TEST REPORT

Applicant:	Tescom Photoelectric Technology (Shenzhen) Co., Ltd.
Address:	Bld. 2b-1415, SKYWORTH Innovation Valley, Tangtou No. 1 Rd., Baoan Shenzhen, China
Equipment type:	Phosphor copper, Spring-shaped antennas
Description:	Nuvis® Wireless HD Camera System, Camera head communication and control TXRX 2.4GHz antenna
Brand name:	HX-B98C
Test standard:	ANSI/IEEE Std 149-1979
Test date:	2023.12.01
Date of issue:	2023.12.15

ISSUED BY:

Shenzhen HX antenna Co., Ltd.

Tested by:	Checked by:	Approved by:
YuJiYuan	zhuangWF	jason

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen HX antenna Co., Ltd.
Address	Floor 2-5, Bd. C10, Xinan second industrial part, Gushu district, Shenzhen, China
Phone Number	0755-23205219
Email	yqh@hx-iot.com
Web	www.hxrf-antenna.com

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen HX antenna Co., Ltd.
Address	Floor 2-5, Bd. C10, Xinan second industrial part, Gushu district, Shenzhen, China
Description	All measurement facilities used to collect the measurement data are located at Floor 2-5, Bd. C10, Xinan second industrial part, Gushu district, Shenzhen, China

2. PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Tescom Photoelectric Technology (Shenzhen) Co., Ltd.
Address	Bld. 2B-1415, SKYWORTH Innovation Valley, Tangtou No. 1 Rd., Baoan Shenzhen, China
Contact person	Jiang wenlai
Telephone number	86-18926044268
Email	El3imaging@aol.com

2.2 Manufacturer Information

Manufacturer	Shenzhen HX antenna Co., Ltd.
Address	Floor 2-5, Bd. C10, Xinan second industrial part, Gushu district, Shenzhen, China
Phone Number	0755-23205219
Email	yqh@hx-iot.com
Web	www.hxrf-antenna.com

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment

EUT name	Phosphor copper, Spring-shaped antennas
Model name under test	HX-B98C
Antenna Type	Phosphor copper, Spring-shaped antennas
Dimensions	L14*D3*DL2mm

2.5 Ancillary Equipment

Not applicable

2.6 Technical Information

Frequency range	2200-2800 MHz

Test frequencies	2200-2800 MHz

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

Report Section	Description	Remark
1	ANSI/IEEE Std 149-1979	IEEE Standard Test Procedures for Antennas

3.2 Test Verdict

No.	Idendity	Document Title
ANNEX A.1	Gain and Efficiency	IEEE Standard Test Procedures for Antennas

3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

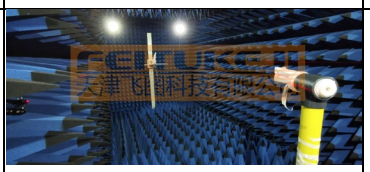
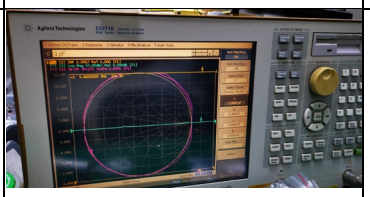
Item	Uncertainty
VSWR(S11)	1.3±0.2
Gain	3±1dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

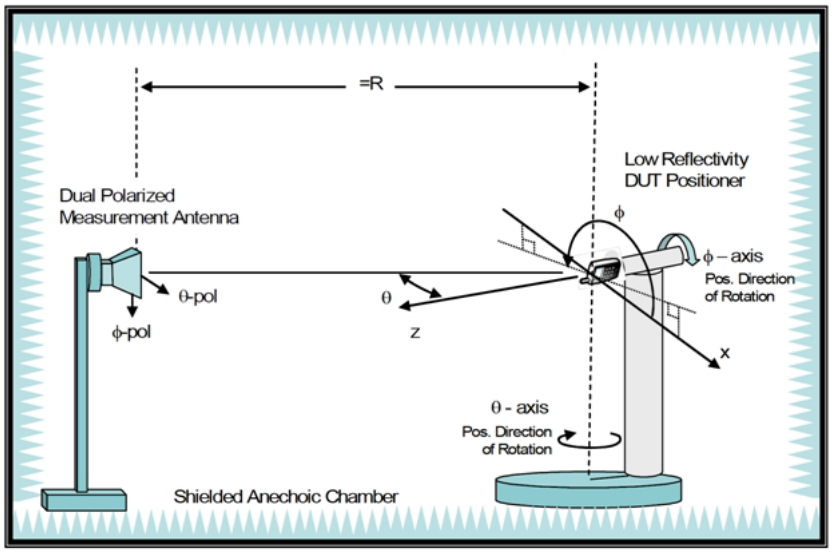
Environment Parameter	Selected Values During Tests			
	Ambient Pressure (KPa)	Temperature (℃)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	19 to 25	N/A	45 to 55

