

## TEST REPORT

**Report Number: 102019500MPK-004**

**Project Number: G102019500**

**March 20, 2015**

**Testing performed on the InReach Explorer**

**Model Number:**

**INRCH25**

**To**

**EN 55022: 2010**

**AS/NZS CISPR22: 2009/A1:2010**

**FCC Part 15, Subpart B**

**Industry Canada ICES-003**

**VCCI V-3/2013-04**

**Class: B**

**For**

**DeLorme Publishing Co., Inc.**

Test Performed by:

Intertek  
1365 Adams Court  
Menlo Park, CA 94025 USA

Test Authorized by:

DeLorme Publishing Co., Inc.  
2 Delorme Dr.  
PO Box 298  
Yarmouth, ME 04096 USA

Prepared by:

  
Anderson Soungpanya

Date: March 20, 2015

Reviewed by:

  
Krishna K Vemuri

Date: March 20, 2015


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**VERIFICATION OF COMPLIANCE**  
**Report No. 102019500MPK-004**

Verification is hereby issued to the named APPLICANT and is VALID ONLY for the  
Equipment identified hereon for use under the rules and regulations listed below.

<b>Equipment Under Test:</b>	InReach Explorer
<b>Model Number:</b>	INRCH25
<b>Serial Number:</b>	EMC 1
<b>Applicant:</b>	DeLorme Publishing Co., Inc.
<b>Contact:</b>	Jon McPherson
<b>Address:</b>	2 Delorme Dr. PO Box 298 Yarmouth, ME 04096
<b>Country</b>	USA
<b>Tel. number:</b>	(207) 846-7149
<b>Email:</b>	jonathan.mcpherson@delorme.com
<b>Applicable Regulation:</b>	EN 55022: 2010 AS/NZS CISPR22: 2009/A1:2010 FCC Part 15 Subpart B Industry Canada ICES-003 VCCI V-3/2013-04
<b>Equipment Class:</b>	Class B
<b>Date of Test:</b>	February 26, 2015 & March 02, 2015

*We attest to the accuracy of this report:*

  
Anderson Soungpanya  
Project Engineer

  
Krishna K Vemuri  
EMC Senior Staff Engineer

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## EXECUTIVE SUMMARY – EMISSIONS

Test Description	Class	Pass/Fail Comments
<b>Radiated Emissions</b>		
<ul style="list-style-type: none"><li>• EN 55022</li><li>• AS/NZS CISPR22,</li><li>• FCC Part 15 Subpart B</li><li>• ICES-003</li><li>• VCCI –V-3 / 2013.04</li></ul>	B	Complies
<b>Conducted Emissions (AC Mains)</b>		
<ul style="list-style-type: none"><li>• EN 55022</li><li>• AS/NZS CISPR22,</li><li>• FCC Part 15 Subpart B</li><li>• ICES-003</li><li>• VCCI –V-3 / 2013.04</li></ul>	B	Complies
<b>Conducted Emissions (Telecommunication Ports)</b>		
<ul style="list-style-type: none"><li>• EN 55022</li><li>• AS/NZS CISPR22,</li><li>• VCCI –V-3 / 2013.04</li></ul>	B	Not Applicable <sup>1</sup>

<sup>1</sup>The EUT does not contain any Telecommunications cables.

## 1.0 Job Description

### 1.1 Client Information

The EUT has been tested at the request of:

**Company:** DeLorme Publishing Co., Inc.  
2 Delorme Dr.  
PO Box 298  
Yarmouth, ME 04096  
USA

**Name of contact:** Jon McPherson  
**Telephone:** (207) 846-7149  
**Email:** jonathan.mcpherson@delorme.com

### 1.2 Test Plan Reference

Tests were performed to the following standards:

- EN 55022: 2010
- AS/NZS CISPR22: 2009/A1:2010
- FCC Part 15 Subpart B
- Industry Canada ICES-003
- VCCI V-3/2013-04

1.3 Equipment Under Test (EUT)

Ref No. (Slot)	Description	Model Number	Serial Number
1	Hand-held two-way satellite communicator	INRCH25	EMC 1

**EUT receive date:** February 24, 2015

**EUT receive condition:** The EUT was received in fair condition with no apparent damage to chassis.

**Test start date:** February 26, 2015

**Test completion date:** March 02, 2015

The test results in this report pertain only to the item tested.

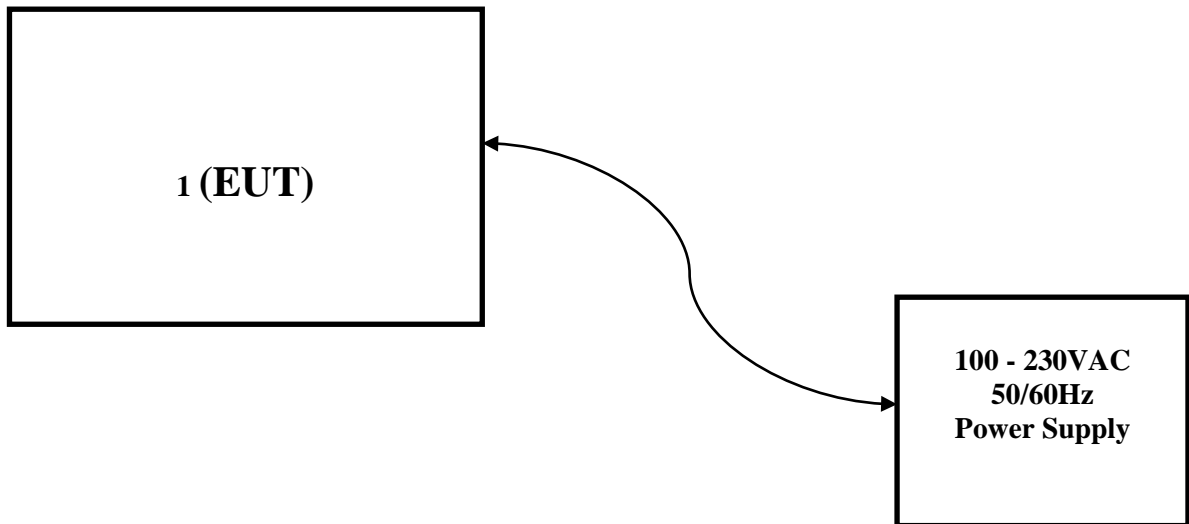
DeLorme Publishing Co., Inc. supplied the following description of the INRCH25:

The InReach Explorer is a hand-held two-way satellite communicator with embedded GPS positioning and Bluetooth.

1.4 System Support Equipment and Block diagram

Description	Manufacturer	Model Numbers
AC/DC USB Power Adapter	Shenzhen Honmingyuan Electronic CO.,LTD	GDP06A-0501000

1.5 System Block Diagram



## 1.6 Justification

The EUT was configured for testing in a typical configuration, as specified by DeLorme Publishing Co., Inc. The highest clock frequency used in the EUT is 208 MHz; Radiated Emissions was tested up to 2 GHz.

The EUT tested in this report is the model number: INRCH25. It's product name is inReach Explorer. It is a representative sample of model number: INRCH20, product name: inReach SE.

The INRCH25 utilizes magnetic, acceleration, and barometric pressure sensors while the INRCH20 does not. Both models physically have the sensors; the INRCH20 simply doesn't use them (disabled in firmware). The INRCH20 is just a feature subset of the INRCH25.

## 1.7 Mode(s) of operation

For Radiated Emissions the EUT was tested in 2 modes, battery mode and charge mode. During both modes, the EUT was continuously receiving. The EUT was tested in only charge mode for Conducted Emissions.

## 1.8 Modifications required for compliance

No modifications were made during compliance testing in order to bring the product into compliance.



## 2.0 Test Environment for Emissions Testing

### 2.1 Test Facility

The test facility is located at 1365 Adams Court, Menlo Park, California. The test site is a 10-meter semi-anechoic chamber. The site meets the characteristics of CISPR 16-1 and ANSI C63.4. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters.

The A2LA certificate number for this site is 1755-01.

The Industry Canada (IC) Site Number is 2042L-1.

The VCCI Site Number is A-0141

### 2.2 Test Equipment

**Table 4-1** contains a list of the test equipment used during the testing.

*Table 4-1 List of Test Equipment*

Equipment	Manufacturer	Model/Type	Asset #	Cal Int	Cal Due
EMI Receiver	Rohde and Schwarz	ESU	ITS 00961	12	11/10/15
BI-Log Antenna	Antenna Research	LPB-2513/A	ITS 00355	12	08/21/15
Pre-Amplifier	Sonoma Instrument	310N	ITS 00942	12	11/26/15
LISN	FCC	FCC-LISN-50-50-M-H	ITS 00552	12	09/04/15
Horn Antenna	ETS Lindgren	3115	ITS 00982	12	11/21/15
Pre-Amplifier (1-18GHz)	Miteq	AMF-4D-001180-24-10P	ITS 00526	12	10/01/15
Digital Barometer	Newport	IBTHX-W/N	ITS 00980	12	09/29/15
Hygro Thermometer	Control Co.	4085	ITS 00321	12	10/27/15

\* Calibration performed by ITS prior to the test. # Calibration not required

### 2.3 Example Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor. Then by subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - PA$$

Where:

FS = Field Strength in dB ( $\mu\text{V}/\text{m}$ )

RA = Receiver Amplitude (including preamplifier) in dB ( $\mu\text{V}$ )

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB (1/m)

PA = Preamplifier Factor in dB

Assume a receiver reading of 52.0 dB ( $\mu\text{V}$ ) is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB ( $\mu\text{V}/\text{m}$ ).

$$RA = 52.0 \text{ dB } (\mu\text{V})$$

$$AF = 7.4 \text{ dB } (1/\text{m})$$

$$CF = 1.6 \text{ dB}$$

$$PA = 29.0 \text{ dB}$$

$$FS = RA + AF + CF - PA$$

$$FS = 52.0 + 7.4 + 1.6 - 29.0$$

$$FS = 32 \text{ dB } (\mu\text{V}/\text{m})$$

## 2.4 Measurement Uncertainty

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.

