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FCC PART 97 AMATEUR RADIO TEST REPORT

Applicant	TOKYO HY-POWER LABS, INC.
Address	1-1 HATANAKA 3 CHOME, NIIZA SAITAMA 352-0012 JAPAN
FCC ID	UB9HL-11KFX
Model Number	HL-11KFX
Product Description	HIGH POWER AMPLIFIER
Date Sample Received	4/9/2008
Date Tested	4/24/2008
Tested By	Nam Nguyen
Approved By	Mario de Aranzeta
Report Number	699AUT8TestReport.doc
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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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

Summary

The device under test does:

- ☒ fulfill the general approval requirements as identified in this test report
☐ not fulfill the general approval requirements as identified in this test report

Attestations

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

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669



Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 4/28/2008

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REPORT SUMMARY

Applicable Standard/procedure	TIA 603 & ANSI C63.4 – 2003 FCC CFR 47 Part 97 FCC CRF 47 Part 15
Related Report/Approval	NA

TEST ENVIRONMENT AND TEST SETUP

Test Facility	All tests were performed by Timco Engineering Inc. which is located at 849 NW State Road 45 Newberry, FL 32669
Lab Conditions	Temperature: 26 °C Relative Humidity: 55%
Test Supporting Equipment	N/A. The DUT is a stand alone amplifier
Deviation from test procedure	No
Modification to the DUT	No

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DUT SPECIFICATION

DUT Description	HIGH POWER AMPLIFIER
FCC ID	UB9HL-11KFX
Model Number	HL-1.1KFX
Serial Number	N/A
Power Output	There are no user power controls.
DC Voltages and Current into final amplifier	Per Part 2.1033(c)(8) Input Power = (50Volts)(25AMPS) = 1250 Watts
DUT Power Source	Primary - 240 VAC/50– 60Hz Secondary – N/A
Test Item	Pre-Production
Type of Equipment	Fixed

OTHER INFORMATION IN REGARDS TO THE PROJECT

The amplifier is capable of operation in the amateur radio bands below 30 MHz. The amplifier is NOT capable of operation on any frequency or frequencies between 26 MHz and 28 MHz as marketed.

1. The amplifier is incapable of amplification above 30 MHz.
2. The gain of the amplifier is under 15 dB on all bands and under all conditions.
3. The amplifier in the off or standby state does not amplify and merely passes through the exciter energy to the antenna port. The spurious emissions of the transceiver were unaffected.

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EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/20/07	3/19/10
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/11/07	5/10/10
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 11/30/07	11/30/09
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 11/30/07	11/30/09
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 11/30/07	11/30/09
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 11/30/07	11/30/09
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 4/29/0	4/29/09
Antenna: Log-Periodic	Electro-Metrics	LPA-25	1122	CAL 12/1/06	12/1/08
Antenna: Double-Ridged Horn	Electro-Metrics	RGA-180	2319	CAL 12/29/06	12/29/08
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/5/06	10/5/08
Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 3/15/07	3/15/09

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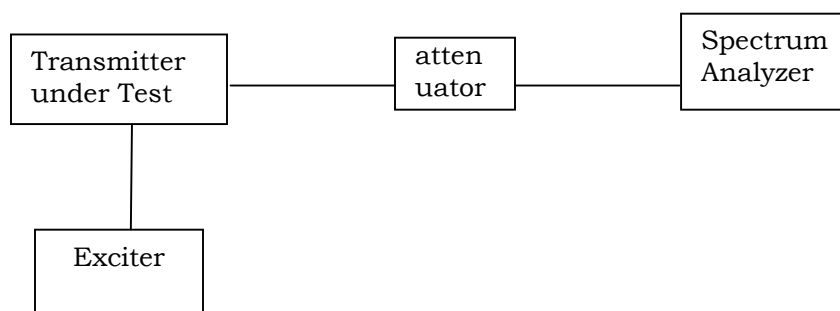
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TEST PROCEDURES

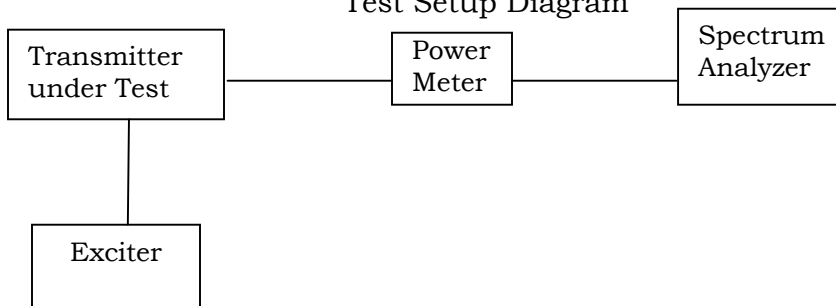
Radiation Interference: The test procedure used was ANSI/TIA 603-C: 2004 using an Agilent spectrum analyzer with a pre-selector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Test Setup Diagram



Output Power: RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector with a nominal input voltage of 240 AC Volts. The transmitter was properly adjusted and the maximum RF output power was measured at 600 Watts.

