

*FCC PART 15, SUBPART B and C
TEST REPORT**for*

58 kHz PEDESTAL SYSTEM

MODEL: USS-BLADE

Prepared for

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
11172 ELM AVENUE
RANCHO CUCAMONGA, CALIFORNIA 91730Prepared by: *Kyle Fujimoto*

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JAMES ROSS

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BREA, CALIFORNIA 92823
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DATE: MAY 18, 2015

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	17	2	2	2	12	17	52

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested: 58 kHz Pedestal System
Model: USS-BLADE
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Customer: Universal Surveillance Systems, LLC
11172 Elm Avenue
Rancho Cucamonga, California 91730

Test Date: April 6, 2015

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, and 15.209.

Test Procedure: ANSI C63.4

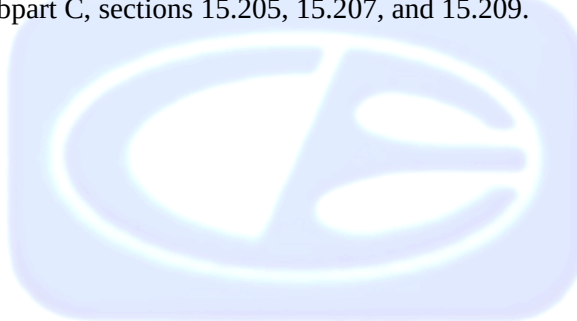
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 1,000 MHz (Transmitter and Digital portion)	Complies with the Class A limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.205 and 15.209
2	Conducted RF Emissions, 150 kHz to 30 MHz	Complies with the Class A limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the 58 kHz Pedestal System, Model: USS-BLADE. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class A** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, and 15.209.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Universal Surveillance Systems, LLC

Marc Trincale Product Manager

Compatible Electronics Inc.

Kyle Fujimoto Test Engineer

James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received on April 6, 2015.

2.5 Disposition of the Test Sample

The test sample was returned to Universal Surveillance Systems, LLC on April 6, 2015.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable
BLE	Bluetooth Low Energy
USB	Universal Serial Bus

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emissions Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
EN 50147-2: 1997	Anechoic chambers. Alternative test site suitability with respect to site attenuation
CISPR 22: 2008	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The 58 kHz Pedestal System, Model: USS-BLADE (EUT) connected to a power supply, TCP/IP Module, and (2) receiver PCB's via its DC IN; ethernet; and red and grey ports, respectively. The TCP/IP module was also connected to the internet via its ethernet port. The LIGHT/A, sensor, and relay ports will never be used on this EUT.

The antenna for the EUT was connected via a 5-pin terminal block at the lower loop port and upper loop port inside the EUT.

The EUT was continuously transmitting at 58 kHz.

The final radiated data as well as the conducted data for the EUT as was taken in the mode described above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 4-meter unshielded cable connecting the EUT to the power supply. The cable has an RJ-45 connector at each end. The cable was bundled to a length of 1-meter.

Cable 2 This is a 2-meter unshielded cable connecting the EUT to the TCP/IP module. The cable has an RJ-45 connector at each end.

Cable 3 This is a 15.24-meter unshielded cable connecting the TCP/IP module to the internet. The cable has an RJ-45 connector at each end.

Cable 4 This is a 20-centimeter unshielded cable connecting the EUT to the speaker inside the EUT. The cable has a 2-pin terminal block connector at the EUT end and is hard wired into the speaker.

Cable 5 This is a 1.5-meter unshielded cable connecting the EUT to the light on the EUT. The cable has a 10-pin terminal block at the EUT end and is hard wired into the light.

Cable 6 This is a 7-meter unshielded cable connecting the EUT to the receiver PCB #1. The cable has an RJ-45 connector at each end.

Cable 7 This is a 7-meter unshielded cable connecting the EUT to the receiver PCB #2. The cable has an RJ-45 connector at each end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
58 kHz PEDESTAL SYSTEM (EUT)	UNIVERSAL SURVEILLANCE SYSTEMS, LLC	USS-BLADE	N/A	X2TUSS-AMBLADE
POWER SUPPLY FOR THE EUT	SINOPE	PSG10V	1403007V174600	N/A
TCP/IP MODULE	N/A	23852	E688	N/A
RECEIVER BOARD #1	UNIVERSAL SURVEILLANCE SYSTEMS, LLC	RX G10V	N/A	N/A
RECEIVER BOARD #2	UNIVERSAL SURVEILLANCE SYSTEMS, LLC	RX G10V	N/A	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
RF RADIATED EMISSIONS TEST EQUIPMENT					
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 20, 2014	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 20, 2014	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	May 20, 2014	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
CombiLog Antenna	Com-Power	AC-220	61060	May 20, 2014	1 Year
Preamplifier	Com-Power	PA-103	1582	December 29, 2014	1 Year
Loop Antenna	Com-Power	AL-130	17089	February 6, 2015	2 Year
Turntable	Com Power	TT-100	N/A	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

Emissions test equipment (continued)

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
CONDUCTED EMISSIONS TEST EQUIPMENT					
Shield Room Test	Compatible Electronics	11CD	N/A	N/A	N/A
LISN	Com-Power	LI-215	12082	June 12, 2014	1 Year
LISN	Com-Power	LI-215	12090	June 12, 2014	1 Year
Transient Limiter	Com-Power	252A910	1	October 10, 2014	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 20, 2014	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 20, 2014	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	May 20, 2014	1 Year

6. TEST SITE DESCRIPTION

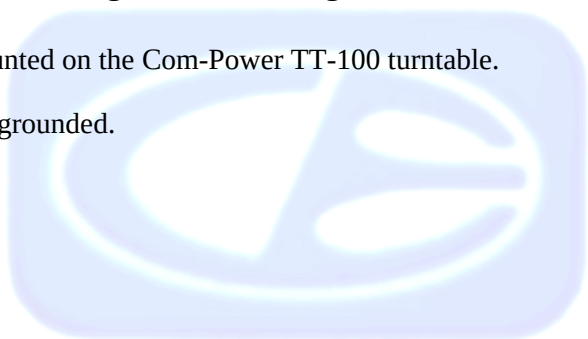
6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for emissions test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on the Com-Power TT-100 turntable.

The EUT was not grounded.



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Radiated Emissions (Spurious and Harmonics) Test – Lab A

The spectrum analyzer was used as a measuring meter. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

The measurement bandwidth and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1000 MHz	120 kHz	Combilog Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test – Lab A (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT (except for the fundamental) was tested at a 10-meter test distance to obtain the final test data.

For the fundamental the EUT was tested at both a 10-meter test distance and a 15-meter test distance to obtain "P".

