Kadee Quality Products

10200

Report No. KADE0004

Report Prepared By

NORTHWEST EMC

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: January 7, 2011

Kadee Quality Products

Model: 10200

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.249:2011	ANSI C63.10:2009	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2011	ANSI C63.10:2009	**Pass**
Field Strength of Fundamental	FCC 15.249:2011	ANSI C63.10:2009	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

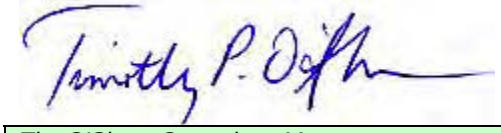
The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-2).

Approved By:



Tim O'Shea, Operations Manager

NVLAP Lab Code: 200630-0

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

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Accreditations and Authorizations

FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)*

CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

Accreditations and Authorizations

VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-1784, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017).

GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/

Northwest EMC Locations

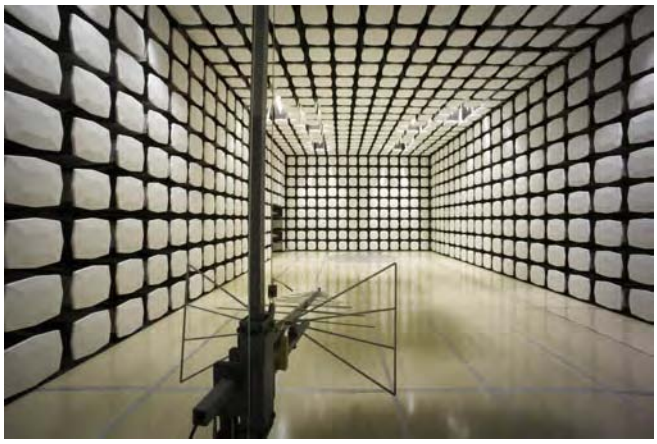
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796



Party Requesting the Test

Company Name:	Kadee Quality Products
Address:	673 Ave. C
City, State, Zip:	White City, OR 97503
Test Requested By:	Michael Dunham
Model:	10200
First Date of Test:	September 2,2010
Last Date of Test:	January 7, 2011
Receipt Date of Samples:	September 1,2010
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
915 MHz radio module.

Testing Objective:
To demonstrate compliance to FCC 15.249 requirements as a modular radio.

CONFIGURATION 3 KADE0001

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Radio Module - servo config	Kadee Quality Products	10200	1B
Antenna	Kadee Quality Products	Antenna	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Topward	6303D	743645

CONFIGURATION 1 KADE0004

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Radio Module	Kadee Quality Products	10200	1B

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Antenna	Kadee Quality Products	Antenna	None
Battery Pack	Kadee Quality Products	None	None

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	9/1/2010	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT left with client following the test.
2	1/6/2011	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	1/7/2011	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Schedule testing was completed.

Spurious Radiated Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
Transmitting 50 kHz FSK, power setting -15 dBm

CHANNELS TESTED
Low Channel, 904 MHz
Mid Channel, 915 MHz
High Channel, 926 MHz

POWER SETTINGS INVESTIGATED
Battery

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	10 GHz

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440	AFE	11/29/2010	12
.5-1 GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HFT	1/8/2010	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	7/9/2010	13
Antenna, Biconilog	EMCO	3141	AXE	1/14/2010	13
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	7/9/2010	13
Antenna, Horn	EMCO	3115	AHC	7/8/2010	24
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	7/9/2010	13
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	8/25/2010	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	8/25/2010	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting and receiving while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2008.07.21
EMI 2008.1.9

EUT:	10200			Work Order:	KADE0004
Serial Number:	1B			Date:	01/06/11
Customer:	Kadee Quality Products			Temperature:	23
Attendees:	Jim Abdo, Larry Hilligoss			Humidity:	42%
Project:	None			Barometric Pres.:	1025.5 mb
Tested by:	Rod Peloquin	Power:	Battery	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.249:2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

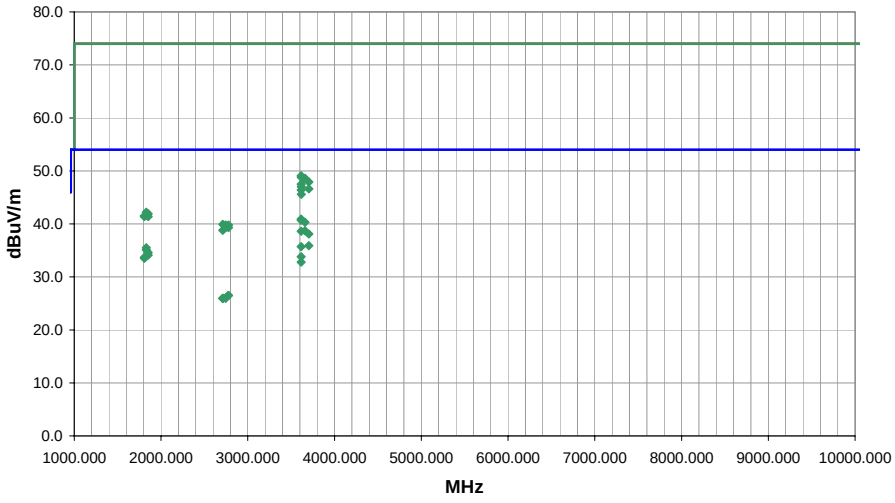
Transmitting 50 kHz FSK, power setting -15 dBm

