# FCC RF Test Report
## (Zigbee)

| | |
|---|---|
| **Applicant:** | Lumi United Technology Co., Ltd |
| **Address of Applicant:** | B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China |
| **Product Name:** | Spatial Multi-Sensor FP400 Pro, Spatial Multi-Sensor FP400 |
| **Model No.:** | PS-S06D, PS-S05E, PS-S05D, PS-S06E |
| **Brand Name:** | Aqara |
| **FCC ID:** | 2AKIT-PSS05 |
| **Test Standards:** | FCC CFR Title 47 Part 15C (§15.247) |
| **Date of Sample Receipt:** | Apr. 13, 2026 |
| **Date of Test:** | Apr. 13 to 27, 2026 |

**Date of Report Issue:**
Apr. 28, 2026

**Prepared By:**
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深圳市阿科特科技有限公司 测试专用章 Shenzhen Acote Technology Co., Ltd. Testing Service

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# Report Revision History

| Rev. | Issue Date | Description |
|---|---|---|
| V00 | Apr. 28, 2026 | Initial Release |
| | | |
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# 1 Laboratory Introduction

## 1.1 Laboratory Location

| | |
|---|---|
| Company Name: | Shenzhen Acote Technology Co., Ltd. |
| Address of Main Laboratory: | Room 719, Excellence Times Building, No. 27, Xinqiao 3rd Road, Xinqiao Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong Province, China. |
| Address of Satellite Laboratory: | 101, F1, building 15, zhongda 365, Xincheng Road No.9, Songshanhu, Dongguan, Guangdong, China. |
| Website: | www.acotelabs.com |
| Email: | info@acotelabs.com |
| Tel.: | +86-0755-2788 9963 |

## 1.2 Laboratory Facility

Our company's laboratory facilities have received accreditation, certification, or authorization from the following organizations:

- **FCC - Designation No.: CN1450**
  Shenzhen Acote Technology Co., Ltd. has been certified by the FCC (Federal Communications Commission) as a testing laboratory. Test Firm Registration Number: **832670**.
- **A2LA - Accreditation Number: 7697.01**
  Shenzhen Acote Technology Co., Ltd. has been accredited by A2LA (American Association for Laboratory Accreditation) in compliance with the internationally recognized standard ISO/IEC 17025:2017, "General Requirements for the Competence of Testing and Calibration Laboratories."

## 1.3 Announcement

Shenzhen Acote Technology Co., Ltd. tested the equipment in accordance with the requirements set forth in the test standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by Shenzhen Acote Technology Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Shenzhen Acote Technology Co., Ltd. will constitute fraud and shall nullify the document.

## 1.4 Disclaimer

For the information or data provided by the client in this report, the relevant results or conclusions of this report are only made for these data or information. The testing laboratory is not responsible for the authenticity and accuracy of these data or information.

# 2 Equipment Under Test Information

## 2.1 Application Information

| | |
|---|---|
| Applicant: | Lumi United Technology Co., Ltd |
| Address of Applicant: | B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China |
| Manufacturer: | Lumi United Technology Co., Ltd |
| Address of Manufacturer: | B1, Chongwen Park, Nanshan iPark, Liuxian Avenue, Taoyuan Residential District, Nanshan District, Shenzhen, China |

## 2.2 Product Information

| | |
|---|---|
| Product Name: | Spatial Multi-Sensor FP400 Pro, Spatial Multi-Sensor FP400 |
| Model No.: | PS-S06D |
| Models of Product Family: | PS-S05E,PS-S05D,PS-S06E |
| Description of Model Differentiation: | Please refer to model differences declaration letter. |

## 2.3 EUT Technical Parameters

| | |
|---|---|
| Operation Frequency: | 2405MHz ~ 2480MHz |
| Modulation Technology: | Other Modulation |
| Modulation Type: | O-QPSK |
| Date Speed: | 250kbps |
| Channel Numbers: | 16 |
| Antenna Type: | FPC Antenna |
| Antenna Gain: | 1.0 dBi (declared by applicant) |
| Power Supply: | DC 5V, 1A |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

# 3 Test Information

## 3.1 Test Methodology

The tests documented in this report were performed in accordance with:

- FCC CFR Title 47 Part 2
- FCC CFR Title 47 Part 15C (§15.247)
- ANSI C63.10:2020
- KDB 558074 D01 15.247 Meas Guidance v05r02

## 3.2 Test Result Summary

| Report Section | Test Items | Standard Clause | Test Result |
|---|---|---|---|
| 5.1 | Antenna Requirement | §15.203<br>§15.247 (b)(4) | Pass |
| 5.2 | AC Power Line Conducted Emission | §15.207 | Pass Note 2 |
| 5.3 | Duty Cycle | ANSI C63.10-2020 Section 11.6 | / |
| 5.4 | Conducted Output Power | §15.247 (b)(3) | Pass Note 1 |
| 5.5 | 6dB Emission Bandwidth | §15.247 (a)(2) | Pass Note 1 |
| | 99% Occupied Bandwidth | ANSI C63.10-2020 Section 6.9.3 | |
| 5.6 | Power Spectral Density | §15.247 (e) | Pass Note 1 |
| 5.7 | Band-edge Emission | §15.247 (d) | Pass Note 1 |
| 5.8 | Conduction Spurious Emission | §15.247 (d) | Pass Note 1 |
| 5.9 | Emissions in Restricted Frequency Bands | §15.205<br>§15.247 (d) | Pass Note 2 |
| 5.10 | Emissions in Non-restricted Frequency Bands | §15.209<br>§15.247(d) | Pass Note 2 |

***Remark:***

*a) Pass: The EUT complies with the essential requirements in the standard.*

*b) N/A: Not applicable.*

*c) The test cable insertion loss used for RF output power and other conducted measurements is provided by the applicant.*

***Note 1:*** *This test item was performed at the main laboratory.*

***Note 2:*** *This test item was performed at the satellite laboratory.*

## 3.3 Environment of test site

| | |
|---|---|
| Temperature: | 15 ~ 35°C |
| Humidity: | 20 ~ 75% RH |
| Atmospheric Pressure: | 990 ~ 1010 mbar |

## 3.4 Measurement Uncertainty

| **Parameter** | **Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))** |
|---|---|
| Radio Frequency | ±2 x $10^{-8}$ |
| RF Power, Conducted | ±0.66 dB |
| Spurious emission, Conducted | ±2.28 dB |
| Bandwidth, Conducted | ±4% |
| Temperature | ±0.3 °C |
| Voltage | ±0.1 % |
| Humidity | ±2 % |
| Conducted Emission (9kHz ~ 150kHz) | ±3.02 dB |
| Conducted Emission (30MHz ~ 1000MHz) | ±2.52 dB |
| Radiated Emission (30MHz ~ 1000MHz) (3m SAC) | ±4.78 dB |
| Radiated Emission (1GHz ~ 6GHz) (3m SAC) | ±5.16 dB |
| Radiated Emission (6GHz ~ 18GHz) (3m SAC) | ±5.48 dB |
| Radiated Emission (18GHz ~ 40GHz) (3m SAC) | ±5.48 dB |
| ***Note:*** *All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.* | |

