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RF Exposure Evaluation Report

Report No. :	CQASZ20200200087E-02
Applicant:	Battenfeld Acquisition Company Inc. &Subsidiary
Address of Applicant:	2501 Lemone Industrial Blvd N/A Columbia Missouri United States 65201
Equipment Under Test (EUT):	
EUT Name:	Bluetooth Headset
Model No.:	1102673
Brand Name:	CALDWELL
FCC ID:	2AF3W-SHADOWSR
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-02-24
Date of Test:	2020-02-24 to 2020-03-05
Date of Issue:	2020-03-05
Test Result :	**PASS***

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

Tested By: Tom Chen.

(Tom Chen)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200200087E-02	Rev.01	Initial report	2020-03-05

2 Contents

3 General Information

3.1 Client Information

Applicant:	Battenfeld Acquisition Company Inc. &Subsidiary
Address of Applicant:	2501 Lemone Industrial Blvd N/A Columbia Missouri United States 65201
Manufacturer:	Dongguan Hele Electronics Co.,Ltd
Address of Manufacturer:	Dalingya Industrial Zone,Daojiao Town,Dongguan City,Guangdong,China

3.2 General Description of EUT

Product Name:	Bluetooth Headset
Model No.:	1102673
Trade Mark:	CALDWELL
Hardware Version:	5.0
Software Version:	5.0
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	AWRDLab R_1_0_4_173 (manufacturer declare)
Antenna Type:	integral antenna
Antenna Gain:	0.4dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5.0V

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:

[(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, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	0.300	0±1	1.0	1.259
Middle(2441MHz)	-0.880	-1.0±1	0	1.000
Highest(2480MHz)	-1.110	-2.0±1	-1.0	0.794
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.520	-1.0±1	0	1.000
Middle(2441MHz)	-1.790	-2.0±1	-1.0	0.794
Highest(2480MHz)	-2.130	-3.0±1	-2.0	0.631
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-0.290	-1.0±1	0	1.000
Middle(2441MHz)	-1.500	-2.0±1	-1.0	0.794
Highest(2480MHz)	-1.790	-2.0±1	-1.0	0.794

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	0.300	0±1	1.0	1.259	0.390	3.0
Middle (2441MHz)	-0.880	-1.0±1	0	1.000	0.312	
Highest (2480MHz)	-1.110	-2.0±1	-1.0	0.794	0.250	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200200087E-01