


RF Exposure Evaluation Report

Product : Pet GPS Tracker
BAANOO, DI QIU TU XING

Trade mark : 

Model/Type reference : GPS-201, BN-201

Serial Number : N/A

Report Number : EED32N80430702

FCC ID : 2ATUK-BN-201

Date of Issue : Jan. 28, 2022

Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF
Exposure Guidance v06

Test result : PASS

Prepared for:

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Date:

Jan. 28, 2022

Check No.: 1439010621



1 Version

Version No.	Date	Description
00	Jan. 28, 2022	Original

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3 General Information

3.1 Client Information

Applicant:	SHENZHEN COBAN ELECTRONICS CO., LTD
Address of Applicant:	5/F, Block 22, Wisdomland Business Park, Guankou 2nd Road, Nantou, Nanshan District, Shenzhen, Guangdong, China.518052
Manufacturer:	SHENZHEN COBAN ELECTRONICS CO., LTD
Address of Manufacturer:	602 &702, Bldg. C2, Xinqiao Industrial Park, Tongfuyu Industrial Area, Xinhe Avenue, Gonghe Community, Shajing Sub-District, Bao'an District, Shenzhen, Guangdong, China
Factory:	Shenzhen Coban Electronics Co.,Ltd
Address of Factory:	602 &702, Bldg. C2, Xinqiao Industrial Park, Tongfuyu Industrial Area, Xinhe Avenue, Gonghe Community, Shajing Sub-District, Bao'an District, Shenzhen, Guangdong, China

3.2 General Description of EUT

Product Name:	Pet GPS Tracker
Model No.:	GPS-201, BN-201
Test Model No.:	GPS-201
Trade Mark:	BAANOOL, DI QIU TU XING 
Frequency Band:	GSM/GPRS 850: Tx: 824-849MHz, Rx: 869-894MHz GSM/GPRS 1900: Tx: 1850-1910MHz, Rx: 1930-1990MHz
Modulation Type:	GMSK (GSM/GPRS)
Sample Type:	<input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location
Antenna Type:	PIFA Antenna
Antenna Gain:	0dB
Power Supply:	Lithium battery: DC 3.7V, Charge by DC 5V
Test Voltage:	DC 3.7V
Sample Received Date:	Oct. 12, 2021
Sample tested Date:	Oct. 12, 2021 to Dec. 10, 2021
<p>Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.</p> <p>Model No.: GPS-201, BN-201</p> <p>Only the model GPS-201 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.</p>	

3.3 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

3.4 Deviation from Standards

None.

3.5 Abnormalities from Standard Conditions

None.

3.6 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For GSM

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GSM850				
Test channel	Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(824.2MHz)	32.82	32.0±1	33.0	1995.262
Middle(836.6MHz)	32.99	32.0±1	33.0	1995.262
Highest(848.8MHz)	32.84	32.0±1	33.0	1995.262
GSM1900				
Test channel	Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(1850.2MHz)	29.75	29.0±1	30.0	1000.000
Middle(1880.0MHz)	29.83	29.0±1	30.0	1000.000
Highest(1909.8MHz)	29.82	29.0±1	30.0	1000.000

The worst case:

Maximum tune-up Power (mW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
1995.262	0	0.397	1.0	PASS

Note: 1) Refer to report No. EED32N80430701 for EUT test Max Output Power value.

2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1995.262 * 1.0) / (4 * 3.1416 * 20^2) = 0.397$

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80430701 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***