



Report No: FCC 1702053-02 File reference No: 2017-02-22

Applicant: AOC

Product: Tablet PC

Model No: A724G

Trademark: AOC

Test Standards: FCC Part 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10, FCC Part 15.247 for the

evaluation of electromagnetic compatibility

Approved By

# Jack Chung

Jack Chung

Manager

Dated: February 22, 2017

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TESTING LABORATORIES

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Date: 2017-02-22



# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

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The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

### **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.:899988.

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# **Test Report Conclusion**

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#### 1.0 General Details

### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Room 512-519,5/F., East Tower, Building 4, Anhua Industrial Zone, Futian

District, Shenzhen, Guangdong China

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

### 1.2 Applicant Details

Applicant: AOC

Address: 14F-5, No. 258, Liancheng Rd., Zhonghe Dist., New Taipei City, Taiwan

Telephone: -Fax: --

### 1.3 Description of EUT

Product: Tablet PC
Manufacturer: AOC

Address: 14F-5, No. 258, Liancheng Rd., Zhonghe Dist., New Taipei City, Taiwan

Brand Name: AOC
Model Number: A724G

Additional Model Number: N/A

Power Adapter Model No.: JHD-AP013U-050150BB-A

Input: 100-240V, 50/60Hz, 0.35A; Output: 5V, 1500mA

Type of Modulation GFSK, 月/4DQPSK, 8DPSK for Bluetooth

Frequency range 2402-2480MHz for Bluetooth

Channel Spacing 1MHz for Bluetooth

Frequency Selection By software

Channel Number 79 channel for Bluetooth

Antenna: Integral Antenna and the maximum Gain of this antenna is 1.56dBi;

# 1.4 Submitted Sample: 2 Samples

The report refers only to the sample tested and does not apply to the bulk.

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1.5 Test Duration 2017-02-17 to 2017-02-22

The sample tested by

Test Uncertainty Conducted Emissions Uncertainty = 3.6dB Radiated Emissions Uncertainty =4.7dB

Test Engineer 1.7

Print Name: Terry Tang

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| 2.0 Test Equipment     |                 |            |                   |              |            |
|------------------------|-----------------|------------|-------------------|--------------|------------|
| Instrument Type        | Manufacturer    | Model      | Serial No.        | Date of Cal. | Due Date   |
| ESPI Test Receiver     | R&S             | ESPI 3     | 100379            | 2016-08-22   | 2017-08-21 |
| TWO                    | R&S             | EZH3-Z5    | 100294            | 2016-08-22   | 2017-08-21 |
| Line-V-NETW            |                 |            |                   |              |            |
| TWO<br>Line-V-NETW     | R&S             | EZH3-Z5    | 100253            | 2016-08-22   | 2017-08-21 |
| Ultra Broadband<br>ANT | R&S             | HL562      | 100157            | 2016-08-23   | 2017-08-22 |
| ESDV Test Receiver     | R&S             | ESDV       | 100008            | 2016-08-22   | 2017-08-21 |
| Impuls-Begrenzer       | R&S             | ESH3-Z2    | 100281            | 2016-08-22   | 2017-08-21 |
| System Controller      | CT              | SC100      | -                 |              |            |
| Printer                | EPSON           | РНОТО ЕХЗ  | CFNH234850        |              |            |
| Computer               | IBM             | 8434       | 1S8434KCE99BLXLO* | -            | -          |
| Loop Antenna           | EMCO            | 6502       | 00042960          | 2016-08-23   | 2017-08-22 |
| ESPI Test Receiver     | R&S             | ESI26      | 838786/013        | 2016-08-22   | 2017-08-21 |
| 3m OATS                |                 |            | N/A               | 2016-08-24   | 2017-08-23 |
| Horn Antenna           | R&S             | BBHA 9170  | BBHA9170265       | 2016-08-24   | 2017-08-23 |
| Horn Antenna           | R&S             | BBHA 9120D | 9120D-631         | 2016-08-24   | 2017-08-23 |
| Power meter            | Anritsu         | ML2487A    | 6K00003613        | 2016-08-22   | 2017-08-21 |
| Power sensor           | Anritsu         | MA2491A    | 32263             | 2016-08-22   | 2017-08-21 |
| Bilog Antenna          | Schwarebeck     | VULB9163   | 9163/340          | 2016-08-23   | 2017-08-21 |
| LISN                   | AFJ             | LS16C      | 10010947251       | 2016-08-22   | 2017-08-21 |
| LISN (Three Phase)     | Schwarebeck     | NSLK 8126  | 8126453           | 2016-08-23   | 2017-08-22 |
| 9*6*6 Anechoic         |                 |            | N/A               | 2016-08-24   | 2017-08-23 |
| EMI Test Receiver      | RS              | ESCS30     | 100139            | 2016-08-22   | 2017-08-21 |
| RF Cable               | SCHWARZBEC<br>K |            |                   | 2016-08-23   | 2017-08-22 |
| Pre-Amplifier          | HP              | 8447D      | 2727A05017        | 2016-08-05   | 2017-08-04 |
| Pre-Amplifier          | EM              | EM30265    |                   | 2016-08-05   | 2017-08-04 |

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#### 3.0 **Technical Details**

#### 3.1 **Summary of test results**

The EUT has been tested according to the following specifications:

| Requirement  | CFR 47 Section                            | Result | Notes    |
|--|---|--------|----------|
| Antenna Requirement                                | 15.203, 15.247(b)(4)                      | PASS   | Complies |
| Maximum Peak Out Power                             | 15.247 (b)(1), (4)                        | PASS   | Complies |
| Carrier Frequency Separation                       | 15.247(a)(1)                              | PASS   | Complies |
| 20dB Channel Bandwidth                             | 15.247 (a)(1)                             | PASS   | Complies |
| Number of Hopping Channels                         | 15.247(a)(iii), 15.247(b)(1)              | PASS   | Complies |
| Time of Occupancy (Dwell Time)                     | 15.247(a)(iii)                            | PASS   | Complies |
| Spurious Emission, Band Edge, and Restricted bands | 15.247(d),15.205(a),<br>15.209 (a),15.109 | PASS   | Complies |
| <b>Conducted Emissions</b>                         | 15.207(a), 15.107                         | PASS   | Complies |
| RF Exposure  | 15.247(i), 1.1307(b)(1)                   | PASS   | Complies |

#### 3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

#### 4.0 **EUT Modification**

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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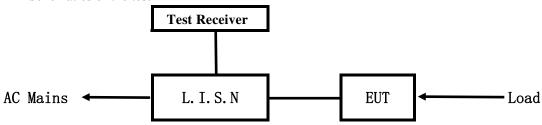
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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

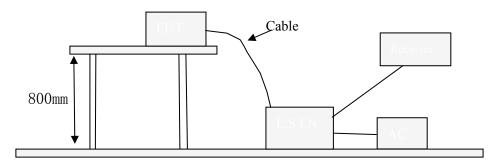


EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~60Hz Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

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#### A. EUT

| Device    |     |       | FCC ID     |
|-----------|-----|-------|------------|
| Tablet PC | AOC | A724G | 2AEB5-A724 |

#### B. Internal Device

| Device | Device Manufacturer |  | Rating |
|--------|---------------------|--|--------|
|        |                     |  |        |

#### C. Peripherals

| Device | Manufacturer | Model | FCC ID/DOC | Cable |
|--------|--------------|-------|------------|-------|
|        |              | -     | -          |       |

#### 5.4 **EUT Operating Condition**

Operating condition is according to ANSI C63.10-2013.

- Α Setup the EUT and simulators as shown on follow
- В Enable AF signal and confirm EUT active to normal condition

#### 5.5 Power line conducted Emission Limit according to Paragraph 15.107, 15.207

| Frequency        | Class A Lim      | its (dB µ V)  | Class B Limits (dB µ V) |               |  |
|------------------|------------------|---------------|-------------------------|---------------|--|
| (MHz)            | Quasi-peak Level | Average Level | Quasi-peak Level        | Average Level |  |
| $0.15 \sim 0.50$ | 79.0             | 66.0          | 66.0~56.0*              | 56.0~46.0*    |  |
| $0.50 \sim 5.00$ | 73.0             | 60.0          | 56.0                    | 46.0          |  |
| 5.00 ~ 30.00     | 73.0             | 60.0          | 60.0                    | 50.0          |  |

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

#### **Test Results** 5.6

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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#### Conducted Emission on Live Terminal (150kHz to 30MHz) A:

**EUT Operating Environment** 

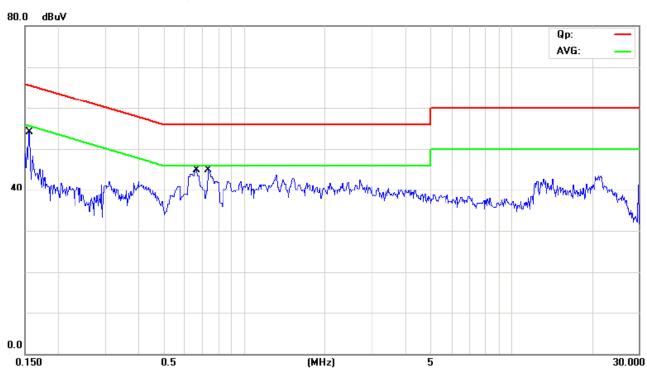
Humidity: 65%RH Atmospheric Pressure: 101 KPa Temperature: 26°C

**EUT set Condition: Charging and Keep Bluetooth Transmitting** 

**Equipment Level: Class B** 

**Results: PASS** 

Please refer to following diagram for individual



| No. Mk. | Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit | Over   |          |         |
|---------|--------|------------------|-------------------|------------------|-------|--------|----------|---------|
|         | MHz    | dBuV             | dB                | dBuV             | dBuV  | dB     | Detector | Comment |
| 1       | 0.1556 | 29.60            | 9.85              | 39.45            | 65.70 | -26.25 | QP       |         |
| 2       | 0.1556 | 18.90            | 9.85              | 28.75            | 55.70 | -26.95 | AVG      |         |
| 3       | 0.6576 | 30.80            | 10.47             | 41.27            | 56.00 | -14.73 | QP       |         |
| 4 *     | 0.6576 | 20.90            | 10.47             | 31.37            | 46.00 | -14.63 | AVG      |         |
| 5       | 0.7350 | 27.00            | 10.57             | 37.57            | 56.00 | -18.43 | QP       |         |
| 6       | 0.7350 | 17.60            | 10.57             | 28.17            | 46.00 | -17.83 | AVG      |         |

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#### B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

**EUT Operating Environment** 

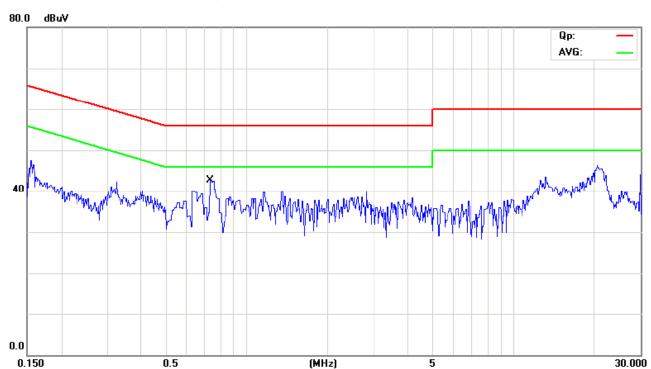
Humidity: 65%RH Atmospheric Pressure: 101 KPa Temperature: 26°C

**EUT set Condition: Charging and Keep Bluetooth Transmitting** 

**Equipment Level: Class B** 

**Results: Pass** 

Please refer to following diagram for individual



| No. Mk. | Freq.  | _     | Correct<br>Factor | Measure-<br>ment | Limit | Over   |          |         |
|---------|--------|-------|-------------------|------------------|-------|--------|----------|---------|
|         | MHz    | dBuV  | dB                | dBuV             | dBuV  | dB     | Detector | Comment |
| 1 *     | 0.7296 | 19.30 | 10.56             | 29.86            | 56.00 | -26.14 | QP       |         |
| 2       | 0.7296 | 0.90  | 10.56             | 11.46            | 46.00 | -34.54 | AVG      |         |

