



# FCC SAR Exclusion Report

Report No. : SFBCEE-WTW-P21061117  
Applicant : Sennheiser Electronic Corp  
Address : 1 Enterprise Drive Old Lyme, CT 06371  
Product Name : Bluetooth Audio Transmitter  
Brand Name : SENNHEISER  
FCC ID : DMOBTT100  
Model No. : BT T100  
Standards : FCC 47 CFR Part 2 (2.1093), IEEE C95.1:1992, IEEE Std 1528:2013  
KDB 865664 D01 v01r04, KDB 865664 D02 v01r02  
KDB 447498 D01 v06  
Sample Received Date : Jun. 03, 2021  
Date of Evaluation : Jul. 02, 2021  
Lab Address : No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan  
Test Location : No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, Taiwan

**CERTIFICATION:** The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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### Release Control Record

Issue No.	Reason for Change	Date Issued
SFBCEE-WTW-P21061117	Initial release	Jul. 05, 2021

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### 1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR <sub>1g</sub> (W/kg)
DSS	Bluetooth	Not Required

**Note:**

1. The SAR limit (**Head & Body: SAR<sub>1g</sub> 1.6 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.

## 2. Description of Equipment Under Test

<b>Test Item Description</b>	Bluetooth Audio Transmitter
<b>Product Name</b>	Bluetooth Audio Transmitter
<b>Model Name</b>	BT T100
<b>FCC ID</b>	DMOBTT100
<b>Brand Name</b>	SENNHEISER
<b>Status of EUT</b>	Engineering Sample
<b>Power Ratings</b>	5Vdc, 500 mA (from USB interface)
<b>Operating Temperature range</b>	0°C - +40°C
<b>Modulation Type</b>	GFSK, $\pi/4$ DQPSK, 8DPSK
<b>Transmission Technology</b>	FHSS
<b>Technology</b>	Bluetooth
<b>Operating Frequency</b>	2402 - 2480MHz (for Frequency Band: 2400-2483.5MHz)
<b>No. of channels</b>	79
<b>Channel Spacing</b>	1MHz
<b>Channel Bandwidth</b>	79MHz
<b>Data Transfer Rate</b>	BDR: 1Mbps and EDR: 2Mbps/3Mbps
<b>Maximum Tune-Up Conducted Power (Unit: dBm)</b>	Please refer to Section 3.1 of this report
<b>Antenna Type</b>	PIFA Antenna
<b>Antenna Gain</b>	3.73 dBi
<b>Cable supplied</b>	1.2m shielded USB cable 1.5m shielded audio cable 1.5m non-shielded optical cable

### Note:

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

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## 3. SAR Measurement Evaluation

### 3.1 Maximum Output Power

#### 3.1.1 Maximum Target Conducted Power

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

Refer to Appendix B

#### 3.1.2 Measured Conducted Power Result

Refer to Appendix C

### 3.2 SAR Testing Exclusions

According to KDB 447498 D01, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

- For the test separation distance  $\leq 50$  mm

$$\frac{\text{Max. Tune up Power}_{(mW)}}{\text{Min. Test Separation Distance}_{(mm)}} \times \sqrt{f_{(GHz)}} \leq 3.0$$

When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

- For the test separation distance  $> 50$  mm, and the frequency at 100 MHz to 1500 MHz

$$\left[ (\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times \left( \frac{f_{(MHz)}}{150} \right) \right]_{(mW)}$$

- For the test separation distance  $> 50$  mm, and the frequency at  $> 1500$  MHz to 6 GHz

$$[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50 \text{ mm}) \times 10]_{(mW)}$$

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Top Side			Rear Face			Front Face		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
BT	2.99	1.99	20.53	0.15	No	36.15	0.09	No	46.05	0.07	No
			Bottom Side			Left Side			Right Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
			7.47	0.42	No	9.28	0.34	No	62.94	225 mW	No

#### Note:

- When separation distance  $\leq 50$  mm and the calculated result shown in above table is  $\leq 3.0$ , the SAR testing exclusion is applied.
- When separation distance  $> 50$  mm and the device output power is less than the calculated result (power threshold, mW) shown in above table, the SAR testing exclusion is applied.

#### Summary:

Since the SAR testing for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.

### 4. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The road map of all our labs can be found in our web site also.

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