Emissions Test Report

EUT Name: Non-Status Tag

EUT Model: T21-120

FCC ID: URGT21120

FCC Title 47, Part 15, Subpart C

Prepared for:

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Report/Issue Date: 15 October, 2007
Report Number: 30862909.003

Statement of Compliance

Manufacturer:	RadarFind Corporation 2100 Gateway Centre Blvd., Suite 150 Morrisville, NC 27560 919 228-2170
Requester / Applicant:	Stephen Snell
Name of Equipment:	Non-Status Tag
Operation Frequency Range	902.4 MHz to 927.6 MHz
Type of Equipment:	Intentional Radiator
Application of Regulations:	FCC Title 47, Part 15, Subpart C
Test Dates:	22 October, 2008 to 22 October, 2008

Guidance Documents:

Emissions: FCC 47 CFR Part 15C

Test Methods:

Emissions: ANSI C63.4:2003

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that a sample of one, of the equipment described above, has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in the Executive Summary of this report.

This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. This report contains data that are not covered by NVLAP accreditation. This report shall not be reproduced except in full, without the written authorization of the laboratory.

Mark Ryan

9 January 2009

NVLAP Signatory — Date

NVLAP 200094-0

FC 90552 and 100881

Industry Canada IC3755

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1 Executive Summary

1.1 Scope

This report is intended to document the status of conformance with the requirements of the FCC Title 47, Part 15, Subpart C based on the results of testing performed on *22 October,* 2008 through *22 October, 2008* on the *Non-Status Tag* Model No. *T21-120* manufactured by RadarFind Corporation. This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

1.3 Summary of Test Results

Table 1 - Summary of Test Results

Test	Test Method(s)	Test Parameters	Measurement	Result
Peak Output Power	FCC Part 15.249(a)	50 mV/m (94 dBµV/m)	10.3 mV/m (80.25 dBµV/m) @ 3 meters (peak)	**compliant**
Spurious Emissions	FCC Parts 15.249(d) and 15.249(e)	500µV /m (54 dBµV/m)	123.5 µV /m (41.83 dBµV /m) @ 3 meters Peak	**compliant**
Conducted Emissions	FCC Part 15.207(c)	Apparatus is battery operated		**compliant** (without testing)

1.4 Special Accessories

No special accessories were necessary in order to achieve compliance.

1.5 Equipment Modifications

No modifications were found to be necessary in order to achieve compliance.

2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission

TUV Rheinland at the 762 Park Ave. Youngsville, N.C 27596 address is accredited by the commission for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (Registration No 90552 and 100881). The laboratory scope of accreditation includes: Title 47 CFR Part 15, 18, and 90. The accreditation is updated every 3 years.

2.1.2 NIST / NVLAP

TUV Rheinland is accredited by the National Voluntary Laboratory Accreditation Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Guide 25 and ISO 9002 (Lab code 200094-0). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

2.1.3 Canada – Industry Canada

Registration No. IC3755

2.1.4 Japan - VCCI

The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) is a group that consists of Information Technology Equipment (ITE) manufacturers and EMC test laboratories. The purpose of the Council is to take voluntary control measures against electromagnetic interference from Information Technology Equipment, and thereby contribute to the development of a socially beneficial and responsible state of affairs in the realm of Information Technology Equipment in Japan. TUV Rheinland at the 762 Park Ave. Youngsville, N.C 27596 address has been assessed and approved in accordance with the Regulations for Voluntary Control Measures. (Registration No. R-1174 and C-1236).

2.1.5 Acceptance By Mutual Recognition Arrangement

The United States has an established agreement with specific countries under the Asia Pacific Laboratory Accreditation Corporation (APLAC) Mutual Recognition Arrangement. Under this agreement, all TUV Rheinland at the 762 Park Ave. Youngsville, N.C 27596 address test results and test reports within the scope of the laboratory NIST / NVLAP accreditation will be accepted by each member country.

2.2 Test Facilities

All of the test facilities are located at 762 Park Ave., Youngsville, North Carolina 27596, USA.

2.2.1 Emission Test Facility

The Open Area Test Site and AC Line Conducted measurement facility used to collect the radiated and conducted data has been constructed in accordance with ANSI C63.7:1992. The site has been measured in accordance with and verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4:2005, at a test distance of 3 and 10 meters. This site has been described in reports dated May 12, 1997, submitted to the FCC, and accepted by letter dated June 25, 1997 (31040/SIT 1300F2). The site is listed with the FCC and accredited by NVLAP (code 200094-0). The 5m semi-anechoic chamber used to collect the radiated data has been verified to comply with the theoretical normalized site attenuation requirements of ANSI C63.4:2005, at a test distance of 3 meters. A report detailing this site can be obtained from TUV Rheinland.

