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|  |  CERTIFICATE 2518.08 |
| <p>MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas Penang, MALAYSIA</p> | <p>FCC / ISED TEST REPORT Report Revision : Rev.C</p> |
| <p>Date/s Tested : 19-Aug-2023 - 19-Aug-2023 Manufacturer/Location : Motorola Solutions Malaysia Sdn Bhd Manufacturer Address : Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia Requestor : SZE KEAT NG Product Type : Portable Model Number : T803 Frequency Band : 161.650-162.550MHz Firmware Version : NA004 Applicant Name : Motorola Solutions Inc Applicant Address : 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322. ISED Registrations : MY0001 FCC Registrations : 461337 The equipment was tested accordance to the requirement listed below: (LMR) FCC 47 CFR Part 15B / PASS RSS Gen / ICES-003</p> | |
| <p>This report shall not be reproduced without written approval from an officially designated representative of the Motorola Penang Adv. Comm. Laboratory. The results and statements contained in this report pertain only to the device(s) evaluated.</p> | |
| <p>Prepared By:  <hr/>Mohd Helmy Shamsuddin Technician</p> | <p>Approve Signatory: <hr/>Tan Kien Hua Responsible Engineer</p> |

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REVISION HISTORY

| Revision History | Description | Date | Originator |
|-------------------------|---|-------------|-----------------------|
| A | Initial Report | 24-Aug-23 | Mohd Helmy Shamsuddin |
| B | i) Updated Measurement Uncertainty Table ii) Update firmware version from NA 004 to NA004 | 29-Sep-23 | Mohd Helmy Shamsuddin |
| C | i) Add in battery voltage description and test mode description in Receiver Test Conditions table. ii) Remove radiated spur emission setup photo and EUT photograph. | 4-Oct-23 | Mohd Helmy Shamsuddin |

1.0. General Information

EUT Description:

| | |
|------------------------|------------------------------------|
| Technologies | LMR, BT LE, BT |
| Modulation Type | FM, GFSK, $\pi/4$ -DQPSK or 8-DPSK |

The EUT was tested with following device/accessory:

| Item | Brand | Model or P/N |
|---|----------|--------------|
| 1300MAH 3XAA NIMH RECHARGEABLE BATTERY PACK | MOTOROLA | 1532 |

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

ANSI C63.26.2015

ANSI C63.4.2014

2.0. Summary of Test Results

| FCC General Rules Part (47CFR) | IC General Rules Part | Test Item | Result |
|--------------------------------|-----------------------|---------------------------------------|--------|
| 15.111 | RSS-Gen 7.4 | Conducted Spurious Output Power | NA |
| 15.109 | ICES-003 6.1, RSS-Gen | Radiated Spurious Output Power | Pass |
| 15.107 | ICES-003 6.2, RSS-Gen | AC Power Conducted Spurious Emissions | NA |

NA → Not Applicable

3.0. Measurement Uncertainty

| Measurement | Frequency | Expended Uncertainty (k=1.96) (\pm) |
|---|------------------|---|
| AC Power Line Conducted Spurious Emission | 150KHz ~ 30MHz | 3.48 |
| Radiated Emissions up to 1 GHz | 30MHz ~ 200MHz | 5.88 |
| | 200MHz ~ 1000MHz | 5.88 |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz | 5.84 |
| | 18GHz ~ 40GHz | 6.02 |
| Conducted Spurious Emissions | 9kHz ~ 12.75GHz | 2.82 |

