For The Scope of Accreditation Under Certificate Number AT-1533

Excellence in Compliance Testing

EMI Test Report

In Accordance with:

FCC 47 CFR Part 15 Subpart B

Authorization Type: Verification

Manufacturer: KTS WIRELESS
Model Covered: AWR-US-U-100
Model Variants: None Declared

ACS Report: 11-2110.C01.1A
Report Revision: A
Report Issue Date: March 9, 2012

Project Manager:

Thierry Jean-Charles
EMC Engineer
Advanced Compliance Solutions, Inc.

Reviewed by:

Sam Wismer
VP, Technology
Advanced Compliance Solutions, Inc.

This report must not be used by the client to claim product certification, approval, or endorsement by ACLASS, ANSI, or any agency of the Federal Government.

This report contains 23 pages

REVISION HISTORY
Report Number: 11-2110.C01.1A
Manufacturer: KTS WIRELESS
Model: AWR-US-U-100

DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
March 9, 2012	---	A	**Initial Release**	**All**	Sam Wismer

Project Information

ACS Project: 11-2110.C01.1A

Applicant Details

Manufacturer: KTS WIRELESS
Street Address: 1025 Greenwood Blvd. Suite 391
City, State/Province and Postal Code: Lake Mary FL, 32746
Country: USA

Contact: Ed Gerhardt
Phone: 407 260 0564
Fax: 407 333 3620
Email: Ed@koostech.com

Sample Information

Model: AWR-US-U-100
Model Variant(s): None Declared
Product Description: The KTS Agility White Space Radio, AWR-US-U-100, is a White Space Fixed TVBD intentional radiator designed to operate on an unlicensed basis on available channels in the broadcast television frequency bands 470-599 MHz (TV channels 14-35) and 620-698 MHz (TV channels 39-51)
Environment of Use: Residential
Sample Receive Date: December 16, 2012
Sample Receive Condition: Good
Test Mode Description: The unit was set to the receive mode. The unit was continuously communicating with a laptop PC which was also running a Jackhammer and Scrolling H software.

Highest Data Rate: 1390 MHz Source: Receiver LO

Power Interfaces

(Check all that apply and enter power info):

☒ AC Mains Input 120VAC/60Hz
☐ AC Output N/A
☐ DC Input N/A
☐ DC Output N/A
☐ Battery N/A
☐ Other N/A

I/O Interfaces:

Interface Type	Quantity	Length (m)	Shielded?
See Section 3.2			

Test Information

Test Start Date: November 30, 2011
Test End Date: February 29, 2012
Emissions Pre-scan Site: SAC
Final Emissions Site: SAC
EMI Freq. Band: 30 MHz - 7 GHz
Radiated Emissions Equipment Class: Class B

Project Information(continued)

ACS Project: 11-2110.C01.1A

Test Methods/Standards Applied

(Check all that apply):

☒ **ANSI C63.4-2009 -** American National Standard for Methods of Measurement of Radio-Noise Emissions from low-voltage electrical and electronic equipment in the range of 9kHz to 40 GHz.

☒ **US Code of Federal Regulations (CFR):** Title 47, Part 15, Radio Frequency Devices, Subpart B, Unintentional Radiators (2012)

☐ **Industry Canada ICES-003 Issue 4:** Digital Apparatus (February 2004).

☐ **CISPR 16-2-1:2005 -** Specification for radio disturbance and immunity measuring apparatus and methods Part 2-1: Methods of measurement of disturbances and immunity-Conducted Disturbance Measurement

☐ **CISPR 16-2-3:2003** - Specification for radio disturbance and immunity measuring apparatus and methods Part 2-3: Methods of measurement of disturbances and immunity-Radiated Disturbance Measurement

☐ **CISPR 22:2005 -** Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

☐ **EN 55022:2006 w/A1 -** Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

☐ **EN 55011:2007 w/A2-** Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement

☐ **EN 61000-6-3:2007** Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

☐ **EN 61000-6-4:2007** Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments

☐ **AS/NZS CISPR 22:2006 -** Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

☐ **VCCI: V–2 & V-3/2009.04** – Agreement of Voluntary Control Council for Interference by Information Technology Equipment

☐ **CNS 13438:2006** - CNS Limits and methods of measurement of radio interference characteristics of information technology equipment

Table of Contents

1.0 Introduction

1.1 Scope

This report documents conformance of the digital and receiver portion of the EUT with the Electromagnetic Interference requirements outlined in the product information sheet and details the results of testing performed on November 30, 2011 through February 29, 2012 on the Model AWR-US-U-100 manufactured by KTS WIRELESS. The confomance of the radio portion is documented separately in a certification report.

