



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/1

Report No.: SZCR250600276604

Page: 1 of 9

RF EXPOSURE EVALUATION REPORT

Application No.:	SZCR2506002766AT
Applicant:	FIH CO., LTD.
Address of Applicant:	No.4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679 Taiwan
Manufacturer:	Futaijing Precision Electronics (Beijing)co., Ltd.
Address of Manufacturer:	No.9 JinXiu Street, Beijing Economic & Technological Development Area, Beijing 100176, China
Factory:	Futaijing Precision Electronics (Beijing)co., Ltd.
Address of Factory:	No.9 JinXiu Street, Beijing Economic & Technological Development Area, Beijing 100176, China
Equipment Under Test (EUT):	
EUT Name:	RTBM
Model No.:	RTBM-EANAGEN, RTBM-SHNAGEN, RTBM-SHNAADV, RTBM-SHSAGEN, RTBM-EASAGEN, RTBM-SHSAADV
♦	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID:	RYQ31PHBM2000A
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB 447498 D04 interim General RF Exposure Guidance v01
Date of Receipt:	2025-06-26
Date of Evaluation:	2025-07-01 to 2025-07-05
Date of Issue:	2025-07-10

Evaluation Result:	Pass*
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* In the configuration evaluated, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-07-10		Original

Authorized for issue by:			
		Calvin Weng	
		Calvin Weng/Project Engineer	
		Eric Fu	
		Eric Fu/Reviewer	



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3 General Information

3.1 General Description of E.U.T.

Product Type:	<input type="checkbox"/> Portable device
	<input checked="" type="checkbox"/> Mobile device
	<input type="checkbox"/> Fixed device

3.2 Details of E.U.T.

Power supply:	DC12V
For 2.4G WIFI:	
Cable Loss (for RF conducted test):	0.7dB
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK);802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11;802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	Monopole antenna
Antenna Gain:	-0.41dBi
For 5G WIFI:	
Cable Loss (for RF conducted test):	1.5dB
Operation Frequency/Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency/Number of channels/(40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency/Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n/ac 20: 20MHz; 802.11n/ac 40: 40MHz; 802.11ac 80: 80MHz
DFS Function:	Not support DFS
TPC Function:	Without TPC function
Antenna Type:	Monopole antenna
Antenna Gain:	U-NII band1: -2.2dBi, U-NII band3: 0.47dBi

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For 3G:	
Cable Loss (for RF conducted test):	Below 1GHz: 4.5dB, 1GHz~2.4GHz:4.7dB, Above 2.4GHz: 5.2dB
Sample Type:	Mobile production
Support Network:	RMC, HSDPA, HSUPA
Operation Frequency Band:	UMTS FDD Band II/IV/V
Modulation Type:	QPSK for WCDMA
Supported Channel Bandwidth:	5MHz for WCDMA
UMTS Power Class:	Level 3
Antenna Type:	Monopole antenna
Antenna Gain:	WCDMA B2:-3.4dBi; B4: -4.7dBi; B5:-3.5dBi
For 4G:	
Cable Loss (for RF conducted test):	Below 1GHz: 4.5dB, 1GHz~2.4GHz:4.7dB, Above 2.4GHz: 5.2dB
Sample Type:	Mobile production
LTE Operation Frequency Band:	LTE B2/4/5/7/12/13/17/25/26/66/71
Modulation Type:	QPSK, 16QAM
LTE Power Class:	Level 3
Antenna Type:	Monopole antenna
Antenna Gain:	LTE B2:-3.6dBi; B4: -4.7dBi; B5:-3.5dBi, B7:-4.6dBi, B12:-5dBi, B13:-4.8dBi, B17: -4.1dBi, B25: -3.3dBi; B26:-3.6dBi; B66:-4.4dBi, B71:-5.3dBi
Host name:	RTBM
Host Model Number:	RTBM-SHNAGEN

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

This report is prepared for FCC class II permissive change. The modular have been approved by FCC, FCC ID:RYQ31PHBM2000A, granted on 08/14/2024.

