| | | | | |
|---|---|---|---|---|
| **Prüfbericht-Nr.:** *Test report no.:* | **CN22FSQ3 001** | **Auftrags-Nr.:** *Order no.*: | **168379176** | **Seite 1 von 20** *Page 1 of 20* |
| **Kunden-Referenz-Nr.:** *Client reference no.:* | **N/A** | **Auftragsdatum:** *Order date:* | 2022-06-27 | |
| **Auftraggeber:** *Client:* | **Beijing Siemens Cerberus Electronics Ltd.** No.1 Fengzhi Donglu, Xibeiwang, Haidian District,Beijing P.R. China | | | |
| **Prüfgegenstand:** *Test item:* | Thread room sensor | | | |
| **Bezeichnung / Typ-Nr.:** *Identification / Type no.:* | QAA2890/WI, QFA2890/WI, QPA2892/WI (Trademark: Siemens) | | | |
| **Auftrags-Inhalt:** *Order content*: | Test Report | | | |
| **Prüfgrundlage:** *Test specification:* | CFR47 FCC Part 15: Subpart C Section 15.247<br>CFR47 FCC Part 15: Subpart C Section 15.209<br>CFR47 FCC Part 15: Subpart B Section 15.109 | | RSS-247 Issue 2 February 2017<br>RSS-Gen Issue 5 March 2019<br>ICES-003 Issue 7 October 2020 | |

| | | |
|---|---|---|
| **Wareneingangsdatum:** *Date of sample receipt:* | 2021-06-30 | Please refer to Photo Document |
| **Prüfmuster-Nr.:** *Test sample no:* | A003277000-001~003<br>A003277000-005~008 | |
| **Prüfzeitraum:** *Testing period:* | 2022-07-04 – 2022-07-29 | |
| **Ort der Prüfung:** *Place of testing:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüflaboratorium:** *Testing laboratory:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüfergebnis*:** *Test result*:* | Pass | |

| | | | |
|---|---|---|---|
| **geprüft von:** *tested by:* | x Bell Hu<br>Signed by: Bell Hu | **genehmigt von:** *authorized by:* | X Lin Lin<br>Signed by: Lin Lin |
| **Datum:** *Date:* 2022-08-29 | | **Ausstellungsdatum:** *Issue date:* 2022-08-29 | |
| **Stellung** / *Position:* | Project Manager | **Stellung** / *Position:* | Reviewer |

| | |
|---|---|
| **Sonstiges** / *Other:* | FCC ID: 2AL8A289X<br>IC: 22795-289X<br>PMN: Thread room sensor<br>HVIN: QAA2890/WI, QFA2890/WI, QPA2892/WI |
| **Zustand des Prüfgegenstandes bei Anlieferung:** *Condition of the test item at delivery:* | Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged* |

| | | | | | |
|---|---|---|---|---|---|
| * Legende: | 1 = sehr gut | 2 = gut | 3 = befriedigend | 4 = ausreichend | 5 = mangelhaft |
| | P(ass) = entspricht o.g. Prüfgrundlage(n) | | F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | N/A = nicht anwendbar | N/T = nicht getestet |
| ** Legend:* | *1 = very good* | *2 = good* | *3 = satisfactory* | *4 = sufficient* | *5 = poor* |
| | *P(ass) = passed a.m. test specification(s)* | | *F(ail) = failed a.m. test specification(s)* | *N/A = not applicable* | *N/T = not tested* |

# *Test Summary*

**5.1.1 ANTENNA REQUIREMENT**
*RESULT: Pass*

**5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER**
*RESULT: Pass*

**5.1.3 CONDUCTED POWER SPECTRAL DENSITY**
*RESULT: Pass*

**5.1.4 6DB BANDWIDTH**
*RESULT: Pass*

**5.1.5 99% BANDWIDTH**
*RESULT: Pass*

**5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH**
*RESULT: Pass*

**5.1.7 RADIATED SPURIOUS EMISSION**
*RESULT: Pass*

**5.1.8 RADIATED EMISSIONS**
*RESULT: Pass*

# *Contents*

# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results.

# 2 Test Sites

## 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**
No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Registration No.: CN1260
IC Registration No.: 25069 and the CAB identifier is CN0078.

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

| **Radio Spectrum Testing (SRD-Tonscend)** | | | | |
|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model** | **Serial No.** | **Cal. until** |
| EXA Signal Analyzer, Multi-touch | Keysight | N9010B | MY60241175 | 2022-09-28 |
| MXG X-Series RF Vector Signal Generator | Keysight | N5182B | MY61250137 | 2022-09-28 |
| EXG X-Series Microwave Analog Signal Generator | Keysight | N5173B | MY61250141 | 2022-09-28 |
| DC power supply | Keysight | E3642A | MY61276100 | 2022-09-28 |
| Power Control Unit | Tonscend | JS0806-4ADC | N/A | 2022-09-28 |
| Automation Control Unit | Tonscend | JS0806-2 | 21C8060396 | 2022-09-28 |
| Test Software | Tonscend | JS1120-3 | N/A | N/A |
| Control PC | Lenovo | TianYi510S-071MB | YLX23JMF | N/A |
| Shielding Room 8# | Albatross | SR8 | APC17151-SR8 | 2024-06-22 |
| **Unwanted Emission Testing (TS9975)** | | | | |
| **Equipment** | **Manufacturer** | **Model** | **Serial No.** | **Cal. until** |
| EMI Test Receiver | R&S | ESR 7 | 102021 | 2022-08-10 |
| Signal Analyzer | R&S | FSV 40 | 101439 | 2022-08-09 |
| System Controller Interface | R&S | SCI-100 | S10010038 | N/A |
| Filterbank | R&S | Wlan | 100759 | 2022-08-09 |
| OSP | R&S | OSP 120 | 102040 | N/A |
| Pre-amplifier | R&S | SCU08F1 | 08320031 | 2022-08-09 |
| Amplifier | R&S | SCU-18F | 180070 | 2022-08-09 |
| Amplifier | R&S | SCU40A | 100475 | 2022-08-09 |
| Trilog Broadband Antenna (30 MHz - 7 GHz) | Schwarzbeck | VULB 9162 | 193 | 2022-08-08 |
| Double-Ridged Antenna (1 -18 GHz) | ETS-LINDGREN | 3117 | 00218717 | 2022-08-08 |
| Wideband Ridged Horn Antenna | Steatite | QMS-00880 | 19067 | 2022-08-08 |

| | | | | |
|---|---|---|---|---|
| (18-40 GHz) | | | | |
| Active Loop Antenna | Schwarzbeck | FMZB 1513 | 302 | 2022-09-13 |
| Test software | R&S | EMC32 (V10.60.10) | N/A | N/A |
| Control PC | Dell | OptiPlex 7050 | 36NV9P2 | N/A |
| 3m Semi-Anechoic Chamber | Albatross | SAC-3m | APC17151-SAC | 2024-06-22 |

| **Radiated Emission (10m chamber)** | | | | |
|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| 10m SAC | ETS-Lindgren | SAC10 | CT001632-Q1399 | 2024-03-01 |
| EMI Test Receiver 1 | R&S | ESR7 | 102022 | 2022-08-10 |
| EMI Test Receiver 2 | R&S | ESR7 | 102023 | 2022-08-10 |
| Bilog Antenna 1 | TESEQ | CBL6112D | 51321 | 2022-08-08 |
| Bilog Antenna 2 | TESEQ | CBL6112D | 51322 | 2023-07-07 |
| Preamplifier 1 (30-1000MHz) | SCHWARZBECK | BBV9745 | 115 | 2022-08-13 |
| Preamplifier 2 (30-1000MHz) | EMCI | EMC9135-P | 980629 | 2022-08-13 |
| Preamplifier 3 (1-18GHz) | FIT | SCU-18F | 180076 | 2022-08-13 |
| Horn Antenna | R&S | HF907 | 102707 | 2023-07-03 |
| EMC32 test software | R&S | EMC32(Ver.10.50.00) | N/A | N/A |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

| Parameter | Uncertainty |
|---|---|
| Occupied Channel Bandwidth | ± 2.08 % |
| RF output power, conducted | ± 0.99 dB |
| RF power density, conducted | ± 0.99 dB |
| Unwanted Emissions, conducted | ± 0.89 dB |
| All emissions, radiated | ± 4.17 dB |
| Radiated Emission (10m SAC), 30MHz to 1000MHz | ± 4.66 dB |
| Radiated Emission (10m SAC), above 1000MHz | ± 4.35 dB |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

# 3 General Product Information

## 3.1 Product Function and Intended Use

The product is a Thread room sensor which supports 2.4GHz Thread wireless technology.

Only different in Model name and battery for market purpose.

For details refer to the User Manual, Technical Description and Circuit Diagram.

## 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| **General Information of EUT** | **Value** |
|---|---|
| Kind of Equipment: | Thread room sensor |
| Type Designation: | QAA2890/WI, QFA2890/WI, QPA2892/WI |
| Trademark: | Siemens |
| FCC ID: | 2AL8A289X |
| IC: | 22795-289X |
| HVIN: | QAA2890/WI, QFA2890/WI, QPA2892/WI |
| Operating Voltage: | DC 4.5V (3*AAA alkaline batteries) for QAA2890/WI, QFA2890/WI<br>DC 3V (2*AA alkaline batteries) for QPA2892/WI |
| **Technical Specification of Thread** | |
| Frequency Range: | 2405 MHz to 2480 MHz |
| Type of Modulation: | DSSS(DBPSK/DQPSK/CCK) |
| Channel Number: | 16 channels |
| Channel Separation: | 5 MHz |
| Antenna Type | Integral antenna |
| Antenna Gain: | 2.65 dBi |

**Table 3: RF Channel and Frequency of Thread**

| RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) |
|---|---|---|---|---|---|---|---|
| **1** | **2405** | 5 | 2425 | 9 | 2445 | 13 | 2465 |
| 2 | 2410 | 6 | 2430 | 10 | 2450 | 14 | 2470 |
| 3 | 2415 | 7 | 2435 | 11 | 2455 | 15 | 2475 |
| 4 | 2420 | 8 | 2440 | 12 | 2460 | **16** | **2480** |

Test frequencies are lowest channel: 2405 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz for Thread

## 3.3 Independent Operation Modes

The basic operation modes are:

A. On, 2.4GHz Thread transmitting mode
   1) Low Channel
   2) Middle Channel
   3) High Channel

B. On, Normal working with Thread Linked

C. Off

## 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

## 3.5 Submitted Documents

- Application Form
- User Manual
- FCC/IC Label and Location Info

# 4 Test Set-up and Operation Modes

## 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

## 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013 & ANSI C63.4:2014.

According to clause 3.1, all tests were performed in this report.

