



# Radio Frequency Exposure Evaluation Report

FOR:  
Warner Bros. Home Entertainment Inc.

Models:  
WBMC22G1SAVB  
WBMC22G1SHRB  
WBMC22G1SHNB  
WBMC22G1SWSB  
WBMC22G1SLYB  
WBMC22G1SDFB

Product Description:  
Harry Potter interactive wand box

FCC ID: 2A82K-WBMC22G1B  
IC: 12514A- WBMC22G1B

Applied Rules and Standards:  
CFR 47 Part 2 (2.1093),  
FCC KDB 447498 D01 General RF Exposure Guidance v06  
ISED RSS-102 Issue 5

REPORT #: EMC\_FOXBC-002-22001\_FCC\_SAREX\_Rev1  
DATE: 11-16-2022



A2LA Accredited

IC recognized #  
3462B-1

## **CETECOM Inc.**

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## 1. Assessment

The following device was evaluated against the limits for general population uncontrolled exposure specified in CFR 47 Part 2.1093 according to SAR evaluation exclusion requirements specified in FCC regulation as listed in KDB 447498, and ISED RSS-102 Issue 5.

The device meets the requirements for SAR exclusion as stipulated by the above given FCC/ISED rules.

| Company                              | Description                       | Models                                                                                 |
|--------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------|
| Warner Bros. Home Entertainment Inc. | Harry Potter interactive wand box | WBMC22G1SAVB; WBMC22G1SHRB<br>WBMC22G1SHNB; WBMC22G1SWSB<br>WBMC22G1SLYB; WBMC22G1SDFB |

Note: The device models in the above table have identical internal electronic assemblies and use the same PCBAs and FPCAs across all box styles. The Radio Code and Radio Settings identical and unchanging across all the box styles. Only one representative sample was tested.

### Responsible for Testing Laboratory:

| 11-16-2022 | Compliance | Arndt Stoecker<br>(Director of Regulatory Services) |  |
|------------|------------|-----------------------------------------------------|--------------------------------------------------------------------------------------|
| Date       | Section    | Name                                                | Signature                                                                            |

### Responsible for the Report:

| 11-16-2022 | Compliance | Kris Lazarov<br>(EMC Engineer) |  |
|------------|------------|--------------------------------|---------------------------------------------------------------------------------------|
| Date       | Section    | Name                           | Signature                                                                             |

The test results of this test report relate exclusively to the test item specified in Section 3.

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## 2. Administrative Data

### 2.1. Identification of the Testing Laboratory Issuing the Test Report

|                                         |                        |
|-----------------------------------------|------------------------|
| <b>Company Name:</b>                    | CETECOM Inc.           |
| <b>Department:</b>                      | Compliance             |
| <b>Street Address:</b>                  | 411 Dixon Landing Road |
| <b>City/Zip Code</b>                    | Milpitas, CA 95035     |
| <b>Country</b>                          | USA                    |
| <b>Telephone:</b>                       | +1 (408) 586 6200      |
| <b>Fax:</b>                             | +1 (408) 586 6299      |
| <b>Director of Regulatory Services:</b> | Arndt Stoecker         |
| <b>Responsible Project Leader:</b>      | Sangeetha Sivaraman    |

### 2.2. Identification of the Client / Manufacturer

|                        |                                      |
|------------------------|--------------------------------------|
| <b>Client's Name:</b>  | Warner Bros. Home Entertainment Inc. |
| <b>Street Address:</b> | 4000 Warner Blvd                     |
| <b>City/Zip Code</b>   | Burbank, CA 91522                    |
| <b>Country</b>         | USA                                  |

|                               |                |
|-------------------------------|----------------|
| <b>Manufacturer's Name:</b>   | Same as Client |
| <b>Manufacturers Address:</b> |                |
| <b>City/Zip Code</b>          |                |
| <b>Country</b>                |                |

