RF Exposure Report

Report No.:	SA171003C10
FCC ID:	S4L4FIC1
Test Model:	4FIC1
Series Model:	4FIC0
Received Date:	Oct. 03, 2017
Test Date:	Oct. 25 ~ Nov. 07, 2017
Issued Date:	Nov. 09, 2017
Applicant:	TomTom International B.V.
Address:	De Ruijterkade 154, 1011 AC Amsterdam The Netherlands
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
Test Location (2):	No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C
FCC Registration / Designation Number:	427177 / TW0011

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SA171003C10	Original release	Nov. 09, 2017

1 Certificate of Conformity

Product:	TomTom BRIDGE Hub
Brand:	TOMTOM
Test Model:	4FIC1
Series Model:	4FIC0
Sample Status:	Pre-MFB build sample
Applicant:	TomTom International B.V.
Test Date:	Oct. 25 ~ Nov. 07, 2017
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan 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 : Celine Chou , **Date:** Nov. 09, 2017

Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Nov. 09, 2017

Ken Liu / Senior Manager

2 RF Exposure

2.1 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				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$
where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
R = distance between observation point and center of the radiator in cm

2.3 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 Calculation Result of Maximum Conducted Power

For WLAN, BT and BT LE:

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN	2412-2462	19.23	1.69	20	0.025	1
	5180-5240	12.98	3.11	20	0.008	1
	5260-5320	12.97	3.11	20	0.008	1
	5500-5700	12.95	3.11	20	0.008	1
	5745-5825	12.95	3.11	20	0.008	1
BT	2402-2480	2.62	1.69	20	0.001	1
BT LE	2402-2480	2.58	1.69	20	0.001	1

For WWAN: (Base on WWAN module report (model no.: ELS61-US, brand name: GEMALTO, FCC ID: QIPELS61-US))

Function	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WCDMA Band 2	1850-1910	22.85	-5	20	0.012	1
WCDMA Band 4	1710-1755	23.03	-5	20	0.013	1
WCDMA Band 5	824-849	23.37	-5	20	0.014	0.549
LTE Band 2	1850-1910	21.66	-5	20	0.009	1
LTE Band 4	1710-1755	21.70	-5	20	0.009	1
LTE Band 5	824-849	22.22	-5	20	0.010	0.549
LTE Band 12	698-716	22.12	-5	20	0.010	0.465

Conclusion:

WLAN (2.4GHz or 5GHz), BT (BT EDR or BT LE) and WWAN technology can transmit simultaneously.

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WALN 2.4GHz + BT + WWAN = 0.025 / 1 +0.001 / 1 + 0.014 / 0.549 = 0.051

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