4.2 Test Equipment List

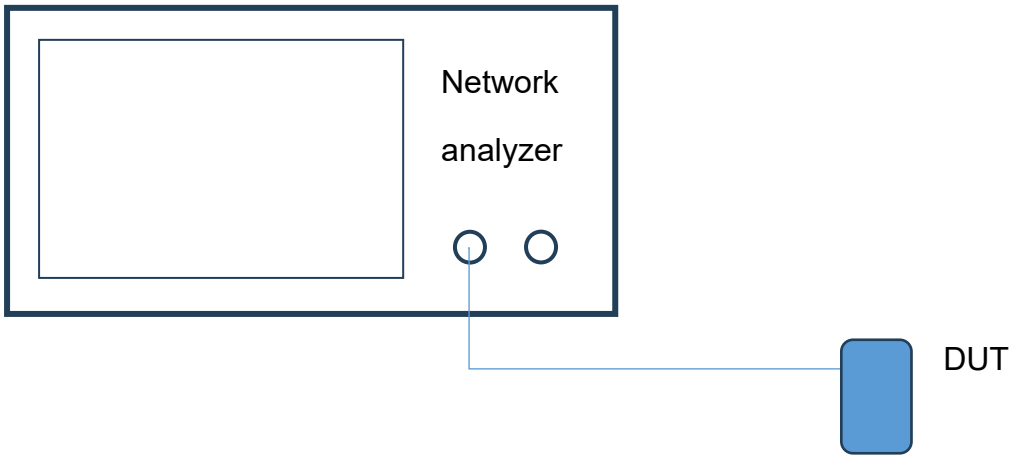
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Single-probe test system	FEITUKEJI	6585			
ENA series network analyzers	Agilent Technologies	E5071B			
Wideband radio communication tester	Rohde & Schwarz	CMW500			
Description					
Test Software					

4.3 Test Setup

4.3.1 Antenna gain, efficiency and radiation pattern test setup



4.3.2 S11 parameter test setup



ANNEX A TEST RESULTS

A.1 Gain and Efficiency

Frequency (MHz)	Gain (dBi)	Efficiency (%)
2200	-3.30	22.67
2205	-3.42	22.40
2210	-3.47	22.66
2215	-3.41	23.29
2220	-3.25	24.05
2225	-3.04	24.46
2230	-2.91	25.27
2235	-2.62	26.63
2240	-2.49	27.53
2245	-2.49	27.32
2250	-2.54	27.46
2255	-2.40	28.40
2260	-2.24	29.48
2265	-2.18	29.87
2270	-2.23	29.47
2275	-2.26	29.27
2280	-2.19	29.82
2285	-2.23	29.70
2290	-2.33	29.02
2295	-2.36	28.73
2300	-2.30	29.02
2305	-2.28	29.48
2310	-2.22	29.79
2315	-2.16	30.30
2320	-2.08	31.14
2325	-1.97	32.15
2330	-1.90	32.87
2335	-1.91	32.91
2340	-1.97	32.76
2345	-2.00	32.94
2350	-2.02	32.93
2355	-2.10	32.23
2360	-2.14	32.11
2365	-2.10	32.05

