FCC RF Test Report

(2.4G Wi-Fi)

Report No.:	ReportId
Applicant:	APLEX TECHNOLOGY INC.
Address of Applicant:	15F-1, No.186, JIAN YI ROAD, ZHONGHE DIST., NEW TAIPEI CITY, 235 TAIWAN.
Equipment Under Test (EUT)	
Product Name:	Tablet
Model No.:	ART-610, APC-38247A
Trade Mark:	N/A
FCC ID:	2BH8A-ART610
Applicable Standards:	FCC CFR Title 47 Part 15C (§15.247)
Date of Sample Receipt:	20 Jul., 2022
Date of Test:	21 Jul., to 24 Aug., 2022
Date of Report Issued:	07 Aug., 2024
Test Result:	PASS

Project by:		***Date:***	*07 Aug., 2024*
Reviewed by:	STAMP MARK	***Date:***	*07 Aug., 2024*
Approved by:	Approve	***Date:***	*07 Aug., 2024*
	Manager		

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*07 Aug., 2024*	*Original*

2 Contents

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3 General Information

3.1 Client Information

Applicant:	APLEX TECHNOLOGY INC.
Address:	15F-1, No.186, JIAN YI ROAD, ZHONGHE DIST., NEW TAIPEI CITY, 235 TAIWAN.
Manufacturer:	APLEX TECHNOLOGY INC.
Address:	15F, No.150, JIAN YI ROAD, ZHONGHE DIST., NEW TAIPEI CITY, 235 TAIWAN.
Factory:	APLEX TECHNOLOGY INC.
Address:	15F, No.150, JIAN YI ROAD, ZHONGHE DIST., NEW TAIPEI CITY, 235 TAIWAN.

3.2 General Description of E.U.T.

Product Name:	Tablet
Model No.:	ART-610, APC-38247A
Operation Frequency:	2412 MHz - 2462 MHz (802.11b, g, n-HT20)
	2422 MHz - 2452 MHz (802.11n-HT40)
Channel Numbers:	11 (802.11b, g, n-HT20)
	7 (802.11n-HT40)
Channel Separation:	5MHz
Modulation Technology: (IEEE 802.11b)	DSSS-DBPSK, DQPSK, CCK
Modulation Technology: (IEEE 802.11g/802.11n)	OFDM-BPSK, QPSK, 16QAM, 64QAM
Antenna Type:	Internal Antenna
Antenna Gain:	0.15 dBi (declare by applicant)
Antenna Transmit Mode:	SISO (1TX, 1RX)
Power Supply:	Rechargeable Li-Polymer Battery DC3.85V, 20000mAh
AC Adapter:	Model: HJ-PD33W-US Input: AC100-240V, 50/60Hz, 0.8A Output: DC 5.0V⎓ 3.0A, 9.0V ⎓ 3.0V, 12.0V⎓ 2.75A
Remark:	Model No.: ART-610, APC-38247A were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Test Mode and Environment

Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.

3.4 Description of Test Auxiliary Equipment

The EUT has been tested as an independent unit.

3.5 Measurement Uncertainty

Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

3.9 Test Instruments List

Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.

4 Measurement Setup and Procedure

4.1 Test Channel

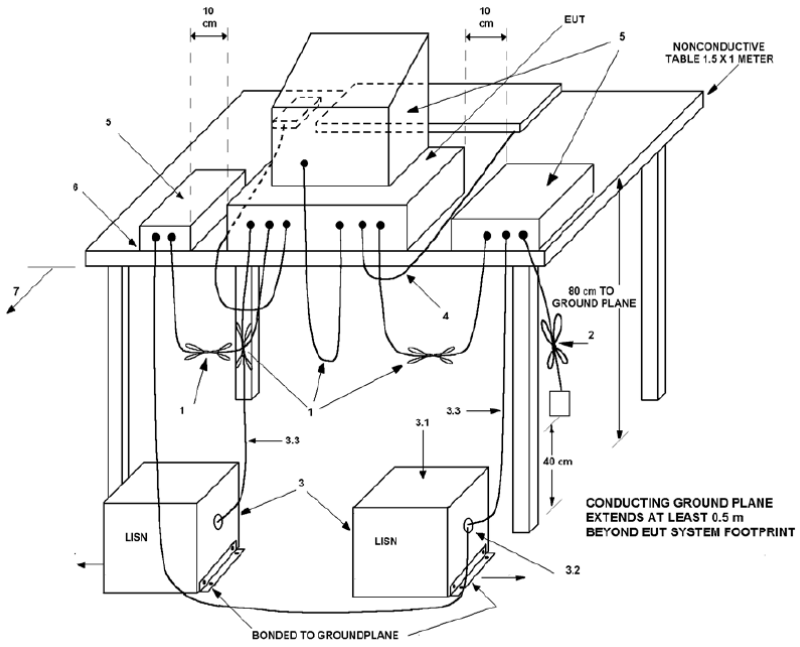
According to ANSI C63.10-2013 chapter 5.6.1 Table 4 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