## 4.3 Special Accessories and Auxiliary Equipment

**Table 4: Auxiliary Equipment Used during Test**

| Description | Manufacturer | Model | S/N | Rating |
|---|---|---|---|---|
| Laptop | Lenovo | T480 | PF-16A6N8 | N/A |

## 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

**Diagram of Measurement Configuration for Radiation Test (Below 1GHz)**

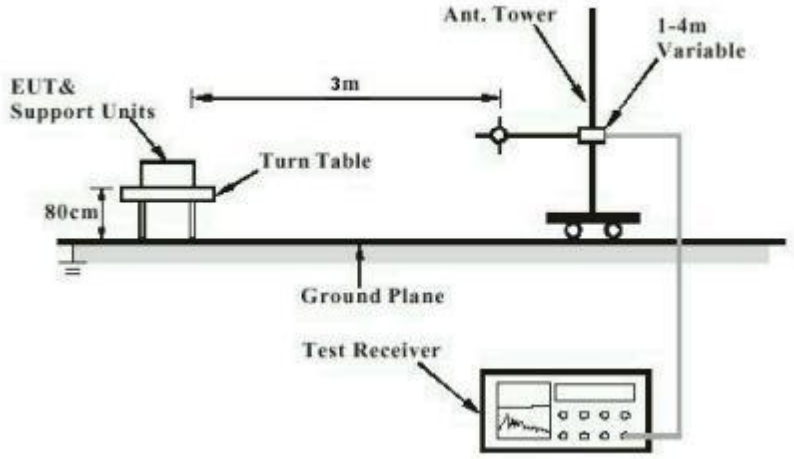



**Diagram of Measurement Configuration for Radiation Test (Above 1GHz)**

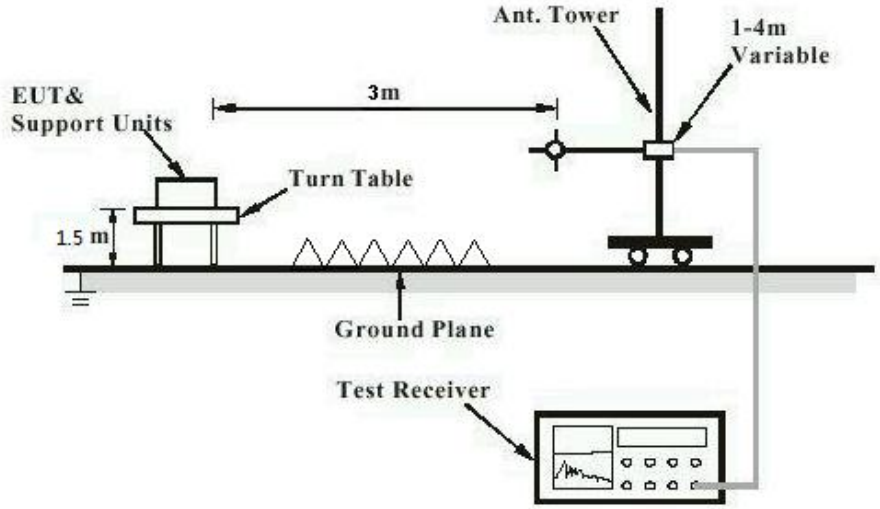
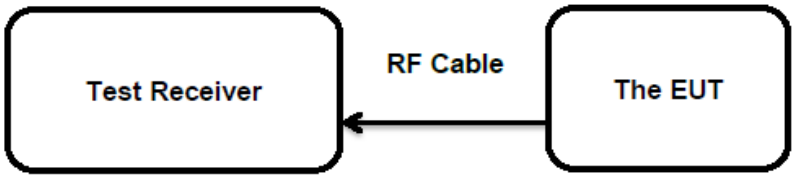



**Diagram of Measurement Configuration for Conducted Transmitter Measurement**



# 5 Test Results

## 5.1 Transmitter Requirement & Test Suites

### 5.1.1 Antenna Requirement

**RESULT:** **Pass**

**Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an Integral antenna, the directional gain of antenna is 2.65 dBi, permanent attachment and no consideration of replacement.

Therefore, the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

## 5.1.2 Maximum Peak Conducted Output Power

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(b)(3)<br>RSS-247 Clause 5.4(d) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | 1.0 Watts |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 3V |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 24.8 ℃ |
| Relative humidity | : | 55 % |
| Atmospheric pressure | : | 101 kPa |

**Table 5: Test Result of Maximum Peak Conducted Output Power**

| Test Mode | Test Channel (MHz) | Measured Peak Power | | Limit (W) |
|---|---|---|---|---|
| | | (dBm) | (mW) | |
| 2.4GHz Thread | 2405 | 4.72 | 2.96 | < 1.0 |
| | 2440 | 4.59 | 2.86 | |
| | 2480 | -0.03 | 1.00 | |
| **Maximum Measured Value** | | 4.72 | 2.96 | |

Note:
1) The cable loss is taken into account in results.
2) Antenna gain(G): 2.65 dBi,
e.i.r.p.=$P_{(Peak\ power)}$+ G=7.37dBm(0.0055W), which is far below the 4 W

## 5.1.3 Conducted Power Spectral Density

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(e)<br>RSS-247 Clause 5.2(b) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | < 8 dBm / 3kHz |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 3V |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 24.8 ℃ |
| Relative humidity | : | 55 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.

## 5.1.4 6dB Bandwidth

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(a)(2)<br>RSS-247 Clause 5.2(a) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | > 500 KHz |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 3V |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 24.8 ℃ |
| Relative humidity | : | 55 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.

## 5.1.5 99% Bandwidth

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | RSS-Gen Clause 6.7 |
| Basic standard | : | ANSI C63.10: 2013 |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 3V |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 24.8 ℃ |
| Relative humidity | : | 55 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.

## 5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(d)<br>RSS-247 Clause 5.5 |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);<br>In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a) |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 3V |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 24.8 ℃ |
| Relative humidity | : | 55 % |
| Atmospheric pressure | : | 101 kPa |

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

## 5.1.7 Radiated Spurious Emission

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(d) & FCC Part 15.205<br>RSS-247 Clause 3.3 |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | Refer to 15.209(a) of FCC part 15.247(d)<br>RSS-Gen Section 8.9 & 8.10 |
| Kind of test site | : | 3m Semi-anechoic Chamber |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-14 |
| Input voltage | : | DC 4.5V for QAA2890/WI, QFA2890/WI<br>DC 3V for QPA2892/WI |
| Operation mode | : | A |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | Refer to test result |
| Relative humidity | : | Refer to test result |
| Atmospheric pressure | : | 101 kPa |

Remark:
Testing carried out for all models. Only the worst-case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

## 5.1.8 Radiated Emissions

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.109(a)<br>ICES-003 Section 3.2.2 |
| Basic standard | : | ANSI C63.4:2014 |
| Frequency range | : | 30MHz to 5th harmonic of the highest frequency |
| Classification | : | Class B |
| Limits | : | FCC Part 15.109(a)<br>ICES-003 Table 2 & 4 |
| Kind of test site | : | 10m Semi-Anechoic Chamber for Below 1GHz<br>3m Anechoic Chamber for Above 1GHz |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 2022-07-29 |
| Input voltage | : | DC 4.5V for QAA2890/WI, QFA2890/WI<br>DC 3V for QPA2892/WI |
| Operation mode | : | B |
| Earthing | : | Not connected |
| Ambient temperature | : | 24.1 ℃ |
| Relative humidity | : | 50.6 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix B.
Testing carried out for all models, only the worst-case reported.

# 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

# 7 List of Tables

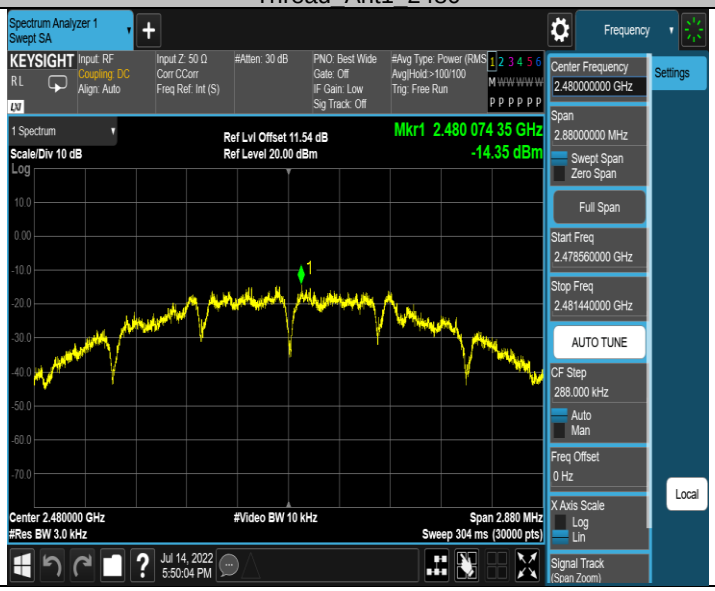
# Appendix B: Test Results

## Appendix B.1: Test Results of Conducted Power Spectral Density

| TestMode | Antenna | Frequency[MHz] | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|---|---|---|---|---|---|
| Thread | Ant1 | 2405 | -9.33 | ≤8.00 | PASS |
| | | 2440 | -10.33 | ≤8.00 | PASS |
| | | 2480 | -14.36 | ≤8.00 | PASS |

Thread_Ant1_2405


Thread_Ant1_2440

| Thread_Ant1_2480 |
| --- |
|  |

## Appendix B.2: Test Results of 6dB Bandwidth

| TestMode | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| Thread | Ant1 | 2405 | 1.500 | 2404.240 | 2405.740 | 0.5 | PASS |
| | | 2440 | 1.550 | 2439.240 | 2440.790 | 0.5 | PASS |
| | | 2480 | 1.440 | 2479.240 | 2480.680 | 0.5 | PASS |

Thread_Ant1_2405

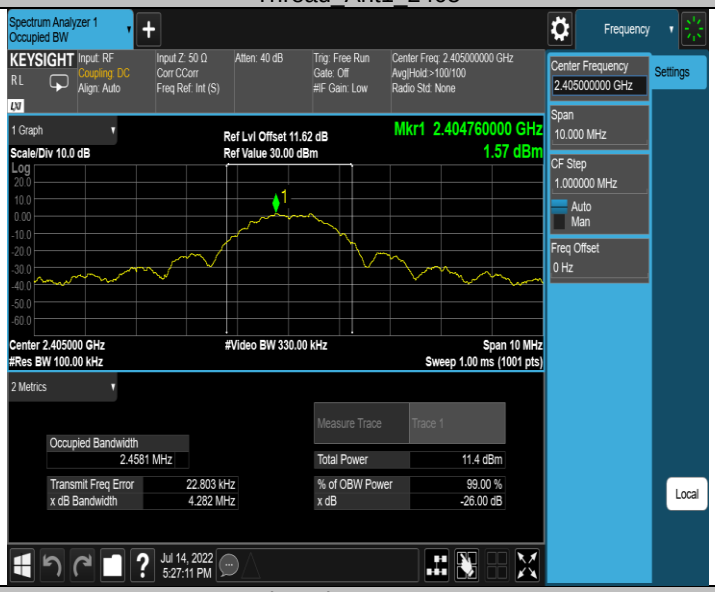

Thread_Ant1_2440

| Thread_Ant1_2480 |
| --- |
|  |

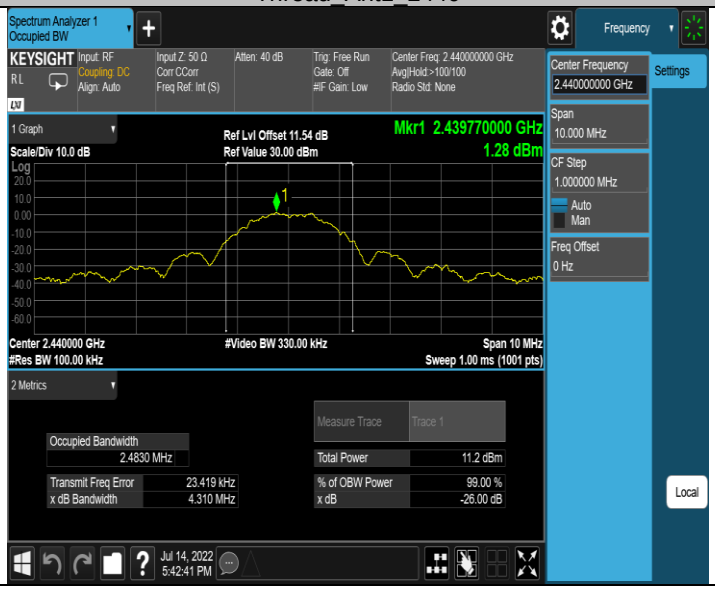
## Appendix B.3: Test Results of 99% Bandwidth

