



RF TEST REPORT

Product Name: ACHERON 87-Key Themed Mechanical Keyboard

Model Name: V87-

FCC ID: 2BE9P-V87A

Issued For : Shenzhen Yizhita Technology Co., Ltd

Room 1901, Qianhai HOP Int'l, No. 19 Xinghua 1st Rd (Extension),
Bao'an District, Shenzhen, Guangdong, China.

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177,
Renmin West Road, Jinsha, Kengzi Street, Pingshan District,
Shenzhen, Guangdong, China

Report Number: LGT24K109RF02

Sample Received Date: Nov. 19, 2024

Date of Test: Nov. 19, 2024 ~ Dec. 05, 2024

Date of Issue: Dec. 05, 2024

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TEST REPORT CERTIFICATION

Applicant: Shenzhen Yizhita Technology Co., Ltd
Address: Room 1901, Qianhai HOP Int'l, No. 19 Xinghua 1st Rd (Extension),
Bao'an District, Shenzhen, Guangdong, China.

Manufacture: Shenzhen Yizhita Technology Co., Ltd
Address: Room 1901, Qianhai HOP Int'l, No. 19 Xinghua 1st Rd (Extension),
Bao'an District, Shenzhen, Guangdong, China.

Product Name: ACHERON 87-Key Themed Mechanical Keyboard

Trademark: 

Model Name: V87-

Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 15.249, Subpart C ANSI C63.10-2013	PASS

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Approved by:

Vita Li

Vita Li
Technical Director





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Revision History

Rev.	Issue Date	Contents
00	Dec. 05, 2024	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.249, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	--
15.249	Radiated Spurious Emission	PASS	--
15.205	Restricted Band Edge Emission	PASS	--
15.215	20dB Bandwidth	Pass	--
15.203	Antenna Requirement	PASS	--

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2013.



1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 4.39\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
6	All emissions, radiated >6G	$\pm 5.48\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.79\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.80\text{dB}$

Note: The measurement uncertainty is not included in the test result.



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	ACHERON 87-Key Themed Mechanical Keyboard	
Trademark:		
Model Name:	V87-	
Series Model:	N/A	
Model Difference:	N/A	
Product Description:	Operation Frequency:	2402~2480 MHz
	Modulation Type:	GFSK
	Number Of Channel:	79CH
	Antenna Type:	PCB
	Antenna Gain (dBi):	0.338
Channel List:	Please refer to the Note 3.	
Rating:	Input: DC 5V 0.5A	
Battery:	Capacity: 8000mAh Rated Voltage:3.7V	
Hardware Version:	N/A	
Software Version:	N/A	
Connecting I/O Port(s):	Please refer to the Note 1.	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refers to the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.



3.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		



2.2 DESCRIPTION OF THE TEST MODES

For conducted test items and radiated spurious emissions
Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively.

Worst Mode	Description	Data/Modulation
Mode 1	TX CH00(2402MHz)	GFSK
Mode 2	TX CH39(2441MHz)	GFSK
Mode 3	TX CH78(2480MHz)	GFSK

Note:

- (1) All above mode has been measurement, only worst data was reported.
- (2) We have be tested for all avaiable U.S. voltage and frequency (For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/60Hz is shown in the report.
- (3) The battery is fully-charged during the radited and RF conducted test.

2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

Test software Version	Test program: 2.4G	
Engineering Mode	Mode Or Modulation type	Power setting
	GFSK	Default

2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
USB-A to USB-C Cable	N/A	N/A	N/A	1.9m

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	Tenpao	S005CAU0500100	N/A	Input: 100-240V 50/60Hz 0.2A Output: 5V, 1A
Laptop	Lenovo	HKF-16	N/A	N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (2) “YES” is means “with core”; “NO” is means “without core”.



2.5 EQUIPMENTS LIST

Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
LISN	COM-POWER	LI-115	02032	2024.03.09	2025.03.08
LISN	SCHWARZBECK	NNLK 8122	00160	2024.03.09	2025.03.08
Transient Limiter	CYBERTEK	EM5010A	E2250100049	2024.03.09	2025.03.08
Temperature & Humidity	KTJ	TA218B	N.A	2024.03.09	2025.03.08
Testing Software	EMC-I_V1.4.0.3_SKET				

Radiated Test equipment					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU8	100372	2024.03.09	2025.03.08
Active loop Antenna	ETS	6502	00049544	2023.10.13	2025.10.12
Spectrum Analyzer	Keysight	N9010B	MY60242508	2024.08.05	2025.08.04
Bilog Antenna(30M-1G)	SCHWARZBECK	VULB 9168	2705	2022.12.12	2025.12.11
Horn Antenna(1-18G)	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Horn Antenna(18-40G)	A-INFO	LB-180400-KF	J211060273	2022.06.08	2025.06.07
Pre-amplifier(30M-1G)	EMtrace	RP01A	02019	2024.03.09	2025.03.08
Pre-amplifier(1-26.5G)	Agilent	8449B	3008A4722	2024.03.09	2025.03.08
Pre-amplifier(18-40G)	com-mw	LNPA_18-40-01	18050003	2024.03.09	2025.03.08
Wireless Communications Test Set	R&S	CMW 500	137737	2024.03.09	2025.03.08
Antenna Tower	SAEMC	BK-4AT-BS-D	SK2021093008	N.A	N.A
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2024.03.11	2025.03.10
Testing Software	EMC-I_V1.4.0.3_SKET				