Frequency (MHz)	Gain (dBi)	Efficiency (%)
2505	-2.14	33.15
2510	-2.18	32.38
2515	-2.12	32.41
2520	-2.02	32.98
2525	-1.95	32.80
2530	-1.97	32.19
2535	-1.94	32.34
2540	-1.90	32.68
2545	-1.96	32.81
2550	-1.95	32.88
2555	-2.05	32.81
2560	-1.81	33.39
2565	-1.66	34.04
2570	-1.71	33.63
2575	-1.75	33.50
2580	-1.68	34.74
2585	-1.62	35.73
2590	-1.66	35.25
2595	-1.63	34.76
2600	-1.53	34.83
2605	-1.53	34.49
2610	-1.54	33.86
2615	-1.64	32.85
2620	-1.70	32.01
2625	-1.64	32.64
2630	-1.40	34.05
2635	-1.56	33.28
2640	-1.77	32.10
2645	-1.67	32.74
2650	-1.65	33.51
2655	-1.72	33.02
2660	-1.81	32.60
2665	-1.74	32.66
2670	-1.67	32.89

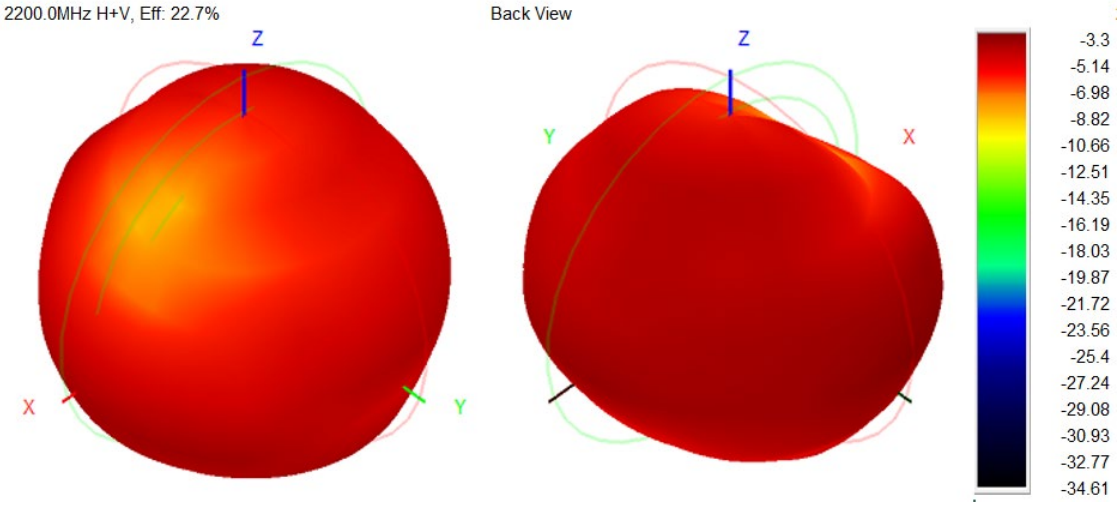
2370	-2.06	32.30
2375	-2.13	32.24
2380	-2.15	31.86
2385	-2.19	31.67
2390	-2.16	32.16
2395	-2.17	32.05
2400	-2.10	31.82
2405	-1.99	32.46
2410	-1.77	33.45
2415	-1.76	33.57
2420	-1.83	33.23
2425	-1.93	33.06
2430	-1.97	32.99
2435	-2.13	32.96
2440	-2.12	32.97
2445	-2.05	32.35
2450	-1.95	32.10
2455	-1.84	32.52
2460	-1.85	32.13
2465	-2.07	31.03
2470	-2.17	30.92
2475	-2.25	31.35
2480	-2.27	31.55
2485	-2.25	31.81
2490	-2.16	32.17
2495	-2.07	32.72
2500	-2.07	33.25

2675	-1.54	33.42
2680	-1.51	33.35
2685	-1.56	32.22
2690	-1.54	31.96
2695	-1.46	32.35
2700	-1.56	31.26
2705	-1.81	29.80
2710	-1.79	29.76
2715	-1.80	30.29
2720	-1.83	30.56
2725	-1.83	30.90
2730	-1.96	30.81
2735	-1.89	30.95
2740	-1.74	31.80
2745	-1.68	31.59
2750	-1.87	30.31
2755	-1.80	30.39
2760	-1.55	31.54
2765	-1.54	31.54
2770	-1.58	31.18
2775	-1.54	31.20
2780	-1.58	30.96
2785	-1.71	30.60
2790	-1.85	30.04
2795	-1.95	28.94
2800	-1.85	28.85

