

FCC Test Report

| Product Name | Rugged Tablet |
|--------------|--|
| Model No | PA501BXXXXXXXXXX (X for marketing |
| | used only: can be alphanumeric or blank) |
| FCC ID. | 2ABTU-PA501B |

| Applicant | RuggON Corporation |
|-----------|---|
| Address | 4F, No. 298, Yang Guang St., Neihu Dist., Taipei City, Taiwan |

| Date of Receipt | May. 30, 2019 |
|-----------------|---------------------|
| Issue Date | Sep. 11, 2019 |
| Report No. | 1950454R-RFUSP27V00 |
| Report Version | V1.0 |





The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

Issue Date: Sep. 11, 2019

Report No.: 1950454R-RFUSP27V00



| Product Name | Rugged Tablet |
|---------------------|---|
| Applicant | RuggON Corporation |
| Address | 4F, No. 298, Yang Guang St., Neihu Dist., Taipei City, Taiwan |
| Manufacturer | RuggON Corporation |
| Model No. | PA501BXXXXXXXXX (X for marketing used only: can be alphanumeric or blank) |
| FCC ID. | 2ABTU-PA501B |
| EUT Rated Voltage | AC 100-240V,50-60Hz |
| EUT Test Voltage | AC 120V/60Hz |
| Trade Name | RuggON |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2017 |
| | ANSI C63.4: 2014, ANSI C63.10: 2013 |
| | KDB 558074 D01 DTS Meas Guidance v05r02 |
| Test Result | Complied |

| Documented By | : | Anny Chou |
|---------------|---|--|
| | | (Senior Adm. Specialist / Anny Chou) |
| Tested By | : | Sam Hsu |
| | | (Engineer / Sam Hsu) |
| Approved By | : | Stant 3 |
| | | (Director / Vincent Lin) |



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs



1. GENERAL INFORMATION

1.1. EUT Description

| Product Name | Rugged Tablet |
|--------------------|---|
| Trade Name | RuggON |
| Model No. | PA501BXXXXXXXXX (X for marketing used only: can be alphanumeric or blank) |
| FCC ID. | 2ABTU-PA501B |
| Frequency Range | 2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW |
| Number of Channels | 802.11b/g/n-20MHz: 11, 802.11n-40MHz: 9 |
| Data Speed | 802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps |
| Channel separation | 802.11b/g/n: 5 MHz |
| Type of Modulation | 802.11b: DSSS (DBPSK, DQPSK, CCK) |
| | 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) |
| Antenna Type | PIFA Antenna |
| Channel Control | Auto |
| Antenna Gain | Refer to the table "Antenna List" |
| Power Adapter | MFR: FSP, M/N: FSP065-RBBN3 |
| | Input: AC 100-240Vac, 1.5A 50/60Hz |
| | Output: 19V==3.42A |
| | Cable Out: Non-shielded, 1.5m, with one ferrite core bonded. |

Antenna List:

| No. | Manufacturer | Part No. | Antenna Type | Peak Gain |
|-----|--------------|---|--------------|---|
| 1 | AnJie | AJDQ1J-B0024(Main) AJDQ1J-W0001(Aux) | PIFA | Main: 2.94dBi for 2.4 GHz Aux: 3.31dBi for 2.4 GHz |

Note: The antenna of EUT is conforming to FCC 15.203.



1.2. Test Summary

Part 15C Requirement

| Requirement – Test Item | Result |
|-------------------------|--------|
| Output Power | Pass |
| Spurious emissions | Pass |
| Band edge | Pass |

Part 22H,Part 24E,Part 27,Part 90 Requirement

| Requirement – Test Item | |
|-------------------------|------|
| EIRP | Pass |
| Spurious emissions | Pass |



802.11b/g/n-20MHz Center Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 01: | 2412 MHz | Channel 02: | 2417 MHz | Channel 03: | 2422 MHz | Channel 04: | 2427 MHz |
| Channel 05: | 2432 MHz | Channel 06: | 2437 MHz | Channel 07: | 2442 MHz | Channel 08: | 2447 MHz |
| Channel 09. | 2452 MHz | Channel 10: | 2457 MHz | Channel 11: | 2462 MHz | | |

802.11n-40MHz Center Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 03: | 2422 MHz | Channel 04: | 2427 MHz | Channel 05: | 2432 MHz | Channel 06: | 2437 MHz |
| Channel 07: | 2442 MHz | Channel 08: | 2447 MHz | Channel 09: | 2452 MHz | | |

- The EUT is an Rugged Tablet, Contains functions on NFC, 2.4G and 5G band WIFI and WWAN with Bluetooth (V5.0 and V3.0+HS, V2.1+EDR) combo card module transceiver, this report for 2.4GHz WLAN.
- 2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
- 4. These tests are conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 5. This device contains the certified FCC ID: 2ABTU-MS01PRO, This is a WLAN/WWAN/BT Combo Card, the original certified module uses Dipole Antenna, and final product addition the antenna a PIFA Antenna.
- 6. The consider Co-Location based on KDB 996369 D02 Question 1 and KDB 996369 D04 for Radiated Spurious Emission & SAR testing
- 7. Since the antenna gain and output power are both smaller than the original certification, the final product complies with the KDB 178919 Section II.B) ERP/EIRP rules.
- 8. The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.

| m . 14. 1 | Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC |
|-------------------------|---|
| Test Mode | Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC |
| (Simultaneous Transmit) | Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC |
| | Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC |



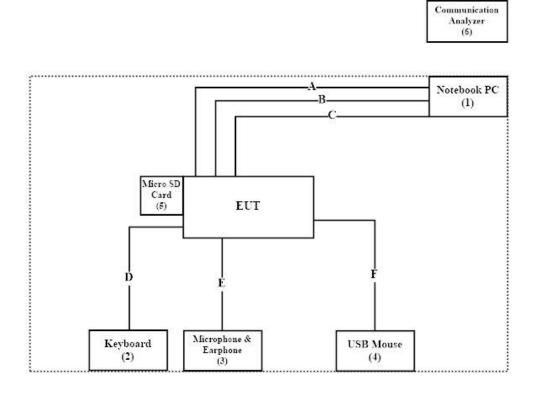
1.4. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Proc | luct | Manufacturer | Model No. | Serial No. | Power Cord |
|------|---------------------------|--------------|-----------------------|--------------------------|------------|
| 1 | Notebook PC DELL | | Latitude 5491 1PL56S2 | | N/A |
| 2 | Keyboard DELL | | SK-8115 | MY-0DJ325-71619-79D-0178 | N/A |
| 3 | Microphone & Earphone | 1 Lergotech | | N/A | N/A |
| 4 | USB Mouse | Logitech | M-BE58 | HCA30103357 | N/A |
| 5 | Micro SD Card 1GB | SanDisk | N/A | 0801002841D2N | N/A |
| 6 | Communication Analyzer | Anritsu | MT8820C | 6201091166 | N/A |

| Sign | nal Cable Type | Signal cable Description | | | | |
|------|-----------------------------|--------------------------|--|--|--|--|
| A | USB Cable | Shielded, 1.8m | | | | |
| В | USB Cable | Shielded, 2.1m | | | | |
| C | LAN Cable | Shielded, 3m | | | | |
| D | Keyboard Cable | Shielded, 1.8m | | | | |
| E | Microphone & Earphone Cable | Shielded, 2m | | | | |
| F | Mouse Cable | Shielded, 1.8m | | | | |

1.5. Configuration of Tested System



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1.6. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute software "QRCT V3.0.268.0" on the EUT.
- (3) The Communication Analyzer (MT8820C) uses in controlling EUT to transmit continuously.
- (4) Configure the test mode, the test channel, and the data rate.
- (5) Start the continuous transmission.
- (6) Verify that the EUT works properly.

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1.7. Test Facility

Ambient conditions in the laboratory:

| Items | Required (IEC 68-1) | Actual | | | |
|----------------------------|---------------------|----------|--|--|--|
| Temperature (°C) | 15-35 | 20-35 | | | |
| Humidity (%RH) | 25-75 | 50-65 | | | |
| Barometric pressure (mbar) | 860-1060 | 950-1000 | | | |

USA : FCC Registration Number: TW3023

Canada: IC Registration Number: 4075A

Site Description: Accredited by TAF

Accredited Number: 3023

Test Laboratory: DEKRA Testing and Certification Co., Ltd

Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,

Taiwan, R.O.C.

Phone number: 886-2-8601-3788
Fax number: 886-2-8601-3789
Email address: info.tw@dekra.com

Website: http://www.dekra.com.tw



1.8. List of Test Equipment

For Conducted measurements /CB3/SR8

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|-----------------------|--------------|-----------|--------------|------------|------------|
| | Temperature Chamber | WIT GROUP | TH-1S-B | EQ-201-00146 | 2019/02/26 | 2020/02/25 |
| X | Spectrum Analyzer | Agilent | N9010A | MY53470892 | 2018/09/27 | 2019/09/26 |
| X | Peak Power Analyzer | Keysight | 8990B | MY51000410 | 2019/07/30 | 2020/07/29 |
| X | Wideband Power Sensor | Keysight | N1923A | MY56080003 | 2019/07/30 | 2020/07/29 |
| X | Wideband Power Sensor | Keysight | N1923A | MY56080004 | 2019/07/30 | 2020/07/29 |
| X | EMI Test Receiver | R&S | ESCS 30 | 100369 | 2018/11/19 | 2019/11/18 |
| X | LISN | R&S | ENV216 | 101105 | 2019/04/10 | 2020/04/09 |
| X | LISN | R&S | ESH3-Z5 | 836679/014 | 2019/04/10 | 2020/04/09 |
| X | Coaxial Cable | DEKRA | RG 400 | LC018-RG | 2018/06/21 | 2019/06/20 |

For Radiated measurements /Site3/CB8

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|------------------------|-----------------|-------------|--------------|------------|------------|
| X | Spectrum Analyzer | R&S | FSP40 | 100170 | 2019/03/11 | 2020/03/10 |
| X | Communication Analyzer | Anritsu | MT8820C | 6201091166 | 2019/03/21 | 2020/03/20 |
| X | Loop Antenna | Teseq | HLA6121 | 37133 | 2017/10/13 | 2019/10/12 |
| X | Bilog Antenna | Schaffner Chase | CBL6112B | 2707 | 2019/06/23 | 2020/06/22 |
| X | Coaxial Cable | DEKRA | RG 214 | LC003-RG | 2019/06/13 | 2020/06/12 |
| X | Pre-Amplifier | Jet-Power | JPA-10M1G33 | 170101000330 | 2019/06/13 | 2020/06/12 |
| X | Horn Antenna | ETS-Lindgren | 3117 | 00135205 | 2019/04/30 | 2020/04/29 |
| X | Horn Antenna | SCHWARZBECK | 9120D | 576 | 2018/12/18 | 2019/12/17 |
| X | Pre-Amplifier | EMCI | EMC012630SE | 980210 | 2019/04/16 | 2020/04/15 |
| X | Horn Antenna | Com-Power | AH-840 | 101043 | 2019/01/19 | 2020/01/18 |
| X | Amplifier + Cable | EMCI | EMC184045SE | 980370 | 2019/03/27 | 2020/03/26 |
| X | Filter | MICRO-TRONICS | BRM50702 | G270 | 2019/08/08 | 2020/08/07 |
| X | Filter | MICRO-TRONICS | BRM50716 | G196 | 2019/08/08 | 2020/08/07 |

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked with "X" are used to measure the final test results.
- 3. Test Software version :QuieTek EMI 2.0 V2.1.113.



2. Peak Power Output

2.1. Test Setup



2.2. Limits

The maximum peak power shall be less 1 Watt.

The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.

2.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 D01 DTS Meas Guidance v04 section 9.1.3 PKPM1 Peak power meter method.