RF Conducted Test equipment					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
Signal Analyzer	Keysight	N9010B	MY60242508	2024.08.05	2025.08.04
Signal Analyzer	Keysight	N9020A	MY50530994	2024.03.09	2025.03.08
RF Automatic Test system	MW	MW100-RFCB	MW220322LG-033	2024.03.09	2025.03.08
MXG Vector Signal Generator	Keysight	N5182B	MY59100717	2024.03.09	2025.03.08
Temperature & Humidity test chamber	AISRY	LX-1000L	171200018	2024.03.09	2025.03.08
Attenuator	eastsheep	90db	N.A	2024.03.09	2025.03.08
Temperature & Humidity	JINGCHUANG	BT-3	N.A	2024.03.11	2025.03.10
Digital multimeter	MASTECH	MS8261	MBGBC83053	2024.03.09	2025.03.08
Testing Software	MTS8310_V2.0.0.0_MW				



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

FREQUENCY (MHz)	Conducted Emission limit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

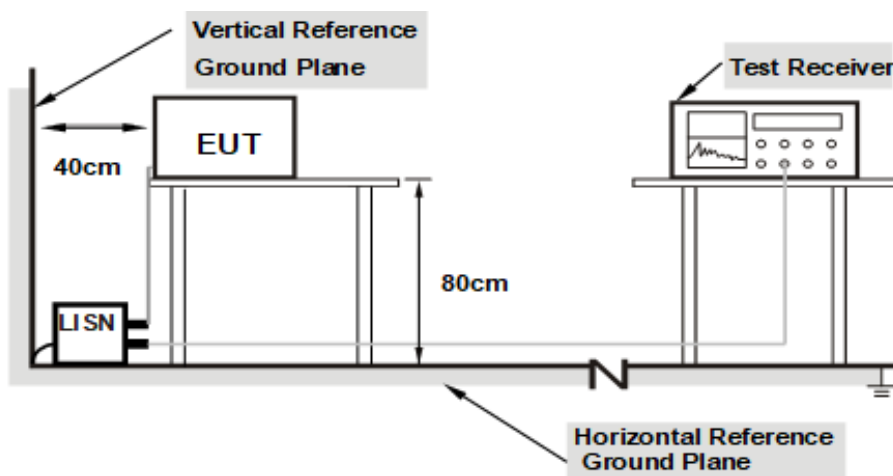
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

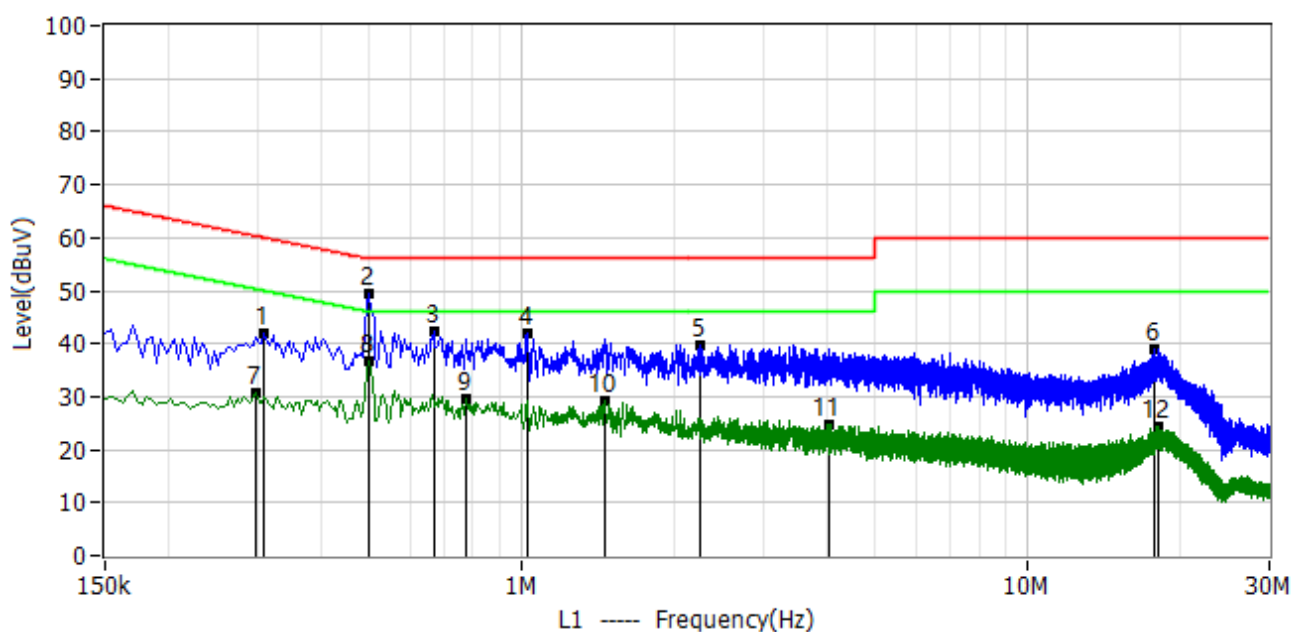
3.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



