

# RF TEST REPORT



Report No.: RF\_SL15061801-HID-013\_SE3210  
Supersede Report No.: None

Applicant	:	HID Global Corporation
Product Name	:	SE Reader Module
Model No.	:	SE3210
Test Standard	:	FCC 15.225 RSS-210 Issue 8: 2010
Test Method	:	FCC 15.225 ANSI C63.10 2013 RSS Gen Issue 4 2014
FCC ID	:	FCC ID: JQ6-SE3210
IC ID	:	IC ID: 3336B-SE3210
Dates of test	:	July 07, 2015 to July 08, 2015
Issue Date	:	July 09, 2015
Test Result	:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Equipment complied with the specification [X]		
Equipment did not comply with the specification [ ]		

This Test Report is Issued Under the Authority of:	
Teody Manansala Test Engineer	Nima Molaei Engineer Reviewer
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only	

Issued By:  
SIEMIC Laboratories  
775 Montague Expressway, Milpitas, CA 95035



775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

Visit us at: [www.siemic.com](http://www.siemic.com); Follow us at:

## Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### 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	EMC, RF/Wireless, Telecom, Safety
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, 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
Hong Kong	OFTA (US002)	RF, Telecom

## CONTENTS

<b>1</b>	<b>REPORT REVISION HISTORY .....</b>	<b>4</b>
<b>2</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>5</b>
<b>3</b>	<b>CUSTOMER INFORMATION .....</b>	<b>5</b>
<b>4</b>	<b>TEST SITE INFORMATION .....</b>	<b>5</b>
<b>5</b>	<b>MODIFICATION .....</b>	<b>5</b>
<b>6</b>	<b>EUT INFORMATION .....</b>	<b>6</b>
6.1	EUT Description .....	6
6.2	Radio Description .....	6
6.3	EUT test modes/configuration Description.....	6
6.4	EUT Photos .....	7
6.5	EUT Test Setup Photos .....	10
<b>7</b>	<b>SUPPORTING EQUIPMENT/SOFTWARE AND CABLING DESCRIPTION.....</b>	<b>11</b>
7.1	Supporting Equipment .....	11
7.2	Cabling Description .....	11
7.3	Test Software Description .....	11
<b>8</b>	<b>TEST SUMMARY.....</b>	<b>12</b>
<b>9</b>	<b>MEASUREMENT UNCERTAINTY .....</b>	<b>13</b>
<b>10</b>	<b>MEASUREMENTS, EXAMINATION AND DERIVED RESULTS .....</b>	<b>14</b>
10.1	Radiated Spurious Emissions below 30 MHz .....	14
10.2	Radiated Spurious Emissions 30 MHz – 1000MHz .....	21
	<b>ANNEX A. TEST INSTRUMENT .....</b>	<b>25</b>
	<b>ANNEX B. SIEMIC ACCREDITATION .....</b>	<b>26</b>

## 1 Report Revision History

Report No.	Report Version	Description	Issue Date
RF_SL15061801-HID-013_SE3210	-	Original	07/09/2015

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: HID Global Corporation  
Product: SE Reader Module  
Model: SE3210

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1<sup>st</sup> page.

## 3 Customer information

Applicant Name	:	HID Global Corporation
Applicant Address	:	15370 Barranca Parkway, Irvine, CA 92618 USA
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
-	-	-	-

## 6 EUT Information

### 6.1 EUT Description

Product Name	:	SE Reader Module
Model No.	:	SE3210
Trade Name	:	HID
Serial No.	:	N/A
Input Power	:	6VDC
Product SW/HW version	:	SP8.4
Radio SW/HW version	:	SP8.4
Test SW Version	:	N/A
RF power setting in TEST SW	:	N/A
Date of EUT received	:	July 07, 2015
Equipment Class/ Category	:	DXX, DCD
Working Frequencies	:	125 KHz and 13.56MHz
Port/Connectors	:	N/A

### 6.2 Radio Description

Specifications for Radio:

Radio Type	RFID
Operating Frequency	125KHz and 13.56MHz
Modulation	FSK (125KHz), ASK (13.56MHz)
Channel Spacing	None
Antenna Type	Magnetic Loop Antenna
Antenna Gain	1 dBi
Antenna Connector Type	Connected by a ribbon cable

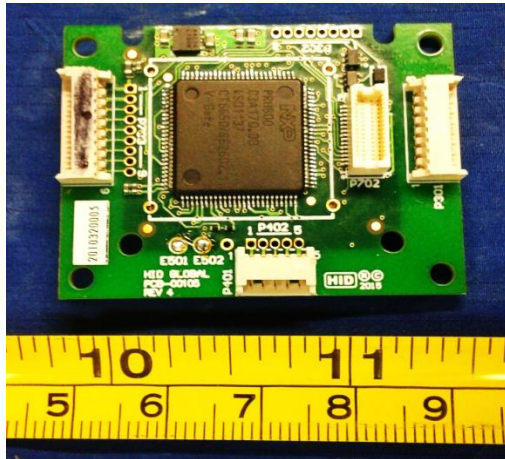
Channel List:

Type	Mode	Channel No.	Frequency (MHz)	Available (Y/N)
RFID	125KHz	1	0.125	Y
RFID	13.56MHz	1	13.56	Y

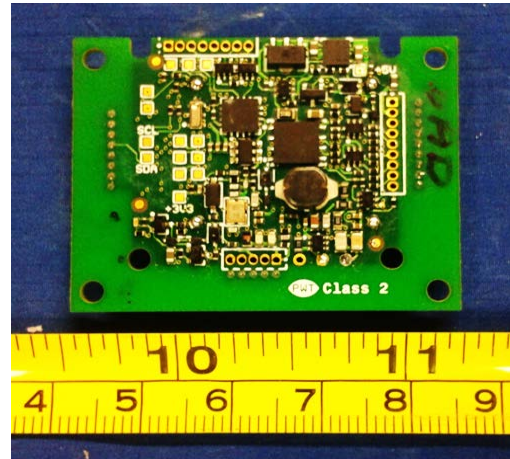
### 6.3 EUT test modes/configuration Description

Mode	Note
RF test	EUT is set to continuously transmit at 13.56MHz and 125kHz when powered on.