### **Radiated Emission:**

The uncertainty in the measured field strength is estimated as follows, for a minimum confidence probability of 95 %

<b>Freq. Range</b>	<b>Detection Mode</b>	<b>Uncertainty</b>
30 MHz to 1000 MHz	Quasi-peak	$\pm 4.2$ dB
1 GHz to 18 GHz	Average/Peak	$\pm 6.0$ dB

### **Conducted Emission:**

The uncertainty in the measured voltage is estimated as follows, for a minimum confidence probability of 95 %

<b>Freq. Range</b>	<b>Detection Mode</b>	<b>Uncertainty</b>
150 kHz to 30 MHz	Average	$\pm 2.4$ dB
	Quasi-peak	$\pm 2.6$ dB

### 3.0 Emissions Test Results

#### 3.1 Electromagnetic Radiated Disturbance

##### 3.1.1 Test Limits

**Table 5-1a Limits for Electromagnetic Radiated Disturbance, EN 55022, AS/NZS CISPR 22, VCCI, ICES-003**

Frequency (MHz)	Class A at 10m dB(μV/m)	Class B at 10m dB(μV/m)
30-230	40	30.0
230-1000	47	37.0

*Note: The lower limit shall apply at the transition frequency.*

**Table 5-1b Class A Limits for Electromagnetic Radiated Disturbance, EN 55022, AS/NZS CISPR22, VCCI, ICES-003 at a Measurement distance of 3 m**

Frequency (MHz)	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1000-3000	56	76
3000-6000	60	80

*Note: The lower limit shall apply at the transition frequency.*

**Table 5-1c Class B Limits for Electromagnetic Radiated Disturbance, EN 55022, AS/NZS CISPR22, VCCI, ICES-003 at a Measurement distance of 3 m**

Frequency (MHz)	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1000-3000	50	70
3000-6000	54	74

*Note: The lower limit shall apply at the transition frequency.*

**Table 5-1d Limits for Electromagnetic Radiated Disturbance, FCC Section 15.109(b)**

Frequency (MHz)	Class A at 10m dB(μV/m)	Class B at 3m dB(μV/m)
30-88	39.0	40.0
88-216	43.5	43.5
216-960	46.4	46.0
Above 960	49.5	54.0

*Note: Three sets of units are commonly used for EMI measurement, decibels below one milliwatt (-dBm), decibels above a microvolt (dBμV), and microvolts (μV). To convert between them, use the following formulas:  $20 \text{ LOG}_{10}(\mu\text{V}) = \text{dB}\mu\text{V}$ ,  $\text{dBm} = \text{dB}\mu\text{V} - 107$*

Alternative limits per Section 15.109(g):

**Table 5-1e Radiated Emissions Limits, CISPR 22**

Frequency (MHz)	Class A at 10m dB(μV/m)	Class B at 10m dB(μV/m)
30-230	40	30.0
230-1000	47	37.0

*Note: The lower limit shall apply at the transition frequency.*



### 3.1.2 Test Procedure

Measurements are conducted with a quasi-peak detector instrument in the frequency range of 30 MHz to 1000 MHz and with the average detector instrument in the frequency range above 1000 MHz. The measuring receiver meets the requirements of Section One of CISPR 16 and the measuring antenna correlates to a balanced dipole.

Measurements of the radiated field are made with the antenna located at a distance of 10 meters from the EUT. If the field-strength measurements at 10m cannot be made because of high ambient noise level or for other reasons, measurements may be made at a closer distance, for example 3m. An appropriate distance correction factor should be used to normalize the measured data to the specified distance for determining compliance.

The antenna is adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth is varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) is varied during the measurements to find the maximum field-strength readings.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for a larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by an insulating material up to 12mm thick.

Equipment setup for radiated disturbance tests followed the guidelines of ANSI C63.4 and EN 55022.

<b>Tested By:</b>	Anderson Soungpaya
<b>Test Date:</b>	February 26, 2015

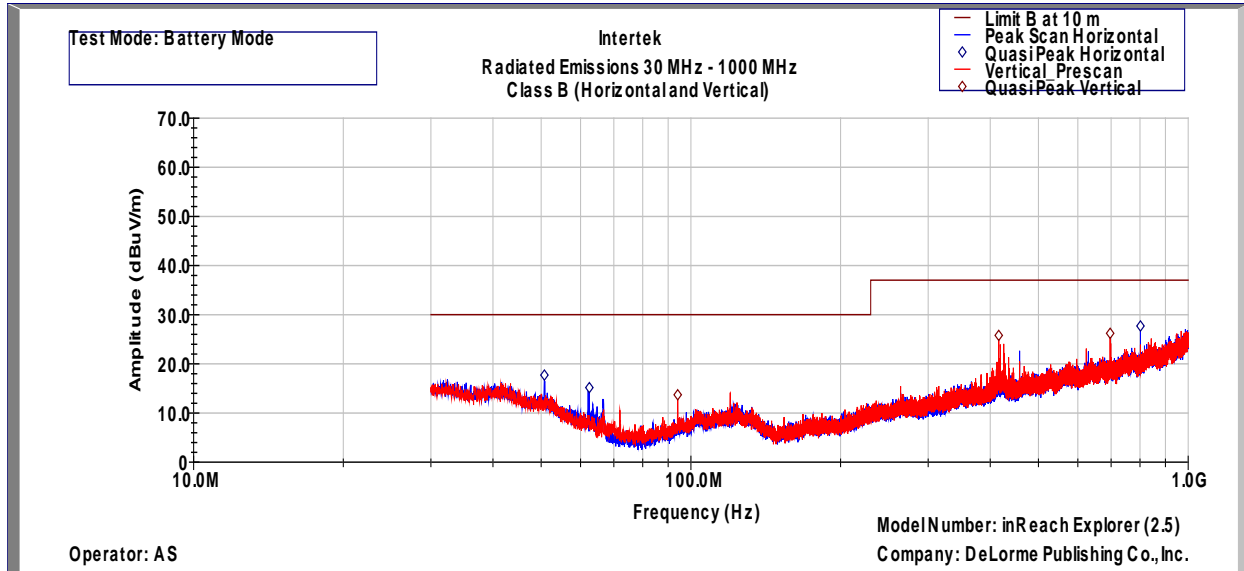
22.4°C, 45.9% RH, 30.5 Hg in



3.1.3 Test Results

**FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003  
30 MHz to 1000 MHz**

**Battery Mode**



Intertek Testing Services  
Radiated Emissions 30 MHz - 1000 MHz  
Operator: AS

Model Number: INRCH25  
Company: DeLorme Publishing Co., Inc.

**CISPR Class B (QP-Vertical)**

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
94.080	13.7	30	-16.3	35.4	32.1	9.2	1.2	72	100
415.990	25.8	37	-11.2	39.2	32.0	16.4	2.2	129	100
696.850	26.2	37	-10.8	35.7	32.3	19.8	3.0	48	102

**CISPR Class B (QP-Horizontal)**

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
50.750	17.7	30	-12.3	34.2	32.1	14.8	0.8	237	102
62.500	15.1	30	-14.9	36.6	32.1	9.7	0.9	147	129
801.900	27.7	37	-9.3	36.4	32.1	20.1	3.3	234	231

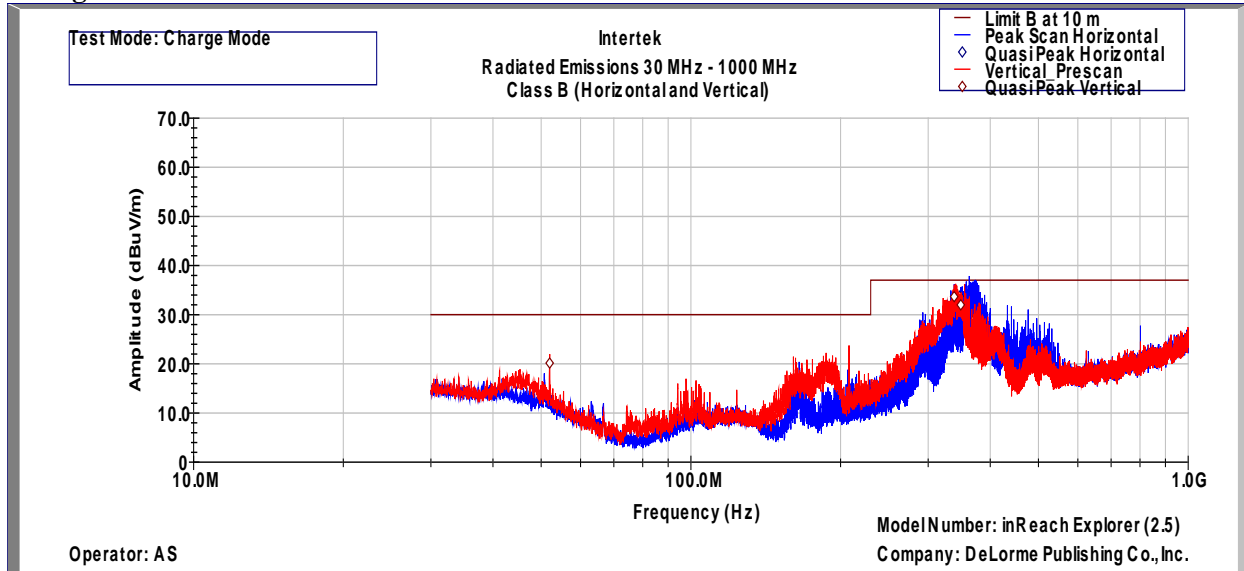
Test Mode: Battery Mode



3.1.3 Test Results (Continued)

**FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003  
30 MHz to 1000 MHz**

**Charge Mode at 120VAC 60Hz**



Intertek Testing Services  
Radiated Emissions 30 MHz - 1000 MHz  
Operator: AS

Model Number: INRCH25  
Company: DeLorme Publishing Co., Inc.

**CISPR Class B (QP-Vertical)**

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
52.000	20.1	30	-9.9	37.2	32.1	14.2	0.8	218	100
338.480	33.7	37	-3.3	49.6	32.0	14.1	1.9	193	100
348.920	32.0	37	-5.0	47.2	32.0	14.8	2.0	188	100

**CISPR Class B (QP-Horizontal)**

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
336.800	32.4	37	-4.6	48.4	32.0	14.1	1.9	170	230
346.200	31.8	37	-5.2	47.2	32.0	14.6	1.9	173	219
347.040	33.7	37	-3.3	49.1	32.0	14.7	2.0	164	200
372.600	29.2	37	-7.8	44.1	32.0	15.1	2.0	254	261

Test Mode: Charge Mode at 120VAC 60Hz

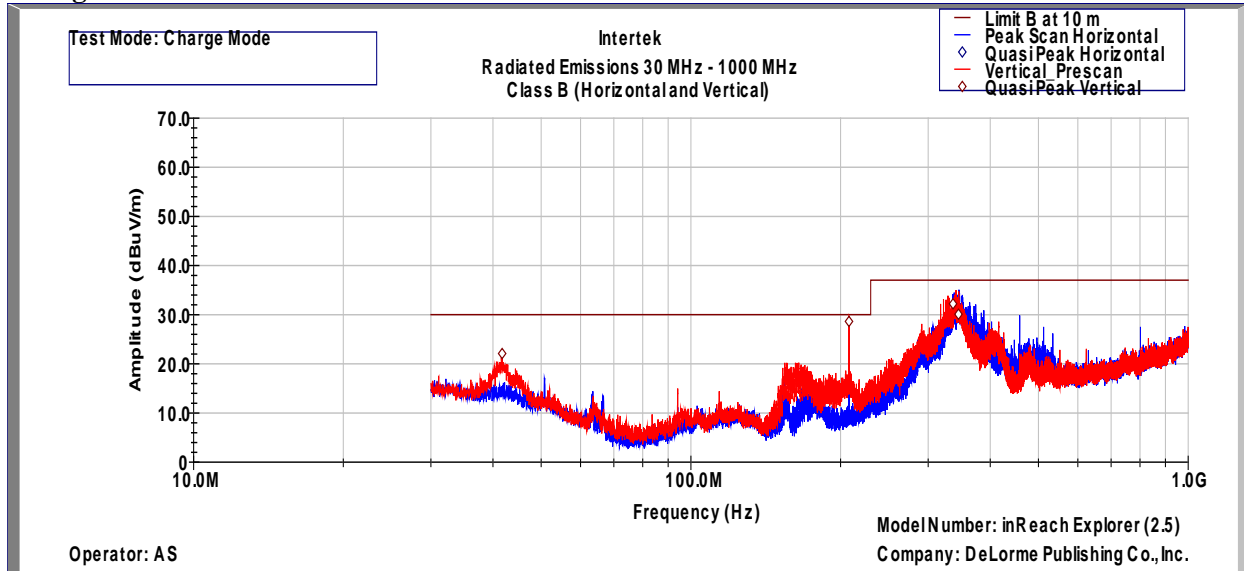




3.1.3 Test Results (Continued)

**FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003  
30 MHz to 1000 MHz**

**Charge Mode at 230VAC 50Hz**



Intertek Testing Services  
Radiated Emissions 30 MHz - 1000 MHz  
Operator: AS

Model Number: INRCH25  
Company: DeLorme Publishing Co., Inc.