4.0. Equipment List

CONDUCTED SPUR EMISSION ATE # 1 NA

Radiated Emission Station

| Description | Model # | Serial Number | Calibration Date | Calibration Due Date |
|--------------------------------------|------------------------------|---------------|------------------|----------------------|
| EMI TEST RECEIVER | ESIB26 | 100017 | 09-Nov-22 | 08-Nov-23 |
| 3M SEMI-ANECHOIC CHAMBER | NA | 888032 | No Cal. Req'd | No Cal. Req'd |
| TURNTABLE FLUSH MOUNT 2M | T-200-S | N/A | No Cal. Req'd | No Cal. Req'd |
| PROGRAMMING CONTROLLER | MF-7802BS | N/A | No Cal. Req'd | No Cal. Req'd |
| POWER SUPPLY (0-60V/0-50A, 1000W) | 6032A | 2615A01178 | 18-Jun-23 | 18-Jun-24 |
| SIGNAL ANALYZER | FSV40 | 101432 | 10-Aug-23 | 09-Aug-24 |
| DATA LOGGER | SDL500 | A.016800 | 21-Jun-23 | 21-Jun-24 |
| BILOG ANTENNA | CBL6112D | 55546 | 23-Jun-22 | 23-Sep-23 |
| BILOG ANTENNA | CBL6112D | 30991 | 5-Jan-23 | 5-Jan-24 |
| DRG HORN FREQ. | SAS-571 | 566 | 22-Nov-22 | 22-Nov-23 |
| DRG HORN FREQ. | SAS-571 | 720 | 18-Apr-23 | 18-Apr-25 |
| PREAMPLIFIER | PAM-0118 | 427 | 18-Oct-21 | 18-Oct-24 |
| SIGNAL GENERATOR | SMB100A | 182511 | 04-Jun-21 | 04-Jun-24 |
| LOOP ANTENNA | 6502 | 00208416 | 12-Oct-22 | 12-Oct-23 |
| BROAD-BAND HORN ANTENNA | BBHA9170 | BBHA9170255 | 22-Feb-23 | 22-Feb-24 |
| Test Software | EMC_FCC_IC_Bluetooth_RE_Test | | | |
| Version | EMC_FCC_RE_v1.6.5 | | | |

AC Power Line Conducted Spurious Emission NA

5.0. Test Condition

5.1 Receiver Test Conditions

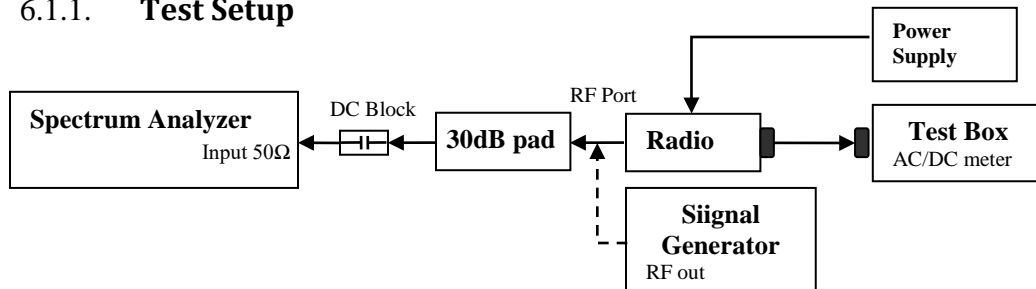
| Test Item, (Channel Spacing) | Temperature (°C) | Voltage Supply (V) | Power (W) | Modulation | Highest Operating Frequency (MHz) | Test Mode Description |
|---|---------------------|-----------------------------------|--------------|------------|--|----------------------------------|
| Conducted Spurious Output Power (12.5kHz / 25kHz) | NA | NA | NA | NA | NA | |
| Radiated Spurious Output Power (12.5kHz) | 23.5°C | Battery powered with 3.6 V. | NA | FM | 162.0000 | Weather channel turned on. |
| AC Power Line Conducted Spurious Emissions (12.5kHz / 25kHz) | NA | NA | NA | NA | NA | |

NA → Not Applicable

6.0. Receiver Test Parameters

6.1. Conducted Spurious Output Power

6.1.1. Test Setup



- 1) Identify the radio is high side ($LO = Fc + IF$) or low side injection ($LO = Fc - IF$).
- 2) To get the reference point, set signen to 1st LO frequency with amplitude level 0dBm.
- 3) Set the LO frequency into PSA. Adjust the PSA RBW = 100 kHz and record the Reference level offset.
- 4) Replace the Sigen with the UUT.
- 5) At PSA, set the frequency step size to LO frequency to test from 2LO to 10LO.
- 6) Record or screen captures the data in dBm value.

6.1.2. Test Result

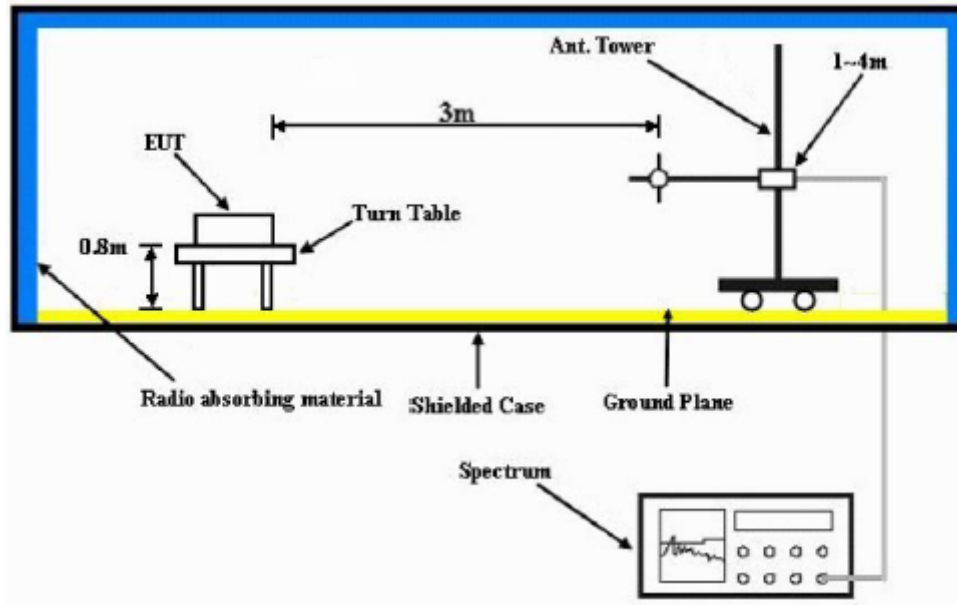
NA

6.1.3. Test Limit

No spurious output appearing at the antenna terminals shall exceed -57dBm across 50Ω.

6.2. Radiated Spurious Output Power

6.2.1. Test Setup



- 1) The spectrum setting for scanning Radiated Emission below 1 GHz is RBW = 100 kHz, VBW = 300 kHz and above 1 GHz is RBW = 1MHz, VBW = 3MHz. Detector mode is positive peak.
- 2) In the semi-anechoic chamber, setup as illustrated above the EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- 3) The substitution antenna is substituted for EUT at the same position and signals generator (S.G) export the CW signal to the substitution antenna via a TX cable. The receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum radiation power. Record the power level of maximum radiation power from spectrum. So, the measured substitution value = Ref level of S.G + TX cables loss – Substituted Antenna Gain.
- 4) Final Radiated Spurious Emission = “Read Value” + Measured substitution value.

6.2.2. Test Result

Motorola Solutions.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

Test: SAC Receiver Radiated Emission
 Model#: T803 S/N: 17520ZN0371 EMC SR ID#: 39731-EMC-00006
 Battery: 1532 Accessory: NA
 Test Frequency: 162.0000 MHz Test Standard: ANSI C63.26-2015

