

MPE TEST REPORT

Applicant	Deer Management Systems LLC
FCC ID	2BBNQ-RVG2
Product	Reveal X 2.0
Brand	Reveal
Model	Reveal X 2.0
Report No.	EFTA25040048-IE-01-M1V1
Issue Date	May 26, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **§2.1091 and FCC 47 CFR Part 1 1.1310**. The test results show that the equipment tested can demonstrate the compliance with the requirements as documented in this report.

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	May 14, 2025
Rev.1	Updated information.	May 26, 2025
Note: This revised report (Report No.: EFTA25040048-IE-01-M1V1) supersedes and replaces the previously issued report (Report No.: EFTA25040048-IE-01-M1). Please discard or destroy the previously issued report and dispose of it accordingly.		

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25°C
Relative humidity	Min. = 20%, Max. = 80%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Description of Equipment Under Test

Client Information

Applicant	Deer Management Systems LLC
Applicant address	1668 Jordan West Road Decorah, IA 52101
Manufacturer	Deer Management Systems LLC
Manufacturer address	1668 Jordan West Road Decorah, IA 52101

General Technologies

EUT Description			
Model	Reveal X 2.0		
Lab internal SN	EFTA25040048-IE-02/S01		
HW Version	P2		
SW Version	1.0.4.7		
Frequency	Band	TX (MHz)	RX (MHz)
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 13	777 ~ 787	746 ~ 756
	LTE Band 25	1850 ~ 1915	1930 ~ 1995
	LTE Band 26	814 ~ 849	859 ~ 894
	Bluetooth	2400 ~ 2483.5	2400 ~ 2483.5
	Wi-Fi 2.4GHz	2400 ~ 2483.5	2400 ~ 2483.5
Date of Testing	April 17, 2025 ~ April 27, 2025		
Date of Sample Received	April 14, 2025		
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. 2. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

3 Maximum Tune up and Antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by

$$\text{Numeric gain (G)} = 10^{(\text{antenna gain}/10)}$$

Band	Maximum Tune up Power		Antenna Gain (dBi)	Numeric Gain
	(dBm)	(mW)		
WCDMA Band II	24.00	251.19	4.28	2.68
WCDMA Band IV	24.00	251.19	2.93	1.96
WCDMA Band V	24.00	251.19	0.76	1.19
LTE Band 2	24.00	251.19	4.28	2.68
LTE Band 4	24.00	251.19	2.93	1.96
LTE Band 5	24.00	251.19	0.76	1.19
LTE Band 12	24.00	251.19	0.20	1.05
LTE Band 13	24.00	251.19	-0.75	0.84
LTE Band 25	24.00	251.19	4.28	2.68
LTE Band 26	24.00	251.19	0.76	1.19
Bluetooth	5.00	3.16	2.56	1.80
Wi-Fi 2.4GHz	16.00	39.81	3.39	2.18

4 MPE Limit

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) 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
(ii) 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
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500 MHz is f/1500, for 1500~100,000MHz is 1.0. So

Band	The Maximum Permissible Exposure (mW/cm ²)
WCDMA Band II	1.000
WCDMA Band IV	1.000
WCDMA Band V	0.549
LTE Band 2	1.000
LTE Band 4	1.000
LTE Band 5	0.549
LTE Band 12	0.466
LTE Band 13	0.518
LTE Band 25	1.000
LTE Band 26	0.543
Bluetooth	1.000
Wi-Fi 2.4GHz	1.000

5 RF Exposure Evaluation Result

RF exposure evaluation method is based on KDB 447498 D01, this calculation is based on the conducted power, maximum power and antenna gain with provides the minimum separation distance. The formula shown below is from OET Bulletin 65 Edition 97-01 Per KDB 447498 D01:

$$S = PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Maximum Tune up (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	PG (mW)	Result (mW/cm ²)	Limit Value (mW/cm ²)	The MPE Ratio
WCDMA Band II	24.00	4.28	28.28	672.98	0.13	1.000	0.134
WCDMA Band IV	24.00	2.93	26.93	493.17	0.10	1.000	0.098
WCDMA Band V	24.00	0.76	24.76	299.23	0.06	0.549	0.108
LTE Band 2	24.00	4.28	28.28	672.98	0.13	1.000	0.134
LTE Band 4	24.00	2.93	26.93	493.17	0.10	1.000	0.098
LTE Band 5	24.00	0.76	24.76	299.23	0.06	0.549	0.108
LTE Band 12	24.00	0.20	24.20	263.03	0.05	0.466	0.112
LTE Band 13	24.00	-0.75	23.25	211.35	0.04	0.518	0.081
LTE Band 25	24.00	4.28	28.28	672.98	0.13	1.000	0.134
LTE Band 26	24.00	0.76	24.76	299.23	0.06	0.543	0.110
Bluetooth	5.00	2.56	7.56	5.70	0.001	1.000	0.001
Wi-Fi 2.4GHz	16.00	3.39	19.39	86.90	0.017	1.000	0.017
Note: R = 20cm $\pi = 3.1416$ The MPE Ratio = Mac Result ÷ Limit Value							

So the simultaneous transmitting antenna pairs as below:

TER = Wi-Fi 2.4GHz Antenna MPE ratio + Bluetooth Antenna MPE ratio+ WWAN Antenna MPE ratio
 = 0.134 + 0.001+ 0.017 = 0.152<1

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

*****END OF REPORT *****