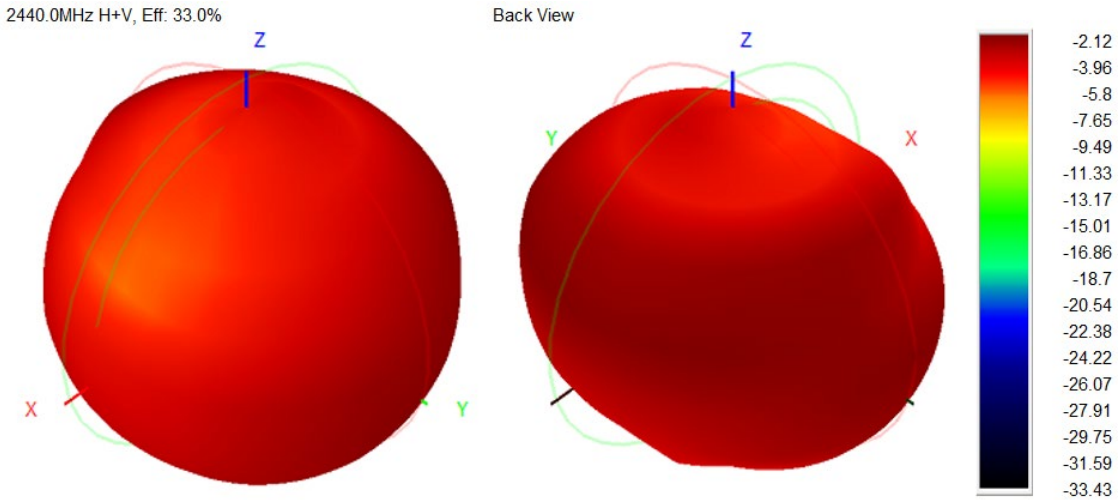
ANNEX B RADIATION PATTERN

B.1 3D Pattern

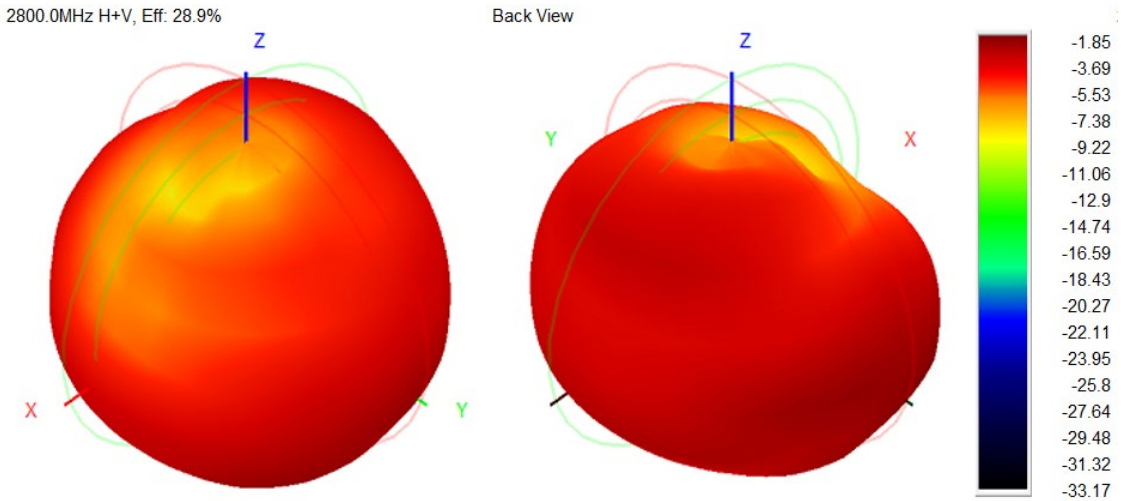
B1.1 3D Pattern for 2200MHz



B1.2 3D Pattern for 2440MHz



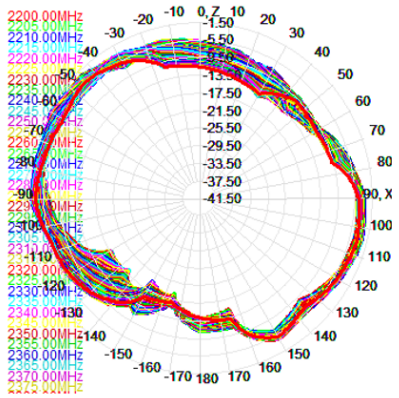
B1.3 3D Pattern for 2800MHz



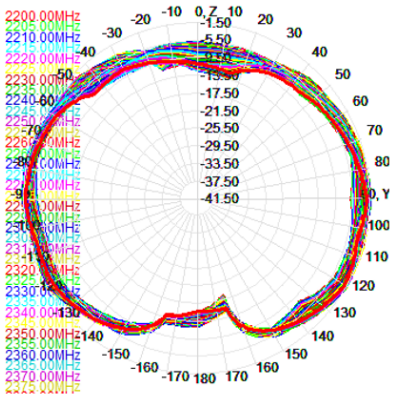
B.2 1D Radiation Pattern

B . 2.1 1D Radiation pattern

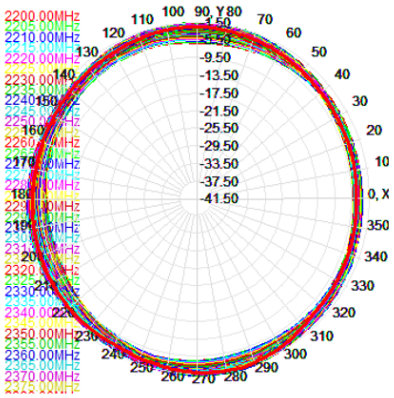
E1-XZ



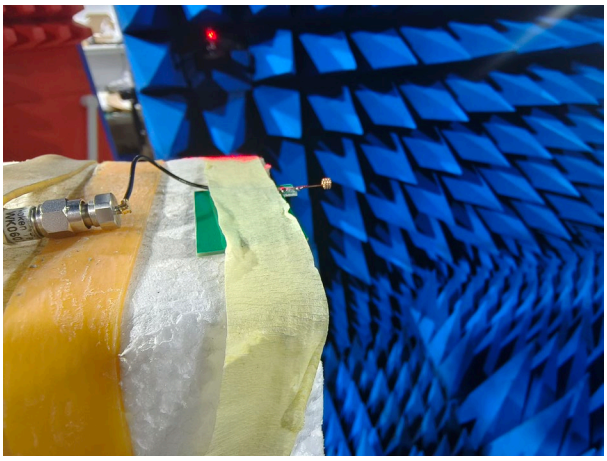
E2-YZ



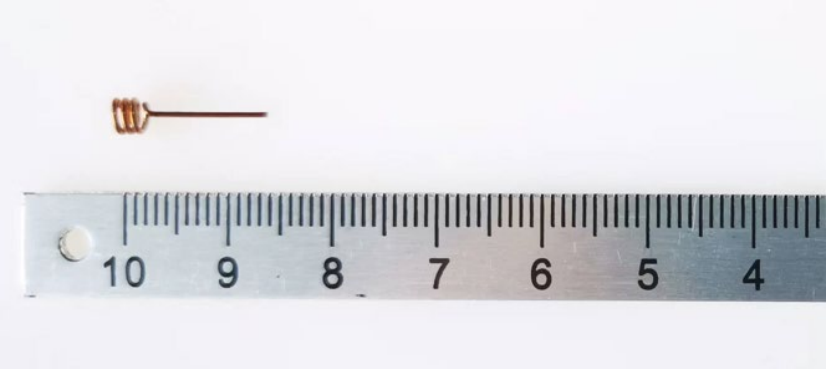
H-XY



ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO



Statement

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4) This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the “inspection and testing dedicated stamp” or test report stamp.
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7) Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT-