



Report No.: T200629W01-MD

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Rev.: 00

LP0002: 2018

TEST REPORT

For

Product / Trade Name / Model:

主型號	
(1) 產品名稱	UTR 2.0
廠牌 / 型號	Audi / UTR 2.0
系列型號	
(2) 產品名稱	Porsche Dashcam
廠牌 / 型號	Porsche / Porsche Dashcam
(3) 產品名稱	Universal Traffic Recorder 2
廠牌 / 型號	Volkswagen / Universal Traffic Recorder 2

Issued to

Mobile Appliance, Inc.

1701 ~ 1706, 401, Simin-daero, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

No.11, Wugong 6th Rd., Wugu Dist.,

New Taipei City, Taiwan. (R.O.C.)

Issued Date: September 7, 2020

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 7, 2020	Initial Issue	ALL	Mita Wu



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1 Test Result Certification

Applicant:

Mobile Appliance, Inc.
1701 ~ 1706, 401, Simin-daero, Dongan-gu, Anyang-si,
Gyeonggi-do, Republic of Korea

Manufacturer:

Mobile Appliance, Inc.

**Equipment Under Test /
Trade Name / Model:**

主型號	
(1) 產品名稱	UTR 2.0
廠牌 / 型號	Audi / UTR 2.0
系列型號	
(2) 產品名稱	Porsche Dashcam
廠牌 / 型號	Porsche / Porsche Dashcam
(3) 產品名稱	Universal Traffic Recorder 2
廠牌 / 型號	Volkswagen / Universal Traffic Recorder 2

APPLICABLE STANDARDS	
STANDARD	RESULT
LP0002: 2018	PASS

Statements of Conformity
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in LP0002. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Dally Hong

Dally Hong
Sr. Engineer

2 EUT Description

Product / Trade Name / Model Number	主型號	
	(1) 產品名稱	UTR 2.0
	廠牌 / 型號	Audi / UTR 2.0
	系列型號	
	(2) 產品名稱	Porsche Dashcam
	廠牌 / 型號	Porsche / Porsche Dashcam
	(3) 產品名稱	Universal Traffic Recorder 2
	廠牌 / 型號	Volkswagen / Universal Traffic Recorder 2
Model Discrepancy	此次共申請 3 個型號，主型號: UTR 2.0 (商標: Audi，產品名稱: UTR 2.0)；2 個系列型號，Porsche Dashcam (商標: Porsche，產品名稱: Porsche Dashcam)、Universal Traffic Recorder 2 (商標: Volkswagen，產品名稱: Universal Traffic Recorder 2)，其型號差異僅為市場區隔，其技術規格及射頻性能相同，該產品確實符合同系列產品。	
Frequency Range	Bluetooth 2402 ~ 2480 MHz 2.4GHz IEEE 802.11b Mode: 2412 ~ 2462 MHz IEEE 802.11g Mode: 2412 ~ 2462 MHz IEEE 802.11n HT20 Mode: 2412 ~ 2462 MHz 5GHz IEEE 802.11n HT40 Mode: 5190 ~ 5230 MHz / 5270 ~ 5310 MHz 5510 ~ 5670 MHz / 5755 ~ 5795 MHz IEEE 802.11ac VHT 80 Mode: 5210 MHz / 5290 MHz 5530 ~ 5610MHz / 5775 MHz	
Transmit Data Rate	Bluetooth 1, 2, 3 Mbps 2.4GHz IEEE 802.11b Mode : 1, 2, 5.5, 11 Mbps IEEE 802.11g Mode : 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20 Mode : 6.5, 7.2, 13, 14.4, 19.5, 21.7, 26, 28.9, 39, 43.3, 52, 57.8, 58.5, 65.0, 72.2 Mbps 5GHz IEEE 802.11n HT40 Mode : 13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps IEEE 802.11ac VHT 80 Mode 29.3, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390, 468, 526.5, 585, 702, 780 Mbps	

Type of Modulation	Bluetooth 5.0 2.4GHz IEEE 802.11b Mode: IEEE 802.11g Mode: IEEE 802.11n HT20 Mode: 5GHz IEEE 802.11n HT 40 Mode: IEEE 802.11ac VHT 80 Mode:	GFSK DSSS (CCK, DQPSK, DBPSK) OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM (64QAM, 16QAM, QPSK, BPSK) OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Number	Bluetooth 5.0 2.4GHz IEEE 802.11b Mode: IEEE 802.11g Mode: IEEE802.11n HT20 Mode: 5GHz IEEE 802.11n HT40 Mode: IEEE 802.11ac VHT80 Mode:	2402 ~ 2480 MHz 40 Channels 2412 ~ 2462 MHz 11 Channels 2412 ~ 2462 MHz 11 Channels 2412 ~ 2462 MHz 11 Channels 5190 ~ 5230 MHz 2 Channels 5270 ~ 5310 MHz 2 Channels 5510 ~ 5670 MHz 5 Channels 5755 ~ 5795 MHz 2 Channels 5210 MHz 1 Channels 5290 MHz 1 Channels 5530 ~ 5690 MHz 2 Channels 5775 MHz 1 Channels
Transmit Power	Bluetooth 2.4GHz IEEE 802.11b Mode: IEEE 802.11g Mode: IEEE 802.11n HT20 Mode : 5GHz IEEE 802.11n HT40 Mode : IEEE 802.11ac VHT80 Mode :	-1.27 dBm (0.746 mW) 14.90 dBm (30.903 mW) 18.42 dBm (69.502 mW) 18.58 dBm (72.111 mW) -4.12 dBm (0.387 mW) -6.14 dBm (0.243 mW)
Antenna Type	Chip Antenna Bluetooth: 1.99 dBi WIFI 2.4GHz: 3.2 dBi WIFI 5GHz: 3.2 dBi BT: Directional Gain : 1.99 dBi (Numeric gain: 1.58) 2.4GHz: Directional Gain : 3.20 dBi (Numeric gain: 2.09) 5GHz: Directional Gain : 3.20 dBi (Numeric gain: 2.09)	

Remark: for more details, please refer to the User's manual of the EUT.

3 Facilities and Accreditations

3.1. Facilities

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist, New Taipei City, Taiwan (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

3.2. Equipment

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3.3. Laboratory Accreditations and Listings

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200600-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (registration no: 93105 and 90471).

4 LP0002 Requirement

4.1. Limit

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 levels in excess of the following limits.

Limits for Occupational / Controller 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)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	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 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

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

4.2. Human Exposure Assessment

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²



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Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Bluetooth:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
39	2480	0.746	1.99	20	0.0003	1

WIFI 2.4GHz

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
1	2412	30.903	3.2	20	0.0197	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
1	2412	69.502	3.2	20	0.0443	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
1	2412	72.111	3.2	20	0.0459	1

WIFI 5GHz

IEEE 802.11n HT40 Mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
151	5755	0.387	3.2	20	0.0002	1

IEEE 802.11ac VHT80 Mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
155	5775	0.243	3.2	20	0.0002	1

--End of Report--