Website: www.cblueasia.com
Tel: +86-755-23059481
Email: marketing@cblueasia.com

RF Exposure

Applicant	:	Spigen Korea Co., Ltd
Address	:	Spigen HQ A Dong, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Rep. of KOREA
Product Name	:	Bluetooth earbuds
Brand Mark	:	N/A
Model	:	SA-TW P20
FCC ID	:	2AFKNSATWP20
Report Number	:	BLA-EMC-202505-A2304
Date of Receipt	:	May 13, 2025
Date of Test	:	May 13, 2025 to May 22, 2025
Test Standard	:	47 CFR Part 15, Part1.1307 47 CFR Part 15, Part2.1093 KDB447498D04 General RF Exposure Guidance v01
Test Result	:	Pass

Compiled by: Hugh **Review by:** Xavier **Approved by:** Blue.Zheng

Issued Date: May 22, 2025

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Address: Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

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Revise Record

Version No.	Date	Description
01	May 22, 2025	Original

1 General information

1.1 General information

Applicant	Spigen Korea Co., Ltd
Address	Spigen HQ A Dong, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Rep. of KOREA
Manufacturer	Spigen Korea Co., Ltd
Address	Spigen HQ A Dong, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Rep. of KOREA
Factory	N/A
Address	N/A

1.2 General description of EUT

Product Name	Bluetooth earbuds
Model No.	SA-TW P20
Series model	N/A
Power supply or adapter information	Base: DC3.7V by battery Earphone: DC3.7V by battery
Hardware Version	N/A
Software Version	N/A
Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.	

Left

Test engineer sample no.	BLA-EMC-202505-A23-left
Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Channel Spacing:	1MHz
Number of Channels:	79
Antenna Type:	Internal antenna
Antenna Gain:	2.65dBi(Provided by customer)

Right

Test engineer sample no.	BLA-EMC-202505-A23-right
Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Channel Spacing:	1MHz
Number of Channels:	79
Antenna Type:	Internal antenna
Antenna Gain:	2.38dBi(Provided by customer)

2 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

Company name:	BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Address:	Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
ISED CAB identifier No.:	CN0028
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

3 RF Exposure Compliance Requirement

3.1 Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

3.2 Limits

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\,\text{cm}}(d/20\,\text{cm})^{x} & d \le 20\,\text{cm} \\ ERP_{20\,\text{cm}} & 20\,\text{cm} < d \le 40\,\text{cm} \end{cases} \qquad \text{(B.2)}$$

where

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

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

$$P_{\text{th}}\,(\text{mW}) = ERP_{20\,\text{cm}}\,(\text{mW}) = \begin{cases} 2040f & 0.3\,\text{GHz} \le f < 1.5\,\text{GHz} \\ 3060 & 1.5\,\text{GHz} \le f \le 6\,\text{GHz} \end{cases} \qquad \text{(B.1)}$$

3.3 Result

EIRP = pt x gt = $(E X d)^2/30$

Where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m,

d = measurement distance in meters (m)

Spot = $(EXd)^2/30$ x gt

Separation distance= 0.5cm

Ant gain = 2.65dBi

For Left BT(Worst):

Max Output power = 0.544dBm @ 2402MHz
EIRP = 0.544dBm + 2.65dBi=3.194dBm=2.086mW< 2.788mW
ERP = 3.194-2.15= 1.044dBm=1.272mW< 2.788mW
Comply with RF exposure exemption limit.

For Right BT(Worst):

Max Output power = -0.177dBm @ 2441MHz
EIRP = -0.177dBm + 2.38dBi=2.203dBm=1.661mW< 2.752mW
ERP = 2.203-2.15= 0.053dBm=1.012mW< 2.752mW
Comply with RF exposure exemption limit.

----END OF REPORT----