

DATE: 02 August 2011

I.T.L. (PRODUCT TESTING) LTD.

FCC Radio Test Report

for

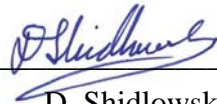
AeroScout Ltd.

Equipment under test:

AeroScout T3i Tag (AT MX4 Housing)

TAG-3100

Written by:



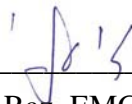
D. Shidlow, Documentation

Approved by:



A. Moses, Test Engineer

Approved by:



I. Raz, EMC Laboratory Manager

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This report relates only to items tested.

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1. General Information

1.1 Administrative Information

Manufacturer:	AeroScout Ltd.
Manufacturer's Address:	3 Pekeris St. Einstein Entrance 4th Floor Rehovot 76702 Israel Tel: +972-8-9369393 Fax: +972-8-9365977
Manufacturer's Representative:	Mark Karasik Adi Berman
Equipment Under Test (E.U.T):	AeroScout T3i Tag (AT MX4 Housing)
Equipment Model No.:	TAG-3100
Equipment Serial No.:	1106088-008
Date of Receipt of E.U.T:	05.07.11
Start of Test:	05.07.11
End of Test:	06.07.11
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Part 15 Subpart C Section 15.247

1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.
6. TUV Product Services, England, ASLLAS No. 97201.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.3 Product Description

The AeroScout™ T-3100 Tag is a key component of the AeroScout™ Location System. These dedicated battery-powered Tags send Wi-Fi (2.4 GHz ISM Band) compatible messages at predefined intervals and can be attached to non-Wi-Fi assets (in this case MX4 housing) in order to locate them. Tags send messages with their unique ID number that are detected by Location Receivers and used to estimate the Tag's location. In addition, the product uses a 125 kHz receiver to improve location accuracy.

The AeroScout T-3100 Tag is used to be integrated to customer equipment and enables the wireless network infrastructure to locate people and assets otherwise not connected to a wireless network.

1.4 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.5 Test Facility

The radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing September 3, 2009).

I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

1.6 Measurement Uncertainty

Radiated Emission

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000MHz:

Expanded Uncertainty (95% Confidence, K=2):

± 4.96 dB

2. System Test Configuration

2.1 *Justification*

The E.U.T. was authorized for FCC under FCC ID: Q3HTAG3100.

Due to replacement of the housing a C2PC application is being submitted.

Radiated output power and spurious radiated emission tests were performed.

Radiated emission screening was performed in 3 orthogonal orientations. The worst case orientation was the vertical position.

The typical operation of the Tag (as a customer would normally use) is that the Tag wake up every predefine interval (from 1 sec to 3.5 hours) and it is set to be in receive mode for a period of 100uSec to sniff the air traffic (RSSI detection) and in the case that the channel is free it will transmit a message for a period of max 500uS.

The Tag includes a low frequency receiver which is set to be in receiving mode continuously.

Due to the short period in transmit and receive mode in a typical operation mode, the tag was configured to be in continuous receive mode and in continuous transmit mode to test the tag behavior on those modes as it was found to be the worst case operating mode.

2.2 *EUT Exercise Software*

The Tag SW uses two working mode in typical operation a receive mode for the RSSI detection and then the Transmit mode.

In the testing SW configuration the Tag was configured to be on one of the two programmable test modes

- 1) Continuous receive mode
- 2) Continuous transmit mode.

The Low frequency receiver is active in the two test modes above.

The testing of those two modes was done on three different channels.

2.3 *Special Accessories*

No special accessories were needed to achieve compliance.

2.4 *Equipment Modifications*

No modifications were needed in order to achieve compliance

2.5 Configuration of Tested System

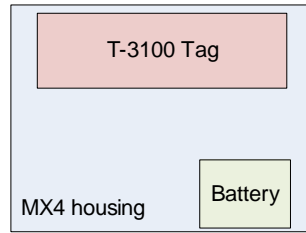


Figure 1. Configuration of Tested System

3. Radiated Measurement Test Set-up Photos



Figure 2. Radiated Emission Below 1 GHz Test



Figure 3. Radiated Emission Above 1 GHz Test

4. Radiated Power Output

4.1 Test Specification

F.C.C. Part 15, Subpart C: 15.247(b)

4.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

The E.U.T. was tested in three operating channels and frequencies (1 (2412 MHz); 8 (2437 MHz); 14 (2462 MHz)).

