



TEST REPORT

| Applicant Name : Address : | Shenzhen Jiteng Network Technology Co., Ltd No.1202, Bitian Pavilion, Bizhong Garden, No.10 Bibo First Street, Bibo Community, Huangbei Street, Luohu District, Shenzhen City, China |
|--------------------------------------|---|
| Report Number : | SZNS1220505-18180E-00A |
| FCC ID: | 2AY4C-GM04 |
| Test Standard (s) FCC PART 15.247 | |
| Sample Description | |
| Product: | Mini PC |
| Trademark: | GEEKOM |
| Tested Model: | MiniAir 11 |
| Date Received: | 2022-05-05 |
| Date of Test: | 2022-05-10 to 2022-05-27 |
| Report Date: | 2022-05-30 |

Test Result:

Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Black Ohr

Black Ding EMC Engineer

Approved By:

Candy . Li

Candy Li EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk 🖈 ".

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Shenzhen Accurate Technology Co., Ltd.

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| Test Procedure | |
| TEST DATA | |

GENERAL INFORMATION

| Product | Mini PC |
|--|--|
| Tested Model | MiniAir 11 |
| Frequency Range | Bluetooth: 2402~2480MHz |
| Maximum conducted Peak output power | Bluetooth: 3.24 dBm |
| Modulation Technique | Bluetooth: BDR(GFSK)/EDR(π/4-DQPSK)/EDR(8DPSK) |
| Antenna Specification* | Internal Antenna: 2.68 dBi(provided by the applicant) |
| Voltage Range | DC 19V from adapter |
| Sample number | SZNS1220505-18180E-RF-S1 (Assigned by ATC) |
| Sample/EUT Status | Good condition |
| Adapter 1 information | Model: BSY065T1903423D, Input: 100-240V~50/60Hz, 1.5A, Output: 19V/3.42A |
| Adapter 2 information | Model: A481-1902360U, Input: 100-240V~50/60Hz 1.5A, Output: 19V/2.36A |

Product Description for Equipment under Test (EUT)

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

| Parameter | | Uncertainty | | |
|------------------------|--------------------|-------------|--|--|
| Occupied Cha | nnel Bandwidth | 5% | | |
| RF output por | wer, conducted | 0.73dB | | |
| Unwanted Emi | ssion, conducted | 1.6dB | | |
| AC Power Lines C | onducted Emissions | 2.72dB | | |
| | 30MHz - 1GHz | 4.28dB | | |
| Emissions, Radiated | 1GHz - 18GHz | 4.98dB | | |
| Kaulateu | 18GHz - 26.5GHz | 5.06dB | | |
| Temperature | | 1 °C | | |
| Humidity | | 6% | | |
| Supply | voltages | 0.4% | | |

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISEDC), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode.

EUT Exercise Software

"DRTU"* software was used during testing, the power level is default*.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

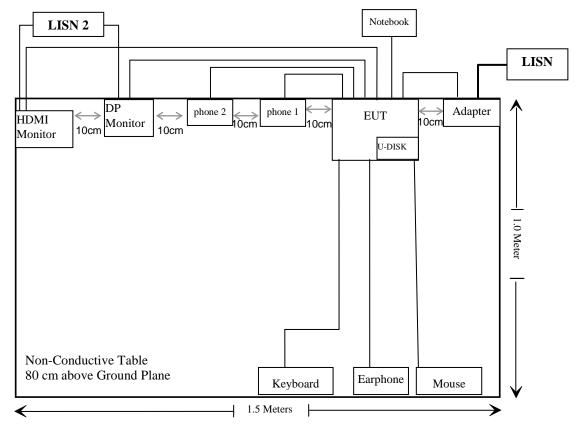
| Manufacturer | Description | Model | Serial Number |
|--|--------------|-----------|---------------------|
| DELL | Keyboard | L100 | CN0RH66658985C018C |
| DELL | Mouse | MOC5UG | Unknown |
| PHILIPS | DP Monitor | 275M7C | Unknown |
| DELL | HDMI Monitor | ST2310f | CN-05MKKK-72872-053 |
| Unknown | U Disk | Unknown | Unknown |
| Huawei | Phone 1 | TAS-AL00 | 88Y5T19A03011842 |
| Shenzhen Wanplas Tech nology Co., LTD | Phone 2 | GM1900 | 2a0a4328 |
| SCI | Earphone | SCRC-130A | Unknown |
| Lenovo | Notebook | T430 | Unknown |

External I/O Cable

| Cable Description | Length (m) | From Port | То |
|---------------------------------------|------------|-----------|--------------|
| Unshielded Detachable DC output Cable | 1.2 | Adapter 1 | EUT |
| Unshielded Detachable DC output Cable | 1.2 | Adapter 2 | EUT |
| Unshielded Detachable AC power Cable | 1.0 | EUT | Adapter 1 |
| Shielded Detachable HDMI Cable | 2.0 | EUT | HDMI Monitor |
| Shielded Detachable DP Cable | 1.0 | EUT | DP Monitor |
| Unshielded Detachable USB Cable | 1.5 | EUT | Mouse |
| Unshielded Detachable USB Cable | 1.5 | EUT | Keyboard |
| Unshielded Detachable TYPE-C Cable 1 | 1.0 | EUT | Phone |
| Unshielded Detachable TYPE-C2 Cable 2 | 1.0 | EUT | Phone |
| Unshielded Detachable earphone Cable | 0.75 | EUT | Earphone |
| Unshielded Detachable RJ45 Cable | 10.0 | EUT | Notebook |

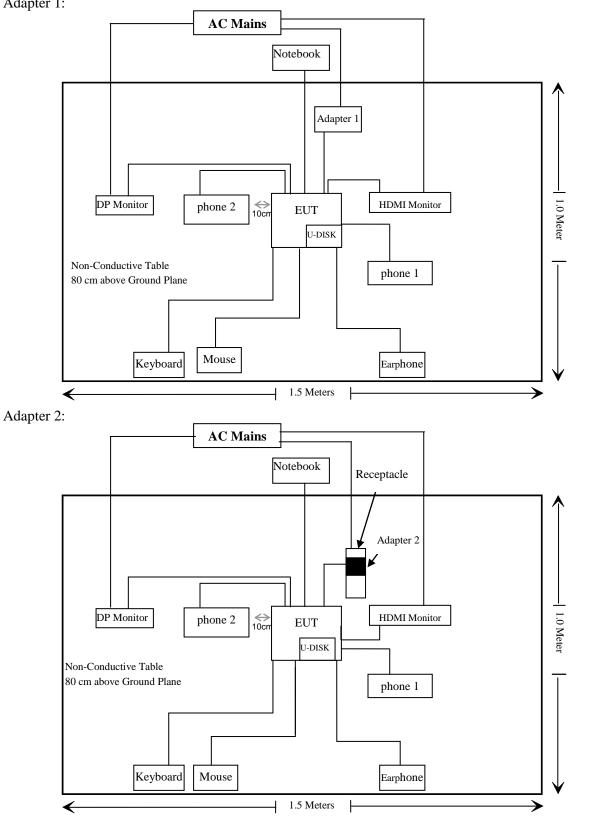
Block Diagram of Test Setup

For conducted emission:



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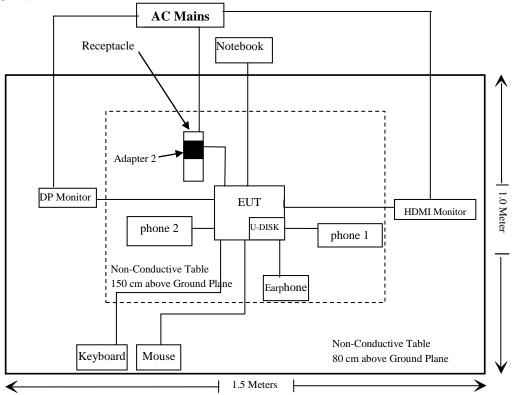
For Radiated emission: Below 1GHz: Adapter 1:



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Above 1GHz:



SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Result |
|--------------------------------------|--|-----------|
| \$15.247 (I), \$1.1310 & \$2.1091 | Maximum Permissible Exposure (MPE) | Compliant |
| §15.203 | Antenna Requirement | Compliant |
| §15.207(a) | AC Line Conducted Emissions | Compliant |
| §15.205, §15.209 & §15.247(d) | Radiated Emissions | Compliant |
| §15.247(a)(1) | 20 dB Emission Bandwidth & 99% Occupied Bandwidth | Compliant |
| §15.247(a)(1) | Channel Separation Test | Compliant |
| §15.247(a)(1)(iii) | Time of Occupancy (Dwell Time) | Compliant |
| §15.247(a)(1)(iii) | Quantity of hopping channel Test | Compliant |
| §15.247(b)(1) | Peak Output Power Measurement | Compliant |
| §15.247(d) | Band edges | Compliant |

Test Equipment List

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date | | | |
|--------------------------|----------------------------|----------------------|-------------------|---------------------|-------------------------|--|--|--|
| Conducted Emissions Test | | | | | | | | |
| Rohde & Schwarz | EMI Test Receiver | ESCI | 100784 | 2021/12/13 | 2022/12/12 | | | |
| R & S | L.I.S.N. | ENV216 | 101314 | 2021/12/13 | 2022/12/12 | | | |
| Anritsu Corp | 50 Ω Coaxial Switch | MP59B | 6200506474 | 2021/12/13 | 2022/12/12 | | | |
| Unknown | RF Coaxial Cable | No.17 | N0350 | 2021/12/14 | 2022/12/13 | | | |
| | | | tware: e3 19821b(| V9) | | | | |
| | Γ | Radiated Emiss | ions Test | | | | | |
| Rohde & Schwarz | Test Receiver | ESR | 102725 | 2021/12/13 | 2022/12/12 | | | |
| Rohde & Schwarz | Spectrum Analyzer | FSV40 | 101949 | 2021/12/13 | 2022/12/12 | | | |
| SONOMA INSTRUMENT | Amplifier | 310 N | 186131 | 2021/11/09 | 2022/11/08 | | | |
| A.H. Systems, inc. | Preamplifier | PAM-0118P | 135 | 2021/11/09 | 2022/11/08 | | | |
| Quinstar | Amplifier | QLW-184055 36-J0 | 15964001002 | 2021/11/11 | 2022/11/10 | | | |
| Schwarzbeck | Bilog Antenna | VULB9163 | 9163-323 | 2021/07/06 | 2024/07/05 | | | |
| Schwarzbeck | Horn Antenna | BBHA9120D | 9120D-1067 | 2020/01/05 | 2023/01/04 | | | |
| Schwarzbeck | HORN ANTENNA | BBHA9170 | 9170-359 | 2020/01/05 | 2023/01/04 | | | |
| Wainwright | High Pass Filter | WHKX3.6/18 G-10SS | 5 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.10 | N050 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.11 | N1000 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.12 | N040 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.13 | N300 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.14 | N800 | 2021/12/14 | 2022/12/13 | | | |
| Unknown | RF Coaxial Cable | No.15 | N600 | 2021/12/14 | 2022/12/13 | | | |
| | Radiated Er | nission Test Soft | ware: e3 19821b(V | 79) | | | | |

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date | |
|-------------------|---------------------------------|----------------------|--------------------|---------------------|-------------------------|--|
| RF Conducted Test | | | | | | |
| Rohde & Schwarz | Spectrum Analyzer | FSV-40 | 101495 | 2021/12/13 | 2022/12/12 | |
| Rohde & Schwarz | Open Switch and Control Unit | OSP120 + OSP-B157 | 101244 + 100866 | 2021/12/13 | 2022/12/12 | |
| WEINSCHEL | 10dB Attenuator | 5324 | AU 3842 | 2021/12/14 | 2022/12/13 | |
| Unknown | RF Coaxial Cable | No.33 | RF-03 | Each time | | |

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1310 & §2.1091 –MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §2.1091 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

| (B) Limits for General Population/Uncontrolled Exposure | | | | | | | | |
|--|-------|--------|------------------------|----|--|--|--|--|
| Frequency Range (MHz)Electric Field Strength (V/m)Magnetic Field Strength (A/m)Power Density (mW/cm²)Averaging Time (minutes) | | | | | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 | | | | |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 | | | | |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 | | | | |
| 300-1500 | / | / | f/1500 | 30 | | | | |
| 1500-100,000 | / | / | 1.0 | 30 | | | | |

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

 $S = PG/4\pi R^2 =$ power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_{i} \frac{S_i}{S_{Limit,i}} \leq 1$$

For worst case:

| Mode | Frequency Range | Ante | ntenna Gain Tune-up Power | | Evaluation Distance | Power Density | MPE Limit (mW/cm ²) | | |
|-----------------|--------------------|-------|------------------------------|-------|------------------------|------------------|------------------------------------|-----|--|
| | (MHz) | (dBi) | (numeric) | (dBm) | dBm) (mW) (cm) | | $(\mathrm{mW/cm}^2)$ | | |
| BT | 2402-2480 | 2.68 | 1.85 | 3.5 | 2.24 | 20 | 0.0008 | 1.0 | |
| BLE | 2402-2480 | 2.68 | 1.85 | 2.0 | 1.58 | 20 | 0.0006 | 1.0 | |
| 2.4G Wi-Fi | 2412-2462 | 2.68 | 1.85 | 16.0 | 39.81 | 20 | 0.0147 | 1.0 | |
| 5G Wi-Fi Band 1 | 5150-5250 | 3.39 | 2.18 | 15.5 | 35.48 | 20 | 0.0154 | 1.0 | |
| 5G Wi-Fi Band 4 | 5725-5850 | 4.31 | 2.70 | 16.0 | 39.81 | 20 | 0.0214 | 1.0 | |

Note: 1. The BT function can transmit at the same time with the Wi-Fi function.

2. The 2.4G Wi-Fi function can't transmit at the same time with the 5G Wi-Fi function.

Simultaneous transmitting consideration:

The ratio= MPE_{BT}/limit + MPE_{5G Wi-Fi}/limit= $0.0008/1+0.0214/1=0.0222 \le 1.0$

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. 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.

Antenna Connector Construction

The EUT has one internal antenna arrangement for Bluetooth, which was permanently attached and the antenna gain is 2.68dBi, fulfill the requirement of this section. Please refer to the EUT photos.

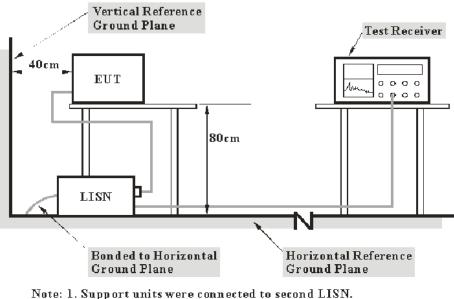
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

EUT Setup



Support units were connected to second LISM.
 Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range | IF B/W | | |
|------------------|--------|--|--|
| 150 kHz – 30 MHz | 9 kHz | | |

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

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Factor & Margin Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

The "**Over limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

Over Limit = Level – Limit Level = Read Level + Factor

Test Data

Environmental Conditions

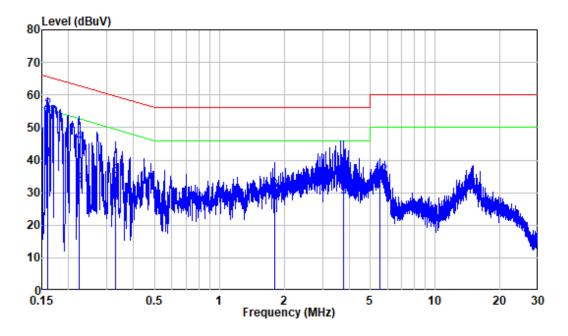
| Temperature: | 23 °C |
|---------------------------|-----------|
| Relative Humidity: | 49 % |
| ATM Pressure: | 101.1 kPa |

The testing was performed by Jason Liu on 2022-05-27.

