

# RF EXPOSURE EVALUATION REPORT

Applicant..... : General Touch Co., Ltd.

Address..... : 3rd Floor, Building 1, No 6, Keyuan S Road, High-Tech Zone, Chengdu, Sichuan, China.

Manufacturer..... : General Touch Co., Ltd.

Address..... : 3rd Floor, Building 1, No 6, Keyuan S Road, High-Tech Zone, Chengdu, Sichuan, China.

Factory..... : General Touch Co., Ltd.

Address..... : 3rd Floor, Building 1, No 6, Keyuan S Road, High-Tech Zone, Chengdu, Sichuan, China.

Product Name..... : 21.5" AIO or 21.5" Touch AIO

Brand Name..... : General Touch

Model No. .... : ABL228, xxx22xxx, xxx22xxx-Lxxxx (x= 0 to 9, A to Z or blank. x for marketing purpose only, and no impact on safety related constructions and critical components.) (For model difference refer to section 2)

FCC ID..... : 2BLWFNTC241015XFV

Measurement Standard..... : 47 CFR FCC Part 2.1091

Receipt Date of Samples.... : October 21, 2024

Date of Tested..... : October 21, 2024 to November 04, 2024

Date of Report..... : November 28, 2024

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.



Prepared by

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Approved by

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## Table of Contents

1. General Description of EUT .....	4
2. Applicable Standards and References .....	8
3. Maximum Permissible RF Exposure .....	9
4. Test Facility .....	10
5. Maximum RF Output Power of EUT .....	11
6. RF Exposure Evaluation Results .....	12

### Revision History

Report Number	Description	Issued Date
NTC2410150F01	Initial Issue	2024-11-28

## 1. General Description of EUT

Product Information	
Product Name:	21.5" AIO or 21.5" Touch AIO
Main Model Name:	ABL228
Additional Model Name:	xxx22xxx, xxx22xxx-Lxxxx (x= 0 to 9, A to Z or blank. X for marketing purpose only, and no impact on safety related constructions and critical components.)
Model Difference:	These models have the same circuitry, electrical mechanical, PCB Layout and physical construction. The difference is model name due to marketing purpose.
S/N:	M0000000000000001
Brand Name:	General Touch
Hardware Version:	V1.0
Software Version:	Android 12
Rating:	AC 100~240V, 50/60Hz, 2.5A
Classification:	Class B
Typical arrangement:	Table-top
I/O Port:	Refer to the user manual
Accessories Information	
Adapter:	N/A
Cable:	Power cord: 1.5m, unshielded, detachable
Other:	N/A
Additional Information	
Note:	According to the model difference, all the test were performed on the model ABL228.
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification (Bluetooth)	
Bluetooth Version:	V5.0
Frequency Range:	2402-2480MHz
Modulation Type:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Number of Channel:	79
Channel Space:	1MHz
Antenna Type:	Dipole antenna
Number of Antenna	1
Antenna Gain:	3dBi (Declared by the manufacturer)
Receiver Category:	Category 3
Technical Specification (BLE)	
Bluetooth Version:	V5.2
Frequency Range:	2402-2480MHz
Modulation Type:	GFSK
Number of Channel:	40
Channel Space:	2MHz
Antenna Type:	Dipole antenna
Number of Antenna	1
Antenna Gain:	3dBi (Declared by the manufacturer)
RF PHY Support:	1Mbps

Technical Specification (2.4G WLAN)	
Frequency Range:	2412-2462MHz for IEEE 802.11b/g/n(HT20) 2422-2452MHz for IEEE 802.11n(HT40)
Modulation Technology:	DSSS, OFDM
Modulation Type:	CCK, DQPSK, DBPSK, QPSK, BPSK, 16-QAM, 64-QAM,
Number of Channel:	11 for IEEE 802.11b/g/n(HT20) 7 for IEEE 802.11n(HT40)
Channel Space:	5MHz
Antenna Type:	Dipole antenna
Number of Antenna:	1
Antenna Gain:	3dBi (Declared by the manufacturer)
Receiver Category:	Category 1
Technical Specification (WCDMA)	
Frequency Range:	WCDMA II: 1850 ~ 1910 MHz for TX WCDMA II: 1930 ~ 1990 MHz for RX WCDMA V: 824 ~ 849 MHz for TX WCDMA V: 869 ~ 894 MHz for RX WCDMA IV: 1710 ~ 1755 MHz for TX WCDMA IV: 2110 ~ 2155 MHz for RX
Modulation Technology:	DSSS, OFDM
Modulation Type:	QPSK, 16-QAM
Antenna Type:	Dipole antenna
Number of Antenna:	1
Antenna Gain:	2.6dBi (Declared by the manufacturer)
Maximum EIRP:	WCDMA II: 25.49 dBm; WCDMA V: 23.22 dBm; WCDMA IV: 25.62 dBm

