RF Exposure Report (FCC)

Report No.:	FCC_RF_SL20010901-HAR-2219_MPE
FCC ID:	2AHPN-BE2846
Model:	R1 EXT NA
Received Date:	02/10/2020
Test Date:	02/18/2020 - 03/18/2020
Issued Date:	03/23/2020
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

TESTING CERT # 2742-01

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
FCC_RF_SL20010901-HAR-2219_MPE	Original Release	03/23/2020

1 Certificate of Conformity

Product: Automotive Information Unit

Brand: HARMAN

Model: R1 EXT NA

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 :  , **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^2)	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	($180/f^2$)*	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

$Pd = (Pout*G) / (4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = 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^2)	Limit (mW/cm^2)
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	0.004976	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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