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# RF Exposure Evaluation Report

**Report No. :** CQASZ20200200086E-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-SHADOWSL  
**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*

(Jack Ai)



## 1 Version

### Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200200086E-02	Rev.01	Initial report	2020-03-05

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### 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, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> 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  $\leq 50$  mm are determined by:

$$\left[ \frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  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<sup>17</sup>

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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)	0.310	0±1	1.0	1.259
Middle(2441MHz)	-0.920	-1.0±1	0	1.000
Highest(2480MHz)	-1.210	-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)	-0.560	-1.0±1	0	1.000
Middle(2441MHz)	-1.910	-2.0±1	-1.0	0.794
Highest(2480MHz)	-2.230	-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)	-0.360	-1.0±1	0	1.000
Middle(2441MHz)	-1.610	-2.0±1	-1.0	0.794
Highest(2480MHz)	-1.910	-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)	0.310	0±1	1.0	1.259	0.390	3.0
Middle (2441MHz)	-0.920	-1.0±1	0	1.000	0.312	
Highest (2480MHz)	-1.210	-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.: CQASZ20200200086E-01