2.4. Uncertainty

 \pm 1.27 dB



2.5. Test Result of Peak Power Output

Product : Rugged Tablet

Test Item : Peak Power Output Data

Test Site : No.3 OATS
Test date : 2019/09/06
Test Mode : Transmit 802.11b

CHAIN A

| Channel No | Frequency (MHz) | For d | Average | Ibps) | Required | Docult | |
|------------|-----------------|-------|-----------|-----------|----------|--------|--------|
| | | 1 | 2 | 5.5 | 11 | Limit | Result |
| | | Me | asurement | Level (dB | Sm) | | |
| 01 | 2412 | 17.38 | | | | <30dBm | Pass |
| 02 | 2417 | 17.30 | 17.18 | 17.10 | 17.03 | <30dBm | Pass |
| 06 | 2437 | 17.62 | | | | <30dBm | Pass |
| 10 | 2457 | 17.76 | | 1 | | <30dBm | Pass |
| 11 | 2462 | 17.51 | | | | <30dBm | Pass |

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

| Channel No | Frequency (MHz) | For d | Average | | Ibps) | Required | Result |
|------------|-----------------|-------|-----------|-----------|-------|----------|--------|
| | | 1 | 2 | 5.5 | 11 | Limit | Result |
| | | Me | asurement | Level (dB | Sm) | | |
| 01 | 2412 | 18.34 | | 1 | | <30dBm | Pass |
| 02 | 2417 | 18.31 | 18.20 | 18.08 | 17.96 | <30dBm | Pass |
| 06 | 2437 | 18.24 | | 1 | | <30dBm | Pass |
| 10 | 2457 | 18.23 | | 1 | | <30dBm | Pass |
| 11 | 2462 | 18.13 | | - | | <30dBm | Pass |



Test Item : Peak Power Output Data

Test Site : No.3 OATS
Test date : 2019/09/06
Test Mode : Transmit 802.11g

CHAIN A

| | Frequency (MHz) | | F | | | | | | | | |
|------------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|--------|
| Channel No | | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 | Required Limit | Result |
| | | | | | | | | | | | |
| 01 | 2412 | 17.65 | 1 | 1 | 1 | | | 1 | 1 | <30dBm | Pass |
| 02 | 2417 | 17.67 | 17.54 | 17.42 | 17.33 | 17.24 | 17.10 | 16.96 | 16.86 | <30dBm | Pass |
| 06 | 2437 | 17.62 | 1 | 1 | 1 | | | 1 | I | <30dBm | Pass |
| 10 | 2457 | 17.67 | 1 | 1 | 1 | | | 1 | 1 | <30dBm | Pass |
| 11 | 2462 | 17.58 | | | | | | | - | <30dBm | Pass |

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

| | Frequency | | F | | Required | | | | | | |
|------------|-----------|-------|-------|-------|----------|-------|-------|-------|-------|--------|--------|
| Channel No | (MHz) | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 | Limit | Result |
| | | | | | | | | | | | |
| 01 | 2412 | 18.29 | | | | | | | | <30dBm | Pass |
| 02 | 2417 | 18.36 | 18.27 | 18.16 | 18.05 | 17.96 | 17.89 | 17.77 | 17.67 | <30dBm | Pass |
| 06 | 2437 | 18.21 | 1 | 1 | I | | | 1 | | <30dBm | Pass |
| 10 | 2457 | 18.22 | 1 | 1 | I | | | 1 | | <30dBm | Pass |
| 11 | 2462 | 18.25 | | | | | | | | <30dBm | Pass |



Test Item : Peak Power Output Data

Test Site : No.3 OATS
Test date : 2019/09/06

Test Mode : Transmit 802.11n20

CHAIN A

| | Frequency (MHz) | | Average Power | | | | | | | | |
|------------|-----------------|-------|--------------------------------|-------|-------|-------|-------|-------|-------|--|--|
| | | | č | | | | | | | | |
| | | | For different Data Rate (Mbps) | | | | | | | | |
| Channel No | | HT8 | НТ9 | HT10 | HT11 | HT12 | HT13 | HT14 | HT15 | | |
| | | | Measurement Level (dBm) | | | | | | | | |
| 01 | 2412 | 15.91 | | 1 | 1 | | 1 | 1 | - | | |
| 02 | 2417 | 16.31 | 16.22 | 16.15 | 16.05 | 15.91 | 15.77 | 15.65 | 15.51 | | |
| 06 | 2437 | 16.45 | | 1 | 1 | | 1 | 1 | 1 | | |
| 10 | 2457 | 16.4 | | | | | | | | | |
| 11 | 2462 | 16.37 | | | | | | | | | |

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

| CHAIND | HAIN D | | | | | | | | | |
|------------|-----------------|--|-------|-------|-------|-------|-------|-------|-------|--|
| Channel No | Frequency (MHz) | Average Power For different Data Rate (Mbps) | | | | | | | | |
| | | HT8 | НТ9 | HT10 | HT11 | HT12 | HT13 | HT14 | HT15 | |
| | | Measurement Level (dBm) | | | | | | | | |
| 01 | 2412 | 16.68 | | | | | | | | |
| 02 | 2417 | 17.18 | 17.08 | 17.01 | 16.90 | 16.76 | 16.63 | 16.53 | 16.39 | |
| 06 | 2437 | 16.93 | | | | | | | | |
| 10 | 2457 | 16.98 | | - | 1 | - | 1 | | | |
| 11 | 2462 | 17.02 | | | | | | | | |



CHAIN A+B

| Channel | Frequency | Data Rate | Chain A Power | Chain B Power | Chain A+B Power | Limit | Result |
|---------|-----------|-----------|------------------|------------------|-----------------|--------|--------|
| | (MHz) | (Mbps) | (dBm) | (dBm) | (dBm) | (dBm) | |
| 01 | 2412 | HT8 | 15.91 | 16.68 | 19.32 | <30dBm | Pass |
| 02 | 2417 | HT8 | 16.31 | 17.18 | 19.78 | <30dBm | Pass |
| 06 | 2437 | HT8 | 16.45 | 16.93 | 19.71 | <30dBm | Pass |
| 10 | 2457 | HT8 | 16.40 | 16.98 | 19.71 | <30dBm | Pass |
| 11 | 2462 | HT8 | 16.37 | 17.02 | 19.72 | <30dBm | Pass |

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))



Test Item : Peak Power Output Data

Test Site : No.3 OATS Test date : 2019/09/06

Test Mode : Transmit 802.11n40

CHAIN A

| | | | Average Power | | | | | | | | |
|------------|-----------|-------------------------|--------------------------------|-------|-------|-------|-------|-------|-------|--|--|
| | Frequency | | For different Data Rate (Mbps) | | | | | | | | |
| Channel No | (MHz) | HT8 | НТ9 | HT10 | HT11 | HT12 | HT13 | HT14 | HT15 | | |
| | | Measurement Level (dBm) | | | | | | | | | |
| 03 | 2422 | 13.56 | | | - | | | | 1 | | |
| 04 | 2427 | 16.94 | 16.85 | 16.77 | 16.70 | 16.58 | 16.44 | 16.34 | 16.24 | | |
| 06 | 2437 | 16.88 | | 1 | 1 | | 1 | | 1 | | |
| 08 | 2447 | 16.94 | | | - | | | | | | |
| 09 | 2452 | 15.34 | | | | | | | | | |

Note: Peak Power Output Value = Reading value on power meter + cable loss

CHAIN B

| CHAIN D | | | | | | | | | | |
|------------|-----------------|-------------------------|--|-------|-------|-------|-------|-------|-------|--|
| | Frequency (MHz) | | Average Power For different Data Rate (Mbps) | | | | | | | |
| Channel No | | HT8 | НТ9 | HT10 | HT11 | HT12 | HT13 | HT14 | HT15 | |
| | | Measurement Level (dBm) | | | | | | | | |
| 03 | 2422 | 14.36 | | | | | | | | |
| 04 | 2427 | 17.58 | 17.49 | 17.39 | 17.26 | 17.17 | 17.09 | 16.96 | 16.88 | |
| 06 | 2437 | 17.55 | 1 | 1 | I | 1 | 1 | | I | |
| 08 | 2447 | 17.58 | | | | | | | | |
| 09 | 2452 | 15.71 | | | | | | | - | |



CHAIN A+B

| Channel | Frequency | Data Rate | Chain A Power | Chain B Power | Chain A+B Power | Limit | Result |
|---------|-----------|-----------|------------------|------------------|--------------------|--------|--------|
| | (MHz) | (Mbps) | (dBm) | (dBm) | (dBm) | (dBm) | |
| 03 | 2422 | HT8 | 13.56 | 14.36 | 16.99 | <30dBm | Pass |
| 04 | 2427 | НТ8 | 16.94 | 17.58 | 20.28 | <30dBm | Pass |
| 06 | 2437 | НТ8 | 16.88 | 17.55 | 20.24 | <30dBm | Pass |
| 08 | 2447 | НТ8 | 16.94 | 17.58 | 20.28 | <30dBm | Pass |
| 09 | 2452 | НТ8 | 15.34 | 15.71 | 18.54 | <30dBm | Pass |

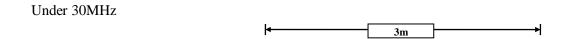
Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

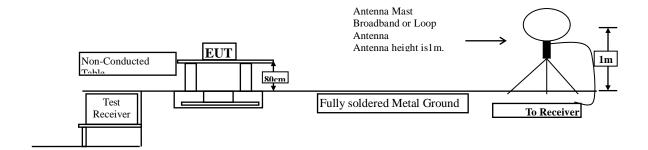
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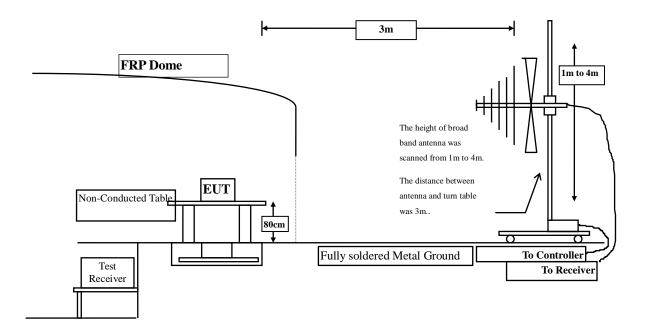
3. Radiated Emission

3.1. Test Setup



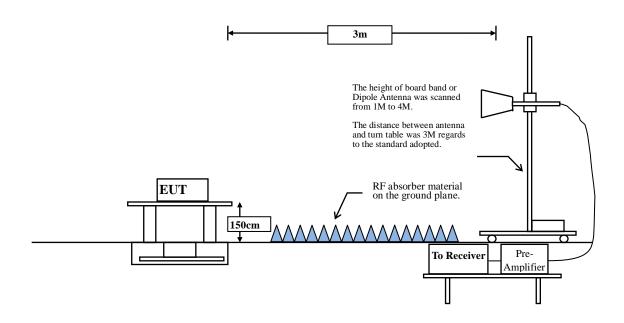


Below 1GHz





Above 1GHz



3.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 S | FCC Part 15 Subpart C Paragraph 15.209(a) Limits | | | | | | | | | |
|------------------|--|----------------------|--|--|--|--|--|--|--|--|
| Frequency MHz | Field strength | Measurement distance | | | | | | | | |
| | (microvolts/meter) | (meter) | | | | | | | | |
| 0.009-0.490 | 2400/F(kHz) | 300 | | | | | | | | |
| 0.490-1.705 | 24000/F(kHz) | 30 | | | | | | | | |
| 1.705-30 | 30 | 30 | | | | | | | | |
| 30-88 | 100 | 3 | | | | | | | | |
| 88-216 | 150 | 3 | | | | | | | | |
| 216-960 | 200 | 3 | | | | | | | | |
| Above 960 | 500 | 3 | | | | | | | | |

Remarks: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.



3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.



RBW and **VBW** Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

 $VBW \ge 3 \times RBW$.

