

FCC Test Report

FCC ID : VQK-F03H

Equipment: Mobile Phone

Model No. : F-03H

Brand Name : FUJITSU

Applicant : FUJITSU LIMITED

Address : 1-1, Kamikodanaka 4-chome, Nakahara-ku,

Kawasaki 211-8588, Japan

Standard : 47 CFR FCC Part 15.407

Received Date : Feb. 26, 2016

Tested Date : Apr. 18 ~ Apr. 28, 2016

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

Gary Chang / Manager

Iac MRA



Report No.: FR622602AN Report Version: Rev. 01 Page: 1 of 80



Table of Contents

| 1 | GENERAL DESCRIPTION | 5 |
|-----|--|----|
| 1.1 | Information | 5 |
| 1.2 | Local Support Equipment List | 8 |
| 1.3 | Test Setup Chart | |
| 1.4 | The Equipment List | 9 |
| 1.5 | Testing Applied Standards | 10 |
| 1.6 | Measurement Uncertainty | 10 |
| 2 | TEST CONFIGURATION | 11 |
| 2.1 | Testing Condition | 11 |
| 2.2 | The Worst Test Modes and Channel Details | |
| 3 | TRANSMITTER TEST RESULTS | 12 |
| 3.1 | Conducted Emissions | 12 |
| 3.2 | Emission Bandwidth | 15 |
| 3.3 | RF Output Power | 18 |
| 3.4 | Peak Power Spectral Density | 20 |
| 3.5 | Transmitter Radiated and Band Edge Emissions | 23 |
| 3.6 | Frequency Stability | 78 |
| 4 | TEST LABORATORY INFORMATION | 80 |



Release Record

| Report No. | Version | Description | Issued Date |
|------------|---------|---------------|--------------|
| FR622602AN | Rev. 01 | Initial issue | May 10, 2016 |

Report No.: FR622602AN Page: 3 of 80



Summary of Test Results

| FCC Rules | Test Items | Measured | Result |
|---------------------|-----------------------------|---|--------|
| 15.207 | Conducted Emissions | [dBuV]: 4.247MHz 48.89 (Margin -7.11dB) - QP | Pass |
| 15.407(b) 15.209 | Radiated Emissions | [dBuV/m at 3m]: 5470.00MHz 66.68 (Margin -1.52dB) - PK | Pass |
| 15.407(a) | Emission Bandwidth | Meet the requirement of limit | Pass |
| 15.407(e) | 6dB bandwidth | Meet the requirement of limit | Pass |
| 15.407(a) | RF Output Power | Max Power [dBm]: 5150~5250MHz: 16.15 5250~5350MHz: 15.99 5470~5725MHz: 15.92 | Pass |
| 15.407(a) | Peak Power Spectral Density | Meet the requirement of limit | Pass |
| 15.407(g) | Frequency Stability | Meet the requirement of limit | Pass |
| 15.203 | Antenna Requirement | Meet the requirement of limit | Pass |

Report No.: FR622602AN Page: 4 of 80



1 General Description

1.1 Information

1.1.1 Product Details

| Product Name | Mobile Phone |
|--------------|-----------------------------------|
| Brand Name | FUJITSU |
| Model Name | F-03H |
| IMEI Code | 356398070028368 / 356398070028426 |
| H/W Version | V2.1.0 |
| S/W Version | R012.2 |

1.1.2 Specification of the Equipment under Test (EUT)

| RF General Information | | | | | | |
|-------------------------------------|---------------------|-------------------------------------|---|---------------------------------------|--------------------|--|
| Frequency Range (MHz) | IEEE Std. 802.11 | Ch. Freq. (MHz) | Channel Number | Transmit Chains (N _{TX}) | Data Rate / MCS | |
| 5150-5250 5250-5350 5470-5725 | а | 5180-5240 5260-5320 5500-5700 | 36-48 [4] 52-64 [4] 100-140 [11] | 1 | 6-54 Mbps | |
| 5150-5250 5250-5350 5470-5725 | n (HT20) | 5180-5240 5260-5320 5500-5700 | 36-48 [4] 52-64 [4] 100-140 [11]] | 1 | MCS 0-7 | |
| 5150-5250 5250-5350 5470-5725 | n (HT40) | 5190-5230 5270-5310 5510-5670 | 38-46 [2] 54-62 [2] 102-134 [5] | 1 | MCS 0-7 | |

Note 1: RF output power specifies that Maximum Conducted Output Power.

Note 2: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

1.1.3 Antenna Details

| Ant No | Tuno | Connector | Operating Frequencies (MHz) / Antenna Gain (dBi) | | |
|----------|--------------|-----------|--|-----------|-----------|
| Ant. No. | Туре | | 2400~2483.5 | 5150~5350 | 5470~5725 |
| 1 | λ/4 Monopole | N/A | -8.0 | -6.1 | -6.1 |

1.1.4 Power Supply Type of Equipment under Test (EUT)

| Power Supply Type 5.0Vdc from AC adapter 3.8Vdc from Battery |
|---|
|---|

Report No.: FR622602AN Page: 5 of 80



1.1.5 Accessories

| No. | Equipment | Description | |
|-----|-----------|---|--|
| 1 | Battery | Brand Name: FUJITSU CONNECTED TECHNOLOGIES LIMITED Model Name: CA54310-0067 Power Rating: 3.8Vdc, 2,580mAh, 9.9Wh | |

1.1.6 Channel List

| Frequency band (MHz) | | 5150~5725 | | |
|----------------------|-------------------|-----------|----------------|--|
| 802.11 a | 802.11 a / n HT20 | | n HT40 | |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) | |
| 36 | 5180 | 38 | 5190 | |
| 40 | 5200 | 46 | 5230 | |
| 44 | 5220 | 54 | 5270 | |
| 48 | 5240 | 62 | 5310 | |
| 52 | 5260 | 102 | 5510 | |
| 56 | 5280 | 110 | 5550 | |
| 60 | 5300 | 118 | 5590 | |
| 64 | 5320 | 126 | 5630 | |
| 100 | 5500 | 134 | 5670 | |
| 104 | 5520 | | | |
| 108 | 5540 | | | |
| 112 | 5560 | | | |
| 116 | 5580 | | | |
| 120 | 5600 | | | |
| 124 | 5620 | | | |
| 128 | 5640 | | | |
| 132 | 5660 | | | |
| 136 | 5680 | | | |
| 140 | 5700 | | | |

1.1.7 Test Tool and Duty Cycle

| Test Tool | QRCT, Version: 3.0.54.0 | | |
|----------------------------|-------------------------|----------------|------------------|
| | Mode | Duty cycle (%) | Duty factor (dB) |
| Duty Cycle and Duty Factor | 11a | 100.00% | 0.00 |
| | HT20 | 100.00% | 0.00 |
| | HT40 | 99.96% | 0.00 |

Report No.: FR622602AN Page: 6 of 80



1.1.8 Power Setting

| For Frequency band 5150-5250 MHz | | | | |
|----------------------------------|----------------------|-----------|--|--|
| Modulation Mode | Test Frequency (MHz) | Power Set | | |
| 11a | 5180 | 16.00 | | |
| 11a | 5200 | 16.00 | | |
| 11a | 5240 | 16.00 | | |
| HT20 | 5180 | 16.00 | | |
| HT20 | 5200 | 16.00 | | |
| HT20 | 5240 | 16.00 | | |
| HT40 | 5190 | 16.00 | | |
| HT40 | 5230 | 16.00 | | |

| For Frequency band 5250-5350 MHz | | | | |
|----------------------------------|----------------------|-----------|--|--|
| Modulation Mode | Test Frequency (MHz) | Power Set | | |
| 11a | 5260 | 16.00 | | |
| 11a | 5300 | 16.00 | | |
| 11a | 5320 | 16.00 | | |
| HT20 | 5260 | 16.00 | | |
| HT20 | 5300 | 16.00 | | |
| HT20 | 5320 | 16.00 | | |
| HT40 | 5270 | 16.00 | | |
| HT40 | 5310 | 16.00 | | |

| F | For Frequency band 5470-5725 MHz | | | | | | | | | |
|-----------------|----------------------------------|-----------|--|--|--|--|--|--|--|--|
| Modulation Mode | Test Frequency (MHz) | Power Set | | | | | | | | |
| 11a | 5500 | 16.00 | | | | | | | | |
| 11a | 5580 | 16.00 | | | | | | | | |
| 11a | 5700 | 16.00 | | | | | | | | |
| HT20 | 5500 | 16.00 | | | | | | | | |
| HT20 | 5580 | 16.00 | | | | | | | | |
| HT20 | 5700 | 16.00 | | | | | | | | |
| HT40 | 5510 | 16.00 | | | | | | | | |
| HT40 | 5550 | 16.00 | | | | | | | | |
| HT40 | 5670 | 16.00 | | | | | | | | |

Report No.: FR622602AN Page: 7 of 80

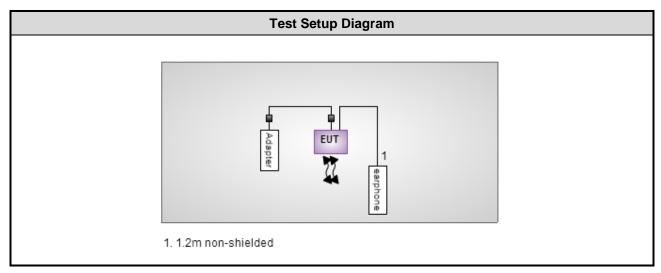


1.2 Local Support Equipment List

| | Support Equipment List | | | | | | | | | | | | |
|-----|------------------------|---------------|-------------------|---------|--------|----------------------------|--|--|--|--|--|--|--|
| No. | Equipment | Brand | Model | S/N | FCC ID | Signal cable / Length (m) | | | | | | | |
| 1 | Earphone | APPLE | MD827FE/A | 6 | | 1.2m non-shielded w/o core | | | | | | | |
| 2 | Adapter | NTT docomo | AC Adapter 04 | | | | | | | | | | |
| 3 | Notebook | DELL | Latitude E6440 | JMXMD12 | DoC | | | | | | | | |

Note: Adapter is provided by applicant.

1.3 Test Setup Chart



Note: Notebook is disconnected from EUT and removed from test table when EUT is set to transmit continuously.

Report No.: FR622602AN Page: 8 of 80



1.4 The Equipment List

| Test Item | Conducted Emission | | | | | | | | | | |
|---|-------------------------------|--|----------|---------------|---------------|--|--|--|--|--|--|
| Test Site | Conduction room 1 / (CO01-WS) | | | | | | | | | | |
| Instrument | Manufacturer | Manufacturer Model No. Serial No. Calibration Date Calibration Until | | | | | | | | | |
| EMC Receiver | R&S | ESCS 30 | 100169 | Oct. 21, 2015 | Oct. 20, 2016 | | | | | | |
| LISN | SCHWARZBECK | Schwarzbeck 8127 | 8127-667 | Nov. 13, 2015 | Nov. 12, 2016 | | | | | | |
| RF Cable-CON | EMC | EMCCFD300-BM-BM-6000 | 50821 | Dec. 21, 2015 | Dec. 20, 2016 | | | | | | |
| Measurement Software AUDIX e3 6.120210k NA NA | | | | | | | | | | | |
| Note: Calibration Int | erval of instruments lis | ted above is one year. | | • | | | | | | | |

| Test Item | Radiated Emission | Radiated Emission | | | | | | | | | | |
|-------------------------|------------------------|---------------------------|---------------------|------------------|-------------------|--|--|--|--|--|--|--|
| Test Site | 966 chamber 3 / (03 | CH03-WS) | | | | | | | | | | |
| Instrument | Manufacturer | Model No. | Serial No. | Calibration Date | Calibration Until | | | | | | | |
| Spectrum Analyzer | Agilent | N9010A | MY53400091 | Sep. 14, 2015 | Sep. 13, 2016 | | | | | | | |
| Receiver | Agilent | N9038A | MY53290044 | Oct. 14, 2015 | Oct. 13, 2016 | | | | | | | |
| Bilog Antenna | SCHWARZBECK | VULB9168 | VULB9168-562 | Nov. 16, 2015 | Nov. 15, 2016 | | | | | | | |
| Horn Antenna 1G-18G | SCHWARZBECK | BBHA 9120 D | BBHA 9120 D 1206 | Feb. 24, 2016 | Feb. 23, 2017 | | | | | | | |
| Horn Antenna 18G-40G | SCHWARZBECK | BBHA 9170 | BBHA 9170517 | Nov. 04, 2015 | Nov. 03, 2016 | | | | | | | |
| Preamplifier | EMC | EMC02325 | 980187 | Sep. 21, 2015 | Sep. 20, 2016 | | | | | | | |
| Preamplifier | Agilent | 83017A | MY53270014 | Sep. 07, 2015 | Sep. 06, 2016 | | | | | | | |
| Preamplifier | EMC | EMC184045B | 980192 | Sep. 01, 2015 | Aug. 31, 2016 | | | | | | | |
| RF cable-3M | HUBER+SUHNER | SUCOFLEX104 | MY22620/4 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| RF cable-8M | HUBER+SUHNER | SUCOFLEX104 | MY22600/4 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| RF cable-1M | HUBER+SUHNER | SUCOFLEX104 | MY22624/4 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| LF cable-0.8M | EMC | EMC8D-NM-NM-800 | EMC8D-NM-NM-800-001 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| LF cable-3M | EMC | EMC8D-NM-NM-3000 | 131103 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| LF cable-13M | EMC | EMC8D-NM-NM-13000 | 131104 | Feb. 05, 2016 | Feb. 04, 2017 | | | | | | | |
| Measurement Software | AUDIX | e3 | 6.120210g | NA | NA | | | | | | | |
| Note: Calibration I | nterval of instruments | listed above is one year. | | | | | | | | | | |

