# WPT TEST REPORT

## No.I23Z70243-EMC02

**for**

**Samsung Electronics. Co., Ltd.**

**Wireless Battery Pack**

**MODEL NAME: EB-U2510**

**FCC ID: ZCAEBU2510**

**with**

**Hardware Version: V3**

**Software Version: V02**

**Issued Date: 2023-11-14**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

**Test Laboratory:**

**CTTL-Telecommunication Technology Labs, CAICT**

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# REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|---|---|---|---|
| I23Z70243-EMC02 | Rev.0 | 1st edition | 2023-10-25 |
| I23Z70243-EMC02 | Rev.1 | Changer the product name from" Battery Pack" to "Wireless Battery Pack" | 2023-11-14 |

Note: the latest revision of the test report supersedes all previous version.

# CONTENTS

# 1. Test Laboratory

## 1.1. Introduction & Accreditation

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

## 1.2. Testing Location

**Location 1: CTTL(huayuan North Road)**

| | |
|---|---|
| Address: | No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191 |

## 1.3. Testing Environment

| | |
|---|---|
| Normal Temperature: | 15-35℃ |
| Extreme Temperature: | -10/+55℃ |
| Relative Humidity: | 20-75% |

## 1.4. Project data

| | |
|---|---|
| Testing Start Date: | 2023-08-28 |
| Testing End Date: | 2023-09-01 |

## 1.5. Signature

**Zhang Ying**

**(Prepared this test report)**

**An Hui**

**(Reviewed this test report)**

**Zhang Xia**

**Deputy Director of the laboratory**

**(Approved this test report)**

# 2. Client Information

## 2.1. Applicant Information

| | |
|---|---|
| Company Name: | SAMSUNG Electronics Co., Ltd. |
| Address: | 19 Chapin Rd.,Building D Pine Brook, NJ 07058 |
| Contact: | Jenni Chun |
| E-mail: | j1.chun@samsung.com |
| Telephone: | +1-201-937-4203 |

## 2.2. Manufacturer Information

| | |
|---|---|
| Company Name: | Samsung Electronics Co., Ltd. |
| Address: | Samsung R5, Maetan dong 129, Samsung ro Youngtong gu, Suwon city 443 742, Korea |
| Contact: | Sunghoon Cho |
| E-mail: | ggobi.cho@samsung.com |
| Telephone: | +82-10-2722-4159 |

# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

## 3.1. About EUT

| | |
|---|---|
| Description | Wireless Battery Pack |
| Model name | EB-P4520 |
| FCC ID | ZCAEBU2510 |
| WPT traffic frequency | 112kHz-145kHz |

Note: Photographs of EUT are shown in ANNEX A of this test report.

## 3.2. Internal Identification of EUT

| EUT ID* | SN or IMEI | HW Version | SW Version | Date of receipt |
|---|---|---|---|---|
| UT01a | SSW912000030 | V3 | V02 | 2023-09-26 |

*EUT ID: is used to identify the test sample in the lab internally.

## 3.3. Internal Identification of AE

| AE ID* | Description | Model | Manufacturer | Note |
|---|---|---|---|---|
| AE1-1 | adapter | EP-TA200(EWE) | --- | 25W |
| AE1-2 | adapter | EP-TA200(EWE) | --- | 25W |
| AE2-1 | Mobile phone | --- | --- | --- |
| AE2-2 | Mobile phone | --- | --- | --- |
| AE2-3 | Mobile phone | --- | --- | --- |
| AE3 | Bluetooth headset case | --- | --- | --- |
| AE4 | Bluetooth watch | --- | --- | --- |
| AE5 | USB Cable | SHQ-A175A | Saibao(Jiangxi) Communication Industrial Co.,Ltd | --- |

*AE ID: is used to identify the test sample in the lab internally.

## 3.4. EUT set-ups

| Model No. | Combination of AE | | |
|---|---|---|---|
| | Type C port 1(near the power button) | Type C port 2 | Wireless |
| Model 1 | charger | charger | / |
| Model 2 | charger | Mobile phone | Mobile phone |
| Model 3 | charger | Mobile phone | Bluetooth headset case |
| Model 4 | charger | Mobile phone | Bluetooth watch |
| Model 5 | Mobile phone | charger | Mobile phone |
| Model 6 | Mobile phone | charger | Bluetooth headset case |
| Model 7 | Mobile phone | charger | Bluetooth watch |
| Model 8 | Mobile phone | Mobile phone | Mobile phone |
| Model 9 | Mobile phone | Mobile phone | Bluetooth headset case |

| | | | |
|---|---|---|---|
| Model 10 | Mobile phone | Mobile phone | Bluetooth watch |

| EUT set-up No. | Combination of EUT and AE | Remarks |
|---|---|---|
| Set.1 | UT01a + AE1-1 + AE1-2 + AE5 | Model 1, EUT+ adapters, charging |
| Set.2 | UT01a + AE1-1 + AE2-1 + AE2-2 + AE5 | Model 2/5, EUT+ adapter + mobile phones, charging + discharging |
| Set.3 | UT01a + AE1-1 + AE2-1 + AE3+ AE5 | Model 3/6, EUT+ adapter + mobile phone+ Bluetooth headset case, charging + discharging |
| Set.4 | UT01a + AE1-1 + AE2-1 + AE4+ AE5 | Model 4/7, EUT+ adapter + mobile phone+ Bluetooth watch, charging + discharging |
| Set.5 | UT01a + AE2-1 + AE2-2 + AE2-3+ AE5 | Model 8, EUT+ mobile phones, discharging |
| Set.6 | UT01a + AE2-1 + AE2-2 + AE3+ AE5 | Model 9, EUT+ mobile phones+ Bluetooth headset case, discharging |
| Set.7 | UT01a + AE2-1 + AE2-2 + AE4+ AE5 | Model 10, EUT+ mobile phones+ Bluetooth watch, discharging |

# 4. Reference Documents

## 4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

EUT parameters are supplied by the customer, which are the bases of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

## 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|---|---|---|
| ANSI C63.10 | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices | 2013 |
| 47 CFR Part15 | Wireless Power Transfer Devices | 2023 |

For devices authorized under Part 18 such load modulation may not be used to communicate any other information, such as prioritization of devices for charging and the transfer of any other data, for example extended system data, images or music. For such designs, both Part 15 and Part 18 requirements must be satisfied for equipment approval. Similarly, devices that use a secondary frequency for load management, control and data functions must be authorized according to both Part 15 and Part 18 requirements, as appropriate.

# 5. Test Results

## 5.1. Abbreviations

| Abbreviations used in this clause: | | |
|---|---|---|
| Verdict Column | P | Pass |
| | F | Fail |
| | BR | Re-use test data from basic model report. |
| | NA | Not applicable |
| | NM | Not measured |

## 5.2. Summary of Measurement Results of Emissions

See **ANNEX C** for detail.

| TEST ITEMS | Sub-clause | VERDICT | Test Location |
|---|---|---|---|
| Occupied Bandwidth | 2.1049 | N/A | CTTL(huayuan North Road) |
| Radiated emission | 15.205 | P | CTTL(huayuan North Road) |
| Conducted emission | 15.207 | P | CTTL(huayuan North Road) |

**Test Conditions:**

For this report, all the test cases listed above were tested under normal Temperature, Voltage, humidity and Air Pressure except the Frequency Tolerance test case.

## 6. Test Facilities Utilized

| NO. | NAME | TYPE | SERIES NUMBER | PRODUCER | CAL. DUE DATE | CAL. INTERVAL |
|---|---|---|---|---|---|---|
| 1. | Loop Antenna | HFH2-Z2 | 829324/007 | R&S | 2024-12-23 | 1 Year |
| 2. | Test Receiver | ESW 44 | 103144 | R&S | 2023-10-25 | 1 Year |
| 3. | EMI Antenna | VULB9163 | 482 | Schwarzbeck | 2024-01-03 | 1 Year |
| 4. | Test Receiver | ESCI 3 | 100344 | R&S | 2024-02-20 | 1 year |
| 5. | LISN | ENV216 | 101200 | R&S | 2024-06-04 | 1 year |

| Test Item | Test Software | Software Vendor |
|---|---|---|
| Radiated Emission | EMC32 V11.50.00 | R&S |
| Conducted Emission | EMC32 V8.53.0 | R&S |

# 7. Measurement Uncertainty

**Location 1: CTTL(huayuan North Road)**

| Test item | Frequency ranges | Measurement uncertainty(*k*=2) |
|---|---|---|
| Radiated Emission | 9kHz-30MHz | 4.92dB(*k*=2) |
| | 30MHz-1GHz | 4.72dB(*k*=2) |
| Conducted Emission | 150kHz-30MHz | 3.08dB(*k*=2) |

# ANNEX A: EUT parameters

Disclaimer: The antenna gain (for example, antenna gain and loss of customer supplied cable) provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results.

# ANNEX B: Detailed Test Results

## B.1 Measurement Methods

### B.1.1. Radiated Measurement Methods

#### B.1.1.1. Reference ANSI C63.10-2013

**Test Condition**

Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.

When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

**Test Setup**

Tabletop devices shall be placed on a non-conducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane.

At frequencies below 30 MHz, the measurement antenna shall be positioned with its plane perpendicular to the ground at the specified distance. When perpendicular to the ground plane, the lowest height of the magnetic antenna shall be 1 m above the ground and shall be positioned at the specified distance from the EUT. 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.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

At frequencies at or above 30 MHz, the measurements shall be made with the antenna positioned in both horizontal and vertical of polarizations. The measurement antenna shall be varied in height above the reference ground plane to obtain the maximum signal strength. The measurement antenna height shall be varied from 1 m to 4 m. These height scans apply for both horizontal and vertical polarizations, except that for vertical polarization, the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the lowest antenna element clears the site reference ground plane by at least 25 cm.

**Exploratory radiated emissions measurements**

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the

EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.
For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

**Final radiated emissions measurements**

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.
For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.
This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.
The any unwanted emissions level shall not exceed the fundamental emission level.

**The receiver references:**

| Frequency of emission (MHz) | RBW/VBW | Sweep Time(s) |
|---|---|---|
| 30-1000 | 100KHz/300KHz | 5 |
| 1000-4000 | 1MHz/3MHz | 15 |
| 4000-18000 | 1MHz/3MHz | 40 |
| 18000-26500 | 1MHz/3MHz | 20 |

### B.1.2 Conducted Measurement Methods

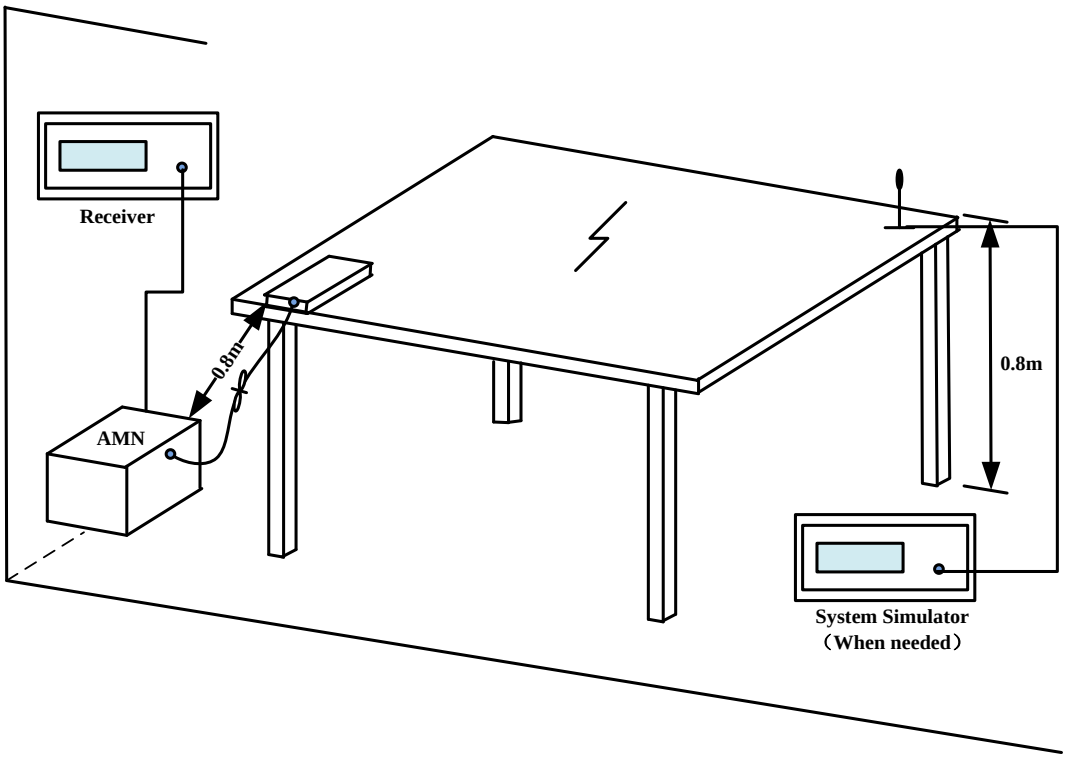
**Test Condition:**

| Voltage（V） | Frequency（Hz） |
|---|---|
| 120 | 60 |

**Setup**

A stand-alone EUT shall be placed in the center along the back edge of the tabletop. For multiunit tabletop systems, the EUT shall be centered laterally (left to right facing the tabletop) on the tabletop and its rear shall be flush with the rear of the table.

Accessories that are part of an EUT system tested on a tabletop shall be placed in a test arrangement on one or both sides of the host with a 10 cm separation between the nearest points of the cabinets. The rear of the host and accessories shall be flush with the back of the supporting tabletop unless that would not be typical of normal use. If more than two accessories are present, then an equipment test arrangement shall be chosen that maintains 10 cm spacing between cabinets unless the equipment is normally located closer together.




**Exploratory ac power-line conducted emission measurements**

Exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation shall be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each

current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and arrangement and mode of operation that produces the emission closest to the limit over all of the measured conductors shall be recorded.

**Final ac power-line conducted emission measurements**

Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT is composed of equipment units that have their own separate ac power connections (e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network), then each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be measured separately. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

## B.2. Test Result

### B.2.1 Occupied Bandwidth

**Reference**

See Clause 6.4, 6.5 of ANSI C63.10-2013 generally.

See 47 CFR Part 2: 2.1049

**Measurement Result:**

| Set up | Mode | Graph Result |
|---|---|---|
| Set.2 | Model 5, EUT+ adapter + mobile phones, charging + discharging | See Fig. 1 |
| Set.3 | Model 6, EUT+ adapter + mobile phone+ Bluetooth headset case, charging + discharging | See Fig. 2 |
| Set.4 | Model 7, EUT+ adapter + mobile phone+ Bluetooth watch, charging + discharging | See Fig. 3 |
| Set.5 | Model 8, EUT+ mobile phones, discharging | See Fig. 4 |
| Set.6 | Model 9, EUT+ mobile phones+ Bluetooth headset case, discharging | See Fig. 5 |
| Set.7 | Model 10, EUT+ mobile phones+ Bluetooth watch, discharging | See Fig. 6 |

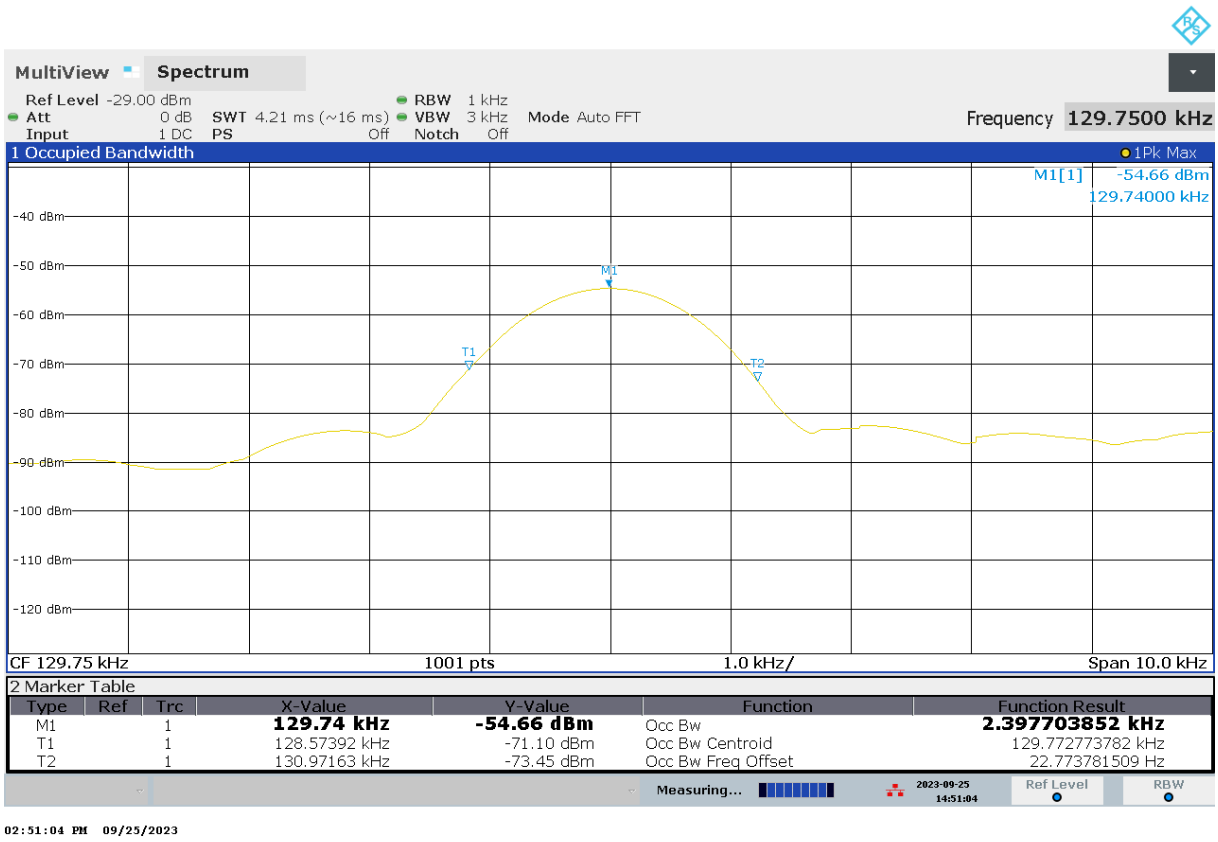



**Fig. 1 Occupied Bandwidth（Set.2, Model 5）**

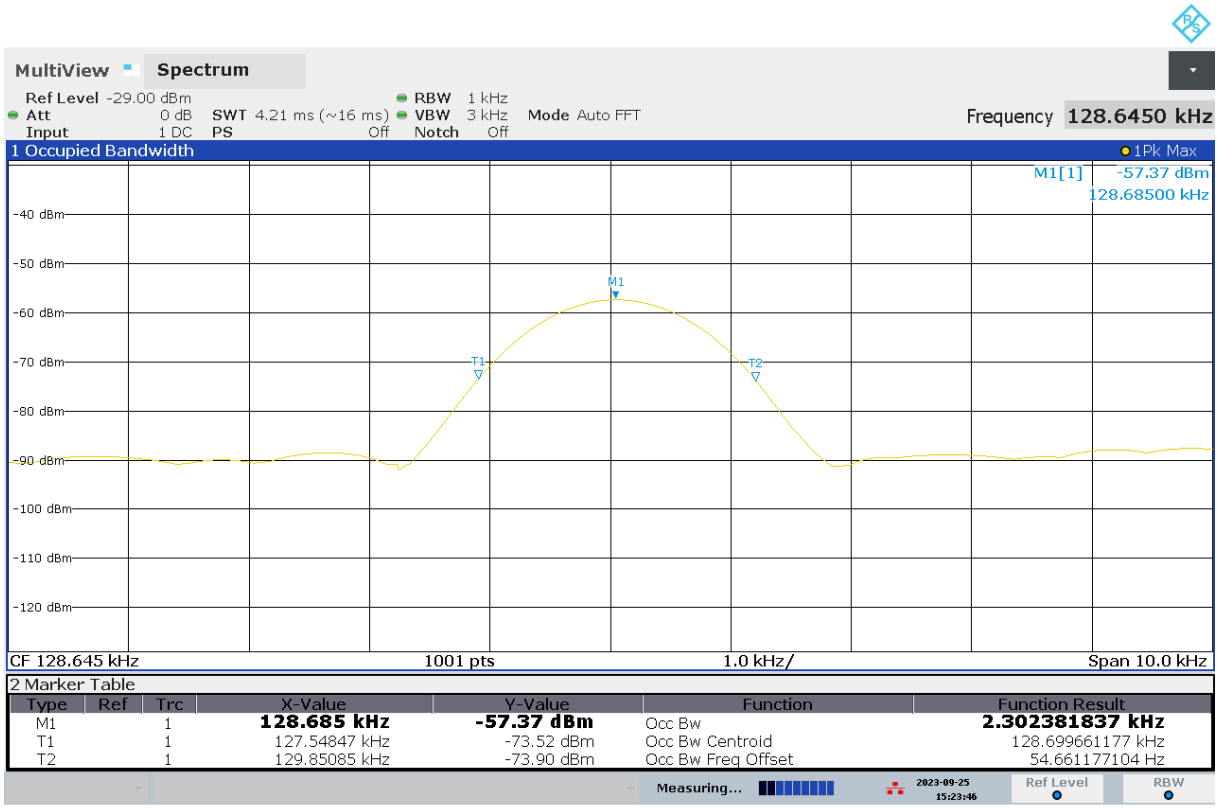



**Fig. 2 Occupied Bandwidth（Set.3, Model 6）**

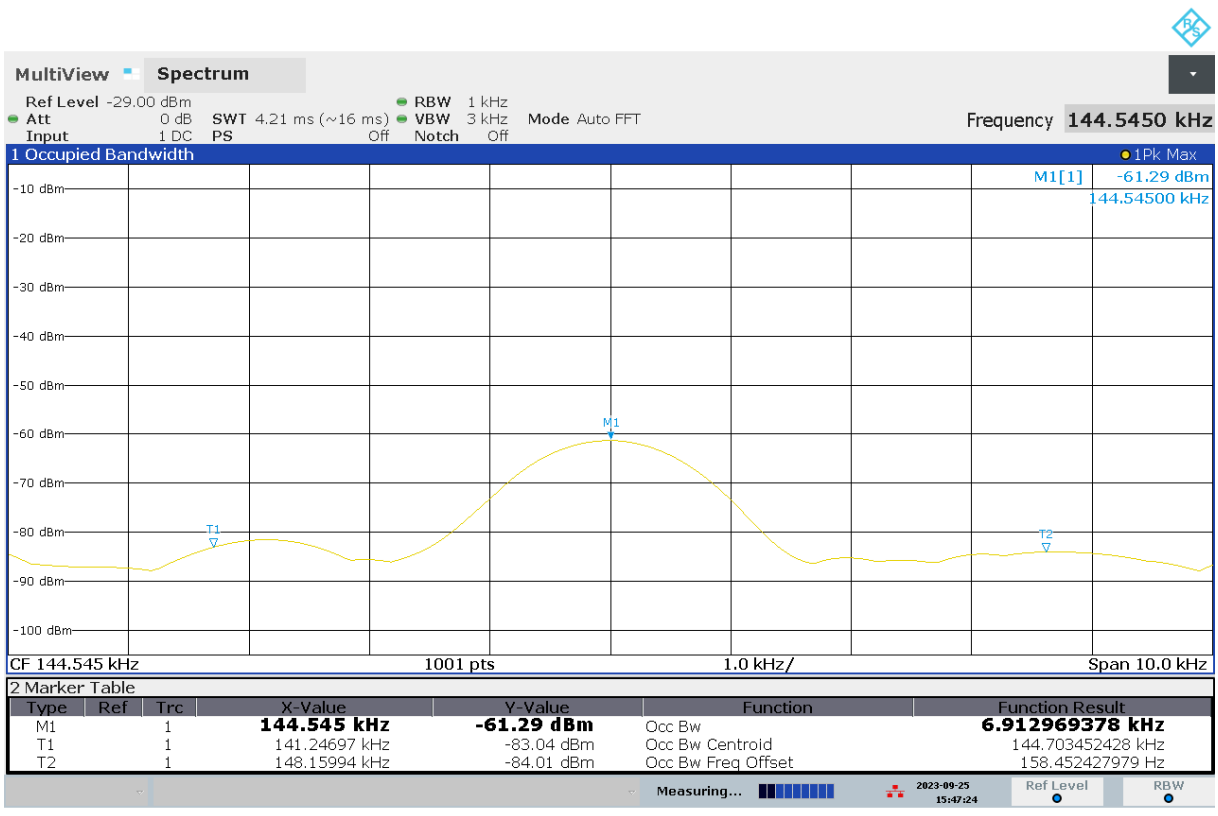



**Fig. 3 Occupied Bandwidth（Set.4, Model 7）**

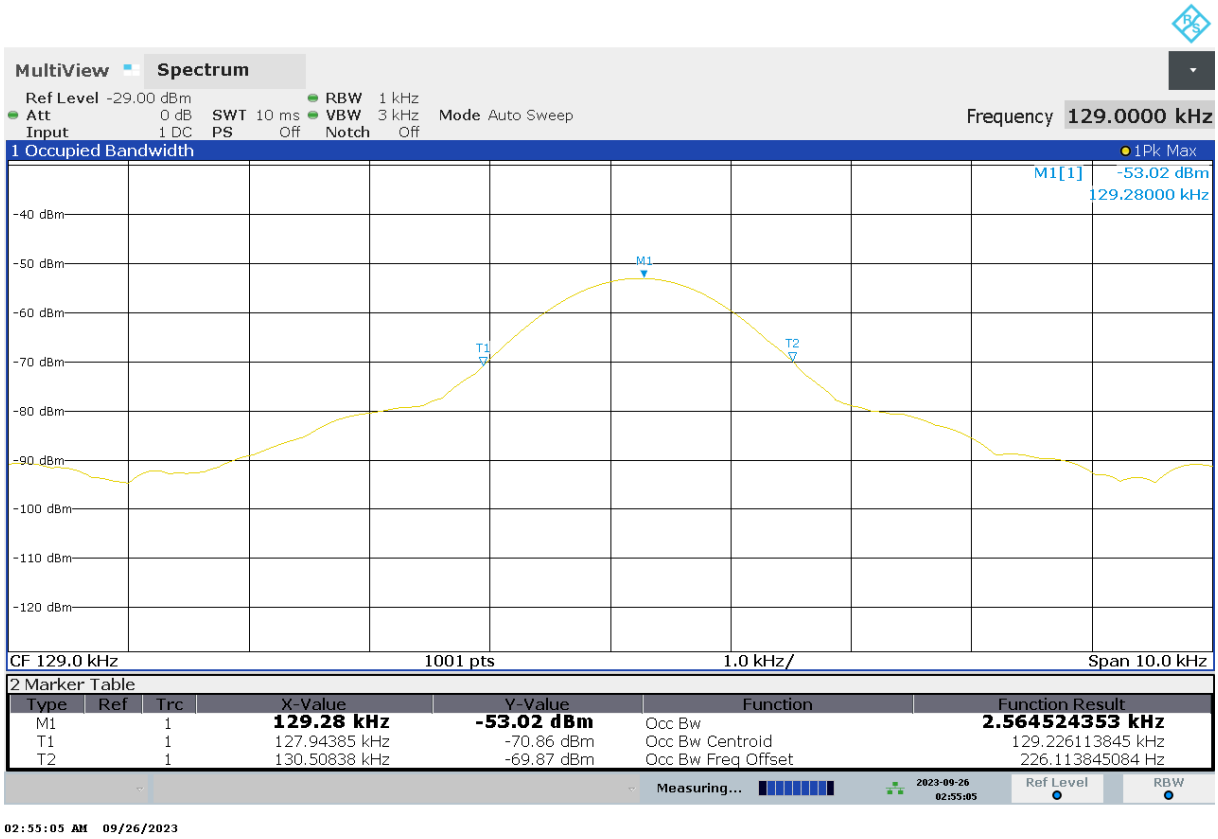



**Fig. 4 Occupied Bandwidth（Set.5, Model 8）**

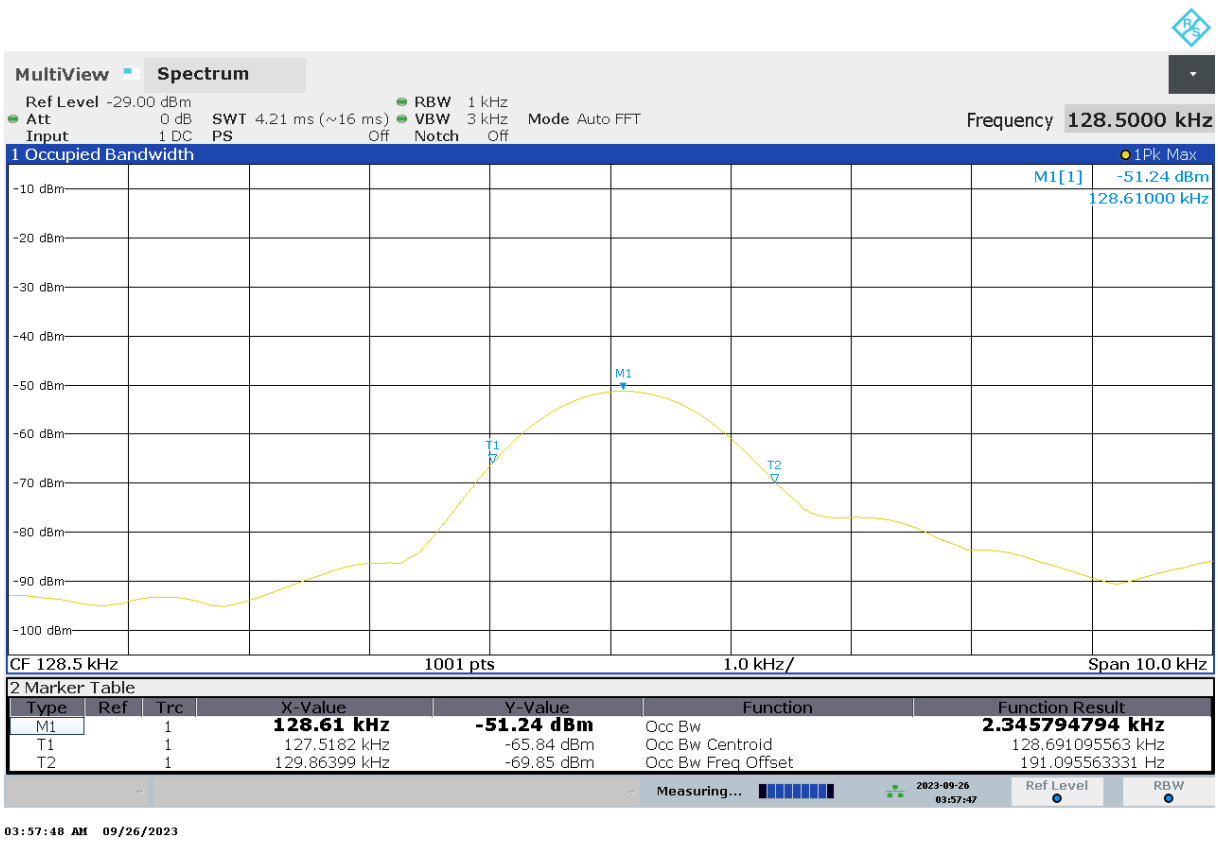



**Fig. 5 Occupied Bandwidth（Set.6, Model 9）**

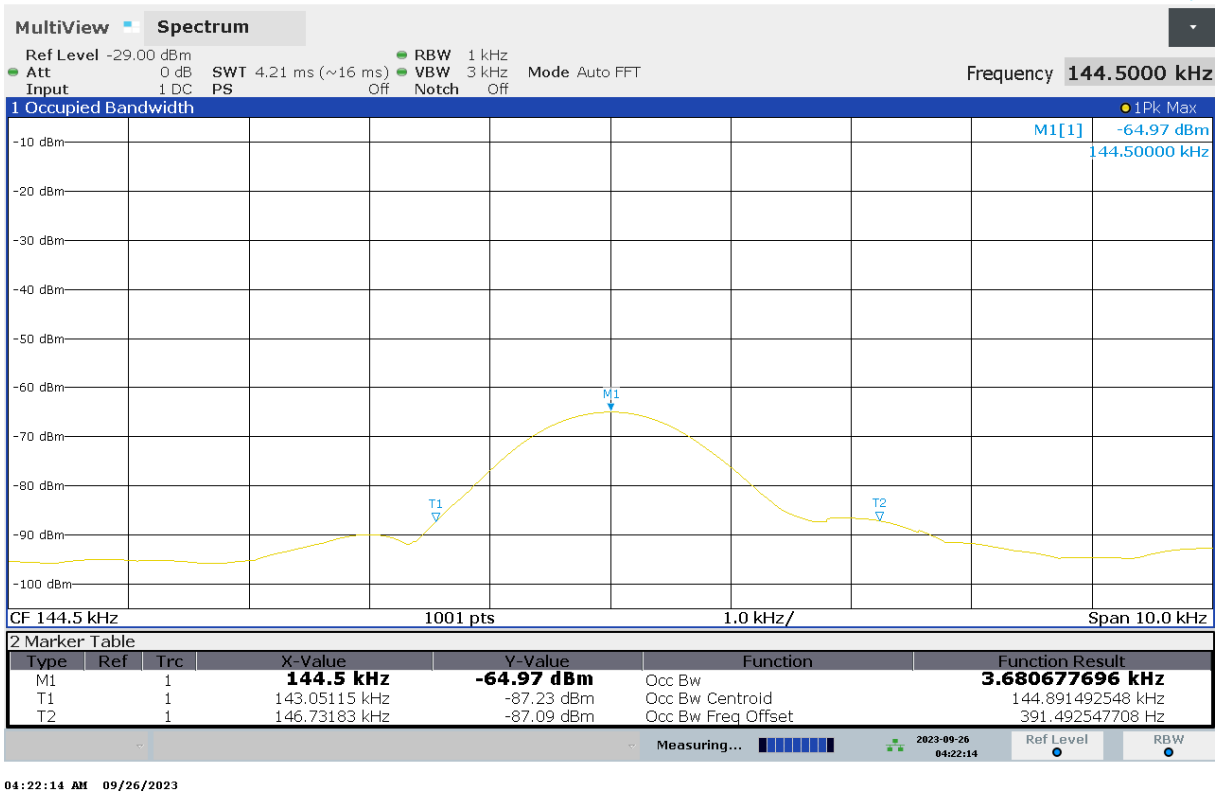



**Fig. 6 Occupied Bandwidth（Set.7, Model 10）**

**B.2.2 Radiated Emission**

**Reference**

See Clause 6.4, 6.5 of ANSI C63.10-2013 generally.

See 47 CFR Part15: 15.205, 15.209

**Limit:**

| Frequency (MHz) | Field strength(μV/m) | Measurement distance (m) | E-field Strength Limit @ 3m (dBμV/m) |
|---|---|---|---|
| 0.009 - 0.490 | 2400/F(kHz) | 300 | 129-94 |
| 0.490 - 1.705 | 24000/F(kHz) | 30 | 74-63 |
| 1.705 – 30.0 | 30 | 30 | 70 |

| Frequency of emission (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | E-field Strength Limit @ 10m (dBμV/m) |
|---|---|---|---|
| 30–88 | 100 | 3 | 30 |
| 88–216 | 150 | 3 | 33.5 |
| 216–960 | 200 | 3 | 36 |
| Above 960 | 500 | 3 | 44 |

**Measurement Result:**

| Set up | Frequency range | Mode | Conclusion | Graph Result |
|---|---|---|---|---|
| Set.2 | 0.009 - 30.0 MHz | Model 5, EUT+ adapter + mobile phones, charging + discharging | P | See Fig. 7 |
| Set.3 | 0.009 - 30.0 MHz | Model 6, EUT+ adapter + mobile phone+ Bluetooth headset case, charging + discharging | P | See Fig. 8 |
| Set.4 | 0.009 - 30.0 MHz | Model 7, EUT+ adapter + mobile phone+ Bluetooth watch, charging + discharging | P | See Fig. 9 |
| Set.5 | 0.009 - 30.0 MHz | Model 8, EUT+ mobile phones, discharging | P | See Fig. 10 |
| Set.6 | 0.009 - 30.0 MHz | Model 9, EUT+ mobile phones+ Bluetooth headset case, discharging | P | See Fig. 11 |
| Set.7 | 0.009 - 30.0 MHz | Model 10, EUT+ mobile phones+ Bluetooth watch, discharging | P | See Fig. 12 |

| Set up | Frequency range | Mode | Conclusion | Graph Result |
|---|---|---|---|---|
| Set.4 | 30.0 MHz-1GHz | Model 7, EUT+ adapter + mobile phone+ Bluetooth watch, charging + discharging | P | See Fig. 13 |

*For the test results, only the worst cases were shown in test report.

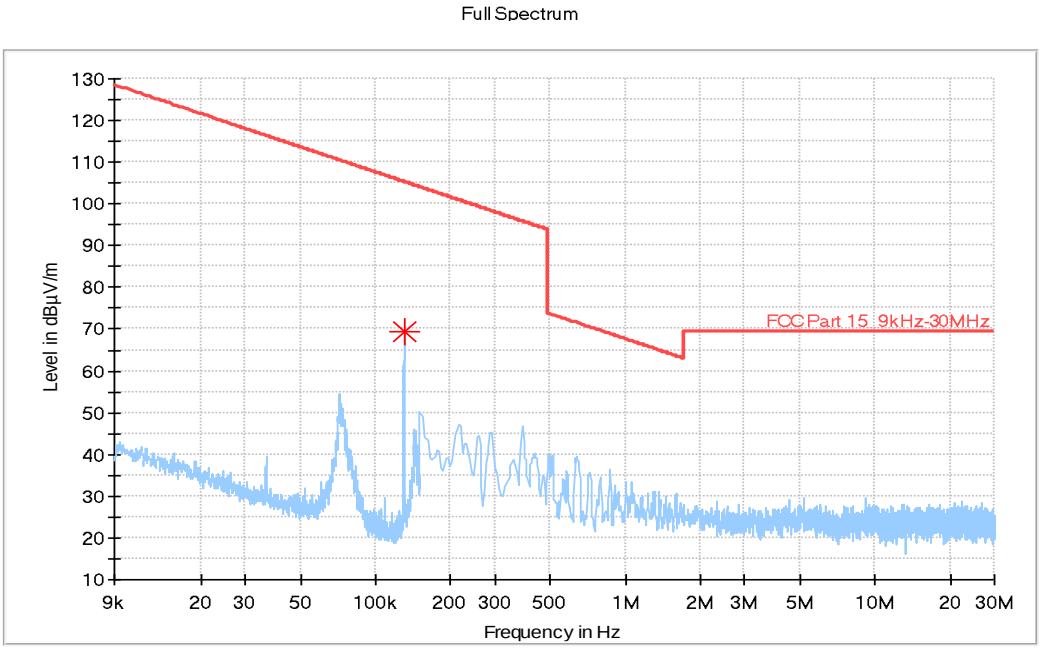



**Fig. 7 Radiated Emission（Set.2, Model 5, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.129767 | 69.33 | 105.33 | 36.00 | V | 90.0 | 18.0 |

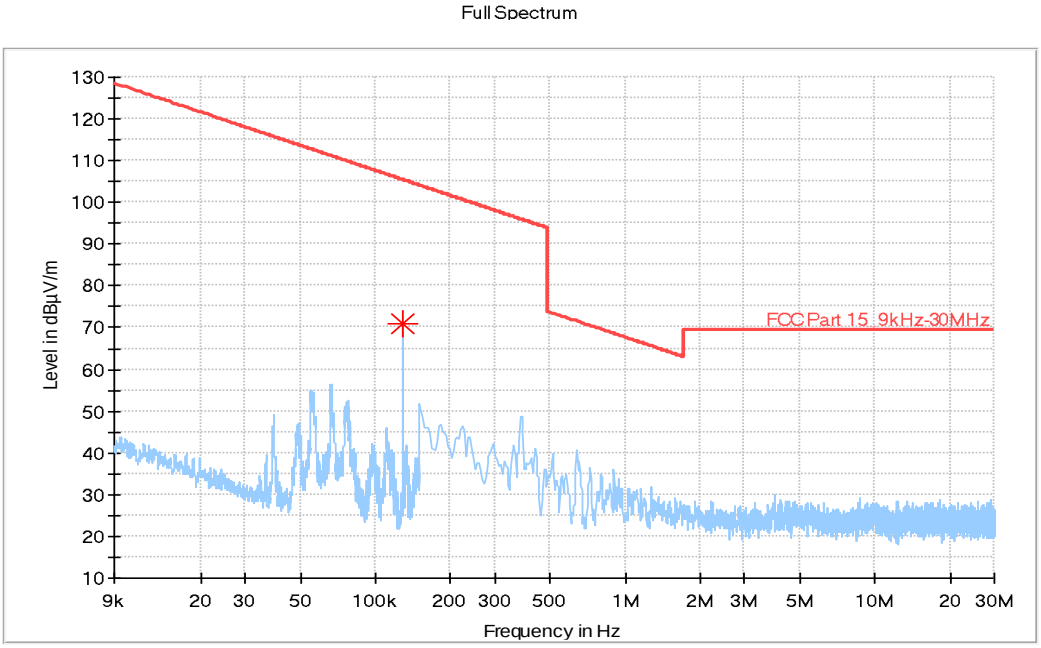



**Fig. 8 Radiated Emission（Set.3, Model 6, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.128653 | 70.82 | 105.41 | 34.59 | V | 180.0 | 18.0 |

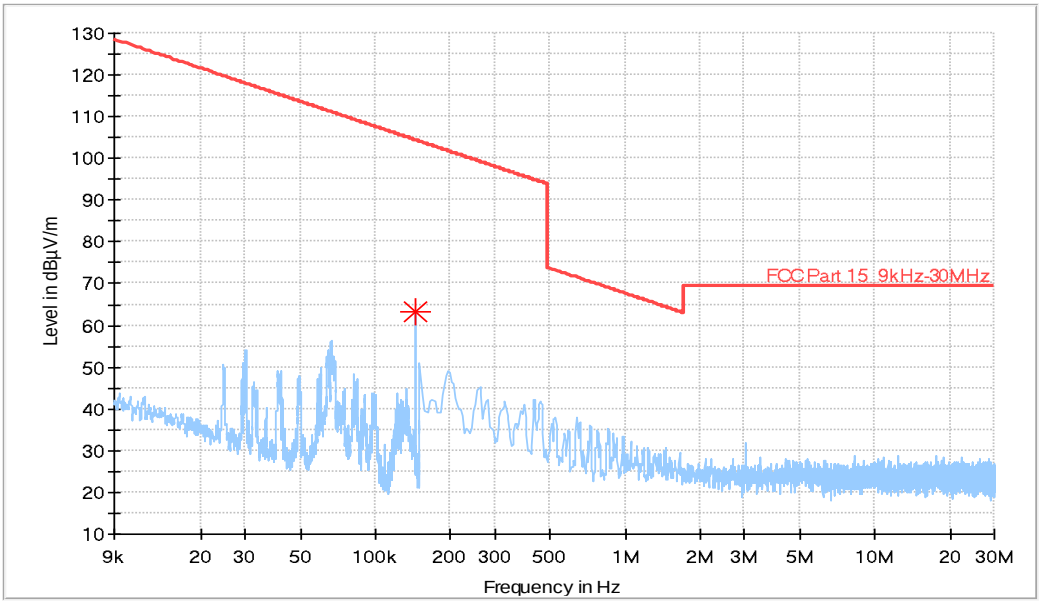



**Fig. 9 Radiated Emission（Set.4, Model 7, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.144543 | 63.42 | 104.40 | 40.98 | V | 270.0 | 18.0 |

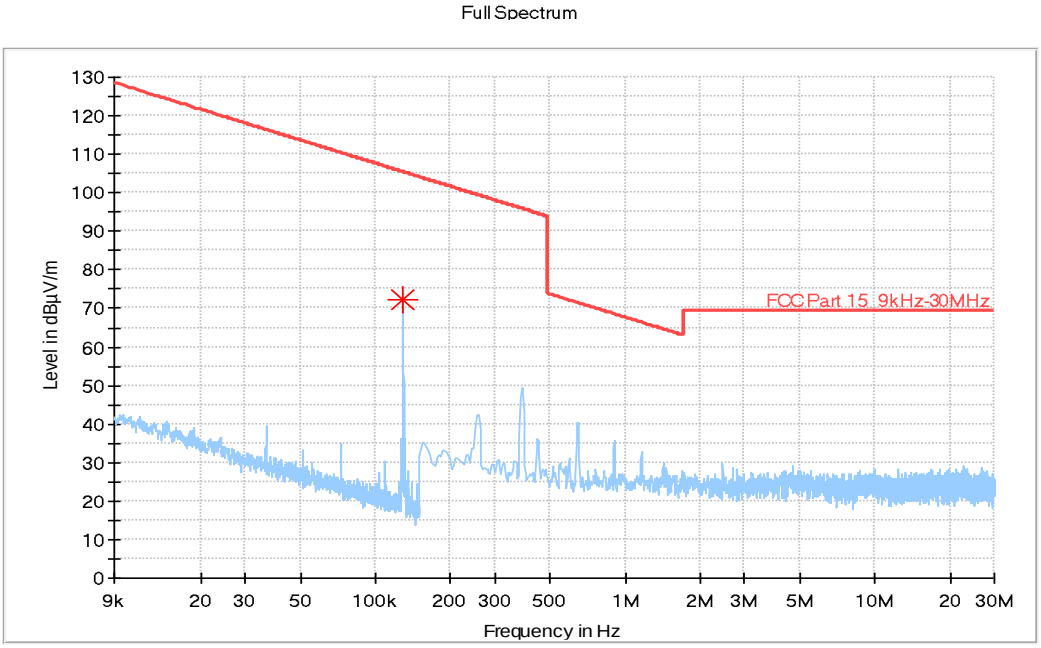



**Fig. 10 Radiated Emission（Set.5, Model 8, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.129470 | 72.27 | 105.35 | 33.08 | V | 90.0 | 18.0 |

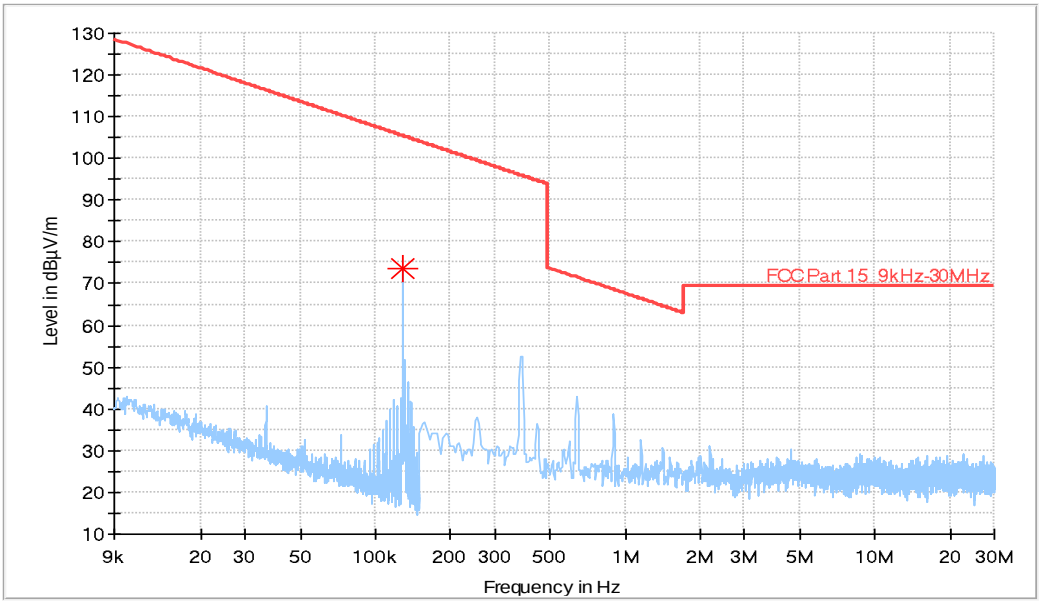



**Fig. 11 Radiated Emission（Set.6, Model 9, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.128624 | 73.64 | 105.41 | 31.77 | V | 0.0 | 18.0 |

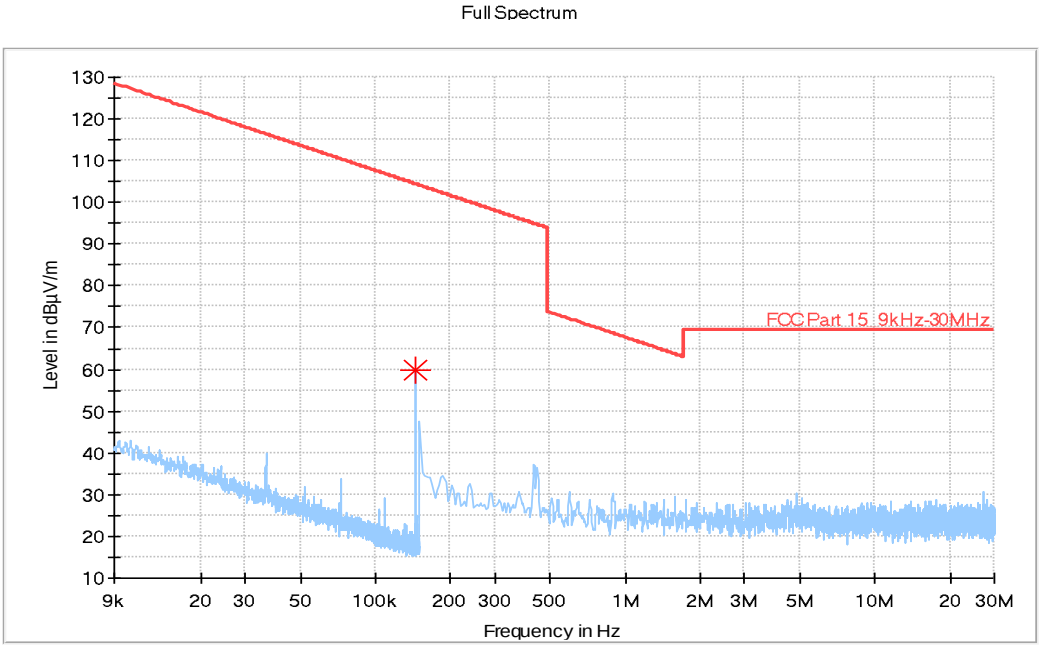



**Fig. 12 Radiated Emission（Set.7, Model 10, 9kHz-30MHz）**

**Critical_Freqs**

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m | Margin (dB) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|
| 0.144473 | 59.75 | 104.40 | 44.65 | V | 270.0 | 18.0 |

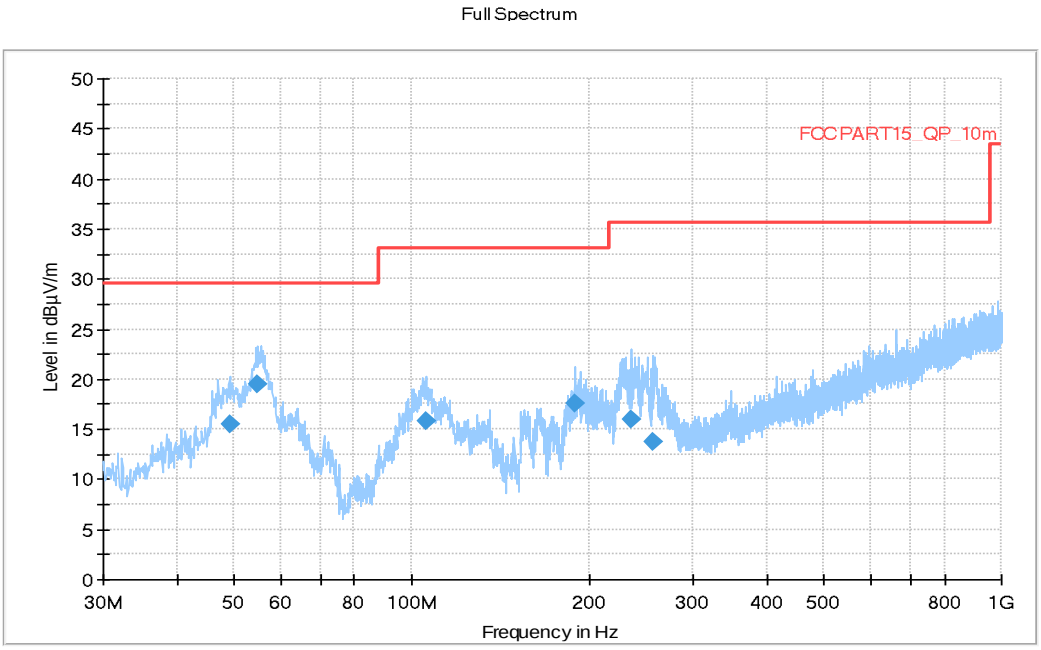



**Fig. 13 Radiated Emission（Set.4, Model 7, 30MHz-1GHz）**

## Final_Result

| Frequency | QuasiPeak | Limit | Margin | Bandwidth | Height | Pol | Azimuth | Corr. |
|---|---|---|---|---|---|---|---|---|
| 49.206000 | 15.47 | 29.54 | 14.07 | 120.000 | 325.0 | V | 9.0 | -10.8 |
| 54.929000 | 19.45 | 29.54 | 10.09 | 120.000 | 100.0 | V | 293.0 | -11.0 |
| 106.048000 | 15.82 | 33.06 | 17.24 | 120.000 | 100.0 | V | 291.0 | -12.3 |
| 189.371000 | 17.57 | 33.06 | 15.49 | 120.000 | 283.0 | H | 189.0 | -12.6 |
| 235.931000 | 15.96 | 35.56 | 19.60 | 120.000 | 125.0 | V | 253.0 | -10.4 |
| 256.689000 | 13.81 | 35.56 | 21.75 | 120.000 | 125.0 | V | 253.0 | -9.6 |

**B.2.3 AC Conducted emission**

**Reference**

See Clause 6.4, 6.5 of ANSI C63.10-2013 generally.

See 47 CFR Part15: 15.207

**Limit:**

| Frequency range (MHz) | Limits (dBuV/m) | |
|---|---|---|
| | Quasi Peak | Average |
| 0,15 to 0,5 | 66 to 56 | 56 to 46 |
| 0,5 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| The limit level in dBµV decreases linearly with the logarithm of frequency. | | |

**Measurement Result:**

| Set up | Mode | Conclusion | Graph Result |
|---|---|---|---|
| Set.2 | Model 5, EUT+ adapter + mobile phones, charging + discharging | P | See Fig. 14 |
| Set.3 | Model 6, EUT+ adapter + mobile phone+ Bluetooth headset case, charging + discharging | P | See Fig. 15 |
| Set.4 | Model 7, EUT+ adapter + mobile phone+ Bluetooth watch, charging + discharging | P | See Fig. 16 |

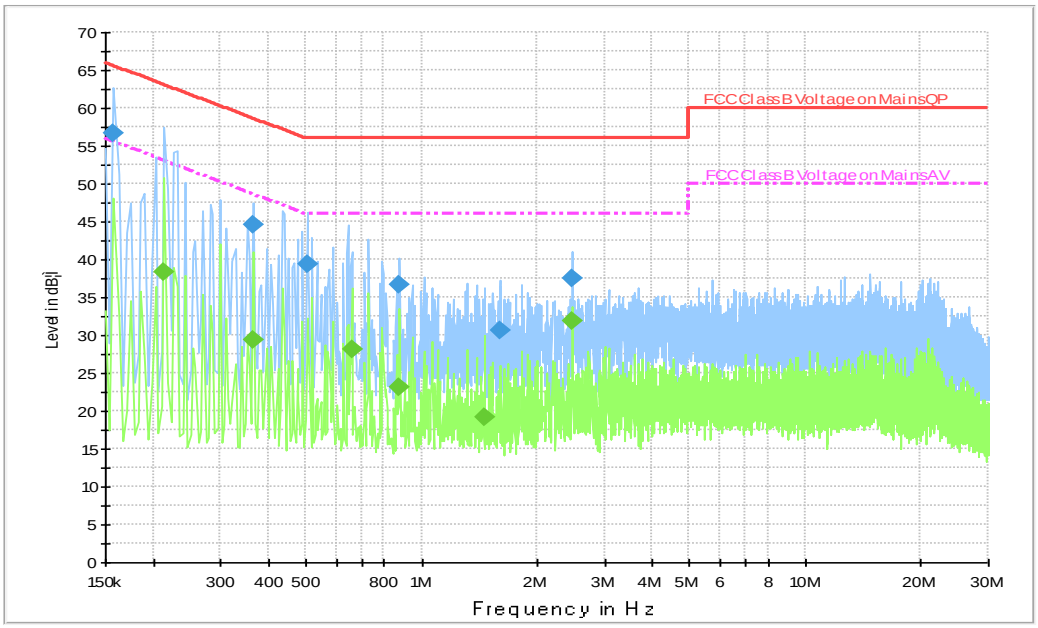



**Fig. 14 AC Conducted emission（Set.2, Model 5）**

**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.158000 | 56.6 | N | 19.7 | 9.0 | 65.6 |
| 0.366000 | 44.5 | L1 | 19.7 | 14.1 | 58.6 |
| 0.502000 | 39.3 | L1 | 19.7 | 16.7 | 56.0 |
| 0.878000 | 36.7 | N | 19.6 | 19.3 | 56.0 |
| 1.594000 | 30.7 | L1 | 19.6 | 25.3 | 56.0 |
| 2.470000 | 37.4 | N | 19.6 | 18.6 | 56.0 |