EUT operation mode: BT Transmitting (Worst case as below)

Adapter 1:

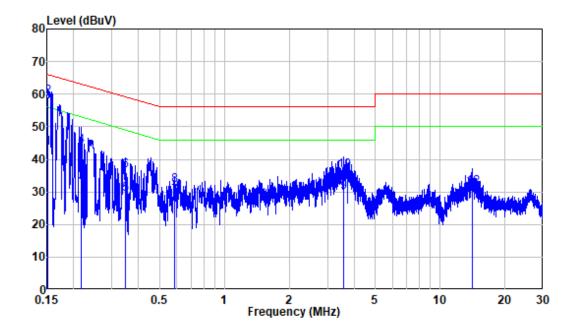
| AC 120V/60 H | Hz, Line |
|--------------|----------|
|--------------|----------|



| Site | : | Shielding Room |
|-----------|---|-----------------------|
| Condition | : | Line |
| Job No. | : | SZNS1220505-18180E-RF |
| Mode | : | BT Transmitting |
| Power | : | AC 120V 60Hz |
| Adapter | : | BSY065T1903423D |

| | | | Read | | Limit | 0ver | |
|----|-------|--------|-------|-------|-------|--------|---------|
| | Freq | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.160 | 9.80 | 30.27 | 40.07 | 55.45 | -15.38 | Average |
| 2 | 0.160 | 9.80 | 45.52 | 55.32 | 65.45 | -10.13 | QP |
| 3 | 0.223 | 9.80 | 22.37 | 32.17 | 52.71 | -20.54 | Average |
| 4 | 0.223 | 9.80 | 35.59 | 45.39 | 62.71 | -17.32 | QP |
| 5 | 0.329 | 9.80 | 17.20 | 27.00 | 49.47 | -22.47 | Average |
| 6 | 0.329 | 9.80 | 25.36 | 35.16 | 59.47 | -24.31 | QP |
| 7 | 1.807 | 9.82 | 16.65 | 26.47 | 46.00 | -19.53 | Average |
| 8 | 1.807 | 9.82 | 20.64 | 30.46 | 56.00 | -25.54 | QP |
| 9 | 3.774 | 9.84 | 18.98 | 28.82 | 46.00 | -17.18 | Average |
| 10 | 3.774 | 9.84 | 24.69 | 34.53 | 56.00 | -21.47 | QP |
| 11 | 5.524 | 9.86 | 20.41 | 30.27 | 50.00 | -19.73 | Average |
| 12 | 5.524 | 9.86 | 25.20 | 35.06 | 60.00 | -24.94 | QP |

AC 120V/60 Hz, Neutral

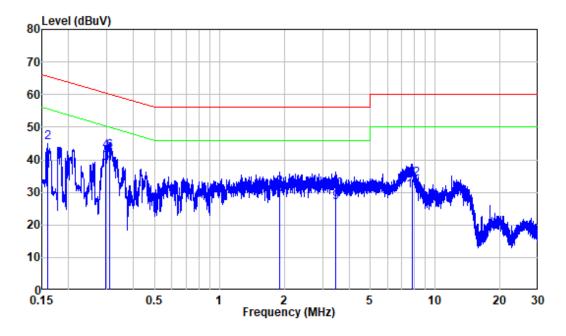


| Site : | Shielding Room | | | |
|------------|-----------------------|--|--|--|
| Condition: | Neutral | | | |
| Job No. : | SZNS1220505-18180E-RF | | | |
| Mode : | BT Transmitting | | | |
| Power : | AC 120V 60Hz | | | |
| Adapter : | BSY065T1903423D | | | |
| | | | | |

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|--------|--------|---------------|-------|---------------|---------------|---------|
| | MHz | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.151 | 9.80 | 33.79 | 43.59 | 55.94 | -12.35 | Average |
| 2 | 0.151 | 9.80 | 49.28 | 59.08 | 65.94 | -6.86 | QP |
| 3 | 0.216 | 9.80 | 23.03 | 32.83 | 52.96 | -20.13 | Average |
| 4 | 0.216 | 9.80 | 34.30 | 44.10 | 62.96 | -18.86 | QP |
| 5 | 0.347 | 9.80 | 19.35 | 29.15 | 49.04 | -19.89 | Average |
| 6 | 0.347 | 9.80 | 26.63 | 36.43 | 59.04 | -22.61 | QP |
| 7 | 0.587 | 9.81 | 18.91 | 28.72 | 46.00 | -17.28 | Average |
| 8 | 0.587 | 9.81 | 22.17 | 31.98 | 56.00 | -24.02 | QP |
| 9 | 3.577 | 9.84 | 20.05 | 29.89 | 46.00 | -16.11 | Average |
| 10 | 3.577 | 9.84 | 26.65 | 36.49 | 56.00 | -19.51 | QP |
| 11 | 14.054 | 10.04 | 17.17 | 27.21 | 50.00 | -22.79 | Average |
| 12 | 14.054 | 10.04 | 21.45 | 31.49 | 60.00 | -28.51 | QP |

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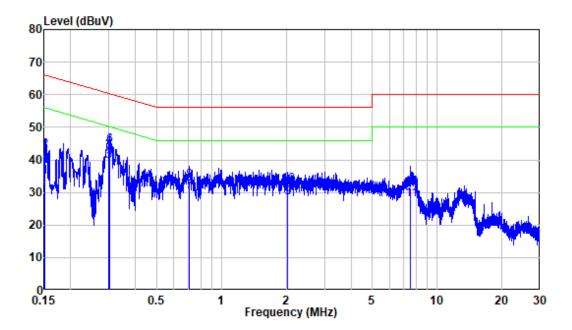
Adapter 2:



| Site : | Shielding Room | | | |
|------------|-----------------------|--|--|--|
| Condition: | Line | | | |
| Job No. : | SZNS1220505-18180E-RF | | | |
| Mode : | BT Transmitting | | | |
| Power : | AC 120V 60Hz | | | |
| Adapter : | A481-1902360U | | | |
| | | | | |

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|-------|--------|---------------|-------|---------------|---------------|---------|
| | MHz | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.159 | 9.80 | 26.60 | 36.40 | 55.51 | -19.11 | Average |
| 2 | 0.159 | 9.80 | 35.60 | 45.40 | 65.51 | -20.11 | QP |
| 3 | 0.296 | 9.80 | 29.18 | 38.98 | 50.35 | -11.37 | Average |
| 4 | 0.296 | 9.80 | 32.82 | 42.62 | 60.35 | -17.73 | QP |
| 5 | 0.311 | 9.80 | 30.17 | 39.97 | 49.95 | -9.98 | Average |
| 6 | 0.311 | 9.80 | 32.78 | 42.58 | 59.95 | -17.37 | QP |
| 7 | 1.900 | 9.82 | 18.10 | 27.92 | 46.00 | -18.08 | Average |
| 8 | 1.900 | 9.82 | 21.46 | 31.28 | 56.00 | -24.72 | QP |
| 9 | 3.458 | 9.83 | 16.99 | 26.82 | 46.00 | -19.18 | Average |
| 10 | 3.458 | 9.83 | 20.82 | 30.65 | 56.00 | -25.35 | QP |
| 11 | 7.810 | 9.88 | 20.46 | 30.34 | 50.00 | -19.66 | Average |
| 12 | 7.810 | 9.88 | 24.34 | 34.22 | 60.00 | -25.78 | QP |

AC 120V/60 Hz, Neutral



| Site : | Shielding Room |
|------------|-----------------------|
| Condition: | Neutral |
| Job No. : | SZNS1220505-18180E-RF |
| Mode : | BT Transmitting |
| Power : | AC 120V 60Hz |
| Adapter : | A481-1902360U |
| | |

| | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|-------|--------|---------------|-------|---------------|---------------|---------|
| | MHz | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.152 | 9.80 | 25.06 | 34.86 | 55.88 | -21.02 | Average |
| 2 | 0.152 | 9.80 | 33.03 | 42.83 | 65.88 | -23.05 | QP |
| 3 | 0.300 | 9.80 | 29.82 | 39.62 | 50.24 | -10.62 | Average |
| 4 | 0.300 | 9.80 | 34.34 | 44.14 | 60.24 | -16.10 | QP |
| 5 | 0.302 | 9.80 | 31.01 | 40.81 | 50.17 | -9.36 | Average |
| 6 | 0.302 | 9.80 | 34.55 | 44.35 | 60.17 | -15.82 | QP |
| 7 | 0.708 | 9.81 | 20.49 | 30.30 | 46.00 | -15.70 | Average |
| 8 | 0.708 | 9.81 | 23.68 | 33.49 | 56.00 | -22.51 | QP |
| 9 | 2.027 | 9.82 | 18.45 | 28.27 | 46.00 | -17.73 | Average |
| 10 | 2.027 | 9.82 | 22.53 | 32.35 | 56.00 | -23.65 | QP |
| 11 | 7.536 | 9.98 | 17.89 | 27.87 | 50.00 | -22.13 | Average |
| 12 | 7.536 | 9.98 | 21.53 | 31.51 | 60.00 | -28.49 | QP |

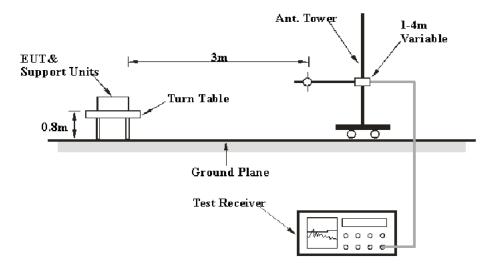
FCC §15.205, §15.209 & §15.247(d) - RADIATED EMISSIONS

Applicable Standard

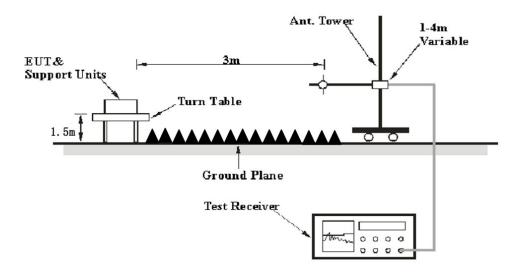
FCC §15.205; §15.209; §15.247(d)

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

| Frequency Range | RBW | Video B/W | IF B/W | Measurement |
|-------------------|---------|-----------|---------|-------------|
| 30 MHz – 1000 MHz | 100 kHz | 300 kHz | 120 kHz | QP |
| Above 1 GHz | 1 MHz | 3 MHz | / | РК |
| Above I GHZ | 1 MHz | 10 Hz | / | Average |

The EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in Quasi-peak detection mode for frequency range of 30 MHz -1 GHz and peak and Average detection modes for frequencies above 1 GHz.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

Over Limit/Margin = Level / Corrected Amplitude – Limit Level / Corrected Amplitude = Read Level + Factor

Test Data

Environmental Conditions

| Temperature: | 22-24 °C |
|---------------------------|-----------------|
| Relative Humidity: | 49-61 % |
| ATM Pressure: | 101.0-103.0 kPa |

The testing was performed by Level Li on 2022-05-27 for below 1GHz and Leo Li from 2022-05-10 to 2022-05-18 for above 1GHz.

EUT operation mode: BT Transmitting

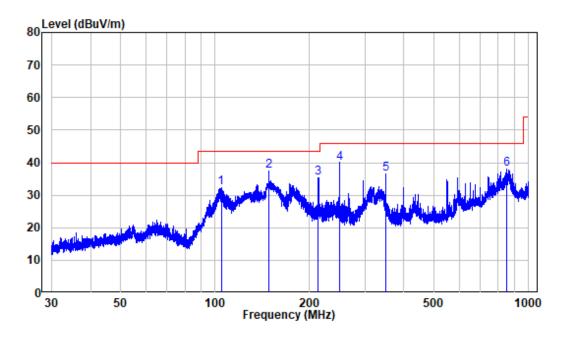
(Scan with GFSK, $\pi/4$ -DQPSK, 8DPSK modes, and the worst case is GFSK Mode)

30MHz-1GHz:

Worst case: GFSK High Channel

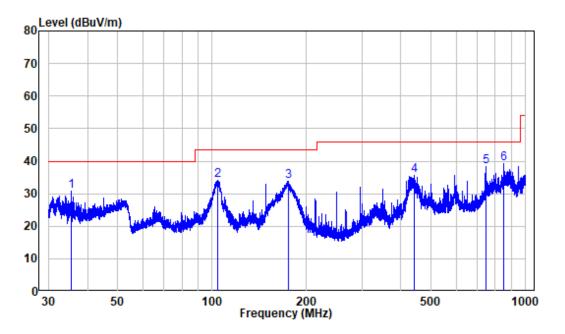
Adapter 1:

Horizontal:



| Site : | chamber |
|------------|-----------------------|
| Condition: | 3m HORIZONTAL |
| Job No. : | SZNS1220505-18180E-RF |
| Test Mode: | BT Transmitting |
| Adepter : | BSY065t1903423D |

| | Freq | Factor | | | Limit Line | | Remark |
|---|---------|--------|-------|--------|---------------|--------|--------|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 104.490 | -11.78 | 44.04 | 32.26 | 43.50 | -11.24 | Peak |
| 2 | 148.441 | -15.36 | 52.80 | 37.44 | 43.50 | -6.06 | Peak |
| 3 | 212.829 | -11.75 | 47.03 | 35.28 | 43.50 | -8.22 | Peak |
| 4 | 249.972 | -10.74 | 50.70 | 39.96 | 46.00 | -6.04 | Peak |
| 5 | 350.016 | -7.31 | 43.87 | 36.56 | 46.00 | -9.44 | Peak |
| 6 | 850.290 | 0.36 | 37.59 | 37.95 | 46.00 | -8.05 | Peak |

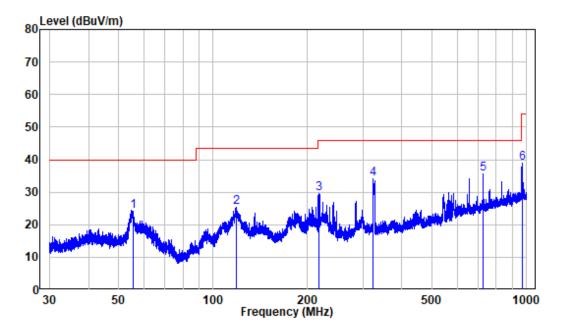


Vertical

Site : chamber Condition: 3m VERTICAL Job No. : SZNS1220505-18180E-RF Test Mode: BT Transmitting Adepter : BSY065t1903423D

| | Freq | Factor | | | Limit Line | | Remark |
|---|---------|--------|-------|--------|---------------|--------|--------|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 35.468 | -11.38 | 42.27 | 30.89 | 40.00 | -9.11 | Peak |
| 2 | 104.307 | -11.77 | 45.85 | 34.08 | 43.50 | -9.42 | Peak |
| 3 | 174.577 | -13.14 | 47.06 | 33.92 | 43.50 | -9.58 | Peak |
| 4 | 442.324 | -5.64 | 41.29 | 35.65 | 46.00 | -10.35 | Peak |
| 5 | 750.108 | -0.87 | 39.17 | 38.30 | 46.00 | -7.70 | Peak |
| 6 | 850.290 | 0.36 | 38.87 | 39.23 | 46.00 | -6.77 | Peak |

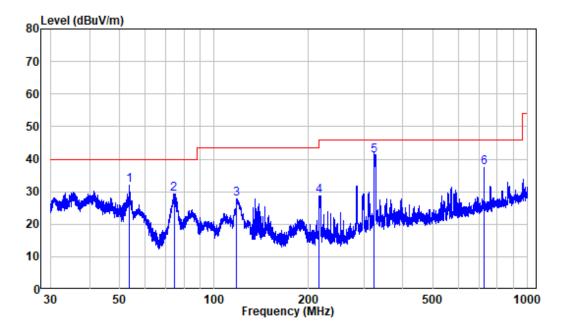
Adapter 2:



Horizontal:

| Site : | chamber |
|------------|-----------------------|
| Condition: | 3m HORIZONTAL |
| Job No. : | SZNS1220505-18180E-RF |
| Test Mode: | BT Transmitting |
| Adepter : | A481-1902360U |

| | Freq | Factor | | | Limit Line | | Remark |
|---|---------|--------|-------|--------|---------------|--------|--------|
| - | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 55.390 | -10.25 | 34.41 | 24.16 | 40.00 | -15.84 | Peak |
| 2 | 118.342 | -13.22 | 38.69 | 25.47 | 43.50 | -18.03 | Peak |
| 3 | 218.213 | -11.51 | 41.05 | 29.54 | 46.00 | -16.46 | Peak |
| 4 | 324.456 | -8.29 | 42.40 | 34.11 | 46.00 | -11.89 | Peak |
| 5 | 724.579 | -1.29 | 36.91 | 35.62 | 46.00 | -10.38 | Peak |
| 6 | 966.389 | 2.44 | 36.59 | 39.03 | 54.00 | -14.97 | Peak |