## 3.5 Description of Support Units

| Description | Model | Manufacturer | Serial Number |
|---|---|---|---|
| Adapter | S010WK0500200 | MOK | N/A |

## 3.6 Additions to, Deviations, or Exclusions from the Method

None

## 3.7 Test Instruments List

| Radiated Emission(3m SAC) | | | | |
|---|---|---|---|---|
| Test Equipment | Manufacturer | Model | Serial No. | Cal Due |
| 3m SAC | YiHeng | 9m*6m*6m | 20250422 | 2028/05/28 |
| EMI Test Receiver | Rohde & Schwarz | ESR7 | 101542 | 2026/08/31 |
| TRILOG Broad Band Antenna (30MHz – 1000MHz) | Schwarzbeck | VULB 9168 | 9168-771 | 2026/09/08 |
| 6dB Attenuator | SRTechnology Corporate | N-ATTENUATOR(6dB) | 311248 | 2026/08/31 |
| Preamplifier (30MHz – 1000MHz) | TESTEK | TK-PA06S | 190014-L | 2026/08/31 |
| Broadband Horn Antenna (1GHz – 18GHz) | Gwave Technology | GHA0118A-11 | 20251014010 | 2026/11/16 |
| Preamplifier (1GHz – 18GHz) | Gwave Technology | GWLAN008018-50 | 20251014010 | 2026/10/23 |
| Broadband Horn Antenna (18GHz – 40GHz) | Gwave Technology | GHA180400-292F-20 | 20251014010 | 2026/11/16 |
| Preamplifier (18GHz – 40GHz) | Gwave Technology | GWLAN018040-45 | 20251014010 | 2026/10/23 |
| RF Cable (9kHz – 18GHz) | REBES | SF104/10000MM | 805225/4 | 2026/08/31 |
| RF Cable (9kHz – 18GHz) | REBES | SF104/10000MM | 805226/4 | 2026/08/31 |
| RF Cable (18GHz – 40GHz) | MWRFTest | UCA400-2.92M2092M-1.5M | 004 | 2026/10/23 |
| RF Cable (18GHz – 40GHz) | Gwave Technology | GAU3-292M292M-3000A1 | 20251021001-01-01 | 2026/10/23 |
| RF Cable (18GHz – 40GHz) | Gwave Technology | GAU3-292M292M-600A1 | 20251021001-01-01 | 2026/10/23 |
| High-pass filter (1GHz – 18GHz) | K&L MICROWAVE | 11SH10-2000/U1800-O/O | 350 | 2026/10/23 |
| High-pass filter (3GHz – 18GHz) | UIY | UIYHPF3025A4T18SF | DL0019131 | 2026/10/23 |
| High-pass filter (7GHz – 18GHz) | Narda | F4036A | 1572 | 2026/10/23 |
| Spectrum Analyzer | Rohde & Schwarz | FSP40 | 102129 | 2026/07/04 |
| Test Software | Frad | EZ_EMC | Version: EMEC-3A1 | N/A |

| Conducted Emission | | | | |
|---|---|---|---|---|
| Test Equipment | Manufacturer | Model | Serial No. | Cal Due |
| EMI Test Receiver | Rohde & Schwarz | ESR3 | 101763 | 2026/08/31 |
| TWO-LINE V-NETWORK | Rohde & Schwarz | ENV216 | 101078 | 2026/08/31 |
| RF Cable (9kHz – 30MHz) | REBES | WG4R-60-60-3 | 210305 | 2026/08/31 |
| Test Software | Frad | EZ_EMC | Version: EMEC-3A1 | N/A |

| RF Conducted Measurement | | | | |
|---|---|---|---|---|
| Test Equipment | Manufacturer | Model | Serial No. | Cal Due |
| Spectrum Analyzer | Keysight | N9020A | MY56060179 | 2026/11/13 |
| Vector Signal Generator | Agilent | N5182A | MY49060467 | 2026/11/13 |
| Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | 123351 | 2026/11/13 |
| Automatic control unit (including power sensor) | MWRFTest | MW100-RFCB | MW250722AKT-59 | 2026/11/13 |
| BT/WiFi automated testing software | MWRFTest | MTS8310 | Version: 2.0.0.0 | N/A |

# 4 Test Configuration of EUT

## 4.1 Channels Selected to Perform the Tests

| Channels | Channel No. | Frequency (MHz) |
|---|---|---|
| Lowest | 11 | 2405 |
| Middle | 18 | 2440 |
| Highest | 26 | 2480 |

## 4.2 Test Mode

| | |
|---|---|
| TM 1: | Keep the EUT in continuously transmitting mode |

## 4.3 Worst-case Configuration

The worst-case scenario for all measurements is based on an engineering evaluation made on all modulation types at different data rate. The details are as follows:

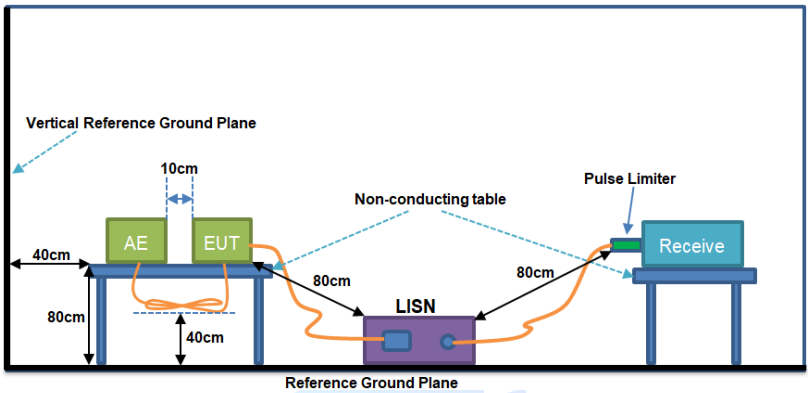
| Report Section | Test Channel | Test Mode | Modulation Type |
|---|---|---|---|
| 5.2 Note 2) | / | TM 1 | 250kbps (O-QPSK) |
| 5.3 | L, M, H | TM 1 | |
| 5.4 | L, M, H | TM 1 | |
| 5.5 | L, M, H | TM 1 | |
| 5.6 | L, M, H | TM 1 | |
| 5.7 | L, H | TM 1 | |
| 5.8 | L, M, H | TM 1 | |
| 5.9 | L, H | TM 1 | |
| 5.10 Note 3), Note 4) | L, M, H | TM 1 | |