1.2 Performance Criteria

For Model AWR-US-U-100 the limits which apply are Class B. These limits are found in Table 1.2-1 below:

Table 1.2-1 Emissions Limits Class B

Emission Type	Frequency Range[2] (MHz)	Voltage limits[1] (dBµV)
Conducted Class B	0.15 to .5	66 to 56 QP 56 to 46 Ave
	.5 to 5	56 QP 46 Ave
	5 to 30	60 QP 50 Ave
Radiated Class B @ 3 meters	30.0 to 88.0	40.0
	88.0 to 216.0	43.5
	216.0 to 960.0	46.0
	Above 960.0	54.0

1 - Decreases Linearly with Logarithm of Frequency
2 – Limits <1GHz are Quasi-Peak and Peak >1GHz
Note: Lower Limit Applies at Transition Frequency

2.0 Test Facilities & Environment

2.1 Test Facilities

All testing was performed at the following address:

Advanced Compliance Solutions, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
www.acstestlab.com

FCC Test Firm Registration #: 587595
Industry Canada Lab Code: 4175C

The laboratory is fully equipped to carry out the tests outlined in Section 1.0

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by ANSI-ASQ National Accreditation Board under their ACLASS program and has been issued certificate number AT-1533 in recognition of this accreditation. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

2.3 Test Environment

Unless otherwise specified by the generic or product standard, the EUT was evaluated within the climate conditions of the EUT as specified by the manufacturer.

When the manufacturer does not specify climate parameters for the EUT, all test are performed within the ambient temperature range of 40°F to 104°F.

3.0 Equipment Under Test (EUT)

3.1 Manufacturer

KTS WIRELESS
1025 Greenwood Blvd. Suite 391
Lake Mary FL, 32746

Ed Gerhardt
407 260 0564
407 333 3620
Ed@koostech.com

3.2 System Block Diagram and Support Equipment

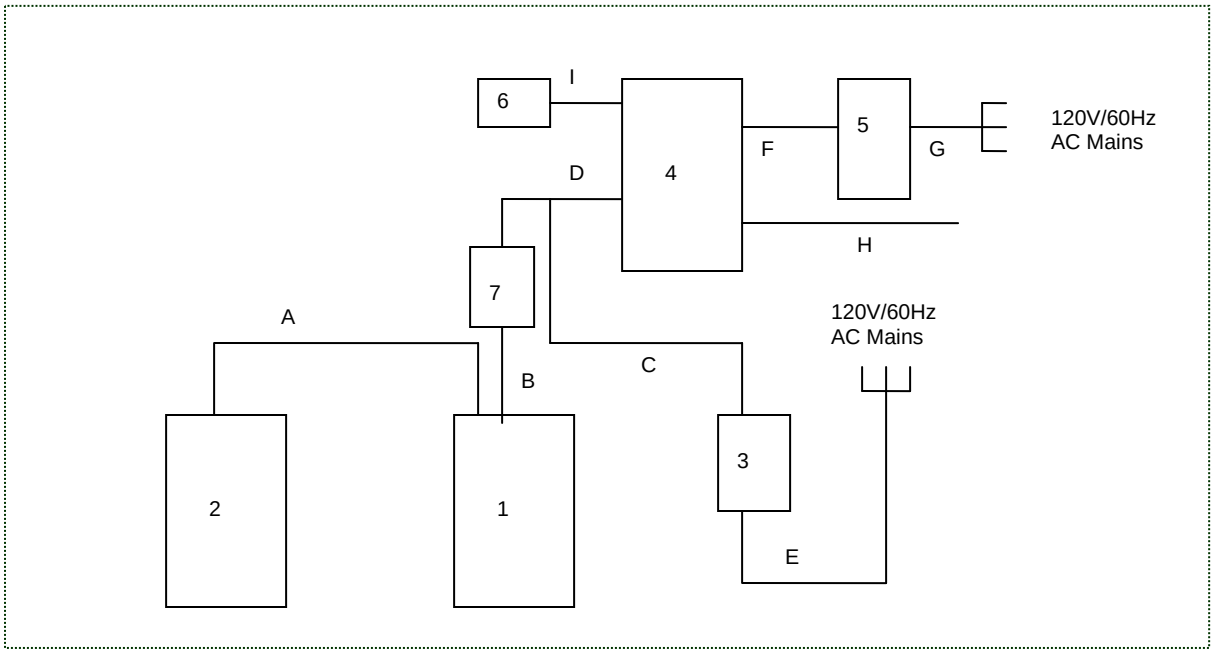

Table 3.2-1: EUT and Support Equipment Description

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	EUT	KTS Wireless	AWR-US-U-100	2232
2	Antenna	Telex	ALP-450	1139
3	Switching Power Supply	APX Technologies Inc.	SPU63-108 / SP63P924FR	07331315
4	Laptop Computer	Dell	Latitude D820	N/A
5	Laptop Charger	Dell	HA65NS0-00	CN-0DF261-47890-72C-N2J3
6	Mouse	Dell	XL966	LZ9440C43W5
7	Ferrite	FAIR-RITE	0446164281	N/A

Table 3.2-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	Coaxial	3.09m	Yes	Antenna to EUT
B	Ethernet	10m / 1.83mm	No	POE Injector to EUT
C	Power	1.9m	No	Switching Power Supply to EUT
D	POE Injector	0.3m	No	Laptop to LAN Cable and Power Supply Cable
E	Power	2.0m	No	Switching Power Supply to AC Mains
F	Power	1.92m	No	Charger to Laptop
G	Charger	0.9m	No	Charger to AC Mains
H	Serial	1.83m	No	None
I	USB	1.88m	No	Mouse to Laptop

3.3 Observations

Any general observations regarding any part of the evaluation are given in Table 3.3-1.

