

TEST REPORT

Product Name : Toucan Surveillance Kit 2.0
Trade mark : Toucan
Model/Type reference : TC200KU
Serial Number : N/A
Report Number : EED32I00271802
FCC ID : 2ABT4TC200KU
Date of Issue : Dec. 27, 2016
Test Standards : 47 CFR Part 15 Subpart C (2015)
Test result : PASS

Prepared for:

Sky Light Imaging Limited
Rm. 1009 Kwong Sang Hong Centre, 151-153 Hoi Bun Road,
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Prepared by:

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Date:

Dec. 27, 2016

Check No.: 2457551382



2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | Dec. 27, 2016 | Original |
| | | |
| | | |

3 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|--|---|--------|
| Antenna Requirement | 47 CFR Part 15 Subpart C Section 15.203/15.247 (c) | ANSI C63.10-2013 | PASS |
| AC Power Line Conducted Emission | 47 CFR Part 15 Subpart C Section 15.207 | ANSI C63.10-2013 | PASS |
| Conducted Peak Output Power | 47 CFR Part 15 Subpart C Section 15.247 (b)(3) | ANSI C63.10-2013/ KDB 558074 D01v03r05 | PASS |
| 6dB Occupied Bandwidth | 47 CFR Part 15 Subpart C Section 15.247 (a)(2) | ANSI C63.10-2013/ KDB 558074 D01v03r05 | PASS |
| Power Spectral Density | 47 CFR Part 15 Subpart C Section 15.247 (e) | ANSI C63.10-2013/ KDB 558074 D01v03r05 | PASS |
| Band-edge for RF Conducted Emissions | 47 CFR Part 15 Subpart C Section 15.247(d) | ANSI C63.10-2013/ KDB 558074 D01v03r05 | PASS |
| RF Conducted Spurious Emissions | 47 CFR Part 15 Subpart C Section 15.247(d) | ANSI C63.10-2013/ KDB 558074 D01v03r05 | PASS |
| Radiated Spurious Emissions | 47 CFR Part 15 Subpart C Section 15.205/15.209 | ANSI C63.10-2013 | PASS |
| Restricted bands around fundamental frequency (Radiated Emission) | 47 CFR Part 15 Subpart C Section 15.205/15.209 | ANSI C63.10-2013 | PASS |

Remark:

Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

The tested sample and the sample information are provided by the client.

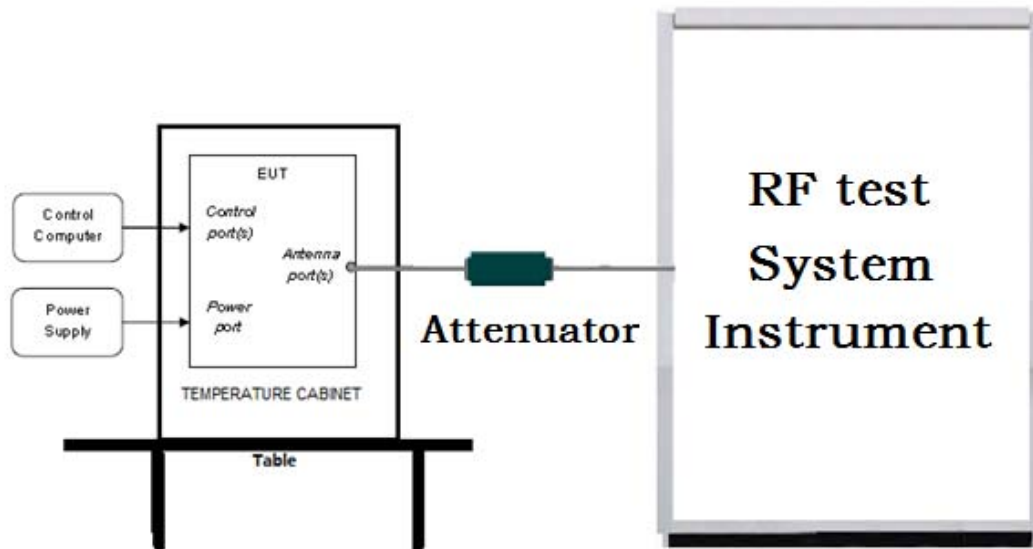
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

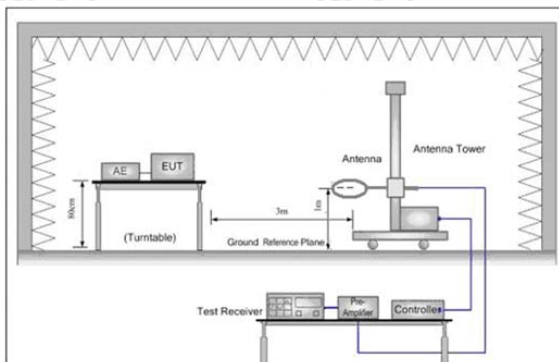


Figure 1. Below 30MHz

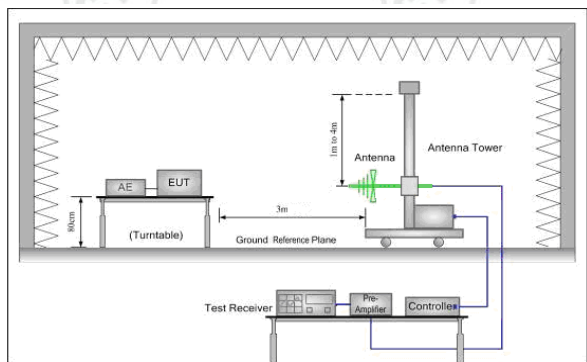


Figure 2. 30MHz to 1GHz

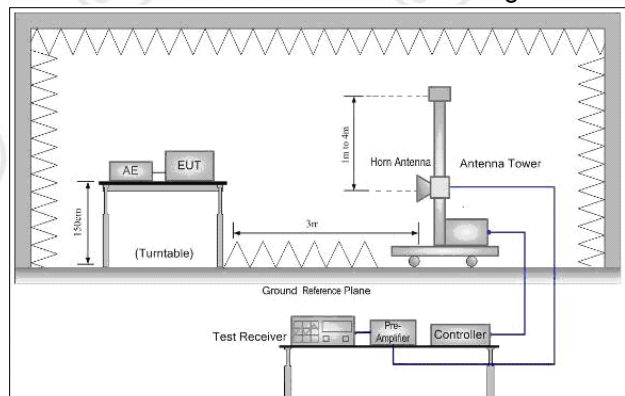
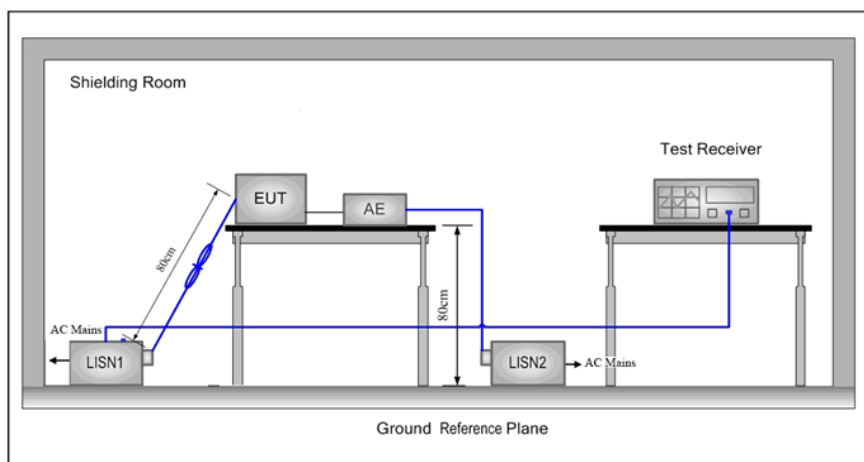


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

| Operating Environment: | |
|------------------------|-----------|
| Temperature: | 22°C |
| Humidity: | 53% RH |
| Atmospheric Pressure: | 1010 mbar |

5.3 Test Condition

Test channel:

| Test Mode | Tx | RF Channel | | |
|--------------------|--|------------|-----------|-----------|
| | | Low(L) | Middle(M) | High(H) |
| 802.11b/g/n(HT20) | 2412MHz ~2462 MHz | Channel 1 | Channel 6 | Channel11 |
| | | 2412MHz | 2437MHz | 2462MHz |
| 802.11n(HT40) | 2422MHz ~2452 MHz | Channel 1 | Channel 4 | Channel7 |
| | | 2422MHz | 2437MHz | 2452MHz |
| Transmitting mode: | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. | | | |

Test mode:

Pre-scan under all rate at lowest channel 1

| | | | | | | | | | |
|------------|----------|----------------|----------|--------|--------|---------|-----------|---------|--|
| Mode | | 802.11b | | | | | | | |
| Data Rate | 1Mbps | 2Mbps | 5.5Mbps | 11Mbps | | | | | |
| Power(dBm) | 16.55 | 16.71 | 16.74 | 16.80 | | | | | |
| Mode | | 802.11g | | | | | | | |
| Data Rate | 6Mbps | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps | |
| Power(dBm) | 15.18 | 15.14 | 15.13 | 15.10 | 15.09 | 15.07 | 15.03 | 15.00 | |
| Mode | | 802.11n (HT20) | | | | | | | |
| Data Rate | 6.5Mbps | 13Mbps | 19.5Mbps | 26Mbps | 39Mbps | 52Mbps | 58.5Mbps | 65Mbps | |
| Power(dBm) | 15.82 | 15.81 | 15.76 | 15.72 | 15.71 | 15.67 | 15.61 | 15.44 | |
| Mode | | 802.11n (HT40) | | | | | | | |
| Data Rate | 13.5Mbps | 27Mbps | 40.5Mbps | 54Mbps | 81Mbps | 108Mbps | 121.5Mbps | 135Mbps | |
| Power(dBm) | 15.12 | 15.11 | 15.09 | 15.05 | 15.03 | 15.02 | 15.00 | 14.98 | |

Through Pre-scan, 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40).

