



SOCIETÀ PER L'ELETTRONICA s.r.l.

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Exhibit 5: EMI Test Report

**External Radio Frequency
Linear Amplifier
Model Expert 1.3K-FA**



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EMI Test Report

Product Name: EXPERT 1.3K-FA

Regulation: FCC, Part 97 Sub Part D

Date of test: October 2014.

Tested by: Dr. Eng. Gianfranco Scasciafratti SPE srl.

Test Method: FCC, Part 97.317 (a) (1)(2)(3), (b)(1)(2), Part 97.307 (a), (b), (c), (d).

Responsible Parties

Manufacturer: SPE.srl. Italy

Applicant: Dr. Eng. Gianfranco Scasciafratti SPE.srl. Italy

EUT Type/Model #: Linear Amplifier SPE EXPERT 1.3K-FA

Test Location: SPE srl Rome.

EUT Description

The EUT (EXPERT 1.3K-FA) is a Linear Amplifier for Amateur Radio Bands.

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

1. H.F. plus six meters Transceiver

Reason for Test

Qualification for FCC Part 97

Change made during test: none

Deviation from standard test method: none

Test Summary

The EXPERT 1.3K-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.

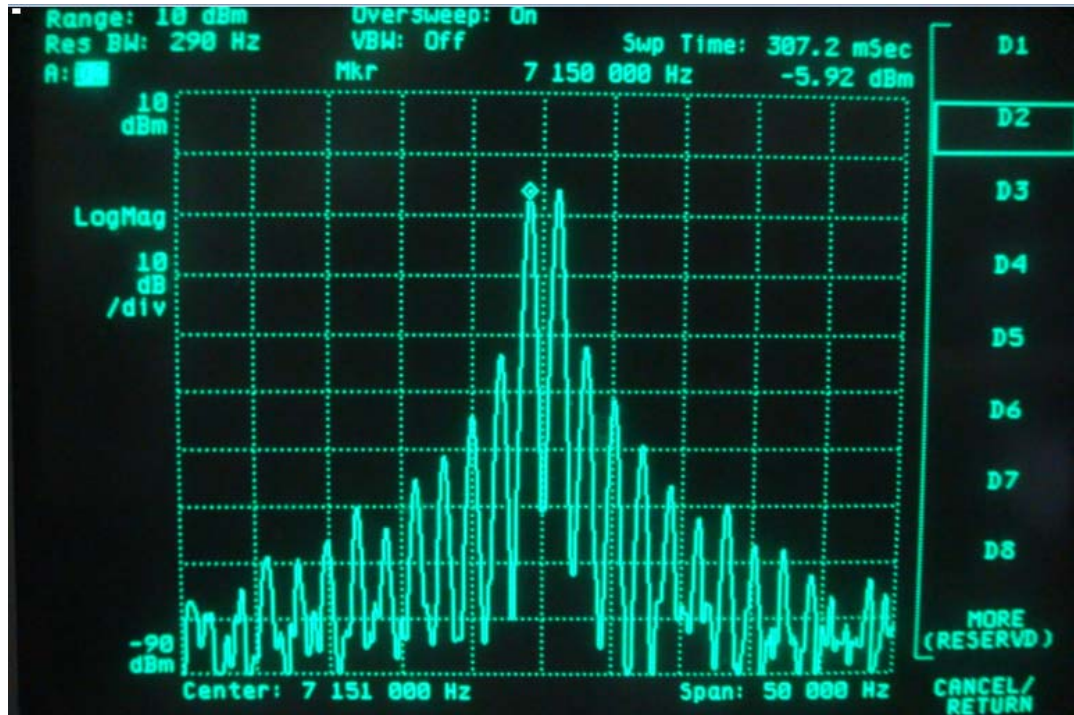
The following table indicates the measurement points and test results for the harmonic emission to the tenth order:



Power Gain per 97.317 (a), (2).				Spurious emission per 97.307 (d), (e).				
Frequency f1 MHz	Input Power, W	Output Power, W	Amplifier Gain, dB	2f1 dBc	3f1 dBc	4f1 dBc	5f1 dBc	6-10 f1 dBc worst case
1.900	44.5	1300	14.6	-59.9	-54.6	> -70	-51.9	> -60
3.750	43.5	1300	14.7	-57.6	-54.7	> -70	-54.4	> -60
7.150	45.4	1300	14.2	-59.4	-60.7	> -70	-47.8	> -60
10.125	45.4	1300	14.2	> -70	-63.8	> -70	-47.3	> -60
14.175	44.0	1300	14.7	-53.7	-60.5	> -70	-60.0	> -60
18.100	43.7	1300	14.7	-64.0	> -70	> -70	-60.9	> -70
21.225	44.4	1300	14.6	-66.5	-55.7	> -70	> -70	> -70
24.930	44.5	1300	14.6	-48.5	> -70	> -70	> -70	> -70
28.500	43.7	1300	14.7	55.0	> -70	> -70	-61.6	> -65
50.250	46.0	1300	14.5	> -70	> -70	> -70	> -70	> -70
The amplifier conforms per 97.317 (a), (1). See Spurious emission per 97.307 (d), (e). The Power Gain was less than 15 dB. See Power Gain per 97.317 (a), (2).								
Amplifier was not capable of operation on any frequency outside the radio amateur band, 26-28 MHz included, for the look-up table in its software per 97.317 (a), (3). Conformance to 97.317 (b), (1), (2).								

The following table indicates the measurements and test results for the intermodulation distortions to the 11 th order.

Intermodulation in dB per 97.307 (a),(b)						
Freq. (MHz)	Output Power W Pep	D3 dB	D5 dB	D7 dB	D9 dB	D11 and higher dB
1.800	1000	-30.8	-43.5	-43.5	>-51.3	> -60
3.750	1000	-34.9	-49.8	-48.0	-51.9	> -60
7.150	1000	-33.6	-44.2	-51.2	-55.4	> -60
10.125	1000	-32.3	-43.7	-51.2	-55.4	> -60
14.175	1000	-32.2	-47.2	-51.5	-52.7	> -60
18.100	1000	-31.3	-43.1	-59.4	-55.9	> -60
21.225	1000	-31.4	-43.8	-57.7	-55.8	> -60
24.930	1000	-30.2	-47.2	-53.7	-53.6	> -60
28.500	1000	-30.8	-49.8	-51.9	-52.6	> -60
50.250	1000	-31.1	-45.4	-54.7	> -55.3	> -60



Pic. – 7.150 MHz 1KW Two Tone Test



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EUT Technical Data

Description: Linear Amplifier EXPERT 1.3K-FA.

Manuf / Model: SPE Italy / EXPERT 1.3K-FA.

Serial # : 144300001.

FCC / FTZ Ident.: 2ADK5GC324809.

Power (Rated): 100-255 Vac 50/60 Hz.

Power (Tested): 230 Vac 50 Hz.

Internal Options: None.

Frequencies Amplified: Amateur Radio Bands from 1.8 MHz through 50 MHz.

Support Equipment Data

Description: HF Transceiver.

Manuf / Model: ICOM / IC-7800.

Serial # : 0301295

Power : 230 Vac 50 Hz.

Internal Options: None.

Frequencies Generated: Amateur Radio Bands from 1.8 MHz through 50 MHz.

Description: Two Tone Generator.

Generator: 2x HP, Model 8904.

Serial # : 2984A05627, 35180A07804.

Power : 230 Vac 50 Hz.

Internal Options: None.

Frequencies Generated: 1 KHz / 1.575 KHz.

Cables Description

Transceiver Ant. to Input Power Meter-RG58U,1m length.

Output Power Meter to EUT INPUT1-RG58U, 75cm length.