2.2.2 Immunity Test Facility

ESD, EFT, Surge, PQF: These tests are performed in an environmentally controlled room with a 3.7m x 3.7m x 3.175mm thick aluminum floor connected to PE ground. For ESD testing, tabletop equipment is placed on an insulated mat with a surface resistivity of 10^9 Ohms/square on a 1.6m x 0.8m x 0.8m high non-conductive table with a 3.175mm aluminum top (Horizontal Coupling Plane). The HCP is connected to the main ground plane via a low impedance ground strap through two 470 kΩ resistors. The Vertical Coupling Plane consists of an aluminum plate 50cm x 50cm x 3.175mm thick. The VCP is connected to the main ground plane via a low impedance ground strap through two 470 kΩ resistors. For each of the other tests, the HCP is removed.

RF Field Immunity testing is performed in a 7.3m x 3.7m x 3.2m anechoic chamber.

RF Conducted and Magnetic Field Immunity testing is performed on a 4.9m x 3.7m x 3.175mm thick aluminum ground plane which is connected to one end of the anechoic chamber.

All test areas allow a minimum distance of 1 meter from the EUT to walls or conducting objects.

2.3 Measurement Uncertainty

Two types of measurement uncertainty are expressed in this report, per *ISO Guide To The Expression Of Uncertainty In Measurement*, 1st addition, 1995.

The Combined Standard Uncertainty is the standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities, equal to the positive square root of a sum of terms, the terms being the variances or co-variances of these other quantities weighted according to how the measurement result varies with changes in these quantities. The term standard uncertainty is the result of a measurement expressed as a standard deviation.

The Expanded Uncertainty defines an interval about the result of a measurement that may be expected to encompass a large fraction of the distribution of values that could reasonably be attributed to the measurand. The fraction may be viewed as the coverage probability or level of confidence of the interval.

The test system for conducted emissions is defined as the LISN, spectrum analyzer, coaxial cables, and pads. The test system for radiated emissions is defined as the antenna, spectrum analyzer, pre-amplifier, coaxial cables, and pads. The conducted test system has a combined standard uncertainty of ± 1.2 dB. The radiated test system has a combined standard uncertainty of ± 1.6 dB. The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor of 2. Compliance criteria are not based on measurement uncertainty.

2.4 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Guide 25.

2.5 Product Description

The tag is capable of transmitting on four different frequencies: 909, 912, 915, and 918 MHz. Typically, a tag will send periodic transmissions on one frequency, and only change frequency occasionally (if the RadarFind system detects interference on the initial frequency). Transmissions can vary in length and period, but this testing will be performed at close to 100% duty cycle to allow for accurate measurement of harmonics and spurious emissions.

A more detailed description of the EUT can be found in the Manufacturer' test plan.

The EUT submitted for testing was Not Serialized.

2.6 Configuration

There are two styles of tags (status and non-status-switch models) have identical hardware and firmware, and differ only by the presence of the plastic switch-slider. More importantly, they have the same RF characteristics. RadarFind thus proposes not to duplicate testing for the two model numbers. This approach was taken by Underwriters RTP in the testing of two similar tag models on November 15th, 2006, in report 060112.

The data was successfully used by RadarFind to apply for FCC IDs on both tags through American TCB Inc. Since the transmitter "chirp" style of the periodic transmissions is inconvenient for radiated emissions evaluation, RadarFind proposes to submit two kinds of special samples:

The first ("spurs") sample will generate near continuous data at all four frequencies and at both baud rates.

Some "off time" will also be used, to check for spurious emissions that could be generated by turning on and off the transmitter. This sample will transmit 200ms of data at the high baud rate, then 200 ms at the low baud rate, and will cycle through the other three frequencies with both baud rates. 50 ms "off time" will be used between all frequency or baud rate changes.

The sample will transmit in this eight cycle pattern until the battery is removed.

3 Radiated RF Emissions

Testing was performed in accordance with 47 CFR Part 15, ANSI C63.4:2003. These test methods are listed under the laboratory's NVLAP Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

3.1 Peak Output Power FCC Part 15.249(a)

The EUT is not a fixed, point-to-point device therefore FCC part 15.249(b) is not applicable to this apparatus.

