

**Advanced
Compliance Laboratory**

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ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

MODULE

MODEL: CCA-SA-W2500-02
FCC ID: XAYW2500

July 23, 2009

<p>This report concerns (check one): Original grant <input checked="" type="checkbox"/> Class II change <input type="checkbox"/></p> <p>Equipment type: <u>Low Power Intentional Radiator</u></p>	
<p>Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes _____ no <input checked="" type="checkbox"/></p> <p style="text-align: center;">If yes, defer until: _____ (date)</p> <p>Company agrees to notify the Commission by _____ (date) of the intended date of announcement of the product so that the grant can be issued on that date.</p>	
<p>Transition Rules Request per 15.37? yes _____ no <input checked="" type="checkbox"/></p> <p>If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.</p>	
<p>Report prepared for:</p> <p>Report prepared by:</p> <p>Report number:</p>	<p>TELEGRID TECHNOLOGIES, INC. Advanced Compliance Lab 0048-090708-01</p>



Lab Code: 200101

The test result in this report IS supported and covered by the NVLAP accreditation

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1. GENERAL INFORMATION

1.1 Verification of Compliance

EUT: TELETAG

Model: CCA-SA-W2500-02

Applicant: TELEGRID Technologies, Inc.

Test Type: FCC Part 15C CERTIFICATION

Result: PASS

Tested by: ADVANCED COMPLIANCE LABORATORY

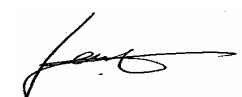
Test Date: July 10-15, 2009

Report Number: 0048-090708-01

The above equipment was tested by Compliance Laboratory, Advanced Technologies, Inc. for compliance with the requirement set forth in the FCC rules and regulations Part 15 subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty u_c	norm.	± 2.36	± 2.99	± 1.83



Wei Li
Lab Manager
Advanced Compliance Lab

Date: July 23, 2009

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	TELETAG CCA-SA-W2500-02 (1)	XAYW2500	
Housing	PLASTICS		
Power Supply	3V DC Battery		
Operation Freq.	2.4GHz		
Receiver	CCA-SA-W2500-02(RX)	Verification	

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4 at an antenna to EUT distance of 3 meters.

1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at Hillsborough, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

1.6 Test Equipment

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/yy	Cal Due dd/mm/yy
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	25/09/08	25/09/09
EMCO	3115	4945	Double Ridge Guide Horn Antenna	02/12/08	02/12/09
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	02/09/08	02/09/09
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	11/08/08	11/08/09
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	23/08/08	23/08/09
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	23/08/08	23/08/09

All Test Equipment Used are Calibrated Traceable to NIST Standards.

1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

2. PRODUCT LABELING

**TELEGRID CCA-SA-W2500-02
FCC ID: XAYW2500**

This device complies with part 15 of the FCC Rules. Operating is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Figure 2.1 FCC ID Label
(Only FCC ID shown on EUT)**

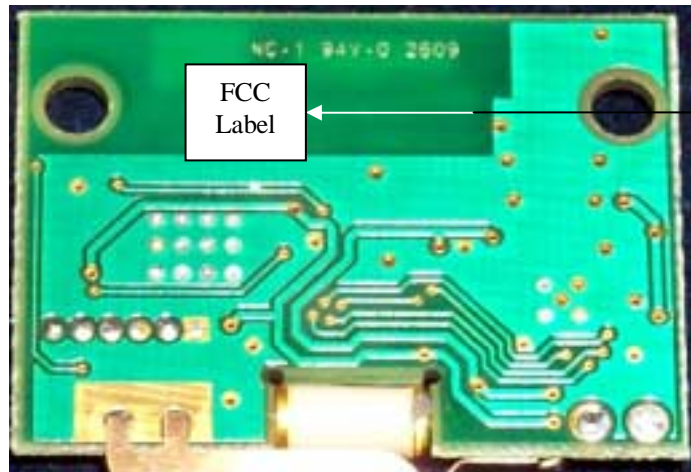
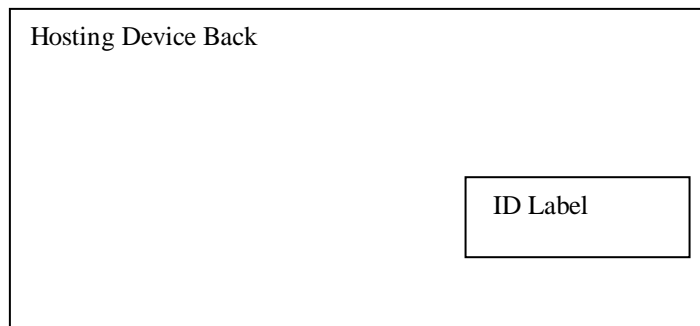


Figure 2.2 FCC Label Location

Contains FCC ID: XAYW2500

This device complies with FCC Part 15C Rules. Operating is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



**Figure 2.3 Proposed FCC ID Label & Location for MODULE Host Device
(The statement may be shown in its user manual for small size devices)**

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT.

