

## **FCC RF EXPOSURE REPORT**

*For*

**Hyperion PCBA**

**MODEL NUMBER: DBWIFIBLE06, DBWIFIBLE07**

**REPORT NUMBER: 4791405137-1-RF-3**

**ISSUE DATE: November 21, 2024**

**FCC ID: QVHDBWIFIBLE06**

*Prepared for*

**FCC: Dyson Inc**

**FCC: 1330 W Fulton St 5th Fl, Chicago Illinois, 60607 United States**

*Prepared by*

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## Revision History

Rev.	Issue Date	Revisions	Revised By
V0	November 21, 2024	Initial Issue	

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: FCC: Dyson Inc  
Address: FCC: 1330 W Fulton St 5th Fl, Chicago Illinois, 60607 United States

### Manufacturer Information

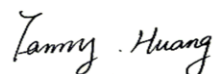
Company Name: FCC: Dyson Technology Limited  
Address: FCC: Tetbury Hill Malmesbury Wiltshire SN16 0RP United Kingdom

### EUT Information

EUT Name: Hyperion PCBA  
Model: DBWIFIBLE06  
Series Model: DBWIFIBLE07  
Model difference: Please refer to section 4  
Brand: Dyson  
Sample Received Date: August 21, 2024  
Sample ID: 7527212  
Date of Tested: August 27, 2024 to November 21, 2024

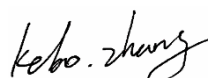
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
447498 D04 Interim General RF Exposure Guidance v01	PASS

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 1 Subpart I, section 1.1307 and KDB 447498 D04 Interim General RF Exposure Guidance v01.

## 3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p><b>A2LA (Certificate No.: 4102.01)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p><b>ISED (Company No.: 21320)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20192 and R-20202 Shielding Room B, the VCCI registration No. is C-20153 and T-20155</p>
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

#### 4. DESCRIPTION OF EUT

EUT Name		Hyperion PCBA
Model		DBWIFIBLE06
Series Model		DBWIFIBLE07
Model difference		DBWIFIBLE07 has the same RF technical construction including circuit diagram, PCB Layout, all electrical construction and mechanical construction with DBWIFIBLE06. The only difference lies is DBWIFIBLE06 has heating function, but DBWIFIBLE07 hasn't. All these changes do not degrade the unwanted emissions of the certified product. We have pre-test two models and select the worst model DBWIFIBLE06 to test and perform in the report.
Product Description (BLE)	Frequency Range:	2402 MHz to 2480 MHz
	Type of Modulation:	GFSK
	Data Rates:	1Mbps
Product Description (2.4G WLAN)	Frequency Range:	2412 MHz to 2462 MHz
	Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK)
	Radio Technology:	IEEE 802.11b/g/n HT20
Product Description (5G RLAN)	Frequency Range:	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz
	Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK)
	Radio Technology:	IEEE 802.11a/n HT20/n HT40
Normal Test Voltage:		DC 20 V

## 5. REQUIREMENT

### LIMIT AND CALCULATION METHOD

According to 447498 D04 Interim General RF Exposure Guidance v01,

#### 2.1.4 MPE-Based Exemption

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power.<sup>10</sup> For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

#### MPE-based Exemption

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and  $f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1).

**CALCULATED RESULTS****For Single RF Source**

Operating Mode	Max. Tune up Power	Max. Antenna Gain	EIRP	ERP	ERP	Distance	Limit Threshold
	(dBm)	(dBi)	(dBm)	(dBm)	(mW)	(cm)	(mW)
BLE	3.5	4.04	7.54	5.39	3.459	20	3060
WIFI2.4G	18.0	4.04	22.04	19.89	97.499	20	3060
WIFI5G	16.0	4.38	20.38	18.23	66.527	20	3060

Note:

1. The calculated distance is 20 cm.
2. The power comes from operation description.
3. The EUT does not support simultaneous operation.

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**END OF REPORT**