The field strength of emissions from intentional radiators operated within these frequency bands (901 – 928 MHz) shall comply with the following limits:

Fundamental frequency	Field strength of fundamental (millivolts/ meter)	Field strength of harmonics (microvolts/ meter)
902-928 MHz	50	500

Note: 50 mV/m is equivalent to 94 dBµV/m

500 µV/m is equivalent to 54 dBµV/m

Peak Power Output:

CH01: 909.0 MHz = 80.25 dBµV/m = 10.3 mV/m

CH02: 912.0 MHz = 80.08 dBµV/m = 10.1 mV/m

CH03: 915.0 MHz = 79.69 dBµV/m = 9.6 mV/m

CH04: 918.0 MHz = 79.16 dBµV/m = 9.1 mV/m

Note: Measurements were made using a CISPR 16 compliant EMC Receiver.

Per FCC Part 15.249(c), all field strengths were measured at a distance of 3m.

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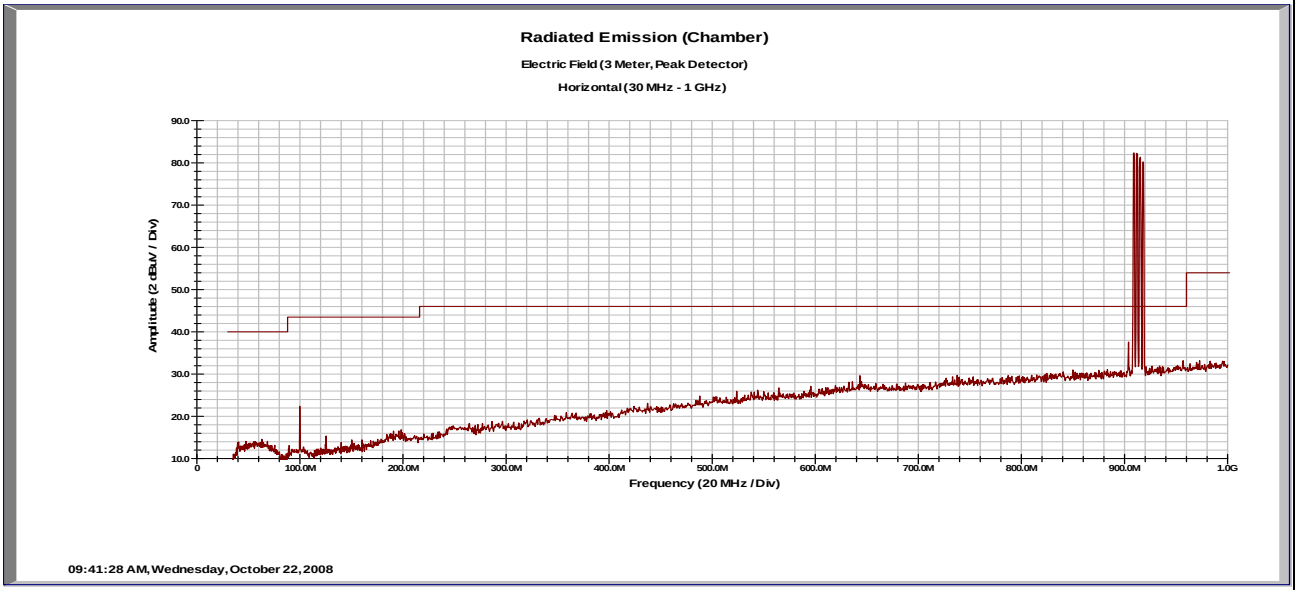
EUT Name	Non-Status Tag	**Date**	22 October 2008
EUT Model	T21-120	**Temp / Hum in**	71ºF / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	12	**RBW / VBW**	120 kHz / 300 kHz
Dist/Ant Used	3m / 6140	**Performed by**	Mark Ryan
Configuration	Normal operation		



Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	Pk E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dB)
909.00	H	1	311	54.28	0.00	3.39	22.58	80.25	94.00	-13.75
912.00	H	1	337	54.08	0.00	3.40	22.60	80.08	94.00	-13.92
915.00	H	1	336	53.68	0.00	3.41	22.60	79.69	94.00	-14.31
918.00	H	1	310	53.08	0.00	3.42	22.66	79.16	94.00	-14.84

Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: Orientation 1 is worst case (see test setup photos)
The limit for the four fundamental frequencies is 50mV which is equivalent to 94 dBµV.
All other emissions including harmonics must be under the limits of FCC part 15.209

