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## FCC PART 15

### SCANNING RECEIVER

Applicant	VERTEX STANDARD CO., LTD.
Address	4-8-8, NAKAMEGURO, MEGURO-KU TOKYO, 153-8644, JAPAN
FCC ID:	K6620275X40
Model Number	FTM-10R
Product Description	SCANNING RECEIVER
Date Sample Received	JANUARY 11, 2007
Date Tested	JANUARY 16, 2007
Tested By	JOSEPH SCOGLO
Approved By	MARIO DE ARANZETA
Report Number	90UT7TestReport.doc
Total Pages	10
Test Results	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL  
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01

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APPLICANT: VERTEX STANDARD CO., LTD.  
FCC ID: K6620275X40  
REPORT #: W:\V\VERTEX\90UT7\90UT7TestReport.doc

## STATEMENT OF COMPLIANCE

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment complies with the appropriate standards.

I attest that the necessary measurements were made by me or under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.



Certificate #0955-01

**Authorized by:** Mario de Aranzeta

**Authorized Signature:** <Mario de Aranzeta>

**Function:** Engineer

**Date:** 2/7/2007

APPLICANT: VERTEX STANDARD CO., LTD.

FCC ID: K6620275X40

REPORT #: W:\V\VERTEX\90UT7\90UT7TestReport.doc

**GENERAL INFORMATION**

The test results relate only to the items tested.	
<b>DUT Description</b>	SCANNING RECEIVER
<b>FCC ID</b>	K6620275X40
<b>Model Number</b>	FTM-10R
<b>DUT Power Source</b>	<input type="checkbox"/> 110-120Vac/50- 60Hz
	<input type="checkbox"/> DC Power
	<input checked="" type="checkbox"/> Battery Operated Exclusively
<b>Test Item</b>	<input type="checkbox"/> Prototype
	<input checked="" type="checkbox"/> Pre-Production
	<input type="checkbox"/> Production
<b>Modifications to DUT</b>	None
<b>Test Standards</b>	FCC Part 15, Subpart B, ANSI C63.4-2003

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**TEST EQUIPMENT LIST**

<b>Device</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial Number</b>	<b>Cal/Char Date</b>	<b>Due Date</b>
<b>3/10-Meter OATS</b>	<b>TEI</b>	<b>N/A</b>	<b>N/A</b>	<b>Listed 3/27/04</b>	<b>3/26/07</b>
<b>3-Meter OATS</b>	<b>TEI</b>	<b>N/A</b>	<b>N/A</b>	<b>Listed 1/11/06</b>	<b>1/10/09</b>
<b>Antenna: Biconnical</b>	<b>Eaton</b>	<b>94455-1</b>	<b>1057</b>	<b>CAL 12/12/05</b>	<b>12/12/07</b>
<b>Antenna: Biconnical</b>	<b>Eaton</b>	<b>94455-1</b>	<b>1096</b>	<b>CAL 10/11/06</b>	<b>10/11/08</b>
<b>Antenna: Biconnical</b>	<b>Electro-Metrics</b>	<b>BIA-25</b>	<b>1171</b>	<b>CAL 4/29/05</b>	<b>4/29/07</b>
<b>Analyzer Blue Tower Quasi-Peak Adapter</b>	<b>HP</b>	<b>85650A</b>	<b>2811A01279</b>	<b>CAL 4/13/05</b>	<b>4/13/07</b>
<b>Analyzer Blue Tower RF Preselector</b>	<b>HP</b>	<b>85685A</b>	<b>2926A00983</b>	<b>CAL 9/5/05</b>	<b>9/5/07</b>
<b>Analyzer Blue Tower Spectrum Analyzer</b>	<b>HP</b>	<b>8568B</b>	<b>2928A04729 2848A18049</b>	<b>CAL 4/13/05</b>	<b>4/13/07</b>
<b>LISN</b>	<b>Electro-Metrics</b>	<b>ANS-25/2</b>	<b>2604</b>	<b>CAL 10/5/06</b>	<b>10/5/08</b>
<b>LISN</b>	<b>Electro-Metrics</b>	<b>EM-7820</b>	<b>2682</b>	<b>CAL 4/28/05</b>	<b>4/28/07</b>
<b>Antenna: Log- Periodic</b>	<b>Eaton</b>	<b>96005</b>	<b>1243</b>	<b>CAL 12/14/05</b>	<b>12/14/07</b>

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**TEST PROCEDURE**

**General:** This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

**Radiation Interference:** The test procedure used was ANSI Standard C63.4-2003 using a spectrum analyzer with a pre-selector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The video bandwidth was always greater than or equal to the RBW.