Vertical

Site : chamber Condition: 3m VERTICAL Job No. : SZNS1220505-18180E-RF Test Mode: BT Transmitting Adepter : A481-1902360U

| | Freq | Factor | | | Limit Line | | Remark |
|---|---------|--------|-------|--------|---------------|--------|--------|
| | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 53.576 | -10.28 | 42.18 | 31.90 | 40.00 | -8.10 | Peak |
| 2 | 74.428 | -16.14 | 45.56 | 29.42 | 40.00 | -10.58 | Peak |
| 3 | 117.979 | -13.16 | 40.93 | 27.77 | 43.50 | -15.73 | Peak |
| 4 | 216.214 | -11.61 | 40.39 | 28.78 | 46.00 | -17.22 | Peak |
| 5 | 324.314 | -8.30 | 49.40 | 41.10 | 46.00 | -4.90 | QP |
| 6 | 724.579 | -1.29 | 38.62 | 37.33 | 46.00 | -8.67 | Peak |

| F | Re | eceiver | | Rx An | tenna | Corrected | Corrected | . | м · | |
|--------------------|-------------------|------------|---------------------|---------------|----------------|------------------|-----------------------|-------------------|----------------|--|
| Frequency (MHz) | Reading (dBµV) | PK/QP/Ave. | Turntable Degree | Height (m) | Polar (H/V) | Factor (dB/m) | Amplitude (dBµV/m) | Limit (dBµV/m) | Margin (dB) | |
| | Low Channel | | | | | | | | | |
| 2310 | 43.78 | PK | 73 | 2.0 | Н | -7.23 | 36.55 | 74 | -37.45 | |
| 2310 | 43.93 | PK | 146 | 1.4 | V | -7.23 | 36.7 | 74 | -37.3 | |
| 2390 | 43.63 | РК | 54 | 1.6 | Н | -7.21 | 36.42 | 74 | -37.58 | |
| 2390 | 43.35 | РК | 300 | 1.6 | V | -7.21 | 36.14 | 74 | -37.86 | |
| 4804 | 44.25 | РК | 355 | 1.7 | Н | -3.52 | 40.73 | 74 | -33.27 | |
| 4804 | 45.68 | PK | 283 | 1.9 | V | -3.52 | 42.16 | 74 | -31.84 | |
| | | | Mi | iddle Ch | annel | | | | | |
| 4882 | 43.06 | PK | 42 | 1.7 | Н | -3.37 | 39.69 | 74 | -34.31 | |
| 4882 | 43.88 | PK | 102 | 2.2 | V | -3.37 | 40.51 | 74 | -33.49 | |
| | | | Н | ligh Cha | nnel | | | | | |
| 2483.5 | 43.86 | PK | 29 | 1.4 | Н | -7.2 | 36.66 | 74 | -37.34 | |
| 2483.5 | 44.51 | PK | 323 | 1.4 | V | -7.2 | 37.31 | 74 | -36.69 | |
| 2500 | 44.9 | PK | 326 | 1.8 | Н | -7.18 | 37.72 | 74 | -36.28 | |
| 2500 | 44.42 | РК | 200 | 2.1 | V | -7.18 | 37.24 | 74 | -36.76 | |
| 4960 | 43.87 | PK | 45 | 1.9 | Н | -3.01 | 40.86 | 74 | -33.14 | |
| 4960 | 45.26 | PK | 344 | 1.6 | V | -3.01 | 42.25 | 74 | -31.75 | |

Above 1GHz (Worst case: GFSK, Adapter 2)

Bluetooth & 5G Wi-Fi (802.11a mode, 5180MHz) Simultaneously Transmission: Worst case for adapter2:

| Frequency | | | Turntable | urntable | | Corrected Corrected Factor Amplitud | | Limit | Margin |
|-----------|-------------------|------------|-----------|---------------|----------------|--|----------|----------|---------------|
| (MHz) | Reading (dBµV) | PK/QP/Ave. | Degree | Height (m) | Polar (H/V) | (dB/m) | (dBµV/m) | (dBµV/m) | (dB) |
| 324.46 | 44.13 | QP | 193 | 1.6 | Н | -8.29 | 35.84 | 46 | -10.16 |
| 324.31 | 50.29 | QP | 321 | 2.2 | V | -8.30 | 41.99 | 46 | -4.01 |
| 6845.79 | 41.15 | PK | 33 | 1.6 | Н | 4.41 | 45.56 | 74 | -28.44 |
| 7123.64 | 40.62 | РК | 289 | 1.8 | V | 5.47 | 46.09 | 74 | -27.91 |

Note:

Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Absolute Level (Corrected Amplitude) = Factor + Reading

Margin = Absolute Level (Corrected Amplitude) – Limit

The other spurious emission which is in the noise floor level was not recorded.

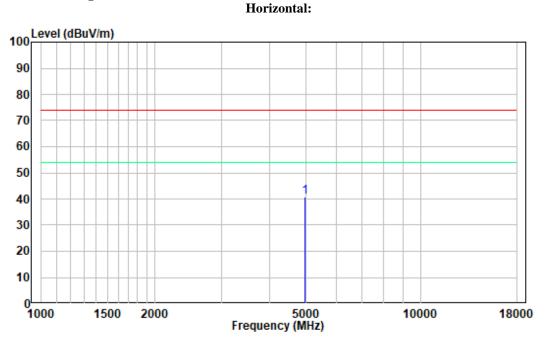
For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

Shenzhen Accurate Technology Co., Ltd.

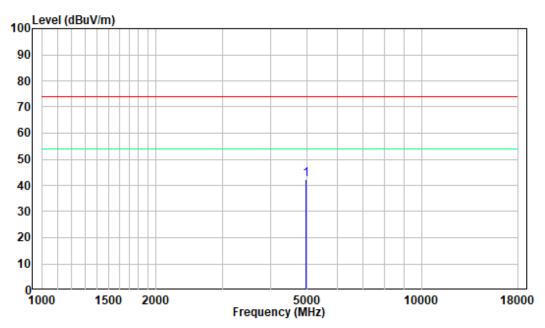
1-18GHz

Pre-scan plots:

Worst case: GFSK High Channel



Vertical:



Version 11: 2021-11-09

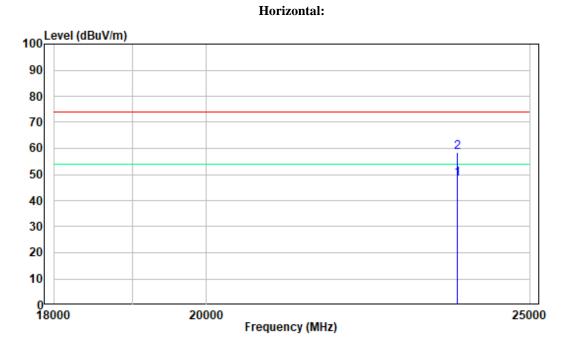
Shenzhen Accurate Technology Co., Ltd.

Report No.: SZNS1220505-18180E-00A

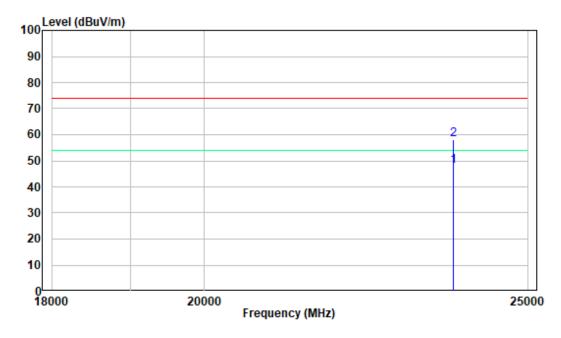
18-25GHz

Pre-scan plots:

Worst case: GFSK High Channel



Vertical:



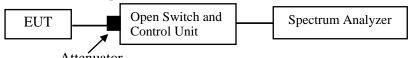
FCC §15.247(a) (1)-CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hoping 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Test Procedure

- 1. Set the EUT in transmitting mode, maxhold the channel.
- 2. Set the adjacent channel of the EUT and maxhold another trace.
- 3. Measure the channel separation.



Attenuator

Test Data

Environmental Conditions

| Temperature: | 23°C |
|---------------------------|-----------|
| Relative Humidity: | 51 % |
| ATM Pressure: | 101.1 kPa |

The testing was performed by Cat Kang on 2022-05-10.

EUT operation mode: Transmitting

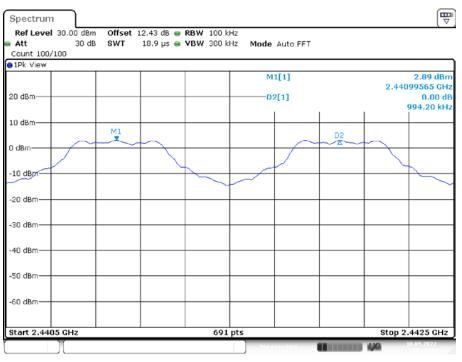
Test Result: Compliant.

| Test Mode | Antenna | Channel | Result[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------|-------------|------------|---------|
| DH1 | Ant1 | Нор | 0.994 | >=0.646 | PASS |
| 2DH1 | Ant1 | Нор | 1 | >=0.976 | PASS |
| 3DH1 | Ant1 | Нор | 1.003 | >=0.974 | PASS |

Note: The limit = (2/3) * 20dB bandwidth

Please refer to the below plots:

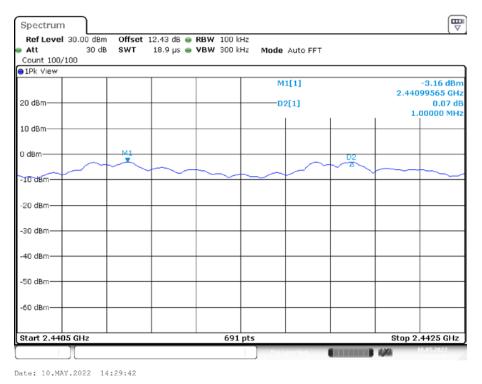
Shenzhen Accurate Technology Co., Ltd.



DH1_Ant1_Hop

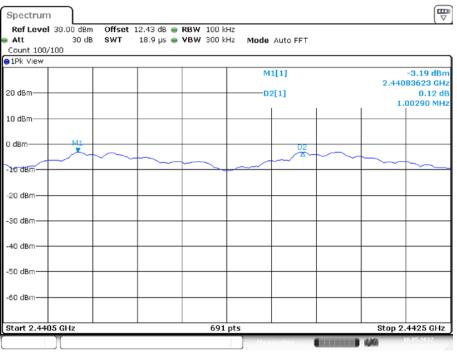
Date: 10.MAY.2022 12:18:56

2DH1_Ant1_Hop



Version 11: 2021-11-09

Shenzhen Accurate Technology Co., Ltd.



3DH1_Ant1_Hop

Date: 10.MAY.2022 14:49:33

FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH & 99% OCCUPIED BANDWIDTH

Applicable Standard

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.

Test Procedure

The following conditions shall be observed for measuring the occupied bandwidth and 20 dB bandwidth:

• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

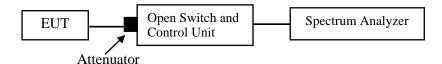
• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

• The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / 20 dB bandwidth if the device is not transmitting continuously.

• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / 20 dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



Test Data

Environmental Conditions

| Temperature: | 23 °C | |
|--------------------|-----------|--|
| Relative Humidity: | 51 % | |
| ATM Pressure: | 101.1 kPa | |

The testing was performed by Cat Kang on 2022-05-10.

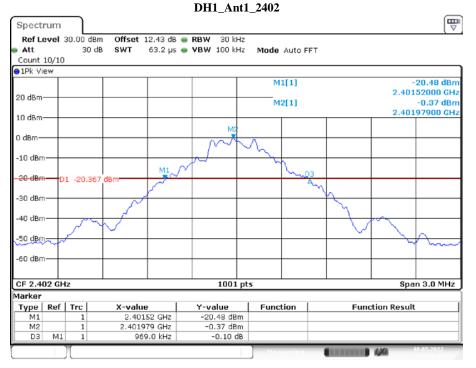
EUT operation mode: Transmitting

Test Result: Compliant.

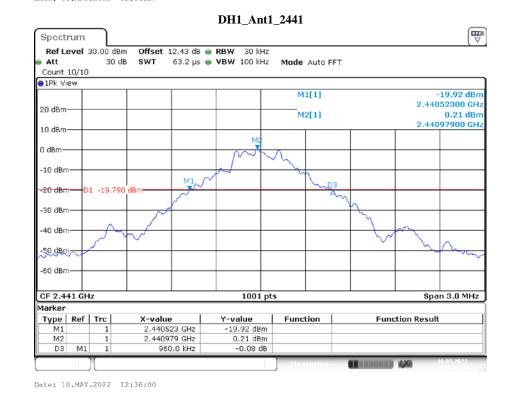
| Test Mode | Antenna | Channel[MHz] | 20db EBW[MHz] | 99% Occupied Bandwidth [MHz] | Limit[MHz] | Verdict |
|-----------|---------|--------------|---------------|---------------------------------|------------|---------|
| DH1 | Ant1 | 2402 | 0.969 | 0.869 | | PASS |
| | | 2441 | 0.960 | 0.869 | | PASS |
| | | 2480 | 0.963 | 0.869 | | PASS |
| 2DH1 | Ant1 | 2402 | 1.464 | 1.352 | | PASS |
| | | 2441 | 1.464 | 1.352 | | PASS |
| | | 2480 | 1.467 | 1.349 | | PASS |
| 3DH1 | Ant1 | 2402 | 1.461 | 1.349 | | PASS |
| | | 2441 | 1.458 | 1.349 | | PASS |
| | | 2480 | 1.458 | 1.352 | | PASS |

Please refer to the below plots:

20 dB EMISSION BANDWIDTH



Date: 10.MAY.2022 12:16:27



| | | ΔΠΙ_ΑΙΙΙΙ | _4400 | | | _ |
|-----------------|---------------------------|----------------------|--------------|---------------|---|------------|
| Spectrum | | | | | | |
| Ref Level 30.00 | dBm Offset 12.43 dB | RBW 30 kHz | | | | |
| Att 3 | 0 dB SWT 63.2 µs | VBW 100 kHz | Mode Auto FF | т | | |
| Count 10/10 | | | | | | |
| 1Pk View | | | | | | |
| | | | M1[1] | | | 19.79 dBm |
| 20 dBm | | | | | 2.479 | 52000 GH |
| 20 0011 | | | M2[1] | | | 0.29 dBn |
| 10 dBm | | | | | 2.479 | 97900 GH |
| | | M2 | | | | |
| 0 dBm | | | 7 | | | |
| | | | 1 | | | |
| -10 dBm | | ~~ | - m | | | |
| -20 dBm D1 -19. | M1~ | /* | ~~_R3 | | | |
| -20 dBm D1 -19. | 715 dBm | | 4, | 3 | | |
| -30 dBm | | | | <u>h</u> | | |
| | | | | 1 | | |
| -40 dBm // | | | | \rightarrow | - | |
| | $\gamma \sim 1$ | | | \sim | | |
| -50 dBm | | | | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | hum |
| | | | | | | |
| -60 dBm | | | | | | |
| | | | | | | |
| CF 2.48 GHz | | 1001 pt | s | | Spa | n 3.0 MHz |
| Marker | | | | | | |
| Type Ref Trc | X-value | Y-value | Function | Fund | tion Result | |
| M1 1 | 2.47952 GHz | -19.79 dBm | | | | |
| M2 1 D3 M1 1 | 2.479979 GHz 963.0 kHz | 0.29 dBm -0.02 dB | | | | |
| D3 MI I | 963.0 KHZ | -0.02 dB | | | | |
| | | | Measuring | | 4,40 | 10.05.2022 |