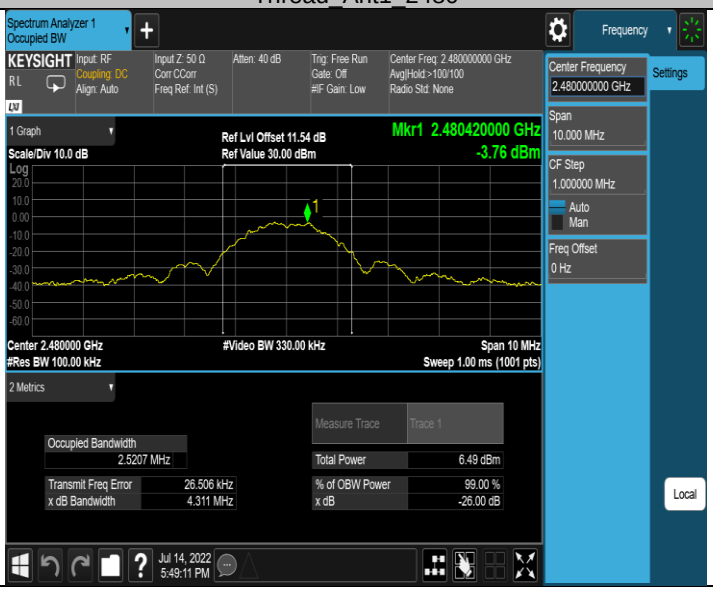
| TestMode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|---|---|---|---|---|---|---|---|
| Thread | Ant1 | 2405 | 2.4543 | 2403.796 | 2406.250 | --- | PASS |
| | | 2440 | 2.4769 | 2438.784 | 2441.261 | --- | PASS |
| | | 2480 | 2.5118 | 2478.771 | 2481.283 | --- | PASS |

Thread_Ant1_2405




Thread_Ant1_2440



| Thread_Ant1_2480 |
| --- |
|  |

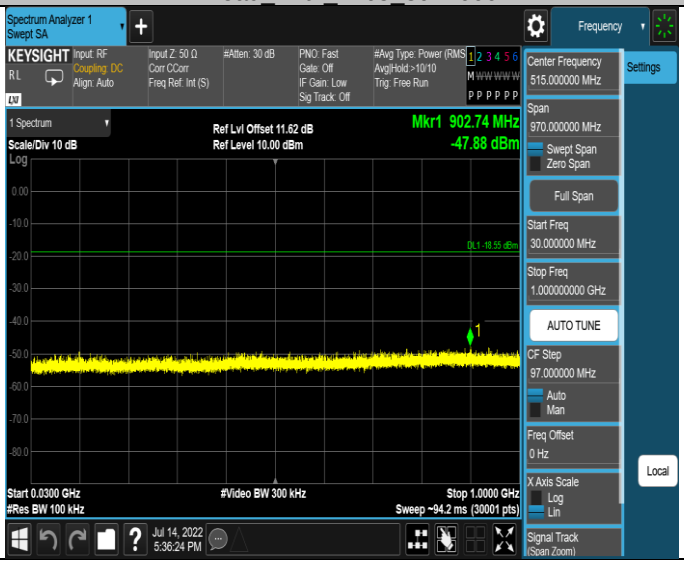
## Appendix B.4: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

### Conducted Spurious Emission

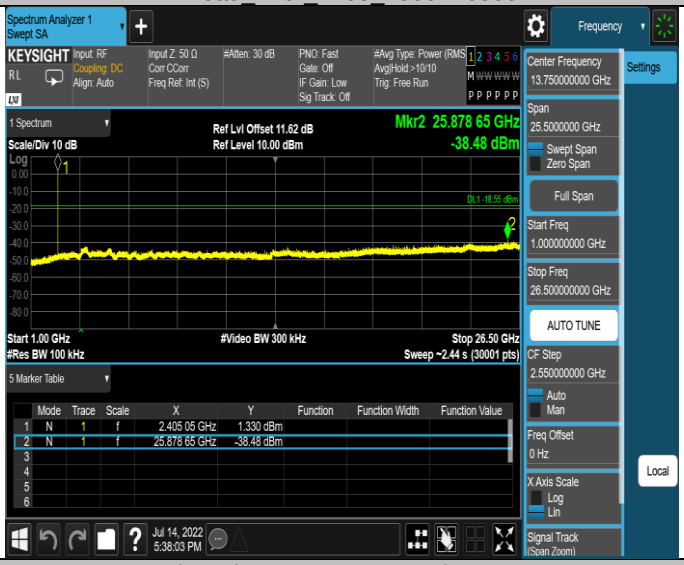
| TestMode | Antenna | Frequency[MHz] | FreqRange [MHz] | RefLevel [dBm] | Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| Thread | Ant1 | 2405 | Reference | 1.45 | 1.45 | --- | PASS |
| | | | 30~1000 | 1.45 | -47.88 | ≤-18.55 | PASS |
| | | | 1000~26500 | 1.45 | -38.48 | ≤-18.55 | PASS |
| | | 2440 | Reference | 1.45 | 1.45 | --- | PASS |
| | | | 30~1000 | 1.45 | -48.05 | ≤-18.55 | PASS |
| | | | 1000~26500 | 1.45 | -39.3 | ≤-18.55 | PASS |
| | | 2480 | Reference | -3.24 | -3.24 | --- | PASS |
| | | | 30~1000 | -3.24 | -48.65 | ≤-23.24 | PASS |
| | | | 1000~26500 | -3.24 | -39.29 | ≤-23.24 | PASS |

Thread_Ant1_2405_0~Reference


Thread_Ant1_2405_30~1000

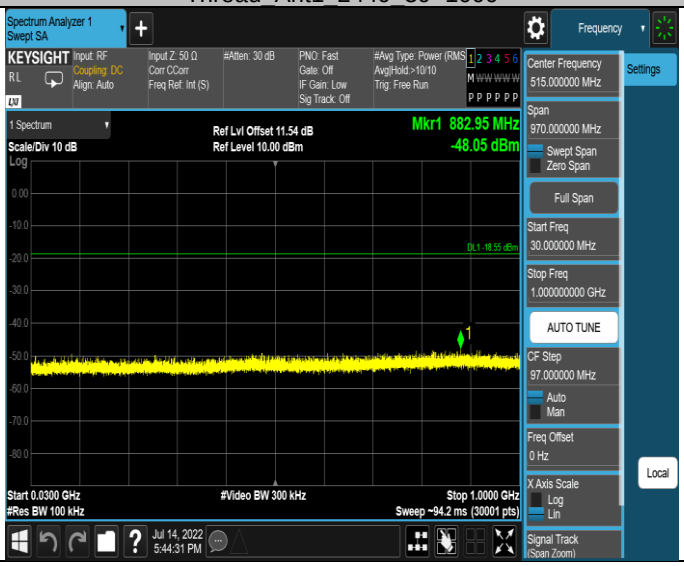


Thread_Ant1_2405_1000~26500

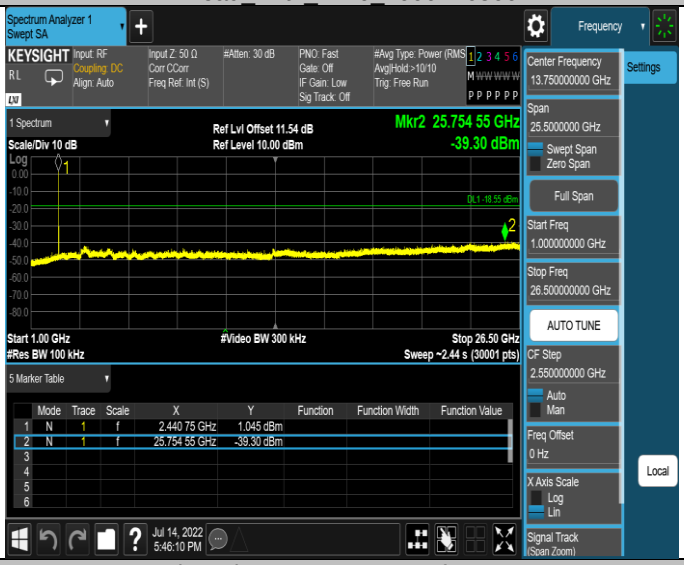



Thread_Ant1_2440_0~Reference


Thread_Ant1_2440_30~1000

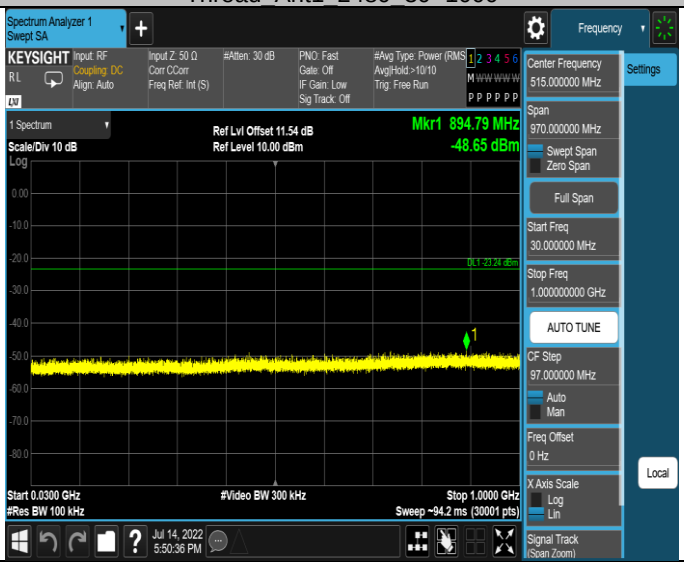


Thread_Ant1_2440_1000~26500




Thread_Ant1_2480_0~Reference


Thread_Ant1_2480_30~1000

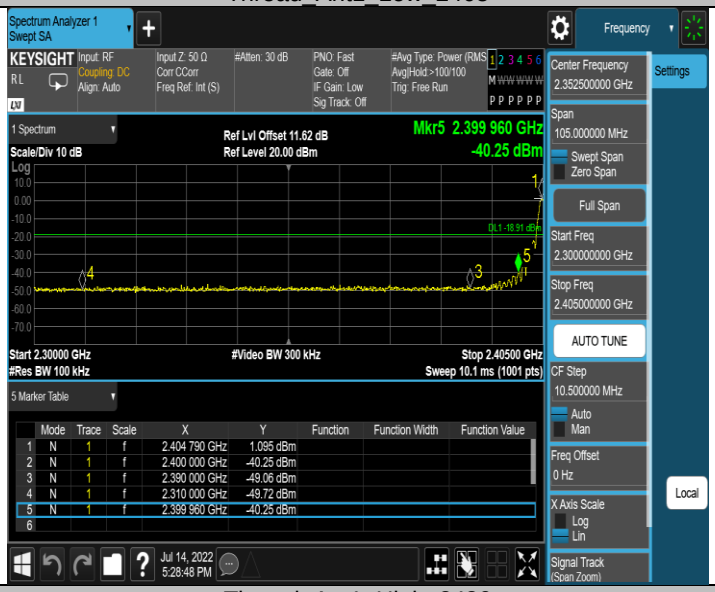


| Thread_Ant1_2480_1000~26500 |
| --- |
|  |

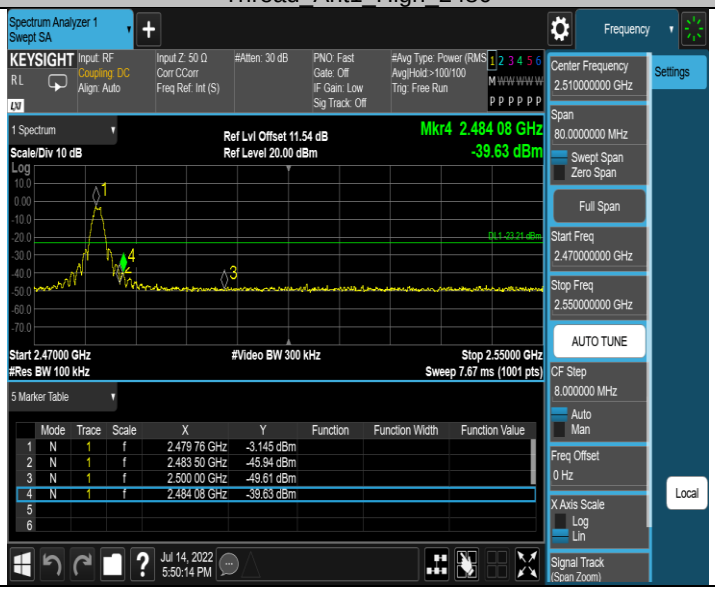
## Band Edge

| TestMode | Antenna | ChName | Frequency[MHz] | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|---|
| Thread | Ant1 | Low | 2405 | 1.10 | -40.25 | ≤-18.91 | PASS |
| | | High | 2480 | -3.21 | -39.63 | ≤-23.21 | PASS |

