

HID GLOBAL CORPORATION

RFID READER

Model: OMNIKEY 5421

May 16th 2013


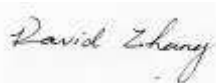
Report No.: SL13040801-HID-008 FCC_IC(15.225)

(This report supersedes none)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

	
Jason Zhang Compliance Engineer	David Zhang Engineering Reviewer

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Test result presented in this test report is applicable to the representative sample only.

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RF Test Report

To: 47 CFR 15.225:2012; RSS-210 Issue 8: 2010

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Laboratory Introduction

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Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless , Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF , Telecom
HongKong	OFTA (US002)	RF , Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
SL13040801-HID-008 FCC_IC(15.225)		Original	5/15/2013

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2 Executive Summary

The purpose of this test program was to demonstrate compliance of the HID Global Corporation, RFID reader, and model: OMNIKEY 5421 against the current Stipulated Standards. The OMNIKEY 5421 has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	HID Global Corporation
Applicant Address	:	RFID reader
Manufacturer Name	:	HID Global Corporation
Manufacturer Address	:	15370 Barranca Parkway , Irvine, CA 92618 USA

4 Test site information

Lab performing tests	:	SIEMIC Laboratories
Lab Address	:	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	:	881796
IC Test Site No.	:	4842D-2
VCCI Test Site No.	:	A0133

5 Modification

Index	Item	Description	Note

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6 EUT Information

6.1 EUT Description

Product Name	:	RFID reader
Model No.	:	OMNIKEY 5421
Trade Name	:	HID
Serial No.	:	012F91
Input Power	:	5 VDC
Date of EUT received	:	May 9th, 2013
Equipment Class/ Category	:	DXX
Clock Frequencies	:	27.12 MHz
Port/Connectors	:	USB

6.2 Radio Description

Spec for Radio -

Radio Type	RFID
Operating Frequency	13.56MHz
Modulation	AM
Antenna Type	Mag Loop Antenna Integral to PWB-(54mm x 82mm) – 0.004428m ²
Antenna Gain	1dBi

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6.3 EUT test modes/configuration Description

Mode	Note
RF test	EUT continuous transmit itself when power on
Note :None	

Test Item	Operating mode	Tested antenna port	Test frequencies
Antenna Requirement	N/A	-	13.56MHz
Conducted Emissions Voltage	Continues Transmit	-	
Limit in the band of 13.553 – 13.567 MHz	Continues Transmit	-	
Limit in the band of 13.410 – 13.553 MHz and 13.567 – 13.710 MHz	Continues Transmit	-	
Limit in the band of 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	Continues Transmit	-	
Limit outside the band of 13.110 – 14.010 MHz	Continues Transmit	-	
Frequency Stability	Continues Transmit	-	
Occupied Bandwidth	Continues Transmit	-	
Note: EUT using a PCB trace Antenna and attached to the PCB board. Only using radiated measurement during the test.			

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6.4 EUT Photos - External



Top



Bottom



Front



Rear



Left Side



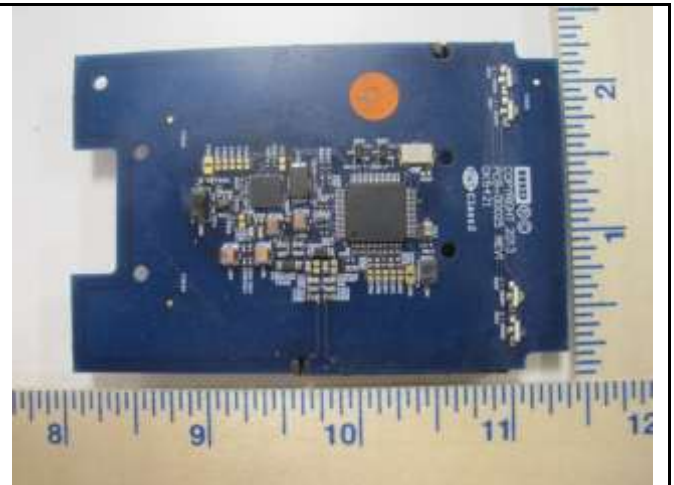
Right Side

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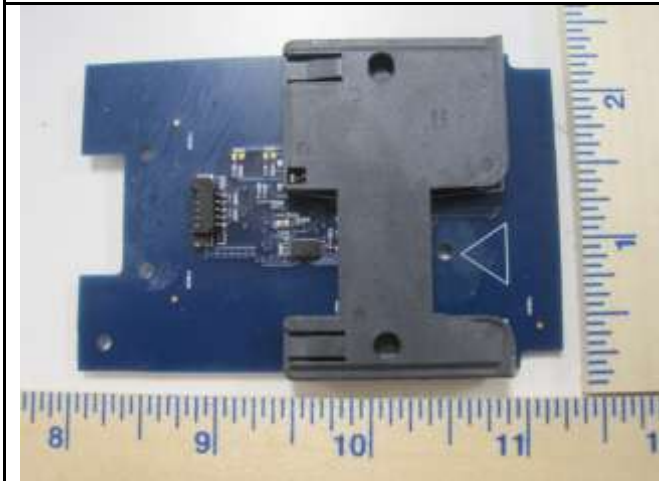
6.5 EUT Photos - Internal



Cover Open



Main Board Top



Main Board Bottom

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6.6 EUT Test Setup Photos



Radiated Emission Test setup (<1GHz) - Front



Radiated Emission Test setup (<1GHz) - Rear



Radiated Emission Test setup (<30MHz) - Front



Radiated Emission Test setup (<30MHz) - Rear



Conducted Emission Test setup - Front



Conducted Emission Test setup - Rear

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7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Index	Supporting Equipment Description	Model	Serial No.	Manu	Note
1	Laptop	T60	6371E5U	Lenovo	
2	Laptop adapter	92P1109	N/A	Lenovo	

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
Cable	EUT	USB	Laptop	USB	1.5	Unshielded	

7.3 Test Software Description

Test Item	Software	Description
Radiated & conducted Testing	Reader Utility	Monitor reader's function

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8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Antenna Requirement	FCC	15.203	FCC		<input checked="" type="checkbox"/> Pass
	IC		IC		<input type="checkbox"/> N/A
AC Conducted Emissions Voltage	FCC	15.207(a)	FCC	ANSI C63.4 2009	<input checked="" type="checkbox"/> Pass
	IC	RSS Gen (7.2.2)	IC		<input type="checkbox"/> N/A