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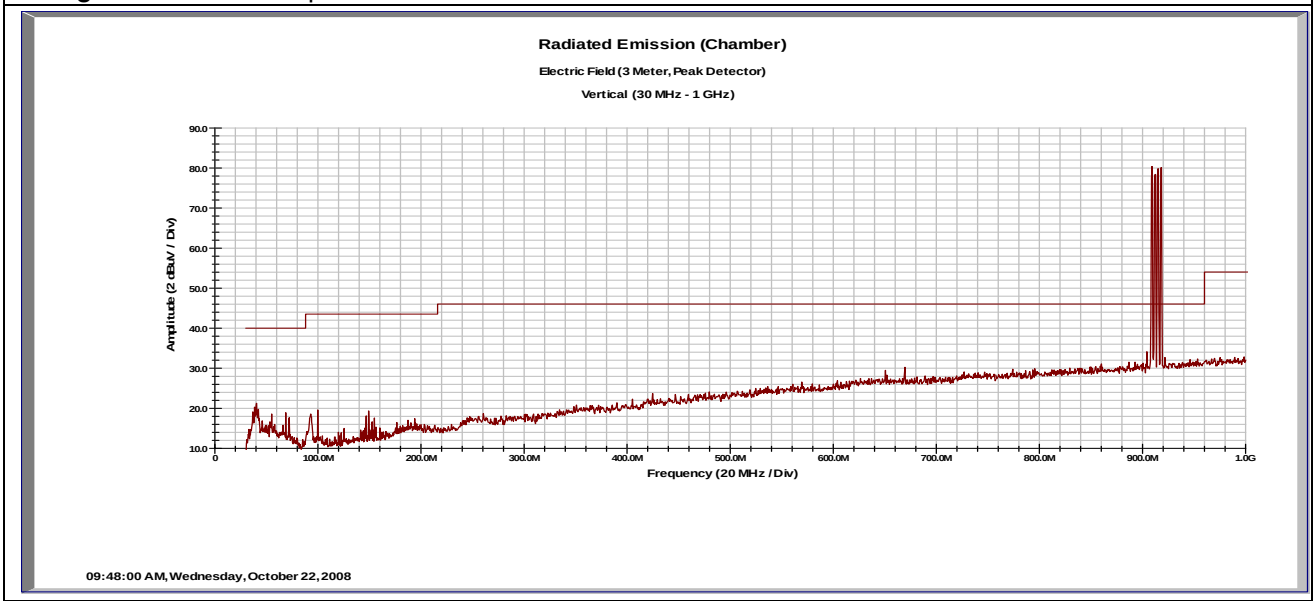
EUT Name	Non-Status Tag	**Date**	22 October 2008
EUT Model	T21-120	**Temp / Hum in**	71ºF / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	12	**RBW / VBW**	120 kHz / 300 kHz
Dist/Ant Used	3m / 6140	**Performed by**	Mark Ryan
Configuration	Normal operation - 200kBit data		



Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dB)
909.00	V	1.18	230	53.33	0.00	3.39	22.30	79.02	94.00	-14.98
912.00	V	1.18	260	53.59	0.00	3.40	22.30	79.29	94.00	-14.71
915.00	V	1.18	263	53.49	0.00	3.41	22.30	79.20	94.00	-14.80
918.00	V	1.14	321	52.80	0.00	3.42	22.36	78.58	94.00	-15.42

Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: Orientation 1 is worst case (see test setup photos)
The limit for the four fundamental frequencies is 50mV which is equivalent to 94 dBµV.
All other emissions including harmonics must be under the limits of FCC part 15.209

4 Spurious Emissions

4.1 Spurious Emissions FCC Part 15.249(d) and 15.249(e)

4.1.1 Test Methodology

4.1.1.1 Preliminary Test

A test program that controls instrumentation and data logging was used to automate the preliminary RF emission test procedure. The frequency range of interest was divided into sub-ranges to yield a frequency resolution of approximately 300 kHz and provide a reading at each frequency for each 6° of turntable rotation. For each frequency sub-range the turntable was rotated 360° while peak emission data was recorded and plotted over the frequency range of interest in horizontal and vertical antenna polarization's.

Preliminary emission profile testing was performed inside the anechoic chamber. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm above the floor. The EUT was positioned as shown in the setup photographs. The receiving antenna was placed at a distance of 3m at a fixed height of 1m. Measurement equipment was located outside of the chamber. A video camera was placed inside the chamber to view the EUT.

4.1.1.2 Final Test

For each frequency measured, the peak emission was maximized by manipulating the receiving antenna from 1 to 4 meters above the ground plane and placing it at the position that produced the maximum signal strength reading. The turntable was then rotated through 360° while observing the peak signal and placing the EUT at the position that produced maximum radiation.

Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm above the ground plane. The placement of EUT and cables were the same as for preliminary testing and is shown in the setup photographs.

4.1.1.3 Deviations

There were no deviations from this test methodology.

4.1.2 Test Results

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

4.1.2.1 Emissions Outside the Frequency Band

Per FCC part 15.249(d): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation.

