



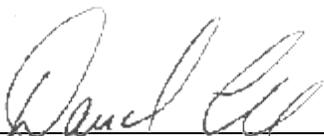
**Nemko Test Report:** 7935RUS1

**Applicant:** Cathexis Innovations Inc.  
67 Majors Path  
St. John's, NL A1A 4Z9  
Canada

**Equipment Under Test:  
(E.U.T.)** IDB-HF-BTU

**In Accordance With:** **CFR 47, Subpart C, Paragraph 15.225 &  
Industry Canada RSS-210, Issue 8, Paragraph A2.6**  
Operation within the band 13.110–14.010 MHz

**Tested By:** Nemko USA Inc.  
802 N. Kealy  
Lewisville, TX 75057

**TESTED BY:**   
David Light, Senior Wireless Engineer **DATE:** 25 August 2010

**APPROVED BY:**   
Tom Tidwell, Telecom Direct **DATE:** 19 April 2011

**Total Number of Pages: 16**

**Table Of Contents**

<b>SECTION 1. SUMMARY OF TEST RESULTS</b>	<b>3</b>
<b>SECTION 2. GENERAL EQUIPMENT SPECIFICATION</b>	<b>5</b>
<b>SECTION 3. RADIATED EMISSIONS</b>	<b>7</b>
<b>SECTION 4. FREQUENCY TOLERANCE</b>	<b>10</b>
<b>SECTION 5. TEST EQUIPMENT LIST</b>	<b>11</b>
<b>ANNEX A TEST DIAGRAMS</b>	<b>12</b>
<b>ANNEX B TEST DETAILS</b>	<b>14</b>

EQUIPMENT: IDB-HF-BTU

Test Report No.: 25778RUS1

**Section 1. Summary Of Test Results**

Manufacturer: Cathexis Innovations Inc.

Model No.: IDB-HF-BTU

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart C, Paragraph 15.225 and Industry Canada RSS-210, Issue 8 for Operation in the band 13.110 to 14.010 MHz. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site.

New Submission

Production Unit

Class II Permissive Change

Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



NVLAP Lab Code 100426-0

Nemko USA, Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety, for use by the company's employees only.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. Nemko USA, Inc. is a NVLAP accredited laboratory.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA, Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