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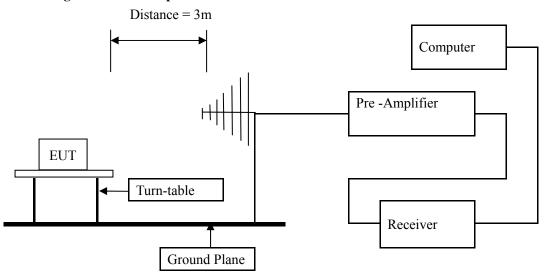
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### 6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 8999988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

### **Block diagram of Test setup**



- 6.2 Configuration of The EUT
  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

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#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

# Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109 and RSS-210

| Frequency Range (MHz) | Distance (m) | Field strength (dB µ V/m) |
|-----------------------|--------------|---------------------------|
| 30-88                 | 3            | 40.0                      |
| 88-216                | 3            | 43.5                      |
| 216-960               | 3            | 46.0                      |
| Above 960             | 3            | 54.0                      |

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 5. GFSK was the worse case because it has highest output power

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#### Test result

# General Radiated Emission Data and Harmonics Radiated Emission Data

### Radiated Emission In Horizontal/Vertical (30MHz----1000MHz)

**EUT set Condition:** Keep Bluetooth Transmitting

**Results: Pass** 

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB µ V/m) |
|-----------------|--------------------------|------------------|---------------------|
| 96.360          | 25.98                    | Н                | 43.50               |
| 87.840          | 26.25                    | Н                | 40.00               |
| 153.680         | 28.19                    | Н                | 43.50               |
| 140.240         | 31.27                    | Н                | 43.50               |
|                 |                          |                  |                     |
| 159.720         | 32.15                    | V                | 43.50               |
| 51.760          | 36.22                    | V                | 40.00               |
| 31.200          | 35.60                    | V                | 40.00               |
| 142.240         | 34.65                    | V                | 43.50               |

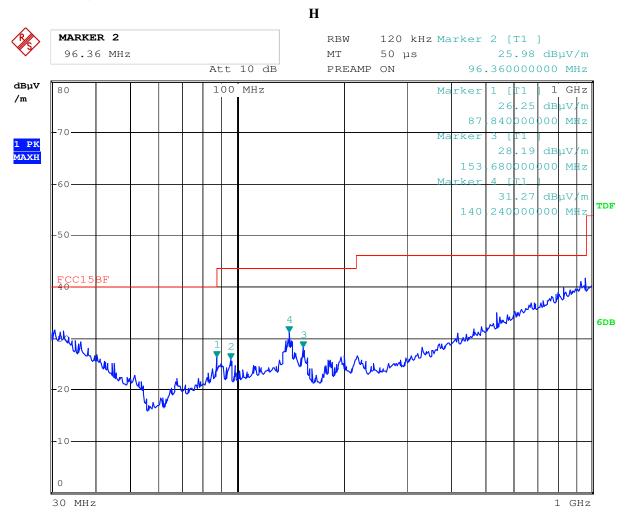
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# Test Figure:



Date: 17.FEB.2017 15:36:06

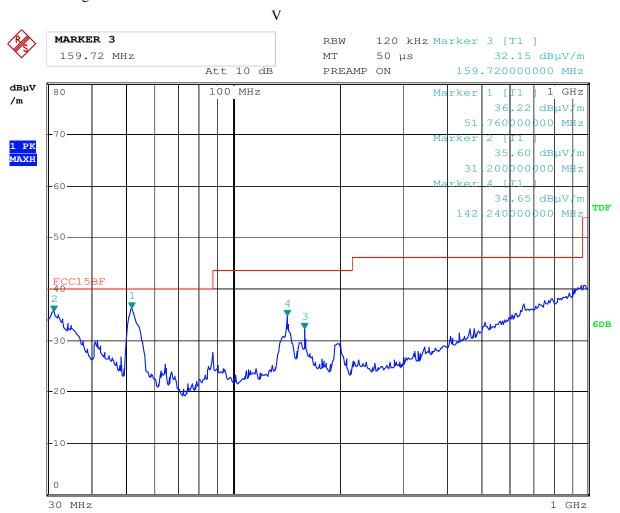
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# Test Figure:



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# Operation Mode: Transmitting under Low Channel (2402MHz)

|                 | 8                        | , ,              |                          |
|-----------------|--------------------------|------------------|--------------------------|
| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
| 4804            |                          | Н                | 74(Peak)/ 54(AV)         |
| 4804            |                          | V                | 74(Peak)/ 54(AV)         |
| 7206            | -                        | H/V              | 74(Peak)/ 54(AV)         |
| 9608            | -                        | H/V              | 74(Peak)/ 54(AV)         |
| 12010           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 14412           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 16814           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 19216           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 21618           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 24020           |                          | H/V              | 74(Peak)/ 54(AV)         |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

# **Operation Mode: Transmitting g under Middle Channel (2441MHz)**

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \( \mu \)V/m) |
|-----------------|--------------------------|------------------|----------------------------|
| 4882            |                          | Н                | 74(Peak)/ 54(AV)           |
| 4882            |                          | V                | 74(Peak)/ 54(AV)           |
| 7323            |                          | H/V              | 74(Peak)/ 54(AV)           |
| 9764            |                          | H/V              | 74(Peak)/ 54(AV)           |
| 12205           |                          | H/V              | 74(Peak)/ 54(AV)           |
| 14646           |                          | H/V              | 74(Peak)/ 54(AV)           |
| 17087           |                          | H/V              | 74(Peak)/ 54(AV)           |
| 19528           |                          | H/V              | 74(Peak)/ 54(AV)           |
| 21969           |                          | H/V              | 74(Peak)/ 54(AV)           |
| 24410           |                          | H/V              | 74(Peak)/ 54(AV)           |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

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# Operation Mode: Transmitting under High Channel (2480MHz)

| Frequency (MHz) | Level@3m (dB \u03b4 V/m) | Antenna Polarity | Limit@3m (dB \u03b4 V/m) |
|-----------------|--------------------------|------------------|--------------------------|
| 4960            |                          | Н                | 74(Peak)/ 54(AV)         |
| 4960            |                          | V                | 74(Peak)/ 54(AV)         |
| 7440            |                          | H/V              | 74(Peak)/ 54(AV)         |
| 9920            |                          | H/V              | 74(Peak)/ 54(AV)         |
| 12400           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 14880           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 17360           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 19840           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 22320           |                          | H/V              | 74(Peak)/ 54(AV)         |
| 24800           |                          | H/V              | 74(Peak)/ 54(AV)         |

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

<sup>2.</sup> Remark "---" means that the emissions level is too low to be measured

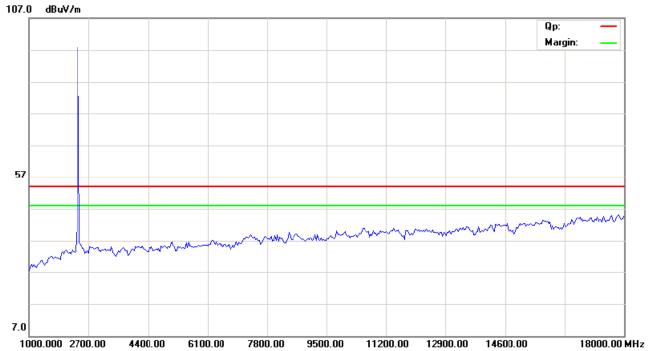
Date: 2017-02-22



Please refer to the following test plots for details:

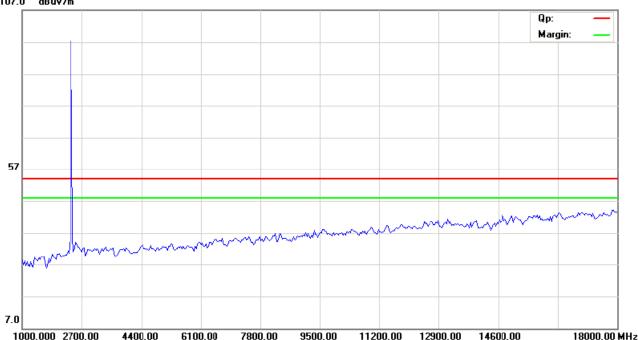
# **Low Channel: Horizontal**





### **Low Channel: Vertical**

### 107.0 dBuV/m



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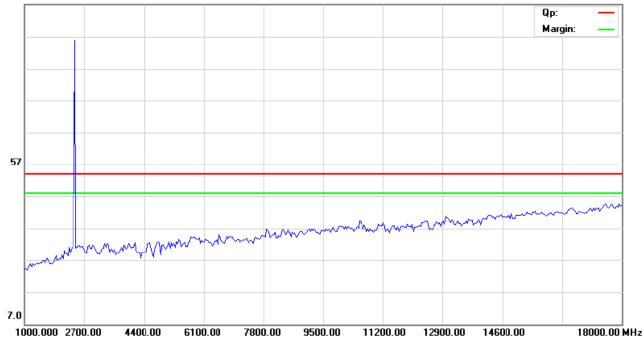
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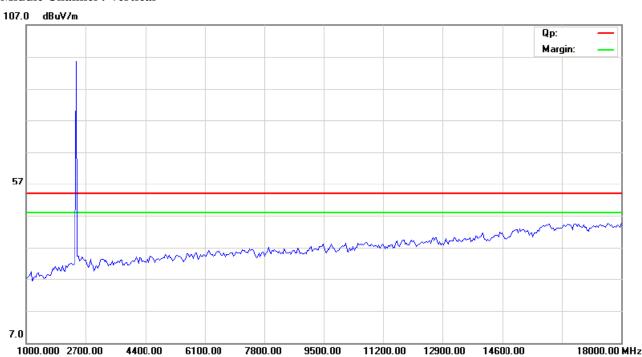


### **Middle Channel: Horizontal**





#### **Middle Channel: Vertical**



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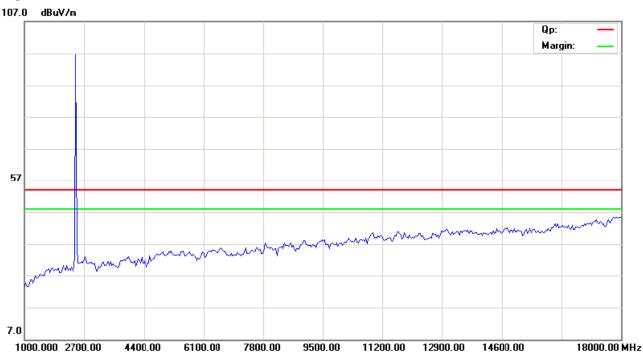
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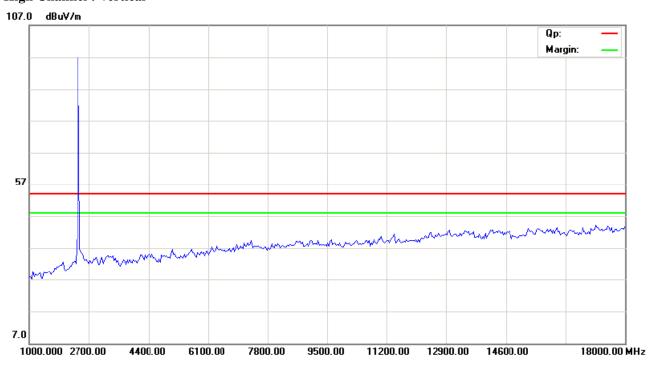
Date: 2017-02-22



# **High Channel: Horizontal**



#### **High Channel: Vertical**



# Note: for the radiated emissions above 18G, it is the floor noise.

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#### 7.0 20dB Bandwidth Measurement

### 7.1 Regulation

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 7.2 Limits of 20dB Bandwidth Measurement

N/A

### 7.3 Test Procedure.

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span =3MHz, RBW =30 kHz, VBW=100 kHz, Sweep = auto Detector function = peak, Trace = max hold
- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results. 6. Repeat above procedures until all frequencies measured were complete.

