



MDE_CONTI_2135_MPE_02

Continental Automotive GmbH
Siemensstraße 12
93055 Regensburg
Germany

Issue date: 2022-04-14

**Maximum Permissible Exposure according to the RSS-102, issue 5 Standard
and to FCC §15.247(b)(4) and §1.1307(b)(1)**

CMBTRX1

FCC ID: KR5CMBTRX1

IC: 7812D-CMBTRX1

Best Regards

Abdellah Ahakki
(Project Manager)

Test Laboratory:

7layers GmbH
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Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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ADMINISTRATIVE DATA

TESTING LABORATORY

Company Name: 7layers GmbH
Address: Borsigstr. 11
40880 Ratingen
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PROJECT DATA

Responsible report: Abdellah Ahakki
Date of Report: 2022-04-14
Testing Period: 2021-11-24 to 2022-03-02

APPLICANT DATA

Company Name: Continental Automotive GmbH
Address: Siemensstraße 12
93055 Regensburg
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Contact Person: Mrs. Alexandra Anisoreac

MANUFACTURER DATA

Company Name: please see Applicant Data
Address:
Contact Person:

TEST OBJECT DATA

GENERAL EUT DESCRIPTION

Kind of Device product description	UWB (Ultra Wide Band) and BLE (Bluetooth Low Energy) transceiver module.
Product name	CMBTRX1
Declared EUT data by the supplier	
Voltage Type	DC
Voltage Level	12 V
Antenna / Gain	5.8 dBi
Tested Modulation Type	GFSK
General product description	BLE (Bluetooth Low Energy) transceiver
Specific product description for the EUT	UWB (Ultra Wide Band) and BLE (Bluetooth Low Energy) transceiver module for car access and user localization purposes.
EUT ports (connected cables during testing):	DC
Tested datarates	1 Mbps
Special software used for testing	test software

EUT MAIN COMPONENTS

Sample Name	Sample Code	Description
EUT A	DE1439005aa01	conducted sample
Sample Parameter	Value	
Serial No.	20212861103	
HW Version	C1	
SW Version	06FF	
Comment	-	

Sample Name	Sample Code	Description
EUT B	DE1439005ad01	radiated sample
Sample Parameter	Value	
Serial No.	20212861002	
HW Version	C1	
SW Version	06FF	

ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

Device	Details (Manufacturer, Type Model, OUT Code)	Description
-	-	-

AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it.

But nevertheless Auxiliary Equipment can influence the test results.

Device	Details (Manufacturer, Type Model, HW, SW, S / N)	Description
-	-	-

EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

Setup	Combination of EUTs	Description and Rationale
S01_AA01	EUT A	conducted setup
S01_AD01	EUT B	radiated setup



MPE CALCULATION

According to the RSS-102, issue 5 Standard and to FCC §15.247(b)(4) and §1.1307(b)(1), systems operation under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

MPE Prediction

Frequency range (MHz)	Power density (mW/cm ²)
400 – 1500	f/1500
1500 - 100000	1 mW/cm ²

Equation for calculation

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

Where: S – Power density
P – Power input to antenna
G – Antenna gain relative to isotropic radiator
R – Distance to antenna

Maximum peak output power at antenna terminal: 3.3 dBm (2.14 mW)
Antenna gain: 5.8 dBi
Prediction distance: 20cm
MPE limit for General Population/Uncontrolled Exposure: 1 mW/cm²

Calculation's results:

Power density at 20cm distance: 0.016 mW/cm²