

FCC 47 CFR PART 97 SUBPART D

for

Linear Power Amplifier

Model: XPA125B

Brand: XIEGU

Test Report Number:

C181025Z02-RP1

Issued Date: November 23, 2018

Issued for

Chongqing Xiegu Technology Co., Ltd

**7-6, Incubator Building, No.256, Fangzheng Avenue, Shuitu High
High-tech Park, Beibei District, Chongqing, China**

Issued by:

GRG Metrology & Test (Shenzhen) Co., Ltd.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	November 23, 2018	Initial Issue	ALL	Anna Liu

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1 TEST CERTIFICATION

Product	Linear Power Amplifier
Model	XPA125B
Brand	XIEGU
Tested	October 25~ November 23, 2018
Applicant	Chongqing Xiegu Technology Co., Ltd 7-6, Incubator Building, No.256, Fangzheng Avenue, Shuitu High High-tech Park, Beibei District, Chongqing, China
Manufacturer	Chongqing Xiegu Technology Co., Ltd 7-6, Incubator Building, No.256, Fangzheng Avenue, Shuitu High High-tech Park, Beibei District, Chongqing, China

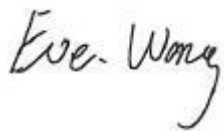
APPLICABLE STANDARDS	
Standard	Test Type
FCC Part 97. 307 (d)	Radiated Spurious Emissions for TX Operating Below 30 MHz
FCC Part 97. 307 (e)	Radiated Spurious Emissions for TX Operating Above 30 MHz

We hereby certify that:

GRG Metrology & Test (Shenzhen) Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The test results of this report relate only to the tested sample identified in this report.

Approved by:



Eve Wang
Supervisor of EMC Dept.
GRG Metrology & Test (Shenzhen) Co., Ltd.

Reviewed by:



Nancy Fu
Supervisor of Report Dept.
GRG Metrology & Test (Shenzhen) Co., Ltd.

2 TEST RESULT SUMMARY

APPLICABLE STANDARDS			
Standard	Test Type	Result	Remark
FCC Part 97. 307 (d)	Radiated Spurious Emissions for TX Operating Below 30 MHz	Pass	Meet the requirement of limit.
FCC Part 97. 307 (e)	Radiated Spurious Emissions for TX Operating Above 30 MHz	Pass	Meet the requirement of limit.

Note: 1. The statements of test result on the above are decided by the request of test standard only; the measurement uncertainties are not factored into this compliance determination.

2. The information of measurement uncertainty is available upon the customer's request.

3 EUT DESCRIPTION

Product	Linear Power Amplifier
Model Number	XPA125B
Brand	XIEGU
Model Discrepancy	N/A
Identify Number	C181025Z02-RP1
Received Date	October 25, 2018
Power Supply	DC 13.8V supplied by DC power
Frequency Range	1-54MHz
Transmit Power	100W
Antenna Specification	13dB($\pm$ 2dB)
Hardware Version	N/A
Software Version	N/A

- Note:** 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
2. This submittal(s) (test report) is intended for FCC ID: 2ANLH-XPA125B1 filing to comply with Section 97. 307 (d) and 97. 307 (e) of the FCC Part 97, Subpart D Rules.

4 TEST METHODOLOGY

4.1. DESCRIPTION OF TEST MODES

The EUT was operated in the following manner:

The XPA125B is an External Power Amplifier per FCC regulations. It is a communications system device that accepts RF drive of approximately 50W and amplifies it linearly to 100W. It has two modes: Operate and Standby. It bi-directionally passes the input signal through without modification when in Standby mode.

In operate mode, the XPA125B has two sub-modes: Receive and Transmit. In receive mode, the signal from the antenna passes through the device in the reverse direction to the input, without amplification.

Connected transceiver X5105, set the output power to 5 W. Set your X5105 to CW mode, presses the CW key to transmit, and the XPA125B amplifier will be activated.

Performance of the EUT was monitored in the following manner:

RF output dropping from its nominal 100W to a low value (less than 50W) is considered a failure. Power output is displayed on the RF deck front panel in two places: an LED bargraph and a digital (numeric) LCD display.