#### 7.4 Test Result

#### **Type of Modulation: GFSK**

| JI       | oddianom G1511                                     |            |                        |            |
|----------|--|------------|------------------------|------------|
| EUT      |  | Tablet PC  |                        | A724G      |
| Mode     | de Keep Transmitting                               |            | Input Voltage          | DC3.7V     |
| Temperat | ure  | 24 deg. C, | Humidity               | 56% RH     |
| Channel  | nnel Channel Frequency (MHz) 20 dB Bandwidth (kHz) |            | Minimum Limit<br>(kHz) | Pass/ Fail |
| Low      | 2402   | 1046       |                        | Pass       |
| Middle   | 2441   | 1046       |                        | Pass       |
| High     | 2480   | 1046       |                        | Pass       |

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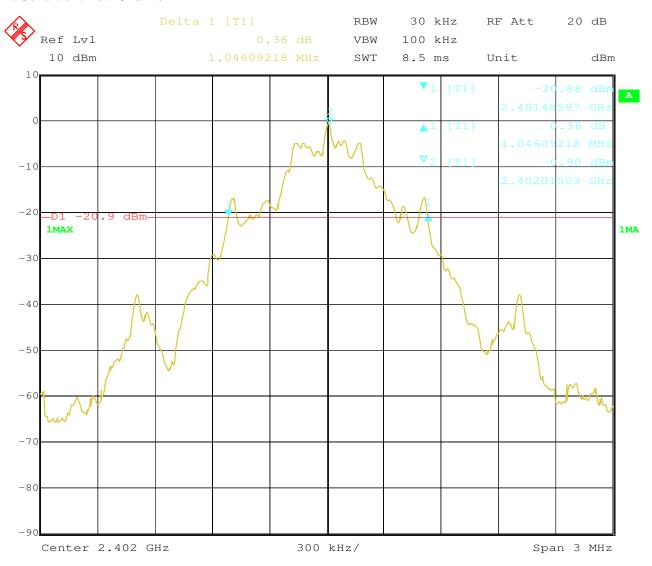
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# Test Figure:

# 1. Condition: Low Channel

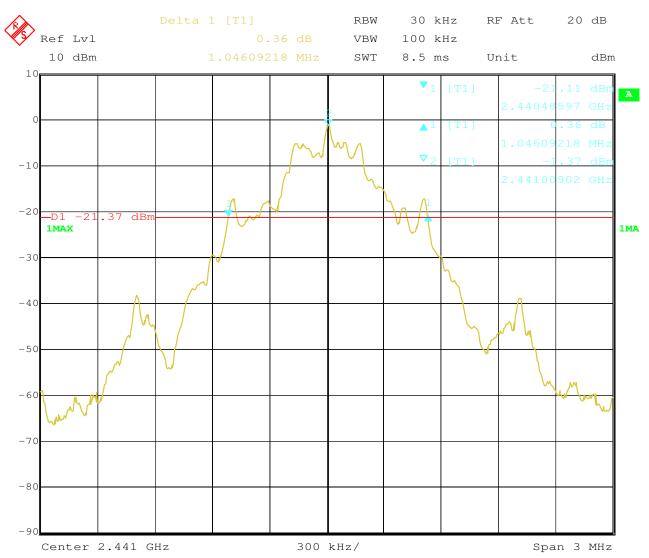


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### 2. Condition: Middle Channel



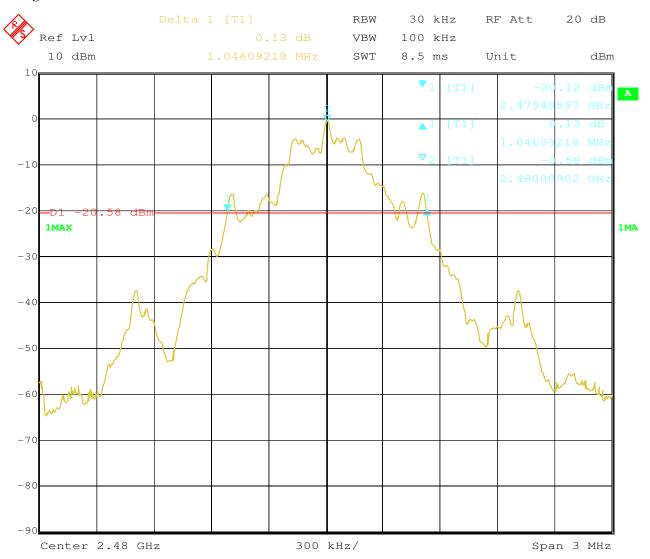
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# 3. High Channel



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### **Test Result**

Type of Modulation: Л/4DQPSK

| EUT      |   | Tablet PC         | Model                  | A724G      |
|----------|---|-------------------|------------------------|------------|
| Mode     | K   | Keep Transmitting |                        | DC3.7V     |
| Temperat | ure   | 24 deg. C,        | Humidity               | 56% RH     |
| Channel  | Channel Frequency (MHz) 20 dB Bandwidth (kHz) |                   | Maximum Limit<br>(kHz) | Pass/ Fail |
| Low      | 2402 1293                                     |                   |                        | Pass       |
| Middle   | 2441 1293                                     |                   |                        | Pass       |
| High     | 2480 1293                                     |                   |                        | Pass       |

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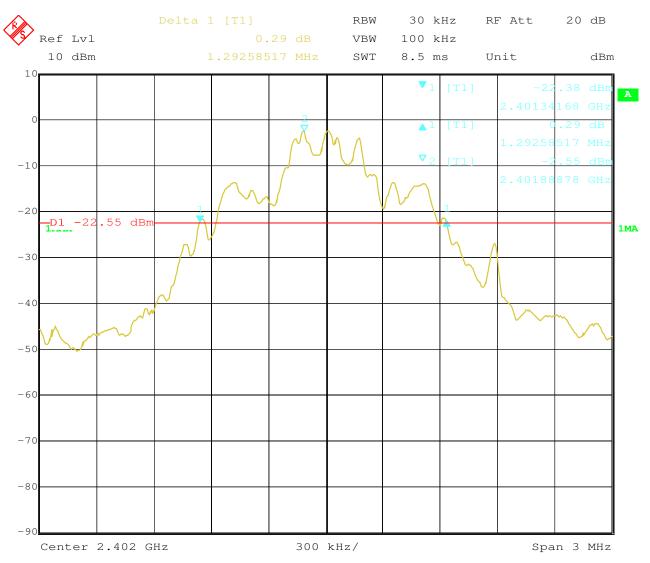
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# Test Figure:

# 1. Condition: Low Channel

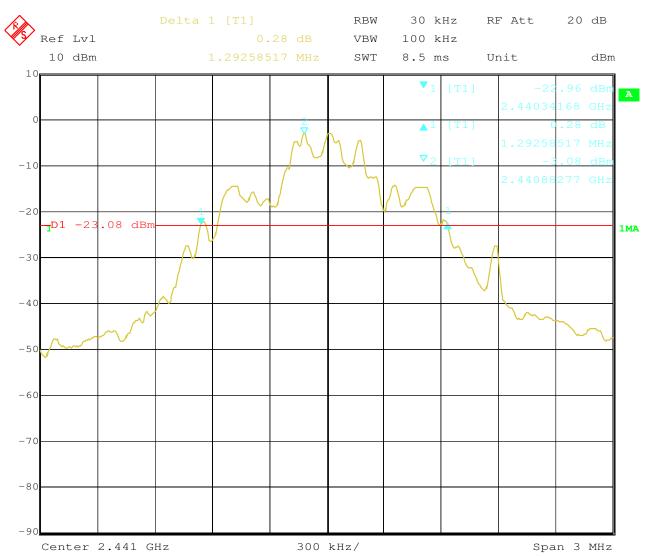


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### 2. Condition: Middle Channel



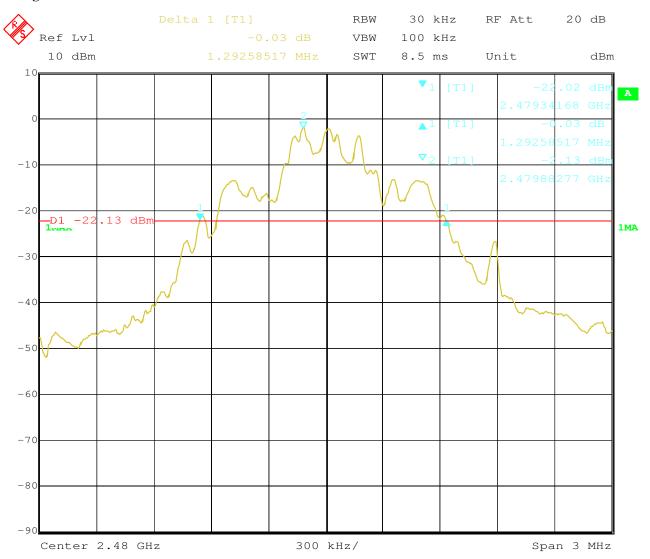
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# 3. High Channel



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### **Test Result**

# **Type of Modulation: 8DPSK**

| EUT      |   | Tablet PC         |                        | A724G      |
|----------|---|-------------------|------------------------|------------|
| Mode     | Ke  | Keep Transmitting |                        | DC3.7V     |
| Temperat | rature 24 deg. C,                             |                   | Humidity               | 56% RH     |
| Channel  | Channel Frequency (MHz) 20 dB Bandwidth (kHz) |                   | Maximum Limit<br>(kHz) | Pass/ Fail |
| Low      | 2402 1281                                     |                   |                        | Pass       |
| Middle   | 2441  | 2441 1281         |                        | Pass       |
| High     | 2480  | 2480 1287         |                        | Pass       |

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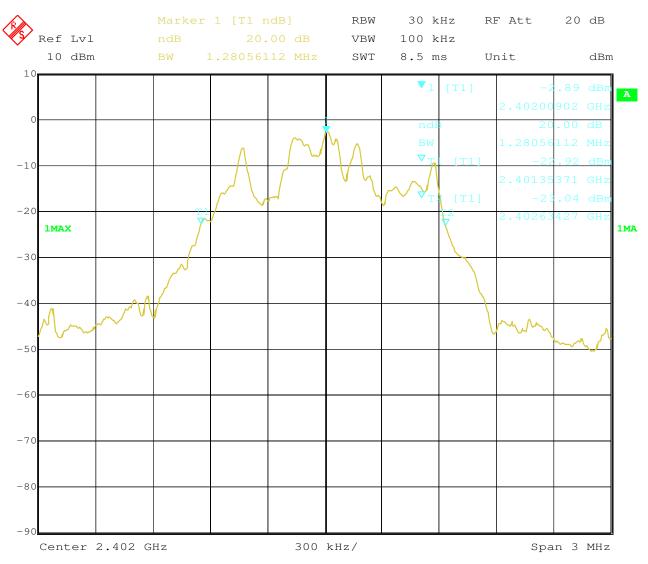
Report No.: FCC1702053-02

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# Test Figure:

# 1. Condition: Low Channel

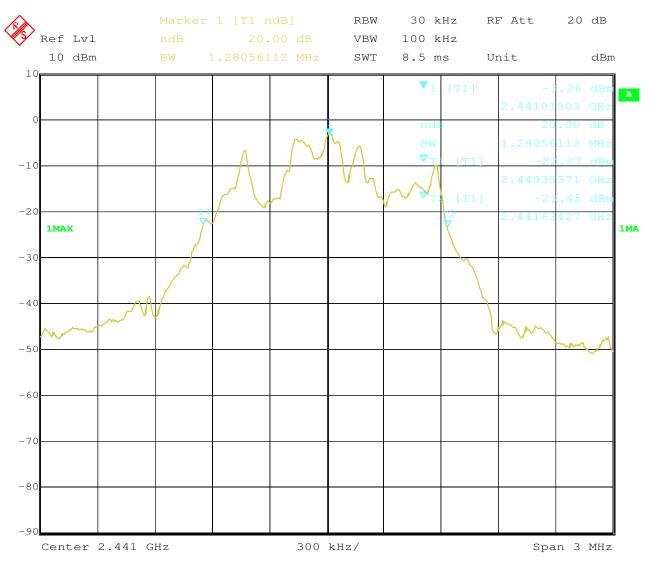


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### 2. Condition: Middle Channel



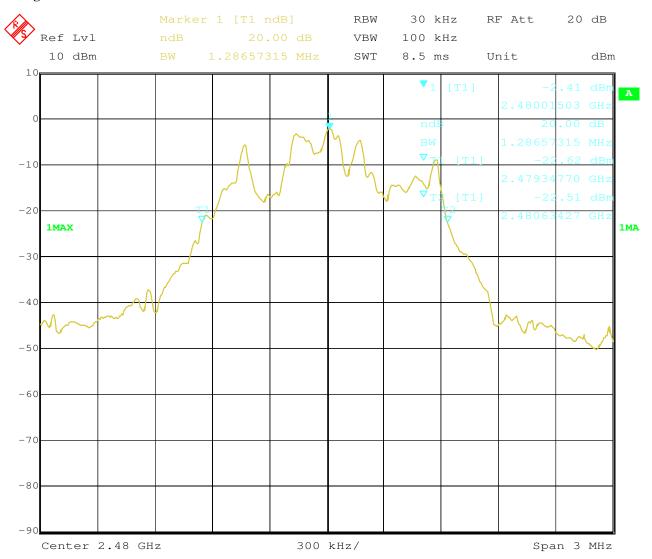
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# 3. High Channel



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# 8. Maximum Output Power

### 8.1 Regulation

According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5MHz band:0.125 watts. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **8.2 Limits of Maximum Output Power**

The Maximum Output Power Measurement is 30dBm.