EQUIPMENT: IDB-HF-BTU

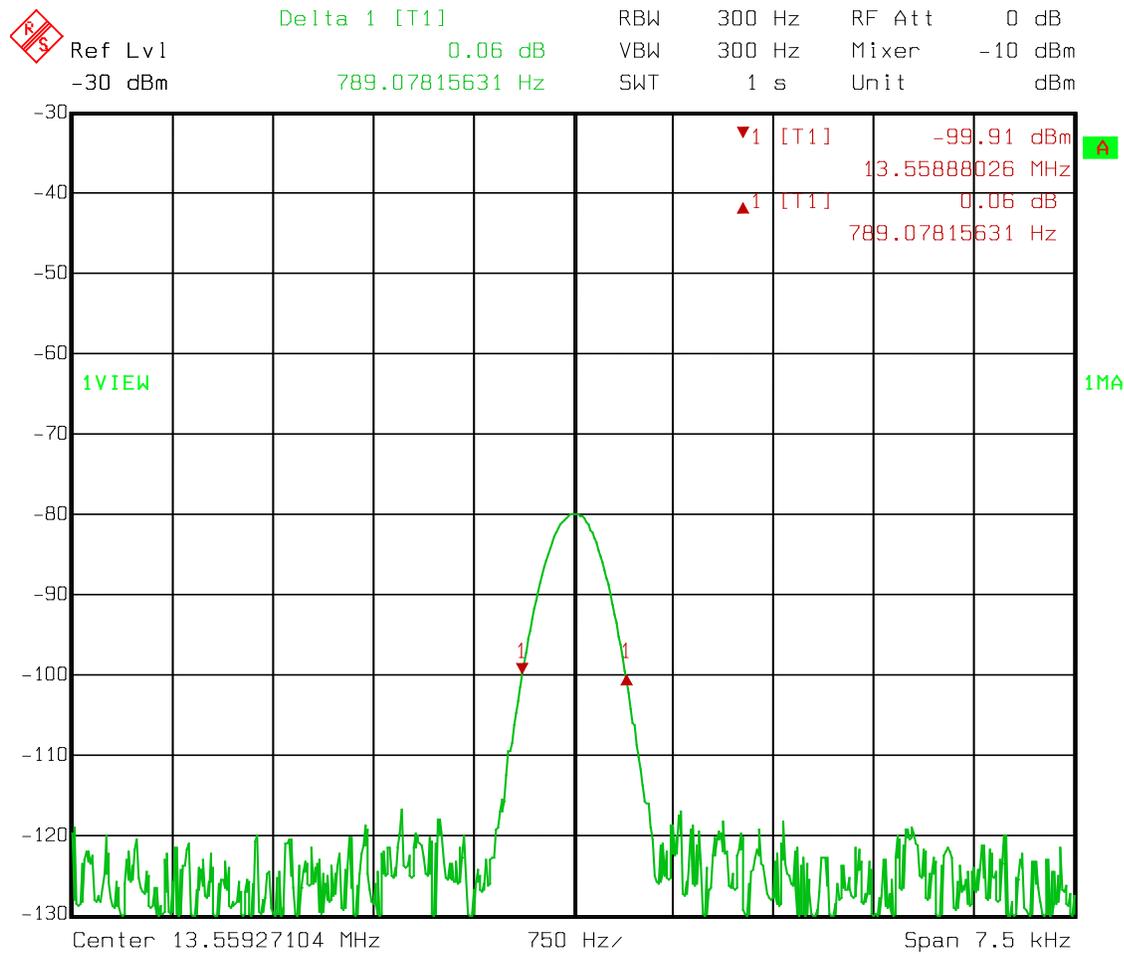
Test Report No.: 25778RUS1

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Powerline Conducted Emissions	15.207 / RSS-Gen	NA
Radiated Emissions	15.225(a) / A2.6	Complies
Frequency Tolerance	15.225(e) / A2.6	Complies

Footnotes:

The device is battery powered.



Date: 23.MAY 2011 15:33:52

**Section 2. General Equipment Specification**

**Frequency Range:** 13.56 MHz fixed

**Operating Frequency(ies) of Sample:** 13.56 MHz

**Crystal Frequencies:** 20 MHz, 13.56 MHz

**Integral Antenna**

**Yes**

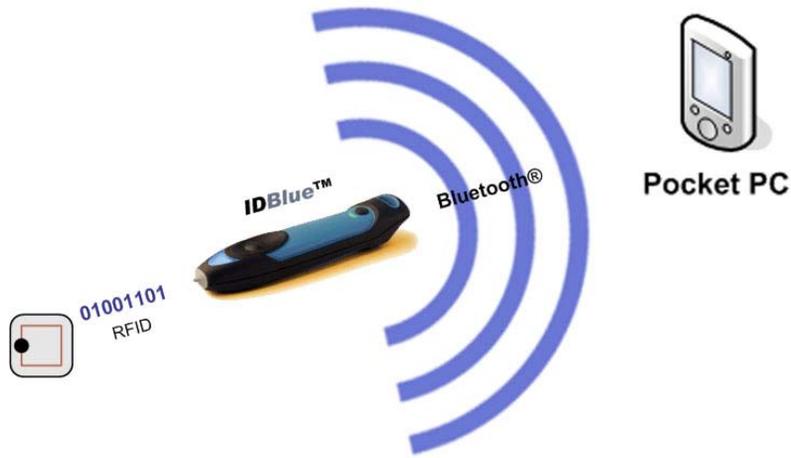
**No**

EQUIPMENT: IDB-HF-BTU

**Description of EUT**

IDBlue is a Bluetooth enabled RFID pen reader that is used for retrieving data from RFID tags.

**System Diagram**



**Section 3. Radiated Emissions**

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.209
TESTED BY: David Light	DATE: 24 August 2010

**Test Results:** Complies.

**Measurement Data:** See attached plot(s).

Notes:

- For handheld devices, the EUT was tested on three orthogonal axis'
- The device was tested from 9 kHz to the tenth harmonic of the highest fundamental frequency per 15.33
- The device was tested on three channels per 15.31(l).

