RF Exposure MPE

Report Reference No.....:	**CTA26042702503**
FCC ID..... :	**2BVF8WTI5500**
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Date of issue .....:	May 13, 2026
Testing Laboratory Name.....:	**Shenzhen CTA Testing Technology Co., Ltd.**
Address.....:	Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name.....:	**Worldwide Telecommunications, Inc.**
Address.....:	4505 Las Virgenes Rd Suite 115 Calabasas, CA 91302
Standard.....:	**47CFR §1.1310** **47CFR §2.1091** **KDB447498 D01 General RF Exposure Guidance v06**

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Test item description .....:	**Industrial Router**
Trade Mark .....:	N/A
Manufacturer .....:	HOMTECS M2M TECHNOLODY COMPANY LIMITED
Model/Type reference .....:	5500
Listed Models .....:	5510, 5516, 5519, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590
Rating .....:	Input:12V⎓2A
Result .....:	**PASS**

TEST REPORT

Equipment under Test	:	Industrial Router
Model /Type	:	5500
Listed Models	:	5510, 5516, 5519, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590
Model difference	:	The PCB board, circuit, structure and internal of these models are the same, Only model number and colour is different for these model. So the tests were performed on model 5500 and the test results for the main test model can cover the listed models.
Applicant	:	**Worldwide Telecommunications, Inc.**
Address	:	4505 Las Virgenes Rd Suite 115 Calabasas, CA 91302
Manufacturer	:	**HOMTECS M2M TECHNOLODY COMPANY LIMITED**
Address	:	201, F5 Building, TCL Science Park, NO.1001,Zhongshan Park Road, Shuguang Community,Xili Street,Nanshan District, Shenzhen, China

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
FCC KDB 447498 D01 General RF Exposure Guidance v06: Mobile and Portable Device, RF Exposure, Equipment Authorization Procedures.
FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.
FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	Apr. 27, 2026
Testing commenced on	:	Apr. 27, 2026
Testing concluded on	:	May 13, 2026

2.2 Product Description

Product Name:	Industrial Router
Model/Type reference:	5500
Power supply:	Input:12V⎓2A
Adapter information	Model: SAW30A-120-2000U Input: AC 100-240V 50/60Hz 0.8A Output: DC12V 2000mA
Hardware version:	V1.0
Software version:	V1.0
Testing sample ID：	CTA260427025-1# (Engineer sample) CTA260427025-2# (Normal sample)
2.4GWIFI :	
Supported type:	802.11b/802.11g/802.11n(HT20)/ 802.11n(HT40)
Modulation:	802.11b: DSSS 802.11g/802.11n(HT20)/ 802.11n(HT40): OFDM
Operation frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel number:	802.11b/802.11g/802.11n(HT20): 11 802.11n(HT40):7
Channel separation:	5MHz
Antenna type:	External antenna
Antenna gain:	4.74 dBi for Antenna 1&2 Directional Gain=4.74+10*log(2)=7.75dBi Power and PSD Limit= limit- (Directional Gain-6)

5GWIFI				
	20MHz system	40MHz system	80MHz system	160MHz system
Supported type:	802.11a 802.11n 802.11ac	802.11n 802.11ac	N/A	N/A
Operation frequency:	5180MHz-5240MHz 5745MHz-5825MHz	5190MHz-5230MHz 5755MHz-5795MHz	N/A	N/A
Modulation:	OFDM	OFDM	N/A	N/A
Channel number:	9	4	N/A	N/A
Channel separation:	20MHz	40MHz	N/A	N/A

Antenna type:	External antenna
Antenna gain:	2.26 dBi for 5180-5240MHz for Antenna 1&2 3.57 dBi for 5745-5825MHz for Antenna 1&2 Directional Gain=3.57+10*log(2)=6.58dBi Power and PSD Limit= limit- (Directional Gain-6)

2.3 Special Accessories

The following is the EUT test of the auxiliary equipment provided by the laboratory:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
/	/	/	/	/	/

2.4 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen CTA Testing Technology Co., Ltd.
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community,
Fuhai Street, Bao'an District, Shenzhen, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:
FCC-Registration No.: 517856 Designation Number: CN1318
Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6534.01
Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

ISED#: 27890 CAB identifier: CN0127
Shenzhen CTA Testing Technology Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

3.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen CTA Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability for Shenzhen CTA Testing Technology Co., Ltd. :

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz	3.02 dB	(1)
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)
Output Peak power	30MHz~18GHz	0.55 dB	(1)
Power spectral density	/	0.57 dB	(1)
Spectrum bandwidth	/	1.1%	(1)
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.10 dB	(1)
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.32 dB	(1)
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.54 dB	(1)
Time	/	±2%	(1)