Radiated output power levels were measured at selected operation frequencies and the results were converted to power level according to the formula as shown below:

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} [\text{W}]$$

The E.U.T. was tested at 2412, 2437, and 2462 MHz with QPSK modulation.



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.41309 GHz
98.37 dB μ V/m

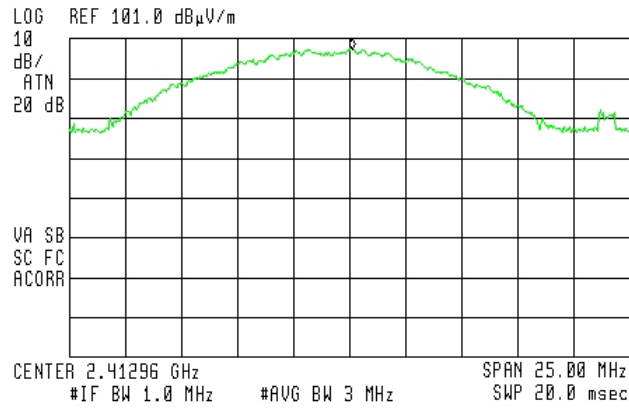


Figure 4 2412 MHz Vertical



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.41115 GHz
102.93 dB μ V/m

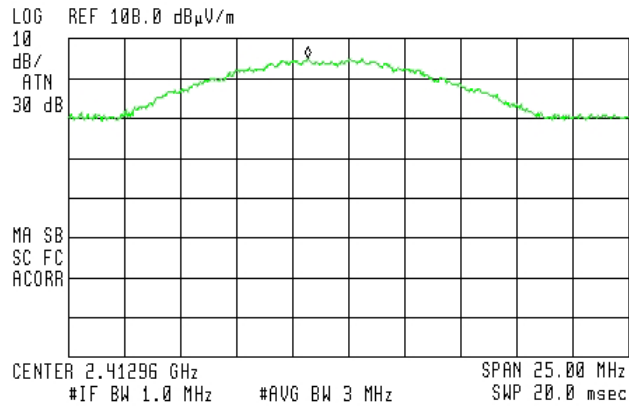


Figure 5 2412 MHz Horizontal



ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 2.43613 GHz
 98.63 dB μ V/m

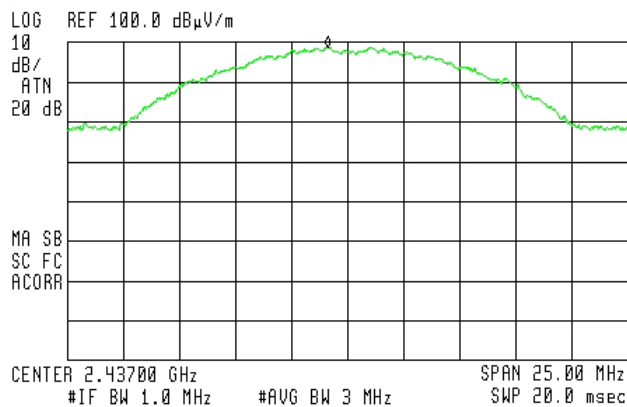


Figure 6 2437 MHz Vertical



ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 2.43794 GHz
 101.44 dB μ V/m

