

## RF Exposure Report (FCC)

**Report No.:** FCC\_RF\_SL20010901-HAR-2221\_MPE

**FCC ID:** 2AHPN-BE2849

**Model:** R1 EXT RW

**Received Date:** 02/10/2020

**Test Date:** 02/18/2020 – 02/29/2020

**Issued Date:** 03/20/2020

**Applicant:** HARMAN INTERNATIONAL,

**Address:** 30001 Cabot Drive, Novi, MI 48377, USA

**Manufacturer:** HARMAN INTERNATIONAL

**Address:** 30001 Cabot Drive, Novi, MI 48377, USA

**Issued By:** Bureau Veritas Consumer Products Services, Inc.

**Lab Address:** 775 Montague Expressway, Milpitas, CA 95035

**FCC Registration /  
Designation Number:** 540430 / 4842D



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### Release Control Record

Issue No.	Description	Date Issued
FCC_RF_SL20010901-HAR-2221_MPE	Original Release	03/23/2020

## 1 Certificate of Conformity

**Product:** Automotive Infotainment Unit

**Brand:** HARMAN

**Test Model:** R1 EXT RW

**Sample Status:** Engineering Sample

**Applicant:** HARMAN INTERNATIONAL

**Test Date:** 02/18/2020 - 03/18/2020

**Standard:** 47 CFR FCC Part 2.1093

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc., Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :** Gary Chou, **Date:** 03/23/2020  
Gary Chou / Compliance Engineer

**Approved by :** Chen Ge, **Date:** 03/23/2020  
Chen Ge / Engineer Reviewer

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.  
So, this device is classified as Mobile Device.

## 2.4 Calculation Result of Maximum Conducted Power

Type	Frequency Band (MHz)	Max Power (dBm)	Max Power (mW)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
BT-BDR	2402	5.87	3.864	± 1dB	1.43	20	0.001346	1
2.4GHz WLAN	2462	11.55	14.28	± 1dB	1.43	20	0.003395	1
5GHz WLAN	5180	8.03	6.35	± 1dB	2.60	20	0.002897	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

## 3 Conclusion

Therefore the maximum calculations of above situations are less than the “1” limit.

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