Report No.: T200131W01-MD

LP0002: 2018

TEST REPORT

For

BT-Transceiver

Model: DDAECE02

Trade Name: Continental

Issued to

Continental Advanced Antenna GmbH
Roemerring 1 31137 Hildesheim Germany

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issued Date: April 10, 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	April 10, 2020	Initial Issue	ALL	Allison Chen

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1 Test Result Certification

Applicant:	Continental Advanced Antenna GmbH Roemerring 1 31137 Hildesheim Germany
Manufacturer:	Continental Advanced Antenna GmbH
Equipment Under Test:	BT-Transceiver
Trade Name:	Continental
Model:	DDAECE02

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:

Kevin Tsai
Deputy Manager

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2 EUT Description

Product	BT-Transceiver		
Trade Name	Continental		
Model Number	DDAECE02		
Model Discrepancy	N/A		
Frequency Range	Bluetooth	2402 ~ 2480 MHz	
Transmit Power (mean Avg. burst power)	Bluetooth	3.04 dBm	(2.014 mW)
Transmit Data Rate	Bluetooth	1 Mbps	
Channel Number	Bluetooth 4.0	2402 ~ 2480 MHz	40 Channels
Type of Modulation	Bluetooth 4.0	GFSK	
Antenna Type	**Integrated Antenna** Bluetooth Antenna Gain: 6.00 dBi (Numeric gain: 3.98)		

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

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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 24891, Taiwan (R.O.C.)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

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).

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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

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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

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***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)
1	2402	2.014	3.98	20	0.0016	1

--End of Report--

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