

RF EXPOSURE EVALUATION REPORT

FCC ID : LHJ-BL28NARD2
Equipment : BL28NA-RD2
Brand Name : Continental
Model Name : BL28NA-RD2
Applicant : Continental Automotive Systems, Inc.
21440 W Lake Cook Rd., Deer Park, IL 60010, USA
Manufacturer : Continental Automotive Systems, Inc.
21440 W Lake Cook Rd., Deer Park, IL 60010, USA
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

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Approved by: Cona Huang / Deputy Manager



SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FA313125-01	Rev. 01	Initial issue of report	Dec. 19, 2023

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	BL28NA-RD2
Brand Name	Continental
Model Name	BL28NA-RD2
FCC ID	LHJ-BL28NARD2
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz
Mode	GPRS/EGPRS RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM
HW Version	P4.0
SW Version	MODEM9x28_49.02.04
Remark: 1. Variant report to change Host information that does not affect RF characteristics all the test case which can be referred to original report, Report No: FA313125	

Host Information	
Equipment Name	StrLnk3P
Brand Name	Continental
Model Name	StrLnk3P
HW Version	T23 D2
SW Version	SBR_T23_DCM_40.10.31
EUT Stage	Identical Prototype

Reviewed by: **Jason Wang**

Report Producer: **Daisy Peng**

2. Maximum RF average output power among production units

Mode	Burst average power(dBm)	
	GSM 850	GSM 1900
GPRS (GMSK, 1 Tx slot)	33.5	30.5
GPRS (GMSK, 2 Tx slots)	32.5	29.5
GPRS (GMSK, 3 Tx slots)	31.5	28.5
GPRS (GMSK, 4 Tx slots)	30.5	26.5
EDGE (8PSK, 1 Tx slot)	27.5	26.5
EDGE (8PSK, 2 Tx slots)	27.0	26.5
EDGE (8PSK, 3 Tx slots)	25.5	24.5
EDGE (8PSK, 4 Tx slots)	24.5	23.5

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.5
	Band IV	24.5
	Band V	24.5
LTE	Band 2	24.0
	Band 4	24.0
	Band 5	24.0
	Band 7	24.0
	Band 12	24.0

3. Determination of exemption

Per 1.1307(b)(3), (i) For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). Pth is given by:

$$P_{th} \text{ (mW)} = ERP_{20cm} (d / 20)^x \text{ for distance } d \leq 20cm$$

$$P_{th} \text{ (mW)} = ERP_{20cm} \text{ for distance } 20cm < d \leq 40cm$$

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right)$$

$$ERP_{20cm} \text{ (mW)} \begin{array}{ll} 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz:} & 2040 f \\ 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz:} & 3060 \end{array}$$

- (C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

4. RF Exposure Evaluation

General Note:

1. P_i is mean the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm
2. P_{th} is mean the exemption threshold power (P_{th}) according to the § 1.1307(b)(3)(i)(B) formula for fixed, mobile, or portable RF source i .
3. In this report was used Part1.1307(b)(3)(i)(B) perform RF Exposure evaluation
4. The distance of 20cm is for this device

Band	Antenna Gain (dBi)	Maximum Conducted Power (dBm)	Maximum EIRP (dBm)	Maximum ERP (dBm)	Maximum EIRP (mW)	Maximum ERP (mW)	P_i (dBm)	P_i (mW)	Part1.1307 option(b) Threshold (mW)
GSM/GPRS 850 (1 Tx slot)	2.00	33.50	26.5	24.35	446.68	272.27	24.50	281.84	1681.368
GPRS 850 (2 Tx slots)	2.00	32.50	28.5	26.35	707.95	431.52	26.50	446.68	1680.960
GPRS 850 (3 Tx slots)	2.00	31.50	29.2	27.09	839.46	511.68	27.24	529.66	1681.368
GPRS 850 (4 Tx slots)	2.00	30.50	29.5	27.35	891.25	543.25	27.50	562.34	1681.368
EGPRS 850 (1 Tx slot)	2.00	27.50	20.5	18.35	112.20	68.39	18.50	70.79	1681.368
EGPRS 850 (2 Tx slots)	2.00	27.00	23.0	20.85	199.53	121.62	21.00	125.89	1680.960
EGPRS 850 (3 Tx slots)	2.00	25.50	23.2	21.09	210.86	128.53	21.24	133.05	1680.960
EGPRS 850 (4 Tx slots)	2.00	24.50	23.5	21.35	223.87	136.46	21.50	141.25	1680.960
GSM/GPRS 1900 (1 Tx slot)	2.00	30.50	23.5	21.35	223.87	136.46	21.50	141.25	3060.000
GPRS 1900 (2 Tx slots)	2.00	29.50	25.5	23.35	354.81	216.27	23.50	223.87	3060.000
GPRS 1900 (3 Tx slots)	2.00	28.50	26.2	24.09	420.73	256.45	24.24	265.46	3060.000
GPRS 1900 (4 Tx slots)	2.00	26.50	25.5	23.35	354.81	216.27	23.50	223.87	3060.000
EGPRS 1900 (1 Tx slot)	2.00	26.50	19.5	17.35	89.13	54.33	17.50	56.23	3060.000
EGPRS 1900 (2 Tx slots)	2.00	26.50	22.5	20.35	177.83	108.39	20.50	112.20	3060.000
EGPRS 1900 (3 Tx slots)	2.00	24.50	22.2	20.09	167.49	102.09	20.24	105.68	3060.000
EGPRS 1900 (4 Tx slots)	2.00	23.50	22.5	20.35	177.83	108.39	20.50	112.20	3060.000
WCDMA Band 2	2.00	24.50	26.5	24.35	446.68	272.27	24.50	281.84	3060.000
WCDMA Band 4	2.00	24.50	26.5	24.35	446.68	272.27	24.50	281.84	3060.000
WCDMA Band 5	2.00	24.50	26.5	24.35	446.68	272.27	24.50	281.84	1680.960
LTE Band 2	2.00	24.00	26.0	23.85	398.11	242.66	24.00	251.19	3060.000
LTE Band 4	2.00	24.00	26.0	23.85	398.11	242.66	24.00	251.19	3060.000
LTE Band 5	2.00	24.00	26.0	23.85	398.11	242.66	24.00	251.19	1680.960
LTE Band 7	2.00	24.00	26.0	23.85	398.11	242.66	24.00	251.19	3060.000
LTE Band 12	2.00	24.00	26.0	23.85	398.11	242.66	24.00	251.19	1425.960

Conclusion:

According to 47 CFR §1.1307, the RF exposure analysis concludes that the RF Exposure is FCC compliant.