



**Test Report:** 6W58614.2 Issue 2

**Applicant:** Exavera Technologies, Inc.  
195 New Hampshire Avenue  
Suite 155  
Portsmouth, NH 03801

**Equipment Under Test:** Vera-T Staff Badge VTS-321 &  
Vera-T Asset Tag VTA-322

**FCC ID:** T2R-VTS321

**In Accordance With:** **FCC Part 15, Subpart C, 15.249**

**Tested By:** Nemko Canada Inc.  
303 River Road, R.R. 5  
Ottawa, Ontario K1V 1H2

**Authorized By:** 

Roman Kuleba, Wireless Specialist

**Date:** February 28, 2007

**Total Number of Pages:** 17

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## **Section 1.      Summary Of Test Results**

### **General**

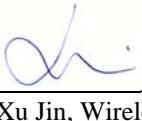
All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site. A description of the test facility is on file with the FCC.

**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".

TESTED BY:   
\_\_\_\_\_  
Xu Jin, Wireless Specialist

  
\_\_\_\_\_  
Jason Nixon, Telecom Specialist

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This report applies only to the items tested.

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## **Section 2. Summary Of Test Data**

### **Summary Of Test Data**

<b>Name Of Test</b>	<b>Para. No.</b>	<b>Result</b>
Radiated Emissions	15.249	Complies

### **Test Conditions:**

**Indoor**                    Temperature: 21°C  
                                  Humidity: 50%

**Outdoor**                    Temperature: -3°C  
                                  Humidity: 60%

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### **Section 3. General Equipment Specification**

**Manufacturer:** Exavera Technologies

**Model No.:** Vera-T Staff Badge VTS-321  
& Vera-T Asset Tag VTA-322

**Date Received In Laboratory:** Jan.4, 2006

**Frequency Range:** Tx: 905.3 – 925.3MHz  
Rx: 905.3 – 925.3MHz

**Modulation:** FSK

**Power Source:** Battery

Note: Customer declared that Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322 have identical RF circuit and antenna. Therefore only Vera-T Staff Badge VTS-321 was tested.

**Section 4. Test results****Para. No.: 15.207(a)**

<b>Test Performed By: Jason Nixon</b>	<b>Date of Test: Feb 26, 2007</b>
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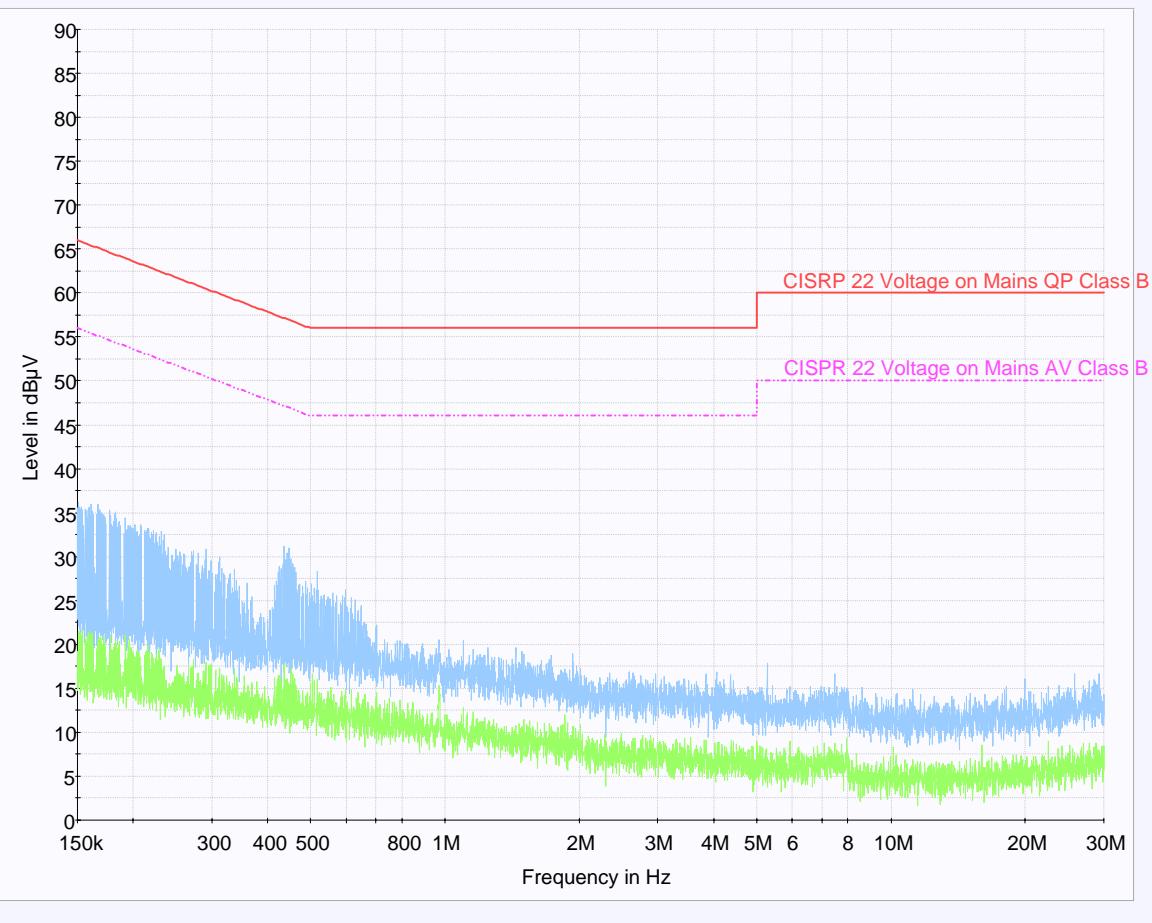
**Minimum Standard:**

