



Nemko Test Report: 11235RUS1rev1

Applicant: Access Inc.
3208 Commander Drive
Carrollton, TX 75006

**Equipment Under Test:
(E.U.T.)** DOT Credential Tag Part Number AT-DOT-C

In Accordance With: **FCC Part 15, Subpart C**
For Low Power Transmitters Operating Periodically
In The Band 40.66 - 40.77 MHz And Above 70 MHz

Tested By: Nemko USA, Inc.
802 N. Kealy
Lewisville, TX 75057-3136

TESTED BY:

A handwritten signature in black ink that reads "Mike Cantwell".

Mike Cantwell, Frontline Manager

DATE: 28 February 2008

**APPROVED
BY:**

A handwritten signature in black ink that reads "David Light".

David Light, Senior Wireless Engineer

DATE: 28 February 2008

Total Number of Pages: 14

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Section 1. Summary of Test Results

Manufacturer: Axxess, Inc.

Model No.: DOT Credential Tag Part Number AT-DOT-C

Serial No.: 49

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 Part 15, Subpart C, Paragraph 15.231. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

- | | | | |
|-------------------------------------|----------------------------|-------------------------------------|---------------------|
| <input type="checkbox"/> | New Submission | <input type="checkbox"/> | Production Unit |
| <input checked="" type="checkbox"/> | Class II Permissive Change | <input checked="" type="checkbox"/> | Pre-Production Unit |

FCC site registration number: 90693

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 ON FOLLOWING PAGE.](#)



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This report applies only to the items tested.

Summary Of Test Data

Name of Test	Paragraph No.	Results
Transmission Requirements	15.231(a)	NA
Radiated Emissions	15.231(b)	NA
Occupied Bandwidth	15.231(c)	Complies
Frequency Tolerance	15.231(d)	NA
Alternate Field Strength Requirements	15.231(e)	Complies
Powerline Conducted Emissions	15.207	NA

Footnotes:

- 1) The EUT operates above 40.70 MHz
- 2) The EUT is powered by a 3 volt lithium ion battery.

Reasoning for Class II change:

The EUT, FCC ID# N6E-433DOT07, has been modified with the option of operating at a periodic rate. Data was taken to verify that it did not exceed the requirements of 15.231(e), alternate field strength requirements. The optional duty cycle correction was added to the original data gathered in Nemko test report number 9116RUS1 and on file with the FCC. The EUT has had no hardware modifications and transmits at the same power level and occupied bandwidth as the original filing.

Section 2. Equipment Under Test (E.U.T.)

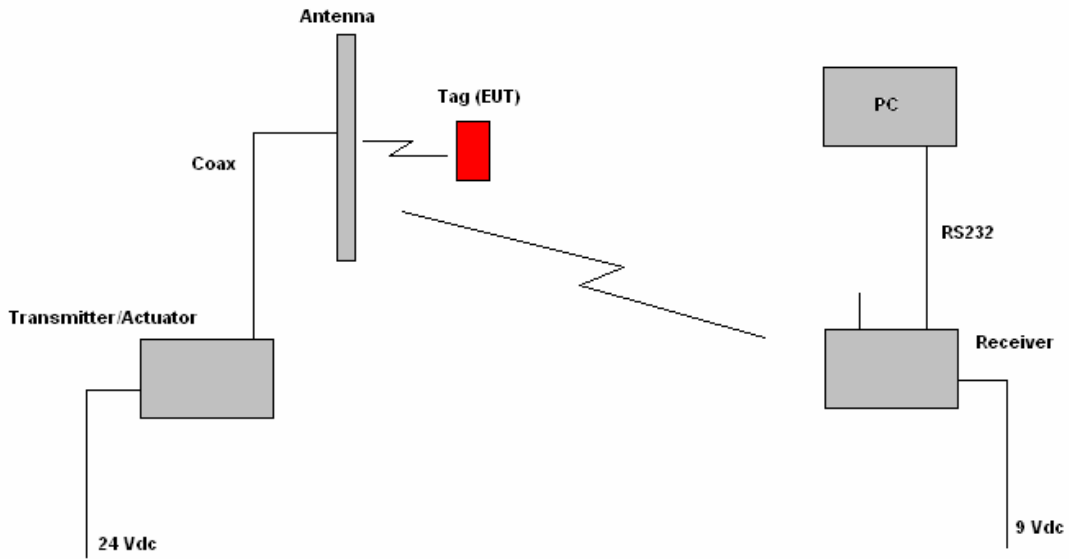
General Equipment Information

Frequency Range:	433.92 MHz
Operating Frequency(ies) of Sample:	433.92 MHz
Type of Emission:	OOK
Supply Power Requirement:	3 Vdc Lithium Ion Battery
Duty Cycle Correction Factor:	-6.1 dB