Table 1—RBW as a function of frequency

| Frequency | RBW |
|-------------|-------------|
| 9-150 kHz | 200-300 Hz |
| 0.15-30 MHz | 9-10 kHz |
| 30-1000 MHz | 100-120 kHz |
| > 1000 MHz | 1 MHz |

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle \geq 98 %

 $VBW \ge 1/T$, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

| 2.4GHz band | Duty Cycle | Т | 1/T | VBW |
|-------------|------------|---------|------|------|
| | (%) | (ms) | (Hz) | (Hz) |
| 802.11b | 98.84 | 12.3333 | 81 | 10 |
| 802.11g | 93.29 | 2.0145 | 496 | 500 |
| 802.11 n20 | 89.43 | 0.9565 | 1045 | 2000 |
| 802.11 n40 | 67.39 | 0.4493 | 2226 | 3000 |

Note: Duty Cycle Refer to Section 5

3.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz



3.5. Test Result of Radiated Emission

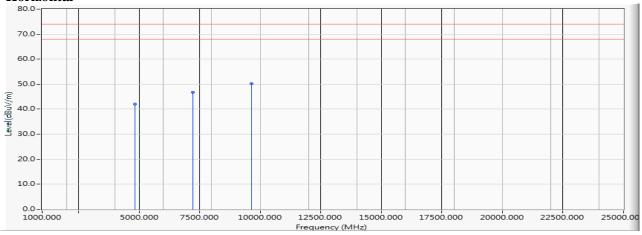
Product : Rugged Tablet

Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 57.750 | 42.075 | -31.925 | 74.000 | PEAK |
| 2 | | 7236.000 | -12.465 | 59.210 | 46.744 | -27.256 | 74.000 | PEAK |
| 3 | * | 9648.000 | -7.977 | 58.150 | 50.173 | -3.827 | 54.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

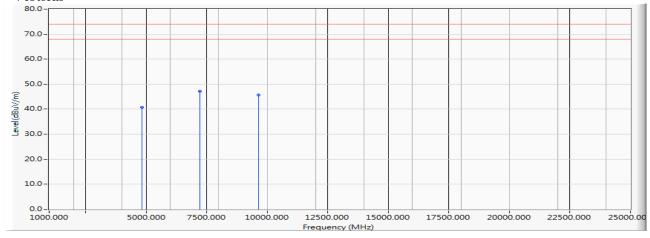


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 56.420 | 40.745 | -33.255 | 74.000 | PEAK |
| 2 | * | 7236.000 | -12.465 | 59.550 | 47.084 | -26.916 | 74.000 | PEAK |
| 3 | | 9648.000 | -11.669 | 57.450 | 45.782 | -28.218 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

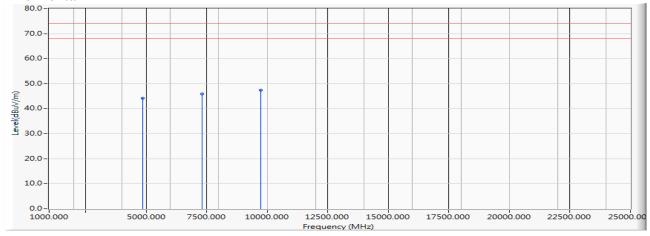


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 59.370 | 44.251 | -29.749 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.840 | 45.865 | -28.135 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 58.260 | 47.383 | -26.617 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

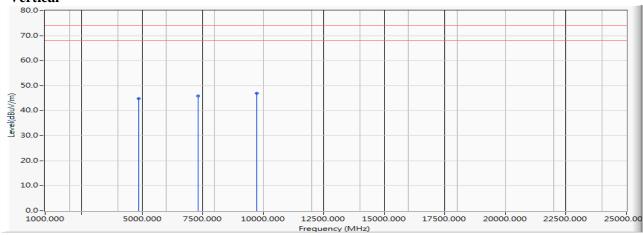


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 59.960 | 44.841 | -29.159 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.800 | 45.825 | -28.175 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 57.780 | 46.903 | -27.097 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

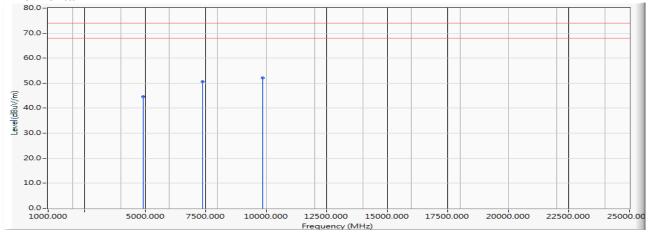


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 59.160 | 44.619 | -29.381 | 74.000 | PEAK |
| 2 | | 7386.000 | -7.977 | 58.570 | 50.593 | -3.407 | 54.000 | PEAK |
| 3 | * | 9848.000 | -7.977 | 60.100 | 52.123 | -1.877 | 54.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

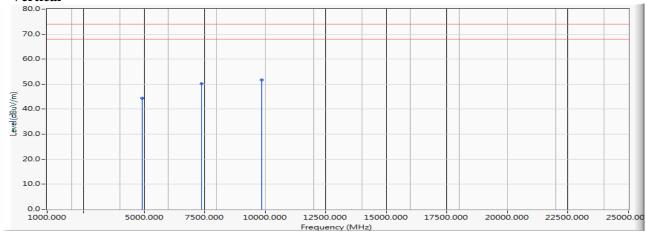


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 58.950 | 44.409 | -29.591 | 74.000 | PEAK |
| 2 | | 7386.000 | -7.977 | 58.180 | 50.203 | -3.797 | 54.000 | PEAK |
| 3 | * | 9848.000 | -7.977 | 59.690 | 51.713 | -2.287 | 54.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

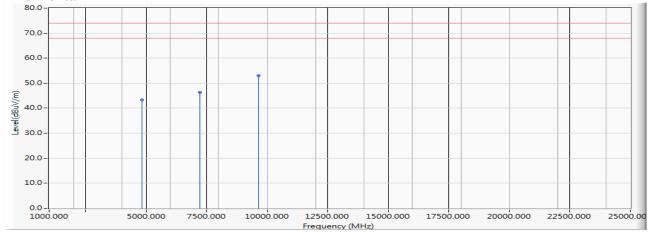


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 58.920 | 43.245 | -30.755 | 74.000 | PEAK |
| 2 | | 7236.000 | -12.465 | 58.830 | 46.364 | -27.636 | 74.000 | PEAK |
| 3 | * | 9648.000 | -7.977 | 60.910 | 52.933 | -1.067 | 54.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

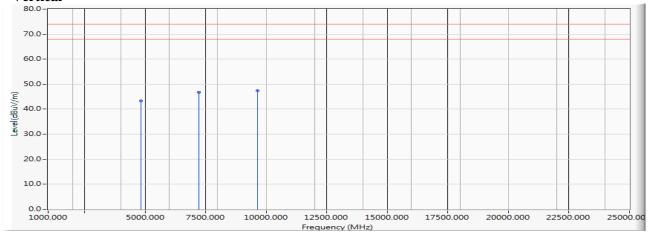


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 58.980 | 43.305 | -30.695 | 74.000 | PEAK |
| 2 | | 7236.000 | -12.465 | 59.240 | 46.774 | -27.226 | 74.000 | PEAK |
| 3 | * | 9648.000 | -11.669 | 59.120 | 47.452 | -26.548 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

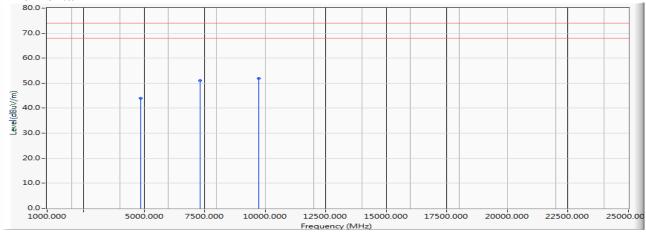


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 59.120 | 44.001 | -29.999 | 74.000 | PEAK |
| 2 | | 7311.000 | -7.977 | 59.020 | 51.043 | -2.957 | 54.000 | PEAK |
| 3 | * | 9748.000 | -7.977 | 59.900 | 51.923 | -2.077 | 54.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

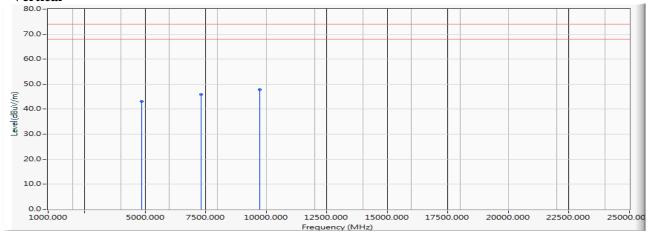


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 58.170 | 43.051 | -30.949 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.780 | 45.805 | -28.195 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 58.710 | 47.833 | -26.167 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

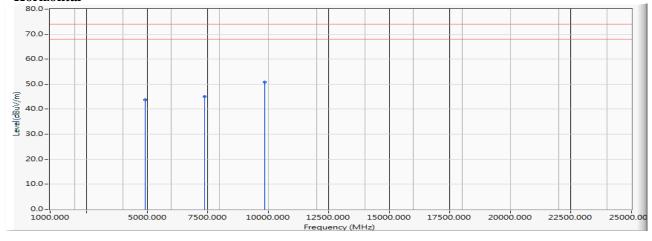


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 58.260 | 43.719 | -30.281 | 74.000 | PEAK |
| 2 | | 7386.000 | -13.881 | 59.020 | 45.138 | -28.862 | 74.000 | PEAK |
| 3 | * | 9848.000 | -11.833 | 62.710 | 50.877 | -23.123 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

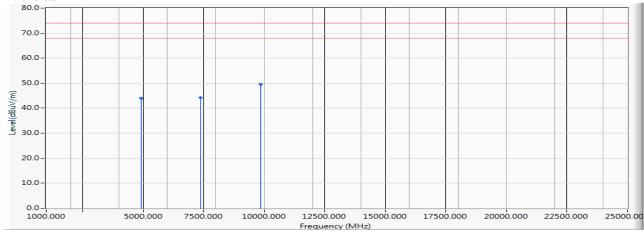


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 58.550 | 44.009 | -29.991 | 74.000 | PEAK |
| 2 | | 7386.000 | -13.881 | 58.170 | 44.288 | -29.712 | 74.000 | PEAK |
| 3 | * | 9848.000 | -11.833 | 61.370 | 49.537 | -24.463 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

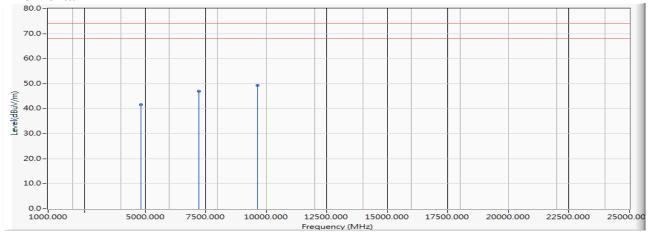


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2412 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 57.390 | 41.715 | -32.285 | 74.000 | PEAK |
| 2 | | 7236.000 | -12.465 | 59.330 | 46.864 | -27.136 | 74.000 | PEAK |
| 3 | * | 9648.000 | -11.669 | 61.030 | 49.362 | -24.638 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

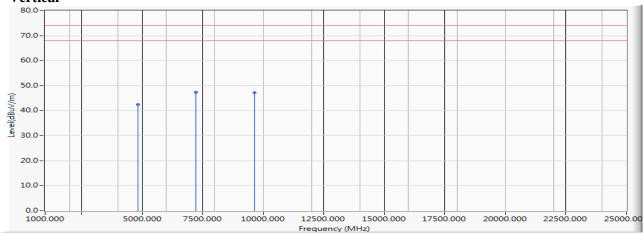


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2442 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4824.000 | -15.675 | 58.130 | 42.455 | -31.545 | 74.000 | PEAK |
| 2 | * | 7236.000 | -12.465 | 59.930 | 47.464 | -26.536 | 74.000 | PEAK |
| 3 | | 9648.000 | -11.669 | 58.840 | 47.172 | -26.828 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