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
3616.030	34.0	6.9	74.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	Low channel, EUT horizontal
3616.010	33.8	6.9	55.0	1.1	3.0	0.0	H-Horn	AV	0.0	40.7	54.0	-13.3	Low channel, EUT on side
3659.988	33.1	7.2	56.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.3	54.0	-13.7	Mid channel, EUT horizontal
3659.958	31.5	7.2	310.0	1.1	3.0	0.0	V-Horn	AV	0.0	38.7	54.0	-15.3	Mid channel, EUT vertical
3615.997	31.7	6.9	318.0	1.5	3.0	0.0	V-Horn	AV	0.0	38.6	54.0	-15.4	Low channel, EUT vertical
3703.907	30.8	7.3	134.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.1	54.0	-15.9	High channel, EUT horizontal
3703.967	28.6	7.3	289.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.9	54.0	-18.1	High channel, EUT vertical
3615.880	28.8	6.9	334.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.7	54.0	-18.3	Low channel, EUT on side
1830.052	36.1	-0.6	10.0	1.6	3.0	0.0	V-Horn	AV	0.0	35.5	54.0	-18.5	Mid channel, EUT vertical
1830.018	35.7	-0.6	72.0	1.1	3.0	0.0	H-Horn	AV	0.0	35.1	54.0	-18.9	Mid channel, EUT horizontal
1851.995	35.0	-0.4	279.0	1.2	3.0	0.0	V-Horn	AV	0.0	34.6	54.0	-19.4	High channel, EUT vertical
1852.012	34.5	-0.4	83.0	1.1	3.0	0.0	H-Horn	AV	0.0	34.1	54.0	-19.9	High channel, EUT horizontal
3615.997	26.9	6.9	230.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.8	54.0	-20.2	Low channel, EUT horizontal
1808.032	34.4	-0.7	54.0	1.6	3.0	0.0	V-Horn	AV	0.0	33.7	54.0	-20.3	Low channel, EUT vertical
1808.015	34.2	-0.7	97.0	1.1	3.0	0.0	H-Horn	AV	0.0	33.5	54.0	-20.5	Low channel, EUT horizontal
3615.833	25.9	6.9	250.0	1.0	3.0	0.0	H-Horn	AV	0.0	32.8	54.0	-21.2	Low channel, EUT vertical
3615.913	42.2	6.9	74.0	1.0	3.0	0.0	H-Horn	PK	0.0	49.1	74.0	-24.9	Low channel, EUT horizontal
3615.857	41.9	6.9	55.0	1.1	3.0	0.0	H-Horn	PK	0.0	48.8	74.0	-25.2	Low channel, EUT on side
3660.155	41.4	7.2	310.0	1.1	3.0	0.0	V-Horn	PK	0.0	48.6	74.0	-25.4	Mid channel, EUT vertical
3659.715	41.3	7.2	56.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.5	74.0	-25.5	Mid channel, EUT horizontal
3704.073	40.6	7.3	134.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.9	74.0	-26.1	High channel, EUT horizontal
3615.927	40.6	6.9	318.0	1.5	3.0	0.0	V-Horn	PK	0.0	47.5	74.0	-26.5	Low channel, EUT vertical
3616.090	40.1	6.9	334.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.0	74.0	-27.0	Low channel, EUT on side
3704.037	39.3	7.3	289.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.6	74.0	-27.4	High channel, EUT vertical
2776.897	23.1	3.4	170.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.5	54.0	-27.5	High channel, EUT vertical
2778.160	23.1	3.4	27.0	1.0	3.0	0.0	H-Horn	AV	0.0	26.5	54.0	-27.5	High channel, EUT horizontal
3615.763	39.5	6.9	250.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.4	74.0	-27.6	Low channel, EUT vertical
2710.677	23.0	3.0	208.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0	Low channel, EUT vertical
2744.285	22.8	3.2	59.0	1.0	3.0	0.0	H-Horn	AV	0.0	26.0	54.0	-28.0	Mid channel, EUT horizontal
2744.982	22.8	3.2	140.0	1.6	3.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0	Mid channel, EUT vertical
2711.837	22.9	3.0	83.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.9	54.0	-28.1	Low channel, EUT horizontal
3616.163	38.7	6.9	230.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.6	74.0	-28.4	Low channel, EUT horizontal
1829.845	42.8	-0.6	10.0	1.6	3.0	0.0	V-Horn	PK	0.0	42.2	74.0	-31.8	Mid channel, EUT vertical
1851.718	42.3	-0.4	279.0	1.2	3.0	0.0	V-Horn	PK	0.0	41.9	74.0	-32.1	High channel, EUT vertical
1829.875	42.2	-0.6	72.0	1.1	3.0	0.0	H-Horn	PK	0.0	41.6	74.0	-32.4	Mid channel, EUT horizontal
1807.908	42.2	-0.7	97.0	1.1	3.0	0.0	H-Horn	PK	0.0	41.5	74.0	-32.5	Low channel, EUT horizontal
1808.255	42.1	-0.7	54.0	1.6	3.0	0.0	V-Horn	PK	0.0	41.4	74.0	-32.6	Low channel, EUT vertical
1851.825	41.8	-0.4	83.0	1.1	3.0	0.0	H-Horn	PK	0.0	41.4	74.0	-32.6	High channel, EUT horizontal
2711.817	36.9	3.0	83.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.9	74.0	-34.1	Low channel, EUT horizontal
2777.533	36.4	3.4	170.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.8	74.0	-34.2	High channel, EUT vertical
2744.932	36.6	3.2	59.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.8	74.0	-34.2	Mid channel, EUT horizontal
2777.167	35.9	3.4	27.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.3	74.0	-34.7	High channel, EUT horizontal
2745.405	36.1	3.2	140.0	1.6	3.0	0.0	V-Horn	PK	0.0	39.3	74.0	-34.7	Mid channel, EUT vertical
2710.950	35.8	3.0	208.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.8	74.0	-35.2	Low channel, EUT vertical

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2008.07.21
EMI 2008.1.9

EUT:	10200			Work Order:	KADE0004
Serial Number:	1B			Date:	01/07/11
Customer:	Kadee Quality Products			Temperature:	23
Attendees:	None			Humidity:	42%
Project:	None			Barometric Pres.:	1025.5 mb
Tested by:	Rod Peloquin	Power:	Battery	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.249:2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

