

TEST REPORT

Application No.: HKEM2402000099AT
Applicant: E. Gluck Corporation
Address of Applicant: 6015 Little Neck Parkway, Little Neck New York 11362 USA
Equipment Under Test (EUT):
EUT Name: QUANTUM
Model No.: 42-1008BKTIWM
FCC ID: 2BFCD421008QTM
Standard(s) : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2024-02-20
Date of Test: 2024-02-20 to 2024-02-27
Date of Issue: 2024-02-27

Test Result:	The submitted sample was found to comply with the test requirement
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Law Man Kit
EMC Manager

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Revision Record			
Revision No.	Date	Report superseded	Remark

Authorized for issue by:			
			
		Chan Chun Lok /Project Engineer	
			
		Law Man Kit /Reviewer	

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01	KDB447498D01	KDB447498D01	PASS

Declaration of EUT Family Grouping:

N/A

Abbreviation:

- Tx: In this whole report Tx (or tx) means Transmitter.
- Rx: In this whole report Rx (or rx) means Receiver.
- RF: In this whole report RF means Radiated Frequency.
- CH: In this whole report CH means channel.
- Volt: In this whole report Volt means Voltage.
- Temp: In this whole report Temp means Temperature.
- Humid: In this whole report Humid means humidity.
- Press: In this whole report Press means Pressure.
- N/A: In this whole report not application.

3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.	5
4.2 DESCRIPTION OF SUPPORT UNITS	7
4.3 MODULATION CONFIGURATION	7
4.4 TEST LOCATION	8
4.5 TEST FACILITY	8
4.6 DEVIATION FROM STANDARDS	8
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	8
5 RADIO SPECTRUM TECHNICAL REQUIREMENT	9
5.1 RF EXPOSURE	9
5.1.1 <i>Test Requirement:</i>	9
5.1.1 <i>EUT RF Exposure Evaluation</i>	10
6 PHOTOGRAPHS	11
6.1 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	11

4 General Information

4.1 Details of E.U.T.

Power supply:	Battery Model: 551330 Output: DC 3.8 V
Test voltage:	DC 3.8 V
Cable:	Power Cable: 56 cm 2-wire unshielded USB cable
Antenna Gain:	0.17 dBi
Antenna Type:	Monopole Antenna
Bluetooth Version:	V5.4 Classic
Channel Separation:	1MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DQPSK
Number of Channels:	79
Operation Frequency:	2402MHz to 2480MHz
Series No.:	N/A
Firmware Version:	V1
Hardware Version:	V1

Frequency List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	26	2428	53	2455
1	2403	27	2429	54	2456
2	2404	28	2430	55	2457
3	2405	29	2431	56	2458
4	2406	30	2432	57	2459
5	2407	31	2433	58	2460
6	2408	32	2434	59	2461
7	2409	33	2435	60	2462
8	2410	34	2436	61	2463
9	2411	35	2437	62	2464
10	2412	36	2438	63	2465
11	2413	37	2439	64	2466
12	2414	38	2440	65	2467
13	2415	39	2441	66	2468
14	2416	40	2442	67	2469
15	2417	41	2443	68	2470
16	2418	42	2444	69	2471
17	2419	43	2445	70	2472
18	2420	44	2446	71	2473
19	2421	45	2447	72	2474
20	2422	46	2448	73	2475
21	2423	47	2449	74	2476
22	2424	48	2450	75	2477
23	2425	49	2451	76	2478
24	2426	50	2452	77	2479
25	2427	51	2453	78	2480
26	2428	52	2454		

The frequencies under test are bolded.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	DELL	P75F	475LXQ2
FCC_assist_1.0.4(1).exe	E. Gluck Corporation	N/A	N/A

Note: The laptop and the software FCC_assist_1.0.4(1).exe were for the control of the engineering mode.

4.3 Modulation Configuration

RF software:		FCC_assist_1.0.4(1).exe		
Modulation	Packet	Packet Type	Packet Size	Power
GFSK	DH1	Default	Default	10
	DH3	Default	Default	10
	DH5	Default	Default	10
$\pi/4$ DQPSK	2DH1	Default	Default	10
	2DH3	Default	Default	10
	2DH5	Default	Default	10
8DQPSK	3DH1	Default	Default	10
	3DH3	Default	Default	10
	3DH5	Default	Default	10

Remark:

1. 10 value was set in test software as maximum output power setting.

4.4 Test Location

All tests were performed at:

SGS Hong Kong Limited
Unit 2 and 3, G/F, Block A, Po Lung Centre,
11 Wang Chiu Road, Kowloon Bay, Kowloon, Hong Kong
Tel: +852 2305 2570 Fax: +852 2756 4480

No tests were sub-contracted.

4.5 Test Facility

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

- **IAS Accreditation (Lab Code: TL-817)**

SGS Hong Kong Limited has met the requirements of AC89, IAS Accreditation Criteria for Testing Laboratories, and has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

The report must not be used by the client to claim product certification, approval, or endorsement by IAS, NIST, or any agency of the Federal Government.

- **FCC Recognized Accredited Test Firm(CAB Registration No.: 514599)**

SGS Hong Kong Limited has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: HK0015, Test Firm Registration Number: 514599.

- **Industry Canada (Site Registration No.: 26103; CAB Identifier No.: HK0015)**

SGS Hong Kong Limited has been recognized by Department of Innovation, Science and Economic Development (ISED) Canada as a wireless testing laboratory. The acceptance letter from the ISED is maintained in our files. CAB Identifier No: HK0015, Site Registration Number: 26103.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Radio Spectrum Technical Requirement

5.1 RF Exposure

5.1.1 Test Requirement:

KDB447498 D01

Limit:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.1 EUT RF Exposure Evaluation

For FCC;

According to the formula. calculate the test exclusion thresholds:

BT Classic:

$$\text{General RF Exposure} = (2.9992\text{mW} / 5 \text{ mm}) \times \sqrt{2.402 \text{ GHz}} = 0.93 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

$$(1) < (2)$$

Thus, they are exempt from SAR testing.

Remark: 2.9992 mW (4.77dBm) was derived from the worst conducted output power of 4.6dBm and the antenna gain of 0.17 dBi from report HKEM240200009902.



6 Photographs

6.1 EUT Constructional Details (EUT Photos)

Refer to the appendices external, internal and setup photos.

- End of the Report -