<b>Frequency of Emission (MHz)</b>	<b>Maximum Powerline Conducted RF Voltage</b>	
	<b>Quasi-peak (dB<sub>u</sub>V)</b>	<b>Average(dB<sub>u</sub>V)</b>
0.15 – 0.5	66 to 56*	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

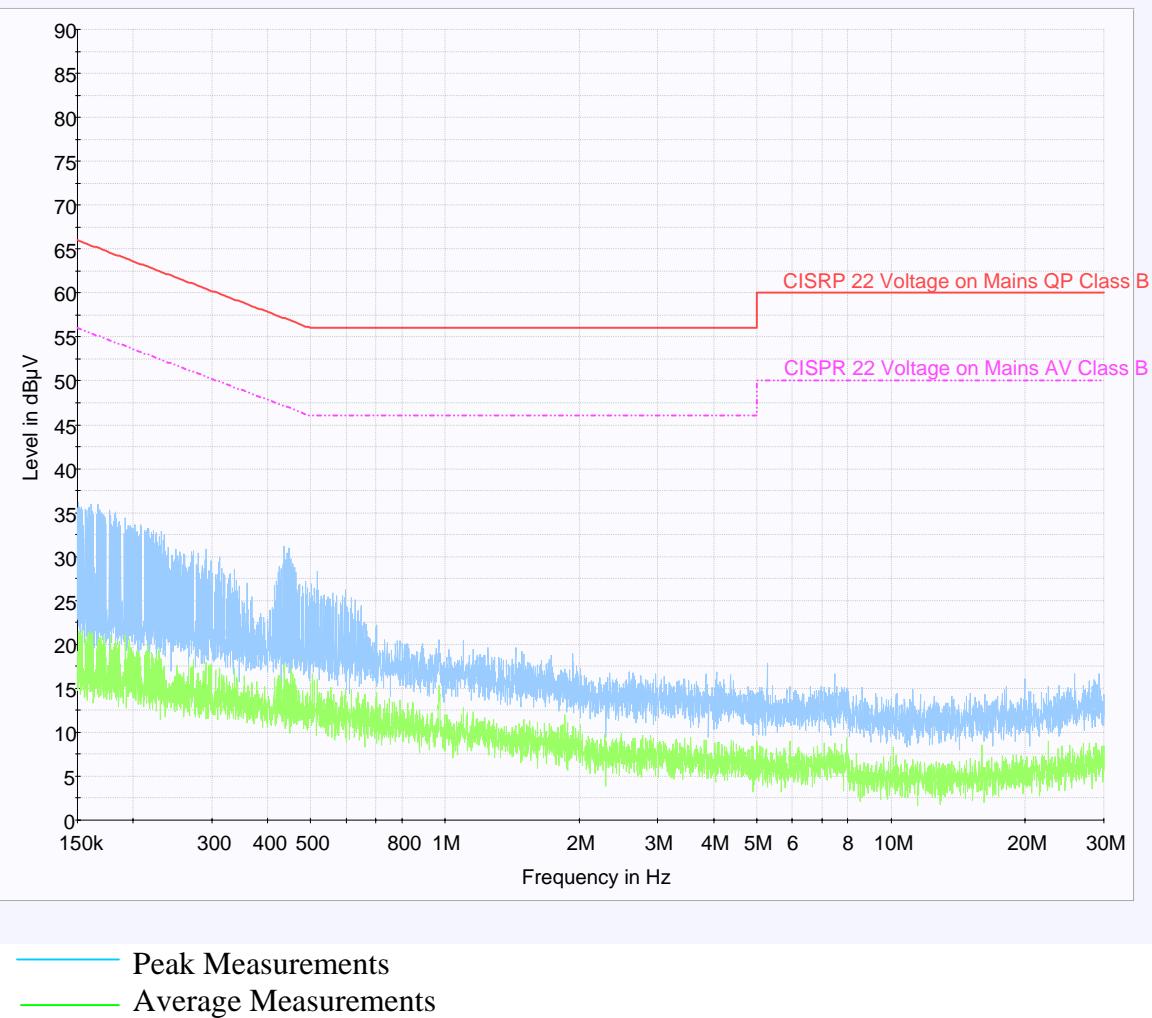
\* Decreases with the logarithm of the frequency