Per FCC part 15.249(e): As shown in Sec. 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section is based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

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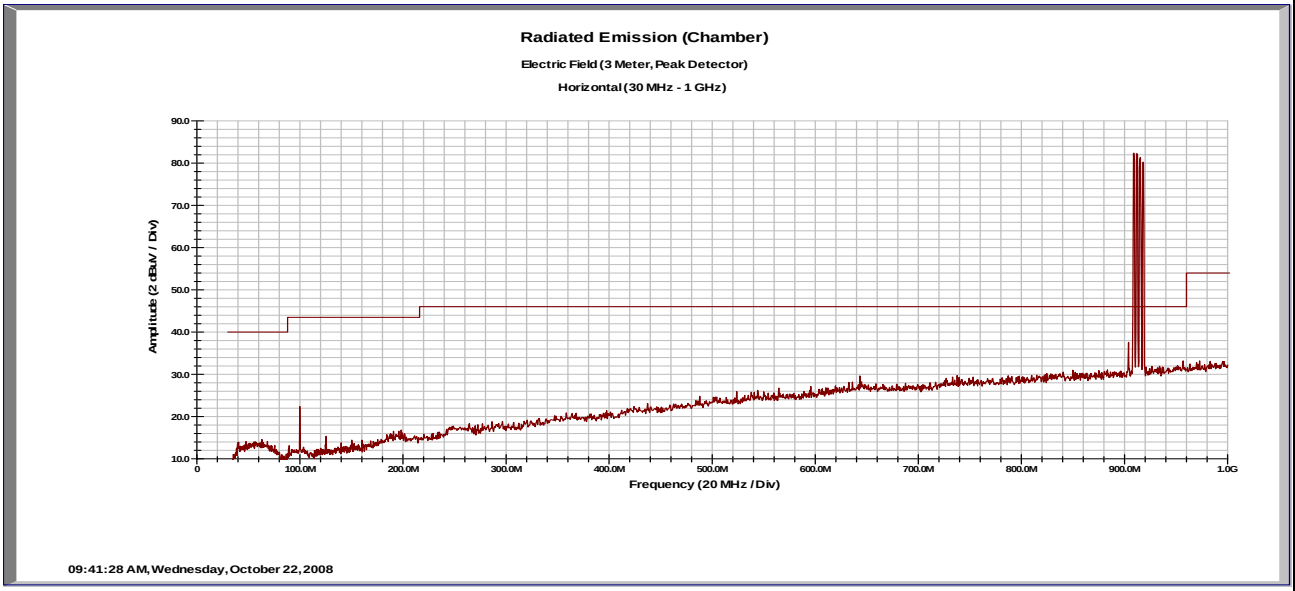
EUT Name	Non-Status Tag	**Date**	22 October 2008
EUT Model	T21-120	**Temp / Hum in**	71ºF / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	12	**RBW / VBW**	120 kHz / 300 kHz
Dist/Ant Used	3m / 6140	**Performed by**	Mark Ryan
Configuration	Normal operation		



Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dB)
99.88	H	1	0	2.15	0.00	1.07	7.99	11.21	43.50	-32.29
125.32	H	1.43	0	4.21	0.00	1.22	7.41	12.84	43.50	-30.66

Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: Orientation 1 is worst case (see test setup photos)
The limit for all emissions outside the band including harmonics must be under the limits of FCC part 15.209