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Limit in the band of 13.553 – 13.567 MHz	FCC	15.225(a)	FCC	ANSI C63.4 2009	<input checked="" type="checkbox"/> Pass
	IC	RSS210(A2.6)	IC	RSS Gen 4.9	<input type="checkbox"/> N/A
Limit in the band of 13.410 – 13.553 MHz and 13.710 – 13.710 MHz	FCC	15.225(b)	FCC	ANSI C63.4 2009	<input checked="" type="checkbox"/> Pass
	IC	RSS210(A2.6)	IC	RSS Gen 4.9	<input type="checkbox"/> N/A
Limit in the band of 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	FCC	15.225(c)	FCC	ANSI C63.4 2009	<input checked="" type="checkbox"/> Pass
	IC	RSS210(A2.6)	IC	RSS Gen 4.9	<input type="checkbox"/> N/A
Limit outside the band of 13.110 – 14.010 MHz	FCC	15.225(d), 15.209	FCC	ANSI C63.4 2009	<input checked="" type="checkbox"/> Pass
	IC	RSS210(A2.6)	IC	RSS Gen 4.9	<input type="checkbox"/> N/A
Frequency Stability	FCC	15.225(e)	FCC		<input checked="" type="checkbox"/> Pass
	IC	RSS210(A2.6)	IC	RSS Gen 4.7	<input type="checkbox"/> N/A
Occupied Bandwidth	FCC	-	FCC		<input checked="" type="checkbox"/> Pass
	IC	RSS-210(5.9.1)	IC	RSS Gen 4.6	<input type="checkbox"/> N/A
User Manual	FCC	-	FCC		<input type="checkbox"/> Pass
	IC	RSS 210 (A9.5) (g)	IC		<input type="checkbox"/> N/A
Remark	<ol style="list-style-type: none"> All measurement uncertainties are not taken into consideration for all presented test result. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual. Test Method: ANSI C63.4: 2009 / RSS – Gen Issue 3: 2010 				

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9 Measurement Uncertainty

Test Item	Frequency Range	Description	Uncertainty
AC Conducted Emissions Voltage	150KHz – 30MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±3.5dB
Limit in the band of 13.553 – 13.567 MHz	13.553 – 13.567 MHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
Limit in the band of 13.410 – 13.553 MHz and 13.567 – 13.710 MHz	13.410 – 13.553 MHz and 13.567 – 13.710 MHz		+5.6dB/-4.5dB
Limit in the band of 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	13.110 – 13.410 MHz and 13.710 – 14.010 MHz		+5.6dB/-4.5dB
Limit outside the band of 13.110 – 14.010 MHz	9KHz – 30MHz		+5.6dB/-4.5dB
Radiated Spurious Emissions	30MHz – 1GHz		+5.6dB/-4.5dB

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10 Measurements, examination and derived results

10.1 Antenna Requirement

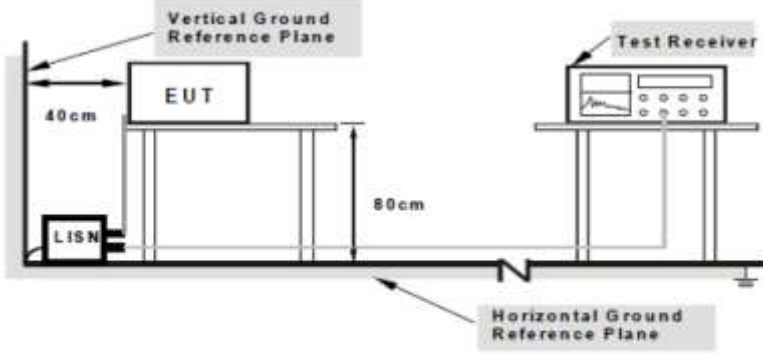
Spec	Item	Requirement	Applicable
§15.203		<p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.</p> <p>Antenna requirement must meet at least one of the following:</p> <p>a) Antenna must be permanently attached to the device. b) Antenna must use a unique type of connector to attach to the device. c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.</p>	<input checked="" type="checkbox"/>
Remark	The RFID antenna is integral to the PCB board permanently to the device which meets the requirement (See Internal Photographs submitted as another Exhibit).		
Result	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL		

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10.2 Conducted Emission Test Result

Conducted Emission Limit

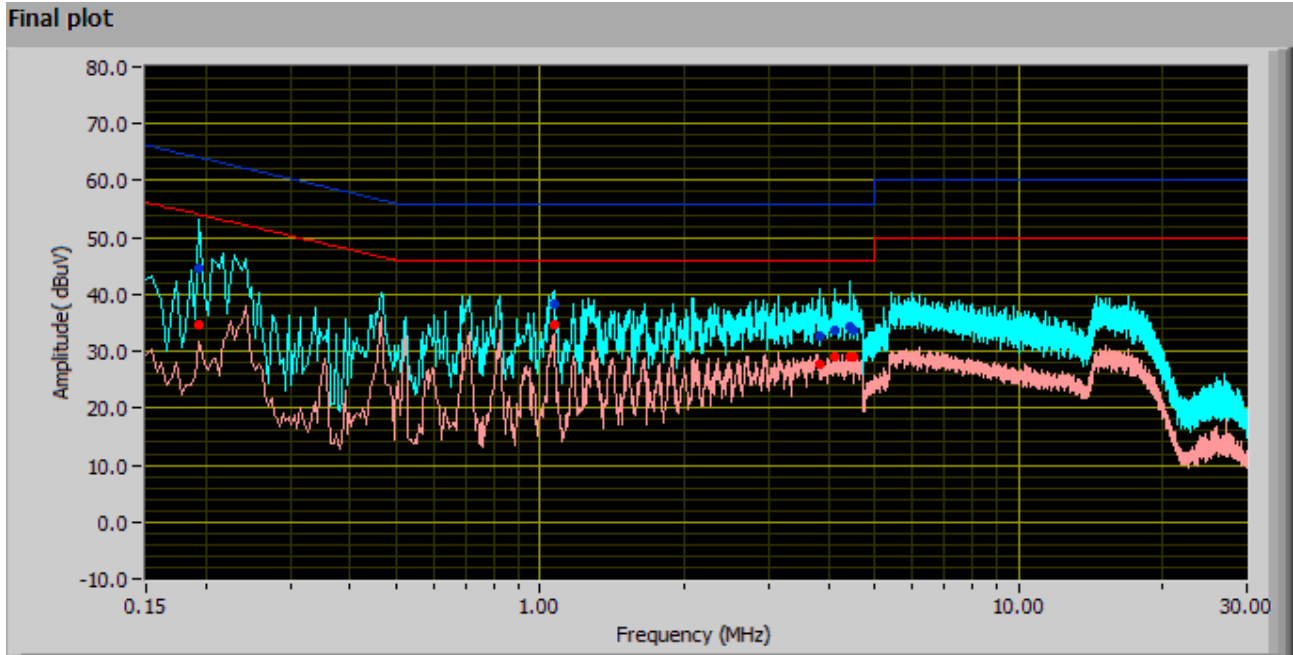
Section	Frequency ranges (MHz)	Limit (dBuV)	
		QP	Average
Class B devices	0.15 ~ 0.5	66 – 56	56 – 46
	0.5 ~ 5	56	46
	5 ~ 30	60	50