3.5 TEST RESULTS

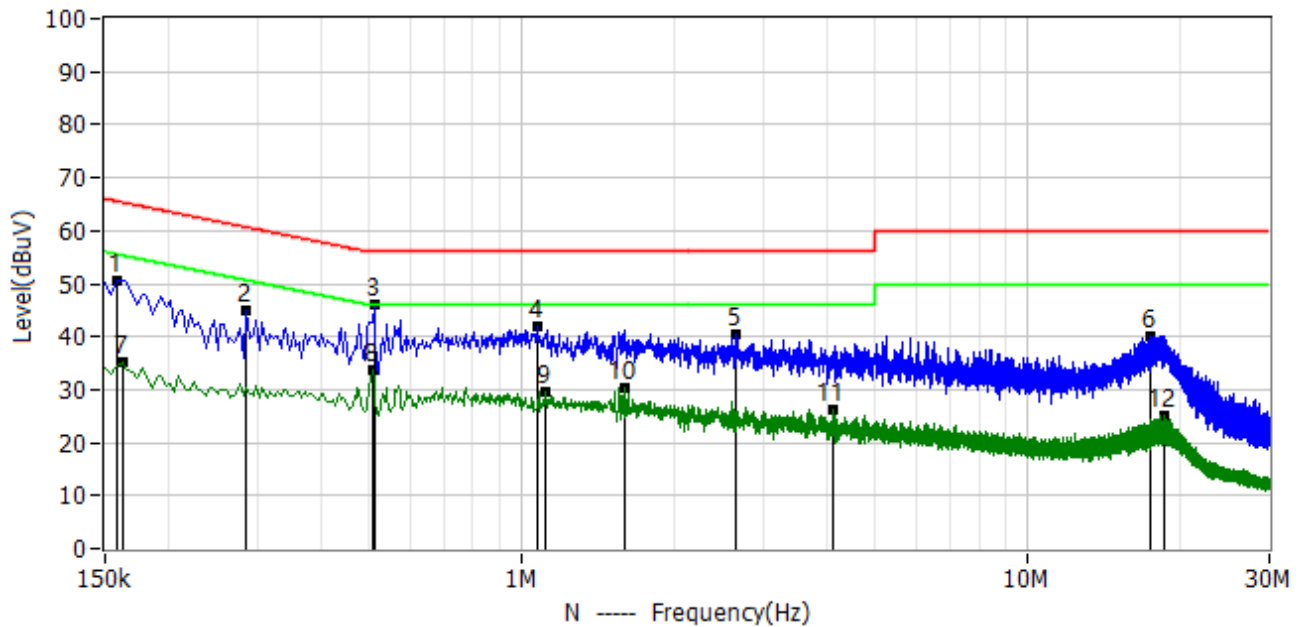
Project: LGT24K109	Test Engineer: LiuH
EUT: ACHERON 87-Key Themed Mechanical Keyboard	Temperature: 21.4°C
M/N: V87-	Humidity: 70%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-20
Test Mode: 2.4G TX	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.310	31.39	10.58	41.97	59.97	-18.00	QP	L1
2*	0.498	38.74	10.57	49.31	56.03	-6.73	QP	L1
3*	0.670	31.66	10.57	42.23	56.00	-13.77	QP	L1
4*	1.022	31.26	10.70	41.96	56.00	-14.04	QP	L1
5*	2.242	28.58	11.04	39.62	56.00	-16.38	QP	L1
6*	17.710	27.58	11.52	39.10	60.00	-20.90	QP	L1
7*	0.298	20.01	10.58	30.59	50.30	-19.71	AV	L1
8*	0.498	26.15	10.57	36.72	46.03	-9.31	AV	L1
9*	0.774	19.10	10.60	29.70	46.00	-16.30	AV	L1
10*	1.454	18.22	10.83	29.05	46.00	-16.95	AV	L1
11*	4.058	13.60	11.13	24.73	46.00	-21.27	AV	L1
12*	18.130	12.73	11.54	24.27	50.00	-25.73	AV	L1



