

TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: 2AF4X-VRPD2001

Equipment Under Test : VARRAM Pet MEAL-E
Model Name : VRPD2001
Variant Model Name(s) : -
Applicant : VARRAM SYSTEM Co., Ltd.
Manufacturer : VARRAM SYSTEM Co., Ltd.
Date of Receipt : 2021.02.22
Date of Test(s) : 2021.03.02 ~ 2021.04.20
Date of Issue : 2021.04.21

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

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- 2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.
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Tested by:



Nancy Park

Technical
Manager:



Jinhyoung Cho

SGS Korea Co., Ltd. Gunpo Laboratory



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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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1.2. Details of Applicant

Applicant : VARRAM SYSTEM Co., Ltd.
 Address : 57, Techno 11-ro, Yuseong-gu, Daejeon, South Korea, 34036
 Contact Person : Jung, Ju-yong
 Phone No. : +82 70 8797 8922

1.3. Details of Manufacturer

Company : Same as applicant
 Address : Same as applicant

1.4. Description of EUT

Kind of Product	VARRAM Pet MEAL-E
Model Name	VRPD2001
Power Supply	AC 110 V (DC 4.5 V)
Frequency Range	2 412 MHz ~ 2 462 MHz (11b/g/n_HT20)
Modulation Technique	DSSS, OFDM
Number of Channels	11 channels (11b/g/n_HT20)
Antenna Type	FPC antenna
Antenna Gain	3 dB i
H/W Version	v1.51
S/W Version	v0D.0B



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Report Number: F690501-RF-RTL001870

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1.5. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL001870	2021.04.21	Initial

2. RF Exposure Evaluation

2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(A) Limits for Occupational/Controlled Exposure				
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
300-1 500	-	-	f/300	6
1 500-100 000	-	-	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
300-1 500	-	-	f/1500	30
<u>1 500-100 000</u>	-	-	<u>1.0</u>	<u>30</u>

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

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 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 where the MPE limit is reached.

2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
 Test Mode : Normal Operation

2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

WLAN (2.4G)
- Maximum tune up tolerance

Frequency Range (MHz)	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
2 400 ~ 2 483.5	19	3	0.031 530	1

Note;

- The power density Pd (5th column) at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 1 mW/cm².
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 cm between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dB i and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.
- According to KDB 447498 D01 RF Exposure Guidance 4.1.

- End of the Test Report -