RF Exposure Report

Report No.:	SA180828C01
FCC ID:	DMOM3IETWR
Test Model:	M3IETW R
Received Date:	Aug. 24, 2018
Test Date:	Aug. 29 ~ Sep. 05, 2018
Issued Date:	Sep. 10, 2018
Applicant:	Sennheiser electronic GmbH & Co. KG
Address:	Am Labor 1 D-30900 Wedemark, Germany
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SA180828C01	Original release	Sep. 10, 2018

1 Certificate of Conformity

Product:	MOMENTUM True Wireless (M3IETW)
Brand:	SENNHEISER
Test Model:	M3IETW R
Sample Status:	Engineering sample
Applicant:	Sennheiser electronic GmbH & Co. KG
Test Date:	Aug. 29 ~ Sep. 05, 2018
Standards:	FCC Part 2 (Section 2.1093) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, 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 RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Sep. 10, 2018

Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Sep. 10, 2018

Bruce Chen / Project Engineer

2 Evaluation Result

Following FCC KDB 447498 D01 “General SAR test exclusion guidance”

The corresponding SAR Exclusion Threshold condition, listed below:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where
   - f(GHz) is the RF channel transmit frequency in GHz.
   - Power and distance are rounded to the nearest mW and mm before calculation.
   - The result is rounded to one decimal place for comparison The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

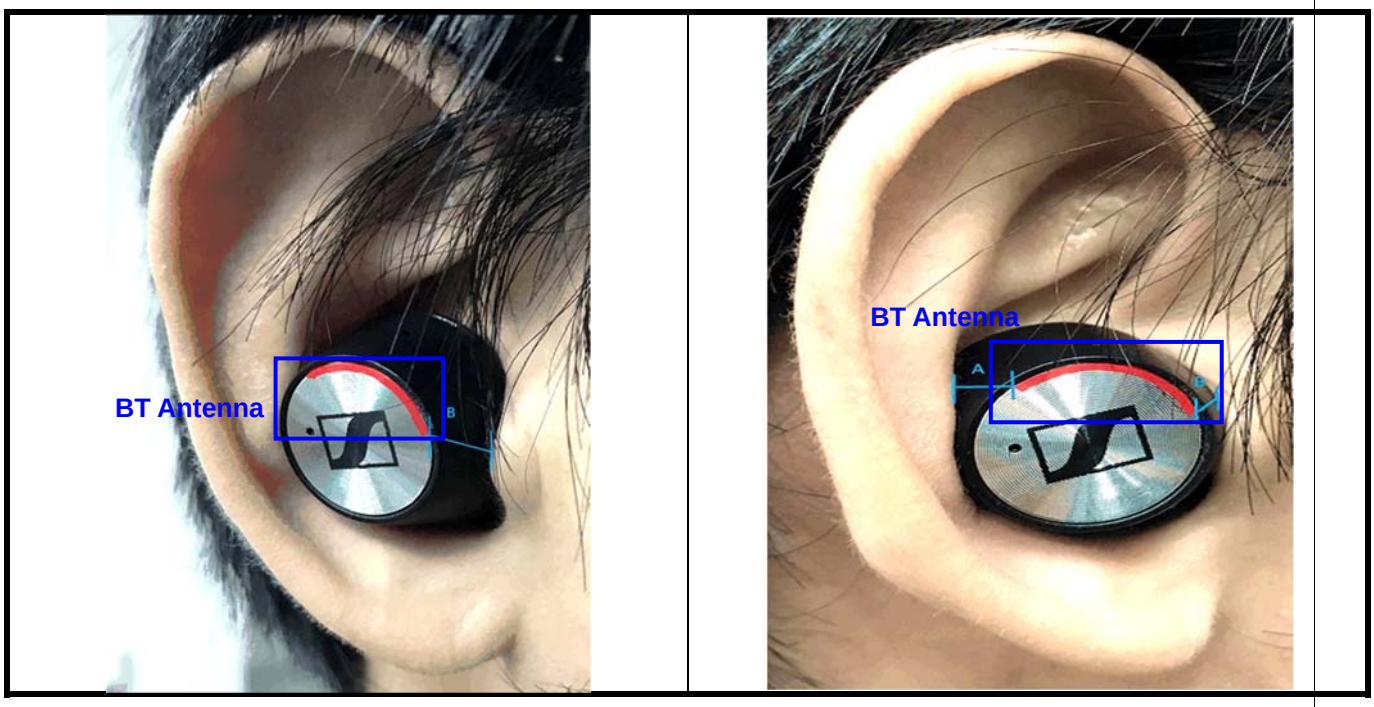
2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
   a) [Threshold at 50 mm in step 1) + (test separation distance - 50mm)·(f(MHz)/150)] mW, at 100MHz to 1500 MHz
   b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
   a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by [1 + log(100/f(MHz))] for test separation distances > 50 mm and < 200 mm.
   b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by ½ for test separation distances ≤ 50 mm.
   c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

