

RF Exposure Evaluation Report

Product : Equipo de Audio y Video para Vehiculo
Trade mark : HYUNDAI/KIA
Model/Type reference : MTX_MO400L_BDMFL, MTX_MO400L_SCPE,
MTX_MO400L_SU2I, MTX_MO400L_SP2I,
MTX_MO400L_SK3, MTX_MO400L_MQ4A
Serial Number : N/A
Report Number : EED32N80102805
FCC ID : BP9-MO400LBDMFL
Date of Issue : May 24, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

MOTREX Co., LTD.
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Date:

May 24, 2021

Check No.: 5652090321

2 Version

Version No.	Date	Description
00	May 24, 2021	Original

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4 General Information

4.1 Client Information

Applicant:	MOTREX Co., LTD.
Address of Applicant:	Seoyoung Bldg. 25, Hwangsaoul-ro 258beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, South Korea
Manufacturer:	Skypine Electronics (ShenZhen)Co.,Ltd
Address of Manufacturer:	A1, A5 Building, No.6, Xinxing Industrial Park, Xinhe Village, Fuyong Town, Bao'an District, Shenzhen City, Guangdong Province, China
Factory:	Skypine Electronics (ShenZhen)Co.,Ltd
Address of Factory:	A1, A5 Building, No.6, Xinxing Industrial Park, Xinhe Village, Fuyong Town, Bao'an District, Shenzhen City, Guangdong Province, China

4.2 General Description of EUT

Product Name:	Equipo de Audio y Video para Vehiculo
Model No.:	MTX_MO400L_BDMFL, MTX_MO400L_SCPE, MTX_MO400L_SU2I, MTX_MO400L_SP2I, MTX_MO400L_SK3, MTX_MO400L_MQ4A
Test model.:	MTX_MO400L_BDMFL
Trade mark:	HYUNDAI/KIA
EUT Supports Radios application:	BT 5.0 Double module 2402MHz to 2480MHz; 2.4GHz Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz 5GHz Wi-Fi: U-NII-3: 5745-5825MHz

4.3 Product Specification subjective to this standard

Frequency Range:	BT 5.0 Double module 2402MHz to 2480MHz; 2.4GHz Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz 5GHz Wi-Fi: U-NII-3: 5745-5825MHz
Modulation Type:	BT: GFSK, $\pi/4$ DQPSK, 8DPSK; WIFI: IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ac(HT20/HT40/HT80): OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Test Power Grade:	Default
Test Software of EUT:	BT: RTLBTAPP.exe
	WIFI: Xshell.exe
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	DC 12V
Max Conducted Peak Output Power:	BT: 8.56dBm; 2.4G WIFI: 15.96dBm; 5G WIFI: 13.09dBm
	The Max Conducted Peak Output Power data refer to the report EED32N80102801, EED32N80102802, EED32N80102803, EED32N80102804.
Sample Received Date:	Apr, 08. 2021
Sample tested Date:	Apr, 08. 2021 to May, 24. 2021
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. Model No.: MTX_MO400L_BDMFL, MTX_MO400L_SCPE, MTX_MO400L_SU2I, MTX_MO400L_SP2I, MTX_MO400L_SK3, MTX_MO400L_MQ4A. Only the model MTX_MO400L_BDMFL was tested, MTX_MO400L_SCPE, MTX_MO400L_SU2I, MTX_MO400L_SP2I, MTX_MO400L_SK3 and MTX_MO400L_MQ4A compared with MTX_MO400L_BDMFL, all parts of the product, Their electrical circuit design, layout, components used and internal wiring are identical, except only the packaging material, the frontpanel and model name are different.	

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

BT:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
79	2480	7.1779	1	20	0.0014	1

2.4G WIFI:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
1	2412	39.446	1	20	0.0078	1

5G WIFI:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
149	5745	20.37	1	20	0.0041	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80102801 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***