**Note:**

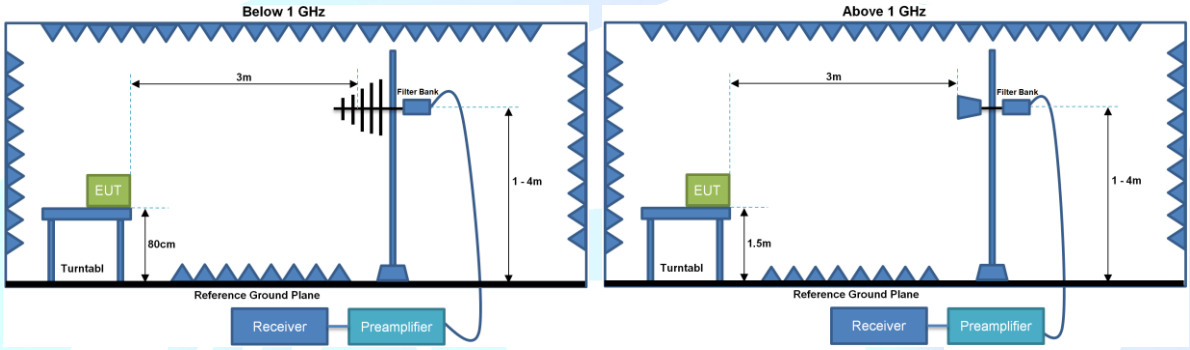
1) The EUT was investigated in three orthogonal orientations X, Y and Z, it was determined that Y was the worst-case of radiated field strength.
2) For Section 5.2, only the modulation type and the channel corresponding to the highest output power were tested.
3) For the 30 MHz to 1000 MHz range in Section 5.10, only the modulation type and the channel corresponding to the highest output power were tested.
4) For frequencies above 1 GHz in Section 5.10, measurements were performed up to the 10$^{th}$ harmonic of the fundamental frequency (or up to 40 GHz). Frequencies with emission levels at least 20 dB below the limit are not presented in the test report.

## 4.4 Test Setup Block

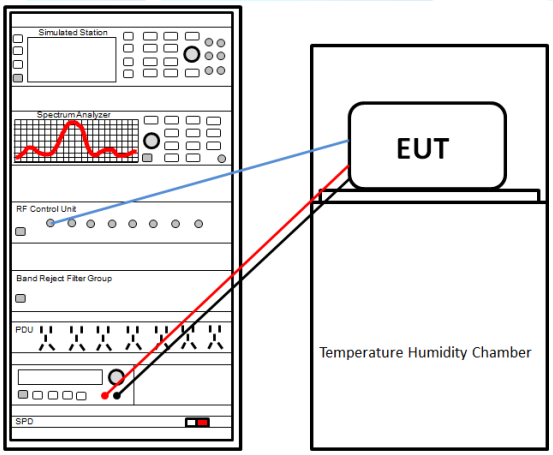
**Setup 1 (Conducted Emission):**




**Setup 2 (Radiated Emission):**




**Setup 3 (MTS8310 Testing System):**



# 5 Technical requirements specification

## 5.1 Antenna Requirement

### 5.1.1 Requirement

**15.203 Requirement:**

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

**15.247(b) (4) Requirement:**

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.

### 5.1.2 Results

Pass.

The Zigbee antenna is an FPC Antenna which permanently attached, and the best case gain of the antenna is 1.0 dBi. See product internal photos for details.

# 5.2 AC Power Line Conducted Emission

## 5.2.1 Limits

| Frequency (MHz) | Limit (dBµV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 – 0.5 | 66 to 56 Note 1 | 56 to 46 Note 1 |
| 0.5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |
| Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.<br>Note 2: The more stringent limit applies at transition frequencies. | | |

## 5.2.2 Test Procedure

a) The EUT was placed on a non-conductive table, 40 cm from the vertical ground plane and 80 cm from the horizontal ground plane. The EUT was arranged in accordance with ANSI C63.10.
b) The EUT was configured to operate in TM 1 mode as specified in Section 4.2. The test channels and modulation types of the EUT are described in Section 4.3.
c) The phase of the LISN was set to L1.
d) Open the EZ-EMC test software, load the FCC conducted emission test script, or create a new conducted emission test script, and configure the test parameters, including the test frequency range, RBW = 9kHz, VBW = 30kHz, test standard, LISN, receiver, and other related settings.
e) The test script was executed, the measurement was performed. Save the test data.
f) The phase of the LISN was set to N, and steps d) and e) were repeated.

## 5.2.3 Test Setup

See setup 1 in section 4.4.

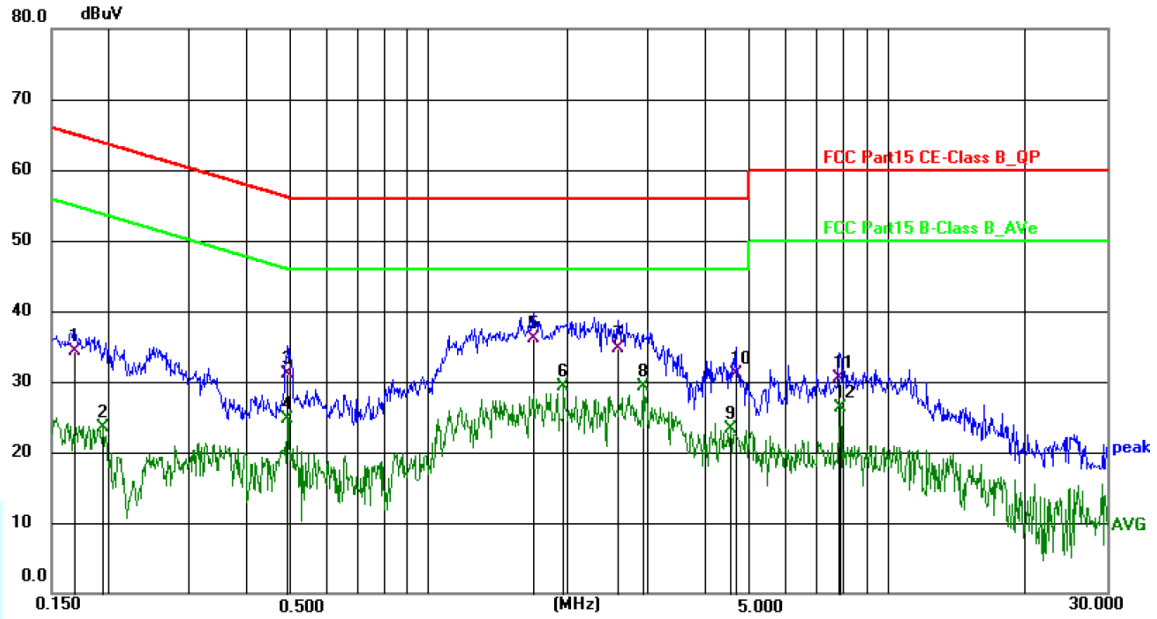
## 5.2.4 Test Instruments

Refer to section 3.7.