6 General Information

6.1 Client Information

| | |
|--------------------------|--|
| Applicant: | Sky Light Imaging Limited |
| Address of Applicant: | Rm. 1009 Kwong Sang Hong Centre, 151-153 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong |
| Manufacturer: | Sky Light Imaging Limited |
| Address of Manufacturer: | Rm. 1009 Kwong Sang Hong Centre, 151-153 Hoi Bun Road, Kwun Tong, Kowloon, Hong Kong |
| Factory: | Sky Light Electronic (ShenZhen) Limited |
| Address of Factory: | No.1,5 and 6 Building, JinBi Industrial Area,HuangTian, BaoAn, Shenzhen, China. |

6.2 General Description of EUT

| | |
|----------------------------------|---|
| Product Name: | Toucan Surveillance Kit 2.0 |
| Model No.: | TC200KU |
| Test Model No.: | TC200KU |
| Trade Mark: | Toucan |
| EUT Supports Radios application: | Bluetooth V4.0: 2402-2480MHz, Wlan 2.4GHz 802.11b/g/n(HT20): 2412MHz ~2462 MHz 5G: U-NII-1: 5.15-5.25GHz; U-NII-2A: 5.250-5.350GHz; U-NII-2C: 5.470-5.725GHz; U-NII-3: 5.725-5.850GHz; 802.11a; 802.11n(20MHz/40MHz); 802.11ac(20MHz/40MHz/80MHz) |
| Power Supply: | DC 5V, 1A |
| Sample Received Date: | Oct. 23, 2016 |
| Sample tested Date: | Oct. 23, 2016 to Dec. 27, 2016 |

6.3 Product Specification subjective to this standard

| | |
|------------------------|---|
| Operation Frequency: | IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz |
| Channel Numbers: | IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels |
| Channel Separation: | 5MHz |
| Type of Modulation: | IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK,BPSK) |
| Test Power Grade: | N/A (manufacturer declare) |
| Test Software of EUT: | Secure GRT (manufacturer declare) |
| Antenna Type and Gain: | PIFA Antenna |
| Antenna Gain: | 3dBi |
| Test Voltage: | AC 120V/60Hz |

| Operation Frequency each of channel(802.11b/g/n HT20) | | | | | | | |
|---|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1 | 2412MHz | 4 | 2427MHz | 7 | 2442MHz | 10 | 2457MHz |
| 2 | 2417MHz | 5 | 2432MHz | 8 | 2447MHz | 11 | 2462MHz |
| 3 | 2422MHz | 6 | 2437MHz | 9 | 2452MHz | | |

| Operation Frequency each of channel(802.11n HT40) | | | | | |
|---|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1 | 2422MHz | 4 | 2437MHz | 7 | 2452MHz |
| 2 | 2427MHz | 5 | 2442MHz | | |
| 3 | 2432MHz | 6 | 2447MHz | | |

6.4 Description of Support Units

The EUT has been tested with associated equipment below.

| Description | Manufacturer | Model No. | Certification | Supplied by |
|---------------------|-------------------|-----------|---------------|-------------|
| Toucan smart socket | Sky Light Imaging | TS100WU | FCC ID | Client |

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

6.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1910

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

A2LA-Lab Cert. No. 3061.01

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 886427

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 886427.

IC-Registration No.: 7408A-2

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2 .

IC-Registration No.: 7408B-1

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 & 10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

6.7 Deviation from Standards

None.

6.8 Abnormalities from Standard Conditions

None.

6.9 Other Information Requested by the Customer

None.

6.10 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1 | Radio Frequency | 7.9×10^{-8} |
| 2 | RF power, conducted | 0.31dB (30MHz-1GHz) |
| | | 0.57dB (1GHz-18GHz) |
| 3 | Radiated Spurious emission test | 4.5dB (30MHz-1GHz) |
| | | 4.8dB (1GHz-12.75GHz) |
| 4 | Conduction emission | 3.6dB (9kHz to 150kHz) |
| | | 3.2dB (150kHz to 30MHz) |
| 5 | Temperature test | 0.64°C |
| 6 | Humidity test | 2.8% |
| 7 | DC power voltages | 0.025% |

7 Equipment List

| RF test system | | | | | |
|----------------------------------|---------------|------------------------------|---------------|------------------------|----------------------------|
| Equipment | Manufacturer | Mode No. | Serial Number | Cal. Date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Signal Generator | Keysight | E8257D | MY53401106 | 04-01-2016 | 03-31-2017 |
| Communication test set test set | Agilent | N4010A | MY51400230 | 04-01-2016 | 03-31-2017 |
| Spectrum Analyzer | Keysight | N9010A | MY54510339 | 04-01-2016 | 03-31-2017 |
| Signal Generator | Keysight | N5182B | MY53051549 | 04-01-2016 | 03-31-2017 |
| High-pass filter | Sinoscite | FL3CX03WG18 NM12-0398-002 | --- | 01-12-2016 | 01-11-2017 |
| High-pass filter | MICRO-TRONICS | SPA-F-63029-4 | --- | 01-12-2016 | 01-11-2017 |
| DC Power | Keysight | E3642A | MY54436035 | 04-01-2016 | 03-31-2017 |
| PC-1 | Lenovo | R4960d | --- | 04-01-2016 | 03-31-2017 |
| BT&Wi-Fi Automatic control | R&S | OSPB157 | 101374 | 04-01-2015 | 03-31-2016 |
| RF control unit | JS Tonscend | JS0806-2 | 2015860006 | 04-01-2015 | 03-31-2016 |
| BT&Wi-Fi Automatic test software | JS Tonscend | JSTS1120-2 | --- | 04-01-2015 | 03-31-2016 |

| Conducted disturbance Test | | | | | |
|---------------------------------|--------------|----------|---------------|------------------------|----------------------------|
| Equipment | Manufacturer | Mode No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Receiver | R&S | ESCI | 100009 | 06-16-2016 | 06-15-2017 |
| Temperature/ Humidity Indicator | TAYLOR | 1451 | 1905 | 04-27-2016 | 04-26-2017 |
| Communication test set | Agilent | E5515C | GB47050534 | 04-01-2016 | 03-31-2017 |
| Communication test set | R&S | CMW500 | 152394 | 04-01-2016 | 03-31-2017 |
| LISN | R&S | ENV216 | 100098 | 06-16-2016 | 06-15-2017 |
| LISN | schwarzbeck | NNLK8121 | 8121-529 | 06-16-2016 | 06-15-2017 |
| Voltage Probe | R&S | ESH2-Z3 | -- | 07-09-2014 | 07-07-2017 |
| Current Probe | R&S | EZ17 | 100106 | 06-16-2016 | 06-15-2017 |
| ISN | TESEQ GmbH | ISN T800 | 30297 | 01-29-2015 | 01-27-2017 |

| 3M Semi/full-anechoic Chamber | | | | | |
|----------------------------------|---------------|------------------------------|---------------|------------------------|----------------------------|
| Equipment | Manufacturer | Mode No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| 3M Chamber & Accessory Equipment | TDK | SAC-3 | --- | 06-05-2016 | 06-05-2019 |
| TRILOG Broadband Antenna | SCHWARZBECK | VULB9163 | 9163-484 | 05-23-2016 | 05-22-2017 |
| Microwave Preamplifier | Agilent | 8449B | 3008A02425 | 02-04-2016 | 02-03-2017 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00057410 | 06-30-2015 | 06-28-2018 |
| Horn Antenna | A.H.SYSTEMS | SAS-574 | 374 | 06-30-2015 | 06-28-2018 |
| Loop Antenna | ETS | 6502 | 00071730 | 07-30-2015 | 07-28-2017 |
| Microwave Preamplifier | A.H.SYSTEMS | PAP-1840-60 | 6041.6042 | 06-30-2015 | 06-28-2018 |
| Horn Antenna | A.H.SYSTEMS | SAS-574 | 374 | 06-30-2015 | 06-28-2018 |
| Spectrum Analyzer | R&S | FSP40 | 100416 | 06-16-2016 | 06-15-2017 |
| Receiver | R&S | ESCI | 100435 | 06-16-2016 | 06-15-2017 |
| Multi device Controller | maturo | NCD/070/1071 1112 | --- | 01-12-2016 | 01-11-2017 |
| LISN | schwarzbeck | NNBM8125 | 81251547 | 06-16-2016 | 06-15-2017 |
| LISN | schwarzbeck | NNBM8125 | 81251548 | 06-16-2016 | 06-15-2017 |
| Signal Generator | Agilent | E4438C | MY45095744 | 04-01-2016 | 03-31-2017 |
| Signal Generator | Keysight | E8257D | MY53401106 | 04-01-2016 | 03-31-2017 |
| Temperature/ Humidity Indicator | TAYLOR | 1451 | 1905 | 04-27-2016 | 04-26-2017 |
| Communication test set | Agilent | E5515C | GB47050534 | 04-01-2016 | 03-31-2017 |
| Cable line | Fulai(7M) | SF106 | 5219/6A | 01-12-2016 | 01-11-2017 |
| Cable line | Fulai(6M) | SF106 | 5220/6A | 01-12-2016 | 01-11-2017 |
| Cable line | Fulai(3M) | SF106 | 5216/6A | 01-12-2016 | 01-11-2017 |
| Cable line | Fulai(3M) | SF106 | 5217/6A | 01-12-2016 | 01-11-2017 |
| Communication test set | R&S | CMW500 | 152394 | 04-01-2016 | 03-31-2017 |
| High-pass filter | Sinoscite | FL3CX03WG1 8NM12-0398-002 | --- | 01-12-2016 | 01-11-2017 |
| High-pass filter | MICRO-TRONICS | SPA-F-63029-4 | --- | 01-12-2016 | 01-11-2017 |
| band rejection filter | Sinoscite | FL5CX01CA09 CL12-0395-001 | --- | 01-12-2016 | 01-11-2017 |
| band rejection filter | Sinoscite | FL5CX01CA08 CL12-0393-001 | --- | 01-12-2016 | 01-11-2017 |
| band rejection filter | Sinoscite | FL5CX02CA04 CL12-0396-002 | --- | 01-12-2016 | 01-11-2017 |
| band rejection filter | Sinoscite | FL5CX02CA03 CL12-0394-001 | --- | 01-12-2016 | 01-11-2017 |