Description of E.U.T.

Active RFID tag

System Diagram



Section 3. Periodic Alternate Field Strength Requirements

NAME OF TEST: Periodic Alternate Field Strength Requirements	PARA. NO.: 15.231(e)
TESTED BY: Mike Cantwell	DATE: 27 February 2008

Minimum Standard: 15.231(e) Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this section, except the field strength table in paragraph (b) of this section is replaced by the following.

Fundamental Frequency (MHz)	Field Strength of Fundamental Microvolts/Meter at 3 meters	Field Strength of Unwanted Emissions Microvolts/Meter at 3 meters
40.66 - 40.70	1000	100
70-130	500	50
130-174	500 to 1500 ¹	50 to 150 ¹
174-260 (note 1)	1500	150
260-470 (note 1)	1500 to 5000 ¹	150 to 500 ¹
Above 470	5000	500

Notes: ¹Linear interpolation with frequency F in MHz

Any emissions that fall within the restricted bands of 15.205 shall not exceed the following limits:

Frequency (MHz)	Field Strength (µV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Test Data: See attached table.

Test Results: Complies. The worst-case emission level is 46.8 dB μ V/m at 1301.8 MHz. This is 7.2 dB below the specification limit of 54.0 dB μ V/m.

Test Data - Periodic Alternate Field Strength Requirements

Meas. Freq. (MHz)	Ant. Pol. (H/V)	Duty Cycle (dB)	Meter Reading (dB μ V)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dB μ V/m)	Spec. limit (dB μ V/m)	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
433.93	H	6.1	77.5	16.8	5.0	27.8	65.4	72.9	-7.5	Pass	Carrier
433.93	V	6.1	66.1	16.8	5.0	27.8	54.0	72.9	-18.9	Pass	Carrier
867.8	H	6.1	45.9	22.6	6.2	27.8	40.8	52.9	-12.1	Pass	
867.8	V	6.1	40.3	22.6	6.2	27.8	35.2	52.9	-17.7	Pass	
1301.8	H	0	54.6	25.3	5.0	32.0	52.9	74.0	-21.1	Pass	
1301.8	H	6.1	54.6	25.3	5.0	32.0	46.8	54.0	-7.2	Pass	Average
1301.8	V	6.1	44.8	25.3	5.0	32.0	37.0	52.9	-15.9	Pass	
1735.7	H	6.1	45	26.4	5.0	31.9	38.4	52.9	-14.5	Pass	Noise Floor
1735.7	V	6.1	40.4	26.4	5.0	31.9	33.8	52.9	-19.1	Pass	Noise Floor
2169.7	H	6.1	43.8	28.3	6.4	32.7	39.7	52.9	-13.2	Pass	Noise Floor
2169.7	V	6.1	40.4	28.3	6.4	32.7	36.3	52.9	-16.6	Pass	Noise Floor
2603.6	H	6.1	44.7	29.4	6.2	32.7	41.5	52.9	-11.4	Pass	Noise Floor
2603.6	V	6.1	40.4	29.4	6.2	32.7	37.2	52.9	-15.7	Pass	Noise Floor
3037.5	H	6.1	42.5	30.3	7.9	32.5	42.1	52.9	-10.8	Pass	Noise Floor
3037.5	V	6.1	40.6	30.3	7.9	32.5	40.2	52.9	-12.7	Pass	Noise Floor
3471.4	H	6.1	43.5	30.9	8.0	32.5	43.8	52.9	-9.1	Pass	Noise Floor
3471.4	V	6.1	40.6	30.9	8.0	32.5	40.9	52.9	-12.0	Pass	Noise Floor
3905.4	H	6.1	42.5	31.8	8.9	32.3	44.8	54.0	-9.2	Pass	Noise Floor
3905.4	V	6.1	40.6	31.8	8.9	32.3	42.9	54.0	-11.1	Pass	Noise Floor
4339.3	H	6.1	42.5	32	9.1	32.5	45.0	54.0	-9.0	Pass	Noise Floor
4339.3	V	6.1	40.6	32	9.1	32.5	43.1	54.0	-10.9	Pass	Noise Floor