**Equipment Used:** 1464-1484-1485-1733-1480-791

**Measurement Uncertainty:** +/-3.6 dB

**Temperature:** 22 °C

**Relative Humidity:** 35 %

**Analyzer Settings:** 150 kHz to 30 MHz: RBW=VBW=10 kHz  
30 MHz to 1000 MHz: RBW=VBW=100 kHz  
Detector: Peak

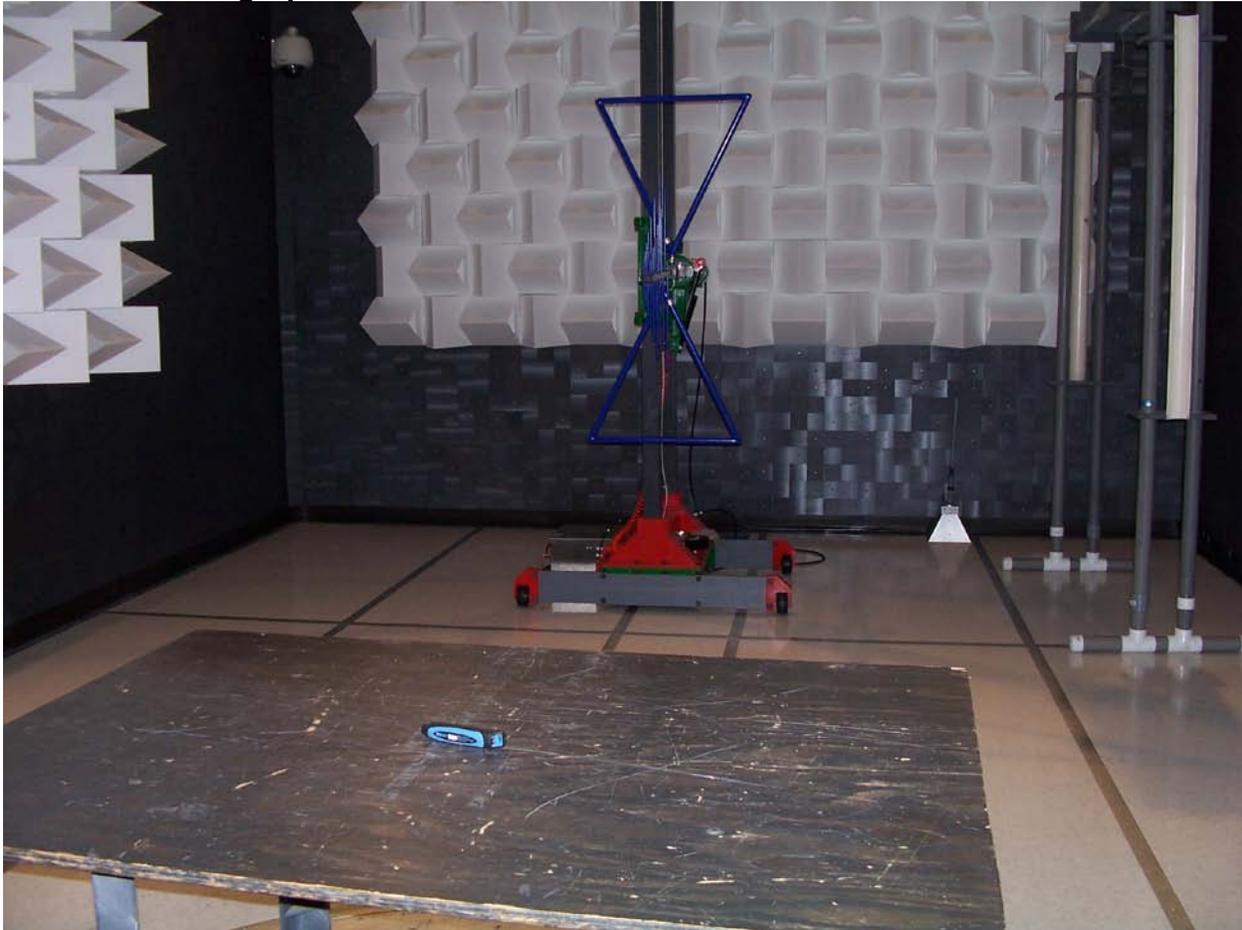
**Test Data - Radiated Emissions**

Meas. Freq. (MHz)	Ant. Pol. (H/V)	Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
13.56	Loop	0	39.2	17.8	0.5	0.0	57.5	144.0	-86.5	Pass	Carrier
27.12	Loop	0	12	16.9	0.5	0.0	29.4	89.5	-60.1	Pass	Noise floor
40.68	V	0	24	14.4	1.0	25.0	14.4	40.0	-25.6	Pass	Noise floor
54.24	V	0	24.4	7	1.0	25.0	7.4	40.0	-32.6	Pass	Noise floor
67.8	V	0	25	5.9	1.0	24.9	7.0	40.0	-33.0	Pass	Noise floor
81.36	V	0	23.9	7.8	1.0	24.9	7.8	40.0	-32.2	Pass	Noise floor
94.92	V	0	25.2	9.3	1.0	24.8	10.7	43.5	-32.8	Pass	Noise floor
108.48	V	0	25.2	11.1	1.0	24.8	12.5	43.5	-31.0	Pass	Noise floor
122.04	V	0	24.5	11.9	1.0	24.7	12.7	43.5	-30.8	Pass	Noise floor
135.6	V	0	24.5	12.1	1.0	24.7	12.9	43.5	-30.6	Pass	Noise floor
40.68	H	0	24	14.4	1.0	25.0	14.4	40.0	-25.6	Pass	Noise floor
54.24	H	0	24.4	7	1.0	25.0	7.4	40.0	-32.6	Pass	Noise floor
67.8	H	0	25	5.9	1.0	24.9	7.0	40.0	-33.0	Pass	Noise floor
81.36	H	0	23.9	7.8	1.0	24.9	7.8	40.0	-32.2	Pass	Noise floor
94.92	H	0	25.2	9.3	1.0	24.8	10.7	43.5	-32.8	Pass	Noise floor
108.48	H	0	25.2	11.1	1.0	24.8	12.5	43.5	-31.0	Pass	Noise floor
122.04	H	0	24.5	11.9	1.0	24.7	12.7	43.5	-30.8	Pass	Noise floor
135.6	H	0	24.5	12.1	1.0	24.7	12.9	43.5	-30.6	Pass	Noise floor

