

FCC/IC TEST REPORT

According to CFR47 §15.247 & RSS-247 Issue 2

Applicant : Mitac Digital Technology Corporation

Address : No.200, Wen Hwa 2nd Rd., Kuei Shan Dist. 33383 Taoyuan City, TAIWAN

Manufacturer: Mitac Computer (Kunshan) Co., Ltd.

No. 269, 2nd Avenue, District A, Comprehensive Free Trade Zone, 215300

Address Kunshan, Jiangsu, PEOPLES REPUBLIC OF CHINA

Equipment : Tablet Model No. : N642

FCC ID : P4Q-N642-M1000 IC : 2420C-N642-M1000

Test Period : July 25, 2019~ October 11, 2019

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of *Cerpass Technology (Suzhou) Co., Ltd.*, the test. report shall not be reproduced except in full.
- The test report must not be used by the clients to claim product certification approval by any agency of the Government.

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.10 - 2013 & FCC Part15.247 & RSS-247 Issue 2 and the energy emitted by this equipment was *passed*.

| Approved by: | Laboratory Accreditation: | | |
|----------------|------------------------------|---------------------|----|
| | Cerpass Technology Corpora | ation Test Laborato | ry |
| 1 | TAF LAB Code: | 1439 | |
| Moll | Cerpass Technology (SuZho | u) Co. Ltd | |
| Miro Chueh | Cerpass recritiology (Suzino | id) 00., Lid. | |
| EMC/RF Manager | A2LA LAB Code: | 4981.01 | |

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History of this Test Report

| Report No. | Version | Issue Date | Description |
|-------------|---------|---------------|-------------|
| SEFB1907033 | Rev 01 | Oct. 12, 2019 | Original |
| | | | |
| | | | |

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Test Configuration of Equipment under Test

1.1 **Feature of Equipment under Test**

| EUT Type | | Tablet |
|-------------------|-------------|---|
| Model Name | | N642 |
| Wireless Modu | ıle | Qualcomm WCN3660B |
| TX Frequency | Range | 2.4GHz: 2400MHz ~ 2483.5MHz |
| Number of Channel | | 2.4GHz |
| | | BT-BDR(GFSK): 79, BT-EDR(Pi/4 DQPSK): 79, BT-EDR(8DPSK): 79 |
| | | BT-LE(GFSK): 40 |
| | | 802.11b/g, 802.11n-HT20 : 13 |
| | | 802.11n-HT40: 9 |
| Type of Modula | ation | BT-BDR(GFSK), BT-EDR(Pi/4 DQPSK), BT-EDR(8DPSK) for FHSS |
| | | BT-LE (GFSK) for DTS |
| | | DBPSK, DQPSK, CCK for DSSS in 802.11b mode |
| | | BPSK, QPSK, 16-QAM, 64-QAM for OFDM in 802.11g/n mode |
| Data Rate | | BT-BDR(GFSK): 1Mbps, BT-EDR(Pi/4 DQPSK): 2Mbps, BT-EDR(8DPSK) : |
| | | 3Mbps, BT-LE(GFSK): 1Mbps |
| | | 802.11b: up to 11Mbps, 802.11g: up to 54Mbps, 802.11n: up to MCS7 |
| Antenna Type | | IFA |
| Antenna Peak | Gain | 2.4~2.4835GHz: 4.35dBi |
| Device Catego | ory | Mobile |
| RF Exposure E | Environment | General Population/ Uncontrolled |
| Power | Model: | CVW120200 |
| supply1 | Input: | 100-240V~1.2A 50-60Hz 0.75A |
| | Output: | DC 12V2.0A |
| Power | Model: | POE-GTI-3556ND4 |
| supply2 | Input: | 100-240V |
| | Output: | DC 56V0.625A |

1.2 Description of Antenna

| Manufacturer | Model | Specification |
|--------------|-----------------------|--|
| Awan | MIC-N642 Locking WIFI | IFA Antenna for WIFI 802.11a/b/g application |

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1.3 Working Frequencies

| Bluetooth Working Frequency of Each Channel: (For V4.2) | | | | | | | |
|---|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 00 | 2402 MHz | 01 | 2404 MHz | 02 | 2406 MHz | 03 | 2408 MHz |
| 04 | 2410 MHz | 05 | 2412 MHz | 06 | 2414 MHz | 07 | 2416 MHz |
| 08 | 2418 MHz | 09 | 2420 MHz | 10 | 2422 MHz | 11 | 2424 MHz |
| 12 | 2426 MHz | 13 | 2428 MHz | 14 | 2430 MHz | 15 | 2432 MHz |
| 16 | 2434 MHz | 17 | 2436 MHz | 18 | 2438 MHz | 19 | 2440 MHz |
| 20 | 2442 MHz | 21 | 2444 MHz | 22 | 2446 MHz | 23 | 2448 MHz |
| 24 | 2450 MHz | 25 | 2452 MHz | 26 | 2454 MHz | 27 | 2456 MHz |
| 28 | 2458 MHz | 29 | 2460 MHz | 30 | 2462 MHz | 31 | 2464 MHz |
| 32 | 2466 MHz | 33 | 2468 MHz | 34 | 2470 MHz | 35 | 2472 MHz |
| 36 | 2474 MHz | 37 | 2476 MHz | 38 | 2478 MHz | 39 | 2480 MHz |

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1.4 Power Parameter Value

| Mode | Frequency (MHz) | Power Setting |
|------|-----------------|---------------|
| | 2402 | Defult |
| BLE | 2440 | Defult |
| | 2480 | Defult |

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1.5 The Worst Transmission Mode

Test Mode

Mode 1: Transmit by BLE(GFSK) 1Mbps

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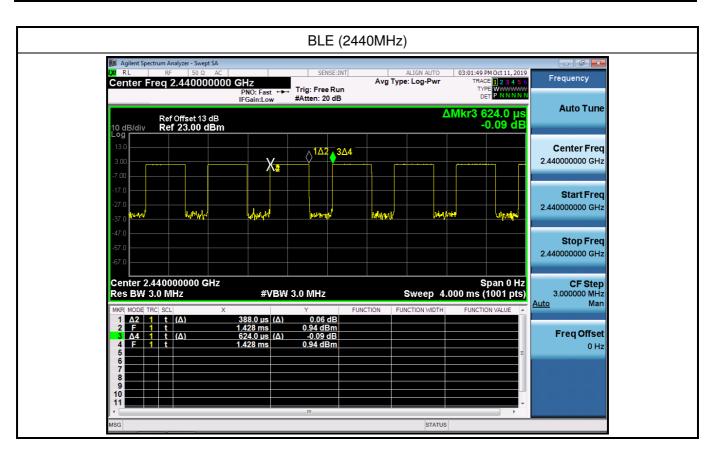




1.6 Duty Cycle

| Test Item | Duty cycle |
|-----------|------------|
| | ' ' |

| Mode | Frequency (MHz) | Measurement (%) |
|------|-----------------|-----------------|
| BLE | 2440 | 62.18 |



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1.7 Test Manner

| Te | est Manner |
|----|---|
| а | Setup the EUT and simulators according to ANSI C63.10 |
| b | Turn on the power of equipment. |
| С | Access the test software, set the test mode and test channel, then start to test. |

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

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2. Technical Test

2.1 Summary of Test Result

| No deviations from the test star | andards |
|----------------------------------|---------|
|----------------------------------|---------|

☐ Deviations from the test standards as below description:

| FCC/IC Part Section(s) | Test Description | Test Result |
|--|---|-------------|
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.207 RSS-Gen Issue 4 November 2014 Section 8.8 | Conducted Emission | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.209 RSS-Gen Issue 4 November 2014 Section 8.9 | Radiated Emission | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.247(d) RSS-247 Issue 2 February 2017 Section 5.5 | RF Antenna Conducted Spurious | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 15.247(d) RSS-247 Issue 2 February 2017 Section 5.5 | Radiated Emission Band Edge | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 15.215(c) | Operation Frequency Range of 20dB Bandwidth | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.247(a)(2) RSS-247 Issue 2 February 2017 Section 5.2(a) | Occupied Bandwidth | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.247(b)(3) RSS-247 Issue 2 February 2017 Section 5.4(d) | Output Power | Compliance |
| FCC CFR Title 47 Part 15 Subpart C: 2019 Section 15.247(e) RSS-247 Issue 2 February 2017 Section 5.2(b) | Power Spectral Density | Compliance |