8 Radio Technical Requirements Specification

Reference documents for testing:

| No. | Identity | Document Title |
|-----|-----------------------|--|
| 1 | FCC Part15C (2015) | Subpart C-Intentional Radiators |
| 2 | ANSI C63.10-2013 | American National Standard for Testing Unlicensed Wireless Devices |
| 3 | KDB 558074 D01 v03r05 | DTS Meas Guidance |

Test Results List:

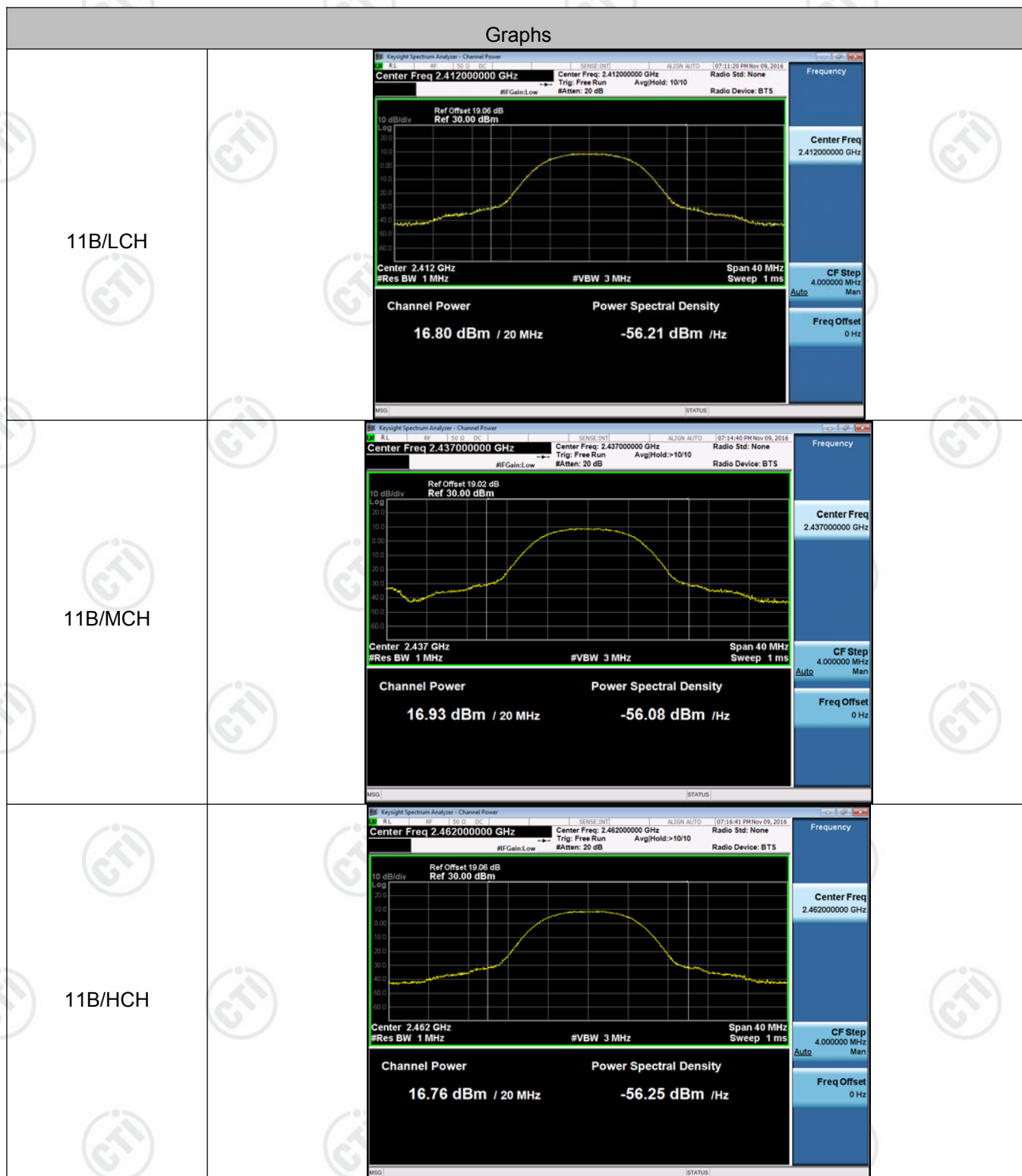
| Test Requirement | Test method | Test item | Verdict | Note |
|-----------------------------------|----------------------------|---|---------|-------------|
| Part15C Section 15.247 (b)(3) | ANSI C63.10/ KDB 558074 | Conducted Peak Output Power | PASS | Appendix A) |
| Part15C Section 15.247 (a)(2) | ANSI C63.10/ KDB 558074 | 6dB Occupied Bandwidth | PASS | Appendix B) |
| Part15C Section 15.247(d) | ANSI C63.10/ KDB 558074 | Band-edge for RF Conducted Emissions | PASS | Appendix C) |
| Part15C Section 15.247(d) | ANSI C63.10/ KDB 558074 | RF Conducted Spurious Emissions | PASS | Appendix D) |
| Part15C Section 15.247 (e) | ANSI C63.10/ KDB 558074 | Power Spectral Density | PASS | Appendix E) |
| Part15C Section 15.203/15.247 (c) | ANSI C63.10 | Antenna Requirement | PASS | Appendix F) |
| Part15C Section 15.207 | ANSI C63.10 | AC Power Line Conducted Emission | PASS | Appendix G) |
| Part15C Section 15.205/15.209 | ANSI C63.10 | Restricted bands around fundamental frequency (Radiated Emission) | PASS | Appendix H) |
| Part15C Section 15.205/15.209 | ANSI C63.10 | Radiated Spurious Emissions | PASS | Appendix I) |

Appendix A): Conducted Peak Output Power

Result Table

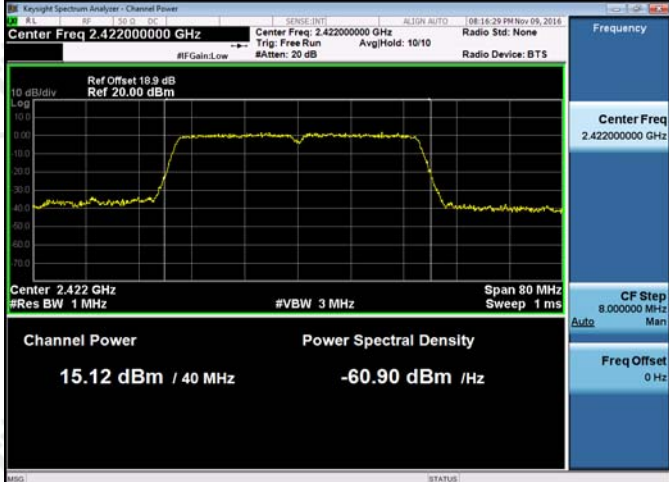
| Mode | Channel | Conducted Peak Output Power [dBm] | Verdict | Remark |
|-----------|---------|--------------------------------------|---------|-----------------|
| 11B | LCH | 16.80 | PASS | RMS detector |
| 11B | MCH | 16.93 | PASS | |
| 11B | HCH | 16.76 | PASS | |
| 11G | LCH | 15.18 | PASS | |
| 11G | MCH | 15.32 | PASS | |
| 11G | HCH | 15.08 | PASS | |
| 11N20SISO | LCH | 15.82 | PASS | |
| 11N20SISO | MCH | 15.81 | PASS | |
| 11N20SISO | HCH | 15.57 | PASS | |
| 11N40SISO | LCH | 15.12 | PASS | |
| 11N40SISO | MCH | 15.03 | PASS | |
| 11N40SISO | HCH | 15.11 | PASS | |

