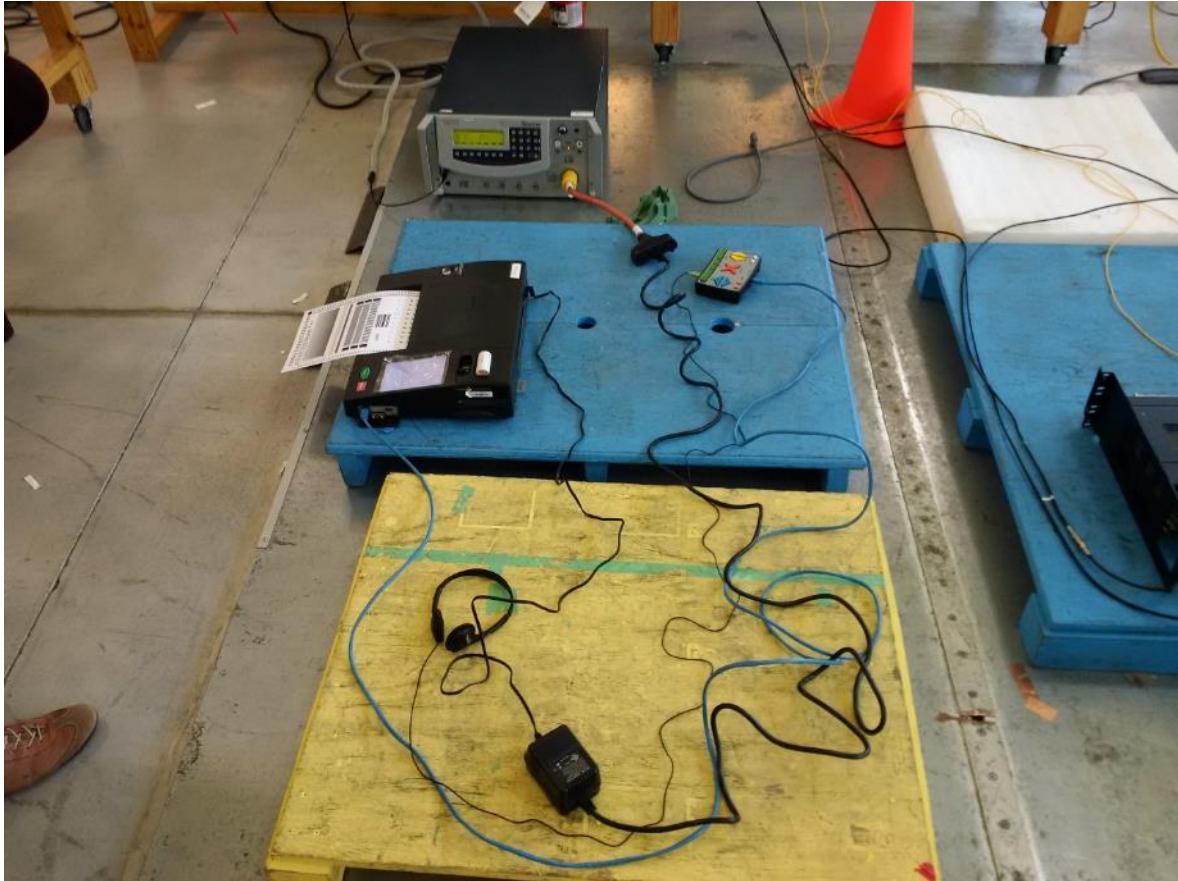


Figure 46 - Electrical Fast Transient, Lightning Surge & Electrical Power Disturbance  
PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

