FCC SAR Exclusion Report

Report No.	:	**SA160224C18**
Applicant	:	**TomTom International BV**
Address	:	**De Ruijterkade 154 Amsterdam,1011 AC Netherlands**
Product	:	**GPS Navigation System**
Brand	:	**TomTom**
FCC ID	:	**S4L4AP64**
Model No.	:	**4AP64**
Standards	:	**FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1992 / IEEE 1528:2013** **KDB 865664 D01 v01r04 / KDB 865664 D02 v01r02 / KDB 447498 D01 v06**
Sample Received Date	:	**Feb. 24, 2016**
Date of Evaluation	:	**Mar. 04, 2016**

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, 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 SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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Evonne Liu / Specialist

Approved By : Eli Hsu

Eli Hsu / Supervisor

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Release Control Record

Issue No.	Reason for Change	Date Issued
SA160224C18	Initial release	Mar. 23, 2016

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR_{1g} (W/kg)
DSS	Bluetooth	Not Required

Note:

1. The SAR limit **(Head & Body: SAR_{1g} 1.6 W/kg)** for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.

2. Description of Equipment Under Test

EUT Type	GPS Navigation System
Brand Name	TomTom
FCC ID	S4L4AP64
Model Name	4AP64
Tx Frequency Bands (Unit: MHz)	Bluetooth : 2402 ~ 2480
Uplink Modulations	Bluetooth : GFSK, π/4-DQPSK, 8-DPSK
Maximum Tune-up Conducted Power (Unit: dBm)	0.5
Antenna Type	Wire Antenna
EUT Stage	Production Unit

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

List of Accessory:

Car Charger 1	**Brand Name**	TomTom
	Model Name	4UUC3Z (Type A)
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A
Car Charger 2	**Brand Name**	TomTom
	Model Name	4UUC3Z (Type B)
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A
Car Charger 3	**Brand Name**	TomTom
	Model Name	4UUC9
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A/2.1A, 12V/24V, 2.0A
Car Charger 4	**Brand Name**	TomTom
	Model Name	4UUC26
	Power Rating	I/P: 12V/24V; O/P: 5V, 2.4A/1.5A
Car Charger 5	**Brand Name**	TomTom
	Model Name	4UUC25
	Power Rating	I/P: 12V/24V; O/P: 5V, 2.1A
Car Charger 6	**Brand Name**	TomTom
	Model Name	4UUC23
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A
Car Charger 7	**Brand Name**	TomTom
	Model Name	4UUC23B
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A
Car Charger 8	**Brand Name**	TomTom
	Model Name	4UUC5B
	Power Rating	I/P: 12V/24V; O/P: 5V, 1.2A
Home Charger	**Brand Name**	TomTom
	Model Name	4UUC6B
	Power Rating	I/P: 110V/240V; O/P: 5V, 1.2A
Battery	**Brand Name**	TomTom
	Model Name	AT6
	Power Rating	3.7Vdc, 1100mAh
	Type	Li-ion
USB Cable	**Brand Name**	TomTom
	Model Name	4UUC.001.24
	Signal Line Type	1.5 meter shielded cable w/o core

3. SAR Measurement Evaluation

3.1 Maximum Output Power

The maximum conducted power (Unit: dBm) including tune-up tolerance is shown as below.

Mode	Bluetooth
All	0.5

3.2 SAR Testing Exclusions

According to KDB 447498 D01, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

1. For the test separation distance <= 50 mm

$$\frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \sqrt{f_{(\text{GHz})}} \leq 3.0$$

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

2. For the test separation distance > 50 mm, and the frequency at 100 MHz to 1500 MHz

$$\left[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50\ \text{mm}) \times \left(\frac{f_{(\text{MHz})}}{150}\right)\right]_{(\text{mW})}$$

3. For the test separation distance > 50 mm, and the frequency at > 1500 MHz to 6 GHz

$$[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50\ \text{mm}) \times 10]_{(\text{mW})}$$

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
BT	0.5	1.12	5	0.4	No

Note:

1. When separation distance <= 50 mm and the calculated result shown in above table is <= 3.0, the SAR testing exclusion is applied.
2. When separation distance > 50 mm and the device output power is less than the calculated result (power threshold, mW) shown in above table, the SAR testing exclusion is applied.

Summary:

Since the SAR testing for all device orientations apply SAR test exclusion per KDB 447498, SAR testing for this device is not required.

4. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

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

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Appendix A. Photographs of EUT and Setup

<Photographs of EUT>