



Via di Monteverde, 33  
00152 Rome – Italy

Tel. (39-6) 58209429  
Fax (39-6) 58209647

Website [www.linear-amplifier.com](http://www.linear-amplifier.com)  
e-mail [info@linear-amplifier.com](mailto:info@linear-amplifier.com)

---

## **Exhibit 5: EMI Test Report**

**External Radio Frequency  
Linear Amplifier  
Model Expert 1K-FA**



Via di Monteverde, 33  
00152 Rome – Italy

Tel. (39-6) 58209429  
Fax (39-6) 58209647

Website [www.linear-amplifier.com](http://www.linear-amplifier.com)  
e-mail [info@linear-amplifier.com](mailto:info@linear-amplifier.com)

## EMI Test Report

**Product Name:** EXPERT 1K-FA

**Regulation:** FCC, Part97 Sub Part D

**Date of test:** December 2006.

**Tested by:** Roberto Lo Sterzo, Ministero delle Comunicazioni - Istituto Superiore C.T.I. – ISCOM  
Dr. Gianfranco Scasciafratti SPE srl

**Test Method:** FCC, Part 97.317 (a) (1)(2)(3), (b)(1)(2), (c)(i)(ii), Part 97.307 (d), (e)

### Responsible Parties

**Manufacturer:** SPE srl Italy.

**Applicant:** SPE srl Italy.

**EUT Type/Model #:** Linear Amplifier SPE EXPERT 1K-FA

**Test Location:** ISCOM, SPE srl.

### EUT Description

The EUT (EXPERT 1K-FA) is a Linear Amplifier for Amateur Radio.

The tests were run in a typical configuration including following support equipment:

1. H.F. plus six meters Transceiver
2. Power Supply for transceiver

### Reason for Test

Qualification for FCC Part 97

Change made during test: none

Deviation from standard test method: none

### Test Summary

The EXPERT 1K-FA complied with FCC Part 97 Subpart D, 97.307 and 97.317 Limits for Amateur Radio equipment when tested in the system configuration defined herein.



Via di Monteverde, 33  
00152 Rome – Italy

Tel. (39-6) 58209429  
Fax (39-6) 58209647

Website [www.linear-amplifier.com](http://www.linear-amplifier.com)  
e-mail [info@linear-amplifier.com](mailto:info@linear-amplifier.com)

The following table indicates the measurement points and test results for the harmonic emission to the tenth order:

Power Gain per 97.317-(a) (1) (2) (3), (c) (6) (ii)				Spurious emission per 97.307 (e)			
Frequency $f_1$ , Mhz	Input Power, W	Output Power, W	Amplifier Gain, dB	2f1, dBc	3f1, dBc	4f1, dBc	5-10f1, dBc worst case
1.900	55.5	900	12.1	- 73.3	- 55.7	- 76.2	- 77.4
3.750	54.2	900	12.2	- 58.1	- 49.8	- 74.9	- 66.0
7.150	58.1	900	11.9	- 63.0	- 51.1	- 73.9	- 67.5
10.125	60.8	900	11.7	- 62.9	- 49.1	- 75.7	- 75.0
14.175	54.2	900	12.2	- 70.1	- 56.4	- 74.1	- 72.5
18.100	55.5	900	12.1	- 55.8	- 58.3	- 72.3	- 70.4
21.225	59.5	900	11.8	- 52.3	- 54.2	- 73.9	- 65.2
24.930*	63.7	900	11.5	- 53.5	- 58.1	- 74.0	- 65.7
28.500*	59.5	900	11.8	- 74.5	- 72.1	- 75.1	- 73.5
50.250	62.3	700	10.5	- 68.1	- 71.3	- 67.3	- 72.5
Amplifier was not capable of operation on any frequency or frequencies outside the radio amateur bands for the look-up table in his software per 97.317-(b) (1) (2).							
Amplifier was not capable of full power output and the gain is less than 12.3dB when driven with less than 50 watts per 97.317- (c)(6) (i) (iii).							
1.900	30	509	12.3				
3.750	30	509	12.3				
7.150	30	475	12.0				
10.125	30	464	11.9				
14.175	30	497	12.2				
18.100	30	486	12.1				
21.225	30	464	11.9				
24.930*	30	443	11.7				
28.500*	30	454	11.8				
50.250	30	336	10.5				