P is the roll-off multiplier used to determine the correct spec limit at 10 meters based on the following formula: $[(P \times 20) \text{ Log (spec test distance / actual test distance)}] + \text{spec limit}$

P itself is determined by the following formula:

$$P = [\text{Level (at 10 Meters)} - \text{Level (at 15 Meters)}] / 20 \text{ Log (15 Meters / 10 Meters)}$$

The final qualification data sheets are located in Appendix E. The six highest emissions are listed in Table 1.0.

Test Results:

The EUT complies with the **Class A (digital portion)** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, sections 15.205, and 15.209 (**transmitter portion**) for radiated emissions.

7.1.2 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the “Max Hold” feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Note: Due to the fact the transmitter portion limits for conducted emissions (**FCC 15.207**) have a lower limit than the digital portion limits for conducted emissions (**Class A**), the data was taken with the lower limits (**FCC 15.207**).

The EUT was tested at 120 VAC. The six highest emissions are listed in Table 2.0.

Test Results:

The EUT complies with the **Class A (digital portion)** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.207 (**transmitter portion**) for conducted emissions.

7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
58 kHz Pedestal System, Model: USS-BLADE

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
183.974 (V)	39.36	43.52	-4.16
85.480 (V)	34.65 (QP)	39.08	-4.43
0.058168 (V)	115.9	120.38	-4.4765
43.886 (V)	33.65 (QP)	39.08	-5.43
66.337 (V)	33.50 (QP)	39.08	-5.58
0.174504 (H)	75.9	81.85	-5.953

Table 2.0 CONDUCTED EMISSION RESULTS
58 kHz Pedestal System, Model: USS-BLADE

Frequency MHz	Average Corrected Reading* dBuV	Average Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
4.980 (WL)	55.75 (QP)	56.00	-0.25
5.224 (BL)	59.30 (QP)	56.00	-0.70
5.538 (WL)	58.73 (QP)	60.00	-1.27
4.851 (WL)	54.50 (QP)	56.00	-1.50
4.954 (BL)	53.91 (QP)	56.00	-2.09
6.593 (BL)	47.58	50.00	-2.42

Notes:

- (H) Horizontal
- (V) Vertical
- (BL) Black Lead
- (WL) White Lead
- (QP) Quasi Peak
- * The complete emissions data is given in Appendix E of this report.

8. CONCLUSIONS

The 58 kHz Pedestal System, Model: USS-BLADE, as tested, meets all of the **Class A** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, and 15.209.



APPENDIX A***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



ANSI listing [CETCB](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

US/EU MRA list [NIST MRA site](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

APEC MRA list [NIST MRA site](#)

We are also listed for IT products by the following country/agency:



VCCI Support member: Please visit http://www.vcci.jp/vcci_e/



FCC Listing, from FCC OET site

[FCC test lab search](#) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.209 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

1. Add a ferrite to the four wires going into the lower loop terminal block on the EUT side (Fair-Rite, P/N: 2643625002).



APPENDIX C

ADDITIONAL MODELS

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

58kHz Pedestal System
Model: USS-BLADE
S/N: N/A

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE

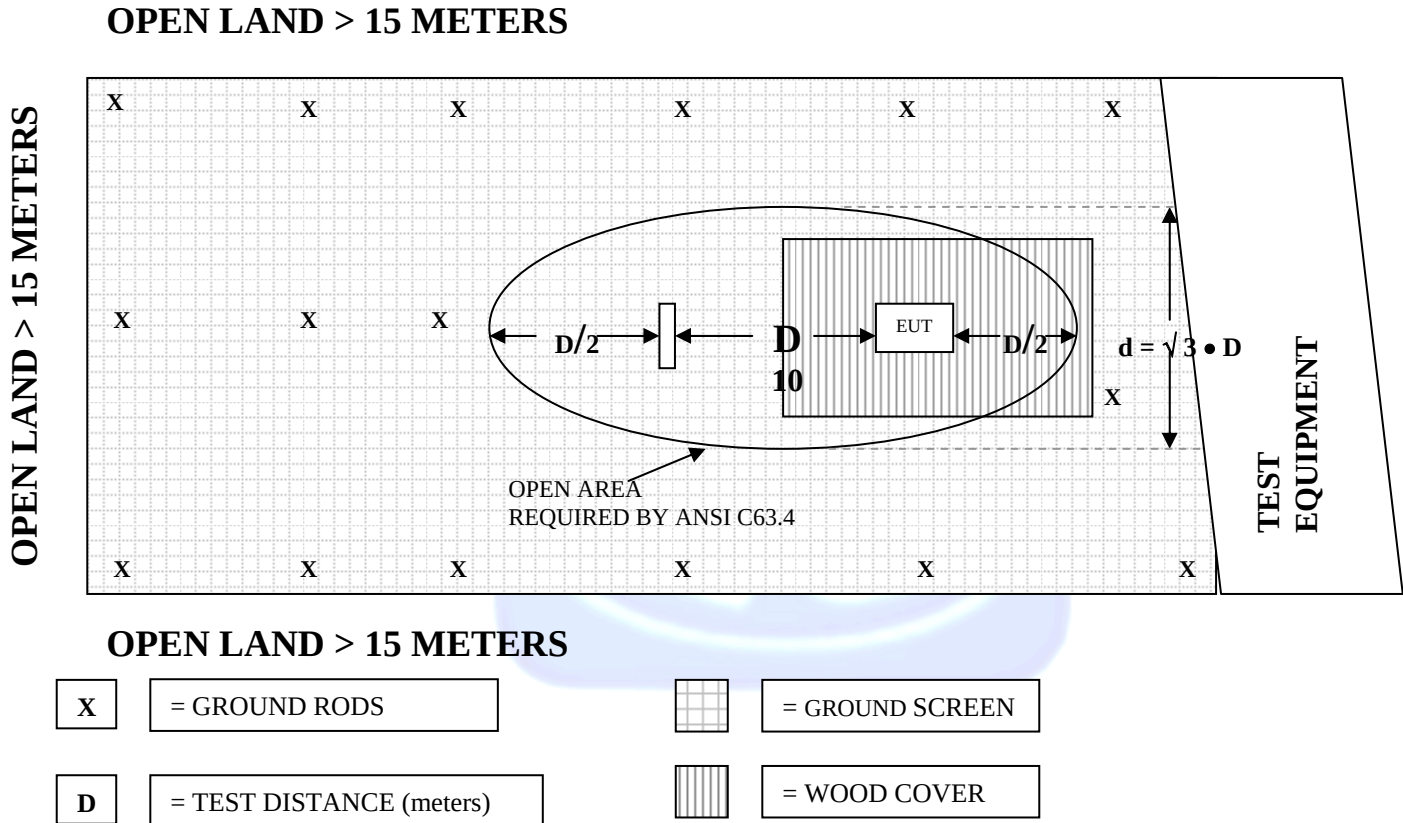
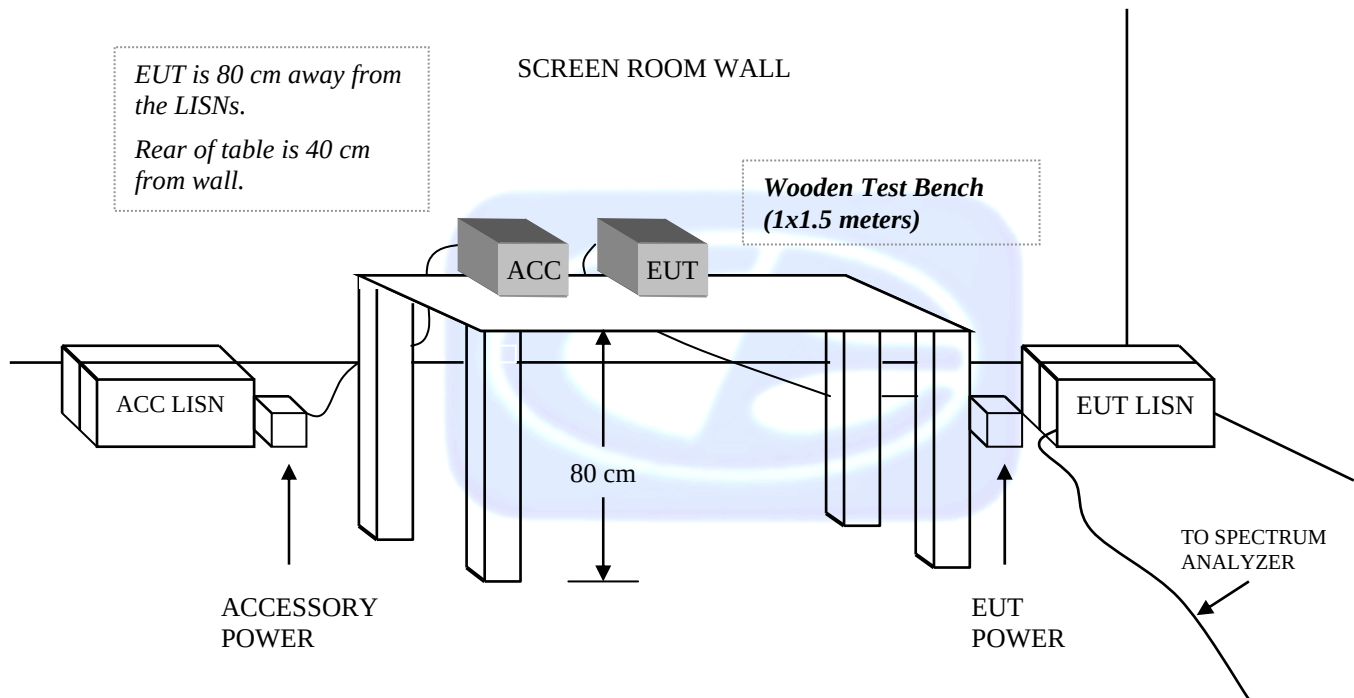