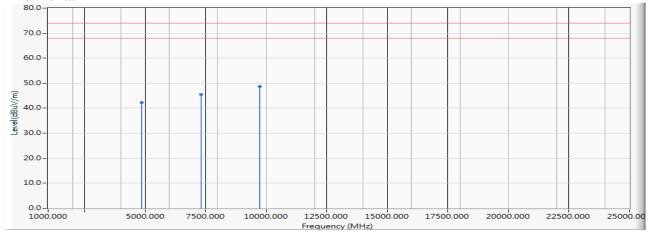


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 57.310 | 42.191 | -31.809 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.550 | 45.575 | -28.425 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 59.510 | 48.633 | -25.367 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

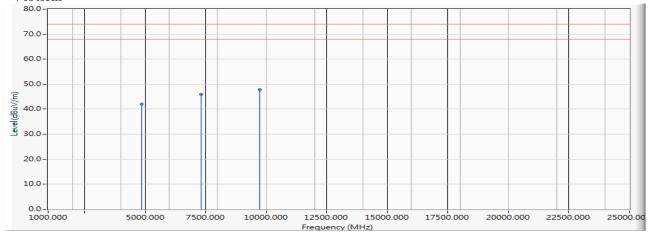


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 57.220 | 42.101 | -31.899 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.860 | 45.885 | -28.115 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 58.810 | 47.933 | -26.067 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

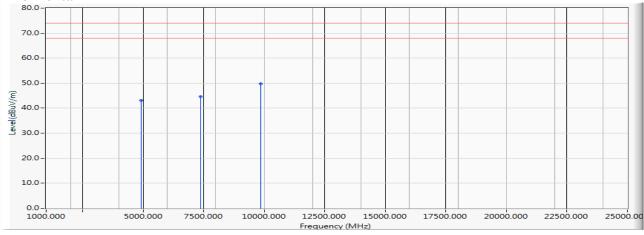


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 57.590 | 43.049 | -30.951 | 74.000 | PEAK |
| 2 | | 7386.000 | -13.881 | 58.410 | 44.528 | -29.472 | 74.000 | PEAK |
| 3 | * | 9848.000 | -11.833 | 61.570 | 49.737 | -24.263 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

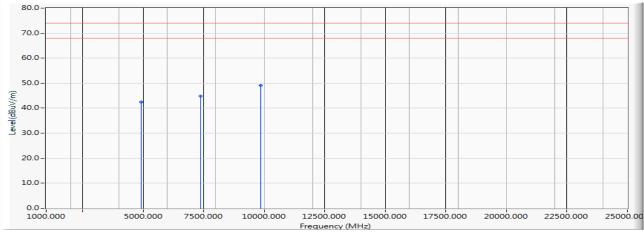


Test Item : Harmonic Radiated Emission Data

Test Date : 2018/08/30

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4924.000 | -14.541 | 57.010 | 42.469 | -31.531 | 74.000 | PEAK |
| 2 | | 7386.000 | -13.881 | 58.750 | 44.868 | -29.132 | 74.000 | PEAK |
| 3 | * | 9848.000 | -11.833 | 60.980 | 49.147 | -24.853 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

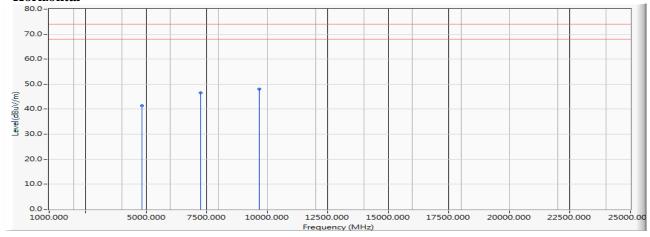


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4844.000 | -15.452 | 56.930 | 41.478 | -32.522 | 74.000 | PEAK |
| 2 | | 7266.000 | -12.534 | 58.980 | 46.446 | -27.554 | 74.000 | PEAK |
| 3 | * | 9688.000 | -11.387 | 59.340 | 47.953 | -26.047 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

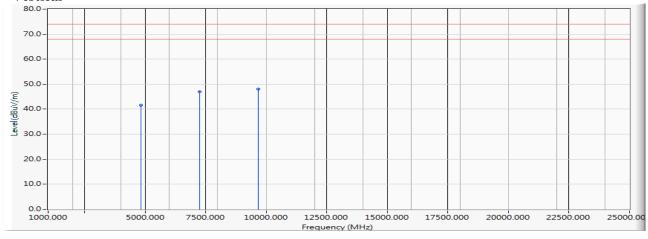


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4844.000 | -15.452 | 57.130 | 41.678 | -32.322 | 74.000 | PEAK |
| 2 | | 7266.000 | -12.534 | 59.450 | 46.916 | -27.084 | 74.000 | PEAK |
| 3 | * | 9688.000 | -11.387 | 59.430 | 48.043 | -25.957 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

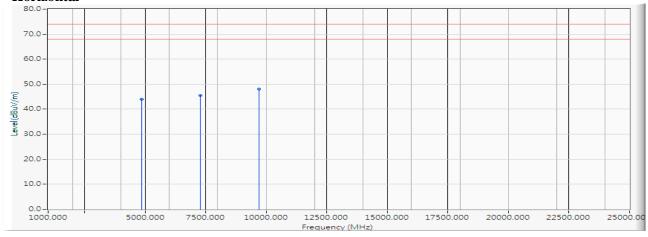


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4854.000 | -14.687 | 58.740 | 44.053 | -29.947 | 74.000 | PEAK |
| 2 | | 7281.000 | -12.106 | 57.680 | 45.575 | -28.425 | 74.000 | PEAK |
| 3 | * | 9708.000 | -11.003 | 58.950 | 47.948 | -26.052 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

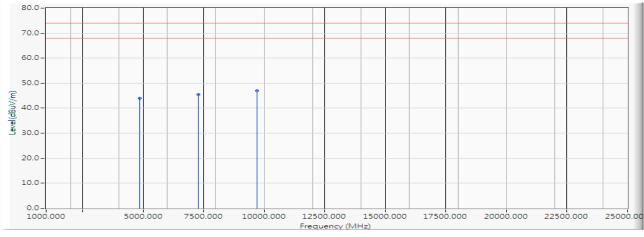


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4854.000 | -14.687 | 58.730 | 44.043 | -29.957 | 74.000 | PEAK |
| 2 | | 7281.000 | -12.106 | 57.470 | 45.365 | -28.635 | 74.000 | PEAK |
| 3 | * | 9708.000 | -11.003 | 57.870 | 46.868 | -27.132 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

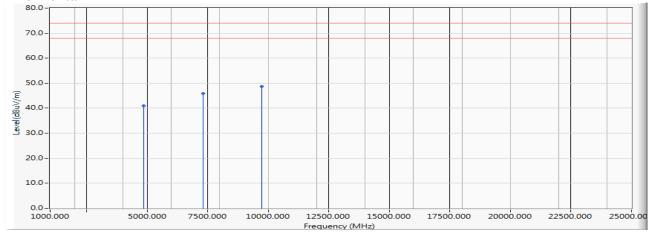


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2437MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 56.090 | 40.971 | -33.029 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.830 | 45.855 | -28.145 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 59.550 | 48.673 | -25.327 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

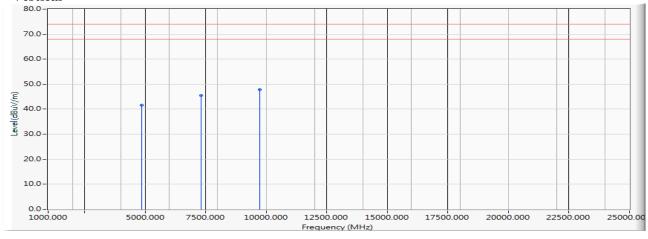


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2437MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4874.000 | -15.119 | 56.640 | 41.521 | -32.479 | 74.000 | PEAK |
| 2 | | 7311.000 | -12.975 | 58.490 | 45.515 | -28.485 | 74.000 | PEAK |
| 3 | * | 9748.000 | -10.878 | 58.630 | 47.753 | -26.247 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

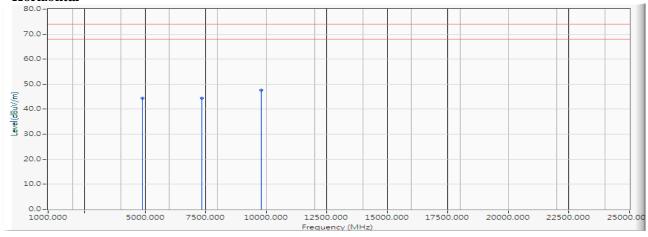


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4894.000 | -14.246 | 58.620 | 44.374 | -29.626 | 74.000 | PEAK |
| 2 | | 7341.000 | -12.786 | 57.230 | 44.444 | -29.556 | 74.000 | PEAK |
| 3 | * | 9788.000 | -10.915 | 58.430 | 47.515 | -26.485 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

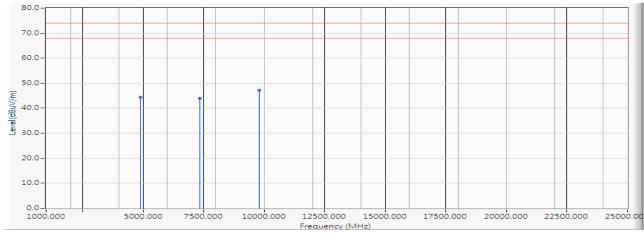


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4894.000 | -14.246 | 58.700 | 44.454 | -29.546 | 74.000 | PEAK |
| 2 | | 7341.000 | -12.786 | 56.810 | 44.024 | -29.976 | 74.000 | PEAK |
| 3 | * | 9788.000 | -10.915 | 58.100 | 47.185 | -26.815 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

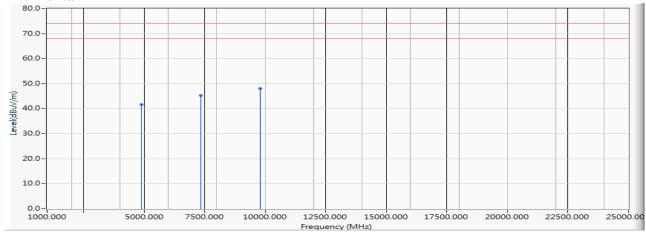


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4904.000 | -14.781 | 56.380 | 41.600 | -32.400 | 74.000 | PEAK |
| 2 | | 7356.000 | -13.519 | 58.700 | 45.181 | -28.819 | 74.000 | PEAK |
| 3 | * | 9808.000 | -11.348 | 59.390 | 48.042 | -25.958 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

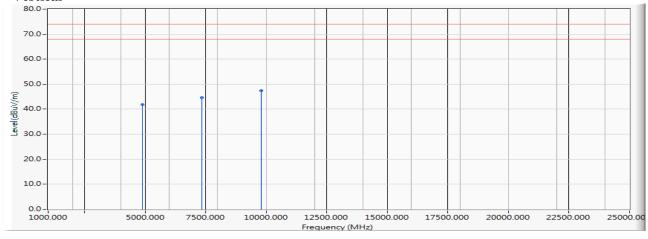


Test Item : Harmonic Radiated Emission Data

Test Date : 2019/08/30

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 4904.000 | -14.781 | 56.630 | 41.850 | -32.150 | 74.000 | PEAK |
| 2 | | 7356.000 | -13.519 | 58.220 | 44.701 | -29.299 | 74.000 | PEAK |
| 3 | * | 9808.000 | -11.348 | 58.670 | 47.322 | -26.678 | 74.000 | PEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

