FCC RF EXPOSURE REPORT

FCC ID: 2BCFY-ERO1XPRO

Test Report No……..:	RF230906019-01-004
Product(s) Name……...:	Fiber Mesh
Model(s)……..:	ERO1X PRO
Trade Mark……....:	N/A
Applicant……..…:	Heights Telecom T LTD
Address……..…...:	Ha-Sakhlav 6, Irus, 7680900, Israel
Receipt Date……...:	2023.09.07
Test Date……....:	2023.09.14~2023.10.12
Issued Date……..…:	2023.10.13
Standards……:	FCC Guidelines for Human Exposure IEEE C95.1
	FCC Title 47 Part 2.1091
	KDB 447498 D01 General RF Exposure Guidance v06
Testing Laboratory……:	Shenzhen Haiyun Standard Technical Co., Ltd.

Prepared By:	Checked By:	Approved By:	
Black ding	Tim zhang	Misue Su	Shenzhen Haiyun Standard Technical Co., Ltd. HAIYUN Report Seal
Black Ding	Tim.zhang	Misue Su	

History of this test report

Original Report Issue Date: 2023.10.13

● No additional attachment

○ Additional attachments were issued following record

Attachment No.	Issue Date	Description

1. TEST LOCATION

Company:	Shenzhen Haiyun Standard Technical CO., Ltd.
Address:	No. 110-113, 115, 116, Block B, Jinyuan Business Building, Bao'an District, Shenzhen, China
CNAS Registration Number:	CNAS L18252
CAB identifier	CN0145
A2LA Certificate Number	6823.01
Telephone:	0755-26024411

2. GENERAL INFORMATION

2.1 APPLICANT

Heights Telecom T LTD

Ha-Sakhlav,6 Irus HaMerkaz 7680900 Israel

2.2 MANUFACTURER

Heights Telecom T LTD

Ha-Sakhlav,6 Irus HaMerkaz 7680900 Israel

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment Name	Fiber Mesh	
Test Model No.	ERO1X PRO	
Trademark	N/A	
Power Supply	12.0V ⎓ 2.0 A	
Adapter information	Model No.: SOY-1200200US-063 Input: 100-240V~, 50-60Hz, 0.75A Max. Output: 12.0 V ⎓ 2.0 A 24W	
Hardware Version	--	
Software Version	--	
Operating Temperature	0℃-45℃	
EUT Stage	○ Product Unit	●Final-Sample
Operating Band	2400MHz ~ 2483.5MHz 5150MHz ~5250MHz 5250MHz ~5350MHz 5470MHz ~5725MHz 5725MHz ~5850MHz	
Product Type	2.4GHz: IEEE 802.11b: WLAN (2TX, 2RX) IEEE 802.11b: WLAN (2TX, 2RX) IEEE 802.11g: WLAN (2TX, 2RX) IEEE 802.11n: WLAN (2TX, 2RX) IEEE 802.11ax: WLAN (2TX, 2RX) 5GHz: IEEE 802.11a: WLAN (2TX, 2RX) IEEE 802.11n: WLAN (2TX, 2RX) IEEE 802.11ac: WLAN (2TX, 2RX) IEEE 802.11ax: WLAN (2TX, 2RX)	
Nominal Bandwidth	20MHz / 40MHz / 80MHz/ 160MHz	
Modulation	IEEE 802.11b: DSSS (DBPSK/DQPSK/CCK) IEEE 802.11g: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) IEEE 802.11ax: OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)	

3. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:
S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Table for Filed Antenna

For 2.4GWiFi

Ant.	Antenna Type	Connector	Gain (dBi)
1	Internal	N/A	3.92
4	Internal	N/A	3.61

Transmit Operating Mode		Directional Gain (dBi)	
		Power spectral density	Power
802.11b	2TX With Beamforming	5.55	5.55
802.11g	2TX With Beamforming	5.55	5.55
802.11n(HT20MHz)	2TX With Beamforming	5.55	5.55
802.11n(HT40MHz)	2TX With Beamforming	5.55	5.55
802.11ax(HE20MHz)	2TX With Beamforming	5.55	5.55
802.11ax(HE40MHz)	2TX With Beamforming	5.55	5.55

Note:

Ant gain provided by the manufacturer，for details about the antenna, refer to the file: ERO1X PRO V3-Antenna passive pretest report.