## 6.4 EUT Photos



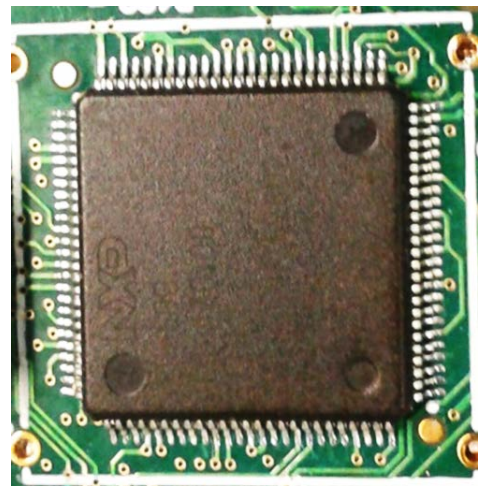
SE3210 Top View



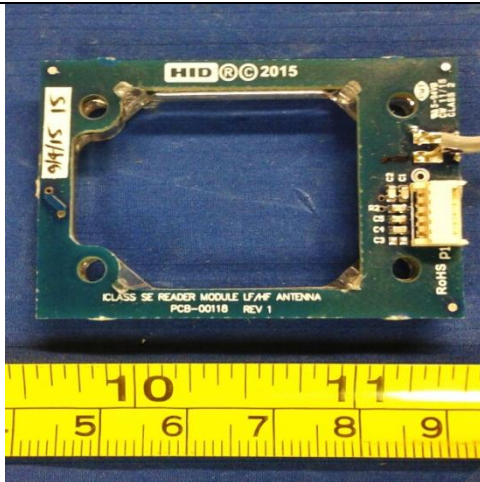
SE3210 Bottom View



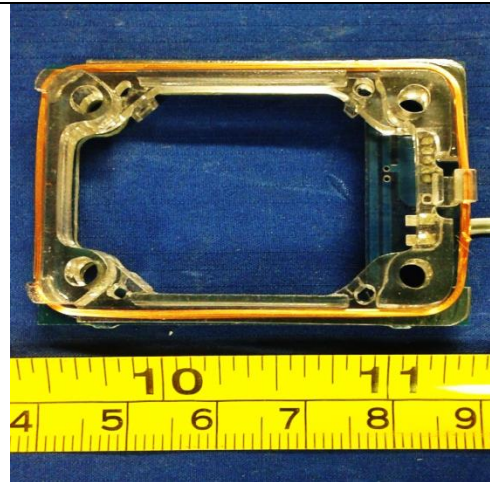
Radio Board With Shielding



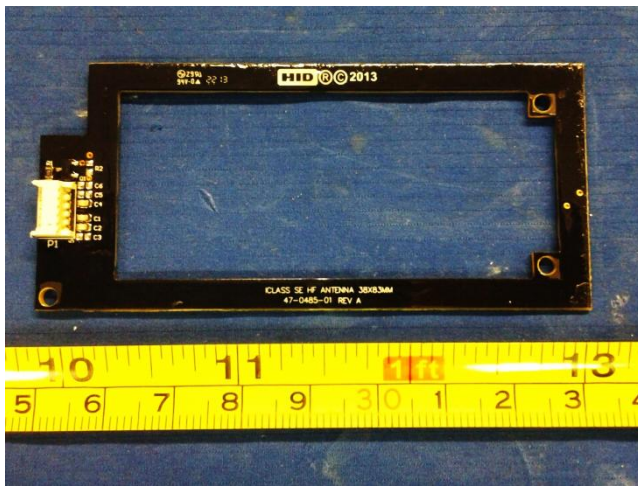
Radio Board Without Shielding



Combination Antenna Top View



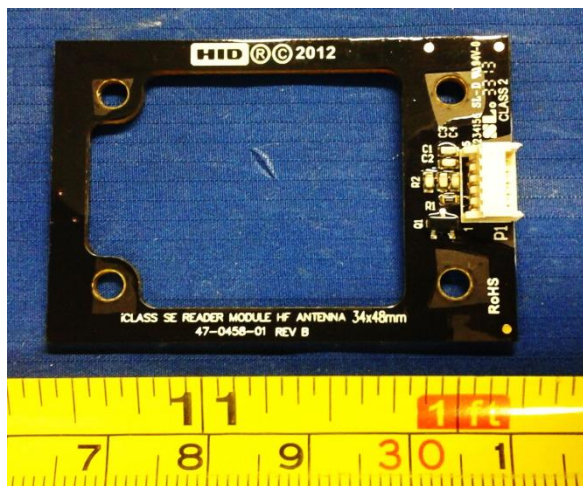
Combination Antenna Bottom View



High Frequency Long Antenna Top View



High Frequency Long Antenna Bottom View



High Frequency Short Antenna Top View



High Frequency Short Antenna Bottom View



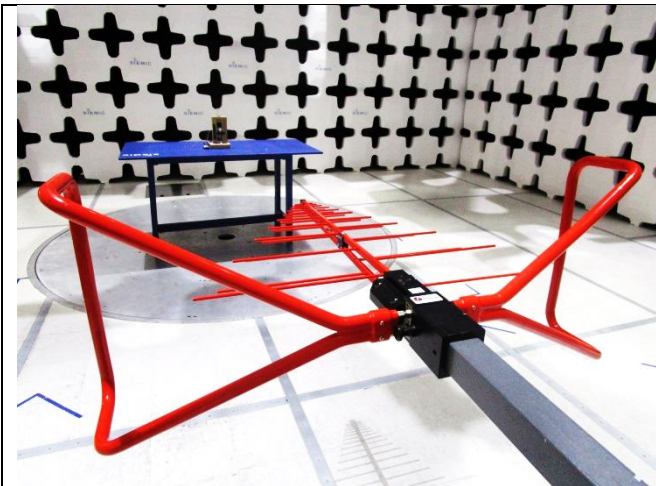


Low Frequency Antenna Top View

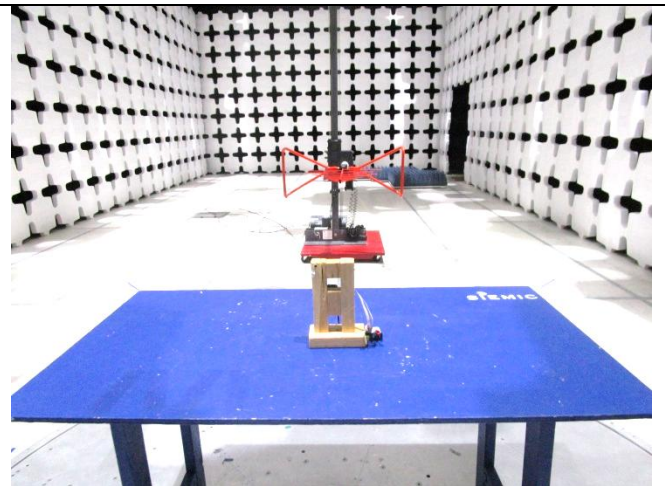


Low Frequency Antenna Bottom View

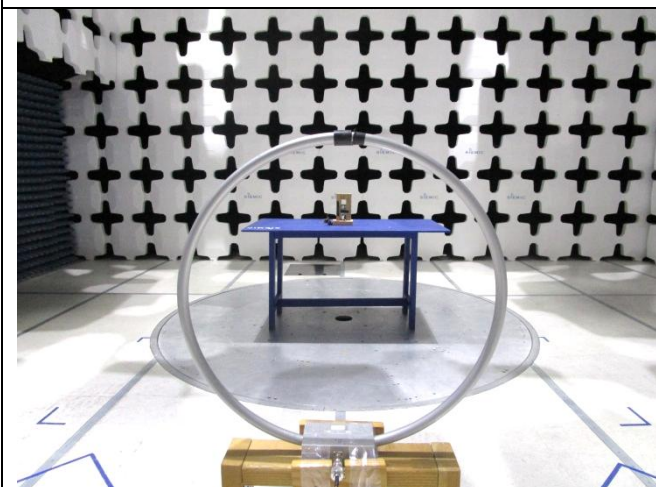
### 6.5 EUT Test Setup Photos



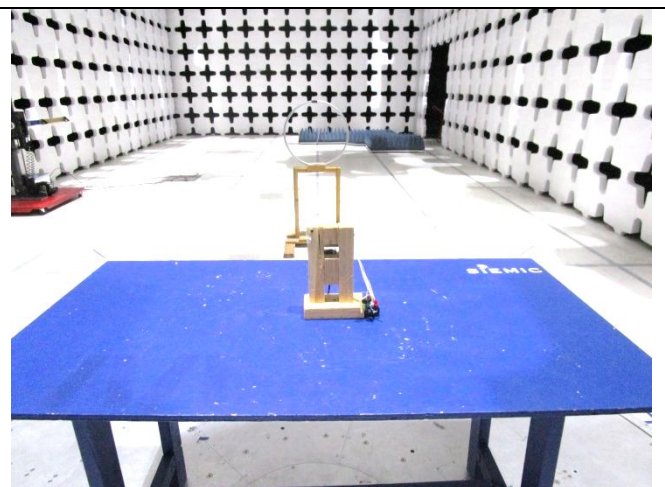
Radiated Emissions (<1GHz) – Front View



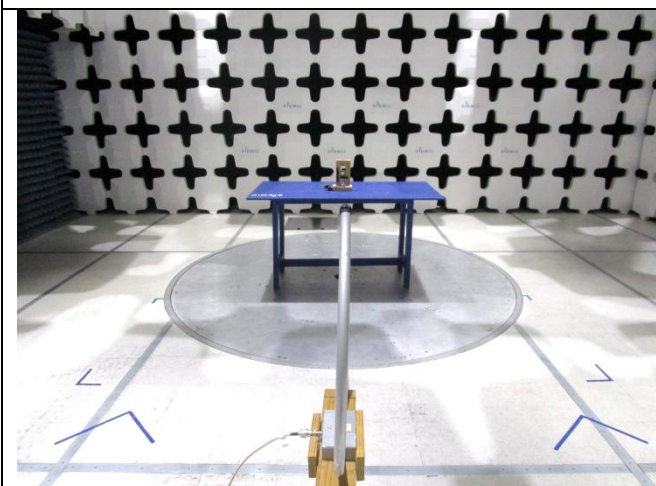
Radiated Emissions (<1GHz) – Rear View



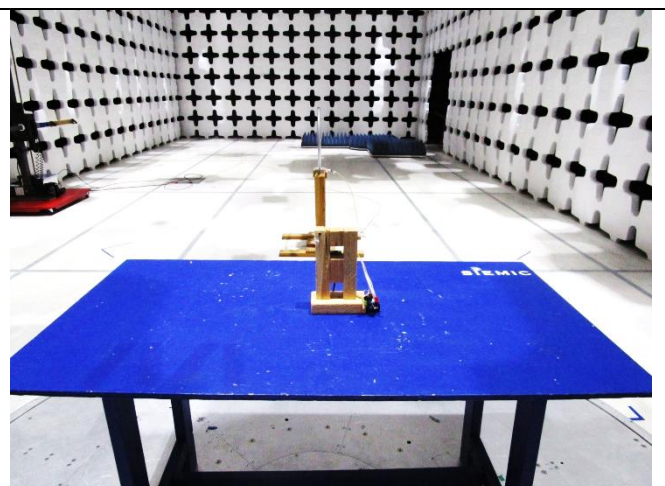
Radiated Emissions (<30MHz) – Front View



Radiated Emissions (<30MHz) – Rear View



Radiated Emissions (<30MHz) – Front View



Radiated Emissions (<30MHz) – Rear View

## 7 Supporting Equipment/Software and cabling Description

### 7.1 Supporting Equipment

Index	Supporting Equipment Description	Model	Serial No	Manu	Note
-	-	-	-	-	-

