ACCREDITED
Certificate # 3939.01

VARIANT FCC TEST REPORT

(PART 22)

Applicant:	Continental Automotive Systems, Inc.
Address:	21440 W Lake Cook Rd., Deer Park, IL 60010, USA

Manufacturer or Supplier:	Continental Automotive Systems, Inc.
Address:	21440 W Lake Cook Rd., Deer Park, IL 60010, USA
Product:	FE5NA0010, FE5NA0011
Brand Name:	Continental
Model Name:	FE5NA0010, FE5NA0011
FCC ID:	LHJ-FE5NA0010
Date of tests:	Jan. 19, 2023 ~ Feb. 23, 2023

The tests have been carried out according to the requirements of the following standard:

☒ **FCC PART 22, Subpart H** ☒ **FCC Part 2**
☒ **ANSI/TIA/EIA-603-D** ☒ **ANSI C63.26-2015**
☒ **ANSI/TIA/EIA-603-E**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Wang Date: Feb. 23, 2023	Luke Lu Date: Feb. 23, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-220214W001RF01	Original release	Jul. 30, 2022
W7L-230201W001RF01	Based on the original product changing the software version.	Feb. 23, 2023

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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2		
STANDARD SECTION	**TEST TYPE**	**RESULT**
§2.1046	Conducted Output Power	See Note
§22.913 (a)(5)	Effective Radiated Power	See Note
§2.1055 §22.355	Frequency Stability	See Note
§2.1049	Occupied Bandwidth	See Note
§22.913 (d)	Peak to average ratio*	See Note
§22.917(a)	Band Edge Measurements	See Note
§2.1051 §22.917(a)	Conducted Spurious Emissions	See Note
§2.1053 §22.917(a)	Radiated Spurious Emissions	See Note

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

NOTE: Please refer to the original report W7L-220214W001RF01.

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Maximum Peak Output Power	±2.06dB
Frequency Stability	±76.97Hz
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Band Edge Measurements	±4.70dB
Peak to average ratio	±0.76dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95%

confidence level using a coverage factor of k=2.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	FE5NA0010, FE5NA0011	
BRAND NAME	Continental	
MODEL NAME	FE5NA0010, FE5NA0011	
NOMINAL VOLTAGE	EUT 4.0V	
MODULATION TYPE	**WCDMA**	BPSK,QPSK
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	**WCDMA**	826.4MHz ~ 846.6MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
	LTE Band CA_5B Channel Bandwidth: 3MHz+5MHz	825.6MHz ~ 846.5MHz
	LTE Band CA_5B Channel Bandwidth: 5MHz+3MHz	826.5MHz ~ 847.4MHz
	LTE Band CA_5B Channel Bandwidth: 5MHz+10MHz	826.8MHz ~ 844MHz
	LTE Band CA_5B Channel Bandwidth: 10MHz+5MHz	829MHz ~ 846.2MHz
	LTE Band CA_5B Channel Bandwidth: 10MHz+10MHz	829MHz ~ 844MHz
MAX. ERP POWER	**WCDMA**	162.18mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	150.66mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	148.59mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	150.31mW

	LTE Band 5 (Channel Bandwidth: 10MHz)	150.66mW
	LTE Band CA_5B Channel Bandwidth: 3MHz+5MHz	129.12mW
	LTE Band CA_5B Channel Bandwidth: 5MHz+3MHz	129.12mW
	LTE Band CA_5B Channel Bandwidth: 5MHz+10MHz	129.42mW
	LTE Band CA_5B Channel Bandwidth: 10MHz+5MHz	130.32mW
	LTE Band CA_5B Channel Bandwidth: 10MHz+10MHz	135.83mW
EMISSION DESIGNATORGOGN	**WCDMA**	4M17F9W
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 2M70G7D
		16QAM: 2M69W7D
		64QAM: 2M70W7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 4M50G7D
		16QAM: 4M51W7D
		64QAM: 4M50W7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 8M99G7D
		16QAM: 8M98W7D
		64QAM:8M97W7D
	LTE Band CA_5B Channel Bandwidth: 3MHz+5MHz	QPSK: 8M35G7D
		16QAM: 8M31W7D
		64QAM: 8M32W7D
	LTE Band CA_5B Channel Bandwidth: 5MHz+3MHz	QPSK: 8M33G7D
		16QAM: 8M33W7D
		64QAM: 8M35W7D
	LTE Band CA_5B Channel Bandwidth: 5MHz+10MHz	QPSK: 14M5G7D
		16QAM: 14M4W7D
		64QAM: 14M5W7D
	LTE Band CA_5B Channel Bandwidth: 10MHz+5MHz	QPSK: 14M5G7D
		16QAM: 14M5W7D
		64QAM: 14M5W7D
	LTE Band CA_5B Channel Bandwidth: 10MHz+10MHz	QPSK: 19M2G7D
		16QAM: 19M2W7D
		64QAM: 19M2W7D

ANTENNA TYPE	Monopole Antenna with 0.58dBi gain for WCDMA V/LTE B5/LTE 5B	
HW VERSION	FE5NA0010	P4.1
	FE5NA0011	P4.2
SW VERSION	MODEMSA515M_LE2.1_01.14.39	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	
EXTREME TEMPERATURE	-40-85 ℃	
EXTREME VOLTAGE	EUT 3.8V - EUT 4.2V	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
WCDMA	1TX/2RX
LTE	1TX/4RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. According to the information provided by the manufacturer, The difference between FE5NA0010, FE5NA0011 is as follows:

TA-code	L2/L5 GNSS	Band Difference
FE5NA0010	support	/
FE5NA0011	not support	BOM change: depopulated passive components from the GNSS RF front-end

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

3 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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