

FCC RF Exposure Exemption report

for

Hybrid Security Alarm System

Model No.: HYBx-xxxxx-xxxxx Series

(x=0~9, A~Z or blank)

FCC ID: GX9HYBLI

of

Applicant: CLIMAX TECHNOLOGY CO., LTD.

**Address: No. 258, Sinhu 2nd Rd., Neihu District, Taipei City 114,
Taiwan (R.O.C.)**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1072, TW1140, TW1146, TW1477, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 31634



Report No.: W6M22410-23833-EE



Registration number: W6M22410-23833-EE

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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

Laboratory disclaimer-

1. The test results of this test report relate exclusively to the item tested as specified in 1.5.
2. The test report may only be reproduced or published in full.
3. Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.
4. Antenna gain is provided by applicant and laboratory issue relevant data and results.

Tester:

November 05, 2024

Sora Kuo

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

November 05, 2024

Kevin Wang

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

10m OATS

No.5-1, Lishui, Shuang Sing Village, Wanli Dist.,
New Taipei City 207, Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No. 99, Sec. 1, Balian Rd., Xizhi Dist.,
New Taipei City 221032, Taiwan (R.O.C.)

Worldwide Testing Services (Taiwan) Co., Ltd.
6F., No. 58, Ln. 188, Ruiguang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)
Tel: 886-2-6606-8877

1.2.2 Details of accreditation status

Accredited testing laboratory

FCC filed test laboratory Reg. No.: TW1072, TW1140, TW1146, TW1477, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 31634

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name: ./.
Accredited no.: ./.
Street: ./.
Town: ./.
Country: ./.

1.3 Application details

Approval holder

Name: CLIMAX TECHNOLOGY CO., LTD.
Street: No. 258, Sinhu 2nd Rd., Neihu District,
Town: Taipei City 114,
Country: Taiwan (R.O.C.)

Manufacturer: (if applicable)

Name: ./.
Street: ./.
Town: ./.
Country: ./.



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Date of receipt of test item: October 17, 2024
Date of test: from October 18, 2024 to October 25, 2024

1.4 General information of Test item

Type of test item: Hybrid Security Alarm System
Model no.: HYBx-xxxxx-xxxxx Series(x=0~9, A~Z or blank)
Multi-listing model no.: ./.
Brand name: ./.
Power supply: 100-240V a.c.
Type of antenna: Monopole antenna
Antenna gain: Band 2: 1.37 dBi 、 Band 4: 2.61 dBi 、 Band 5: -0.61 dBi 、
Band 7: 4.55 dBi 、 Band 40: 3.23 dBi

Technical data:

Mode	Conducted Power (dBm)
433.82	-14.88

LTE			
Band	Channel/Frequency(MHz)	Conducted Power (dBm)	EIRP/ERP (dBm)
Band 2	19125/1902.5	23.42	24.79
Band 4	19975/1712.5	23.58	26.19
Band 5	20450/829	24.42	21.66
Band 7	21100/2535	21.94	26.49
Band 40	38725/2307.5	22.51	25.74

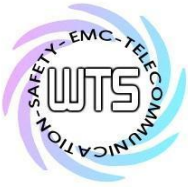
Operation modes: Duplex
Modulation type: QPSK, 16QAM
Sample no.: #01

Classification:

Fixed Device	<input checked="" type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input type="checkbox"/>

1.5 Test standards

47CFR Part 22 (2023-10), Part 24 (2023-10), Part 27 (2023-10)



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Special statement:

1. This test report is valid in connection to the model has been tested, any modification to the product which is different from the test model will avoid the certification of the test report.
2. This test report shall always be duplicated in full pages unless the written approval of the testing.
3. The x in model number is representing different case shape, case colors, led mask color, and control ID.
4. The model number of EUT is HYB-LITE. This model does not contain logo.



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2 Test configuration

2.1 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Extreme conditions parameters: ./.

2.2 Measurement uncertainty

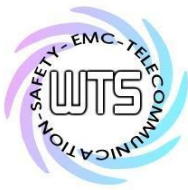
Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Output Power (transmitter))	Expanded Uncertainty : 1.64 dB

The decision rule is: Measurement uncertainty is not included in the calculation of test results.

2.3 Test Equipment List

Power

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2024/2/16	2025/2/15
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2024/2/16	2025/2/15
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2024/5/8	2025/5/7
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2024/8/26	2025/8/25



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3 Equivalent Isotropic Radiated Power (EIRP)

3.1 Exemption Limits for Routine Evaluation

according to 47 CFR FCC Part 2 Subpart J, section 2.1091

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20 cm normally can be maintained between the user and the device.

MPE Calculation Method

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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

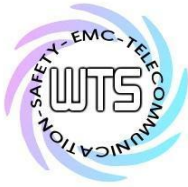
*Plane-wave equivalent power density

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2} \quad \text{mW/cm}^2.$$



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433.82MHz

Band	Frequency (MHz)	Max output power (dBm)	Power density (mW/cm ²)	Limit (mW/cm ²)	Ratio
433.82	433.82	-14.88	0	0.2892	0

LTE

Band	Frequency (MHz)	Max output power (dBm)	Antenna Gain (dBi)	Power density (mW/cm ²)	Limit (mW/cm ²)	Ratio
Band 2	1902.5	23.42	1.37	0.0599	1	--
Band 4	1712.5	23.58	2.61	0.0827	1	--
Band 5	829	24.42	-0.61	0.0478	0.5527	--
Band 7	2535	21.94	4.55	0.0886	1	0.0886
Band 40	2307.5	22.51	3.23	0.0746	1	--

From the peak EUT RF output power, the minimum mobile separation distance, $d = 20$ cm, as well as the gain of the used antenna, the RF power density can be obtained.