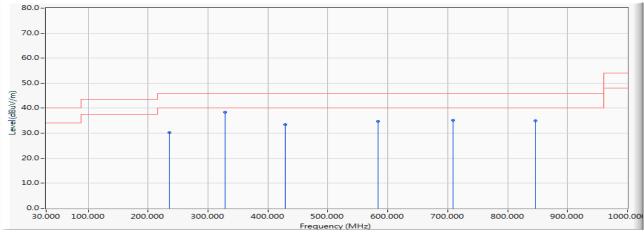


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 235.246 | -18.092 | 48.402 | 30.310 | -15.690 | 46.000 | QUASIPEAK |
| 2 | * | 328.029 | -14.040 | 52.481 | 38.440 | -7.560 | 46.000 | QUASIPEAK |
| 3 | | 429.246 | -11.158 | 44.540 | 33.382 | -12.618 | 46.000 | QUASIPEAK |
| 4 | | 583.884 | -7.293 | 42.136 | 34.843 | -11.157 | 46.000 | QUASIPEAK |
| 5 | - | 709.000 | -9.027 | 44.308 | 35.281 | -10.719 | 46.000 | QUASIPEAK |
| 6 | • | 846.768 | -8.233 | 43.196 | 34.963 | -11.037 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

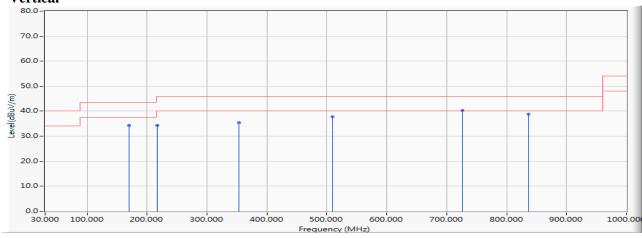


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 170.580 | -20.158 | 54.417 | 34.258 | -9.242 | 43.500 | QUASIPEAK |
| 2 | | 216.971 | -18.105 | 52.410 | 34.305 | -11.695 | 46.000 | QUASIPEAK |
| 3 | | 353.333 | -13.141 | 48.506 | 35.365 | -10.635 | 46.000 | QUASIPEAK |
| 4 | | 509.377 | -11.053 | 48.831 | 37.778 | -8.222 | 46.000 | QUASIPEAK |
| 5 | * | 725.870 | -7.901 | 48.130 | 40.229 | -5.771 | 46.000 | QUASIPEAK |
| 6 | | 836.928 | -8.432 | 47.350 | 38.918 | -7.082 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

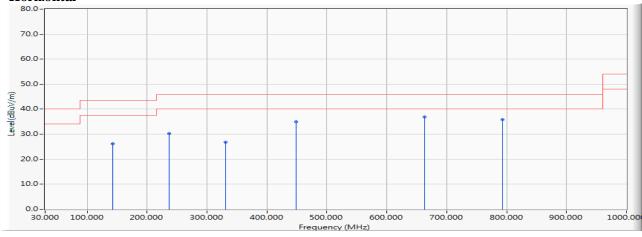


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 142.464 | -18.156 | 44.292 | 26.135 | -17.365 | 43.500 | QUASIPEAK |
| 2 | | 236.652 | -18.233 | 48.415 | 30.182 | -15.818 | 46.000 | QUASIPEAK |
| 3 | | 330.841 | -14.031 | 40.927 | 26.895 | -19.105 | 46.000 | QUASIPEAK |
| 4 | | 448.928 | -10.150 | 45.010 | 34.860 | -11.140 | 46.000 | QUASIPEAK |
| 5 | * | 662.609 | -9.918 | 46.909 | 36.990 | -9.010 | 46.000 | QUASIPEAK |
| 6 | | 793.348 | -8.745 | 44.596 | 35.851 | -10.149 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

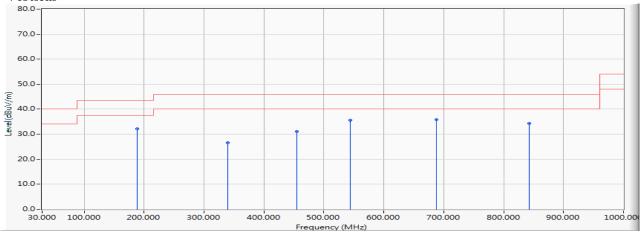


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 188.855 | -18.795 | 50.908 | 32.113 | -11.387 | 43.500 | QUASIPEAK |
| 2 | | 339.275 | -13.999 | 40.674 | 26.676 | -19.324 | 46.000 | QUASIPEAK |
| 3 | | 454.551 | -10.341 | 41.427 | 31.086 | -14.914 | 46.000 | QUASIPEAK |
| 4 | | 544.522 | -11.194 | 46.776 | 35.582 | -10.418 | 46.000 | QUASIPEAK |
| 5 | * | 687.913 | -9.202 | 44.942 | 35.740 | -10.260 | 46.000 | QUASIPEAK |
| 6 | | 842.551 | -8.267 | 42.637 | 34.370 | -11.630 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

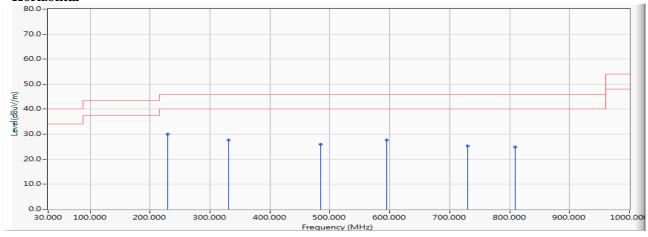


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2437 MHz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 229.623 | -17.632 | 47.702 | 30.069 | -15.931 | 46.000 | QUASIPEAK |
| 2 | | 330.841 | -14.031 | 41.727 | 27.695 | -18.305 | 46.000 | QUASIPEAK |
| 3 | | 484.072 | -11.922 | 37.801 | 25.880 | -20.120 | 46.000 | QUASIPEAK |
| 4 | | 595.130 | -6.778 | 34.386 | 27.609 | -18.391 | 46.000 | QUASIPEAK |
| 5 | | 730.087 | -7.175 | 32.566 | 25.392 | -20.608 | 46.000 | QUASIPEAK |
| 6 | | 808.812 | -8.884 | 33.787 | 24.903 | -21.097 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

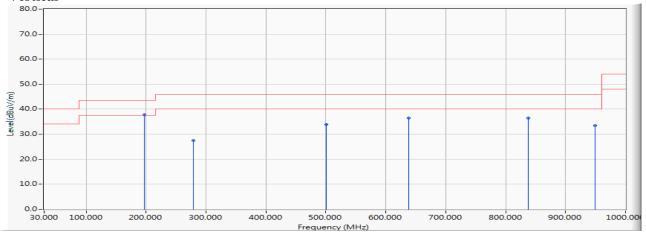


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 197.290 | -18.285 | 56.104 | 37.819 | -5.681 | 43.500 | QUASIPEAK |
| 2 | | 278.826 | -18.313 | 45.747 | 27.434 | -18.566 | 46.000 | QUASIPEAK |
| 3 | | 500.942 | -10.881 | 44.827 | 33.947 | -12.053 | 46.000 | QUASIPEAK |
| 4 | | 638.710 | -8.734 | 45.262 | 36.527 | -9.473 | 46.000 | QUASIPEAK |
| 5 | | 838.333 | -8.371 | 44.755 | 36.384 | -9.616 | 46.000 | QUASIPEAK |
| 6 | | 949.391 | -8.569 | 42.087 | 33.518 | -12.482 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

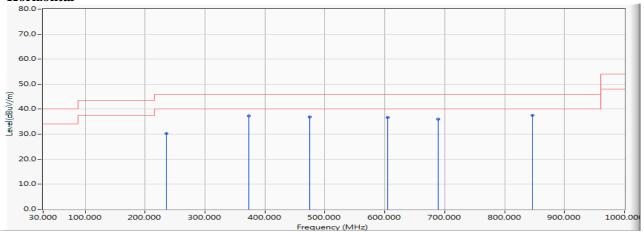


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2437Hz)

Horizontal



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 235.246 | -18.092 | 48.267 | 30.175 | -15.825 | 46.000 | QUASIPEAK |
| 2 | | 373.014 | -12.303 | 49.651 | 37.349 | -8.651 | 46.000 | QUASIPEAK |
| 3 | | 474.232 | -11.724 | 48.596 | 36.872 | -9.128 | 46.000 | QUASIPEAK |
| 4 | | 604.971 | -6.911 | 43.559 | 36.648 | -9.352 | 46.000 | QUASIPEAK |
| 5 | | 689.319 | -9.189 | 45.292 | 36.103 | -9.897 | 46.000 | QUASIPEAK |
| 6 | * | 846.768 | -8.233 | 45.720 | 37.487 | -8.513 | 46.000 | QUASIPEAK |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.

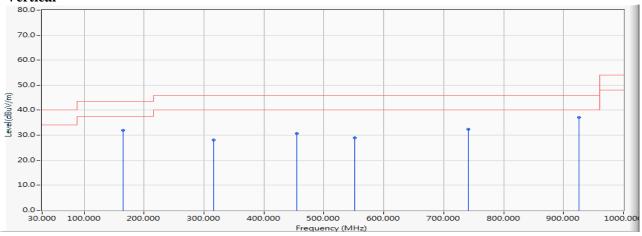


Test Item : General Radiated Emission Data

Test Date : 2019/08/29

Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2437 MHz)

Vertical



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 164.957 | -20.477 | 52.409 | 31.933 | -11.567 | 43.500 | QUASIPEAK |
| 2 | | 316.783 | -14.163 | 42.194 | 28.032 | -17.968 | 46.000 | QUASIPEAK |
| 3 | | 454.551 | -10.341 | 41.112 | 30.771 | -15.229 | 46.000 | QUASIPEAK |
| 4 | | 551.551 | -10.891 | 39.775 | 28.884 | -17.116 | 46.000 | QUASIPEAK |
| 5 | | 741.333 | -5.610 | 37.944 | 32.334 | -13.666 | 46.000 | QUASIPEAK |
| 6 | * | 925.493 | -9.831 | 46.829 | 36.998 | -9.002 | 46.000 | QUASIPEAK |

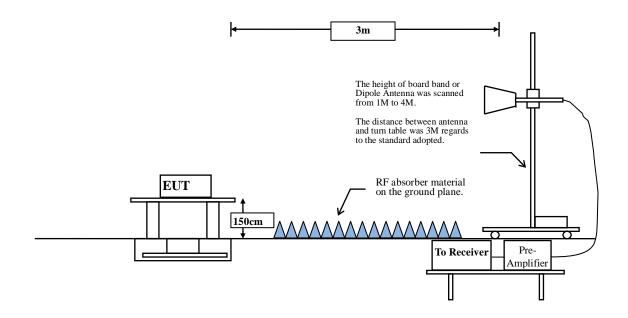
- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.



4. Band Edge

4.1. Test Setup

RF Radiated Measurement:



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.



4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

RBW and **VBW** Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

 $VBW \ge 3 \times RBW$.

