TEST REPORT

Applicant:	Tri Cascade Inc.
Address:	19200 Von Karman Ave, Ste 400, Irvine, CA 92612
Equipment Type:	WiFi 7 5G Router
Model Name:	VOSIO 7G
Brand Name:	VOSIO
FCC ID:	2ACARVOSIOX7A
Test Standard:	KDB 447498 D04 v01 47 CFR Part 2.1091
Sample Arrival Date:	N/A
Test Date:	N/A
Date of Issue:	Jun. 30, 2025

ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center

Prepared by: Huang Xiaoqin **Reviewed by:** Cai Xueguo **Approved by:** Zhang Yanqing (Laboratory Manager)

Huang Xiaoqin Cai Xueguo Zhang Yanqing

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jun. 30, 2025	Initial Issue

TABLE OF CONTENTS

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	Tri Cascade Inc.
Address	19200 Von Karman Ave, Ste 400, Irvine, CA 92612

2.2 Manufacturer Information

Manufacturer	Tri Cascade Inc.
Address	19200 Von Karman Ave, Ste 400, Irvine, CA 92612

2.3 General Description for Equipment under Test (EUT)

EUT Name	WiFi 7 5G Router
Model Name Under Test	VOSIO 7G
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	FG18_MB_PCB_V1.3
Software Version	X7_PA_1.01.000008
Dimensions (Approx.)	L109mm*W109mm*H212mm
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	4G Network FDD-LTE:B2/4/5/12/13/29/30/66/71 TDD-LTE: B41/48/46 LTE CA Uplink (UL): CA_41C/CA_12A_66A/CA_13A_66A/CA_2A_12A/CA_2A_13A/CA_4A_13A 5G Network SA: n2/n5/n12/n14/n25/n30/n41/n48/n66/n70/n71/n77 Support NSA Band: n2/n5/n12/n14/n25/n30/n41/n66/n70/n71/n77

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	NR, LTE, WIFI	
Frequency Range	2.4G WIFI	2412 ~ 2462 MHz
	5G WIFI	U-NII-1: 5150 ~ 5250MHz U-NII-2A: 5250 ~ 5350MHz U-NII-2C: 5470 ~ 5725MHz U-NII-3: 5725 ~ 5850MHz

	WIFI 6E	Band 5 (UNII-5): 5925~6425MHz Band 6 (UNII-6): 6425~6525MHz Band 7 (UNII-7): 6525~6875MHz Band 8 (UNII-8): 6875~7125MHz	
	LTE B2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE B4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE B5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE B12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE B13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE B30	TX:2305 ~ 2315MHz	RX:2350 ~ 2360 MHz
	LTE B41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	LTE B48	TX: 3550 ~ 3700 MHz	RX: 3550 ~ 3700 MHz
	LTE B66	TX:1710 ~ 1780 MHz	RX:2110 ~ 2180 MHz
	LTE B71	TX:663 ~ 698 MHz	RX:617 ~ 652 MHz
	NR Band n2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	NR Band n5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	NR Band n12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	NR Band n14	TX: 788 - 798 MHz	RX: 758- 768 MHz
	NR Band n25	TX: 1850 ~ 1915 MHz	RX:1930~ 1995 MHz
	NR Band n30	TX:2305 ~ 2315MHz	RX:2350 ~ 2360 MHz
	NR Band n41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	NR Band n48	TX: 3550 ~ 3700 MHz	RX: 3550 ~ 3700 MHz
	NR Band n66	TX:1710 ~ 1780 MHz	RX:2110 ~ 2180 MHz
	NR Band n70	TX:1695 ~ 1710 MHz	RX:1995 ~ 2020 MHz
	NR Band n71	TX:663 ~ 698 MHz	RX:617 ~ 652 MHz
	NR Band n77	TX:3300 - 4200 MHz	RX 3300 - 4200 MHz
Antenna Type	WIFI	PCB Antenna	
	WWAN	PCB 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

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 ERP20cm in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

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

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 λ/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 Pth (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). Pth is given by Formula (B.2).