FIGURE 2: CONDUCTED EMISSIONS TEST SETUP

COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: FEBRUARY 6, 2015

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-33.18	18.32
0.01	-34.10	17.40
0.02	-38.65	12.85
0.03	-39.28	12.22
0.04	-40.09	11.41
0.05	-40.85	10.65
0.06	-40.88	10.62
0.07	-41.07	10.43
0.08	-41.04	10.46
0.09	-41.19	10.31
0.1	-41.20	10.30
0.2	-41.52	9.98
0.3	-41.53	9.97
0.4	-41.42	10.08
0.5	-41.53	9.97
0.6	-41.53	9.97
0.7	-41.43	10.07
0.8	-41.23	10.27
0.9	-41.13	10.37
1	-41.14	10.36
2	-40.80	10.70
3	-40.66	10.84
4	-40.61	10.89
5	-40.33	11.17
6	-40.53	10.97
7	-40.47	11.03
8	-40.48	11.02
9	-39.93	11.57
10	-39.81	11.69
15	-43.35	8.15
20	-39.16	12.34
25	-40.24	11.26
30	-43.18	8.32

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: MAY 20, 2014**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.40	200	14.40
35	23.70	250	16.40
40	24.20	300	17.90
45	22.60	350	15.60
50	22.10	400	19.90
60	17.90	450	20.40
70	12.70	500	21.60
80	11.60	550	21.50
90	12.20	600	22.30
100	13.20	650	23.50
120	15.70	700	23.70
125	15.80	750	25.90
140	13.60	800	25.90
150	16.90	850	26.40
160	14.20	900	27.00
175	14.90	950	27.70
180	15.00	1000	27.50

COM-POWER PA-103**PREAMPLIFIER**

S/N: 1582

CALIBRATION DATE: DECEMBER 29, 2014

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	32.60	300	32.10
40	32.60	350	31.90
50	32.50	400	31.60
60	32.40	450	31.60
70	32.40	500	31.50
80	32.40	550	31.50
90	32.30	600	31.50
100	32.20	650	31.50
125	32.20	700	31.30
150	32.30	750	31.30
175	32.30	800	31.30
200	32.10	850	31.00
225	32.20	900	31.00
250	32.10	950	31.20
275	32.10	1000	30.80