### 7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
-	-	-	-	-	-	-	-

### 7.3 Test Software Description

Test Item	Software	Description
-	-	-

## 8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Radiated Spurious Emissions	FCC	15.209	FCC	ANSI C63.10 2013	<input checked="" type="checkbox"/> Pass
	IC	RSS 210(A8.5)	IC	RSS Gen Issue 4 2014	<input type="checkbox"/> N/A
Remark	<ol style="list-style-type: none"> <li>All measurement uncertainties do not take into consideration for all presented test results.</li> <li>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.</li> </ol>				

## 9 Measurement Uncertainty

Emissions			
Test Item	Frequency Range	Description	Uncertainty
Radiated Spurious Emissions	150 kHz – 1GHz	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

## 10 Measurements, examination and derived results

### 10.1 Radiated Spurious Emissions below 30 MHz

Requirement(s):

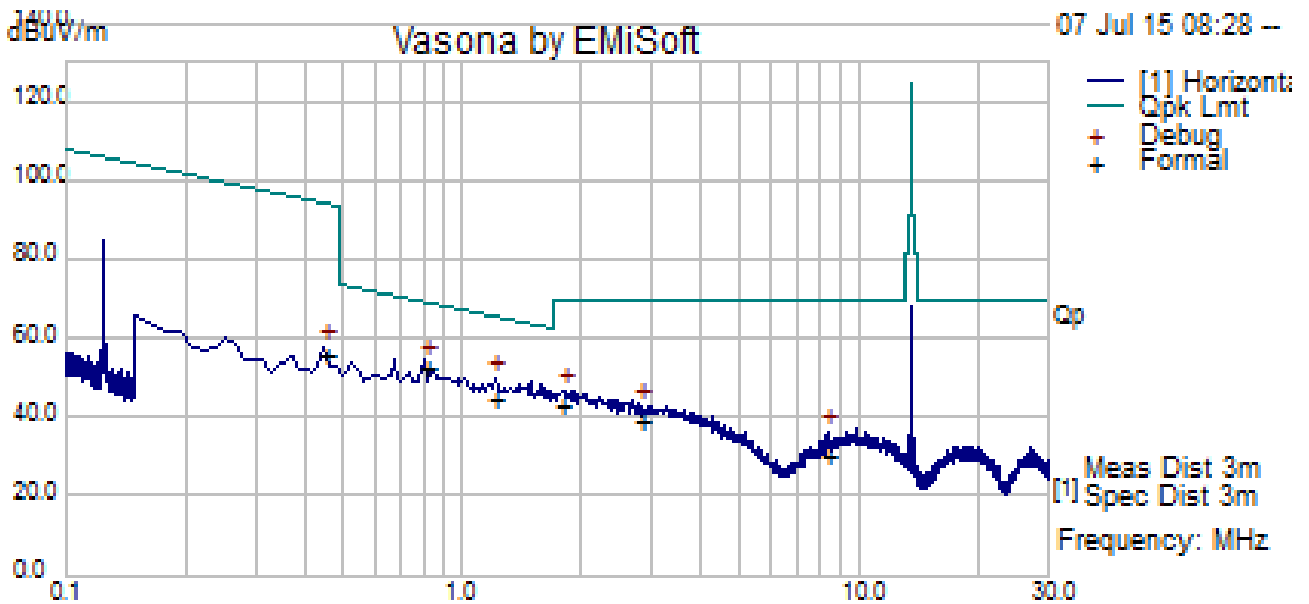
Spec	Requirement	Applicable
47 CFR §15.209 RSS-210 (A2.6)	The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.	<input checked="" type="checkbox"/>
Test Setup		
Procedure	For < 30MHz, Radiated emissions were 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.	
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 specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 Combination Antenna using Measurement Loop Antenna, 0 Degrees @ 3 meters

