Radio Frequency Exposure Evaluation Report

FOR:
Warner Bros. Home Entertainment Inc.

Models:
WBMC22G1SAVW
WBMC22G1SHRW
WBMC22G1SHNW
WBMC22G1SWSW
WBMC22G1SLYW
WBMC22G1SDFW

Product Description:
Harry Potter interactive wand

FCC ID: 2A82K-WBMC22G1W
IC: 12514A- WBMC22G1W

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-001-22001_FCC_SAREX_Rev1
DATE: 11-16-2022

A2LA Accredited

IC recognized #
3462B-1

***CETECOM* Inc.**
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Contents

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 ISEDC 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	WBMC22G1SAVW; WBMC22G1SHRW WBMC22G1SHNW; WBMC22G1SWSW WBMC22G1SLYW; WBMC22G1SDFW

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

Responsible for Testing Laboratory:

Date	Section	Name	Signature
11-16-2022	Compliance	Arndt Stoecker (Director of Regulatory Services)	Arndt Stoecker Digitally signed by: Arndt Stoecker DN: CN = Arndt Stoecker email = arndt.stoecker@cetecom.com C = US O = CETECOM Inc Date: 2022.11.16 18:20:09 -08'00'

Responsible for the Report:

Date	Section	Name	Signature
11-16-2022	Compliance	Kris Lazarov (EMC Engineer)	Kris Lazarov Digitally signed by Kris Lazarov Date: 2022.11.16 13:40:01 -08'00'

2. Administrative Data

2.1. Identification of the Testing Laboratory Issuing the Test Report

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

2.2. Identification of the Client / Manufacturer

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

Manufacturer's Name:	Same as Client
Manufacturers Address:	
City/Zip Code	
Country	

3. Equipment under Assessment

Model No	WBMC22G1SAVW; WBMC22G1SHRW; WBMC22G1SHNW; WBMC22G1SWSW; WBMC22G1SLYW; WBMC22G1SDFW
HW Version	EW Main v1.4
SW Version	s132_nrf52_7.2.0
FCC-ID	2A82K-WBMC22G1W
IC:	12514A- WBMC22G1W
FVIN:	s132_nrf52_7.2.0
HMN	N/A
PMN	Harry Potter Magic Caster Wand
Product Description	Harry Potter interactive wand
Device Category	☐Fixed Installation ☐Mobile ■Portable ☐ Mixed Mobile and Portable
Frequency Range / number of channels	BLE: 2402 MHz (ch 0) – 2480 MHz (ch 39), 40 channels
Modes of Operation / Declared Output power	Bluetooth 5.1 Low Energy (limited to 1Mbps Max) / 4 dBm
Max. declared antenna gain	2 dBi
Minimum distance of antenna or radiating parts to user	5mm
Power Supply/ Rated Operating Voltage Range	5VDC / 1A
Operating Temperature Range	0°C to + 45°C
Co-located Transmitters / Antennas	☐Yes ■ No
Sample Revision	☐Prototype ■ Production ☐ Pre-Production
Exposure Category	☐ Occupational/ Controlled ■ 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 wand styles. The wand's Radio Code and Radio Settings identical and unchanging across all the wand styles. Only one representative sample was tested.

4. FCC and ISEDC 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 ≤ 50 mm

Frequency (MHz)	d[mm]	SAR Test Exclusion Threshold
2480	5	1-g SAR (3.0) 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	5	10*

* 2.5 x 4 mW=10 mW

5. Stand-alone Transmission SAR Exclusion Evaluation

5.1. Justification for using the 5 mm Distance

The conservative distance of 5 mm is an estimate of how close a human body can be to the devise in its typical application.

5.2. SAR Exclusion Calculation

Nominal Conducted Power + Tune up Tolerance	4 dBm + 2 dBm
Maximum Conducted Power	6 dBm (3.98 mW)
Antenna Gain	2 dBi
E.I.R.P	8 dBm (6.31 mW)
Maximum Frequency	2.48 GHz

Calculation is Power of channel (mW) / min test separation (mm) * [sqrt freq (GHz)] 3.98 / 5 * [sqrt 2.48] = 0.5

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 10 mW limb-worn devices ISED Evaluation Exemption Limit at separation distance of 5 mm, because the E.I.R.P. is 6.31 mW

6. Revision History

Date	Report Name	Changes to report	Report prepared by
11-01-2022	EMC_FOXBC-001-22001_FCC_SAREX	Initial version	Kris Lazarov
11-16-2022	EMC_FOXBC-001-22001_FCC_SAREX_Rev1	Updated the SAR Test Exclusion Threshold Limit in section 4.1 Updated the Exemption Limit in section 4.2 Replaced the SAR exclusion calculation table, with exact calculation, and added “Conclusion” in section 5.2	Kris Lazarov

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