Report No.: FR622602AN Page: 9 of 80



| Test Item | RF Conducted | | | | |
|--------------------------|---------------------------|----------------------|-------------|------------------|-------------------|
| Test Site | (TH01-WS) | | | | |
| Instrument | Manufacturer | Model No. | Serial No. | Calibration Date | Calibration Until |
| Spectrum Analyzer | R&S | FSV40 | 101063 | Feb. 17, 2016 | Feb. 16, 2017 |
| TEMP&HUMIDITY CHAMBER | GIANT FORCE | GCT-225-40-SP-SD | MAF1212-002 | Nov. 27, 2015 | Nov. 26, 2016 |
| Power Meter | Anritsu | ML2495A | 1241002 | Sep. 21, 2015 | Sep. 20, 2016 |
| Power Sensor | Anritsu | MA2411B | 1207366 | Sep. 21, 2015 | Sep. 20, 2016 |
| Measurement Software | Sporton | Sporton_1 | 1.3.30 | NA | NA |
| Note: Calibration Inte | rval of instruments liste | d above is one year. | | • | |

1.5 Testing Applied Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.407

ANSI C63.10-2013

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02

FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Measurement Uncertainty | |
|--------------------------|-------------|
| Parameters | Uncertainty |
| Bandwidth | ±34.134 Hz |
| Conducted power | ±0.808 dB |
| Frequency error | ±34.134 Hz |
| Power density | ±0.463 dB |
| Conducted emission | ±2.670 dB |
| AC conducted emission | ±2.90 dB |
| Radiated emission ≤ 1GHz | ±3.66 dB |
| Radiated emission > 1GHz | ±5.37 dB |
| Time | ±0.1% |
| Temperature | ±0.6 °C |

Report No.: FR622602AN Page: 10 of 80



2 Test Configuration

2.1 Testing Condition

| Test Item | Test Site | Ambient Condition | Tested By |
|--------------------|-----------|-------------------|------------------------|
| AC Conduction | CO01-WS | 20°C / 60% | Howard Huang |
| Radiated Emissions | 03CH03-WS | 20°C / 60-66% | Warren Lee Allen Yu |
| RF Conducted | TH01-WS | 21°C / 67% | Anderson Hung |

FCC site registration No.: 207696IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

| Test item | Modulation Mode | Test Frequency (MHz) | Data Rate |
|------------------------------------|-----------------|--|-----------|
| Conducted Emissions | HT40 | 5230 | MCS 0 |
| Radiated Emissions ≤1GHz | HT40 | 5230 | MCS 0 |
| Radiated Emissions >1GHz | 11a | 5180 / 5200 / 5240 5260 / 5300 / 5320 5500 / 5580 / 5700 | 6 Mbps |
| RF Output Power Emission Bandwidth | HT20 | 5180 / 5200 / 5240 5260 / 5300 / 5320 5500 / 5580 / 5700 | MCS 0 |
| Peak Power Spectral Density | HT40 | 5190 / 5230 5270 / 5310 5510 / 5550 / 5670 | MCS 0 |
| Frequency Stability | Un-modulation | 5320 | |

NOTE:

Report No.: FR622602AN Page: 11 of 80

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report.



3 Transmitter Test Results

3.1 Conducted Emissions

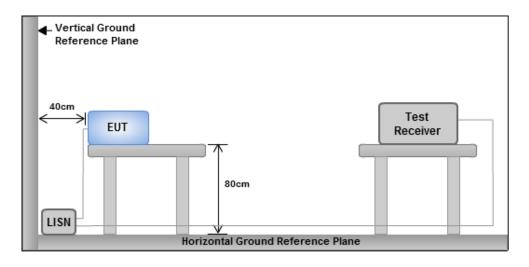
3.1.1 Limit of Conducted Emissions

| Conducted Emissions Limit | | | | | | | | |
|--|------------|-----------|--|--|--|--|--|--|
| Frequency Emission (MHz) Quasi-Peak Average | | | | | | | | |
| 0.15-0.5 | 66 - 56 * | 56 - 46 * | | | | | | |
| 0.5-5 | 56 | 46 | | | | | | |
| 5-30 | 5-30 60 50 | | | | | | | |
| Note 1: * Decreases with the logarithm of the frequency. | | | | | | | | |

3.1.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V/60Hz

3.1.3 Test Setup



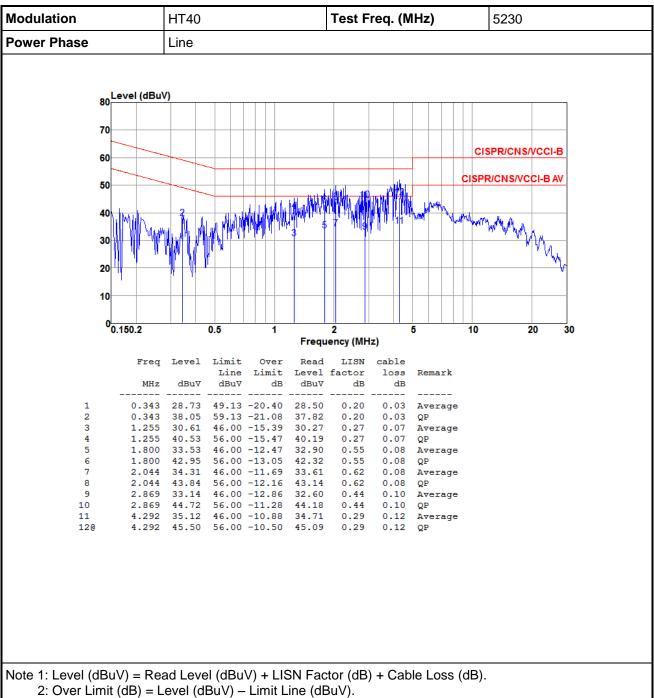
Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

Report No.: FR622602AN Page: 12 of 80

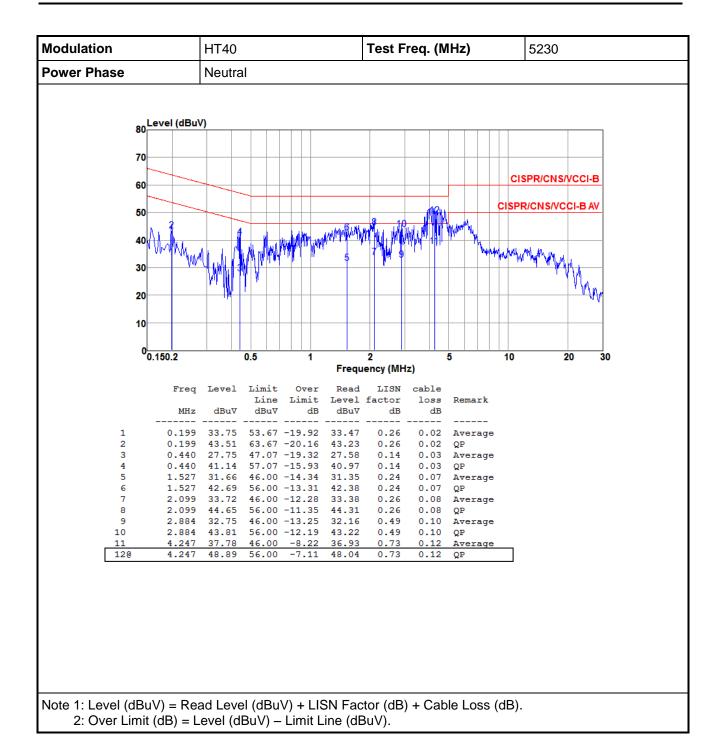


Test Result of Conducted Emissions 3.1.4



Report No.: FR622602AN Page: 13 of 80





Report No.: FR622602AN

Page: 14 of 80



3.2 Emission Bandwidth

3.2.1 Test Procedures

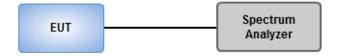
26dB Bandwidth

- 1. Set RBW = approximately 1% of the emission bandwidth.
- 2. Set the VBW > RBW, Detector = Peak.
- 3. Trace mode = max hold.
- 4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

- 1. Set RBW = 1 % to 5 % of the OBW
- 2. Set VBW ≥ 3 RBW
- 3. Sample detection and single sweep mode shall be used
- 4. Use the 99 % power bandwidth function of the instrument

3.2.2 Test Setup



Report No.: FR622602AN Page: 15 of 80



3.2.3 Test Result of Emission Bandwidth

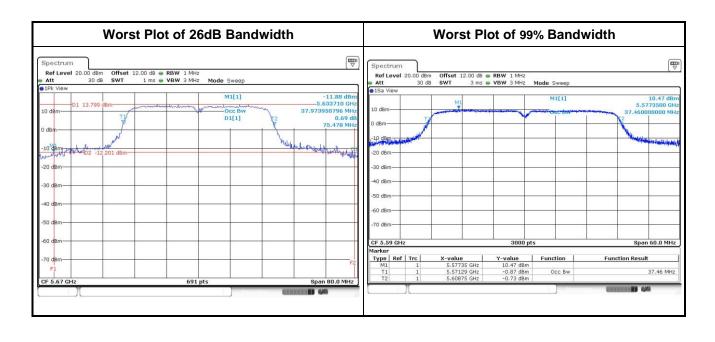
| | For Frequency band 5150~5250 MHz | | | | | | | | | | | | | |
|------|----------------------------------|-------|---------|----------|------------|------------|---------|-----------|------------|---------|--|--|--|--|
| Mode | N | Freq. | 2 | 6dB Band | width (MHz | <u>z</u>) | 9 | 99% Bandy | vidth (MHz |) | | | | |
| Mode | N _{TX} | (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Chain 0 | Chain 1 | Chain 2 | Chain 3 | | | | |
| 11a | 1 | 5180 | 22.55 | | | | 17.19 | | | | | | | |
| 11a | 1 | 5200 | 23.65 | | | | 17.19 | | | | | | | |
| 11a | 1 | 5240 | 22.67 | | | | 17.13 | | | | | | | |
| HT20 | 1 | 5180 | 22.72 | | | | 18.23 | | | | | | | |
| HT20 | 1 | 5200 | 22.90 | | | | 18.12 | | | | | | | |
| HT20 | 1 | 5240 | 24.23 | | | | 18.12 | | | | | | | |
| HT40 | 1 | 5190 | 58.90 | | | | 36.74 | | | | | | | |
| HT40 | 1 | 5230 | 55.88 | | | | 36.80 | | | | | | | |

| | For Frequency band 5250~5350 MHz | | | | | | | | | | | | | |
|------|----------------------------------|-------|---------|---------|-----------|---------|---------|----------|-----------|---------|----------------|--|--|--|
| Mode | Mode N Freq. | | 26 | dB Band | width (Mł | łz) | 99 | 9% Bandv | vidth (MH | z) | Power | | | |
| Wode | N _{TX} | (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Limit (dBm) | | | |
| 11a | 1 | 5260 | 22.96 | | | | 17.16 | | | | 24.00 | | | |
| 11a | 1 | 5300 | 25.16 | | | | 17.22 | | | | 24.00 | | | |
| 11a | 1 | 5320 | 22.78 | | | | 17.13 | | | | 24.00 | | | |
| HT20 | 1 | 5260 | 23.13 | | | | 18.19 | | | | 24.00 | | | |
| HT20 | 1 | 5300 | 25.86 | | | | 18.14 | | | | 24.00 | | | |
| HT20 | 1 | 5320 | 26.14 | | | | 18.17 | | | | 24.00 | | | |
| HT40 | 1 | 5270 | 59.36 | | | | 36.68 | | | | 24.00 | | | |
| HT40 | 1 | 5310 | 66.32 | | | | 36.84 | | | | 24.00 | | | |

Report No.: FR622602AN Page: 16 of 80



| | For Frequency band 5470~5725 MHz | | | | | | | | | | | | | | |
|------|----------------------------------|-------|---------|---------|-----------|---------|---------|----------|-----------|---------|----------------|--|--|--|--|
| Mada | | Freq. | 26 | dB Band | width (MF | łz) | 99 | 9% Bandv | vidth (MH | lz) | Power | | | | |
| Mode | N _{TX} | (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Limit (dBm) | | | | |
| 11a | 1 | 5500 | 26.78 | | | | 17.39 | | | | 24.00 | | | | |
| 11a | 1 | 5580 | 37.68 | | | | 17.54 | | | | 24.00 | | | | |
| 11a | 1 | 5700 | 36.67 | | | | 17.47 | | | | 24.00 | | | | |
| HT20 | 1 | 5500 | 29.62 | | | | 18.22 | | | | 24.00 | | | | |
| HT20 | 1 | 5580 | 39.35 | | | | 18.33 | | | | 24.00 | | | | |
| HT20 | 1 | 5700 | 38.19 | | | | 18.32 | | | | 24.00 | | | | |
| HT40 | 1 | 5510 | 73.51 | | | | 36.90 | | | | 24.00 | | | | |
| HT40 | 1 | 5590 | 74.55 | | | | 37.46 | | | | 24.00 | | | | |
| HT40 | 1 | 5670 | 75.48 | | | | 37.18 | | | | 24.00 | | | | |



Report No.: FR622602AN Page: 17 of 80



3.3 RF Output Power

3.3.1 Limit of RF Output Power

| | Frequency band 5150-5250 MHz | | | | | | |
|-------------|------------------------------------|--|--|--|--|--|--|
| Оре | erating Mode | Limit | | | | | |
| | Outdoor access point | Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm) | | | | | |
| | Indoor access point | Conducted Power: 1 W | | | | | |
| | Fixed point-to-point access points | Conducted Power: 1 W | | | | | |
| \boxtimes | Client devices | Conducted Power: 250 mW | | | | | |

| Free | quency Band (MHz) | Limit | | | | |
|------|--|-------------------------|--|--|--|--|
| | 5250 ~ 5350 | 250mW or 11dBm+10 log B | | | | |
| | 5470 ~ 5725 | 250mW or 11dBm+10 log B | | | | |
| Note | Note: "B" is the 26dB emission bandwidth in MHz. | | | | | |

