Product Creation Studio

EKT3000K

Report No. PROU0030

Report Prepared By



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

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22975 NW Evergreen Parkway Suite 400 Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: September 19, 2011
Product Creation Studio
Model: EKT3000K

Emissions					
Test Description	Specification	Test Method	Pass/Fail		
Field Strength of Fundamental	FCC 15.249:2011	ANSI C63.10:2009	Pass		
Duty Cycle	FCC 15.249:2011	ANSI C63.10:2009	Pass		
Spurious Radiated Emissions	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-1).

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 History

Revision 06/29/09

Revision Number	Description	Date	Page Number
00	None		



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-3265, 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

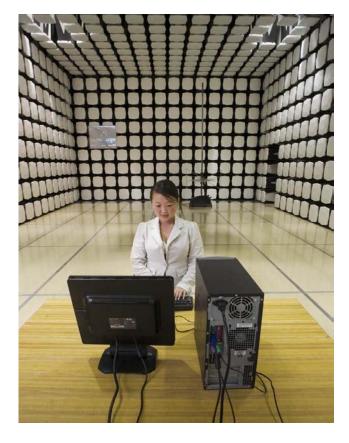




Oregon Labs EV01-EV12 22975 NW Evergreen Pkwy Suite 400 Hillsboro, OR 97124 (503) 844-4066 California Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918 Minnesota Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281 Washington Labs SU01-SU07 14128 339th Ave. SE Sultan, WA 98294 (360) 793-8675 New York Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796







Rev 11/17/06

Party Requesting the Test

Company Name:	Product Creation Studio
Address:	425 Westlake Ave. N.
City, State, Zip:	Seattle, WA 98109
Test Requested By:	Keith Brown
Model:	EKT3000K
First Date of Test:	September 12, 2011
Last Date of Test:	September 12, 2011
Receipt Date of Samples:	August 25, 2011
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):	
Low Power transceiver operating at 900 MHz.	

Testing Objective:
To demonstrate compliance to FCC 15.249 specifications

Configurations

Revision 9/21/05

CONFIGURATION 1 PROU0030

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Keyfob (Transmit)	Product Creation Studio	EKT3000K	None
Belt Clip (Transmit)	Product Creation Studio	EKT3000B	None

Revision 4/28/03

	Equipment modifications						
Item	Date	Test	Modification	Note	Disposition of EUT		
1	9/12/2011	Spurious Radiated Emissions	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.		
2	9/12/2011	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	9/12/2011	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.		

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 with 100% duty cycle

POWER SETTINGS INVESTIGATED

Battery

FREQUENCY RANGE INVESTIGATED

Start Frequency 905 MHz Stop Frequency 905 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
EV01 Cables	N/A	Bilog Cables	EVA	6/28/2011	12
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/28/2011	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	12
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	3/2/2011	12
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	3/2/2011	12
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/28/2011	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/28/2011	12
Antenna, Horn	ETS	3115	AIZ	1/24/2011	24
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	7/9/2010	24
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12

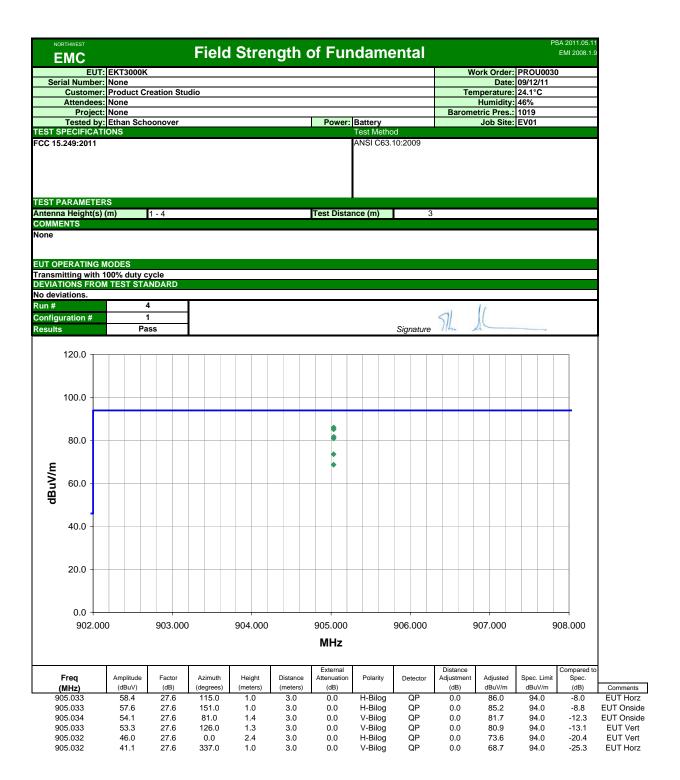
MEASUREMENT BANDWIDT	HS					
Frequen	cy Range	Peak Data	Quasi-Peak Data	Average Data		
(M	Hz)	(kHz)	(kHz)	(kHz)		
0.01	- 0.15	1.0	0.2	0.2		
0.15	- 30.0	10.0	9.0	9.0		
30.0	- 1000	100.0	120.0	120.0		
Above	e 1000	1000.0	N/A	1000.0		
Measurements were made using the bandwidths and detectors specified. 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 middle channel. 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).



DUTY CYCLE

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.