## 5.2.5 Test Results

Pass.

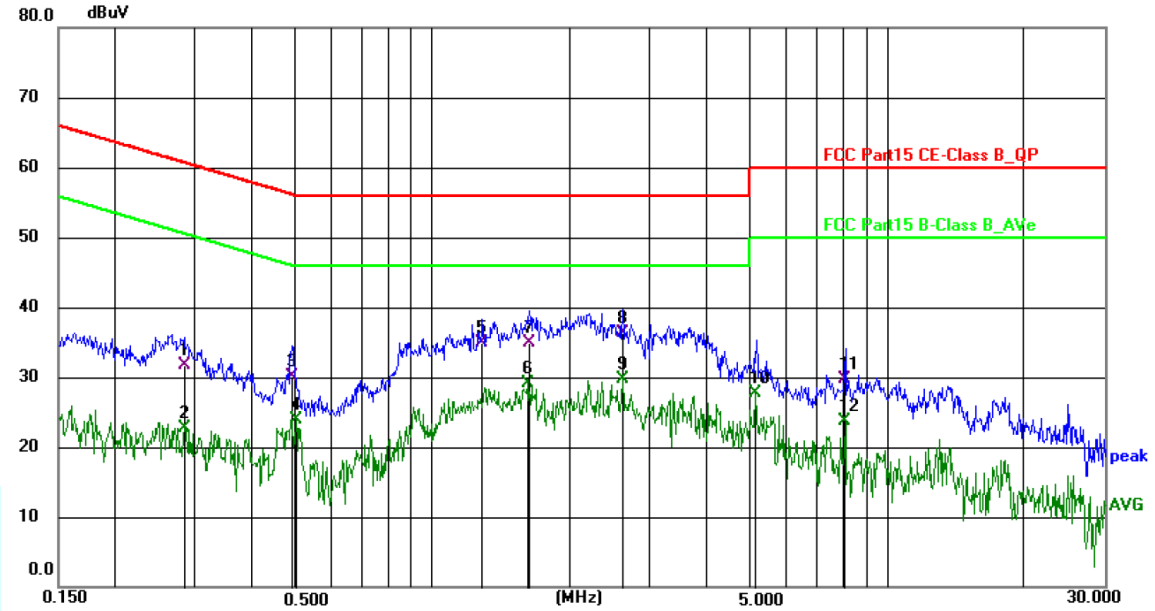
| **Product name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test by:** | Albers Liu | **Test mode:** | TM 1 |
| **Test frequency:** | 150kHz ~ 30MHz | **Phase:** | Line |
| **Test voltage:** | AC 120V/60Hz | | |




| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.1685 | 24.56 | 9.67 | 34.23 | 65.03 | -30.80 | QP | P |
| 2 | 0.1943 | 13.91 | 9.65 | 23.56 | 53.85 | -30.29 | AVG | P |
| 3 | 0.4900 | 21.54 | 9.60 | 31.14 | 56.17 | -25.03 | QP | P |
| 4 | 0.4900 | 15.13 | 9.60 | 24.73 | 46.17 | -21.44 | AVG | P |
| 5 | 1.6820 | 26.58 | 9.57 | 36.15 | 56.00 | -19.85 | QP | P |
| 6 * | 1.9660 | 19.66 | 9.58 | 29.24 | 46.00 | -16.76 | AVG | P |
| 7 | 2.5780 | 25.21 | 9.57 | 34.78 | 56.00 | -21.22 | QP | P |
| 8 | 2.9260 | 19.64 | 9.58 | 29.22 | 46.00 | -16.78 | AVG | P |
| 9 | 4.5460 | 13.63 | 9.60 | 23.23 | 46.00 | -22.77 | AVG | P |
| 10 | 4.6660 | 21.53 | 9.60 | 31.13 | 56.00 | -24.87 | QP | P |
| 11 | 7.8420 | 20.85 | 9.65 | 30.50 | 60.00 | -29.50 | QP | P |
| 12 | 7.8900 | 16.60 | 9.65 | 26.25 | 50.00 | -23.75 | AVG | P |

***Remark:*** *Level = Read level + LISN Factor + Cable Loss.*

| **Product name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test by:** | Albers Liu | **Test mode:** | TM 1 |
| **Test frequency:** | 150kHz ~ 30MHz | **Phase:** | Neutral |
| **Test voltage:** | AC 120V/60Hz | | |




| No. | Frequency (MHz) | Reading () | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.2832 | 21.56 | 10.20 | 31.76 | 60.72 | -28.96 | QP | P |
| 2 | 0.2832 | 12.59 | 10.20 | 22.79 | 50.72 | -27.93 | AVG | P |
| 3 | 0.4900 | 19.58 | 10.58 | 30.16 | 56.17 | -26.01 | QP | P |
| 4 | 0.5020 | 13.36 | 10.60 | 23.96 | 46.00 | -22.04 | AVG | P |
| 5 | 1.2860 | 22.65 | 12.16 | 34.81 | 56.00 | -21.19 | QP | P |
| 6 | 1.6180 | 19.52 | 9.57 | 29.09 | 46.00 | -16.91 | AVG | P |
| 7 | 1.6300 | 25.36 | 9.57 | 34.93 | 56.00 | -21.07 | QP | P |
| 8 | 2.6140 | 26.74 | 9.57 | 36.31 | 56.00 | -19.69 | QP | P |
| 9 * | 2.6140 | 20.06 | 9.57 | 29.63 | 46.00 | -16.37 | AVG | P |
| 10 | 5.1300 | 18.02 | 9.61 | 27.63 | 50.00 | -22.37 | AVG | P |
| 11 | 8.0659 | 20.12 | 9.65 | 29.77 | 60.00 | -30.23 | QP | P |
| 12 | 8.0659 | 14.15 | 9.65 | 23.80 | 50.00 | -26.20 | AVG | P |

***Remark:*** *Level = Read level + LISN Factor + Cable Loss.*

# 5.3 Duty Cycle

## 5.3.1 Limits

N/A.

## 5.3.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.3.3 Test Setup

See setup 3 in section 4.4.

## 5.3.4 Test Instruments

Refer to section 3.7.