FRONT VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 30 MHz

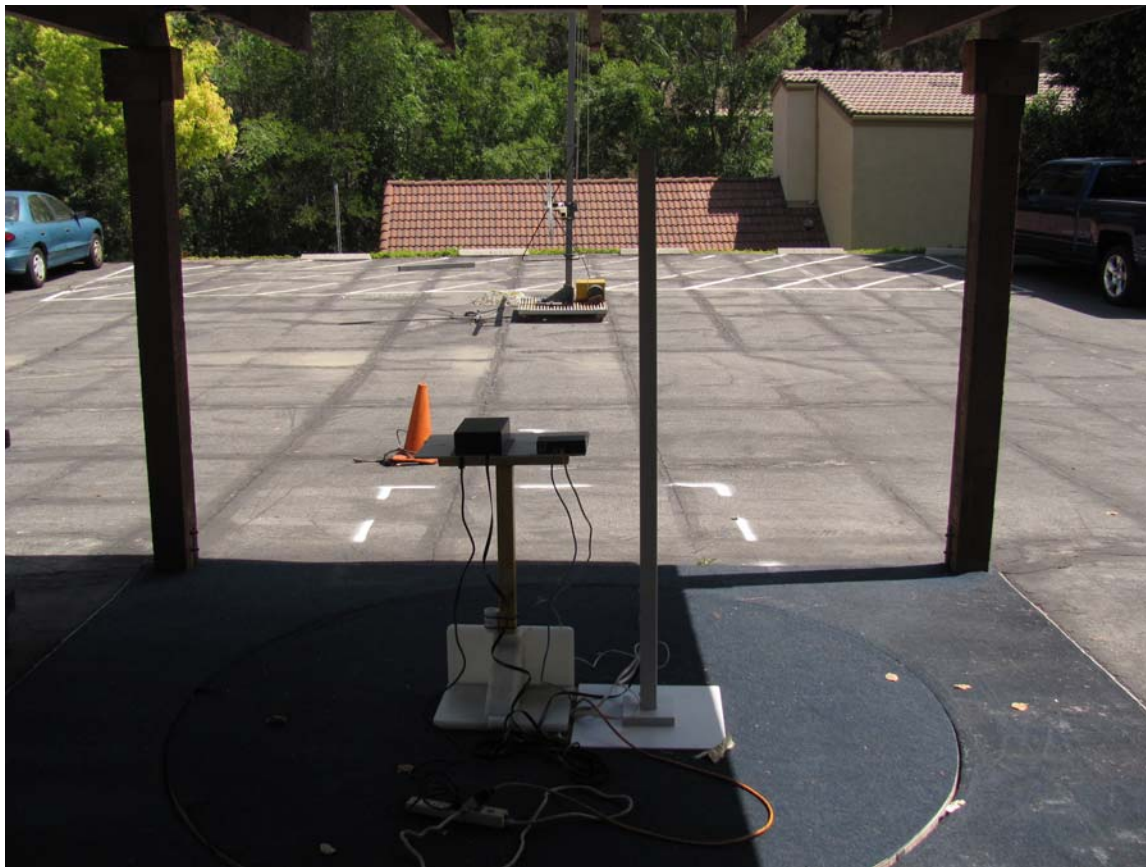
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 30 MHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – RADIATED EMISSIONS – 30 MHz to 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

UNIVERSAL SURVEILLANCE SYSTEMS, LLC
58 kHz PEDESTAL SYSTEM
MODEL: USS-BLADE
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Test Location : Compatible Electronics **Page** : 1/2
Customer : Universal Surveillance Systems, LLC **Date** : 04 / 06 / 2015
Manufacturer : Universal Surveillance Systems, LLC **Time** : 12:58:19 PM
Eut name : 58 kHz Pedestal System **Lab** : A
Model : USS-BLADE **Test Distance** : 10.00
Serial # : N/A
Specification : FCC A
Distance correction factor ($20 * \log(\text{test/spec})$) : 0.00
Test Mode : Radiated Emissions - 30 MHz to 1 GHz
Vertical and Horizontal Polarization
With P/N: 234625002 Ferrite on Lower-Loop wires
Test Engineer: Kyle Fujimoto

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	43.885	45.40	0.92	22.96	32.56	36.71	39.08	-2.37
V	43.886Qp	42.34	0.92	22.96	32.56	33.65	39.08	-5.43
H	47.025	33.90	1.01	22.40	32.53	24.78	39.08	-14.30
V	66.335	56.80	1.16	14.61	32.40	40.17	39.08	1.09
V	66.337Qp	50.13	1.16	14.61	32.40	33.50	39.08	-5.58
H	66.766	48.00	1.17	14.38	32.40	31.15	39.08	-7.93
V	70.749	60.00	1.21	12.62	32.40	41.43	39.08	2.35
V	70.749Qp	49.81	1.21	12.62	32.40	31.24	39.08	-7.84
V	75.805	55.80	1.32	12.06	32.40	36.78	39.08	-2.30
V	75.807Qp	50.10	1.32	12.06	32.40	31.08	39.08	-8.00
V	79.310	57.70	1.39	11.68	32.40	38.36	39.08	-0.72
V	79.310Qp	49.08	1.39	11.68	32.40	29.74	39.08	-9.34
V	85.480	59.20	1.45	11.93	32.35	40.24	39.08	1.16
V	85.480Qp	53.61	1.45	11.93	32.35	34.65	39.08	-4.43
H	109.493	38.60	1.40	14.39	32.20	22.19	43.52	-21.33
V	109.498	38.00	1.40	14.39	32.20	21.59	43.52	-21.93
H	112.024	44.10	1.40	14.70	32.20	28.00	43.52	-15.52
V	122.255	38.10	1.40	15.75	32.20	23.05	43.52	-20.47
V	124.431	42.10	1.40	15.79	32.20	27.09	43.52	-16.43
H	126.736	45.90	1.42	15.55	32.21	30.66	43.52	-12.86
V	133.529	44.00	1.50	14.55	32.23	27.82	43.52	-15.70
V	138.480	49.70	1.56	13.82	32.25	32.83	43.52	-10.69
V	146.429	41.80	1.66	15.72	32.29	26.89	43.52	-16.63
H	168.148	40.80	1.63	14.58	32.30	24.71	43.52	-18.81
V	172.491	44.40	1.61	14.78	32.30	28.49	43.52	-15.03
V	183.974	55.00	1.71	14.88	32.23	39.36	43.52	-4.16
H	184.430	46.10	1.71	14.87	32.22	30.46	43.52	-13.06
V	219.981	38.90	1.66	15.20	32.18	23.58	46.44	-22.86
V	235.086	38.60	2.00	15.80	32.16	24.25	46.44	-22.19
H	237.173	40.10	2.09	15.89	32.15	25.92	46.44	-20.52
H	254.673	38.70	2.64	16.54	32.10	25.78	46.44	-20.66
V	269.749	39.50	2.76	16.99	32.10	27.15	46.44	-19.29
H	300.021	37.30	3.10	17.90	32.10	26.20	46.44	-20.24
V	305.165	39.10	3.12	17.66	32.08	27.80	46.44	-18.64
V	321.165	33.80	3.18	16.93	32.02	21.90	46.44	-24.54

Test Location : Compatible Electronics **Page** : 2/2
Customer : Universal Surveillance Systems, LLC **Date** : 04 / 06 / 2015
Manufacturer : Universal Surveillance Systems, LLC **Time** : 12:58:19 PM
Eut name : 58 kHz Pedestal System **Lab** : A
Model : USS-BLADE **Test Distance** : 10.00
Serial # : N/A
Specification : FCC A
Distance correction factor ($20 * \log(\text{test}/\text{spec})$) : 0.00
Test Mode : Radiated Emissions - 30 MHz to 1 GHz
Vertical and Horizontal Polarization
With P/N: 234625002 Ferrite on Lower-Loop wires
Test Engineer: Kyle Fujimoto