Spec	Item	Requirement	Applicable
§ 15.207, RSS210(A8.1)	a)	For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits set in § 15.207, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). AC Line conducted emission within the band 150KHz to 30MHz	<input checked="" type="checkbox"/>
Test Setup	 <p>Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</p>		
Procedure	<ul style="list-style-type: none"> - The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B. - The power supply for the EUT was fed through a 50Ω/50µH EUT LISN, connected to filtered mains. - The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. - All other supporting equipments were powered separately from another main supply. 		
Test Date	05/14/2013	Environmental condition	Temperature 21oC Relative Humidity 46% Atmospheric Pressure 1019mbar
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Result



Quasi-Peak Limit

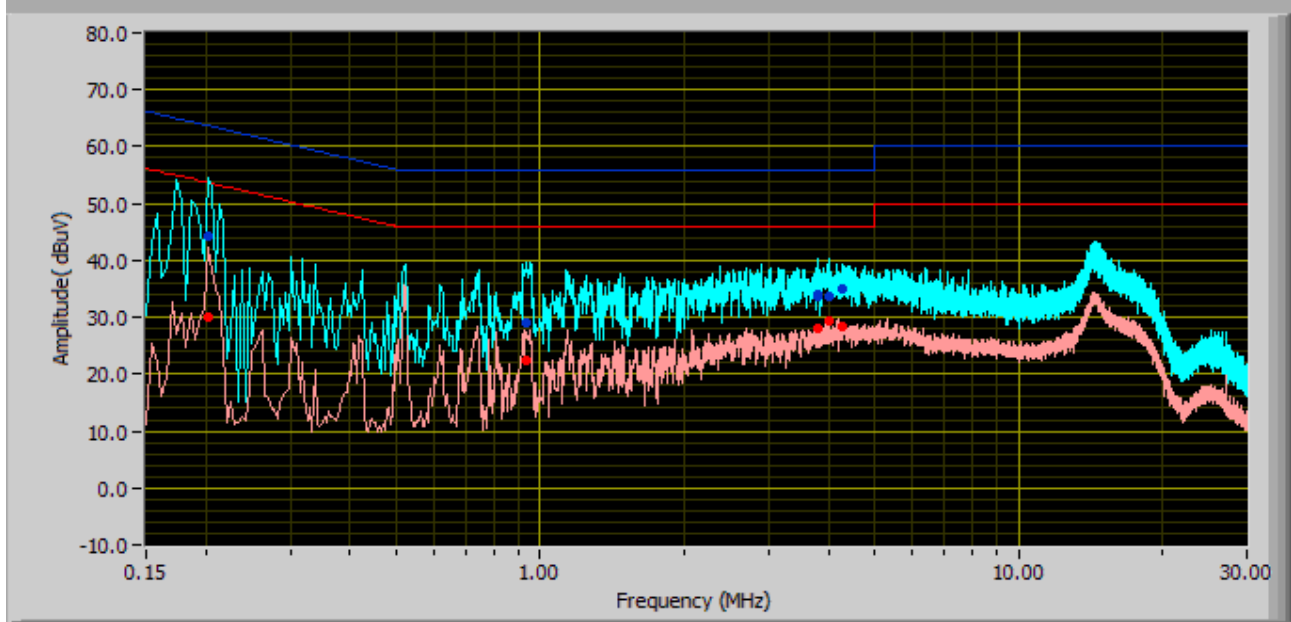
Average Limit

120V, 60Hz, Neutral Line

Frequency (MHz)	QP Value (dBμV)	Class B Limit (dB)	Pass / Fail	Margin (dB)	Avg Value (dBμV)	Class B Limit (dBμV)	Pass / Fail	Margin (dB)	Line
0.19	44.47	64.01	Pass	-19.55	34.65	54.01	Pass	-19.37	Neutral
1.07	38.15	56.00	Pass	-17.85	34.83	46.00	Pass	-11.17	Neutral
3.84	32.83	56.00	Pass	-23.18	27.76	46.00	Pass	-18.25	Neutral
4.11	33.58	56.00	Pass	-22.42	28.90	46.00	Pass	-17.10	Neutral
4.42	34.24	56.00	Pass	-21.76	28.99	46.00	Pass	-17.01	Neutral
4.51	33.84	56.00	Pass	-22.16	28.90	46.00	Pass	-17.10	Neutral

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Final plot



Quasi-Peak Limit

Average Limit

120V, 60Hz, Phase Line

Frequency (MHz)	QP Value (dBμV)	Class B Limit (dB)	Pass / Fail	Margin (dB)	Avg Value (dBμV)	Class B Limit (dBμV)	Pass / Fail	Margin (dB)	Line
0.20	44.14	63.67	Pass	-19.53	30.05	53.67	Pass	-23.62	Phase
0.94	29.14	56.00	Pass	-26.86	22.28	46.00	Pass	-23.72	Phase
3.79	33.95	56.00	Pass	-22.05	27.90	46.00	Pass	-18.10	Phase
3.80	33.67	56.00	Pass	-22.33	28.08	46.00	Pass	-17.92	Phase
4.00	33.59	56.00	Pass	-22.41	29.28	46.00	Pass	-16.72	Phase
4.29	35.02	56.00	Pass	-20.98	28.49	46.00	Pass	-17.51	Phase

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10.2 Radiated Measurement

Receiver/Spectrum analyser setting

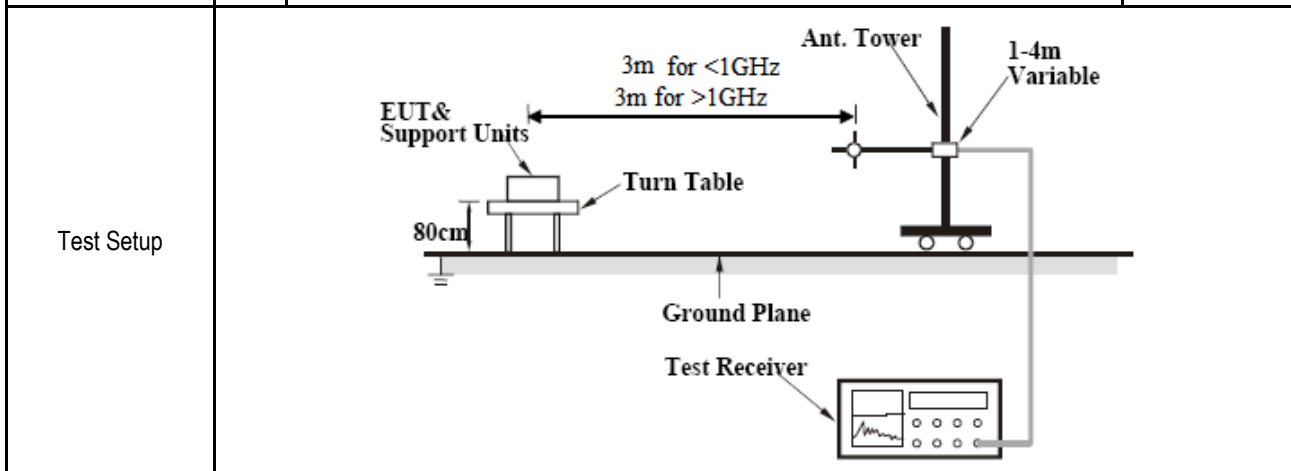
TEST	Detector	RBW	VBW	Test Distance		NOTES
Radiated Emission < 1GHz (30MHz – 1GHz)	PK/QP	100KHz	300KHz	3m	-	-
Radiated Emission < 30MHz	PK/QP	10KHz	30KHz	3m	-	-
Radiated Emission > 1GHz (1GHz – 18GHz)	PK/AV	1MHz	3MHz	1m	-	-
Radiated Emission > 1GHz (18GHz – 40GHz)	PK/AV	-	-	0.5m	-	-

