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RF Exposure Evaluation Report

Report No. : CQASZ20201200043EX-03
Applicant: Guangzhou Vensi Intelligent Technology Co., Ltd.
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Manufacturer: Guangzhou Vensi Intelligent Technology Co., Ltd.
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Factory: Guangzhou Vensi Intelligent Technology Co., Ltd.
Address of Factory: Building A1, 171 Yaotianhe Street, Yonghe Street, Huangpu District, Guangzhou, China

Equipment Under Test (EUT):

Product: Communication Module
Model No.: VZS2R1
Brand Name: N/A
FCC ID: 2AR6I-VZS2R1
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06

Date of Test: 2022.04.13-2022.04.24

Date of Issue: 2022-05-05

Test Result : **PASS***

Tested By:

Tom Chen

(Tom chen)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



* In the configuration tested, the EUT complied with the standards specified above.

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 CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200200089E-03	Rev.01	Initial report	2020-03-02

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3 SAR Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 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.

3.1.2 Test Procedure

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

3.1.3 EUT RF Exposure

1) For 2.4G SRD

Ant gain=0dBi

Ant numeric gain= 1

Field strength = 90.53 dBuV/m@3m

$P = \{ [10^{(90.53/20)} / 10^6 * 3]^2 / (30 * 1) \} * 1000 \text{mW} = 0.00418 \text{mW}$

$P_d = (30 * 0.003 * 1) / (377 * 20^2) = 0.0000006 < 1$

Remark:

The Max Conducted Average Output Power data refer to report Report No.: 90272-22-72-22-PP001