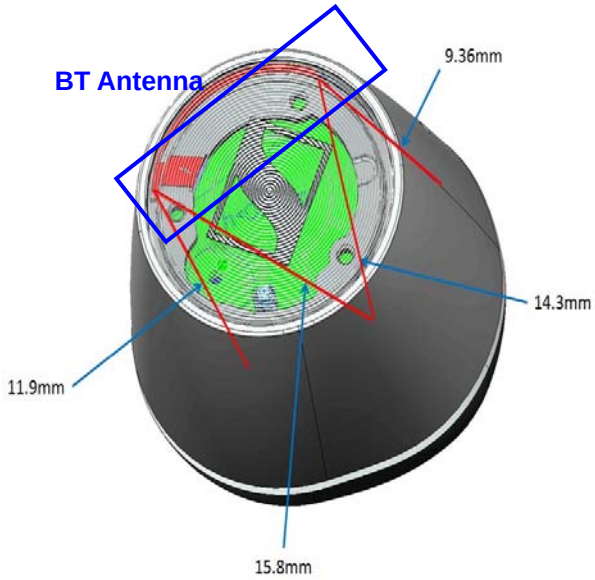
3 Smallest Distance from The Antenna And Radiating Structures Or Outer Surface Of The Device

The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander. (See below figure)

<Antenna Location>



<EUT Earplug Side>



* The red line is the antenna to the bodily distance.

The separation distance for antenna to edge:

Bluetooth Antenna	To Earplug Side (mm)
A	11.9
B	6.3

4 SAR Test Exclusion Thresholds

Maximum measured transmitter power:

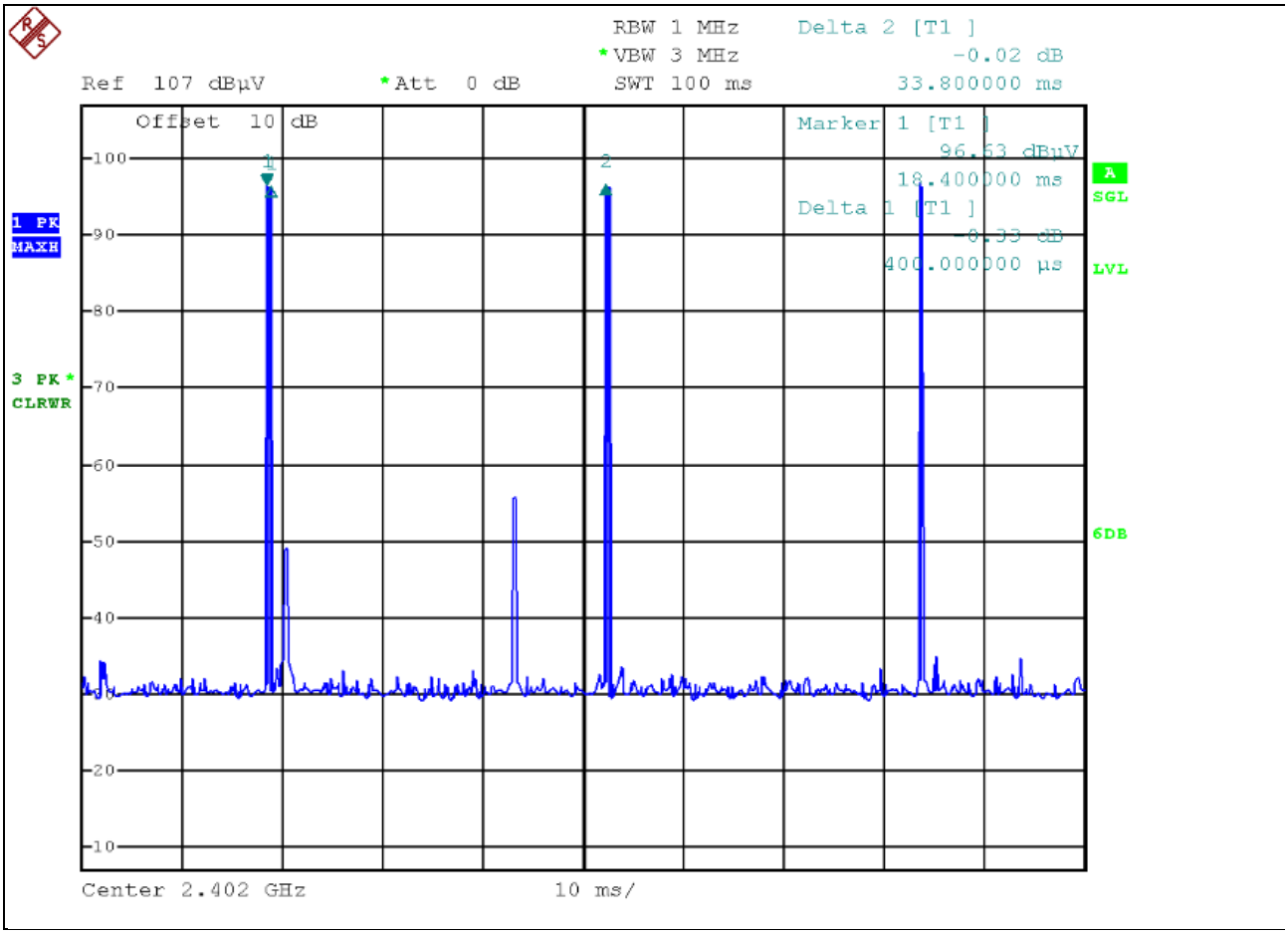
Function	Max. Power (dB)	*Time Average Power (dBm)	*Time Average Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 2)	1-g-SAR test exclusion thresholds	Result
BT	10.42	-8.78	0.132	5	0.042	3	Pass

Note: 1. The antenna type is Monopole antenna with -6.35dBi gain.
2. Calculate SAR test exclusion thresholds from condition “1” formulas.
3. *Time Average Power =Max. Power + Duty Factor

Duty Cycle of Test Signal

Duty Cycle	Tx pulse (ms)	Pulse count per 100ms (times)	Tx on per 100 (ms)	Duty Factor (dB)
	0.400	3	1.200	-19.20

Note: The duty cycle correlation factor be equal to: 10log(Tx on/100ms) = -19.20



* BT EDR has been consider the maximum duty factor under normal communication.

Function	Max. Power (dB)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 2)	1-g-SAR test exclusion thresholds	Result
BT LE	0.71	1.178	5	0.371	3	Pass

Note: 1. The antenna type is Monopole antenna with -6.35dBi gain.
2. Calculate SAR test exclusion thresholds from condition “1” formulas.

Function	Electric field (dBuV/m) @3m	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value(NOTE 2)	1-g-SAR test exclusion thresholds	Result
NFMI	41.59	0.000004325	5	0.000004325	468.339	Pass

Note: 1. The antenna type is T-Coil antenna.
2. Calculate SAR test exclusion thresholds from condition “3” formulas.

Conclusion:

Both of the BT & NFMI or BT LE & NFMI can transmit simultaneously, the value of the MPE is:

1. BT + NFMI = 0.042 + 0.000004325 = 0.042 < 3
2. BT LE + NFMI = 0.371 + 0.000004325 = 0.371 < 3

5 Conclusion

Since Source-base time average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

6 Construction Photos of EUT

Please refer to the attached file (180828C01 (EUT photo)).

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