Table 3.3-1: Observations

Observation No.	Description
1	The EUT was tested in normal mode of operation per the customer.
2	The unit was connected to a power supply and a laptop computer which were placed away from the test area for the radiated emissions evaluation.

4.0 Radiated and Conducted Emissions

4.1 Radiated Emissions

4.1.1 Radiated Emissions Test Site

4.1.1.1 Semi-Anechoic Chamber

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl floor.

The turntable is driven by a pneumatic motor, which is capable of supporting a 2000-lb load. The turntable is flushed with the chamber floor which it is connected to, around its circumference, with metallic loaded springs. An EMCO Model 1051 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 4.1.1.1-1 below:

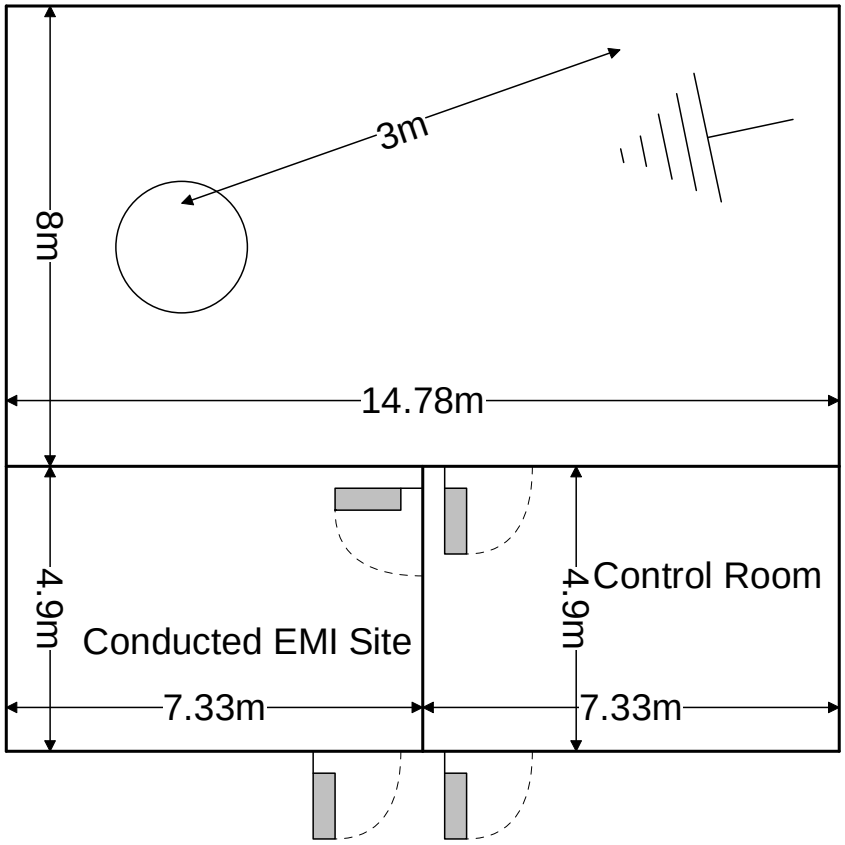

Figure 4.1.1.1-1: Semi-Anechoic Chamber Test Site

4.1.2 Test Equipment

Table 4.1.2-1 identifies all equipment used for radiated emissions.

Table 4.1.2-1 Test Equipment – Radiated Emissions

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
523	Agilent	E7405	Spectrum Analyzers	MY45103293	1/5/2011	1/5/2013
524	Chase	CBL6111	Antennas	1138	1/7/2011	1/7/2013
2006	EMCO	3115	Antennas	2573	3/2/2011	3/2/2013
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	1/3/2011	1/3/2012
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	1/2/2012	1/2/2013
2037	ACS Boca	Chamber EMI Cable Set	Cable Set	2037	1/7/2011	1/7/2012
2037	ACS Boca	Chamber EMI Cable Set	Cable Set	2037	1/2/2012	1/2/2013
2091	Agilent Technologies, Inc.	8573A	Spectrum Analyzers	2407A03233	12/12/2011	12/12/2013
RE586	Agilent Technologies, Inc.	83017A	Amplifiers	3123A00168	9/23/2011	9/23/2012
2044	QMI	N/A	Cables	2044	1/7/2011	1/7/2012
2044	QMI	N/A	Cables	2044	1/2/2012	1/2/2013
2076	Hewlett Packard	HP5061-5458	Cables	2076	2/2/2011	2/2/2012
2076	Hewlett Packard	HP5061-5458	Cables	2076	1/2/2012	1/2/2013