Project: LGT24K109	Test Engineer: LiuH
EUT: ACHERON 87-Key Themed Mechanical Keyboard	Temperature: 21.4°C
M/N: V87-	Humidity: 70%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-11-20
Test Mode: 2.4G TX	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.158	40.14	10.57	50.71	65.57	-14.86	QP	N
2*	0.286	34.36	10.58	44.94	60.64	-15.70	QP	N
3*	0.510	35.61	10.54	46.15	56.00	-9.85	QP	N
4*	1.070	31.41	10.56	41.97	56.00	-14.03	QP	N
5*	2.642	29.58	10.77	40.35	56.00	-15.65	QP	N
6*	17.454	28.58	11.50	40.08	60.00	-19.92	QP	N
7*	0.162	24.74	10.57	35.31	55.36	-20.05	AV	N
8*	0.506	23.26	10.54	33.80	46.00	-12.20	AV	N
9*	1.110	19.14	10.56	29.70	46.00	-16.30	AV	N
10*	1.590	19.72	10.67	30.39	46.00	-15.61	AV	N
11*	4.130	15.52	10.82	26.34	46.00	-19.66	AV	N
12*	18.550	13.54	11.56	25.10	50.00	-24.90	AV	N



4. RADIATED EMISSION MEASUREMENT

4.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15.249, Part 15.209(a) limit in the table below has to be followed.

Standard FCC 15.209

Frequencies (MHz)	Field Strength (micovolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3
Above 1000	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	3

Standard FCC 15.249

Frequency of Emission (MHz)	Field Strength of fundamental (millivolts /meter)	Field Strength of Harmonics (microvolts/meter)
900~928	50	500
2400~2483.5	50	500
5725~5875	50	500
24000~242500	250	2500

Notes:

- (1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Spectrum Parameter	Setting
Detector	Peak/AV
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB (emission in restricted band)	>20BW
VB (emission in restricted band)	=3xRB



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
	90kHz~110kHz / RB 200Hz for QP
	110kHz~490kHz / RB 200Hz for PK & AV
	490kHz~30MHz / RB 9kHz for QP
	30MHz~1000MHz / RB 120kHz for QP

4.2 TEST PROCEDURE

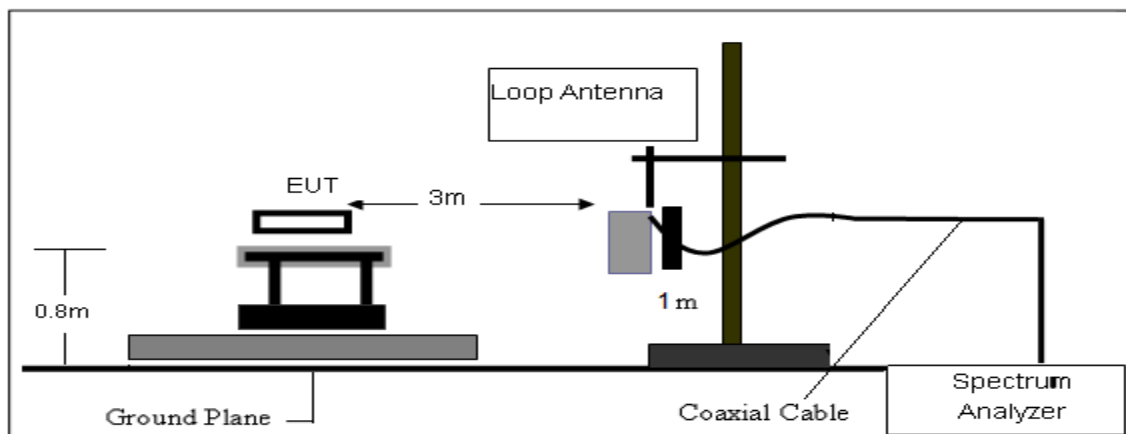
- The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and QuasiPeak detector mode will be re-measured.
- If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

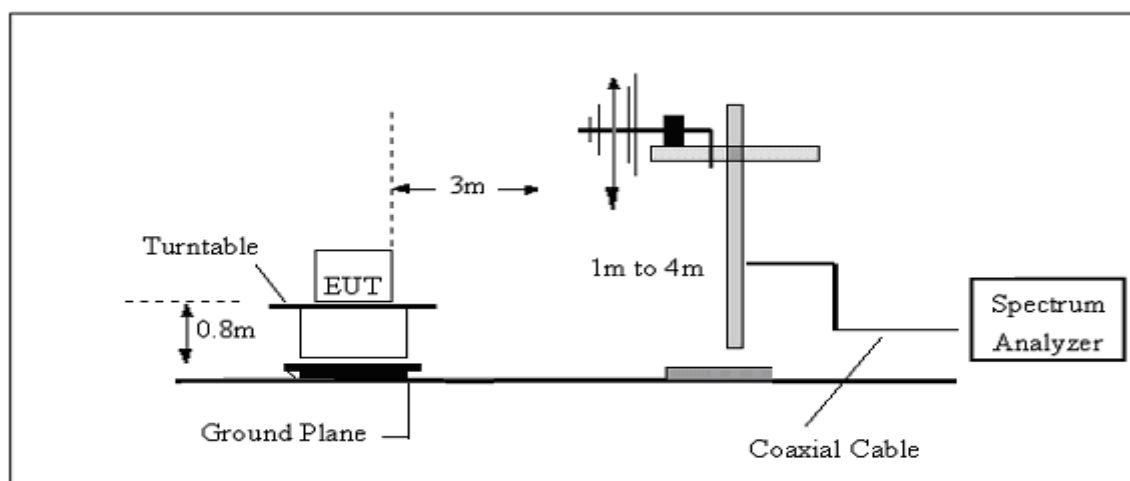
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