TEST EQUIPMENT							
Description	Manufacturer	Model	ID	Last Cal.	Interval		
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	12		
EV01 Cables	N/A	Bilog Cables	EVA	6/28/2011	12		
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12		

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

To determine average emission measurements, a duty cycle correction factor per 15.35(c) was utilized:

Duty Cycle = On time/100 milliseconds (or the period, whichever is less)

Where "On time" = N1L1 +N2L2 +....

Where N1 is the number of type 1 pulses, L1 is length of type 1 pulses, N2 is the number of type 2 pulses, L2 is the length of type 2 pulses, etc.

Therefore, Duty Cycle = (N1L1 +N2L2 +...)/100mS or T, whichever is less, where T is the period of the pulse train.

The measured values for the EUT's pulse train are as follows:

Period = 400 mSec

Pulsewidth of Pulse= 6.28 mSec

Number of Pulses = 1

Duty Cycle = 20 log [6.28/100]= -24 dB

The duty cycle correction factor of –24 dB was added to the average readings to determine the average levels. The transmitter was tested in a constant transmit mode for spurious emissions and field strength of the fundamental.

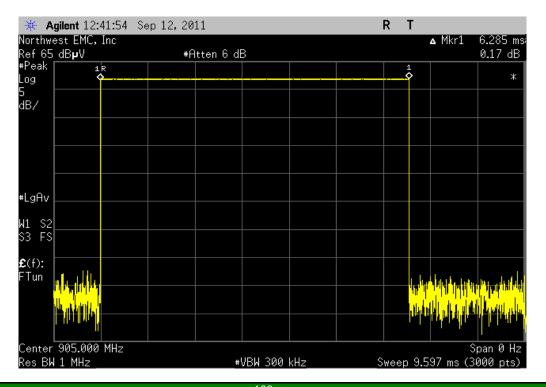
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NORTHWEST			LITY OVOL			XMit 2010.01.14
EMC		D	UTY CYCLE	=		
EUT:	EKT3000K				Work Order	: PROU0030
Serial Number:	None				Date	: 09/12/11
Customer:	Product Creation Studio				Temperature	: 24.1°C
Attendees:	None				Humidity	
Project:					Barometric Pres.	: 1019
	Ethan Schoonover		Power:	Battery	Job Site	: EV01
TEST SPECIFICATI	IONS			Test Method		
FCC 15.249:2011				ANSI C63.10:2009		
COMMENTS						
	on: Duty Cycle is = (6.28 r	ms)/100ms = 0.0628				
DEVIATIONS FROM	M TEST STANDARD					
No Deviations						
Configuration #	1	Signature	The State			
						imit Results
Pulse Width 1						N/A N/A
100 ms				6.2		N/A N/A
Period				418	3.8 ms	N/A N/A

DUTY CYCLE

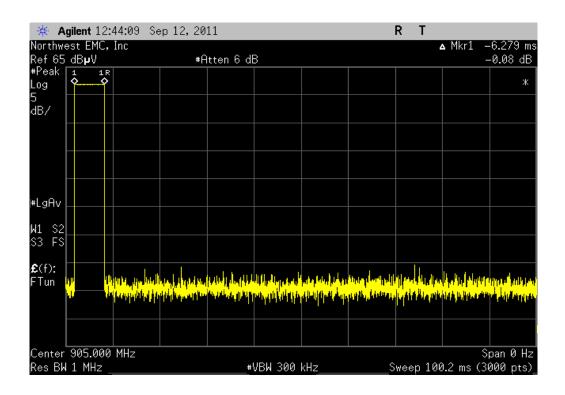
Pulse Width 1

Result: N/A Value: 6.28 ms Limit: N/A



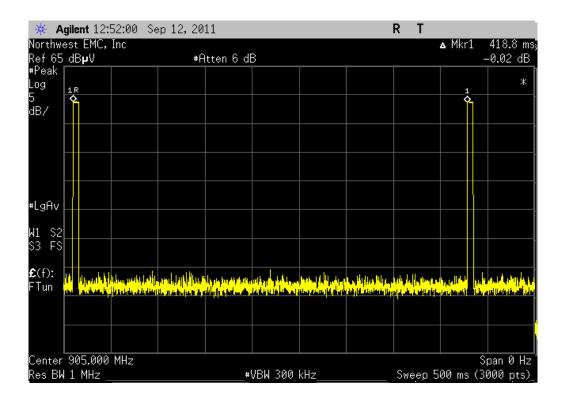
 100 ms

 Result:
 N/A
 Value:
 6.28 ms
 Limit:
 N/A



 Period

 Result:
 N/A
 Value:
 418.8 ms
 Limit:
 N/A



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 with 100% duty cycle

POWER SETTINGS INVESTIGATED

Battery

FREQUENCY RANGE INVESTIGATED							
Start Frequency	30 MHz	Stop Frequency	12.4 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
		F-100-4000-5-R (HPF>4GHz			
High Pass Filter	RLC Electronics	up to 18GHz)	HFD	7/3/2010	24
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	3/2/2011	12
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	3/2/2011	12
Antenna, Horn	ETS	3160-07	AHU	NCR	0
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/28/2011	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/28/2011	12
Antenna, Horn	ETS	3115	AIZ	1/24/2011	24
EV01 Cables	N/A	Bilog Cables	EVA	6/28/2011	12
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/28/2011	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	12
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12

MEASUREMENT BANDWIDTHS							
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data			
	(MHz)	(kHz)	(kHz)	(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.

