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RF Exposure Evaluation Report

Report No. : CQASZ20210500751E-03
Applicant: AETHER EYEWEAR PTE. LTD.
Address of Applicant: 160 Robinson Road #14-04 Singapore Business Federation Centre (068914)
Equipment Under Test (EUT):
EUT Name: AETHER AUDIO EYEWEAR
Model No.: T-1
Brand Name: Aether
FCC ID: 2A2D8-AET1
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-05-31
Date of Test: 2021-05-31 to 2021-09-24
Date of Issue: 2021-9-26
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: Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210500751E-03	Rev.01	Initial report	2021-9-26

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3 General Information

3.1 Client Information

Applicant:	AETHER EYEWEAR PTE. LTD.
Address of Applicant:	160 Robinson Road #14-04 Singapore Business Federation Centre (068914)
Manufacturer:	AETHER TECHNOLOGIES LTD
Address of Manufacturer:	Unit 301 Central Construction Bld, 18 Yanshan Road, Nanshan District, Shenzhen, Guangdong Province PR China
Factory:	AETHER TECHNOLOGIES LTD
Address of Factory:	Unit 301 Central Construction Bld, 18 Yanshan Road, Nanshan District, Shenzhen, Guangdong Province PR China

3.2 General Description of EUT

Product Name:	AETHER AUDIO EYEWEAR
Model No.:	T-1
Trade Mark:	Aether
Hardware Version:	v1.83
Software Version:	v0380
Frequency Range:	BT, BLE: 2402MHz~2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	BT:79CH BLE:40CH
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	BlueTest3-Test Command Mode
Antenna Type:	Chip Antenna
Antenna Gain:	2.28dBi
Power Supply:	5V 60mA

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

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:

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})]}{[\sqrt{f(\text{GHz})}]} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

4.1.3 EUT RF Exposure

1) For BT Classic

Antenna Gain: 2.28dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.28 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-1.810	-2.5±1	-1.5	0.708
Middle(2441MHz)	-1.550	-2.5±1	-1.5	0.708
Highest(2480MHz)	-0.710	-1.5±1	-0.5	0.891
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.060	-1±1	0	1.000
Middle(2441MHz)	0.640	0±1	1	1.259
Highest(2480MHz)	1.490	2.5±1	1.5	1.413
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.450	-0.5±1	0.5	1.122
Middle(2441MHz)	1.260	0.5±1	1.5	1.413
Highest(2480MHz)	2.200	1.5±1	2.5	1.778

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	0.450	-0.5±1	0.5	1.122	0.348	3.0
Middle (2441MHz)	1.260	0.5±1	1.5	1.413	0.441	
Highest (2480MHz)	2.200	1.5±1	2.5	1.778	0.560	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

2) For BLE

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2.02	-3.0±1	-2	0.631
Middle(2440MHz)	-1.12	-2±1	-1	0.794
Highest(2480MHz)	-0.29	-1.0±1	0	1.000
GFSK(2Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2	-2.0±1	-1	0.794
Middle(2440MHz)	-1.06	-2.0±1	-1	0.794
Highest(2480MHz)	-0.25	-1.0±1	0	1.000

Worst case: GFSK(2Mbps)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-2	-2.0±1	-1	0.794	0.246	3.0
Middle (2440MHz)	-1.06	-2.0±1	-1	0.794	0.248	
Highest (2480MHz)	-0.25	-1.0±1	0	1.000	0.315	
Conclusion: the calculated value ≤3.0, SAR is exempted.						