



SAR Test exclusion documentation according to FCC KDB 447498, RSS-102

Report identification number: 1-2398/21-01-08 Exclusion (FCC_ISED)

contains the module with the following certification numbers	
FCC ID	KWC-TWE21EB
ISED number	2262A-TWE21EB
HVIN (Hardware Version Identification Number)	TWE21EB TVCE1-EB
PMN (Product Marketing Name)	Phonak Earbuds Sennheiser TV Clear Earbuds
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

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EUT technologies:

Technologies:	Max. measured output power: (Peak)	Duty cycle correction factor (extracted from operational description)	Max. average power (calculated)	Max. gain:
BT BR 2.45 GHz	6.8 dBm	-5.1 dB	1.7 dBm	-2.1 dBi*
BT LE 2.45 GHz	6.0 dBm	-4.2 dB	1.8 dBm	-2.1 dBi*
DM 2.45 GHz	6.3 dBm	-14.0 dB	-7.7 dBm	-2.1 dBi*
Flora 2.45 GHz	5.8 dBm	-2.3 dB	3.5 dBm	-2.1 dBi*

Note:

BT BR test results taken from CTC advanced GmbH report 1-2398/21-01-10

BT LE test results taken from CTC advanced GmbH report 1-2398/21-01-11

DM test results taken from CTC advanced GmbH report 1-2398/21-01-11

Flora test results taken from CTC advanced GmbH report 1-2398/21-01-11

Duty cycles taken from Operational and Technical Description_REV1.pdf.

* See document: Customer Questionnaire 1-2398_21-1_Earbuds.docx

Co-location not required as simultaneous transmission in the different technologies is not possible.

SAR test exclusion according to KDB447498 (General RF Exposure Guidance v06)

Equation from Chapter 4.3.1: Standalone SAR test exclusion considerations page 11 and ff.

(1) Standalone SAR test exclusion for 100 MHz to 6 GHz at test separation distances ≤ 50 mm

$$(\text{Threshold}_{1\text{-g};10\text{-g}}) \times d_{\text{separation}} / f^{0.5}$$

where

Threshold_{1-g;10-g} is 3 for 1-g; 7.5 for 10-gd_{separation} is the min. test separation distance; 5mm is used if the distance is less

f is the RF channel transmit frequency

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

frequency [MHz]	d _{separation} [mm]	Threshold _{1-g}	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	3	9.58	3.50	2.24	yes

SAR test exclusion according to RSS-102 Issue 5 Section 2.5.1/Table 1

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

frequency [MHz]	d _{separation} [mm]	tissue volume	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	1 g	4.00	3.50	2.24	yes

The limits above are defined for body worn application and therefore cover all use cases.