NCR=No Calibration Required

4.1.3 Test Methodology

4.1.3.1 Final Scans

Radiated emissions measurements were made over the frequency range of 30 MHz - 7 GHz. Peak measurements are taken with the Spectrum Analyzer's resolution bandwidth set to 120 kHz through a Quasi-Peak Adapter and video bandwidth set to 1 MHz for measurements below 1000 MHz. Quasi-Peak measurements are performed with the Quasi-Peak Detector turned on. The sweep time of the spectrum analyzer is then increased to achieve a sweep rate that is less than or equal to 100 kHz/s. Average measurements are taken above 1000 MHz with the RBW set to 1 MHz and VBW set to 10 Hz. The measurements above 1 GHz were performed with RF absorbing materials covering an area of 2.4m by 2.4m between the receiving antenna and the EUT. The calculation for the radiated emissions field strength is as follows:

Corrected Reading = Analyzer Reading + Cable Loss + Antenna Factor – Amplifier Gain
Margin (dB) = Applicable Limit - Corrected Reading

4.1.3.2 Test Criteria

The EUT must meet the Class B Limits as given in Section 1.2.

4.1.3.3 Test Justification

☐ **No justification - The EUT was tested per the appropriate test methods and test plan.**
☒ **The test method, standard, and/or test plan was deviated from for the following reason:**

The laptop computer and switching power supply are remote interfacing devices per the customer. Therefore, this equipment was removed from the test area for the radiated emissions evaluation.

4.1.4 Test Setup Photographs

Figure 4.1.4-1: Radiated Emissions - Front View

Figure 4.1.4-2: Radiated Emissions - Rear View below 1 GHz

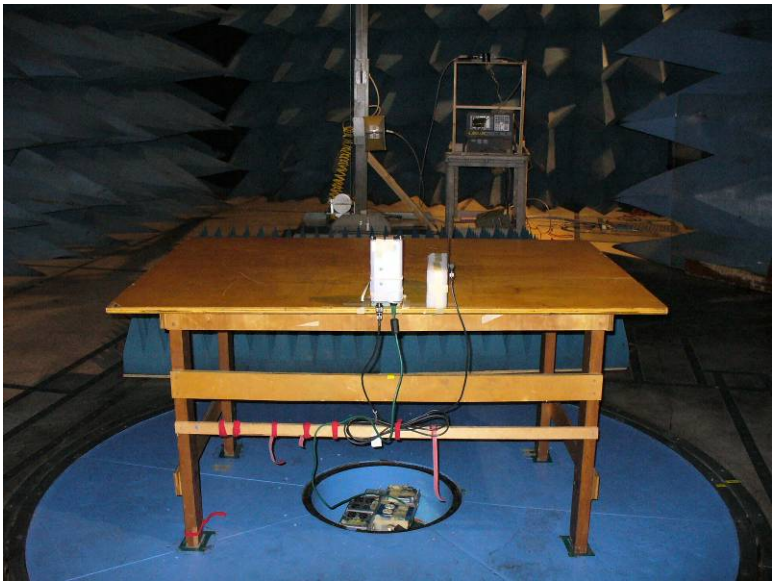

Figure 4.1.4-3: Radiated Emissions - Rear View - above 1 GHz

4.1.5 Test Data

Final tabulated radiated emissions data are reported in the Test Data Table below:

Table 4.1.5-1: Test Parameters

Test Date:	**February 25, 2012**	**Temperature (ºC)**	**23.617**
Technician:	**Thierry Jean-Charles**	**Humidity (%)**	**59.797**
Equipment Class:	**Class B**	**Barometric Pressure (mBar)**	**N/A**
Tested Modes:	**The unit was set to the receive mode and was communicating with a laptop PC which was running a Jackhammer and Scrolling H software.**		
AC Input Power:	**120VAC/60Hz**		
DC Input Power:	**N/A**		

Table 4.1.5-2: Test Data Table

Pre-scan Plot Reference: 11-2110RE41

Measurement Distance:

☐ 1 Meter ☒ 3 Meter ☐ 10 Meter

Frequency (MHz)	Measured Level (dBµV)		Antenna Polarity (H/V)	Antenna Height (cm)	Turntable Position (o)	Correction Factors (dB)	Corrected Level (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
	Pk	Qpk/Av					Pk	Qpk/Av	Pk	Qpk/Av	Pk	Qpk/Av
119.793	41.00	39.05	H	266	9	-14.69	--------	24.36	-------	43.5	--------	19.1
599.986	34.60	33.03	H	278	103	-4.39	--------	28.64	-------	46.0	--------	17.4
1032.14	54.73	47.30	H	117	275	-18.53	36.21	28.77	74.0	54.0	37.8	25.2
1132.84	54.21	46.40	H	102	276	-17.76	36.44	28.63	74.0	54.0	37.6	25.4
1334.16	52.721	44.748	H	112	67	-16.23	36.49	28.52	74.0	54.0	37.5	25.5
1389.98	61.685	59.518	H	104	184	-15.81	45.88	43.71	74.0	54.0	28.1	10.3
4169.99	48.645	41.495	H	103	223	-4.22	44.43	37.28	74.0	54.0	29.6	16.7
42.9439	43.20	41.05	V	105	225	-14.42	--------	26.63	-------	40.0	--------	13.4
85.4835	49.60	47.70	V	138	282	-18.08	--------	29.62	-------	40.0	--------	10.4
108.765	45.30	44.65	V	103	148	-14.87	--------	29.78	-------	43.5	--------	13.7
119.824	52.60	52.01	V	102	181	-14.69	--------	37.32	-------	43.5	--------	6.2
125.664	44.70	44.43	V	103	140	-13.95	--------	30.48	-------	43.5	--------	13.0
131.518	42.00	41.62	V	103	186	-14.01	--------	27.61	-------	43.5	--------	15.9
249.972	43.90	43.36	V	103	251	-12.94	--------	30.42	-------	46.0	--------	15.6
574.977	34.00	30.81	V	105	153	-5.16	--------	25.65	-------	46.0	--------	20.4
599.976	38.20	35.85	V	104	155	-4.39	--------	31.46	-------	46.0	--------	14.5
999.97	37.00	35.84	V	103	135	2.27	--------	38.11	-------	54.0	--------	15.9
1000.06	59.243	51.858	V	126	280	-18.77	40.47	33.09	74.0	54.0	33.5	20.9
1389.98	66.36	65.021	V	102	316	-15.81	50.55	49.21	74.0	54.0	23.4	4.8
4170.02	49.731	43.097	V	102	153	-4.22	45.51	38.88	74.0	54.0	28.5	15.1
5560.04	47.785	39.463	V	104	219	-1.34	46.44	38.12	74.0	54.0	27.6	15.9

Qpk = Quasi-Peak Measurement or Limit (< 1GHz)
AV = Average Measurement or Limit (>1GHz)

Notes:
Table 4.1.5-2 reports the worst case emissions for the the receiver/digital portion of the device.

Table 4.1.5-3: Test Data Table

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel 473 MHz										
946	38.11	33.45	H	1.09	---------	34.54	--------	46.0	---------	11.50
946	38.54	34.28	V	1.09	---------	35.37	--------	46.0	---------	10.60
Middle Channel 587 MHz										
1174.07	55.70	50.22	H	-17.45	38.25	32.78	74.0	54.0	35.80	21.20
1174.04	58.92	55.20	V	-17.45	41.47	37.75	74.0	54.0	32.50	16.20
5870	50.63	45.67	V	-1.24	49.39	44.42	74.0	54.0	24.60	9.60
High Channel 695 MHz										
1389.98	61.69	59.52	H	-15.81	45.88	43.71	74.0	54.0	28.10	10.30
4169.99	48.65	41.50	H	-4.22	44.43	37.28	74.0	54.0	29.60	16.70
1389.98	66.36	65.02	V	-15.81	50.55	49.21	74.0	54.0	23.40	4.80
4170.02	49.73	43.10	V	-4.22	45.51	38.88	74.0	54.0	28.50	15.10
5560.04	47.79	39.46	V	-1.34	46.44	38.12	74.0	54.0	27.60	15.90

Qpk = Quasi-Peak Measurement or Limit (< 1GHz)
AV = Average Measurement or Limit (>1GHz)

Notes:
Table 4.1.5-3 reports the emissions stricly related to the receiver for the lower, middle and higher channels of the 470 MHz- 698 MHz operating range.

4.2 Conducted Emissions

4.2.1 Conducted Emissions Test Site

The dimensions of the shielded conducted room are 7.3 x 4.9 x 3 m^3. As per ANSI C63.4 2003 requirements, the data was taken using an EMCO Model 3825/2R LISN. For 220 V, 50 Hz, a Polarad LISN (S/N 879341/048) is used in conjunction with a 1 kVA, 220 V ELGAR Model 1001B variable frequency generator set to 50 Hz, to filter the conducted noise from the generator.

A diagram of the room is shown below in figure 4.2.1-1:

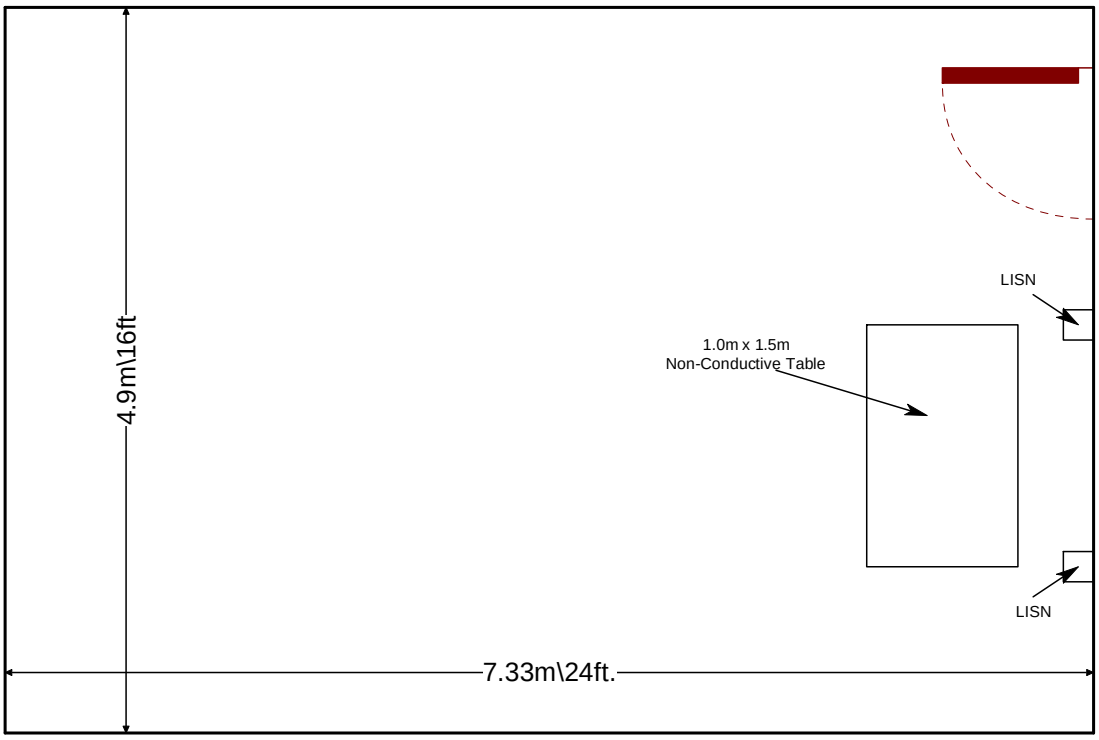

Figure 4.2.1-1: AC Mains Conducted EMI Site

4.2.2 Test Equipment

Table 4.2.2-1 identifies all equipment used for conducted emissions.

Table 4.2.2-1: Test Equipment – Conducted Emissions

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
523	Agilent	E7405	Spectrum Analyzers	MY45103293	1/5/2011	1/5/2013
2022	EMCO	LISN3825/2R	LISN	1095	8/19/2011	8/19/2013
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	1/6/2011	1/6/2012
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	1/2/2012	1/2/2013
2064	CIR Q-TEL	FHT/22-10K-13/50-3A/3A	Filter	9	1/15/2011	1/15/2012
2064	CIR Q-TEL	FHT/22-10K-13/50-3A/3A	Filter	9	12/30/2011	12/30/2012

NCR=No Calibration Required

4.2.3 Test Methodology

Conducted emissions were performed from 150 kHz to 30 MHz with the spectrum analyzer's resolution bandwidth set to 9 kHz though a Quasi-Peak Adapter and the video bandwidth set to 100 kHz. The calculations for the conducted emissions are as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Applicable Limit - Corrected Reading

4.2.3.1 Test Criteria

The EUT must meet the Class B Limits as given in Section 1.2.

4.2.3.2 Test Justification

☐ **No justification - The EUT was tested per the appropriate test methods and test plan.**
☒ **The test method, standard, and/or test plan was deviated from for the following reason:**

The preliminary evaluations were performed with the receiver set to 3 channels corresponding to the low, middle and high channels of the 470 MHz - 698 MHz band. The results are provided for the configuration leading to the highest emissions.

4.2.4 Test Setup Photographs

Figure 4.2.4-1: Conducted Emissions Test Setup – Front View

Figure 4.2.4-2: Conducted Emissions Test Setup – Side View

4.2.5 Test Data

Tabulated data is given in the Test Data Tables below.

Table 4.2.5-1: Test Parameters

Test Date:	**February 27, 2012**	**Temperature (ºC)**	**22.226**
Technician:	**Thierry Jean-Charles**	**Humidity (%)**	**55.953**
Equipment Class:	**Class B**	**Barometric Pressure (mBar)**	**N/A**
Tested Modes:	**The unit was set to the receive mode and was communicating with a laptop PC which was running a Jackhammer and Scrolling H software.**		
AC Input Power:	**120VAC/60Hz**		
DC Input Power:	**N/A**		

Tested Leads:
☒ **AC Mains – Number of Lines: 2**
☐ **DC Mains – Number of Lines:**
☐ **Telecom Port – Quantity:**

Table 4.2.5-2: Test Data

☒ **Line 1**
☒ **To Ground** ☐ **Floating**
☐ **Telecom Port** _____
☒ **dBµV** ☐ **dBµA**

Plot Number: 11-2110CE26
Power Supply Description: 24 VDC

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
Line 1									
0.184113	53.159	48.331	1.30	54.46	49.63	64.30	54.30	9.8	4.7
0.246063	46.281	40.312	1.05	47.34	41.37	61.89	51.89	14.6	10.5
0.307963	40.066	33.632	0.76	40.83	34.39	60.03	50.03	19.2	15.6
17.6943	33.34	31.985	2.33	35.67	34.32	60.00	50.00	24.3	15.7
18.2431	35.844	34.636	2.35	38.19	36.98	60.00	50.00	21.8	13.0
18.3036	34.751	33.212	2.35	37.10	35.56	60.00	50.00	22.9	14.4
18.3641	34.507	32.467	2.35	36.86	34.82	60.00	50.00	23.1	15.2
18.4268	32.723	29.76	2.35	35.08	32.11	60.00	50.00	24.9	17.9
18.4879	33.363	31.097	2.35	35.72	33.45	60.00	50.00	24.3	16.5
19.7092	33.354	30.901	2.39	35.74	33.29	60.00	50.00	24.3	16.7