**CISPR Class B (QP-Vertical)**

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
41.737	22.1	30	-7.9	36.4	32.1	17.0	0.7	213	100
208.000	28.6	30	-1.4	49	32.0	10.3	1.3	145	100
336.630	32.2	37	-4.8	48.2	32.0	14.1	1.9	231	100
345.221	30.1	37	-6.9	45.6	32.0	14.5	1.9	134	100

**CISPR Class B (QP-Horizontal)**

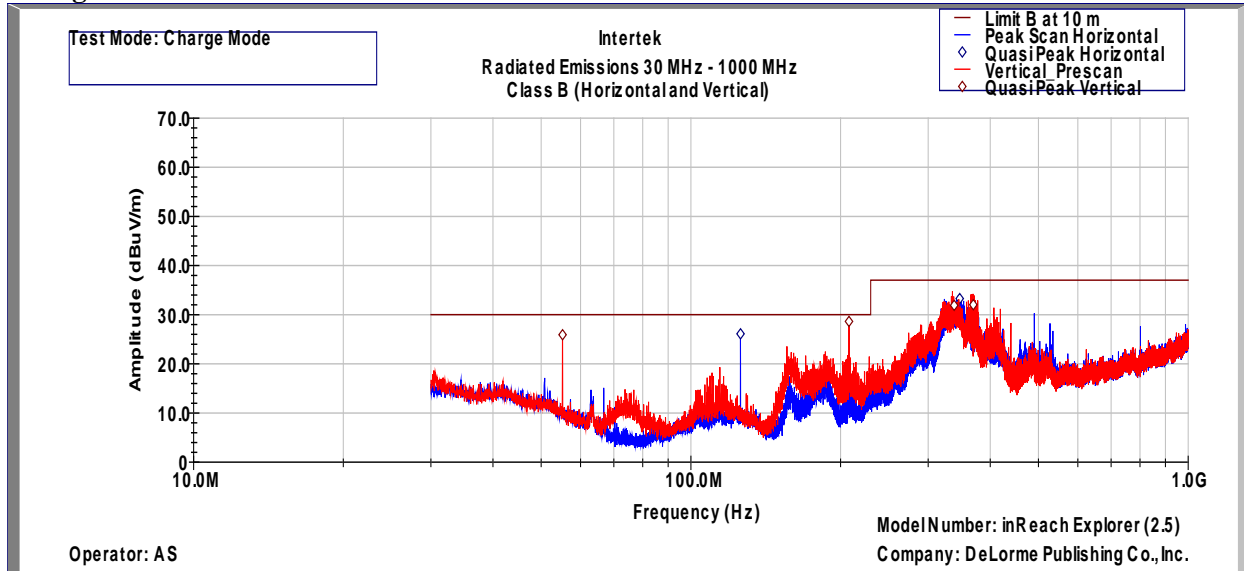
Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
333.800	31.0	37	-6.0	47.2	32.0	13.9	1.9	234	223
345.120	31.4	37	-5.6	46.9	32.0	14.5	1.9	156	232
350.622	29.3	37	-7.7	44.4	32.0	14.9	2.0	211	206

Test Mode: Charge Mode at 230VAC 50Hz

## 3.1.3 Test Results (Continued)

### FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003 30 MHz to 1000 MHz

#### Charge Mode at 100VAC 50Hz



Intertek Testing Services  
Radiated Emissions 30 MHz - 1000 MHz  
Operator: AS

Model Number: INRCH25  
Company: DeLorme Publishing Co., Inc.

#### CISPR Class B (QP-Vertical)

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
55.200	25.9	30	-4.1	44.2	32.1	12.9	0.9	45	100
208.000	28.6	30	-1.4	49.0	32.0	10.3	1.3	145	100
338.500	31.9	37	-5.1	47.8	32.0	14.1	1.9	232	112
369.731	32.0	37	-5.0	46.9	32.0	15.1	2.0	256	106

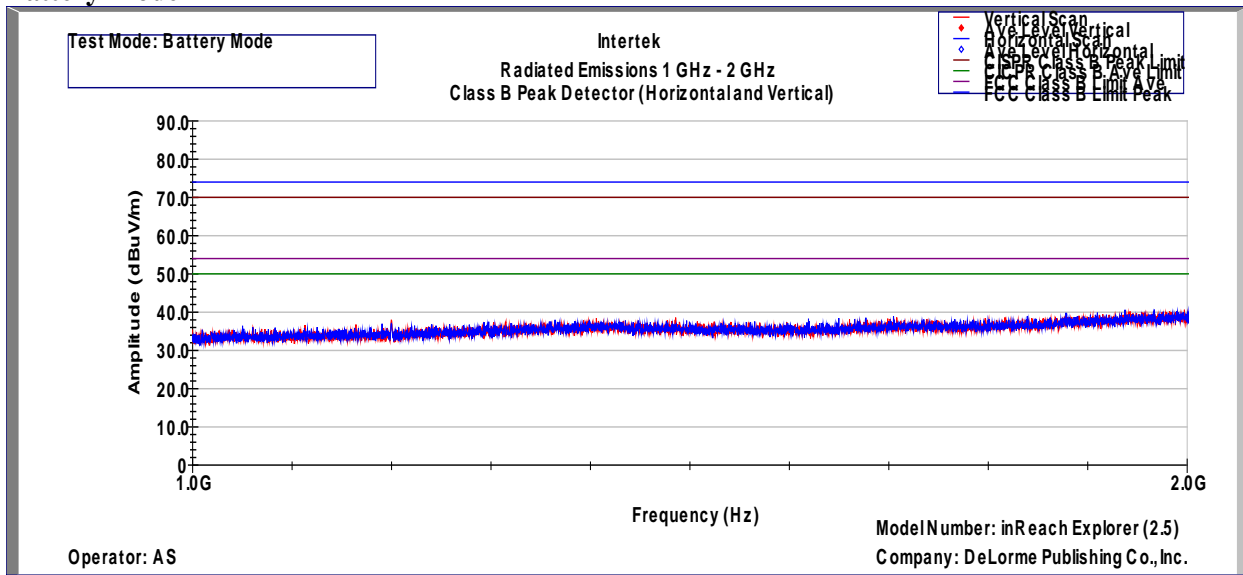
#### CISPR Class B (QP-Horizontal)

Frequency MHz	Quasi Pk FS dB(uV/m)	Limit@10m dB(uV/m)	Margin dB	RA dB(uV)	AG dB	AF dB(1/m)	CF dB	Azimuth deg	Height cm
125.840	26.1	30	-3.9	45.2	32.0	11.7	1.2	211	255
347.350	33.3	37	-3.7	48.6	32.0	14.7	2.0	231	219

