



RADIO TEST REPORT

ETSI EN 303 413 V1.2.1 (2021-04)

Product : Smartphone

Trade Mark : CUBOT

Model Name : A10

Family Model : N/A

Report No. : S24040904103009

Prepared for

Shenzhen Huafurui Technology Co., Ltd.

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TEST RESULT CERTIFICATION

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Product description

Product name.....: Smartphone
Trademark: CUBOT
Model and/or type reference : A10
Family Model: N/A

Standards: ETSI EN 303 413 V1.2.1 (2021-04)

This device described above has been tested by Shenzhen NTEK, and the test results show that the equipment under test (EUT) is in compliance with the article 3.2 of Directive 2014/53/EU requirements. And it is applicable only to the tested sample identified in the report.

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Test Sample Number: S240409041003

Date of Test

Date (s) of performance of tests.....: Apr 09, 2024 ~ May 13, 2024

Date of Issue.....: May 13, 2024

Test Result.....: Pass

Prepared By: Allen Liu (Project Engineer)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
ETSI EN 303 413 V1.2.1 (2021-04)

| Clause | Description of Test Item | Remarks | Results |
|---------------------|--------------------------|-----------|---------|
| Receiver Parameters | | | |
| 4.2.1 | RECEIVER BLOCKING | Conducted | Pass |
| 4.2.2 | Spurious emissions | Radiated | Pass |

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd.
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 FCC Registered No.: 463705 IC Registered No.:9270A
 CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2** , providing a level of confidence of approximately **95 %**.

| No. | Item | Uncertainty |
|-----|------------------------------|-------------|
| 1 | Conducted Emission Test | ±1.38dB |
| 2 | RF power,conducted | ±0.16dB |
| 3 | Spurious emissions,conducted | ±0.21dB |
| 4 | All emissions,radiated(<1G) | ±4.68dB |
| 5 | All emissions,radiated(>1G) | ±4.89dB |
| 6 | Temperature | ±0.5°C |
| 7 | Humidity | ±2% |

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | | |
|---------------------|--|-----------------|
| Equipment | Smartphone | |
| Trade Mark | CUBOT | |
| Model Name | A10 | |
| Family Model | N/A | |
| Model Difference | N/A | |
| Product Description | Operation Frequency: | 1.57542GHz |
| | Modulation Type: | BPSK modulation |
| | Antenna Designation: | PIFA Antenna |
| | The product only receives. | |
| Channel List | Refer to below | |
| Adapter | Adapter 1: Model: QZ-01001EA00 Input: AC100-240V~50/60Hz 0.3A Output: 5.0V---2.0A (10.0W) Adapter 2: Model: HJ-0502000W2-EU Input: AC100-240V~50/60Hz 0.3A Output: 5.0V---2.0A 10.0W Output Power: 10.0W | |
| Battery | DC 3.87V, 5100mAh, 19.74Wh | |
| Rating | DC 3.87V from battery or DC 5V from adapter | |
| Hardware Version | Q12D V2.0 | |
| Software Version | CUBOT_A10_E045C_V01 | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

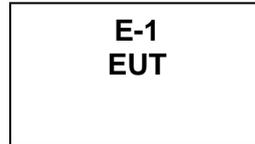
2.2 DESCRIPTION OF TEST CONDITIONS

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | RX(CH01) |
| | |
| | |

| For Conducted Test | |
|---------------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | RX(CH01) |
| | |

| For Radiated Test | |
|--------------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | RX(CH01) |
| | |

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4 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.

| Item | Equipment | Model/Type No. | Series No. | Note |
|------|------------|----------------|------------|------|
| E-1 | Smartphone | A10 | N/A | EUT |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” or “with ferrite core”; “NO” means “unshielded” or “without ferrite core”

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|--------------------------------------|---------------|-------------|----------------|------------------|------------------|--------------------|
| 1 | Spectrum Analyzer | Agilent | E4440A | MY41000130 | 2024.03.12 | 2025.03.11 | 1 year |
| 2 | Test Receiver | R&S | ESPI7 | 101318 | 2024.03.12 | 2025.03.11 | 1 year |
| 3 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2024.03.11 | 2025.03.10 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200983705 | 2023.05.06 | 2026.05.05 | 3 year |
| 5 | Spectrum Analyzer | ADVANTES T | R3132 | 150900201 | 2023.05.29 | 2024.05.28 | 1 year |
| 6 | Horn Antenna | EM | EM-AH-20180 | 2011071402 | 2022.03.31 | 2025.03.30 | 3 year |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2022.11.07 | 2025.11.06 | 3 year |
| 8 | Pre-Amplifier | EMC | EMC051835SE | 980246 | 2023.05.29 | 2024.05.28 | 1 year |
| 9 | Loop Antenna | ARA | PLA-2030/B | 1029 | 2023.05.29 | 2024.05.28 | 1 year |
| 10 | USB RF Power Sensor | DARE | RPR3006W | 15I00041SN O84 | 2023.05.29 | 2024.05.28 | 1 year |
| 11 | Signal Generator | R&S | SMT 06 | 832080/007 | 2023.05.29 | 2024.05.28 | 1 year |
| 12 | Temperature & Humidity Chamber | GIANT FORCE | GTH-056P | GF-94454-1 | 2023.05.29 | 2024.05.28 | 1 year |
| 13 | Power Sensor | R&S | URV5-Z4 | 0395.1619.05 | 2023.05.29 | 2024.05.28 | 1 year |
| 14 | MXA Signal Analyzer | Agilent | N9020A | MY49100060 | 2023.05.29 | 2024.05.28 | 1 year |
| 15 | LTE Wireless Communications Test Set | R&S | CMW500 | 1100.008.02 | 2023.05.29 | 2024.05.28 | 1 year |
| 16 | MXG Vector Signal Generator | Agilent | N5182A | MY47070317 | 2023.05.29 | 2024.05.28 | 1 year |
| 17 | Power Splitter | Mini-Circuits | ZN2PD-63-S | SF025101618 | 2023.05.29 | 2024.05.28 | 1 year |

3. RECEIVER BLOCKING

3.1 APPLIED PROCEDURES / LIMIT

The limits please refer to ETSI EN 303 413 V1.2.1 (2021-04) V4.2.1.2.

| Clause | Test Item | Limit |
|--------|-------------------|----------------------------------|
| 4.2.1 | RECEIVER BLOCKING | $\Delta C/N_0 \leq 1 \text{ dB}$ |

3.2 TEST FREQUENCY & SIGNAL

According to ETSI EN 303 413 V1.2.1 the test wanted signal please see the below Table B-1, And the unwanted signal please see the Table 4-1, Table 4-2, Table 4-4.

Table 4-1: GNSS constellations, GNSS signals and RNSS frequency bands

| GNSS Constellation | GNSS Signal Designations | RNSS Frequency Band (MHz) |
|--------------------|--------------------------|---------------------------|
| BDS | B1I | 1 559 to 1 610 |
| | B1C | 1 559 to 1 610 |
| Galileo | E1 | 1 559 to 1 610 |
| | E5a | 1 164 to 1 215 |
| | E5b | 1 164 to 1 215 |
| | E6 | 1 215 to 1 300 |
| GLONASS | G1 | 1 559 to 1 610 |
| | G2 | 1 215 to 1 300 |
| GPS | L1 C/A | 1 559 to 1 610 |
| | L1C | 1 559 to 1 610 |
| | L2C | 1 215 to 1 300 |
| SBAS | L5 | 1 164 to 1 215 |
| | L1 | 1 559 to 1 610 |
| | L5 | 1 164 to 1 215 |

Table 4-2: Frequency bands, adjacent frequency signal test point centre frequencies and power levels for the 1 559 MHz to 1 610 MHz RNSS band

| Frequency band (MHz) | Test point centre frequency (MHz) | Adjacent frequency signal power level (dBm) | Comments |
|----------------------|-----------------------------------|---|---------------------------|
| 1 518 to 1 525 | 1 524 | -65 | MSS (space-to-Earth) band |
| 1 525 to 1 549 | 1 548 | -95 | MSS (space-to-Earth) band |
| 1 549 to 1 559 | 1 554 | -105 | MSS (space-to-Earth) band |
| 1 559 to 1 610 | GUE RNSS band under test | | |
| 1 610 to 1 626 | 1 615 | -105 | MSS (Earth-to-space) band |
| 1 626 to 1 640 | 1 627 | -85 | MSS (Earth-to-space) band |

Table 4-3: Frequency bands, blocking signal test point centre frequencies and power levels for the 1 164 MHz to 1 300 MHz RNSS band

| Frequency band (MHz) | Test point centre frequency (MHz) | Blocking signal power level (dBm) | Comments |
|----------------------|-----------------------------------|-----------------------------------|---|
| 960 to 1 164 | 1 154 | -75 | AM(R)S, ARNS band |
| 1 164 to 1 215 | GUE RNSS band under test | | |
| 1 215 to 1 260 | GUE RNSS band under test | | |
| 1 260 to 1 300 | GUE RNSS band under test | | |
| 1 300 to 1 350 | 1 310 | -85 | Radiolocation, ARNS, RNSS (Earth-to-space) band |

Table 4-4: Blocking signal

| Parameter | Value | Comments |
|-------------|-----------------------------|----------------------------|
| Frequency | See table 4-2 and table 4-3 | |
| Power level | See table 4-2 and table 4-3 | |
| Bandwidth | 1 MHz | See clause B.1 for details |
| Format | AWGN | |

Table B-1: Signal power levels for each GNSS signal within each GNSS constellation supported

| GNSS constellation | GNSS signal | Signal power level (note) |
|--------------------|-------------|---------------------------|
| BDS | B1I | -133 dBm |
| | B1C (IGSO) | -131 dBm |
| | B1C (MEO) | -129 dBm |
| Galileo | E1 | -127 dBm |
| | E5a | -125 dBm |
| | E5b | -125 dBm |
| | E6 | -125 dBm |
| GLONASS | G1 | -131 dBm |
| | G2 | -137 dBm |
| GPS | L1 C/A | -128,5 dBm |
| | L1C | -127 dBm |
| | L2C | -130 dBm |
| | L5 | -124,9 dBm |
| SBAS | L1 | -131 dBm |
| | L5 | -127,5 dBm |

NOTE: The signal power levels represent the total signal power of the satellite per channel, not for example pilot and data channels separately.

3.3 TEST PROCEDURE

According to ETSI EN 303 413 V1.2.1 Clause 5.4& Annex B.2.

| Measurement | |
|---|---|
| <input checked="" type="checkbox"/> Conducted measurement | <input type="checkbox"/> Radiated measurement |

- 1) Configure the GNSS signal generator to simulate those GNSS and GNSS signals from table 4-1 declared as supported by the GUE, with power levels and other details as specified in clause B.2.
- 2) With the adjacent frequency signal switched off, the EUT shall be given sufficient time to acquire all simulated satellites from the declared GNSS system(s).
- 3) Record the baseline C/N₀ value(s) reported by the EUT. Sufficient filtering shall be used to obtain a stable value. C/N₀ may be averaged across all the satellites in view for each GNSS constellation. However, C/N₀ shall not be averaged across satellite signals in different GNSS constellations. For a multi-GNSS EUT, there shall be a separate C/N₀ value recorded for each GNSS constellation and each GNSS signal supported.
- 4) The adjacent frequency signal generator shall be configured to generate the signal defined in table 4-4, at the first test point centre frequency and signal power level as specified in table 4-2.
- 5) The adjacent frequency signal shall be switched on, and the EUT's C/N₀ value(s) recorded as in step 3) to measure the degradation with respect to the baseline value(s) recorded in step 3).
- 6) Test point Pass/Fail Criteria: If the C/N₀ degradation from step 5) does not exceed the value in equation 4-1, then this test point is set to "pass". If the C/N₀ degradation exceeds the value in equation 4-1, then this test point is set to "fail." For a multi-GNSS and multi-signal EUT, there shall be a separate pass/fail determination for each GNSS and for each GNSS signal supported. If the C/N₀ degradation exceeds the value in equation 4-1 for any supported GNSS or supported GNSS signal, then this test point is set to "fail".
- 7) Step 1) through step 6) shall be repeated for all test point centre frequencies (and associated signal power level) specified in table 4-2.

3.4 TEST SETUP

Please see the below figure 5-1:

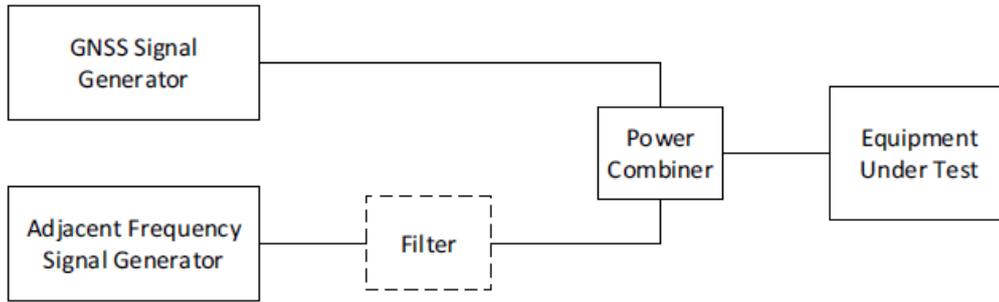


Figure 5-1: Conducted measurement setup for EUT adjacent frequency band selectivity

3.5 TEST RESULTS

| | | | |
|---------------|------------|---------------------|----------|
| EUT : | Smartphone | Model Name : | A10 |
| Temperature : | 26°C | Relative Humidity : | 60 % |
| Pressure : | 1012 hPa | Test Voltage : | DC 3.87V |
| Test Mode : | GPS RX | | |

| Test point centre frequency | signal power level | C/N ₀ value (Blongking signal switched off) | C/N ₀ value (Blongking signal switched on) | Δ C/N ₀ | Limit(Δ C/N ₀) | Results |
|-----------------------------|--------------------|---|--|--------------------|----------------------------|---------|
| (MHz) | (dBm) | | | | (dB) | (P/F) |
| 1575.42 | -128.5 | | | | | |
| 1524 | -65 | 33.21 | 33.12 | 0.09 | ≤ 1 dB | PASS |
| 1548 | -95 | 33.15 | 33.09 | 0.06 | ≤ 1 dB | PASS |
| 1554 | -105 | 33.36 | 33.21 | 0.15 | ≤ 1 dB | PASS |
| 1615 | -105 | 33.29 | 33.20 | 0.09 | ≤ 1 dB | PASS |
| 1627 | -85 | 33.41 | 33.31 | 0.10 | ≤ 1 dB | PASS |

Note: We test the C/N0 value for each GNSS, but the report just reported the worst Δ C/N₀ values.

4. SPURIOUS EMISSIONS

4.1 APPLIED PROCEDURES / LIMIT

The limits please refer to ETSI EN 303 413 V1.2.1 (2021-04) clause 4.2.2.2.

Table 4-5: Spurious emission limits

| Frequency range | Maximum power | Bandwidth |
|------------------|---------------|-----------|
| 30 MHz to 1 GHz | -57 dBm | 100 kHz |
| 1 GHz to 8,3 GHz | -47 dBm | 1 MHz |

4.2 TEST PROCEDURES

According to ETSI EN 303 413 V1.2.1 Clause 5.5.

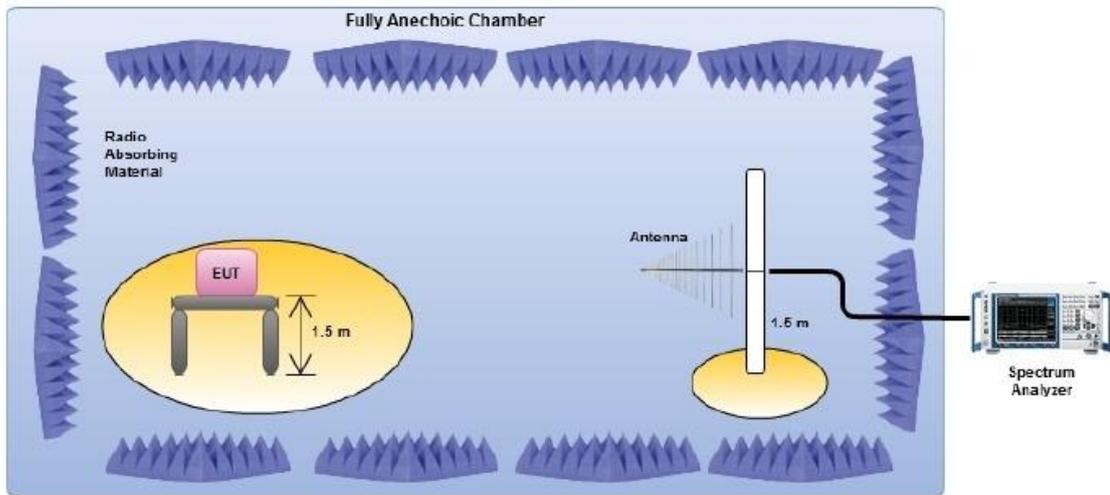
| Measurement | |
|--|--|
| <input type="checkbox"/> Conducted measurement | <input checked="" type="checkbox"/> Radiated measurement |

The test site as described in ETSI EN 300 328 [1], annex B and the applicable measurement procedures as described in ETSI EN 300 328 [1], annex C shall be used.

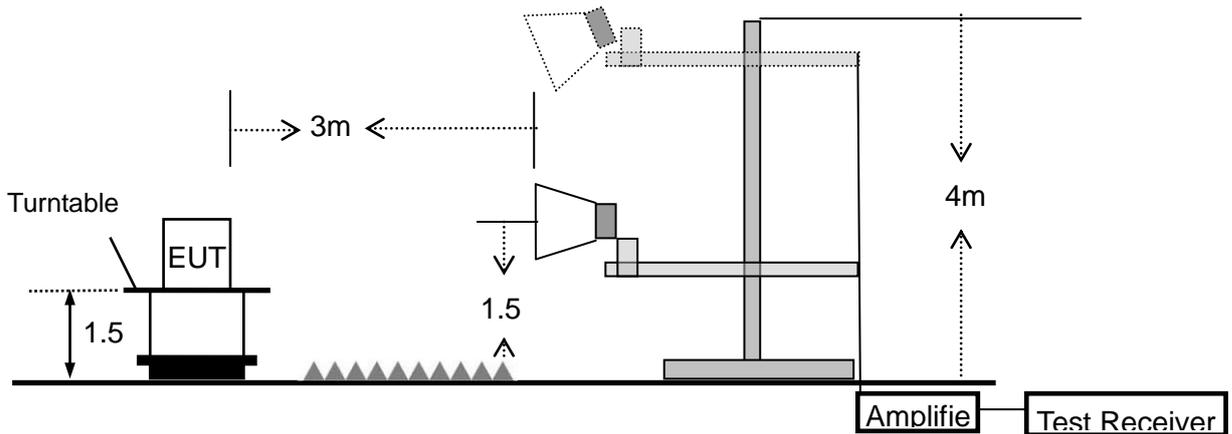
The test procedure is further described in clause 5.5.2.1.

4.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



4.4 EUT OPERATION DURING TEST

The EUT was programmed to be in receiving mode.

4.5 TEST RESULTS (30MHZ ~ 1000MHZ)

| | | | |
|---------------|------------|---------------------|----------|
| EUT : | Smartphone | Model Name : | A10 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Power : | DC 3.87V |
| Test Mode : | Mode 1 | | |

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------------|-----------|---------------|--------|----------------|--------|--------|--------|
| | (MHz) | (dBm) | (dB) | (dBm) | (dBm) | (dB) | |
| H | 32.925 | -88.84 | 13.07 | -75.77 | -57.00 | -18.77 | peak |
| H | 104.9 | -93.34 | 15.32 | -78.02 | -57.00 | -21.02 | peak |
| H | 214.312 | -91.61 | 22.62 | -68.99 | -57.00 | -11.99 | peak |
| H | 332.213 | -87.7 | 23.62 | -64.08 | -57.00 | -7.08 | peak |
| H | 582.896 | -94.92 | 25.62 | -69.30 | -57.00 | -12.30 | peak |
| V | 31.389 | -93.86 | 9.52 | -84.34 | -57.00 | -27.34 | peak |
| V | 92.079 | -88.24 | 12.90 | -75.34 | -57.00 | -18.34 | peak |
| V | 204.391 | -88.75 | 19.75 | -69.00 | -57.00 | -12.00 | peak |
| V | 389.421 | -89.98 | 22.94 | -67.04 | -57.00 | -10.04 | peak |
| V | 689.06 | -94.57 | 29.54 | -65.03 | -57.00 | -8.03 | peak |

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

All the modes had been tested, but only the worst data recorded in the report.

Note: Only the worst case recorded in the report.