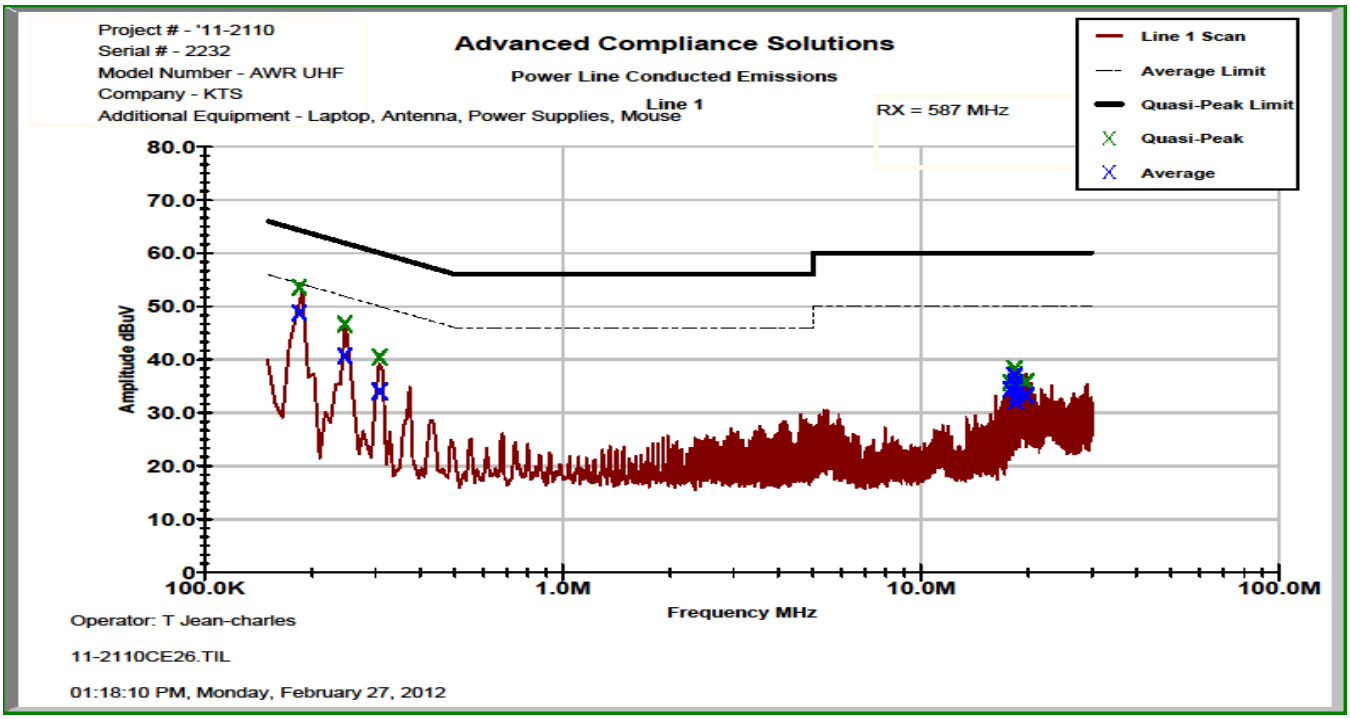

Figure 4.2.5-1: Power Line Conducted Emissions – Line 1

Table 4.2.5-3: Test Data

☒ Line 2
☒ To Ground ☐ Floating
☐ Telecom Port _____
☐ dBµV ☐ dBµA

Plot Number: 11-2110CE26
Power Supply Description: 24 VDC

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
Line 2									
0.184813	53.936	45.871	1.31	55.24	47.18	64.27	54.27	9.0	7.1
0.246463	46.94	38.588	1.04	47.98	39.63	61.88	51.88	13.9	12.2
0.307313	41.001	32.716	0.74	41.74	33.45	60.04	50.04	18.3	16.6
17.6929	34.471	33.119	2.37	36.84	35.49	60.00	50.00	23.2	14.5
18.2415	35.543	34.247	2.38	37.93	36.63	60.00	50.00	22.1	13.4
18.3041	35.055	33.656	2.38	37.44	36.04	60.00	50.00	22.6	14.0
18.3653	34.845	32.875	2.39	37.23	35.26	60.00	50.00	22.8	14.7
18.488	33.444	31.179	2.39	35.83	33.57	60.00	50.00	24.2	16.4
19.584	31.875	28.83	2.42	34.30	31.25	60.00	50.00	25.7	18.7
19.7097	33.466	31.042	2.42	35.89	33.47	60.00	50.00	24.1	16.5