Testing was performed as EUT was continuously operated at the following frequency channels:

2.42575GHz.

Fresh external battery was used for extended operating time.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 to Figure 3.3 illustrate this system, which is tested standing along.



Figure 3.1 Radiated Test Setup, position 1



Figure 3.2 Radiated Test Setup, position 2



Figure 3.3 Radiated Test Setup, position 3

4. SYSTEM SCHEMATICS

See Attachment.

Figure 4.1 System Schematics

5. RADIATED EMISSION DATA

5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA + AF + CF + AG$$

where FS: Corrected Field Strength in dB μ V/m

RA: Amplitude of EMI Receiver before correction in dB μ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

THE "DUTY CYCLE CORRECTION FACTOR" FOR SPURIOUS RADIATED EMISSIONS IS;
 $20 \log * (1 \text{ ms} / 100 \text{ ms}) = -40 \text{ dB}$, WHICH WAS USED TO CORRECT THE AVERAGE RADIATED EMISSION READINGS.

5.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 1GHz, 120KHz IF bandwidth / 120KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement. Up to 10th harmonics were investigated.

5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Test Personnel: David Tu

Typed/Printed Name: David Tu

Date: July 23, 2009

Radiated Test Data (CH-2425.75MHz)

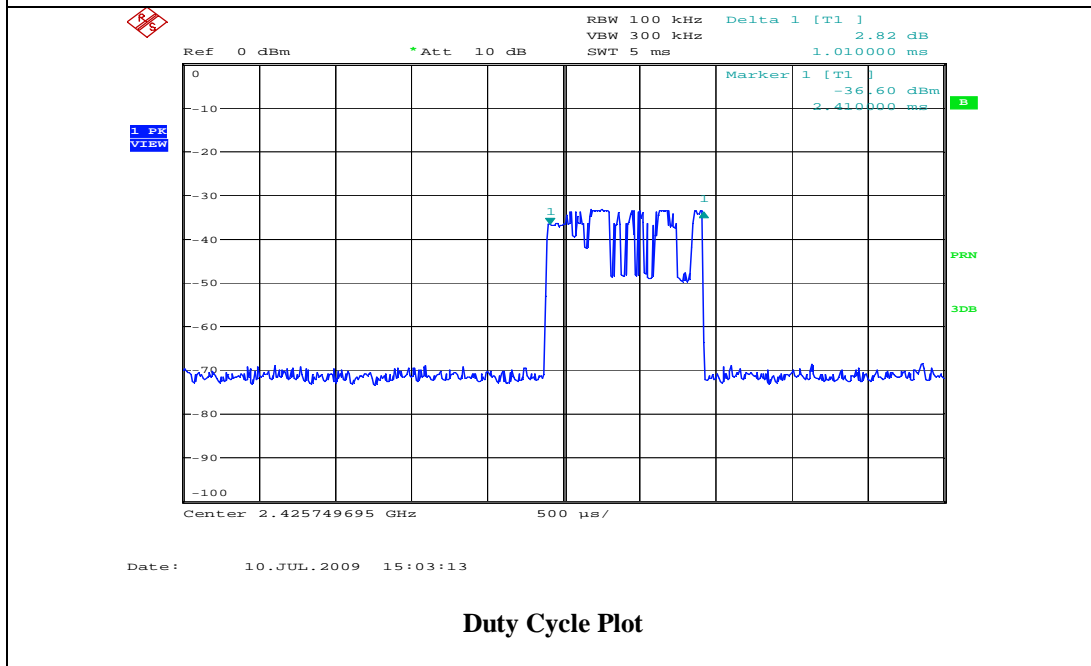
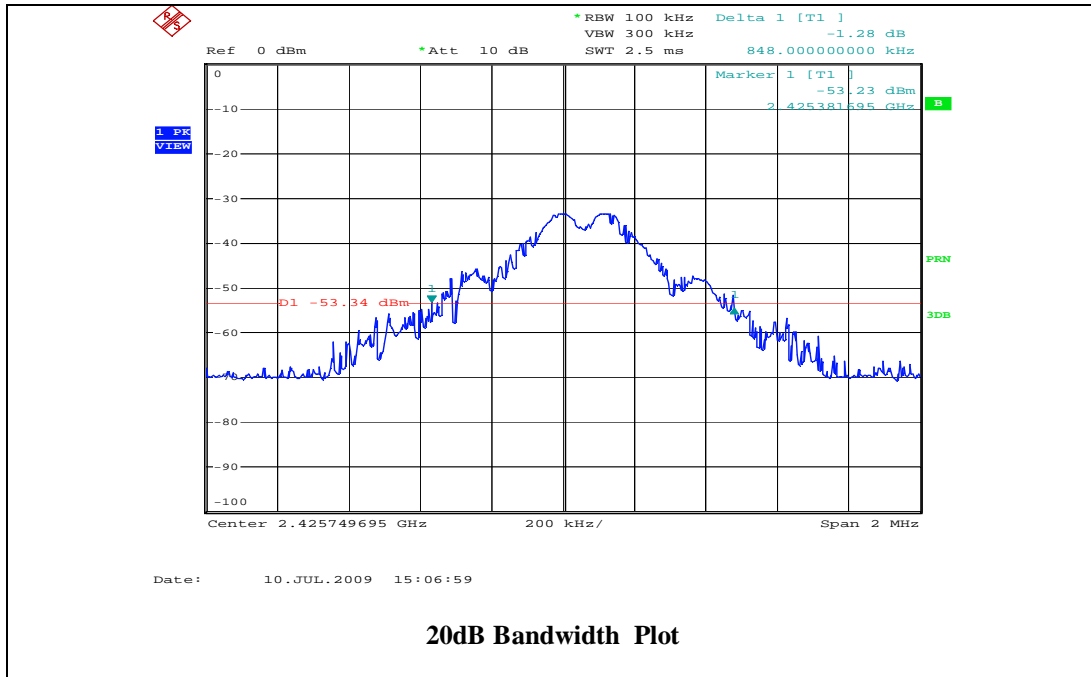
Frequency (MHz)	Polarity (V,H) Position (X,Y,Z)	Antenna Height (m)	Azimuth (Degree)	Peak Reading at 3m (2) (dBuV/m)	Average Reading After Correc- tion (dBuV/m)	FCC 3m Average Limit (1) (dBuV/m)	Average Differ- ence	FCC 3m Peak Limit (dBuV/m)	Peak Differ- ence
2425.75	V/X	1.25	270	87.9	47.9	94	-46.1	114	-26.1
4851.50	V/X	1.3	250	43.5	3.5	54	-50.5	74	-30.5
7277.25	V/X	1.2	220	48.0	8	54	-46	74	-26
2425.75	H/X	1.45	90	101.0	61	94	-33	114	-13
4851.50	H/X	1.4	100	49.5	9.5	54	-44.5	74	-24.5