Thread_Ant1_Low_2405




Thread_Ant1_High_2480



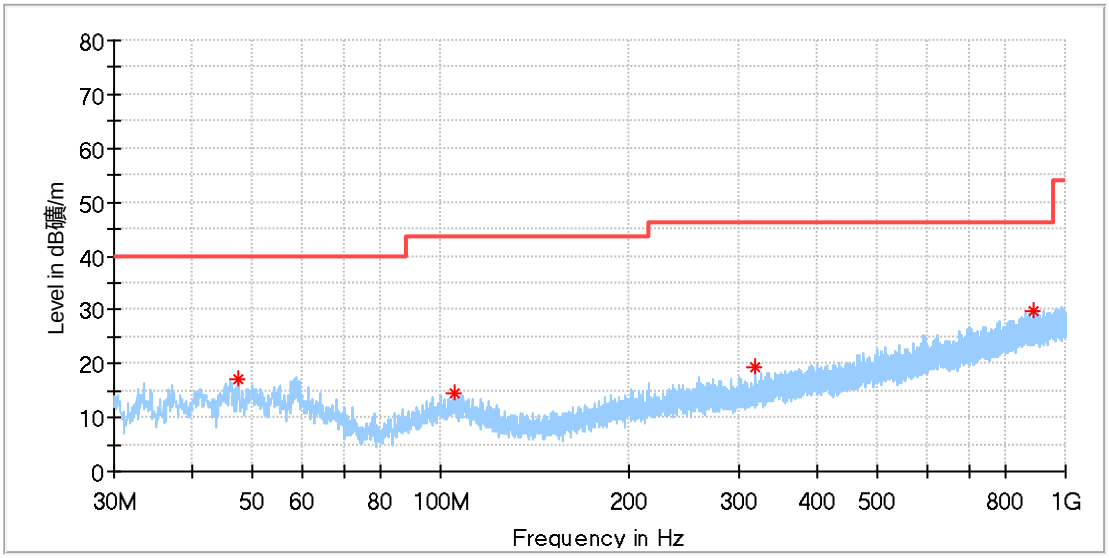
## Appendix B.5: Test Results of Radiated Spurious Emissions

Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

**30 MHz to 1GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Batteries |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

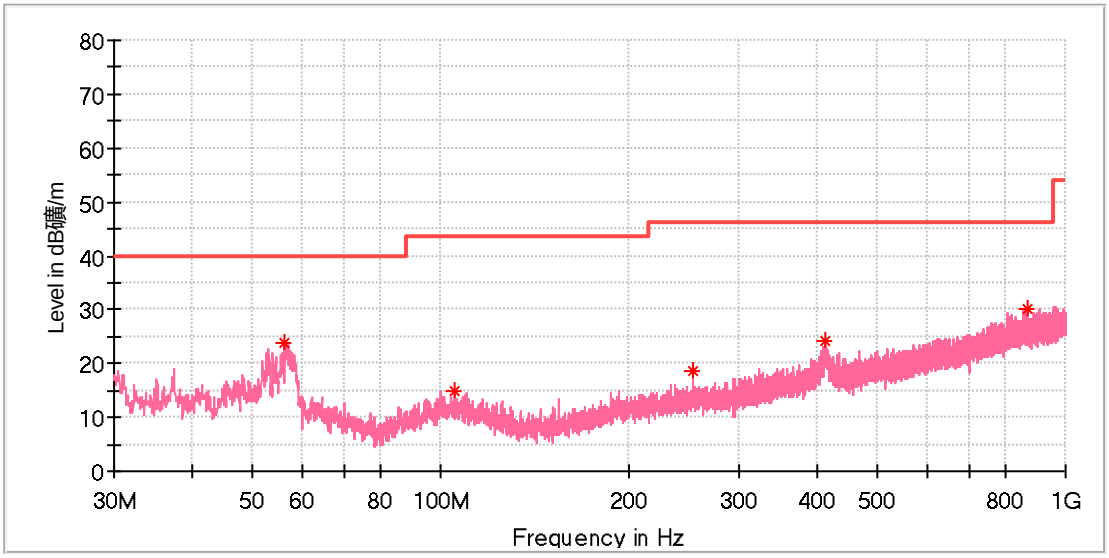
| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 47.508500 | 17.03 | 40.00 | 22.97 | 100.0 | H | 0.0 | -18.4 |
| 105.320500 | 14.55 | 43.50 | 28.95 | 100.0 | H | 0.0 | -18.8 |
| 318.041500 | 19.52 | 46.00 | 26.48 | 100.0 | H | 0.0 | -15.8 |
| 889.274500 | 29.84 | 46.00 | 16.16 | 100.0 | H | 265.0 | -5.1 |

# Final_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Batteries |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

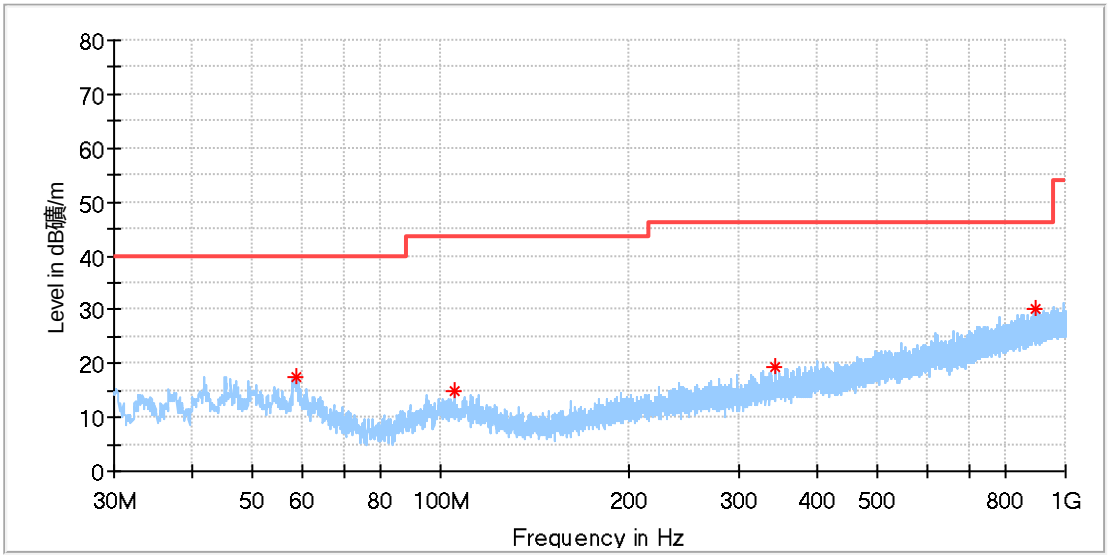
| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 56.093000 | 23.79 | 40.00 | 16.21 | 100.0 | V | 325.0 | -18.6 |
| 105.078000 | 15.00 | 43.50 | 28.50 | 100.0 | V | 153.0 | -18.7 |
| 253.585000 | 18.79 | 46.00 | 27.21 | 100.0 | V | 297.0 | -17.2 |
| 413.586500 | 24.17 | 46.00 | 21.83 | 100.0 | V | 105.0 | -13.5 |
| 871.523500 | 30.20 | 46.00 | 15.80 | 100.0 | V | 233.0 | -5.2 |

# Final_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Batteries |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

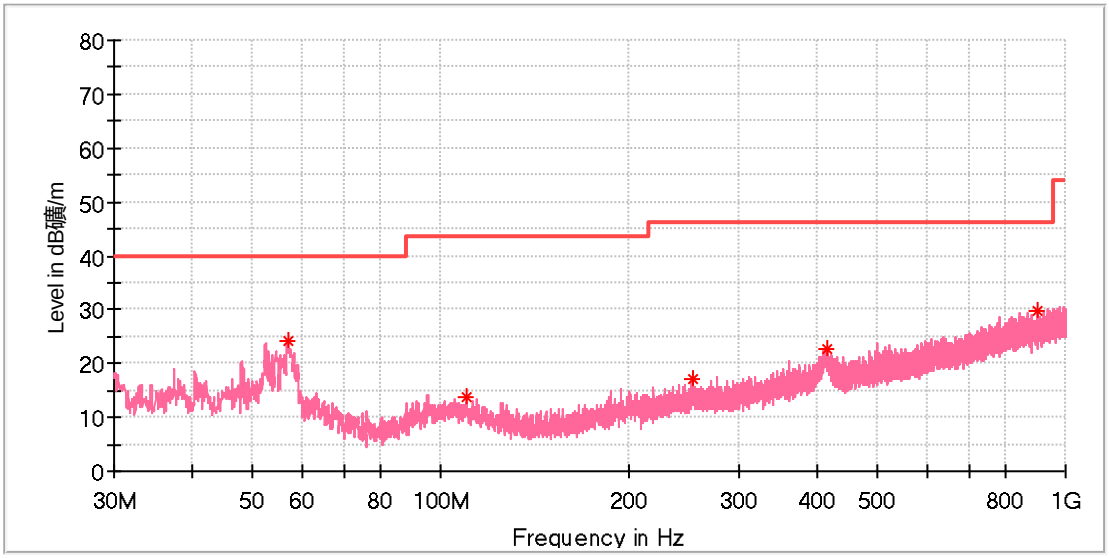
| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 58.760500 | 17.50 | 40.00 | 22.50 | 100.0 | H | 193.0 | -18.8 |
| 104.981000 | 14.98 | 43.50 | 28.52 | 100.0 | H | 318.0 | -18.7 |
| 343.698000 | 19.19 | 46.00 | 26.81 | 100.0 | H | 325.0 | -14.9 |
| 894.173000 | 30.25 | 46.00 | 15.75 | 100.0 | H | 318.0 | -5.0 |

# Final_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Batteries |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 56.820500 | 24.16 | 40.00 | 15.84 | 100.0 | V | 224.0 | -18.6 |
| 110.219000 | 13.85 | 43.50 | 29.65 | 100.0 | V | 174.0 | -19.1 |
| 253.536500 | 17.29 | 46.00 | 28.71 | 100.0 | V | 218.0 | -17.2 |
| 414.508000 | 22.75 | 46.00 | 23.25 | 100.0 | V | 238.0 | -13.5 |
| 902.078500 | 29.84 | 46.00 | 16.16 | 100.0 | V | 272.0 | -5.0 |