802.11b, 802.11g, 802.11n-HT20					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	6	2437	11	2462

802.11n-HT40					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
3	2422	6	2437	9	2452

4.2 Test Setup

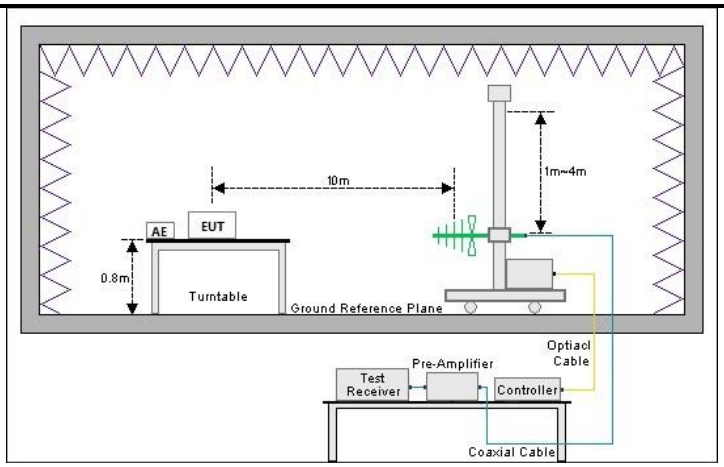
1) Conducted emission measurement:



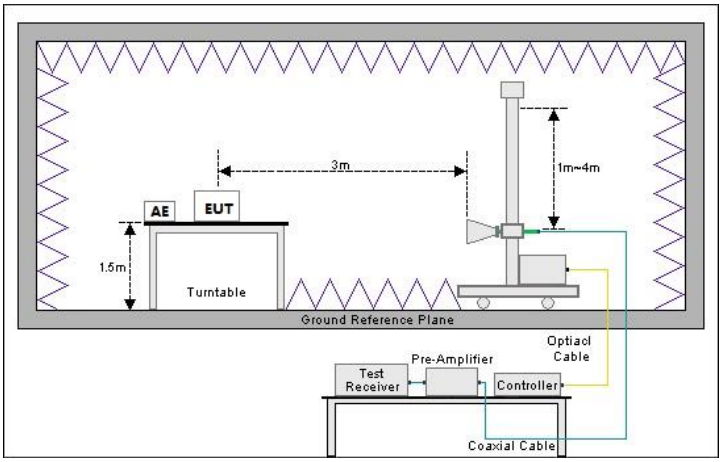
Note: The detailed descriptions please refer to Figure 8 of ANSI C63.4:2014.

2) Radiated emission measurement:

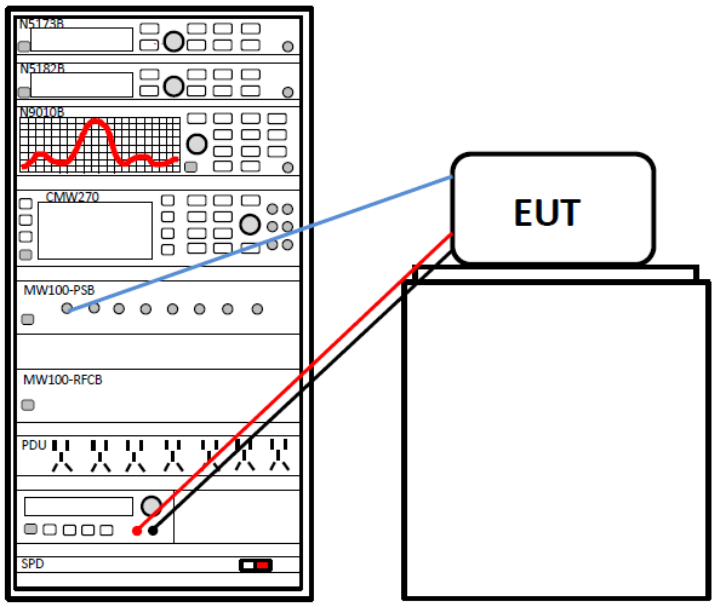
Below 1GHz (10m SAC)