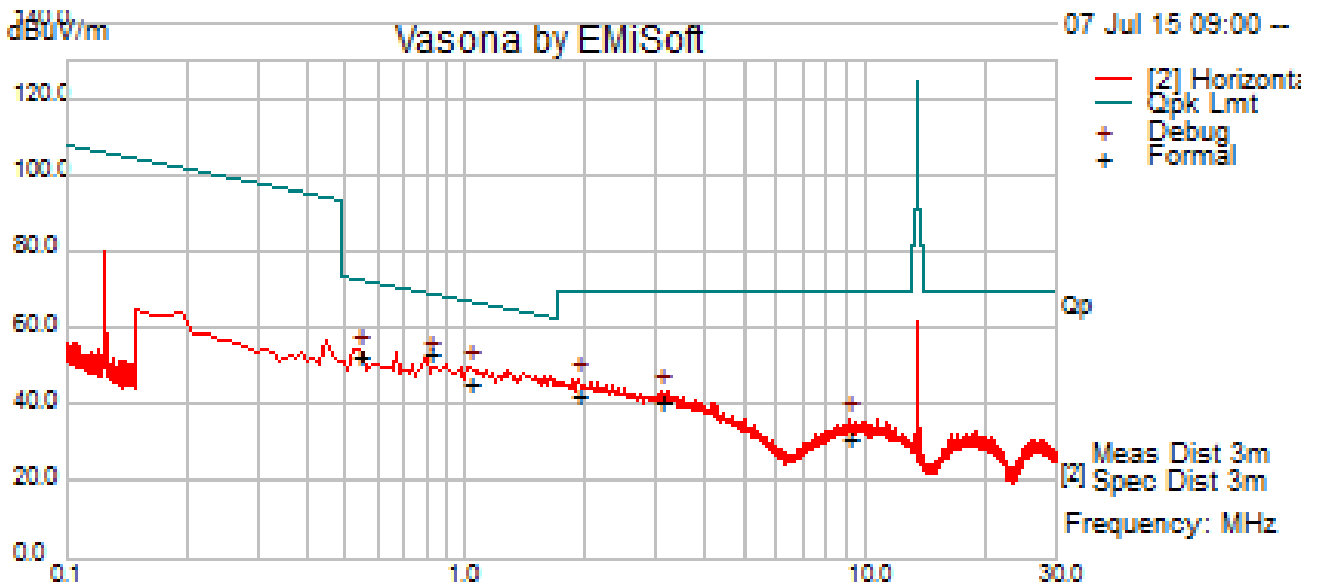


Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.81	38.84	0.24	13.78	52.86	Quasi Max	0	100.00	170.00	69.43	-16.57	0.81
1.19	34.03	0.27	10.69	44.99	Quasi Max	0	100.00	129.00	66.06	-21.07	1.19
1.77	34.72	0.27	7.83	42.83	Quasi Max	0	100.00	312.00	69.54	-26.72	1.77
2.83	34.66	0.21	4.43	39.29	Quasi Max	0	100.00	51.00	69.54	-30.25	2.83
8.34	30.11	0.05	0.07	30.23	Quasi Max	0	100.00	29.00	69.54	-39.31	8.34
0.46	36.46	0.41	18.59	55.46	Quasi Max	0	100.00	104.00	94.43	-38.96	0.46

Test specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 Combination Antenna using Measurement Loop Antenna, 90 Degrees @ 3 meters



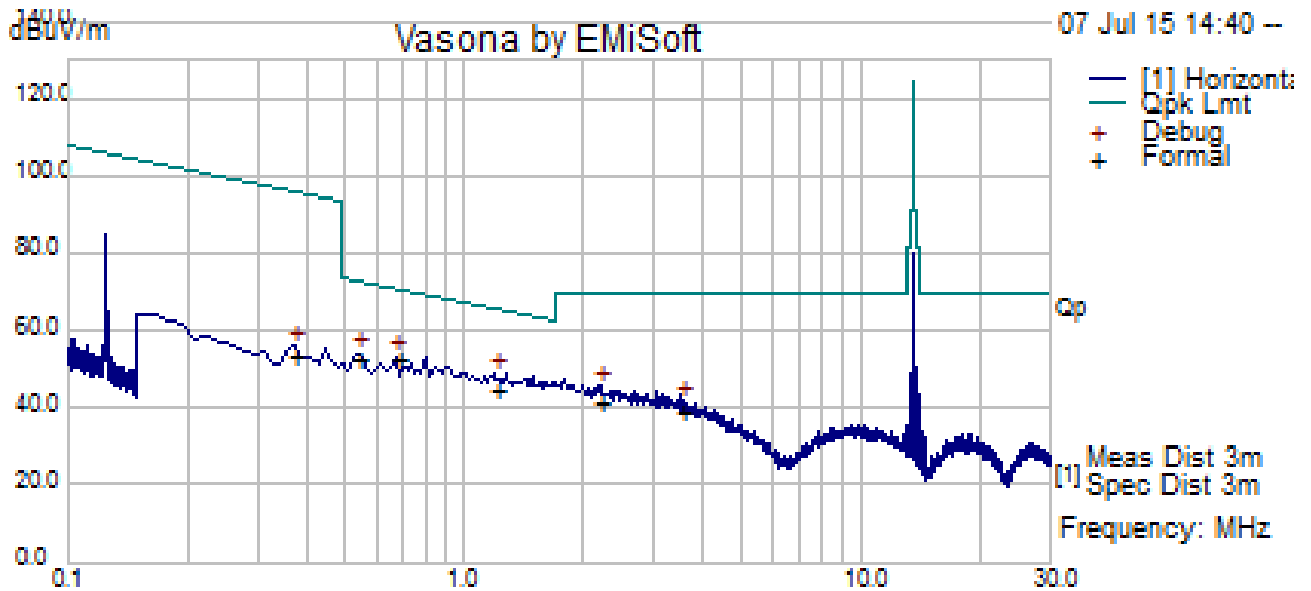
Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.81	39.04	0.24	13.79	53.08	Quasi Max	90	100.00	234.00	69.45	-16.37	Pass
1.02	33.61	0.26	11.85	45.72	Quasi Max	90	100.00	10.00	67.45	-21.73	Pass
0.54	34.97	0.22	17.09	52.28	Quasi Max	90	100.00	285.00	72.89	-20.61	Pass
1.92	34.77	0.26	7.25	42.29	Quasi Max	90	100.00	276.00	69.54	-27.26	Pass
3.09	36.97	0.20	3.81	40.98	Quasi Max	90	100.00	57.00	69.54	-28.56	Pass
9.17	31.38	0.04	-0.06	31.37	Quasi Max	90	100.00	204.00	69.54	-38.17	Pass