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10.2.1 Radiated Measurement below 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247(d) RSS210 (A8.5)	a)	For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required <input checked="" type="checkbox"/> 20 dB down <input type="checkbox"/> 30 dB down	<input checked="" type="checkbox"/>
	b)	or restricted band, emission must also comply with the radiated emission limits specified in § 15.209(a)	<input type="checkbox"/>



Procedure	1.	2.	3.	4.
	The EUT was switched on and allowed to warm up to its normal operating condition.	The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission.	A Quasi-peak measurement was then made for that frequency point.	Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

Test Date	05/14/2013	Environmental condition	Temperature	21oC
			Relative Humidity	46%
			Atmospheric Pressure	1019mbar

Remark	
--------	--

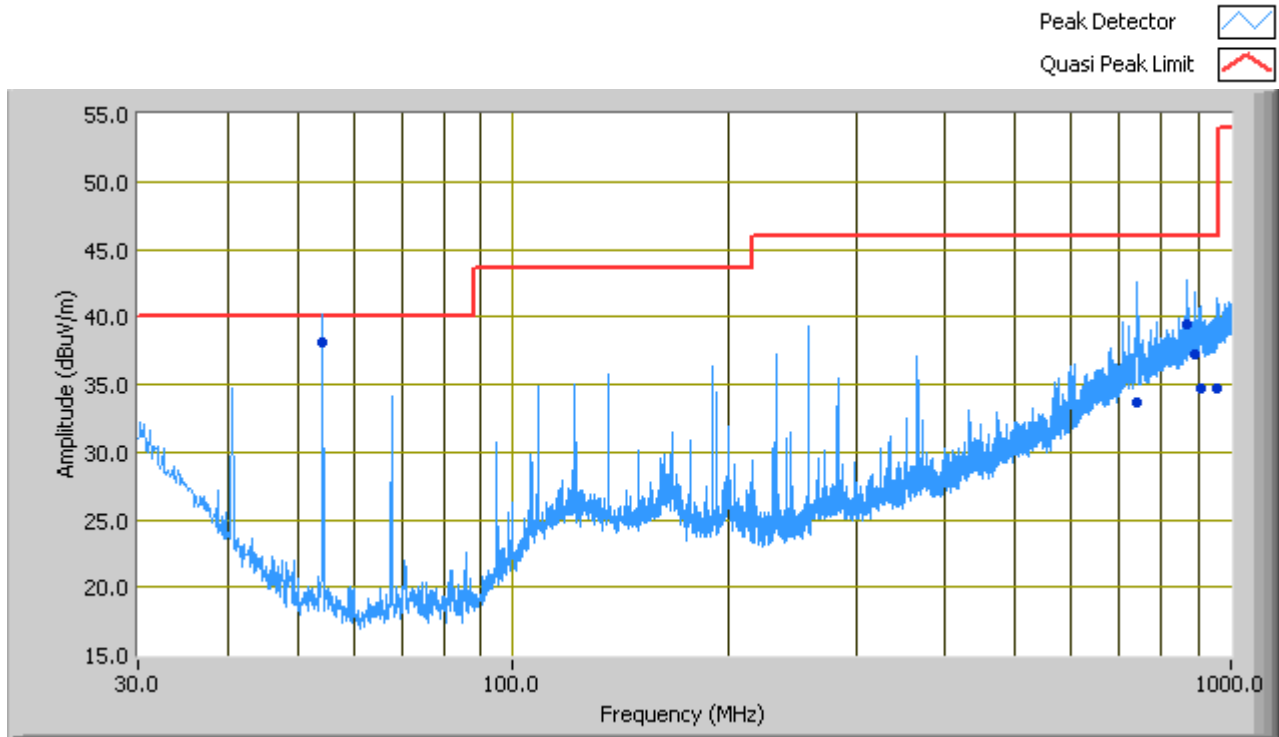
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
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Test Data Yes (See below) N/A

Test Plot Yes (See below) N/A

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Graph-



Test Data

Frequency (MHz)	Quasi Peak (dBuV/m)	Azimuth (degree)	Polarity	Height (cm)	Factors	Limit (dBuV)	Margin (dB)
54.24	38.18	237.00	V	100.00	7.99	40.00	-1.82
739.22	33.60	204.00	V	100.00	23.27	46.00	-12.40
869.37	39.47	215.00	H	100.00	25.32	46.00	-6.53
890.80	37.29	161.00	V	100.00	25.69	46.00	-8.71
907.05	34.76	177.00	H	100.00	25.99	46.00	-11.24
957.12	34.64	284.00	H	100.00	25.87	46.00	-11.36

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10.2.2 Radiated Measurement below 30MHz

Requirement(s):

Spec	Item	Requirement	Applicable
47 CFR §15.225 RSS-210 (A2.6)	a)	Operation within the band 13.110–14.010 MHz. (a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters. (b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters. (c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters. (d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.	<input checked="" type="checkbox"/>
	b)		<input type="checkbox"/>
Test Setup	1. 2. 3.	The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable. The relevant loop antenna was set at the required test distance away from the EUT and supporting equipment boundary.	
Procedure		For < 30MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 3 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the centre of the loop. The measuring bandwidth was set to 10 kHz. The limit is converted from microvolt/meter to decibel microvolt/meter.	
Test Date	05/14/2013	Environmental condition	Temperature 21oC Relative Humidity 46% Atmospheric Pressure 1019mbar
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes (See below) N/A