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2.2 General Information of Test

| | | Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, | | | |
|-----------------------------------|-----------|--|--|--|--|
| | Test Site | Taiwan (R.O.C.) | | | |
| | | Tel:+886-3-3226-888 | | | |
| | | Fax:+886-3-3226-881 | | | |
| | | Address: No.68-1, Shihbachongsi, Shihding Township, | | | |
| | | New Taipei City 223, Taiwan, R.O.C. | | | |
| | | Tel: +886-2-2663-8582 | | | |
| | TAF | 1439 | | | |
| | FCC | TW1079, TW1061 | | | |
| | IC | 4934E-1, 4934E-2 | | | |
| | | T-2205 for Telecommunication Test | | | |
| | VCCI | C-4663 for Conducted emission test | | | |
| | 1001 | R-4399, R-4218 for Radiated emission test | | | |
| | | G-812, G-813 for radiated disturbance above 1GHz | | | |
| | | Cerpass Technology (Suzhou) Co.,Ltd | | | |
| | | Address: No.66, Tangzhuang Road, Suzhou Industrial Park, Jiangsu | | | |
| | Test Site | 215006, China | | | |
| | | Tel: +86-512-6917-5888 | | | |
| | | Fax: +86-512-6917-5666 | | | |
| | CNAS | L5515 | | | |
| | FCC | CN1243 | | | |
| | A2LA | 4981.01 | | | |
| | IC | 7290A-1, 7290A-2 | | | |
| T-1945 for Telecommunication Test | | | | | |
| | VCCI | C-12919 for Conducted emission test | | | |
| | V001 | R-12670 for Radiated emission test | | | |
| | | G-227 for radiated disturbance above 1GHz | | | |

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2.3 Measuring Equipment

| Instrument/Ancillary | Manufacturer | Model No. | Serial No. | Calibration Date | Due Date. | |
|--------------------------------|---------------------------|------------------------------|------------|---------------------|-------------|--|
| EMI Test Receiver | R&S | ESCI | 101183 | 2019.06.28 | 2020.06.27 | |
| Preamplifier | HP | 8447F | 3113A05915 | 2019.02.25 | 2020. 02.24 | |
| Preamplifier | FIELD | AFS44-00101800 -25-10P-44 | 1579008 | 2018.10.14 | 2019.10.13 | |
| Dilag Antonna | Sunol | ID4 | A070414 1 | 0010 00 00 | 0000 00 00 | |
| Bilog Antenna | Bilog Antenna JB1 Science | | A072414-1 | 2019.06.26 | 2020.06.26 | |
| Spectrum Analyzer | Agilent | N9010A | MY45118947 | 2019.10.10 | 2020.10.09 | |
| Temperature/ Humidity Meter | mingle | ETH529 | N/A | 2019.02.25 | 2020. 02.24 | |
| Spectrum Analyzer | R&S | FSP40 | 100047 | 2019.03.07 | 2020.03.06 | |
| PREAMPLIFIER | AGILENT | 8449B | 3008A01954 | 2019.03.05 | 2020.03.04 | |
| HORN ANTENNA | EMCO | 3115 | 31589 | 2019.03.09 | 2020.03.08 | |
| HIGH PASS FILTER | HP | 84300-80038 | 002 | 2019.03.05 | 2020.03.04 | |
| SERIES POWER METER | ANRITSU | ML2495A | 1224005 | 2019.03.05 | 2020.03.04 | |
| POWER SENSOR | ANRITSU | MA2411B | 1207295 | 2019.03.05 | 2020.03.04 | |
| Bluetooth Tester | R&S | CBT | 101133 | 2019.03.12 | 2020.03.11 | |

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2.4 Measurement Uncertainty

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

RF Conducted Measurement

| Test Item | | Uncertainty | Limit |
|--------------------------|------------|-----------------------|---------------------|
| Radio Frequency | | ±8.7X10 ⁻⁷ | ±1X10 ⁻⁵ |
| RF output power, condu | icted | ±0.63dB | ±1.5dB |
| Power density, conducted | ed | ±1.21dB | ±3dB |
| Unwanted emissions, | 30-1000MHz | ±0.51dB | ±3dB |
| conducted | 1-25GHz | ±0.67dB | ±3dB |
| All emissions, radiated | 30-1000MHz | ±2.28dB | ±6dB |
| | 1-25GHz | ±2.59dB | ±6dB |
| Temperature | | ±0.8℃ | ±1°C |
| Humidity | | ±3% | ±5% |
| DC and low frequency v | roltages | ±3% | ±3% |

AC Conducted Measurement

| Measurement | Frequency | Uncertainty | |
|-------------------------------|--------------|---------------|--|
| Conducted emissions(LINE) | 9KHz-30MHz | +/- 0.7738 dB | |
| Conducted emissions(NEUTRAL) | 9KHz-30MHz | +/- 0.7886 dB | |
| Conducted emissions(10Mbps) | 150KHz-30MHz | +/- 1.3013dB | |
| Conducted emissions(100Mbps) | 150KHz-30MHz | +/- 1.3197 dB | |
| Conducted emissions(1000Mbps) | 150KHz-30MHz | +/- 1.2987 dB | |

Radiated Measurement

| Measurement | Polarity | Frequency | Uncertainty |
|-------------|------------|------------|----------------|
| | Horizontal | below 1GHz | +/- 3.8936 dB |
| Radiated | Vertical | below 1GHz | +/- 3.8928 dB |
| emissions | Horizontal | above 1GHz | +/- 5.18858dB |
| | Vertical | above 1GHz | +/- 5.18928 dB |

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3. AC Conducted Emission Measurement

3.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 Section 6.2. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

| FCC Part 15 Subpart C Paragraph 15.207 Limits | | | | | | | |
|--|--------|--------|--|--|--|--|--|
| Frequency (MHz) Quasi Peak (dB μ V) Average (dB μ V) | | | | | | | |
| 0.15 – 0.5 | 66-56* | 56-46* | | | | | |
| 0.5 - 5.0 | 56 | 46 | | | | | |
| 5.0 - 30.0 | 60 | 50 | | | | | |

^{*}Decreases with the logarithm of the frequency.

3.2 Test Standard

Tested according to ANSI C63.10: 2013 Section 6.2 for compliance to FCC 47CFR 15.247 Part15.207 (a) requirements.

3.3 Test Procedures

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

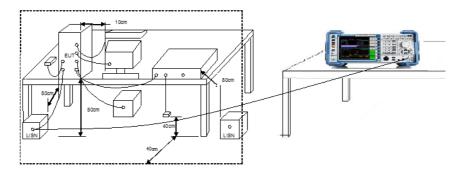
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3.4 Test Setup Layout



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3.5 Test Result

Test Standard: FCC_ClassB_QP Probe: L1

Test item: Conduction Emission Test Time: 2019/8/1120:32:42

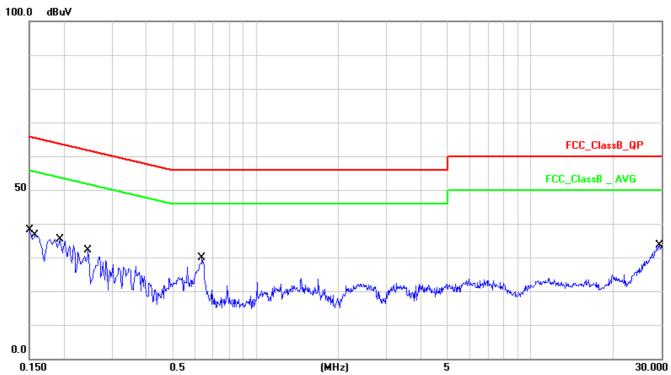
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/1000hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

Remark: Adapter Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Detector |
|-----|-----------|--------|---------|--------|--------|--------|----------|
| | (MHz) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1500 | 10.15 | 24.17 | 34.32 | 65.99 | -31.67 | QP |
| 2 | 0.1500 | 10.15 | 7.75 | 17.90 | 55.99 | -38.09 | AVG |
| 3 | 0.1580 | 10.15 | 23.90 | 34.05 | 65.56 | -31.51 | QP |
| 4 | 0.1580 | 10.15 | 8.09 | 18.24 | 55.56 | -37.32 | AVG |
| 5 | 0.1940 | 10.13 | 21.35 | 31.48 | 63.86 | -32.38 | QP |
| 6 | 0.1940 | 10.13 | 7.11 | 17.24 | 53.86 | -36.62 | AVG |
| 7 | 0.2460 | 10.13 | 16.28 | 26.41 | 61.89 | -35.48 | QP |
| 8 | 0.2460 | 10.13 | 2.98 | 13.11 | 51.89 | -38.78 | AVG |
| 9 | 0.6380 | 10.15 | 16.51 | 26.66 | 56.00 | -29.34 | QP |
| 10 | 0.6380 | 10.15 | 7.83 | 17.98 | 46.00 | -28.02 | AVG |
| 11 | 29.6500 | 10.48 | 17.09 | 27.57 | 60.00 | -32.43 | QP |