Remark:

Model No.: RTBM-EANAGEN, RTBM-SHNAGEN, RTBM-SHNAADV,

RTBM-SHSAGEN, RTBM-EASAGEN, RTBM-SHSAADV

Only the model RTBM-SHNAGEN was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used, internal wiring and functions were identical for all the above models, with only difference on changing the WWAN antenna.



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3.3 Separation Distance

Minimum test separation distance:	20cm
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Remark: This minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.



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3.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

3.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

3.6 Deviation from Standards

None

3.7 Abnormalities from Standard Conditions

None

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4 FCC Radiofrequency radiation exposure limits

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30



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5 Measurement and Calculation

MPE Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

1)P (mW)

2)R = distance to the center of radiation of antenna (in centimeter)

3)MPE limit = 1mW/cm²

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/cm ²)	Limit (mW/cm ²)	Gain according to EIRP(ERP) (dBi)	Gain according to Pd (dBi)	Max Gain Allowed (dBi)	MPE ratio	Conclusion
WCDMA Band II	1852.4	-3.4	26.00	22.60	33.00	0.0362	1.0000	7.00	11.01	7.00	0.0362	Pass
WCDMA Band IV	1712.4	-4.7	26.00	21.30	30.00	0.0268	1.0000	4.00	11.01	4.00	0.0268	Pass
WCDMA Band V	826.4	-3.5	25.00	19.35	38.45	0.0281	0.5509	15.60	9.42	9.42	0.0510	Pass
LTE Band 2	1850.7	-3.6	25.00	21.40	33.00	0.0275	1.0000	8.00	12.01	8.00	0.0275	Pass
LTE Band 4	1710.7	-4.7	25.00	20.30	30.00	0.0213	1.0000	5.00	12.01	5.00	0.0213	Pass
LTE Band 5	824.7	-3.5	25.00	19.35	38.45	0.0281	0.5498	15.60	9.41	9.41	0.0511	Pass
LTE Band 7	2502.5	-4.60	25.00	20.40	33.00	0.0218	1.0000	8.00	12.01	8.00	0.0218	Pass
LTE Band 12	699.7	-5.00	25.00	17.85	34.77	0.0199	0.4665	11.92	8.70	8.70	0.0426	Pass
LTE Band 13	779.5	-4.80	25.00	18.05	34.77	0.0208	0.5197	11.92	9.16	9.16	0.0401	Pass
LTE Band 17	706.5	-4.10	25.00	18.75	34.77	0.0245	0.4710	11.92	8.74	8.74	0.0520	Pass
LTE Band 25	1850.7	-3.30	25.00	21.70	33.00	0.0294	1.0000	8.00	12.01	8.00	0.0294	Pass
LTE Band 26(814-824)	814.7	-3.60	25.00	NA	NA	0.0275	0.5431	NA	9.36	9.36	0.0506	Pass
LTE Band 26(824-849)	824.7	-3.60	25.00	19.25	38.45	0.0275	0.5498	15.60	9.41	9.41	0.0499	Pass
LTE Band 66	1710.7	-4.40	25.00	20.60	30.00	0.0228	1.0000	5.00	12.01	5.00	0.0228	Pass
LTE Band 71	665.5	-5.30	25.00	17.55	34.77	0.0186	0.4437	11.92	8.48	8.48	0.0418	Pass
WLAN2.4GHz	2462.0	-0.41	17.00	16.59	N/A	0.0091	1.0000	N/A	20.01	20.01	0.0091	Pass
WLAN5GHz	5795.0	0.47	17.00	17.47	N/A	0.0111	1.0000	N/A	20.01	20.01	0.0111	Pass

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unit.

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	WWAN + WiFi 2.4G
2	WWAN + WiFi 5G

No.	Mode	Total Ratio	Limit	Result
1	LTE Band17 + WiFi 2.4G	0.0611	1.0000	Pass
	LTE Band17 + WiFi 5G	0.0631		

-End of the Report-

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