**Test Results:** PASS**Measurement Data:** See attached graphs.

All measurements have been corrected with the cable and LISN losses using a 9kHz RBW/VBW detector.

**Phase**

— Peak Measurements  
— Average Measurements

**Neutral**

**Para. No.: 15.249****Test Performed By: Xu Jin****Date of Test: Jan 10, 2006****Minimum Standard:**

15.209&amp;15.249

Band edge check must comply with 50dBc requirement.

Radiated Emission must comply with 15.209 general requirement

Frequency (MHz)	Field Strength (mV/m)	Field Strength (dB $\mu$ V/m)
<b>Fundamental</b>		
902-928	50	94
<b>Spurious out side the frequency band</b>		
33-88	0.1	40.0
88-216	0.15	43.5
216-960	0.2	46.0
960 above	0.5	54.0

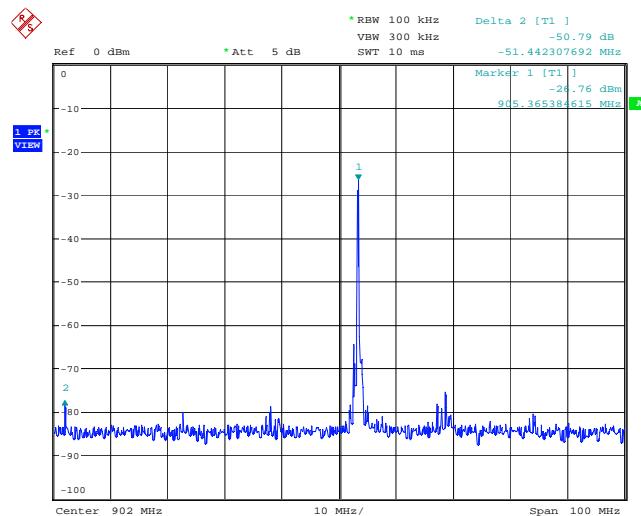
**Test Results:**

See graphic and data of this section.