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| 12 20.0000 10.10 0.07 | ſ | 12 | 29.6500 | 10.48 | 8.37 | 18.85 | 50.00 | -31.15 | AVG |
|-------------------------|---|----|---------|-------|------|-------|-------|--------|-----|
|-------------------------|---|----|---------|-------|------|-------|-------|--------|-----|

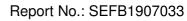
Note: Level = Reading + Factor

Margin = Level - Limit

Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

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Test Standard: FCC_ClassB_QP Probe: N

Test item: Conduction Emission Test Time: 2019/8/1120:36:03

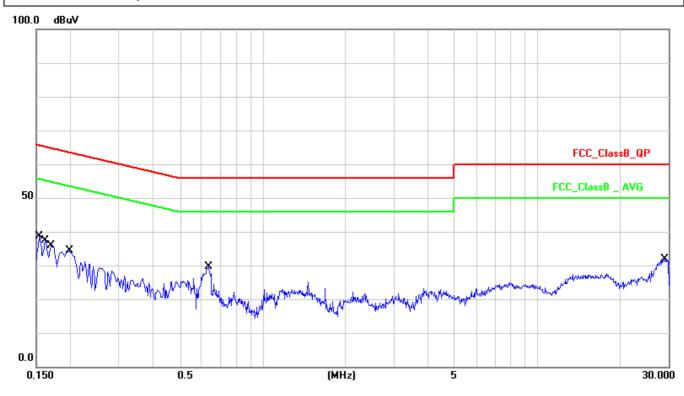
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): $26(^{\circ}C)/60\%/1000$ hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

Remark: Adapter Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Detector |
|-----|-----------|--------|---------|--------|--------|--------|----------|
| | (MHz) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1539 | 10.15 | 24.78 | 34.93 | 65.78 | -30.85 | QP |
| 2 | 0.1539 | 10.15 | 8.85 | 19.00 | 55.78 | -36.78 | AVG |
| 3 | 0.1620 | 10.15 | 23.80 | 33.95 | 65.36 | -31.41 | QP |
| 4 | 0.1620 | 10.15 | 8.98 | 19.13 | 55.36 | -36.23 | AVG |
| 5 | 0.1700 | 10.15 | 22.41 | 32.56 | 64.96 | -32.40 | QP |
| 6 | 0.1700 | 10.15 | 8.81 | 18.96 | 54.96 | -36.00 | AVG |
| 7 | 0.1980 | 10.14 | 20.25 | 30.39 | 63.69 | -33.30 | QP |
| 8 | 0.1980 | 10.14 | 7.02 | 17.16 | 53.69 | -36.53 | AVG |
| 9 | 0.6380 | 10.16 | 16.98 | 27.14 | 56.00 | -28.86 | QP |
| 10 | 0.6380 | 10.16 | 7.78 | 17.94 | 46.00 | -28.06 | AVG |

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| 11 | 29.2100 | 10.32 | 15.45 | 25.77 | 60.00 | -34.23 | QP |
|----|---------|-------|-------|-------|-------|--------|-----|
| 12 | 29.2100 | 10.32 | 5.32 | 15.64 | 50.00 | -34.36 | AVG |

Note: Level = Reading + Factor

Margin = Level - Limit

Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

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Test Standard: FCC_ClassB_QP Probe: L1

Test item: Conduction Emission Test Time: 2019/8/1119:12:31

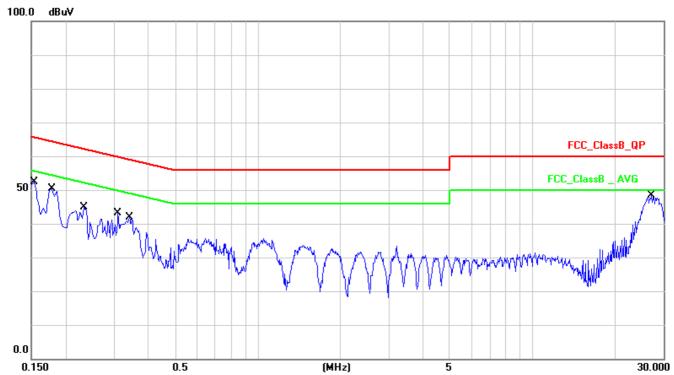
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/1000hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

Remark: POE Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Detector |
|-----|-----------|--------|---------|--------|--------|--------|----------|
| | (MHz) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1539 | 10.15 | 36.76 | 46.91 | 65.78 | -18.87 | QP |
| 2 | 0.1539 | 10.15 | 13.47 | 23.62 | 55.78 | -32.16 | AVG |
| 3 | 0.1780 | 10.13 | 32.40 | 42.53 | 64.57 | -22.04 | QP |
| 4 | 0.1780 | 10.13 | 10.25 | 20.38 | 54.57 | -34.19 | AVG |
| 5 | 0.2340 | 10.13 | 27.18 | 37.31 | 62.30 | -24.99 | QP |
| 6 | 0.2340 | 10.13 | 10.43 | 20.56 | 52.30 | -31.74 | AVG |
| 7 | 0.3100 | 10.14 | 27.19 | 37.33 | 59.97 | -22.64 | QP |
| 8 | 0.3100 | 10.14 | 12.61 | 22.75 | 49.97 | -27.22 | AVG |
| 9 | 0.3420 | 10.14 | 27.95 | 38.09 | 59.15 | -21.06 | QP |
| 10 | 0.3420 | 10.14 | 14.82 | 24.96 | 49.15 | -24.19 | AVG |
| 11 | 27.2540 | 10.46 | 30.83 | 41.29 | 60.00 | -18.71 | QP |

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12 27.2540 10.46 18.77 29.23 50.00 -20.77 AVG

Note: Level = Reading + Factor

Margin = Level - Limit

Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

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Test Standard: FCC_ClassB_QP Probe: N

Test item: Conduction Emission Test Time: 2019/8/1119:18:33

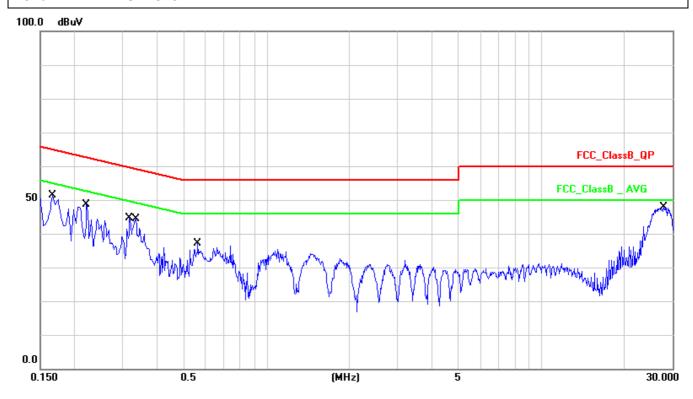
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/1000hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

Remark: POE Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Detector |
|-----|-----------|--------|---------|--------|--------|--------|----------|
| | (MHz) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1660 | 10.15 | 34.36 | 44.51 | 65.15 | -20.64 | QP |
| 2 | 0.1660 | 10.15 | 12.28 | 22.43 | 55.15 | -32.72 | AVG |
| 3 | 0.2220 | 10.14 | 29.68 | 39.82 | 62.74 | -22.92 | QP |
| 4 | 0.2220 | 10.14 | 11.47 | 21.61 | 52.74 | -31.13 | AVG |
| 5 | 0.3180 | 10.14 | 29.12 | 39.26 | 59.76 | -20.50 | QP |
| 6 | 0.3180 | 10.14 | 16.51 | 26.65 | 49.76 | -23.11 | AVG |
| 7 | 0.3339 | 10.14 | 28.16 | 38.30 | 59.35 | -21.05 | QP |
| 8 | 0.3339 | 10.14 | 13.32 | 23.46 | 49.35 | -25.89 | AVG |
| 9 | 0.5620 | 10.15 | 22.40 | 32.55 | 56.00 | -23.45 | QP |
| 10 | 0.5620 | 10.15 | 9.95 | 20.10 | 46.00 | -25.90 | AVG |

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| 11 | 27.9300 | 10.33 | 31.19 | 41.52 | 60.00 | -18.48 | QP |
|----|---------|-------|-------|-------|-------|--------|-----|
| 12 | 27.9300 | 10.33 | 18.09 | 28.42 | 50.00 | -21.58 | AVG |

Note: Level = Reading + Factor

Margin = Level - Limit

Factor = (LISN or ISN or PLC or current probe) Factor + Cable Loss + Attenuator

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Radiated Emission Measurement

4.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

| FCC Part 15 Subpart C Paragraph 15.209 | | | | | | | | | |
|--|---------------------|----------------------|--|--|--|--|--|--|--|
| FREQUENCIES | FIELD STRENGTH | MEASUREMENT DISTANCE | | | | | | | |
| (MHz) | (micro volts/meter) | (meters) | | | | | | | |
| 0.009~0.490 | 2400/F(kHz) | 300 | | | | | | | |
| 0.490~1.705 | 24000/F(kHz) | 30 | | | | | | | |
| 1.705~30.0 | 30 | 30 | | | | | | | |
| 30~88 | 100 | 3 | | | | | | | |
| 88~216 | 150 | 3 | | | | | | | |
| 216~960 | 200 | 3 | | | | | | | |
| Above 960 | 500 | 3 | | | | | | | |

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument Antenna and the closed point of any part of the device or system.