Table 1 —RBW as a function of frequency

| Frequency | RBW |
|-------------|-------------|
| 9-150 kHz | 200-300 Hz |
| 0.15-30 MHz | 9-10 kHz |
| 30-1000 MHz | 100-120 kHz |
| > 1000 MHz | 1 MHz |

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle \geq 98 %

 $VBW \ge 1/T$, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

| 2.4GHz band | Duty Cycle | Т | 1/T | VBW |
|-------------|------------|---------|------|------|
| | (%) | (ms) | (Hz) | (Hz) |
| 802.11b | 98.84 | 12.3333 | 81 | 10 |
| 802.11g | 93.29 | 2.0145 | 496 | 500 |
| 802.11n20 | 89.43 | 0.9565 | 1045 | 2000 |
| 802.11n40 | 67.39 | 0.4493 | 2226 | 3000 |

Note: Duty Cycle Refer to Section 5



4.4. Uncertainty

 \pm 4.08 dB above 1GHz

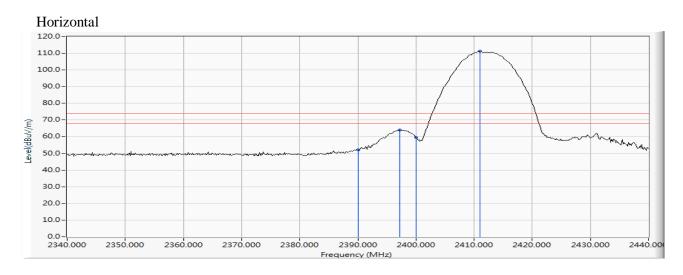
± 4.22 dB below 1GHz



4.5. Test Result of Band Edge

Product : Rugged Tablet
Test Item : Band Edge
Test Date : 2019/09/03

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)



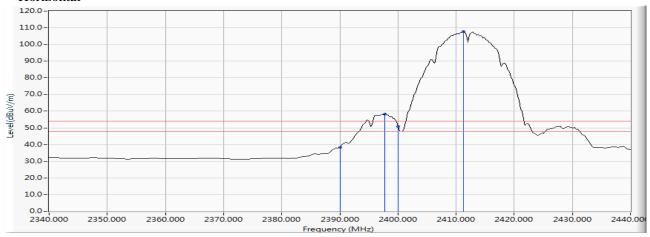
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 43.355 | 52.118 | -21.882 | 74.000 | PEAK |
| 2 | | 2397.246 | 8.790 | 55.224 | 64.013 | -9.987 | 74.000 | PEAK |
| 3 | | 2400.000 | 8.799 | 50.795 | 59.594 | -14.406 | 74.000 | PEAK |
| 4 | * | 2411.014 | 8.838 | 102.342 | 111.180 | 37.180 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

Horizontal



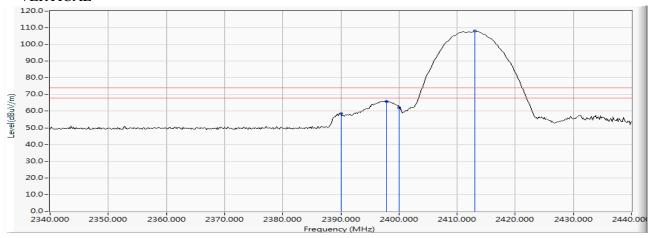
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 29.572 | 38.335 | -15.665 | 54.000 | AVERAGE |
| 2 | | 2397.681 | 8.791 | 49.596 | 58.387 | 4.387 | 54.000 | AVERAGE |
| 3 | | 2400.000 | 8.799 | 42.011 | 50.810 | -3.190 | 54.000 | AVERAGE |
| 4 | * | 2411.304 | 8.839 | 98.860 | 107.699 | 53.699 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

VERTICAL



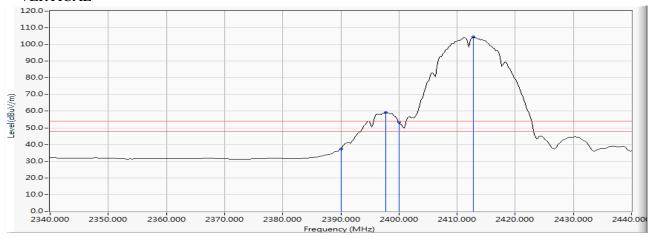
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 49.717 | 58.480 | -15.520 | 74.000 | PEAK |
| 2 | | 2397.826 | 8.791 | 57.270 | 66.061 | -7.939 | 74.000 | PEAK |
| 3 | | 2400.000 | 8.799 | 53.386 | 62.185 | -11.815 | 74.000 | PEAK |
| 4 | * | 2413.043 | 8.846 | 99.219 | 108.064 | | - | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

VERTICAL



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 28.645 | 37.408 | -16.592 | 54.000 | AVERAGE |
| 2 | | 2397.681 | 8.791 | 50.486 | 59.277 | 5.277 | 54.000 | AVERAGE |
| 3 | | 2400.000 | 8.799 | 44.474 | 53.273 | -0.727 | 54.000 | AVERAGE |
| 4 | * | 2412.754 | 8.844 | 95.719 | 104.563 | | - | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



2533.50

Product : Rugged Tablet
Test Item : Band Edge
Test Date : 2019/09/03

2450.000

Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Horizontal 120.0 110.0 100.0 90.0 80.0 70.0 60.0 40.0 30.0 20.0 10.0 0.0

| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.036 | 9.018 | 101.956 | 110.974 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 44.838 | 53.937 | -20.063 | 74.000 | PEAK |
| 3 | | 2486.109 | 9.109 | 48.054 | 57.163 | -16.837 | 74.000 | PEAK |

2480.000

Frequency (MHz)

2490.000

2500.000

2510.000

2520,000

Note:

2433.500

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.

2460.000

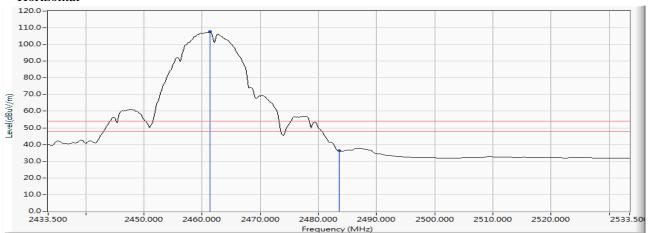
2470,000

3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Horizontal



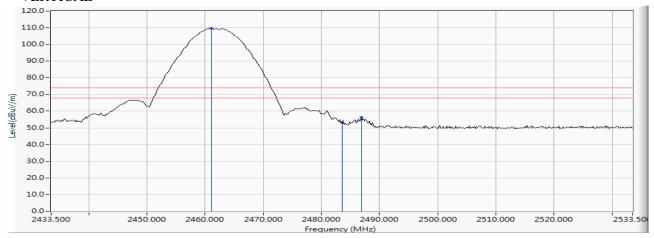
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.326 | 9.019 | 98.661 | 107.680 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 27.159 | 36.258 | -17.742 | 54.000 | AVERAGE |

- All readings above 1GHz are performed with peak and/or average measurements as necessary.
- Measurement Level = Reading Level + Correct Factor.
- The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

VERTICAL



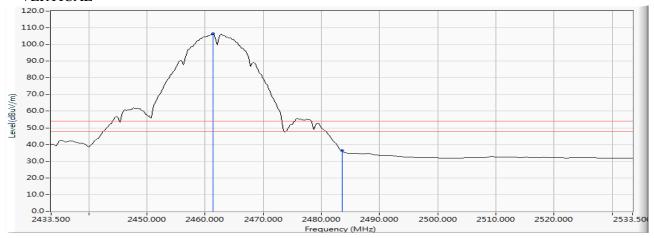
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.036 | 9.018 | 100.744 | 109.762 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 44.078 | 53.177 | -20.823 | 74.000 | PEAK |
| 3 | | 2486.833 | 9.111 | 47.083 | 56.195 | -17.805 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 1:802.11b+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

VERTICAL



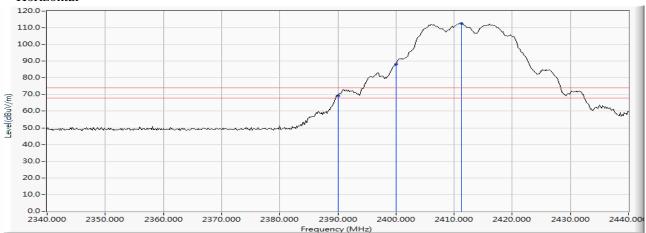
| | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|------------|----------------|---------------|---------------|---------|----------|---------------|
| | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * 2461.326 | 9.019 | 97.362 | 106.381 | - | - | AVERAGE |
| 2 | 2483.500 | 9.100 | 27.108 | 36.207 | -17.793 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

Horizontal



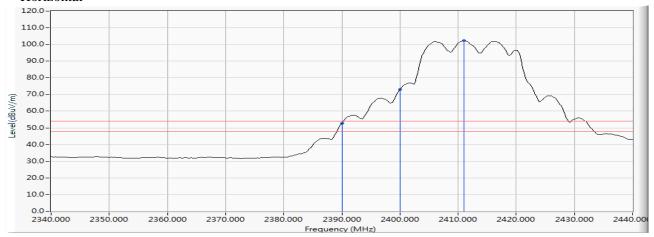
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 60.566 | 69.329 | -4.671 | 74.000 | PEAK |
| 2 | | 2400.000 | 8.799 | 79.451 | 88.250 | 14.250 | 74.000 | PEAK |
| 3 | * | 2411.304 | 8.839 | 103.811 | 112.650 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

Horizontal



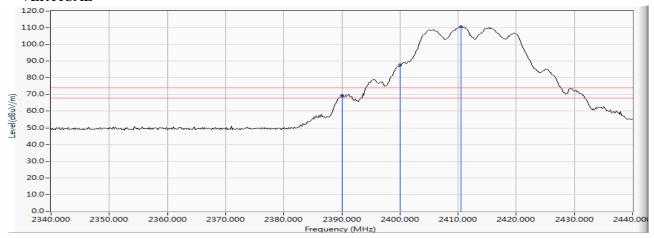
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 44.123 | 52.886 | -1.114 | 54.000 | AVERAGE |
| 2 | | 2400.000 | 8.799 | 64.342 | 73.141 | 19.141 | 54.000 | AVERAGE |
| 3 | * | 2411.014 | 8.838 | 93.545 | 102.383 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

VERTICAL



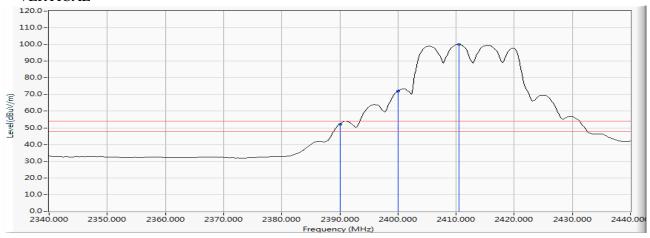
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 60.660 | 69.423 | -4.577 | 74.000 | PEAK |
| 2 | | 2400.000 | 8.799 | 79.134 | 87.933 | 13.933 | 74.000 | PEAK |
| 3 | * | 2410.435 | 8.836 | 101.759 | 110.595 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2412MHz)

VERTICAL



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 43.393 | 52.156 | -1.844 | 54.000 | PEAK |
| 2 | | 2400.000 | 8.799 | 63.373 | 72.172 | 18.172 | 54.000 | PEAK |
| 3 | * | 2410.435 | 8.836 | 91.309 | 100.145 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Horizontal 120.0 110.0 100.0 90.0 80.0 70.0 Level(dBuV/m) 60.0 50.0 40.0 20.0 10.0 0.0 2433.500 2450.000 2460.000 2470,000 2480.000 2490,000 2500.000 2510.000 2520,000 2533.50 Frequency (MHz)

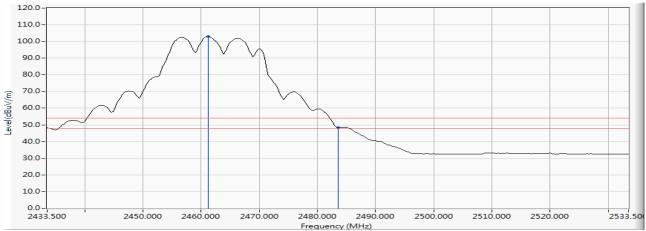
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.181 | 9.019 | 104.302 | 113.321 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 55.160 | 64.259 | -9.741 | 74.000 | PEAK |
| 3 | | 2484.804 | 9.103 | 56.691 | 65.795 | -8.205 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

Horizontal



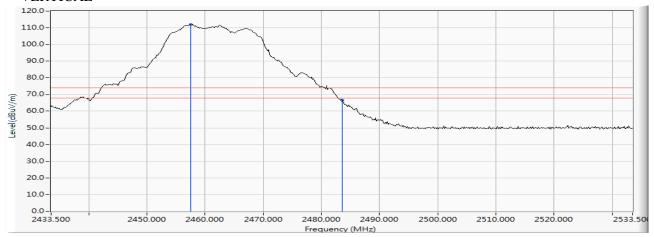
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.181 | 9.019 | 94.053 | 103.072 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 39.317 | 48.416 | -5.584 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

VERTICAL



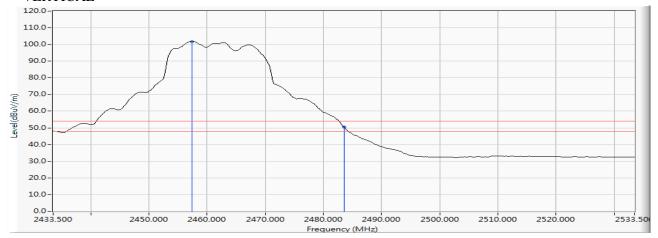
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2457.558 | 9.006 | 102.930 | 111.936 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 57.370 | 66.469 | -7.531 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 2:802.11g+LTE FDD Band 7_20M 2535MHz+NFC (2462MHz)

VERTICAL



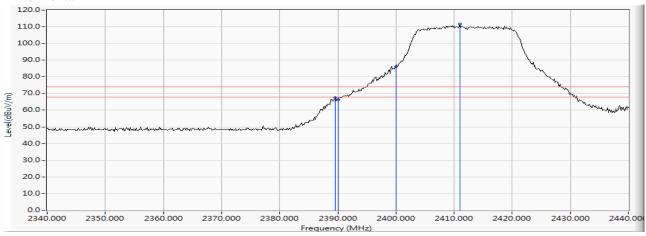
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2457.413 | 9.005 | 92.635 | 101.640 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 41.450 | 50.549 | -3.451 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2412MHz)

Horizontal



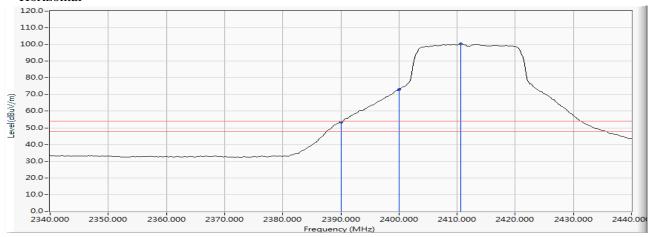
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2389.565 | 8.762 | 58.764 | 67.526 | -6.474 | 74.000 | PEAK |
| 2 | | 2390.000 | 8.763 | 57.380 | 66.143 | -7.857 | 74.000 | PEAK |
| 3 | | 2400.000 | 8.799 | 77.425 | 86.224 | 12.224 | 74.000 | PEAK |
| 4 | * | 2411.014 | 8.838 | 102.689 | 111.527 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2412MHz)

Horizontal



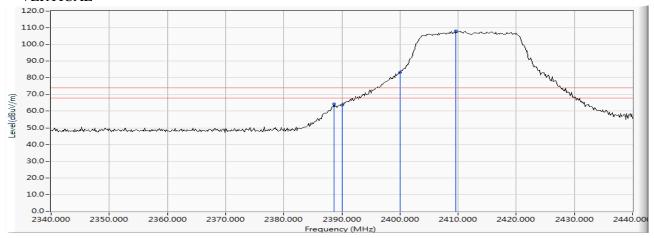
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 44.498 | 53.261 | -0.739 | 54.000 | AVERAGE |
| 2 | | 2400.000 | 8.799 | 64.089 | 72.888 | 18.888 | 54.000 | AVERAGE |
| 3 | * | 2410.580 | 8.837 | 91.636 | 100.473 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2412MHz)

VERTICAL



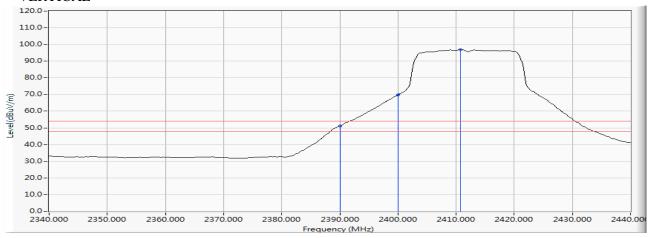
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2388.696 | 8.759 | 55.571 | 64.330 | -9.670 | 74.000 | AVERAGE |
| 2 | | 2390.000 | 8.763 | 55.078 | 63.841 | -10.159 | 74.000 | AVERAGE |
| 3 | | 2400.000 | 8.799 | 74.681 | 83.480 | 9.480 | 74.000 | AVERAGE |
| 4 | * | 2409.565 | 8.834 | 99.237 | 108.070 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2412MHz)

VERTICAL

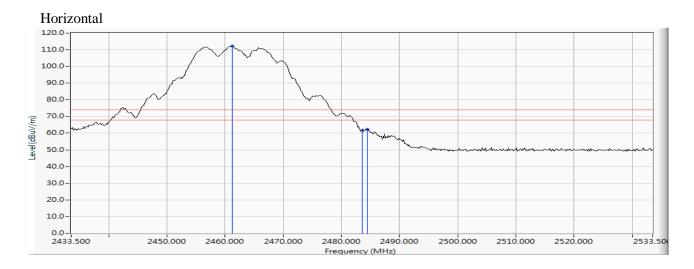


| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 42.268 | 51.031 | -2.969 | 54.000 | AVERAGE |
| 2 | | 2400.000 | 8.799 | 60.922 | 69.721 | 15.721 | 54.000 | AVERAGE |
| 3 | * | 2410.725 | 8.838 | 88.067 | 96.904 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462MHz)



| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.181 | 9.019 | 103.284 | 112.303 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 52.270 | 61.369 | -12.631 | 74.000 | PEAK |
| 3 | | 2484.514 | 9.103 | 53.401 | 62.504 | -11.496 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462MHz)

Horizontal 120.0 110.0 100.0 90.0 80.0 70.0 Level(dBuV/m) 60.0 50.0 40.0 30.0 20.0 10.0 0.0 2533.50 2433.500 2450.000 2460.000 2470,000 2480.000 2490,000 2500.000 2510.000 2520,000

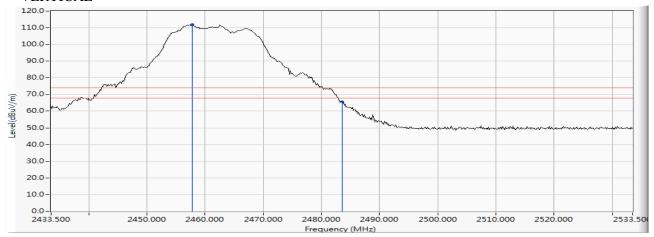
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2461.181 | 9.019 | 93.795 | 102.814 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 37.876 | 46.975 | -7.025 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462MHz)

VERTICAL



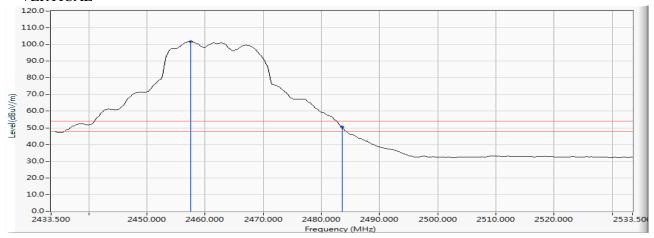
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2457.703 | 9.007 | 103.014 | 112.020 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 56.587 | 65.686 | -8.314 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 3:802.11n-20+LTE TDD Band 38_20M 2595MHz+NFC (2462MHz)

VERTICAL



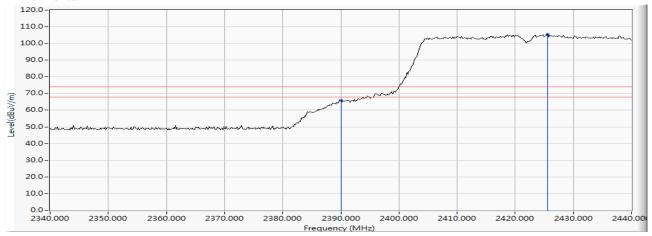
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2457.558 | 9.006 | 92.702 | 101.708 | - | - | AVERAGE |
| 2 | | 2483.500 | 9.100 | 41.397 | 50.496 | -3.504 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422MHz)

Horizontal



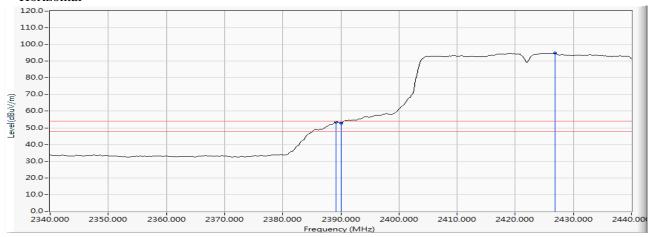
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 57.286 | 66.049 | -7.951 | 74.000 | PEAK |
| 2 | * | 2425.507 | 8.891 | 96.594 | 105.485 | - | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422MHz)

Horizontal



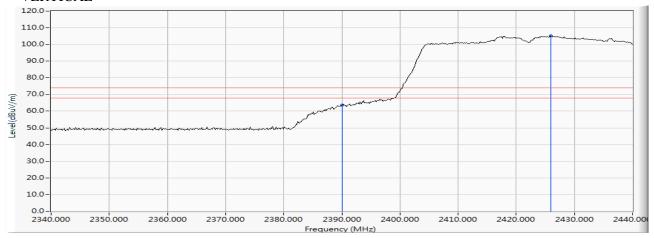
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2389.130 | 8.761 | 44.699 | 53.459 | -0.541 | 54.000 | AVERAGE |
| 2 | | 2390.000 | 8.763 | 44.025 | 52.788 | -1.212 | 54.000 | AVERAGE |
| 3 | * | 2426.812 | 8.895 | 85.894 | 94.790 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422MHz)

VERTICAL



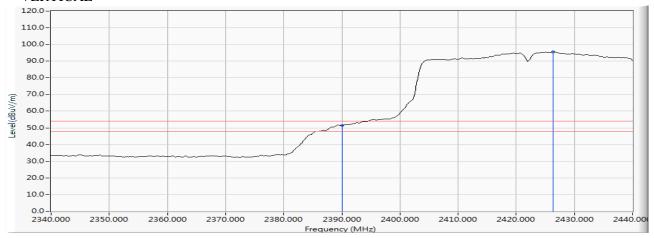
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 55.068 | 63.831 | -10.169 | 74.000 | PEAK |
| 2 | * | 2425.942 | 8.892 | 96.209 | 105.101 | | - | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2422MHz)

VERTICAL



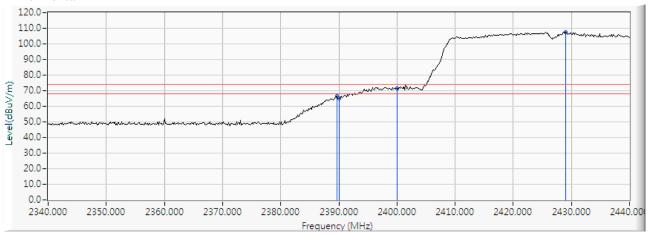
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 42.580 | 51.343 | -2.657 | 54.000 | AVERAGE |
| 2 | * | 2426.377 | 8.894 | 86.657 | 95.551 | | | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427MHz)

Horizontal



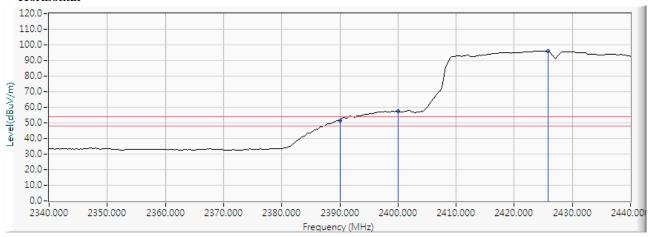
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2389.710 | 8.763 | 57.504 | 66.266 | -7.734 | 74.000 | PEAK |
| 2 | | 2390.000 | 8.763 | 56.327 | 65.090 | -8.910 | 74.000 | PEAK |
| 3 | | 2400.000 | 8.799 | 62.930 | 71.729 | -2.271 | 74.000 | PEAK |
| 4 | * | 2428.986 | 8.903 | 98.770 | 107.673 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427MHz)