# Final_Result

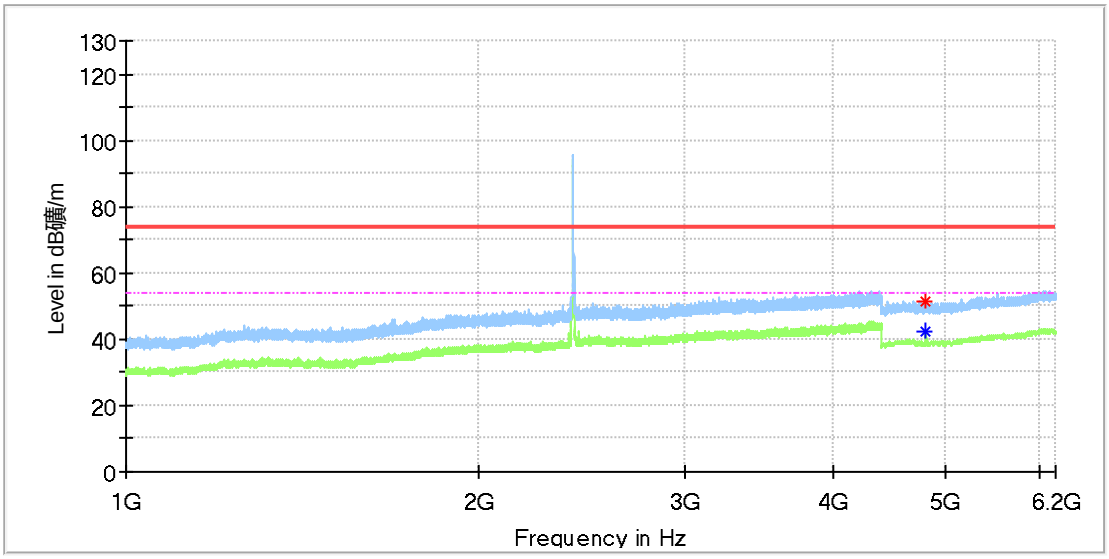
| Frequency (MHz) | QuasiPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

**1GHz to 18GHz**

Note: The highest waveform in the figure is Thread Fundamental.

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

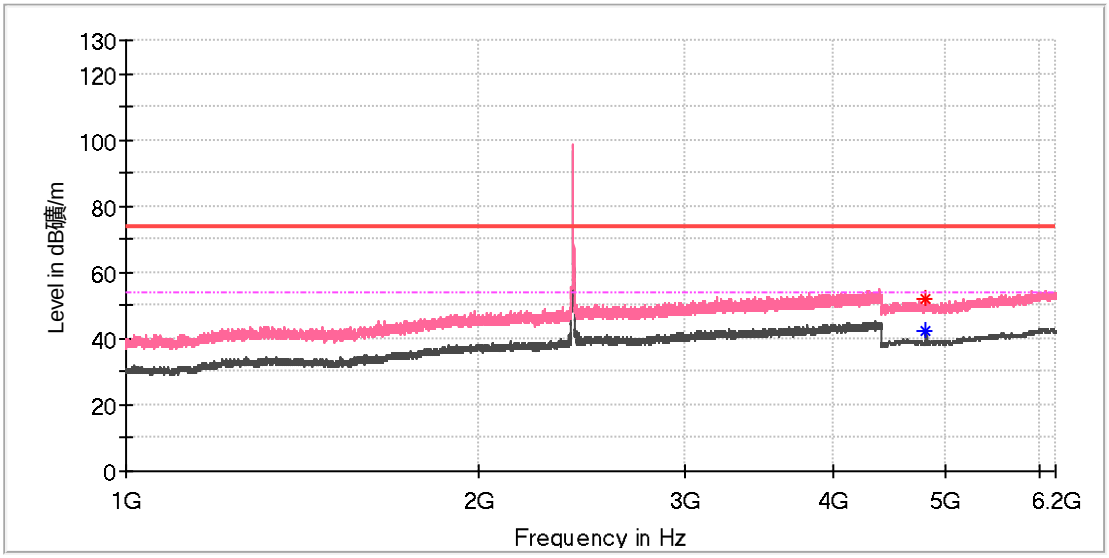
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4809.000000 | 51.69 | --- | 74.00 | 22.31 | 100.0 | H | 3.0 | 11.8 |
| 4809.000000 | --- | 42.24 | 54.00 | 11.76 | 100.0 | H | 3.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

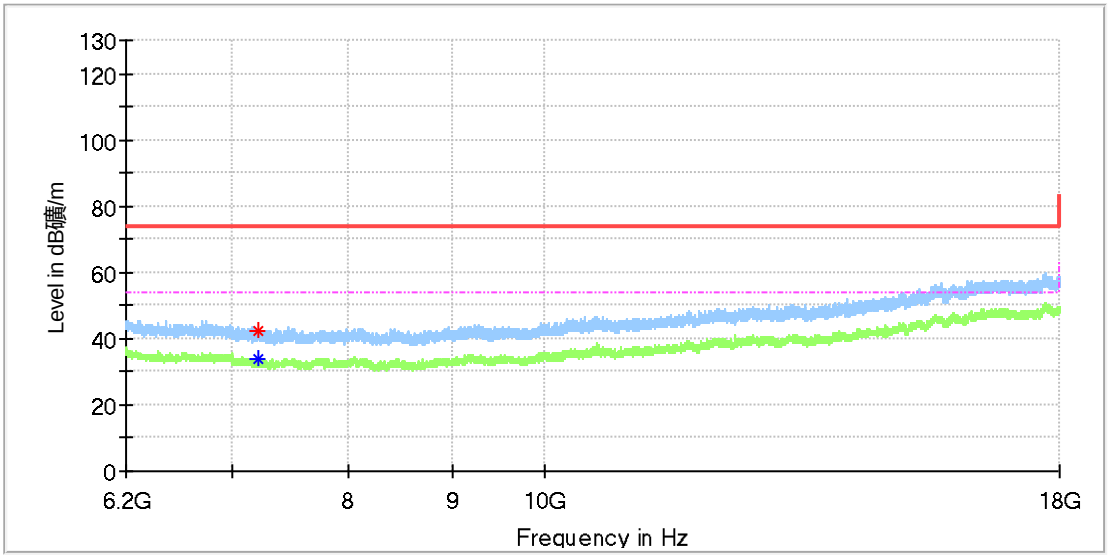
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4810.500000 | 51.78 | --- | 74.00 | 22.22 | 100.0 | V | 114.0 | 11.8 |
| 4810.500000 | --- | 42.52 | 54.00 | 11.48 | 100.0 | V | 114.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

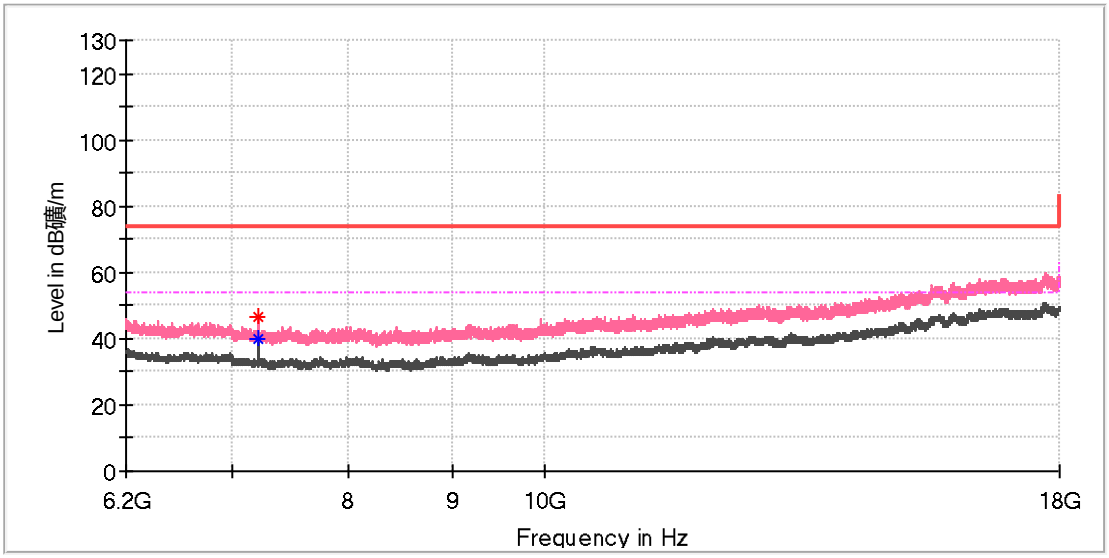
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7204.966667 | --- | 33.73 | 54.00 | 20.27 | 100.0 | H | 246.0 | 8.8 |
| 7213.325000 | 42.46 | --- | 74.00 | 31.54 | 100.0 | H | 342.0 | 8.7 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

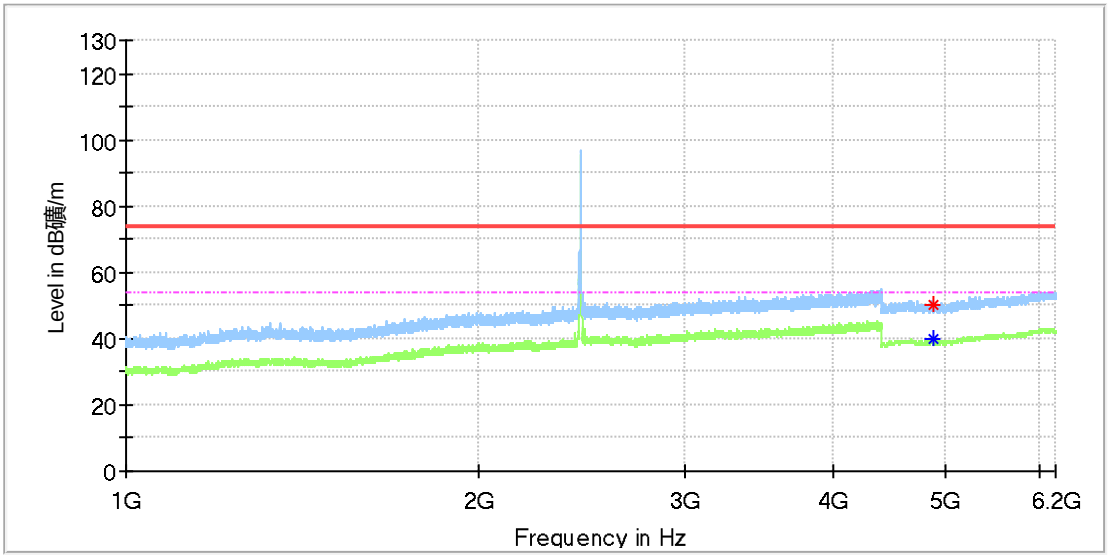
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7215.783333 | --- | 40.01 | 54.00 | 13.99 | 100.0 | V | 249.0 | 8.7 |
| 7216.275000 | 46.84 | --- | 74.00 | 27.16 | 100.0 | V | 249.0 | 8.7 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Mid channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