Test Graph



| | |
|---------|--|
| 11G/LCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Ref Offset 19.06 dB</p> <p>Ref 20.00 dBm</p> <p>Channel Power: 15.18 dBm / 20 MHz</p> <p>Power Spectral Density: -57.83 dBm / Hz</p> <p>Center 2.412 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Frequency: Center Freq 2.412000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p> |
| 11G/MCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Ref Offset 19.02 dB</p> <p>Ref 20.00 dBm</p> <p>Channel Power: 15.32 dBm / 20 MHz</p> <p>Power Spectral Density: -57.69 dBm / Hz</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Frequency: Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p> |
| 11G/HCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Ref Offset 19.06 dB</p> <p>Ref 20.00 dBm</p> <p>Channel Power: 15.08 dBm / 20 MHz</p> <p>Power Spectral Density: -57.93 dBm / Hz</p> <p>Center 2.462 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Frequency: Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

| | |
|---------------|--|
| 11N20SISO/LCH |  <p>Keygraph Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.412000000 GHz</p> <p>Ref Offset 19.06 dB Ref 20.00 dBm</p> <p>Center Freq 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Center 2.412 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>15.82 dBm / 20 MHz</p> <p>Power Spectral Density</p> <p>-57.19 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.412000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N20SISO/MCH |  <p>Keygraph Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz</p> <p>Ref Offset 19.02 dB Ref 20.00 dBm</p> <p>Center Freq 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Center 2.437 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>15.81 dBm / 20 MHz</p> <p>Power Spectral Density</p> <p>-57.20 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N20SISO/HCH |  <p>Keygraph Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.462000000 GHz</p> <p>Ref Offset 19.06 dB Ref 20.00 dBm</p> <p>Center Freq 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Center 2.462 GHz</p> <p>#Res BW 1 MHz</p> <p>#VBW 3 MHz</p> <p>Span 40 MHz</p> <p>Sweep 1 ms</p> <p>Channel Power</p> <p>15.57 dBm / 20 MHz</p> <p>Power Spectral Density</p> <p>-57.44 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |

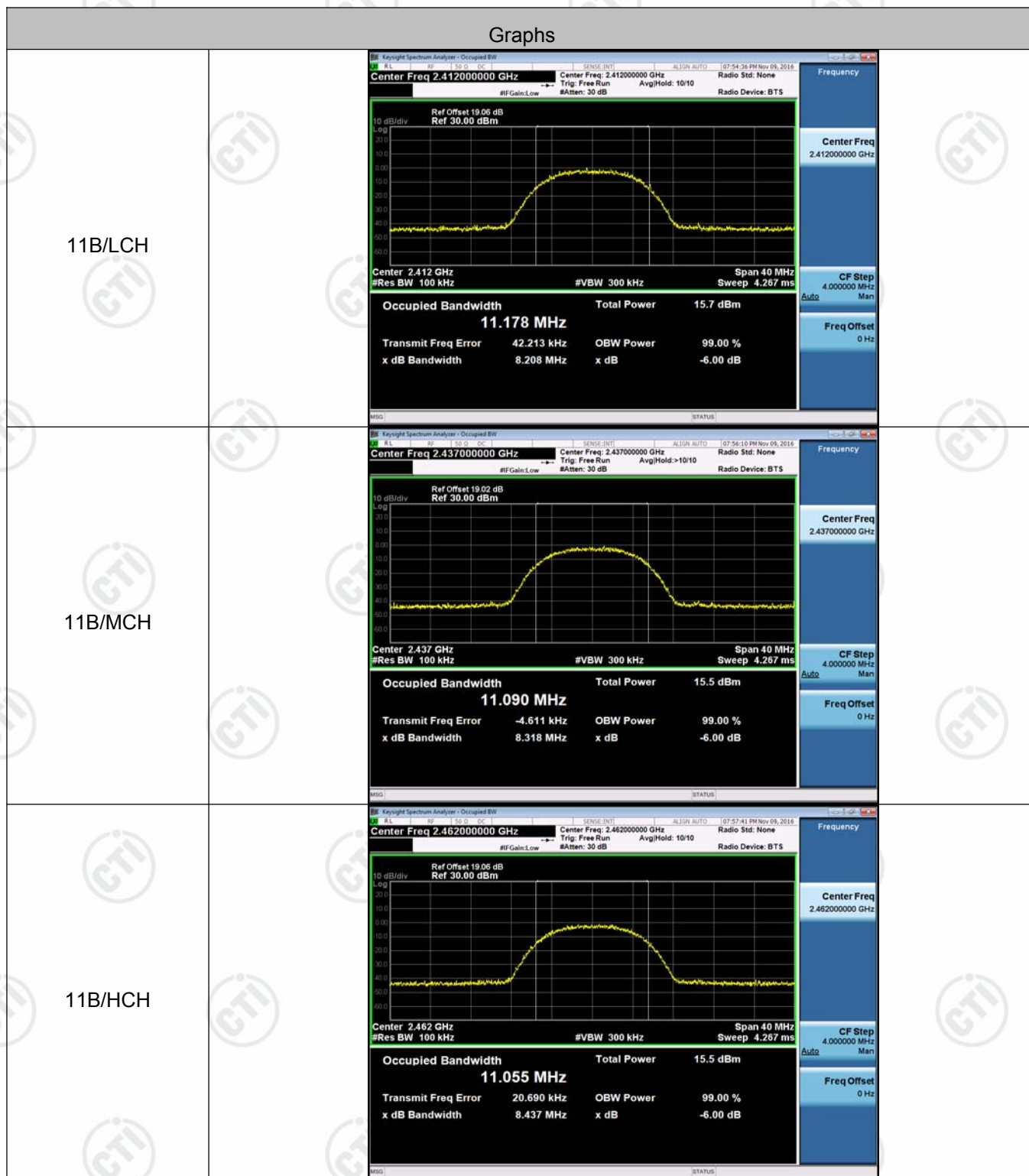
| | |
|---------------|--|
| 11N40SISO/LCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Radio Std: None</p> <p>Trig: Free Run Avg/Hold: 10/10</p> <p>#IFGain: Low #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 19.9 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.422 GHz Span 80 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Channel Power Power Spectral Density</p> <p>15.12 dBm / 40 MHz -60.90 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.422000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N40SISO/MCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None</p> <p>Trig: Free Run Avg/Hold: 10/10</p> <p>#IFGain: Low #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 19.02 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.437 GHz Span 80 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Channel Power Power Spectral Density</p> <p>15.03 dBm / 40 MHz -60.99 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N40SISO/HCH |  <p>Keyight Spectrum Analyzer - Channel Power</p> <p>Center Freq 2.452000000 GHz Center Freq: 2.452000000 GHz Radio Std: None</p> <p>Trig: Free Run Avg/Hold: 10/10</p> <p>#IFGain: Low #Atten: 20 dB Radio Device: BTS</p> <p>Ref Offset 19.06 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.452 GHz Span 80 MHz</p> <p>#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms</p> <p>Channel Power Power Spectral Density</p> <p>15.11 dBm / 40 MHz -60.91 dBm / Hz</p> <p>Frequency</p> <p>Center Freq 2.452000000 GHz</p> <p>CF Step 8.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |

Appendix B): 6dB Occupied Bandwidth

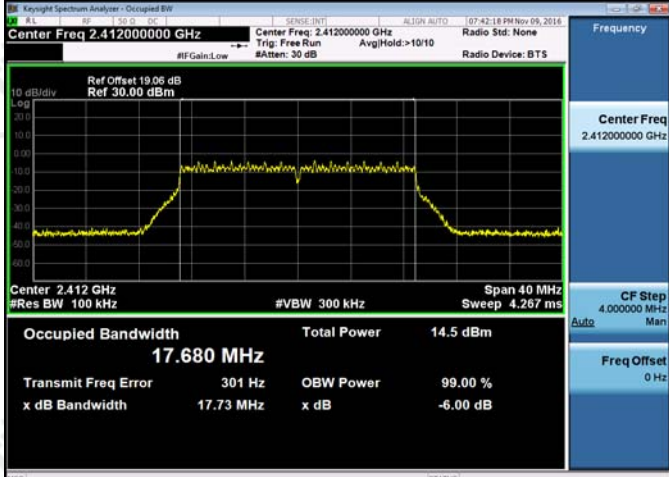
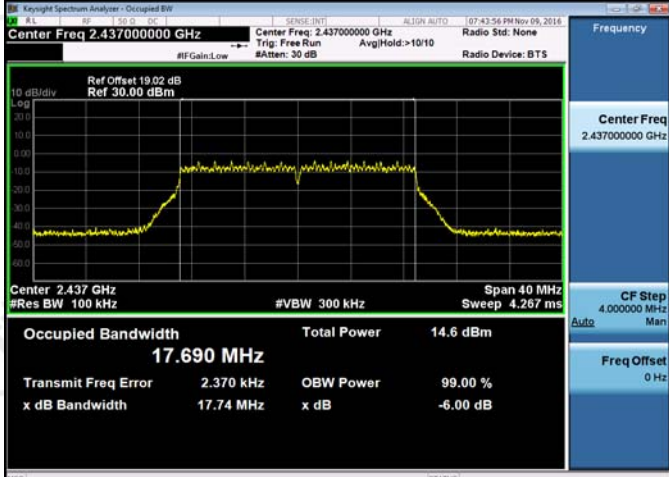
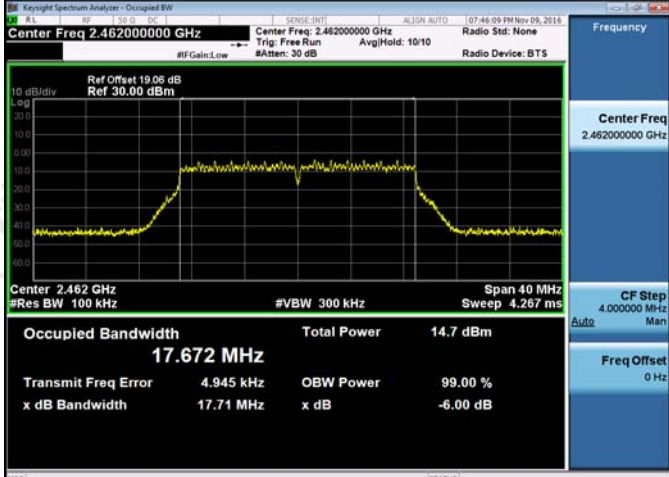
Result Table