3.3.2 Test Procedures

Nower meter

Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required

3.3.3 Test Setup



Report No.: FR622602AN Page: 18 of 80



3.3.4 Test Result of Maximum Conducted Output Power

| | For Frequency band 5150~5250 MHz | | | | | | | | |
|------|----------------------------------|-------------|---------|------------|------------|---------|---------------|-------------------------|-------|
| | | - (A) | C | onducted I | Power (dBn | n) | Total | Total Power (dBm) | Limit |
| Mode | N _{TX} | Freq. (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Power (mW) | | (dBm) |
| 11a | 1 | 5180 | 15.21 | | | | 33.189 | 15.21 | 24.00 |
| 11a | 1 | 5200 | 15.48 | | | | 35.318 | 15.48 | 24.00 |
| 11a | 1 | 5240 | 15.46 | | | | 35.156 | 15.46 | 24.00 |
| HT20 | 1 | 5180 | 15.21 | | | | 33.189 | 15.21 | 24.00 |
| HT20 | 1 | 5200 | 15.46 | | | | 35.156 | 15.46 | 24.00 |
| HT20 | 1 | 5240 | 15.41 | | | | 34.754 | 15.41 | 24.00 |
| HT40 | 1 | 5190 | 15.89 | | | | 38.815 | 15.89 | 24.00 |
| HT40 | 1 | 5230 | 16.15 | | | | 41.210 | 16.15 | 24.00 |

| | For Frequency band 5250~5350 MHz | | | | | | | | |
|------|----------------------------------|-------------|---------|-----------------------|---------|---------|---------------|----------------|-------|
| | | | С | Conducted Power (dBm) | | | Total | Total | Limit |
| Mode | N _{TX} | Freq. (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Power (mW) | Power (dBm) | (dBm) |
| 11a | 1 | 5260 | 15.47 | | | | 35.237 | 15.47 | 24.00 |
| 11a | 1 | 5300 | 15.49 | | | | 35.400 | 15.49 | 24.00 |
| 11a | 1 | 5320 | 15.23 | | | | 33.343 | 15.23 | 24.00 |
| HT20 | 1 | 5260 | 15.44 | | | | 34.995 | 15.44 | 24.00 |
| HT20 | 1 | 5300 | 15.45 | | | | 35.075 | 15.45 | 24.00 |
| HT20 | 1 | 5320 | 15.25 | | | | 33.497 | 15.25 | 24.00 |
| HT40 | 1 | 5270 | 15.94 | | | | 39.264 | 15.94 | 24.00 |
| HT40 | 1 | 5310 | 15.99 | | | | 39.719 | 15.99 | 24.00 |

| | For Frequency band 5470~5725 MHz | | | | | | | | |
|------|----------------------------------|-------------|---------|-----------------------|---------|---------|---------------|----------------|-------|
| | | | C | Conducted Power (dBm) | | | | Total | Limit |
| Mode | N _{TX} | Freq. (MHz) | Chain 0 | Chain 1 | Chain 2 | Chain 3 | Power (mW) | Power (dBm) | (dBm) |
| 11a | 1 | 5500 | 15.28 | | | | 33.729 | 15.28 | 24.00 |
| 11a | 1 | 5580 | 15.29 | | | | 33.806 | 15.29 | 24.00 |
| 11a | 1 | 5700 | 15.21 | | | | 33.189 | 15.21 | 24.00 |
| HT20 | 1 | 5500 | 15.16 | | | | 32.810 | 15.16 | 24.00 |
| HT20 | 1 | 5580 | 15.32 | | | | 34.041 | 15.32 | 24.00 |
| HT20 | 1 | 5700 | 15.29 | | | | 33.806 | 15.29 | 24.00 |
| HT40 | 1 | 5510 | 15.48 | | | | 35.318 | 15.48 | 24.00 |
| HT40 | 1 | 5590 | 15.92 | | | | 39.084 | 15.92 | 24.00 |
| HT40 | 1 | 5670 | 15.87 | | | | 38.637 | 15.87 | 24.00 |

Report No.: FR622602AN Page: 19 of 80



3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

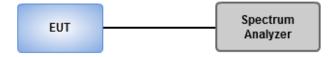
| | Frequency band 5150-5250 MHz | | | | | | |
|-------------|------------------------------------|--------------|--|--|--|--|--|
| Оре | erating Mode | Limit | | | | | |
| | Outdoor access point | 17 dBm / MHz | | | | | |
| | Indoor access point | 17 dBm / MHz | | | | | |
| | Fixed point-to-point access points | 17 dBm / MHz | | | | | |
| \boxtimes | Mobile and portable client devices | 11 dBm / MHz | | | | | |

| Free | quency Band (MHz) | Limit |
|-------------|-------------------|--------------|
| \boxtimes | 5250 ~ 5350 | 11 dBm / MHz |
| \boxtimes | 5470 ~ 5725 | 11 dBm / MHz |

3.4.2 Test Procedures

- Method SA-1
 - 1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
 - 2. Trace average 100 traces.
 - 3. Use the peak marker function to determine the maximum amplitude level.
- - 1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
 - 2. Set sweep time ≥ 10 * (number of points in sweep) * (total on/off period of the transmitted signal).
 - 3. Perform a single sweep.
 - 4. Use the peak marker function to determine the maximum amplitude level.
 - 5. Add $10 \log(1/x)$, where x is the duty cycle.

3.4.3 Test Setup



Report No.: FR622602AN Page: 20 of 80



3.4.4 Test Result of Peak Power Spectral Density

| Free | quency | band | 5150~5250 MHz | | | | | |
|------|-----------------|-------------|------------------------------|---------------------|-------------------------------|-------------------------|--|--|
| | Conditio | on | F | Peak Power Spectra | l Density (dBm/MHz | z) | | |
| Mode | N _{TX} | Freq. (MHz) | PPSD w/o D.F (dBm/MHz) | Duty Factor (dB) | PPSD with D.F (dBm/MHz) | PPSD Limit (dBm/MHz) | | |
| 11a | 1 | 5180 | 2.66 | 0.00 | 2.66 | 11 | | |
| 11a | 1 | 5200 | 2.88 | 0.00 | 2.88 | 11 | | |
| 11a | 1 | 5240 | 3.40 | 0.00 | 3.40 | 11 | | |
| HT20 | 1 | 5180 | 3.21 | 0.00 | 3.21 | 11 | | |
| HT20 | 1 | 5200 | 2.67 | 0.00 | 2.67 | 11 | | |
| HT20 | 1 | 5240 | 2.87 | 0.00 | 2.87 | 11 | | |
| HT40 | 1 | 5190 | 0.65 | 0.00 | 0.65 | 11 | | |
| HT40 | 1 | 5230 | 0.84 | 0.00 | 0.84 | 11 | | |

| Free | quency | band | 5250~5350 MHz | | | | | |
|------|-----------------|-------------|------------------------------|---------------------|-------------------------------|-------------------------|--|--|
| (| Conditio | on | F | Peak Power Spectra | l Density (dBm/MHz | z) | | |
| Mode | N _{TX} | Freq. (MHz) | PPSD w/o D.F (dBm/MHz) | Duty Factor (dB) | PPSD with D.F (dBm/MHz) | PPSD Limit (dBm/MHz) | | |
| 11a | 1 | 5260 | 2.88 | 0.00 | 2.88 | 11 | | |
| 11a | 1 | 5300 | 3.17 | 0.00 | 3.17 | 11 | | |
| 11a | 1 | 5320 | 2.87 | 0.00 | 2.87 | 11 | | |
| HT20 | 1 | 5260 | 2.76 | 0.00 | 2.76 | 11 | | |
| HT20 | 1 | 5300 | 2.97 | 0.00 | 2.97 | 11 | | |
| HT20 | 1 | 5320 | 2.83 | 0.00 | 2.83 | 11 | | |
| HT40 | 1 | 5270 | 0.39 | 0.00 | 0.39 | 11 | | |
| HT40 | 1 | 5310 | 0.65 | 0.00 | 0.65 | 11 | | |

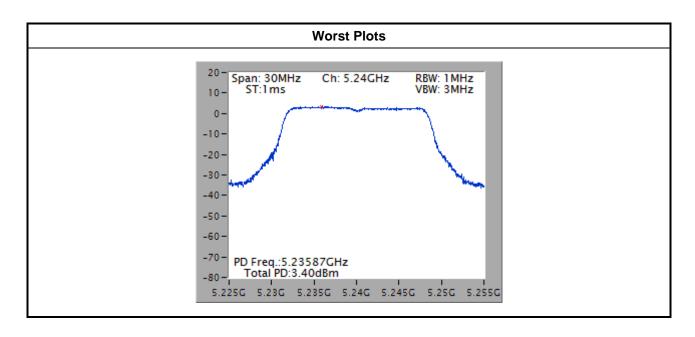
Note: D.F is duty factor.

Report No.: FR622602AN Page: 21 of 80



| Free | quency | band | 5475~5725 MHz | | | | | | |
|------|----------------------------------|------|------------------------------|---------------------------------------|-------------------------------|-------------------------|--|--|--|
| (| Conditio | on | F | Peak Power Spectral Density (dBm/MHz) | | | | | |
| Mode | Mode N _{TX} Freq. (MHz) | | PPSD w/o D.F (dBm/MHz) | Duty Factor (dB) | PPSD with D.F (dBm/MHz) | PPSD Limit (dBm/MHz) | | | |
| 11a | 1 | 5500 | 2.99 | 0.00 | 2.99 | 11 | | | |
| 11a | 1 | 5580 | 3.21 | 0.00 | 3.21 | 11 | | | |
| 11a | 1 | 5700 | 2.67 | 0.00 | 2.67 | 11 | | | |
| HT20 | 1 | 5500 | 3.17 | 0.00 | 3.17 | 11 | | | |
| HT20 | 1 | 5580 | 2.78 | 0.00 | 2.78 | 11 | | | |
| HT20 | 1 | 5700 | 2.82 | 0.00 | 2.82 | 11 | | | |
| HT40 | 1 | 5510 | 0.69 | 0.00 | 0.69 | 11 | | | |
| HT40 | 1 | 5590 | 0.68 | 0.00 | 0.68 | 11 | | | |
| HT40 | 1 | 5670 | 0.50 | 0.00 | 0.50 | 11 | | | |

Note: D.F is duty factor.



Report No.: FR622602AN Page: 22 of 80



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

| Restricted Band Emissions Limit | | | | | | | |
|---------------------------------|-----------------------|-------------------------|----------------------|--|--|--|--|
| Frequency Range (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) | | | | |
| 0.009~0.490 | 2400/F(kHz) | 48.5 - 13.8 | 300 | | | | |
| 0.490~1.705 | 24000/F(kHz) | 33.8 - 23 | 30 | | | | |
| 1.705~30.0 | 30 | 29 | 30 | | | | |
| 30~88 | 100 | 40 | 3 | | | | |
| 88~216 | 150 | 43.5 | 3 | | | | |
| 216~960 | 200 | 46 | 3 | | | | |
| Above 960 | 500 | 54 | 3 | | | | |

Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

| Un-restricted band emissions above 1GHz Limit | | | | | |
|---|--------------------------------|--|--|--|--|
| Operating Band | Limit | | | | |
| 5.15 - 5.25 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] | | | | |
| 5.25 - 5.35 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] | | | | |
| 5.47 - 5.725 GHz | e.i.r.p27 dBm [68.2 dBuV/m@3m] | | | | |

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Report No.: FR622602AN Page: 23 of 80



3.5.2 Test Procedures

- 1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

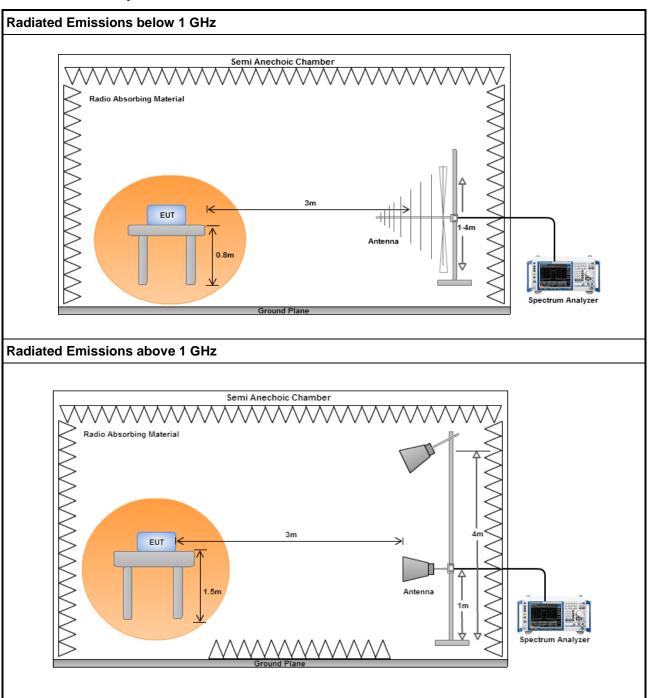
Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