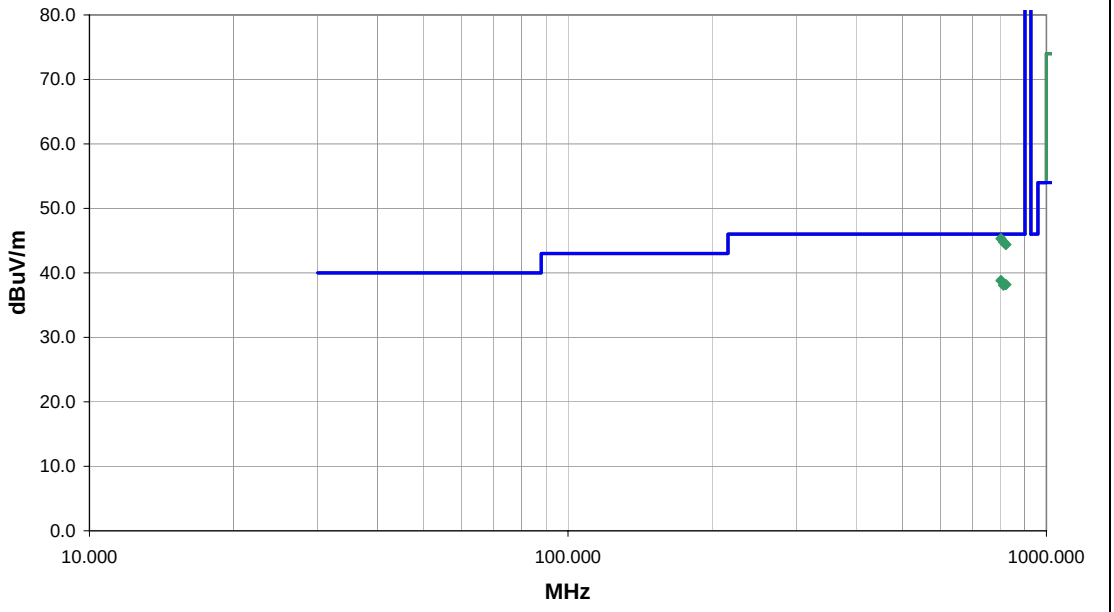
Transmitting 50 kHz FSK, power setting -15 dBm

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
803.550	34.1	11.2	218.0	1.0	3.0	0.0	H-Bilog	QP	0.0	45.3	46.0	-0.7	Low Channel
813.328	33.4	11.4	215.0	1.0	3.0	0.0	H-Bilog	QP	0.0	44.8	46.0	-1.2	Mid Channel
823.106	32.8	11.6	78.0	1.0	3.0	0.0	H-Bilog	QP	0.0	44.4	46.0	-1.6	Low Channel
803.550	27.6	11.2	166.0	1.0	3.0	0.0	V-Bilog	QP	0.0	38.8	46.0	-7.2	Low Channel
823.105	26.6	11.6	173.0	1.0	3.0	0.0	V-Bilog	QP	0.0	38.2	46.0	-7.8	Low Channel
813.328	26.7	11.4	171.0	1.0	3.0	0.0	V-Bilog	QP	0.0	38.1	46.0	-7.9	Mid Channel

NORTHWEST EMC

Spurious Radiated Emissions

PSA 2008.07.21
EMI 2008.1.9

EUT:	10200	Work Order:	KADE0004
Serial Number:	1B	Date:	01/07/11
Customer:	Kadee Quality Products	Temperature:	23
Attendees:	None	Humidity:	42%
Project:	None	Barometric Pres.:	1025.5 mb
Tested by:	Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.249:2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

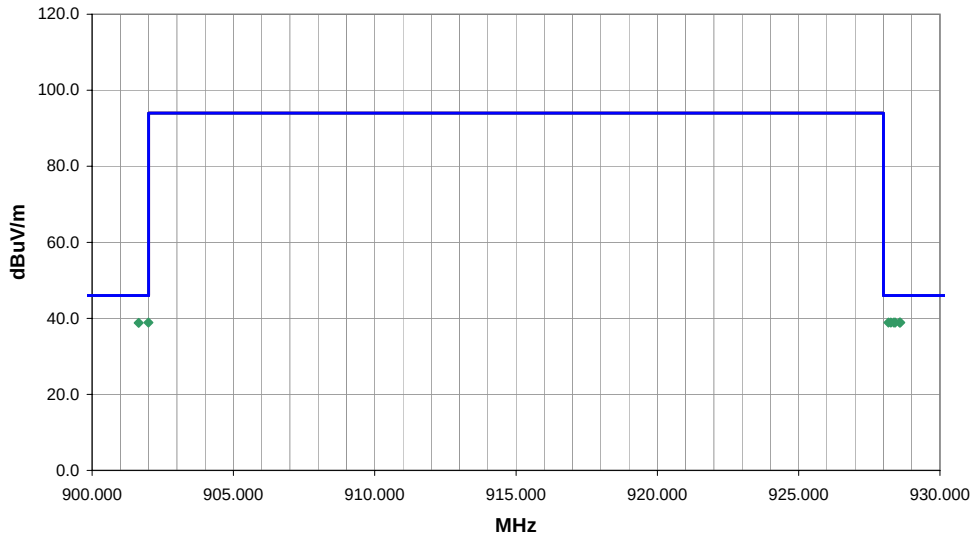
Transmitting 50 kHz FSK, power setting -15 dBm

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	7
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
901.993	16.4	12.5	51.0	1.0	3.0	10.0	H-Bilog	QP	0.0	38.9	46.0	-7.1	Low Channel, EUT horizontal
928.176	16.3	12.6	319.0	1.0	3.0	10.0	H-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT horizontal
928.261	16.3	12.6	24.0	3.5	3.0	10.0	V-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT vertical
928.367	16.3	12.6	41.0	1.0	3.0	10.0	V-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT horizontal
928.417	16.3	12.6	359.0	2.0	3.0	10.0	H-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT on side
928.572	16.3	12.6	182.0	1.0	3.0	10.0	V-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT on side
928.598	16.3	12.6	63.0	2.0	3.0	10.0	H-Bilog	QP	0.0	38.9	46.0	-7.1	High Channel, EUT vertical
901.646	16.3	12.5	209.0	1.0	3.0	10.0	V-Bilog	QP	0.0	38.8	46.0	-7.2	Low Channel, EUT horizontal

AC POWERLINE CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
High channel
Mid channel
Low channel

POWER SETTINGS INVESTIGATED
6 VDC

CONFIGURATIONS INVESTIGATED
KADE0001 - 3

SAMPLE CALCULATIONS
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARE	4/29/2010	12 mo
Attenuator	Coaxicom	66702 2910-20	ATO	8/6/2010	13 mo
High Pass Filter	TTE	H97-100K-50-720B	HFX	2/16/2010	13 mo
EV07 Cables	N/A	Conducted Cables	EVG	6/21/2010	13 mo
LISN	Solar	9252-50-R-24-BNC	LIN	5/27/2010	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The EUT may be powered indirectly from the AC power line while operating in a host device. Therefore, conducted emissions measurements were made on the DC input of the EUT, or on the DC input of the device used to power the EUT. The AC power line conducted emissions were measured on a linear power supply providing DC power to the module while providing no filtering of the power inputs to the module.