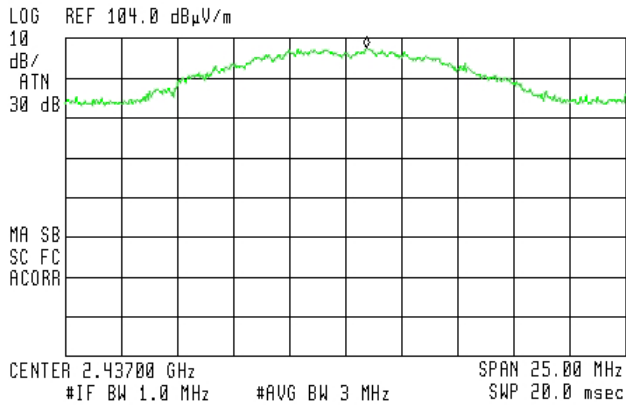


Figure 7 2437 MHz Horizontal



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.46181 GHz
102.83 dB μ V/m

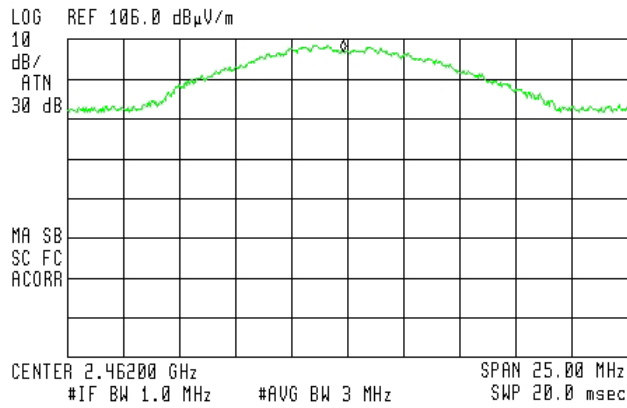


Figure 8 2462 MHz Horizontal



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.46300 GHz
98.64 dB μ V/m

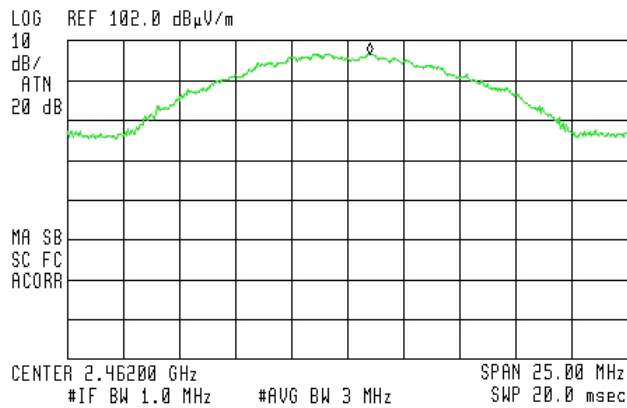


Figure 9 2462 MHz Vertical

4.3 Results Calculation

E.U.T. Description: AeroScout T3i Tag (AT MX4 Housing)
 Model No.: TAG-3100
 Serial Number: 1106088-008
 Specification: F.C.C. Part 15, Subpart C

The following calculations were used to determine maximum radiated power output.

2412 MHz

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{102.9}{20}\right)} = 0.14$$

$$P = \frac{(0.14 \times 3)^2}{(30 \times 0.89)} = 6.6mW$$

2437 MHz

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{101.4}{20}\right)} = 0.117$$

$$P = \frac{(0.117 \times 3)^2}{(30 \times 0.89)} = 4.6mW$$

2462 MHz

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{102.8}{20}\right)} = 0.138$$

$$P = \frac{(0.138 \times 3)^2}{(30 \times 0.89)} = 6.4mW$$

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 19.07.11

Typed/Printed Name: A. Moses

4.4 Test Equipment Used.

Radiated Maximum Power Output

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Receiver	HP	85422E	3906A00276	November 24, 2010	1 year
RF Section	HP	85420E	3705A00248	November 24, 2010	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A
Antenna-Log Periodic	A.H.System	SAS-200/511	253	January 27, 2011	2 years

Figure 10 Test Equipment Used

5. Radiated Emission, 9 kHz – 30 MHz

5.1 Test Specification

9 kHz-30 MHz, FCC, Part 15, Subpart C, Section 209

5.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.1.

The frequency range 9 kHz-30 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying to CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 3 meters.

The E.U.T. was tested in three operating channels and frequencies (1 (2.412 GHz); 8 (2.437 GHz); 14 (2.462 GHz)).

5.3 Measured Data

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, Section 209 specification.

The results for all three channels were the same.

No signals were detected in the frequency range of 9 kHz – 30 MHz.

TEST PERSONNEL:

Tester Signature: 

Date: 19.07.11

Typed/Printed Name: A. Moses

5.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	November 24, 2010	1 year
RF Section	HP	85420E	3705A00248	November 24, 2010	1 year
Active Loop Antenna	EMCO	6502	9506-2950	October 19, 2010	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

5.5 Field Strength Calculation

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

FS: Field Strength [dB μ v/m]

RA: Receiver Amplitude [dB μ v]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB μ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB μ V

No external pre-amplifiers are used.