All readings are PEAK unless otherwise noted. Searched spectrum 30 MHz to 5 GHz

- 1) For battery powered equipment, the device was tested with a fresh battery per 15.31(e).
- 2) For handheld devices, the EUT was tested on three orthogonal axis'

Analyzer Settings: Below 1000 MHz: RBW/VBW = 100 kHz Peak detector

Above 1000 MHz: RBW/VBW = 1 MHz Peak detector

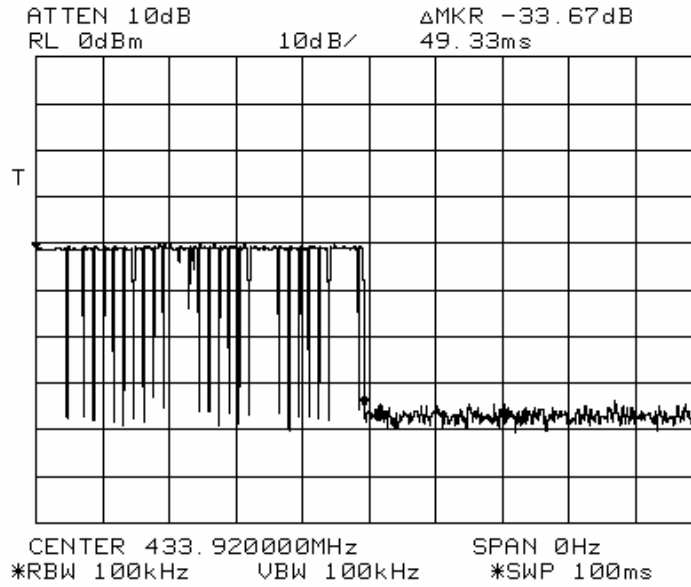
Test Conditions: 22 %RH
30 °C

Measurement Uncertainty: +/-3.6 dB

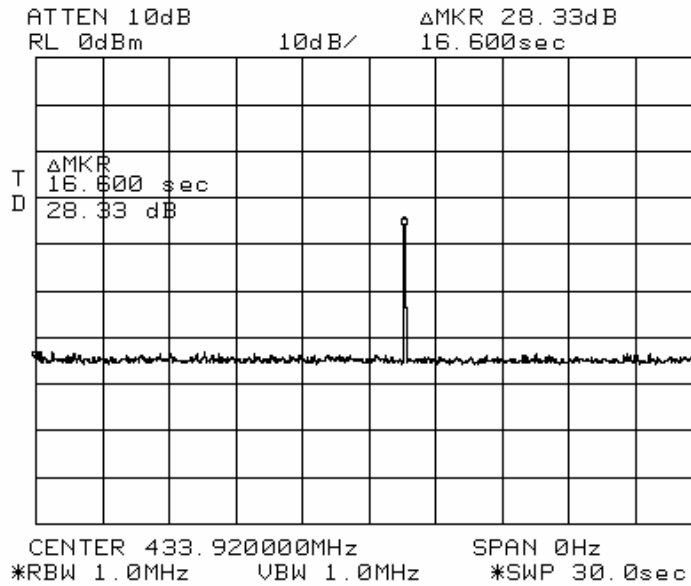
Test Equipment Used: 1763-1484-1485-993-1016-1025-1464

Repetition rate is programmable in the factory and will not be any faster than once every 15 seconds.