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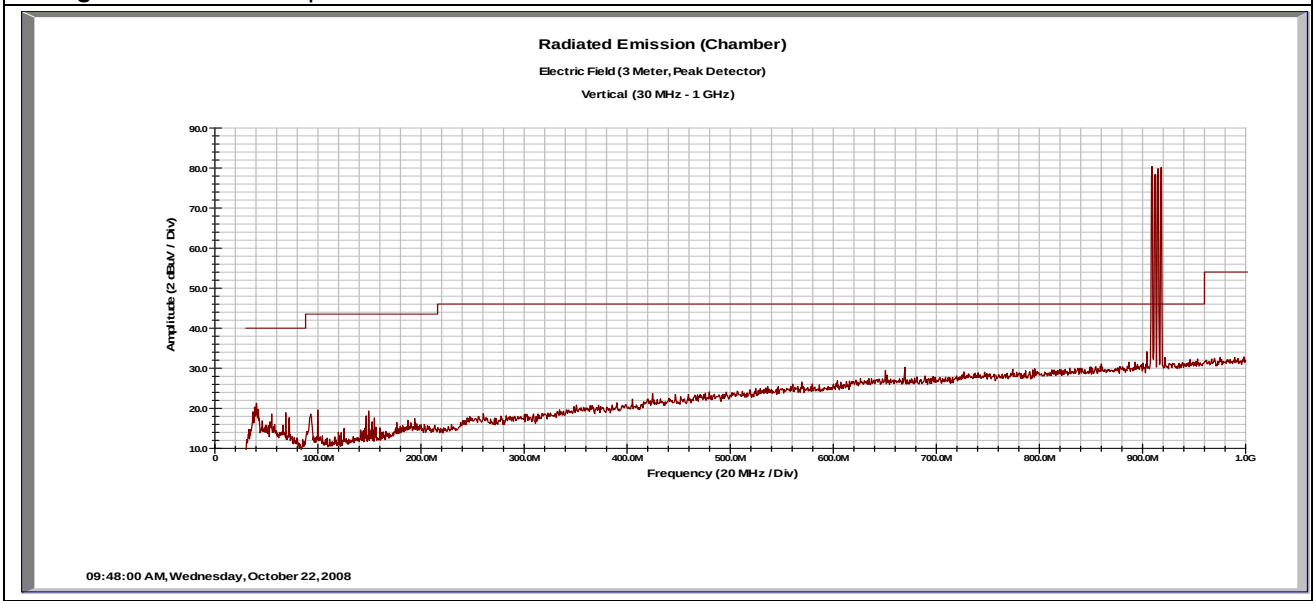
EUT Name	Non-Status Tag	**Date**	22 October 2008
EUT Model	T21-120	**Temp / Hum in**	71ºF / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	12	**RBW / VBW**	120 kHz / 300 kHz
Dist/Ant Used	3m / 6140	**Performed by**	Mark Ryan
Configuration	Normal operation - 200kBit data		



Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dB)
40.52	V	1	371	8.95	0.00	0.69	8.74	18.38	40.00	-21.62
99.88	V	1	37	6.68	0.00	1.07	7.19	14.94	43.50	-28.56

Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: Orientation 1 is worst case (see test setup photos)
The limit for all emissions outside the band including harmonics must be under the limits of FCC part 15.209

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EUT Name	Non-Status Tag	**Date**	22 October, 2008
EUT Model	T21-120	**Temp / Hum in**	72 Deg F / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	6	**RBW / VBW**	1 MHz 1 MHz
Dist/Ant Used	3 meters / 3115	**Performed by**	Mark Ryan
Configuration	Normal 200kBit data - Horizontal Polarity		

Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dBuV/m)
909 Pk										
1818.00	H	1	350	44.74	36.12	6.35	26.86	41.83	54.00	-12.17
2727.00	H	1	358	40.32	35.97	7.87	29.74	41.96	54.00	-12.04
909 AV										
1818.00	H	1	350	29.87	36.12	6.35	26.86	26.96	54.00	-27.04
2727.00	H	1	358	26.70	35.97	7.87	29.74	28.34	54.00	-25.66
912 Pk										
1824.00	H	1	354	44.47	36.13	6.34	26.89	41.57	54.00	-12.43
2736.00	H	1	358	40.10	35.95	7.90	29.76	41.81	54.00	-12.19
912 AV										
1824.00	H	1	354	29.66	36.13	6.34	26.89	26.76	54.00	-27.24
2736.00	H	1	358	27.13	35.95	7.90	29.76	28.84	54.00	-25.16
915 Pk										
1830.00	H	1	352	44.09	36.15	6.34	26.92	41.20	54.00	-12.80
2745.00	H	1	358	40.32	35.93	7.93	29.79	42.10	54.00	-11.90
915 Av										
1830.00	H	1	352	29.70	36.15	6.34	26.92	26.81	54.00	-27.19
2745.00	H	1	358	26.63	35.93	7.93	29.79	28.41	54.00	-25.59
918 Pk										
1836.00	H	1	352	45.02	36.16	6.34	26.95	42.14	54.00	-11.86
2754.00	H	1	358	40.32	35.94	7.96	29.81	42.15	54.00	-11.85
918 Av										
1836.00	H	1	352	29.57	36.16	6.34	26.95	26.69	54.00	-27.31
2754.00	H	1	358	27.04	35.94	7.96	29.81	28.87	54.00	-25.13

Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: The frequency show in RED is the fundamental frequency of the apparatus.
Only the 2nd and 3rd harmonics were visible.
All other harmonics were indistinguishable from the EMC receiver's noise floor.