Measurements below 30 MHz were made at 1 meter distance due to low signal level. The limit has been adjusted at 40 dB per decade.

There were no emissions detected above the carrier.

**Radiated Photographs**



*EQUIPMENT:* IDB-HF-BTU

Test Report No.: 25778RUS1

**Section 4. Frequency Tolerance**

NAME OF TEST: Frequency Tolerance	PARA. NO.: 15.225(e)
TESTED BY: David Light	DATE: 24 August 2010

**Test Results:**

**Measurement Data:**

Measurement Uncertainty:	1x10 <sup>7</sup> ppm	Standard Test Frequency	13.560000	MHz
Temp (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Limit (+/-Hz)	Comment
20	13.559200	-800	1356	
-20	13.559212	-788	1356	
50	13.559207	-793	1356	
Notes:				

**Equipment Used:** 1083-802-1026

**Measurement Uncertainty:** +/-1x10<sup>-7</sup> ppm

**Temperature:** 22 °C

**Relative Humidity:** 45 %

**Section 5. Test Equipment List**

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
802	Near Field Probe Set	EMCO	7405	103	N/R	
1016	Preamplifier	Hewlett Packard	8449A	2749A00159	19-Jun-2010	19-Jun-2011
1082	Cable, 2m	Astrolab	32027-2-29094-72TC		N/R	
1464	Spectrum Analyzer	Hewlett Packard	8563E	3551A04428	27-Feb-2009	27-Feb-2011
1480	Antenna, Bilog	Schaffner-Chase	CBL6111C	2572	18-Jan-2010	18-Jan-2011
1484	Cable	Storm	PR90-010-072		19-Jun-2010	19-Jun-2011
1485	Cable	Storm	PR90-010-216		19-Jun-2010	19-Jun-2011
1733	Antenna, Active Loop	EMCO	6507	45939	26-Mar-2010	26-Mar-2011
791	PreAmp	Nemko, USA			08-Mar-2010	08-Mar-2011