Note 3: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

Note 4: **Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permItted under other sections of this part, e.g., §§15.231 and 15.241.

4.2 Test Standard

KDB 558074 D01v05r02 - Section 8.5 & Section 8.6

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4.3 Test Procedures

Quasi-Peak Field Strength Measurements:

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak Field Strength Measurements:

Analyzer center frequen was set to the frequency of the radiated spurious emission of interest

- 1. RBW=As specified in Table 1
- 2. VBW=3×RBW
- 3. Detector=Peak
- 4. Trace mode=Max hold
- 5. Sweep time=Auto couple
- 6. Allow the trace to stabilize

Table 1-RBW as a function of frequency

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

AVE Field Strength Measurements:

Analyzer center frequen was set to the frequency of the radiated spurious emission of interest

- 1. RBW= 1MHz
- 2. VBW≥1/T
- 3. Detector=Peak
- 4. Trace mode=Max hold
- 5. Sweep time=Auto couple
- 6. Allow max hold to run for at least 50 times(1/duty cycle) trace

Do as an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode

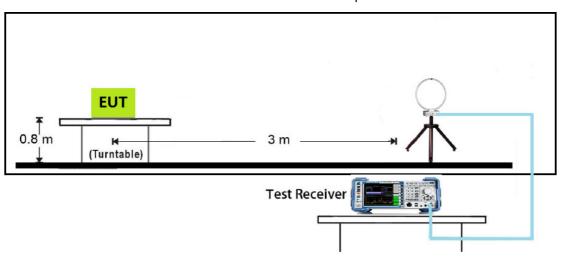
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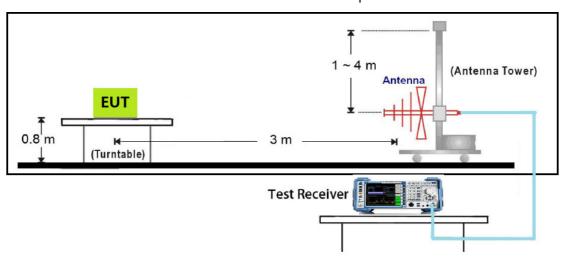


4.4 Test Setup Layout

9kHz~30MHz Test Setup



30MHz~1GHz Test Setup



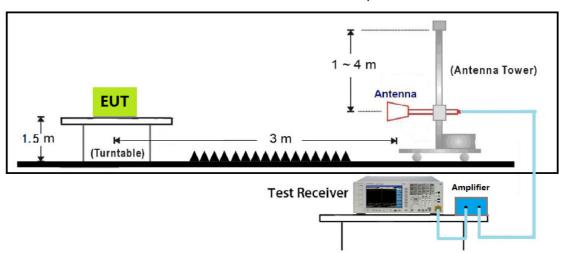
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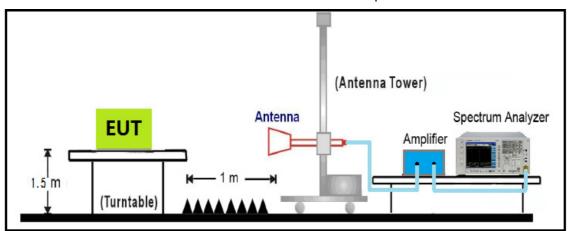




1GHz~18GHz Test Setup



18GHz~40GHz Test Setup



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4.5 Test Result

The worst case of Radiated Emission below 1GHz:

Test Distance: 3M

Test Standard: FCC Class B 3M Radiation Ant. Polarization: Horizontal

Test item: Radiation Emission Test Time: 2019-7-2917:02:48

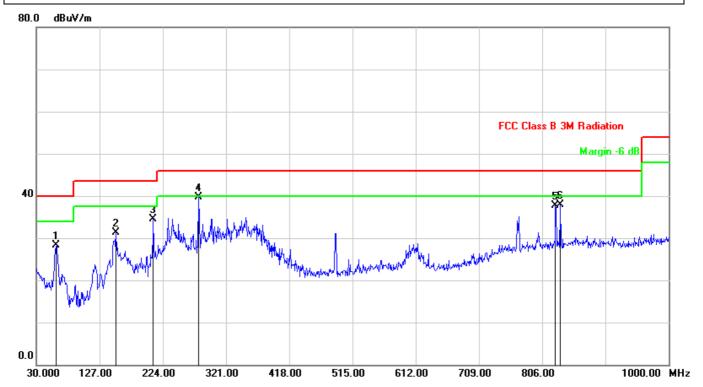
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

Remark: Adapter Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 61.0399 | -15.03 | 43.33 | 28.30 | 40.00 | -11.70 | peak |
| 2 | 152.2198 | -12.61 | 43.88 | 31.27 | 43.50 | -12.23 | peak |
| 3 | 209.4499 | -11.50 | 46.01 | 34.51 | 43.50 | -8.99 | peak |
| 4 | 279.2900 | -8.29 | 47.91 | 39.62 | 46.00 | -6.38 | peak |
| 5 | 826.3700 | 2.14 | 35.59 | 37.73 | 46.00 | -8.27 | peak |
| 6 | 834.1299 | 2.23 | 35.69 | 37.92 | 46.00 | -8.08 | peak |

Note: Measure Level $(dB\mu V/m)$ = Reading Level $(dB\mu V)$ + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

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Test Distance: 3M

Test Standard: FCC Class B 3M Radiation Ant. Polarization: Vertical

Test item: **Radiation Emission Test Time:** 2019-7-2917:06:01

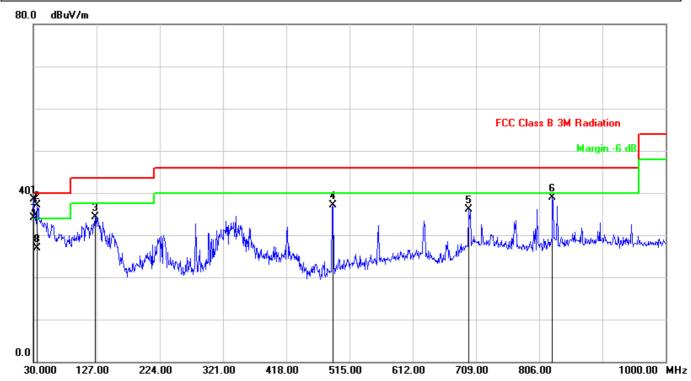
Mitac Digital Technology Company Applicant: **Power Rating:** AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer:

Test Mode: BLE

Remark: **Adapter Power**



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 30.0000 | -2.48 | 40.95 | 38.47 | 40.00 | -1.53 | peak |
| 2 | 35.8200 | -4.67 | 41.79 | 37.12 | 40.00 | -2.88 | peak |
| 3 | 125.0600 | -12.82 | 47.14 | 34.32 | 43.50 | -9.18 | peak |
| 4 | 489.7798 | -5.54 | 42.71 | 37.17 | 46.00 | -8.83 | peak |
| 5 | 697.3600 | 0.88 | 35.30 | 36.18 | 46.00 | -9.82 | peak |
| 6 | 826.3700 | 1.12 | 37.87 | 38.99 | 46.00 | -7.01 | peak |
| 7 | 30.0000 | -2.48 | 36.55 | 34.07 | 40.00 | -5.93 | QP |
| 8 | 35.8200 | -4.67 | 31.53 | 26.86 | 40.00 | -13.14 | QP |

Note: Measure Level $(dB\mu V/m)$ = Reading Level $(dB\mu V)$ + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

