# FCC EMC Test Report

| | |
|---|---|
| **Applicant:** | TECNO MOBILE LIMITED |
| **Address of Applicant:** | FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT |
| **Equipment Under Test (EUT)** | |
| Product Name: | Mobile Phone |
| Model No.: | CI8n |
| Trade mark: | TECNO |
| **FCC ID:** | 2ADYY-CI8N |
| **Applicable standards:** | FCC CFR Title 47 Part 15B |
| **Date of sample receipt:** | 25 Feb., 2022 |
| **Date of Test:** | 26 Feb., to 01 Apr., 2022 |
| **Date of report issued:** | 02 Apr., 2022 |
| **Test Result:** | PASS * |

| | | | |
|---|---|---|---|
| ***Tested by:*** | Mike.ou<br>***Test Engineer*** | ***Date:*** | *02 Apr., 2022* |
| ***Reviewed by:*** | Jimmy zhang<br>***Project Engineer*** | ***Date:*** | *02 Apr., 2022* |
| ***Approved by:*** | Manager<br>***Manager*** | ***Date:*** | *02 Apr., 2022* |

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

# 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *02 Apr., 2022* | *Original* |
| | | |
| | | |
| | | |
| | | |

# 3 Contents

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# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | TECNO MOBILE LIMITED |
| Address: | FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT |
| Manufacturer: | TECNO MOBILE LIMITED |
| Address: | FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET FOTAN NT |
| Factory: | SHENZHEN TECNO TECHNOLOGY CO., LTD. |
| Address: | 101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China |

## 4.2 General Description of E.U.T.

| | |
|---|---|
| Product Name: | Mobile Phone |
| Model No.: | CI8n |
| Power supply: | Rechargeable Li-ion polymer Battery DC3.87V, 4900mAh |
| AC adapter: | Model: U330TSA<br>Input: AC100-240V, 50/60Hz, 1.5A<br>Output: DC 5.0V-3.0A 15.0W, 10.0V-3.3A 33.0W MAX |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

## 4.3 Test Mode and test samples plans

| Operating mode | Detail description |
|---|---|
| PC mode | Keep the EUT in Downloading mode(Worst case) |
| Charging+Recording mode | Keep the EUT in Charging+Recording mode |
| Charging+Playing mode | Keep the EUT in Charging+Playing mode |
| FM mode | Keep the EUT in FM receiver mode |
| GPS mode | Keep the EUT in GPS receiver mode |
| The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. | |

## 4.4 Description of Support Units

| Manufacturer | Description | Model | S/N | FCC ID/DoC |
|---|---|---|---|---|
| Lenovo | Laptop | ThinkPad T14 Gen 1 | SL10Z47277 | DoC |
| HP | Printer | HP LaserJet P1007 | VNFP409729 | DoC |

## 4.5 Description of Cable Used

| Cable Type | Description | Length | From | To |
|---|---|---|---|---|
| Detached USB Cable | Shielding | 1.0m | EUT | PC/Adapter |
| Detached headset cable | Unshielded | 1.2m | EUT | Headset |

## 4.6 Measurement Uncertainty

| Parameter | Expanded Uncertainty (Confidence of 95%(U = 2Uc(y))) |
|---|---|
| Conducted Emission for LISN (9kHz ~ 150kHz) | ±3.11 dB |
| Conducted Emission for LISN (150kHz ~ 30MHz) | ±2.62 dB |
| Radiated Emission (30MHz ~ 1GHz) (3m SAC) | ±4.45 dB |
| Radiated Emission (1GHz ~ 18GHz) (3m SAC) | ±5.34 dB |
| Radiated Emission (18GHz ~ 40GHz) (3m SAC) | ±5.34 dB |
| ***Note:*** *All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.* | |

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

No

## 4.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 4.9 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

## 4.10 Test Instruments list

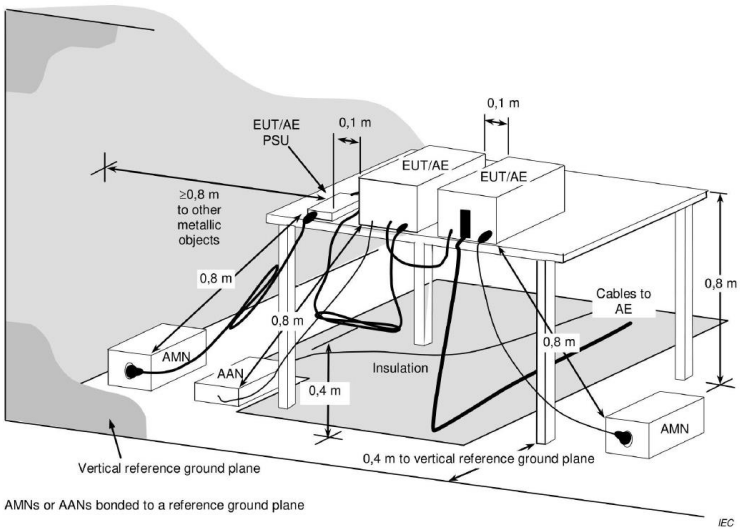
| Radiated Emission(3m SAC): | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Manage No.** | **Cal.Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| 3m SAC | ETS | 9m*6m*6m | WXJ001-1 | 01-19-2021 | 01-18-2024 |
| BiConiLog Antenna | Schwarzbeck | VULB9163 | WXJ002 | 02-17-2022 | 02-16-2023 |
| Biconical Antenna | Schwarzbeck | VUBA9117 | WXJ002-1 | 06-20-2021 | 06-19-2022 |
| Horn Antenna | Schwarzbeck | BBHA9120D | WXJ002-2 | 02-17-2022 | 02-16-2023 |
| Horn Antenna | Schwarzbeck | BBHA9120D | WXJ002-3 | 06-18-2021 | 06-17-2022 |
| Pre-amplifier (30MHz ~ 1GHz) | Schwarzbeck | BBV9743B | WXG001-7 | 02-17-2022 | 02-16-2023 |
| Pre-amplifier (1GHz ~ 18GHz) | SKET | LNPA_0118G-50 | WXG001-3 | 02-17-2022 | 02-16-2023 |
| Pre-amplifier (18GHz ~ 40GHz) | RF System | TRLA-180400G45B | WXG001-9 | 02-17-2022 | 02-16-2023 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | WXJ003-1 | 02-17-2022 | 02-16-2023 |
| Band Reject Filter Group | Tonscend | JS0806-F | WXJ089 | 04-06-2021 | 04-05-2022 |
| Pre-amplifier (18GHz ~ 40GHz) | RF System | TRLA-180400G45B | WXG001-9 | 02-17-2022 | 02-16-2023 |
| Coaxial Cable (30MHz ~ 1GHz) | JYTSZ | JYT3M-1G-NN-8M | WXG001-4 | 02-17-2022 | 02-16-2023 |
| Coaxial Cable (1GHz ~ 18GHz) | JYTSZ | JYT3M-18G-NN-8M | WXG001-5 | 02-17-2022 | 02-16-2023 |
| Coaxial Cable (9kHz ~ 30MHz) | JYTSZ | JYT3M-1G-BB-5M | WXG001-6 | 02-17-2022 | 02-16-2023 |
| Coaxial Cable (18GHz ~ 40GHz) | JYTSZ | JYT3M-40G-SS-8M | WXG001-7 | 02-17-2022 | 02-16-2023 |
| Test Software | Tonscend | TS+ | Version: 3.0.0.1 | | |

| Conducted Emission: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Manage No.** | **Cal.Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| EMI Test Receiver | Rohde & Schwarz | ESCI 3 | WXJ003 | 02-17-2022 | 02-16-2023 |
| RF Switch | TOP PRECISION | RSU0301 | WXG003 | 02-17-2022 | 02-16-2023 |
| LISN | Schwarzbeck | NSLK 8127 | QCJ001-13 | 02-17-2022 | 02-16-2023 |
| LISN | Rohde & Schwarz | ESH3-Z5 | WXJ005-1 | 06-18-2021 | 06-17-2022 |
| LISN Coaxial Cable (9kHz ~ 30MHz) | JYTSZ | JYTCE-1G-NN-2M | WXG003-1 | 02-17-2022 | 02-16-2023 |
| Test Software | AUDIX | E3 | Version: 6.110919b | | |

# 5 Measurement setup and procedure

## 5.1 Test setup

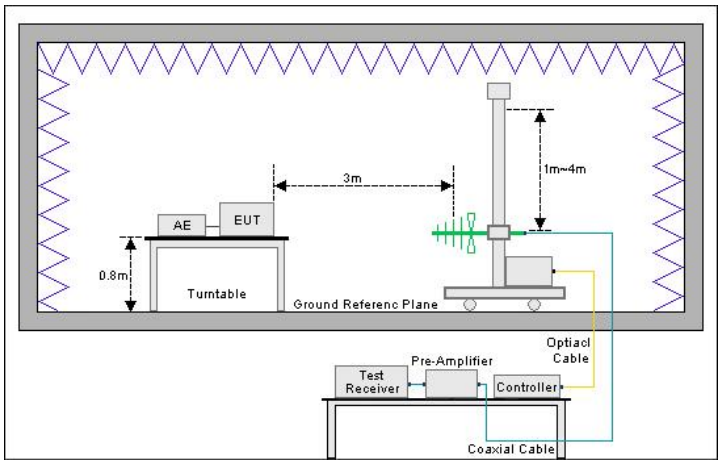
**1) Conducted emission measurement:**



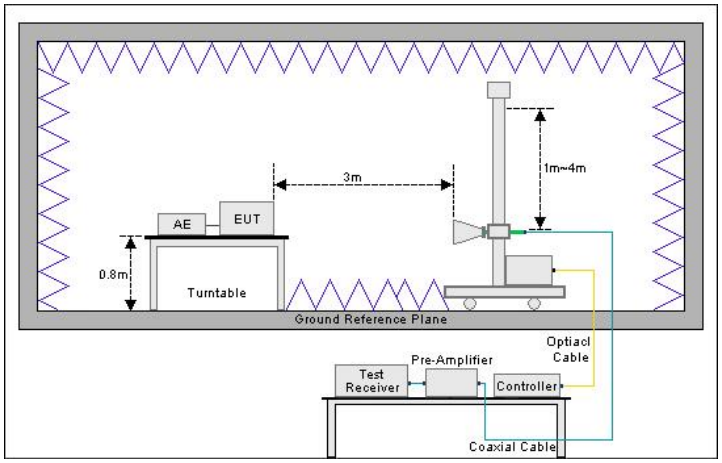

**Note:** The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

**2) Radiated emission measurement:**

Below 1GHz (3m SAC)




Above 1GHz (3m SAC)



## 5.2 Test procedure

| Test method | Test step |
|---|---|
| Conducted emission | 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.<br>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).<br>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement. |
| Radiated emission | **For below 1GHz:**<br>1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.<br>2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. 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.<br>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.<br><br>**For above 1GHz:**<br>1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.<br>2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. 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.<br>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. |

# 6 Test Results

## 6.1 Summary

### 6.1.1 Clause and data summary

| Test Items | FCC Part Section(s) | Test Data | Result |
|---|---|---|---|
| Conducted Emission | Part 15.107 | See Section 6.2 | Pass |
| Radiated Emission | Part 15.109 | See Section 6.3 | Pass |

***Remark:***

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

*2. N/A: Not Applicable.*

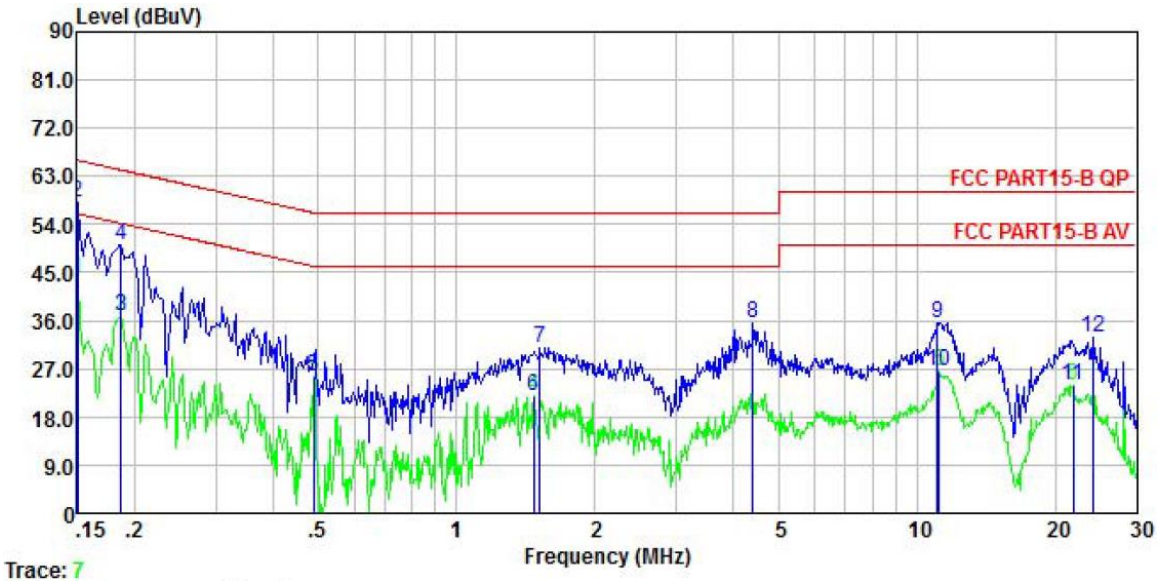
| ***Test Method:*** | *ANSI C63.4:2014* |
|---|---|

### 6.1.2 Test Limit

| Items | Limit |
|---|---|
| Conducted Emission | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Radiated Emission | **Below 1GHz (Measurement distance for 3 m):**<br>30MHz-88MHz: 40.0 Quasi-peak Value<br>88MHz-216MHz: 43.5 Quasi-peak Value<br>216MHz-960MHz: 46.0 Quasi-peak Value<br>960MHz-1GHz: 54.0 Quasi-peak Value<br>**Above 1GHz (Measurement distance for 3 m):**<br>Above 1GHz: 54.0 Average Value; 74.0 Peak Value |

## 6.2 Conducted Emission

| | | | |
|---|---|---|---|
| **Product name:** | Mobile Phone | **Product model:** | CI8n |
| **Test by:** | Mike | **Test mode:** | PC |
| **Test frequency:** | 150 kHz ~ 30 MHz | **Phase:** | Line |
| **Test voltage:** | AC 120 V/60 Hz | | |

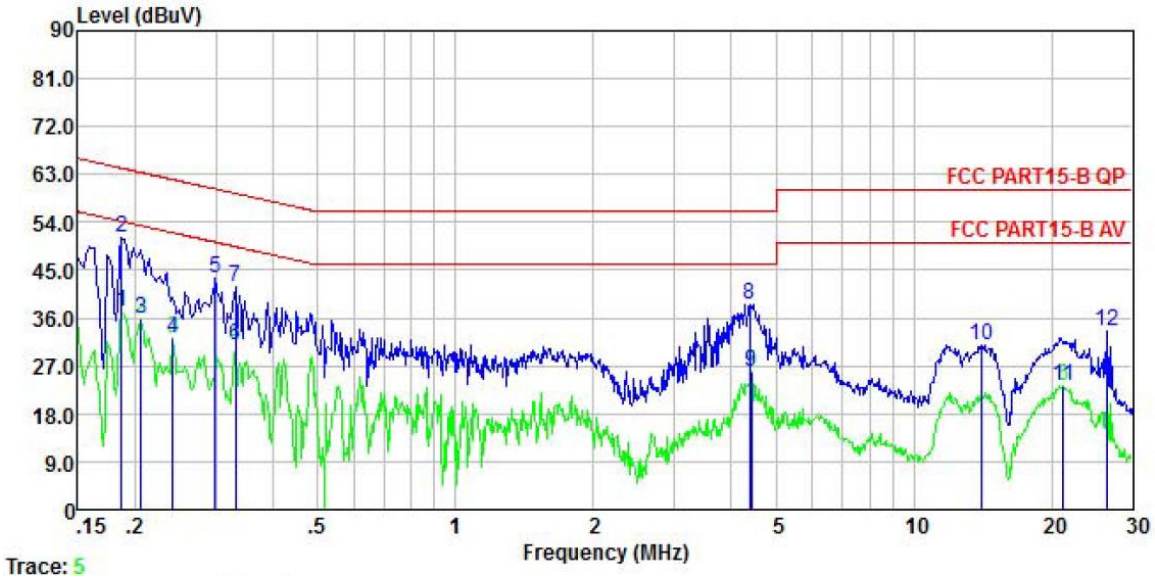



| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.150 | 43.86 | 0.04 | 0.01 | 43.91 | 56.00 | -12.09 | Average |
| 2 | 0.150 | 57.98 | 0.04 | 0.01 | 58.03 | 66.00 | -7.97 | QP |
| 3 | 0.186 | 36.83 | 0.04 | 0.02 | 36.89 | 54.20 | -17.31 | Average |
| 4 | 0.186 | 50.16 | 0.04 | 0.02 | 50.22 | 64.20 | -13.98 | QP |
| 5 | 0.489 | 25.59 | 0.04 | 0.03 | 25.66 | 46.19 | -20.53 | Average |
| 6 | 1.472 | 21.61 | 0.06 | 0.14 | 21.81 | 46.00 | -24.19 | Average |
| 7 | 1.519 | 30.75 | 0.06 | 0.15 | 30.96 | 56.00 | -25.04 | QP |
| 8 | 4.407 | 35.48 | 0.11 | 0.08 | 35.67 | 56.00 | -20.33 | QP |
| 9 | 11.080 | 35.31 | 0.22 | 0.11 | 35.64 | 60.00 | -24.36 | QP |
| 10 | 11.198 | 26.24 | 0.23 | 0.11 | 26.58 | 50.00 | -23.42 | Average |
| 11 | 21.830 | 23.38 | 0.34 | 0.16 | 23.88 | 50.00 | -26.12 | Average |
| 12 | 24.142 | 32.23 | 0.36 | 0.17 | 32.76 | 60.00 | -27.24 | QP |

***Remark:***

*1. Level = Read level + LISN Factor + Cable Loss.*

| Product name: | Mobile Phone | Product model: | CI8n |
|---|---|---|---|
| Test by: | Mike | Test mode: | PC |
| Test frequency: | 150 kHz ~ 30 MHz | Phase: | Neutral |
| Test voltage: | AC 120 V/60 Hz | | |




| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.186 | 36.98 | 0.04 | 0.02 | 37.04 | 54.20 | -17.16 | Average |
| 2 | 0.186 | 50.95 | 0.04 | 0.02 | 51.01 | 64.20 | -13.19 | QP |
| 3 | 0.206 | 35.71 | 0.04 | 0.04 | 35.79 | 53.36 | -17.57 | Average |
| 4 | 0.242 | 32.04 | 0.04 | 0.01 | 32.09 | 52.04 | -19.95 | Average |
| 5 | 0.299 | 43.34 | 0.04 | 0.03 | 43.41 | 60.28 | -16.87 | QP |
| 6 | 0.330 | 30.71 | 0.04 | 0.02 | 30.77 | 49.44 | -18.67 | Average |
| 7 | 0.330 | 41.91 | 0.04 | 0.02 | 41.97 | 59.44 | -17.47 | QP |
| 8 | 4.384 | 38.37 | 0.09 | 0.08 | 38.54 | 56.00 | -17.46 | QP |
| 9 | 4.430 | 25.62 | 0.10 | 0.08 | 25.80 | 46.00 | -20.20 | Average |
| 10 | 14.063 | 30.68 | 0.24 | 0.12 | 31.04 | 60.00 | -28.96 | QP |
| 11 | 21.147 | 22.89 | 0.31 | 0.17 | 23.37 | 50.00 | -26.63 | Average |
| 12 | 26.418 | 33.00 | 0.37 | 0.21 | 33.58 | 60.00 | -26.42 | QP |

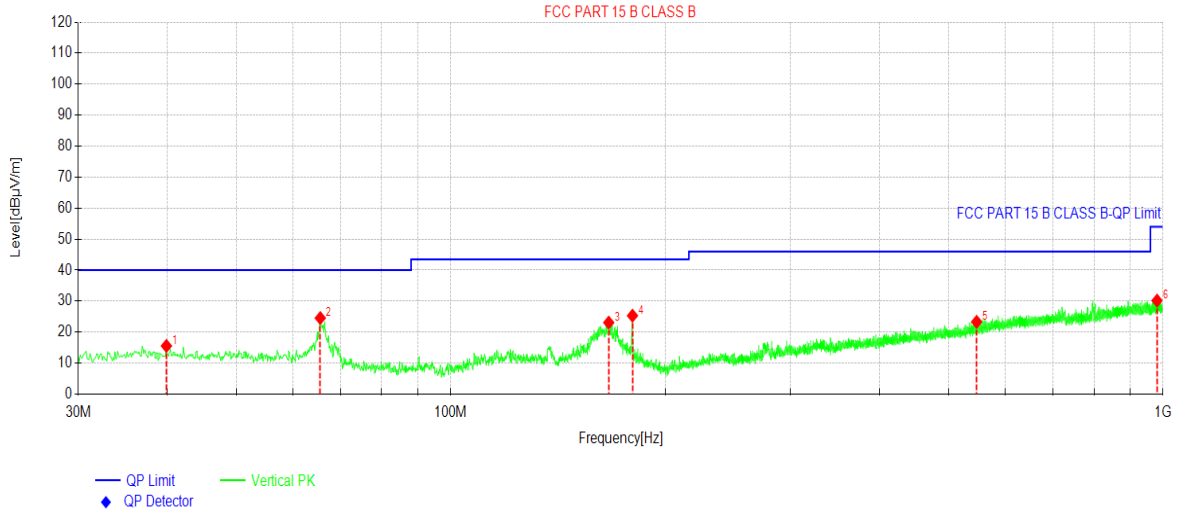
***Remark:***

*1. Level = Read level + LISN Factor + Cable Loss.*

## 6.3 Radiated Emission

**Below 1GHz:**

| **Product Name:** | Mobile Phone | **Product Model:** | CI8n |
|---|---|---|---|
| **Test By:** | Mike | **Test mode:** | PC |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | AC 120/60Hz | | |

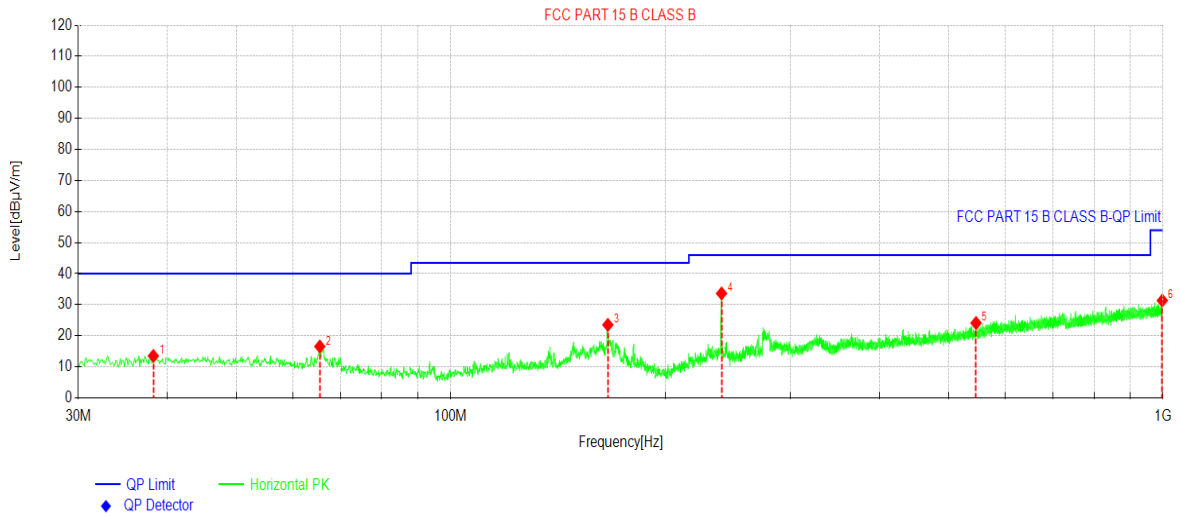



| NO. | Freq. [MHz] | Reading[dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 39.8950 | 29.22 | 15.55 | -13.67 | 40.00 | 24.45 | PK | Vertical |
| 2 | 65.6026 | 40.64 | 24.54 | -16.10 | 40.00 | 15.46 | PK | Vertical |
| 3 | 166.686 | 36.92 | 23.08 | -13.84 | 43.50 | 20.42 | PK | Vertical |
| 4 | 179.977 | 40.37 | 25.31 | -15.06 | 43.50 | 18.19 | PK | Vertical |
| 5 | 547.449 | 29.90 | 23.32 | -6.58 | 46.00 | 22.68 | PK | Vertical |
| 6 | 980.889 | 29.68 | 30.18 | 0.50 | 54.00 | 23.82 | PK | Vertical |

***Remark:***

*1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

| Product Name: | Mobile Phone | Product Model: | CI8n |
|---|---|---|---|
| Test By: | Mike | Test mode: | PC |
| Test Frequency: | 30 MHz ~ 1 GHz | Polarization: | Horizontal |
| Test Voltage: | AC 120/60Hz | | |



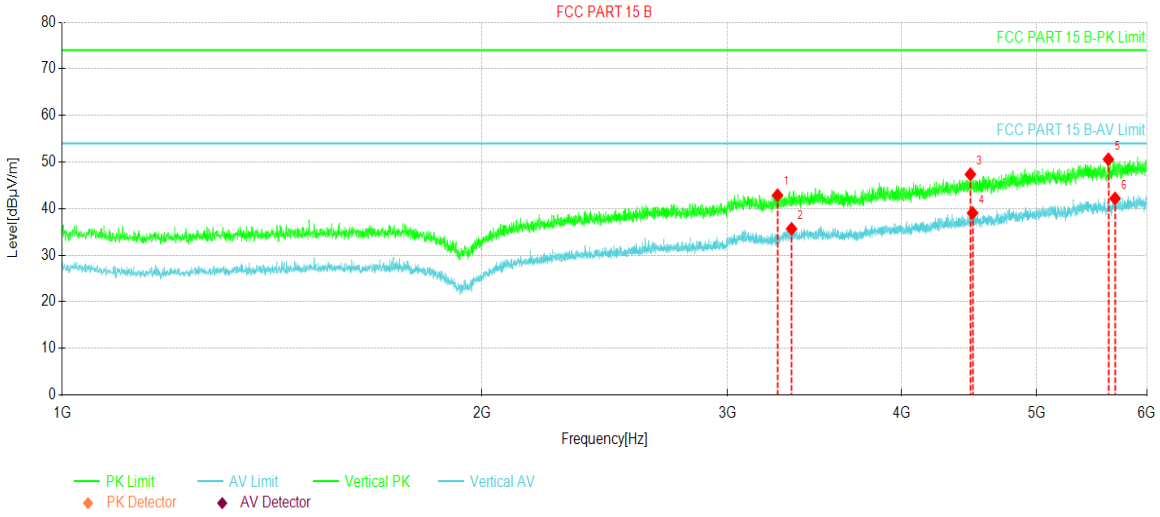

| NO. | Freq. [MHz] | Reading[dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 38.2458 | 27.35 | 13.50 | -13.85 | 40.00 | 26.50 | PK | Horizontal |
| 2 | 65.5056 | 32.63 | 16.55 | -16.08 | 40.00 | 23.45 | PK | Horizontal |
| 3 | 166.201 | 37.30 | 23.51 | -13.79 | 43.50 | 19.99 | PK | Horizontal |
| 4 | 240.026 | 48.15 | 33.63 | -14.52 | 46.00 | 12.37 | PK | Horizontal |
| 5 | 546.479 | 30.69 | 24.10 | -6.59 | 46.00 | 21.90 | PK | Horizontal |
| 6 | 997.768 | 30.51 | 31.35 | 0.84 | 54.00 | 22.65 | PK | Horizontal |

***Remark:***

*1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

**Above 1GHz:**

| **Product Name:** | Mobile Phone | **Product Model:** | CI8n |
|---|---|---|---|
| **Test By:** | Mike | **Test mode:** | PC |
| **Test Frequency:** | 1000 MHz ~ 6000 MHz | **Polarization:** | Vertical |
| **Test Voltage:** | AC 120/60Hz | | |

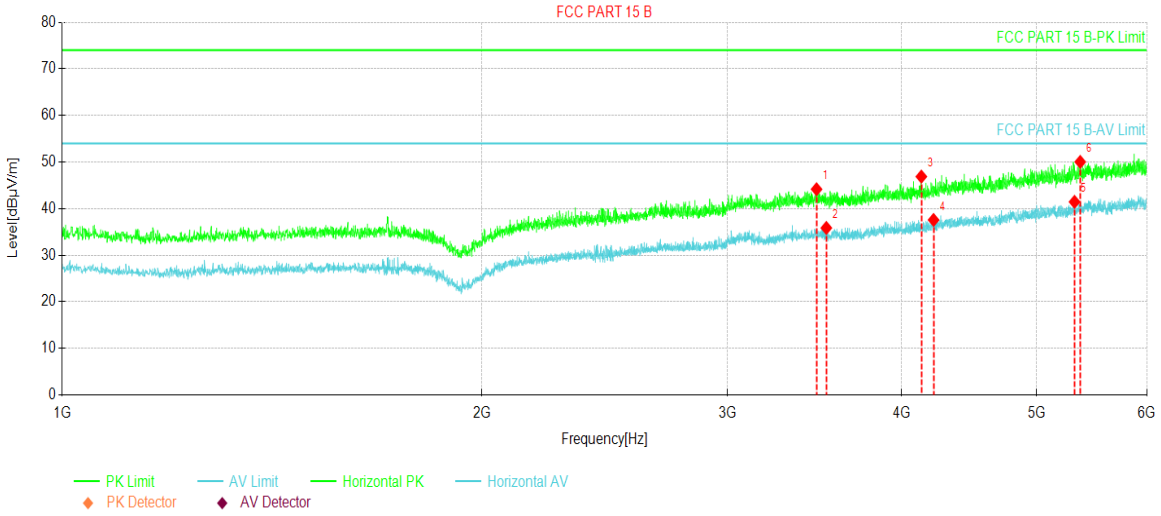



| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 3259.37 | 58.29 | 42.86 | -15.43 | 74.00 | 31.14 | PK | Vertical |
| 2 | 3335.62 | 50.83 | 35.64 | -15.19 | 54.00 | 18.36 | AV | Vertical |
| 3 | 4481.87 | 57.93 | 47.35 | -10.58 | 74.00 | 26.65 | PK | Vertical |
| 4 | 4498.12 | 49.57 | 39.05 | -10.52 | 54.00 | 14.95 | AV | Vertical |
| 5 | 5629.37 | 57.22 | 50.57 | -6.65 | 74.00 | 23.43 | PK | Vertical |
| 6 | 5691.87 | 48.22 | 42.18 | -6.04 | 54.00 | 11.82 | AV | Vertical |

***Remark:***

*1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

| Product Name: | Mobile Phone | Product Model: | CI8n |
|---|---|---|---|
| Test By: | Mike | Test mode: | PC |
| Test Frequency: | 1000 MHz ~ 6000 MHz | Polarization: | Horizontal |
| Test Voltage: | AC 120/60Hz | | |




| NO. | Freq. [MHz] | Reading [dBµV/m] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Trace | Polarity |
|---|---|---|---|---|---|---|---|---|
| 1 | 3476.25 | 58.80 | 44.15 | -14.65 | 74.00 | 29.85 | PK | Horizontal |
| 2 | 3533.12 | 50.41 | 35.84 | -14.57 | 54.00 | 18.16 | AV | Horizontal |
| 3 | 4133.12 | 58.97 | 46.87 | -12.10 | 74.00 | 27.13 | PK | Horizontal |
| 4 | 4217.50 | 49.18 | 37.56 | -11.62 | 54.00 | 16.44 | AV | Horizontal |
| 5 | 5323.12 | 48.64 | 41.44 | -7.20 | 54.00 | 12.56 | AV | Horizontal |
| 6 | 5373.75 | 56.94 | 50.02 | -6.92 | 74.00 | 23.98 | PK | Horizontal |

***Remark:***

*1. Level = Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

------End of report------