Report No.: FR622602AN Page: 24 of 80



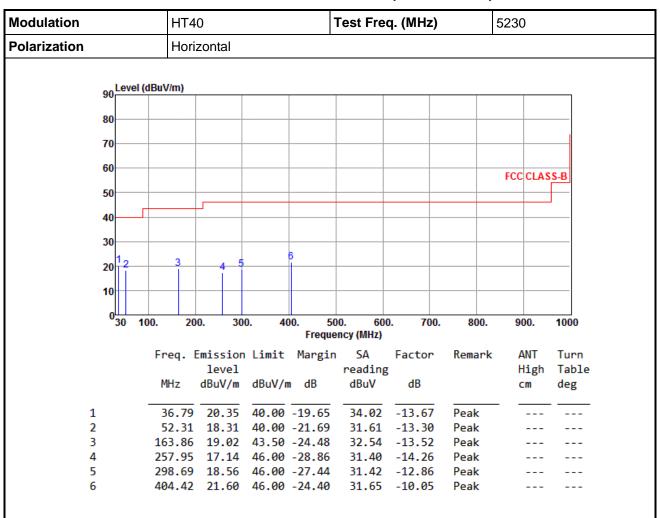
3.5.3 Test Setup



Report No.: FR622602AN Page: 25 of 80



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

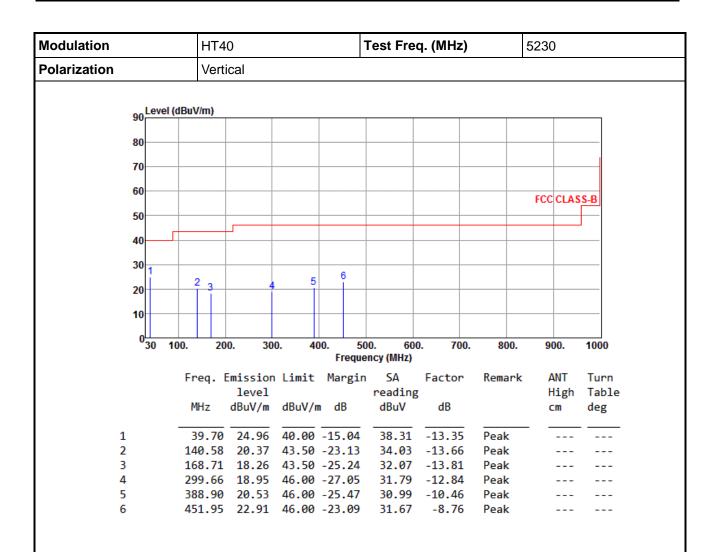
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Report No.: FR622602AN Page: 26 of 80





*Factor includes antenna factor, cable loss and amplifier gain

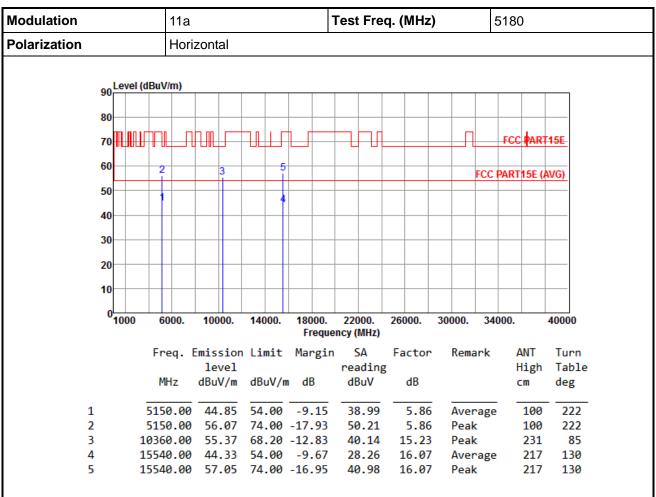
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Report No.: FR622602AN Page: 27 of 80



3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a



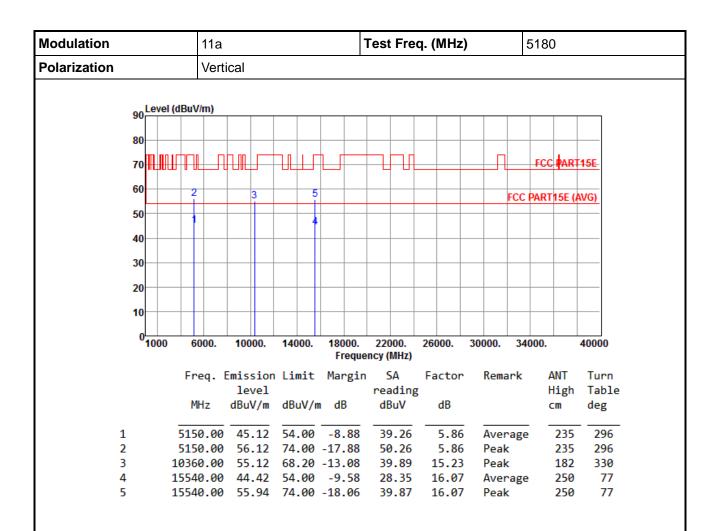
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 28 of 80