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Test Distance: 3M

Test Standard: FCC Class B 3M Radiation Ant. Polarization: Horizontal

Test item: **Radiation Emission Test Time:** 2019-7-2917:33:06

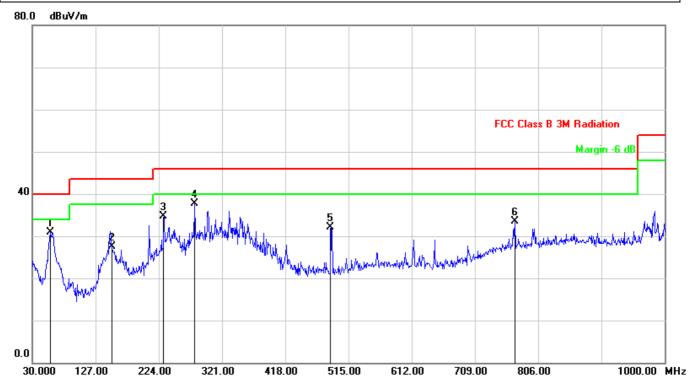
Applicant: Mitac Digital Technology Company **Power Rating:** AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

POE Power Remark:



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 58.1300 | -14.55 | 45.53 | 30.98 | 40.00 | -9.02 | peak |
| 2 | 152.2199 | -12.61 | 40.11 | 27.50 | 43.50 | -16.00 | peak |
| 3 | 231.7599 | -10.96 | 45.60 | 34.64 | 46.00 | -11.36 | peak |
| 4 | 279.2900 | -8.29 | 45.92 | 37.63 | 46.00 | -8.37 | peak |
| 5 | 487.8399 | -5.49 | 37.51 | 32.02 | 46.00 | -13.98 | peak |
| 6 | 770.1100 | 1.42 | 32.01 | 33.43 | 46.00 | -12.57 | peak |

Note: Measure Level $(dB\mu V/m)$ = Reading Level $(dB\mu V)$ + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

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Test Distance: 3M

Test Standard: FCC Class B 3M Radiation Ant. Polarization: Vertical

Test item: **Radiation Emission Test Time:** 2019-7-2917:36:19

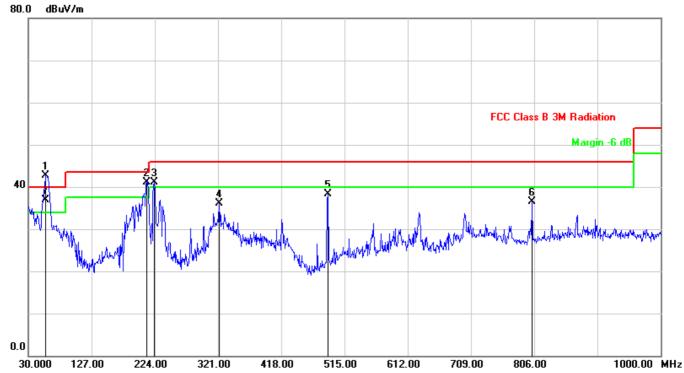
Mitac Digital Technology Company Applicant: **Power Rating:** AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BLE

POE Power Remark:



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 57.1599 | -12.18 | 54.93 | 42.75 | 40.00 | 2.75 | peak |
| 2 | 211.3899 | -12.29 | 53.40 | 41.11 | 43.50 | -2.39 | peak |
| 3 | 223.0300 | -12.15 | 53.20 | 41.05 | 46.00 | -4.95 | peak |
| 4 | 322.9399 | -6.29 | 42.41 | 36.12 | 46.00 | -9.88 | peak |
| 5 | 489.7799 | -5.54 | 43.92 | 38.38 | 46.00 | -7.62 | peak |
| 6 | 803.0900 | 0.83 | 35.63 | 36.46 | 46.00 | -9.54 | peak |
| 7 | 57.1599 | -12.18 | 49.06 | 36.88 | 40.00 | -3.12 | QP |

Note: Measure Level $(dB\mu V/m)$ = Reading Level $(dB\mu V)$ + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

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Radiated Emission above 1GHz:

Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Horizontal Ant. Polarization:

Radiation PK

Test item: **Radiation Emission Test Time:** 2019-8-515:24:48

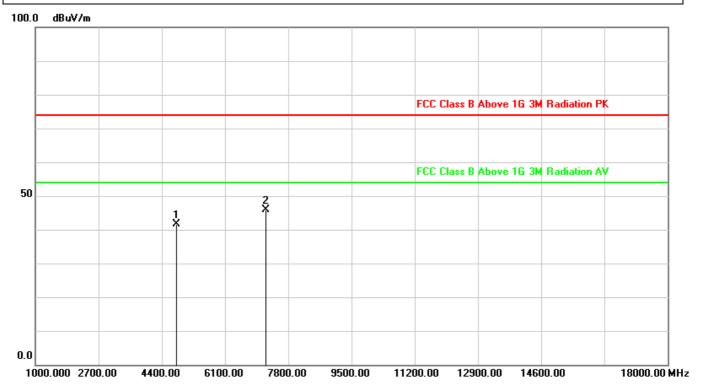
AC 120V/60Hz Applicant: Mitac Digital Technology Company **Power Rating:**

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(°C)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2402MHz

Remark: **POE Power**



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 4804.000 | 3.28 | 38.24 | 41.52 | 74.00 | -32.48 | peak |
| 2 | 7206.000 | 8.19 | 37.42 | 45.61 | 74.00 | -28.39 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

2. Measurement Level = Reading Level + Correct Factor.

Cerpass Technology (Suzhou) Co., Ltd.

3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.

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4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Ant. Polarization: Vertical

Radiation PK

Test item: Radiation Emission Test Time: 2019-8-515:27:02

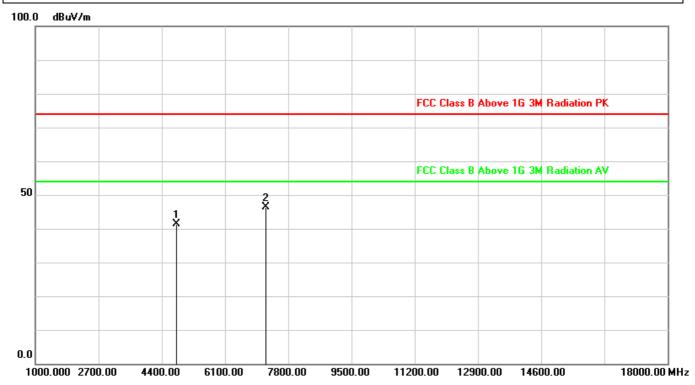
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2402MHz

Remark: POE Power



| No | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|----|--------------------|------------------|-------------------|-------------------|-------------------|----------------|------|
| 1 | 4804.000 | 3.28 | 38.08 | 41.36 | 74.00 | -32.64 | peak |
| 2 | 7206.000 | 8.19 | 38.30 | 46.49 | 74.00 | -27.51 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.

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4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Ant. Polarization: Horizontal

Radiation PK

Test item: Radiation Emission Test Time: 2019-8-515:30:15

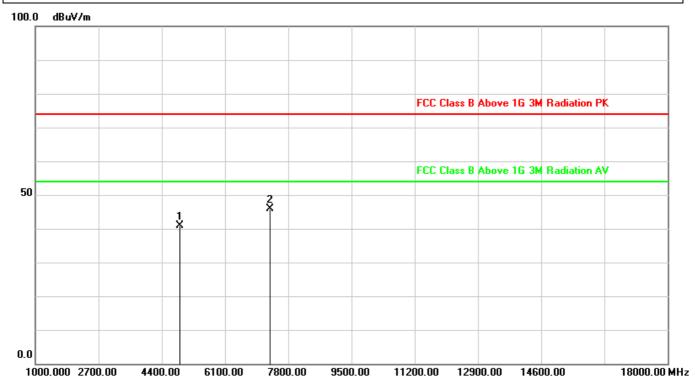
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2440MHz

Remark: POE Power



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|--------------------|------------------|-------------------|-------------------|-------------------|----------------|------|
| 1 | 4880.000 | 3.43 | 37.33 | 40.76 | 74.00 | -33.24 | peak |
| 2 | 7320.000 | 8.27 | 37.47 | 45.74 | 74.00 | -28.26 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.
- 4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Ant. Polarization: Vertical

Radiation PK

Test item: Radiation Emission Test Time: 2019-8-515:32:24

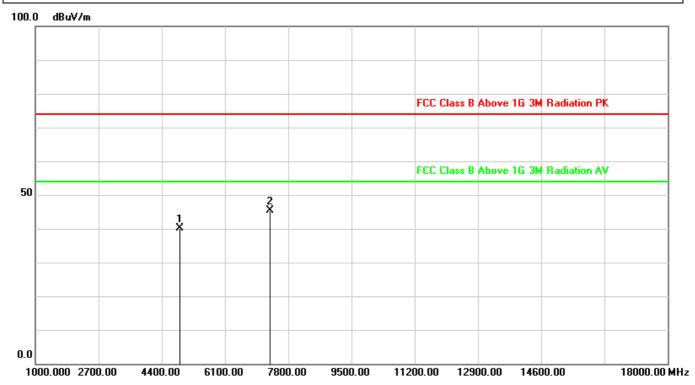
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(°C)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2440MHz

