

Test Report

Report No.: MTi210924005-04E1

Date of issue: Nov. 30, 2021

Applicant: Chug, Inc.

Product: MagSafe + Wireless charger Stand

Model(s): QIC44, HKWP2692-20E

FCC ID: 2AO23-QIC44

Shenzhen Microtest Co., Ltd. http://www.mtitest.com



Instructions

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| Test Result Certification | | | |
|---------------------------|---|--|--|
| Applicant: | Chug, Inc. | | |
| Address: | 7157 Shady Oak Road, Eden Prairie, MN 55344, USA | | |
| Manufacturer: | HANK ELECTRONICS VIETNAM LTD | | |
| Address: | No.7, 11 Street VSIP Tu Son, 16353 Bac Ninh Province, Vietnam | | |
| Product description | | | |
| Product name: | MagSafe + Wireless charger Stand | | |
| Trademark: | Heyday | | |
| Model name: | QIC44 | | |
| Serial Model: | HKWP2692-20E | | |
| Standards: | FCC 47 CFR Part 15 Subpart C | | |
| Test method: | ANSI C63.10-2013 | | |
| Date of Test | | | |
| Date of test: | 2021-11-18 ~ 2021-11-30 | | |
| Test result: | Pass | | |

| Test Engineer | : | Yanice Xie |
|---------------|---|--------------|
| | | (Yanice Xie) |
| Reviewed By: | : | leon chen |
| | | (Leon Chen) |
| Approved By: | : | Tom Xue |
| | | (Tom Xue) |



1 General Description

1.1 Description of the EUT

| Product name: | name: MagSafe + Wireless charger Stand | | |
|----------------------|---|--|--|
| Model name: QIC44 | | | |
| Series Model: | HKWP2692-20E | | |
| Model difference: | All the models are the same circuit and RF module, except the model name | | |
| Electrical rating: | Input: Type-C 9V/3A Output: 1:Magsafe Charger 15W Output: 2:AirPods Charger 5W | | |
| Accessories: | AC Adapter Model: HKAP3891-30US Input: 100-240V~ 50/60Hz 0.8A Output: 5V=3A,9V=3A, 12V=2.5A, 15V=2A | | |
| RF specification: | | | |
| Operation frequency: | Magsafe Charger:127 kHz(5W/7.5W), 360 kHz(15W) AirPods Charger:115-205 kHz(5W) | | |
| Modulation type: | ASK | | |
| Antenna type: | Coil Antenna | | |

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

| No. | Emission test modes | |
|--------|----------------------------|--|
| Mode 1 | Wireless charger (5W+5W) | |
| Mode 2 | Wireless charger (7.5W+5W) | |
| Mode 3 | Wireless charger (15W+5W) | |
| Mode 4 | Stand-by | |

The worst test mode of conducted emissions: Mode 3

The worst test mode of radiated emissions(9kHz-30MHz@127 kHz): Mode 2

The worst test mode of radiated emissions(9kHz-30MHz@360 kHz): Mode 3

The worst test mode of radiated emissions(30MHz-1GHz): Mode 3

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China Tel: (86-755)88850135 Fax: (86-755) 88850136 Web: www.mtitest.com E-mail: mti@51mti.com



1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Support equipment list | | | | | | |
|------------------------|------------|------------|--------------|--|--|--|
| Description | Model | Serial No. | Manufacturer | | | |
| iPhone 12 | / | / | Apple | | | |
| AirPods | / | / | Apple | | | |
| Support cable list | | | | | | |
| Description | Length (m) | From | То | | | |
| / | / | / | / | | | |

1.4 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| Temperature: | 15°C~35°C |
|-----------------------|-------------------|
| Humidity: | 20 % RH ~ 75 % RH |
| Atmospheric pressure: | 98 kPa~101 kPa |

1.5 Measurement uncertainty

| Measurement | Uncertainty |
|------------------------------------|-------------|
| Conducted emission (9 kHz~30 MHz) | ± 2.5 dB |
| Radiated emission (9 kHz ~ 30 MHz) | ± 4.0dB |
| Radiated emission (30 MHz~1 GHz) | ± 4.2 dB |
| Radiated emission (above 1 GHz) | ± 4.3 dB |
| Occupied bandwidth | ± 3 % |
| Temperature | ±1 degree |
| Humidity | ± 5 % |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China Tel: (86-755)88850135 Fax: (86-755) 88850136 Web: www.mtitest.com E-mail: mti@51mti.com



2 Summary of Test Result

| No. | FCC reference | Description of test | Result | | | |
|-----|-----------------|-----------------------------------|--------|--|--|--|
| | Emission | | | | | |
| 1 | FCC Part 15.203 | Antenna requirement | Pass | | | |
| 2 | FCC Part 15.207 | AC power line Conducted emissions | Pass | | | |
| 3 | FCC Part 15.209 | Radiated emissions | Pass | | | |
| 4 | FCC Part 15.215 | Occupied bandwidth | Pass | | | |

Note: N/A means not applicable.



3 Test Facilities and accreditations

3.1 Test laboratory

| Test laboratory: | Shenzhen Microtest Co., Ltd. |
|-----------------------------|--|
| Test site location: | 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China |
| Telephone: (86-755)88850135 | |
| Fax: | (86-755)88850136 |
| CNAS Registration No.: | CNAS L5868 |
| FCC Registration No.: | 448573 |



4 List of test equipment

| No. | Equipment | Manufacturer | Model | Serial No. | Cal. date | Cal. Due |
|----------|---|-----------------|-------------|-------------------|------------|------------|
| MTI-E043 | EMI test receiver | R&S | ESCI7 | 101166 | 2021/06/02 | 2022/06/01 |
| MTI-E044 | Broadband antenna | Schwarzbeck | VULB9163 | 9163-1338 | 2021/05/30 | 2023/05/29 |
| MTI-E045 | Horn antenna | Schwarzbeck | BBHA9120D | 9120D-2278 | 2021/05/30 | 2023/05/29 |
| MTi-E046 | Active Loop Antenna | Schwarzbeck | FMZB 1519 B | 00066 | 2021/05/30 | 2023/05/29 |
| MTI-E047 | Pre-amplifier | Hewlett-Packard | 8447F | 3113A06184 | 2021/06/02 | 2022/06/01 |
| MTI-E048 | Pre-amplifier | Agilent | 8449B | 3008A01120 | 2021/06/02 | 2022/06/01 |
| MTi-E005 | EMI test receiver | R&S | ESPI7 | 100314 | 2021/06/02 | 2022/06/01 |
| MTi-E120 | Broadband antenna | Schwarzbeck | VULB9163 | 9163-1419 | 2021/05/30 | 2023/05/29 |
| MTi-E121 | Pre-amplifier | Hewlett-Packard | 8447D | 2944A09365 | 2021/04/16 | 2022/04/15 |
| MTi-E123 | Pre-amplifier | Agilent | 8449B | 3008A04723 | 2021/05/06 | 2022/05/05 |
| MTi-E122 | MXA signal analyzer | Agilent | N9020A | MY5444085 9 | 2021/05/06 | 2022/05/05 |
| MTi-E001 | Artificial Mains Network | R&S | ESH2-Z5 | 100263 | 2021/06/02 | 2022/06/01 |
| MTi-E002 | EMI Test Receiver | R&S | ESCI3 | 101368 | 2021/06/02 | 2022/06/01 |
| MTi-E023 | Artificial power network | Schwarzbeck | NSLK8127 | NSLK8127# 841 | 2021/06/02 | 2022/06/01 |
| MTi-E025 | Artificial power network | Schwarzbeck | NSLK8127 | 8127183 | 2021/06/02 | 2022/06/01 |
| MTi-E026 | 8-wire Impedance Stabilization Network | Schwarzbeck | NTFM 8158 | NTFM 8158 #199 | 2021/06/02 | 2022/06/01 |
| MTi-E021 | EMI Test Receiver | R&S | ESCS30 | 100210 | 2021/06/02 | 2022/06/01 |
| MTi-E024 | Artificial power network | Schwarzbeck | NSLK8127 | 01001 | 2021/06/02 | 2022/06/01 |



5 Test Results

5.1 Standard requirement

15.203 requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.2 Description of the EUT antenna

The antenna of EUT is coil antenna, which is integrated on the main PCB of the EUT and no consideration of replacement.

5.3 AC power line Conducted emissions

5.3.1 Limits

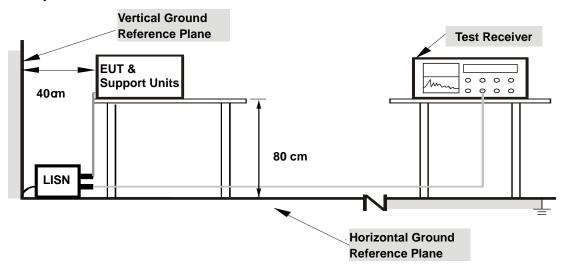
| Frequency (MHz) | Detector type / Bandwidth | Limit-Quasi-peak dBµV | Limit-Average dBµV |
|--------------------|---------------------------|--------------------------|-----------------------|
| 0.15 -0.5 | | 66 to 56 | 56 to 46 |
| 0.5 -5 | Average / 9 kHz | 56 | 46 |
| 5 -30 | | 60 | 50 |

Note 1: the limit decreases with the logarithm of the frequency in the range of 0.15 MHz to 0.5 MHz.

5.3.2 Test Procedures

- a) The test setup is refer to the standard ANSI C63.10-2013.
- b) The EUT is connected to the main power through a line impedance stabilization network (LISN). All support equipment is powered from additional LISN(s).
- c) Emissions were measured on each current carrying line of the EUT using an EMI test receiver connected to the LISN powering the EUT.
- d) The test receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes described in Item 1.2.
- e) The test data of the worst-case condition(s) was recorded.

5.3.3 Test setup



For the actual test configuration, please refer to the related item – Photographs of the test setup.

5.3.4 Test Result

Calculation formula:

Measurement (dB μ V) = Reading Level (dB μ V) + Correct Factor (dB) Over (dB) = Measurement (dB μ V) - Limit (dB μ V)

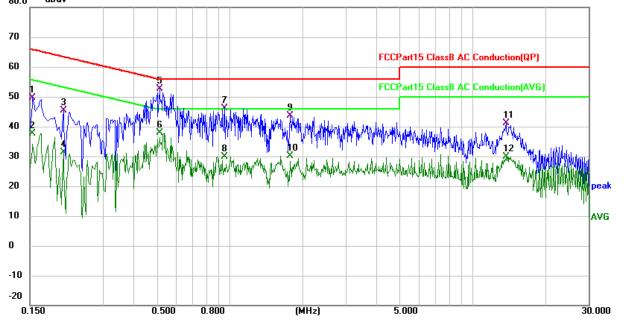


| est mode: | Mode 3 | Phase: | L |
|--------------|--|--|---|
| ower supply: | Power by AC/DC adapter (AC 120V/60Hz) Test site: | | CE chamber 1 |
| 80.0 dBuV | | | |
| 70 | | | |
| 60 | | FCCPart15 ClassB AC Co | nduction(QP) |
| 50 1 3 | 5 | FCCPart15 ClassB AC Co | nduction(AVG) |
| 40 | Sa Marketon Landa Service Land | donlet | <u> </u> |
| 30 | 8 10 10 10 | harren generaligi distribili propositi della | Maring Art of the state of the |
| 20 | h. / Makka . J. M | | peak |
| 10 | | T | AVG |
| 0 | | | |
| -10 | | | |
| -20 | | | |

| No. I | Mk. Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-------|-----------|------------------|-------------------|------------------|-------|--------|----------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector |
| 1 | 0.1819 | 38.50 | 10.97 | 49.47 | 64.40 | -14.93 | QP |
| 2 | 0.1819 | 24.84 | 10.97 | 35.81 | 54.40 | -18.59 | AVG |
| 3 | 0.2020 | 36.31 | 10.97 | 47.28 | 63.53 | -16.25 | QP |
| 4 | 0.2020 | 22.82 | 10.97 | 33.79 | 53.53 | -19.74 | AVG |
| 5 | * 0.5260 | 39.19 | 11.06 | 50.25 | 56.00 | -5.75 | QP |
| 6 | 0.5260 | 27.57 | 11.06 | 38.63 | 46.00 | -7.37 | AVG |
| 7 | 0.7380 | 32.01 | 11.11 | 43.12 | 56.00 | -12.88 | QP |
| 8 | 0.7380 | 18.72 | 11.11 | 29.83 | 46.00 | -16.17 | AVG |
| 9 | 1.3060 | 26.75 | 13.95 | 40.70 | 56.00 | -15.30 | QP |
| 10 | 1.3060 | 15.57 | 13.95 | 29.52 | 46.00 | -16.48 | AVG |
| 11 | 11.0740 | 25.03 | 11.60 | 36.63 | 60.00 | -23.37 | QP |
| 12 | 11.0740 | 15.88 | 11.60 | 27.48 | 50.00 | -22.52 | AVG |
| | | | | | | | |

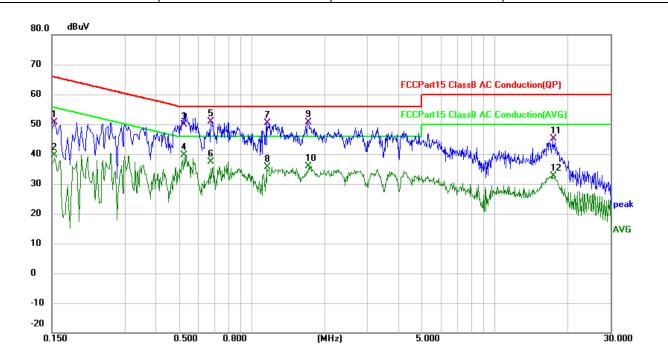


| Test mode: | Mode 3 | Phase: | N | | |
|---------------|---------------------------------------|-----------------------|--------------|--|--|
| Power supply: | Power by AC/DC adapter (AC 120V/60Hz) | Test site: | CE chamber 1 | | |
| 80.0 dBuV | | | | | |
| 70 | | FCCPart15 ClassB AC C | | | |



| | | Reading | Correct | Measure- | | | |
|---------|---------|---------|---------|----------|-------|--------|----------|
| No. Mk. | Freq. | Level | Factor | ment | Limit | Over | |
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector |
| 1 | 0.1539 | 38.72 | 10.98 | 49.70 | 65.79 | -16.09 | QP |
| 2 | 0.1539 | 26.65 | 10.98 | 37.63 | 55.79 | -18.16 | AVG |
| 3 | 0.2060 | 34.52 | 10.91 | 45.43 | 63.37 | -17.94 | QP |
| 4 | 0.2060 | 20.36 | 10.91 | 31.27 | 53.37 | -22.10 | AVG |
| 5 * | 0.5140 | 41.85 | 10.90 | 52.75 | 56.00 | -3.25 | QP |
| 6 | 0.5140 | 26.86 | 10.90 | 37.76 | 46.00 | -8.24 | AVG |
| 7 | 0.9500 | 33.11 | 13.07 | 46.18 | 56.00 | -9.82 | QP |
| 8 | 0.9500 | 16.83 | 13.07 | 29.90 | 46.00 | -16.10 | AVG |
| 9 | 1.7780 | 28.61 | 14.91 | 43.52 | 56.00 | -12.48 | QP |
| 10 | 1.7780 | 15.10 | 14.91 | 30.01 | 46.00 | -15.99 | AVG |
| 11 | 13.7300 | 29.45 | 11.67 | 41.12 | 60.00 | -18.88 | QP |
| 12 | 13.7300 | 18.09 | 11.67 | 29.76 | 50.00 | -20.24 | AVG |
| | | | | | | | |

| Test mode: | Mode 3 | Phase: | Ľ |
|---------------|---------------------------------------|------------|--------------|
| Power supply: | Power by AC/DC adapter (AC 240V/60Hz) | Test site: | CE chamber 1 |



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|-----|---------|------------------|-------------------|------------------|-------|--------|----------|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector |
| 1 | | 0.1539 | 39.60 | 10.99 | 50.59 | 65.79 | -15.20 | QP |
| 2 | | 0.1539 | 28.68 | 10.99 | 39.67 | 55.79 | -16.12 | AVG |
| 3 | | 0.5260 | 38.84 | 11.06 | 49.90 | 56.00 | -6.10 | QP |
| 4 | | 0.5260 | 28.45 | 11.06 | 39.51 | 46.00 | -6.49 | AVG |
| 5 | * | 0.6820 | 39.84 | 11.08 | 50.92 | 56.00 | -5.08 | QP |
| 6 | | 0.6820 | 26.29 | 11.08 | 37.37 | 46.00 | -8.63 | AVG |
| 7 | | 1.1539 | 36.67 | 13.59 | 50.26 | 56.00 | -5.74 | QP |
| 8 | | 1.1539 | 22.12 | 13.59 | 35.71 | 46.00 | -10.29 | AVG |
| 9 | | 1.7020 | 35.78 | 14.79 | 50.57 | 56.00 | -5.43 | QP |
| 10 | | 1.7020 | 21.05 | 14.79 | 35.84 | 46.00 | -10.16 | AVG |
| 11 | | 17.4619 | 33.28 | 11.78 | 45.06 | 60.00 | -14.94 | QP |
| 12 | | 17.4619 | 20.94 | 11.78 | 32.72 | 50.00 | -17.28 | AVG |

30.000



-20 0.150

0.500

0.800

| Test mode: | | Mode 3 | | Phas | Phase: | | | | | N | | | | |
|---------------|--------------|---------------------------------------|----------|---------|---------------------------------|-----------------|----------|--------|---------------------|--------------------|--------------|--|---|------|
| Power supply: | | Power by AC/DC adapter (AC 240V/60Hz) | | Test | Test site: | | | | | CE chamber 1 | | | | |
| 80.0 dBu | v | | | | | | ı | | | | | | | ı |
| 70 | | | | | | | | | | | | | | |
| 60 | | | | | | | | FCCF | art15 | Class | B AC Co | nduction(QP) | | |
| 50 | | 7 | | | 9 | | | FCCF | art15 | Class | B AC Co | nduction(AVG) | | |
| 40 40 8 /4 | 1/1/6/M///WW | /\/\\ \/\ \\\ | A MARINE | HUVANIN | Man-Wallingulan | philip phy | JANI JAN | WW/ | r ^{al} VMV | Notably Notably | ulu wybY | 11 | 1. | |
| 30 J | | | MAN | Monday | 10 444~~~ ₄₄ 7*~~ | $\Delta \Delta$ | M | /^\/^\ | M | Mahaha | ulku kalkaka | MARINAL PROPERTY AND | | |
| 20 | 71(1) | VY | Y I | 144 | | L A | W Y | ' | | | W | | . AN IL HOURING THE COLUMN TO | peak |
| 10 | | | | | | | | | | | | | | AVG |
| 0 | | | | | | | | | | | | | | |
| -10 | | | | | | | | | | | | | | |

(MHz)

5.000

| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|---------|---------|------------------|-------------------|------------------|-------|--------|----------|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector |
| 1 | 0.1539 | 32.80 | 10.98 | 43.78 | 65.79 | -22.01 | QP |
| 2 | 0.1539 | 22.34 | 10.98 | 33.32 | 55.79 | -22.47 | AVG |
| 3 | 0.1980 | 32.46 | 10.91 | 43.37 | 63.69 | -20.32 | QP |
| 4 | 0.1980 | 21.41 | 10.91 | 32.32 | 53.69 | -21.37 | AVG |
| 5 | 0.2620 | 30.73 | 10.91 | 41.64 | 61.37 | -19.73 | QP |
| 6 | 0.2620 | 22.68 | 10.91 | 33.59 | 51.37 | -17.78 | AVG |
| 7 * | 0.5140 | 37.04 | 10.90 | 47.94 | 56.00 | -8.06 | QP |
| 8 | 0.5140 | 23.65 | 10.90 | 34.55 | 46.00 | -11.45 | AVG |
| 9 | 1.7700 | 29.81 | 14.89 | 44.70 | 56.00 | -11.30 | QP |
| 10 | 1.7700 | 15.83 | 14.89 | 30.72 | 46.00 | -15.28 | AVG |
| 11 | 17.2780 | 30.51 | 11.77 | 42.28 | 60.00 | -17.72 | QP |
| 12 | 17.2780 | 20.65 | 11.77 | 32.42 | 50.00 | -17.58 | AVG |

5.4 Radiated emissions

5.4.1 Limits

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|--------------------|-----------------------------------|-------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

Note 1: the tighter limit applies at the band edges.

Note 2: the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector

5.4.2 Test setup

According to ANSI C63.10, the tests shall be performed in the frequency range shown in the following table:

Frequency range of measurements for unlicensed wireless device

| Lowest frequency generated in the device | Upper frequency range of measurement |
|--|---|
| 9 kHz to below 10 GHz | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower |
| At or above 10 GHz to below 30 GHz | 5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower |
| At or above 30 GHz | 5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified |

Frequency range of measurements for unlicensed wireless device with digital device

| Highest frequency generated or used in the device or on which the device operates or tunes | Upper frequency range of measurement |
|--|---|
| Below 1.705 MHz | 30 MHz |
| 1.705 MHz to 108 MHz | 1000 MHz |
| 108 MHz to 500 MHz | 2000 MHz |
| 500 MHz to 1000 MHz | 5000 MHz |
| Above 1000 MHz | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |



Test instrument setup

| Frequency | Test receiver / Spectrum analyzer setting |
|------------------|---|
| 9 kHz ~ 150 kHz | Quasi Peak / 200 kHz |
| 150 kHz ~ 30 MHz | Quasi Peak / 9 kHz |
| 30 MHz ~ 1 GHz | Quasi Peak / 120 kHz |

5.4.3 Test Procedures

The EUT is placed on a non-conducting table 80cm above the ground plane for measurement blew 1 GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10-2013.

For measurement blew 1 GHz, the resolution bandwidth is set as item 5.4.2.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned form 1 to 4m meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and horizontal positions.

Special requirements for 9 KHz to 30 MHz:

The lowest height of the magnetic antenna shall be 1 m above the ground

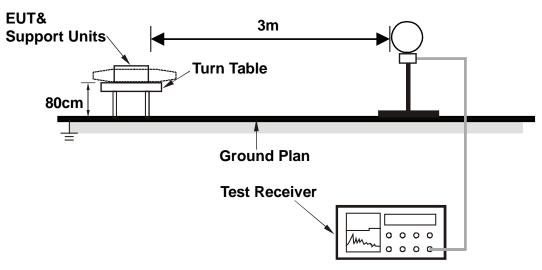
When the EUT contains a loop antenna that can only be placed in a vertical axis, normal measurements shall be made aligning the measurement antenna along the site axis, and then orthogonal to the axis. For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable.

When the EUT contains a loop antenna that can be placed in a horizontal or vertical axis, normal measurements shall be made aligning the measurement antenna along the site axis, orthogonal to the axis, and then with the measurement antenna horizontal. For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable.

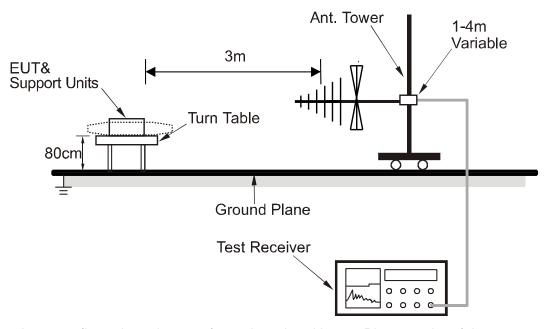


5.4.4 Test Setup

Blew 30 MHz:



Blew 1 GHz:



For the actual test configuration, please refer to the related item – Photographs of the test setup.