#### 8.3 Test Procedure

- 1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel; RBW > the 20 dB bandwidth of the emission being measured; VBW = RBW=3MHz; Sweep = 60s; Detector function = RMS; Trace = max hold
- 3. Measure the highest amplitude appearing on spectral display and record the level to calculate results.
- 4. Repeat above procedures until all frequencies measured were complete.

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#### **8.4Test Results**

# Type of Modulation: GFSK

| EUT         |                         | Tablet PC   |      |          | el                     | A724G      |
|-------------|-------------------------|---|------|----------|------------------------|------------|
| Mode        | Ke                      | eep Transmitting  |      |          | Voltage                | DC3.7V     |
| Temperature | е                       | 24 deg. C,  |      | Humidity |                        | 56% RH     |
| Channel     | Channel Frequency (MHz) | mel Frequency (MHz)  Average  Max. Power Output (dBm)  Peak |      | )        | Peak<br>Power<br>Limit | Pass/ Fail |
|             | ,                       |   |      |          | (dBm)                  |            |
| Low         | 2402                    | -4.46 0.40  |      |          | 30                     | Pass       |
| Middle      | 2441                    | -4.84 -0.07   |      |          | 30                     | Pass       |
| High        | 2480                    | -4.06   | 0.72 |          | 30                     | Pass       |

Note: 1. the result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

- 2. The worse case was recorded
- 3. The Peak and Average power was measured

# Type of Modulation: Л/4DQPSK

| EUT         |                   |       | Tablet PC        |                    | Model         |                | A724G      |
|-------------|-------------------|-------|------------------|--------------------|---------------|----------------|------------|
| Mode        |                   | Ke    | eep Transmitting |                    | Input Voltage |                | DC3.7V     |
| Temperature | e                 |       | 24 deg. C, Hum   |                    | Humi          | dity           | 56% RH     |
| Channel     | Channel Frequency |       | Max. Power       | Power Output (dBm) |               | Peak<br>Power  | Pass/ Fail |
|             |                   | (MHz) | Average Peak     |                    |               | Limit<br>(dBm) |            |
| Low         |                   | 2402  | -5.00 0.10       |                    |               | 30             | Pass       |
| Middle      |                   | 2441  | -5.45 -0.28      |                    |               | 30             | Pass       |
| High        |                   | 2480  | -4.67            | 0.51               |               | 30             | Pass       |

Note: 1. the result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

- 2. The worse case was recorded
- 3. The Peak and Average power was measured

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### Type of Modulation: 8DPSK

| EUT         |                         | Tablet PC                             |       |               | Model                  | A724G      |
|-------------|-------------------------|---------------------------------------|-------|---------------|------------------------|------------|
| Mode        | Ke                      | Keep Transmitting                     |       | Input Voltage |                        | DC3.7V     |
| Temperature | e                       | 24 deg. C,                            |       | Нι            | ımidity                | 56% RH     |
| Channel     | Channel Frequency (MHz) | Max. Power Output (dBm)  Average Peak |       |               | Peak Power Limit (dBm) | Pass/ Fail |
| Low         | 2402                    | -5.32                                 | -0.10 |               | 30                     | Pass       |
| Middle      | 2441                    | -5.78                                 | -0.46 |               | 30                     | Pass       |
| High        | 2480                    | -5.01                                 | 0.38  |               | 30                     | Pass       |

Note: 1. the result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

- 2. The worse case was recorded
- 3. The Peak and Average power was measured

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## 9. Carrier Frequency Separation

## 9.1 Regulation

According to §15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

# 9.2 Limits of Carrier Frequency Separation

The Maximum Power Spectral Density Measurement is 25kHz or two-thirds of the 20dB bandwidth of the hopping Channel which is great.

#### 9.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = wide enough to capture the peaks of two adjacent channels: Resolution (or IF) Bandwidth (RBW)  $\geq$  1% of the span; Video (or Average) Bandwidth (VBW)  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Measure the separation between the peaks of the adjacent channels using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.

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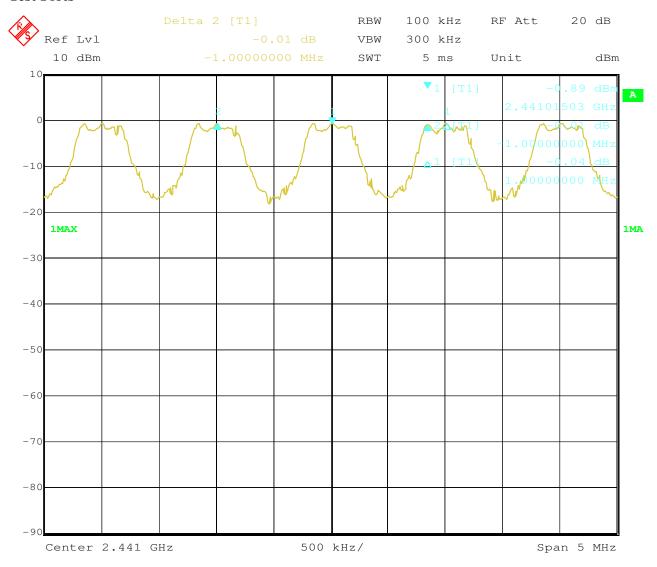


#### 9.4Test Result

## Type of Modulation: GFSK

| EUT                          | Tablet PC N  |  | Model         |        | A724G      |
|------------------------------|--------------|--|---------------|--------|------------|
| Mode                         | Hopping On I |  | Input Voltage |        | DC3.7V     |
| Temperature                  | 24 deg. C,   |  | Humidity      | 56% RH |            |
| Carrier Frequency Separation |              |  | Limit         |        | Pass/ Fail |
|                              | 1.000MHz     | ≥ 25 kHz or 2/3 of the 20 dB bandwidth |               |        | Pass       |

## **Test Plots**



20.FEB.2017 10:01:05 Date:

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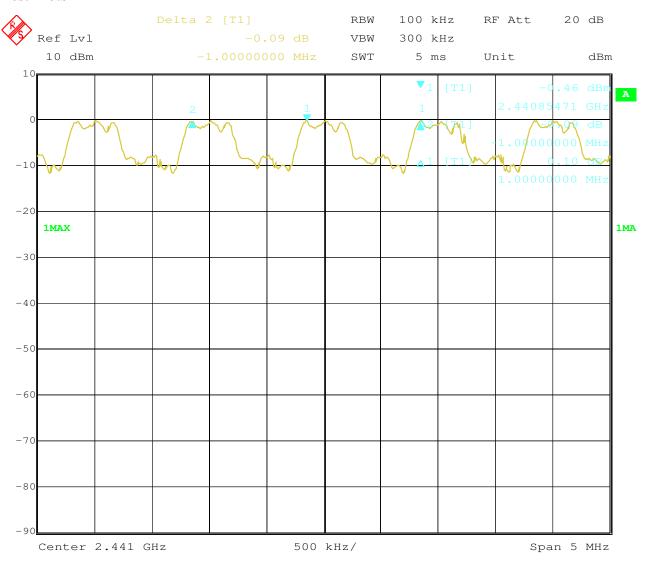
Date: 2017-02-22



#### Type of Modulation: $\sqrt{J/4DQPSK}$

| EUT                          | Tablet PC  |               | Model              |        | A724G      |
|------------------------------|------------|---------------|--------------------|--------|------------|
| Mode                         | Hopping On |               | Input Voltage      |        | DC3.7V     |
| Temperature                  | 24 deg. C, |               | Humidity           | 56% RH |            |
| Carrier Frequency Separation |            |               | Limit              |        | Pass/ Fail |
|                              | 1.000MHz   | ≥ 25 kHz or 2 | 2/3 of 20 dB bandy | width  | Pass       |

#### **Test Plots**



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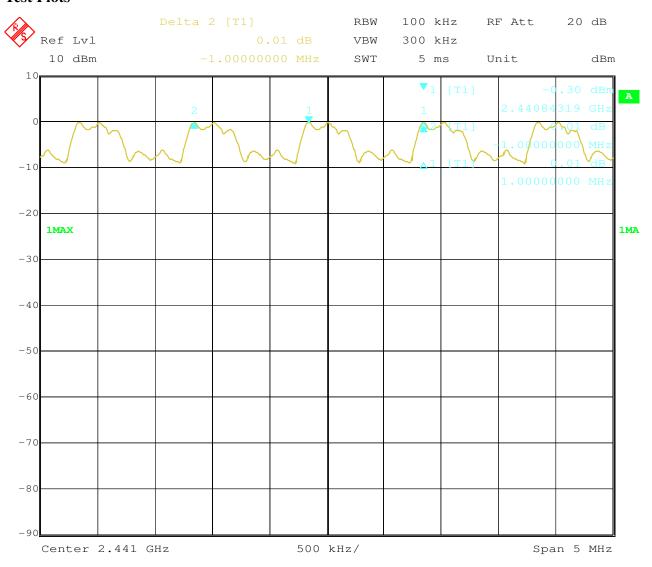
Date: 2017-02-22



## **Type of Modulation: 8DPSK**

| EUT                          | Tablet PC N  |                                    | Model         |            | A724G  |
|------------------------------|--------------|------------------------------------|---------------|------------|--------|
| Mode                         | Hopping On I |                                    | Input Voltage |            | DC3.7V |
| Temperature                  | 24 deg. C,   |                                    | Humidity      | 56% RH     |        |
| Carrier Frequency Separation |              | Limit                              |               | Pass/ Fail |        |
|                              | 1.000MHz     | ≥ 25 kHz or 2/3 of 20 dB bandwidth |               |            | Pass   |

## **Test Plots**



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# 10. Number of Hopping Channels

#### 10.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. According to §15.247(b)(1), for frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

#### 10.2 Limits of Number of Hopping Channels

The frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

#### **10.3 Test Procedure**

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = the frequency band of operation; RBW=100 kHz, VBW=300 kHz; Sweep = auto; Detector function = peak; Trace = max hold
- 3. Record the number of hopping channels.