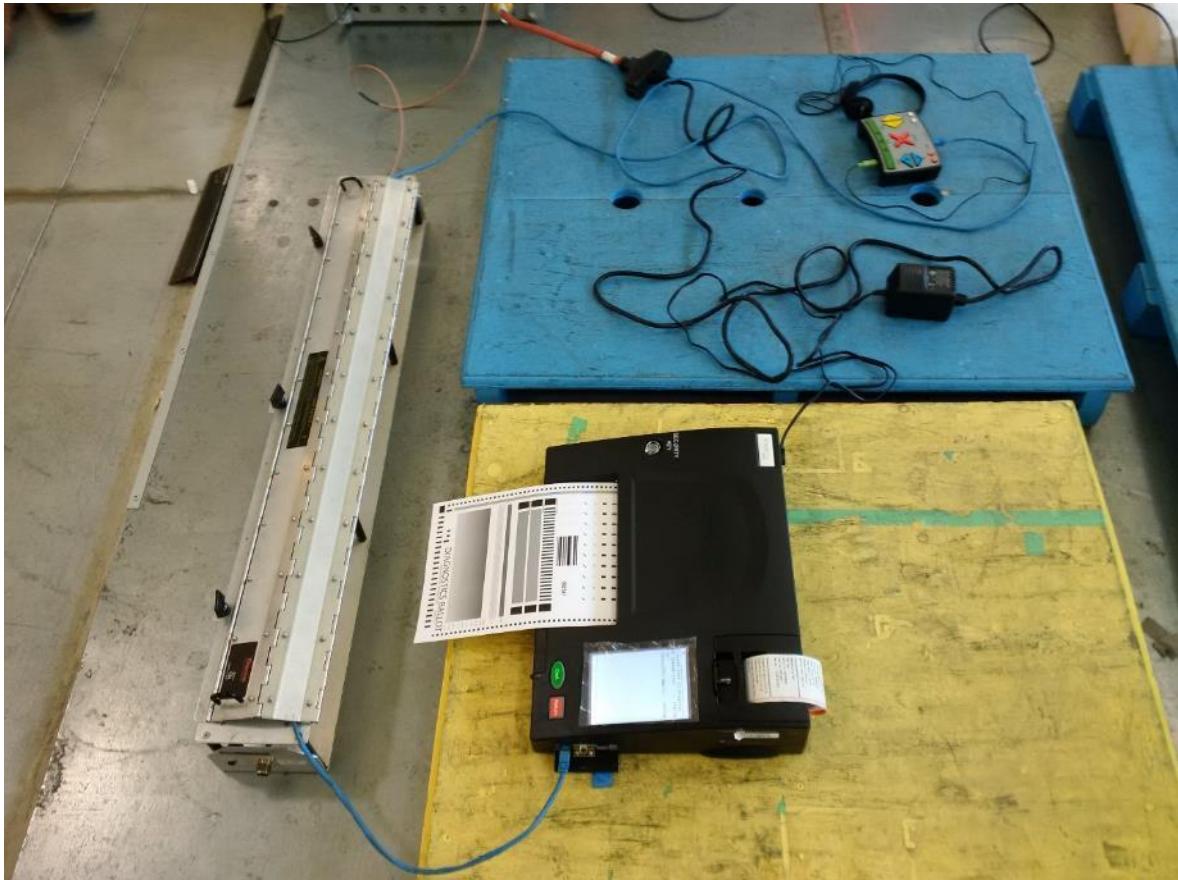


Figure 47 - Electrical Fast Transient  
PCOS 320C / ICP Ethernet I/O For Headphone Box