4.3 TEST SETUP

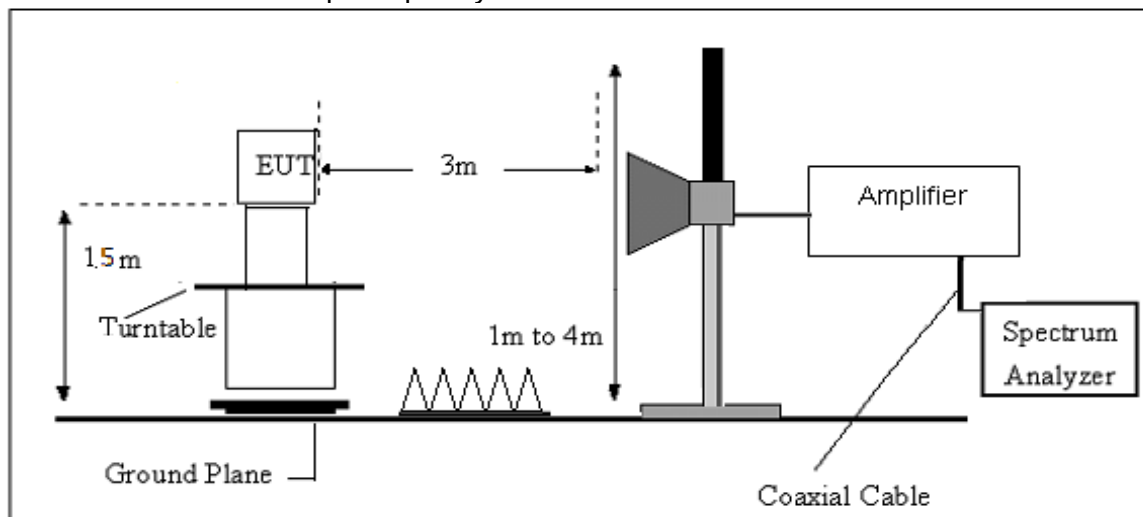
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



4.4 EUT OPERATING CONDITIONS

Please refer to section 3.4 of this report.



4.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

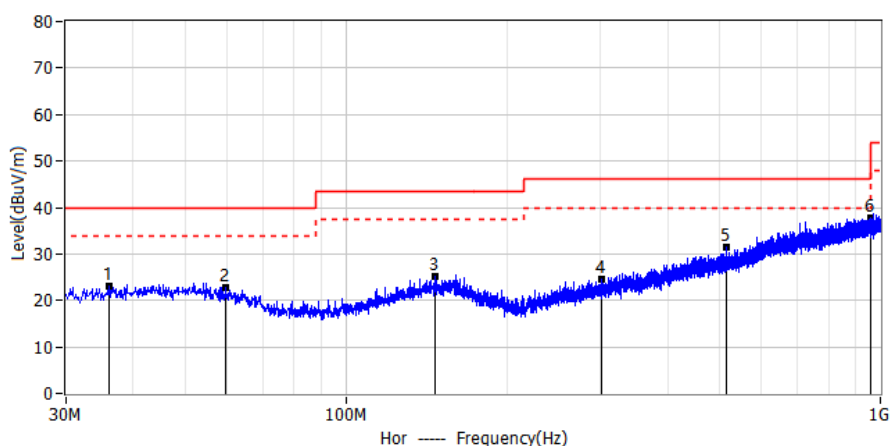
Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$