## 5.3.5 Test Results

Pass.
The detailed test data see: Appendix – Zigbee.

# 5.4 Maximum Peak Conducted Output Power

## 5.4.1 Limits

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. The conducted output power limit is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## 5.4.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.4.3 Test Setup

See setup 3 in section 4.4.

## 5.4.4 Test Instruments

Refer to section 3.7.

## 5.4.5 Test Results

Pass.
The detailed test data see: Appendix – Zigbee.

# 5.5 6dB Emission Bandwidth and 99% Occupied Bandwidth

## 5.5.1 Limits

- The minimum 6 dB bandwidth shall be at least 500 kHz.
- 99% occupied bandwidth: N/A.

## 5.5.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.5.3 Test Setup

See setup 3 in section 4.4.

## 5.5.4 Test Instruments

Refer to section 3.7.

## 5.5.5 Test Results

Pass.
The detailed test data see: Appendix – Zigbee.

# 5.6 Power Spectral Density

## 5.6.1 Limits

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.

## 5.6.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.6.3 Test Setup

See setup 3 in section 4.4.

## 5.6.4 Test Instruments

Refer to section 3.7.

## 5.6.5 Test Results

Pass.
The detailed test data see: Appendix – Zigbee.

# 5.7 Band-edge Emission

## 5.7.1 Limits

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.

## 5.7.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.7.3 Test Setup

See setup 3 in section 4.4.

## 5.7.4 Test Instruments

Refer to section 3.7.

## 5.7.5 Test Results

Pass.

The detailed test data see: Appendix – Zigbee.

# 5.8 Conduction Spurious Emission

## 5.8.1 Limits

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.

## 5.8.2 Test Procedure

a) The EUT antenna port is connected to the RF port of the test system control unit via an RF cable.
b) The EUT is set to operate in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.
c) Open the MTS8310 test software, load the FCC BLE test script, and select the test items and other relevant test parameters.
d) The test script was executed, the measurement was performed.
e) Save the test data.

## 5.8.3 Test Setup

See setup 3 in section 4.4.

## 5.8.4 Test Instruments

Refer to section 3.7.

## 5.8.5 Test Results

Pass.

The detailed test data see: Appendix – Zigbee.

# 5.9 Emissions in Restricted Frequency Bands

## 5.9.1 Limits

| Frequency (MHz) | Limits (dBμV/m) at 3m | Detector |
|---|---|---|
| 30 - 88 | 40.0 | Quasi-peak |
| 88 - 216 | 43.5 | Quasi-peak |
| 216 - 960 | 46.0 | Quasi-peak |
| 960 - 1000 | 54.0 | Quasi-peak |
| **Note:** The more stringent limits applies at transition frequencies. | | |
| Frequency (MHz) | Limits (dBμV/m) at 3m | |
| | Average | Peake |
| Above 1GHz | 54.0 | 74. |

## 5.9.2 Test Procedure

a) The EUT is placed on a non-conducting table of the 3m SAC turntable, 80 cm above the ground plane for measurement below 1GHz, 1.5 m above the ground plane for measurement above 1GHz. The measurement receiving antenna to EUT distance is 3 meters. The EUT was arranged in accordance with ANSI C63.10.

b) The EUT is operated in TM 1 mode as described in Section 4.2. The EUT test channel and modulation type settings are described in Section 4.3.

c) Open the EZ-EMC test software, load the FCC radiated emissions test script, or create a new radiated emissions test script, and configure the test parameters, including the test frequency range, RBW = 100kHz (for below 1GHz) or 1MHz (for above 1GHz), VBW = 300kHz (for below 1GHz) or 3MHz (for above 1GHz), test standard, test antenna, spectrum analyzer, and other related settings.

d) The test script was executed, the measurement was performed.

e) The turntable rotates 360 degrees, and the test antenna is raised and lowered within a range of 1 to 4 meters.

f) Use the spectrum analyzer's Max Hold function to record the maximum test trace. For frequencies below 1 GHz, mark the maximum Quasi-peak value. For frequencies above 1 GHz, mark the maximum Peak and Average values. Save the test data.

g) Both vertical and horizontal polarizations of the test antenna need to be tested.

## 5.9.3 Test Setup

See setup 2 in section 4.4.

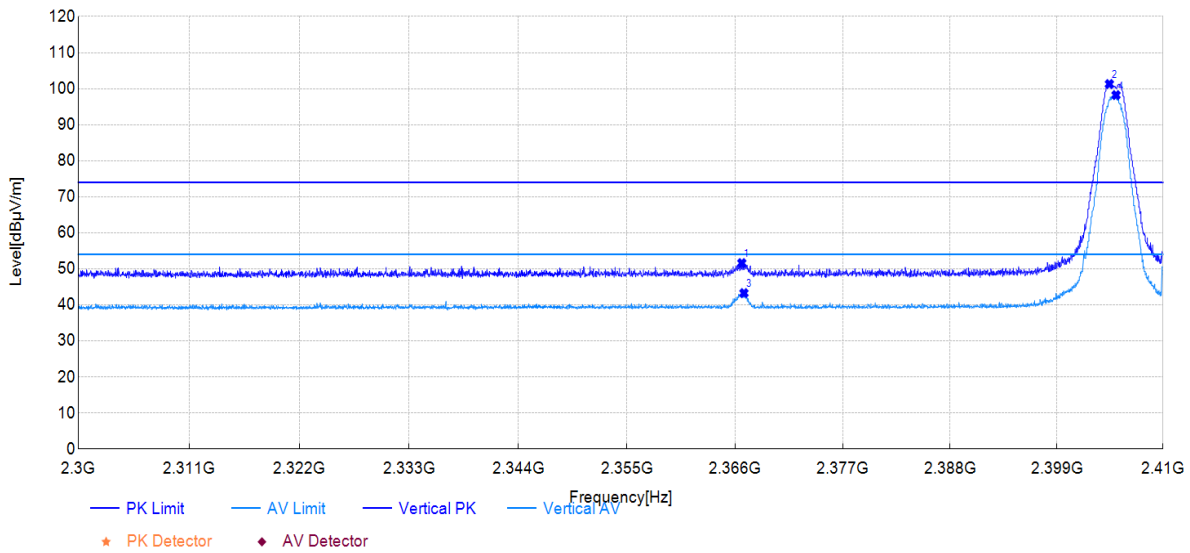
## 5.9.4 Test Instruments

Refer to section 3.7.

## 5.9.5 Test Results

Pass.