The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band or bands. The EUT was transmitting in the mode which has the highest output power for the band. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

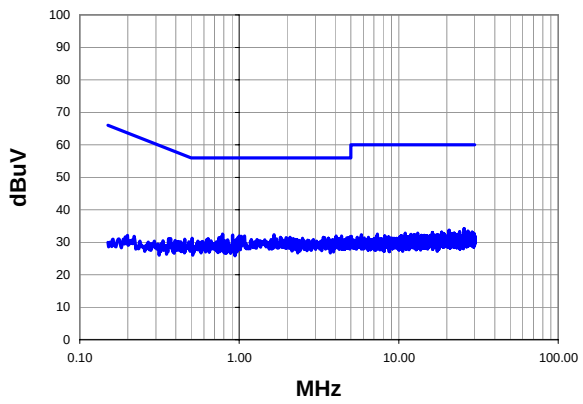
PSA-ESCI 2010.04.06
Version 2010.3.17

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	low channel				
Deviations:	None				
Comments:	Normal antenna				

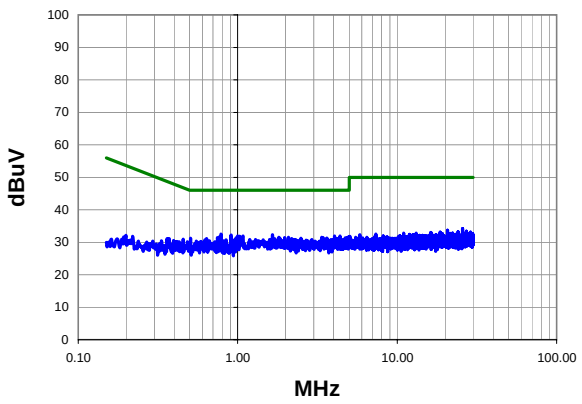
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	1	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.786	12.3	20.2	32.5	56.0	-23.5
1.656	12.1	20.2	32.3	56.0	-23.7
0.910	12.0	20.2	32.2	56.0	-23.8
4.376	11.7	20.2	31.9	56.0	-24.1
4.040	11.7	20.2	31.9	56.0	-24.1
0.997	11.7	20.2	31.9	56.0	-24.1
1.080	11.7	20.2	31.9	56.0	-24.1
0.772	11.5	20.2	31.7	56.0	-24.3
4.960	11.4	20.3	31.7	56.0	-24.3
3.368	11.3	20.2	31.5	56.0	-24.5
1.816	11.3	20.2	31.5	56.0	-24.5
2.080	11.3	20.2	31.5	56.0	-24.5
4.856	11.2	20.3	31.5	56.0	-24.5
1.968	11.2	20.2	31.4	56.0	-24.6
0.747	11.2	20.2	31.4	56.0	-24.6
4.720	11.1	20.3	31.4	56.0	-24.7
0.980	11.1	20.2	31.3	56.0	-24.7
0.507	11.1	20.2	31.3	56.0	-24.7
3.624	11.0	20.2	31.2	56.0	-24.8
2.496	11.0	20.2	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.786	12.3	20.2	32.5	46.0	-13.5
1.656	12.1	20.2	32.3	46.0	-13.7
0.910	12.0	20.2	32.2	46.0	-13.8
4.376	11.7	20.2	31.9	46.0	-14.1
4.040	11.7	20.2	31.9	46.0	-14.1
0.997	11.7	20.2	31.9	46.0	-14.1
1.080	11.7	20.2	31.9	46.0	-14.1
0.772	11.5	20.2	31.7	46.0	-14.3
4.960	11.4	20.3	31.7	46.0	-14.3
3.368	11.3	20.2	31.5	46.0	-14.5
1.816	11.3	20.2	31.5	46.0	-14.5
2.080	11.3	20.2	31.5	46.0	-14.5
4.856	11.2	20.3	31.5	46.0	-14.5
1.968	11.2	20.2	31.4	46.0	-14.6
0.747	11.2	20.2	31.4	46.0	-14.6
4.720	11.1	20.3	31.4	46.0	-14.7
0.980	11.1	20.2	31.3	46.0	-14.7
0.507	11.1	20.2	31.3	46.0	-14.7
3.624	11.0	20.2	31.2	46.0	-14.8
2.496	11.0	20.2	31.2	46.0	-14.8

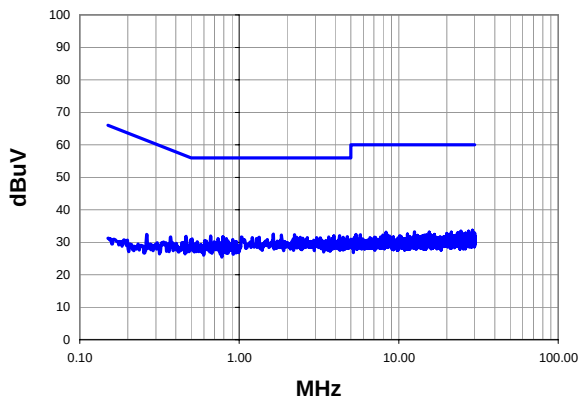
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	low channel				
Deviations:	None				
Comments:	Normal antenna				