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	350.381	32.10	3.30	15.63	31.90	19.14	46.44	-27.30
H	400.040	36.30	3.70	19.90	31.60	28.30	46.44	-18.14
V	462.407	35.20	4.20	20.70	31.58	28.52	46.44	-17.92
H	469.029	31.50	4.25	20.86	31.56	25.05	46.44	-21.39
V	567.628	33.60	4.94	21.78	31.50	28.82	46.44	-17.62



FCC 15.209

Universal Surveillance Systems, LLC
58 kHz Pedestal System
Model: USS-BLADE

Date: 04/06/2015
Lab: A
Tested By: Kyle Fujimoto

Transmit Mode

Test Distance: 10 Meters (Except Where Noted in Comments)

Corrected Spec Limit at 10 Meters for Harmonics = [40 Log (spec test dist./actual test dist.)] + spec limit

Corrected Spec Limit at 10 Meters for Fundamental = [(P*20) Log (spec test dist./actual test dist.)] + spec limit

Freq. (kHz)	Level (dBuV)	Pol (v/h)	Spec Limit (at 10 Meters)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
58.168	115.9	V	--	--	Peak	1	90	Actual Reading @ 10m
58.168	105.4	V	--	--	Peak	1	90	Actual Reading @ 15m
58.168	115.9	V	120.38	-4.4765	Peak	1	90	Actual Reading @ 10m Corrected using (P*20)
116.336	77.1	V	85.37	-8.2748	Peak	1	135	
174.504	73.3	V	81.85	-8.553	Peak	1	135	
232.672	70.2	V	79.35	-9.1542	Peak	1	135	
290.84	70.1	V	77.42	-7.316	Peak	1	135	
349.008	64.1	V	75.83	-11.732	Peak	1	135	
407.176	66.7	V	74.49	-7.7934	Peak	1	155	
465.344	55.6	V	73.33	-17.734	Peak	1	175	
523.512								No Emission Detected
581.68								No Emission Detected

Limit in uV/m = 2400/F (kHz) at 300 Meters from 9 kHz to 490 kHz

Limit in uV/m = 24000/F (kHz) at 30 Meters from 490 kHz to 1705 kHz

Limit in uV/m = 30 at 30 Meters from 1705 kHz to 30 MHz

dBuV/m = 20 Log (uV/m)

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FCC 15.209

Universal Surveillance Systems, LLC
58 kHz Pedestal System
Model: USS-BLADE

Date: 04/06/2015
Lab: A
Tested By: Kyle Fujimoto

Transmit Mode
Test Distance: 10 Meters (Except Where Noted in Comments)

Corrected Spec Limit at 10 Meters for Harmonics = $[40 \text{ Log (spec test dist./actual test dist.)}] + \text{spec limit}$

Corrected Spec Limit at 10 Meters for Fundamental = $[(P*20) \text{ Log (spec test dist./actual test dist.)}] + \text{spec limit}$

Freq. (kHz)	Level (dBuV)	Pol (v/h)	Spec Limit (at 10 Meters)	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
58.168	109.6	H	--	--	Peak	1	135	Actual Reading @ 10m
58.168	97.7	H	--	--	Peak	1	135	Actual Reading @ 15m
58.168	109.6	H	132.13	-22.534	Peak	1	135	Actual Reading @ 10m Corrected using (P*20)
116.336	79.2	H	85.37	-6.175	Peak	1	90	
174.504	75.9	H	81.85	-5.953	Peak	1	90	
232.672	58.5	H	79.35	-20.854	Peak	1	90	
290.84	64.9	H	77.42	-12.516	Peak	1	90	
349.008	55.1	H	75.83	-20.732	Peak	1	90	
407.176	59.9	H	74.49	-14.593	Peak	1	90	
465.344	54.01	H	73.33	-19.324	Peak	1	90	
523.512								No Emission Detected
581.68								No Emission Detected

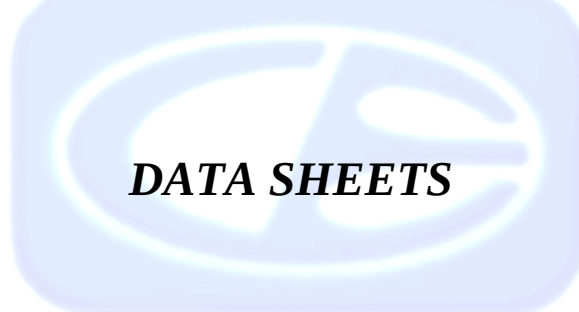
Limit in uV/m = $2400/F$ (kHz) at 300 Meters from 9 kHz to 490 kHz