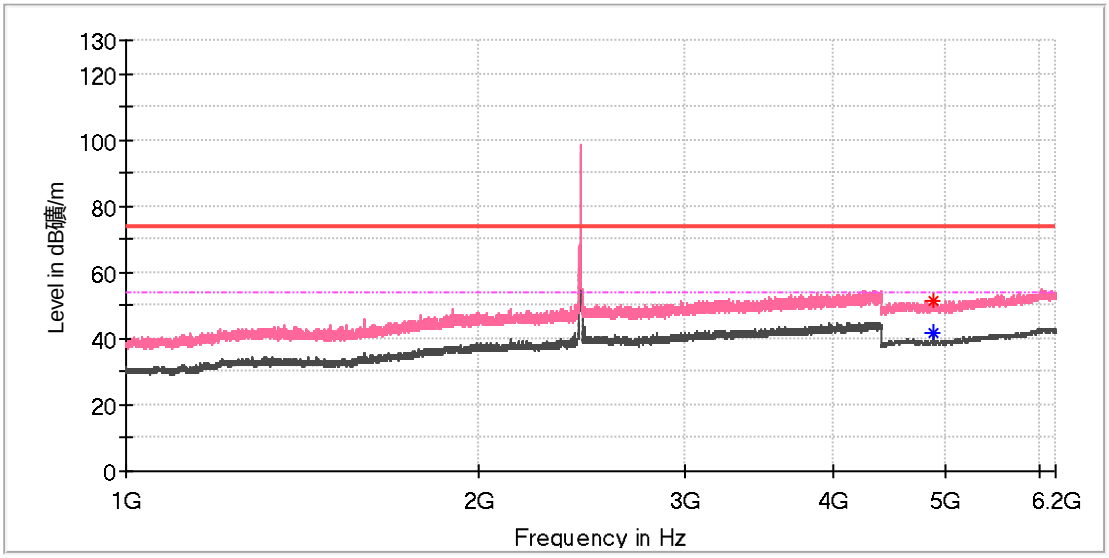
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4879.000000 | --- | 40.09 | 54.00 | 13.91 | 100.0 | H | 10.0 | 11.8 |
| 4880.500000 | 50.36 | --- | 74.00 | 23.64 | 100.0 | H | 134.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Mid channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

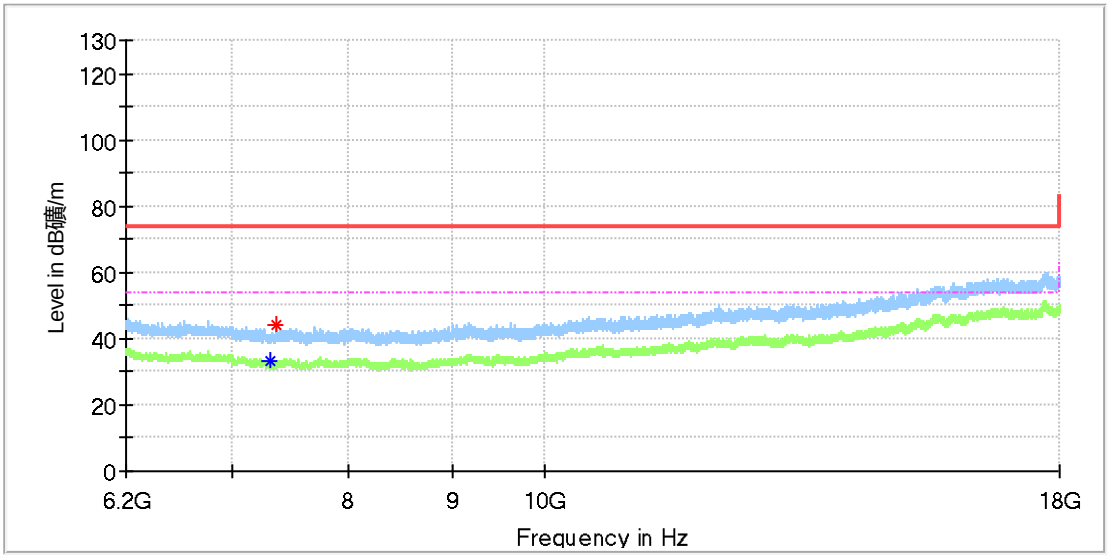
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4879.000000 | 51.27 | --- | 74.00 | 22.73 | 100.0 | V | 128.0 | 11.8 |
| 4879.000000 | --- | 41.78 | 54.00 | 12.22 | 100.0 | V | 128.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Mid channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

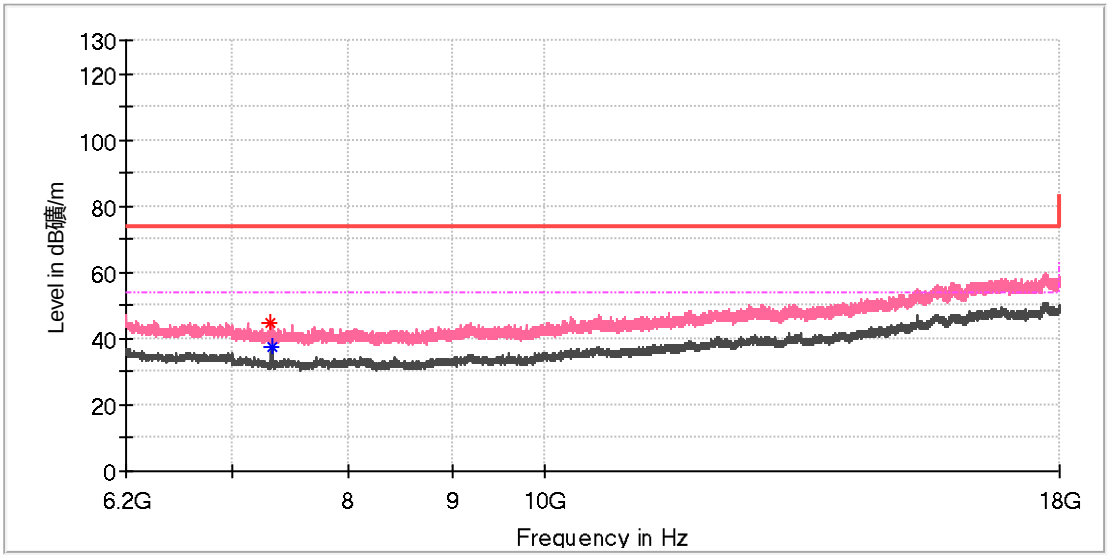
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7304.775000 | --- | 33.55 | 54.00 | 20.45 | 100.0 | H | 102.0 | 8.3 |
| 7360.825000 | 43.96 | --- | 74.00 | 30.04 | 100.0 | H | 115.0 | 8.2 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Mid channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

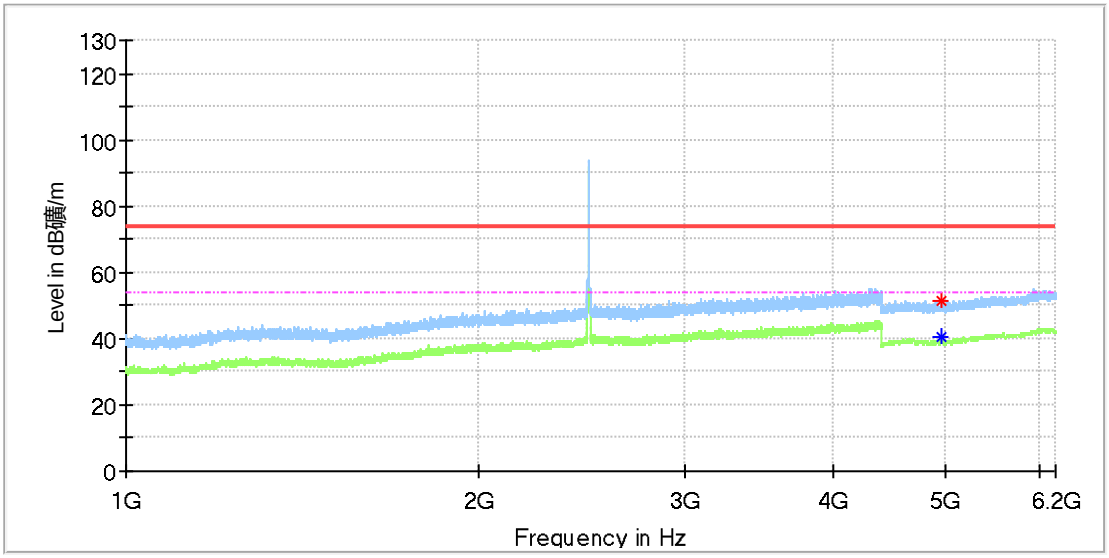
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7318.050000 | 44.64 | --- | 74.00 | 29.36 | 100.0 | V | 223.0 | 8.2 |
| 7318.541667 | --- | 37.21 | 54.00 | 16.79 | 100.0 | V | 260.0 | 8.2 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

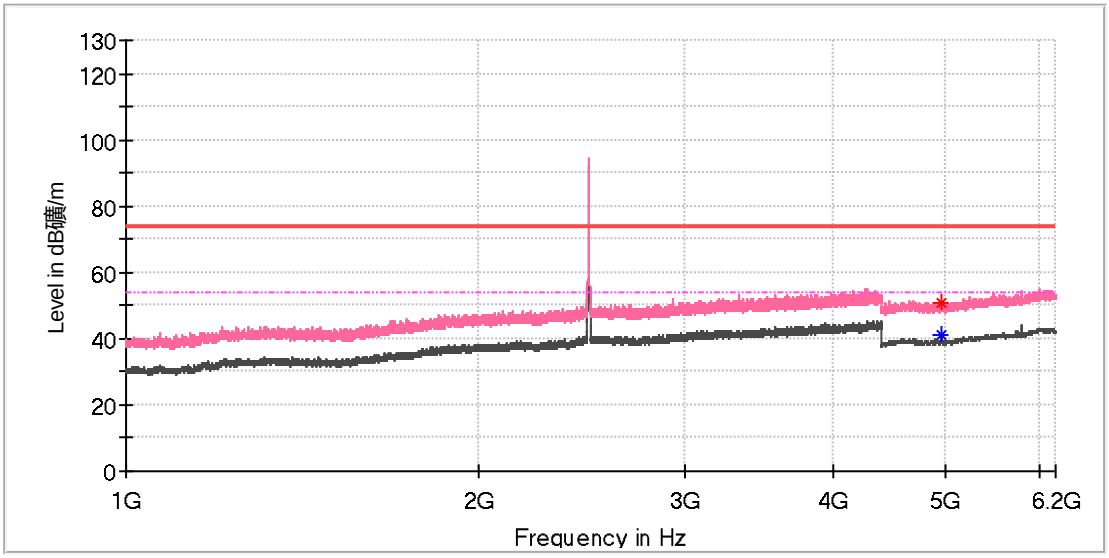
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4958.500000 | --- | 40.23 | 54.00 | 13.77 | 100.0 | H | 103.0 | 11.8 |
| 4961.000000 | 51.64 | --- | 74.00 | 22.36 | 100.0 | H | 6.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

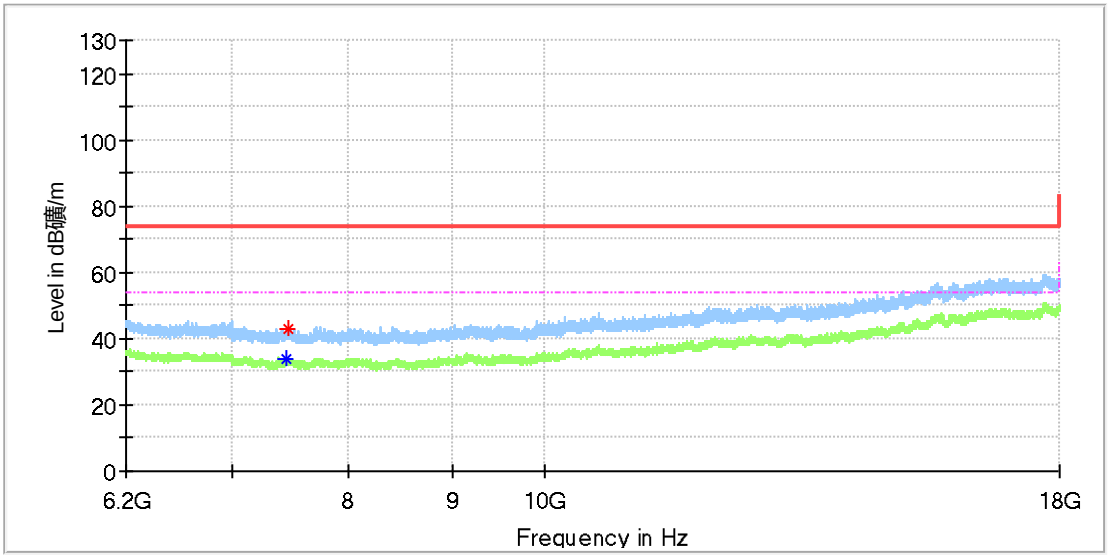
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4959.500000 | --- | 41.01 | 54.00 | 12.99 | 100.0 | V | 190.0 | 11.8 |
| 4960.500000 | 50.58 | --- | 74.00 | 23.42 | 100.0 | V | 183.0 | 11.8 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