Test specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 HF Long Antenna using Measurement Loop Antenna, 0 Degrees @ 3 meters

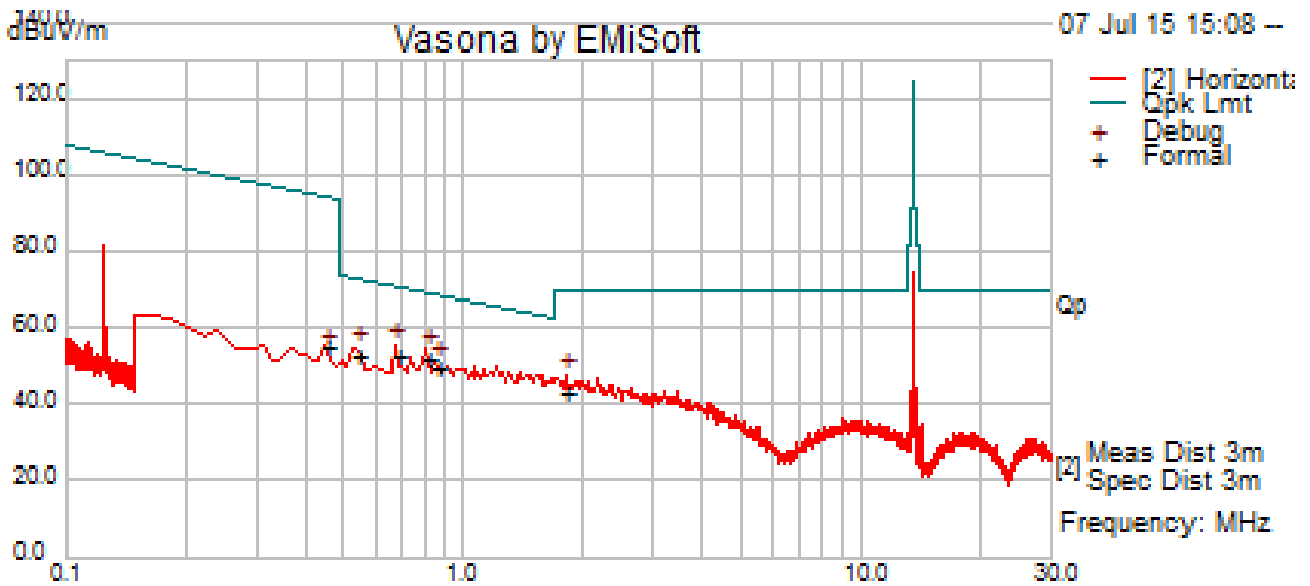


Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
1.20	34.07	0.27	10.67	45.00	Quasi Max	0	100.00	283.00	66.03	-21.03	Pass
0.68	36.96	0.23	15.12	52.31	Quasi Max	0	100.00	2.00	70.95	-18.64	Pass
0.54	34.95	0.22	17.18	52.35	Quasi Max	0	100.00	287.00	72.98	-20.63	Pass
2.19	34.86	0.24	6.29	41.40	Quasi Max	0	100.00	165.00	69.54	-28.14	Pass
3.56	36.38	0.18	2.89	39.44	Quasi Max	0	100.00	323.00	69.54	-30.10	Pass
0.37	32.92	0.42	20.22	53.56	Quasi Max	0	100.00	15.00	96.16	-42.60	Pass

Test specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 HF Long Antenna using Measurement Loop Antenna, 90 Degrees @ 3 meters

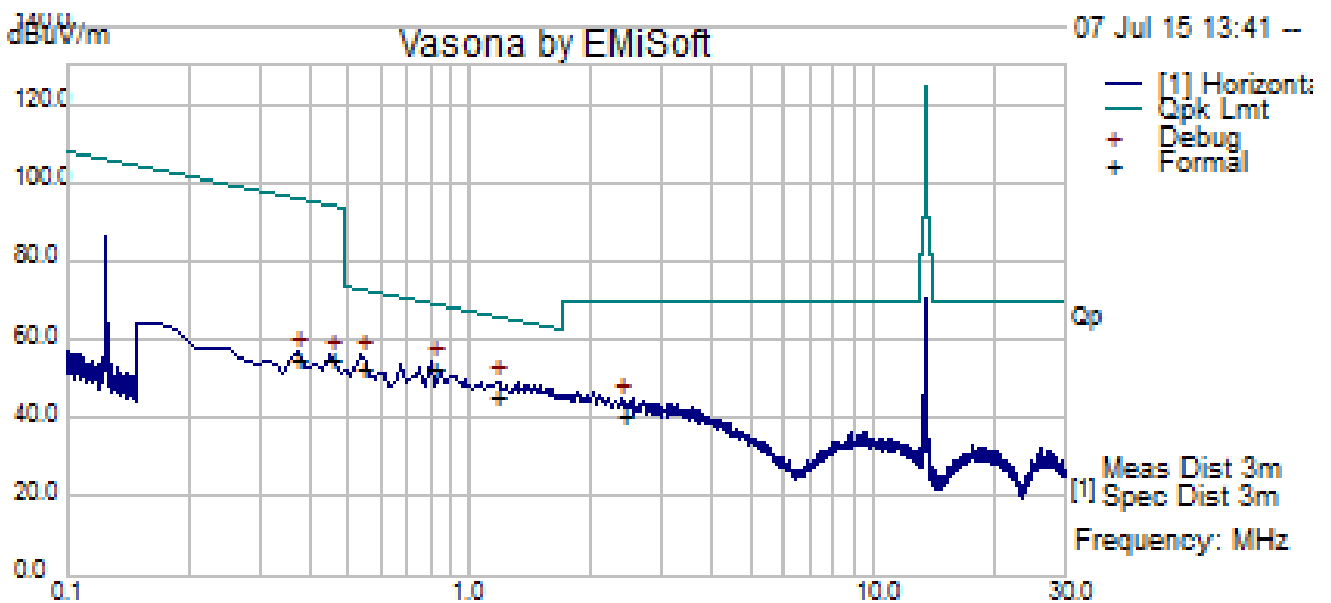


Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.81	37.92	0.24	13.81	51.97	Quasi Max	90	100.00	358.00	69.46	-17.49	Pass
0.68	36.89	0.23	15.11	52.23	Quasi Max	90	100.00	290.00	70.94	-18.71	Pass
0.86	36.05	0.25	13.33	49.63	Quasi Max	90	100.00	178.00	68.92	-19.29	Pass
0.54	35.55	0.22	17.14	52.91	Quasi Max	90	100.00	156.00	72.94	-20.03	Pass
1.80	34.89	0.27	7.71	42.87	Quasi Max	90	100.00	89.00	69.54	-26.67	Pass
0.46	36.16	0.41	18.60	55.18	Quasi Max	90	100.00	276.00	94.44	-39.26	Pass

Test specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result:
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		<input checked="" type="checkbox"/> Pass
Tested by:	Teody Manansala		<input type="checkbox"/> Fail
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 HF Short Antenna using Measurement Loop Antenna, 0 Degrees @ 3 meters