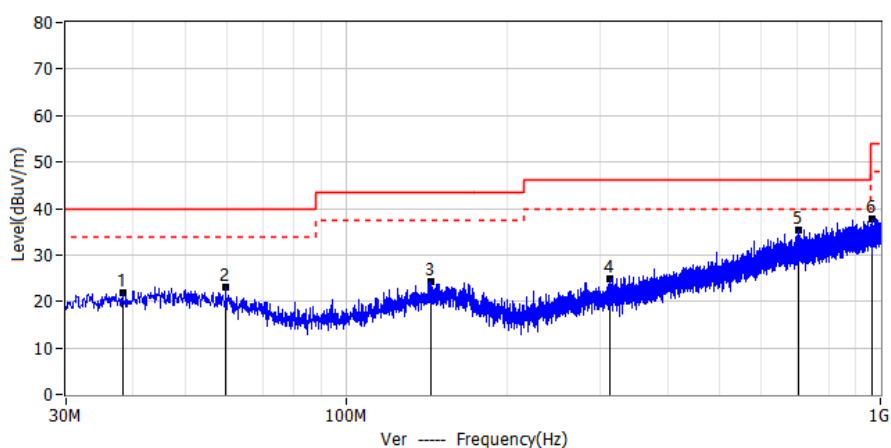


4.6 TEST RESULTS

Project: LGT24K109	Test Engineer: LiuH
EUT: ACHERON 87-Key Themed Mechanical Keyboard	Temperature: 25°C
M/N: V87	Humidity: 55%RH
Test Voltage: Battery	Test Data: 2024-11-21
Test Mode: 2.4G TX	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	36.063	3.27	19.94	23.21	40.00	-16.79	QP	Hor
2*	59.585	3.35	19.42	22.77	40.00	-17.23	QP	Hor
3*	147.370	3.54	21.57	25.11	43.50	-18.39	QP	Hor
4*	301.115	3.11	21.44	24.55	46.00	-21.45	QP	Hor
5*	515.606	4.25	27.17	31.42	46.00	-14.58	QP	Hor
6*	957.926	4.12	33.59	37.71	46.00	-8.29	QP	Hor



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	38.245	2.18	19.79	21.97	40.00	-18.03	QP	Ver
2*	59.706	3.74	19.40	23.14	40.00	-16.86	QP	Ver
3*	144.096	3.01	21.26	24.27	43.50	-19.23	QP	Ver
4*	311.421	3.14	21.72	24.86	46.00	-21.14	QP	Ver
5*	700.876	4.60	30.62	35.22	46.00	-10.78	QP	Ver
6*	966.414	4.28	33.59	37.87	54.00	-16.13	QP	Ver



Above 1G Radiation Spurious

Frequency (MHz)	Reading (dBμV)	Corrected Factor (dB)	Result (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector	Polarity
Low Channel (2402 MHz)							
3264.66	55.53	-8.45	47.08	74.00	-26.92	PK	Vertical
3264.66	46.83	-8.45	38.38	54.00	-15.62	AV	Vertical
3264.62	55.34	-8.45	46.89	74.00	-27.11	PK	Horizontal
3264.62	45.52	-8.45	37.07	54.00	-16.93	AV	Horizontal
4804.39	55.05	-6.09	48.96	74.00	-25.04	PK	Vertical
4804.39	45.41	-6.09	39.32	54.00	-14.68	AV	Vertical
4804.59	54.39	-6.09	48.30	74.00	-25.70	PK	Horizontal
4804.59	44.20	-6.09	38.11	54.00	-15.89	AV	Horizontal
5359.75	57.23	-6.68	50.55	74.00	-23.45	PK	Vertical
5359.75	47.95	-6.68	41.27	54.00	-12.73	AV	Vertical
5359.57	56.68	-6.68	50.00	74.00	-24.00	PK	Horizontal
5359.57	47.01	-6.68	40.33	54.00	-13.67	AV	Horizontal
7205.80	60.62	-8.13	52.49	74.00	-21.51	PK	Vertical
7205.80	50.38	-8.13	42.25	54.00	-11.75	AV	Vertical
7205.81	60.14	-8.13	52.01	74.00	-21.99	PK	Horizontal
7205.81	49.55	-8.13	41.42	54.00	-12.58	AV	Horizontal
Middle Channel (2440 MHz)							
3264.85	55.83	-8.45	47.38	74.00	-26.62	PK	Vertical
3264.85	46.56	-8.45	38.11	54.00	-15.89	AV	Vertical
3264.70	55.38	-8.45	46.93	74.00	-27.07	PK	Horizontal
3264.70	46.12	-8.45	37.67	54.00	-16.33	AV	Horizontal
4880.44	54.02	-6.09	47.93	74.00	-26.07	PK	Vertical
4880.44	44.82	-6.09	38.73	54.00	-15.27	AV	Vertical
4880.41	55.17	-6.09	49.08	74.00	-24.92	PK	Horizontal
4880.41	45.43	-6.09	39.34	54.00	-14.66	AV	Horizontal
5359.83	57.85	-6.68	51.17	74.00	-22.83	PK	Vertical
5359.83	47.69	-6.68	41.01	54.00	-12.99	AV	Vertical
5359.81	57.78	-6.68	51.10	74.00	-22.90	PK	Horizontal
5359.81	47.23	-6.68	40.55	54.00	-13.45	AV	Horizontal
7310.93	59.64	-8.13	51.51	74.00	-22.49	PK	Vertical
7310.93	50.11	-8.13	41.98	54.00	-12.02	AV	Vertical
7310.85	59.98	-8.13	51.85	74.00	-22.15	PK	Horizontal
7310.85	49.79	-8.13	41.66	54.00	-12.34	AV	Horizontal
High Channel (2480 MHz)							
3264.85	55.28	-8.45	46.83	74.00	-27.17	PK	Vertical