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

where

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

and f is in GHz, d is the separation distance (cm), and ERP_{20cm} 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

For 6000MHz to 10000Mhz

Frequencies above 300 kHz but at distances R > λ/2π, R is the antenna-person separation distance.
λ=wavelength of transmitted signal.
Can calculate from the frequency of operation using v=f*λ
v=speed of light=3*108 m/s
f=frequency(Hz)
Primarily an MPE-based exclusion but also SAR-based where λ/2π is < 20cm.

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			**Minimum Distance**			**Threshold ERP**
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R^2
1.34	–	30	35.6 m	–	1.6 m	3,450 R^2/f^2
30	–	300	1.6 m	–	159 mm	3.83 R^2
300	–	1,500	159 mm	–	31.8 mm	0.0128 $R^2 f$
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R^2
Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

5 ASSESSMENT RESULT

5.1 Output Power

LTE&NR								
Mode	LTE Band 2/ NR Band n2	LTE Band 4	LTE Band 5/ NR Band n5	LTE Band 12/ NR Band n12	LTE Band 13	NR Band n14	NR Band n25	LTE Band 30/ NR Band n30
Tune-up Power (dBm)	25	25	25	25	25	25	25	23
Antenna Gain (dBi)	1.57	1.57	1.86	1.88	1.88	1.88	1.57	0.68
EIRP (dBm)	26.57	26.57	24.71	24.73	24.73	24.73	26.57	23.68
Note: This report listed the worst case conducted power value, please refer to test report No.SUZR/2022/1002201 and SUZR/2022/1002202 for more details.								

LTE&NR							
Mode	LTE Band 41/ NR Band n41	LTE Band 48/ NR Band n48	LTE Band 66/ NR Band n66	NR Band n70	LTE Band 71/ NR Band n71	NR Band77 （3450-3550MHz）	NR Band77 （3700-3980 MHz）
Tune-up Power (dBm)	28	22	24	25	25	28	28
Antenna Gain (dBi)	0.68	-0.07	1.57	1.57	1.26	-0.07	-0.07
EIRP (dBm)	28.68	21.93	25.57	26.57	24.11	27.93	27.93
Note: This report listed the worst case conducted power value, please refer to test report No.SUZR/2022/1002201 and SUZR/2022/1002202 for more details.							

WIFI					
Mode	2.4G WIFI Non Beamforming	2.4G WIFI Beamforming	5G WIFI Non Beamforming	5G WIFI Beamforming	WIFI 6E
Max Power (dBm)	25.55	24.98	27.32	26.44	/
Antenna Gain (dBi)	1.43	4.43	5.38	8.38	/
EIRP (dBm)	26.98	29.41	32.70	34.82	28.67
Note: This report listed the worst case conducted power value, please refer to test report No.BTL-FCCP-1-2311H013, BTL-FCCP-2-2311H013 and BTL-FCCP-4-2311H013 for more details.					

5.2 Tune-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
LTE/NR	LTE Band 2/ NR Band n2	【23.00,25.00】	【24.57,26.57】	【22.42,24.42】
	LTE Band 4	【23.00,25.00】	【24.57,26.57】	【22.42,24.42】
	LTE Band 5/ NR Band n5	【23.00,25.00】	/	【22.71,24.71】
	LTE Band 12/ NR Band n12	【23.00,25.00】	/	【22.73,24.73】
	LTE Band 13	【23.00,25.00】	/	【22.73,24.73】
	LTE Band 14	【23.00,25.00】	/	【22.73,24.73】
	NR Band n25	【23.00,25.00】	【24.57,26.57】	【22.42,24.42】
	LTE Band 30/ NR Band n30	【21.00,23.00】	【21.68,23.68】	【19.53,21.53】
	LTE Band 41/ NR Band n41	【26.00,28.00】	【26.68,28.68】	【24.53,26.53】
	LTE Band 48/ NR Band n48	【20.00,22.00】	【19.30,21.30】	【17.15,19.15】
	LTE Band 66/ NR Band n66	【22.00,24.00】	【23.57,25.57】	【21.42,23.42】
	NR Band n70	【23.00,25.00】	【24.57,26.57】	【22.42,24.42】
	LTE Band 71/ NR Band n71	【23.00,25.00】	/	【22.11,24.11】
	NR Band77 （3450-3550）	【26.00,28.00】	【25.93,27.93】	【23.78,25.78】
	NR Band77 （3700-3980）	【26.00,28.00】	【25.93,27.93】	【23.78,25.78】
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**