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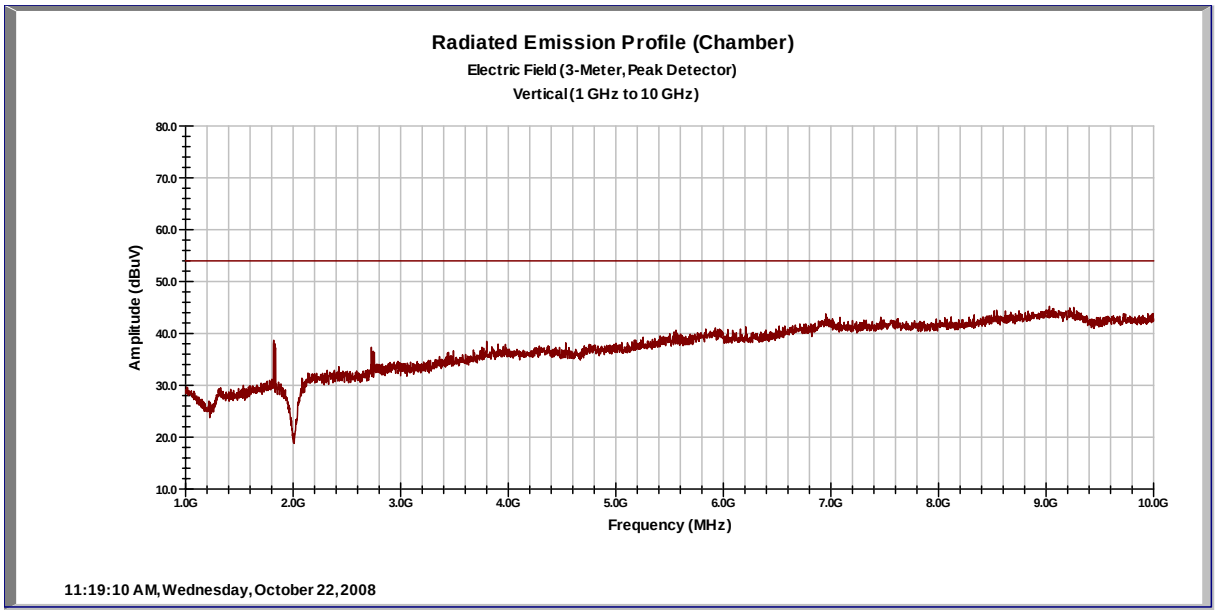
EUT Name	Non-Status Tag	**Date**	22 October, 2008
EUT Model	T21-120	**Temp / Hum in**	72 Deg F / 32% rH
EUT Serial	Not Serialized	**Temp / Hum out**	N/A
Standard	FCC 47 CFR Part 15C	**Voltage / Freq.**	3V DC (battery)
Deg/sweep	6	**RBW / VBW**	1 MHz 1 MHz
Dist/Ant Used	3 meters / 3115 above 1 GHz	**Performed by**	Mark Ryan
Configuration	Normal 200kBit data - Vertical Polarity		

Emission Freq (MHz)	ANT Polar (H/V)	ANT Pos (m)	Table Pos (deg)	FIM Value (dBuV)	Amp Gain (dB)	Cable Loss (dB)	ANT Factor (dB/m)	E-Field Value (dBuV/m)	Spec Limit (dBuV/m)	Spec Margin (dBuV/m)
909 Pk										
1818.00	V	1	285	44.35	36.12	6.35	26.61	41.18	54.00	-12.82
2727.00	V	1	343	42.39	35.97	7.87	29.27	43.57	54.00	-10.43
909 AV										
1818.00	V	1	285	29.86	36.12	6.35	26.61	26.69	54.00	-27.31
2727.00	V	1	343	27.56	35.97	7.87	29.27	28.74	54.00	-25.26
912 Pk										
1824.00	V	1	287	44.10	36.13	6.34	26.63	40.94	54.00	-13.06
2736.00	V	1	343	42.29	35.95	7.90	29.30	43.54	54.00	-10.46
912 AV										
1824.00	V	1	284	29.90	36.13	6.34	26.63	26.74	54.00	-27.26
2736.00	V	1	343	27.57	35.95	7.90	29.30	28.82	54.00	-25.18
915 Pk										
1830.00	V	1	284	44.75	36.15	6.34	26.65	41.60	54.00	-12.40
2745.00	V	1	339	42.09	35.93	7.93	29.33	43.42	54.00	-10.58
915 Av										
1830.00	V	1	284	49.44	36.15	6.34	26.65	46.29	54.00	-7.71
2745.00	V	1	339	27.22	35.93	7.93	29.33	28.55	54.00	-25.45
918 Pk										
1836.00	V	1	284	29.54	36.16	6.34	26.68	26.40	54.00	-27.60
2754.00	V	1	341	42.39	35.94	7.96	29.36	43.77	54.00	-10.23
918 Av										
1836.00	V	1	284	44.09	36.16	6.34	26.68	40.95	54.00	-13.05
2754.00	V	1	341	27.66	35.94	7.96	29.36	29.04	54.00	-24.96

