



RF Exposure Evaluation Report

Application No.: DNT241264R1758-4856
Applicant: INTRO UNION ELECTRONICS CO.,LIMITED
Address of Applicant: Building C, Lilan Industry Park, Huanguan Middle Road, Longhua District, Shenzhen, China, 518000
EUT Description: CAR FM TRANSMITTER
Model No.: T33
FCC ID: 2A578-T33
Power supply: DC12-24V, 5.65A
Trade Mark: /
47 CFR Part 2.1091
Standards: FCC KDB 447498 D01 v06
Date of Receipt: 2024/06/19
Date of Test: 2024/06/21 to 2024/07/19
Date of Issue: 2024/08/05
Test Result: **PASS**

Prepared By: Wayne Lin (Testing Engineer)

Reviewed By: Ponits Chen (Project Engineer)

Approved By: Yese Chen (Manager)



Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Dongguan DN Testing Co., Ltd.

Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

Web: www.dn-testing.com

Tel: +86-769-88087383

E-mail: service@dn-testing.com



Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug.5, 2024	Valid	Original Report



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1 General Information

1.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfa Road, Wusha Liwu, Chang ' an Town, Dongguan City, Guangdong P.R.China
Test engineer:	Wayne Lin

1.2 General Description of EUT

Manufacturer:	INTRO UNION ELECTRONICS CO.,LIMITED
Address of Manufacturer:	Building C, Lilan Industry Park, Huanguan Middle Road, Longhua District, Shenzhen, China, 518000
EUT Description::	CAR FM TRANSMITTER
Test Model No.:	T33
Additional Model(s):	/
Chip Type:	AC6926A
Serial Number	PR241264R1758
Power Supply	DC12-24V, 5.65A
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	<input type="checkbox"/> Portable Device, <input type="checkbox"/> Module, <input checked="" type="checkbox"/> Mobile Device
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated
Antenna Gain:	<input checked="" type="checkbox"/> Provided by applicant
	BT Ant:-0.58dBi
	FM Ant:0.17dBi

Remark:

*Since the above data and/or information is provided by the applicant relevant results or conclusions of this report are only made for these data and/or information , DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.



2 RF Exposure Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Limits

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) 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 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).				

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1 mW/cm². 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.



2.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually

2.1.3 EUT RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

This confirmed that the device comply with MPE limit.

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About FM(max): EIRP=47.69 (dBuV/m)=-47.54dBm

Test Mode	Freq(MHz)	Power [dBm]
DH5	2402	4.02
	2441	3.64
	2480	3.58
π/4-DQPSK	2402	4.23
	2441	4.41
	2480	4.18

The Worst Mode	Antenna	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm ²)	Limited of Power Density (S) (mW /cm ²)	Test Result
					(dBi)	(Linear)			
π/4-DQPSK	Ant1	4.41	4±1	5	-0.58	0.875	0.0006	1	Complies
FM	Ant2	-	-	-47.54	0.17	1.040	0.000000004	0.2	Complies

FM+BT

MAX Ture-up power ratio Bluetooth	MAX Ture-up power FM	Total Ratio	Limit Ratio	Test Result
0.0006	0.00000002	0.00060002	1	Complies

The End Report