Test Setup Diagram



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 Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	Meter Reading	+ ACF	+ CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.4 dB	= 30.76 dBuV/m @ 3m

ANSI/TIA 603-C: 2004 Measurement Procedures: The DUT was placed on a non-conducting table 80 cm above the ground plane with the DUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the DUT was moved to a 3.0-meter distance and the antenna height varied and also placed in a horizontal position. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength.

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RF POWER OUTPUT

Rule Parts No.: Part 2.1046(a), Part 97.317

Requirements: Power Output Power shall not exceed 1.5 PEP Watts into a 50 ohm resistive load.

Test Data:

Output Power:
(Input/Output: Not to exceed 15 dB Gain)

TF (MHz)	Input (dBm)	Output (W)	Gain (dB)
1.900	49.8	661	8.4
3.750	49.9	617	8
7.150	50	692	8.4
10.125	49.9	589	7.8
14.150	49.2	676	9.1
18.110	49.3	661	8.9
21.200	49.6	676	8.7
24.900	49.8	661	8.4
29.100	49.5	631	8.5

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STRENGTH OF CONDUCTED SPURIOUS EMISSIONS

Rule Parts No.: Part 2.1053 & Part 97.307 (d) (e)

Requirements: The FCC Limits for spurious emissions of a transmitting operating on a frequency below 30 MHz must be at least 43dB below the mean power.

Test Data:

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
1.900	1.900	0	N/A
1.900	3.800	61.5	PASS
1.900	5.700	56.5	PASS
1.900	7.600	70.2	PASS
1.900	9.500	64.1	PASS
1.900	11.400	79	PASS
1.900	13.300	73	PASS
1.900	15.200	79.4	PASS
1.900	17.100	82.8	PASS
1.900	19.000	83.9	PASS

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TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
3.750	3.750		N/A
3.750	7.500	60.9	PASS
3.750	11.250	48	PASS
3.750	15.000	61.7	PASS
3.750	18.750	49.8	PASS
3.750	22.500	61.6	PASS
3.750	26.250	82.4	PASS
3.750	30.000	84.3	PASS
3.750	33.750	83.9	PASS
3.750	37.500	84	PASS

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
7.150	7.150		N/A
7.150	14.300	61	PASS
7.150	21.450	43.2	PASS
7.150	28.600	59.2	PASS
7.150	35.750	62.2	PASS
7.150	42.900	82.1	PASS
7.150	50.050	79.1	PASS
7.150	57.200	81.9	PASS
7.150	64.350	81.3	PASS
7.150	71.500	82	PASS

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
10.125	10.125		N/A
10.125	20.250	49.9	PASS
10.125	30.375	55.5	PASS
10.125	40.500	80.6	PASS
10.125	50.625	72.5	PASS
10.125	60.750	83.7	PASS
10.125	70.875	78.6	PASS
10.125	81.000	83.2	PASS
10.125	91.125	83.3	PASS
10.125	101.250	83.7	PASS

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TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
14.150	14.150		N/A
14.150	28.300	63.9	PASS
14.150	42.450	63.2	PASS
14.150	56.600	81.8	PASS
14.150	70.750	72	PASS
14.150	84.900	83.9	PASS
14.150	99.050	82.8	PASS
14.150	113.200	84.1	PASS
14.150	127.350	84.6	PASS
14.150	141.500	84.9	PASS

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
18.110	18.110		N/A
18.110	36.220	54.4	PASS
18.110	54.330	60.2	PASS
18.110	72.440	59	PASS
18.110	90.550	71.4	PASS
18.110	108.660	84.6	PASS
18.110	126.770	81.6	PASS
18.110	144.880	84.2	PASS
18.110	162.990	84.1	PASS
18.110	181.100	83.9	PASS

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
21.200	21.200		N/A
21.200	42.400	107.1	PASS
21.200	63.600	56.6	PASS
21.200	84.800	63.8	PASS
21.200	106.000	69.8	PASS
21.200	127.200	82.3	PASS
21.200	148.400	82.6	PASS
21.200	169.600	83.1	PASS
21.200	190.800	83.1	PASS
21.200	212.000	82.3	PASS

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TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
24.900	24.900		N/A
24.900	49.800	61.1	PASS
24.900	74.700	51.6	PASS
24.900	99.600	81.7	PASS
24.900	124.500	73	PASS
24.900	149.400	83.9	PASS
24.900	174.300	83.6	PASS
24.900	199.200	83.5	PASS
24.900	224.100	83.9	PASS
24.900	249.000	84.3	PASS

This device will not transmit in the 26 – 28 MHz range.

TF (MHz)	EF (MHz)	dB below carrier	43 dB Below Fundamental
29.100	29.100		N/A
29.100	58.200	66.1	PASS
29.100	87.300	53	PASS
29.100	116.400	84.1	PASS
29.100	145.500	77.5	PASS
29.100	174.600	84.4	PASS
29.100	203.700	83.6	PASS
29.100	232.800	84.3	PASS
29.100	261.900	83.9	PASS
29.100	291.000	84	PASS

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