Test Plot Yes (See below) N/A

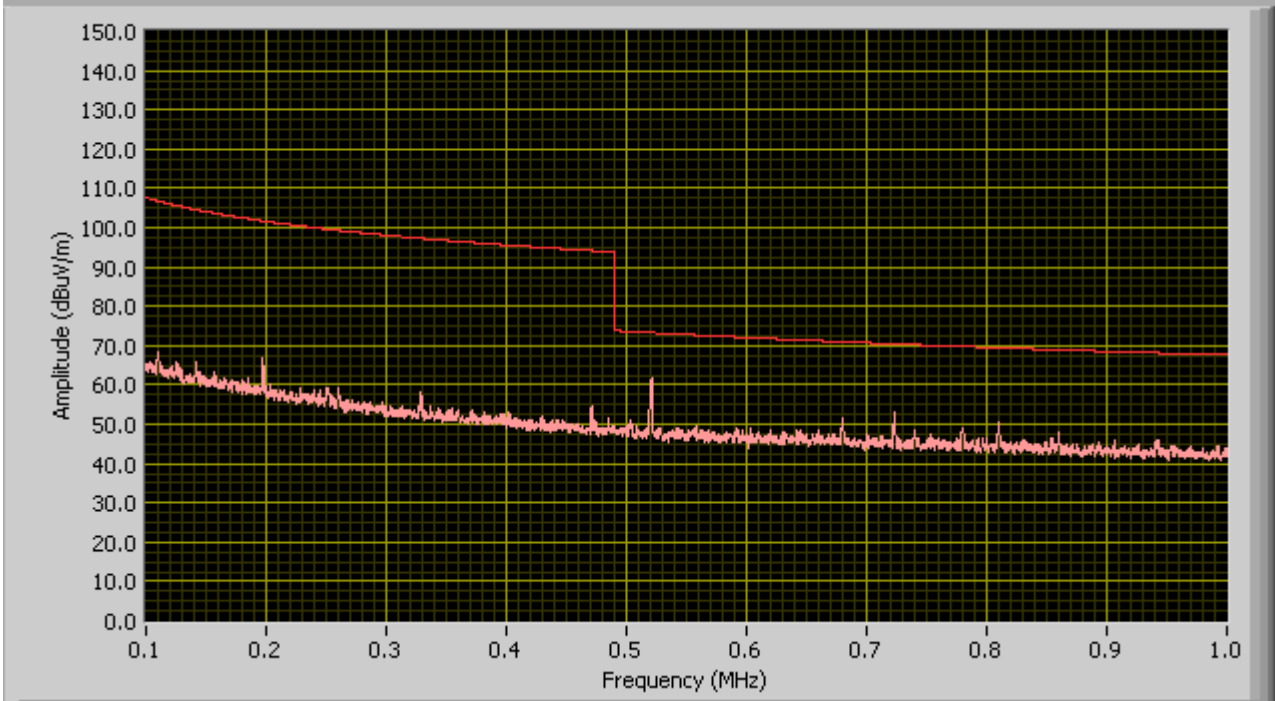
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100 kHz ~ 1 MHz