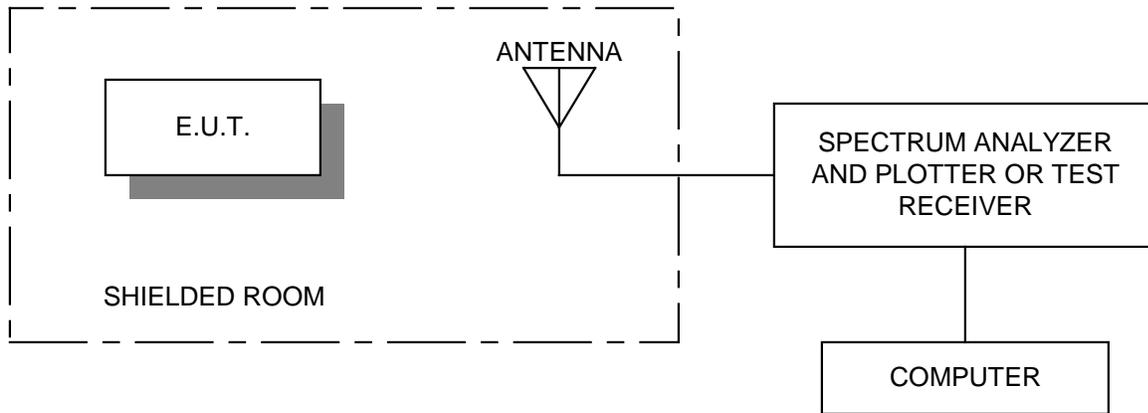
**Nemko USA, Inc.**

CFR 47 PART 15.209, SUBPART C &  
Industry Canada RSS-210  
Operation in the band 13.110 to 14.010 MHz  
Test Report No.: 25778RUS1

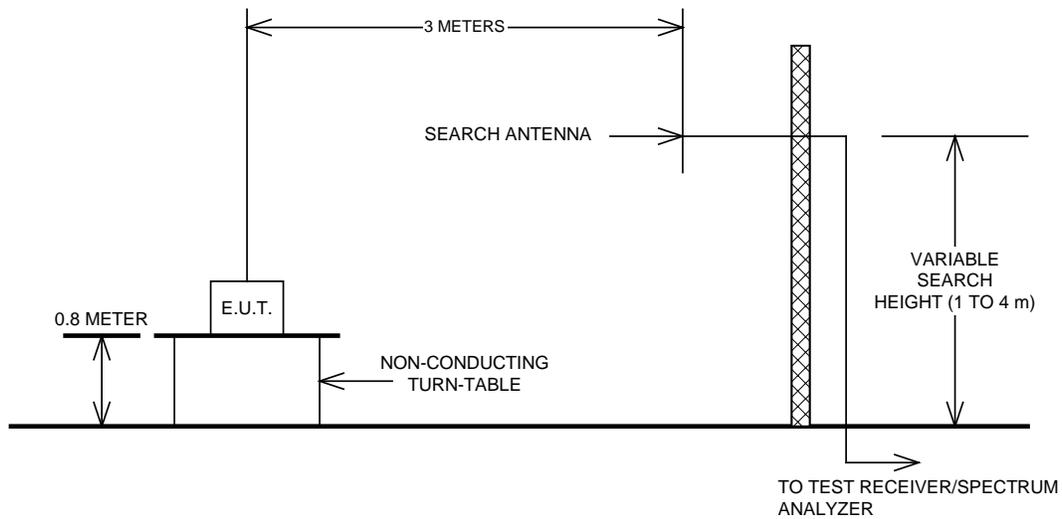
EQUIPMENT: IDB-HF-BTU

**ANNEX A**  
**TEST DIAGRAMS**

**Radiated Prescan**



**Test Site For Radiated Emissions**



**Nemko USA, Inc.**

CFR 47 PART 15.209, SUBPART C &  
Industry Canada RSS-210  
Operation in the band 13.110 to 14.010 MHz  
Test Report No.: 25778RUS1

EQUIPMENT: IDB-HF-BTU

**ANNEX B**  
**TEST DETAILS**

NAME OF TEST: Radiated Emissions

PARA. NO.: 15.209

**Minimum Standard:** §15.207 Radiated limits. (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400F (kHz)	300
0.490-1.705	24000F (kHz)	30
1.705-30.0	30	30
30-88	100 <sup>1</sup>	3
88-216	150 <sup>2</sup>	3
216-960	200 <sup>3</sup>	3
Above 960	500	3

(b) In the emission table above, the tighter limit applies at the band edges.

(c) The level of any unwanted emissions from an intentional radiator operating under these general provisions shall not exceed the level of the fundamental emission. For intentional radiators which operate under the provisions of other sections within this part and which are required to reduce their unwanted emissions to the limits specified in this table, the limits in this table are based on the frequency of the unwanted emission and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.

(d) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

(e) The provisions in §§15.31, 15.33, and 15.35 for measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

(f) In accordance with §15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in §15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in §15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest

fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in §15.109 that are applicable to the incorporated digital device.

(g) Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

NAME OF TEST: Radiated Emissions

PARA. NO.: 15.225

(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.

(e) The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(f) In the case of radio frequency powered tags designed to operate with a device authorized under this section, the tag may be approved with the device or be considered as a separate device subject to its own authorization. Powered tags approved with a device under a single application shall be labeled with the same identification number as the device.