Above 1GHz (3m SAC)



3) Conducted test method



4.3 Test Procedure

Test method	Test step
Conducted emission	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Radiated emission	**For below 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 10 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 10 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. **For above 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
Conducted test method	1. The Wi-Fi antenna port of EUT was connected to the test port of the test system through an RF cable. 2. The EUT is keeping in continuous transmission mode and tested in all modulation modes. 3. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

This report is revised according to FCC ID: 2ANMU-RT6SPU, report No.: JYTSZ-R12-2300237 issued by JianYan Testing Group Shenzhen Co., Ltd, follow the Change ID allow change principle. Differences: Update addresses of applicant and applicant, and update addresses of manufacturer and manufacturer. Update model, FCC ID. Remove the logo and add the factory and factory address. Update product back photos, so no need to retest.

Test items	Standard clause	Test data	Result
Antenna Requirement	15.203 15.247 (b)(4)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
AC Power Line Conducted Emission	15.207	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Duty Cycle	ANSI C63.10-2013	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Conducted Output Power	15.247 (b)(3)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Power Spectral Density	15.247 (e)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Band-edge Emission Conduction Spurious Emission	15.247 (d)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Emissions in Restricted Frequency Bands	15.205 15.247 (d)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Emissions in Non-restricted Frequency Bands	15.209 15.247(d)	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.	Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.
Remark: *1. Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU issue by JianYan Testing Group Shenzhen Co., Ltd.*			
Test Method:	*ANSI C63.10-2013* *KDB 558074 D01 15.247 Meas Guidance v05r02*		

5.1.2 Test Limit

<table>
<tr><th>Test items</th><th>Limit</th></tr>
<tr><td>AC Power Line Conducted Emission</td><td>
<table>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV)</th></tr>
<tr><th>Quasi-Peak</th><th>Average</th></tr>
<tr><td>0.15 – 0.5</td><td>66 to 56 Note 1</td><td>56 to 46 Note 1</td></tr>
<tr><td>0.5 – 5</td><td>56</td><td>46</td></tr>
<tr><td>5 – 30</td><td>60</td><td>50</td></tr>
<tr><td colspan="3">Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.
Note 2: The more stringent limit applies at transition frequencies.</td></tr>
</table>
</td></tr>
<tr><td>Conducted Output Power</td><td>For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.</td></tr>
<tr><td>6dB Emission Bandwidth</td><td>The minimum 6 dB bandwidth shall be at least 500 kHz.</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>N/A</td></tr>
<tr><td>Power Spectral Density</td><td>For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.</td></tr>
<tr><td>Band-edge Emission

Conduction Spurious Emission</td><td>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).</td></tr>
<tr><td>Emissions in Restricted Frequency Bands

Emissions in Non-restricted Frequency Bands</td><td>
<table>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV/m)</th><th rowspan="2">Detector</th></tr>
<tr><th>@ 3m</th><th>@ 10m</th></tr>
<tr><td>30 – 88</td><td>40.0</td><td>30.0</td><td>Quasi-peak</td></tr>
<tr><td>88 – 216</td><td>43.5</td><td>33.5</td><td>Quasi-peak</td></tr>
<tr><td>216 – 960</td><td>46.0</td><td>36.0</td><td>Quasi-peak</td></tr>
<tr><td>960 – 1000</td><td>54.0</td><td>44.0</td><td>Quasi-peak</td></tr>
<tr><td colspan="4">Note: The more stringent limit applies at transition frequencies.</td></tr>
<tr><th rowspan="2">Frequency</th><th colspan="3">Limit (dBµV/m) @ 3m</th></tr>
<tr><th colspan="2">Average</th><th>Peake</th></tr>
<tr><td>Above 1 GHz</td><td colspan="2">54.0</td><td>74.0</td></tr>
<tr><td colspan="4">Note: The measurement bandwidth shall be 1 MHz or greater.</td></tr>
</table>
</td></tr>
</table>

6 Test Setup Photo

Please refer to report JYTSZ-R12-2300237, FCC ID: 2ANMU-RT6SPU.

------End of report------