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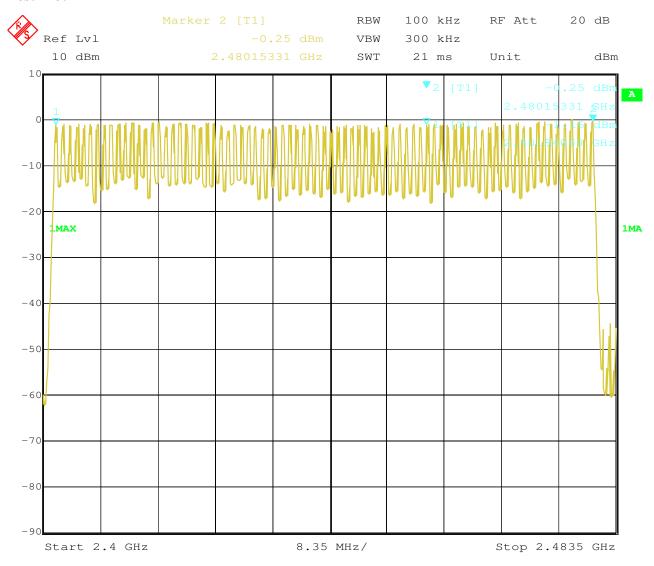


#### 10.4Test Result

## Type of Modulation: GFSK

| EUT               | Tablet PC                                      |                      | Model         | A724G  |            |
|-------------------|--|----------------------|---------------|--------|------------|
| Mode              |  | Hopping On Input Vol |               | DC3.7V |            |
| Temperature       |  | 24 deg. C,           | Humidity      |        | 56% RH     |
| Operating Frequen | Operating Frequency Number of hopping channels |                      | oing channels | Limit  | Pass/ Fail |
| 2402-2480MHz      |  | 79                   |               | ≥ 15   | Pass       |

## **Test Plot**



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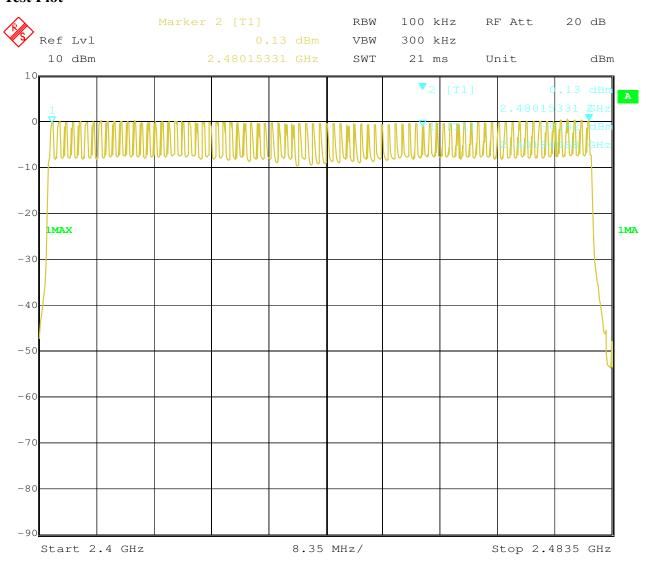
Date: 2017-02-22



# Type of Modulation: Л/4DQPSK

| EUT               | Tablet PC  |                         | Model   | Model  |        | A724G      |
|-------------------|------------|-------------------------|---------|--------|--------|------------|
| Mode              | Hopping On |                         | Input V | oltage | DC3.7V |            |
| Temperature       |            | 24 deg. C,              |         | ty 5   |        | 56% RH     |
| Operating Frequer | ncy        | Number of hopp channels |         | Liı    | nit    | Pass/ Fail |
| 2402-2480MHz      |            | 79                      |         | ≥ 15   |        | Pass       |

#### **Test Plot**



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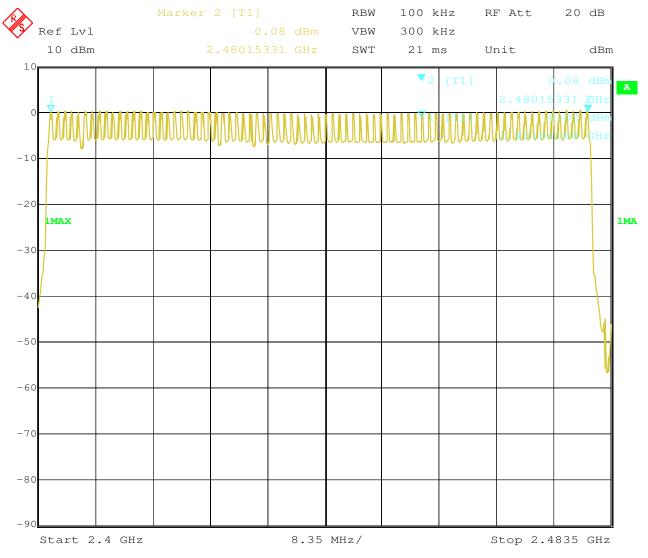
Date: 2017-02-22



## **Type of Modulation: 8DPSK**

| EUT               | Tablet PC                                    |            | Model    |        |      | A724G      |  |
|-------------------|--|------------|----------|--------|------|------------|--|
| Mode              |  | Hopping On | Input V  | oltage |      | DC3.7V     |  |
| Temperature       |  | 24 deg. C, | Humidi   | ity    |      | 56% RH     |  |
| Operating Frequer | Operating Frequency  Number of hopp channels |            | oing     | Liı    | nit  | Pass/ Fail |  |
| 2402-2480MHz 79   |  |            | <u> </u> | 15     | Pass |            |  |

#### **Test Plot**



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# 11. Time of Occupancy (Dwell Time)

## 11.1 Regulation

According to §15.247(a)(1)(iii), frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

#### 11.2 Limits of Carrier Frequency Separation

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed

#### 11.3 Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Set the spectrum analyzer as follows: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW  $\geq$  RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold
- 3. Measure the dwell time using the marker-delta function.
- 4. Repeat above procedures until all frequencies measured were complete.
- 5. Repeat this test for different modes of operation (e.g., data rate, modulation format, etc.), if applicable.

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#### 11.4 Test Result

#### **Type of Modulation: GFSK**

| EUT        | Tab     | let PC     | Model         |        | A724G  |  |  |  |
|------------|---------|------------|---------------|--------|--------|--|--|--|
| Mode       | Keep Tr | ansmitting | Input Voltage | I      | DC3.7V |  |  |  |
| Temperatur | re 24 d | leg. C,    | Humidity      | 5      | 56% RH |  |  |  |
| Channel    | Reading | Hopin      | g Rate        | Actual | Limit  |  |  |  |
|            | DH5     |            |               |        |        |  |  |  |
| Middle     | 3.03ms  | 266.66     | 7 hop/s       | 0.323s | 0.4s   |  |  |  |
|            |         |            | DH3           |        |        |  |  |  |
| Middle     | 3.01ms  | 266.66     | 266.667 hop/s |        | 0.4s   |  |  |  |
|            | DH1     |            |               |        |        |  |  |  |
| Middle     | 3.01ms  | 266.66     | 7 hop/s       | 0.321s | 0.4s   |  |  |  |

Actual = Reading  $\times$  (Hopping rate / Number of channels)  $\times$  Test period, Test period = 0.4 [seconds / channel]  $\times$  79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 $\mu$ s with 79 channels.

A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

A DH3 Packet needs 3 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 400 hops per second with 79 channels.

A DH1 Packet needs 1 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 800 hops per second with 79 channels.

Note: DH5 was the worst case.

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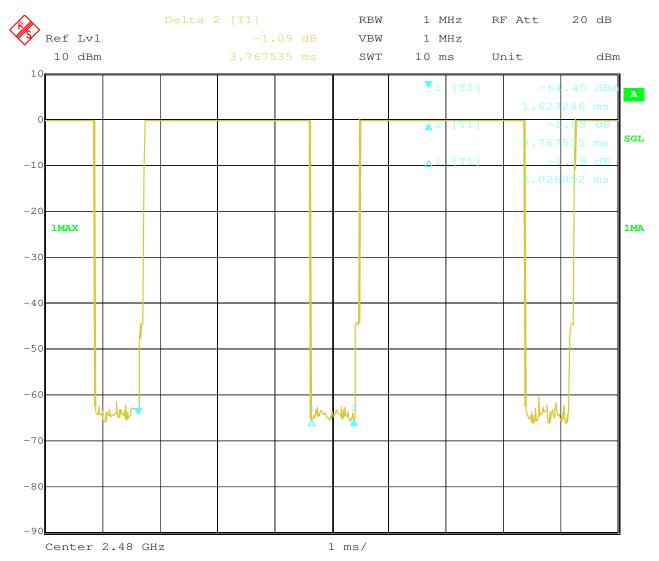
Date: 2017-02-22



Test Plots:

## DH5

Middle Channel:



20.FEB.2017 14:27:07 Date:

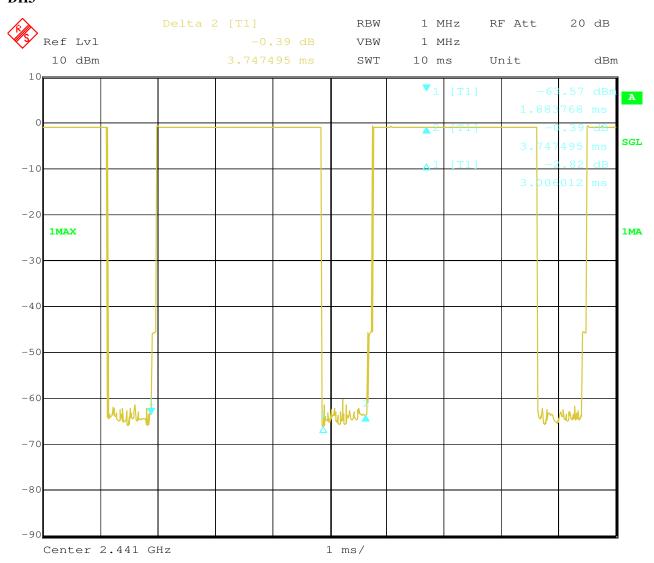
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#### DH3



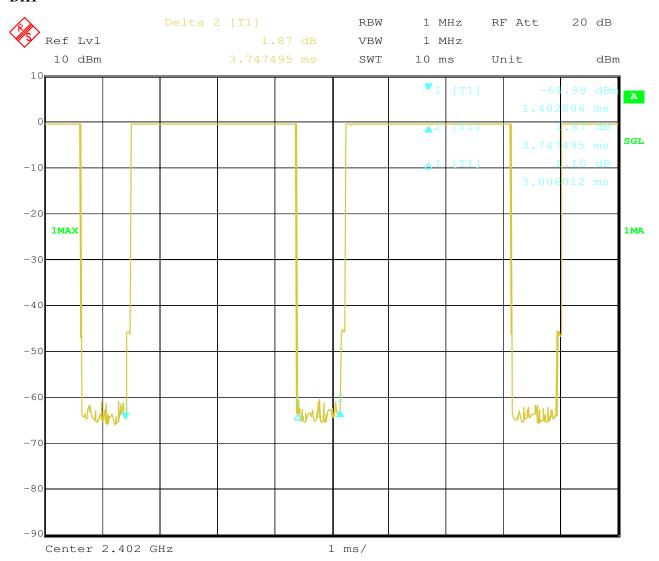
20.FEB.2017 14:27:48 Date:

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Date: 2017-02-22



#### DH1



20.FEB.2017 14:28:20 Date:

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Date: 2017-02-22



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#### **Test Result**

## Type of Modulation: Л/4DQPSK

| EUT        | Tab     | Tablet PC     |               | A      | A724G |  |  |  |
|------------|---------|---------------|---------------|--------|-------|--|--|--|
| Mode       | Keep Tr | ansmitting    | Input Voltage | D      | C3.7V |  |  |  |
| Temperatur | re 24 d | leg. C,       | Humidity      | 56% RH |       |  |  |  |
| Channel    | Reading | Hoping        | g Rate        | Actual | Limit |  |  |  |
|            | DH5     |               |               |        |       |  |  |  |
| Middle     | 3.07ms  | 266.667       | 7 hop/s       | 0.327s | 0.4s  |  |  |  |
|            |         |               | DH3           |        |       |  |  |  |
| Middle     | 3.05ms  | 266.667 hop/s |               | 0.325s | 0.4s  |  |  |  |
|            | DH1     |               |               |        |       |  |  |  |
| Middle     | 3.07ms  | 266.667       | 7 hop/s       | 0.327s | 0.4s  |  |  |  |

Actual = Reading  $\times$  (Hopping rate / Number of channels)  $\times$  Test period, Test period = 0.4 [seconds / channel]  $\times$  79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 $\mu$ s with 79 channels.