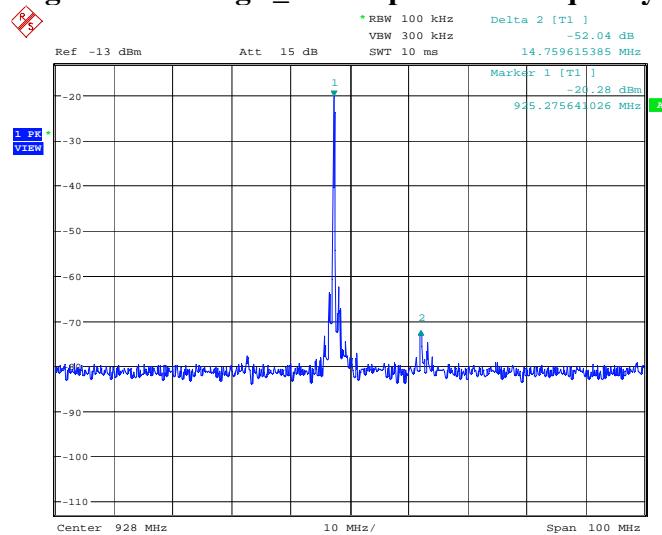
Radiated emission test was conducted at 3 meter at open area test site. The EUT was searched from 30MHz to the 10<sup>th</sup> harmonics, and for low, medium and high frequencies at the frequency band.

The EUT was searched for 3 orthogonal axis to determine the worst case emissions. Measurements were performed with fully charged batteries.

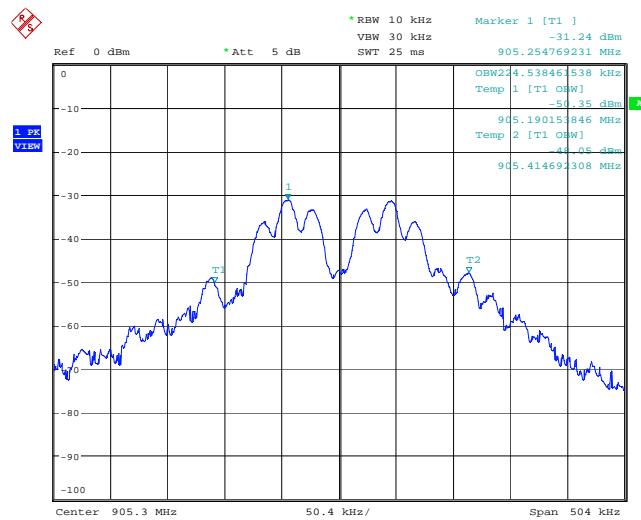
Only worst cases have been reported.

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322**FCC ID: T2R-VTS321***50dBc Band Edge Check****Lower Band Edge\_ EUT Operation Frequency 905.3MHz**

Date: 10.JAN.2006 13:56:56

**Higher Band Edge \_EUT Operation Frequency 925.3MHz**

Date: 10.JAN.2006 13:52:09

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322**FCC ID: T2R-VTS321***99% Channel Bandwidth \_ EUT Operation Frequency 905.3MHz**

Date: 10.JAN.2006 13:59:06

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322**FCC ID: T2R-VTS321***Radiated Emissions Test Data**