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

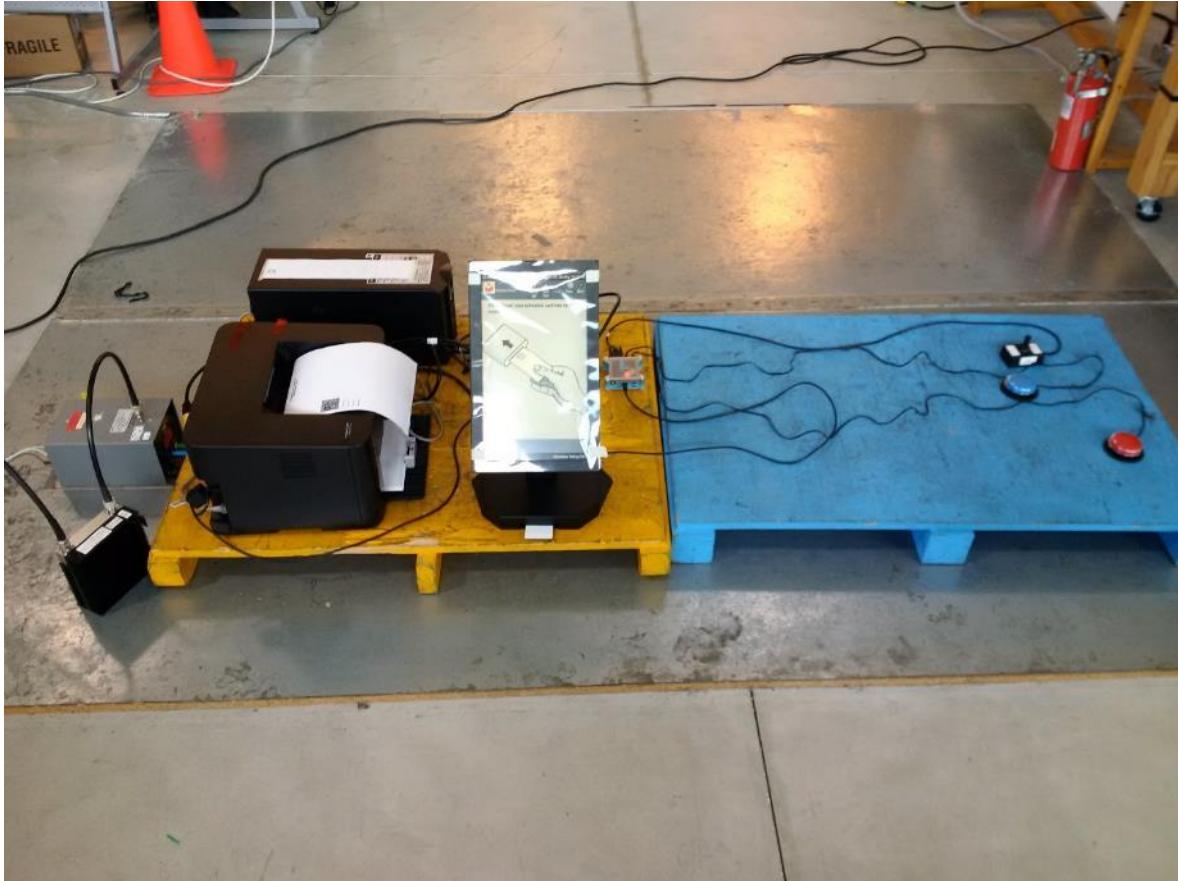


Figure 48 - Conducted RF Immunity – AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