7277.25	H/X	1.4	100	50.0	10	54	-44	74	-24
2425.75	V/Y	1.2	180	90.9	50.9	94	-43.1	114	-23.1
4851.50	V/Y	1.3	180	46.5	6.5	54	-47.5	74	-27.5
7277.25	V/Y	1.3	200	48.4	8.4	54	-45.6	74	-25.6
2425.75	H/Y	1.5	90	95.6	55.6	94	-38.4	114	-18.4
4851.50	H/Y	1.4	80	52.0	12	54	-42	74	-22
7277.25	H/Y	1.5	80	50.4	10.4	54	-43.6	74	-23.6
2425.75	V/Z	1.2	180	94.9	54.9	94	-39.1	114	-19.1
4851.50	V/Z	1.3	170	48.9	8.9	54	-45.1	74	-25.1
7277.25	V/Z	1.2	180	50.2	10.2	54	-43.8	74	-23.8
2425.75	H/Z	1.3	90	96.1	56.1	94	-37.9	114	-17.9
4851.50	H/Z	1.25	270	50.1	10.1	54	-43.9	74	-23.9
7277.25	H/Z	1.3	120	49.4	9.4	54	-44.6	74	-24.6

(1) The limit for emissions within the 2400-2483.5MHz band is 50mV(94dB) per Sec. 15.249. The limit for its harmonics is 500uV (54dB). Other spurious emissions shall be lower than either its fundamental by 50dB or the limit defined in Sec. 15.209, whichever is higher.

(2) If each peak reading is less than the FCC average limit, it'll be not necessary to show the measured/ calculated average reading.

Other Spurious outside of the band 2400-2483.5MHz

No other significant spurious emissions were founded for outside of the band 2400-2483.5MHz. i.e. Comparing to the limit defined in Sec. 15.209, emissions below the limit by 20dB were not recorded.



6. EUT RECEIVING MODE VERIFICATION

Radiated Test Data for Receiving Mode (worst case: Z-position)

Frequency (MHz)	Polarity (H or V)	Antenna Height (m)	Azimuth (Degree)	Peak Reading at 3m(2) (dBuV/m)	FCC 3m Limit(1) (dBuV/m)	Difference (dBuV/m)
78	V	1.2	90	24.3	40	-15.7
157	V	1.2	100	29.0	43.5	-14.5
208	H	1.4	260	23.6	46	-22.4
520	H	1.3	270	21.4	46	-24.6

- (1) Receiving mode spurious emissions shall be lower than the limit defined in Sec. 15.209.
 (2) If each peak reading is less than the FCC average limit, it'll be not necessary to show the measured/ calculated average reading.