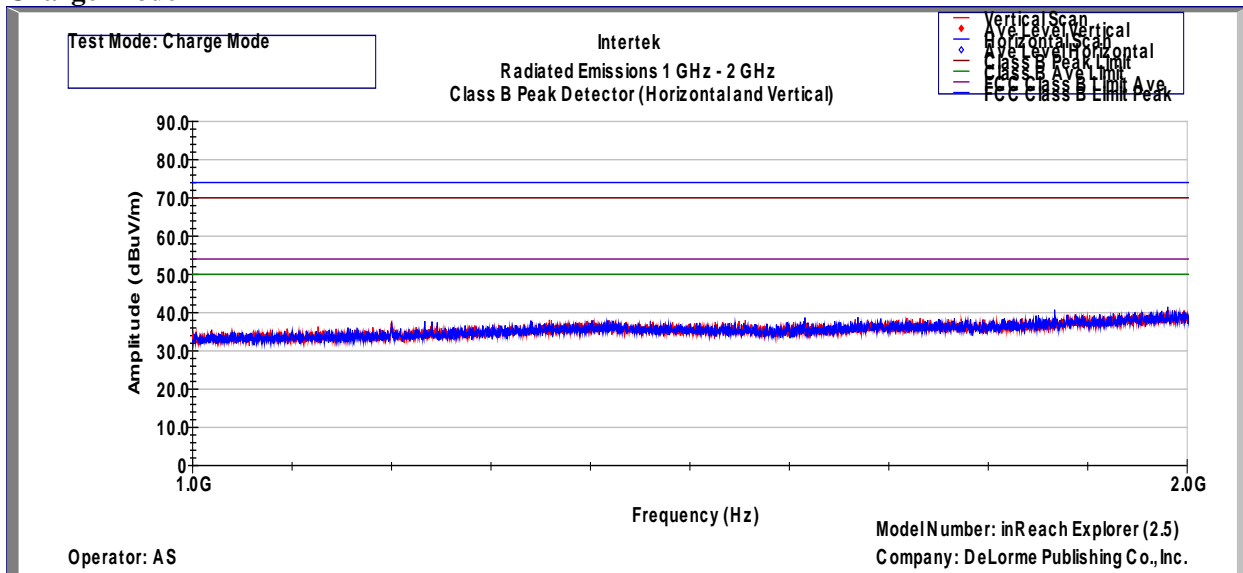
Test Mode: Charge Mode at 100VAC 50Hz

FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003  
1000 MHz to 2000 MHz

## Battery Mode



## Charge Mode



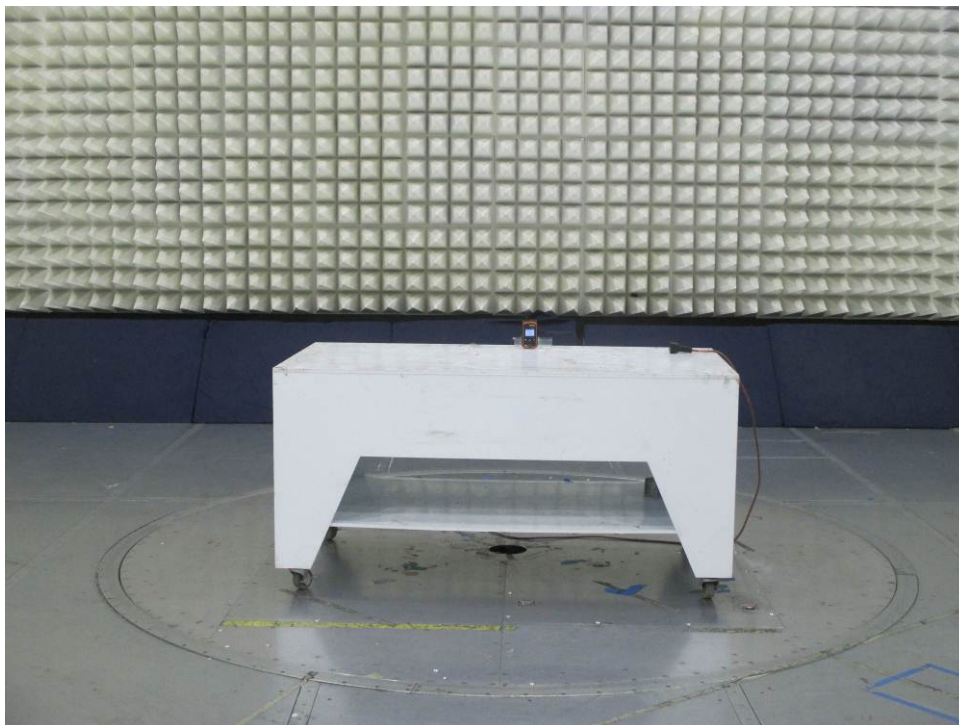
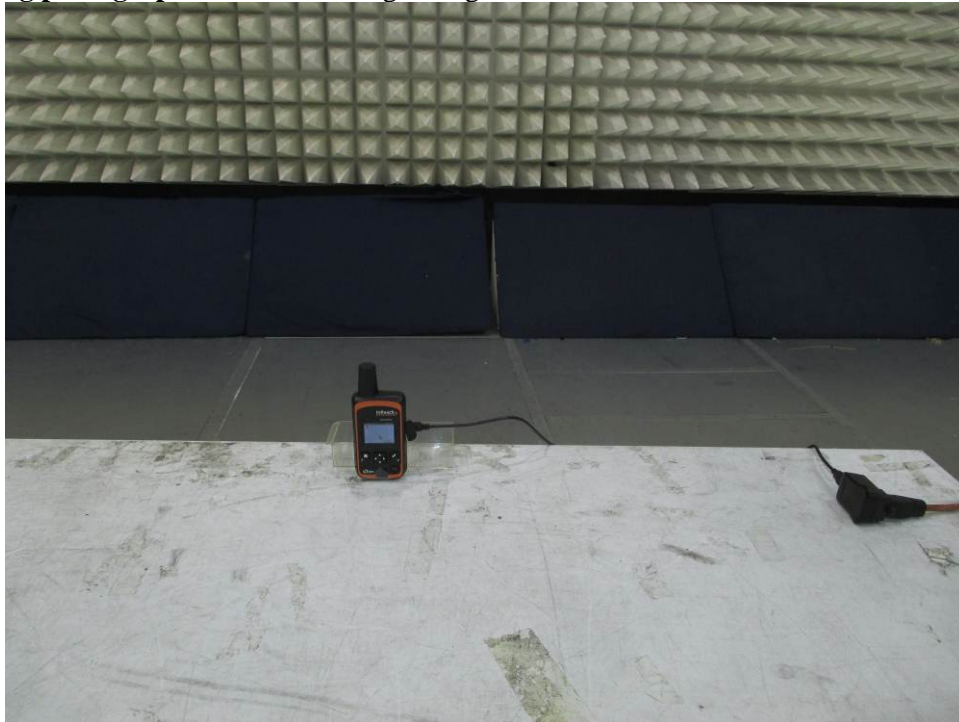
Note: Radiated Emissions was carried out on 100V 50Hz, 120V 60Hz and 230V 50Hz. No variance was found while investigating the different voltages above 1 GHz, and worst case data is reported.

**Results:**  
**Complies by** 9.3 dB for Battery mode  
**Complies by** 3.3 dB for Charge Mode at 120V 60Hz\*  
**Complies by** 1.4 dB for Charge Mode at 230V 50Hz\*  
**Complies by** 1.4 dB for Charge Mode at 100V 50Hz\*

\*Note: Measured result is below the specification limit by a margin less than the measurement uncertainty; it is not therefore possible to determine compliance at a level of confidence of 95%. However, the measured result indicates a higher probability that the product tested complies with the specification limit.

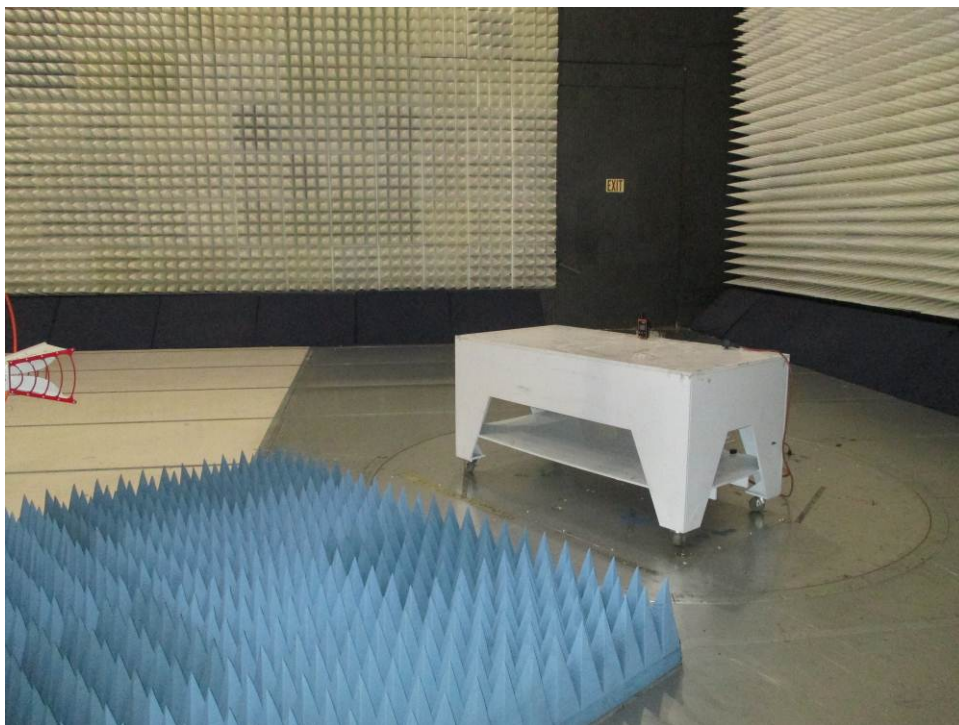
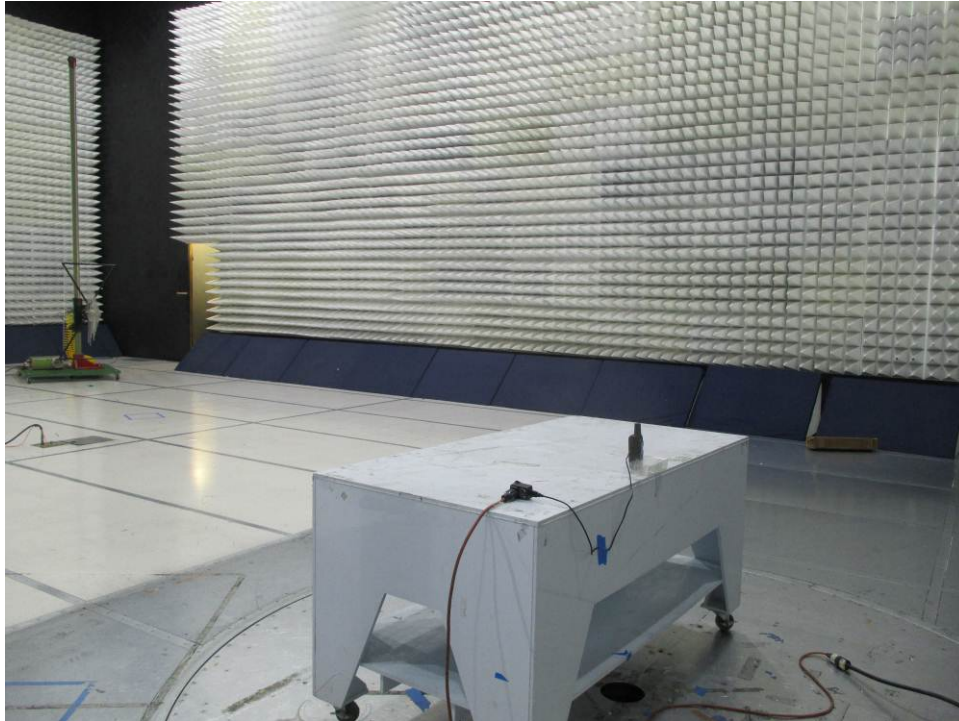
3.1.4 Test Configuration Photographs

The following photographs show the testing configurations used.



*Electromagnetic Radiated Disturbance Setup Photograph*

3.1.4 Test Configuration Photographs (Continued)



*Electromagnetic Radiated Disturbance Setup Photograph*

### 3.2 AC Mains Line-Conducted Disturbance

#### 3.2.1 Test Limits

*Table 6-1 FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003  
Limits for Conducted Disturbance at the Mains Ports*

Frequency Band MHz	Class A Limit dB ( $\mu$ V)		Class B Limit dB ( $\mu$ V)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15-0.50	79	66	66 to 56 Decreases linearly with the logarithm of the frequency	56 to 46 Decreases linearly with the logarithm of the frequency
0.50-5.00	73	60	56	46
5.00-30.00	73	60	60	50

*Note: At the transition frequency the lower limit applies.*



### 3.2.2 Test Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.4m above the ground plane. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by 3 to 12 mm of insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.4.