**Formula Of Conversion Factors:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.40 dB	=30.36 dBuV/m @ 3m

**ANSI C63.4-2003 Section 10.1.7 Measurement Procedures:** The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

## RADIATED SPURIOUS EMISSIONS

Rules Part No.: 15.109

### Requirements:

Frequency	Limits
30 – 88	40.0 dB $\mu$ V/m measured @ 3 meters
80 – 216	43.5 dB $\mu$ V/m measured @ 3 meters
216 – 960	46.0 dB $\mu$ V/m measured @ 3 meters
Above 960	54.0 dB $\mu$ V/m measured @ 3 meters

**Test Procedure:** The procedure used was ANSI C63.4-2003. The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes.

### Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Pol	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
109.0	156.20	7.2	V	0.72	14.60	22.52	20.98
109.0	156.20	12.7	H	0.72	13.92	27.34	16.16
123.0	170.20	6.7	V	0.78	16.43	23.91	19.59
123.0	170.20	8.5	H	0.78	15.13	24.41	19.09
136.0	183.20	5.7	V	0.83	17.30	23.83	19.67
136.0	183.20	7.0	H	0.83	16.92	24.75	18.75
138.0	185.20	5.3	V	0.84	17.30	23.44	20.06
138.0	185.20	6.1	H	0.84	17.11	24.05	19.45
154.0	201.20	10.7	V	0.90	11.70	23.30	20.20
154.0	201.20	14.1	H	0.90	12.08	27.08	16.42
173.0	220.20	6.9	V	0.94	11.20	19.04	26.96
173.0	220.20	15.2	H	0.94	11.50	27.64	18.36
175.0	129.20	7.0	V	0.68	13.43	21.11	22.39
175.0	129.20	10.9	H	0.68	13.12	24.70	18.80
198.0	152.20	9.7	V	0.71	14.33	24.74	18.76
198.0	152.20	15.1	H	0.71	14.18	29.99	13.51
221.0	175.20	4.0	V	0.80	17.20	22.00	21.50
221.0	175.20	5.9	H	0.80	15.83	22.53	20.97
301.0	348.20	12.8	V	1.15	14.60	28.55	17.45
301.0	348.20	23.8	H	1.15	14.96	39.91	6.09
301.0	696.50	5.1	H	1.70	21.00	27.80	18.20
318.0	365.20	8.6	V	1.17	14.96	24.73	21.27
318.0	365.20	17.4	H	1.17	15.10	33.67	12.33
318.0	730.50	6.5	H	1.76	21.30	29.56	16.44

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## RADIATED SPURIOUS EMISSIONS