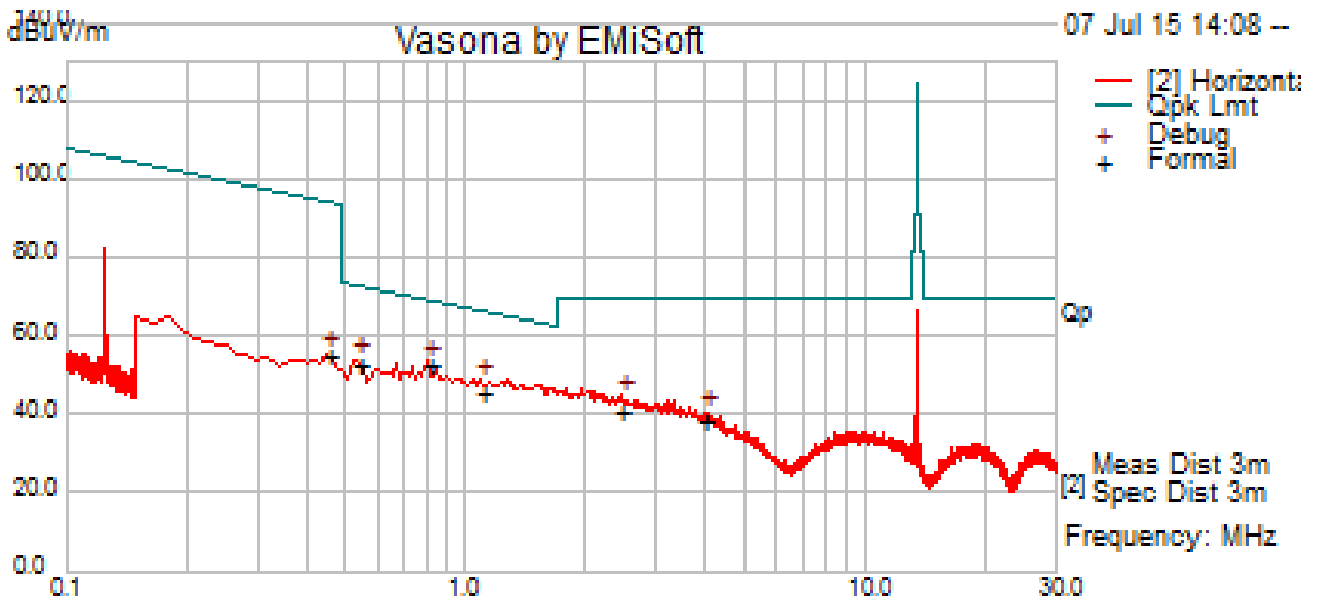


Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.81	38.28	0.24	13.80	52.32	Quasi Max	0	100.00	15.00	69.45	-17.13	Pass
1.16	33.96	0.27	10.90	45.13	Quasi Max	0	100.00	74.00	66.31	-21.18	Pass
0.54	35.18	0.22	17.22	52.61	Quasi Max	0	100.00	358.00	73.01	-20.40	Pass
2.38	34.76	0.23	5.69	40.69	Quasi Max	0	100.00	33.00	69.54	-28.86	Pass
0.45	35.99	0.41	18.62	55.02	Quasi Max	0	100.00	24.00	94.46	-39.44	Pass
0.37	34.19	0.42	20.20	54.82	Quasi Max	0	100.00	352.00	96.14	-41.32	Pass

Test specification:	Radiated Spurious Emissions (below 30MHz)		
Environmental Conditions:	Temp(°C):	26	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	45.6	
	Atmospheric(mbar):	1021	
Mains Power:	6DVC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 using loop antenna		

SE3210 HF Short Antenna using Measurement Loop Antenna, 90 Degrees @ 3 meters

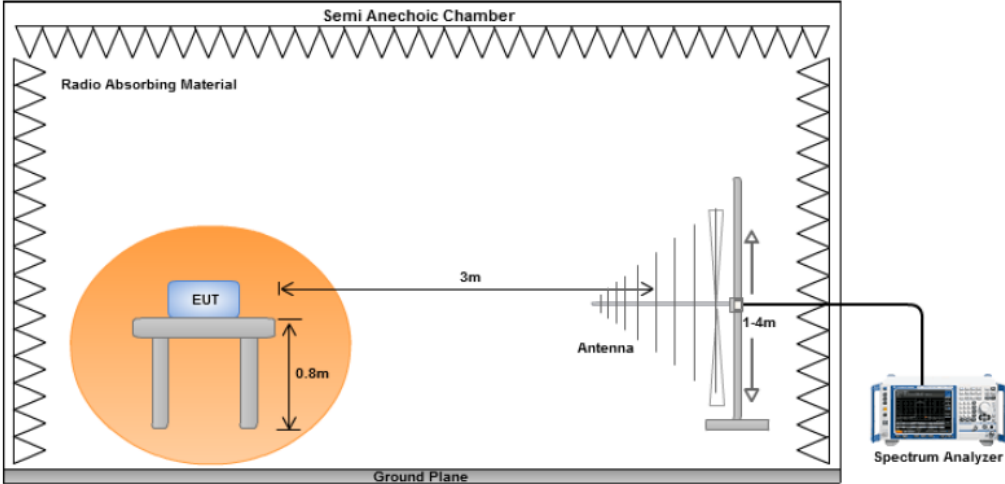


Quasi Max Measurement

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	90 / 0 degree	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.81	38.48	0.24	13.76	52.48	Quasi Max	90	H	100.00	211.00	69.41	-16.93	Pass
1.10	33.82	0.26	11.30	45.39	Quasi Max	90	H	100.00	49.00	66.79	-21.40	Pass
0.54	34.99	0.22	17.11	52.32	Quasi Max	90	H	100.00	273.00	72.91	-20.59	Pass
2.46	34.75	0.23	5.44	40.42	Quasi Max	90	H	100.00	82.00	69.54	-29.12	Pass
3.98	35.71	0.16	2.17	38.04	Quasi Max	90	H	100.00	145.00	69.54	-31.50	Pass
0.45	36.13	0.41	18.61	55.16	Quasi Max	90	H	100.00	266.00	94.45	-39.29	Pass