<b>Tested By:</b>	Anderson Soungpanya
<b>Test Date:</b>	March 2, 2015

21.2°C, 42.2% RH, 30.2 Hg in

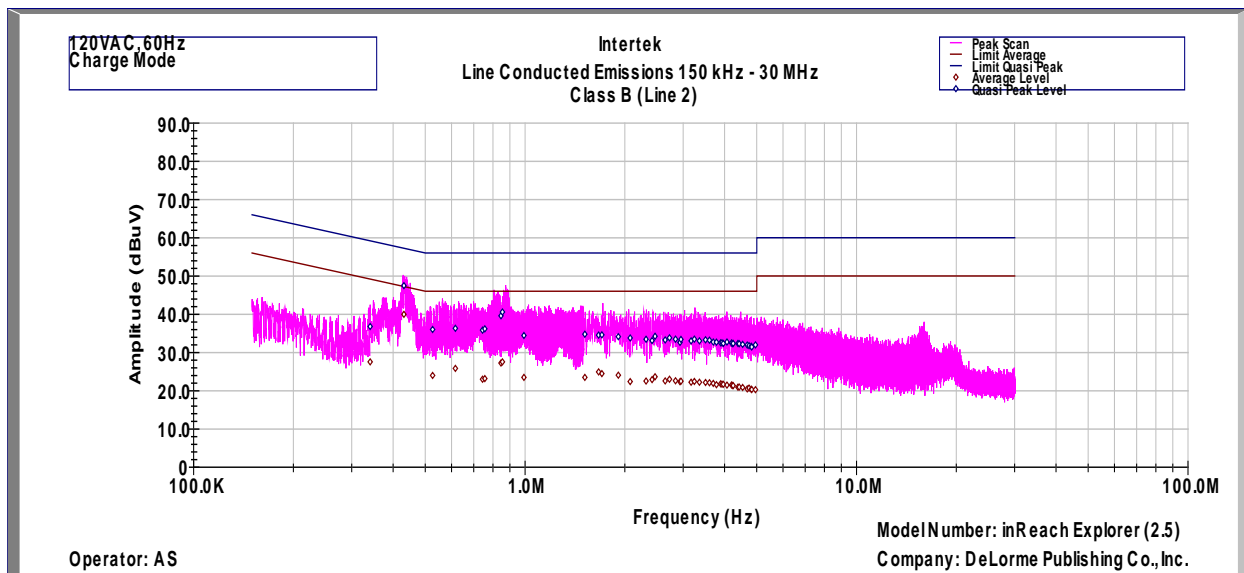
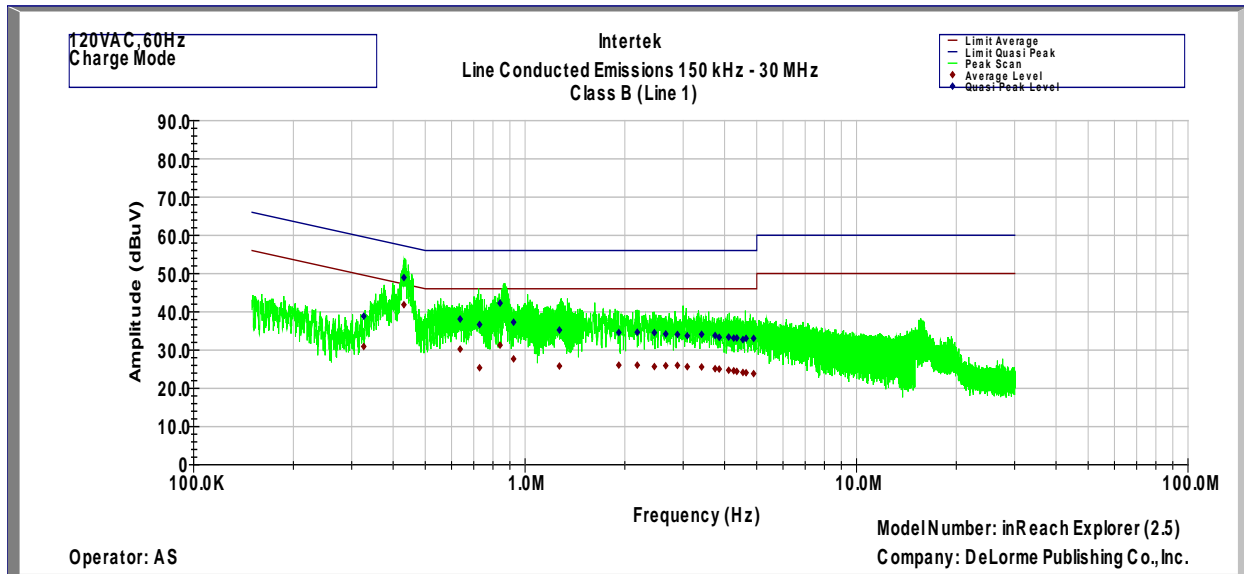


### 3.2.3 Test Results

The EUT met the conducted disturbance requirement of CISPR22 for a Class B device.

**FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003**

#### 120VAC 60Hz







CISPR Class B (Line 1) (Continued)

Intertek Testing Services  
Line Conducted Emissions 150 kHz - 30 MHz  
CISPR Class B (Line 1)  
Operator: AS

120VAC 60Hz

Model Number: INRCH25  
Company: DeLorme Publishing Co., Inc.

<b>Frequency</b>	<b>Av Level</b>	<b>QP Level</b>	<b>Av Limit</b>	<b>QP Limit</b>	<b>Av Margin</b>	<b>QP Margin</b>
<b>MHz</b>	<b>dBuV</b>	<b>dBuV</b>	<b>dBuV</b>	<b>dBuV</b>	<b>dB</b>	<b>dB</b>
0.326	30.9	38.8	51	61	-20.0	-22.1
0.431	41.8	48.9	48	58	-6.1	-9.0
0.637	30.2	38.1	46	56	-15.8	-17.9
0.729	25.3	36.7	46	56	-20.7	-19.3
0.840	31.3	42.3	46	56	-14.7	-13.8
0.923	27.7	37.3	46	56	-18.3	-18.7
1.269	25.8	35.2	46	56	-20.2	-20.8
1.917	26.0	34.6	46	56	-20.0	-21.4
2.180	26.0	34.6	46	56	-20.0	-21.4
2.454	25.7	34.5	46	56	-20.3	-21.5
2.657	25.9	34.2	46	56	-20.1	-21.8
2.881	26.0	34.1	46	56	-20.0	-21.9
3.084	25.6	33.7	46	56	-20.4	-22.3
3.407	25.5	34.1	46	56	-20.5	-21.9
3.741	25.1	33.8	46	56	-20.9	-22.2
3.851	25.0	33.3	46	56	-21.0	-22.7
4.111	24.7	33.4	46	56	-21.3	-22.6
4.260	24.6	33.1	46	56	-21.4	-22.9
4.350	24.4	33.1	46	56	-21.6	-22.9
4.541	24.1	32.7	46	56	-21.9	-23.3
4.642	24.1	33.0	46	56	-21.9	-23.0
4.890	23.8	33.0	46	56	-22.2	-23.0



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

120VAC 60Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
0.341	27.5	36.8	50.5	60.5	-23.0	-23.8
0.431	40.0	47.5	48	58	-8.0	-10.5
0.526	24.0	36.0	46	56	-22.0	-20.0
0.616	25.8	36.3	46	56	-20.2	-19.7
0.744	23.0	35.8	46	56	-23.0	-20.2
0.756	23.2	36.2	46	56	-22.8	-19.8
0.846	27.2	39.6	46	56	-18.8	-16.4
0.854	27.5	40.6	46	56	-18.5	-15.4
0.992	23.5	34.4	46	56	-22.5	-21.6
1.514	23.5	34.8	46	56	-22.5	-21.2
1.666	24.9	34.5	46	56	-21.1	-21.5
1.705	24.5	34.6	46	56	-21.5	-21.4
1.911	24.1	34.1	46	56	-21.9	-21.9
2.075	22.4	33.8	46	56	-23.6	-22.2
2.317	22.5	33.4	46	56	-23.5	-22.6
2.416	22.9	33.1	46	56	-23.1	-22.9
2.466	23.6	34.2	46	56	-22.4	-21.8
2.645	22.5	33.3	46	56	-23.5	-22.7
2.726	23.0	33.8	46	56	-23.0	-22.2
2.842	22.6	33.5	46	56	-23.4	-22.5
2.932	22.4	32.6	46	56	-23.6	-23.4
2.953	22.5	33.4	46	56	-23.5	-22.6
3.168	22.2	33.0	46	56	-23.8	-23.0
3.239	22.4	33.5	46	56	-23.6	-22.5
3.356	22.2	33.0	46	56	-23.8	-23.0
3.502	22.1	33.3	46	56	-23.9	-22.7
3.598	22.1	33.2	46	56	-23.9	-22.8
3.696	21.9	32.7	46	56	-24.1	-23.3
3.777	21.6	32.7	46	56	-24.4	-23.3
3.890	21.8	32.5	46	56	-24.2	-23.5
3.926	21.7	32.5	46	56	-24.3	-23.5
3.962	21.7	32.3	46	56	-24.3	-23.7
4.063	21.5	32.7	46	56	-24.5	-23.3
4.195	21.5	32.5	46	56	-24.5	-23.5
4.222	21.4	32.3	46	56	-24.6	-23.7



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

120VAC 60Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
4.242	21.3	32.3	46	56	-24.7	-23.7
4.386	20.9	32.3	46	56	-25.1	-23.7
4.425	21.0	32.3	46	56	-25.0	-23.7
4.532	20.8	32.1	46	56	-25.2	-23.9
4.678	20.5	32.0	46	56	-25.5	-24.0
4.738	20.7	31.8	46	56	-25.3	-24.2
4.810	20.4	31.6	46	56	-25.6	-24.4
4.827	20.3	31.4	46	56	-25.7	-24.6
4.953	20.3	32.0	46	56	-25.8	-24.0

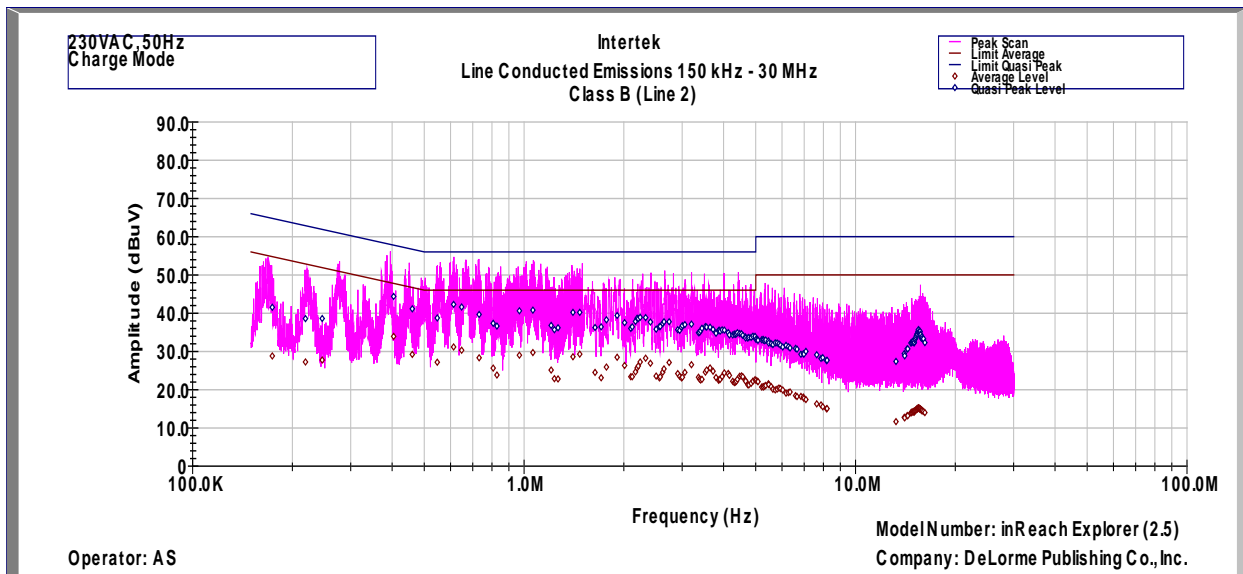
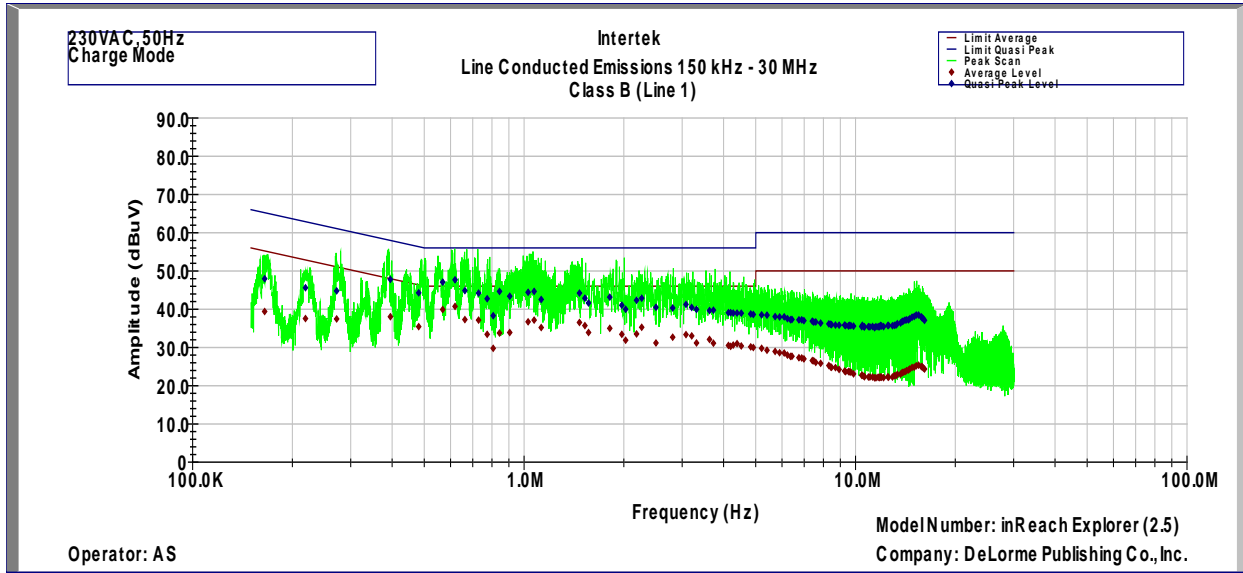
**Results:** Complies by 6.1dB at 120VAC 60Hz.