4.6 TEST RESULTS (1GHz ~ 8.3GHz)

| | | | |
|---------------|------------|---------------------|----------|
| EUT : | Smartphone | Model Name : | A10 |
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Test Power : | DC 3.87V |
| Test Mode : | Mode 1 | | |

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-------------|-----------|---------------|--------|----------------|--------|--------|---------------|
| | (MHz) | (dBm) | (dB) | (dBm) | (dBm) | (dB) | |
| H | 2651.069 | -69.52 | 10.51 | -59.01 | -47.00 | -12.01 | peak |
| H | 5750.276 | -69.38 | 8.32 | -61.06 | -47.00 | -14.06 | peak |
| H | 2862.711 | -67.98 | 8.93 | -59.05 | -47.00 | -12.05 | peak |
| H | 3536.092 | -68.99 | 7.34 | -61.65 | -47.00 | -14.65 | peak |
| H | 4679.31 | -73.73 | 12.52 | -61.21 | -47.00 | -14.21 | peak |
| V | 2575.771 | -67.16 | 8.13 | -59.03 | -47.00 | -12.03 | peak |
| V | 3662.536 | -71.9 | 10.00 | -61.90 | -47.00 | -14.90 | peak |
| V | 2461.997 | -67.27 | 10.16 | -57.11 | -47.00 | -10.11 | peak |
| V | 5888.135 | -74.09 | 10.42 | -63.67 | -47.00 | -16.67 | peak |
| V | 3073.106 | -73.92 | 15.92 | -58.00 | -47.00 | -11.00 | peak |

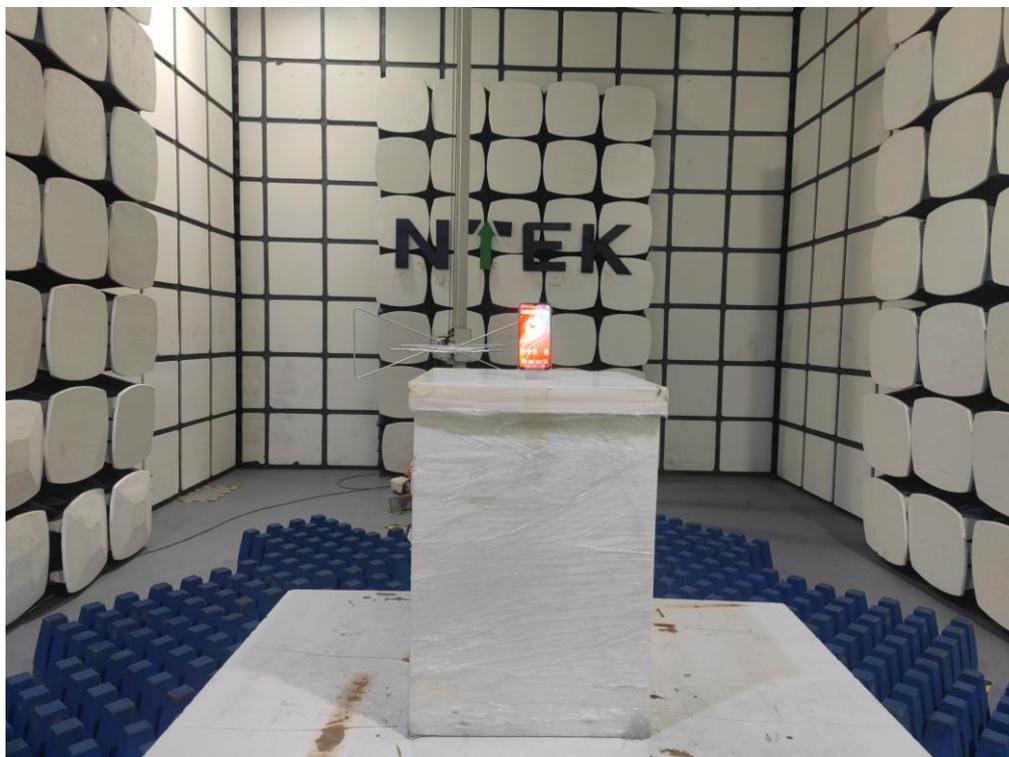
Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

Note: Only the worst case recorded in the report.

5. EUT TEST PHOTO

SPURIOUS EMISSIONS MEASUREMENT PHOTOS



END OF REPORT