☒With Beamforming Mode

If all antennas have the same gain, G_{ANT}

☐ Directional gain = G_{ANT} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and G_{ANT} is the antenna gain in dBi.

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following two formulas.

☐ Directional gain = $G_{ANT\ MAX}$ + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and $G_{ANT\ MAX}$ is the gain of the antenna having the highest gain (in dBi).

☒ Or

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

EUT with the lowest possible N_{SS} =1

Ant gain provided by the manufacturer.

For 5GWiFi

Antenna gain(dBi)	Frequency (MHz)	5150~5350	5470~5725	5725~5850
	ANT1	3.98	3.99	3.76
	ANT2	4.01	4.12	3.97
	ANT3	3.58	3.66	3.44
	ANT4	3.78	3.48	3.48

Transmit Operating Mode		Frequency （MHz）	Directional Gain (dBi)	
			Power spectral density	Power
802.11a/802.11n(HT20MHz)/ 802.11n(HT40MHz)/ 802.11n(HT40MHz) 802.11ac(VHT20MHz)/ 802.11ac(VHT40MHz)/ 802.11ac(VHT80MHz)/ 802.11ac(VHT160MHz)/ 802.11ax(HE20MHz)/ 802.11ax(HE40MHz)/ 802.11ax(HE80MHz)/ 802.11ax(HE160MHz)	4TX With Beamforming	5150~5350	6.94	6.94
		5470~5725	6.91	6.91
		5725~5850	6.96	6.96
Note: Ant gain provided by the manufacturer， for details about the antenna, refer to the file: ERO1X PRO V3-Antenna passive pretest report.				

☒With Beamforming Mode

If all antennas have the same gain, G_{ANT}

☐ Directional gain = G_{ANT} + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and G_{ANT} is the antenna gain in dBi.

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following two formulas.

☐ Directional gain = $G_{ANT\ MAX}$ + 10 log(N_{ANT}/N_{SS}) dBi, where N_{SS} = the number of independent spatial streams of data and $G_{ANT\ MAX}$ is the gain of the antenna having the highest gain (in dBi).

☒ Or

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

EUT with the lowest possible N_{SS} =1

Ant gain provided by the manufacturer.

1. TEST RESULTS

Worst case as below:
For 2.4GHz: IEEE 802.11b_ Beamforming _2437MHz

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Tune up Power (dBm)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
5.55	4.30	21.55	22.00	0.0935	1	Complies
5.55	4.30	21.97	22.00	0.0935	1	Complies

For 5GHz: IEEE 802.11ax(HE20)_ Beamforming _5785MHz

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Tune up Power (dBm)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
6.96	4.97	22.76	22.80	0.1556	1	Complies
6.96	4.97	23.17	23.20	0.1706	1	Complies
6.96	4.97	22.21	22.30	0.1387	1	Complies
6.96	4.97	23.59	23.60	0.1870	1	Complies

Note: 1. The calculated distance is 22cm.
2. The 2.4G Wifi function can transmit at the same time with the 5G Wifi function.
3. Max. Tune up Power is declared by the manufacturer.

Simultaneous transmitting consideration

The ratio= MPE2.4GHz Wifi/limit+MPE5GHz Wifi/limit=
(0.0935/1+0.0935/1)+(0.1556/1+0.1706/1+0.1387/1+0.1870/1)=0.8389<1.0

Result: Complies

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technology Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technology Co., Ltd.

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End of Test Report