A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

A DH3 Packet needs 3 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 400 hops per second with 79 channels.

A DH1 Packet needs 1 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 800 hops per second with 79 channels.

Note: 2DH5 was the worst case.

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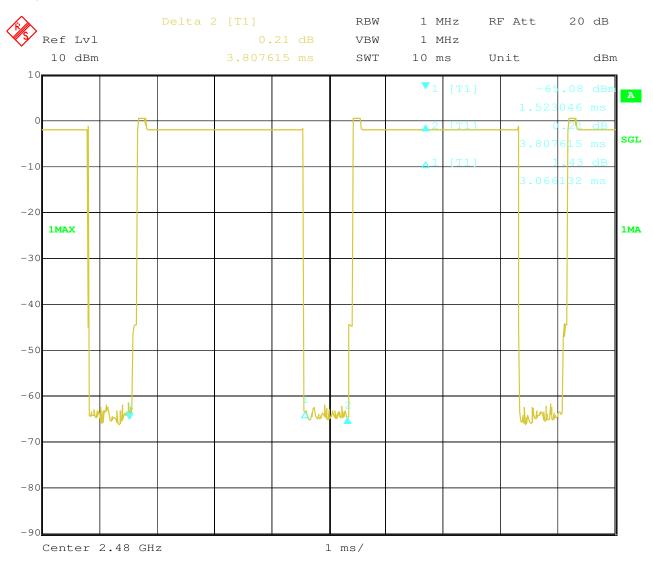
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#### Test Plots:

## **2DH5**

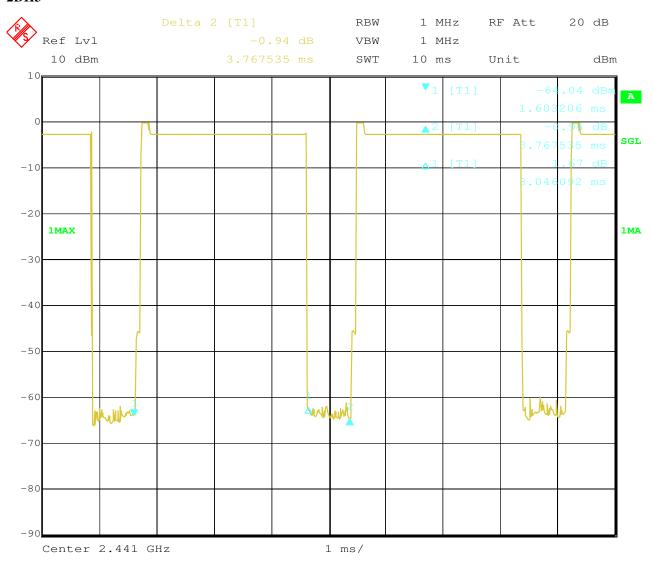


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#### **2DH3**



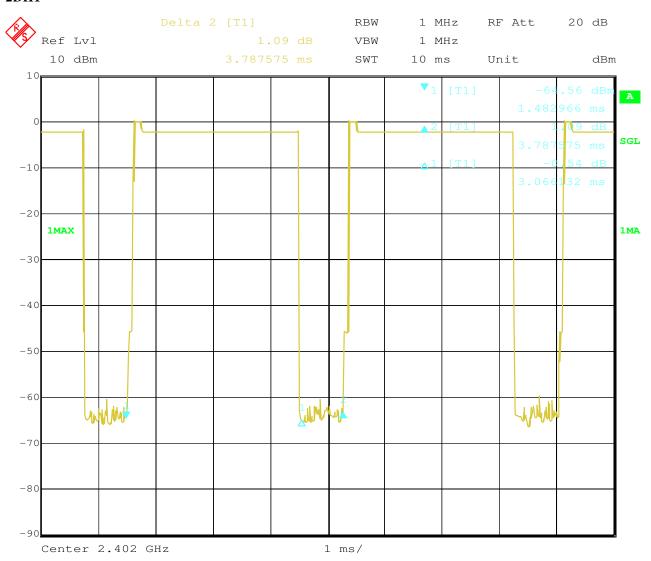
20.FEB.2017 14:29:52 Date:

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#### **2DH1**



20.FEB.2017 14:29:09 Date:

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# **Type of Modulation: 8DPSK**

| EUT        | Tab      | let PC     | Model         | 1      | A724G  |  |  |  |
|------------|----------|------------|---------------|--------|--------|--|--|--|
| Mode       | Keep Tra | ansmitting | Input Voltage | Γ      | DC3.7V |  |  |  |
| Temperatur | e 24 d   | eg. C,     | Humidity      | 5      | 6% RH  |  |  |  |
| Channel    | Reading  | Hoping     | g Rate        | Actual | Limit  |  |  |  |
|            | DH5      |            |               |        |        |  |  |  |
| Middle     | 3.07ms   | 266.667    | 7 hop/s       | 0.327s | 0.4s   |  |  |  |
|            |          |            | DH3           |        |        |  |  |  |
| Middle     | 3.03ms   | 266.667    | 266.667 hop/s |        | 0.4s   |  |  |  |
| DH1        |          |            |               |        |        |  |  |  |
| Middle     | 3.01ms   | 266.667    | 7 hop/s       | 0.321s | 0.4s   |  |  |  |

Actual = Reading × (Hopping rate / Number of channels) × Test period, Test period = 0.4 [seconds / channel] × 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625 µs with 79 channels.

A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

A DH3 Packet needs 3 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 400 hops per second with 79 channels.

A DH1 Packet needs 1 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 800 hops per second with 79 channels.

Note: 3DH5 was the worst case.

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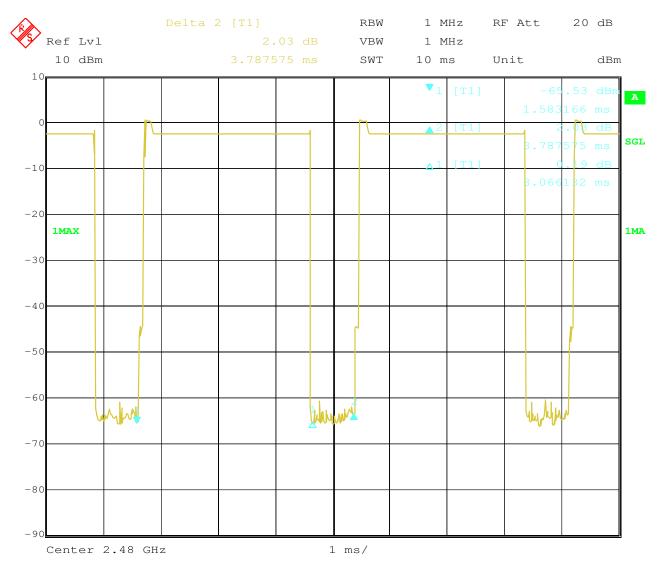
Report No.: FCC1702053-02

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Test Plots:

## **3DH5**



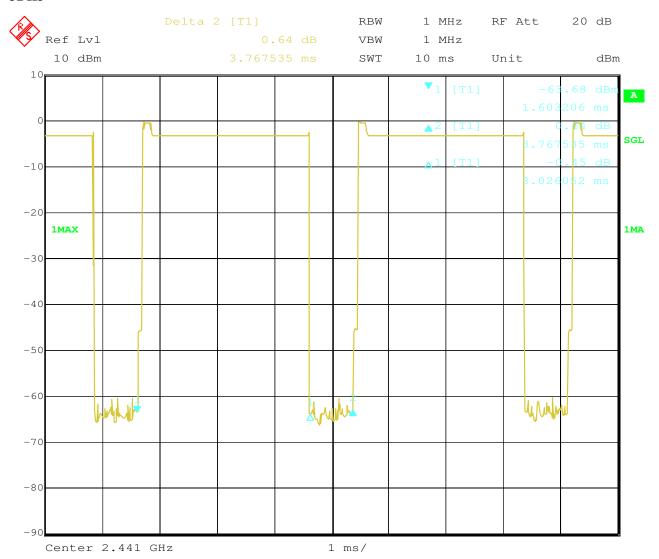
20.FEB.2017 14:30:48 Date:

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#### **3DH3**



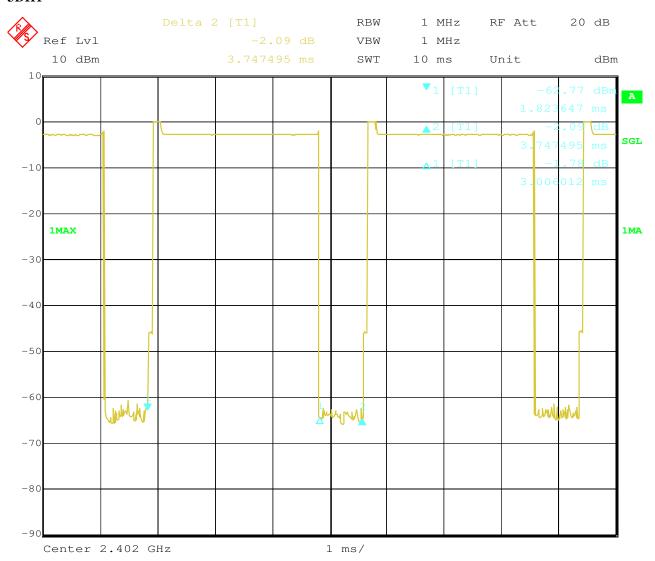
20.FEB.2017 14:31:40 Date:

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#### 3DH1



20.FEB.2017 14:32:24 Date:

Report No.: FCC1702053-02

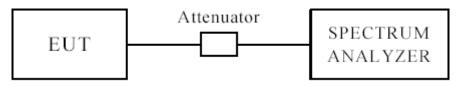
Date: 2017-02-22



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#### 12 Out of Band Measurement

# 12.1 Test Setup



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

#### 12.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

#### 12.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test. Peak values with RBW=VBW=1MHz and PK detector.

For bandage test, the spectrum set as follows: RBW=100kHz, VBW=300 kHz. A conducted measurement used

- Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.
- 2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

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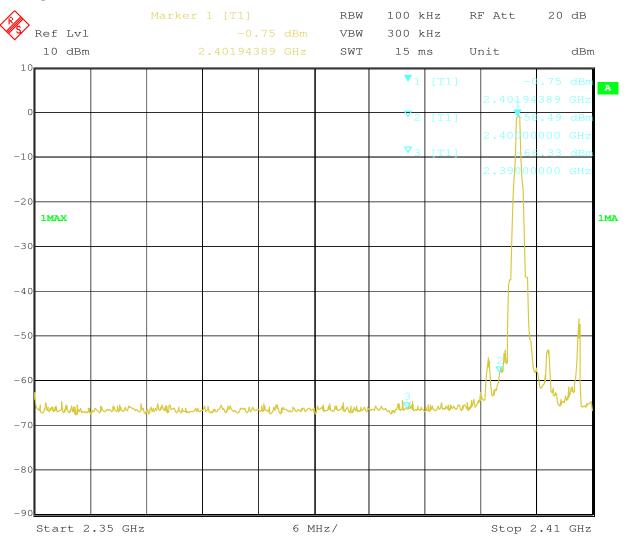


# Type of Modulation: GFSK

#### Out of Band Test Result 12.4

| Product:       | Tablet PC   |                   | Test Mode:    | Low Channel     |
|----------------|-------------|-------------------|---------------|-----------------|
| Mode           | Kee         | ping Transmitting | Input Voltage | DC3.7V          |
| Temperature    |             | 24 deg. C         | Humidity      | 56% RH          |
| Test Result:   |             | Pass              |               | PK              |
| The Max. FS in | PK (dBμV/m) | 44.1              |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)  | AV(dBμV/m)        |               | 54(dBμV/m)      |
| 2390MHz        |             |                   |               |                 |

## **Test Figure:**



20.FEB.2017 14:00:21 Date:

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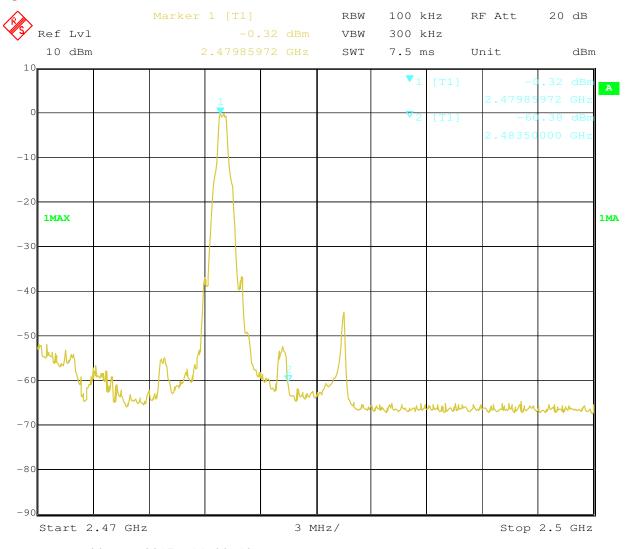


# Type of Modulation: GFSK

#### Out of Band Test Result 12.4

| Product:       | Tablet PC            |            | Test Mode:    | High Channel    |
|----------------|----------------------|------------|---------------|-----------------|
| Mode           | Keeping Transmitting |            | Input Voltage | DC3.7V          |
| Temperature    |                      | 24 deg. C, | Humidity      | 56% RH          |
| Test Result:   | Pass                 |            | Detector      | PK              |
| The Max. FS in | PK (dBμV/m)          | 43.6       |               | $74(dB\mu V/m)$ |
| Restrict Band  | $AV(dB\mu V/m)$      |            | Limit         | $54(dB\mu V/m)$ |
| 2483.5MHz      |                      |            |               |                 |

## **Test Figure:**



20.FEB.2017 14:08:40 Date:

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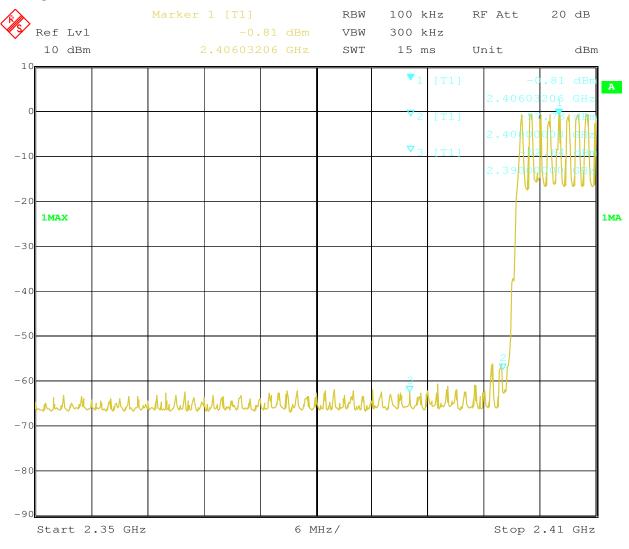


## Type of Modulation: GFSK

## Out of Band Test Result

| Product:       | Tablet PC       |            | Test Mode:    | Hopping mode    |
|----------------|-----------------|------------|---------------|-----------------|
| Mode           |                 | Hopping On | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,      |            | Humidity      | 56% RH          |
| Test Result:   | Pass            |            | Detector      | PK              |
| The Max. FS in | PK (dBμV/m)     | 44.7       |               | $74(dB\mu V/m)$ |
| Restrict Band  | $AV(dB\mu V/m)$ | AV(dBμV/m) |               | 54(dBμV/m)      |
| 2390MHz        |                 |            |               |                 |

## **Test Figure:**



20.FEB.2017 Date: 13:59:36

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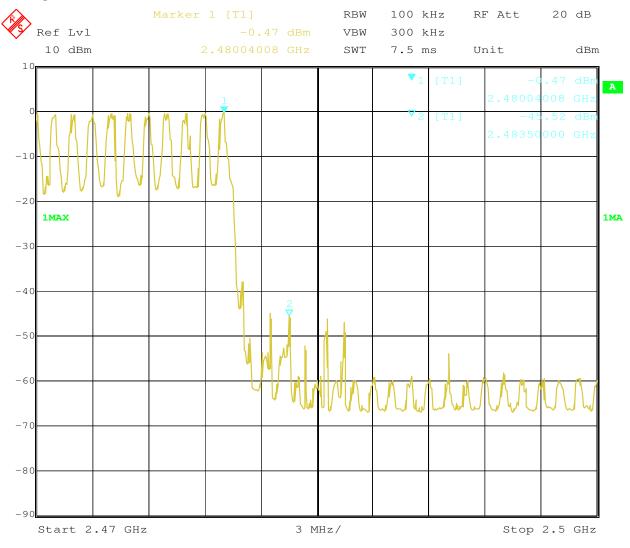


## Type of Modulation: GFSK

## Out of Band Test Result

| Product:       |                  | Tablet PC | Test Mode:    | Hopping mode    |
|----------------|------------------|-----------|---------------|-----------------|
| Mode           | Hopping On       |           | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,       |           | Humidity      | 56% RH          |
| Test Result:   | Pass             |           | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 46.0 |           |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)       |           | Limit         | 54(dBμV/m)      |
| 2483.5MHz      |                  |           |               |                 |

# **Test Figure:**



20.FEB.2017 13:56:42 Date:

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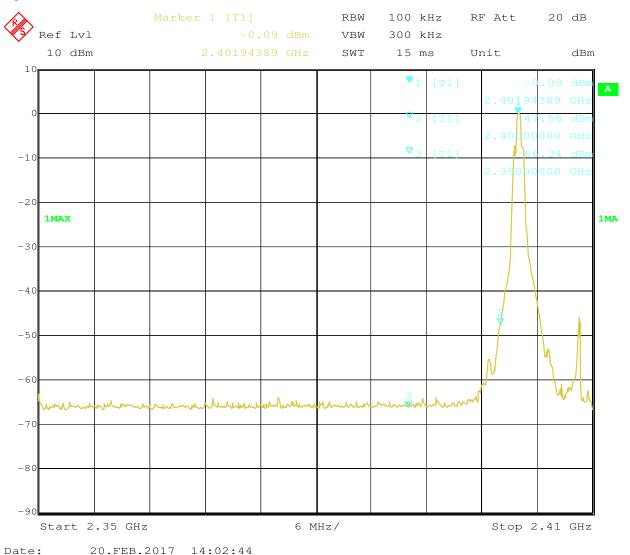


# Type of Modulation: Л/4DQPSK

#### Out of Band Test Result 12.4

| Product:       | Tablet PC            |  | Test Mode:    | Low Channel     |
|----------------|----------------------|--|---------------|-----------------|
| Mode           | Keeping Transmitting |  | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C            |  | Humidity      | 56% RH          |
| Test Result:   | Pass                 |  | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 48.3     |  |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)           |  | Limit         | 54(dBµV/m)      |
| 2390MHz        |                      |  |               |                 |

## **Test Figure:**



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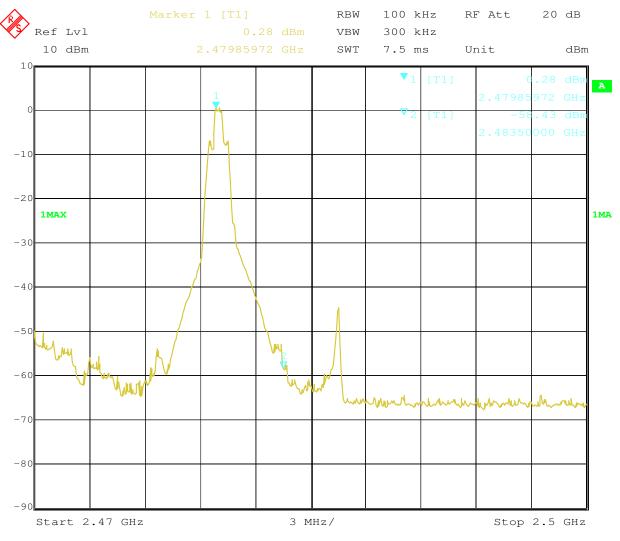


# Type of Modulation: Л/4DQPSK

#### Out of Band Test Result 12.4

| Product:       | Tablet PC            |  | Test Mode:    | High Channel    |
|----------------|----------------------|--|---------------|-----------------|
| Mode           | Keeping Transmitting |  | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,           |  | Humidity      | 56% RH          |
| Test Result:   | Pass                 |  | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 43.8     |  |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)           |  | Limit         | $54(dB\mu V/m)$ |
| 2483.5MHz      |                      |  |               |                 |

## **Test Figure:**



Date: 20.FEB.2017 14:07:32

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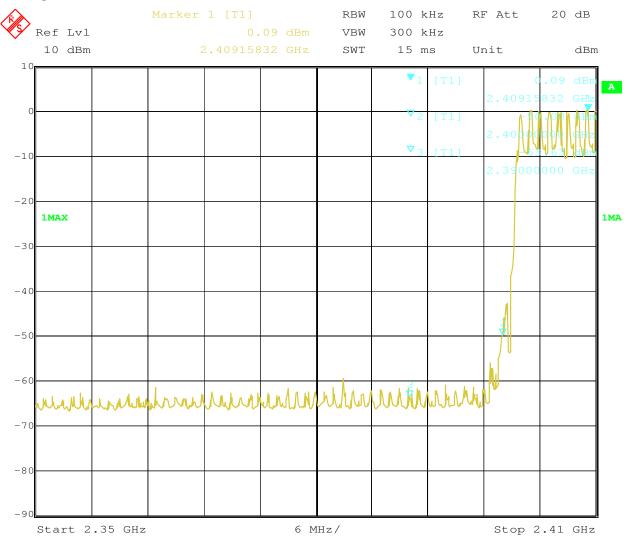


# Type of Modulation: Л/4DQPSK

## Out of Band Test Result

| Product:       |                  | Tablet PC | Test Mode:    | Hopping mode |
|----------------|------------------|-----------|---------------|--------------|
| Mode           | Hopping On       |           | Input Voltage | DC3.7V       |
| Temperature    | 24 deg. C,       |           | Humidity      | 56% RH       |
| Test Result:   | Pass             |           | Detector      | PK           |
| The Max. FS in | PK (dBμV/m) 45.7 |           |               | 74(dBμV/m)   |
| Restrict Band  | AV(dBμV/m)       |           | Limit         | 54(dBμV/m)   |
| 2390MHz        |                  |           |               |              |

## **Test Figure:**



20.FEB.2017 Date: 13:49:02 Report No.: FCC1702053-02

Date: 2017-02-22

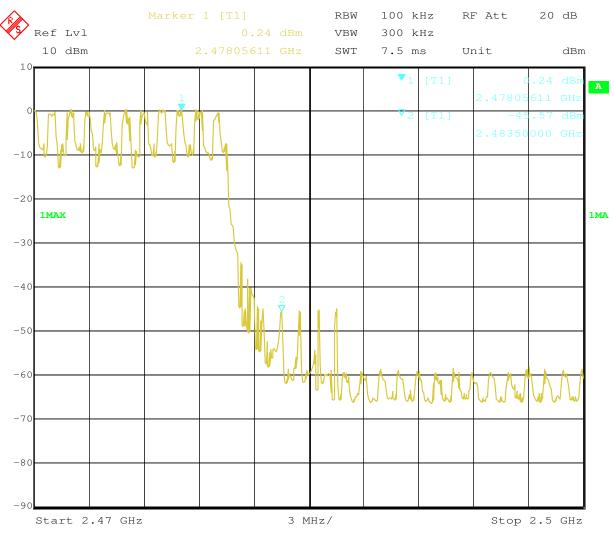


# Type of Modulation: Л/4DQPSK

# Out of Band Test Result

| Product:       | Tablet PC    |      | Test Mode:    | Hopping mode    |
|----------------|--------------|------|---------------|-----------------|
| Mode           | Hopping On I |      | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,   |      | Humidity      | 56% RH          |
| Test Result:   | Pass         |      | Detector      | PK              |
| The Max. FS in | PK (dBμV/m)  | 45.9 |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)   |      | Limit         | 54(dBμV/m)      |
| 2483.5MHz      |              |      |               |                 |