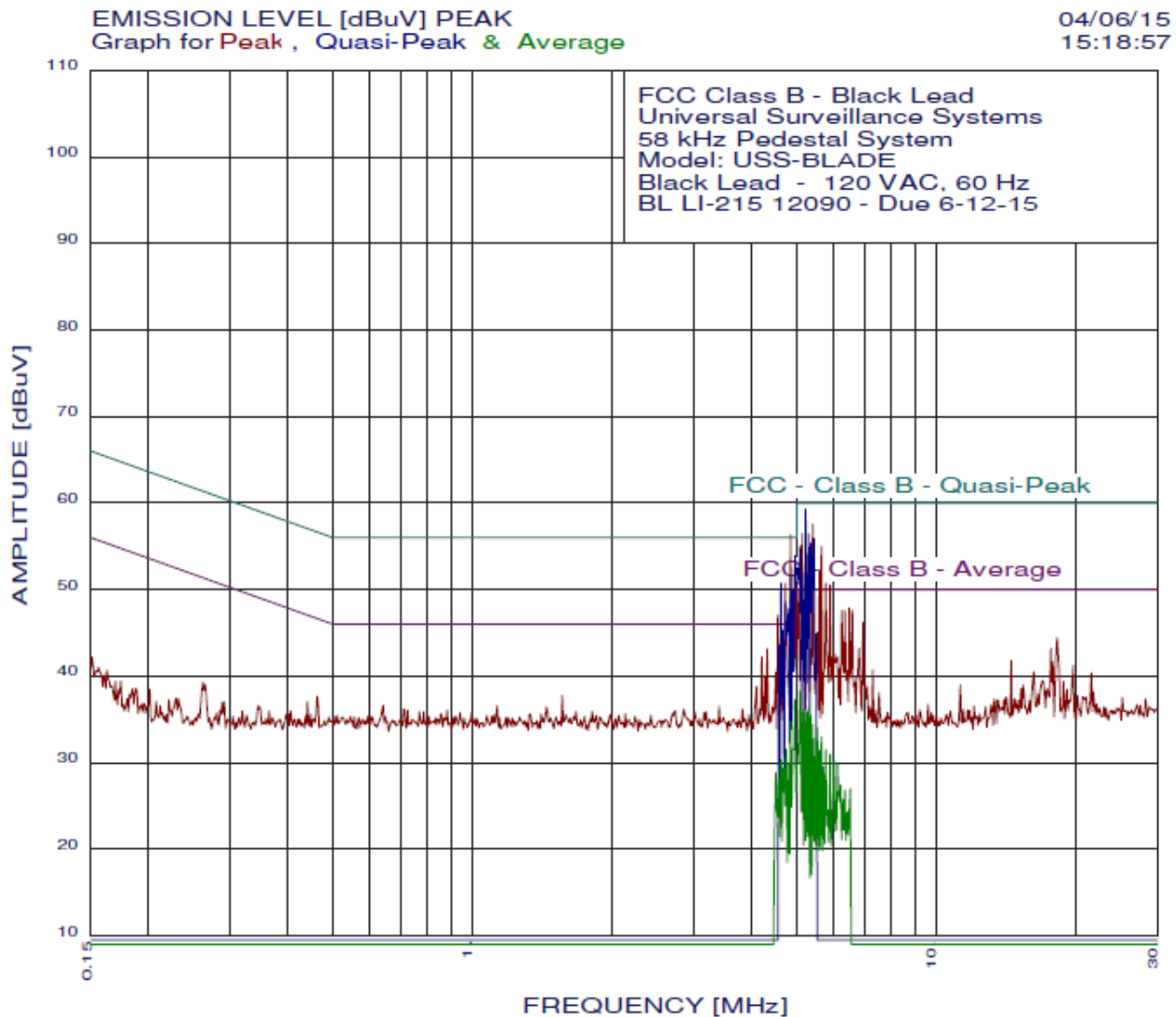
Limit in uV/m = $24000/F$ (kHz) at 30 Meters from 490 kHz to 1705 kHz

Limit in uV/m = 30 at 30 Meters from 1705 kHz to 30 MHz

dBuV/m = 20 Log (uV/m)

CONDUCTED EMISSIONS





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04/06/15 15:18:57

FCC Class B - Black Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
Black Lead - 120 VAC, 60 Hz
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

38 highest peaks above -50.00 dB of FCC - Class B - Quasi-Peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.851	56.34	56.00	0.34**
2	5.420	57.55	60.00	-2.45**
3	4.954	52.95	56.00	-3.05**
4	5.142	56.45	60.00	-3.55**
5	5.656	54.95	60.00	-5.05**
6	4.722	50.74	56.00	-5.26**
7	5.252	53.95	60.00	-6.05**
8	5.597	52.25	60.00	-7.75**
9	4.902	48.04	56.00	-7.96**
10	5.307	51.95	60.00	-8.05**
11	4.552	47.03	56.00	-8.97**
12	5.774	50.76	60.00	-9.24**
13	5.901	50.56	60.00	-9.44**
14	5.031	50.05	60.00	-9.95**
15	4.624	44.63	56.00	-11.37**
16	6.491	47.88	60.00	-12.12**
17	6.593	47.58	60.00	-12.42
18	6.356	47.57	60.00	-12.43**
19	6.254	47.57	60.00	-12.43**
20	4.316	43.12	56.00	-12.88
21	4.204	42.21	56.00	-13.79
22	6.954	46.18	60.00	-13.82
23	5.538	45.05	60.00	-14.95**
24	4.504	40.43	56.00	-15.57**
25	18.241	44.43	60.00	-15.57
26	4.272	39.92	56.00	-16.08
27	17.669	43.19	60.00	-16.81
28	6.809	43.18	60.00	-16.82
29	5.362	43.15	60.00	-16.85**
30	4.672	38.94	56.00	-17.06**
31	4.092	38.81	56.00	-17.19
32	6.028	42.56	60.00	-17.44**
33	5.964	42.16	60.00	-17.84**
34	14.525	41.81	60.00	-18.19
35	1.560	37.74	56.00	-18.26
36	17.859	41.70	60.00	-18.30
37	19.746	41.21	60.00	-18.79
38	0.461	37.63	56.67	-19.03
39	6.186	40.87	60.00	-19.13**

**Please see the Quasi-Peak Readings on the Next Page and on the Plot

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FCC Class B - Black Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
Black Lead - 120 VAC, 60 Hz
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

16 highest peaks above -50.00 dB of FCC - Class B - Quasi-Peak limit line

Peak criteria : 0.00 dB, Curve : Quasi-peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	5.224	59.30	60.00	-0.70
2	4.954	53.91	56.00	-2.09
3	5.307	56.43	60.00	-3.57
4	5.449	55.88	60.00	-4.12
5	4.851	51.63	56.00	-4.37
6	5.362	55.35	60.00	-4.65
7	5.086	55.04	60.00	-4.96
8	4.624	50.75	56.00	-5.25
9	4.902	50.04	56.00	-5.96
10	4.722	48.61	56.00	-7.39
11	5.031	52.49	60.00	-7.51
12	5.142	51.91	60.00	-8.09
13	4.799	47.79	56.00	-8.21
14	4.672	45.32	56.00	-10.68
15	4.576	43.56	56.00	-12.44
16	5.508	44.84	60.00	-15.16

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FCC Class B - Black Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
Black Lead - 120 VAC, 60 Hz
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

