

MPE REPORT

Product Name: Global LTE Cat.M1/lte Cat.nb2 Data-only Module
Trade Mark: CINTERION
Model No. : TX62-W-B
Report Number: 210804012RFC-1
Test Standards: FCC 47 CFR Part 1 Subpart I
FCC ID: QIPTX62-W-B
Test Result: PASS
Date of Issue: September 17, 2021

Prepared for:

Thales DIS AIS Deutschland GmbH
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UTTR-RF-RSS102-V1.1

Version

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V1.0	September 17, 2021	Original

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1. Test Laboratory

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2. Client Information

2.1. Applicant Information

Company Name: Thales DIS AIS Deutschland GmbH
Address /Post: Siemensdamm 50, 13629 Berlin, Germany
Telephone: /
Postcode: /

2.2. Manufacturer Information

Company Name: Thales DIS AIS Deutschland GmbH
Address /Post: Werinherstr.81, 81541 Munich, Germany
Telephone: /
Postcode: /

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3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Global LTE Cat.M1/lte Cat.nb2 Data-only Module
Model name	TX62-W-B
E-UTRA Bands	FDD Band 2/ Band 4/ Band 5/ Band8 / Band 12/ Band 13/ Band 25/ Band 26/ Band 66/ Band 71
Antenna Type	External Antenna
FCC ID:	QIPTX62-W-B

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4. Power Output Test Results

4.1. RF Power Output

Frequency Band	Highest Power Output(dBm)
LTE Band 8	25

4.2. Duty cycle

Mode	Duty Cycle
LTE	1:1

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5. Reference Documents for FCC

5.1. Applicable Standards

The MPE report was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 2.1091.

FCC CFR 47, Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS, Oct 1, 2011

Section 2.1091 Radiofrequency radiation exposure evaluation.

5.2. Test Limits

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

Limits for Occupational / Controlled Exposure

Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/cm ²]	Averaging Times E ² , H ² or S [minutes]
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1824/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6

Limits for General Population / Uncontrolled Exposure

Frequency Range [MHz]	Electric Field Strength (E) [V/m]	Magnetic Field Strength (H) [A/m]	Power Density (S) [mW/cm ²]	Averaging Times E ² , H ² or S [minutes]
0.3 – 1.34	614	1.63	(100)*	30
1.34 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	F/1500	30
1500 - 100000	--	--	1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

For the DUT, the limits for General Population / Uncontrolled Exposure are applicable.

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FCC: §1.1307	Cellular Radiotelephone Service (subpart H of part 22) Non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP)
FCC §1.1307	Personal Communications Services (part 24) Broadband PCS (subpart E): non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 2000 W ERP (3280 W EIRP)
FCC §1.1310	LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE) Table 1(B) Limits for General Population/Uncontrolled Exposure 300–1500 MHz: f/1500 mW/cm ² 1500–100,000 MHz: 1.0 mW/cm ² Subject to routine evaluation is required when the device operate at frequencies of 1.5 GHz or below and their
FCC §2.1091	effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.(a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (e.i.r.p.) with an antenna
FCC §27.1507(a)(3):	Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 1 watt EIRP.

5.3. Calculation Information

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.

Based on the FCC KDB 447498 D01 and 47 CFR §2.1091, the DUT is evaluated as a mobile device.

$$\text{Given } S = \frac{P \times G}{4\pi d^2} \quad \text{Equation 1}$$

Where

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

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5.4. Max. Antenna gain calculations

Maximum antenna gain considerations for fixed/mobile operations for complying with limits:

Band	Highest Frame-Averaged Output Power (dBm)	Limit (mW/cm ²)	Max antenna gain at 20cm (dBi)
LTE Band 8	25	0.599	9.7

Power limit according to §22.913(a), §24.232(c), §27.50(d)(4), §27.50(c)(10), §27.50(h)(2), §27.50(b)(10), §90.635:

Band	Highest Frame-Averaged Output Power (dBm)	Limit (W) (ERP/EIRP)	Max antenna gain at 20cm(dBi)
LTE Band 8	25	10	15

5.5. Conclusion for maximum admissible antenna gain (FCC)

Band	Maximum admissible antenna gain (dBi)
LTE Band 8	9.7

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*** End of Report ***

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