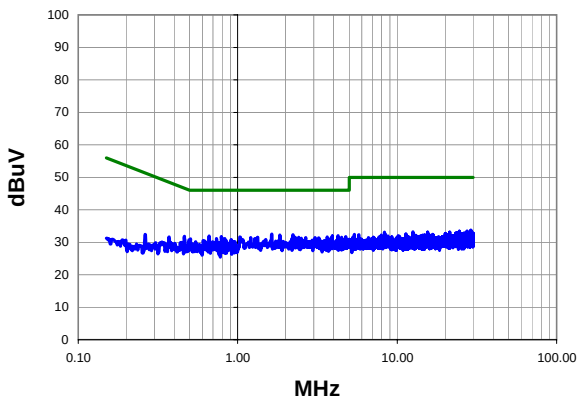
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	2	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.640	12.3	20.2	32.5	56.0	-23.5
2.224	12.1	20.2	32.3	56.0	-23.7
1.840	12.0	20.2	32.2	56.0	-23.8
4.256	11.8	20.2	32.0	56.0	-24.0
3.920	11.7	20.2	31.9	56.0	-24.1
0.662	11.7	20.2	31.9	56.0	-24.1
4.752	11.5	20.3	31.8	56.0	-24.3
0.789	11.5	20.2	31.7	56.0	-24.3
3.648	11.4	20.2	31.6	56.0	-24.4
1.032	11.4	20.2	31.6	56.0	-24.4
4.488	11.3	20.2	31.5	56.0	-24.5
2.408	11.3	20.2	31.5	56.0	-24.5
2.296	11.3	20.2	31.5	56.0	-24.5
1.328	11.3	20.2	31.5	56.0	-24.5
3.056	11.2	20.2	31.4	56.0	-24.6
2.672	11.2	20.2	31.4	56.0	-24.6
3.848	11.0	20.2	31.2	56.0	-24.8
0.463	11.7	20.2	31.9	56.6	-24.8
0.736	11.0	20.2	31.2	56.0	-24.8
0.828	11.0	20.2	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
1.640	12.3	20.2	32.5	46.0	-13.5
2.224	12.1	20.2	32.3	46.0	-13.7
1.840	12.0	20.2	32.2	46.0	-13.8
4.256	11.8	20.2	32.0	46.0	-14.0
3.920	11.7	20.2	31.9	46.0	-14.1
0.662	11.7	20.2	31.9	46.0	-14.1
4.752	11.5	20.3	31.8	46.0	-14.3
0.789	11.5	20.2	31.7	46.0	-14.3
3.648	11.4	20.2	31.6	46.0	-14.4
1.032	11.4	20.2	31.6	46.0	-14.4
4.488	11.3	20.2	31.5	46.0	-14.5
2.408	11.3	20.2	31.5	46.0	-14.5
2.296	11.3	20.2	31.5	46.0	-14.5
1.328	11.3	20.2	31.5	46.0	-14.5
3.056	11.2	20.2	31.4	46.0	-14.6
2.672	11.2	20.2	31.4	46.0	-14.6
3.848	11.0	20.2	31.2	46.0	-14.8
0.463	11.7	20.2	31.9	46.6	-14.8
0.736	11.0	20.2	31.2	46.0	-14.8
0.828	11.0	20.2	31.2	46.0	-14.8

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

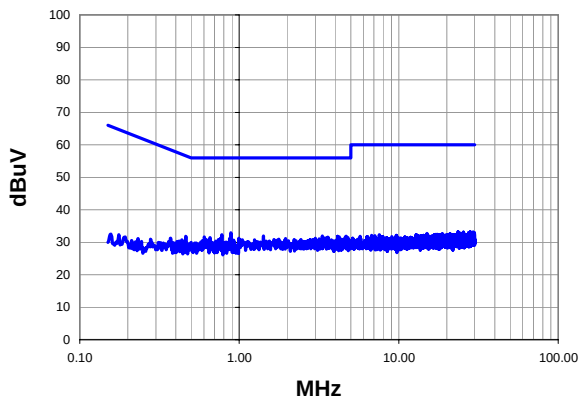
PSA-ESCI 2010.04.06
Version 2010.3.17

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	Mid channel				
Deviations:	None				
Comments:	Normal antenna				

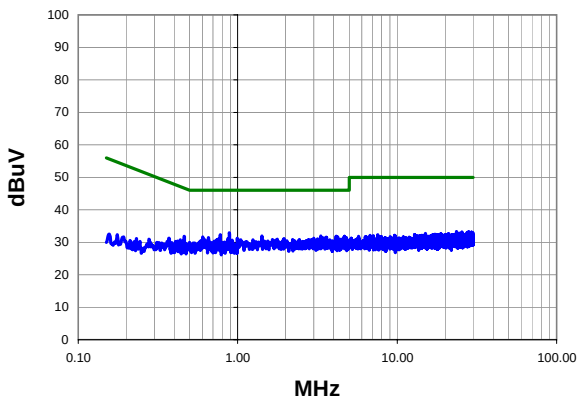
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	3	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.886	12.7	20.2	32.9	56.0	-23.1
0.777	12.1	20.2	32.3	56.0	-23.7
3.312	11.7	20.2	31.9	56.0	-24.1
1.416	11.7	20.2	31.9	56.0	-24.1
4.672	11.6	20.3	31.9	56.0	-24.2
4.144	11.6	20.2	31.8	56.0	-24.2
4.232	11.4	20.2	31.6	56.0	-24.4
0.604	11.4	20.2	31.6	56.0	-24.4
3.600	11.3	20.2	31.5	56.0	-24.5
3.576	11.3	20.2	31.5	56.0	-24.5
4.800	11.2	20.3	31.5	56.0	-24.5
0.655	11.2	20.2	31.4	56.0	-24.6
4.592	11.1	20.3	31.4	56.0	-24.7
3.440	11.1	20.2	31.3	56.0	-24.7
3.000	11.0	20.2	31.2	56.0	-24.8
0.461	11.7	20.2	31.9	56.7	-24.8
0.993	11.0	20.2	31.2	56.0	-24.8
0.764	11.0	20.2	31.2	56.0	-24.8
0.871	11.0	20.2	31.2	56.0	-24.8
1.952	10.9	20.2	31.1	56.0	-24.9