### 3. Equipment under Assessment

|                                                               |                                                                                                                                                                                      |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model No</b>                                               | WBMC22G1SAVB; WBMC22G1SHRB; WBMC22G1SHNB;<br>WBMC22G1SWSB; WBMC22G1SLYB; WBMC22G1SDFB                                                                                                |
| <b>HW Version</b>                                             | MB Main v1.4                                                                                                                                                                         |
| <b>SW Version</b>                                             | s112_nrf52_7.2.0                                                                                                                                                                     |
| <b>FCC-ID</b>                                                 | 2A82K-WBMC22G1B                                                                                                                                                                      |
| <b>IC:</b>                                                    | 12514A- WBMC22G1B                                                                                                                                                                    |
| <b>FVIN:</b>                                                  | s112_nrf52_7.2.0                                                                                                                                                                     |
| <b>HMN</b>                                                    | N/A                                                                                                                                                                                  |
| <b>PMN</b>                                                    | Harry Potter Magic Caster Wand                                                                                                                                                       |
| <b>Product Description</b>                                    | Harry Potter interactive wand box                                                                                                                                                    |
| <b>Device Category</b>                                        | <input checked="" type="checkbox"/> Fixed Installation<br><input type="checkbox"/> Mobile<br><input type="checkbox"/> Portable<br><input type="checkbox"/> Mixed Mobile and Portable |
| <b>Frequency Range / number of channels</b>                   | BLE: 2402 MHz (ch 0) – 2480 MHz (ch 39), 40 channels                                                                                                                                 |
| <b>Modes of Operation / Declared Output power</b>             | Bluetooth 5.1 Low Energy (limited to 1Mbps Max) / 4 dBm                                                                                                                              |
| <b>Max. declared antenna gain</b>                             | 2 dBi                                                                                                                                                                                |
| <b>Minimum distance of antenna or radiating parts to user</b> | 5mm                                                                                                                                                                                  |
| <b>Power Supply/ Rated Operating Voltage Range</b>            | 5VDC / 1A                                                                                                                                                                            |
| <b>Operating Temperature Range</b>                            | 0°C to + 45°C                                                                                                                                                                        |
| <b>Co-located Transmitters / Antennas</b>                     | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No                                                                                                               |
| <b>Sample Revision</b>                                        | <input type="checkbox"/> Prototype <input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-Production                                                            |
| <b>Exposure Category</b>                                      | <input type="checkbox"/> Occupational/ Controlled <input checked="" type="checkbox"/> General Population/ Uncontrolled                                                               |

Note: The device models in the above table have identical internal electronic assemblies and use the same PCBAs and FPCAs across all box styles. The Radio Code and Radio Settings identical and unchanging across all the box styles. Only one representative sample was tested.

#### 4. FCC and ISED Exemption Limits for Routine Evaluation

##### 4.1. FCC SAR test exclusions per KDB 447498 4.3.1. Standalone SAR test exclusion considerations

Appendix A: SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and  $\leq 50$  mm

| Frequency (MHz) | d[mm] | SAR Test Exclusion Threshold    |
|-----------------|-------|---------------------------------|
| 2480            | 5     | 1-g SAR (3.0)<br>10-g SAR (7.5) |

##### 4.2. ISED SAR test exclusions per IC RSS-102 Issue 5

ISED RSS-102 Section: 2.5.1 Exemption Limits for Routine Evaluation — SAR Evaluation  
 SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1. Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5.

Table with limits for the frequencies off interest

| Frequency (MHz) | d[mm] | Exemption Limits [mW] |
|-----------------|-------|-----------------------|
| 2450            | 6.5   | 12.25*                |

\*  $2.5 \times 4.9 \text{ mW} = 12.25 \text{ mW}$

#### 5. Stand-alone Transmission SAR Exclusion Evaluation

##### 5.1. Justification for using the 5 mm Distance

The conservative distance of 6.5 mm is an estimate of how close a human body can be to the device in its typical application.

##### 5.2. SAR Exclusion Calculation

|                                             |                  |
|---------------------------------------------|------------------|
| Nominal Conducted Power + Tune up Tolerance | 4 dBm + 4 dBm    |
| Maximum Conducted Power                     | 8 dBm ( 6.31 mW) |
| Antenna Gain                                | 2 dBi            |
| E.I.R.P                                     | 10 dBm ( 10 mW)  |
| Maximum Frequency                           | 2.48 GHz         |

Calculation is Power of channel (mW) / min test separation (mm) \* [sqrt freq (GHz)]  $6.31 / 6.5 * [\text{sqrt } 2.48] = 0.6$

Conclusion:

- The product meets the FCC SAR Test Exclusion Thresholds, because the calculation result is below the limits for 1-g SAR (3.0) and 10-g SAR (7.5)
- The product meets the 12.25 mW limb-worn devices ISED Evaluation Exemption Limit at 6.5 mm separation distance, because the maximum E.I.R.P. is 10 mW

## 6. Revision History

| Date       | Report Name                        | Changes to report                                                                                                                                                                                                                                                            | Report prepared by |
|------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 11-01-2022 | EMC_FOXBC-002-22001_FCC_SAREX      | Initial version                                                                                                                                                                                                                                                              | Kris Lazarov       |
| 11-16-2022 | EMC_FOXBC-002-22001_FCC_SAREX_Rev1 | Updated the SAR Test Exclusion Threshold Limit in section 4.1<br>Updated the Exemption Limit in section 4.2<br>Updated the separation distance in section 5.1<br>Replaced the SAR exclusion calculation table, with exact calculation, and added "Conclusion" in section 5.2 | Kris Lazarov       |

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