Remark: POE Power



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|--------------------|------------------|-------------------|-------------------|-------------------|----------------|------|
| 1 | 4880.000 | 3.43 | 36.78 | 40.21 | 74.00 | -33.79 | peak |
| 2 | 7320.000 | 8.27 | 37.05 | 45.32 | 74.00 | -28.68 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.
- 4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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Report No.: SEFB1907033

Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Ant. Polarization: Horizontal

Radiation PK

Test item: Radiation Emission Test Time: 2019-8-515:36:05

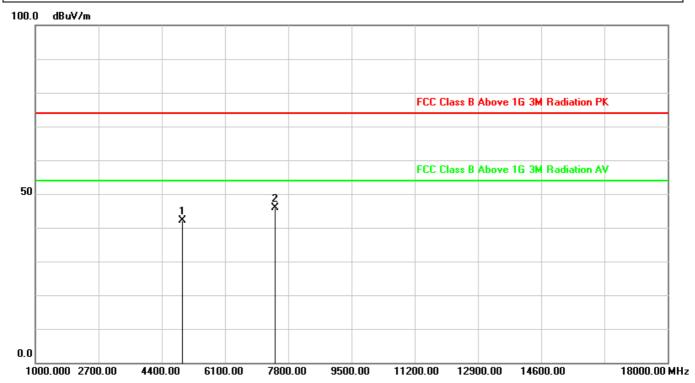
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(°C)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2480MHz

Remark: POE Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 4960.000 | 3.59 | 38.40 | 41.99 | 74.00 | -32.01 | peak |
| 2 | 7440.000 | 8.36 | 37.71 | 46.07 | 74.00 | -27.93 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.
- 4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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Report No.: SEFB1907033

Test Distance: 3M

Test Standard: FCC Class B Above 1G 3M Ant. Polarization: Vertical

Radiation PK

Test item: Radiation Emission Test Time: 2019-8-515:39:12

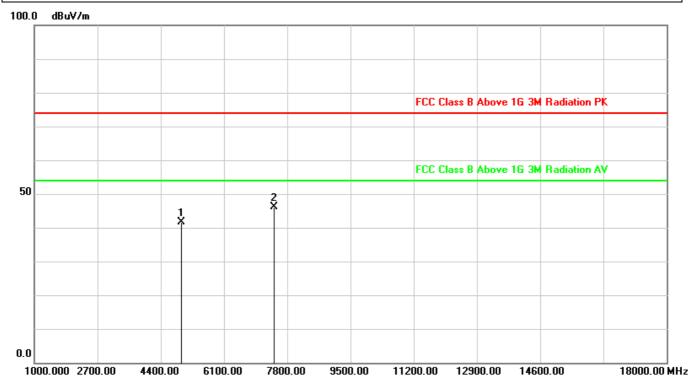
Applicant: Mitac Digital Technology Company Power Rating: AC 120V/60Hz

Product: Tablet Temp.(C)/Hum.(%)/Air p.(hpa): 26(℃)/60%/983hpa

Model No.: N642 Test Engineer: Chris

Test Mode: BT4.0-LE 2480MHz

Remark: POE Power



| No. | Frequency | Factor | Reading | Level | Limit | Margin | Det. |
|-----|-----------|--------|---------|----------|----------|--------|------|
| | (MHz) | (dB/m) | (dBuV) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 4960.000 | 3.59 | 37.75 | 41.34 | 74.00 | -32.66 | peak |
| 2 | 7440.000 | 8.36 | 37.91 | 46.27 | 74.00 | -27.73 | peak |

Note: 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.

- 2. Measurement Level = Reading Level + Correct Factor.
- 3. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~40GHz), therefore no data appear in the report.
- 4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

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6dB Bandwidth Measurement

5.1 Test Limit

According to FCC part15.247 - Section (a)(2), the minimum 6dB bandwidth shall be at least 500 kHz.

5.2 Test Standard

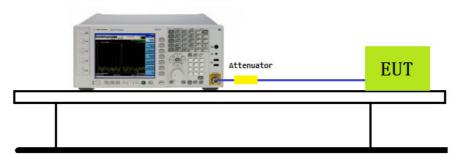
KDB 558074 D01v05r02- Section 8.2

5.3 Test Procedures

- 1. Set RBW=100KHz
- 2. VBW≥3×RBW
- 3. Detector=Peak
- 4. Trace mode=Max hold
- 5. Sweep time=Auto couple
- 6. Allow the trace to stabilize
- 7. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.

5.4 Test Setup Layout

Spectrum Analyzer





Report No.: SEFB1907033

5.5 Test Result

| Test Item | 6dB Bandwidth Measurement | |
|----------------------|---------------------------|--|
| Test Engineer: Chris | | |
| Test Date | 2019-10-11 | |
| Test Mode | Transmitting by BLE | |

| Channel No. | Frequency | 6dB Bandwidth | Limit | Result |
|-------------|-----------|---------------|-------|--------|
| | (MHz) | (kHz) | (kHz) | |
| 0 | 2402 | 668.9 | 500 | Pass |
| 19 | 2440 | 667.9 | 500 | Pass |
| 39 | 2480 | 671.2 | 500 | Pass |



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6. Conducted Output Power Measurement

6.1 **Test Limit**

According to FCC part15.247 (b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode. Per RSS247 Issue 2 Section 5.4(d), for DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W.

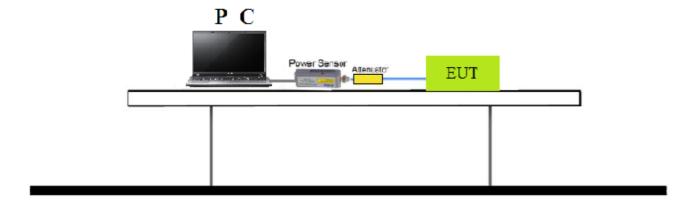
6.2 **Test Standard**

KDB 558074 D01v05r02 - Section 9.3.1.3 & Section 9.3.2.3

6.3 Test Procedures

Out power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

6.4 Test Setup Layout



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Report No.: SEFB1907033

6.5 Test Result

| Test Item | Conducted Output Power Measurement |
|----------------------|------------------------------------|
| Test Engineer: Chris | |
| Test Date 2019-10-11 | |
| Test Mode | Transmitting by BLE |

| Test Mode | Data Rate | Channel No. | Freq. | Peak Power (dBm) | Limit | Result |
|-----------|-----------|-------------|-------|------------------|-------|--------|
| | (Mbps) | | (MHz) | | (dBm) | |
| BLE | 1 | 0 | 2402 | 0.221 | ≤ 30 | Pass |
| BLE | 1 | 19 | 2440 | 0.058 | ≤ 30 | Pass |
| BLE | 1 | 39 | 2480 | 0.221 | ≤ 30 | Pass |

| Test Mode | Data Rate | Channel No. | Freq. | Avg. Power (dBm) | Limit | Result |
|-----------|-----------|-------------|-------|------------------|-------|--------|
| | (Mbps) | | (MHz) | | (dBm) | |
| BLE | 1 | 0 | 2402 | -2.214 | ≤ 30 | Pass |
| BLE | 1 | 19 | 2440 | -2.016 | ≤ 30 | Pass |
| BLE | 1 | 39 | 2480 | -2.976 | ≤ 30 | Pass |

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7. Power Spectral Density Measurement

7.1 Test Limit

According to FCC part15.247 - Section (e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

7.2 Test Standard

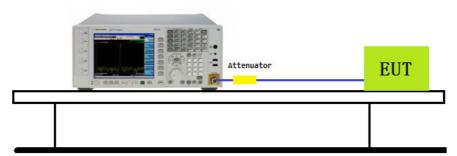
KDB 558074 D01v05r02- Section 8.4

7.3 Test Procedures

- 1. Set RBW=3kHz
- 2. Set RBW=10kHz
- Span = 1.5 times the DTS channel bandwidth
- 4. Detector=Peak
- 5. Trace mode=Max hold
- 6. Sweep time=Auto couple
- 7. Allow the trace to stabilize
- Analyzer was set to the center frequency of the DTS channel under investigation.

