

RF Exposure Report

Project Number: 4323476

Report Number: 4323476EMC04 **Revision Level:** 0

Client: Continental Automotive Systems, Inc.

Equipment Under Test: Wireless Modem Module

Model Number: BL28NA-003

FCC ID: LHJ-BL28NA003

Applicable Standards: 47 C.F.R. §§ 2.1091 and 2.1093; FCC KDB 447498

FCC OET Bulletin 65 Supplement

Report issued on: 25 September 2018

Test Result: Compliant

Tested by:


Martin Taylor, Project Engineer

Reviewed by:


David Schramm, Operations Manager

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 General Information

1.1 Client Information

Name: Continental Automotive Systems, Inc.
Address: 21440 West Lake Cook Road
City, State, Zip, Country: Deer Park, IL 60010, USA

1.2 Test Laboratory

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

1.3 General Information of EUT

Type of Product: Wireless Modem Module
Model Number: BL28NA-003
Serial Number: ADN180505317640
FCC ID: LHJ-BL28NA003

IMEI Number: 004401810317640

Rated Voltage: 10.2 – 13.8 Vdc
Test Voltage: 12 Vdc

1850 – 1910 MHz (LTE/WCDMA Band 2 / GSM1900)
1710 – 1755 MHz (LTE/WCDMA Band 4)
Tx Frequency Range: 824 – 849 MHz (LTE/WCDMA Band 5 / GSM850)
2500 – 2570 MHz (LTE Band 7)
699 – 716 MHz (LTE Band 12)

FCC Classification: PCS Licensed Transmitter PCB
Type: Pre-Production

Sample Received Date: 13 June 2018

1.4 Operating Modes and Conditions

For this assessment, the EUT's maximum power including the maximum tolerance was considered.

2 RF Exposure

2.1 Test Result

Test Description	Product Specific Standard	Test Result
RF Exposure	FCC Part 1.1310	Compliant

2.2 Test Method

Using the maximum power (including tune-up tolerances), the power density was calculated. Since the device is not provided with antennas, the maximum antenna gain was calculated that still complied with the limits at a 20cm distance.

2.3 Single Transmission RF Exposure Levels

Type	MHz	Conducted Power w/tolerance dBm	Antenna Gain	Cable Loss	Average EIRP		Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW	FCC	% of Limit	Verdict
					dBm	mW					
LTE Band 2	1850-1910	25.0	5.0	0.0	30.0	1000	20	0.199	1.00	20%	Pass
LTE Band 4	1710-1755	25.0	5.0	0.0	30.0	1000	20	0.199	1.00	20%	Pass
LTE Band 5	824-849	25.0	1.0	0.0	26.0	398	20	0.079	0.55	14%	Pass
LTE Band 7	2500-2570	25.0	5.0	0.0	30.0	1000	20	0.199	1.00	20%	Pass
LTE Band 12	699-716	25.0	5.0	0.0	30.0	1000	20	0.199	0.47	43%	Pass
WCDMA Band II	1850-1910	25.0	5.0	0.0	30.0	1000	20	0.199	1.00	20%	Pass
WCDMA Band IV	1710-1755	25.0	5.0	0.0	30.0	1000	20	0.199	1.00	20%	Pass
WCDMA Band V	824-849	25.0	1.0	0.0	26.0	398	20	0.079	0.55	14%	Pass
GSM 850	824-849	30.0	1.0	0.0	31.0	1259	20	0.250	0.55	46%	Pass
GSM 1900	1850-1910	27.0	5.0	0.0	32.0	1585	20	0.315	1.00	32%	Pass

Note: The maximum conducted power with tune-up tolerance is 35dBm for GSM 850 and 32dBm for GSM 1900. However, the maximum transmitter on-time is 4 out of 8 Tx time slots, which reduces the time-averaged power by 3dB. In addition, in compliance with the 3GPP specifications, the device implements a 2dB Tx power back-off for 3 and 4 Tx slot operation. Even with this power back-off, 4 Tx slot operation is still the worst-case configuration, so the maximum power is reduced by a total of 5dB.

Simultaneous transmissions are not possible with the BL28NA-003 module.

3 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	25 September 2018