RF Exposure Evaluation Declaration

Report No.: S20240724240903
Issue Date: 09-09-2024

Applicant:	Shanghai Ortek Electronics Co., Ltd.
Address:	No.1 Jiefangdao Road, Bridge 16 Southern, Caoan Road, Jiading District, Shanghai, China
FCC ID:	2AT62TN-100
Application Type:	Certification
Product:	Car Audio
Model No.:	TN-100
Trade Mark:	/
FCC Rule Part(s):	CFR 47, FCC Part 2.1091 Radio frequency radiation exposure evaluation: mobile devices.
Item Receipt date:	Jul. 24, 2024
Test Date:	Aug. 06 ~ Aug. 27, 2024

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Approved By: Line Chen (Line Chen) Engineer Manager

FANGGUANG INSPECTION & TESTING CO.,LTD. APPROVED(02)

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
S20240724240903	Rev. 01	/	09-09-2024

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1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Car Audio
Model Name:	TN-100
Trade Mark:	/
Input Voltage Range:	DC12V/24V

1.2. Product Specification Subjective to this Report

Frequency Range:	BT:2402~2480MHz BLE: 2402~2480MHz
Data Rate:	BT:1Mbps (GFSK), 2Mbps (Π/4 DQPSK), 3Mbps (8DPSK) BLE_1M:1Mbps
Antenna Type:	PCB Antenna
Antenna Gain:	2.81dBi

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

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

Pd is the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Calculation Method

Product	Car Audio
Test Item	RF Exposure Evaluation

Mode	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
BT	2402 - 2480	-1.38	2.81	1.43	1.39	0.003	1.00
BLE_1M	2402 - 2480	6.00	2.81	8.81	7.60	0.015	1.00

Remark: 1. MPE use distance is 20cm from manufacturer declaration of user manual.

Remark: 2. Use the maximum gain of all bands when evaluating

CONCULISON:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

The End