Linear ANT1 to Input Power Meter-RG58U,1m length.

Output Power Meter to Dummy Load / Attenuator-RG58U,1m length.

Atten / out to Spectrum Analyzer,1.5m length.

EUT I/O Ports

EXPERT 1.3K-FA.

RF INPUT 50 Ohm = INPUT1.

RF OUTPUT 50 Ohm = ANT1.

Mains AC Input 230 Vac 50 Hz.



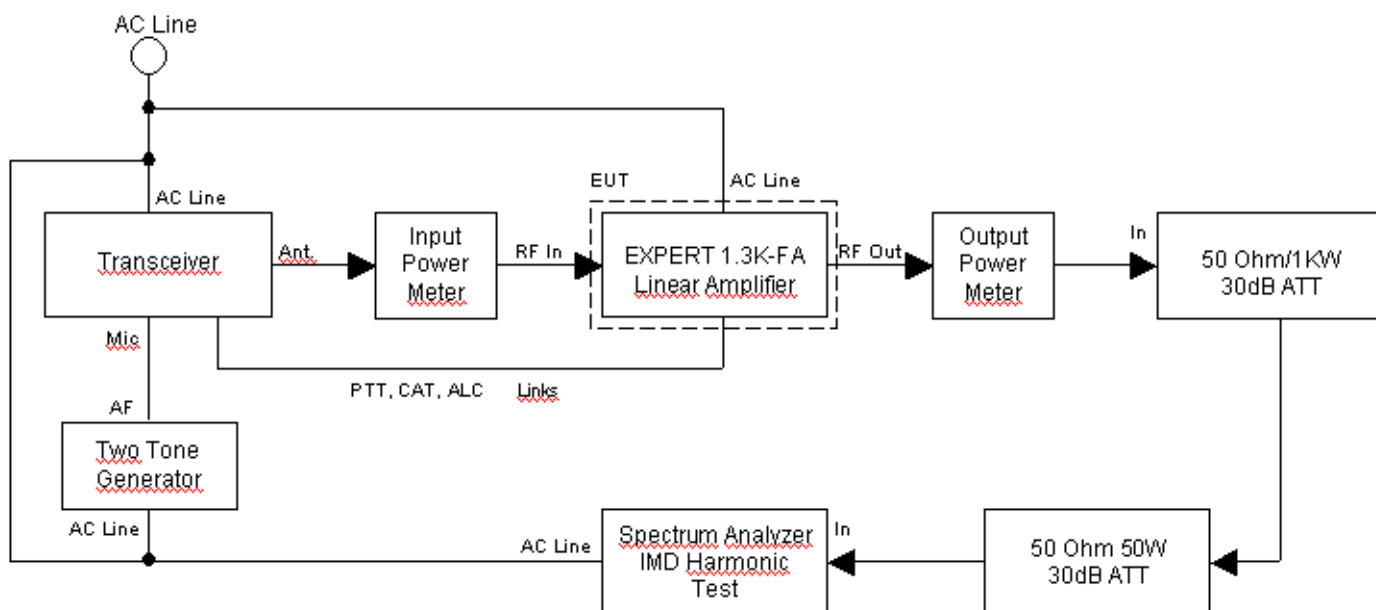
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#	Equipment Type	Manufacturer	Model #	Serial #	Used
1	Spectrum Analyzer	HP	3589A	3509A00776	YES
2	50 dB Attenuator	SPE	ATT/50	0600001	YES
3	Signal Generator	HP	8904	2984A05627	YES
4	Signal Generator	HP	8904	35180A07804	YES
5	Power Meter	Array Solutions	PM003	1015	YES
6	Power Sensor	Array Solutions	HF Coupler	N / A	YES
7	1KW 30 dB ATT	Bird Electronic	8327 - 300	1928	YES
8	50W 30 dB ATT	JFW	50 FHC 30	N / A	YES



Setup Block Diagram for EXPERT 1.3K-FA