Shenzhen Most Technology Service Co., Ltd.
No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

RF Exposure Evaluation Report

Report Reference No......:	**MTWG22030187-H**
FCC ID..... :	**2ASUD-HMR15**
Compiled by (position+printed name+signature)..:	File administrators Alisa Luo
Supervised by (position+printed name+signature)..:	Test Engineer Sunny Deng
Approved by (position+printed name+signature)..:	Manager Yvette Zhou
Date of issue.....:	**March 31,2022**
Representative Laboratory Name .:	**Shenzhen Most Technology Service Co., Ltd.**
Address .....:	No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.
Applicant's name.....:	**Elettromedia s.r.l.**
Address .....:	62018 Potenza Picena (MC) Italy
Test specification/ Standard .....**:**	**47 CFR Part 1.1307** **47 CFR Part 1.1310** **KDB447498D01 General RF Exposure Guidance v06**
TRF Originator.....:	Shenzhen Most Technology Service Co., Ltd.

Test item description .....:	Marine Audio
Trade Mark .....:	HERTZ, Audison
Manufacturer .....:	**HASDA ELECTRIC LTD**
Model/Type reference.....:	HMR 15
Listed Models .....:	AMR 15
Modulation Type .....:	GFSK, π/4DQPSK, 8DPSK
Operation Frequency.....:	From 2402MHz to 2480MHz
Hardware Version.....	PCB-315D1212-01_220218
Software Version	YST_BP1064_315_V021
Rating	DC9.6-15.6V
Result.....:	**PASS**

TEST REPORT

Equipment under Test	:	Marine Audio
Model /Type	:	HMR 15
Listed Models	:	AMR 15
Remark		Only the model name is different.
Applicant	:	**Elettromedia s.r.l.**
Address	:	62018 Potenza Picena (MC) Italy
Manufacturer	:	**HASDA ELECTRIC LTD**
Address	:	10th Floor, Building 2, Tonghu Intelligent Manufacturing Industrial Park, Yingguang Village, Lilin Town, Zhongkai District, Huizhou，China

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2022.03.31	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to §1.1307(e)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.
According to §1.1310 and §2.1091 RF exposure is calculated.
KDB447498 D01: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

2.1.2 Limits

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

F= Frequency in MHz
Friis Formula
Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2) Where
Pd = power density in mW/cm2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416

R = distance between observation point and center of the radiator in cm
Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure

Antenna Gain: -2dBi
Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.4 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	2.58	2.58±1	3.58
Middle(2441MHz)	4.26	4.26±1	5.26
Highest(2480MHz)	3.12	3.12±1	4.12

π /4DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	2.85	2.85±1	3.85
Middle(2441MHz)	3.05	3.05±1	4.05
Highest(2480MHz)	2.45	2.45±1	3.45

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	2.67	2.67±1	3.67
Middle(2441MHz)	2.76	2.76±1	3.76
Highest(2480MHz)	3.46	3.46±1	4.46

BT classic

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Highest(2441MHz)	5.26	3.35	-2	0.0004	1.0	Pass

Note: 1) Refer to report **MTWG22030187-R** for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R2)=(3.35*0.63)/(4*3.1416*20^2)=0.0004
Note: 3) EUT's Bluetooth module is more than 20cm away from the human body..

.....THE END OF REPORT.....