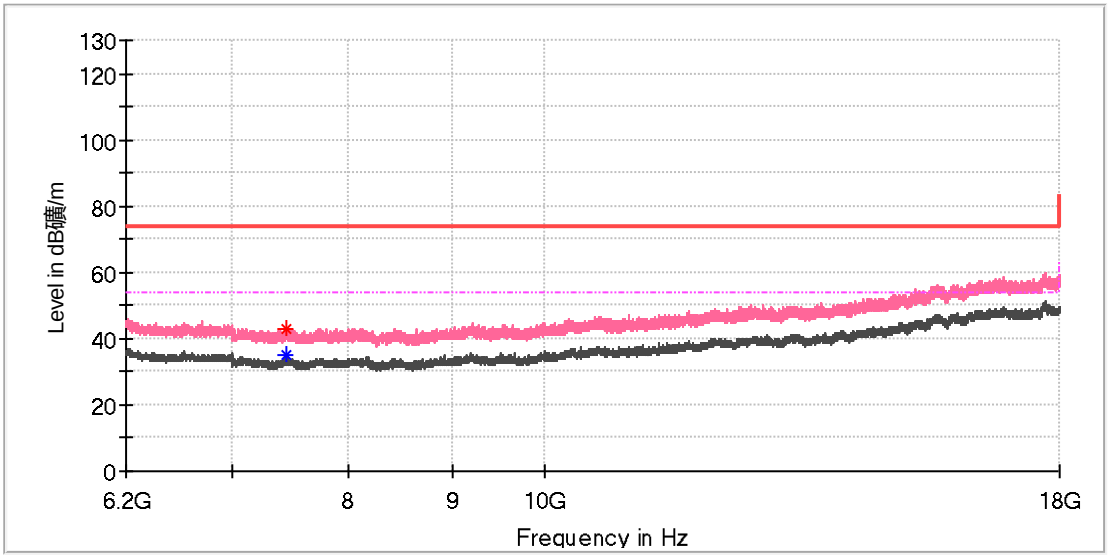
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7440.966667 | --- | 33.61 | 54.00 | 20.39 | 100.0 | H | 274.0 | 8.4 |
| 7456.700000 | 42.82 | --- | 74.00 | 31.18 | 100.0 | H | 33.0 | 8.5 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 7439.000000 | 42.79 | --- | 74.00 | 31.21 | 100.0 | V | 260.0 | 8.4 |
| 7440.966667 | --- | 34.86 | 54.00 | 19.14 | 100.0 | V | 85.0 | 8.4 |

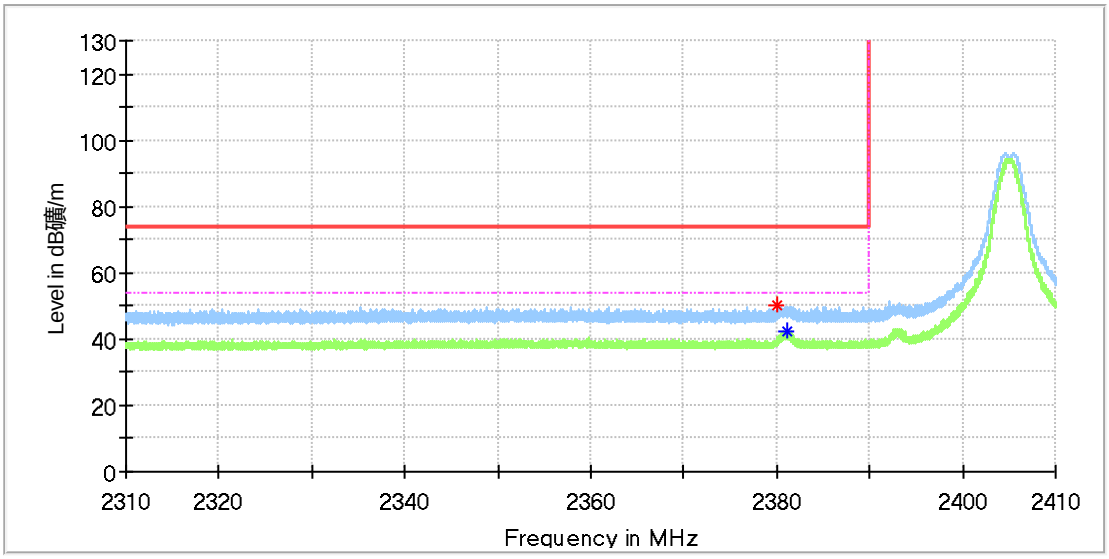
# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

## Appendix B.6: Test Results of Radiated Emissions in Restricted Bands

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

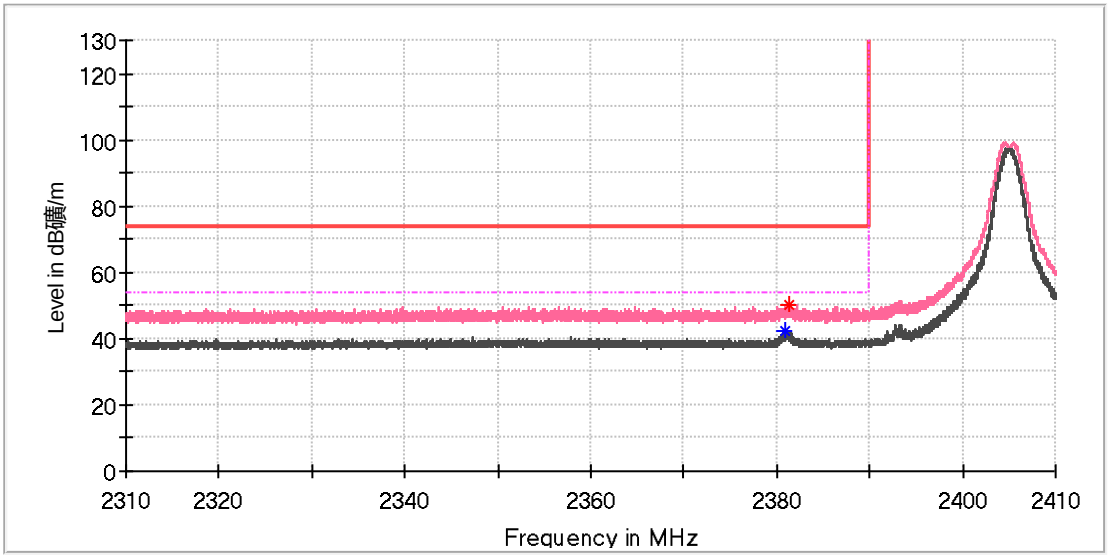
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2380.140000 | 50.35 | --- | 74.00 | 23.65 | 100.0 | H | 125.0 | 7.0 |
| 2381.020000 | --- | 42.18 | 54.00 | 11.82 | 100.0 | H | 114.0 | 7.0 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_Low channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

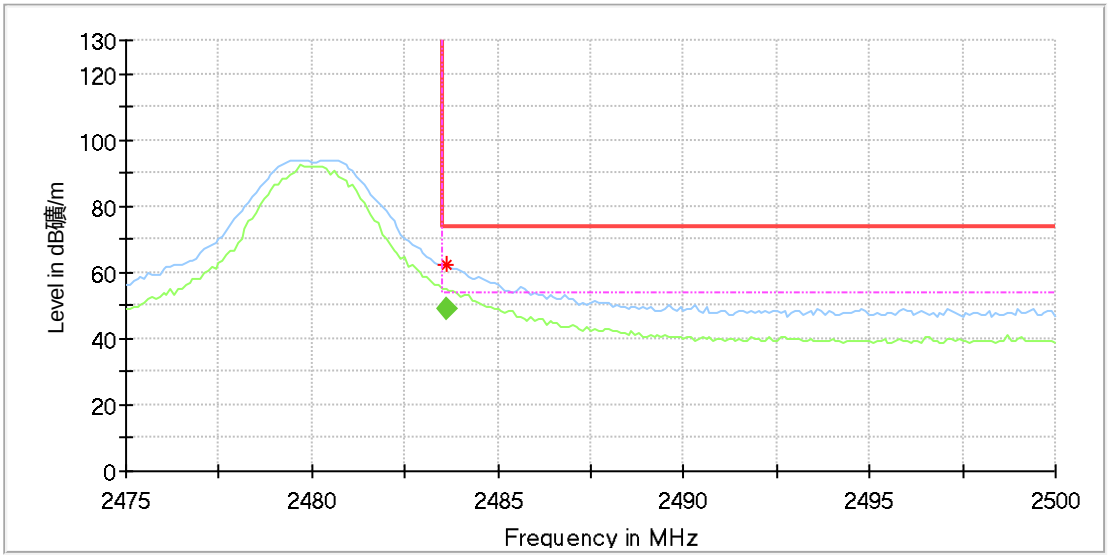
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2380.975000 | --- | 42.37 | 54.00 | 11.63 | 100.0 | V | 302.0 | 7.0 |
| 2381.370000 | 49.89 | --- | 74.00 | 24.11 | 100.0 | V | 313.0 | 7.0 |

# Final_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| --- | --- | --- | --- | --- | | --- | --- |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

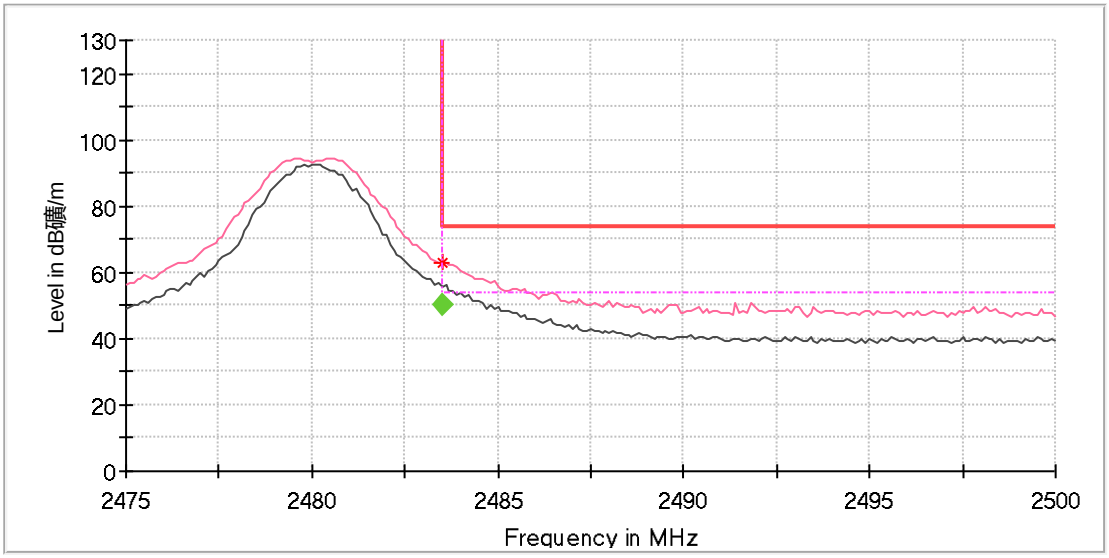
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2483.600000 | 62.05 | --- | 74.00 | 11.95 | 100.0 | H | 18.0 | 7.4 |