Radiated Emission tabular data

| Vertical Radiated Emission Result | | | | | | | | | | |
|-------------------------------------|-------------------------|------------------------|------------------------|--------------------|-------------------|-------------------|---------------------|--------------------|--------------------|---------------------------|
| Spur Freq (MHz) | Spur level QPK (dBµV/m) | Spur level PK (dBµV/m) | Spur level AV (dBµV/m) | Limit QPK (dBµV/m) | Limit PK (dBµV/m) | Limit AV (dBµV/m) | Margin QPK (dBµV/m) | Margin PK (dBµV/m) | Margin AV (dBµV/m) | Carrier PK Power (dBµV/m) |
| 324.0000 | 19.6283 ** | - | - | 46.0000 | - | - | 26.3717 | - | - | - |
| 486.0000 | 24.3945 ** | - | - | 46.0000 | - | - | 21.6055 | - | - | - |
| 648.0000 | 25.0956 ** | - | - | 46.0000 | - | - | 20.9044 | - | - | - |
| 810.0000 | 28.0254 ** | - | - | 46.0000 | - | - | 17.9746 | - | - | - |
| 972.0000 | 28.1803 ** | - | - | 46.0000 | - | - | 17.8197 | - | - | - |
| 1134.0000 | - | 34.8983 ** | - | - | 74.0000 | - | - | 39.1017 | - | - |
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| Horizontal Radiated Emission Result | | | | | | | | | | |
| 324.0000 | 19.4139 ** | | - | 46.0000 | - | - | 26.5861 | - | - | - |
| 486.0000 | 23.0199 ** | | - | 46.0000 | - | - | 22.9801 | - | - | - |
| 648.0000 | 25.4139 ** | | - | 46.0000 | - | - | 20.5861 | - | - | - |
| 810.0000 | 27.1503 ** | | - | 46.0000 | - | - | 18.8497 | - | - | - |
| 972.0000 | 27.2754 ** | | - | 46.0000 | - | - | 18.7246 | - | - | - |
| 1134.0000 | - | 35.4892 ** | - | - | 74.0000 | - | - | 38.5108 | - | - |
| | | | | | | | | | | |
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|-------------------------|-----------------|-------------|
| Remarks: Pass Result | Marginal Result | Fail Result |
|-------------------------|-----------------|-------------|

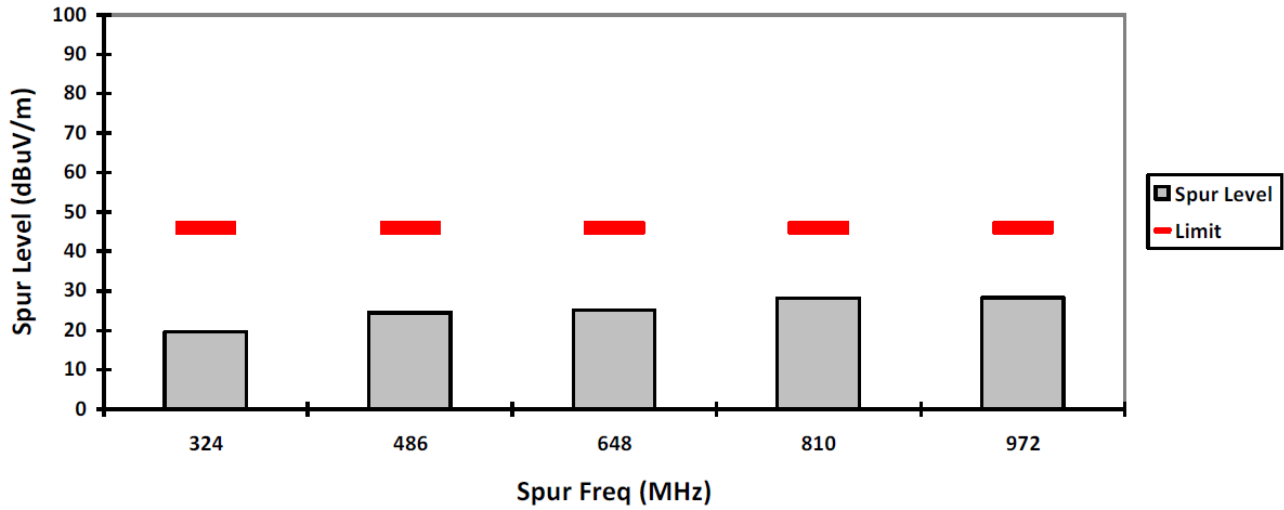
Temperature (degC): 23.5 Humidity (%): 56.7
 Test Performed by: Haniff (Zhariff) Test Date: Fri, 18 Aug, 2023
 System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
 *Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

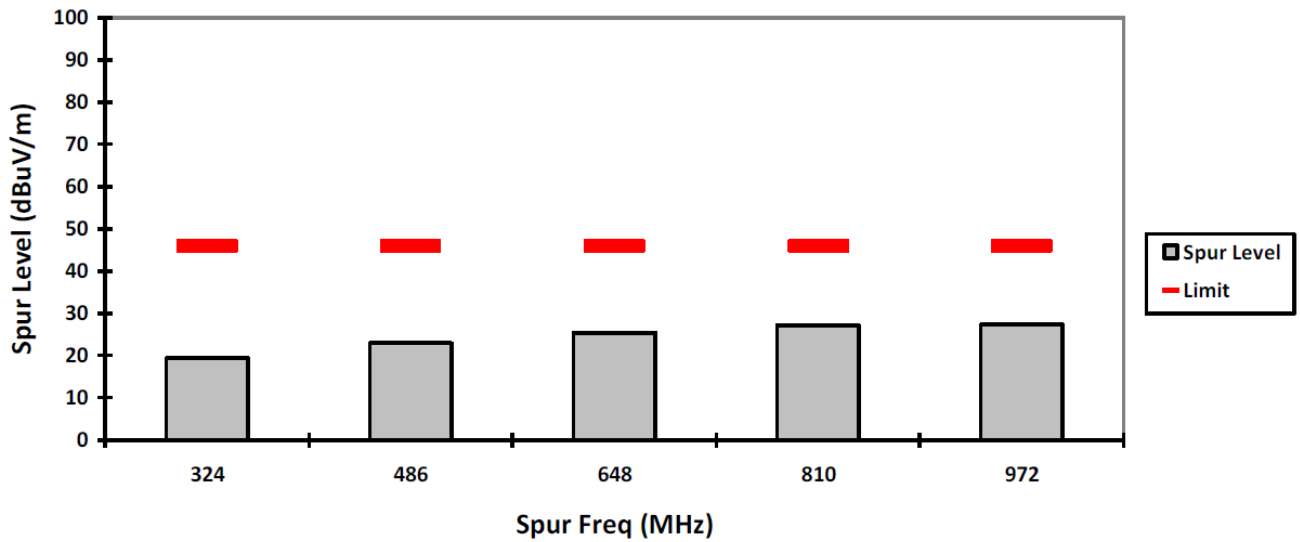
Motorola Solutions.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

VERTICAL, QPK



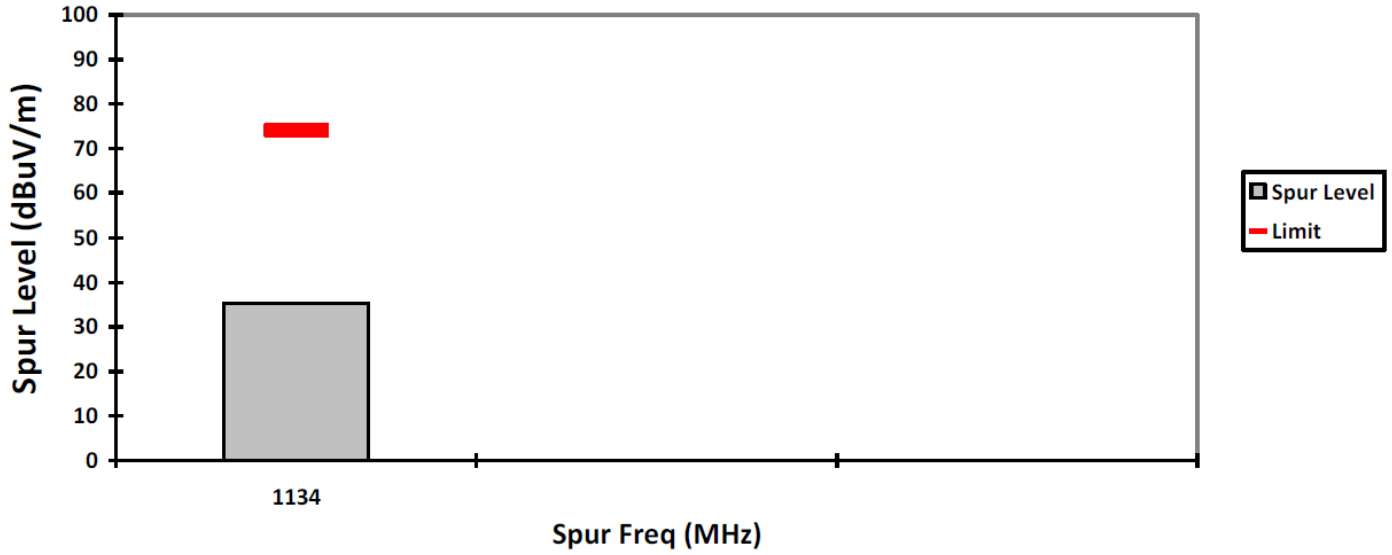
HORIZONTAL, QPK



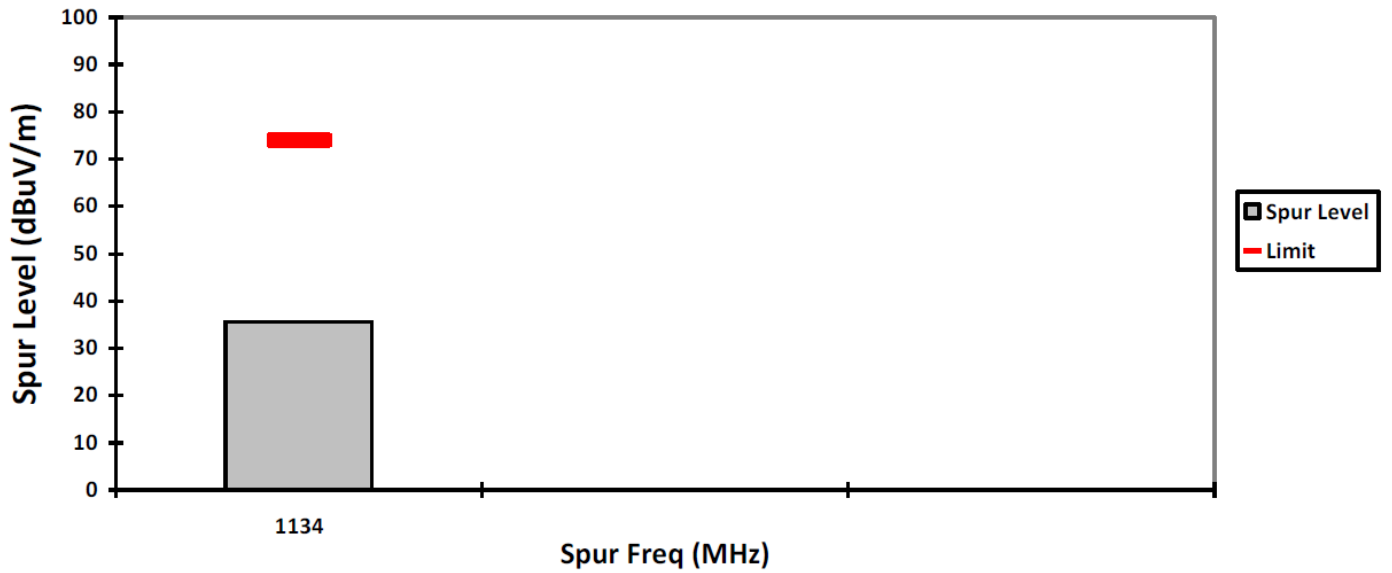
Motorola Solutions.