Note that the amplifier is not intended for continuous operation. If its duty cycle is exceeded, thermal protection will shut down the amplifier. This is NOT considered a failure as operation will resume after the heat sink cools. Please keep test transmissions to 10 minutes of power output at a time, with a 50% nominal duty cycle

5 SETUP OF EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Brand	Data Cable	Power Cord
1	DC power supply	PS9065D	20018978	N/A	N/A	N/A	Unshielded 1.50m (AC Cable) Shielded 0.50m (DC Cable)
2	TX Signal source	X5105	N/A	2ANLH-X5105	N/A	Unshielded, 1.00m	N/A
3	Load	HXFZ 003 G 200N/CW	N/A	N/A	N/A	Unshielded, 0.50m	N/A

Note:

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. CONFIGURATION OF SYSTEM UNDER TEST

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

5.3. TEST INSTRUMENTS

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	N9010A	MY52221469	01/27/2018	01/26/2019
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	01/27/2018	01/26/2019
Amplifier	EMEC	EM330	060661	01/27/2018	01/26/2019
High Noise Amplifier	Agilent	8449B	3008A01838	01/27/2018	01/26/2019
Loop Antenna	COM-POWER	AL-130	121044	01/30/2018	01/29/2019
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2018	02/20/2019
Horn Antenna	SCHWARZBECK	BBHA9120	D286	01/27/2018	01/26/2019
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	01/24/2018	01/23/2019
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	01/29/2018	01/28/2019
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Request.

6 FACILITIES AND ACCREDITATIONS

6.1. FACILITIES

All measurement facilities used to collect the measurement data are located at **Building 10-1, Mingkeda Logistics Park, No.18, Huanguan South Road, Guanlan, Bao'an District, Shenzhen, Guangdong, China**

The sites are constructed in conformance with the requirements of ANSI C63.10, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	A2LA
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	FCC (Designation Number: CN1198)
Japan	VCCI (C-4815,R-4320,T-2317, G-10624)
Canada	INDUSTRY CANADA

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccssz.com>

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Uncertainty
Radiated Emission, 30 to 200 MHz Test Site : 966(2)	+/-3.6880dB
Radiated Emission, 200 to 1000 MHz Test Site : 966(2)	+/-3.6695dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

The measured result is above (below) the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance (non-compliance) is more probable than non-compliance) with the specification limit.

7 FCC PART 97.307 REQUIREMENTS

7.1. 97.307(d) Radiated Spurious Emissions for TX Operating Below 30 MHz

7.1.1. LIMITS

For transmitters installed after January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency a 30 MHz must be at least 43 dB below the mean power of the fundamental emission. For transmitters installed on or before January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency below 30 MHz must not exceed 50 mW and must be at least 40 dB below the mean power of the fundamental emission. For a transmitter of mean power less than 5 W installed on or before January 1, 2003, the attenuation must be at least 30 dB. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

Radiated Emissions		
Frequency Range (MHz)	Specification	Margin(dBc)
Below 30MHz	FCC Part 97.307 (d)	>43

7.1.2. TEST PROCEDURES

- The EUT was placed on top of an 80 centimeter high table inside a semi-anechoic chamber. A transceiver was connected to the input of the EUT and a 50 Ohm load was connected to the output. Various antennas were placed near the EUT and measurements were taken of the field strengths and frequencies. For final radiated measurements, the EUT was placed inside a semi-anechoic chamber, and located 10 meters from the antenna mast.

7.1.3. TEST RESULTS

Model No.	XPA125B	Environmental Conditions	22°C, 45% RH
Tested by	Darry Wu	Test Date	November 23, 2018

Frequency	Harmonic	dB below Fundamental	>43dB
1.9	1.9	--	--
	3.8	>43dB	yes
	5.7	>43dB	yes
	7.6	>43dB	yes
	9.5	>43dB	yes
	11.4	>43dB	yes
	13.3	>43dB	yes
	15.2	>43dB	yes
	17.1	>43dB	yes
	19	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
3.75	3.75	--	--
	7.5	>43dB	yes
	11.25	>43dB	yes
	15	>43dB	yes
	18.75	>43dB	yes
	22.5	>43dB	yes
	26.25	>43dB	yes
	30	>43dB	yes
	33.75	>43dB	yes
	37.5	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
5.357	5.357	--	--
	10.714	>43dB	yes
	16.071	>43dB	yes
	21.428	>43dB	yes
	26.785	>43dB	yes
	32.142	>43dB	yes
	37.449	>43dB	yes
	42.856	>43dB	yes
	18.213	>43dB	yes
	53.57	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
7.15	7.15	--	--
	14.3	>43dB	yes
	21.45	>43dB	yes
	28.6	>43dB	yes
	35.75	>43dB	yes
	42.9	>43dB	yes
	50.05	>43dB	yes
	57.2	>43dB	yes
	64.35	>43dB	yes
	71.5	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
10.125	10.125	--	--
	20.25	>43dB	yes
	30.375	>43dB	yes
	40.5	>43dB	yes
	50.625	>43dB	yes
	60.75	>43dB	yes
	70.875	>43dB	yes
	81	>43dB	yes
	91.125	>43dB	yes
	101.25	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
14.175	14.175	--	--
	28.35	>43dB	yes
	42.525	>43dB	yes
	56.7	>43dB	yes
	70.875	>43dB	yes
	85.05	>43dB	yes
	99.225	>43dB	yes
	113.4	>43dB	yes
	127.575	>43dB	yes
	141.75	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
18.118	18.118	--	--
	36.236	>43dB	yes
	54.354	>43dB	yes
	72.472	>43dB	yes
	90.59	>43dB	yes
	108.708	>43dB	yes
	126.826	>43dB	yes
	144.944	>43dB	yes
	163.062	>43dB	yes
	181.18	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
21.225	21.225	--	--
	42.45	>43dB	yes
	63.675	>43dB	yes
	84.9	>43dB	yes
	106.125	>43dB	yes
	127.35	>43dB	yes
	148.575	>43dB	yes
	169.8	>43dB	yes
	191.025	>43dB	yes
	212.25	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
24.94	24.94	--	--
	49.88	>43dB	yes
	74.82	>43dB	yes
	99.76	>43dB	yes
	124.7	>43dB	yes
	149.64	>43dB	yes
	174.58	>43dB	yes
	199.52	>43dB	yes
	224.46	>43dB	yes
	249.4	>43dB	yes