3.2.3 Test Results (continued)

FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003

230VAC 50Hz





CISPR Class B (Line 1) (Continued)

Intertek Testing Services

230VAC 50Hz

Line Conducted Emissions 150 kHz - 30 MHz

CISPR Class B (Line 1)

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
0.165	39.4	48.0	55.6	65.6	-16.2	-17.6
0.219	37.5	45.6	54	64	-16.5	-18.4
0.272	37.4	44.8	52.5	62.5	-15.1	-17.7
0.395	38.0	47.8	49	59	-11.0	-11.2
0.481	35.4	44.3	46.5	56.5	-11.1	-12.3
0.568	39.9	47.1	46	56	-6.1	-8.9
0.619	40.7	47.7	46	56	-5.3	-8.3
0.663	37.3	44.8	46	56	-8.7	-11.2
0.729	37.1	44.2	46	56	-8.9	-11.8
0.774	33.4	42.7	46	56	-12.6	-13.3
0.807	29.8	38.3	46	56	-16.2	-17.7
0.843	33.8	44.6	46	56	-12.2	-11.4
0.905	33.9	43.4	46	56	-12.1	-12.6
1.028	36.7	44.4	46	56	-9.3	-11.6
1.072	37.1	44.6	46	56	-8.9	-11.4
1.126	35.2	42.5	46	56	-10.8	-13.5
1.469	36.5	44.2	46	56	-9.5	-11.8
1.526	35.7	42.8	46	56	-10.3	-13.2
1.565	33.9	41.6	46	56	-12.1	-14.4
1.813	35.0	43.1	46	56	-11.0	-12.9
1.971	33.4	41.0	46	56	-12.6	-15.0
2.025	31.9	40.0	46	56	-14.1	-16.0
2.183	33.5	42.3	46	56	-12.5	-13.7
2.263	35.3	42.9	46	56	-10.8	-13.1
2.499	31.2	40.5	46	56	-14.8	-15.5
2.807	32.7	40.3	46	56	-13.3	-15.7
3.078	33.3	41.2	46	56	-12.7	-14.8
3.204	33.0	40.4	46	56	-13.0	-15.6
3.311	31.1	39.9	46	56	-14.9	-16.1
3.625	32.1	39.6	46	56	-13.9	-16.4
3.726	31.1	39.7	46	56	-14.9	-16.3
4.135	30.5	39.1	46	56	-15.5	-16.9



CISPR Class B (Line 1) (Continued)

CISPR Class B (Line 1)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
4.198	30.3	39.1	46	56	-15.7	-16.9
4.275	30.6	39.0	46	56	-15.4	-17.0
4.389	31.0	39.0	46	56	-15.0	-17.0
4.520	30.4	38.9	46	56	-15.6	-17.1
4.827	30.1	38.8	46	56	-15.9	-17.3
4.914	30.0	38.6	46	56	-16.0	-17.4
5.207	29.8	38.5	50	60	-20.2	-21.5
5.404	29.2	38.4	50	60	-20.8	-21.6
5.717	28.9	38.0	50	60	-21.1	-22.0
5.899	28.6	38.0	50	60	-21.4	-22.0
6.090	28.5	38.0	50	60	-21.5	-22.0
6.227	28.0	37.5	50	60	-22.0	-22.5
6.362	27.6	37.2	50	60	-22.4	-22.8
6.427	27.7	37.3	50	60	-22.3	-22.7
6.744	27.3	37.2	50	60	-22.7	-22.8
6.878	27.2	37.2	50	60	-22.8	-22.8
6.983	27.0	37.0	50	60	-23.0	-23.0
7.401	26.5	36.9	50	60	-23.5	-23.1
7.478	26.5	36.6	50	60	-23.5	-23.4
7.580	26.1	36.6	50	60	-23.9	-23.4
7.845	25.8	36.3	50	60	-24.2	-23.7
8.302	25.3	36.2	50	60	-24.8	-23.8
8.412	24.9	36.0	50	60	-25.1	-24.0
8.457	24.8	35.9	50	60	-25.2	-24.1
8.693	24.7	35.8	50	60	-25.3	-24.2
8.914	24.2	35.8	50	60	-25.8	-24.2
9.266	23.8	35.8	50	60	-26.2	-24.2
9.329	23.6	35.7	50	60	-26.4	-24.3
9.514	23.7	35.6	50	60	-26.3	-24.4
9.568	23.6	35.8	50	60	-26.4	-24.2
9.675	23.5	35.7	50	60	-26.5	-24.3
9.854	23.1	35.6	50	60	-26.9	-24.4

10.433	22.7	35.4	50	60	-27.3	-24.6
10.475	22.7	35.8	50	60	-27.3	-24.3

CISPR Class B (Line 1) (Continued)

CISPR Class B (Line 1)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
10.601	22.5	35.4	50	60	-27.5	-24.6
10.630	22.3	35.4	50	60	-27.7	-24.6
10.929	22.2	35.4	50	60	-27.8	-24.6
11.045	22.3	35.3	50	60	-27.7	-24.7
11.251	22.2	35.5	50	60	-27.8	-24.5
11.403	22.0	35.1	50	60	-28.0	-24.9
11.511	22.0	35.4	50	60	-28.0	-24.6
11.693	22.2	35.4	50	60	-27.8	-24.6
11.780	22.1	35.4	50	60	-27.9	-24.6
11.824	22.1	35.5	50	60	-27.9	-24.5
11.899	22.2	35.7	50	60	-27.8	-24.3
11.971	22.2	35.6	50	60	-27.8	-24.4
12.144	22.1	35.4	50	60	-27.9	-24.6
12.508	22.3	35.7	50	60	-27.7	-24.3
12.565	22.2	35.7	50	60	-27.8	-24.3
12.914	22.2	35.7	50	60	-27.8	-24.3
13.090	22.6	35.8	50	60	-27.4	-24.2
13.236	22.6	35.8	50	60	-27.4	-24.2
13.359	22.9	36.2	50	60	-27.1	-23.8
13.663	23.0	36.4	50	60	-27.0	-23.6
13.815	23.4	36.7	50	60	-26.6	-23.3
13.899	23.5	36.8	50	60	-26.5	-23.2
14.090	23.6	37.1	50	60	-26.4	-22.9
14.248	23.9	37.2	50	60	-26.1	-22.8
14.439	24.1	37.2	50	60	-25.9	-22.8
14.574	24.4	37.5	50	60	-25.6	-22.5
14.797	24.8	37.9	50	60	-25.3	-22.1
15.024	24.8	38.1	50	60	-25.2	-21.9
15.236	25.2	38.5	50	60	-24.8	-21.5
15.484	25.3	38.5	50	60	-24.7	-21.5
15.782	25.0	38.0	50	60	-25.0	-22.0
15.869	24.9	37.7	50	60	-25.1	-22.3

16.003	24.6	37.5	50	60	-25.4	-22.5
16.132	24.3	37.1	50	60	-25.7	-22.9





CISPR Class B (Line 2) (Continued)

Intertek Testing Services

230VAC 50Hz

Line Conducted Emissions 150 kHz - 30 MHz

CISPR Class B (Line 2)

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
0.174	28.8	41.5	55.3	65.3	-26.5	-23.8
0.219	27.2	38.6	54	64	-26.8	-25.5
0.246	27.7	38.6	53.3	63.3	-25.5	-24.6
0.404	33.9	44.4	48.7	58.7	-14.8	-14.4
0.460	29.2	41.1	47.1	57.1	-17.9	-16.0
0.547	27.2	38.8	46	56	-18.8	-17.3
0.613	31.1	42.3	46	56	-14.9	-13.7
0.648	30.3	41.6	46	56	-15.7	-14.4
0.732	28.3	39.7	46	56	-17.7	-16.3
0.807	25.6	37.3	46	56	-20.4	-18.7
0.828	23.8	36.6	46	56	-22.2	-19.4
0.968	29.0	40.6	46	56	-17.0	-15.4
1.063	29.7	40.8	46	56	-16.3	-15.2
1.207	25.1	36.8	46	56	-20.9	-19.2
1.234	22.9	35.7	46	56	-23.1	-20.3
1.266	22.8	36.2	46	56	-23.2	-19.8
1.404	28.6	40.2	46	56	-17.4	-15.8
1.472	29.3	40.2	46	56	-16.7	-15.8
1.637	24.5	36.3	46	56	-21.5	-19.8
1.708	23.1	36.4	46	56	-22.9	-19.6
1.771	25.9	38.2	46	56	-20.1	-17.8
1.908	28.5	39.4	46	56	-17.5	-16.6
2.010	26.3	37.5	46	56	-19.7	-18.5
2.099	23.4	36.0	46	56	-22.6	-20.0
2.120	23.4	36.4	46	56	-22.6	-19.6
2.168	24.6	37.9	46	56	-21.4	-18.1
2.192	25.7	38.7	46	56	-20.3	-17.3
2.210	26.2	38.5	46	56	-19.8	-17.5
2.240	27.2	38.9	46	56	-18.8	-17.1
2.326	28.2	38.8	46	56	-17.8	-17.2
2.404	26.9	37.7	46	56	-19.1	-18.3
2.502	23.5	35.8	46	56	-22.5	-20.2