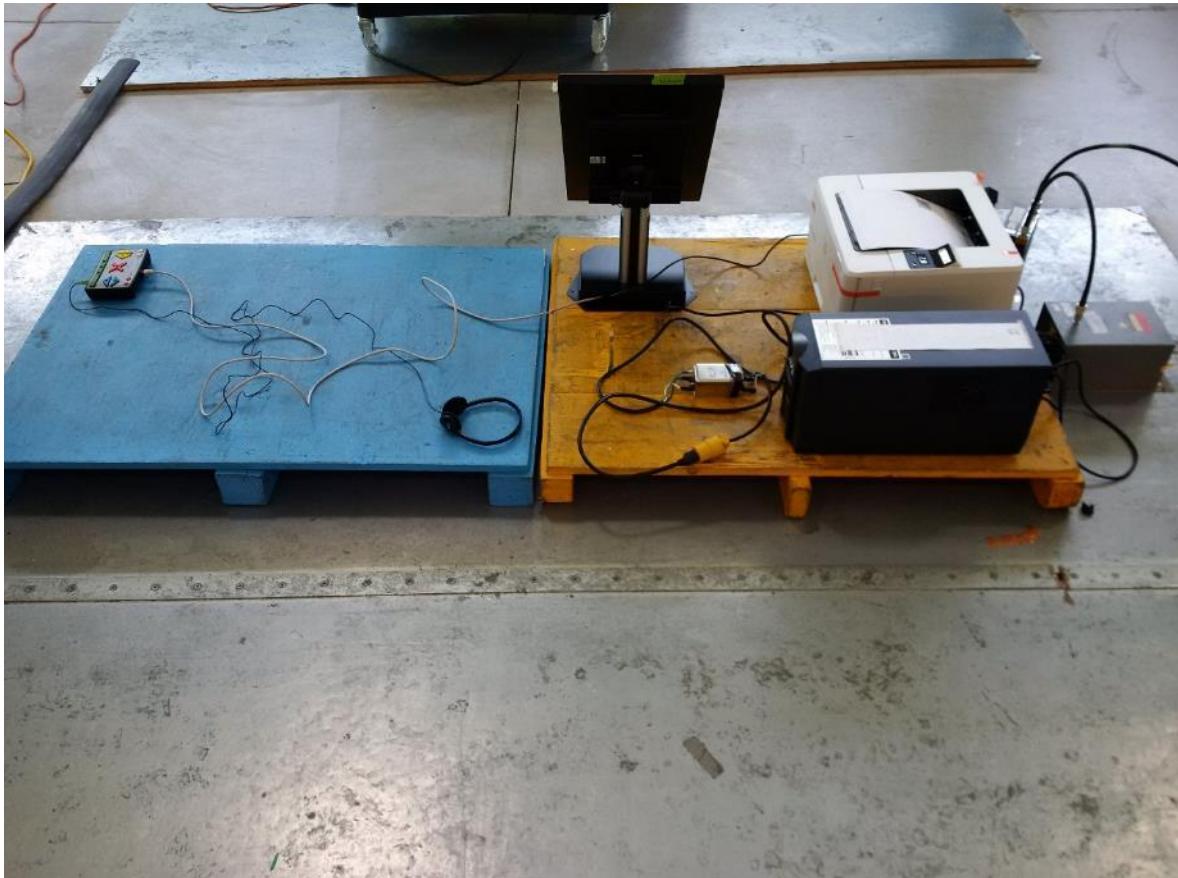


Figure 49 - Conducted RF Immunity – AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 50 - Conducted RF Immunity – AVALUE SAMSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