Test Date: Jan 13, 2006										
Engineer's Name: Xu Jin										
Tested as per: Table Top										
Temperature (C°): Indoor: 21, Outdoor: -3						Humidity %: Indoor: 50 , Outdoor: 60				
Test Distance (meters): 3						Dome: 2				
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dB $\mu$ V)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
905.3000	LP1	H	52.1	23.7	N/A	5.8	81.6	94.0	12.4	Peak
905.3000	LP1	V	57.0	23.0	N/A	5.8	85.7	94.0	8.3	Peak
1810.6000	Horn1	V	68.3	26.7	47.9	6.3	53.4	54.0	0.6	Peak
1810.6000	Horn1	H	64.0	26.7	47.9	6.3	49.1	54.0	4.9	Peak
2715.9000	Horn1	V	65.7	29.5	59.1	6.3	42.4	54.0	11.6	Peak
2715.9000	Horn1	H	69.4	29.5	59.1	6.3	46.0	54.0	8	Peak
915.3000	LP1	H	52.4	23.8	N/A	6.3	82.5	94.0	11.5	Peak
915.3000	LP1	V	59.0	23.1	N/A	6.3	88.3	94.0	5.7	Peak
1830.6000	Horn1	V	67.5	26.8	47.9	6.3	52.7	54.0	1.3	Peak
1830.6000	Horn1	H	66.9	26.8	47.9	6.3	52.1	54.0	1.9	Peak
2745.9000	Horn1	V	68.4	29.6	59.2	6.3	45.1	54.0	8.9	Peak
2745.9000	Horn1	H	70.1	29.6	59.2	6.3	46.8	54.0	7.2	Peak
925.3000	LP1	H	56.1	23.9	N/A	6.4	86.4	94.0	7.6	Peak
925.3000	LP1	V	62.4	23.2	N/A	6.4	92.0	94.0	2	Peak
1850.6000	Horn1	V	68.2	26.9	48.0	6.3	53.4	54.0	0.6	Peak
1850.6000	Horn1	H	68.3	26.9	48.0	6.3	53.6	54.0	0.4	Peak
2775.9000	Horn1	V	64.3	29.7	59.2	6.3	41.1	54.0	12.9	Peak
2775.9000	Horn1	H	70.1	29.7	59.2	6.3	46.9	54.0	7.1	Peak

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole

Note 2: Detector Legend: Below 1GHz, Peak detector with 100 kHz RBW, 100KHz VBW

Above 1GHz, Peak detector with 1.0MHz RBW, 1.0MHz VBW

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322**FCC ID: T2R-VTS321***Radiated emissions - Charging**

Test Date: Feb 27, 2007										
Engineer's Name: Jason Nixon										
Tested as per: Table Top										
Temperature (C°): Outdoor: 10						Humidity %: Outdoor: 60				
Test Distance (meters): 3						Dome: 1				
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dB $\mu$ V)	Ant. Factor	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
905.3000	LP1	V	54.4	23.0	N/A	3.1	80.5	94.0	13.5	Peak
905.3000	LP1	H	51.7	23.6	N/A	3.1	78.4	94.0	15.6	Peak
1810.6000	Horn2	V	67.2	27.5	49.1	4.5	50.1	54.0	3.9	Peak
1810.6000	Horn2	H	65.1	27.4	49.1	4.5	48.0	54.0	6.0	Peak
2715.9000	Horn2	V	66.5	30.0	59.8	5.9	42.7	54.0	11.3	Peak
2715.9000	Horn2	H	65.5	29.9	59.8	5.9	41.6	54.0	12.4	Peak
915.3000	LP1	V	64.7	23.0	N/A	3.2	90.9	94.0	3.1	Peak
915.3000	LP1	H	62.0	23.7	N/A	3.2	88.9	94.0	5.1	Peak
1830.6000	Horn2	V	65.9	27.5	49.1	4.6	49.0	54.0	5.0	Peak
1830.6000	Horn2	H	65.6	27.4	49.1	4.6	48.6	54.0	5.4	Peak
2745.9000	Horn2	V	74.1	30.0	59.7	5.8	50.2	54.0	3.8	Peak
2745.9000	Horn2	H	72.6	30.0	59.7	5.8	48.7	54.0	5.3	Peak
3661.2000	Horn2	V	67.4	32.5	58.5	7.0	48.4	54.0	5.6	Peak
3661.2000	Horn2	H	70.2	32.4	58.5	7.0	51.2	54.0	2.8	Peak
925.3000	LP1	V	63.9	23.1	N/A	3.2	90.2	94.0	3.8	Peak
925.3000	LP1	H	63.2	24.1	N/A	3.2	90.5	94.0	3.5	Peak
1850.6000	Horn2	V	68.7	27.5	49.1	4.7	51.8	54.0	2.2	Peak
1850.6000	Horn2	H	66.2	27.4	49.1	4.7	49.3	54.0	4.7	Peak
2775.9000	Horn2	V	70.6	30.1	59.7	6.0	46.9	54.0	7.1	Peak
2775.9000	Horn2	H	70.7	30.0	59.7	6.0	46.9	54.0	7.1	Peak
3701.2000	Horn2	V	66.6	32.5	58.4	7.0	47.7	54.0	6.3	Peak
3701.2000	Horn2	H	68.5	32.4	58.4	7.0	49.5	54.0	4.5	Peak

Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole

Note 2: Detector Legend: Below 1GHz, Peak detector with 100 kHz RBW, 300KHz VBW

Above 1GHz, Peak detector with 1.0MHz RBW, 3.0MHz VBW

**Nemko Canada Inc.**

FCC PART 15, SUBPART C, 15.249

PROJECT NO.:6W58614.2 Issue 2

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322*

*FCC ID: T2R-VTS321*

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Radiated Emissions Photos



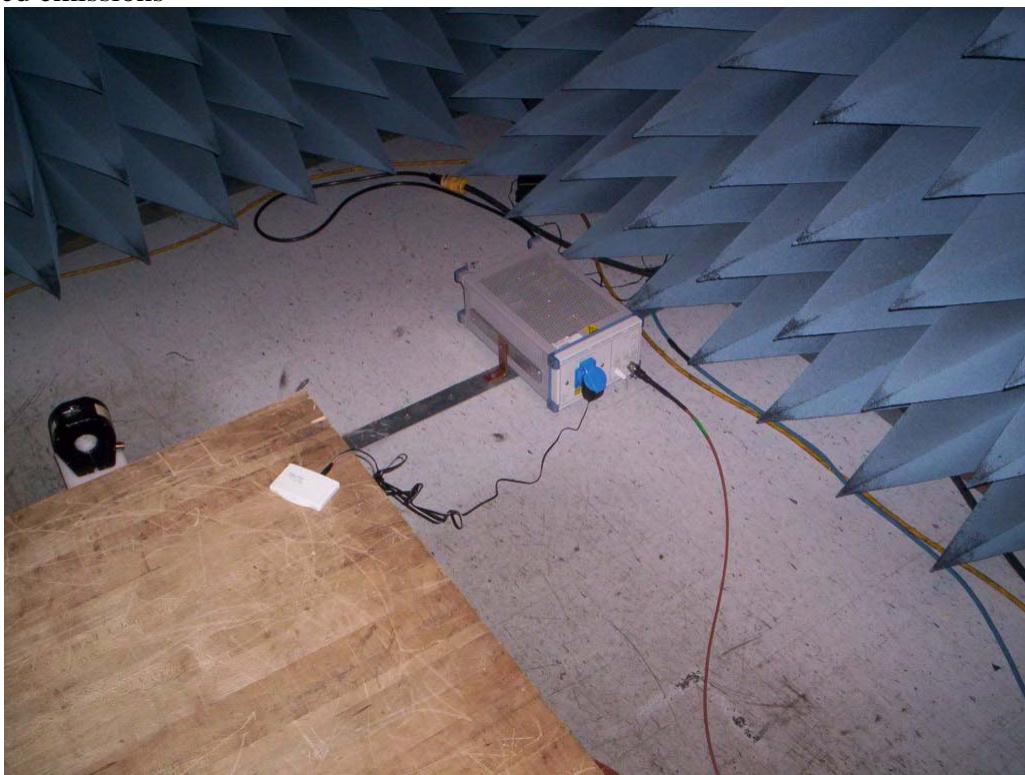
*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322*