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.886	12.7	20.2	32.9	46.0	-13.1
0.777	12.1	20.2	32.3	46.0	-13.7
3.312	11.7	20.2	31.9	46.0	-14.1
1.416	11.7	20.2	31.9	46.0	-14.1
4.672	11.6	20.3	31.9	46.0	-14.2
4.144	11.6	20.2	31.8	46.0	-14.2
4.232	11.4	20.2	31.6	46.0	-14.4
0.604	11.4	20.2	31.6	46.0	-14.4
3.600	11.3	20.2	31.5	46.0	-14.5
3.576	11.3	20.2	31.5	46.0	-14.5
4.800	11.2	20.3	31.5	46.0	-14.5
0.655	11.2	20.2	31.4	46.0	-14.6
4.592	11.1	20.3	31.4	46.0	-14.7
3.440	11.1	20.2	31.3	46.0	-14.7
3.000	11.0	20.2	31.2	46.0	-14.8
0.461	11.7	20.2	31.9	46.7	-14.8
0.993	11.0	20.2	31.2	46.0	-14.8
0.764	11.0	20.2	31.2	46.0	-14.8
0.871	11.0	20.2	31.2	46.0	-14.8
1.952	10.9	20.2	31.1	46.0	-14.9

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

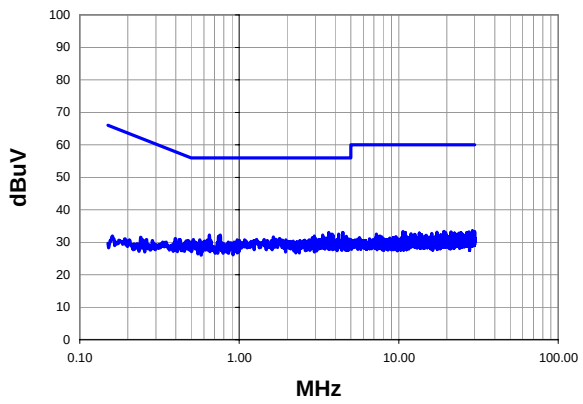
PSA-ESCI 2010.04.06
Version 2010.3.17

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	Mid channel				
Deviations:	None				
Comments:	Normal antenna				

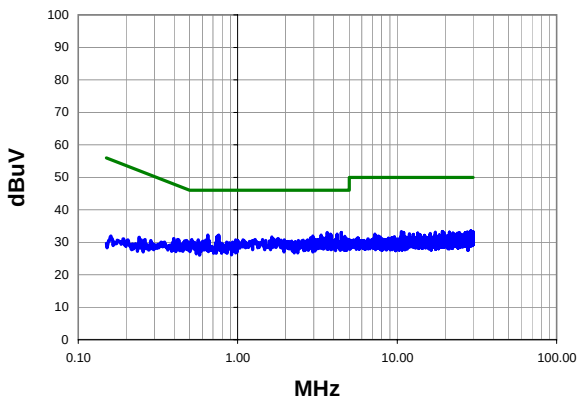
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	4	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
4.464	12.8	20.2	33.0	56.0	-23.0
3.648	12.8	20.2	33.0	56.0	-23.0
4.192	12.3	20.2	32.5	56.0	-23.5
3.808	12.3	20.2	32.5	56.0	-23.5
3.872	12.0	20.2	32.2	56.0	-23.8
3.336	12.0	20.2	32.2	56.0	-23.8
0.650	12.0	20.2	32.2	56.0	-23.8
0.760	12.0	20.2	32.2	56.0	-23.8
2.952	11.7	20.2	31.9	56.0	-24.1
0.748	11.7	20.2	31.9	56.0	-24.1
4.704	11.6	20.3	31.9	56.0	-24.2
1.640	11.4	20.2	31.6	56.0	-24.4
3.408	11.2	20.2	31.4	56.0	-24.6
3.552	11.1	20.2	31.3	56.0	-24.7
3.000	11.0	20.2	31.2	56.0	-24.8
4.840	10.8	20.3	31.1	56.0	-24.9
4.608	10.7	20.3	31.0	56.0	-25.1
0.516	10.7	20.2	30.9	56.0	-25.1
4.080	10.6	20.2	30.8	56.0	-25.2
1.280	10.6	20.2	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
4.464	12.8	20.2	33.0	46.0	-13.0
3.648	12.8	20.2	33.0	46.0	-13.0
4.192	12.3	20.2	32.5	46.0	-13.5
3.808	12.3	20.2	32.5	46.0	-13.5
3.872	12.0	20.2	32.2	46.0	-13.8
3.336	12.0	20.2	32.2	46.0	-13.8
0.650	12.0	20.2	32.2	46.0	-13.8
0.760	12.0	20.2	32.2	46.0	-13.8
2.952	11.7	20.2	31.9	46.0	-14.1
0.748	11.7	20.2	31.9	46.0	-14.1
4.704	11.6	20.3	31.9	46.0	-14.2
1.640	11.4	20.2	31.6	46.0	-14.4
3.408	11.2	20.2	31.4	46.0	-14.6
3.552	11.1	20.2	31.3	46.0	-14.7
3.000	11.0	20.2	31.2	46.0	-14.8
4.840	10.8	20.3	31.1	46.0	-14.9
4.608	10.7	20.3	31.0	46.0	-15.1
0.516	10.7	20.2	30.9	46.0	-15.1
4.080	10.6	20.2	30.8	46.0	-15.2
1.280	10.6	20.2	30.8	46.0	-15.2

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

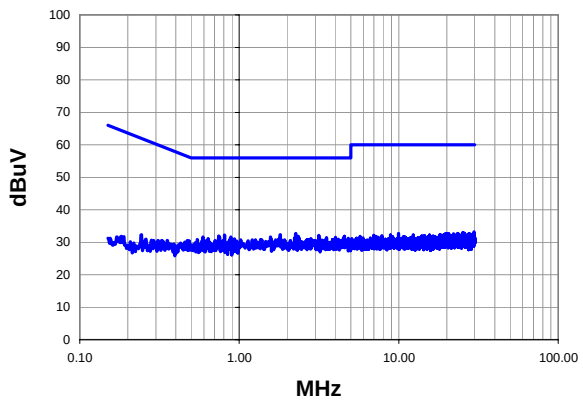
PSA-ESCI 2010.04.06
Version 2010.3.17

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	High channel				
Deviations:	None				
Comments:	Normal antenna				