Date: 10.MAY.2022 12:38:05

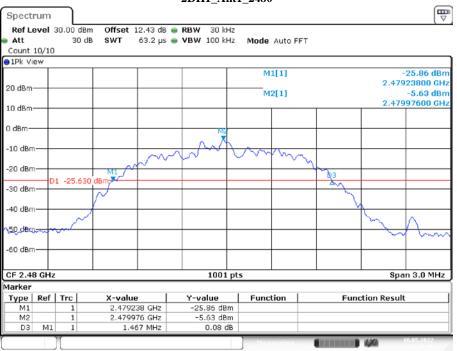


| Spect | | L | | | | | | | |
|----------|---------------|-------------|---------|--------------------------------------|-------------|-------------|------------|------------|-------------------------|
| | evel | 30.00 d | | 12.43 dB | | | | | |
| Att | | 30 | dB SWT | 63.2 µs | VBW 100 kHz | Mode Auto F | FT | | |
| Count | | | | | | | | | |
| ∋1Pk Vi | ew | | | | | | | | |
| | | | | | | M1[1] | | 0.40 | -26.47 dBm |
| 20 dBm | \rightarrow | | _ | | | M2[1] | | 2.40 | 123800 GHz -6.42 dBn |
| | | | | | | m2[1] | | 2 40 | 197000 GH |
| 10 dBm | + | | _ | | | | | 2.40 | 197000 012 |
| | | | | | | | | | |
| 0 dBm— | | | | | M2 | | | | |
| -10 dBm | . | | | | L A. A. | | | | |
| -10 abn | | | | | | m | ~ | | |
| -20 dBm | | | _ | $\mathcal{N}^{\prime \prime \prime}$ | | v v | N | | |
| 20 000 | | 1 06 4 | 19 dBm | | | | <u></u> 63 | | |
| -30 dBm | | 1 -20.4 | 19 UBIN | | | | - 4m | | |
| | | | \sim | | | | | | |
| -40 dBrr | 1- | | | + | | | V | 1 | |
| | | ~ | ~ | | | | | m | |
| -50 dBm | Lat. | ~~ <u>~</u> | | + | | | | <u> </u> | - mar |
| -60 dBm | | | | | | | | | |
| -00 UBI | - | | | | | | | | |
| | | | | | | | | | |
| CF 2.4 | 02 GH | z | | | 1001 pt | 5 | | Sp | an 3.0 MHz |
| Marker | | | | | | | | | |
| Туре | Ref | Trc | X-valı | | Y-value | Function | Fun | ction Resu | lt |
| M1 | | 1 | | 238 GHz | -26.47 dBm | | | | |
| M2 D3 | 8.81 | 1 | | 197 GHz | -6.42 dBm | | | | |
| 03 | M1 | | 1. | 464 MHz | -0.11 dB | | | | |
| | | 1 | | | | Measuring | | 4,20 | 10.05.2022 |

Date: 10.MAY.2022 14:25:52

| | | 2DIII_AIIU | 1_2771 | | | _ |
|----------------------|-------------------|-----------------------|--------------|------------|--------------|-----------|
| Spectrum | | | | | | |
| Ref Level 30.00 dB | m Offset 12.43 dB | BRBW 30 kHz | | | | ` |
| Att 30 d | lB SWT 63.2 μs | VBW 100 kHz | Mode Auto FF | τ | | |
| Count 10/10 | | | | | | |
| 1Pk View | | | | | | |
| | | | M1[1] | | - | 25.95 dBn |
| 20 dBm | | | | | 2.440 | 24100 GH |
| 20 dBm | | | M2[1] | | | -5.92 dBn |
| 10 dBm | | | | | 2.440 | 97300 GH: |
| TO UBIN | | | | | | |
| 0 dBm | | | | | | |
| | | Ma | | | | |
| -10 dBm | | | 0.0.0 | | | |
| | | $\gamma \sim 1$ | $\sum m m m$ | 2 | | |
| -20 dBm | M1 2 | | | -1 | | |
| -20 dBm D1 -25.92 | 3 dBm | | | <u>b</u> 3 | | |
| -30 dBm | | | | - m | | |
| 10.10 | | | | | | |
| -40 dBm | | | | | | |
| -50 dBm | | | | | \sim | \wedge |
| | | | | | - m | ma |
| -60 dBm | | | | | | |
| | | | | | | |
| CF 2.441 GHz | | 1001 | | | | |
| | | 1001 pt | 5 | | spar | 1 3.0 MHz |
| Marker | Marchan I | | E 1 | - | ction Result | |
| Type Ref Trc M1 1 | 2.440241 GHz | Y-value -25.95 dBm | Function | Fund | ction Result | |
| M2 1 | 2.440973 GHz | -25.95 dBm | | | | |
| D3 M1 1 | 1.464 MHz | -0.24 dB | | | | |
| | | | 1 | | | 0.05.2022 |
| | | | Measuring | | 1,41 | |

Date: 10.MAY.2022 14:35:00

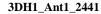


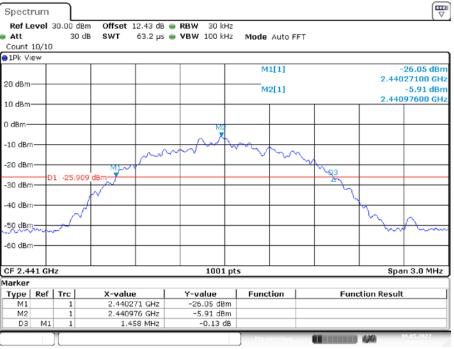
2DH1_Ant1_2480

Date: 10.MAY.2022 14:37:36

| | | | JDIII_AIIU | 1_2402 | | | _ |
|-------------|---------|------------------------------|---|-----------------------|----------|-------------|-------------|
| Spectrum | | | | | | | l □ □ |
| Ref Level | 30.00 | iBm Offset 12.43 de | 3 😑 RBW 30 kHz | | | | ` |
| Att | 30 | dB SWT 63.2 µ | 5 👄 VBW 100 kHz | Mode Auto Fi | FT | | |
| Count 10/10 |) | | | | | | |
| ∋1Pk View | | | | | | | |
| | | | | M1[1] | | - | 26.92 dBm |
| 20 dBm | | | | | | 2.401 | 26800 GH |
| 20 dBm | | | | M2[1] | | | -6.46 dBm |
| 10 dBm | | | | | | 2.401 | 97300 GHz |
| | | | | | | | |
| | | | | | | | |
| | | | Ma | | | | |
| -10 dBm | | | | ~~ | | | |
| | | - north | $\sim \sim $ | $\sim \sim \sim \sim$ | | | |
| -20 dBm | | ML | | | <u>~</u> | | |
| D | 1 -26.4 | 456 dBm | | | 1 423 | | |
| -30 dBm | | | | | | | |
| | | | | | | | |
| -40 dBm | | 1 | | | | 5 | |
| EQ dDay | - 7 | ~ | | | | \sim | ~ |
| -50 dBm | ~ | | | | | ~~~ | - mar |
| -60 dBm | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| CF 2.402 GH | 1Z | | 1001 pt | 5 | | Spa | n 3.0 MHz |
| Marker | 1 - 1 | | | | | | |
| | Trc | X-value | Y-value | Function | Fund | tion Result | |
| M1 M2 | 1 | 2.401268 GHz 2.401973 GHz | -26.92 dBm -6.46 dBm | | | | |
| D3 M1 | | 1.461 MHz | 0.12 dB | | | | |
| 00 111 | 1 | 1.401 1412 | 0.12 00 | , | | | 0.05.2022 |
| | Л | | | Measuring | | 4,261 | 0.0512022 |

Date: 10.MAY.2022 14:47:43





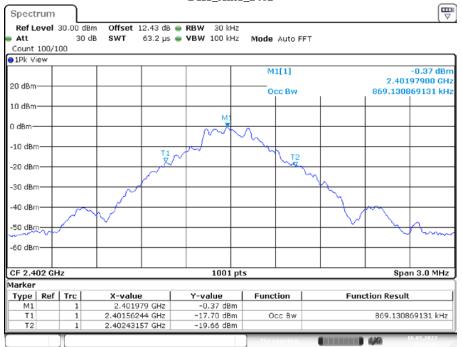
Date: 10.MAY.2022 14:53:24

| | | | JDIII_AIIU | | | _ |
|-------------|----------|---------------------------|----------------------|--------------|------|----------------|
| Spectrum | | | | | | |
| Ref Level 3 | 30.00 dE | Bm Offset 12.43 dB | RBW 30 kHz | | | · · · · · · |
| Att | 30 | dB SWT 63.2 µs | 🔵 VBW 100 kHz | Mode Auto FF | т | |
| Count 10/10 | | | | | | |
| 1Pk View | | | | | | |
| | | | | M1[1] | | -25.95 dBr |
| 20 dBm | | | | | | 2.47926800 GH |
| 20 dBm | | | | M2[1] | | -5.76 dBr |
| 10 dBm | | | | | | 2.47997600 GH |
| | | | | | | |
| 0 dBm | | | | | | |
| | | | M2 | | | |
| -10 dBm | | | | ~ | | |
| | | James I | | | | |
| -20 dBm | | M1 | | | Mr. | |
| D: | L -25.76 | | | | Ne3 | |
| -30 dBm | | | | | | |
| | | | | | | |
| -40 dBm | | | | | | 10 |
| | ير ا | | | | | IN N |
| -50°dBro | ~~ | | | | | how how |
| -60 dBm | | | | | | |
| -00 08111 | | | | | | |
| | | | | | | |
| CF 2.48 GHz | | | 1001 pts | 5 | | Span 3.0 MHz |
| larker | | | | | | |
| Type Ref | | X-value | Y-value | Function | Fund | ction Result |
| M1 | 1 | 2.479268 GHz | -25.95 dBm | | | |
| M2 D3 M1 | 1 | 2.479976 GHz 1.458 MHz | -5.76 dBm 0.16 dB | | | |
| M1 | 1 | 1.430 MHZ | 0.10 08 | | | |
| | | | | Measuring | | 400 10.05.2022 |

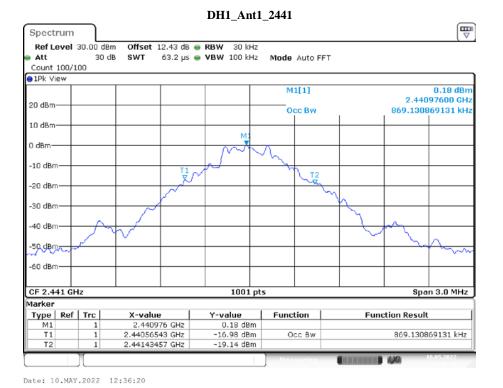
Date: 10.MAY.2022 14:55:27

99% OCCUPIED BANDWIDTH

DH1_Ant1_2402



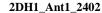
Date: 10.MAY.2022 12:16:48

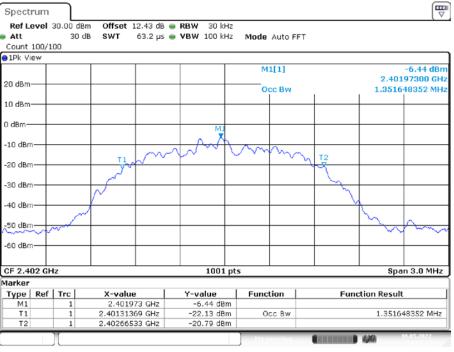


| | | | DIII_AIIII | | | | _ |
|-------------|----------|----------------------------------|--------------------------|---------------|----------|---------------|----------|
| Spectrum | | | | | | | ₩ |
| Ref Level | 30.00 dB | m Offset 12.43 dB | RBW 30 kHz | | | | <u>`</u> |
| Att | 30 c | | VBW 100 kHz | Mode Auto FF | т | | |
| Count 100/1 | 100 | | | | | | |
| 1Pk View | | | | | | | |
| | | | | M1[1] | | 0.35 | dBn |
| 20 dBm | | | | | | 2.47997900 | GH |
| 20 dBm | | | | Occ Bw | | 869.130869131 | kH: |
| 10 dBm | | | | | | | |
| | | | MI | | | | |
| | | | | , | | | |
| | | | | \mathcal{N} | | | |
| -10 dBm | | | | | | | |
| | | | \sim | | | | |
| -20 dBm — | | | | | | | |
| | | | | | γ | | |
| -30 dBm | | $+ \sim$ | | | 15 | | |
| | | | | | 1 | | |
| -40 dBm | ~~~~ | | | | | | |
| EQ dbm | 1 | | | | | | |
| -50 dBm | | | | | | - www | |
| -60 dBm | | | | | | | |
| -co abiii | | | | | | | |
| | | | | | | | |
| CF 2.48 GH | z | | 1001 pt | s | | Span 3.0 M | 1Hz |
| Marker | | | | | | | |
| | Trc | X-value | Y-value | Function | Fund | tion Result | |
| M1 | 1 | 2.479979 GHz | 0.35 dBm | | | | |
| T1 T2 | 1 | 2.47956244 GHz 2.48043157 GHz | -16.86 dBm -18.64 dBm | Occ Bw | | 869.130869131 | KHZ |
| 12 | | 2.40043157 GHZ | -10.04 uBm | | | | _ |
| | | | | Measuring | | 4/4 10.05.202 | 2 |

DH1_Ant1_2480

Date: 10.MAY.2022 12:38:24

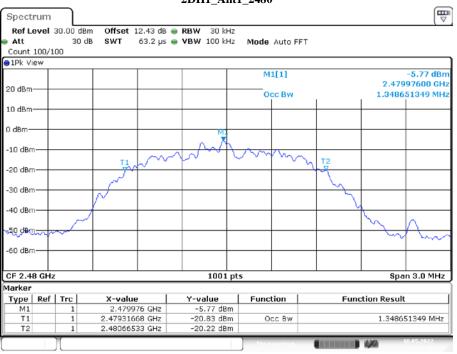




Date: 10.MAY.2022 14:26:15



Date: 10.MAY.2022 14:35:21

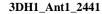


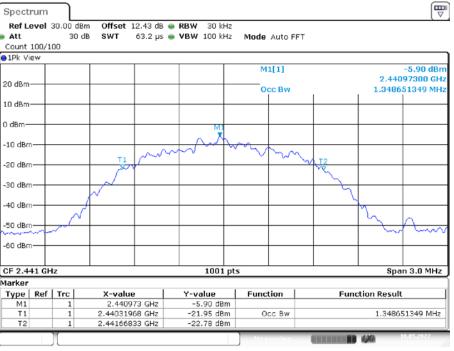
2DH1_Ant1_2480

Date: 10.MAY.2022 14:38:01

| | | | | JDIII_AIII. | L_2402 | | | |
|------------|-------------|------------|----------|-------------|-------------|--------|--|------------|
| Spectrum | | | | | | | | |
| Ref Level | 30.00 | dBm Offset | 12.43 dB | RBW 30 kHz | | | | |
| Att | 30 | DdB SWT | 63.2 µs | VBW 100 kHz | Mode Auto F | FT | | |
| Count 100/ | 100 | | | | | | | |
| ∋1Pk View | | | | | | | | |
| | | | | | M1[1] | | | -6.49 dBm |
| 20 dBm | | | | | | | 2.40 | 197300 GHz |
| 20 abm | | | | | Occ Bw | | 1.3486 | 51349 MHz |
| 10 dBm | | | | | | | | |
| 10 00.11 | | | | | | | | |
| 0 dBm | | | | | | | | |
| | | | | M | | | | |
| -10 dBm | | | | | ~ | | | |
| | | T1 | and | | | | | |
| -20 dBm — | | <u> </u> | ₩ | | | - Mrs- | | - |
| | | | | | | ~ | | |
| -30 dBm | | ~ | <u> </u> | | | 5 | | |
| 10 10- | | ~~ | | | | | | |
| -40 dBm | | 7 | | | | | 5 | |
| -50 dBm- | | \sim | | | | | ~ | |
| | ~~~~ | | | | | | \sim | 1 mm |
| -60 dBm | | | | | | | | |
| | | | | | | | | |
| CF 2.402 G | U -7 | | | 1001 pt | | | | n 3.0 MHz |
| Marker | 112 | | | 1001 pt | 3 | | арс | 11 3.0 MHZ |
| | Trc | X-valu | • I | Y-value | Function | Eup | ction Resul | • |
| M1 | 1 | | 73 GHz | -6.49 dBm | . anoton | | eren kesul | • |
| T1 | 1 | 2.401319 | | -22.40 dBm | Occ Bw | | 1.3486 | 51349 MHz |
| T2 | 1 | 2.402668 | 33 GHz | -23.45 dBm | | | | |
| | 1 | | | 1 | Measuring | | 4.363 | 10.05.2022 |
| | | | | | | | and the second s | |

Date: 10.MAY.2022 14:48:02





Date: 10.MAY.2022 14:53:43

| | | JDIII_AIIU | | | |
|--------------------|----------------------------------|-------------------------|--------------|-------|---------------------------------------|
| Spectrum | | | | | |
| Ref Level 30.00 dB | m Offset 12.43 dB | RBW 30 kHz | | | · · · · · · · · · · · · · · · · · · · |
| Att 30 c | İB SWT 63.2 μs | VBW 100 kHz | Mode Auto FF | т | |
| Count 100/100 | | | | | |
| 1Pk View | | | | | |
| | | | M1[1] | | -5.91 dBm |
| 20 dBm | | | | | 2.47997600 GHz |
| 20 dBm | | | Occ Bw | | 1.351648352 MHz |
| 10 dBm | | | | | |
| | | | | | |
| 0 dBm | | | | | |
| | | MI | | | |
| -10 dBm | | | | | |
| | T1 ~~~~ | www i | | | |
| -20 dBm | - | | | MT2 | |
| | | | | n n n | |
| -30 dBm | | | | - h | |
| | | | | | |
| -40 dBm / | / | | | | 7 |
| | | | | | \sim \sim |
| -SondBrander | | | | | When |
| -60 dBm | | | | | |
| -oo abiii | | | | | |
| | | | | | |
| CF 2.48 GHz | | 1001 pt: | 5 | | Span 3.0 MHz |
| larker | | | | | |
| Type Ref Trc | X-value | Y-value | Function | Fund | ction Result |
| M1 1 | 2.479976 GHz | -5.91 dBm -21.84 dBm | Occ Bw | | 1.351648352 MHz |
| T1 1 T2 1 | 2.47931668 GHz 2.48066833 GHz | -21.84 dBm | OCC BW | | 1.351048352 MHz |
| 12 1 | 2.40000000 GH2 | -22.95 UDIII | | | |
| | | | Measuring | | 10.05.2022 |

Date: 10.MAY.2022 14:55:45

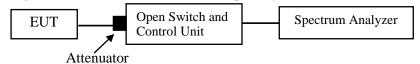
FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

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.