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
2.559	23.1	36.5	46	56	-22.9	-19.5
2.574	23.3	36.5	46	56	-22.7	-19.5
2.619	24.6	37.3	46	56	-21.4	-18.7
2.642	25.4	37.7	46	56	-20.6	-18.3
2.738	27.1	37.7	46	56	-18.9	-18.3
2.908	24.2	35.7	46	56	-21.8	-20.3
2.947	23.5	35.5	46	56	-22.5	-20.5
2.983	23.1	36.2	46	56	-22.9	-19.8
3.001	23.2	36.7	46	56	-22.8	-19.3
3.054	24.5	37.0	46	56	-21.5	-19.0
3.198	26.5	37.1	46	56	-19.5	-18.9
3.359	23.2	34.9	46	56	-22.8	-21.1
3.383	22.7	34.9	46	56	-23.3	-21.1
3.407	22.5	35.4	46	56	-23.5	-20.6
3.439	22.7	36.0	46	56	-23.3	-20.0
3.523	24.6	36.5	46	56	-21.4	-19.5
3.553	25.1	36.3	46	56	-20.9	-19.7
3.639	25.6	36.3	46	56	-20.4	-19.7
3.714	24.8	35.7	46	56	-21.2	-20.3
3.792	23.1	34.7	46	56	-22.9	-21.3
3.860	22.5	35.5	46	56	-23.5	-20.5
3.881	22.7	35.5	46	56	-23.3	-20.5
3.902	22.7	35.3	46	56	-23.3	-20.7
3.956	23.4	35.6	46	56	-22.6	-20.4
4.019	24.4	35.6	46	56	-21.6	-20.4
4.129	24.2	34.9	46	56	-21.8	-21.1
4.162	23.7	34.3	46	56	-22.3	-21.7
4.260	22.2	34.3	46	56	-23.8	-21.7
4.305	21.8	34.5	46	56	-24.2	-21.5
4.338	21.9	34.4	46	56	-24.1	-21.6
4.368	22.2	34.6	46	56	-23.8	-21.4
4.401	22.7	34.9	46	56	-23.3	-21.1



4.469	23.5	34.7	46	56	-22.5	-21.3
4.526	23.6	34.6	46	56	-22.4	-21.4



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
4.568	23.4	34.2	46	56	-22.6	-21.8
4.651	22.4	33.8	46	56	-23.6	-22.2
4.660	22.2	33.5	46	56	-23.8	-22.5
4.729	21.3	33.5	46	56	-24.7	-22.5
4.762	21.2	33.7	46	56	-24.8	-22.3
4.839	21.6	33.7	46	56	-24.4	-22.3
4.899	22.2	34.0	46	56	-23.8	-22.0
4.971	22.6	33.9	46	56	-23.4	-22.1
5.007	22.4	33.2	50	60	-27.6	-26.8
5.060	22.2	33.1	50	60	-27.8	-26.9
5.075	22.1	32.9	50	60	-27.9	-27.1
5.210	20.7	33.0	50	60	-29.3	-27.0
5.257	20.8	33.2	50	60	-29.2	-26.8
5.272	20.7	32.9	50	60	-29.3	-27.1
5.317	20.9	32.8	50	60	-29.1	-27.2
5.356	21.1	33.0	50	60	-28.9	-27.0
5.457	21.5	32.7	50	60	-28.5	-27.3
5.469	21.3	32.2	50	60	-28.7	-27.8
5.562	20.8	32.0	50	60	-29.2	-28.0
5.630	20.1	31.8	50	60	-29.9	-28.2
5.720	19.9	32.2	50	60	-30.1	-27.8
5.798	20.1	32.2	50	60	-29.9	-27.8
5.872	20.4	32.0	50	60	-29.6	-28.0
5.935	20.3	31.6	50	60	-29.7	-28.4
6.030	19.9	31.2	50	60	-30.1	-28.8
6.168	19.1	31.6	50	60	-30.9	-28.4
6.269	19.2	31.2	50	60	-30.8	-28.8
6.341	19.4	30.9	50	60	-30.6	-29.1
6.592	18.4	30.8	50	60	-31.6	-29.2
6.654	18.2	30.6	50	60	-31.8	-29.4
6.842	18.2	29.2	50	60	-31.8	-30.8
6.953	18.0	29.4	50	60	-32.0	-30.6
6.980	17.7	29.3	50	60	-32.3	-30.7
7.078	17.4	30.0	50	60	-32.6	-30.0



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
7.633	16.3	29.1	50	60	-33.7	-30.9
7.866	16.0	28.1	50	60	-34.0	-31.9
7.959	15.5	28.4	50	60	-34.5	-31.6
8.171	15.0	27.6	50	60	-35.0	-32.4
8.201	15.0	27.7	50	60	-35.0	-32.3
13.239	11.6	27.4	50	60	-38.4	-32.6
14.021	12.8	29.4	50	60	-37.2	-30.6
14.057	12.6	28.8	50	60	-37.4	-31.2
14.308	13.2	30.7	50	60	-36.8	-29.3
14.365	13.2	30.6	50	60	-36.8	-29.4
14.678	13.9	32.2	50	60	-36.1	-27.8
14.753	14.0	32.3	50	60	-36.0	-27.7
14.800	14.1	32.4	50	60	-35.8	-27.6
14.911	14.1	32.5	50	60	-35.9	-27.5
14.938	14.3	32.8	50	60	-35.7	-27.2
15.006	14.1	32.2	50	60	-35.9	-27.8
15.033	14.2	32.4	50	60	-35.8	-27.6
15.075	14.4	33.1	50	60	-35.6	-26.9
15.141	14.5	33.3	50	60	-35.5	-26.7
15.197	14.7	33.7	50	60	-35.3	-26.3
15.257	14.8	34.1	50	60	-35.2	-25.9
15.308	15.0	34.5	50	60	-35.0	-25.5
15.347	14.9	34.5	50	60	-35.1	-25.5
15.400	15.0	35.0	50	60	-35.0	-25.0
15.445	15.2	35.2	50	60	-34.8	-24.8
15.460	15.2	35.6	50	60	-34.8	-24.4
15.481	15.2	35.7	50	60	-34.8	-24.3
15.532	15.1	35.2	50	60	-34.9	-24.8
15.574	15.1	35.1	50	60	-34.9	-24.9
15.615	14.9	35.1	50	60	-35.1	-24.9
15.645	14.9	35.2	50	60	-35.1	-24.8
15.666	14.9	34.5	50	60	-35.1	-25.5
15.726	14.8	34.4	50	60	-35.2	-25.6
15.780	14.6	33.5	50	60	-35.4	-26.5



CISPR Class B (Line 2) (Continued)

CISPR Class B (Line 2)

230VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
15.812	14.7	33.7	50	60	-35.3	-26.3
15.851	14.5	33.8	50	60	-35.5	-26.2
15.887	14.5	33.3	50	60	-35.5	-26.7
16.030	14.3	33.3	50	60	-35.7	-26.7
16.174	14.0	32.3	50	60	-36.0	-27.7

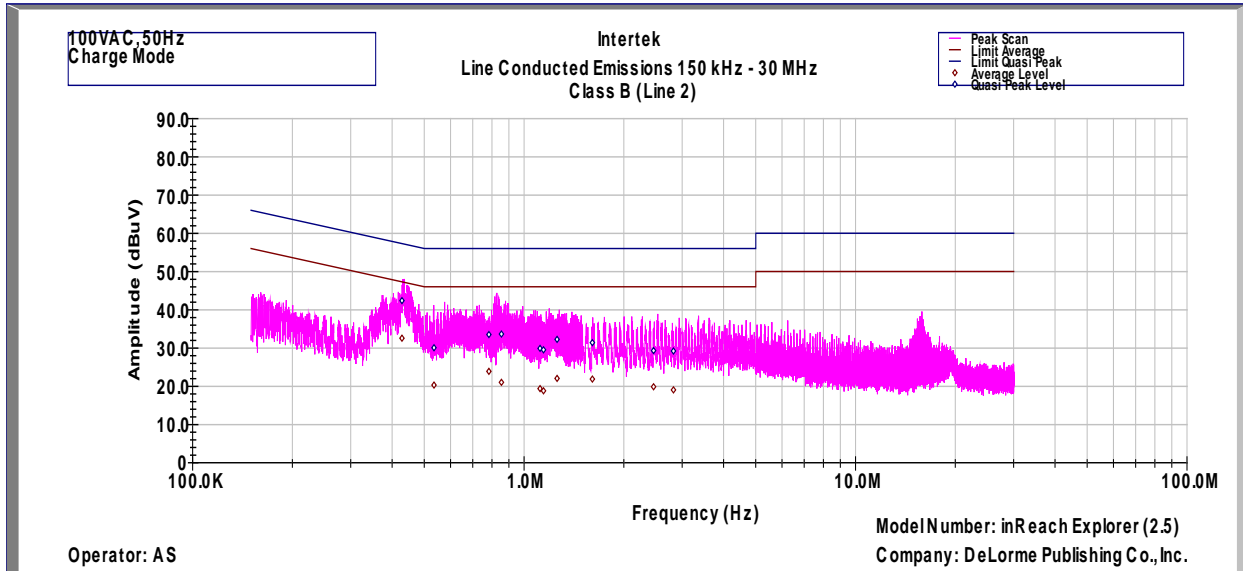
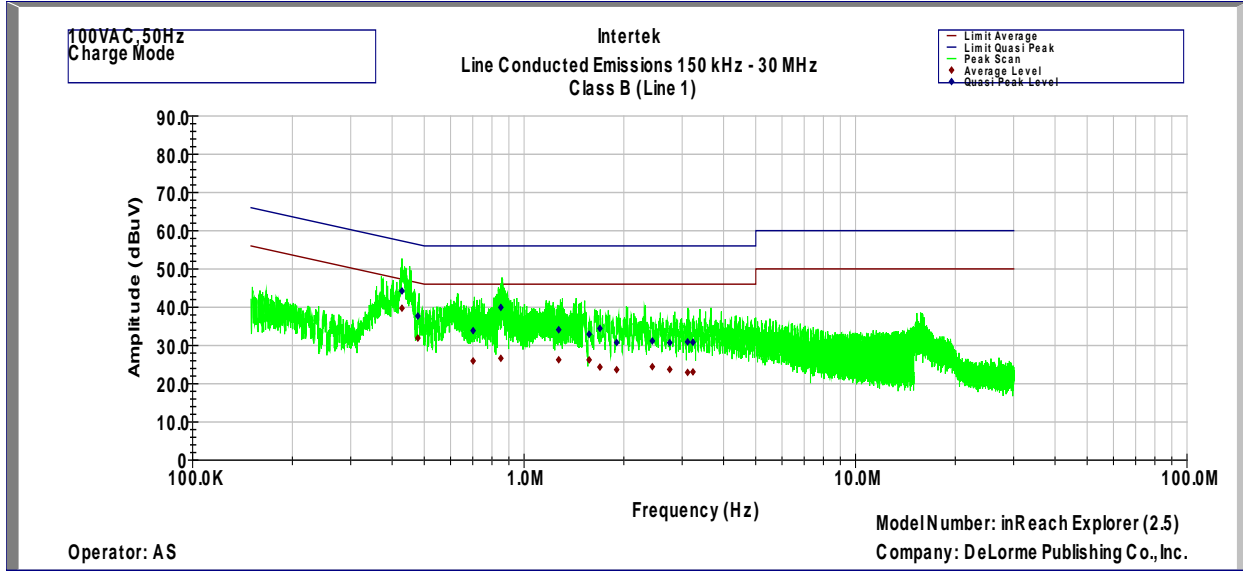
**Results:** Complies by 5.3dB at 230VAC 50Hz.