## 10.2 Radiated Spurious Emissions 30 MHz – 1000MHz

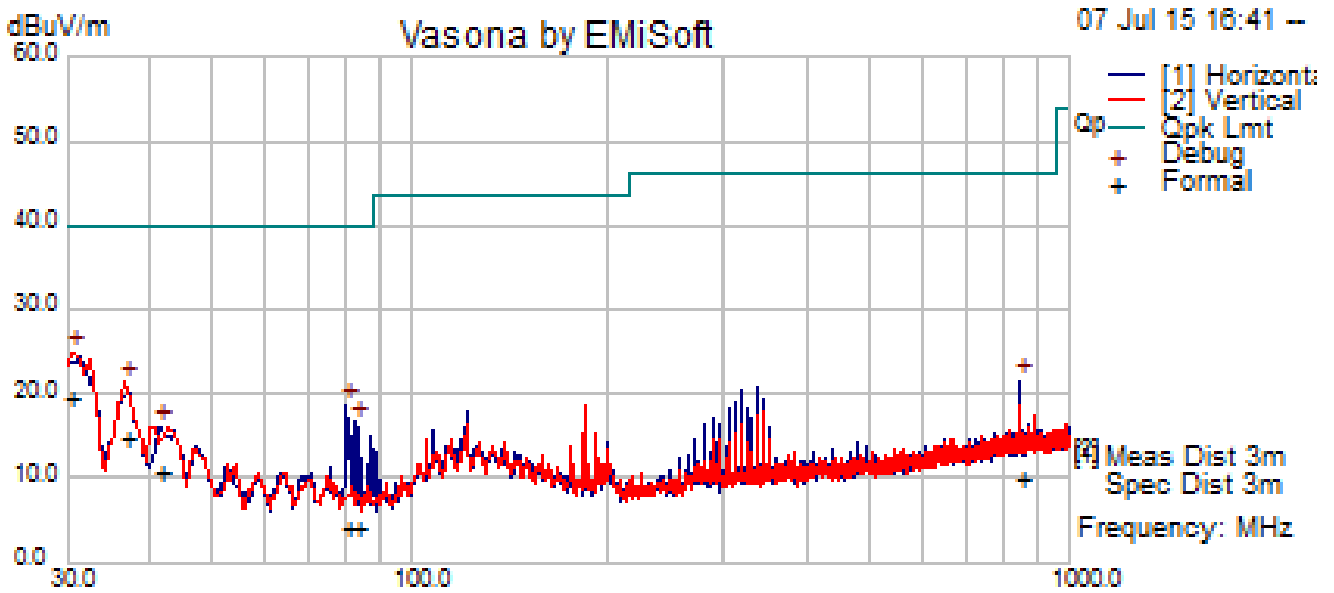
Requirement(s):

Spec	Item	Requirement	Applicable										
47CFR§15.209, RSS210(A8.5)	a)	<p>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges</p> <table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength (uV/m)</th> </tr> </thead> <tbody> <tr> <td>30 – 88</td> <td>100</td> </tr> <tr> <td>88 – 216</td> <td>150</td> </tr> <tr> <td>216 960</td> <td>200</td> </tr> <tr> <td>Above 960</td> <td>500</td> </tr> </tbody> </table>	Frequency range (MHz)	Field Strength (uV/m)	30 – 88	100	88 – 216	150	216 960	200	Above 960	500	<input checked="" type="checkbox"/>
Frequency range (MHz)	Field Strength (uV/m)												
30 – 88	100												
88 – 216	150												
216 960	200												
Above 960	500												
Test Setup													
Procedure		<ol style="list-style-type: none"> <li>The EUT was switched on and allowed to warm up to its normal operating condition.</li> <li>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: <ol style="list-style-type: none"> <li>Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.</li> <li>The EUT was then rotated to the direction that gave the maximum emission.</li> <li>Finally, the antenna height was adjusted to the height that gave the maximum emission.</li> </ol> </li> <li>A Quasi-peak measurement was then made for that frequency point.</li> <li>Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</li> </ol>											
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 specification:	Radiated Spurious Emissions (30MHz – 1000MHz)		
Environmental Conditions:	Temp(°C):	23.7	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	44.9	
	Atmospheric(mbar):	1021	
Mains Power:	5VDC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 with Combination Antenna		

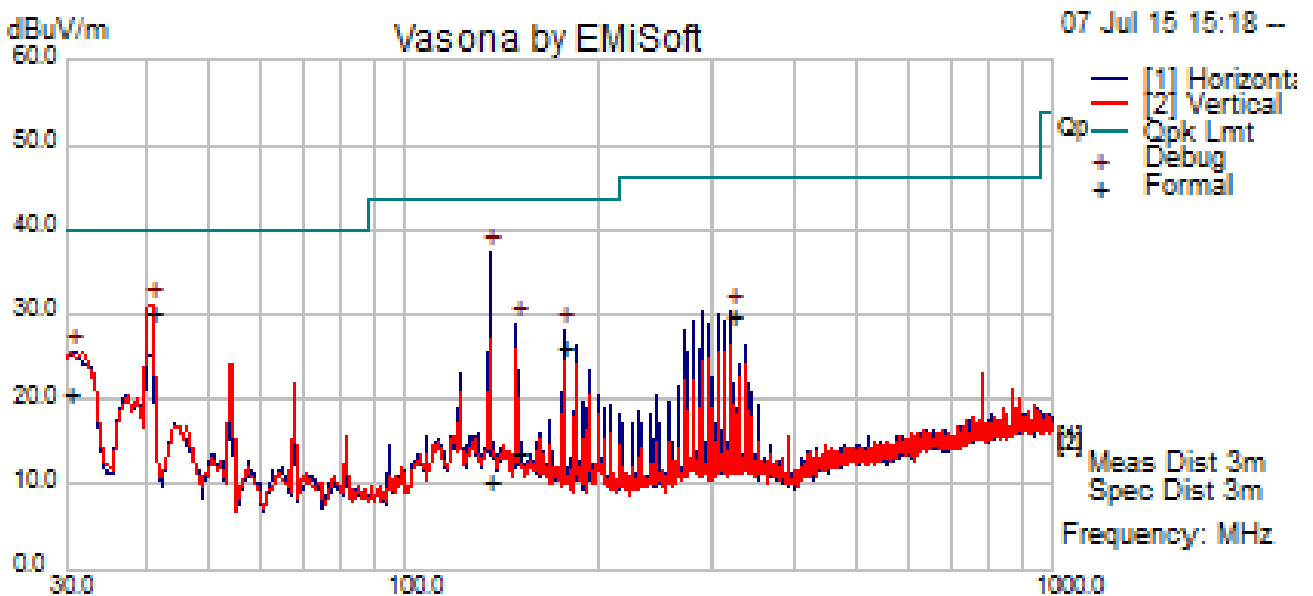


Quasi Max Measurement @ 3 meters

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
30.36	39.03	-1.03	-18.61	19.39	Quasi Max	V	131.00	309.00	40.00	-20.61	Pass
37.02	39.15	-1.19	-23.39	14.57	Quasi Max	V	184.00	30.00	40.00	-25.43	Pass
80.11	36.46	-1.68	-30.57	4.21	Quasi Max	H	103.00	358.00	40.00	-35.79	Pass
82.36	36.51	-1.70	-30.75	4.06	Quasi Max	H	226.00	87.00	40.00	-35.94	Pass
41.75	37.86	-1.28	-26.07	10.50	Quasi Max	H	253.00	346.00	40.00	-29.50	Pass
843.58	32.49	-5.75	-16.83	9.91	Quasi Max	H	290.00	18.00	46.02	-36.11	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification:	Radiated Spurious Emissions (30MHz – 1000MHz)		
Environmental Conditions:	Temp(°C):	23.7	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	44.9	
	Atmospheric(mbar):	1021	
Mains Power:	5VDC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 with Long Antenna		

