



Test report No. : 4789004574-US-R4-V0
Page : 1 of 10
Issued date : Aug. 27, 2019
FCC ID : 2ASXC-TMO-NBT-01

Maximum Permissible Exposure Report

Product : Pet tracker

Model Name : TMUS-SUP-1

FCC ID : 2ASXC-TMO-NBT-01

Test Regulation : 47 CFR FCC Part 2.1091

Received Date : May 3, 2019

Issued Date : Aug. 27, 2019

Applicant : T-mobile Usa, Inc.
12920 Se 38th Street, Bellevue, Washington, United States, 98006

Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

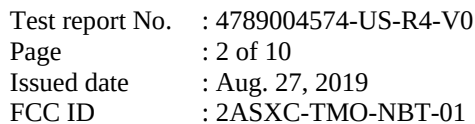


The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report are responsible of the test sample(s) provided by the client only and are not to be used to indicate applicability to other similar products.

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Doc No: 17-EM-F0864 / 2.0



Original Test Report No.: 4789004574-US-R4-V0

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1. Attestation of Test Results

APPLICANT: T-mobile Usa, Inc.
12920 Se 38th Street, Bellevue, Washington, United States,
98006

MANUFACTURER CyberTAN Technology Inc.
No. 99, Park Avenue III Science-based Industrial Park
Hsinchu Taiwan 308

EUT DESCRIPTION: Pet tracker

BRAND: T-mobile

MODEL: TMUS-SUP-1

SAMPLE STAGE: Engineering sample

APPLICABLE STANDARDS	
STANDARD	Test Results
47 CFR FCC PART 2.1091	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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Date : Aug. 27, 2019

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2. Test Methodology

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06.

3. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

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4. Equipment Under Test

4.1. Description of EUT

Product Name	Pet tracker	
Brand Name	T-Mobile	
Model Name	TMUS-SUP-1	
Operating Frequency	BLE	2402MHz ~ 2480MHz
	WLAN	2.4GHz: 2412MHz ~ 2462MHz
Modulation	BLE	GFSK
	WLAN	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Number of Channel	BLE	40
	WLAN	802.11b, 802.11g, 802.11n (HT20): 11
Normal Voltage	5Vdc (adapter or host equipment) 3.7Vdc for battery	
Hardware Version	V01	
Software Version	0.31.10.14	

Note:

1. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

Modulation Mode	Tx,Rx Function
802.11b	1TX,1RX
802.11g	1TX,1RX
802.11n (HT20)	1TX,1RX

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2. The EUT contains following accessory devices Product Brand Model Description USB Cable

Product	Brand	Model	Description
Adapter	CyberTAN	AN05A-050E-H	I/P: 100-240Vac, 50-60Hz, 0.2A O/P: 5.0 Vdc, 1.0A
Battery	CyberTAN	GWB001-A1	3.7 Vdc, 450 mAh
Charging Dock	CyberTAN	N/A	N/A
Collar mount	CyberTAN	N/A	N/A
USB Cable	N/A	N/A	1 meter shielded cable without core
Bands	CyberTAN	N/A	N/A

The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

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4.2. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
BLE	N/A	NB-IOT tracker	Internal	-2.3

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
WLAN 2.4GHz	N/A	NB-IOT tracker	Internal	-2.3

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

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5. Requirement

Limits for General Population/Uncontrolled Exposure

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 Time 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 ²	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30
Note 1: f = frequency in MHz, * means Plane-wave equivalent power density				
Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.				

Power Density (S) is calculated by the following formula:

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

where: S = power density (in appropriate units, e.g. mW/ cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

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6. Radio Frequency Radiation Exposure Evaluation

BLE

BLE					
Max. Average power	Antenna Gain	Max. EIRP	Max. EIRP	Power density @ 20 cm	Limit
(dBm)	(dBi)	(dBm)	(mW)	(mW/cm ²)	(mW/cm ²)
1.65	-2.30	-0.65	0.861	0.000	1

WLAN 2.4GHz

WLAN 2.4GHz					
Max. Average power	Antenna Gain	Max. EIRP	Max. EIRP	Power density @ 20 cm	Limit
(dBm)	(dBi)	(dBm)	(mW)	(mW/cm ²)	(mW/cm ²)
14	-2.30	11.70	14.791	0.003	1

Note:

1. Max. EIRP (dBm) = Max. Average power (dBm) + Antenna Gain (dBi)
2. Max. EIRP (mW) = $10^{(\text{Max. EIRP (dBm)} / 10)}$
3. Power density (mW/cm²) = Max. EIRP (mW) / $[4 \times \pi \times (\text{calculated distance})^2]$, the calculated distance is 20 cm.
4. WiFi has more data transmission. When the tracker is removed and placed on the charging stand, the MPE is calculated at a distance of 20cm.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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