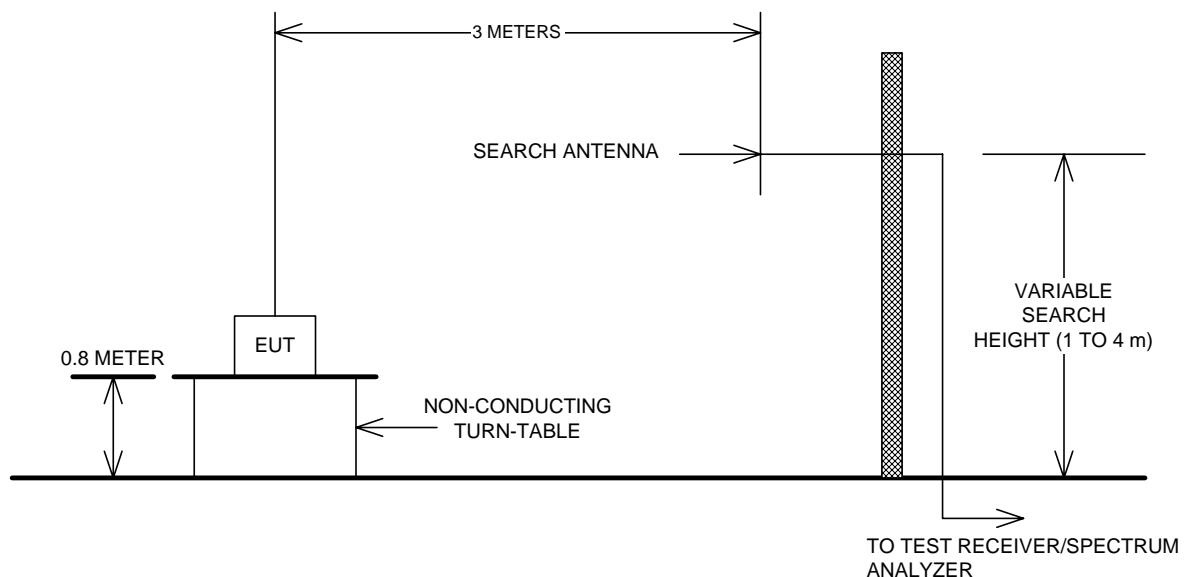
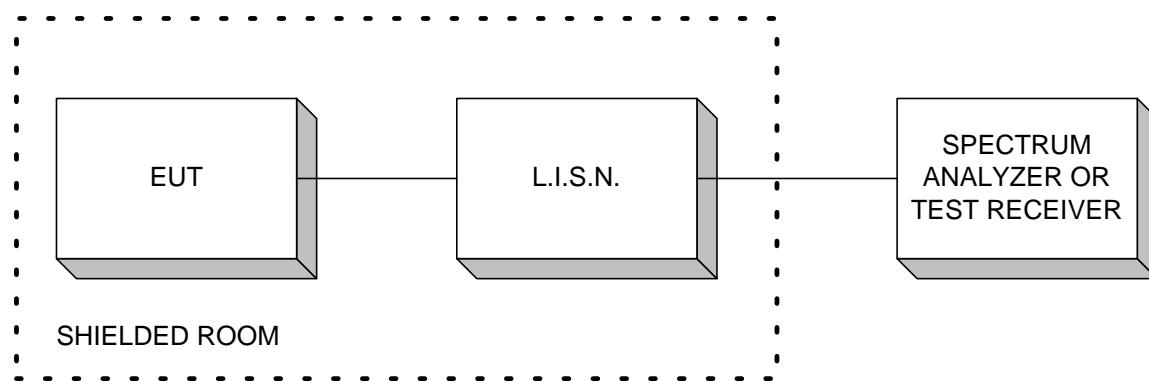
*FCC ID: T2R-VTS321*

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Conducted emissions



**Section 5. Block Diagrams****Test Site For Radiated Emissions****Conducted Emissions**

*EQUIPMENT: Vera-T Staff Badge VTS-321 & Vera-T Asset Tag VTA-322**FCC ID: T2R-VTS321*

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**Section 6.      Test Equipment List**

Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	May 17/05	May 17/06
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 18/05	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 18/05	May 18/06
Biconical (1) Antenna	EMCO	3109	FA000805	April 22/05	April 22/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/05	Aug. 29/06
Horn Antenna #1	EMCO	3115	FA000649	Dec. 16/05	Dec. 16/06
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/05	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/05	July 14/06
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	July 14/05	July 14/06
5.0 - 18GHz Amplifier	Narda	DWT-186N23U40	FA001409	COU	COU
Signal Generator	Rhode & Schwarz	SMR 40	FA001879	July 13/05	July 13/06
LISN	Rohde & Schwarz	ENV216	FA002023	Aug. 28/06	Aug. 28/07
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Oct. 24/06	Oct. 24/07

\* COU (Calibrate on Use)