Loop Antenna at 0 degree

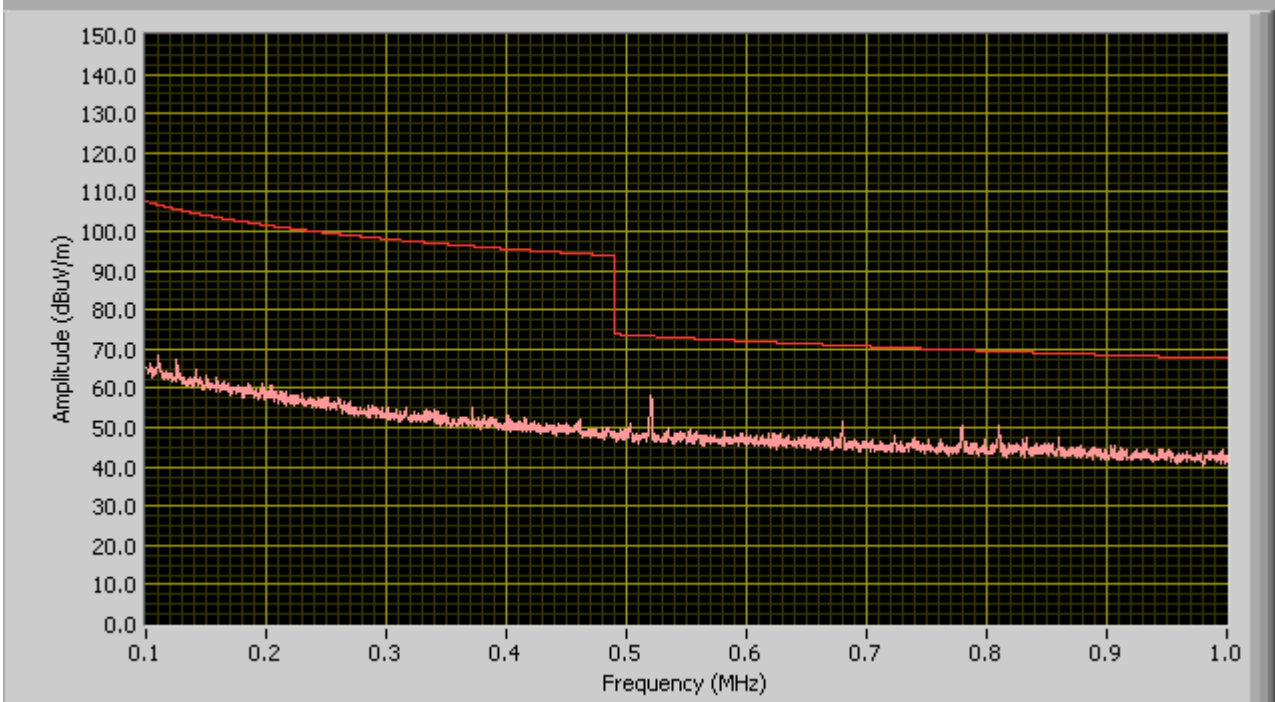
General Emission Limit @ 3 Meter

FCC- 100KHz to 1000KHz Radiated Emission at 3meter Distance



Loop Antenna at 90 degree

FCC- 100KHz to 1000KHz Radiated Emission at 3meter Distance

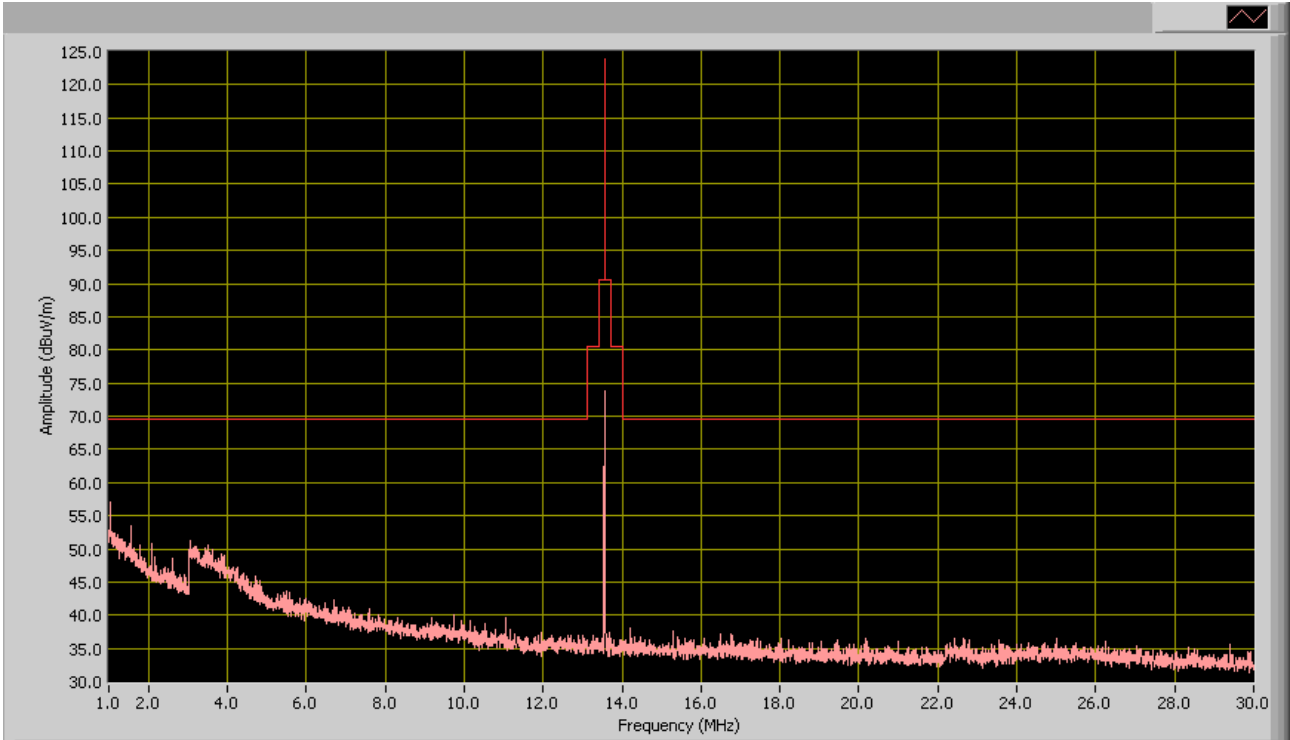


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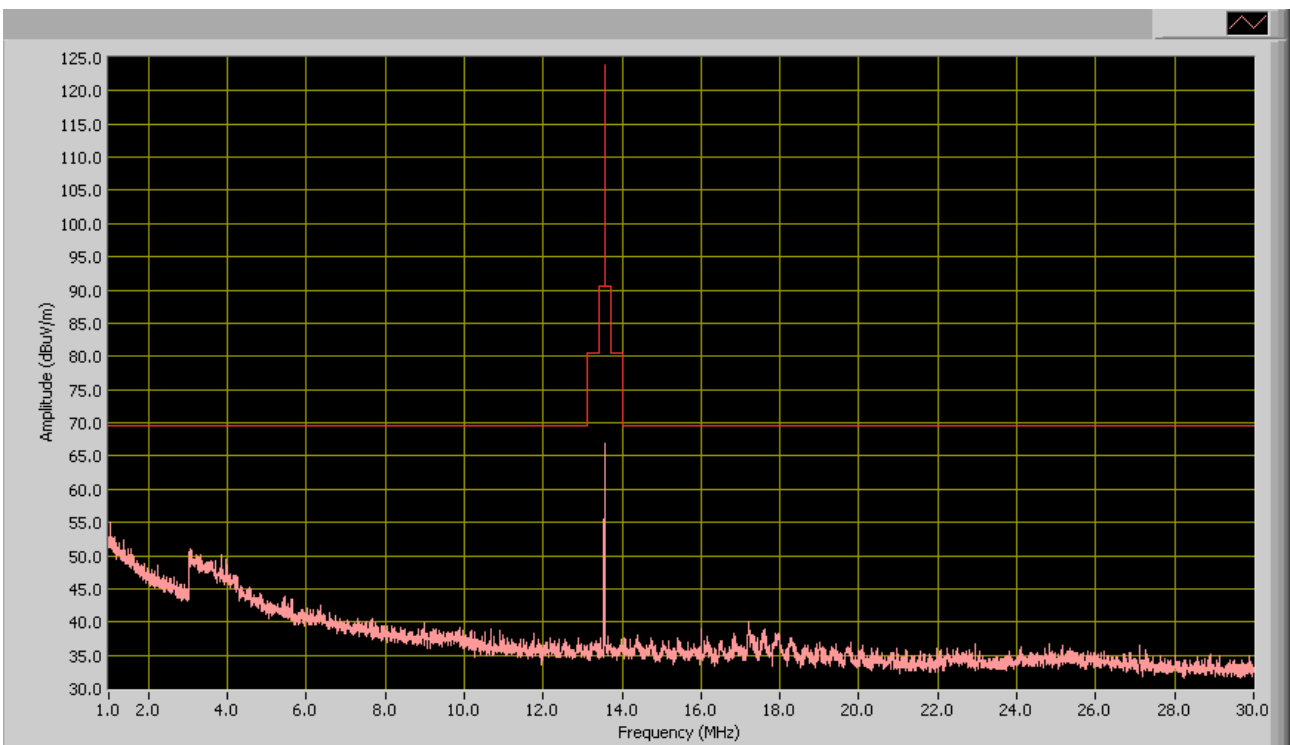
1MHz ~ 30MHz