4 Test limit

4.1 Requirement

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
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 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 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

4.2 MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

$S=PG/4\pi R^2$
Where: S=power density
P=power input to 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

4.3 Conducted Power Results

Type	Channel	Antenna 1 Output power PK (dBm)	Antenna 2 Output power PK (dBm)
802.11b	01	12.06	11.77
	06	12.26	12.08
	11	12.45	12.16
802.11g	01	12.05	12.12
	06	12.2	12.19
	11	12.23	12.45
802.11n(HT20)	01	11.7	12
	06	12.16	12.33
	11	12.15	12.3
802.11n(HT40)	03	12.26	12.45
	06	12.42	12.62
	09	12.52	12.66

Test Mode	Antenna	Freq(MHz)	Antenna 1 Result [dBm]	Antenna 2 Result [dBm]
11A	Ant1	5180	11.15	12.09
		5220	11.32	12.04
		5240	11.26	12.07
		5745	10.6	11.75
		5785	10.6	11.64
		5825	10.53	11.54
11N20SISO	Ant1	5180	11.11	11.65
		5220	11.45	12.26
		5240	10.83	12
		5745	10.62	11.69
		5785	11.53	11.58
		5825	11.3	11.46
11N40SISO	Ant1	5190	11.86	12
		5230	12.09	12.14
		5755	11.61	11.71
		5795	11.68	11.64
11AC20SISO	Ant1	5180	11.57	11.72
		5220	11.86	11.81
		5240	11.6	11.67
		5745	11.49	11.49
		5785	11.34	11.45
		5825	11.07	11.14
11AC40SISO	Ant1	5190	11.63	11.7
		5230	11.46	11.77
		5755	11.28	11.35
		5795	11.35	11.19

LTE and 5GNR contains FCC ID: XMR2024RG255CGL.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
LTE Band 2	1850.7	1.80	25.00	26.80	33.00	0.0952	1.0000	8.00	12.01	8.00	Pass
LTE Band 4	1710.7	1.20	25.00	26.20	30.00	0.0829	1.0000	5.00	12.01	5.00	Pass
LTE Band 5	824.7	0.30	25.00	23.15	38.45	0.0674	0.5498	15.60	9.41	9.41	Pass
LTE Band 7	2502.5	1.40	25.00	26.40	33.00	0.0868	1.0000	8.00	12.01	8.00	Pass
LTE Band 12	699.7	-0.50	25.00	22.35	34.77	0.0561	0.4665	11.92	8.70	8.70	Pass
LTE Band 13	779.5	-0.70	25.00	22.15	34.77	0.0535	0.5197	11.92	9.16	9.16	Pass
LTE Band 14	790.5	-0.50	25.00	22.35	34.77	0.0561	0.5270	11.92	9.23	9.23	Pass
LTE Band 17	706.5	-0.50	25.00	22.35	34.77	0.0561	0.4710	11.92	8.74	8.74	Pass
LTE Band 25	1850.7	1.80	25.00	26.80	33.00	0.0952	1.0000	8.00	12.01	8.00	Pass
LTE Band 26 (814 ~824)	814.7	0.30	25.00	23.15	NA	0.0674	0.5431	NA	9.36	9.36	Pass
LTE Band 26 (824~849)	824.7	0.30	25.00	23.15	38.45	0.0674	0.5498	15.60	9.41	9.41	Pass
LTE Band 30	2307.5	-5.70	24.00	18.30	23.98	0.0135	1.0000	-0.02	13.01	-0.02	Pass
LTE Band 38	2572.5	1.40	28.00	29.40	33.00	0.1733	1.0000	5.00	9.01	5.00	Pass
LTE Band 41	2498.5	1.40	28.00	29.40	33.00	0.1733	1.0000	5.00	9.01	5.00	Pass
LTE Band 42	3452.5	-2.01	28.00	25.99	30.00	0.0790	1.0000	2.00	9.01	2.00	Pass
LTE Band 42 _Part96	3552.5	-6.12	28.00	21.88	23.00	0.0307	1.0000	-5.00	9.01	-5.00	Pass
LTE Band 43	3702.5	-7.10	28.00	20.90	30.00	0.0245	1.0000	2.00	9.01	2.00	Pass
LTE Band 43_ Part96	3602.5	-6.12	28.00	21.88	23.00	0.0307	1.0000	-5.00	9.01	-5.00	Pass
LTE Band 48	3552.5	-6.12	25.00	18.88	23.00	0.0154	1.0000	-2.00	12.01	-2.00	Pass
LTE Band 66	1710.7	1.50	25.00	26.50	30.00	0.0889	1.0000	5.00	12.01	5.00	Pass
LTE Band 70	1697.5	1.10	25.00	26.10	30.00	0.0810	1.0000	5.00	12.01	5.00	Pass
LTE Band 71	665.5	-0.90	25.00	21.95	34.77	0.0511	0.4437	11.92	8.48	8.48	Pass