**Final Result 2**

| Frequency (MHz) | CAverage (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.214000 | 38.4 | N | 19.7 | 14.7 | 53.0 |
| 0.366000 | 29.5 | L1 | 19.7 | 19.1 | 48.6 |
| 0.658000 | 28.1 | N | 19.6 | 17.9 | 46.0 |
| 0.878000 | 23.0 | N | 19.6 | 23.0 | 46.0 |
| 1.458000 | 19.2 | L1 | 19.7 | 26.8 | 46.0 |
| 2.470000 | 31.9 | N | 19.6 | 14.1 | 46.0 |

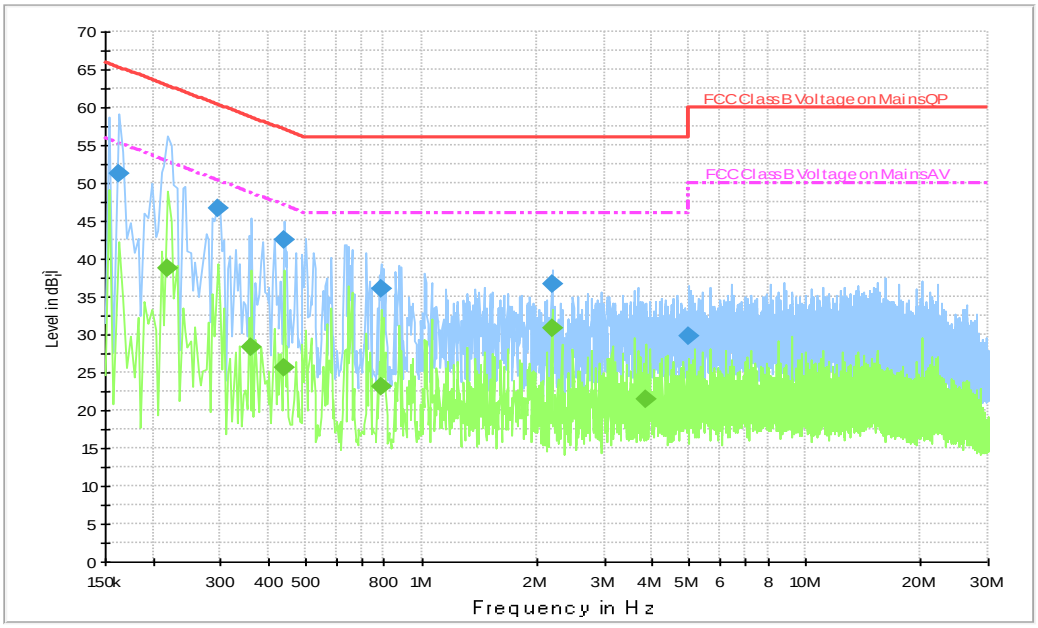



**Fig. 15 AC Conducted emission（Set.3, Model 6）**

**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.162000 | 51.2 | N | 19.7 | 14.1 | 65.4 |
| 0.294000 | 46.7 | L1 | 19.7 | 13.7 | 60.4 |
| 0.438000 | 42.6 | N | 19.7 | 14.5 | 57.1 |
| 0.786000 | 36.1 | L1 | 19.7 | 19.9 | 56.0 |
| 2.190000 | 36.6 | L1 | 19.6 | 19.4 | 56.0 |
| 4.950000 | 29.8 | N | 19.6 | 26.2 | 56.0 |

**Final Result 2**

| Frequency (MHz) | CAverage (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.218000 | 38.7 | N | 19.7 | 14.2 | 52.9 |
| 0.362000 | 28.4 | L1 | 19.7 | 20.3 | 48.7 |
| 0.438000 | 25.7 | N | 19.7 | 21.4 | 47.1 |
| 0.786000 | 23.1 | L1 | 19.7 | 22.9 | 46.0 |
| 2.186000 | 30.9 | N | 19.6 | 15.1 | 46.0 |
| 3.858000 | 21.4 | L1 | 19.6 | 24.6 | 46.0 |

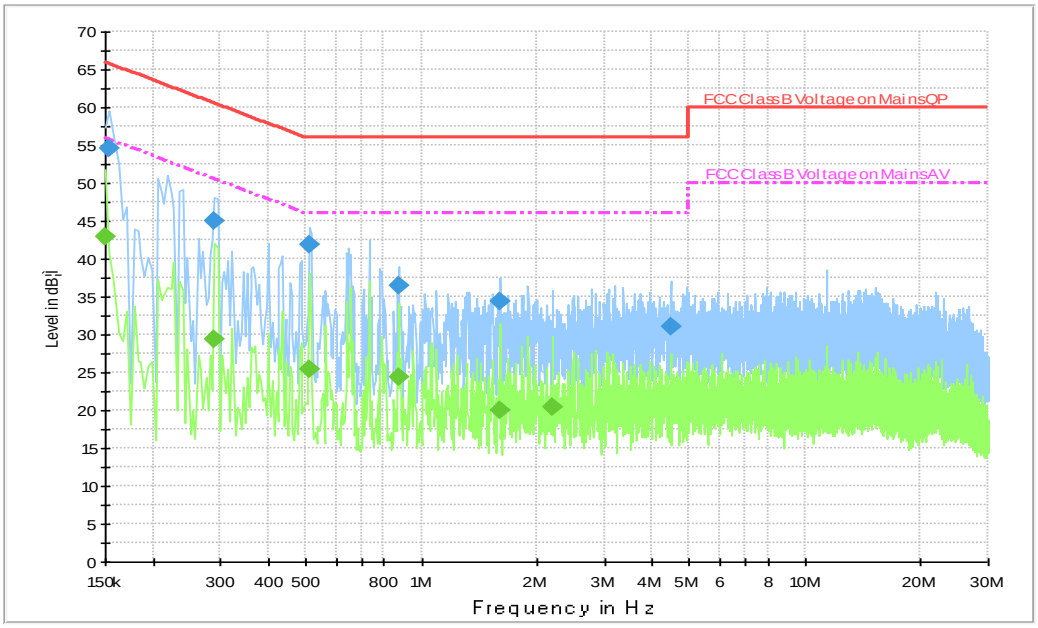



**Fig. 16 AC Conducted emission（Set.4, Model 7）**

**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.154000 | 54.7 | L1 | 19.9 | 11.1 | 65.8 |
| 0.290000 | 45.0 | N | 19.7 | 15.5 | 60.5 |
| 0.510000 | 41.8 | N | 19.7 | 14.2 | 56.0 |
| 0.874000 | 36.5 | L1 | 19.7 | 19.5 | 56.0 |
| 1.606000 | 34.4 | L1 | 19.6 | 21.6 | 56.0 |
| 4.454000 | 31.1 | N | 19.6 | 24.9 | 56.0 |

**Final Result 2**

| Frequency (MHz) | CAverage (dBµV) | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|
| 0.150000 | 42.8 | N | 20.0 | 13.2 | 56.0 |
| 0.290000 | 29.3 | N | 19.7 | 21.2 | 50.5 |
| 0.510000 | 25.5 | N | 19.7 | 20.5 | 46.0 |
| 0.874000 | 24.4 | L1 | 19.7 | 21.6 | 46.0 |
| 1.606000 | 20.0 | L1 | 19.6 | 26.0 | 46.0 |
| 2.190000 | 20.4 | N | 19.6 | 25.6 | 46.0 |

## ANNEX C: Persons involved in this testing

| Test Item | Tester |
|---|---|
| Radiated Emission | Li Pengfei |
| Conducted Emission | Yan Hanchen |

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