Loop Antenna at 0 degree

General Emission Limit @ 3 meter



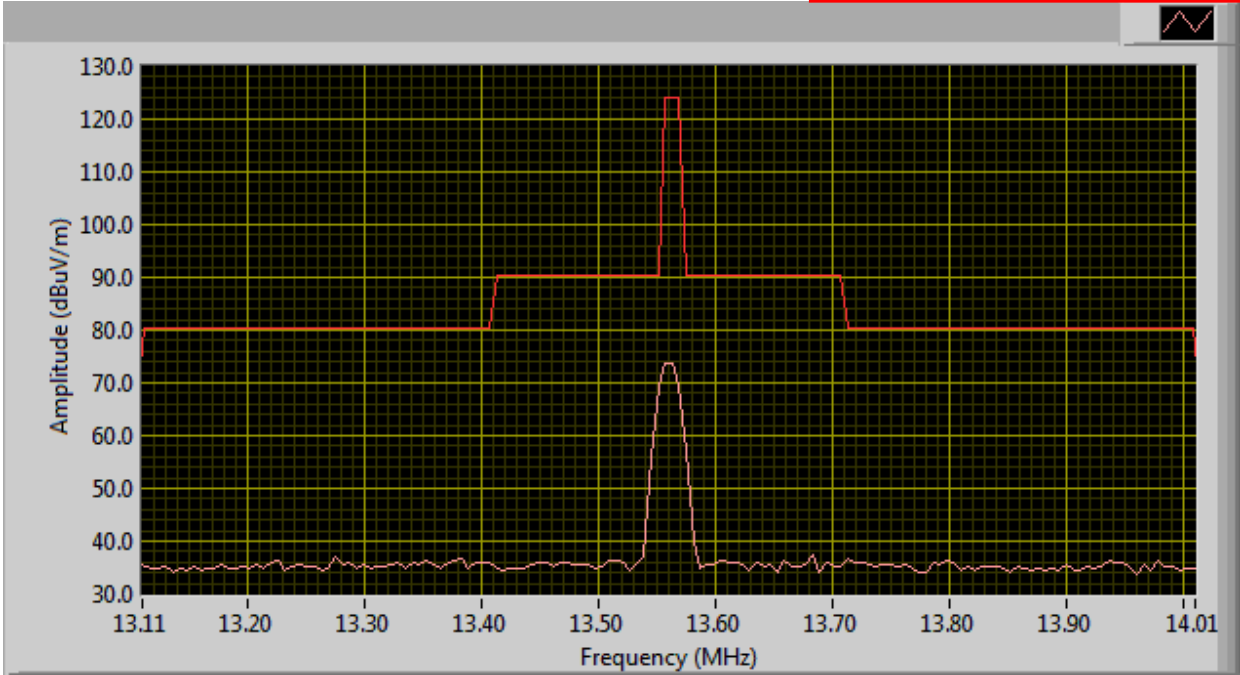
Loop Antenna at 90 degree



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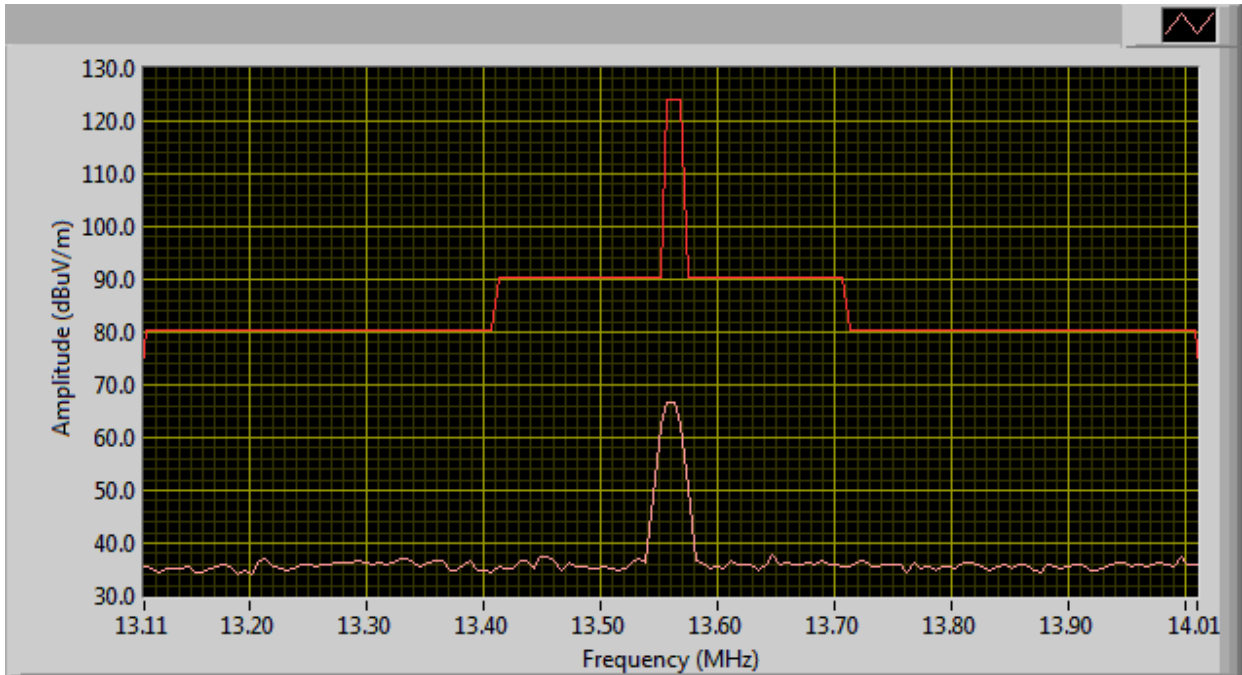
Loop Antenna at 0 degree

General Emission Limit @ 3 meter



Frequency(MHz)	Amplitude(dBuV/m)
13.563	73.84

Loop Antenna at 90 degree



Frequency(MHz)	Amplitude(dBuV/m)
13.563	66.81

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10.2.3 Frequency Stability

Requirement(s):

Spec	Item	Requirement	Applicable
47 CFR §15.225 RSS-210 (A2.6)	e)	Limit: $\pm 0.01\%$ of 13.56 MHz = 1356 Hz	<input checked="" type="checkbox"/>
	(A2.6)		<input type="checkbox"/>
Test Setup	1. 2. 3.	The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable. The relevant loop antenna was set at the required test distance away from the EUT and supporting equipment boundary.	
Procedure		Frequency Stability was measured according to 47 CFR §2.1055. Measurement was taken with spectrum analyzer. The spectrum analyzer bandwidth and span was set to read in hertz. A voltmeter was used to monitor when varying the voltage.	
Test Date	05/14/2013	Environmental condition	Temperature 21oC Relative Humidity 46% Atmospheric Pressure 1019mbar
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes (See below) N/A

Test Plot Yes (See below) N/A

Test Result

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Frequency Stability versus Temperature: The Frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20°C to $+50^{\circ}\text{C}$ at normal supply voltage.

Reference Frequency: 13.560286 MHz at -20°C and $+50^{\circ}\text{C}$

Temperature ($^{\circ}\text{C}$)	Measured Freq. (MHz)	Freq. Drift (Hz)	Freq. Deviation (Limit: 0.01%)	Pass/Fail
50	13.560310	24	<0.01	Pass
40	13.560299	13	<0.01	Pass
30	13.560290	4	<0.01	Pass
20	Reference (13.560286 MHz)			
10	13.560282	4	<0.01	Pass
0	13.560279	7	<0.01	Pass
-10	13.560270	16	<0.01	Pass
-20	13.560266	20	<0.01	Pass

Frequency Stability versus Input Voltage: The Frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$, the frequency of the transmitter was measured at 85% and at 115% of the rated power supply voltage at 20°C environmental temperature.