39 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.851	56.34	46.00	10.34**
2	5.420	57.55	50.00	7.55**
3	4.954	52.95	46.00	6.95**
4	5.142	56.45	50.00	6.45**
5	5.656	54.95	50.00	4.95**
6	4.722	50.74	46.00	4.74**
7	5.252	53.95	50.00	3.95**
8	5.597	52.25	50.00	2.25**
9	4.902	48.04	46.00	2.04**
10	5.307	51.95	50.00	1.95**
11	4.552	47.03	46.00	1.03**
12	5.774	50.76	50.00	0.76**
13	5.901	50.56	50.00	0.56**
14	5.031	50.05	50.00	0.05**
15	4.624	44.63	46.00	-1.37**
16	6.491	47.88	50.00	-2.12**
17	6.593	47.58	50.00	-2.42
18	6.356	47.57	50.00	-2.43**
19	6.254	47.57	50.00	-2.43**
20	4.316	43.12	46.00	-2.88
21	4.204	42.21	46.00	-3.79
22	6.954	46.18	50.00	-3.82
23	5.538	45.05	50.00	-4.95**
24	4.504	40.43	46.00	-5.57**
25	18.241	44.43	50.00	-5.57
26	4.272	39.92	46.00	-6.08
27	17.669	43.19	50.00	-6.81
28	6.809	43.18	50.00	-6.82
29	5.362	43.15	50.00	-6.85**
30	4.672	38.94	46.00	-7.06**
31	4.092	38.81	46.00	-7.19
32	6.028	42.56	50.00	-7.44**
33	5.964	42.16	50.00	-7.84**
34	14.525	41.81	50.00	-8.19
35	1.560	37.74	46.00	-8.26
36	17.859	41.70	50.00	-8.30
37	19.746	41.21	50.00	-8.79
38	0.461	37.63	46.67	-9.03
39	6.186	40.87	50.00	-9.13**

**Please See the Average Readings on the Next Page and on the Plot

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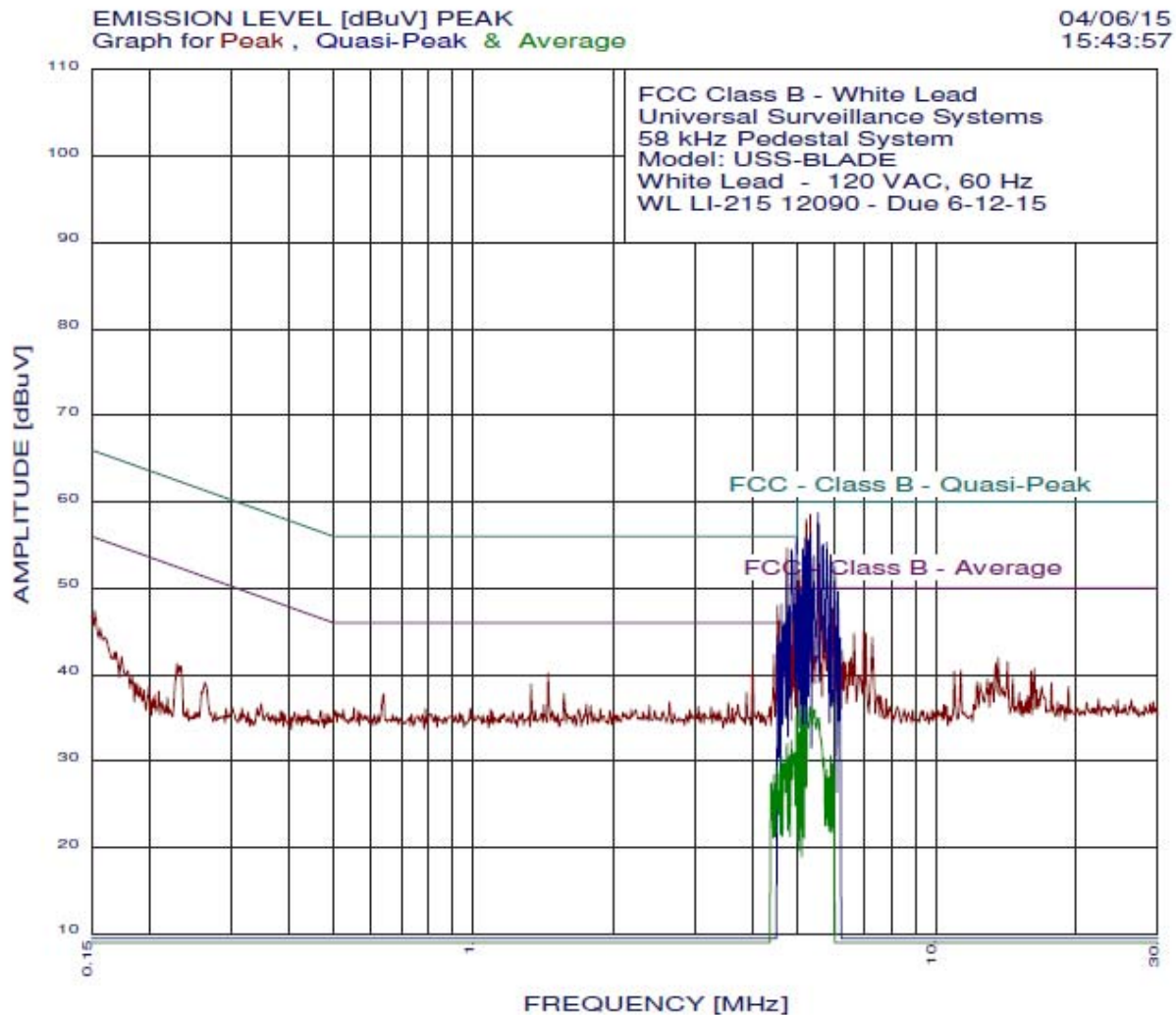
04/06/15 15:18:57

FCC Class B - Black Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
Black Lead - 120 VAC, 60 Hz
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.954	37.28	46.00	-8.72
2	4.851	34.69	46.00	-11.31
3	5.086	38.28	50.00	-11.72
4	5.307	36.42	50.00	-13.58
5	5.197	36.17	50.00	-13.83
6	5.252	35.91	50.00	-14.09
7	5.142	35.83	50.00	-14.17
8	4.748	31.55	46.00	-14.45
9	5.362	35.43	50.00	-14.57
10	5.420	34.39	50.00	-15.61
11	4.624	30.33	46.00	-15.67
12	5.538	34.01	50.00	-15.99
13	4.799	29.78	46.00	-16.22
14	4.672	29.37	46.00	-16.63
15	5.656	32.99	50.00	-17.01
16	4.504	28.83	46.00	-17.17
17	5.479	32.81	50.00	-17.19
18	4.576	28.15	46.00	-17.85
19	5.774	31.51	50.00	-18.49
20	5.597	31.41	50.00	-18.59
21	5.901	30.92	50.00	-19.08
22	6.028	30.20	50.00	-19.80
23	6.123	29.83	50.00	-20.17
24	5.715	29.54	50.00	-20.46
25	6.220	27.44	50.00	-22.56
26	6.525	27.03	50.00	-22.97
27	6.356	26.83	50.00	-23.17
28	6.288	25.79	50.00	-24.21
29	5.838	24.51	50.00	-25.49
30	6.424	24.29	50.00	-25.71



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FCC Class B - White Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
White Lead - 120 VAC, 60 Hz
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