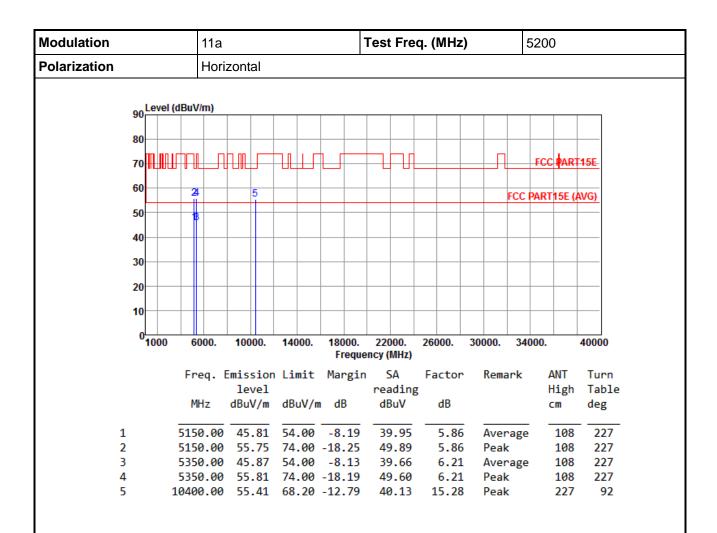


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 29 of 80



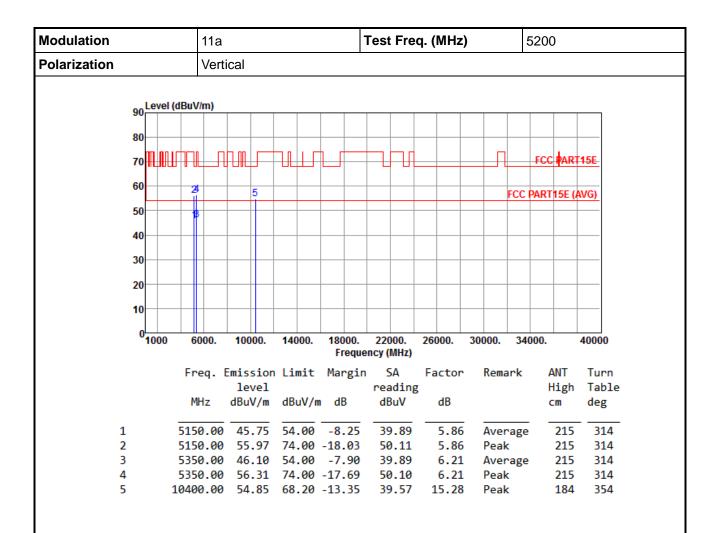


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 30 of 80



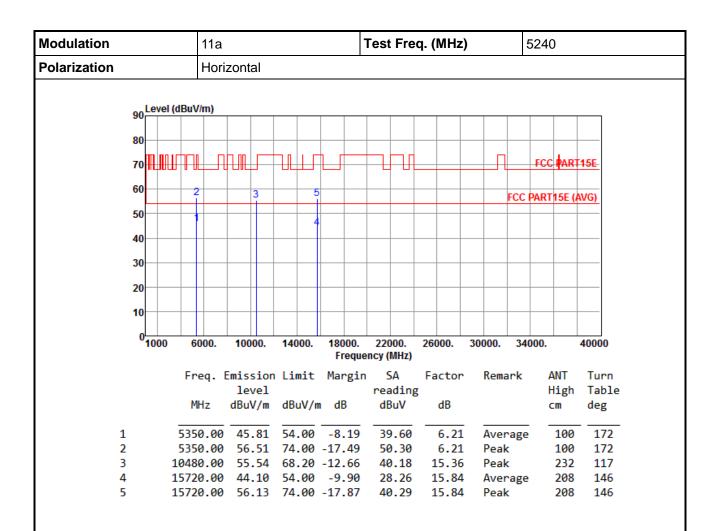


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 31 of 80



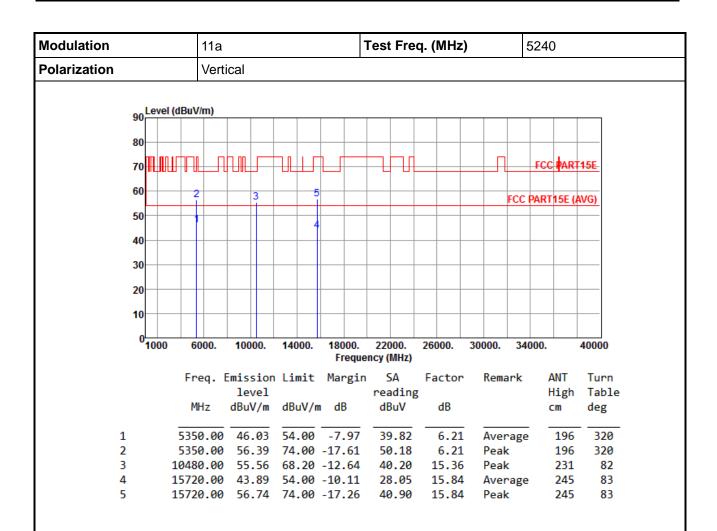


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 32 of 80



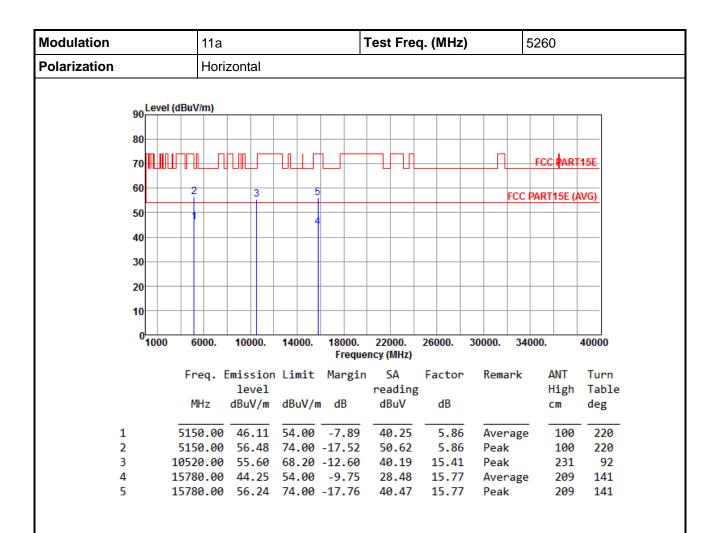


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 33 of 80



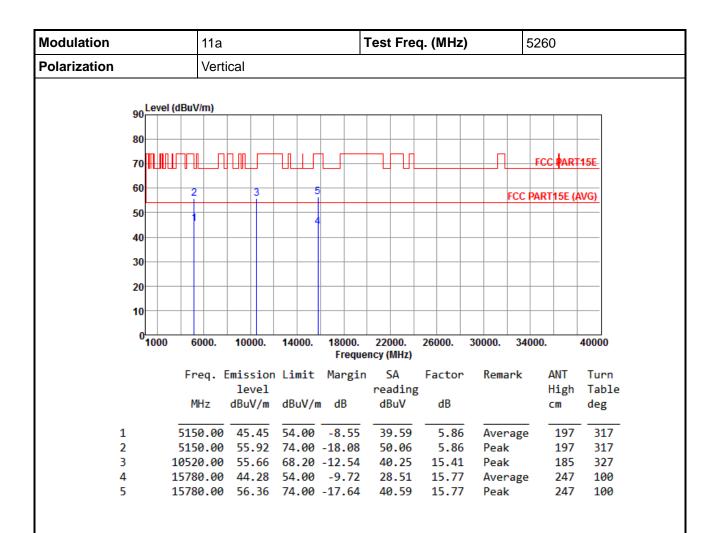


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 34 of 80



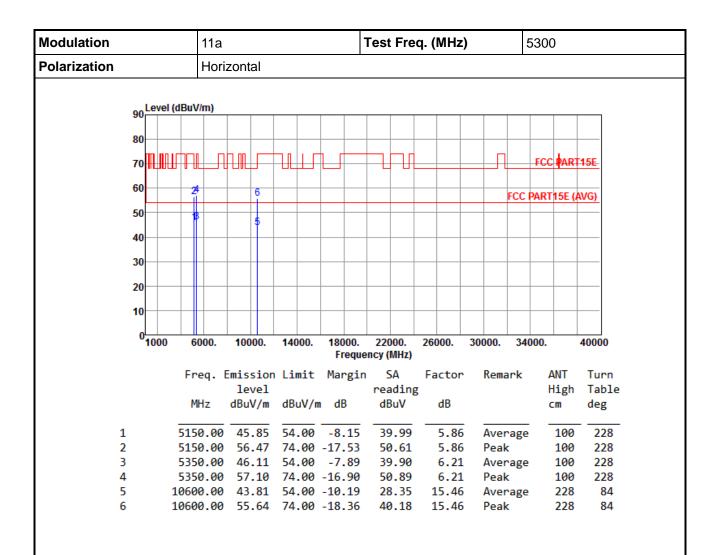


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 35 of 80



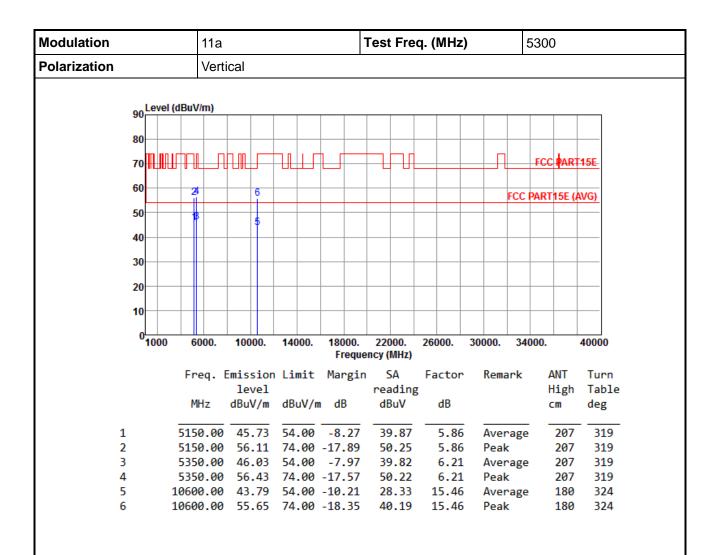


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 36 of 80



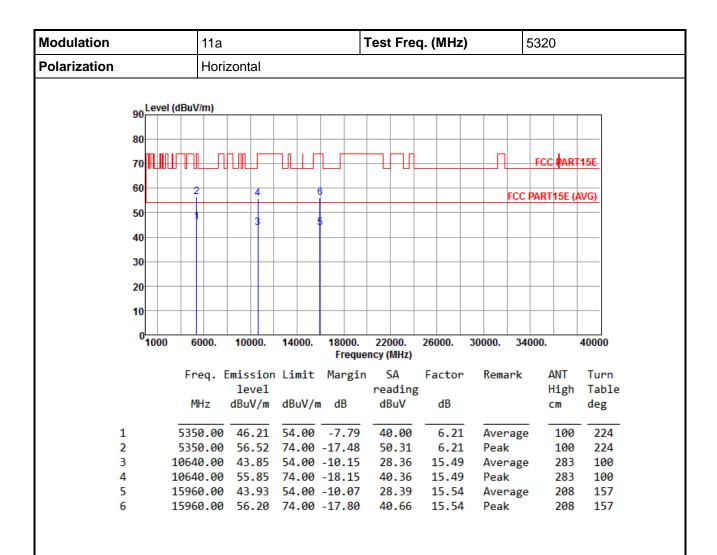


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 37 of 80



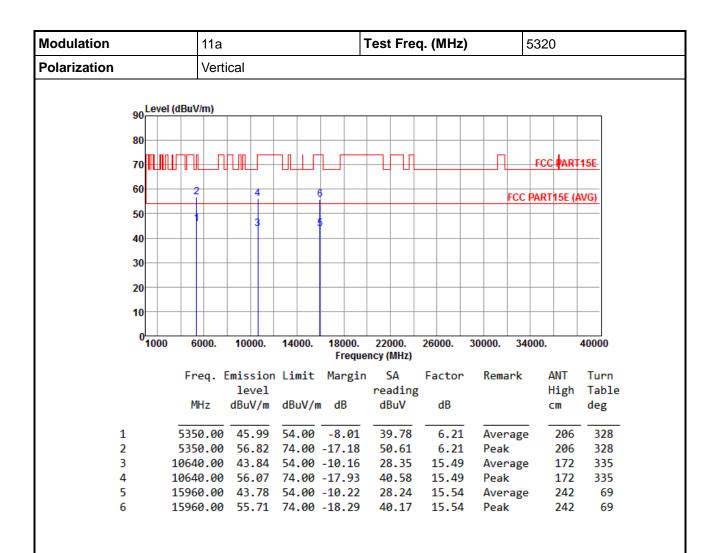


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 38 of 80





*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 39 of 80



| Modulation | | | | 11a | | | | | | 1 | Γest | Fre | q. (| MHz |) | | 5 | 5500 |) | |
|--------------|------------------|------|-------|------|------|------|-----|------|-----------|------|---------------|-----------|-------------|------|------|-------|-------|------|----------------|-------|
| Polarization | | | | Hori | zont | al | | | | | | | | | | | ı | | | |
| | | evel | (dBu\ | //m) | | | | | | | | | | | | | | | | |
| | 90 | | (aba | | | | | | | | | | | | | | | | | |
| | 80 | _ | | | | | | | | | | | | | | | | | | |
| | 70 | | | | ПП | | | Ш | Ш | | | | | | | Д | | FCC | P AR | 15E |
| | 60 | | | 3 | | 5 | | | | | | | | | | | | | | |
| | L | | | 1 | | Ť | | | | | | | | | | | FCC F | PART | 15E (<i>i</i> | AVG) |
| | 50 | | | | | 4 | | | | | | | | | | | | | | |
| | 40 | + | | | | | | | | | | | | | | | | | | |
| | 30 | - | | | | | | | | | | | | | | | | | | |
| | 20 | + | | | | | | | | | | | | | | | | | | |
| | 10 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | 0 <mark>1</mark> | 000 | 6 | 000. | 100 | 000. | 140 | 00. | 180 Fr | | 220 ncy (I | | 260 | 000. | 3000 | 00. | 340 | 000. | | 40000 |
| | | | E. | eq. | Emic | cion | lin | ·i+ | | | | Α | Ea | ctor | P | lema | nk | ٨ | MT | Turr |
| | | | 11 | eq. | | vel | LI | 11.0 | ridi | 8111 | | a ding | | CCOI | | Cilia | I K | _ | ligh | |
| | | | M | Hz | | | dBu | ıV/m | dB | 3 | | uV | | dB | | | | | :m | deg |
| | 1 | | 546 | 0.00 | 46 | .26 | 54. | 00 | -7. | 74 | 39 | .89 | _ | 6.37 | A | ver | age | - | 264 | 232 |
| | 2 | | 546 | 0.00 | 56 | .63 | 74. | 00 | -17. | 37 | | .26 | | 6.37 | P | eak | _ | | 264 | |
| | 3 | | | 0.00 | | | | | | | | .69 | | 6.38 | | eak | | | 264 | |
| | 4 | | 1100 | 0.00 | 45 | .35 | 54. | 00 | -8. | 65 | 29 | .60 | 1 | 5.75 | Α | ver | age | | 262 | 156 |

15.75

Peak

262

150

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

11000.00 56.01 74.00 -17.99 40.26

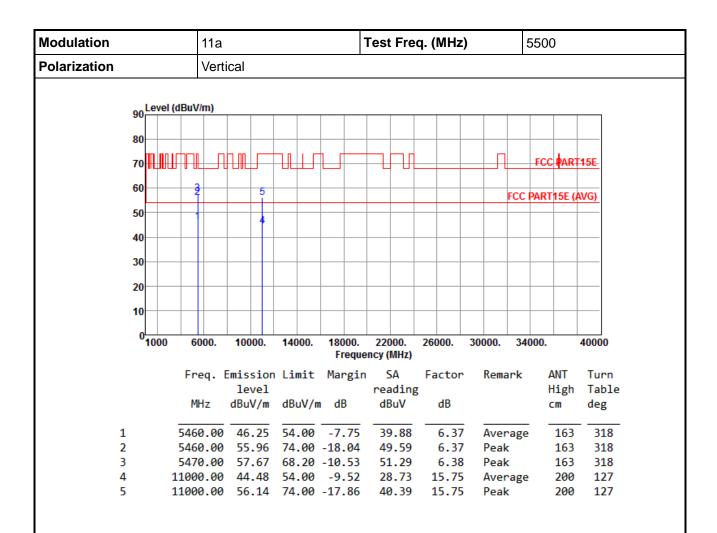
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 40 of 80

Report Version: Rev. 01

5



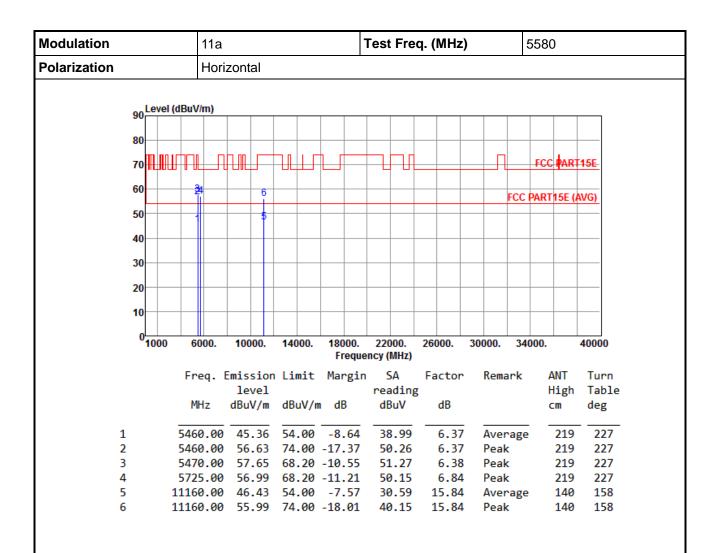


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 41 of 80



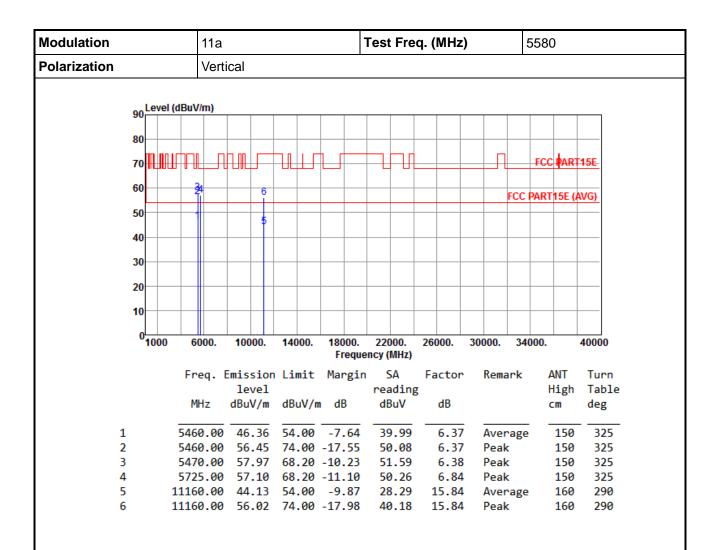


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 42 of 80



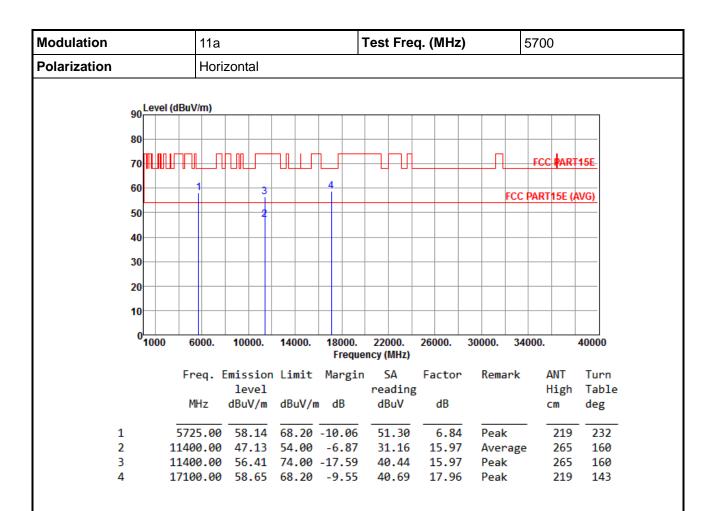


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 43 of 80



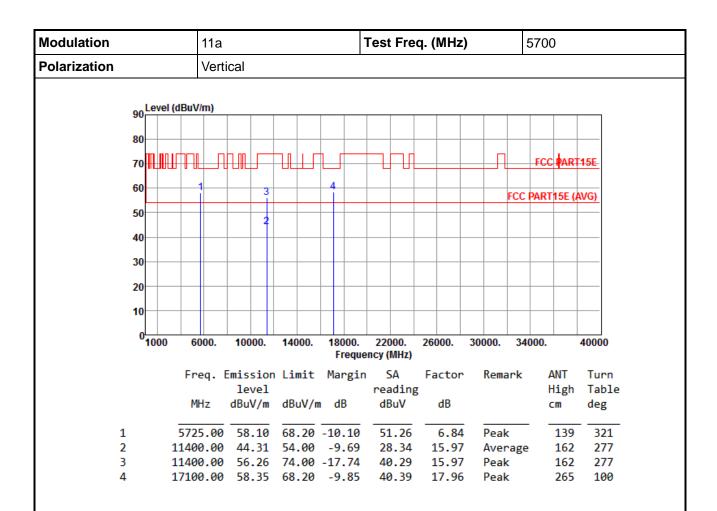


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 44 of 80





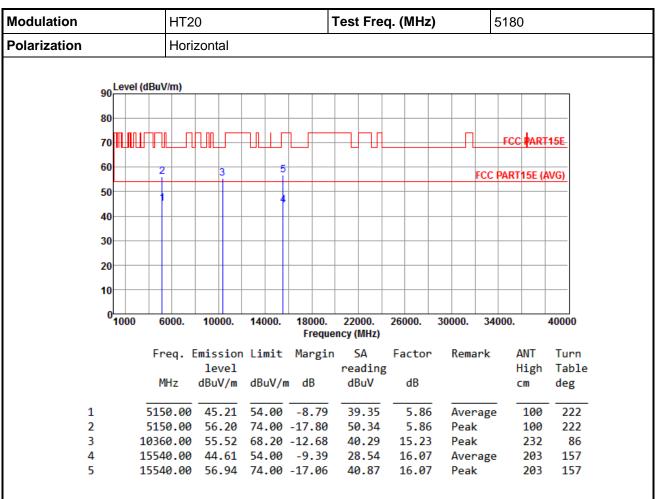
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 45 of 80



3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20



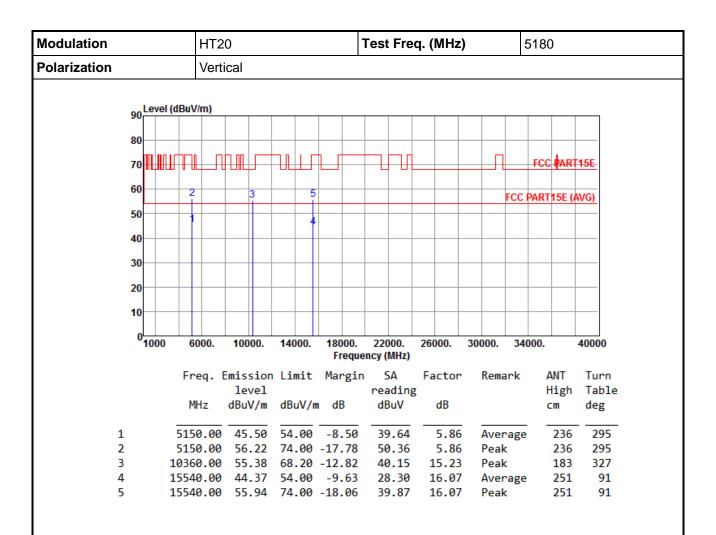
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 46 of 80



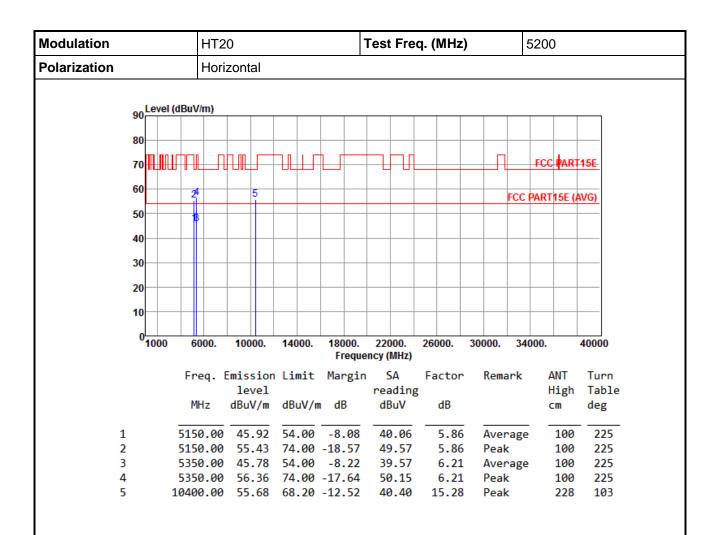


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 47 of 80



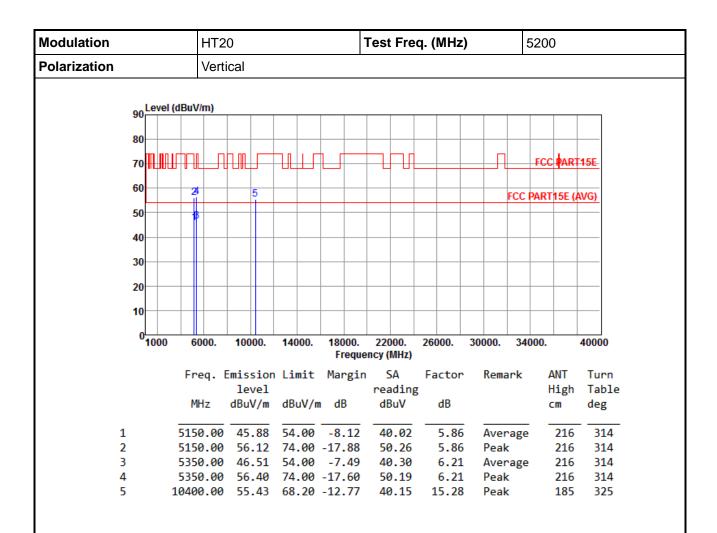


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 48 of 80



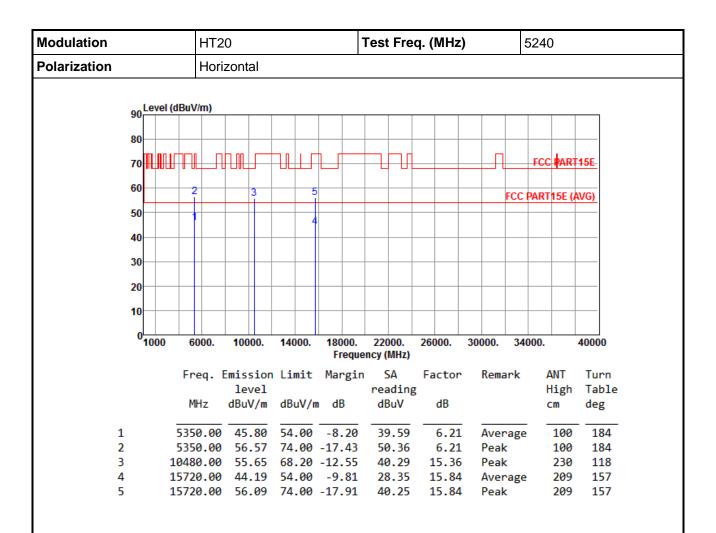


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 49 of 80



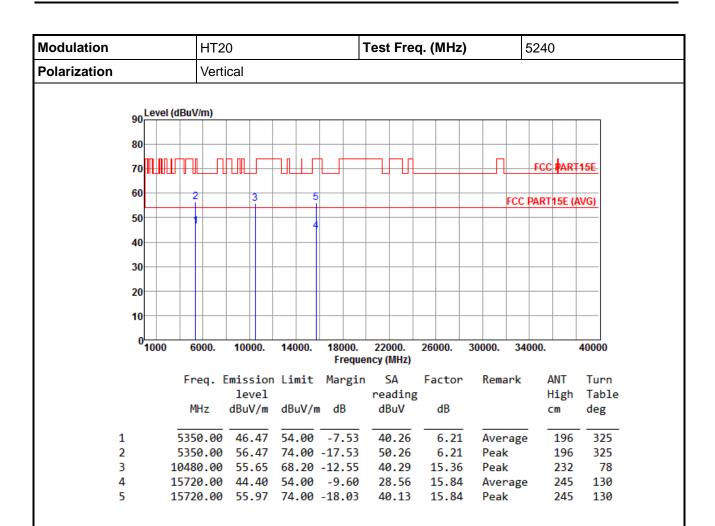


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page : 50 of 80



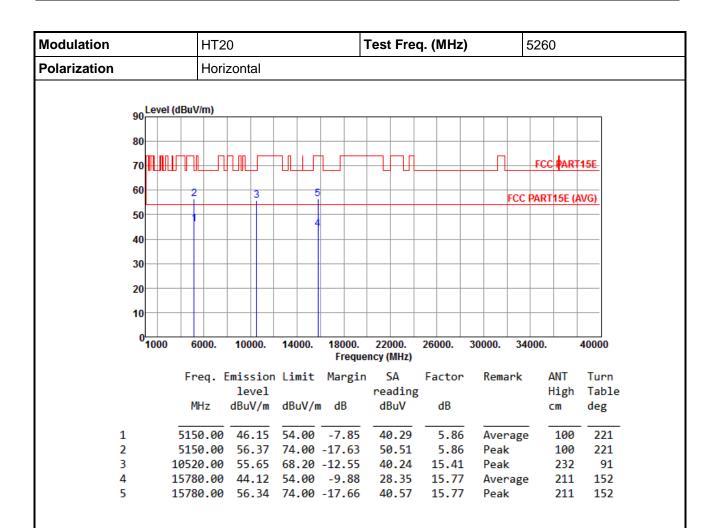


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 51 of 80



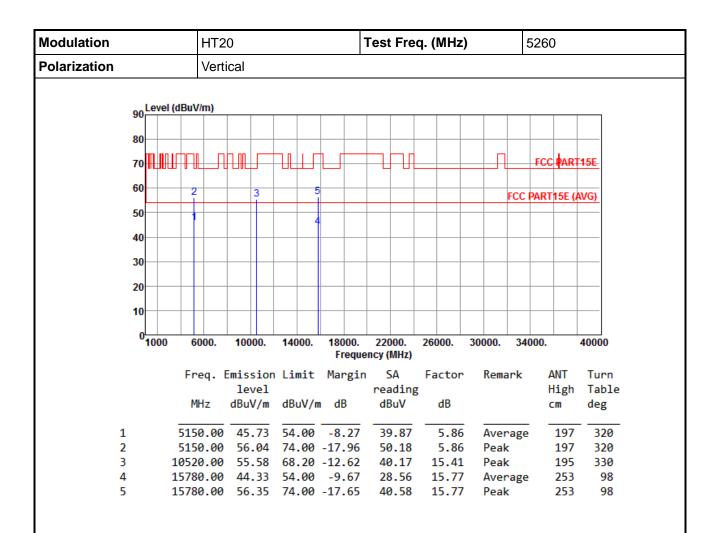


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 52 of 80



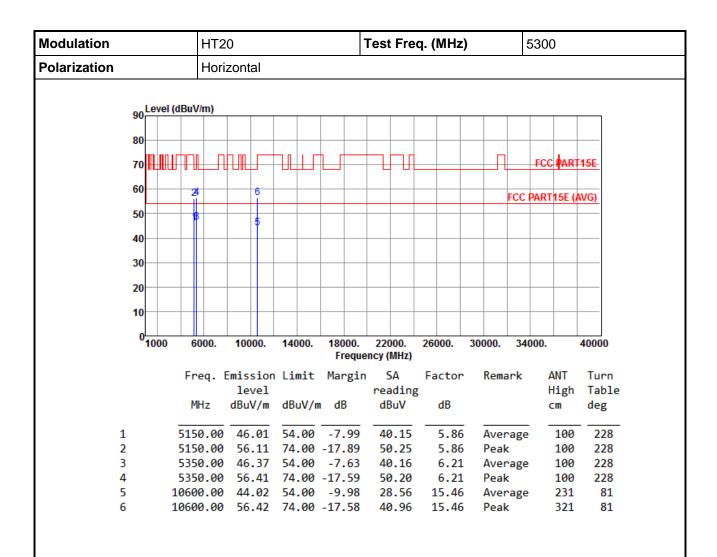


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 53 of 80



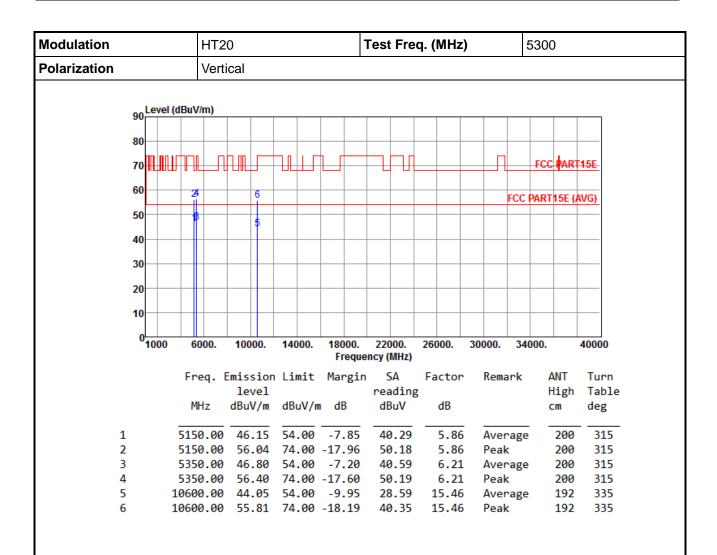


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 54 of 80



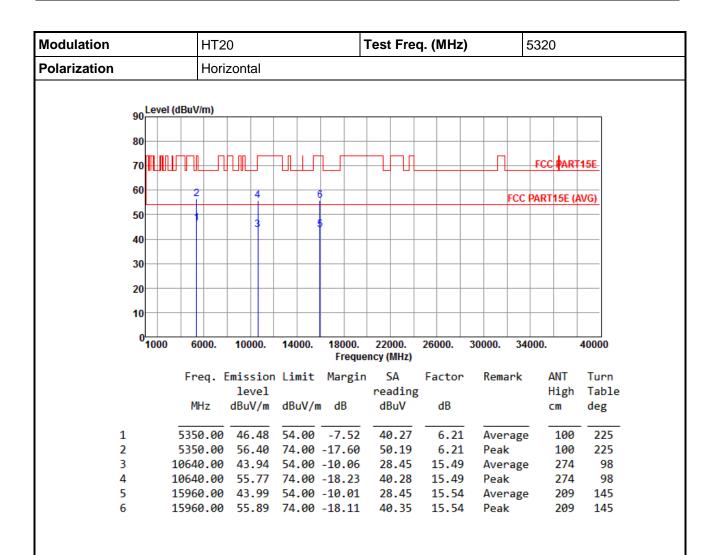


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 55 of 80



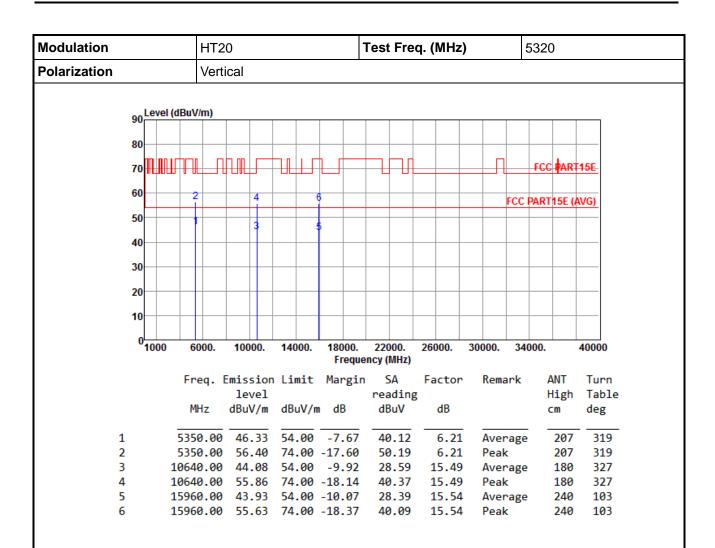


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 56 of 80





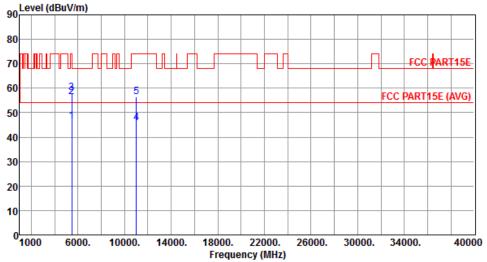
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 57 of 80



| Modulation | HT20 | Test Freq. (MHz) | 5500 |
|----------------|------------|------------------|------|
| Polarization | Horizontal | | |
| oo Level (dBu) | J/m) | | |