Rules Part No.: 15.109

### TEST DATA CONTD.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Pol	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
335.0	382.20	5.2	V	1.18	15.37	21.75	24.25
335.0	382.20	10.5	H	1.18	15.49	27.17	18.83
335.0	764.50	4.2	H	1.83	21.56	27.59	18.41
337.0	384.20	5.6	V	1.18	15.43	22.21	23.79
337.0	384.20	10.5	H	1.18	15.57	27.25	18.75
337.0	768.50	4.5	H	1.84	21.52	27.86	18.14
378.0	425.20	5.9	V	1.23	16.05	23.18	22.82
378.0	425.20	7.4	H	1.23	16.36	24.99	21.01
421.0	373.70	17.3	V	1.17	15.17	33.64	12.36
421.0	373.70	22.2	H	1.17	15.27	38.64	7.36
421.0	747.50	4.4	H	1.80	21.53	27.73	18.28
445.0	397.70	15.0	V	1.20	15.68	31.88	14.12
445.0	397.70	24.3	H	1.20	16.03	41.53	4.47
445.0	795.50	5.5	H	1.89	21.60	28.99	17.01
469.0	421.70	9.6	V	1.22	16.02	26.84	19.16
469.0	421.70	15.6	H	1.22	16.25	33.07	12.93
469.0	843.50	4.6	H	1.92	22.54	29.06	16.94
471.0	425.20	11.2	V	1.23	16.05	28.48	17.52
471.0	425.20	15.5	H	1.23	16.36	33.09	12.91
471.0	850.40	6.1	H	1.93	22.61	30.64	15.36
635.0	340.40	6.5	V	1.14	14.60	22.24	23.76
635.0	340.40	10.7	H	1.14	14.81	26.65	19.35
635.0	680.80	9.7	V	1.68	20.50	31.88	14.12
635.0	680.80	13.0	H	1.68	21.00	35.68	10.32
799.0	376.60	6.7	V	1.18	15.23	23.11	22.89
799.0	376.60	13.8	H	1.18	15.33	30.31	15.69
799.0	753.20	9.8	V	1.81	20.63	32.24	13.76
799.0	753.20	14.2	H	1.81	21.60	37.61	8.39
801.0	376.90	7.7	V	1.18	15.24	24.12	21.88
801.0	376.90	13.2	H	1.18	15.34	29.72	16.28
801.0	753.70	10.3	V	1.81	20.64	32.75	13.25
801.0	753.70	13.7	H	1.81	21.60	37.11	8.89
900.0	426.40	5.0	V	1.23	16.06	22.29	23.71
900.0	426.40	8.1	H	1.23	16.39	25.72	20.28
900.0	852.70	6.1	V	1.93	22.18	30.21	15.79
900.0	852.70	11.7	H	1.93	22.65	36.28	9.72
999.0	475.80	9.0	H	1.28	17.49	27.77	18.23
999.0	951.70	8.2	V	2.03	22.55	32.78	13.22
999.0	951.70	10.5	H	2.03	23.35	35.88	10.12

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## POWER LINE CONDUCTED INTERFERENCE

**Rules Part No.:** Part 15.107

**Requirements:**

<b>Frequency (MHz)</b>	<b>Quasi Peak Limits (dBuV)</b>	<b>Average Limits (dBuV)</b>
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

**Test Procedure:** ANSI Standard C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

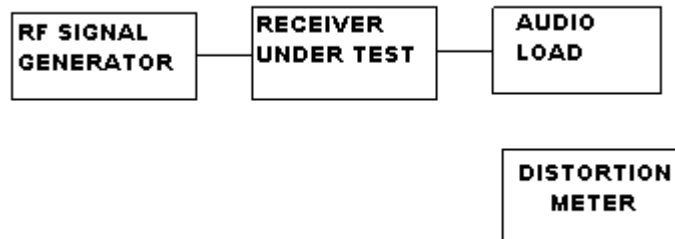
**Test Data:** Not applicable.

## 38 Db REJECTION RADIO

**RULES PART NUMBER:** 15.121(b)

**REQUIREMENTS:** 38dB REJECTION RATIO TO SENSITIVITY OF THE RECEIVER.

### TEST SET-UP



- a. Equipment connected as illustrated
- b. A standard signal was applied to the receiver input terminals.
- c. Receiver output audio output was adjusted for rated output.
- d. The RF Signal generator was adjusted to the lowest level to produce a 12dB SINAD without the audio output dropping more than 3dB. Make note of sensitivity level.
- e. This was done across the different bands to establish a reference level. The reference taken was the worse case sensitivity.
- f. The output of the signal generator was then adjusted to a level of 60dB above the reference level at a frequency of 824.5MHz.
- g. With the level set 60dB above the level measured in step e.
- h. Set squelch on receiver to threshold, the signal level required to open the squelch must be lower than the level measured in step d.
- i. Cause the receiver to scan or step-it through its complete range of frequencies.
- j. If receiver stops or unsquelches on any frequency, record the frequency and then adjust the level until a 12dB SINAD is produced. This level must be greater than 38dB above the level in step e.
- k. Repeat steps f through j for frequencies 836.0, 848.5, 869.1, 881.0, & 893.5MHz.

**TEST RESULTS:** The UUT meets the 38dB REJECTION RATIO.

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