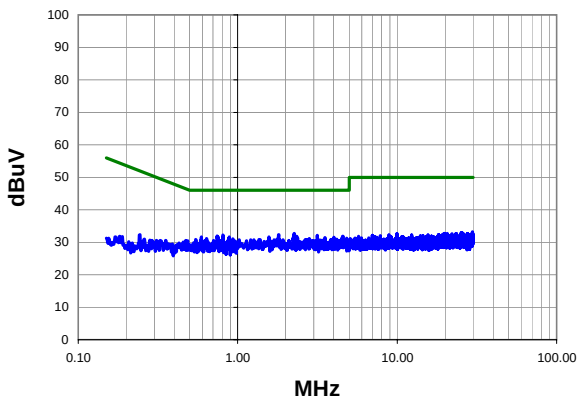
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	5	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
2.264	12.5	20.2	32.7	56.0	-23.3
1.800	12.1	20.2	32.3	56.0	-23.7
0.808	12.0	20.2	32.2	56.0	-23.8
3.160	11.9	20.2	32.1	56.0	-23.9
0.742	11.7	20.2	31.9	56.0	-24.1
4.568	11.6	20.3	31.9	56.0	-24.2
2.344	11.6	20.2	31.8	56.0	-24.2
1.568	11.4	20.2	31.6	56.0	-24.4
0.592	11.4	20.2	31.6	56.0	-24.4
0.884	11.4	20.2	31.6	56.0	-24.4
4.016	11.3	20.2	31.5	56.0	-24.5
3.528	11.2	20.2	31.4	56.0	-24.6
4.816	11.0	20.3	31.3	56.0	-24.7
0.638	11.0	20.2	31.2	56.0	-24.8
2.816	10.9	20.2	31.1	56.0	-24.9
0.934	10.9	20.2	31.1	56.0	-24.9
4.184	10.7	20.2	30.9	56.0	-25.1
0.546	10.7	20.2	30.9	56.0	-25.1
3.848	10.6	20.2	30.8	56.0	-25.2
1.024	10.6	20.2	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
2.264	12.5	20.2	32.7	46.0	-13.3
1.800	12.1	20.2	32.3	46.0	-13.7
0.808	12.0	20.2	32.2	46.0	-13.8
3.160	11.9	20.2	32.1	46.0	-13.9
0.742	11.7	20.2	31.9	46.0	-14.1
4.568	11.6	20.3	31.9	46.0	-14.2
2.344	11.6	20.2	31.8	46.0	-14.2
1.568	11.4	20.2	31.6	46.0	-14.4
0.592	11.4	20.2	31.6	46.0	-14.4
0.884	11.4	20.2	31.6	46.0	-14.4
4.016	11.3	20.2	31.5	46.0	-14.5
3.528	11.2	20.2	31.4	46.0	-14.6
4.816	11.0	20.3	31.3	46.0	-14.7
0.638	11.0	20.2	31.2	46.0	-14.8
2.816	10.9	20.2	31.1	46.0	-14.9
0.934	10.9	20.2	31.1	46.0	-14.9
4.184	10.7	20.2	30.9	46.0	-15.1
0.546	10.7	20.2	30.9	46.0	-15.1
3.848	10.6	20.2	30.8	46.0	-15.2
1.024	10.6	20.2	30.8	46.0	-15.2

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

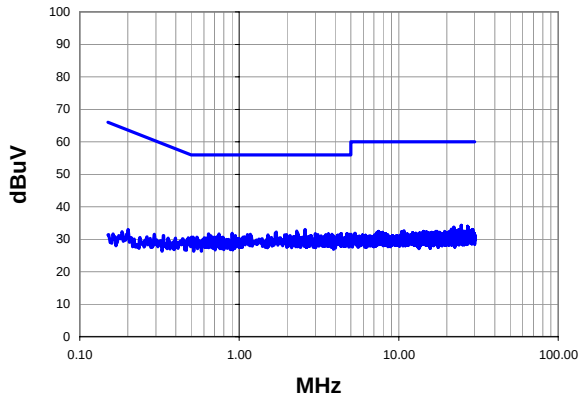
PSA-ESCI 2010.04.06
Version 2010.3.17

Work Order:	KADE0001	**Date:**	09/01/10		
Project:	None	**Temperature:**	24°C		
Job Site:	EV07	**Humidity:**	38		
Serial Number:	1B	**Barometric Pres.:**	30.15	**Tested by:**	Rod Peloquin
EUT:	10200				
Configuration:	3 - AC Power Conducted Emissions				
Customer:	Kadee Quality Products				
Attendees:	Jim Abdo				
EUT Power:	6 VDC				
Operating Mode:	High channel				
Deviations:	None				
Comments:	Normal antenna				

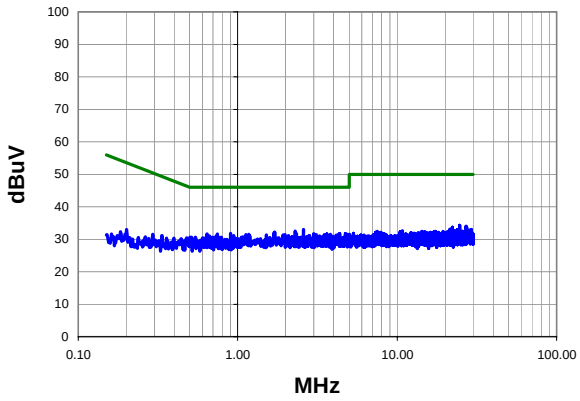
Test Specifications	**Test Method**
FCC 15.207:2010	ANSI C63.10:2009

Run #	6	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
2.584	12.8	20.2	33.0	56.0	-23.0
2.296	12.3	20.2	32.5	56.0	-23.5
1.704	12.0	20.2	32.2	56.0	-23.8
0.903	11.6	20.2	31.8	56.0	-24.2
4.736	11.5	20.3	31.8	56.0	-24.3
4.360	11.5	20.2	31.7	56.0	-24.3
3.000	11.5	20.2	31.7	56.0	-24.3
2.336	11.5	20.2	31.7	56.0	-24.3
3.624	11.4	20.2	31.6	56.0	-24.4
0.641	11.4	20.2	31.6	56.0	-24.4
0.745	11.4	20.2	31.6	56.0	-24.4
4.888	11.3	20.3	31.6	56.0	-24.4
4.272	11.3	20.2	31.5	56.0	-24.5
3.816	11.3	20.2	31.5	56.0	-24.5
1.176	11.3	20.2	31.5	56.0	-24.5
3.488	11.2	20.2	31.4	56.0	-24.6
3.112	11.2	20.2	31.4	56.0	-24.6
1.976	11.2	20.2	31.4	56.0	-24.6
1.128	11.2	20.2	31.4	56.0	-24.6
1.512	11.1	20.2	31.3	56.0	-24.7

