

TEST REPORT

Applicant: Franklin Technology
Address: 906 JEI Platz, 186, Gasan digital1-ro, Geumcheon-gu, Seoul 08502 Korea
Equipment Type: Home Router
Model Name: CG890
Brand Name: N/A
FCC ID: XHG-CG890
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Sample Arrival Date: N/A
Test Date: N/A
Date of Issue: Jun. 10, 2025

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center

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(Laboratory Manager)

Huang Xiaoqin

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Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Jun. 10, 2025</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 29671.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Franklin Technology
Address	906 JEI Platz, 186, Gasan digital1-ro, Geumcheon-gu, Seoul 08502 Korea

2.2 Manufacturer Information

Manufacturer	Franklin Technology
Address	906 JEI Platz, 186, Gasan digital1-ro, Geumcheon-gu, Seoul 08502 Korea

2.3 General Description for Equipment under Test (EUT)

EUT Name	Home Router
Model Name Under Test	CG890
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	P1
Software Version	CG890.FR.2033
Dimensions (Approx.)	L:101.5mm * W:101.5mm *H:195.mm*
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	WCDMA Band II/IV/V LTE Band 2/4/5/7/12/25/26/41/48/66/71 NR Band n25/41/66/71/48/77, n41(PC2)/n77 (PC2) ENDC DC_5A_n66A, DC_12A_n66A,DC_5A_N48A WiFi 2.4G/5G
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	LTE Band 25/26 NR Band n25/41/77		
Frequency Range	LTE Band 25	TX: 1850 ~1915 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 26 (Part22)	TX: 814 ~ 824 MHz	RX: 859 ~ 869 MHz
	LTE Band 26 (Part90)	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	NR Band n25	TX: 1850 - 1915 MHz	RX: 1930 ~ 1995 MHz

	NR Band n41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	NR Band n77 (3450-3550MHz)	TX: 3450 ~ 3550 MHz	RX: 3450 ~ 3550 MHz
	NR Band n77 (3700-3980MHz)	TX: 3700 ~ 3980 MHz	RX: 3700 ~ 3980 MHz
Antenna Type	Built-in antenna		
Exposure Category	General Population/Uncontrolled exposure		
Product Type	Mobile Device		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

3.2 Limit Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices

Note:

The RF module installed in the EUT is electronically and mechanically identical to the originally certified modules in the following test reports (all issued by Shenzhen Accurate Technology Co., Ltd. with original FCC ID: XHG-CG890), For test results of other bands, please refer to:

Original Report No. RA230104-00558E-RF-00F (issued Nov. 09, 2021)

Therefore, this report only includes retesting of the following bands:

LTE B25

LTE B26

NR n25

NR n41

NR n77

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Devices:

CFR Title 47 §2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B. 2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
300		39	65	88	110	129	148	166	184	201	217
450		22	44	67	89	112	135	158	180	203	226
835		9	25	44	66	90	116	145	175	207	240
1900		3	12	26	44	66	92	122	157	195	236
2450		3	10	22	38	59	83	111	143	179	219
3600		2	8	18	32	49	71	96	125	158	195
5800		1	6	14	25	40	58	80	106	136	169

5 ASSESSMENT RESULT

5.1 Output Power

LTE			
Mode	Band 25	Band 26 (Part22)	Band 26 (Part90)
Conducted Power (dBm)	22.57	22.56	22.65
Antenna Gain (dBi)	3.262	1.998	1.609
ERP/EIRP (dBm)	25.83	22.41	22.11
Note: This report listed the worst case conducted power value, please refer to RF test report No.BL-SH2550493-501 for more details.			

NR				
Mode	Band n25	Band n41	Band n77 (3450-3550MHz)	Band n77 (3700-3980MHz)
Conducted Power (dBm)	24.51	24.68	26.67	25.33
Antenna Gain (dBi)	3.262	0.409	-0.637	-0.647
ERP/EIRP (dBm)	27.77	25.09	26.03	24.68
Note: This report listed the worst case conducted power value, please refer to RF test report No.BL-SH2550493-501 for more details.				

5.2 Tune-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
LTE	Band 25	【21.50,23.50】	【24.76,26.76】	【22.61,24.61】
	Band 26 (Part22)	【21.50,23.50】	/	【21.35,23.35】
	Band 26 (Part90)	【21.50,23.50】	/	【20.96,22.96】
NR	Band n25	【23.50,25.50】	【26.76,28.76】	【24.61,26.61】
	Band n41	【23.50,25.50】	【23.91,25.91】	【21.76,23.76】
	Band n77 (3450-3550MHz)	【25.50,27.50】	【24.86,26.86】	【22.71,24.71】
	Band n77 (3700-3980MHz)	【24.50,26.50】	【23.85,25.85】	【21.70,23.70】
Note1: ERP= EIRP -2.15dB.				
Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.				

5.3 RF Exposure Evaluation Result

Evolution mode		f(MHz)	Distance (cm)	Maximum power (dBm)	Maximum power (mW)	Threshold Power (mW)	P/Plimit	Verdict
LTE	Band 25	1850	30	24.61	289.07	3060.00	0.0945	Pass
	Band 26 (Part22)	814	30	23.50	223.87	1660.56	0.1348	Pass
	Band 26 (Part90)	824	30	23.50	223.87	1680.96	0.1332	Pass
NR	Band n25	1850	30	26.61	458.14	3060.00	0.1497	Pass
	Band n41	2496	30	25.50	354.81	3060.00	0.1160	Pass
	Band n77 (3450-3550MHz)	3450	30	27.50	562.34	3060.00	0.1838	Pass
	Band n77 (3700-3980MHz)	3700	30	26.50	446.68	3060.00	0.1460	Pass

5.4 Collocated Power Calculation

RF Exposure Evaluation Result of the assessment are smaller than the values of the main frequency in the original report and the case of simultaneous issuance is no longer counted here. Therefore, the results of the same issuance refer to the original report No. RA230104-00558E-RF-00F (issued Nov. 09, 2021)

5.5 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

1. The Testing Center guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--