## **Test Figure:**



Date: 20.FEB.2017 13:54:21

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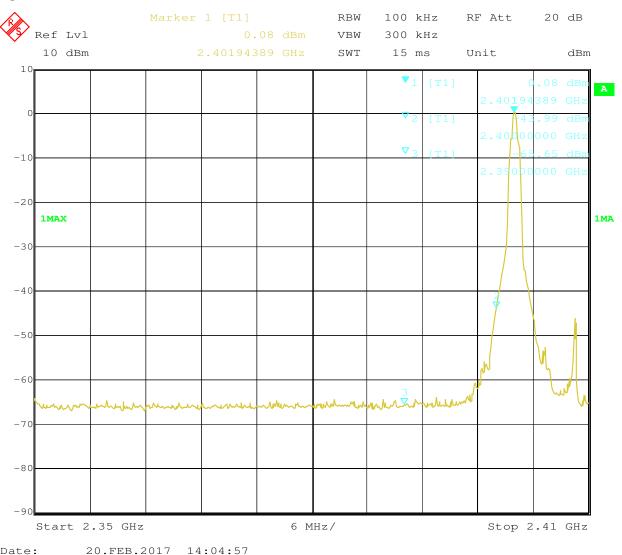


## **Type of Modulation: 8DPSK**

#### 12.4 Out of Band Test Result

| Product:       | Tablet PC            |  | Test Mode:    | Low Channel     |
|----------------|----------------------|--|---------------|-----------------|
| Mode           | Keeping Transmitting |  | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C            |  | Humidity      | 56% RH          |
| Test Result:   | Pass                 |  | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 48.7     |  |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)           |  | Limit         | 54(dBµV/m)      |
| 2390MHz        |                      |  |               |                 |

## **Test Figure:**



Date: 14:04:57

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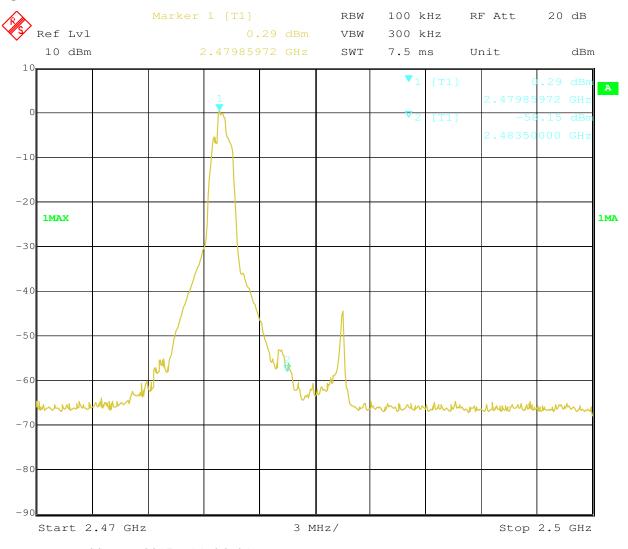


## **Type of Modulation: 8DPSK**

#### Out of Band Test Result 12.4

| Product:       | Tablet PC            |  | Test Mode:    | High Channel    |
|----------------|----------------------|--|---------------|-----------------|
| Mode           | Keeping Transmitting |  | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,           |  | Humidity      | 56% RH          |
| Test Result:   | Pass                 |  | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 44.1     |  |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)           |  | Limit         | 54(dBμV/m)      |
| 2483.5MHz      |                      |  |               |                 |

## **Test Figure:**



20.FEB.2017 14:06:24 Date:

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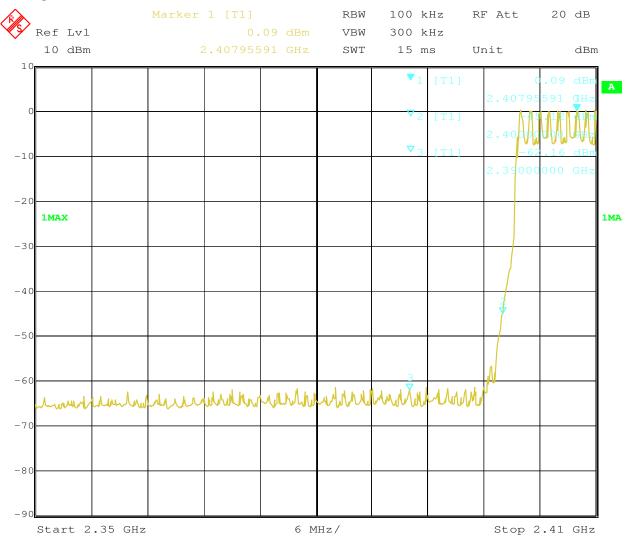


## **Type of Modulation: 8DPSK**

## Out of Band Test Result

| Product:       |                  | Tablet PC | Test Mode:    | Hopping mode    |
|----------------|------------------|-----------|---------------|-----------------|
| Mode           | Hopping On       |           | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,       |           | Humidity      | 56% RH          |
| Test Result:   | Pass             |           | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 47.3 |           |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)       |           | Limit         | 54(dBμV/m)      |
| 2390MHz        |                  |           |               |                 |

## **Test Figure:**



20.FEB.2017 Date: 12:00:59

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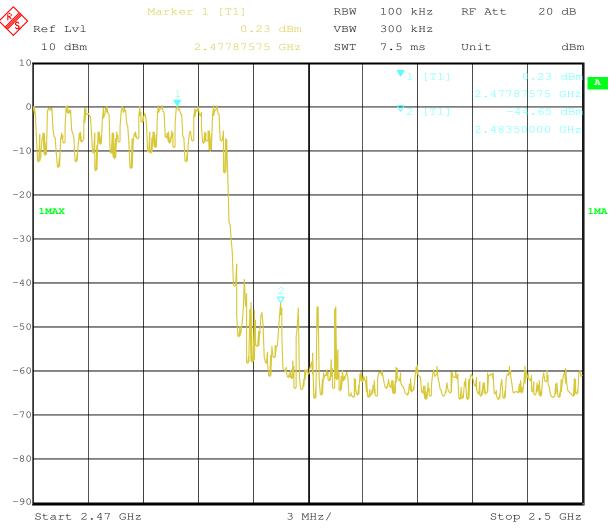


## **Type of Modulation: 8DPSK**

## Out of Band Test Result

| Product:       | Tablet PC        |  | Test Mode:    | Hopping mode    |
|----------------|------------------|--|---------------|-----------------|
| Mode           | Hopping On       |  | Input Voltage | DC3.7V          |
| Temperature    | 24 deg. C,       |  | Humidity      | 56% RH          |
| Test Result:   | Pass             |  | Detector      | PK              |
| The Max. FS in | PK (dBμV/m) 46.5 |  |               | $74(dB\mu V/m)$ |
| Restrict Band  | AV(dBμV/m)       |  | Limit         | $54(dB\mu V/m)$ |
| 2483.5MHz      |                  |  |               |                 |

## **Test Figure:**



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# 13.0 Antenna Requirement

# 13.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 13.2 Antenna Connected constructions

Integral antenna used. The maximum Gain of the antennas is 1.56dBi.

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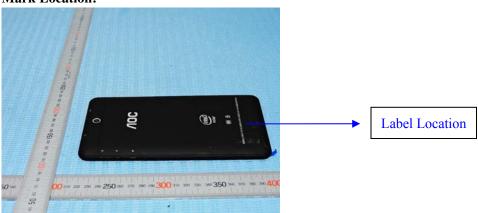
#### 14.0 FCC ID Label

# **FCC ID: 2AEB5-A724**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



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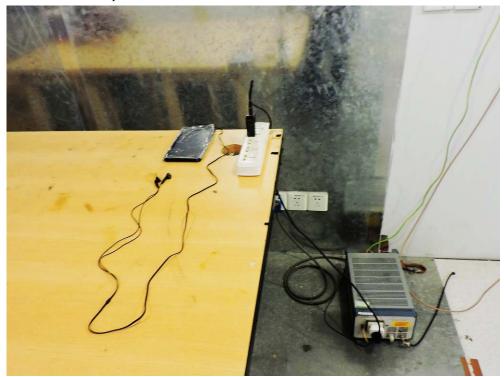
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## 15.0 Photo of testing

Conducted Emission Test Setup:



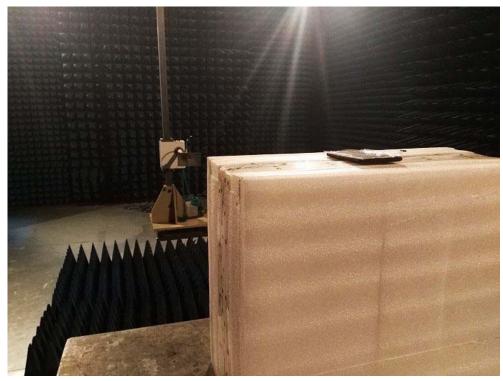
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## Radiated Emission Test Setup:





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Date: 2017-02-22



## Photographs - EUT

## Outside view





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Outside view





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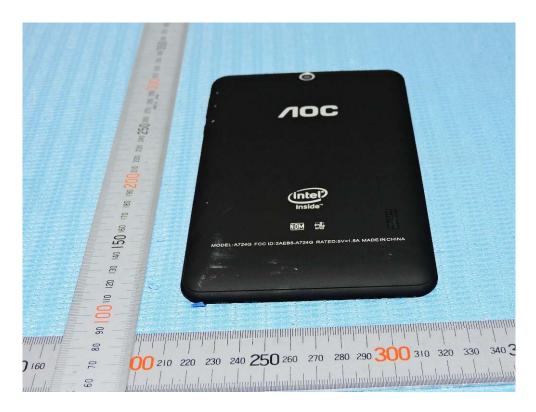
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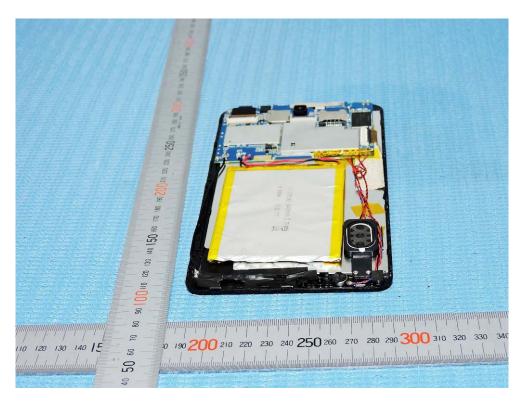
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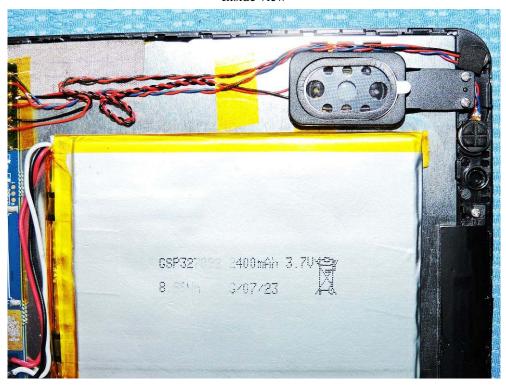
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Inside view





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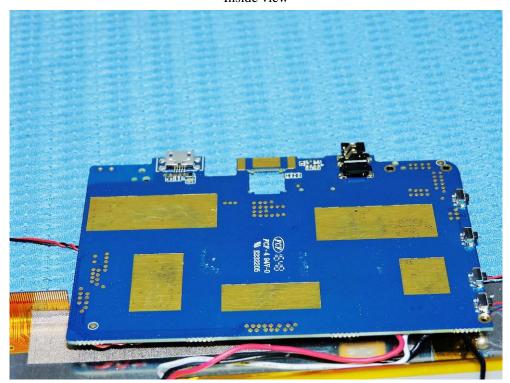
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Inside view





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