Test Procedure

- 1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
- 2. Set the EUT in hopping mode from first channel to last.
- 3. By using the max-hold function record the quantity of the channel.



Test Data

Environmental Conditions

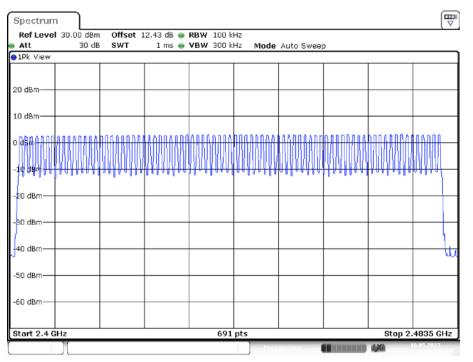
| Temperature: | 23 °C | | | |
|---------------------------|-----------|--|--|--|
| Relative Humidity: | 51 % | | | |
| ATM Pressure: | 101.1 kPa | | | |

The testing was performed by Cat Kang on 2022-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

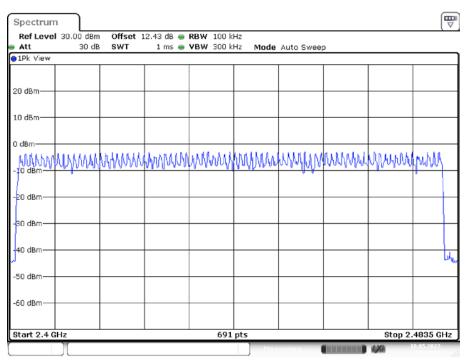
| TestMode | Antenna | Antenna Channel Result[Num] | | Limit[Num] | Verdict |
|----------|---------|-----------------------------|----|------------|---------|
| DH1 | Ant1 | Нор | 79 | >=15 | PASS |
| 2DH1 | Ant1 | Нор | 79 | >=15 | PASS |
| 3DH1 | Ant1 | Нор | 79 | >=15 | PASS |



DH1_Ant1_Hop

Date: 10.MAY.2022 12:28:19

2DH1_Ant1_Hop



Date: 10.MAY.2022 14:30:06

| Ref Level | | | | 2.43 dB | _ | | | | | | | | | |
|----------------|-----|----------|------|---------|-------|-------|-------|-------|---------|------------|--------|----------|--------|----------|
| Att | 30 | db SW | т | 1 ms | • | VBW | 300 k | Hz | Mode | Auto Swee | 0 | | | |
| ●1Pk View | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 20 dBm- | | _ | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 10 dBm | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 0 dBm | | | | | | | | | | | | | | |
| EARALKE | | a un a r | INAL | 38848 | A N A | 48.80 | 6114 | KNR I | LARAA I | WWW | | ABAAABAI | RANAN | |
| | WWW | 1400/4 | VUVU | And And | 144 | 0040 | VYAA | 444 | AAAAA | กลงสิทษาให | MUNANA | aaaaaAAA | naddar | |
| | | | | | | | | | | | | | | |
| -20 dBm- | | | | | | | | | | | | | | |
| Lo abiii | | | | | | | | | | | | | | L |
| -30 dBm- | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 40 dBm | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | h |
| -50 dBm- | | | | | | | | | | | | | | |
| -30 ubiii | | | | | | | | | | | | | | |
| -60 dBm- | | | | | | | | | | | | | | |
| -ou ubm | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Start 2.4 G | Hz | | | | | | 691 | pts | | | | Stop 2. | 4835 G | Hz |

3DH1_Ant1_Hop

Date: 10.MAY.2022 14:50:16

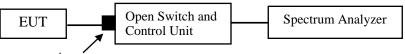
FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz 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.

Test Procedure

- 1. The EUT was worked in channel hopping.
- 2. Set the RBW to: 1MHz.
- 3. Set the VBW $\geq 3 \times RBW$.
- 4. Set the span to 0Hz.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Recorded the time of single pulses



Attenuator

Test Data

Environmental Conditions

| Temperature: | 23 °C |
|--------------------|-----------|
| Relative Humidity: | 51 % |
| ATM Pressure: | 101.1 kPa |

The testing was performed by Cat Kang on 2022-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

| Test Mode | Antenna | Channel | BurstWidth [ms] | TotalHops [Num] | Result[s] | Limit[s] | Verdict |
|-----------|---------|---------|--------------------|--------------------|-----------|----------|---------|
| DH1 | Ant1 | Нор | 0.38 | 320 | 0.12 | <=0.4 | PASS |
| DH3 | Ant1 | Нор | 1.45 | 140 | 0.203 | <=0.4 | PASS |
| DH5 | Ant1 | Нор | 2.86 | 110 | 0.315 | <=0.4 | PASS |
| 2DH1 | Ant1 | Нор | 0.39 | 330 | 0.127 | <=0.4 | PASS |
| 2DH3 | Ant1 | Нор | 1.63 | 160 | 0.261 | <=0.4 | PASS |
| 2DH5 | Ant1 | Нор | 2.87 | 120 | 0.344 | <=0.4 | PASS |
| 3DH1 | Ant1 | Нор | 0.39 | 320 | 0.123 | <=0.4 | PASS |
| 3DH3 | Ant1 | Нор | 1.63 | 190 | 0.31 | <=0.4 | PASS |
| 3DH5 | Ant1 | Нор | 2.87 | 110 | 0.316 | <=0.4 | PASS |

Note 1: A period time=0.4*79=31.6(s), Result=Burst Width*Total Hops

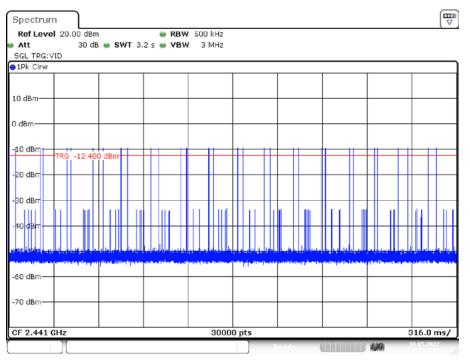
Note 2: Total Hops =Hopping Number in 3.16s*10

Note 3: Hoping Number in 3.16s=Total of highest signals in 3.16s (Second high signals were other channel)

| | | D III_0 | mr_mop | | | | _ |
|---------------------|--|--------------------------------|----------------------------|-----------------|------------------|----------------|---------------------|
| Spectrum | | | | | | | [₩ |
| Ref Level 20.00 d | iBm | 🖷 RBW 1 MHz | | | | | |
| Att 30 | dB 🥃 SWT 10 m | is 🖶 VBW 3 MHz | | | | | |
| SGL TRG: VID | | | | | | | |
| 1Pk Clrw | | | | | | | |
| | | | M1[| 1] | | - | 10.59 dBn |
| 10 40 | | | | | | | 25 n |
| 10 dBm | | | D2[| 1] | | | 1.09 di 375.05 μ |
| | | | 1 1 | 1 | | | ο70.00 μ. |
| 0 dBm | | | | | | | |
| M1 D2 | | | | | | | |
| -10 dBm TRG -12. | 400 dBm | | + | | | | |
| | | | | | | | |
| -20 dBm | | | | | | | |
| | | | | | | | |
| -30 dBm | | | | | | | |
| | | | | | | | |
| -40 dBm | | | | | | | |
| | 1. 1. | المراجع المراجع | | | | 1 au | 1. 1. |
| O dBringhing routed | n nin pitritiani | יאיר אין "תריוון יאר "ו אוי אי | | a folio (deshi | tin lin y it the | ing it grantin | البيد البيبيا |
| A DEPARTMENT | են անտումես։ | dentifies the black | addition of the local of a | an atta | autolia anta tal | Add and Adored | turni data |
| -60 dB | the state of the s | | 1 Hill with | | | | |
| | | | | · - 11 | . T., | 1.111 | |
| -70 dBm | + + | | + + | | | | |
| | | | | | | | |
| CF 2.441 GHz | | 800 | 0 pts | | | | 1.0 ms/ |
| | | | Re | adv | | 130 | 0.05.2022 |
| | | | | | | | |

DH1_Ant1_Hop

Date: 10.MAY.2022 12:28:37

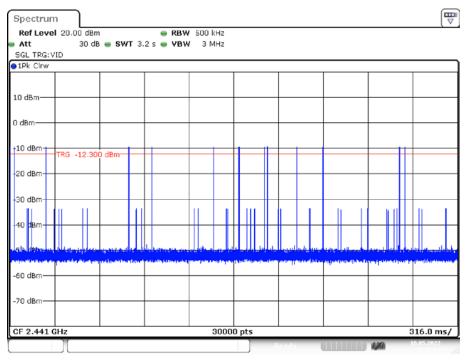


Date: 10.MAY.2022 12:28:42

| Att SGL TRG:VI | |) dB 🥌 | SWT 10 |) ms 🖷 VB1 | N 3 MHz | | | | | |
|-------------------|---------------|-----------------------------------|---------------------|---|---------|--|--|----------------|------------------|---|
| 1Pk Clrw | | | | | | | 1[1] 2[1] | | | -10.34 dBr 25 n 0.86 d 1.44893 m |
| dBm | | | | | | | | | | |
| 11 70 dBm | D2 TRG -12 | | m | | | | | | | |
| 0 dBm | | _ | | | | | | | | |
| 0 dBm | | | | | | | | | | |
| 0 dBm | | ng da ng si Kana kana da ng si | - A. 1 | <mark>an panapalaha</mark> ang bawa salaha | | la <mark>electrica de la composiciona de la composic Composiciona de la composiciona de</mark> | lender seite da.abdalaht. | e telati dalap | A S. M. M. M. A. | ingen sister |
| 50 dBm | | | de chiek | | | ala de | , the second | | - terter lind | all and and |
| 70 dBm | | | | | | | | | | |
| F 2.441 G | Hz | _ | | | 8000 | pts | | | | 1.0 ms/ |

DH3_Ant1_Hop

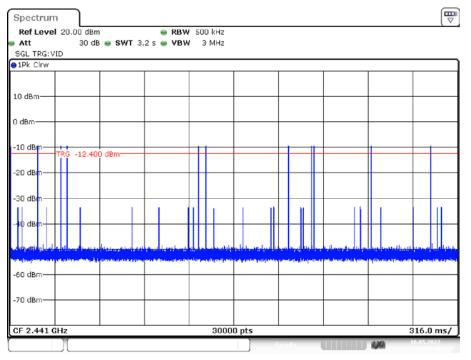
Date: 10.MAY.2022 12:47:19



Date: 10.MAY.2022 12:47:25

| SGL TRG:VID IPk Cirw | | | | |
|-------------------------|--|--|---------------------------------|-----------------------|
| | | M1[1] | | -13.57 dBr |
| .0 dBm | | D2[1] | | -1.23 μ 3.86 d |
| | | | | 2.86411 m |
|) dBm | | | | |
| | 0 2 | | | |
| TRG -12.400 dBm | A | | | |
| 0 dBm | | | | |
| | | | | |
| 30 dBm | | | | |
| 40 dBm | | | | |
| | | | | |
| 0 dBm | and the state of the second | il della | a ting thing while the addition | relation of the state |
| 60 dBm | | a nadadin and de belakere, ar war ba | | |
| | The state of the s | ענידא אוי יינער איי איי | I THE STREET OF THE STREET | ar her dera |
| 70 dBm | | - | | |
| | | | | |
| CF 2.441 GHz | 800 | 0 pts | | 1.0 ms/ |

DH5_Ant1_Hop

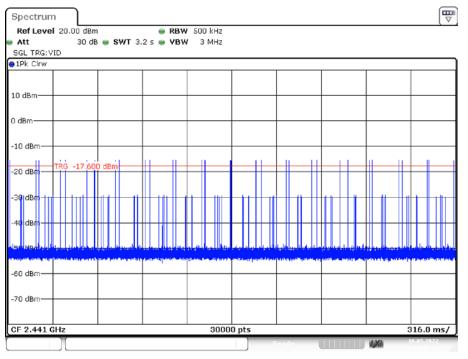


Date: 10.MAY.2022 12:51:06

| | | | | nti_nop | | | | Ē |
|--|--|----------------------------------|------------------|--------------------------|---|----------------------|---------------------------|----------------------|
| Spectrum | | | | | | | | |
| Ref Level 20.00 di | Bm | 😑 RBV | V 1 MHz | | | | | |
| Att 30 | dB 🕳 SWT 1 | 0 ms 👄 🛛 🛛 🖉 | N 3 MHz | | | | | |
| SGL TRG: VID | | | | | | | | |
| 1Pk Clrw | | | | | | | | |
| | | | | м | 1[1] | | - | 19.60 dBn |
| 10 40 | | | | | | | | -1.23 μ |
| 10 dBm | | | | D | 2[1] | | | 4.40 dl 385.05 μ |
| | | | | | 1 | 1 | | |
| D dBm | | | | | | | | |
| | | | | | | | | |
| -10 dBm | | | | | | | | |
| | OD dBm | | | | | | | |
| -20 dBm 186 -17.t | | <u> </u> | | | | | | |
| | | | | | | | | |
| -30 dBm | | | | | | | | |
| | | | | | | | | |
| -40 dBm | _ | | | | | | | |
| | | | | | | | | |
| O dBri | an de la | Lit & Lillion a | di Divisianu da | ll de la contra da | dal talled. | den and a lite | | |
| II III III III III III III III III III | | Lower and the second | hin that | Jar La Jaco | a de la contra de la | a ni sa mali | , of a likely like in the | officer and a second |
| SO dB | all die neue dae dat is | <u>, y tils tit agi till h</u> u | ala di dhi birni | <u>h s ilan, uila, b</u> | والاله والمالية والمالية | i tio, that its diff | it shutatik t | dig yakê dad. |
| and the first of the first of | the deside of the state | I have a | 1.1.1 | (B. G.C.) | | t de serve d | . II. I | 1.00 |
| -70 dBm | | | | | | | · · | 1 |
| | | | | | | | | |
| | | | | | | | | |
| CF 2.441 GHz | | | 8000 | pts | | | | 1.0 ms/ |
| | | | | | teady | | 100 | 10.05.2022 |