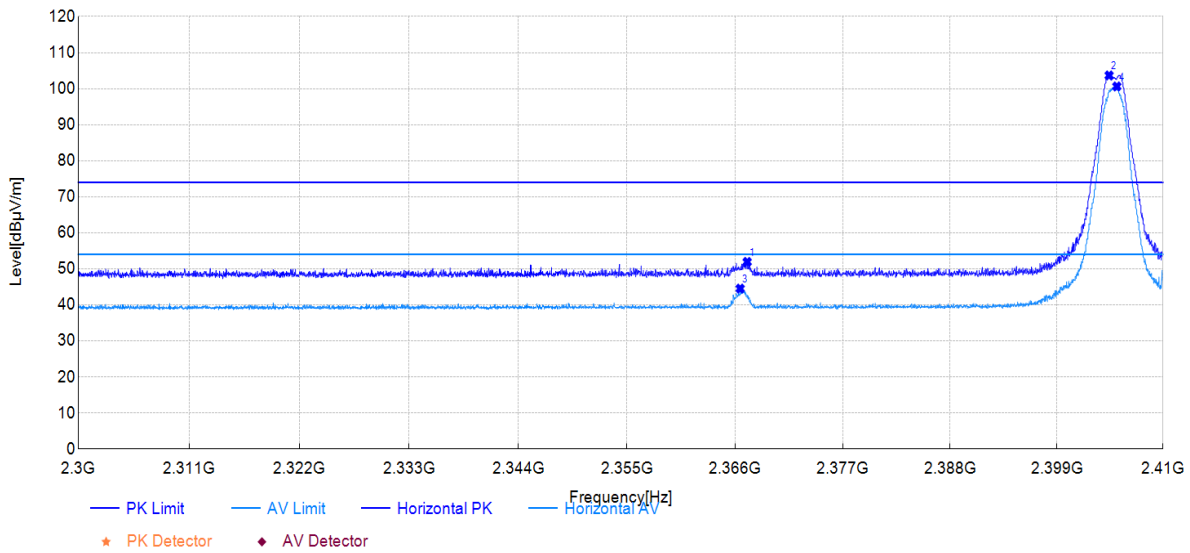
| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Channel:** | Lowest channel | **Polarization:** | Vertical |
| **Test Voltage:** | DC 5V | | |




| **Suspected Data List** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | Level [dBµV/m] | Factor [dB/m] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Det | Pol | Verdict |
| 1 | 2366.68 | 16.18 | 51.60 | 35.42 | 74.00 | 22.40 | 150 | 180 | PK | Vertical | PASS |
| 2 | 2404.44 | 65.93 | 101.29 | 35.36 | / | / | 150 | 171 | PK | Vertical | / |
| 3 | 2366.90 | 7.85 | 43.27 | 35.42 | 54.00 | 10.73 | 150 | 171 | AV | Vertical | PASS |
| 4 | 2405.13 | 62.85 | 98.22 | 35.37 | / | / | 150 | 166 | AV | Vertical | / |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

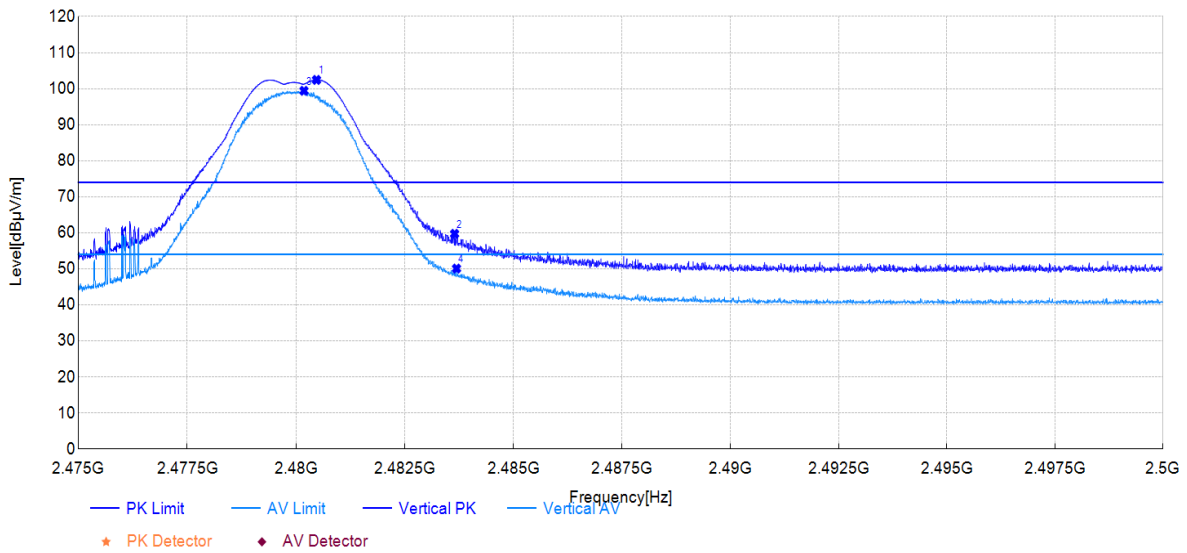
| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Channel:** | Lowest channel | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 5V | | |




| **Suspected Data List** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | Level [dBµV/m] | Factor [dB/m] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Det | Pol | Verdict |
| 1 | 2367.23 | 16.57 | 51.93 | 35.36 | 74.00 | 22.07 | 150 | 172 | PK | Horizontal | PASS |
| 2 | 2404.42 | 68.37 | 103.67 | 35.30 | / | / | 150 | 164 | PK | Horizontal | / |
| 3 | 2366.51 | 9.15 | 44.52 | 35.37 | 54.00 | 9.48 | 150 | 168 | AV | Horizontal | PASS |
| 4 | 2405.21 | 65.31 | 100.62 | 35.31 | / | / | 150 | 168 | AV | Horizontal | / |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Channel:** | Highest channel | **Polarization:** | Vertical |
| **Test Voltage:** | DC 5V | | |