6. Spurious Radiated Emission 30 – 25000 MHz

6.1 Test Specification

30 MHz-25000 MHz, F.C.C., Part 15, Subpart C

6.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground..

The frequency range 30 MHz-25000 MHz was scanned, and the list of the highest emissions was verified and updated accordingly.

The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

In the frequency range 30 MHz - 2.9 GHz, a computerized EMI receiver complying to CISPR 16 requirements was used. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 2.9 - 25.0 GHz, a spectrum analyzer including a low noise amplifier was used. During average measurements, the IF bandwidth was 1 MHz and the video bandwidth was 100Hz. During peak measurements, the IF bandwidth was 1 MHz and the video bandwidth was 3 MHz.

The test distance was 3 meters.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)

The E.U.T. was tested in three operating channels and frequencies (1 (2.412 GHz); 8 (2.437 GHz); 14 (2.462 GHz)).

6.3 **Test Data**

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

In the frequency range of 30 – 1000 MHz no signals were detected.

For the operation channel 1 (2.412 GHz), the margin between the emission level and the specification limit is 12.2 in the worst case at the frequency of 4820.04 MHz, horizontal polarization.

For the operation channel 8 (2.437 GHz), the margin between the emission level and the specification limit is 11.2 in the worst case at the frequency of 4874.00 MHz, vertical polarization.

For the operation channel 14 (2.462 GHz), the margin between the emission level and the specification limit is 11.2 in the worst case at the frequency of 4924.00 MHz, vertical polarization.

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

TEST PERSONNEL:

Tester Signature: _____

Date: 19.07.11

Typed/Printed Name: A. Moses

Radiated Emission Above 1 GHz

E.U.T Description AeroScout T3i Tag (AT MX4 Housing)
 Type TAG-3100
 Serial Number: 1106088-008

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
 Test Distance: 3 meters Detector: Peak

Operation Frequency	Freq.	Polarity	Peak Reading	Peak. Specification	Peak. Margin
(MHz)	(MHz)	(H/V)	(dB μ V/m)	(dB μ V/m)	(dB)
2412.00	4824.00	H	61.8*	74.0	-12.2
2412.00	4824.00	V	60.1*	74.0	-13.9
2437.00	4874.00	H	60.5*	74.0	-13.5
2437.00	4874.00	V	62.8*	74.0	-11.2
2462.00	4924.00	H	60.2*	74.0	-13.8
2462.00	4924.00	V	62.8*	74.0	-11.2

**Figure 11. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
 Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Reading” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission Above 1 GHz

E.U.T Description AeroScout T3i Tag (AT MX4 Housing)
 Type TAG-3100
 Serial Number: 1106088-008

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
 Test Distance: 3 meters Detector: Average
 Operation Frequency: MHz

Operation Frequency (MHz)	Freq. (MHz)	Polarity (H/V)	Average Reading (dB μ V/m)	Average Specificatio n (dB μ V/m)	Average Margin (dB)
2412.00	4824.00	H	38.4*	54.0	-15.6
2412.00	4824.00	V	38.2*	54.0	-15.8
2437.00	4889.00	H	38.5*	54.0	-15.5
2437.00	4889.00	V	38.3*	54.0	-15.7
2462.00	4924.00	H	37.8*	54.0	-16.2
2462.00	4924.00	V	38.4*	54.0	-15.6

**Figure 12. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
 Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Reading” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

6.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	November 24, 2010	1 Year
RF Filter Section	HP	85420E	3705A00248	November 24, 2010	1 Year
Antenna Biconical	ARA	BCD 235/B	1041	August 1, 2010	1 Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	March 23, 2011	1 Year
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	January 27, 2011	2 Years
Double Ridged Waveguide Horn Antenna	EMCO	3115	29845	March 14, 2010	2 Years
Horn Antenna	ARA	SWH-28	1008	January 26, 2011	2 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	November 5, 2010	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	January 4, 2011	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	February 21, 2011	1 Year
Spectrum Analyzer	HP	8546E	3442A00275	January 11, 2011	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JKGC19982	N/A	N/A

6.5 **Field Strength Calculation**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$[\text{dB}\mu\text{v/m}] \text{ FS} = \text{RA} + \text{AF} + \text{CF}$$

- FS: Field Strength [dB μ v/m]
- RA: Receiver Amplitude [dB μ v]
- AF: Receiving Antenna Correction Factor [dB/m]
- CF: Cable Attenuation Factor [dB]

Example: $\text{FS} = 30.7 \text{ dB}\mu\text{V (RA)} + 14.0 \text{ dB (AF)} + 0.9 \text{ dB (CF)} = 45.6 \text{ dB}\mu\text{V}$

No external pre-amplifiers are used.