Transmit ON Time / Duty Cycle

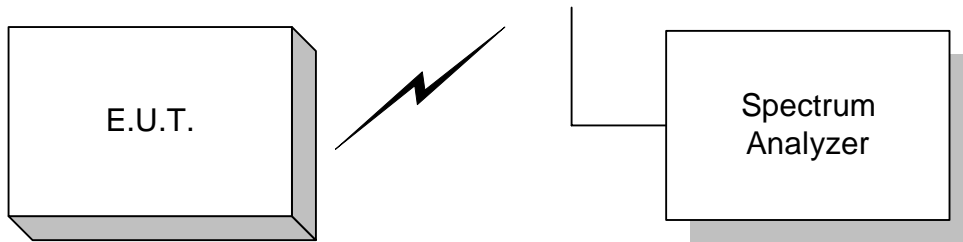


$20 \log (49.33/100) = -6.1 \text{ dB}$

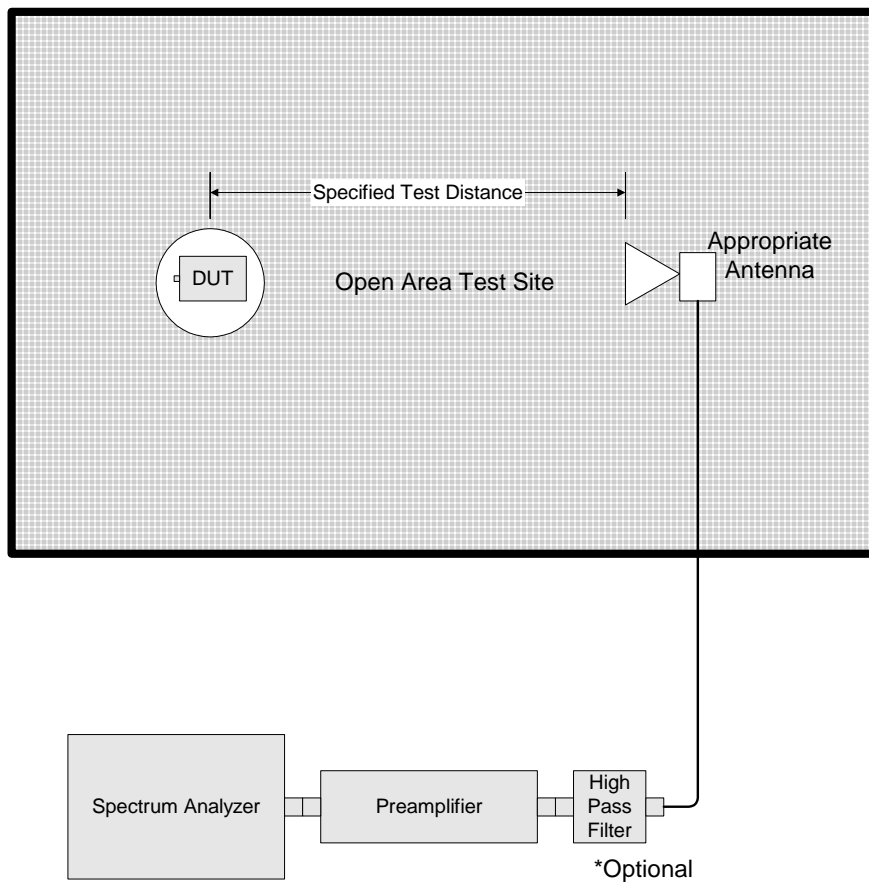


Section 4. Block Diagrams

Occupied Bandwidth, Duty Cycle

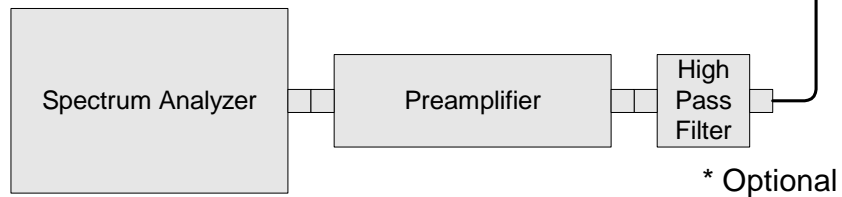
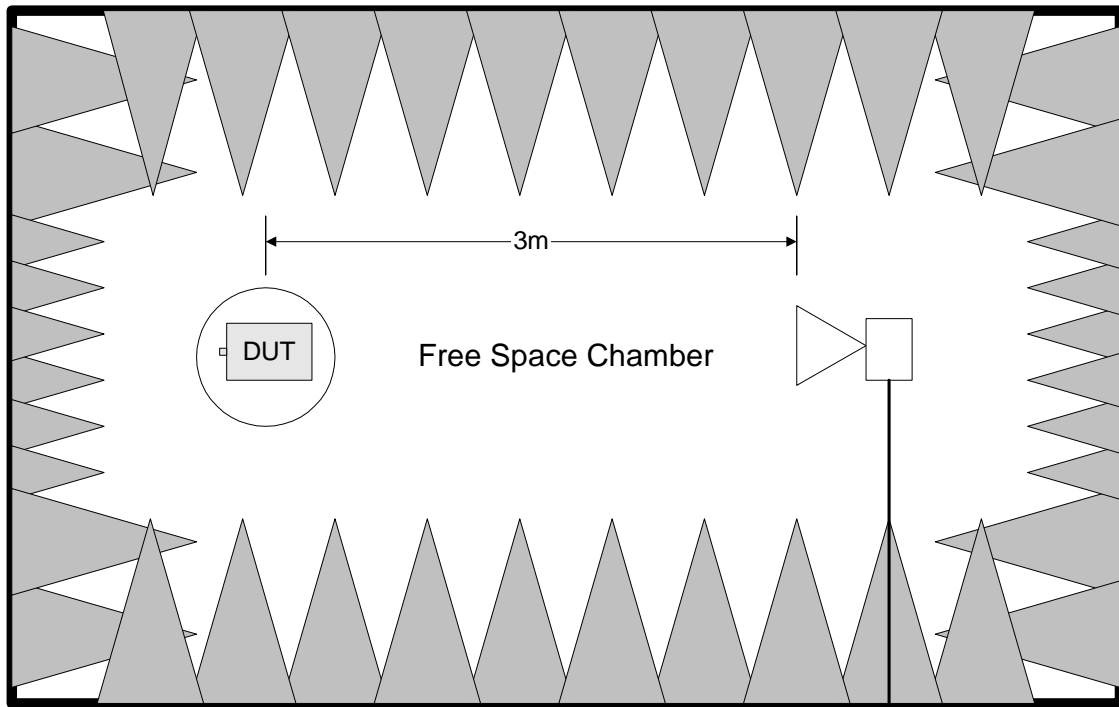


Outdoor Test Site For Radiated Emissions



Radiated Emissions 30 MHz - 1 GHz

The spectrum was searched up to the 10th harmonic of the fundamental frequency of operation.



Radiated Emissions above 1 GHz

Section 5. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1763	Bilog Antenna	Schaffner CBL 6111D	22926	09/21/07	09/20/08
1484	Cable	Storm PR90-010-072	N/A	05/02/07	05/01/08
1485	Cable	Storm PR90-010-216	N/A	05/02/07	05/01/08
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	05/01/07	04/30/08
1025	PREAMP, 25dB	Nemko USA, Inc. LNA25	399	12/07/07	12/06/08
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/24/07	01/24/09
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/31/07	08/30/08

ANNEX A - RESTRICTED BANDS

Annex A Restricted Bands of Operation

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.15
0.49 - 0.51	16.69475-16.69525	608-614	5.35-5.46
2.1735 - 2.1905	16.80425-16.80475	960-1240	7.25-7.75
3.020 - 3.026	25.5-25.67	1300-1427	8.025-8.5
4.125 - 4.128	37.5-38.25	1435-1626.6	9.0-9.2
4.17725 - 4.17775	73-74.6	1645.5-1646.5	9.3-9.5
4.20725 - 4.20775	74.8-75.2	1660-1710	10.6-12.7
6.215 - 6.218	108-121.94	1718.8-1722.2	13.25-13.4
6.31175 - 6.31225	123-138	2220-2300	14.47-14.5
8.291 - 8.294	149.9-150.05	2310-2390	15.35-16.2
8.362 - 8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625 - 8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425 - 8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29 - 12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975 - 12.52025	240-285	3345.8-3358	36.43-36.5
12.57675 - 12.57725	322-335.4	3600-4400	Above 38.6
13.36 - 13.41			