2DH1_Ant1_Hop

Date: 10.MAY.2022 14:30:23

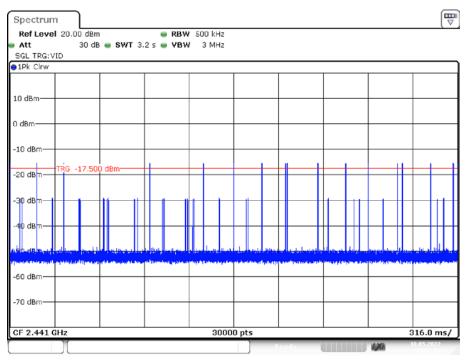


Date: 10.MAY.2022 14:30:29

| 1Pk Cirw | | | | M | 1[1] | | | 15.93 dBr |
|----------|--------------------|--|--|--|-------------------|---|----------------|-----------------|
| 0 dBm | | | | D2[1] | | -15.93 dBm 25 ns 1.10 dB 1.62895 ms | | |
| 0 ubm | | | | | | | | |
| dBm- | | | | | | | | |
| 10 dBm | | | | | | | | |
| TRG | -17.500 dBm- | | | | | | | |
| 20 dBm | | | | | | | | |
| 0 dBm | | | | | | | | |
| | | | | | | | | |
| 40 dBm | | | | | | | | |
| 0 dBm | a di la cal | | | ad instance | a la calinetra de | | di atti bada | والواصار براتهم |
| | in the title lines | and a last of the state of the second se | | nalisi sati sa si da si da si da si sa br>Na si sa s | | a ser a s | Loodhales Isla | na an tha the A |
| 0 dBm | - illuit wid | | | a manulun | a nationali | . In the th e | | hatta di di |
| | | | | 1 | 1 | 1 | | |

2DH3_Ant1_Hop

Date: 10.MAY.2022 14:43:48

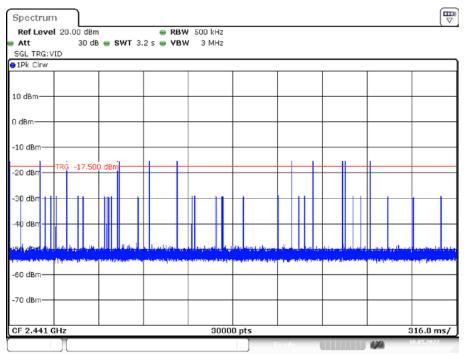


Date: 10.MAY.2022 14:43:53

| | | | | Ē | | |
|---------------------|--|--|--------------------------------|---|--|--|
| Spectrum | | | | (4 | | |
| Ref Level 20.00 dBm | 😑 RBW 1 MHz | | | | | |
| | SWT 10 ms 🖶 VBW 3 MHz | | | | | |
| SGL TRG: VID | | | | | | |
| 1Pk Cirw | | | | | | |
| | | M1[1] | | -34.29 dBn -1.23 μ | | |
| 10 dBm | | D2[1] | | 18.93 di | | |
| | | | | 2.87036 m | | |
| 0 dBm | | | | | | |
| | | | | | | |
| 10 d0 m | | | | | | |
| -10 dBm | 02 | | | | | |
| TRG -17.500 dBr | m | | | | | |
| -20 dBm | | | | | | |
| | | | | | | |
| taodBm | | | | | | |
| | | | | | | |
| -40 dBm | | | | | | |
| | | | | | | |
| 0 dBm | all a children the failed of the state of th | ur and and taken provided for a | dite of a strift of the second | the description of the second of the second s | | |
| | | | | | | |
| -60 dBm | the second of the second | اين لا ويتعاط وعلم لي الألفة (والالمودور | | التنظيمان الإياطان | | |
| | line i kultur | Let all relate | 1 1 P P P P P | | | |
| -70 dBm | | | · · | | | |
| | | | | | | |
| | | | | | | |
| CF 2.441 GHz | 800 | 0 pts | | 1.0 ms/ | | |
| | | Ready | 4,40 | 10.05.2022 | | |

2DH5_Ant1_Hop

Date: 10.MAY.2022 14:45:37

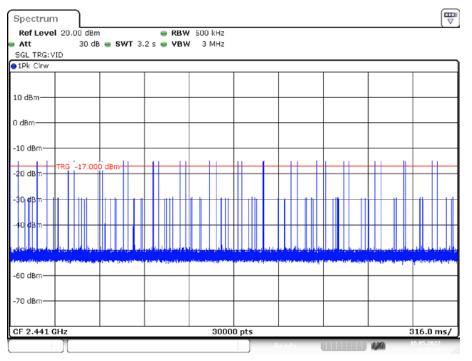


Date: 10.MAY.2022 14:45:42

| | | | JDIII_A | mer_mop | , | | | _ |
|------------------------------|--|---------------------|----------------|------------------|----------------------|---------------------|---|------------------------|
| Spectrum | | | | | | | | |
| Ref Level 20.00 d | Bm | e RB\ | V 1 MHz | | | | | |
| | dB 🥌 SWT 1 | D ms 👄 VB | N 3 MHz | | | | | |
| SGL TRG: VID | | | | | | | | |
| 1Pk Clrw | | | | | | | | |
| | | | | M | 1[1] | | - | 16.56 dBn |
| | | | | _ | | | | 25 n |
| 10 dBm | | | | D | 2[1] | | | 1.61 dE |
| | | | | | 1 | 1 | 1 | 385.05 µs |
| 0 dBm | | | | | | | | |
| | | | | | | | | |
| -10 dBm | | | | | | | | |
| M1 D2 TRG -17. | | | | | | | | |
| -20 dBm | 000 0811 | | | | | | | |
| | | | | | | | | |
| -30 dBm | | | | | | | | |
| | | | | | | | | |
| -40 dBm | | | | | | | | |
| ie abiii | | | | | | | | |
| | a state of the second second | | المرابط المرا | المتحد المتحاد | | the later has a | John Lode | and the late |
| foldB to a logicity of | in a standart data ha | And A Date | isishe itabila | tale militare | and the first second | a shiri e hinder an | , na shakara a | a shinda cedebidh |
| ilia a salah dalam kashki di | lite to a state of the state of | La dilicali D. alka | հուտեսես | والمداعا البابيل | aine da bhaile | handanah d | W LUGI COM | d that hands |
| 60 dBm - Province | արերաներին ու | 1.1.14 | have the late | | and the state | 1 1 1 1 1 1 | | <u>, 1, 1, 1, 1, 1</u> |
| 11 | | | · · | | | · · | 1 ° ' | |
| -70 dBm | | | | | | | | |
| | | | | | | | | |
| CF 2.441 GHz | | I | 8000 | pts | I | I | | 1.0 ms/ |
| | | | 0000 | | version (| | 4.90 | 10.05.2022 |
| | | | | | accur. | | all | |

3DH1_Ant1_Hop

Date: 10.MAY.2022 14:50:34

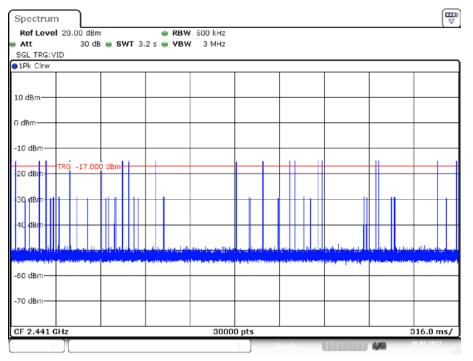


Date: 10.MAY.2022 14:50:39

| Spectrum | | | | | | [₩ |
|----------------------|---|--|----------------|---------------|----------------------|----------------------|
| Ref Level 20.00 dBm | 👄 RBW 1 | MHz | | | | |
| | SWT 10 ms 👄 VBW 3 | MHz | | | | |
| SGL TRG: VID | | | | | | |
| 1Pk Cirw | | | | | | |
| | | м | 1[1] | | | 23.81 dBn -1.23 μ |
| 10 dBm | | D | 2[1] | | | 9.38 d |
| | | | | | 1 | .62895 m |
| 0 dBm | | | | | | |
| | | | | | | |
| -10 dBm | | | | | | |
| D2 | | | | | | |
| TRG -17.000 dBn | n | | | | | |
| V | | | | | | |
| -30 dBm | | | | | | |
| -30 abm | | | | | | |
| to do- | | | | | | |
| -40 ¹ dBm | | | | | | |
| | and the base in the | | date mar | u alta a | | I Den |
| G dBm | nali dina na hala bah | upater a description of the | ال لار ماطل ا | 1. AL MI BRAN | State a state of the | AND DATE |
| | a handalar madalar da an casa | la, indulto discribilian add | h Malanda, ana | dat Utcha. | etal. data | and dia 1. |
| -80 dBm | A T T T T T T T T T T T T T T T T T T T | ole hull de la hille de la | <u>hu 4489</u> | | A heliuw | |
| | | 1 | | | | |
| -70 dBm | | | | | | |
| | | | | | | |
| CF 2.441 GHz | I | 8000 pts | 1 | 1 | | 1.0 ms/ |
| 1 | | | | | | |

3DH3_Ant1_Hop

Date: 10.MAY.2022 14:58:06



Date: 10.MAY.2022 14:58:11

| 1Pk Cirw | | | | | | | | | |
|--------------|----------------|---------------------------|----------------------|----------------------|-----------------|-------------------|----------------------------|-----------------------|--|
| | | | | м | 1[1] | | - | 28.62 dBm -1.23 μs | |
| LO dBm | | | | D2[1] | | | | 13.81 dE | |
| I dBm | | | | | | | | 2.07200 m | |
| | | | | | | | | | |
| 10 dBm | | 02 | | | | | | | |
| TR | G -16.900 dBm- | Anton 1 | | | | | | | |
| 0 dBm | | | | | | | | | |
| dBm | | | | | | | | | |
| | | | | | | | | | |
| 40 dBm | | | | | | | | | |
| 0 dBm | | بالمربية الم | and a difference | al an a | ulta da da | | | I to show | |
| | | 11 | aller, alter bicking | ind. In a second | | hani kutata | alter also estation | بلهد ورالتانين | |
| 0 dBm | | <mark>di 144 nakin</mark> | Nil, day you ill, i | da ya ka dalak ka al | atitid ying had | <u>, had nd</u> i | <u>t ha, nai poli Al</u> a | a da mandalann | |
| · | | - [] 49 P | | | 1.1.1 | - 1 I.I. | 1.1.1 | []" [" | |
| 70 dBm | | | | | | | | | |
| | | | | | | | | | |
| CF 2.441 GHz | | | 8000 |) pts | | | | 1.0 ms/ | |
| | | | | R | leady | | 444 | 10.05.2022 | |

3DH5_Ant1_Hop

Att 30 dB 🖷 SWT 3.2 s 🖶 VBW 3 MHz SGL TRG: VID ⊖1Pk Clrw 10 dBm-0 dBm--10 dBm -16.900 dBm-20 dBm 0 dBm -60 dBm--70 dBm-CF 2.441 GHz 30000 pts 316.0 ms/ 1/0

Date: 10.MAY.2022 15:25:32

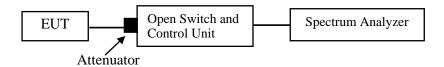
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

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. And for all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

- 1. Place the EUT on a bench and set in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
- 3. Add a correction factor to the display.



Test Data

Environmental Conditions

| Temperature: | 23°C |
|---------------------------|-----------|
| Relative Humidity: | 51 % |
| ATM Pressure: | 101.1 kPa |

The testing was performed by Cat Kang on 2022-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| | | 2402 | 2.62 | <=20.97 | PASS |
| DH1 | Ant1 | 2441 | 3.13 | <=20.97 | PASS |
| | | 2480 | 3.24 | <=20.97 | PASS |
| | | 2402 | -1.11 | <=20.97 | PASS |
| 2DH1 | Ant1 | 2441 | -0.64 | <=20.97 | PASS |
| | | 2480 | -0.47 | <=20.97 | PASS |
| | | 2402 | -0.84 | <=20.97 | PASS |
| 3DH1 | Ant1 | 2441 | -0.41 | <=20.97 | PASS |
| | | 2480 | -0.31 | <=20.97 | PASS |

Version 11: 2021-11-09

| | | | Ē |
|---------------------|-------------------|----------------------------|-------------------|
| Spectrum | | | |
| Ref Level 30.00 dBm | Offset 12.43 dB 👄 | RBW 3 MHz | |
| Att 30 dB | SWT 1 ms 👄 | VBW 10 MHz Mode Auto Sweep | 2 |
| Count 100/100 | | | |
| 1Pk View | | | |
| | | M1[1] | 2.62 dBn |
| | | | 2.4020690 GHz |
| 20 dBm | | | |
| | | | |
| 10 dBm | | | |
| | | 41 | |
| 0 dBm | | | |
| | | | |
| -10 dBm | | | |
| | | | |
| -20 dBm | | | |
| -20 aBm | | | |
| | | | |
| -30 dBm | | | |
| | | | |
| -40 dBm | | | |
| | | | |
| -50 dBm | | | |
| | | | |
| -60 dBm | | | |
| | | | |
| | | | |
| CF 2.402 GHz | | 691 pts | Span 8.0 MHz |
| | | Measuring | 10.05.2022 |

DH1_Ant1_2402

Date: 10.MAY.2022 12:29:20

| | | | | ~~~~ | | | | | _ |
|------------|-----------|-----|------------|-----------------|---------|------------|---|----------|-----------|
| Spectrum | , | | | | | | | | |
| | 30.00 dBm | | 12.43 dB 👄 | | | | | | |
| Att | 30 dB | SWT | 1 ms 👄 | VBW 10 M | iz Mode | Auto Sweep |) | | |
| Count 100/ | 100 | | | | | | | | |
| DIPK VIEW | | | | | | | | | |
| | | | | | M | 1[1] | | | 3.13 dBm |
| 20 dBm | | | | | | 1 | | 2.44 | 10580 GHz |
| 20 0811 | | | | | | | | | |
| | | | | | | | | | |
| 10 dBm | | | | | 41 | | | | |
| | | | | | /1 ▼ | | | | |
| 0 dBm | | | | | | | | | |
| | | | | | | | | <u> </u> | |
| -10 dBm | | | | | | | | | |
| | | | | | | | | | |
| -20 dBm | | | | | | | | | |
| -20 ubiii | | | | | | | | | |
| | | | | | | | | | |
| -30 dBm | | | | | | | | | |
| | | | | | | | | | |
| -40 dBm | | | - | | | | | | |
| | | | | | | | | | |
| -50 dBm | | | | | | | | | |
| | | | | | | | | | |
| -60 dBm | | | | | | | | | |
| 00 0011 | | | | | | | | | |
| | | | | | | | | | |
| CF 2.441 G | Hz | | | 691 | pts | | | Spa | n 8.0 MHz |
| | Y | | | | Mo | suring | | 430 | 0.05.2022 |
| | | | | | | | | | |

Date: 10.MAY.2022 12:36:32

| | | | | _ |
|---------------------|---------------------|-----------------|------------|---------------|
| Spectrum | | | | |
| Ref Level 30.00 dBm | n Offset 12.43 dB 🥃 | RBW 3 MHz | | |
| Att 30 dB | B SWT 1 ms 🖷 | VBW 10 MHz Mode | Auto Sweep | |
| Count 100/100 | | | | |
| 1Pk View | | | | |
| | | M | 11[1] | 3.24 dBm |
| | | | | 2.4798840 GHz |
| 20 dBm | | | <u> </u> | |
| | | | | |
| 10 dBm | | | | |
| | | MI | | |
| 0 dBm | | | | |
| 0 dBm | | | | |
| | | | | |
| -10 dBm | | | | |
| | | | | |
| -20 dBm | | | | |
| | | | | |
| -30 dBm | | | | |
| | | | | |
| -40 dBm | | | | |
| -+o ubiii | | | | |
| | | | | |
| -50 dBm | | | | |
| | | | | |
| -60 dBm | | | | |
| | | | | |
| CF 2.48 GHz | | 691 pts | | Span 8.0 MHz |
|) (| | | asuring | |
| | | Me | | |