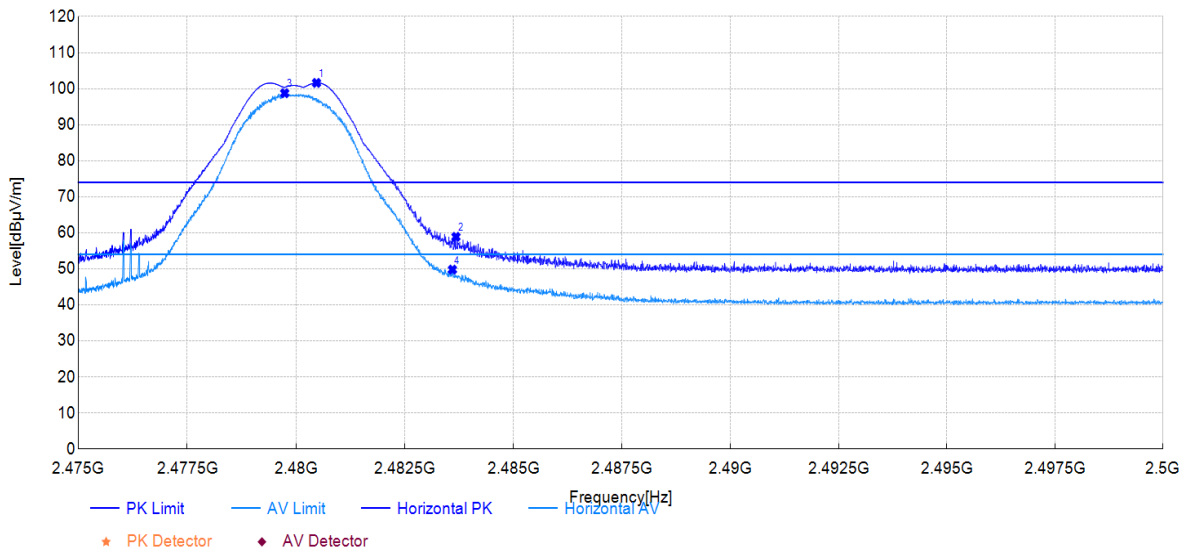



**Suspected Data List**

| NO. | Frequency [MHz] | Reading [dBµV] | Level [dBµV/m] | Factor [dB/m] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Det | Pol | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2480.47 | 66.36 | 102.43 | 36.07 | / | / | 150 | 166 | PK | Vertical | / |
| 2 | 2483.65 | 23.62 | 59.73 | 36.11 | 74.00 | 14.27 | 150 | 166 | PK | Vertical | PASS |
| 3 | 2480.18 | 63.34 | 99.41 | 36.07 | / | / | 150 | 166 | AV | Vertical | / |
| 4 | 2483.69 | 13.97 | 50.08 | 36.11 | 54.00 | 3.92 | 150 | 166 | AV | Vertical | PASS |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Channel:** | Highest channel | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 5V | | |




| **Suspected Data List** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Reading [dBµV] | Level [dBµV/m] | Factor [dB/m] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Det | Pol | Verdict |
| 1 | 2480.47 | 65.62 | 101.60 | 35.98 | / | / | 150 | 164 | PK | Horizontal | / |
| 2 | 2483.68 | 22.87 | 58.89 | 36.02 | 74.00 | 15.11 | 150 | 164 | PK | Horizontal | PASS |
| 3 | 2479.74 | 62.76 | 98.74 | 35.98 | / | / | 150 | 164 | AV | Horizontal | / |
| 4 | 2483.60 | 13.76 | 49.78 | 36.02 | 54.00 | 4.22 | 150 | 164 | AV | Horizontal | PASS |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

# 5.10 Emissions in Non-restricted Frequency Bands

## 5.10.1 Limits

| Frequency (MHz) | Limits (dBμV/m) at 3m | Detector |
|---|---|---|
| 30 - 88 | 40.0 | Quasi-peak |
| 88 - 216 | 43.5 | Quasi-peak |
| 216 - 960 | 46.0 | Quasi-peak |
| 960 - 1000 | 54.0 | Quasi-peak |
| **Note:** The more stringent limits applies at transition frequencies. | | |
| Frequency (MHz) | Limits (dBμV/m) at 3m | |
| | Average | Peake |
| Above 1GHz | 54.0 | 74. |

## 5.10.2 Test Procedure

a) The EUT is placed on a non-conducting table of the 3m SAC turntable, 80 cm above the ground plane for measurement below 1GHz, 1.5 m above the ground plane for measurement above 1GHz. The measurement receiving antenna to EUT distance is 3 meters. The EUT was arranged in accordance with ANSI C63.10.

b) The EUT operates according to the TM 1 mode settings in Section 4.2. The EUT test channel and modulation type settings see section 4.3.

c) Open the EZ-EMC test software, load the FCC radiated emissions test script, or create a new radiated emissions test script, and configure the test parameters, including the test frequency range, RBW = 100kHz (for below 1GHz) or 1MHz (for above 1GHz), VBW = 300kHz (for below 1GHz) or 3MHz (for above 1GHz), test standard, test antenna, spectrum analyzer, and other related settings.

d) The test script was executed, the measurement was performed.

e) The turntable rotates 360 degrees, and the test antenna is raised and lowered within a range of 1 to 4 meters.

f) Use the spectrum analyzer's Max Hold function to record the maximum test trace. For frequencies below 1 GHz, mark the maximum Quasi-peak value. For frequencies above 1 GHz, mark the maximum Peak and Average values. Save the test data.

g) Both vertical and horizontal polarizations of the test antenna need to be tested.

## 5.10.3 Test Setup

See setup 2 in section 4.4.

## 5.10.4 Test Instruments

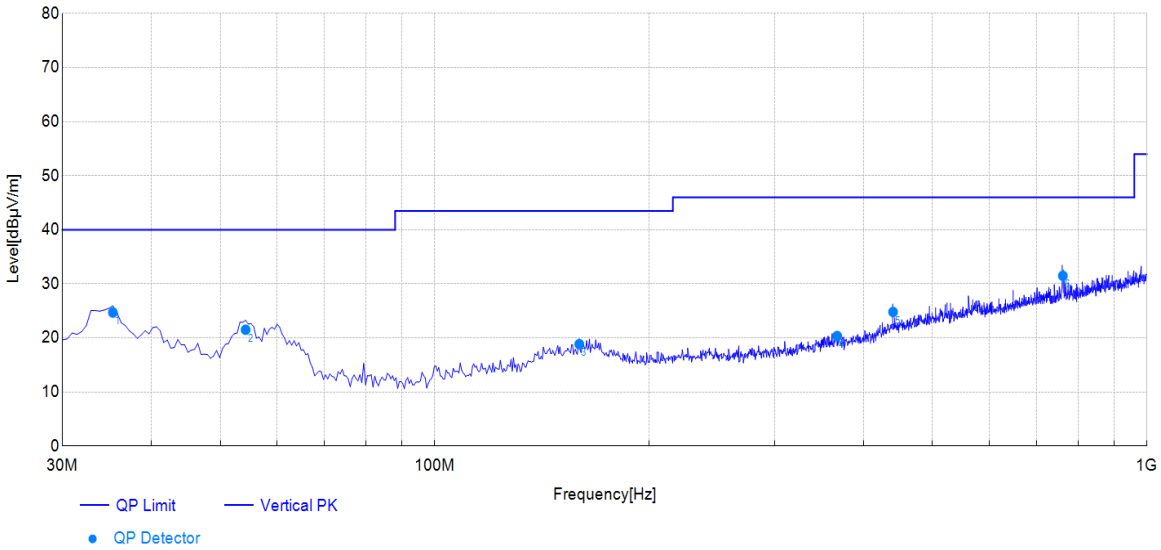
Refer to section 3.7.