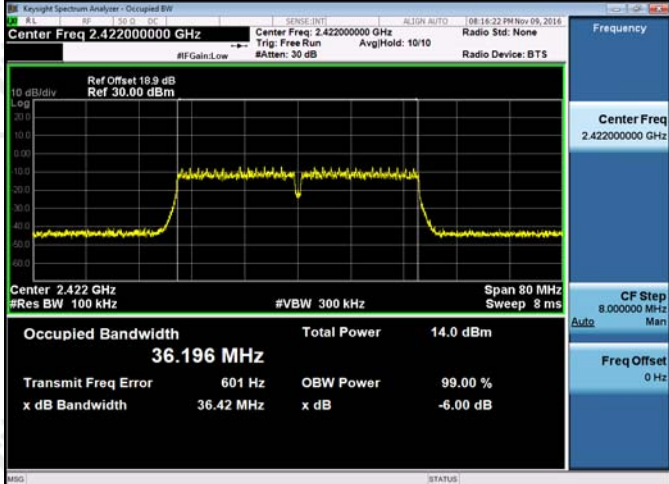
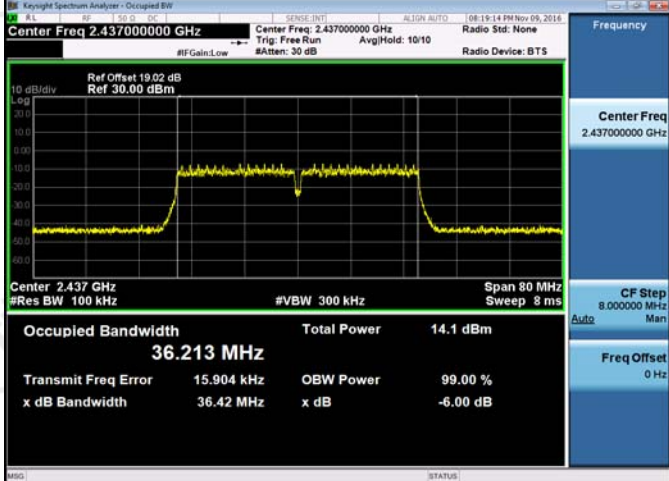
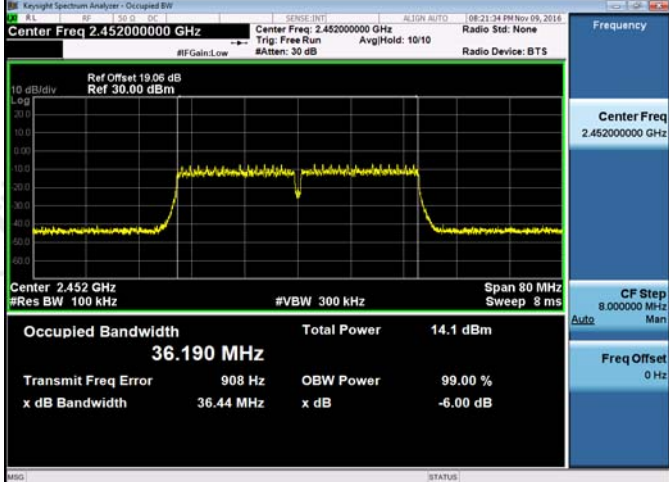
| Mode | Channel | 6dB Bandwidth [MHz] | 99% OBW [MHz] | Verdict | Remark |
|-----------|---------|---------------------|---------------|---------|---------------|
| 11B | LCH | 8.208 | 11.178 | PASS | Peak detector |
| 11B | MCH | 8.318 | 11.090 | PASS | |
| 11B | HCH | 8.437 | 11.055 | PASS | |
| 11G | LCH | 16.45 | 16.437 | PASS | |
| 11G | MCH | 16.45 | 16.437 | PASS | |
| 11G | HCH | 16.44 | 16.432 | PASS | |
| 11N20SISO | LCH | 17.73 | 17.680 | PASS | |
| 11N20SISO | MCH | 17.74 | 17.690 | PASS | |
| 11N20SISO | HCH | 17.71 | 17.672 | PASS | |
| 11N40SISO | LCH | 36.42 | 36.196 | PASS | |
| 11N40SISO | MCH | 36.42 | 36.213 | PASS | |
| 11N40SISO | HCH | 36.44 | 36.190 | PASS | |

Test Graph



| | |
|---------|--|
| 11G/LCH |  |
| 11G/MCH |  |
| 11G/HCH |  |

| | |
|---------------|--|
| 11N20SISO/LCH |  <p>Key: Knight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.412000000 GHz</p> <p>Center Freq: 2.412000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: >10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.06 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.412 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.680 MHz</p> <p>Total Power 14.5 dBm</p> <p>Transmit Freq Error 301 Hz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.73 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.412000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N20SISO/MCH |  <p>Key: Knight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.437000000 GHz</p> <p>Center Freq: 2.437000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: >10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.02 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.437 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.690 MHz</p> <p>Total Power 14.6 dBm</p> <p>Transmit Freq Error 2.370 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.74 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.437000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11N20SISO/HCH |  <p>Key: Knight Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.462000000 GHz</p> <p>Center Freq: 2.462000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 19.06 dB</p> <p>Ref 30.00 dBm</p> <p>Center 2.462 GHz</p> <p>#Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40 MHz</p> <p>Sweep 4.267 ms</p> <p>Occupied Bandwidth 17.672 MHz</p> <p>Total Power 14.7 dBm</p> <p>Transmit Freq Error 4.945 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.71 MHz</p> <p>x dB -6.00 dB</p> <p>Frequency</p> <p>Center Freq 2.462000000 GHz</p> <p>CF Step 4.000000 MHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p> |

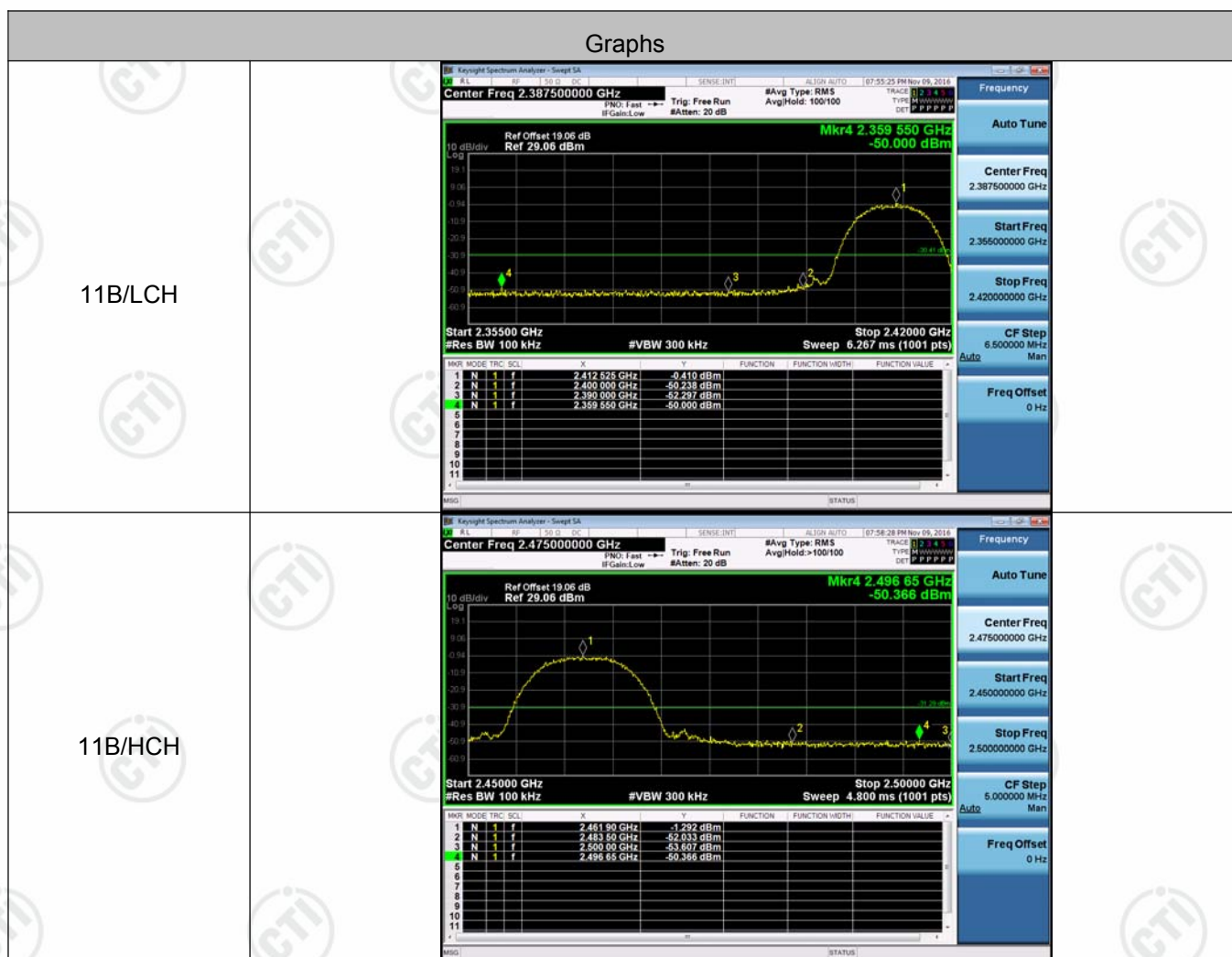
| | |
|---------------|--|
| 11N40SISO/LCH |  |
| 11N40SISO/MCH |  |
| 11N40SISO/HCH |  |

Appendix C): Band-edge for RF Conducted Emissions


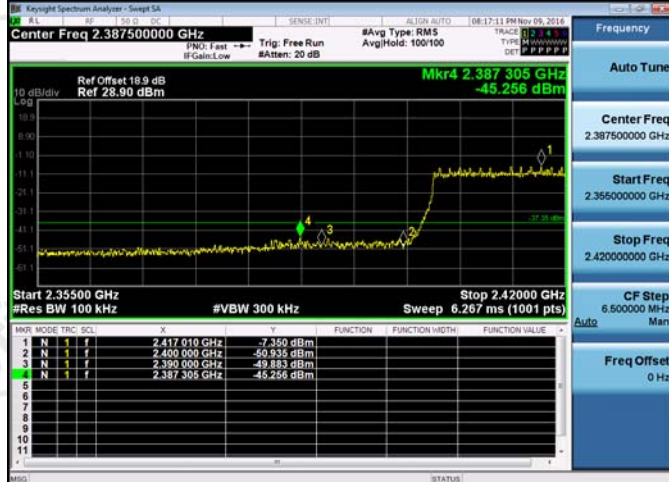
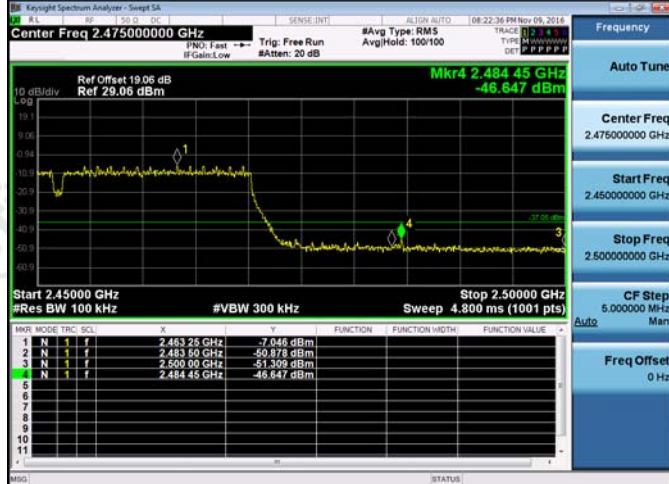
Result Table

| Mode | Channel | Carrier Power[dBm] | Max.Spurious Level [dBm] | Limit [dBm] | Verdict |
|-----------|---------|--------------------|--------------------------|-------------|---------|
| 11B | LCH | -0.410 | -50.000 | -30.41 | PASS |
| 11B | HCH | -1.292 | -50.366 | -31.29 | PASS |
| 11G | LCH | -3.813 | -50.369 | -33.81 | PASS |
| 11G | HCH | -3.840 | -49.589 | -33.84 | PASS |
| 11N20SISO | LCH | -3.812 | -49.628 | -33.81 | PASS |
| 11N20SISO | HCH | -3.796 | -49.398 | -33.8 | PASS |
| 11N40SISO | LCH | -7.350 | -45.256 | -37.35 | PASS |
| 11N40SISO | HCH | -7.046 | -46.647 | -37.05 | PASS |

Test Graph



| | |
|---------------|---|
| 11G/LCH | <div><div><div>Keyight Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.387500000 GHz</div><div>Ref Offset 19.06 dB Ref 29.06 dBm</div><div>10 dB/div</div><div>19.1</div><div>9.06</div><div>0.94</div><div>10.0</div><div>-20.9</div><div>-39.9</div><div>-50.9</div><div>-60.9</div><div>Start 2.355000 GHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.420000 GHz</div><div>Sweep 6.267 ms (1001 pts)</div><div>MARK MODE TRIG SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE</div><div>1 N 1 f 2.413 240 GHz -3.813 dBm</div><div>2 N 1 f 2.400 000 GHz -48.500 dBm</div><div>3 N 1 f 2.390 000 GHz -52.887 dBm</div><div>4 N 1 f 2.387 025 GHz -50.369 dBm</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>10</div><div>11</div><div>MISC</div><div>STATUS</div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.387500000 GHz</div><div>Start Freq 2.355000000 GHz</div><div>Stop Freq 2.420000000 GHz</div><div>CF Step 6.500000 MHz Man</div><div>Freq Offset 0 Hz</div></div></div> |
| 11G/HCH | <div><div><div>Keyight Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.475000000 GHz</div><div>Ref Offset 19.06 dB Ref 29.06 dBm</div><div>10 dB/div</div><div>19.1</div><div>9.06</div><div>0.94</div><div>10.0</div><div>-20.9</div><div>-39.9</div><div>-50.9</div><div>-60.9</div><div>Start 2.450000 GHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.500000 GHz</div><div>Sweep 4.800 ms (1001 pts)</div><div>MARK MODE TRIG SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE</div><div>1 N 1 f 2.463 25 GHz -3.840 dBm</div><div>2 N 1 f 2.483 50 GHz -51.822 dBm</div><div>3 N 1 f 2.500 00 GHz -51.385 dBm</div><div>4 N 1 f 2.490 15 GHz -49.589 dBm</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>10</div><div>11</div><div>MISC</div><div>STATUS</div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.475000000 GHz</div><div>Start Freq 2.450000000 GHz</div><div>Stop Freq 2.500000000 GHz</div><div>CF Step 6.500000 MHz Man</div><div>Freq Offset 0 Hz</div></div></div> |
| 11N20SISO/LCH | <div><div><div>Keyight Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.387500000 GHz</div><div>Ref Offset 19.06 dB Ref 29.06 dBm</div><div>10 dB/div</div><div>19.1</div><div>9.06</div><div>0.94</div><div>10.0</div><div>-20.9</div><div>-39.9</div><div>-50.9</div><div>-60.9</div><div>Start 2.355000 GHz</div><div>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.420000 GHz</div><div>Sweep 6.267 ms (1001 pts)</div><div>MARK MODE TRIG SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE</div><div>1 N 1 f 2.413 240 GHz -3.812 dBm</div><div>2 N 1 f 2.400 000 GHz -48.510 dBm</div><div>3 N 1 f 2.390 000 GHz -51.473 dBm</div><div>4 N 1 f 2.388 865 GHz -49.628 dBm</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>10</div><div>11</div><div>MISC</div><div>STATUS</div><div>Frequency</div><div>Auto Tune</div><div>Center Freq 2.387500000 GHz</div><div>Start Freq 2.355000000 GHz</div><div>Stop Freq 2.420000000 GHz</div><div>CF Step 6.500000 MHz Man</div><div>Freq Offset 0 Hz</div></div></div> |