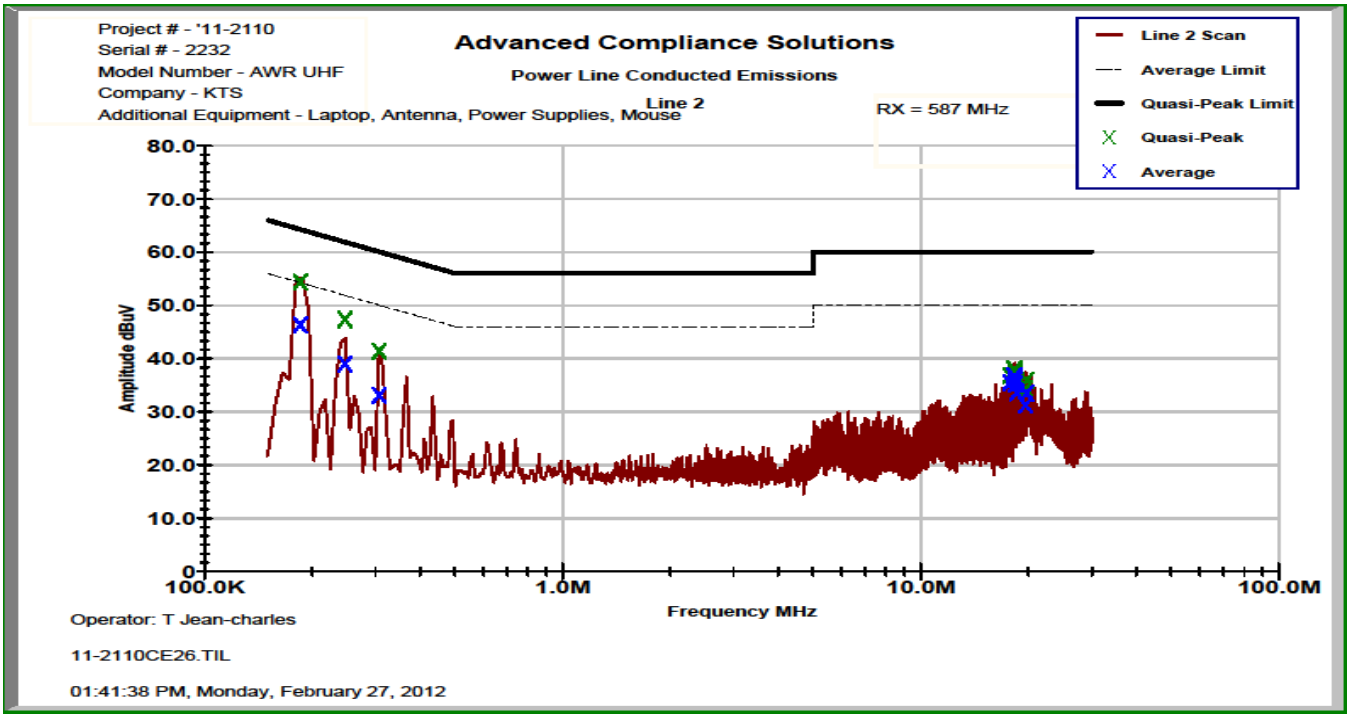

Figure 4.2.5-2: Power Line Conducted Emissions – Line 2

5.0 Measurement Uncertainty

General

Measurement Uncertainty is based on the following publications:

- CISPR 16-4-2: Uncertainties, statistics and limit modeling – Uncertainty in EMC measurements
- The Guide to the Expression of Uncertainty in Measurement(GUM): 1995
- ANSI / NCSL Z540.2-1997 (R2002) U.S. Guide to Expression of Uncertainty in Measurement

Calculations for measurement uncertainty are available upon request.

Emissions:

Table 5.0-1: Values of U_{cispr} and U_{Lab}

Measurement	U_{cispr}	U_{Lab}
Conducted disturbance (mains port) (9 kHz – 150 kHz) (150 kHz – 30 MHz)	 4.0 dB 3.6 dB	2.93 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1 000 MHz)	5.2 dB	3.93 dB

NOTE U_{cispr} resembles a value of measurement uncertainty for a specific test, which was determined by considering uncertainties associated with the quantities listed in CISPR 16-4-2:2003 Section 4.2.

Compliance or non-compliance with a disturbance limit shall be determined in the following manner.

If U_{Lab} is less than or equal to U_{cispr} in Table 5.0-1, then:

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{Lab} is greater than U_{cispr}, then:

- compliance is deemed to occur if no measured disturbance, increased by ($U_{Lab} – U_{cispr}$), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by ($U_{Lab} – U_{cispr}$), exceeds the disturbance limit.

The ACS calculated MU is much less that the internationally accepted MU, therefore an adjustment to the measured result as mentioned above is not necessary.

6.0 Conclusion

The EUT as submitted is determined to meet the requirements as defined by the applicable regulatory agencies. The results contained in this report are representative of the sample tested only. It is the manufacturer's responsibility to incorporate all changes, if any, that were made to the EUT to bring it into compliance during the evaluation, into production units.