### Technical Specification (LTE)

Frequency Range:	FDD LTE Band 2: 1850 ~ 1910 MHz for TX FDD LTE Band 2: 1930 ~ 1990 MHz for RX FDD LTE Band 4: 1710 ~ 1755 MHz for TX FDD LTE Band 4: 2110 ~ 2155 MHz for RX FDD LTE Band 5: 824 ~ 849 MHz for TX FDD LTE Band 5: 869 ~ 894 MHz for RX FDD LTE Band 12: 699 ~ 716 MHz for TX FDD LTE Band 12: 729 ~ 746 MHz for RX FDD LTE Band 13: 777 ~ 787 MHz for TX FDD LTE Band 13: 746 ~ 756 MHz for RX FDD LTE Band 14: 788 ~ 798 MHz for TX FDD LTE Band 14: 758 ~ 768 MHz for RX FDD LTE Band 66: 1710 ~ 1780 MHz for TX FDD LTE Band 66: 2110 ~ 2200 MHz for RX FDD LTE Band 71: 663 ~ 698 MHz for TX FDD LTE Band 71: 617 ~ 652 MHz for RX
Modulation Technology:	DSSS, OFDM
Modulation Type:	QPSK, 16-QAM
Antenna Type:	Dipole antenna
Number of Antenna:	1
Antenna Gain:	2.6dBi (Declared by the manufacturer)
LTE Category:	Category 4
Maximum EIRP:	LTE Band 2: 25.75 dBm; LTE Band 4: 26.08 dBm; LTE Band 5: 22.71 dBm LTE Band 12: 20.48 dBm; LTE Band 13: 23.63 dBm; LTE Band 14: 23.48 dBm LTE Band 66: 27.51 dBm; LTE Band 71: 22.72 dBm

According to the manufacturer, the EUT integrated a certified WCDMA/LTE module which named as EC25-AFXD Module. According to the manufacturer, the test data of WCDMA/LTE refer to the module test reports R2203A0238-R1, R2203A0238-R2, R2203A0238-R3, R2203A0238-R4 which issued by TA technology (Shanghai) Co., Ltd on April 11, 2022.

## 2. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

**Test Standards:**

47 CFR Part 1, 1.1307

47 CFR Part 2, 2.1091

KDB 447498 D01 v06

### 3. Maximum Permissible RF Exposure

According to FCC §1.1310: The criteria listed in Table 1 shall be used to evaluate the environmental Impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

#### Limits For Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time (minutes)
<b>(A) Limits for Occupational/Control Exposures</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100000	--	--	5	6
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100000			1.0	30
f = frequency in MHz				
* = Plane-wave equivalent power density				

The MPE was calculated at **20cm** to show compliance with the power density limit.

The following formula was used to calculated the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density in mW/cm<sup>2</sup>

P = Output Power to antenna in mW

G = Gain of antenna in linear scale.

R = Distance to centre of the antenna in cm.

π = 3.14159

## 4. Test Facility

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	<p>The Laboratory has been assessed and proved to be in compliance with CNAS/CL01</p> <p>Listed by CNAS, August 13, 2018</p> <p>The Certificate Registration Number is L5795.</p> <p>The Certificate is valid until August 13, 2024</p> <p>The Laboratory has been assessed and proved to be in compliance with ISO17025</p> <p>Listed by A2LA, November 01, 2017</p> <p>The Certificate Registration Number is 4429.01</p> <p>The Certificate is valid until December 31, 2024</p> <p>Listed by FCC, November 06, 2017</p> <p>Test Firm Registration Number: 907417</p> <p>Listed by Industry Canada, June 08, 2017</p> <p>The Certificate Registration Number. Is 46405-9743A</p>
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

## 5. Maximum RF Output Power of EUT

Mode	Band	RF Output Power (dBm)	Maximum RF Output Power with Tune-up tolerance (dBm)
<b>WCDMA</b>	Band II	23.17	25.0
	Band IV	23.39	25.0
	Band V	23.01	25.0
<b>LTE</b>	Band 2	23.85	25.0
	Band 4	23.71	25.0
	Band 5	23.98	25.0
	Band 12	23.74	25.0
	Band 13	23.79	25.0
	Band 14	23.90	25.0
	Band 15	23.85	25.0
	Band 66	23.59	25.0
	Band 71	23.17	25.0
<b>BT</b>	2440	7.98	---
	2402	8.07	---
<b>2.4G WLAN</b>	2412	19.92	---

## 6. RF Exposure Evaluation Results

Band	Frequency (MHz)	Max. RF Power (dBm)	Ant. Gain (dBi)	Max. EIRP (dBm)	Max. EIRP (mW)	Power Density at 20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density Ratio
LTE Band 2	1880	25.0	2.6	27.60	575.44	0.1145	1.0000	0.1145
LTE Band 4	1750	25.0	2.6	27.60	575.44	0.1145	1.0000	0.1145
LTE Band 5	836.5	25.0	2.6	27.60	575.44	0.1145	0.5577	0.2053
LTE Band 12	715.3	25.0	2.6	27.60	575.44	0.1145	0.4769	0.2401
LTE Band 13	779.5	25.0	2.6	27.60	575.44	0.1145	0.5197	0.2203
LTE Band 14	795.5	25.0	2.6	27.60	575.44	0.1145	0.5303	0.2159
LTE Band 15	782	25.0	2.6	27.60	575.44	0.1145	0.5213	0.2196
LTE Band 66	1772.5	25.0	2.6	27.60	575.44	0.1145	1.0000	0.1145
LTE Band 71	668	25.0	2.6	27.60	575.44	0.1145	0.4453	0.2571
WCDMA Band V	826.4	25.0	2.6	27.60	575.44	0.1145	0.5509	0.2078
WCDMA Band II	1852.4	25.0	2.6	27.60	575.44	0.1145	1.0000	0.1145
WCDMA Band IV	1712.4	25.0	2.6	27.60	575.44	0.1145	1.0000	0.1145
2.4G WLAN	2412	19.92	3	22.92	195.88	0.0390	1.0000	0.0390
BDREDR	2402	8.07	3	11.07	12.79	0.0025	1.0000	0.0025
BLE	2440	7.98	3	10.98	12.53	0.0025	1.0000	0.0025

Remark:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

### RF exposure evaluation for simultaneity transmitting condition:

Maximum WCDMA / LTE Power Density Ratio	Maximum BT / WLAN Density Ratio	Total Power Density Ratio	Power Density Ratio Limit
0.2571	0.0390	0.2961	1

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