Horizontal



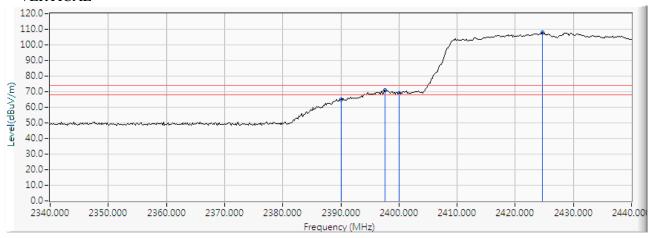
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 42.856 | 51.619 | -2.381 | 54.000 | PEAK |
| 2 | | 2400.000 | 8.799 | 48.600 | 57.399 | 3.399 | 54.000 | PEAK |
| 3 | * | 2425.797 | 8.891 | 87.168 | 96.060 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427MHz)

VERTICAL



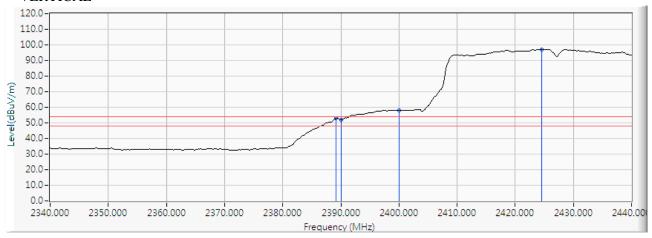
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2390.000 | 8.763 | 56.018 | 64.781 | -9.219 | 74.000 | PEAK |
| 2 | | 2397.536 | 8.790 | 62.334 | 71.124 | -2.876 | 74.000 | PEAK |
| 3 | | 2400.000 | 8.799 | 60.368 | 69.167 | -4.833 | 74.000 | PEAK |
| 4 | * | 2424.638 | 8.888 | 99.014 | 107.902 | | | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2427MHz)

VERTICAL



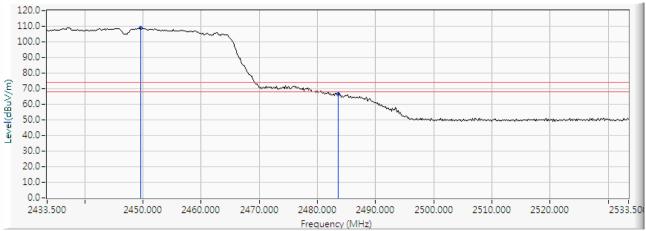
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | | 2389.130 | 8.761 | 44.030 | 52.790 | -1.210 | 54.000 | AVERAGE |
| 2 | | 2390.000 | 8.763 | 43.402 | 52.165 | -1.835 | 54.000 | AVERAGE |
| 3 | | 2400.000 | 8.799 | 49.069 | 57.868 | 3.868 | 54.000 | AVERAGE |
| 4 | * | 2424.493 | 8.887 | 88.306 | 97.193 | | - | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447MHz)

Horizontal



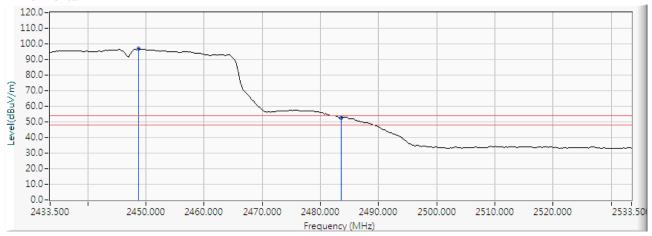
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2449.587 | 8.978 | 99.936 | 108.914 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 57.516 | 66.615 | -7.385 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447MHz)

Horizontal



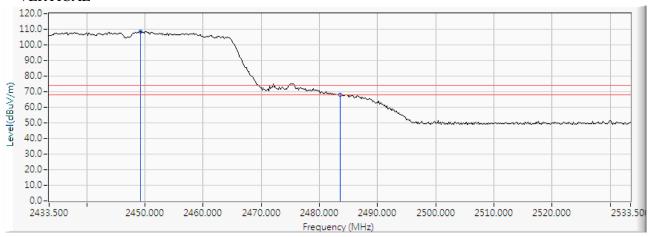
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2448.717 | 8.975 | 87.864 | 96.839 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 43.474 | 52.573 | -1.427 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447MHz)

VERTICAL



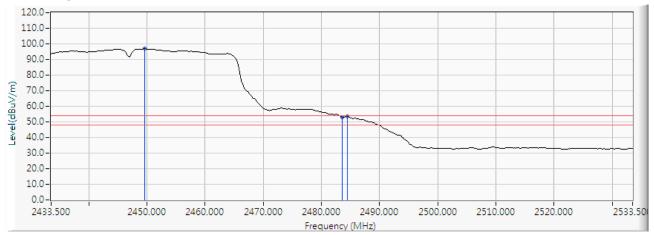
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2449.152 | 8.976 | 99.713 | 108.689 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 59.057 | 68.156 | -5.844 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2447MHz)

VERTICAL



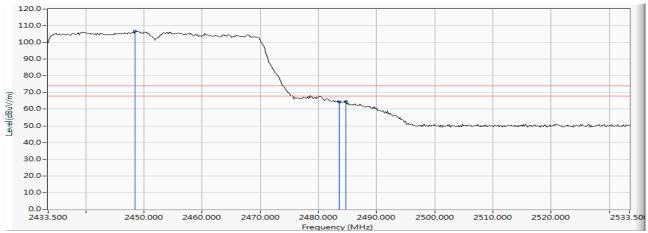
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2449.587 | 8.978 | 87.921 | 96.899 | | | AVERAGE |
| 2 | | 2483.500 | 9.100 | 43.973 | 53.072 | -0.928 | 54.000 | AVERAGE |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452MHz)

Horizontal



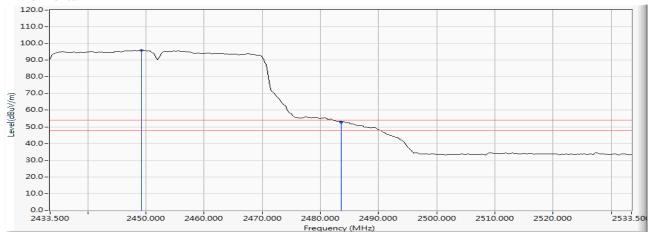
| | | Frequency | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|---|-----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2448.428 | 8.974 | 97.839 | 106.813 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 55.099 | 64.198 | -9.802 | 74.000 | PEAK |
| 3 | | 2484.659 | 9.104 | 55.662 | 64.766 | -9.234 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452MHz)

Horizontal



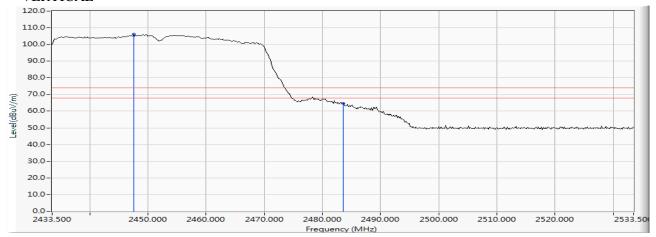
| | Frequency Corre | | Frequency Correct Factor Reading Level | | Measure Level | Margin | Limit | Detector Type |
|---|-----------------|----------|--|--------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2449.152 | 8.976 | 86.973 | 95.949 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 43.699 | 52.798 | -1.202 | 54.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452MHz)

VERTICAL



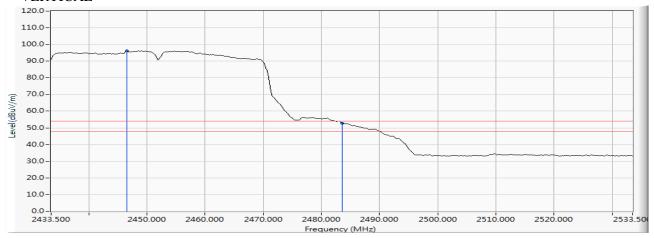
| | Frequency Correct Factor | | Reading Level Measure Level | | Margin | Limit | Detector Type | |
|---|--------------------------|----------|-----------------------------|--------|----------|--------|---------------|------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2447.558 | 8.970 | 97.288 | 106.259 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 55.583 | 64.682 | -9.318 | 74.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



Test Mode : Mode 4:802.11n-40+LTE TDD Band 41_20M 2593MHz+NFC (2452MHz)

VERTICAL



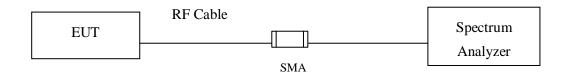
| | Frequency Correct Fac | | Correct Factor | Reading Level | Measure Level | Margin | Limit | Detector Type |
|---|-----------------------|----------|----------------|---------------|---------------|--------|----------|---------------|
| | | (MHz) | (dB) | (dBuV) | (dBuV/m) | (dB) | (dBuV/m) | |
| 1 | * | 2446.543 | 8.967 | 87.207 | 96.174 | | | PEAK |
| 2 | | 2483.500 | 9.100 | 43.616 | 52.715 | -1.285 | 54.000 | PEAK |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The average measurement was not performed when the peak measured data under the limit of average detection.



5. Duty Cycle

5.1. Test Setup



5.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

5.3. Uncertainty

± 2.31msec



5.4. Test Result of Duty Cycle

Product : Rugged Tablet
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:

 $Duty \ Cycle = Ton \ / \ (Ton + Toff)$

Duty Factor = 10 Log (1/Duty Cycle)

Results:

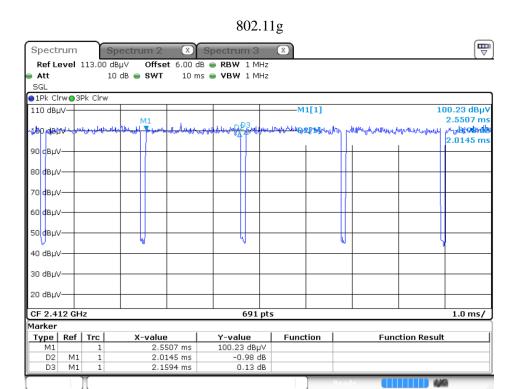
| 2.4GHz band | Ton | Ton + Toff | Duty Cycle | Duty Factor | |
|-------------|---------|------------|------------|-------------|--|
| | (ms) | (ms) | (%) | (dB) | |
| 802.11b | 12.3333 | 12.4783 | 98.84 | 0.05 | |
| 802.11g | 2.0145 | 2.1594 | 93.29 | 0.30 | |
| 802.11n20 | 0.9565 | 1.0696 | 89.43 | 0.49 | |
| 802.11n40 | 0.4493 | 0.6667 | 67.39 | 1.71 | |

802.11b

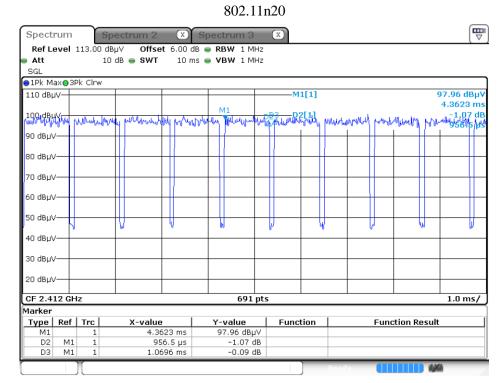


Date: 2.JAN.2007 12:36:21



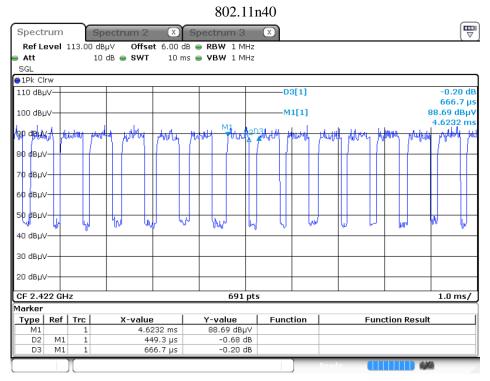


Date: 2.JAN.2007 12:57:29



Date: 2.JAN.2007 13:24:40





Date: 2.JAN.2007 17:33:08



6. EMI Reduction Method During Compliance Testing

No modification was made during testing.

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