3.2.3 Test Results (continued)

FCC Part 15 Subpart B, EN 55022, AS/NZS CISPR 22, VCCI & ICES-003

100VAC 50Hz





CISPR Class B (Continued)

Intertek Testing Services

100VAC 50Hz

Line Conducted Emissions 150 kHz - 30 MHz

CISPR Class B (Line 1)

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
0.428	39.7	44.2	48.1	58.1	-8.3	-13.8
0.478	31.9	37.7	46.6	56.6	-14.7	-18.9
0.702	25.9	33.8	46	56	-20.1	-22.2
0.851	26.6	39.9	46	56	-19.4	-16.1
1.272	26.2	34.1	46	56	-19.8	-21.9
1.571	26.2	32.9	46	56	-19.8	-23.1
1.693	24.3	34.4	46	56	-21.7	-21.6
1.902	23.7	30.8	46	56	-22.3	-25.2
2.437	24.4	31.2	46	56	-21.6	-24.8
2.750	23.7	30.7	46	56	-22.3	-25.3
3.114	22.9	30.9	46	56	-23.1	-25.1
3.231	23.1	30.8	46	56	-22.9	-25.2

CISPR Class B (Line 2)

100VAC 50Hz

Operator: AS

Model Number: INRCH25

Company: DeLorme Publishing Co., Inc.

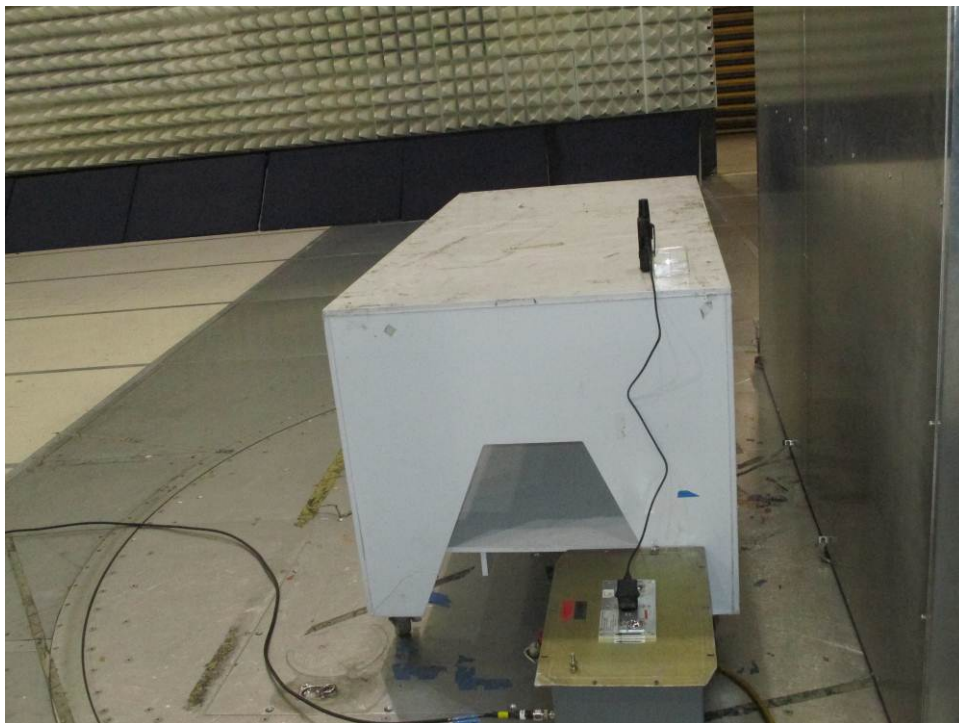
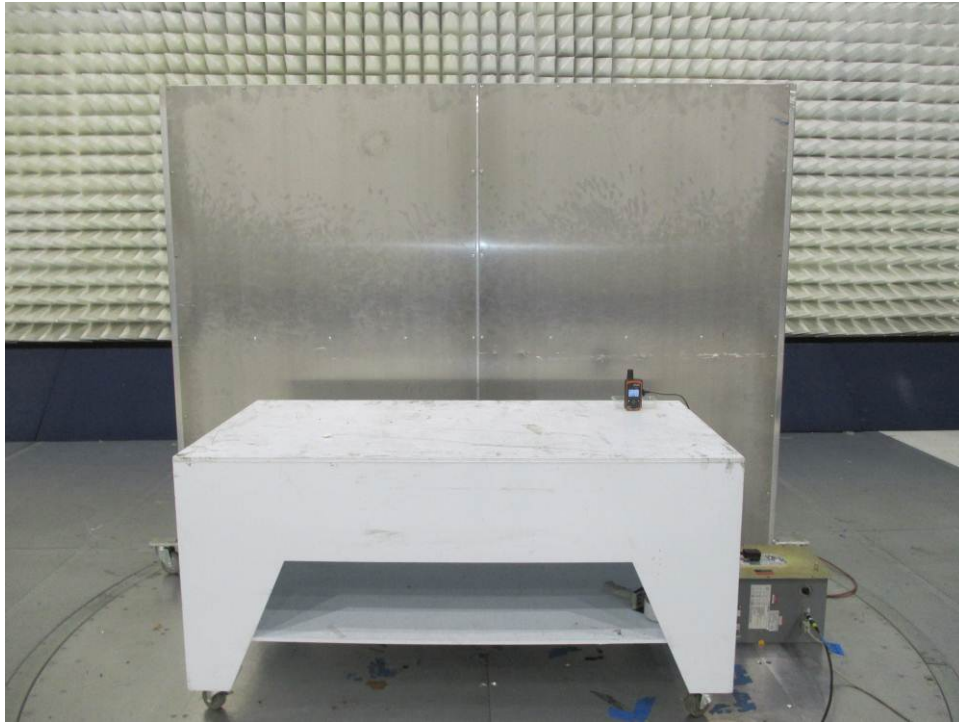
Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dBuV	dBuV	dBuV	dBuV	dB	dB
0.428	32.6	42.4	48.1	58.1	-15.5	-15.7
0.535	20.3	30.0	46	56	-25.7	-26.0
0.783	23.9	33.5	46	56	-22.1	-22.5
0.854	21.0	33.6	46	56	-25.0	-22.4
1.117	19.4	29.9	46	56	-26.6	-26.1
1.144	18.8	29.5	46	56	-27.2	-26.5
1.257	22.0	32.2	46	56	-24.0	-23.8
1.607	21.9	31.4	46	56	-24.1	-24.6
2.457	19.9	29.3	46	56	-26.1	-26.7
2.822	19.0	29.2	46	56	-27.0	-26.8

**Results:** Complies by 8.3dB at 100VAC 50Hz.



3.2.4 Test Configuration Photographs

The following photographs show the testing configurations used.



*Electromagnetic Conducted Disturbance Setup Photograph*

### 3.3 Line Conducted Disturbance at the Telecommunication Ports

#### 3.3.1 Test Limits

**Table 3.3-1a EN 55022**

*Limits for Conducted Disturbance at the Signal Lines, for Class A Equipment*

Frequency (MHz)	Limits (dB $\mu$ V)		Limits (dB $\mu$ A)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 to 0.50	97 to 87	84 to 74	53 to 43	40 to 30
0.5 to 30.0	87	74	43	30

Note: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note: The lower limit shall apply at the transition frequency.

**Table 3.3-1b EN 55022**

*Limits for Conducted Disturbance at the Signal Lines, for Class B Equipment*

Frequency (MHz)	Limits (dB $\mu$ V)		Limits (dB $\mu$ A)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 to 0.50	84 to 74	74 to 64	40 to 30	30 to 20
0.5 to 30.0	74	64	30	20

Note: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note: The lower limit shall apply at the transition frequency.

Not Applicable The EUT does not contain any Telecommunications cables.

#### **4.0 Labeling And Instruction Manual Requirements (For Reference Only)**

##### **USA**

Use following link for FCC labeling and instruction requirements:

<http://www.ecfr.gov/cgi-bin/text-idx?SID=926949ae5e109309ca21a4982a4dda33&node=47:1.0.1.1.16&rgn=div5#47:1.0.1.1.16.1.236.10>

## Canada

The manufacturer, importer or supplier shall meet the labeling requirements set out in this section for every ITE unit<sup>1</sup>.

- (i) Prior to marketing in Canada, for ITE manufactured in Canada, and;
- (ii) Prior to importation into Canada, for imported ITE.

The presence of the label on the ITE represents the manufacturer's or importer's Self-Declaration of Compliance (SDoC) to Industry Canada ICES-003. Each unit of an ITE model shall bear a label indicating the model's compliance with ICES-003.

The label shall be permanently affixed to the ITE or displayed electronically and its text must be clearly legible. When the dimension of the device is too small or it is otherwise not practical to place the label on the ITE, the label shall be placed in a prominent location in the user manual supplied with the ITE. The user manual may be in an electronic format and must be readily available.

**Industry Canada ICES-003 Compliance Label:**

**CAN ICES-3 (\*)/NMB-3(\*)**

**\* Insert either "A" or "B" but not both to identify the applicable Class of ITE.**

<sup>1</sup> The labeling requirements apply to new models. Existing models may continue with the requirements in Issue 4 or adopt the requirements in Issue 5.

## EN 55022

Class A ITE is a category of all other ITE, which satisfies the Class A ITE limits but not the Class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

**Warning**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## CISPR 22

Class A ITE is a category of all other ITE which satisfies the class A ITE limits but not the class B ITE limits. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

**Warning**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## **Australia**

Use a following link from “The Australian Communications and Media Authority (the ACMA)” for the labeling requirements:

<http://www.acma.gov.au/webwr/assets/main/lib310037/summary%20of%20labelling%20requirements%20-%20fs89.pdf>

## Japan (VCCI)

The Regular Member shall put the following statement on a Class A ITE or Class B ITE, as reported.

- (1) Class A ITE shall have the following message on a visible location on each product. In the event that direct labeling is difficult, a tag may be used.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 **VCCI-A**

Translation:

This is a Class A product.

In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective actions. **VCCI-A**

Note 1: The characters shall not be less than 2 mm high. If adequate space is unavailable, The character size may be reduced as long as the characters are readable.

Note 2: VCCI-A means that the equipment satisfies the limits of interference for Class A ITE.

- (2) Class B ITE  
A Class B ITE shall have the following label in a visible location on each product.



## 5.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G102019500	AS	KV	March 20, 2015	Original document