



## 1 Cover Page

# RF Exposure Evaluation Report

Application No.:	SHEM1612007931CR
Applicant:	Adam Hall GmbH
FCC ID:	2AFF62G82IUAM
IC :	22349-2G82IUAM
<b>Equipment Under Test (EUT):</b> <b>NOTE:</b> The following sample(s) submitted was/were identified on behalf of the client as	
Product Name:	Active PA BoX
Model No.(EUT):	MAUI28G2
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 (March 2015)
Date of Receipt:	2016-12-15
Date of Test:	2016-12-15 to 2017-1-9
Date of Issue:	2017-1-9
Test Result:	<b>Pass*</b>

\* In the configuration tested, the EUT complied with the standards specified above.



The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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### 3 General Information

#### 3.1 Client Information

Applicant:	Adam Hall GmbH
Address of Applicant:	Daimlerstrasse 9, 61267 Neu-Anspach, Germany
Manufacturer:	Adam Hall GmbH
Address of Manufacturer:	Daimlerstrasse 9, 61267 Neu-Anspach, Germany
Factory:	Speaker Electronic(Jia Shan) Co.,Ltd.
Address of Factory:	No.8 Development Zone Road, Huimin Sub-district, Jiashan County, Zhejiang, 314112, P.R. China

#### 3.2 General Description of E.U.T.

Power supply:	AC100-120V/200-240V 50-60Hz Max600W
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#### 3.3 Details of E.U.T.

Operation Frequency:	2402MHz~2480MHz
Modulation Technique:	FHSS
Number of Channel:	79
Antenna Type	Integral Antenna
Antenna Gain	1.54dBi

#### 3.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

### 3.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868, C-4336, T-2221, G-830 respectively.

## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm <sup>2</sup> )	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

### 4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W

## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM161200793103

Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
2402	0.36	1.08
2441	0.27	1.06
2480	0.37	1.08

### 5.2 MPE Calculation

The Max Conducted Peak Output Power is 1.08mW;

The best case gain of the antenna is 1.54dBi. 1.54dB logarithmic terms convert to numeric result is nearly 1.42

For FCC:

According to the formula  $S = \frac{PG}{4R^2\pi}$ , we can calculate S which is MPE.

Note:

- 1) P (Watts)
- 2) G (Antenna gain in numeric)
- 3) R = distance to the center of radiation of antenna (in meter) = 20cm
- 4) MPE limit = 1mW/cm<sup>2</sup>

$$S = \frac{PG}{4R^2\pi} = 0.00030\text{mW/cm}^2 < 1\text{mW/cm}^2$$

For IC:

$$\text{E.I.R.P.} = P * G = 1.533\text{mW} < 2.68\text{W}$$

So the device is exclusion from SAR test.

**--End of the Report--**