3264.85	46.43	-8.45	37.98	54.00	-16.02	AV	Vertical
3264.61	56.41	-8.45	47.96	74.00	-26.04	PK	Horizontal
3264.61	46.75	-8.45	38.30	54.00	-15.70	AV	Horizontal
4960.38	55.19	-6.09	49.10	74.00	-24.90	PK	Vertical
4960.38	44.52	-6.09	38.43	54.00	-15.57	AV	Vertical
4960.42	55.18	-6.09	49.09	74.00	-24.91	PK	Horizontal
4960.42	44.11	-6.09	38.02	54.00	-15.98	AV	Horizontal
5359.64	56.57	-6.68	49.89	74.00	-24.11	PK	Vertical
5359.64	48.39	-6.68	41.71	54.00	-12.29	AV	Vertical
5359.86	57.64	-6.68	50.96	74.00	-23.04	PK	Horizontal
5359.86	47.34	-6.68	40.66	54.00	-13.34	AV	Horizontal
7439.87	60.81	-8.13	52.68	74.00	-21.32	PK	Vertical
7439.87	50.19	-8.13	42.06	54.00	-11.94	AV	Vertical
7439.88	60.29	-8.13	52.16	74.00	-21.84	PK	Horizontal
7439.88	50.43	-8.13	42.30	54.00	-11.70	AV	Horizontal

Note:1.In frequency ranges 18~25GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.

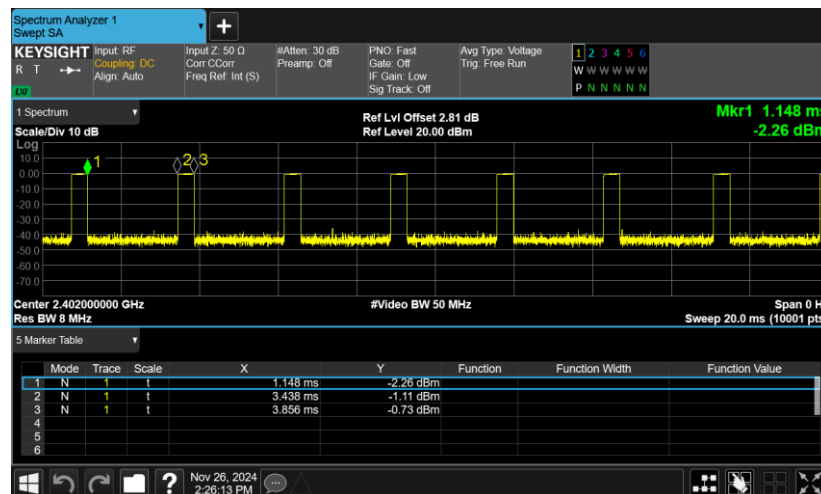
Average measurement was not performed if peak level lower than average limit. No any other emissions level which are attenuated less than 20dB below the limit. The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.