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	conclusion
NR Band n2	1852.5	1.80	25.00	26.80	33.00	0.0952	1.0000	8.00	12.01	8.00	Pass
NR Band n5	826.5	0.30	25.00	23.15	38.45	0.0674	0.5510	15.60	9.42	9.42	Pass
NR Band n7	2502.5	1.40	25.00	26.40	33.00	0.0868	1.0000	8.00	12.01	8.00	Pass
NR Band n12	701.5	-0.50	25.00	22.35	34.77	0.0561	0.4677	11.92	8.71	8.71	Pass
NR Band n13	779.5	-0.70	25.00	22.15	34.77	0.0535	0.5197	11.92	9.16	9.16	Pass
NR Band n14	790.5	-0.50	25.00	22.35	34.77	0.0561	0.5270	11.92	9.23	9.23	Pass
NR Band n25	1852.5	1.80	25.00	26.80	33.00	0.0952	1.0000	8.00	12.01	8.00	Pass
NR Band n26 (814-824)	816.5	0.30	25.00	23.15	NA	0.0674	0.5443	NA	9.37	9.37	Pass
NR Band n26 (824-849)	826.5	0.30	25.00	23.15	38.45	0.0674	0.5510	15.60	9.42	9.42	Pass
NR Band n30	2307.5	-5.70	24.00	18.30	23.98	0.0135	1.0000	-0.02	13.01	-0.02	Pass
NR Band n38	2580.0	1.40	28.00	29.40	33.00	0.1733	1.0000	5.00	9.01	5.00	Pass
NR Band n41	2506.02	1.40	28.00	29.40	33.00	0.1733	1.0000	5.00	9.01	5.00	Pass
NR Band n66	1712.5	1.50	25.00	26.50	30.00	0.0889	1.0000	5.00	12.01	5.00	Pass
NR Band n70	1697.5	1.10	25.00	26.10	30.00	0.0810	1.0000	5.00	12.01	5.00	Pass
NR Band n71	665.5	-0.90	25.00	21.95	34.77	0.0511	0.4437	11.92	8.48	8.48	Pass
NR Band n77 (3450-3550)	3460.02	-0.64	28.00	27.36	30.00	0.1083	1.0000	2.00	9.01	2.00	Pass
NR Band n77 (3700-3980)	3710.01	-0.64	28.00	27.36	30.00	0.1083	1.0000	2.00	9.01	2.00	Pass
NR Band n78 (3450-3550)	3710.01	-0.64	28.00	27.36	30.00	0.1083	1.0000	2.00	9.01	2.00	Pass
NR Band n78 (3700-3800)	3460.02	-0.64	28.00	27.36	30.00	0.1083	1.0000	2.00	9.01	2.00	Pass

4.4 Manufacturing tolerance

Mode	Max. Peak Conducted Output Power (dBm)	Max. tune-up
2.4GWIFI ANT 1	12.52	12.0±1
2.4GWIFI ANT 2	12.66	12.0±1
Mode	Max. Average Conducted Output Power (dBm)	Max. tune-up
5.2GWIFI ANT 1	12.09	12.0±1
5.2GWIFI ANT 2	11.75	12.0±1
5.8GWIFI ANT 1	11.68	12.0±1
5.8GWIFI ANT 2	12.26	12.0±1

4.5 Standalone MPE Result

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, r =20cm, as well as the gain of the used antenna is refer to section 2.2, the RF power density can be obtained.

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm^2)	MPE Limits (mW/cm^2)
	dBm	mW				
2.4GWIFI ANT 1	13.0	19.9526	4.74	2.9785	0.0118	1.0000
2.4GWIFI ANT 2	13.0	19.9526	4.74	2.9785	0.0118	1.0000
5.2GWIFI ANT 1	13.0	19.9526	2.26	1.6827	0.0067	1.0000
5.2GWIFI ANT 2	13.0	19.9526	2.26	1.6827	0.0067	1.0000
5.8GWIFI ANT 1	13.0	19.9526	3.57	2.2751	0.0090	1.0000
5.8GWIFI ANT 2	13.0	19.9526	3.57	2.2751	0.0090	1.0000

Remark:
1. Output power including turn-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer.

4.6 Simultaneous Transmission for MPE Result

2.4GWIFI ANT1 MPE (Ratio)	2.4GWIFI ANT2 MPE (Ratio)	5GNR MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.0118	0.0118	0.1733	0.1969	1.0000

5 Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device Threshold per KDB 447498 D01v06

********** End of Report **********