

CE EMF Evaluation Report

Report No.: NCC_MPE_SL20021201-TRB-005

Test Model: XDLM-0

Series Model: N/A

Issued Date: 06/18/2020

Applicant: Trimble Inc.

Address: 935 Stewart Drive, Sunnyvale, CA 94085, USA

Issued By: Bureau Veritas Consumer Products Services, Inc.

Lab Address: 775 Montague Expressway, Milpitas, CA 95035

Test Location (1): 775 Montague Expressway, Milpitas, CA 95035



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Release Control Record

Issue No.	Description	Date Issued
NCC_MPE_SL20021201-TRB-005	Original release	06/18/2020

1 Certificate of Conformity

Product:	TDL 450i
Brand:	Trimble
Test Model:	XDLM-0
Series Model:	N/A
Sample Status:	Engineering sample
Applicant:	Trimble Inc
Standards:	LP0002: 2018

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc., Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Deon Dai , Date: 06/18/2020
Deon Dai / Test Engineer

Approved by : Chen Ge , Date: 06/18/2020
Chen Ge / Engineer Reviewer

2 General Information

2.1 General Description of EUT

Product	TDL 450i
Brand	Trimble
Test Model	XDLM-0
Identification No. of EUT	N/A
Series Model	N/A
Status of EUT	Engineering sample
Nominal Voltage	3.6Vdc
Temperature Operating Range	-20°C~55°C
Modulation Type	GMSK, 4FSK
Operating Frequency	410 MHz~473MHz
Antenna Type	Monopole
Antenna Gain (dBi)	1.2
Antenna Model	EXM410SMS-TR1
Antenna Part No.	84302

3 RF Exposure

3.1 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)
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

3.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

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

3.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

3.4 Antenna Gain

The antenna type is monopole antenna with 1.2 dBi gain.

3.5 EMF Calculation

The manufacturer expects that the radiated component of this device will not close to the human body during normal usage and the warning statement was also stated in the user instruction. Since the transmitting antenna will be kept at least 30 cm away from the human body, the EMF level is calculated based on this condition and the result is listed in below table.

Frequency Band (MHz)	Max Power (dBm)	Turn-Up Tolerance	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
403-470MHz	32.23	±1dB	1.2	30	0.245	0.26

Appendix – Information of the Testing Laboratories

Bureau Veritas is a global leader in testing, inspection and certification (TIC) services. We help businesses improve safety, sustainability and productivity; and our clients include the majority of leading brands in retail, manufacturing and other industries. With a presence in every major country around the world, our quality assurance and compliance solutions are vital in helping our customers enhance product quality and concept-to-consumer journeys. We also assist with increasing speed to market, profitability and brand equity throughout the supply chain. Bureau Veritas is a leading wireless/IoT testing, inspection, audit and certification provider, with a global network of test laboratories to support the IoT industry in areas of connectivity, security, interoperability as well as quality, health & safety, and environmental/chemical requirements.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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