

TELE RADIO AB

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
D00005-25, D5-25, CL-TR709-1

REPORT NUMBER:
190300823SHA-002

ISSUE DATE:
October 31, 2019

DOCUMENT CONTROL NUMBER:
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Applicant: TELE RADIO AB
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Manufacturer: TELE RADIO AB
Datavägen 21, SE-436 32 Askim, Sweden

FCC ID: ONFC1902A

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06

FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:

REVIEWED BY:



Project Engineer
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Reviewer
Daniel Zhao

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Revision History

Report No.	Version	Description	Issued Date
190300823SHA-002	Rev. 01	Initial issue of report	October 31, 2019

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Transceiver
Type/Model:	D00005-25, D5-25, CL-TR709-1
Description of EUT:	EUT is a radio modular. It has three models, all models has the same electrical circuit design, layout and components used. After evaluation, we selected R23-13 as the Host for testing.
Rating:	3.3V DC, 5V DC
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	October 08, 2019
Date of test:	October 11, 2019, October 22, 2019

1.2 Technical Specification

Frequency Range:	2400MHz ~ 2483.5MHz
Operating Frequency:	2405MHz to 2480MHz
Type of Modulation:	O-QPSK
Channel Number:	16 (11 - 26)
Channel Separation:	5 MHz
Antenna:	Antenna 1: Chip antenna 2.0dBi Antenna 2: External omni antenna 3.0dBi
Host product name:	Transceiver
Host model name:	R23, R23-01, R23-02, R23-03, R23-04, R23-08, R23-09, R23-11, R23-12, R23-13, R23-14

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	$4\ 000/f$	$5\ 000/f$	-
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	-
0,8-3 kHz	$250/f$	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	$0,73/f$	$0,92/f$	-
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

TEST REPORT**2.2 Assessment Results**

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm²

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 190300823SHA-001:

The maximum radiated power = 7.15dBm = 5.19 mW;

Here R is chosen to be 20cm,

$$S = P / (4\pi R^2) = 5.19 / (4 * 3.14 * 20 * 20) = 0.0007 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

TEST REPORT

Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

***** END *****