Frequency	Harmonic	dB below Fundamental	>43dB
28.85	28.85	--	--
	57.7	>43dB	yes
	86.55	>43dB	yes
	115.4	>43dB	yes
	144.25	>43dB	yes
	173.1	>43dB	yes
	201.95	>43dB	yes
	230.8	>43dB	yes
	259.65	>43dB	yes
	288.5	>43dB	yes

7.2. 97.307(e) Radiated Spurious Emissions for TX Operating Above 30 MHz

7.2.1. LIMITS

The mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency between 30-225 MHz must be at least 60 dB below the mean power of the fundamental. For a transmitter having a mean power of 25 W or less, the mean power of any spurious emission supplied to the antenna transmission line must not exceed 25 μ W and must be at least 40 dB below the mean power of the fundamental emission, but need not be reduced below the power of 10 μ W. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

Radiated Emissions		
Frequency Range (MHz)	Specification	Margin(dBc)
30-225MHz	FCC Part 97.307 (e)	>60

7.2.1.1. TEST PROCEDURE

The EUT was placed on top of an 80 centimeter high table inside a semi-anechoic chamber. A transceiver was connected to the input of the EUT and a 50 Ohm load was connected to the output. Various antennas were placed near the EUT and measurements were taken of the field strengths and frequencies. For final radiated measurements, the EUT was placed inside a semi-anechoic chamber, and located 10 meters from the antenna mast.

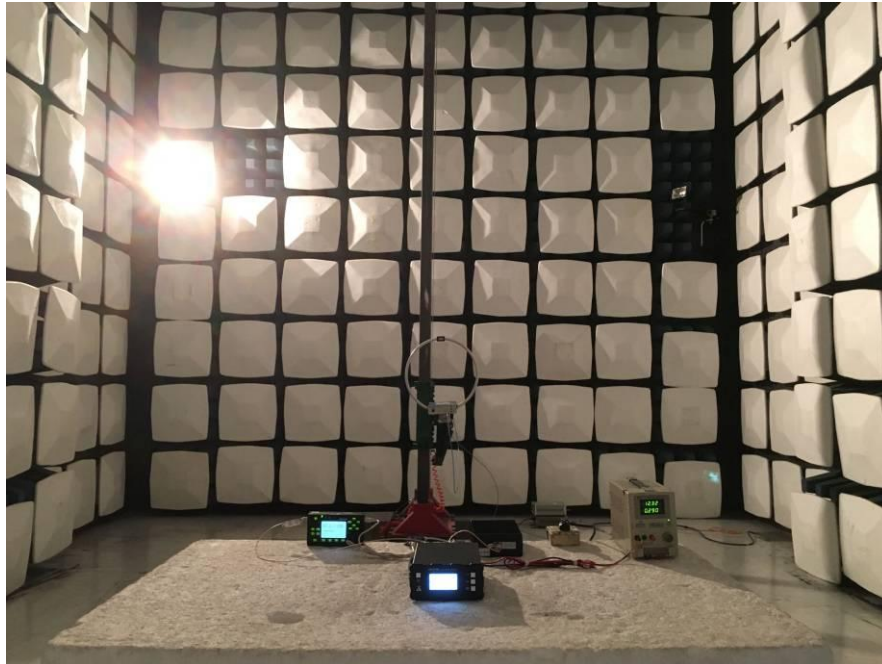
7.2.1.2. TEST RESULTS

Model No.	XPA125B	Environmental Conditions	22°C, 45% RH
Tested by	Darry Wu	Test Date	November 23, 2018

Frequency	Harmonic	dB below Fundamental	>43dB
52	52	--	--
	104	>60dB	yes
	156	>60dB	yes
	208	>60dB	yes
	260	>60dB	yes
	312	>60dB	yes
	364	>60dB	yes
	416	>60dB	yes
	468	>60dB	yes
	520	>60dB	yes

8 PHOTOGRAPHS OF THE TEST CONFIGURATION

Below 30 MHz



Above 30 MHz