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
2.584	12.8	20.2	33.0	46.0	-13.0
2.296	12.3	20.2	32.5	46.0	-13.5
1.704	12.0	20.2	32.2	46.0	-13.8
0.903	11.6	20.2	31.8	46.0	-14.2
4.736	11.5	20.3	31.8	46.0	-14.3
4.360	11.5	20.2	31.7	46.0	-14.3
3.000	11.5	20.2	31.7	46.0	-14.3
2.336	11.5	20.2	31.7	46.0	-14.3
3.624	11.4	20.2	31.6	46.0	-14.4
0.641	11.4	20.2	31.6	46.0	-14.4
0.745	11.4	20.2	31.6	46.0	-14.4
4.888	11.3	20.3	31.6	46.0	-14.4
4.272	11.3	20.2	31.5	46.0	-14.5
3.816	11.3	20.2	31.5	46.0	-14.5
1.176	11.3	20.2	31.5	46.0	-14.5
3.488	11.2	20.2	31.4	46.0	-14.6
3.112	11.2	20.2	31.4	46.0	-14.6
1.976	11.2	20.2	31.4	46.0	-14.6
1.128	11.2	20.2	31.4	46.0	-14.6
1.512	11.1	20.2	31.3	46.0	-14.7

Field Strength of Fundamental

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
Transmitting 50 kHz FSK, -15 dBm setting

CHANNELS TESTED
Low Channel, 904 MHz
Mid Channel, 915 MHz
High Channel, 926 MHz

POWER SETTINGS INVESTIGATED
Battery

FREQUENCY RANGE INVESTIGATED			
Start Frequency	902 MHz	Stop Frequency	928 MHz

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440	AFE	11/29/2010	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	13
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13

MEASUREMENT BANDWIDTHS				
	Frequency Range (MHz)	**Peak Data (kHz)**	**Quasi-Peak Data (kHz)**	**Average Data (kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting and while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT and EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009).

NORTHWEST EMC

Field Strength of Fundamental

PSA 2008.07.21
EMI 2008.1.9

EUT:	10200	Work Order:	KADE0004
Serial Number:	1B	Date:	01/06/11
Customer:	Kadee Quality Products	Temperature:	23
Attendees:	Jim Abdo, Larry Hilligoss	Humidity:	42%
Project:	None	Barometric Pres.:	1025.5 mb
Tested by:	Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.249:2010	ANSI C63.10:2009

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

None

EUT OPERATING MODES

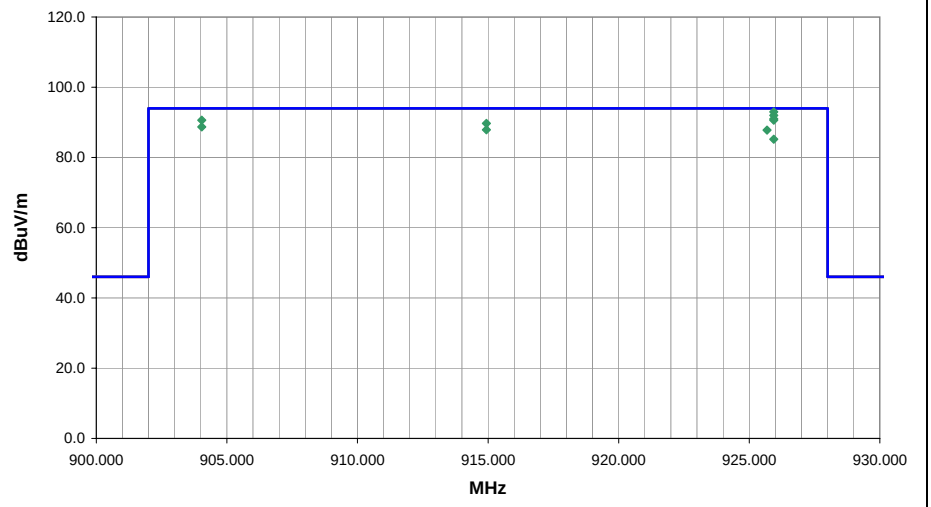
Transmitting 50 kHz FSK

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
925.937	65.0	28.0	136.0	1.5	3.0	0.0	H-Bilog	QP	0.0	93.0	94.0	-1.0	EUT horizontal, High Channel, Power setting -15
925.937	64.0	28.0	128.0	1.6	3.0	0.0	H-Bilog	QP	0.0	92.0	94.0	-2.0	EUT on side, High Channel, Power setting -15
925.937	63.0	28.0	170.0	1.6	3.0	0.0	V-Bilog	QP	0.0	91.0	94.0	-3.0	EUT horizontal, High Channel, Power setting -15
904.036	63.4	27.2	126.0	1.5	3.0	0.0	H-Bilog	QP	0.0	90.6	94.0	-3.4	EUT horizontal, Low Channel, Power setting -15
925.937	62.6	28.0	169.0	1.6	3.0	0.0	V-Bilog	QP	0.0	90.6	94.0	-3.4	EUT on side, High Channel, Power setting -15
914.938	62.2	27.5	124.0	1.5	3.0	0.0	H-Bilog	QP	0.0	89.7	94.0	-4.3	EUT horizontal, Mid Channel, Power setting -15
904.037	61.5	27.2	168.0	1.6	3.0	0.0	V-Bilog	QP	0.0	88.7	94.0	-5.3	EUT horizontal, Low Channel, Power setting -15
914.937	60.4	27.5	165.0	1.5	3.0	0.0	V-Bilog	QP	0.0	87.9	94.0	-6.1	EUT horizontal, Mid Channel, Power setting -15
925.684	59.8	28.0	220.0	1.0	3.0	0.0	V-Bilog	QP	0.0	87.8	94.0	-6.2	EUT vertical, High Channel, Power setting -15
925.937	57.2	28.0	102.0	1.5	3.0	0.0	H-Bilog	QP	0.0	85.2	94.0	-8.8	EUT vertical, High Channel, Power setting -15