SAR TEST REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

for

Body Control Module

Model Name.: CMKG3

Prepared for:

Continental Automotive Technologies GmbH
Siemensstrasse 12,
93055 Regensburg, Germany

Prepared by

Compliance Certification Services Inc.
Wugu Lab.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan.
Issue Date: October 15, 2024

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 15, 2024	Initial Issue	ALL	Allison Chen

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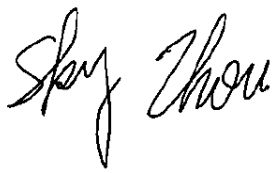
1 Attestation of Test Results

Applicant Name	Continental Automotive Technologies GmbH
Model Name	CMKG3
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013
Receive EUT Date:	July 23, 2024
Date Tested	August 2 ~ September 12, 2024
Test Results	Exempt

Compliance Certification Services Inc. , tested the above equipment in accordance with the requirements set forth in the above standards. Determination of compliance is based on the results of the compliance measurement,not taking into account measurement instrumentation uncertainy.All indications of Pass/Fail in this report are opinions expressed by Compliance Certification Services Inc, based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved & Released By:	Tested by:
	
Sky Zhou Asst. Section Manager Compliance Certification Services Inc.	Jack Yang Engineer Compliance Certification Services Inc.

2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528- 2013, the following FCC Published RF exposure KDB procedures:

- 447498 D01 General RF Exposure Guidance v06
- 865664 D02 RF Exposure Reporting v01r02

3 Device Under Test (DUT) Information

3.1 DUT Description

Applicant Name	Continental Automotive Technologies GmbH
Applicant Address	Siemensstrasse 12, 93055 Regensburg, Germany
Manufacturer Name	Continental Automotive Technologies GmbH
Manufacturer Address	Siemensstrasse 12, 93055 Regensburg, Germany
Product	Body Control Module
Trade Name	Continental
Model No.	CMKG3
Model Discrepancy	N/A
Hardware Version	C2
Software Version	S4.2
Sample Stage	PVT

3.2 Wireless Technologies

Antenna	Operation Frequency	Operating mode
Rear antenna	21.85kHz	BPSK
Antenna Specification	Brand Name	Continental
	Type	Standard Keyless antenna
	Parts Number	A205 905 3005
Transponder antenna	21.85kHz	BPSK
Antenna Specification	Brand Name	Continental
	Type	Transponder antenna
	Parts Number	A213 905 11 00
Side antenna right	21.85kHz	BPSK
Antenna Specification	Brand Name	Continental
	Type	Long Range antenna
	Parts Number	A206 905 10 01
Side antenna left	21.85kHz	BPSK
Antenna Specification	Brand Name	Continental
	Type	Long Range antenna
	Parts Number	A206 905 10 01

Notes:

1. The sample selected for test was prototype that representative to production product and was provided by manufacturer
2. Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received
3. SAR test exemption.

4 RF Exposure Conditions

Evaluated with a minimum test separation distance of 5 mm.

4.1 Standalone SAR Test Exclusion Considerations

Since the *Dedicated Host Approach* is applied, the standalone SAR test exclusion procedure in KDB 447498 is applied in conjunction with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is > 5 mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.

SAR Test Exclusion Calculations

21.85kHz

4.3.1 b) 1.

{[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·(f(MHz)/150)]} mW, for 100 MHz to 1500 MHz

f(GHz)	0.1
min. test separation distance (mm)	5
Threshold at 50 mm	474
b) 1. SAR test exclusion thresholds (mW)	444

4.3.1 C) 1.

the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100/f(MHz))]

f(GHz)	0.00002185
b) 1. SAR test exclusion thresholds (mW)	444
c) 1. SAR test exclusion thresholds (mW)	2070

4.3.1 C) 2.

For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½

f(GHz)	0.00002185
max.Electric field strength (dBuV/m @3m)	100.64
max. EIRP power (dBm)	5.41
max.EIRP Tune up power (dBm)	6
max.EIRP Tune up power power (mW)	3.98
min. test separation distance (mm)	5
b) 1. SAR test exclusion thresholds (mW)	2070
c) 2. SAR test exclusion thresholds (mW)	1035
Result	Pass

Note(s):

1. The tune up power referred the Field strength of the test report TMWK2407002378KR for RF Exposure assessment purpose.

5 Simultaneous Transmission SAR Analysis

KDB 447498 D01 General RF Exposure Guidance provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$\mathbf{SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri}$$

Where:

$\mathbf{SAR_1}$ is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

$\mathbf{SAR_2}$ is the highest measured or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of $\mathbf{[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]}$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$\mathbf{(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04}$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest reported SAR for the frequency bands should be used to determine SAR1.or SAR2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

Estimated SAR for Simultaneous Transmission SAR Analysis
Considerations for SAR estimation

1. When standalone SAR test exclusion applies, standalone SAR must also be estimated to determine simultaneous transmission SAR test exclusion.
2. Dedicated Host Approach criteria for SAR test exclusion is likewise applied to SAR estimation, with certain distinctions between test exclusion and SAR estimation:
   - When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied for SAR estimation; this is the same between test exclusion and SAR estimation calculations.
   - When the separation distance from the antenna to an adjacent edge is > 5 mm but ≤ 50 mm, the actual antenna-to-edge separation distance is applied for SAR estimation.
   - When the minimum test separation distance is > 50 mm, the estimated SAR value is 0.4 W/kg
3. Please refer to Estimated SAR Tables to see which test positions are inherently compliant as they consist of only estimated SAR values for all applicable transmitters and consequently will always have sum of SAR values < 1.2 W/kg. Simultaneous transmission SAR analysis was therefore not performed for these test positions.

Estimated SAR for 21.85kHz

Frequency (MHz)	EIRP Output Power		Separation Distances (mm)	Estimated 1-g SAR Value (W/kg)
	dBm	mW		
0.02185	6.00	4	5	0.000

5.1 Sum of the SAR for Rear antenna + Transponder antenna + Side antenna right + Side antenna left

Standalone SAR (W/kg)				∑ 1-g SAR (W/kg)
Rear antenna	Transponder antenna	side antenna right	Side antenna left	Rear antenna + Transponder antenna + side antenna right + Side antenna left
①	②	③	④	① + ② + ③ + ④
0.000	0.000	0.000	0.000	0.000

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because either the sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

6 Facilities

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

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan.

END OF REPORT