5.4.5 Test result

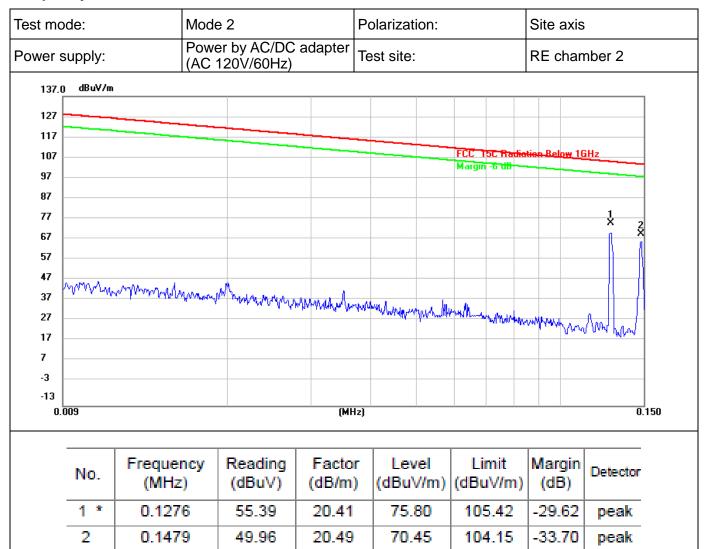
Calculation formula:

Measurement (dB μ V/m) = Reading Level (dB μ V) + Correct Factor (dB/m) Over (dB) = Measurement (dB μ V/m) – Limit (dB μ V/m)

Note: For 9 kHz - 30 MHz testing, all the required orthogonal orientations of the measurement loop antenna were performed for pre-scan, the maximum radiated transmissions (Site axis) were recorded.



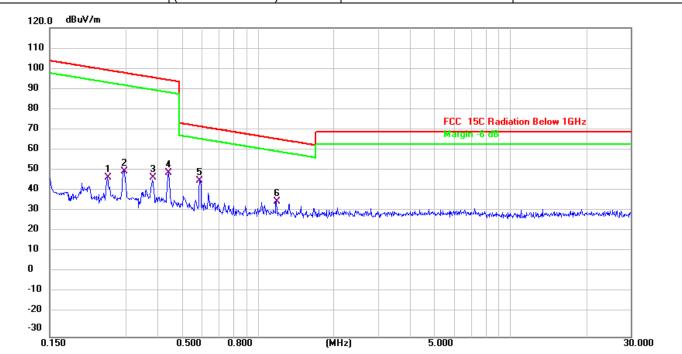
Mobile phone-7.5W@127kHz+5W: Frequency 9 kHz ~ 150 kHz





Frequency 150 kHz ~ 30 MHz

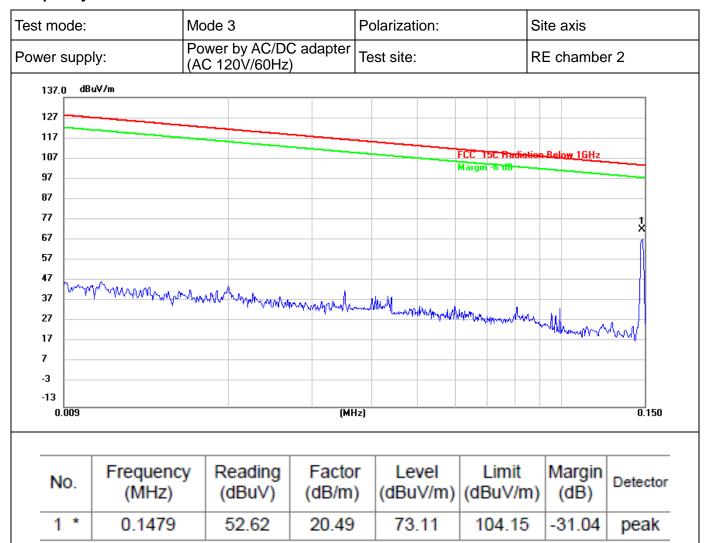
| Test mode: | Mode 2 | Polarization: | Site axis |
|---------------|---------------------------------------|---------------|--------------|
| Power supply: | Power by AC/DC adapter (AC 120V/60Hz) | Test site: | RE chamber 2 |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|--------------------|-------------------|------------------|-------------------|-------------------|----------------|----------|
| 1 | 0.2535 | 26.87 | 20.53 | 47.40 | 99.49 | -52.09 | QP |
| 2 | 0.2953 | 29.98 | 20.54 | 50.52 | 98.17 | -47.65 | QP |
| 3 | 0.3832 | 26.80 | 20.57 | 47.37 | 95.92 | -48.55 | QP |
| 4 | 0.4420 | 29.05 | 20.58 | 49.63 | 94.69 | -45.06 | QP |
| 5 * | 0.5885 | 25.38 | 20.64 | 46.02 | 72.21 | -26.19 | QP |
| 6 | 1.1836 | 15.00 | 20.81 | 35.81 | 66.16 | -30.35 | QP |