For 300MHz to 6000MHz

Evolution mode		Frequency (MHz)	Distance (cm)	Maximum power Tune up(dBm)	Maximum power (mw)	Threshold Power (mW)	P/Plimit	Verdict
LTE/NR	LTE Band 2/ NR Band n2	1850	40	25.00	316.23	3060.00	0.1033	Pass
	LTE Band 4	1710	40	25.00	316.23	3060.00	0.1033	Pass
	LTE Band 5/ NR Band n5	824	40	25.00	316.23	1680.96	0.1881	Pass
	LTE Band 12/ NR Band n12	699	40	25.00	316.23	1425.96	0.2218	Pass
	LTE Band 13	788	40	25.00	316.23	1585.08	0.1995	Pass
	NR Band n14	1850	40	25.00	316.23	1607.52	0.1967	Pass
	NR Band n25	1850	40	25.00	316.23	3060.00	0.1033	Pass
	LTE Band 30/ NR Band n30	2305	40	23.00	199.53	3060.00	0.0652	Pass
	LTE Band 41/ NR Band n41	2496	40	28.00	630.96	3060.00	0.2062	Pass
	LTE Band 48/ NR Band n48	3550	40	22.00	158.49	3060.00	0.0518	Pass
	LTE Band 66/ NR Band n66	1710	40	24.00	251.19	3060.00	0.0821	Pass
	NR Band n70	1695	40	25.00	316.23	3060.00	0.1033	Pass
	LTE Band 71/ NR Band n71	663	40	25.00	316.23	1352.52	**0.2338**	Pass
	NR Band77 (3450-3550)	3450	40	28.00	630.96	3060.00	0.2062	Pass
	NR Band77 (3700-3980)	3700	40	28.00	630.96	3060.00	0.2062	Pass
2.4G WIFI		2402	40	25.55	358.92	3060.00	**0.1173**	Pass
5G WIFI		5150	40	27.32	539.51	3060.00	**0.1763**	Pass

For 6000MHz to 10000MHz

Evolution mode	Distance (cm)	λ / 2 π (m)	λ / 2 π (mm)	R > λ / 2 π
U-NII-5	40	0.007	7.000	Yes
U-NII-6	40	0.007	7.000	Yes
U-NII-7	40	0.007	7.000	Yes
U-NII-8	40	0.007	7.000	Yes

Evolution mode	Frequency(MHz)	Maximum power (W)	ERP(dBm)	ERP(W)	P/Plimit	Verdict
U-NII-5	6425	307.200	28.6700	0.736	0.0024	Pass
U-NII-6	6525	307.200	28.5900	0.723	0.0024	Pass
U-NII-7	6875	307.200	28.6300	0.729	0.0024	Pass
U-NII-8	7125	307.200	28.2400	0.667	0.0022	Pass

5.4 Collocated Power Calculation

Evolution mode	Frequency(MHz)	Power /Limit	Σ(Power / Limit) of WWAN + WLAN	Verdict
LTE Band 71/ NR Band n71	824MHz ~ 849 MHz	0.2338	0.5298	Pass
2.4G WIFI	2412MHz ~ 2462MHz	0.1173		
5G WIFI	5150MHz ~ 5850MHz	0.1763		
WIFI 6E	5925MHz ~ 7125MHz	0.0024		

Note:

1. Σ(Power / Limit): This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for WWAN+ WLAN.
2. Both of the WWAN+ WLAN can transmit simultaneously, the formula of calculated the Power is
   CP1 / LP1 + CP2 / LP2 + ……etc. < 1
   CP = Calculation power
   LP = Limit of power
3. The worst-case situation is 0.5298, which is less than “1”. This confirmed that the device comply with FCC KDB 447498 D04 Power limit.

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.

2. For the report with Accreditation Symbol, the items marked with "☆" are not within the accredited scope.

3. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the test report stamp.

4. The test data and results are only valid for the tested samples provided by the customer.

5. This report shall not be partially reproduced without the written permission of the Testing Center.

6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--