7.4 Test Setup Layout

Spectrum Analyzer



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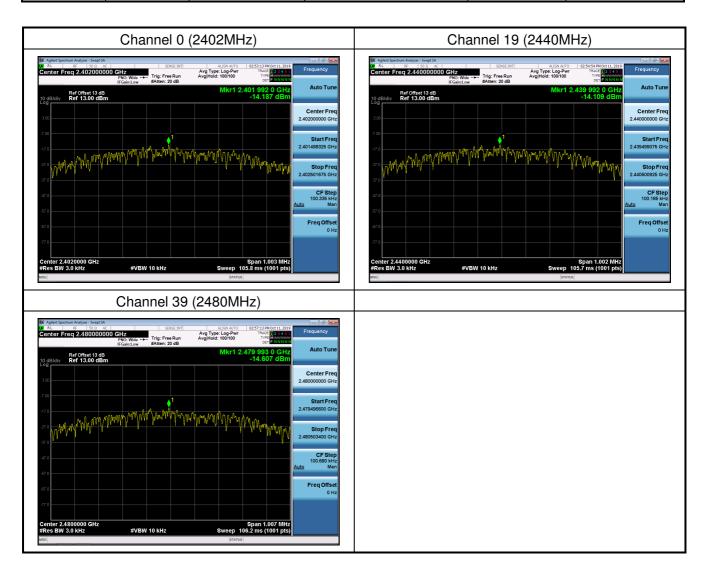




7.5 Test Result

| Test Item | Power Spectral Density Measurement |
|-------------------------------|------------------------------------|
| Test Engineer: Chris | |
| Test Date 2019-10-11 | |
| Test Mode Transmitting by BLE | |

| Test Mode | Mode Channel No. Frequency(MHz) | | Channel No. Frequency(MHz) Power Spectral Density | | Limit | Result |
|-------------------------|---------------------------------|----------------------|--|------------|-------|--------|
| rest wode Chamler No. | | 1 requericy(ivii iz) | (dBm/3kHz) | (dBm/3kHz) | | |
| | 0 | 2402 | -14.187 | 8 | Pass | |
| BLE | 19 | 2440 | -14.109 | 8 | Pass | |
| | 39 | 2480 | -14.607 | 8 | Pass | |







8. Conducted Band Edge and Out-of-Band Emissions Measurement

8.1 Test Limit

According to FCC part 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) of FCC part 15 is not required.

8.2 Test Standard

KDB 558074 D01v05r02 - Section 8.6 & Section 8.7

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8.3 Test Procedures

Reference level measurement:

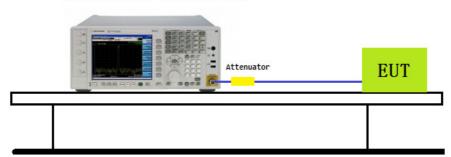
- 1. Set the RBW = 100 kHz
- 2. Set the VBW ≥ 3 x RBW
- 3. Set the span to ≥ 1.5 times the DTS bandwidth
- 4. Detector = peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. Allow trace to fully stabilize
- 8. Set instrument center frequency to DTS channel center frequency

Emission level measurement:

- 1. RBW = 100kHz
- 2. VBW = 300kHz
- 3. Detector = Peak
- 4. Trace mode = max hold
- 5. Sweep time = auto couple
- 6. The trace was allowed to stabilize
- 7. Set the center frequency and span to encompass frequency range to be measured

8.4 Test Setup Layout

Spectrum Analyzer







8.5 Test Result

| Test Item | Conducted Band Edge and Out-of-Band Emissions Measurement | |
|----------------|---|--|
| Test Engineer: | Chris | |
| Test Date | 2019-10-11 | |
| Test Mode | Transmitting by BLE | |

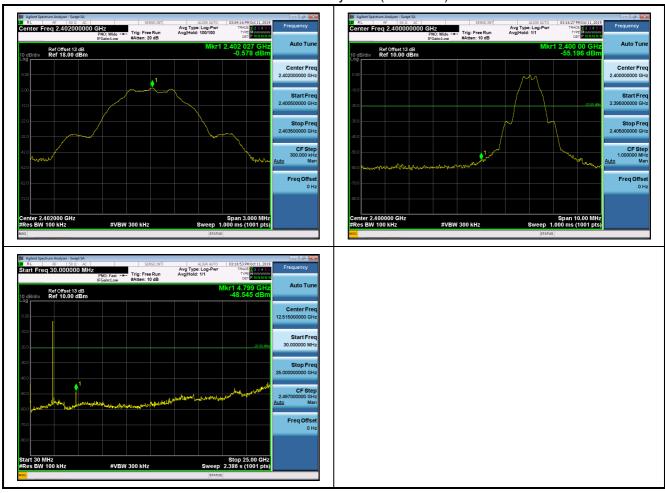
| Test Mode | Channel No. | Frequency (MHz) | Limit | Result |
|-----------|-------------|-----------------|-------|--------|
| | 0 | 2402 | 20dBc | Pass |
| BLE | 19 | 2440 | 20dBc | Pass |
| | 39 | 2480 | 20dBc | Pass |

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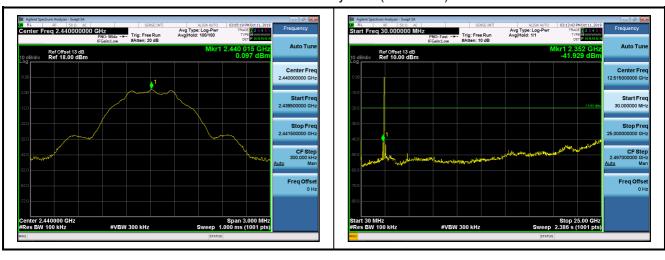




Mode 1: Transmit by BLE (2402MHz)



Mode 1: Transmit by BLE (2440MHz)

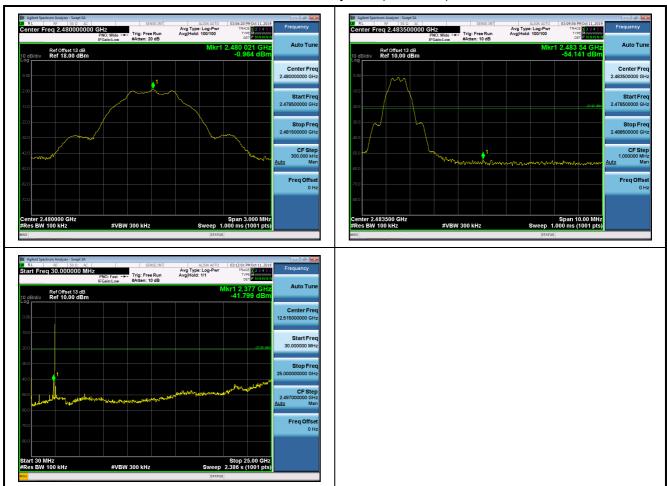


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Mode 1: Transmit by BLE (2480MHz)



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9. Radiated Emission Band Edge Measurement

Test Limit 9.1

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) of FCC part 15.

9.2 Test Standard

ANSI C63.10-2013 Section 6.10.5

Test Procedure 9.3

Peak Field Strength Measurements:

Analyzer center frequen was set to the frequency of the radiated spurious emission of interest

- 7. RBW=As specified in Table 1
- 8. VBW=3×RBW
- 9. Detector=Peak
- 10. Trace mode=Max hold
- 11. Sweep time=Auto couple
- 12. Allow the trace to stabilize

Table 1-RBW as a function of frequency

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





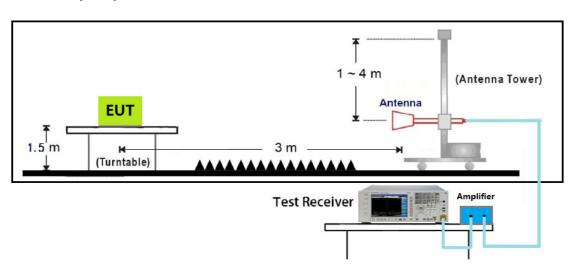
AVE Field Strength Measurements:

Analyzer center frequen was set to the frequency of the radiated spurious emission of interest

- 7. RBW= 1MHz
- 8. VBW≥1/T
- 9. Detector=Peak
- 10. Trace mode=Max hold
- 11. Sweep time=Auto couple
- 12. Allow max hold to run for at least 50 times(1/duty cycle) trace

Do as an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode

9.4 Test Setup Layout



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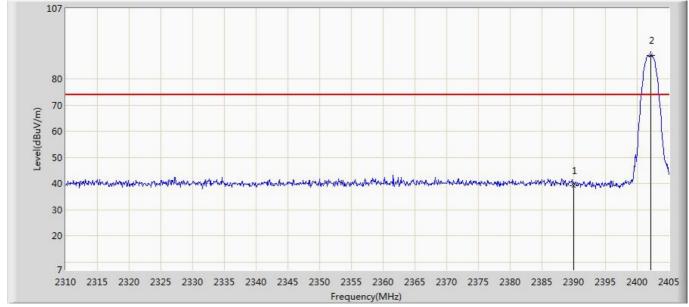
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9.5 Test Result

| _ | | | | |
|------------------------------|--------------------------|--|--|--|
| Engineer: Chris | | | | |
| Site: AC102 | Time: 2019/10/10 - 17:09 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Horizontal | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2402MHz | | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 2390.000 | 39.078 | 40.755 | -34.922 | 74.000 | -1.677 | PK |
| 2 | * | 2402.150 | 88.939 | 90.571 | N/A | N/A | -1.632 | PK |