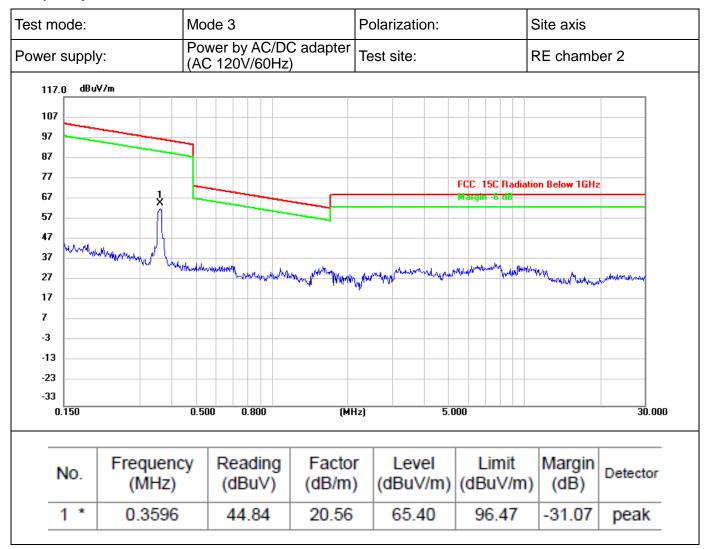


Mobile phone-15W@360kHz+5W: Frequency 9 kHz ~ 150 kHz





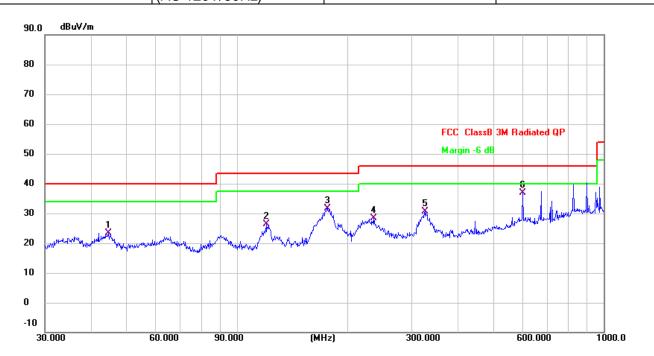
Frequency 150 kHz ~ 30 MHz





Frequency 30 MHz ~ 1 GHz

| Test mode: | | Polarization: | Horizontal |
|---------------|---------------------------------------|---------------|--------------|
| Power supply: | Power by AC/DC adapter (AC 120V/60Hz) | Test site: | RE chamber 2 |

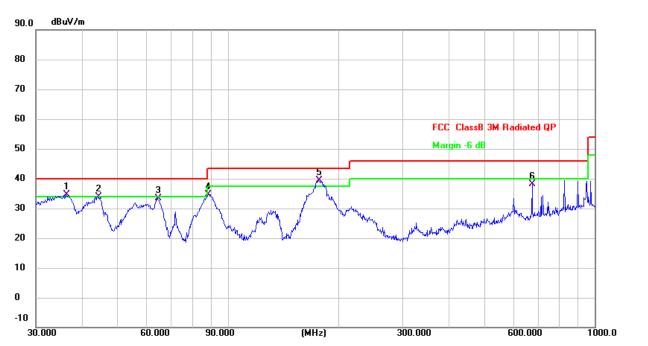


| No. | Mk | . Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|-----|----|----------|------------------|-------------------|------------------|--------|--------|----------|
| | | MHz | dBu∀ | dB | dBu∀/m | dBuV/m | dB | Detector |
| 1 | | 44.7433 | 30.88 | -7.42 | 23.46 | 40.00 | -16.54 | QP |
| 2 | | 120.2766 | 36.61 | -10.25 | 26.36 | 43.50 | -17.14 | QP |
| 3 | | 176.2686 | 40.79 | -9.14 | 31.65 | 43.50 | -11.85 | QP |
| 4 | | 236.6447 | 34.74 | -6.46 | 28.28 | 46.00 | -17.72 | QP |
| 5 | | 325.5958 | 35.19 | -4.51 | 30.68 | 46.00 | -15.32 | QP |
| 6 | * | 601.4265 | 36.69 | 0.14 | 36.83 | 46.00 | -9.17 | QP |
| | | | | | | | | |