FCC ID: AZ489FT7174, IC: 109U-89FT7174

VERTICAL, PK



HORIZONTAL, PK



6.2.3. Test Limit

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

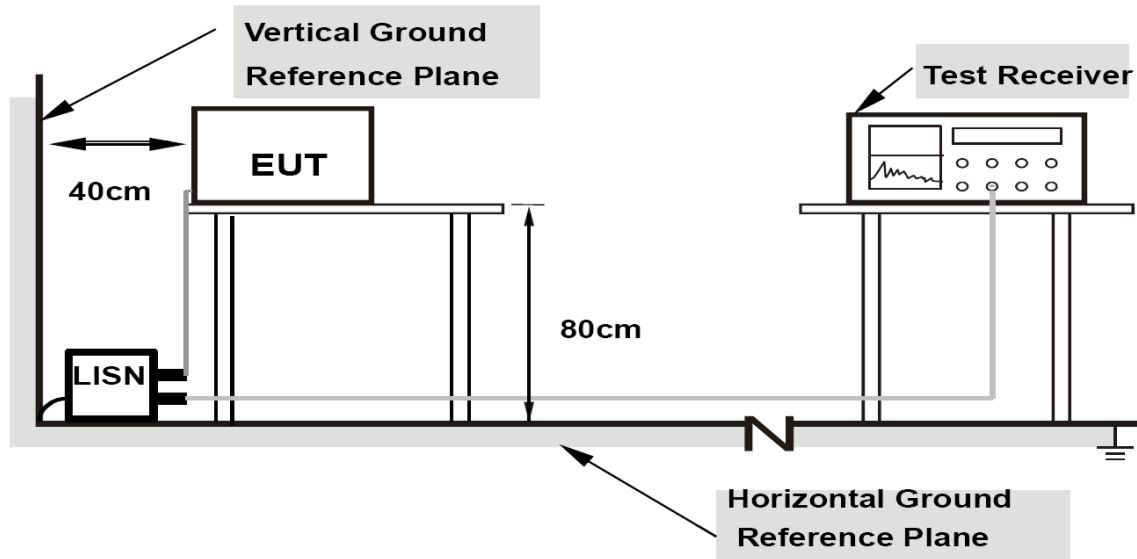
| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above 960 | 500 |

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88 | 90 |
| 88-216 | 150 |
| 216-960 | 210 |
| Above 960 | 300 |

6.3. AC Power Line Conducted Spur Emissions

6.3.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

6.3.2. Test Results

NA

6.3.3. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

Limits for conducted disturbance at the mains ports of class A ITE

| Frequency range MHz | Limits dB(μ V) | |
|---|------------------------|---------|
| | Quasi-peak | Average |
| 0,15 to 0,50 | 79 | 66 |
| 0,50 to 30 | 73 | 60 |
| NOTE The lower limit shall apply at the transition frequency. | | |

Limits for conducted disturbance at the mains ports of class B ITE

| Frequency range MHz | Limits dB(μ V) | |
|---|------------------------|----------|
| | Quasi-peak | Average |
| 0,15 to 0,50 | 66 to 56 | 56 to 46 |
| 0,50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz. | | |

7.0. Appendix: Test Setup Photo

7.1. Conducted Spur Emission ATE Station Setup

NA

7.2. Radiated Spur Emission Station Setup

NA

7.3. AC Power Line Conducted Emission Station Setup

NA

7.4. Photographs - EUT

NA

~ End of Test Report ~