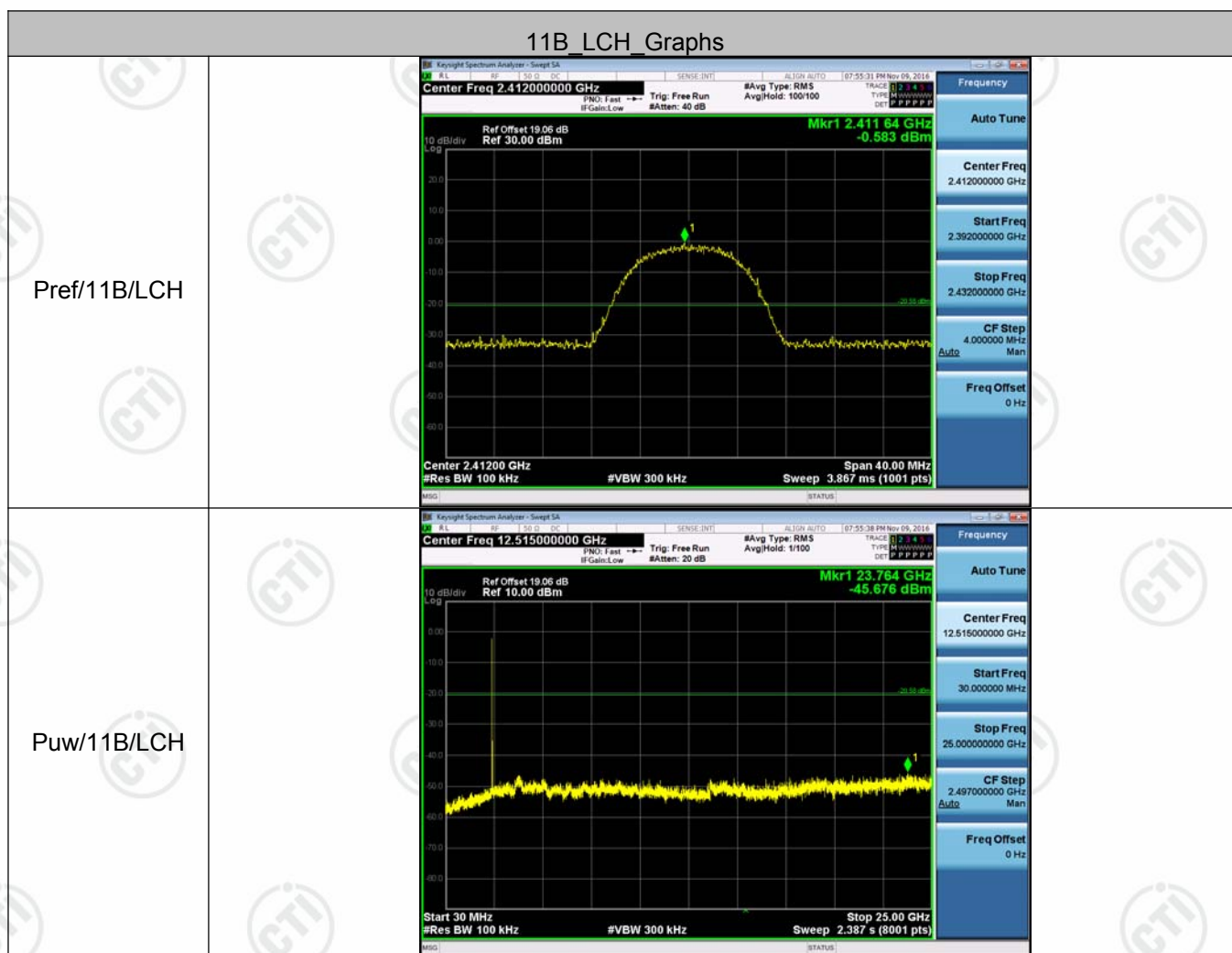
| 11N20SISO/HCH |  <table><thead><tr><th>MARK</th><th>MODE</th><th>TRIG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METHOD</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.46325 GHz</td><td>-7.796 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.48350 GHz</td><td>-52.052 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.50000 GHz</td><td>-53.812 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.48850 GHz</td><td>-49.398 dBm</td><td></td><td></td><td></td></tr></tbody></table> | MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | 1 | N | 1 | f | 2.46325 GHz | -7.796 dBm | | | | 2 | N | 1 | f | 2.48350 GHz | -52.052 dBm | | | | 3 | N | 1 | f | 2.50000 GHz | -53.812 dBm | | | | 4 | N | 1 | f | 2.48850 GHz | -49.398 dBm | | | |
|---------------|--|------|------|--------------|-------------|----------|-----------------|----------------|-----------------|----------------|---|---|---|---|--------------|------------|--|--|--|---|---|---|---|--------------|-------------|--|--|--|---|---|---|---|--------------|-------------|--|--|--|---|---|---|---|--------------|-------------|--|--|--|
| MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | 1 | f | 2.46325 GHz | -7.796 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | 1 | f | 2.48350 GHz | -52.052 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | 1 | f | 2.50000 GHz | -53.812 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | 1 | f | 2.48850 GHz | -49.398 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11N40SISO/LCH |  <table><thead><tr><th>MARK</th><th>MODE</th><th>TRIG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METHOD</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.417010 GHz</td><td>-7.350 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400000 GHz</td><td>-50.935 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390000 GHz</td><td>-49.883 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.387305 GHz</td><td>-45.256 dBm</td><td></td><td></td><td></td></tr></tbody></table> | MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | 1 | N | 1 | f | 2.417010 GHz | -7.350 dBm | | | | 2 | N | 1 | f | 2.400000 GHz | -50.935 dBm | | | | 3 | N | 1 | f | 2.390000 GHz | -49.883 dBm | | | | 4 | N | 1 | f | 2.387305 GHz | -45.256 dBm | | | |
| MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | 1 | f | 2.417010 GHz | -7.350 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | 1 | f | 2.400000 GHz | -50.935 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | 1 | f | 2.390000 GHz | -49.883 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | 1 | f | 2.387305 GHz | -45.256 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11N40SISO/HCH |  <table><thead><tr><th>MARK</th><th>MODE</th><th>TRIG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION METHOD</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.46325 GHz</td><td>-7.046 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.48350 GHz</td><td>-50.773 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.50000 GHz</td><td>-51.309 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.48445 GHz</td><td>-46.647 dBm</td><td></td><td></td><td></td></tr></tbody></table> | MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | 1 | N | 1 | f | 2.46325 GHz | -7.046 dBm | | | | 2 | N | 1 | f | 2.48350 GHz | -50.773 dBm | | | | 3 | N | 1 | f | 2.50000 GHz | -51.309 dBm | | | | 4 | N | 1 | f | 2.48445 GHz | -46.647 dBm | | | |
| MARK | MODE | TRIG | SCL | X | Y | FUNCTION | FUNCTION METHOD | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | 1 | f | 2.46325 GHz | -7.046 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | 1 | f | 2.48350 GHz | -50.773 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | 1 | f | 2.50000 GHz | -51.309 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | 1 | f | 2.48445 GHz | -46.647 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Appendix D): RF Conducted Spurious Emissions

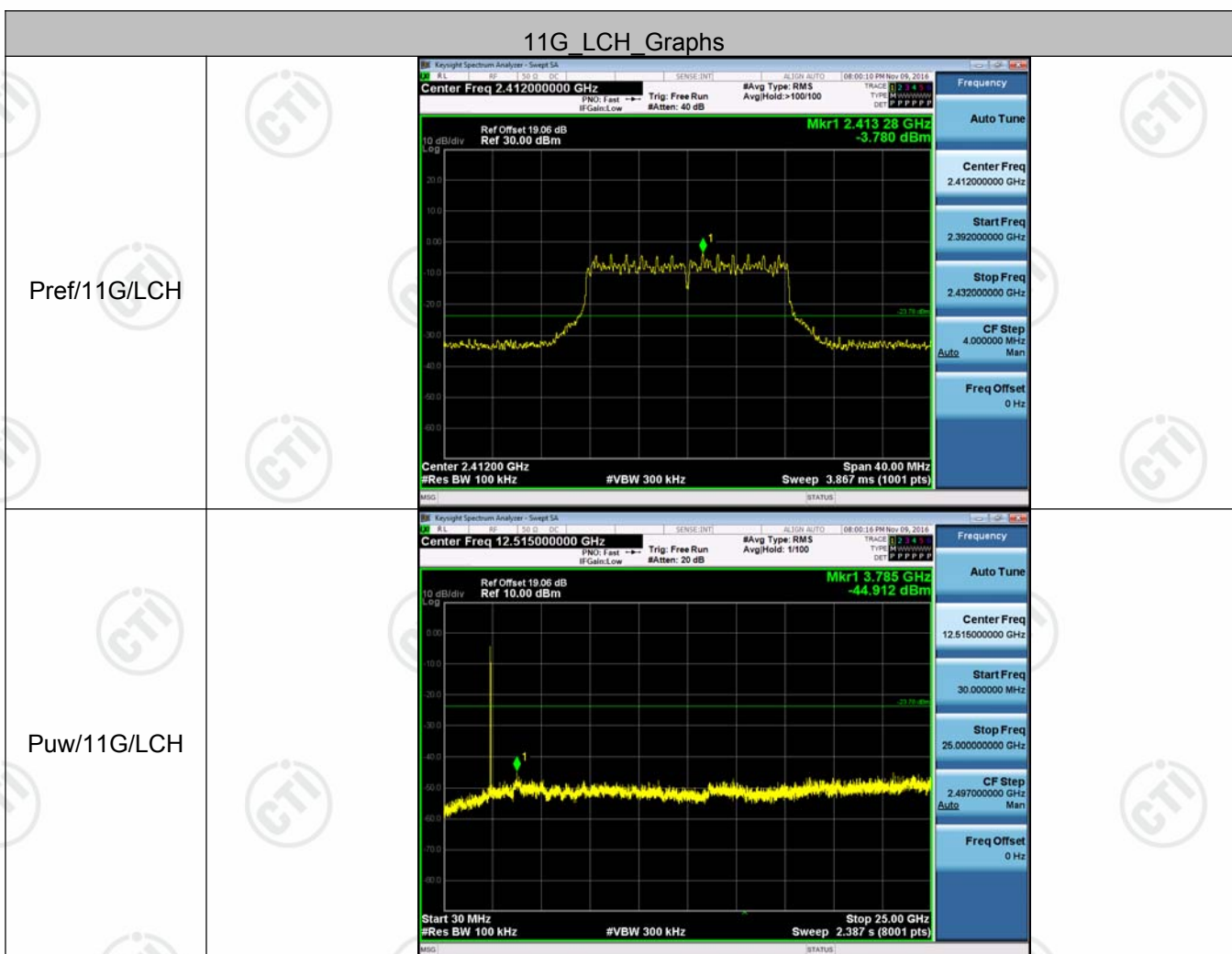
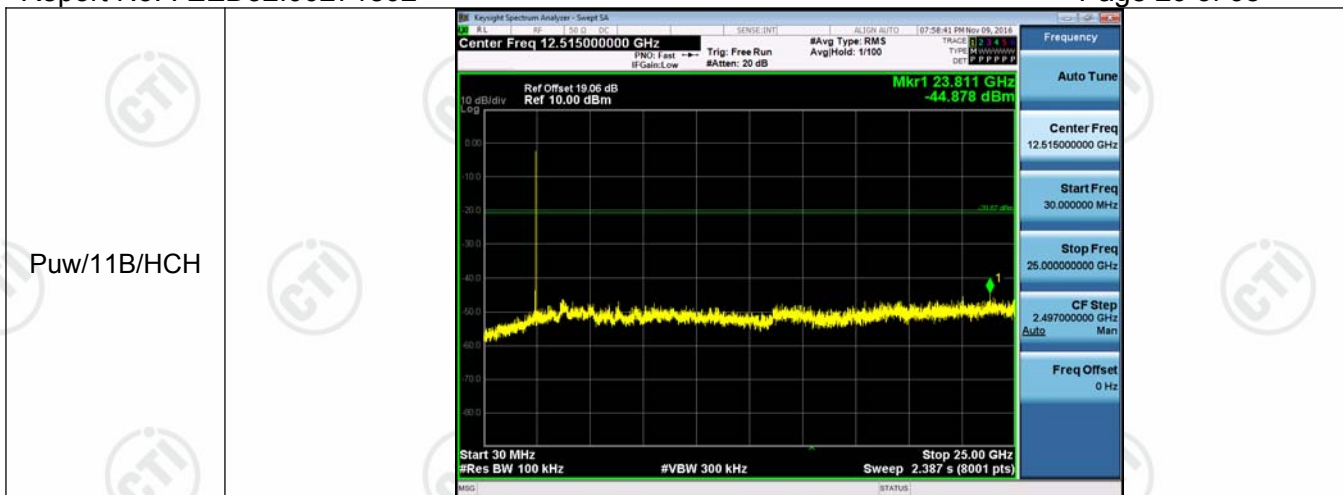
Result Table