# Final_Result

| Frequency (MHz) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 2483.615300 | 48.79 | 54.00 | 5.21 | 105.0 | H | 169.0 | 7.4 |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Model: | QPA2892/WI |
| Test Mode: | Thread_High channel |
| Order No/Sample No: | 168379176/A003277000-007 |
| Test Voltage: | Battery |
| Remark: | Temp 22 Humi:52% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2483.500000 | 63.04 | --- | 74.00 | 10.96 | 100.0 | V | 123.0 | 7.4 |

# Final_Result

| Frequency (MHz) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 2483.500050 | 50.31 | 54.00 | 3.69 | 100.0 | V | 108.0 | 7.4 |

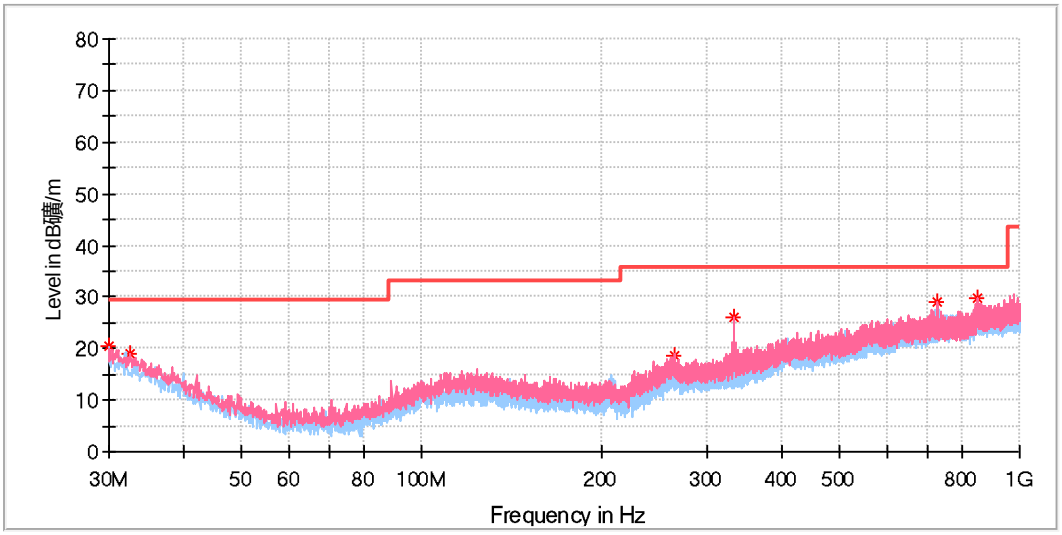
## Appendix B.7: Test Results of Radiated Emissions

Note: The following illustration shows the limit that meet the FCC requirements, and these measured value also comply with IC requirements.

**30 MHz to 1GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Order Number: | 168379176(P00667629)) |
| Model: | QPA2892/WI |
| Test Mode: | Normal working with Thread Linked |
| Test Voltage: | DC3V |
| Standard: | FCC 15B |
| Test By:/Review By: | Steve Lan/Gary Chen |
| Tem./Hum./Pressure: | 24.1°C/50.6%/101kPa |
| Remark: | 10m Chamber |



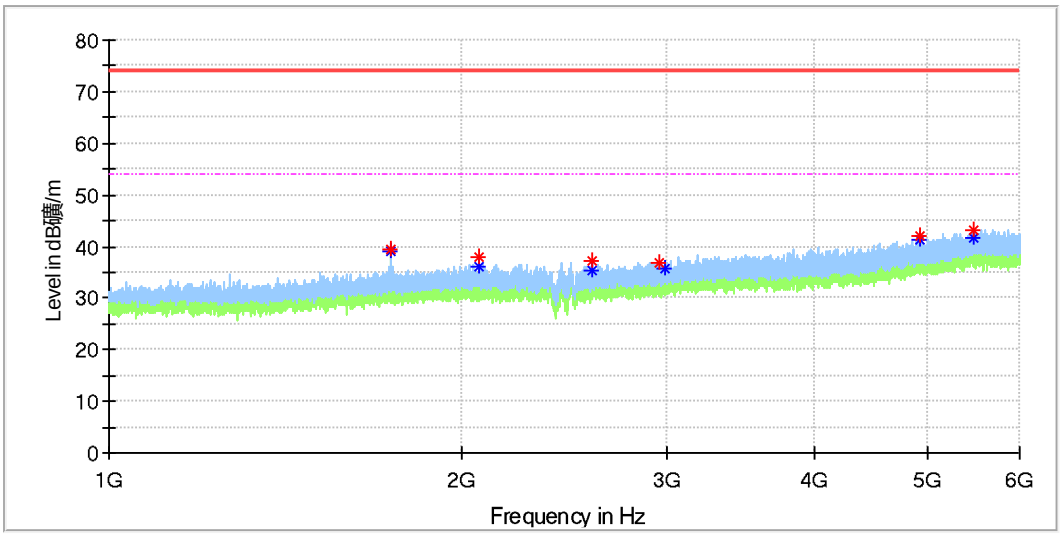

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|
| 30.053889 | 20.44 | 29.50 | 9.06 | 200.0 | H | 0.0 | -9.6 |
| 32.532778 | 19.10 | 29.50 | 10.40 | 100.0 | V | 42.0 | -5.9 |
| 264.901667 | 18.78 | 35.60 | 16.82 | 200.0 | V | 0.0 | -7.4 |
| 333.178889 | 26.15 | 35.60 | 9.45 | 100.0 | V | 338.0 | -7.3 |
| 727.861111 | 29.18 | 35.60 | 6.42 | 100.0 | V | 186.0 | -0.2 |
| 851.590000 | 29.61 | 35.60 | 5.99 | 100.0 | V | 84.0 | 1.3 |

**1GHz to 6GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Order Number: | 168379176(P00667629)) |
| Model: | QPA2892/WI |
| Test Mode: | Normal working with Thread Linked |
| Test Voltage: | DC3V |
| Standard: | FCC 15B |
| Test By:/Review By: | Steve Lan/Gary Chen |
| Tem./Hum./Pressure: | 24.1°C/50.6%/101kPa |
| Remark: | 3m Chamber |

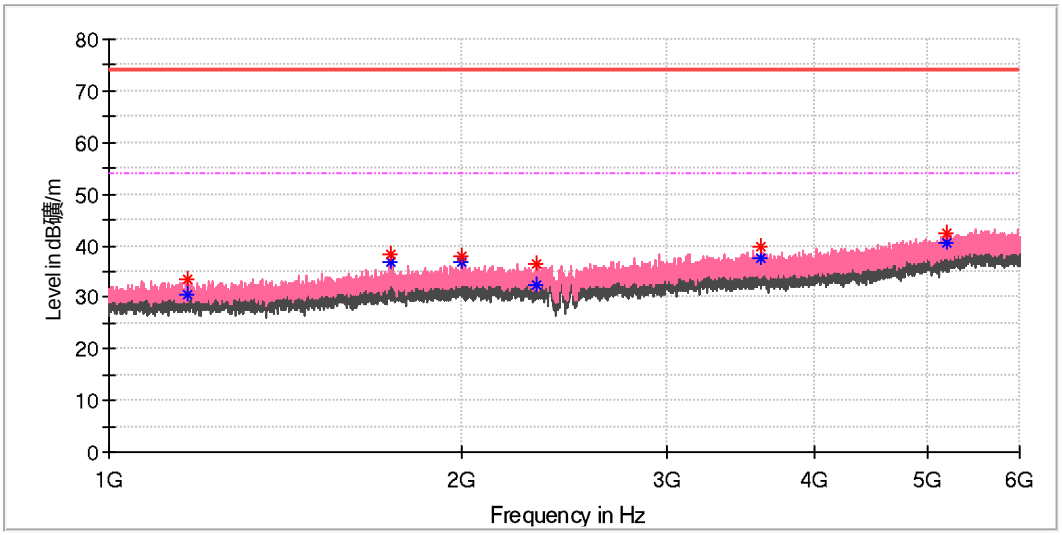



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m | Average (dBµV/m | Limit (dBµV/m | Margin | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 1743.125000 | 39.51 | --- | 74.00 | 34.49 | 100.0 | H | 57.0 | -4.2 |
| 1743.125000 | --- | 39.01 | 54.00 | 14.99 | 100.0 | H | 57.0 | -4.2 |
| 2068.750000 | --- | 36.02 | 54.00 | 17.98 | 100.0 | H | 167.0 | -3.1 |
| 2068.750000 | 37.91 | --- | 74.00 | 36.09 | 100.0 | H | 167.0 | -3.1 |
| 2583.541667 | 37.15 | --- | 74.00 | 36.85 | 100.0 | H | 67.0 | -2.1 |
| 2583.541667 | --- | 35.27 | 54.00 | 18.73 | 100.0 | H | 67.0 | -2.1 |
| 2947.708333 | 37.00 | --- | 74.00 | 37.00 | 100.0 | H | 171.0 | -0.1 |
| 2984.791667 | --- | 35.73 | 54.00 | 18.27 | 100.0 | H | 344.0 | 0.0 |
| 4925.625000 | 42.23 | --- | 74.00 | 31.77 | 100.0 | H | 51.0 | 7.3 |
| 4925.625000 | --- | 41.14 | 54.00 | 12.86 | 100.0 | H | 51.0 | 7.3 |
| 5474.166667 | --- | 41.51 | 54.00 | 12.49 | 100.0 | H | 156.0 | 9.8 |
| 5474.166667 | 43.15 | --- | 74.00 | 30.85 | 100.0 | H | 156.0 | 9.8 |

# EUT Information

| | |
|---|---|
| EUT Name: | Thread room sensor |
| Order Number: | 168379176(P00667629)) |
| Model: | QPA2892/WI |
| Test Mode: | Normal working with Thread Linked |
| Test Voltage: | DC3V |
| Standard: | FCC 15B |
| Test By:/Review By: | Steve Lan/Gary Chen |
| Tem./Hum./Pressure: | 24.1°C/50.6%/101kPa |
| Remark: | 3m Chamber |




# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m | Average (dBµV/m | Limit (dBµV/m | Margin | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 1166.666667 | 33.64 | --- | 74.00 | 40.36 | 200.0 | V | 109.0 | -6.5 |
| 1166.666667 | --- | 30.48 | 54.00 | 23.52 | 200.0 | V | 109.0 | -6.5 |
| 1741.666667 | 38.30 | --- | 74.00 | 35.70 | 100.0 | V | 0.0 | -4.2 |
| 1741.666667 | --- | 36.87 | 54.00 | 17.13 | 100.0 | V | 0.0 | -4.2 |
| 1999.791667 | 37.96 | --- | 74.00 | 36.04 | 200.0 | V | 356.0 | -3.2 |
| 1999.791667 | --- | 37.02 | 54.00 | 16.98 | 200.0 | V | 356.0 | -3.2 |
| 2319.791667 | 36.64 | --- | 74.00 | 37.36 | 200.0 | V | 257.0 | -2.8 |
| 2319.791667 | --- | 32.38 | 54.00 | 21.62 | 100.0 | V | 115.0 | -2.8 |
| 3609.166667 | 39.77 | --- | 74.00 | 34.23 | 200.0 | V | 183.0 | 2.9 |
| 3609.166667 | --- | 37.57 | 54.00 | 16.43 | 200.0 | V | 183.0 | 2.9 |
| 5196.666667 | 42.52 | --- | 74.00 | 31.48 | 200.0 | V | 103.0 | 8.4 |
| 5196.666667 | --- | 40.59 | 54.00 | 13.41 | 200.0 | V | 103.0 | 8.4 |