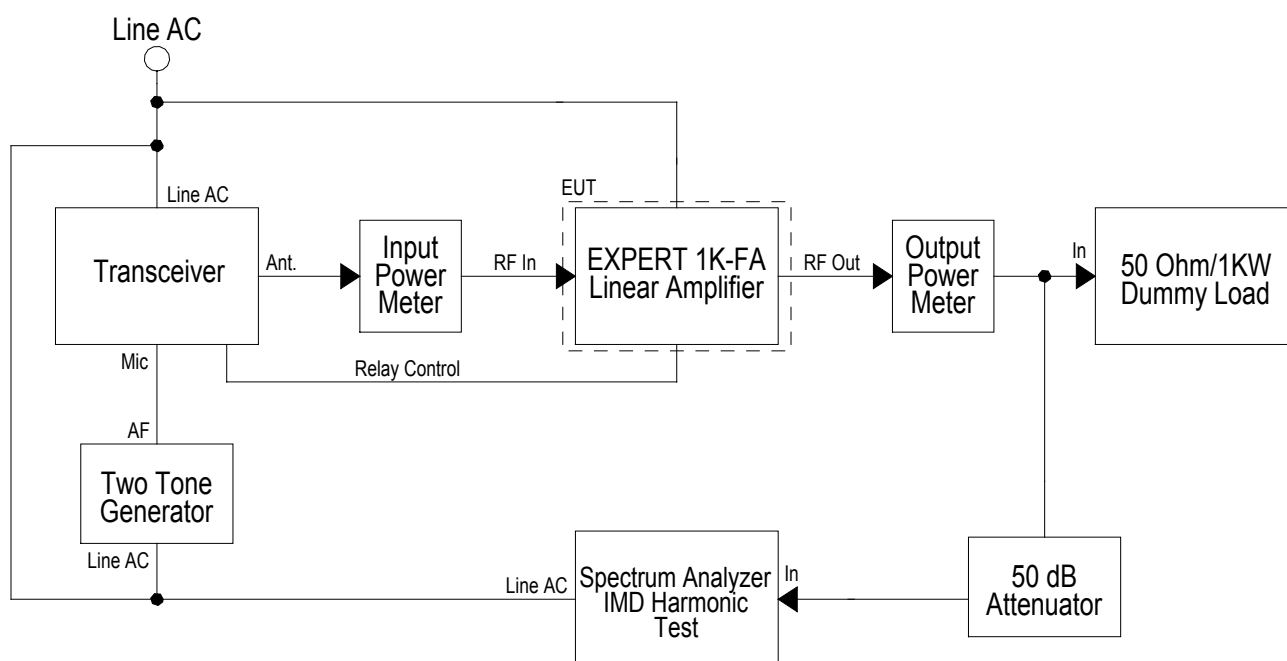
\*Not usable as shipped; data applicable only after authorized owner modification.



The following table indicates the measurement points and test results for the Inter Modulation Distortions to the 11-th order:

Inter-modulation in dB per 97.307(a) (b)						
Order:		D3	D5	D7	D9	D11 and higher
Freq. (MHz)	Output Power W Pep	Db	Db	Db	Db	Db
1.900	900	- 43	- 44	- 58	- 61	- 62
3.750	900	- 41	- 43	- 56	- 59	- 62
7.150	900	- 39	- 43	- 54	- 57	- 61
10.125	900	- 39	- 41	- 55	- 61	- 63
14.175	900	- 41	- 45	- 55	- 59	- 62
18.100	900	- 37	- 41	- 53	- 61	- 61
21.225	900	- 39	- 41	- 56	- 62	- 63
24.930*	900	- 39	- 42	- 56	- 63	- 63
28.500*	900	- 41	- 44	- 57	- 65	- 65
50.250	700	- 45	- 47	- 60	- 67	- 67

\*Not usable as shipped; data applicable only after authorized owner modification.



Pic. 1 - Setup Block Diagram for EXPERT 1K-FA



Via di Monteverde, 33  
00152 Rome – Italy

Tel. (39-6) 58209429  
Fax (39-6) 58209647

Website [www.linear-amplifier.com](http://www.linear-amplifier.com)  
e-mail [info@linear-amplifier.com](mailto:info@linear-amplifier.com)

### **EUT Technical Data**

**Description:** Linear Amplifier EXPERT 1K-FA

**Manuf/Model:** SPE Italy / EXPERT 1K-FA

**Serial No°:** 070200001

**FCC/FTZ Ident.:** UW31K-FA

**Power (Rated):** 230 Vac 50/60 Hz

**Power (Tested):** 230 Vac 50 Hz

**Internal Options:** None

**Frequencies Amplified:** Amateur radio bands from 1.8M Hz through 54 MHz

### **Support Equipment Data**

**Description:** HF Transceiver

**Manuf/Model:** Icom Model IC-7000

**Serial No°:** 0202090

**Power :** 230 Vac 50 Hz

**Internal Options:** None

**Frequencies Generated:** From 1.8 MHz through 54 MHz

**Description:** Two-Tone Generator

**Generator:** 2 x HP, Model 8904

**Serial #:** 2984A05627, 35180A07804

**Power:** 230Vac 50 Hz

**Internal Options:** None

**Frequencies Generated:** 1 KHz plus 1.575 KHz

### **Cables Description**

Transceiver Ant. to Input Power Meter - RG58/U, 1m length

Input Power Meter to EUT input - RG58/U, 25cm length

Output Power Meter to Dummy/Attenuator - RG213/U, 1m length

Atten/out to Spectrum Analyzer - RG58/U, 1,5m length

### **EUT I/O Ports**

EXPERT 1K-FA

RF INPUT 50 Ohm = INPUT1

RF OUTPUT 50 Ohm = ANT1

Mains AC Input 230 Vac 50Hz



Via di Monteverde, 33  
00152 Rome – Italy

Tel. (39-6) 58209429  
Fax (39-6) 58209647

Website [www.linear-amplifier.com](http://www.linear-amplifier.com)  
e-mail [info@linear-amplifier.com](mailto:info@linear-amplifier.com)

## Test Equipment List

#	Equipment type	Manufacturer	Model #	Serial #	Used
1	Spectrum Analyzer	HP	3589A	3509A00776	Yes
2	50dB Attenuator	SPE	ATT/50	0600001	Yes
3	Signal Generator	HP	8904	2984A05627	Yes
4	Signal Generator	HP	8904	35180A07804	Yes
5	Power Meter	Array Solutions	PM003	1035	Yes
6	Power Sensor	Array Solutions	HF Coupler	N/A	Yes
7	Dummy Load	Bird Electronic	8251	1180	Yes