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RF Exposure Evaluation Report

Report No.: CQASZ20240400702E-04
Applicant: Ultimea Technology (Shenzhen) Limited
Address of Applicant: 20th Floor, Building 4, Tianan Cloud Park, Bantian St., Longgang District, Shenzhen, China
Equipment Under Test (EUT):
EUT Name: Poseidon D80 7.1 Channel Dolby Atmos Soundbar
Model No.: U2620
Test Model No.: U2620
Brand Name: ULTIMEA
FCC ID: 2A900-U2620S
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
447498 D04 Interim General RF Exposure Guidance v01
Date of Receipt: 2024-04-24
Date of Test: 2024-04-24 to 2024-05-27
Date of Issue: 2024-06-17
Test Result: **PASS***

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Timo Lei

(Timo Lei)

Approved By:

Alex

(Alex Wang)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240400702E-04	Rev.01	Initial report	2024-06-17

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3 General Information

3.1 Client Information

Applicant:	Ultimea Technology (Shenzhen) Limited
Address of Applicant:	20th Floor, Building 4, Tianan Cloud Park, Bantian St., Longgang District, Shenzhen, China
Manufacturer:	Ultimea Technology (Shenzhen) Limited
Address of Manufacturer:	20th Floor, Building 4, Tianan Cloud Park, Bantian St., Longgang District, Shenzhen, China
Factory:	Soundlab Technology Co., Ltd.
Address of Factory:	No.2 Baozi Road, Shenzhen Grand Industrial Zone, Pingshan New District, Shenzhen, China

3.2 General Description of EUT

Product Name:	Poseidon D80 7.1 Channel Dolby Atmos Soundbar
Model No.:	U2620
Test Model No.:	U2620
Trade Mark:	ULTIMEA
Software Version:	V18X
Hardware Version:	1.0
EUT Power Supply:	Model No.:FX48U-180300C Input:100-240V~50/60Hz 1.0A Output:18V 3.0A
	Model No.:SMS-00180300-S38 Input:100-240V~50/60Hz 1.5A Output:18V 3.0A 54W

3.3 General Description of BT Classic

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth Spec 5.1
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	PCB antenna
Antenna Gain:	3.17dBi
Cable loss:	1.0 dB

3.4 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth Spec 5.1
Modulation Type:	GFSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	PCB antenna
Antenna Gain:	3.17dBi
Cable loss:	1.0 dB

3.5 General Description of 5.8G custom

Operation Frequency:	5735MHz ~ 5840MHz
Modulation Type:	OFDM
Number of Channel:	2
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	Monopole antenna
Antenna Gain:	Ant1:2.85dBi Ant2:2.85dBi
Cable loss:	1.0 dB
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

Note:

ANT1 and ANT2 do not support simultaneous transmission

The above parameters will directly affect the test results. The information is provided by the applicant.

4 MPE Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator. For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave Dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For BT Classic

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK mode				
Test channel	Max.Peak Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)
2402MHz	0.61	3.17	3.78	1.63
Tune-up				
Tune up tolerance (dBm)		Maximum tune-up Power		
		(dBm)		(mW)
1.5±1		2.5		1.78
π/4DQPSK mode				
Test channel	Max.Peak Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)
2402MHz	0.61	3.17	3.78	1.63
Tune-up				
Tune up tolerance (dBm)		Maximum tune-up Power		
		(dBm)		(mW)
1.5±1		2.5		1.78

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20240400702E-01 for EUT test Max Conducted Peak Output Power value.

2) EUT's module is more than 20cm away from the human body.

2) For BLE

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK(1Mbps) mode				
Test channel	Max.Peak Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)
2402MHz	-0.37	3.17	2.80	0.65
Tune-up				
Tune up tolerance (dBm)		Maximum tune-up Power		
		(dBm)		(mW)
0.5±1		1.5		1.41
GFSK(2Mbps) mode				
Test channel	Max.Peak Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)
2402MHz	-0.54	3.17	2.63	0.48
Tune-up				
Tune up tolerance (dBm)		Maximum tune-up Power		
		(dBm)		(mW)
0.5±1		1.5		1.41

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20240400702E-02 for EUT test Max Conducted Peak Output Power value.

2) EUT's module is more than 20cm away from the human body.

3) For 5.8G cusom

$$EIRP = E_{Meas} + 20\log(d_{Meas}) - 104.7$$

where

$EIRP$ is the equivalent isotropically radiated power, in dBm
 E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m
 d_{Meas} is the measurement distance, in m

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

OFDM mode			
Test channel	Emission Level (dBμV/m)	EIRP (dBm)	ERP (dBm)
5735MHz	91.26	-3.89	-6.04
Tune-up			
Tune up tolerance (dBm)		Maximum tune-up Power	
		(dBm)	(mW)
-6.0±1		-5.0	0.32

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20240400702E-03 for EUT test Max Peak Output Power value.

2) EUT's module is more than 20cm away from the human body.

*** END OF REPORT ***