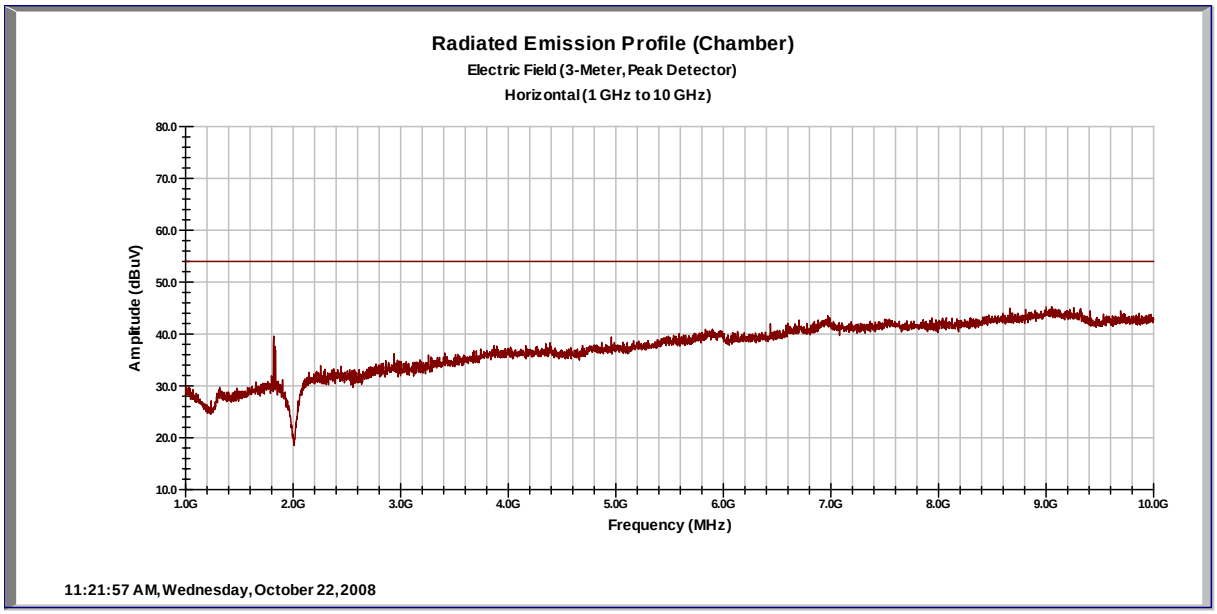
Spec Margin = E-Field Value - Limit, E-Field Value = FIM Value - Amp Gain + Cable Loss + ANT Factor ± Uncertainty

Combined Standard Uncertainty $u_c(y)$ = ± 1.6dB Expanded Uncertainty $U = ku_c(y)$ k = 2 for 95% confidence

Notes: The frequency show in RED is the fundamental frequency of the apparatus.
Only the 2nd and 3rd harmonics were visible.
All other harmonics were indistinguishable from the EMC receiver's noise floor.



1 – 10 GHz Plot of Harmonics and spurs with transmitters in test mode - Vertical



1 – 10 GHz Plot of Harmonics and spurs with transmitters in test mode - Horizontal

5 Conducted Emissions FCC Part 15.207

The EUT is battery operated; therefore in accordance with FCC Part 15.207(c) testing is not required.

6 Test Equipment Used

6.1 Test Equipment use list

Equipment	Manufacturer	Model #	Serial/Inst #	Last Cal dd/mm/yy	Next Cal dd/mm/yy
SOP 1 - Radiated Emissions (5 Meter Chamber)					
Amplifier, preamp	Agilent Technologies	8449B	3008A01480	30-Jan-08	30-Jan-09
Antenna Horn 1-18GHz	EMCO	3115	5770	16-Jun-08	16-Jun-10
Ant. BiconiLog	Chase	CBL6140A	1108	13-Jun-08	13-Jun-10
Receiver, EMI	Rohde & Schwarz	ESIB40	100043	9-Jun-08	9-Jun-09
Spectrum Analyzer	Agilent Tec.	E7405A	US39440161	7-Aug-08	7-Aug-09
Cable, Coax	Andrew	FSJ1-50A	003	25-Jan-08	25-Jan-09
Cable, Coax	Andrew	FSJ1-50A	030	30-Jan-08	30-Jan-09
Cable, Coax	Andrew	FSJ1-50A	045	30-Jan-08	30-Jan-09

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