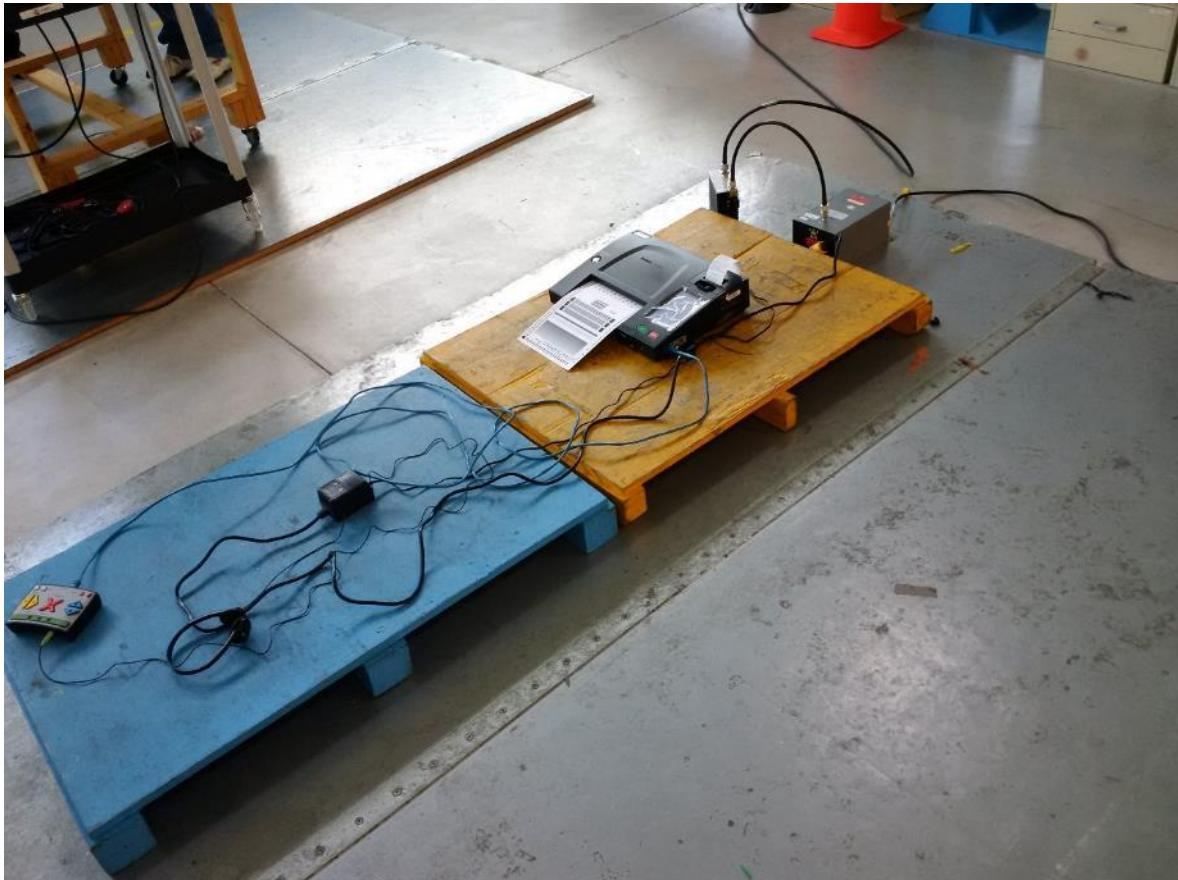


Figure 51 - Conducted RF Immunity – PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

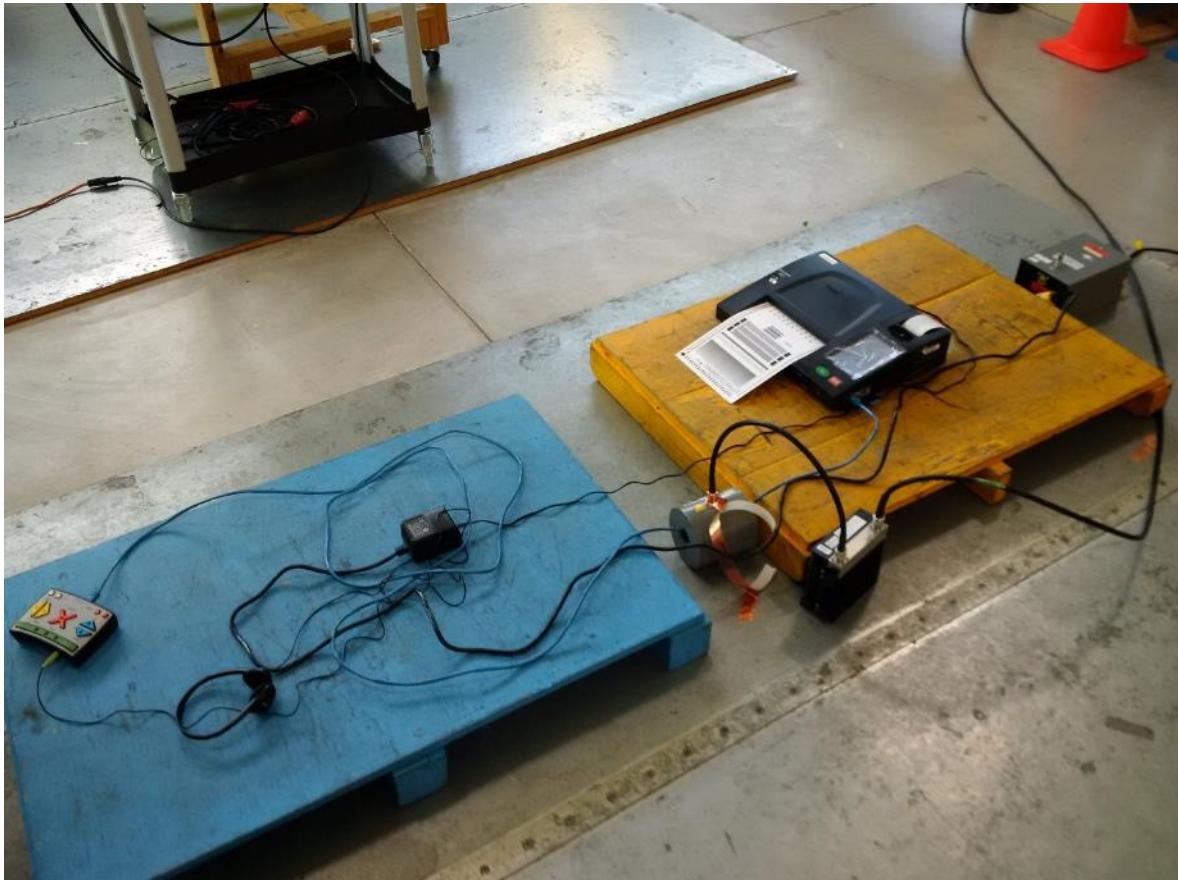


Figure 52 - Conducted RF Immunity  
PCOS 320C / ICP Ethernet I/O Cable for Headphone Box

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

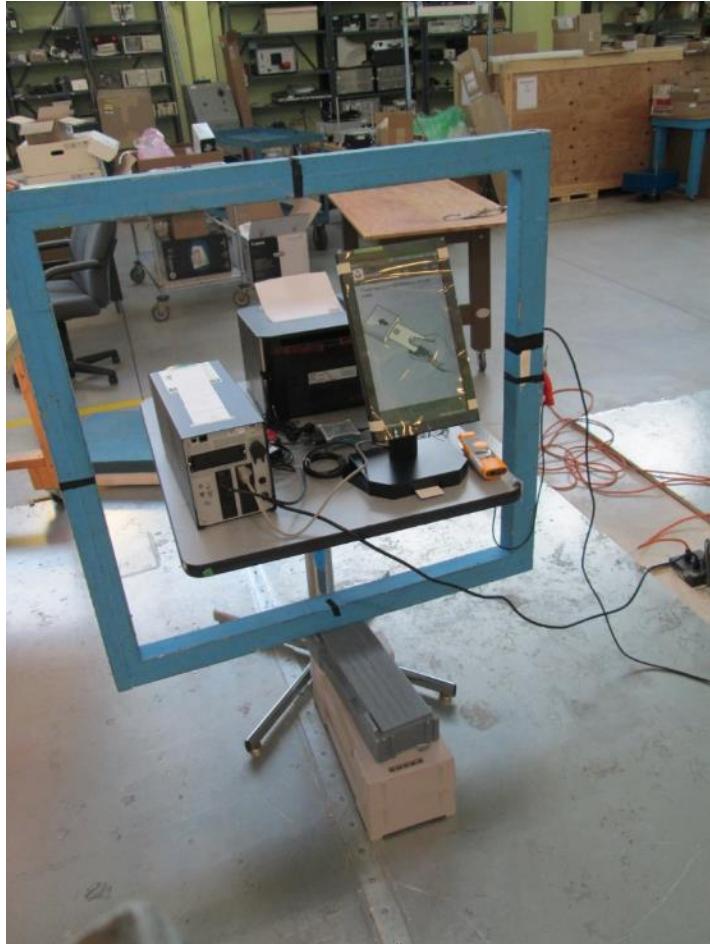


Figure 53 - Magnetic Fields Immunity – AVALUE 15" / ICX 15"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