DH1_Ant1_2480

Date: 10.MAY.2022 12:39:55

| | | | | | | | _ |
|-------------|-----------|--------|------------|-----------------|-------------------|---------------------------------------|---------------|
| Spectrum | | | | | | | |
| Ref Level | 30.00 dBm | Offset | 12.43 dB 🥃 | RBW 3 M | łz | | |
| Att | 30 dB | SWT | 1 ms 👄 | VBW 10 M | Iz Mode Auto Swee | р | |
| Count 100/3 | 100 | | | | | - | |
| ∋1Pk View | | | | | | | |
| | | | | | M1[1] | | -1.11 dBm |
| I | | | | | | | 2.4018490 GHz |
| 20 dBm | | | + | | | + | |
| I | | | | | | | |
| 10 dBm | | | | | | | |
| | | | | | | | |
| 0 dBm | | | | M1 | | | |
| | | | | | | | |
| -10 dBm | _ | | | | | | |
| -10 dBm | | | | | | | |
| | | | | | | | |
| -20 dBm- | | | + | | | + + + | |
| | | | | | | | |
| -30 dBm- | | | + | | | + | |
| I | | | | | | | |
| -40 dBm | | | | | | | |
| I | | | | | | | |
| -50 dBm | | | | | | | |
| | | | | | | | |
| co. /p | | | | | | | |
| -60 dBm | | | | | | | |
| | | | | | | | |
| CF 2.402 G | Hz | | | 691 | pts | | Span 8.0 MHz |
| |) (| | | | Meacuring | · · · · · · · · · · · · · · · · · · · | 10.05.2022 |
| | | | | | measuring | | 14:32:25 |

Date: 10.MAY.2022 14:32:25

| Spectrum | | | | |
|----------------------------------|-----------------------------|---------|------------|----------------------------|
| Ref Level 30.00 dBm Att 30 dB | Offset 12.43 dB SWT 1 ms | | Auto Sweep | |
| Count 100/100 | | | nate encop | |
| 1Pk View | | | | 0.01.00 |
| | | M | 1[1] | -0.64 dBm 2.4411270 GHz |
| 20 dBm | | | | + + |
| | | | | |
| 10 dBm | | | | |
| 0 dBm | | M1 | | |
| o ubin | | | | |
| -10 dBm | | | | |
| | | | | |
| -20 dBm | | | | |
| | | | | |
| -30 dBm | | | | |
| -40 dBm | | | | |
| | | | | |
| -50 dBm | | | | |
| | | | | |
| -60 dBm | | | | |
| | | | | |
| CF 2.441 GHz | | 691 pts | | Span 8.0 MHz |

2DH1_Ant1_2441

Date: 10.MAY.2022 14:35:34

| | | | _ | | | | _ |
|-----------------|------------|---------------|-----------|------|------------|---------|------------|
| Spectrum | | | | | | | |
| Ref Level 30.00 | dBm Offset | 12.43 dB 🥃 RB | W 3 MHz | | | | |
| | OdB SWT | | 3W 10 MHz | Mode | Auto Sweep | | |
| Count 100/100 | | | | | | | |
| 1Pk View | | | | | | | |
| | | | | M | 1[1] | | -0.47 dBn |
| | | | | | | 2.48 | 01040 GH |
| 20 dBm | | | | | | | |
| | | | | | | | |
| 10 dBm | | | | | | | |
| LO UDITI | | | | | | | |
| | | | M: | 1 | | | |
| D dBm | | | | | | | |
| | | | | | | | |
| -10 dBm | _ | | | | | | |
| | | | | | | | |
| -20 dBm | | | | | | | |
| -20 ubm | | | | | | | |
| | | | | | | | |
| -30 dBm | _ | | | | | | |
| | | | | | | | |
| -40 dBm | | | | | | | |
| | | | | | | | |
| -50 dBm | | | | | | | |
| oo abiii | | | | | | | |
| | | | | | | | |
| -60 dBm | | + + | | | | | |
| | | | | | | | |
| CF 2.48 GHz | | | 691 pt | e | | Sna | n 8.0 MHz |
| | | | oszpi | | | opu | 10.05.2022 |
| | | | | Mea | suring | 1000 | |

Date: 10.MAY.2022 14:38:29

| | | | | | | Ē |
|---------------------|-------|------------|------------|-----------------|-----|--|
| Spectrum | | | | | | (\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| Ref Level 30.00 dBr | | 12.43 dB 🥃 | RBW 3 MHz | | | |
| Att 30 d | B SWT | 1 ms 👄 | VBW 10 MHz | Mode Auto Sweep |) | |
| Count 100/100 | | | | | | |
| 1Pk View | - | _ | | | | |
| | | | | M1[1] | | -0.84 dBm |
| | | | | 1 | | 2.4019650 GHz |
| 20 dBm | | | | | | |
| | | | | | | |
| 10 dBm | | | | | | |
| | | | м | | | |
| 0 dBm | | | | | | |
| | | | | | | |
| -10 dBm | 1 | | | | | ~ |
| | | | | | | |
| -20 dBm | | | | | | |
| | | | | | | |
| -30 dBm | | | | | | |
| | | | | | | |
| -40 dBm | | | | | | |
| | | | | | | |
| -50 dBm | | | | | | |
| -oo dom | | | | | | |
| co dom | | | | | | |
| -60 dBm | | | | | | |
| | | | | | | |
| CF 2.402 GHz | | | 691 pt | s | I I | Span 8.0 MHz |
| 1 T | | | | Measuring | | 10.05.2022 |
| | | | | | | |

3DH1_Ant1_2402

Date: 10.MAY.2022 14:51:34

| Cu a atur una | ר | | | | | | | E |
|----------------------|---------|----|---------|---|--------|------------|----------|-----------|
| Spectrum | | | 10.10 | | | | | (V |
| Ref Level 30.0 | | | 43 dB 😑 | | | | | |
| Att Count 100/100 | 30 GB 8 | WТ | 1 ms 🖷 | VBW 10 MH | z Mode | Auto Sweep | | |
| 1Pk View | | | | | | | | |
| IPK VIEW | | | | | | 1[1] | | -0.41 dBm |
| | | | | | 141 | 1[1] | | 09880 GHz |
| 20 dBm | | | | | | | 2.11 | 0,000 011 |
| | | | | | | | | |
| 10 dBm | | | | | | | | |
| LO UBIN | | | | | | | | |
| a da a | | | | M | 1 | | | |
|) dBm | | _ | ~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | |
| | | | | | | | | |
| -10 dBm | | | | | | | | |
| | | | | | | | | |
| 20 dBm | | | | | | | | |
| | | | | | | | | |
| -30 dBm | | | | | | | | |
| | | | | | | | | |
| 40 dBm | | | | | | | | |
| | | | | | | | | |
| -50 dBm | | | | | | | | |
| | | | | | | | | |
| -60 dBm | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| CF 2.441 GHz | | | | 691 | pts | | Spa | n 8.0 MHz |
| | | | | | Mela | suring | 440 | 0.05.2022 |

Date: 10.MAY.2022 14:53:56

| Spectrum | | | |
|---------------------|-------------------|----------------------------|---------------|
| Ref Level 30.00 dBm | Offset 12.43 dB 🥃 | RBW 3 MHz | · · · · · · |
| Att 30 dB | SWT 1 ms 👄 | VBW 10 MHz Mode Auto Sweep |) |
| Count 100/100 | | | |
| 1Pk View | | | |
| | | M1[1] | -0.31 dBm |
| | | | 2.4801390 GHz |
| 20 dBm | | | |
| | | | |
| 10 dBm | | | |
| | | | |
| 0 dBm | | M1 | |
| 0 ubiii | | | |
| | | | |
| -10 dBm | | | |
| | | | |
| -20 dBm | | | |
| | | | |
| -30 dBm | | | |
| | | | |
| -40 dBm | | | |
| -40 UBIII | | | |
| | | | |
| -50 dBm | | | |
| | | | |
| -60 dBm | | | |
| | | | |
| CF 2.48 GHz | | 691 pts | Span 8.0 MHz |
| | | 551 pts | |
| | | Measuring | 4/4 10552052 |

3DH1_Ant1_2480

Date: 10.MAY.2022 14:57:03

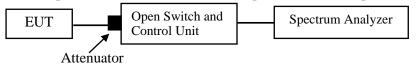
FCC §15.247(d) - BAND EDGES TESTING

Applicable Standard

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

Test Procedure

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
- 3. Set RBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5. Repeat above procedures until all measured frequencies were complete.



Test Data

Environmental Conditions

| Temperature: | 23°C |
|--------------------|-----------|
| Relative Humidity: | 51 % |
| ATM Pressure: | 101.1 kPa |

The testing was performed by Cat Kang on 2022-05-10.

EUT operation mode: Transmitting

Test Result: Compliant.

Conducted Band Edge Result:

| | | | | DH1_Ant1_ | Low_240 | 2 | | | |
|-----------------|-------------------|-----------|-------------------|----------------------------|----------|----------|-----------------------------|-----------------|-------------------|
| Spectrum | | | | | | | | | |
| Ref Level 2 | 0.00 dBn | n Offset | 12.43 dB | RBW 100 kH; | z | | | | |
| Att | 30 di | 3 SWT | 246.5 µs | VBW 300 kH | Z Mode A | uto Fi | FT | | |
| Count 300/30 | D | | | | | | | | |
| 1Pk View | | | | | | | | | |
| | | | | | M1 | [1] | | | 2.34 dBr |
| 10 dBm | | | | | | | | 2.4 | +01880 GH |
| | | | | | M2 | [1] | | | -45.88 dBr |
| 0 dBm | | | | | <u> </u> | | | . 2.4 | 100000 4 H |
| | | | | | I | | | | |
| -10 dBm | | | | | | | | + | |
| 01 | -17.660 | dBm | | | | | | | 1 1 |
| -20 dBm 01 | -17.000 | | | | | | | | |
| -30 dBm | | | | | | | | | |
| -30 dBm | | | | | | | | | |
| -40 dBm | | | | | | | | _ | ME |
| | | | | | | | | M3 | T T |
| 150 dBrits when | واللعوت إلى مراقع | - Aydowar | والمعاليه | when my working and | marchan | الرائلين | b ng buladede gu | - heating toget | une and |
| | | | | | I | | | | |
| -60 dBm | | | | | | | | | |
| -70 dBm | | | | | I | | | | |
| -70 dBm | | | | | | | | | |
| | | | | | | | | | |
| Start 2.3 GHz | | | | 691 p | ts | | | stop | 2.405 GHz |
| larker | T | N | | N | 1 5 | | - | | |
| Type Ref M1 | 1 | X-valu | 88 GHz | <u>Y-value</u> 2.34 dBm | Functi | on | Fu | nction Result | ι |
| M1 M2 | 1 | | 88 GHZ 2.4 GHZ | -45.88 dBm | | | | | |
| M2 M3 | 1 | | 39 GHz | -49.51 dBm | | | | | |
| M4 | 1 | | 78 GHz | -45.82 dBm | | | | | |
| | <u> </u> | | | | | - | | | 10.05.2022 |

Date: 10.MAY.2022 12:17:03

DH1_Ant1_High_2480

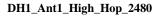
| Spectrun | n | | | | | | |
|-------------------------------|---------|------------------------|---------|----------------------------|-----------|-------|---------------------------|
| Ref Leve Att Count 300, | 3 | dBm Offset D dB SWT | | RBW 100 kHz VBW 300 kHz | Mode Auto | Sweep | |
| 1Pk View | / 300 | | | | | | |
| JIN NOW | | | | | M1[1] | | 3.10 dBr |
| 10 dBm | M1 | | + | | M2[1] | | 2.480010 GH -45.17 dBr |
| 0 dBm | 8 | | | | | | 2.483500 GH |
| u ubiii | | | | | | | |
| -10 dBm | HA- | _ | | | | | |
| -20 dBm | D1 -16. | 900 dBm | | | | | |
| -20 aBm | | | | | | | |
| -30 dBm | HL- | | | | | | |
| | R 1 . | M4 | | | | | |
| -40 dBm | | 2 | M3 | an more man | malling | mound | who we show how here and |
| -50 dBm | | | | | | | |
| | | | | | | | |
| -60 dBm | | | | | | | |
| -70 dBm | | | | | | | |
| -/o ubiii | | | | | | | |
| Start 2.47 | GHz | | | 691 pt | 5 | | Stop 2.55 GHz |
| larker | | | | | | | |
| Type Re | f Trc | X-valı | ie | Y-value | Function | Fu | nction Result |
| M1 | 1 | | 001 GHz | 3.10 dBm | | | |
| M2 | 1 | 2.4 | 835 GHz | -45.17 dBm | | | |
| MЗ | 1 | | 2.5 GHz | -45.17 dBm | | | |
| M4 | 1 | 2.484 | 957 GHz | -39.87 dBm | | | |
| | | | | | Measuring | | 10.05.2022 |

Date: 10.MAY.2022 12:38:39

| Spectrum | | | | | | | | | | T |
|--------------|--------------------------|----------------------|--|--------------------|------------------|--------|--------------|----------|---------------------------|-----------|
| Ref Level | 20.00 dBr | n Offset | 12.41 dB (| RBW 100 k | Ηz | | | | | |
| Att | 30 d | B SWT | 246.5 µs (| 📄 VBW 300 k | Hz Mode | Auto F | FFT | | | |
| Count 300/3 | 00 | | | | | | | | | |
| 1Pk View | | | | | | | | | | |
| | | | | | M | 1[1] | | | | 1.75 dBr |
| 10 dBm | | | | | | | | | 2.40 | 04010 GH |
| | | | | | M | 2[1] | | | -8 | 50.06 dBa |
| | | | | | | | | | 2.40 | 30000 GH |
| | | | | | | | | | | |
| -10 dBm — | | | | | | | | | | |
| | 1 -18.250 | l dBm | | | | | | | | |
| -20 dBm | 1 -18.200 | Jubin | | | | | | | | |
| -30 dBm | | | | | | | | | | |
| 30 uBm | | | | | | | | | | |
| -40 dBm | | | | | | | | | | |
| | | | | M4 | | | | | MЗ | ма |
| SO UBM | طعور والعرب العربية المع | - month of the state | , www.www.www.www.www.www.www.www.www.ww | Anna | Mark Congression | - | herner money | Andrea | مىچەر <mark>ي</mark> ەمىر | nuluh |
| | | | | | | | | | | |
| -60 dBm | | | | | | | | | | |
| -70 dBm | | | | | | | | | | |
| | | | | | | | | | | |
| Start 2.3 GH | 12 | | | 691 | nte | | | | Stop 2 | .405 GHz |
| larker | 12 | | | 091 | pts | | | | 3(0) 2 | .105 012 |
| | Trc | X-valu | e | Y-value | Fund | tion | 1 | Function | Result | |
| M1 | 1 | | 401 GHz | 1.75 dB | | | | | | |
| M2 | 1 | | 2.4 GHz | -50.06 dB | | | | | | |
| M3 | 1 | 2 | .39 GHz | -49.91 dB | m | | | | | |
| 1913 | | | | | | | | | | |

DH1_Ant1_Low_Hop_2402

Date: 10.MAY.2022 12:18:19



| Ref Level | 20.00 | iBm Offset | 12.43 dB 🧉 | RBW | 100 kHz | | | | | <u> </u> |
|-------------|----------|------------|---|------------|--------------------|------|----------|------|----------------|----------|
| Att | 30 | dB SWT | 1.1 ms 🧉 | VBW | 300 kHz | Mode | Auto S | weep | | |
| Count 300/3 | 00 | | | | | | | | | |
| 1Pk View | | | | | | | | | | |
| | | | | | | M | 1[1] | | 3.16 | |
| a dBm | | | | | | | | | 2.472950 | |
| MI | | | | | | M | 2[1] | | -44.19 | |
| MARA H | <u>h</u> | | + | | | | | 1 | 2.483500 | GH |
| UNUUNU | 90. – A | | | | | | | | | |
| 10 984 | U(| | | | | | | | | |
| 20 dBm | 1 -16.8 | 340 dBm | | | | | | | | |
| | 1 | | | | | | | | | |
| 30 dBm — | _ | | | | | | | | | |
| | | | Ma | | | | | | | |
| 40 dBm | A. | | La Maria and and and and and and and and and an | | transler- | | Autor | man | mannen | met |
| 50 dBm | | | 1 | | | | | | | |
| | | | | | | | | | | |
| 50 dBm — | | | | - | | | | | | |
| | | | | | | | | | | |
| 70 dBm | | | | | | | | | | |
| | | | | | | | | | | |
| tart 2.47 G | Hz | | | | 691 pts | | | | Stop 2.55 | GHz |
| arker | | - | | | | | | | | |
| | Trc | X-valu | | <u>Y-v</u> | | Func | Function | | unction Result | |
| M1 M2 | 1 | | 295 GHz 335 GHz | | .16 dBm .19 dBm | | | | | |
| M2 M3 | 1 | | 2.5 GHz | | .19 dBm | | | | | |
| M4 | 1 | | 536 GHz | | .29 dBm | | | | | |