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

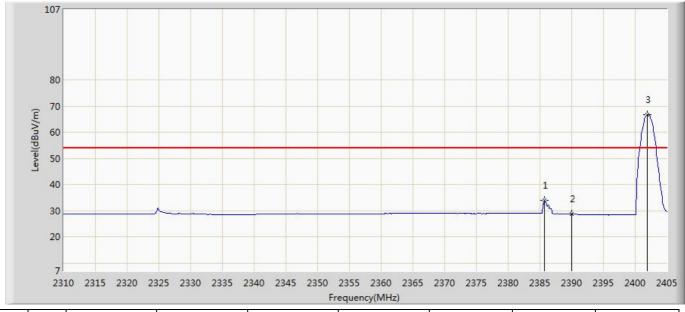
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| Engineer: Chris | | | | |
|------------------------------|--------------------------|--|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:15 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Horizontal | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2402MHz | | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 2385.715 | 34.036 | 35.729 | -19.964 | 54.000 | -1.693 | AV |
| 2 | | 2390.000 | 28.679 | 30.356 | -25.321 | 54.000 | -1.677 | AV |
| 3 | * | 2401.865 | 66.650 | 68.283 | N/A | N/A | -1.633 | AV |

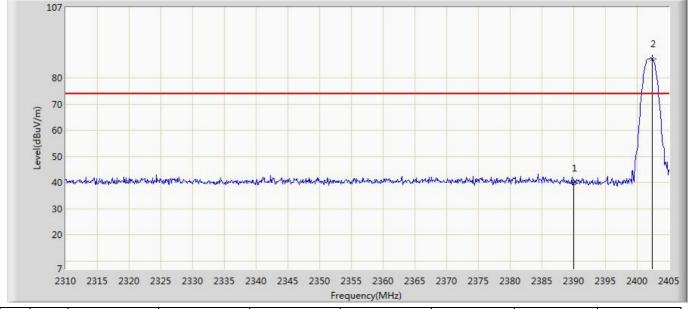
- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

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| Engineer: Chris | | | | |
|------------------------------|--------------------------|--|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:18 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Vertical | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2402MHz | | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 2390.000 | 39.660 | 41.337 | -34.340 | 74.000 | -1.677 | PK |
| 2 | * | 2402.435 | 87.419 | 89.050 | N/A | N/A | -1.631 | PK |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

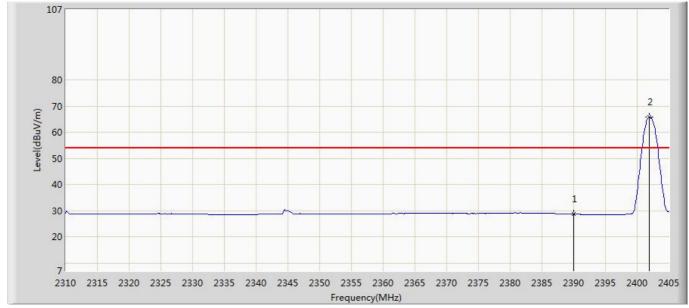
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| Engineer: Chris | | | | |
|------------------------------|--------------------------|--|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:21 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Vertical | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2402MHz | | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 2390.000 | 28.691 | 30.368 | -25.309 | 54.000 | -1.677 | AV |
| 2 | * | 2401.960 | 65.751 | 67.384 | N/A | N/A | -1.633 | AV |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

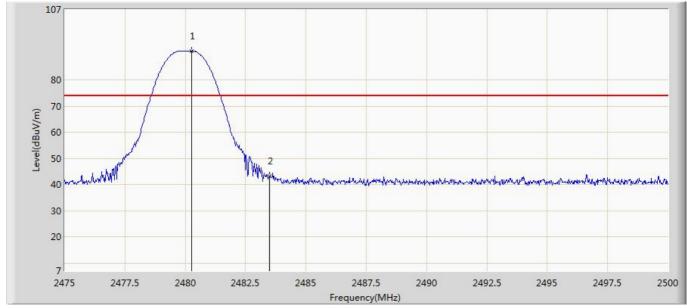
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| Engineer: Chris | | | | |
|------------------------------|--------------------------|--|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:22 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Horizontal | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2480MHz | · | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | * | 2480.275 | 91.101 | 92.444 | N/A | N/A | -1.343 | PK |
| 2 | | 2483.500 | 43.222 | 44.553 | -30.778 | 74.000 | -1.331 | PK |

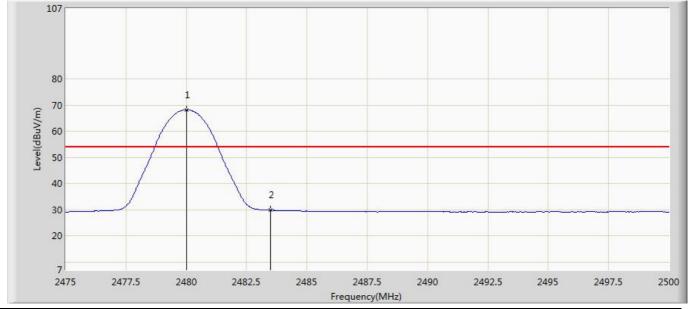
- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

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| Engineer: Chris | | | | |
|------------------------------|--------------------------|--|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:26 | | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | | |
| Probe: N/A | Polarity: Horizontal | | | |
| EUT: Tablet | Power: AC 120V/60Hz | | | |
| Note: BLE 2480MHz | · | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | * | 2480.000 | 68.263 | 69.607 | N/A | N/A | -1.344 | AV |
| 2 | | 2483.500 | 29.764 | 31.095 | -24.236 | 54.000 | -1.331 | AV |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

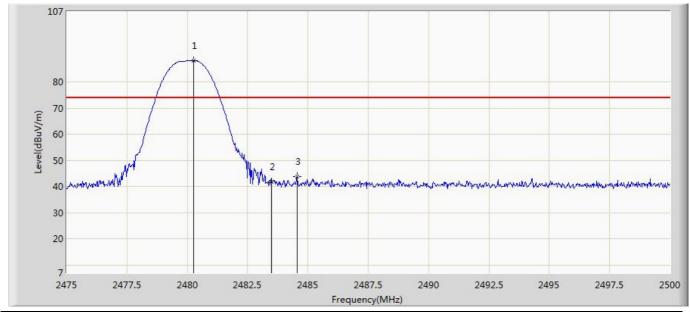
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| Engineer: Chris | | | |
|------------------------------|--------------------------|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:29 | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | |
| Probe: N/A | Polarity: Vertical | | |
| EUT: Tablet | Power: AC 120V/60Hz | | |
| Note: BLE 2480MHz | · | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | * | 2480.275 | 88.224 | 89.567 | N/A | N/A | -1.343 | PK |
| 2 | | 2483.500 | 41.853 | 43.184 | -32.147 | 74.000 | -1.331 | PK |
| 3 | | 2484.550 | 43.870 | 45.197 | -30.130 | 74.000 | -1.327 | PK |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

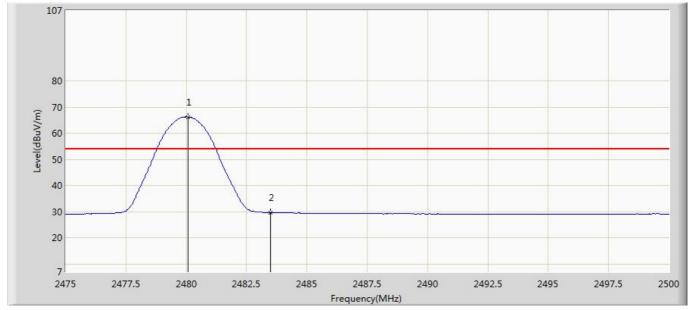
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| Engineer: Chris | | | |
|------------------------------|--------------------------|--|--|
| Site: AC102 | Time: 2019/10/10 - 17:32 | | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | | |
| Probe: | Polarity: Vertical | | |
| EUT: Tablet | Power: AC 120V/60Hz | | |
| Note: BLE 2480MHz | | | |



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | * | 2480.075 | 66.259 | 67.602 | N/A | N/A | -1.343 | AV |
| 2 | | 2483.500 | 29.655 | 30.986 | -24.345 | 54.000 | -1.331 | AV |

- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

***** END OF REPORT *****