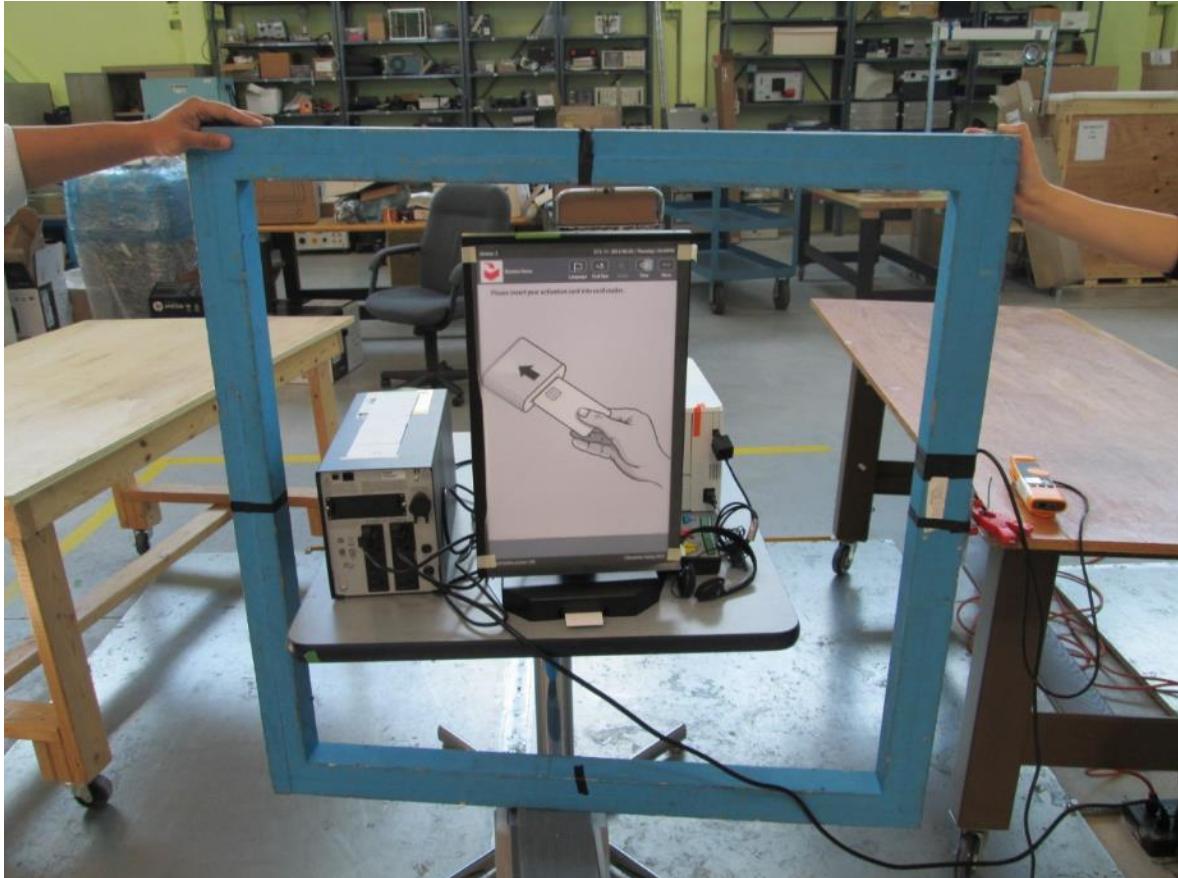


Figure 54 - Magnetic Fields Immunity – AVALUE 21" / ICX 21"