39 highest peaks above -50.00 dB of FCC - Class B - Quasi-Peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.748	54.64	56.00	-1.36**
2	5.335	58.55	60.00	-1.45**
3	5.224	57.95	60.00	-2.05**
4	5.567	57.35	60.00	-2.65**
5	4.928	52.94	56.00	-3.06**
6	5.901	53.86	60.00	-6.14**
7	5.059	51.94	60.00	-8.06**
8	4.528	47.94	56.00	-8.06**
9	4.877	47.24	56.00	-8.76**
10	4.576	46.24	56.00	-9.76**
11	4.980	44.64	56.00	-11.36**
12	5.964	47.66	60.00	-12.34**
13	4.825	43.54	56.00	-12.46**
14	5.686	46.85	60.00	-13.15**
15	4.456	42.34	56.00	-13.66**
16	5.806	45.56	60.00	-14.44**
17	5.142	45.54	60.00	-14.46**
18	4.696	41.44	56.00	-14.56**
19	6.954	45.28	60.00	-14.72
20	4.008	41.04	56.00	-14.96
21	7.027	44.78	60.00	-15.22
22	6.627	44.77	60.00	-15.23
23	5.390	44.55	60.00	-15.45**
24	7.255	44.28	60.00	-15.72
25	1.449	40.18	56.00	-15.82
26	5.280	43.65	60.00	-16.35**
27	1.331	38.87	56.00	-17.13
28	6.254	42.77	60.00	-17.23
29	6.123	42.16	60.00	-17.84**
30	6.525	41.97	60.00	-18.03
31	13.559	41.94	60.00	-18.06
32	3.882	37.94	56.00	-18.06
33	1.569	37.80	56.00	-18.20
34	0.641	37.74	56.00	-18.26
35	0.152	47.36	65.86	-18.50
36	14.215	41.48	60.00	-18.52
37	6.458	41.47	60.00	-18.53
38	6.322	41.47	60.00	-18.53
39	13.414	41.33	60.00	-18.67

**Please see the Quasi-Peak Readings on the Next Page and on the Plot

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FCC Class B - White Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
White Lead - 120 VAC, 60 Hz
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

23 highest peaks above -50.00 dB of FCC - Class B - Quasi-Peak limit line

Peak criteria : 0.00 dB, Curve : Quasi-peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.980	55.75	56.00	-0.25
2	5.538	58.73	60.00	-1.27
3	4.851	54.50	56.00	-1.50
4	5.335	56.24	60.00	-3.76
5	5.197	55.84	60.00	-4.16
6	4.748	51.66	56.00	-4.34
7	5.252	55.58	60.00	-4.42
8	5.774	55.29	60.00	-4.71
9	5.686	55.03	60.00	-4.97
10	5.142	54.57	60.00	-5.43
11	5.420	53.74	60.00	-6.26
12	5.901	53.69	60.00	-6.31
13	6.028	52.50	60.00	-7.50
14	4.624	48.17	56.00	-7.83
15	4.928	48.15	56.00	-7.85
16	4.799	47.96	56.00	-8.04
17	5.086	50.05	60.00	-9.95
18	4.696	45.85	56.00	-10.15
19	5.031	49.79	60.00	-10.21
20	6.123	49.61	60.00	-10.39
21	4.528	44.52	56.00	-11.48
22	4.576	43.74	56.00	-12.26
23	6.186	44.29	60.00	-15.71

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FCC Class B - White Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
White Lead - 120 VAC, 60 Hz
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

39 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.748	54.64	46.00	8.64**
2	5.335	58.55	50.00	8.55**
3	5.224	57.95	50.00	7.95**
4	5.567	57.35	50.00	7.35**
5	4.928	52.94	46.00	6.94**
6	5.901	53.86	50.00	3.86**
7	5.059	51.94	50.00	1.94**
8	4.528	47.94	46.00	1.94**
9	4.877	47.24	46.00	1.24**
10	4.576	46.24	46.00	0.24**
11	4.980	44.64	46.00	-1.36**
12	5.964	47.66	50.00	-2.34**
13	4.825	43.54	46.00	-2.46**
14	5.686	46.85	50.00	-3.15**
15	4.456	42.34	46.00	-3.66**
16	5.806	45.56	50.00	-4.44**
17	5.142	45.54	50.00	-4.46**
18	4.696	41.44	46.00	-4.56**
19	6.954	45.28	50.00	-4.72
20	4.008	41.04	46.00	-4.96
21	7.027	44.78	50.00	-5.22
22	6.627	44.77	50.00	-5.23
23	5.390	44.55	50.00	-5.45**
24	7.255	44.28	50.00	-5.72
25	1.449	40.18	46.00	-5.82
26	5.280	43.65	50.00	-6.35**
27	1.331	38.87	46.00	-7.13
28	6.254	42.77	50.00	-7.23
29	6.123	42.16	50.00	-7.84**
30	6.525	41.97	50.00	-8.03
31	13.559	41.94	50.00	-8.06
32	3.882	37.94	46.00	-8.06
33	1.569	37.80	46.00	-8.20
34	0.641	37.74	46.00	-8.26
35	0.152	47.36	55.86	-8.50
36	14.215	41.48	50.00	-8.52
37	6.458	41.47	50.00	-8.53
38	6.322	41.47	50.00	-8.53
39	13.414	41.33	50.00	-8.67

**Please See the Average Readings on the Next Page and on the Plot

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FCC Class B - White Lead
Universal Surveillance Systems
58 kHz Pedestal System
Model: USS-BLADE
White Lead - 120 VAC, 60 Hz
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kyle Fujimoto

24 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.980	35.42	46.00	-10.58
2	4.851	32.36	46.00	-13.64
3	5.197	36.35	50.00	-13.65
4	5.307	36.25	50.00	-13.75
5	5.086	36.07	50.00	-13.93
6	4.748	31.98	46.00	-14.02
7	5.449	35.97	50.00	-14.03
8	4.928	31.01	46.00	-14.99
9	5.538	34.98	50.00	-15.02
10	4.799	30.70	46.00	-15.30
11	4.624	30.54	46.00	-15.46
12	5.252	34.16	50.00	-15.84
13	5.142	34.10	50.00	-15.90
14	4.696	29.82	46.00	-16.18
15	5.031	33.29	50.00	-16.71
16	4.504	29.27	46.00	-16.73
17	4.576	28.89	46.00	-17.11
18	4.456	28.40	46.00	-17.60
19	4.384	27.43	46.00	-18.57
20	5.901	30.62	50.00	-19.38
21	5.715	30.33	50.00	-19.67
22	5.964	29.74	50.00	-20.26
23	5.774	29.03	50.00	-20.97
24	5.838	28.12	50.00	-21.88