7. R.F Exposure/Safety

Typical use of the E.U.T. is personnel tracking. The typical placement of the E.U.T. is on the user's belt. The typical distance between the E.U.T. and the user in the worst case application, is <2.5cm.

Calculation of Maximum Permissible Exposure (MPE) Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 2437 MHz is: $1 \frac{mW}{cm^2}$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P_t - Transmitted Power (Peak, calculated) = 6.6 mW

G_t - Antenna Gain, -0.5 dBi = 0.89

R- Distance from Transmitter using 1 m worst case

(c) The peak power density is :

$$S_p = \frac{6.6 \times 0.89}{4\pi(1)^2} = 0.467 \frac{mW}{cm^2}$$

(d) This is below the FCC limit.

8. APPENDIX B - CORRECTION FACTORS

8.1 Correction factors for CABLE

from EMI receiver
to test antenna
at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

NOTES:

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".

8.2 Correction factors for CABLE

from EMI receiver
to test antenna
at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

- 1. The cable type is RG-8.*
- 2. The overall length of the cable is 10 meters.*

8.3 Correction factors for CABLE

from spectrum analyzer
to test antenna above 2.9 GHz

FREQUENCY (GHz)	CORRECTION FACTOR (dB)	FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.9	14.0	9.1
2.0	2.7	15.0	9.5
3.0	3.5	16.0	9.9
4.0	4.2	17.0	10.2
5.0	4.9	18.0	10.4
6.0	5.5	19.0	10.7
7.0	6.0	20.0	10.9
8.0	6.5	21.0	11.2
9.0	7.0	22.0	11.6
10.0	7.5	23.0	11.9
11.0	7.9	24.0	12.3
12.0	8.3	25.0	12.6
13.0	8.7	26.0	13.0

NOTES:

1. The cable type is SUCOFLEX 104 E manufactured by SUHNER.
2. The cable is used for measurements above 2.9 GHz.
3. The overall length of the cable is 10 meters.

12.6 Correction factors for LOG PERIODIC ANTENNA
Type LPD 2010/A
at 3 and 10 meter ranges.

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range, and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission Test EMI Receiver".

8.4 Correction factors for LOG PERIODIC ANTENNA
Type SAS-200/511
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. Antenna serial number is 253.
2. The above lists are located in file number SAS3M0.ANT for a 3 meter range.
3. The files mentioned above are located on the disk marked "Antenna Factors".

8.5 Correction factors for BICONICAL ANTENNA

**Type BCD-235/B,
at 3 meter range**

FREQUENCY (MHz)	AFE (dB/m)
20.0	19.4
30.0	14.8
40.0	11.9
50.0	10.2
60.0	9.1
70.0	8.5
80.0	8.9
90.0	9.6
100.0	10.3
110.0	11.0
120.0	11.5
130.0	11.7
140.0	12.1
150.0	12.6
160.0	12.8
170.0	13.0
180.0	13.5
190.0	14.0
200.0	14.8
210.0	15.3
220.0	15.8
230.0	16.2
240.0	16.6
250.0	17.6
260.0	18.2
270.0	18.4
280.0	18.7
290.0	19.2
300.0	19.9
310	20.7
320	21.9
330	23.4
340	25.1
350	27.0

NOTES:

1. Antenna serial number is 1041.
2. The above list is located in file 19BC10M1.ANT on the disk marked "Radiated Emissions Tests EMI Receiver".

8.6 Correction factors for Double-Ridged Waveguide Horn

**Model: 3115, S/N 29845
at 3 meter range.**

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENN A Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			

8.7 Correction factors for

**Horn Antenna
Model: SWH-28
at 1 meter range.**

FREQUENCY (GHz)	AFE (dB /m)	Gain (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4

8.8 Correction factors for ACTIVE LOOP ANTENNA

**Model 6502
S/N 9506-2950**

FREQUENCY (MHz)	Magnetic Antenna Factor (dB)	Electric Antenna Factor (dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2