

# Tivoli Audio, Inc.

## MPE ASSESSMENT REPORT

**Report Type:**

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

**Model:**

REV

**REPORT NUMBER:**

190900016SHA-004

**ISSUE DATE:**

October 16, 2019

**DOCUMENT CONTROL NUMBER:**

TTRFFCCMPE-01\_V1 © 2018 Intertek



**Applicant:** Tivoli Audio, Inc.  
218 Newbury Street Boston, MA 02116-2563, USA

**Manufacturer:** Tivoli Audio, Inc.  
218 Newbury Street Boston, MA 02116-2563, USA

**Manufacturing site:** Hansong (Nanjing) Technology Ltd.  
8th Kangping Road, Jiangning Economy and Technology  
Development Zone, Nanjing, 211106, China.

**Product Name:** REVIVE

**Type/Model:** REV

**FCC ID:** 2AO3C-REVIVE

**SUMMARY:**

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06  
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

**PREPARED BY:**  
Project Engineer  
Wade Zhang**REVIEWED BY:**  
Reviewer  
Daniel Zhao

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**TEST REPORT****Revision History**

Report No.	Version	Description	Issued Date
190900016SHA-004	Rev. 01	Initial issue of report	October 16, 2019

**TEST REPORT****1 GENERAL INFORMATION****1.1 Description of Equipment Under Test (EUT)**

Product name:	REVIVE
Type/Model:	REV
Description of EUT:	The EUT is a Bluetooth speaker which have wireless charger and Lighting function, the Bluetooth module support BR+EDR only and there have only one mode.
Rating:	DC 15V 2.4A by adaptor
Software Version:	/
Hardware Version:	/
Sample received date:	July 20, 2019
Date of test:	July 20, 2019 ~ August 30, 2019

**1.2 Technical Specification**

Frequency Range:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth BR+EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Channel Number:	79 (0 - 78)
Data Rate:	1Mbps
Channel Separation:	1MHz

## Antenna information:

No.	Antenna Type	Gain (dBi)	Note
1	PCB antenna	2.0	/

**TEST REPORT****1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab CAB identifier.: CN0051
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

**TEST REPORT****2 MPE Assessment****Test result:** Pass**2.1 MPE Assessment Limit**

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density $S_{eq}$ (W/m <sup>2</sup> )
0-1 Hz	-	$3,2 \times 10^4$	$4 \times 10^4$	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4 000/f$	$5 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is  $\leq 1.0$**

**TEST REPORT****2.2 Assessment Results**

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm<sup>2</sup>

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 190900016SHA-001:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Frequency band (MHz)	Power		Antenna Gain (Numeric)		R (cm)	S (mW/cm <sup>2</sup> )	Limits (mW/cm <sup>2</sup> )
2402 - 2480	dBm	mW	dBi	(Numeric)	(cm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
2402 - 2480	3.94	2.48	2	1.58	20	0.001	1

Note: 1 mW/cm<sup>2</sup> from 1.310 Table 1

**TEST REPORT****Appendix I**

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

\*\*\*\*\* END \*\*\*\*\*