Frequency 30 MHz ~ 1 GHz

| Test mode: | | Polarization: | Vertical |
|---------------|---------------------------------------|---------------|--------------|
| Power supply: | Power by AC/DC adapter (AC 120V/60Hz) | Test site: | RE chamber 2 |



| No. Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
|---------|----------|------------------|-------------------|------------------|--------|-------|----------|
| | MHz | dBu∨ | dB | dBu∀/m | dBuV/m | dB | Detector |
| 1 ! | 36.2541 | 42.77 | -8.13 | 34.64 | 40.00 | -5.36 | QP |
| 2 | 44.2752 | 41.31 | -7.50 | 33.81 | 40.00 | -6.19 | QP |
| 3 | 64.4331 | 43.12 | -9.72 | 33.40 | 40.00 | -6.60 | QP |
| 4 | 88.6524 | 43.82 | -9.09 | 34.73 | 43.50 | -8.77 | QP |
| 5 * | 176.8878 | 48.50 | -9.10 | 39.40 | 43.50 | -4.10 | QP |
| 6 6 | 675.2080 | 38.42 | -0.28 | 38.14 | 46.00 | -7.86 | QP |

5.5 Occupied bandwidth test

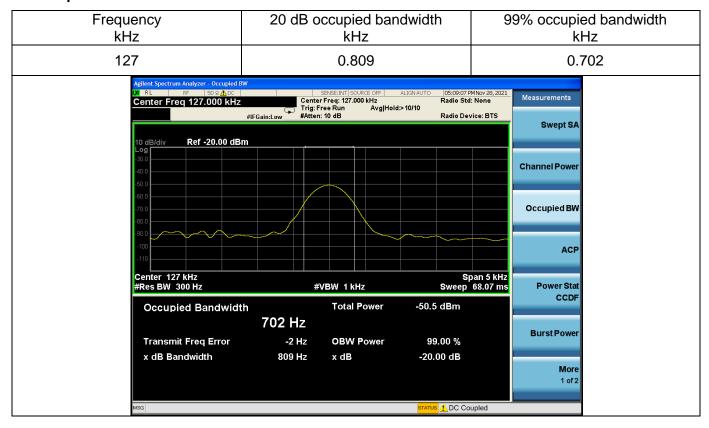
5.5.1 Test Procedures

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation.
- d) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "-xx dB down" requirement
- e) Set detection mode to peak and trace mode to max hold.
- f) Determine the "-xx dB down amplitude" using [(reference value) xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.

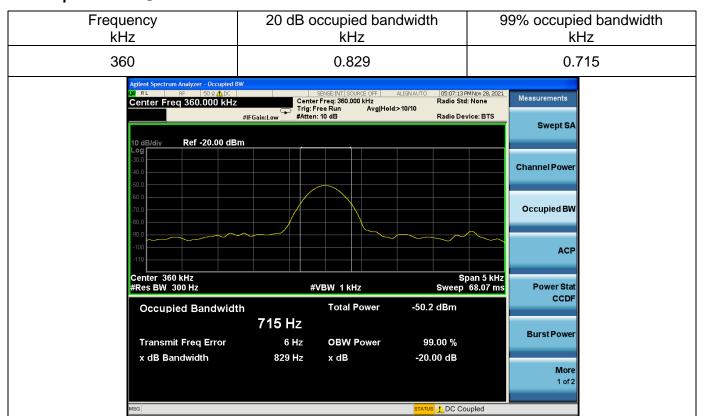
5.5.2 Test Result

Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measurement bandwidth will always follow the RBW. The RBW is set to 300 Hz to perform the occupied bandwidth test.

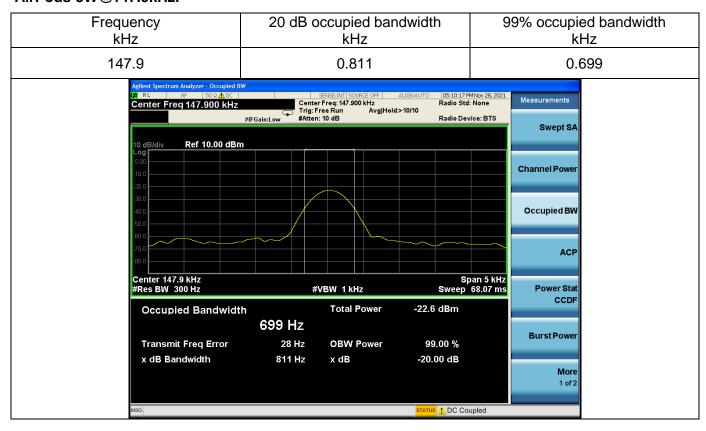
Mobile phone-7.5W@127kHz:



Mobile phone-15W@360kHz:



AirPods-5W@147.9kHz:





6 Photographs of the test setup

See the APPENDIX – Test Setup Photos.



7 Photographs of the EUT

| See the | APPENDIX - | · EUT | Photos. |
|---------|------------|-------|---------|
|---------|------------|-------|---------|

----End of Report----

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