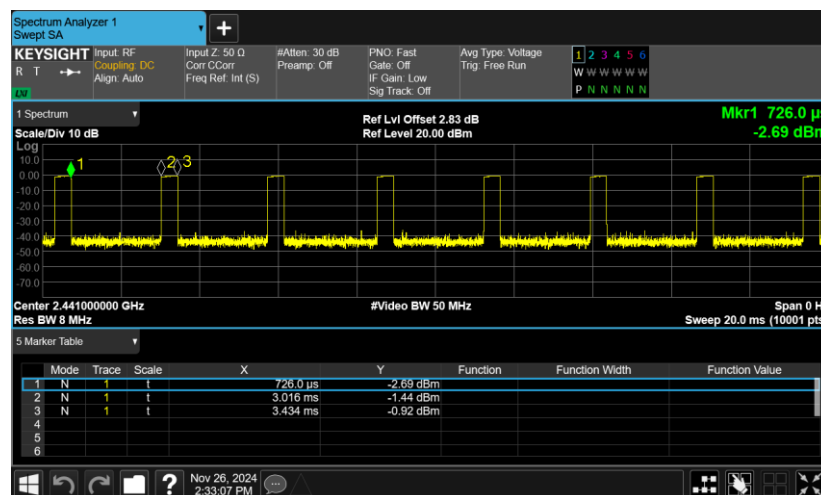
Duty cycle

Test Graphs

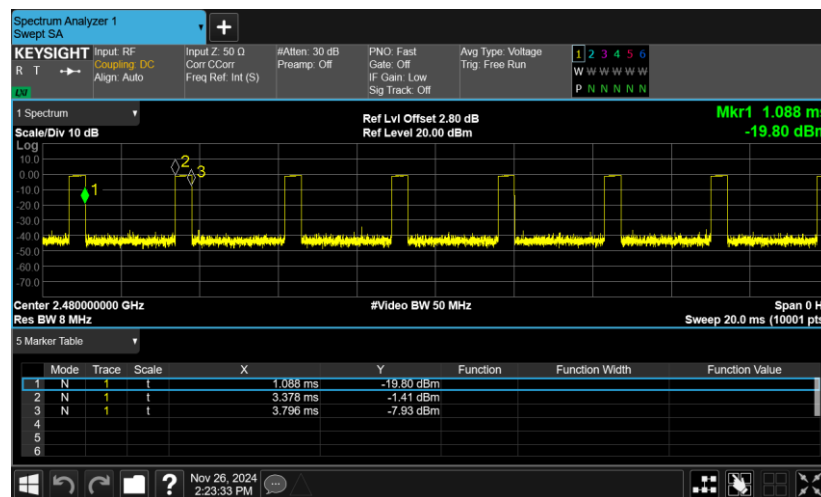
Duty Cycle NVNT 2.4G 2402MHz Ant1



Duty Cycle NVNT 2.4G 2441MHz Ant1



Duty Cycle NVNT 2.4G 2480MHz Ant1





Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	2.4G	2402	Ant1	15.44	8.11	2.39
NVNT	2.4G	2441	Ant1	15.44	8.11	2.39
NVNT	2.4G	2480	Ant1	15.44	8.11	2.39

Note: Duty Factor=20*LOG(Ton/Tp)



4.7 TEST RESULTS (BAND EDGE REQUIREMENTS)

Frequency (MHz)	Reading (dBμV)	Corrected Factor (dB)	Result (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector	Polarity
2400.00	17.76	34.18	51.94	74.00	-22.06	PK	Vertical
2400.00	4.75	34.18	38.93	54.00	-15.07	AV	Vertical
2400.00	17.14	34.18	51.32	74.00	-22.68	PK	Horizontal
2400.00	5.18	34.18	39.36	54.00	-14.64	AV	Horizontal
2483.50	15.30	34.44	49.74	74.00	-24.26	PK	Vertical
2483.50	2.15	34.44	36.59	54.00	-17.41	AV	Vertical
2483.50	14.50	34.44	48.94	74.00	-25.06	PK	Horizontal
2483.50	2.60	34.44	37.04	54.00	-16.96	AV	Horizontal

4.8 TEST RESULTS (EIRP REQUIREMENTS)

Frequency (MHz)	Meter Reading (dBμV/m)	Detector	Orrected Factor (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polar
2402.00	58.67	PK	34.19	92.86	114.00	-21.14	H
2402.00	55.79	PK	34.19	89.98	114.00	-24.02	V
2440.00	58.51	PK	34.31	92.82	114.00	-21.18	H
2440.00	55.76	PK	34.31	90.07	114.00	-23.93	V
2480.00	58.19	PK	34.42	92.61	114.00	-21.39	H
2480.00	56.04	PK	34.42	90.46	114.00	-23.54	V

AV = Peak +20Log10(duty cycle factor) =PK+(-8.11)

Frequency (MHz)	PK Reading (dBμV/m)	Duty cycle factor (dB)	AV Reading (dBμV/m)	Orrected Factor (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polar
2402.00	58.67	-8.11	50.56	34.19	84.75	94.00	-9.25	H
2402.00	55.79	-8.11	47.68	34.19	81.87	94.00	-12.13	V
2440.00	58.51	-8.11	50.40	34.31	84.71	94.00	-9.29	H
2440.00	55.76	-8.11	47.65	34.31	81.96	94.00	-12.04	V
2480.00	58.19	-8.11	50.08	34.42	84.50	94.00	-9.50	H
2480.00	56.04	-8.11	47.93	34.42	82.35	94.00	-11.65	V



5. BANDWIDTH TEST

5.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting : RBW= 20KHz, VBW $\geq$ RBW, Sweep time = Auto.

5.2 TEST SETUP



5.3 EUT OPERATION CONDITIONS

TX mode.

5.4 TEST RESULTS

Mode	Frequency (MHz)	Antenna	20dB BANDWIDTH (MHz)
2.4G	2402	Ant1	1.04
2.4G	2441	Ant1	1.06
2.4G	2480	Ant1	1.059

Lowest Channel





Middle Channel



High Channel





6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 EUT ANTENNA

The EUT antenna is PCB Antenna. It comply with the standard requirement.



APPENDIX I - PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Note: Please see the attached V87_EUT Photos.

※※※※※END OF THE REPORT※※※※※