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12

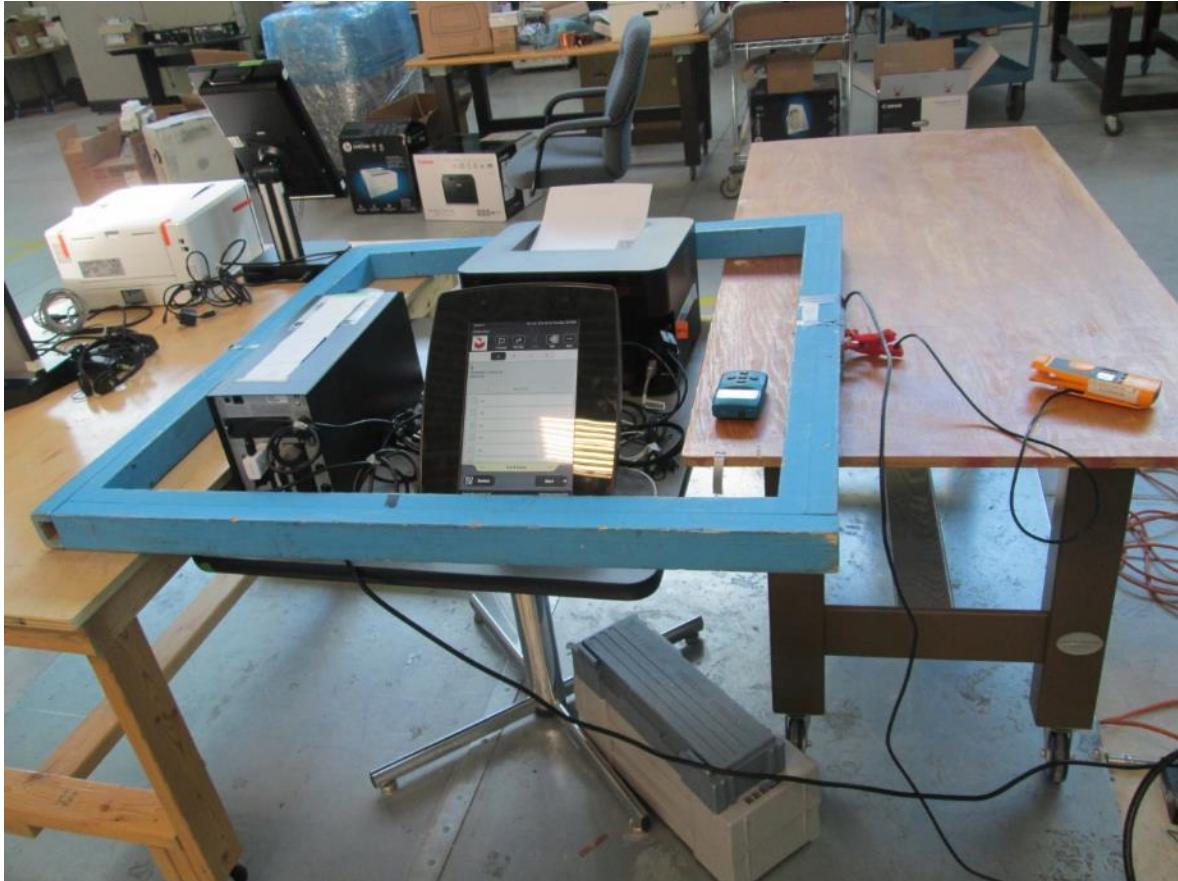


Figure 55 - Magnetic Fields Immunity – AVALUE SAMSUNG / ICX SAMSUNG

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 56 - Magnetic Fields Immunity – PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 57 - Electrical Power Disturbances 8 Hour Test  
**AVALUE 15" / ICX 15" & AVALUE 21" / ICX 21"**

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



Figure 58 - Electrical Power Disturbances 8 Hour Test  
AVALUE SAMSUNG / ICX SAMSUNG & PCOS 320C / ICP

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## **Appendix C – Product Marking**

Client	<b>Pro V&amp;V</b>
Product	<b>AVALUE &amp; ICX 15" / 21" / SAMSUNG, PCOS 320C</b>
Standard(s)	FCC Part 15 Subpart B: 2015, ICES-003, Iss. 6: 2016 VVSG 1.0 (2005) Vol. 1 – 4.1.2.5 to 4.1.2.12



## Product Marking

### Products marketed in the US:

For products that are not intentional radiators and are subject to the 'verification' procedure in the US, according to the FCC, the product shall bear the following statement in a conspicuous location on the device:

*This device complies with Part 15 of the FCC Rules.*

*Operation is subject to the following two conditions:*

- (1) this device may not cause harmful interference, and*
- (2) this device must accept any interference received, including interference that may cause undesired operation.*

Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified is required to be affixed only to the main control unit.

When the device is so small or for such use that it is not practicable to place the statement specified on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

In this case, the following statement may accompany the product:

*"This device complies with Part 15 of the FCC Rules. See manual for details"*

Also, the FCC identifier or other unique identifier such as a model number and serial number, as appropriate, must be displayed on the device.

### Products marketed within Canada:

According to Industry Canada, the following statement shall be permanently affixed to the ITE or displayed electronically and its text must be clearly legible. If the dimensions of the device are too small or if it is not practical to place the label on the device and electronic labeling has not been implemented, the label shall be, upon agreement with Industry Canada, placed in a prominent location in the user manual supplied with the ITE.

*CAN ICES-3 (\*)/NMB-3(\*)*

\* Insert either "A" or "B" but not both to identify the applicable Class of ITE.