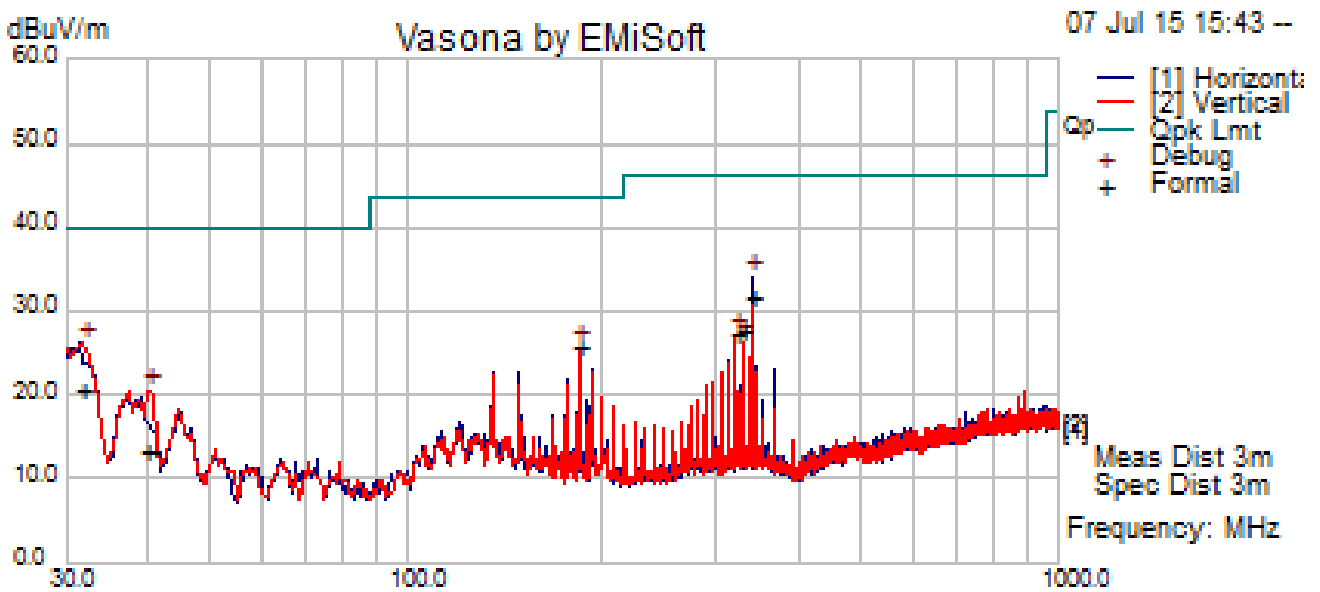


Quasi Max Measurement @ 3 meters

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
135.47	36.26	-0.89	-24.91	10.46	Quasi Max	H	234.00	239.00	43.52	-33.06	Pass
40.68	55.94	-0.30	-25.38	30.26	Quasi Max	V	106.00	262.00	40.00	-9.74	Pass
30.42	39.37	-0.19	-18.64	20.55	Quasi Max	V	157.00	267.00	40.00	-19.45	Pass
149.05	40.47	-0.96	-25.92	13.60	Quasi Max	H	219.00	141.00	43.52	-29.92	Pass
176.23	54.80	-1.09	-27.53	26.19	Quasi Max	H	137.00	164.00	43.52	-17.33	Pass
320.04	56.25	-1.67	-24.63	29.95	Quasi Max	H	100.00	357.00	46.02	-16.07	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification:	Radiated Spurious Emissions (30MHz – 1000MHz)		
Environmental Conditions:	Temp(°C):	23.7	Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Humidity (%):	44.9	
	Atmospheric(mbar):	1021	
Mains Power:	5VDC		
Tested by:	Teody Manansala		
Test Date:	July 07, 2015		
Remarks:	SE3210 with Short Antenna		



Quasi Max Measurement @ 3 meters

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	AF (dB)	Level (dBuV/m)	Measurement Type	Pol (V/H)	Hgt (cm)	Azt (Deg)	Limit (dBuV/m)	Margin (dB)	Pass /Fail
338.99	57.83	-1.77	-24.40	31.66	Quasi Max	H	237.00	14.00	46.02	-14.36	Pass
31.82	39.92	-0.20	-19.15	20.57	Quasi Max	V	166.00	144.00	40.00	-19.43	Pass
183.99	54.57	-1.12	-27.71	25.73	Quasi Max	H	125.00	337.00	43.52	-17.79	Pass
320.03	53.45	-1.67	-24.63	27.14	Quasi Max	V	170.00	85.00	46.02	-18.88	Pass
39.94	38.49	-0.29	-24.80	13.40	Quasi Max	V	206.00	20.00	40.00	-26.60	Pass
328.03	53.79	-1.71	-24.42	27.66	Quasi Max	V	164.00	98.00	46.02	-18.36	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.



















## Annex A. TEST INSTRUMENT






Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
<b>Radiated Emissions</b>						
R & S Receiver	ESL6	100178	05/27/2015	1 Year	05/27/2016	<input checked="" type="checkbox"/>
ETS-Lingren Loop Antenna	6512	00049120	08/22/2014	1 Year	08/22/2015	<input checked="" type="checkbox"/>
Bi-Log antenna (30MHz-2GHz)	JB1	A030702	08/12/2014	1 Year	08/12/2015	<input checked="" type="checkbox"/>
Pre-Amplifier (1-26.5GHz)	8449B	3008A00715	02/19/2015	1 Year	02/19/2016	<input checked="" type="checkbox"/>
Microwave Preamplifier (18-40 GHz)	PA-840	181251	02/19/2015	1 Year	02/19/2016	<input type="checkbox"/>
3 Meters SAC	3M	N/A	08/29/2014	1 Year	08/29/2015	<input type="checkbox"/>
10 Meters SAC	10M	N/A	09/05/2014	1 Year	09/05/2015	<input checked="" type="checkbox"/>

## Test Software Version

Test Item	Vendor	Software	Version
Radiated Emission	EMISoft	EMISoft Vasona	V5.0

## Annex B. 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		<b>Radio &amp; Telecommunications Terminal Equipment:</b> EN45001 – EN ISO/IEC 17025
		<b>Electromagnetic Compatibility:</b> 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
Hong Kong OFCA		(Phase II) OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		<b>Radio:</b> Scope A – All Radio Standard Specification in Category I
		<b>Telecom:</b> CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		<p><b>Radio:</b> A1. Terminal equipment for purpose of calling</p> <p><b>Telecom:</b> B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law</p>
Korea CAB Accreditation		<p><b>EMI:</b> KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI</p> <p><b>EMS:</b> 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</p>
		<p><b>Radio:</b> 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</p> <p><b>Telecom:</b> 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</p>
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		<p>R-3083: Radiation 3 meter site</p> <p>C-3421: Main Ports Conducted Interference Measurement</p> <p>T-1597: Telecommunication Ports Conducted Interference Measurements</p>
Australia CAB Recognition		<p><b>EMC:</b> AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4</p>
		<p><b>Radio communications:</b> 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</p>
		<p><b>Telecommunications:</b> 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</p>
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