## 5.10.5 Test Results

Pass.

**1) Test Frequency Range:** Below 1GHz

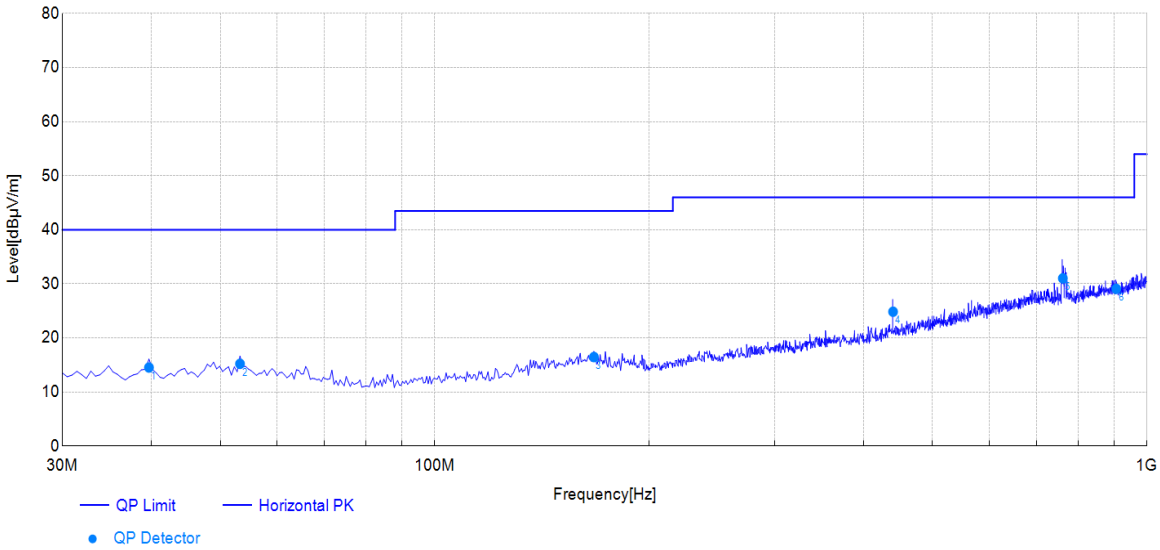
| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Frequency:** | 30MHz ~ 1GHz | **Polarization:** | Vertical |
| **Test Voltage:** | DC 5V | | |




| **Final Data List** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Factor [dB/m] | QP Reading [dBµV] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Height [cm] | Angle [°] | Pol | Verdict |
| 1 | 35.34 | 13.16 | 11.54 | 24.70 | 40.00 | 15.30 | 200 | 350 | Vertical | PASS |
| 2 | 54.26 | 13.09 | 8.43 | 21.52 | 40.00 | 18.48 | 100 | 279 | Vertical | PASS |
| 3 | 159.56 | 17.83 | 1.02 | 18.85 | 43.50 | 24.65 | 200 | 63 | Vertical | PASS |
| 4 | 367.24 | 18.49 | 1.87 | 20.36 | 46.00 | 25.64 | 100 | 201 | Vertical | PASS |
| 5 | 440.03 | 20.49 | 4.32 | 24.81 | 46.00 | 21.19 | 100 | 59 | Vertical | PASS |
| 6 | 761.75 | 26.09 | 5.41 | 31.50 | 46.00 | 14.50 | 200 | 354 | Vertical | PASS |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

| **Product Name:** | Spatial Multi-Sensor FP400 Pro | **Model No.:** | PS-S06D |
|---|---|---|---|
| **Test By:** | Albers Liu | **Test mode:** | TM 1 |
| **Test Frequency:** | 30MHz ~ 1GHz | **Polarization:** | Horizontal |
| **Test Voltage:** | DC 5V | | |




| **Final Data List** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NO. | Frequency [MHz] | Factor [dB/m] | QP Reading [dBµV] | QP Value [dBµV/m] | QP Limit [dBµV/m] | QP Margin [dB] | Height [cm] | Angle [°] | Pol | Verdict |
| 1 | 39.70 | 13.17 | 1.36 | 14.53 | 40.00 | 25.47 | 100 | 142 | Horizontal | PASS |
| 2 | 53.29 | 14.19 | 1.02 | 15.21 | 40.00 | 24.79 | 200 | 237 | Horizontal | PASS |
| 3 | 167.32 | 16.00 | 0.47 | 16.47 | 43.50 | 27.03 | 100 | 172 | Horizontal | PASS |
| 4 | 440.03 | 19.99 | 4.86 | 24.85 | 46.00 | 21.15 | 200 | 284 | Horizontal | PASS |
| 5 | 761.75 | 25.69 | 5.34 | 31.03 | 46.00 | 14.97 | 100 | 0 | Horizontal | PASS |
| 6 | 905.38 | 27.33 | 1.75 | 29.08 | 46.00 | 16.92 | 200 | 101 | Horizontal | PASS |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

**2) Test Frequency Range:** Above 1GHz

| **Test channel: Lowest channel** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency (MHz) | Read Level (dBuV) | Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Polarization |
| 4810.00 | 62.66 | -8.50 | 54.16 | 74.00 | 19.84 | Peak | Vertical |
| | 43.85 | -8.50 | 35.35 | 54.00 | 18.65 | Average | |
| | 61.54 | -8.50 | 53.04 | 74.00 | 20.96 | Peak | Horizontal |
| | 43.68 | -8.50 | 35.18 | 54.00 | 18.82 | Average | |
| **Test channel:** Middle channel | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Polarization |
| 4880.00 | 61.58 | -8.05 | 53.53 | 74.00 | 20.47 | Peak | Vertical |
| | 43.26 | -8.05 | 35.21 | 54.00 | 18.79 | Average | |
| | 62.17 | -8.05 | 54.12 | 74.00 | 19.88 | Peak | Horizontal |
| | 43.69 | -8.05 | 35.64 | 54.00 | 18.36 | Average | |
| **Test channel:** Highest channel | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Factor (dB) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Polarization |
| 4960.00 | 61.57 | -8.29 | 53.28 | 74.00 | 20.72 | Peak | Vertical |
| | 43.65 | -8.29 | 35.36 | 54.00 | 18.64 | Average | |
| | 62.55 | -8.29 | 54.26 | 74.00 | 19.74 | Peak | Horizontal |
| | 43.66 | -8.29 | 35.37 | 54.00 | 18.63 | Average | |

***Remark:*** *Level = Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*

**------ End of Report ------**