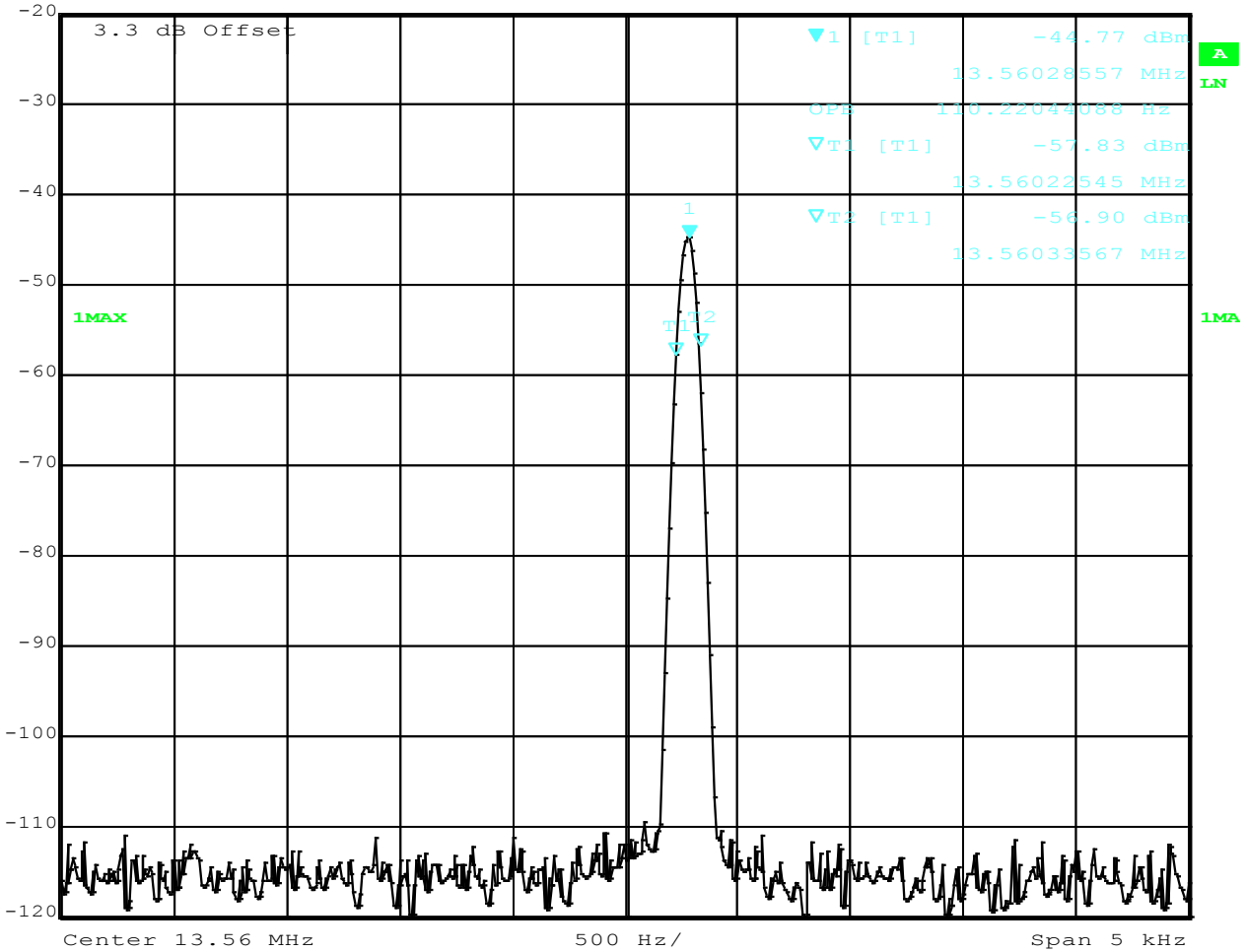
Carrier Frequency: 13.560286 MHz at 20°C at 5VDC

Measured Voltage $\pm 15\%$ of nominal (DC)	Measured Freq. (MHz)	Freq. Drift (Hz)	Freq. Deviation (Limit: 0.01%)	Pass/Fail
5.75	13.560284	2	<0.01	Pass
4.25	13.560288	2	<0.01	Pass

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10.2.4 Occupied bandwidth

	Marker 1 [T1]	RBW	50 Hz	RF Att	10 dB	
	Ref Lvl	-44.77 dBm	VBW	50 Hz	Mixer	-20 dBm
	-20 dBm	13.56028557 MHz	SWT	10 s	Unit	dBm



Date: 13.MAY.2013 18:30:35

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Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Conducted Emissions						
R & S Receiver	ESIB 40	100179	04/20/2013	1 Year	04/20/2014	<input checked="" type="checkbox"/>
R&S LISN	ESH2-Z5	861741/013	05/18/2012	1 Year	05/18/2013	<input checked="" type="checkbox"/>
CHASE LISN	MN2050B	1018	07/24/2012	1 Year	07/24/2013	<input type="checkbox"/>
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2012	1 Year	05/25/2013	<input checked="" type="checkbox"/>
Radiated Emissions						
R & S Receiver	ESL6	100178	03/01/2013	1 Year	03/01/2014	<input checked="" type="checkbox"/>
R & S Receiver	ESIB 40	100179	04/20/2013	1 Year	04/20/2014	<input type="checkbox"/>
Passive Loop Antenna (10k-30MHz)	6512	49120	5/22/2012	1 Year	5/22/2013	<input checked="" type="checkbox"/>
Bi-Log antenna (30MHz~2GHz)	JB1	A030702	02/09/2013	1 Year	02/09/2014	<input checked="" type="checkbox"/>
Horn Antenna (1-26.5GHz)	3115	10SL0059	04/26/2012	1 Year	04/26/2013	<input type="checkbox"/>
Microwave Preamplifier (18-40 GHz)	PA-840	181251	05/30/2012	1 Year	05/30/2013	<input type="checkbox"/>
3 Meters SAC	3M	N/A	10/13/2012	1 Year	10/13/2013	<input type="checkbox"/>
10 Meters OATS	10M	N/A	06/05/2012	1 Year	06/05/2013	<input checked="" type="checkbox"/>
Sekonic Hygro Hermograph	ST-50	HE01-000092	05/25/2012	1 Year	05/25/2013	<input checked="" type="checkbox"/>
Frequency tolerance						
Spectrum Analyzer	8564E	3738A00962	5/20/2012	1 Year	05/20/2013	<input checked="" type="checkbox"/>
TestEquity Environment Chamber	1007H	61201	07/05/2012	1 Year	07/05/2013	<input checked="" type="checkbox"/>

















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Annex B. USER MANUAL, BLOCK & CIRCUIT DIAGRAM


Please see attachment

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Annex C. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		Radio & Telecommunications Terminal Equipment: EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)	 	Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
HongKong OFCA		(Phase II) OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		Radio: Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

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Japan Recognized Certification Body Designation		Radio : A1. Terminal equipment for purpose of calling Telecom : B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		EMI : KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI EMS : KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS Radio : RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68 Telecom : President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measuremet
Australia CAB Regocnition		EMC : AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4 Radiocommunications : AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771 Telecommunications : AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2

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