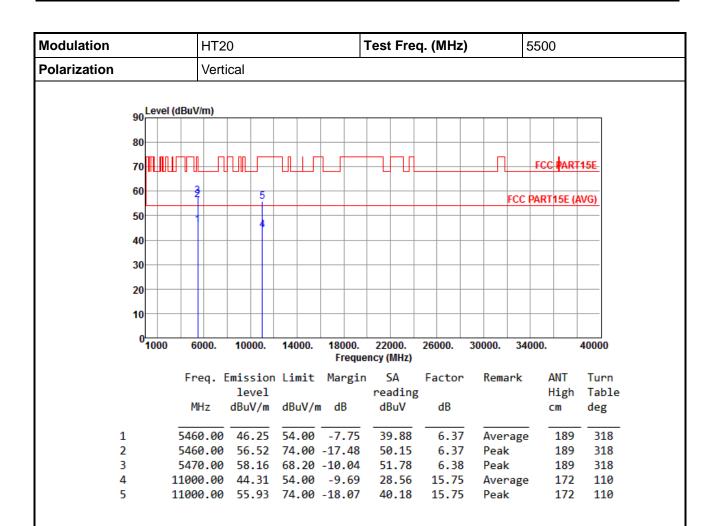
| | Freq. | Emission level | Limit | Margin | SA reading | Factor | Remark | ANT High | Turn Table |
|---|----------|-------------------|--------|--------|---------------|--------|---------|-------------|---------------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | | cm | deg |
| 1 | 5460.00 | 46.49 | 54.00 | -7.51 | 40.12 | 6.37 | Average | 265 | 220 |
| 2 | 5460.00 | 56.62 | 74.00 | -17.38 | 50.25 | 6.37 | Peak | 265 | 220 |
| 3 | 5470.00 | 57.97 | 68.20 | -10.23 | 51.59 | 6.38 | Peak | 265 | 220 |
| 4 | 11000.00 | 45.85 | 54.00 | -8.15 | 30.10 | 15.75 | Average | 232 | 175 |
| 5 | 11000.00 | 56.34 | 74.00 | -17.66 | 40.59 | 15.75 | Peak | 232 | 175 |

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Report No.: FR622602AN Page: 58 of 80



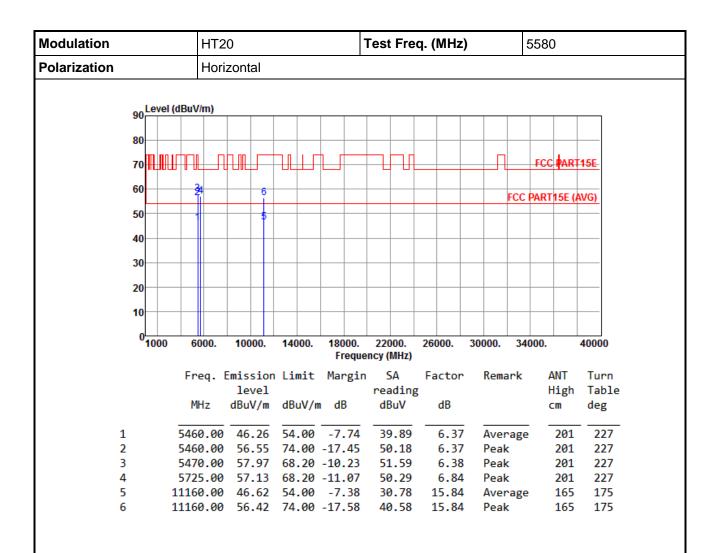


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 59 of 80



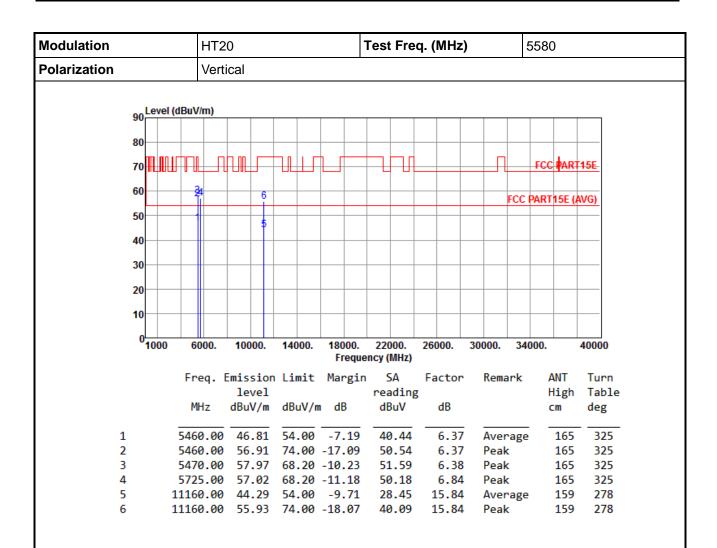


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 60 of 80



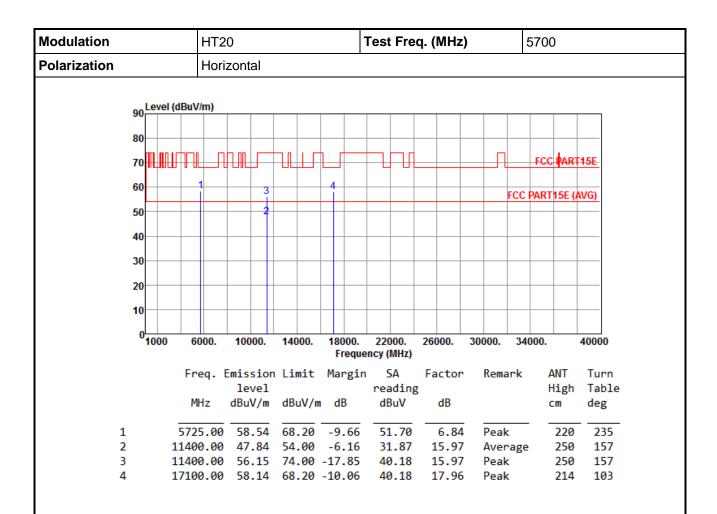


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 61 of 80



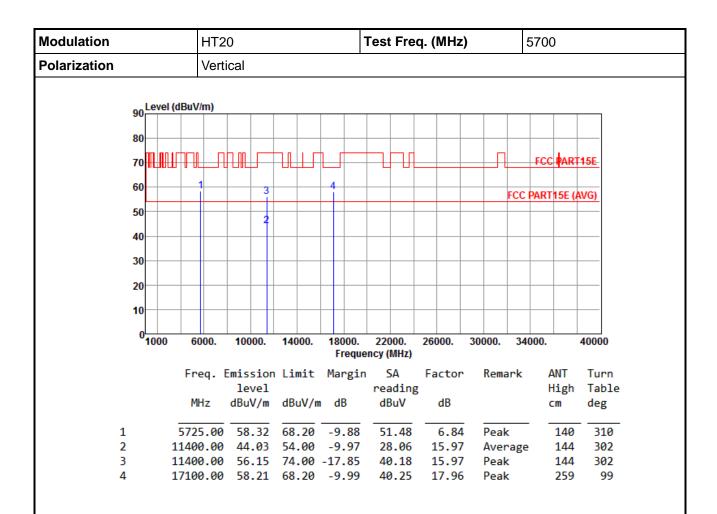


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 62 of 80





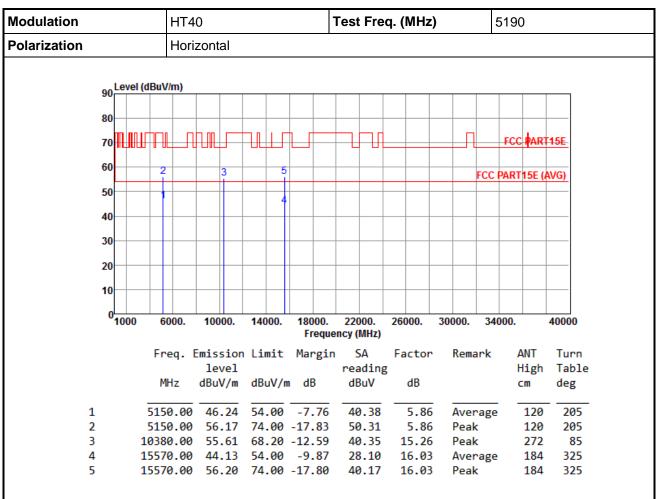
*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 63 of 80



3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40



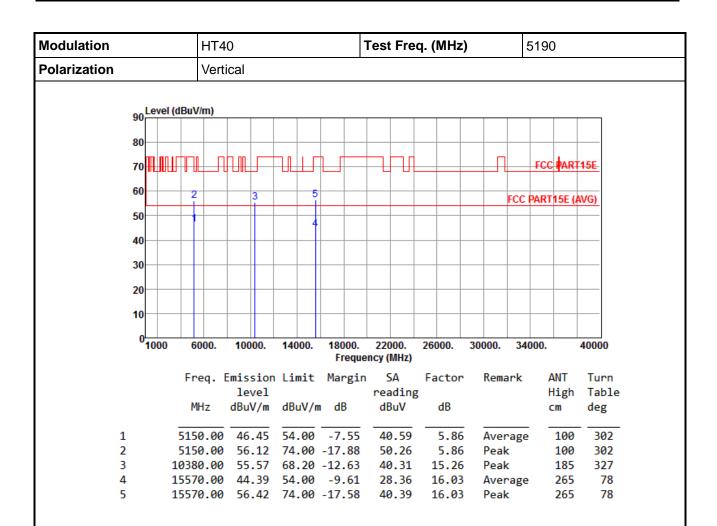
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 64 of 80



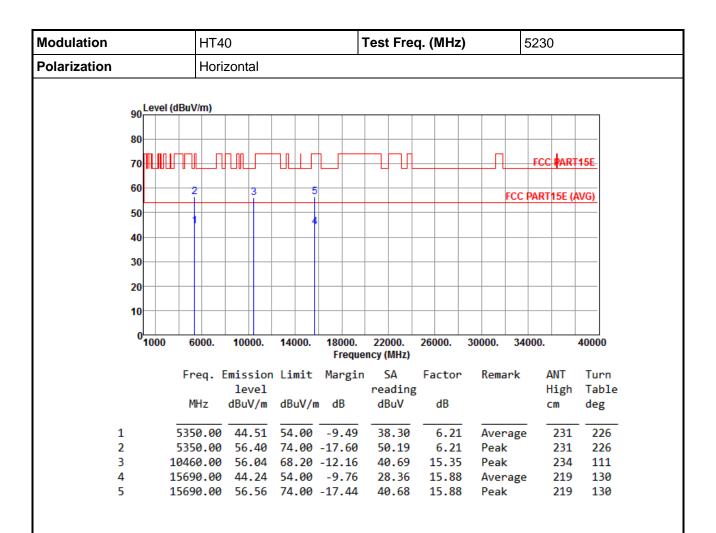


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 65 of 80



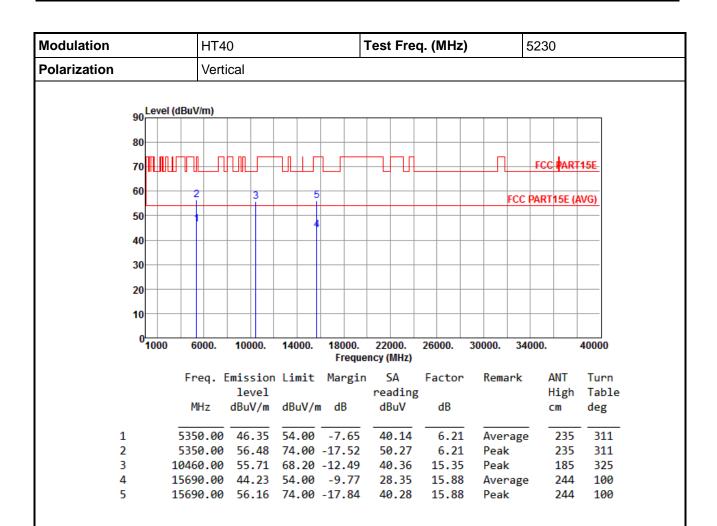


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 66 of 80



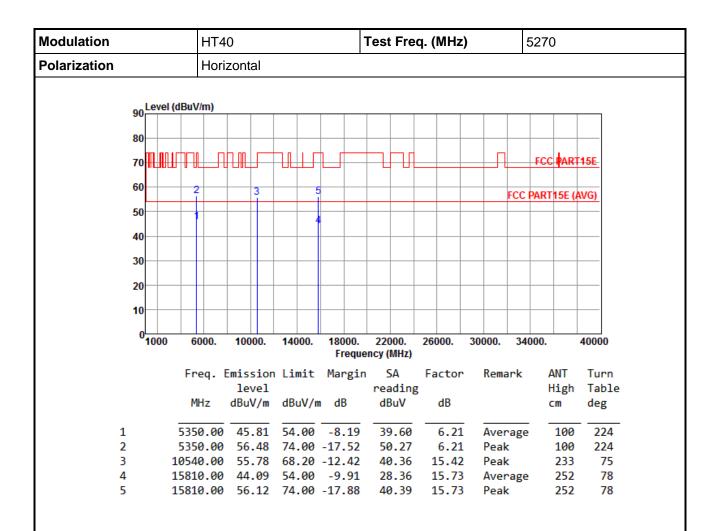


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 67 of 80



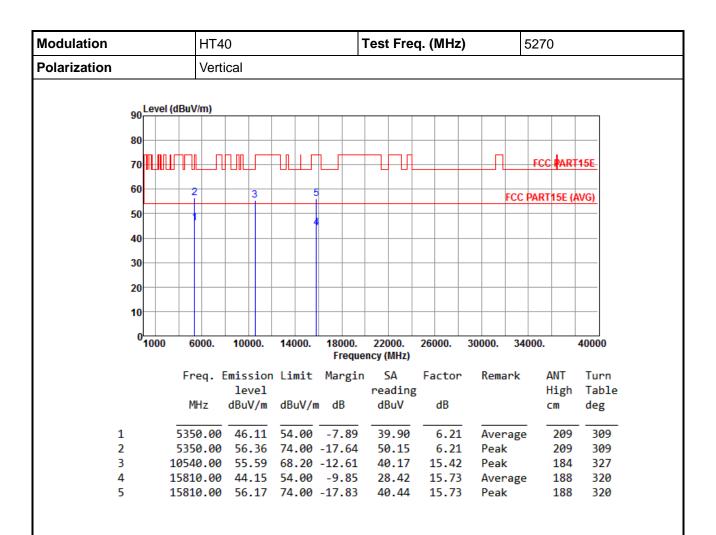


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 68 of 80



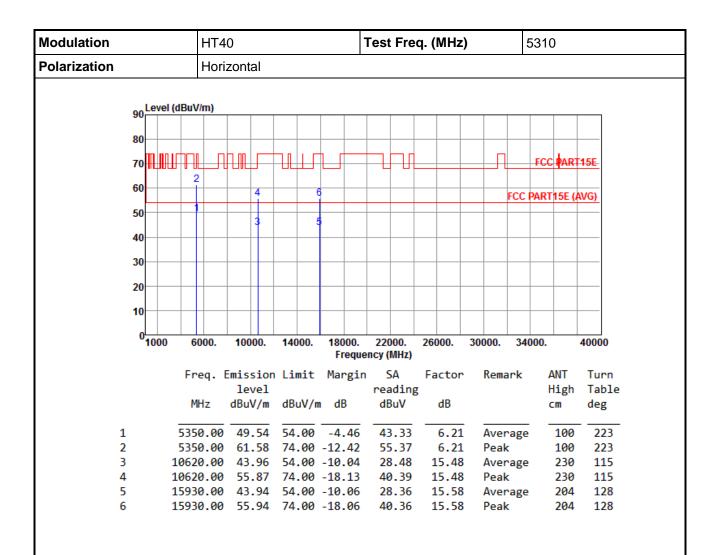


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 69 of 80



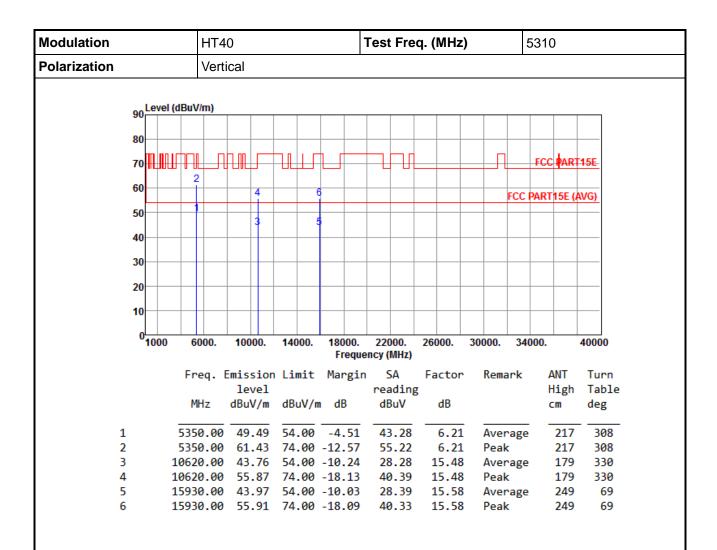


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 70 of 80



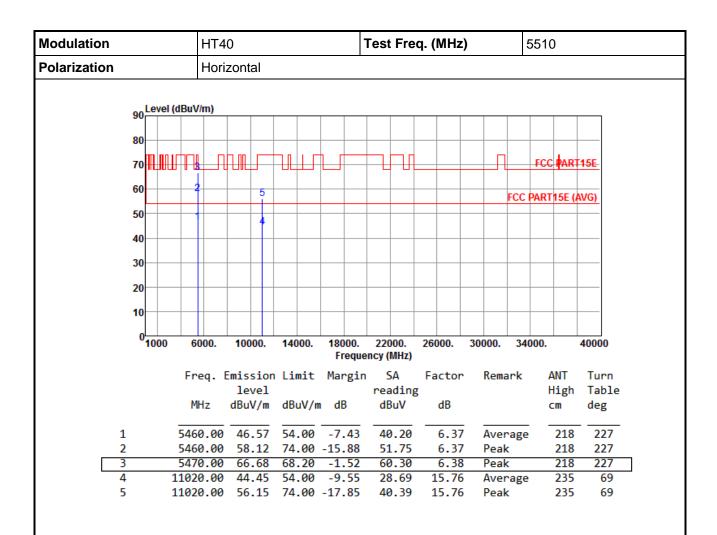


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 71 of 80



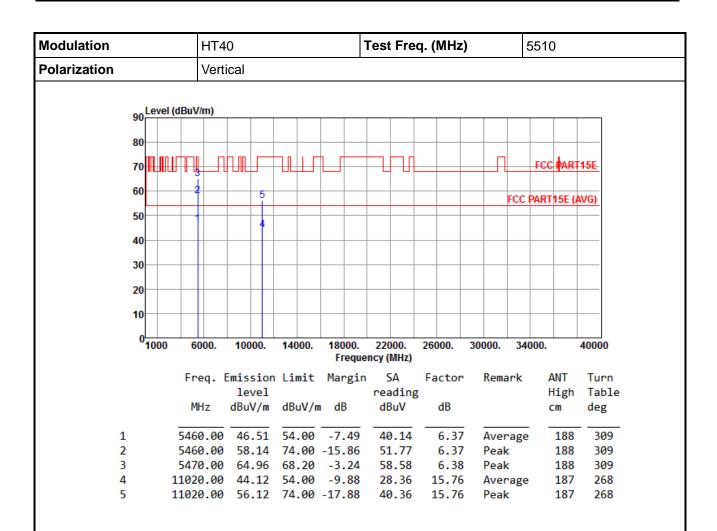


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 72 of 80



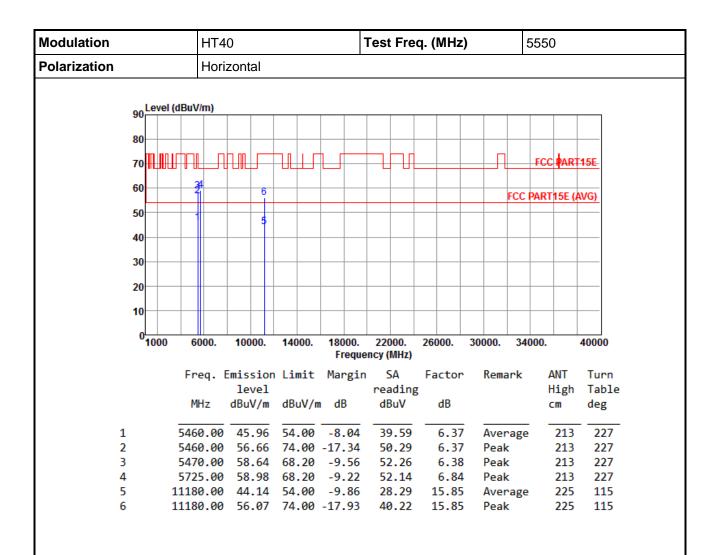


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 73 of 80



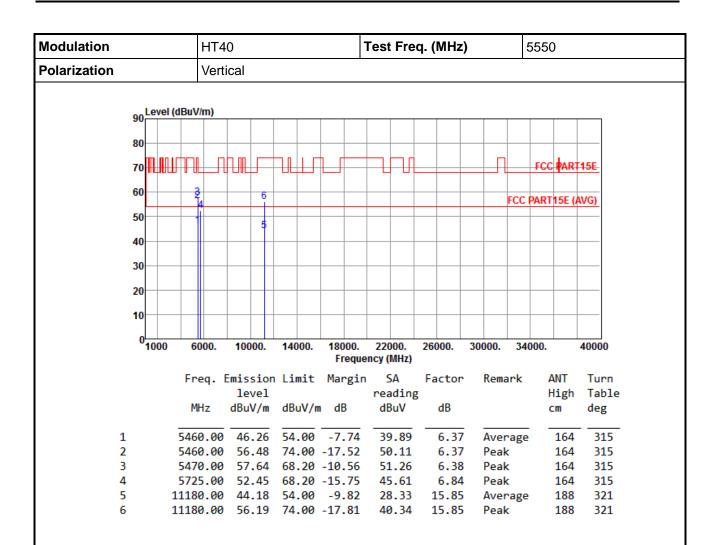


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 74 of 80



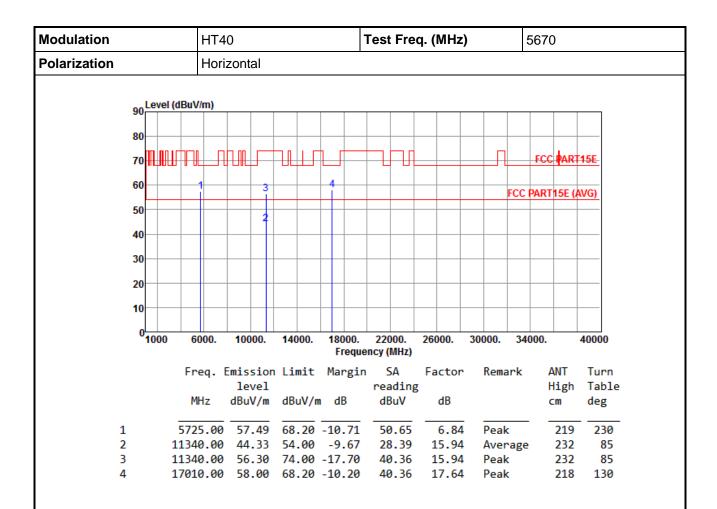


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 75 of 80



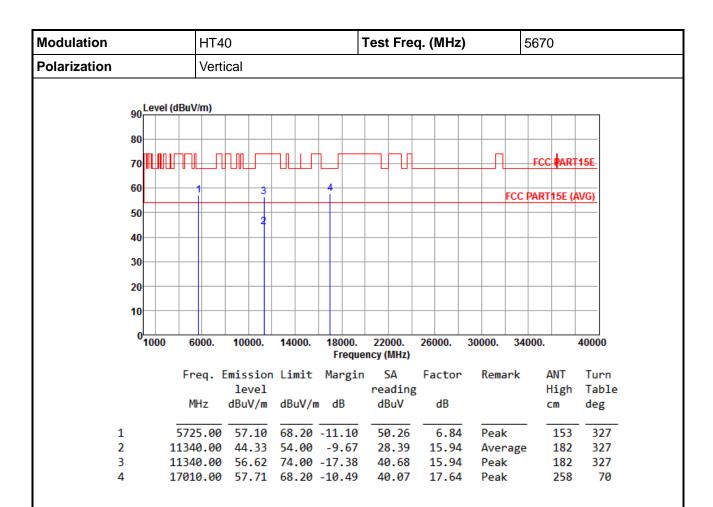


*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 76 of 80





*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Report No.: FR622602AN Page: 77 of 80



3.6 Frequency Stability

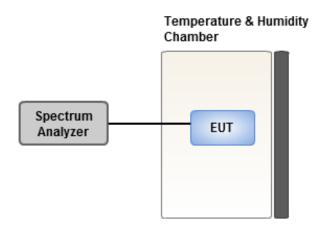
3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Test Procedures

- 1. The EUT is installed in an environment test chamber with external power source.
- Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.
- 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
- 4. When temperature is stabled, measure the frequency stability.
- 5. The test shall be performed under -30 to 55 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

3.6.3 Test Setup



Report No.: FR622602AN Page: 78 of 80



3.6.4 Test Result of Frequency Stability

| Frequency: 5320 MHz | Frequency Drift (ppm) | | | | | | | | | | |
|------------------------|-----------------------|----------------|----------------|------------|--|--|--|--|--|--|--|
| Temperature (°C) | 0 minute | 2 minutes | 5 minutes | 10 minutes | | | | | | | |
| T20°CVmax | 1.05 | 1.28 | 0.36 | 1.70 | | | | | | | |
| T20°CVmin | 1.12 | 0.47 | 0.40 | 0.69 | | | | | | | |
| T55°CVnom | 1.11 | 0.39 | 0.39 | 0.66 | | | | | | | |
| T50°CVnom | 0.39 | 1.02 | 0.46 | 1.15 | | | | | | | |
| T40°CVnom | -0.06 | -0.13 | 0.54 | -0.34 | | | | | | | |
| T30°CVnom | 0.28 | 0.03 | 0.08 | -0.55 | | | | | | | |
| T20°CVnom | 0.26 | 0.76 | 0.61 | 0.58 | | | | | | | |
| T10°CVnom | 0.17 | -0.25 | 0.30 | 0.50 | | | | | | | |
| T0°CVnom | -0.65 | -0.71 | 0.19 | -0.16 | | | | | | | |
| T-10°CVnom | 0.30 | 0.39 | 0.34 | 0.58 | | | | | | | |
| T-20°CVnom | -0.30 | 0.76 | -0.27 | -0.26 | | | | | | | |
| T-30°CVnom | 0.17 | -0.23 | 0.33 | 0.52 | | | | | | | |
| Vnom [V]: 3.9 | | Vmax [V]: 4.29 | Vmin [V]: 3.51 | | | | | | | | |
| Tnom [°C]: 20 | | Tmax [°C]: 55 | Tmin [°C]: -30 | | | | | | | | |

Report No.: FR622602AN Page: 79 of 80



4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640 No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City,

Taiwan, R.O.C.

Kwei Shan

Tel: 886-3-271-8666 No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666 Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

==END==

Report No.: FR622602AN Page: 80 of 80