Date: 10.MAY.2022 12:39:21

| | | | - | ~···· | | - | | | |
|-------------|--------------------|--------------------|-------------------|---------------------------------------|--|--------|------|----------------|---------------------|
| Spectrum | , | | | | | | | | |
| Ref Level | 20.00 d | Bm Offset | 12.43 dB | RBW 100 kH | z | | | | |
| Att | 30 | dB SWT | 246.5 µs (| 💿 VBW 300 kH | z Mode | Auto F | FT | | |
| Count 300/ | 300 | | | | | | | | |
| 1Pk View | | | | | | | | | |
| | | | | | M1 | [1] | | | -3.65 dBn |
| 10 dBm | | | | | | | | | 2.402040 GH |
| | | | | | M2 | [1] | | | -50.47 dBn |
| 0 dBm — | | | | | | | | | 2.400000 AL |
| | | | | | | | | | X I |
| -10 dBm | | | | | | | | | |
| | | | | | | | | | |
| -20 dBm | D1 -23.6 | 50 dBm | | | | | | | |
| -30 dBm | 01 -20.0 | SO abin | | | | | | | |
| -30 ubiii | | | | | | | | | |
| -40 dBm | | _ | | M4 | | | | | |
| | | | | · · · · · · · · · · · · · · · · · · · | . | | | MB | Ma |
| 490'dBmuth | ىيلىپلىسالىيى. | with-the the state | welger have a sec | monton | An State of the st | سيعيده | www. | ward warding | لى كەنتىرىيەنلىق كە |
| co do | | | | | | | | | |
| -60 dBm | | | | | | | | | |
| -70 dBm | | | | | | | | | |
| / 0 0.0 | | | | | | | | | |
| Start 2.3 G | Hz | | | 691 p | te | | | St | op 2.405 GHz |
| Marker | 112 | | | 051 | | | | | op 2.100 driz |
| | ef Trc X-value | | ie I | Y-value | Funct | ion | | Function Re | sult |
| M1 | 1 | | 204 GHz | -3.65 dBm | | | | | |
| M2 | 1 | | 2.4 GHz | –50.47 dBm | | | | | |
| M3 | 1 | | .39 GHz | -48.31 dBm | | | | | |
| M4 | 1 | 2.346 | 261 GHz | -46.94 dBm | 1 | | | | |
| | | | | | Meas | urine. | | III 420 | 10.05.2022 |
| | | | | | | | | | |

2DH1_Ant1_Low_2402

Date: 10.MAY.2022 14:26:30

Spectrum Ref Level 20.00 dBm Offset 12.43 dB 🖷 RBW 100 kHz Att 30 dB SWT 1.1 ms 👄 VBW 300 kHz Mode Auto Sweep Count 300/300 ●1Pk View M1[1] -2.88 dBm 2.480010 GHz 10 dBm-M2[1] -45.26 dBm 2.483500 GHz 0 dBm· -10 dBm -20 dBm D1 -22.880 dBm -30 dBm M 3 -40 dBm Twee my almos and the hard and المراجعة mount -50 dBm -60 dBm -70 dBm-Start 2.47 GHz 691 pts Stop 2.55 GHz Marker Type Ref Trc M1 1 X-value 2.48001 GHz Y-value -2.88 dBm Function Result Function -45.26 dBm -43.67 dBm M2 2.4835 GHz 1 МЗ 2.5 GHz 1 2.484957 GHz M4 1 -40.17 dBm

2DH1_Ant1_High_2480

Date: 10.MAY.2022 14:38:16

| | | | 2 D1 | II_IMCI_LO | "_110p_240 | - | |
|-------------|----------|--|--------------|----------------------|---------------|---|---------------------------|
| Spectrum | · | | | | | | |
| Ref Level | 20.00 | iBm Offset 1 | .2.41 dB 🌘 | RBW 100 kHz | | | |
| Att | 30 | dB SWT 2 | 246.5 µs | • VBW 300 kHz | Mode Auto | FFT | |
| Count 300/ | 300 | | | | | | |
| 1Pk View | | | | | | | |
| | | | | | M1[1] | | -4.69 dBr |
| 10 dBm | | | | | | | 2.401880 GH |
| | | | | | M2[1] | | -49.94 dBn |
| 0 dBm — | | | | | | | 2.400000 <mark>G</mark> H |
| | | | | | | | T T |
| -10 dBm | | _ | | | | | |
| | | | | | | | |
| -20 dBm | | | | | | | |
| -30 dBm- | D1 -24.6 | 90 dBm | | | | | |
| -30 uBm | | | | | | | |
| -40 dBm | | | | | | | |
| | | | | M4 | | | M3 M2 |
| -50/dBm | | where he was a star of the second | A.742-002-04 | ger and march of the | Wine work and | ليهمه والمستحمي الم | the man to A de mar work |
| 60 d0 | | | | | | | |
| -60 dBm | | | | | | | |
| -70 dBm | | | | | | | |
| | | | | | | | |
| Start 2.3 G | L17 | | | 691 pt | | | Stop 2.405 GHz |
| darker | 112 | | | 051 pt | | | 000 2.100 012 |
| | Trc | Trc X-value | | Y-value | Function | Eur | nction Result |
| M1 | 1 | | 38 GHz | -4.69 dBm | . anotion | 14 | |
| M2 | 1 | | .4 GHz | -49.94 dBm | | | |
| M3 | 1 | | 39 GHz | -50.39 dBm | | | |
| M4 | 1 | 2.3458 | 04 GHz | -47.19 dBm | | | |
| | 1 | | | | Measuring | 100 C 100 C 100 C | 10.05.2022 |
| | | | | | | the second se | |

2DH1_Ant1_Low_Hop_2402

Date: 10.MAY.2022 14:29:03

2DH1_Ant1_High_Hop_2480

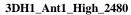
| Spectrum | | | | | - 1- | | | | Ē |
|---------------------------------|---------|-------------------------|--------|----------------------------|---------|-----------|------|------------------|------------------|
| Ref Level Att Count 300/3 | 30 | dBm Offset 1)dB SWT | | RBW 100 kHz VBW 300 kHz | Mode At | uto Swee; | 0 | | |
| 1Pk View | | | | | | | | | |
| | | | | | M1[: | 1] | | | 92 dBn 350 GH |
| LO dBm | | | | | M2[| 1] | | -44. | 96 dBr 500 GH |
| | 4 | | | | | | | | |
| 20 dBm-0 | 1 -22.9 | 920 dBm | | | | | | | |
| 30 dBm | | | | | | | | | |
| -40 dBm | - And | 2 Logiante march | M3 | unnum | M4 | mouth | wand | hereneneralister | maler |
| -50 dBm | | | | | | | | | |
| -60 dBm | | | | | | | | | |
| -70 dBm | | | | | | | | | |
| Start 2.47 G | Hz | | | 691 pt | s | | | Stop 2. | 55 GHz |
| larker | | | | | | | | | |
| Type Ref | | X-value | | Y-value | Functio | n | Fund | ction Result | |
| M1 | 1 | | 05 GHz | -2.92 dBm | | | | | |
| M2 | 1 | | 35 GHz | -44.96 dBm | | | | | |
| M3 M4 | 1 | 2.5181 | 16 GHz | -44.04 dBm -41.96 dBm | | | | | |
| | | | | | Measu | ring | | 4,44 | .2022 |

Date: 10.MAY.2022 14:40:55

| | | | • | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | |
|-------------|---------------------|-----------------|----------|--|-----------|----------|---|---|------------|
| Spectrum | | | | | | | | | |
| Ref Level | 20.00 d | Bm Offset | 12.43 dB | RBW 100 | kHz | | | | |
| Att | 30 | dB SWT | 246.5 µs | VBW 300 | kHz Mod | e Auto F | FFT | | |
| Count 300/ | 300 | | | | | | | | |
| 1Pk View | | | | | | | | | |
| | | | | | | M1[1] | | | -3.56 dBn |
| 10 dBm | | | | | | | | 2 | 401880 GH |
| 10 ubiii | | | | | | M2[1] | | | -49.69 dBm |
| 0 dBm — | | | | | | | | 2. | 40000016H |
| | | | | | | | | | T T |
| -10 dBm | | | | | | | | | + A |
| | | | | | | | | | 1 1 |
| -20 dBm | D1 -23.5 | en dam | | | | | | | |
| | 01 -25.5 | OU UBIII | | | | | | | |
| -30 dBm | | | | | | | | | |
| -40 dBm | | | | | | | | | |
| ile abiii | | | | M4 | | | | мз | ма |
| -StrdBha | and when the second | - Marine Branch | www.dewa | and amake when | 4 Marthon | mara | and the street of the state of | -real which have been been and the second | Mayor 4 |
| | | 1 | | | | | | | |
| -60 dBm | | | + | | | + | | | |
| | | | | | | | | | |
| -70 dBm | | | | | | | | | |
| | | | | | | | | | |
| Start 2.3 G | Hz | | | 693 | l pts | | | Stop | 2.405 GHz |
| Marker | | | | | | | | | |
| | Ref Trc X-value | | | Y-value | | ction | | Function Resu | lt |
| M1 M2 | 1 | | 188 GHz | -3.56 d | | | | | |
| M2 M3 | 1 | | 2.4 GHz | -49.69 d -50.21 d | | | | | |
| M4 | 1 | | 217 GHz | -47.30 d | | | | | |
| | 7 | | | | | | - | | 10.05.2022 |
| | | | | | | | | 1,60 | |

3DH1_Ant1_Low_2402

Date: 10.MAY.2022 14:48:17



| Spectrum | | | | | 0 - | | | Ē |
|--------------|---------|----------------------|--------------------|--|---------|-----------|-----------------|--------------------------|
| Ref Level | 30 | IBm Offset dB SWT | | RBW 100 kHz VBW 300 kHz | | uto Sweep |) | (|
| 1Pk View | | | | | | | | |
| 10 dBm | | | | | M1[1 | - | | -2.92 dB 2.480010 GF |
| | M1 | | | | M2[1 | 1] | | -45.00 dB 2.483500 GF |
| -10 dBm | A— | | | | | | | |
| -20 dBm | 1 -22.9 | 20 dBm | | | | | | |
| -30 dBm | | M4 | | | | | | |
| -40 dBm | 6.3 | Tomorem | mun | | www. | mandet | grille-trachier | - |
| -50 dBm | | | | | | | | |
| -60 dBm | | | | | | | | |
| -70 dBm | | | | | | | | |
| Start 2.47 G | Hz | | | 691 pt | 5 | | | Stop 2.55 GHz |
| larker | | | | | | | | |
| Type Ref | Trc | X-valu | e | Y-value | Functio | n | Fun | ction Result |
| M1 | 1 | 2.480 | 01 GHz | -2.92 dBm | | | | |
| M2 | 1 | | 35 GHz | -45.00 dBm | | | | |
| M3 M4 | 1 | | 2.5 GHz 957 GHz | -44.43 dBm -40.18 dBm | | | | |
| | | | | | Measu | rine | | 10.05.2022 |

Date: 10.MAY.2022 14:56:00

| | | | 501 | II_IIIII_LO | "_110p_240 | - | _ |
|------------|----------|-------------------------|-------------|---------------------|------------------------------|---------------|------------------|
| Spectru | m | | | | | | |
| Ref Leve | el 20.00 | dBm Offse | et 12.41 dB | RBW 100 kHz | | | |
| Att | : | 30 dB SWT | 246.5 µs | VBW 300 kHz | Mode Auto F | FT | |
| Count 30 | 0/300 | | | | | | |
| 1Pk View | | | | | | | |
| | | | | | M1[1] | | -7.17 dB |
| 10 dBm | | | | | | | 2.404320 G |
| 10 ubm— | | | | | M2[1] | | -50.03 dB |
| 0 dBm | | | | | | | 2.400000 GI |
| o abiii | | | | | | | |
| -10 dBm— | | | | | | | |
| | | | | | | | |
| -20 dBm— | - | | _ | | | | |
| | D1 -27 | .170 dBm | _ | | | | |
| -30 dBm— | | | | | | | |
| -40 dBm— | | | | | | | |
| -40 ubiii— | | | | M4 | | | МЗ М2 |
| | Allen | المصالي وليد أمية إليان | un garage | . And summer of the | بالتولغ بسيامية فساؤسو والعا | war when when | Terry of Barrens |
| | | | | | | | |
| -60 dBm— | + | | _ | | | | |
| | | | | | | | |
| -70 dBm— | + | _ | | | | | |
| | | | | | | | |
| Start 2.3 | GHz | | | 691 pt | s | | Stop 2.405 GH |
| Marker | | | | | | | |
| Type R | ef Trc | Trc X-value | | Y-value | Function | Fu | nction Result |
| M1 | 1 | 2. | 40432 GHz | -7.17 dBm | | | |
| M2 | 1 | | 2.4 GHz | -50.03 dBm | | | |
| M3 | 1 | | 2.39 GHz | -50.38 dBm | | | |
| M4 | 1 | 2.3 | 49304 GHz | -46.18 dBm | | | |
| | | | | | Measuring | | 10.05.2022 |
| | | | | | | | |

3DH1_Ant1_Low_Hop_2402

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| Specti | rum | | | | | | | | | | | |
|---------|------------------|-----------|----------|------------|-------|-----------------|--------|---------|-------|---|-------------|-------------|
| Ref Le | evel | 20.00 dBm | Offset 1 | 2.43 dB | 👄 RBV | √ 100 kH | z | | | | | |
| 🛛 Att | | 30 dB | SWT | 1.1 ms | VB\ | ₩ 300 kH | z Mode | Auto s | Swee: | | | |
| Count 3 | 300/3 | 00 | | | | | | | | | | |
| ⊖1Pk Vi | ew | | | | | | | | | | | |
| | | | | | | | D | 11[1] | | | | -2.91 dBm |
| 10 dBm- | | | | | | | | | | | 2. | 471790 GHz |
| | | | | | | | D. | 12[1] | | | | -44.14 dBm |
| ðdam− | \rightarrow | | | | | | | | | | . 2. | 483500 GHz |
| Baal | hal 1 | .h | | | | | | | | | | |
| -10 aBr | (TH) | <u> </u> | | | | | | + | | | | + |
| | 1 | 1 | | | | | | | | | | |
| -20 dBm | | 1 -22.910 | dBm | | | | | | | | | + |
| 00 db | | 1 | abiii | | | | | | | | | |
| -30 dBm | | | | | | | | | | | | |
| -40 dBm | | M2 | | | 42 | | | | | M4 | | |
| TO GDI | · | warn | mound | hermoniter | throw | unner | marin | mon | m | mon | mondo | merenantite |
| -50 dBm | ∩ | | | | | | | | | | | |
| | | | | | | | | | | | | |
| -60 dBm | ∩ - +- | | | | | | | + | | | | + |
| | | | | | | | | | | | | |
| -70 dBm | ا – ۱ | | | | | | | - | | | + | + |
| | | | | | | | | | | | | |
| Start 2 | .47 G | Hz | | | | 691 | ots | | | | Sto | p 2.55 GHz |
| Marker | | | | | | | | | | | | |
| Type | Ref | Trc | X-value | | Y- | value | Fund | ction | 1 | Fun | ction Resul | it [|
| M1 | | 1 | 2.4717 | 79 GHz | | -2.91 dBr | | | | | | |
| M2 | | 1 | 2.483 | 35 GHz | - 4 | 44.14 dBr | n | | | | | |
| M3 | | 1 | 2 | .5 GHz | | 44.18 dBr | n | | | | | |
| M4 | | 1 | 2.53075 | 54 GHz | -4 | 42.84 dBr | n | | | | | |
| | | | | | | | Me | asuring | - | CONTRACTOR OF STREET, | 440 | 10.05.2022 |
| | | | | | | | | | • | | | |

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***** END OF REPORT *****