Test Report

Prepared for Harman International

This report presents Maximum Permissible Exposure for

BTT55L

Automotive Bluetooth Transmitter

Prepared by

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Engineer II

Approved by

Jason Kanakry

General Manager

Issue date: 03/14/2022

Report No: AH21071501-HAR-127_FCC_RF_MPE v2

Contents

• Test Request Information

Test Request #:	7700082986
Test Requested By:	Marc Ruskin
	Harman International Industries, Inc.
	30001 Cabot Drive, Novi, MI 48377
Test item Description:	BTT55L
Part Number:	PZ365-60603
DUT Sample Number:	AH21071501-HAR-127-1
Hardware Version of DUT:	N/A
Software Version of DUT:	N/A
Component Category of DUT:	N/A
FCC ID:	2AHPN-BE2863
IC:	6434C-BE2863
Type of Test:	FCC/ISED Certification
Test Method:	CFR Title 47 FCC Part 15.247, 1.1307, 1.1310, 2.1091
	FCC KDB 447498 D01 General RF Exposure Guidance v06
Deviations from standard:	None
Approved Test Plan Number:	N/A
Test Plan Revision:	N/A
Date test sample received:	08/06/2021
Date test started:	08/30/2021
Date test finished:	03/11/2022

- ## Test Laboratory Information

Location of Test Lab:	The radiated and conducted emissions test sites are located at Bureau Veritas 815 N. Opdyke Rd #100, Auburn Hills, MI 48326, Phone: +1-248-836-4700
Key Contact:	Jason Kanakry (General Manager) Jason.Kanakry@BureauVeritas.com Phone: +1-248-836-4747
Laboratory Accreditations:	BUREAU VERITAS CONSUMER PRODUCTS SERVICES, INC is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.
ISO/IEC 17025:2017:	5678.01
FCC Test Site Number:	US1278 (242530)
IC Test Site Number:	US0229 (26240)

- **RF Exposure**

1.1 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)
i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
ii) 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

1.2 MPE Calculation Formula

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

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 centre of the radiator in cm

1.3 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.

1.4 Antenna information

Band	Antenna Type	Antenna Gain (dBi)
Bluetooth Classic	Non-detachable PCB trace antenna	1.75

1.5 Calculation Result of Maximum Conducted Power

Band	Frequency (MHz)	Max Power (dBm)	Max Power (mW)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
Bluetooth Classic	2480	8.458	7.011	±1dB	1.75	20	0.00262	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. Calculate SAR test exclusion thresholds from condition “1” formulas.

1.6 Conclusion

The formula of calculated the MPE is:
CPD1 / LPD1 …….etc. < 1
CPD = Calculation power density
LPD = Limit of power density

BT = 0.00262<1

Therefore according to 47 CFR § 2.1091, the maximum calculations of above situations are FCC Compliant.

Document Revisions

Version	Date	Modifier	Changes
1.0	10-22-2021	Aravind Buddana	• Initial release
2.0	03-14-2022	Aravind Buddana	• Updated the Power data • Updated the standards Information.

End of Report