| Mode | Channel | Pref [dBm] | Puw[dBm] | Verdict |
|-----------|---------|------------|----------|---------|
| 11B | LCH | -0.583 | <Limit | PASS |
| 11B | MCH | -0.748 | <Limit | PASS |
| 11B | HCH | -0.87 | <Limit | PASS |
| 11G | LCH | -3.78 | <Limit | PASS |
| 11G | MCH | -3.608 | <Limit | PASS |
| 11G | HCH | -3.734 | <Limit | PASS |
| 11N20SISO | LCH | -3.681 | <Limit | PASS |
| 11N20SISO | MCH | -3.7 | <Limit | PASS |
| 11N20SISO | HCH | -3.712 | <Limit | PASS |
| 11N40SISO | LCH | -7.156 | <Limit | PASS |
| 11N40SISO | MCH | -7.074 | <Limit | PASS |
| 11N40SISO | HCH | -6.951 | <Limit | PASS |

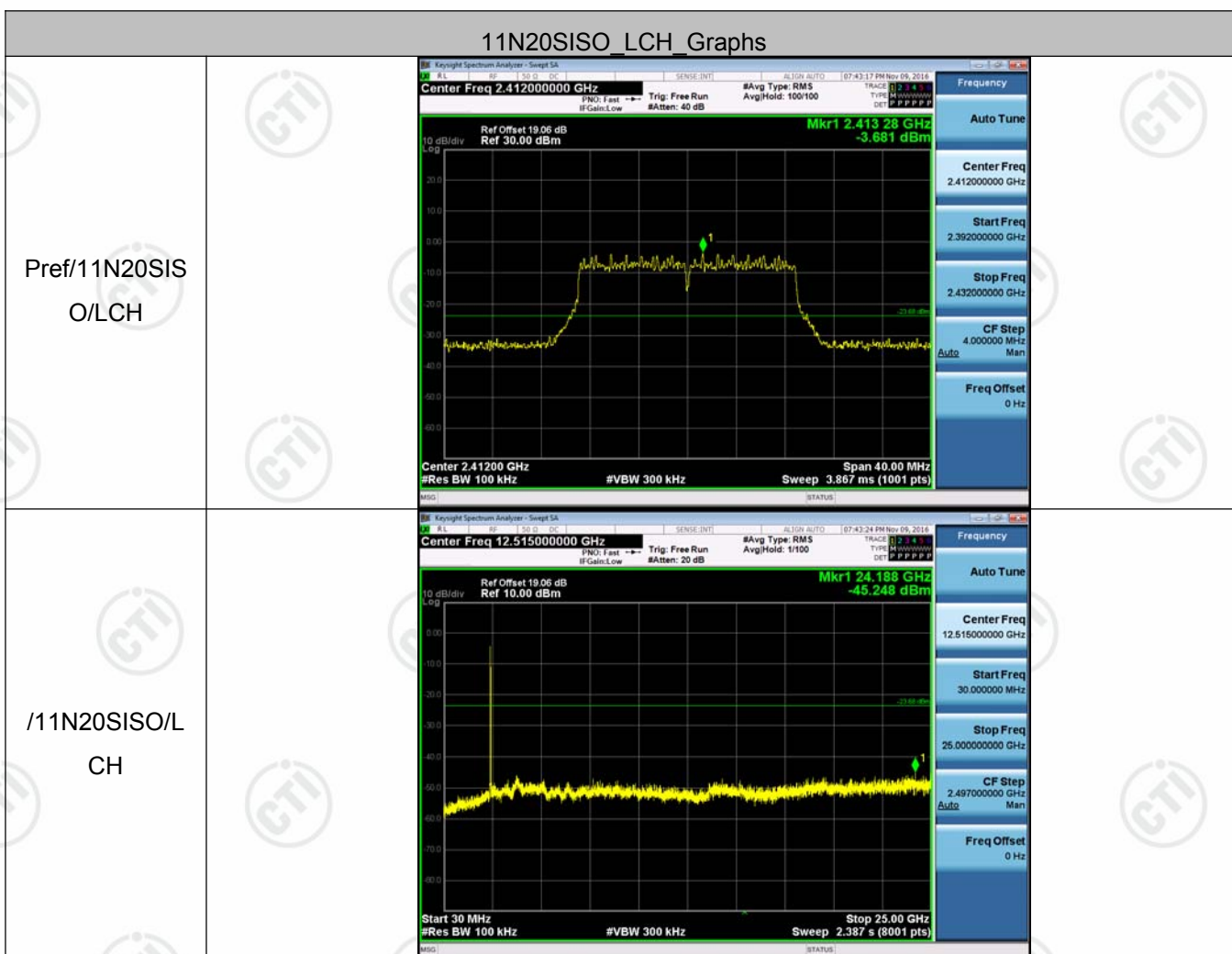
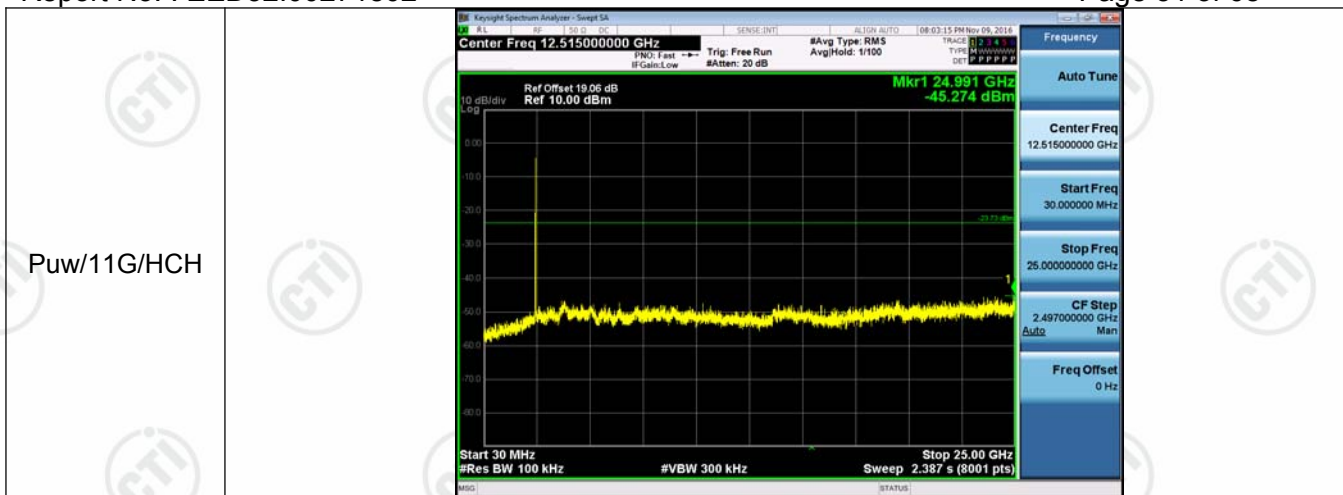
Test Graph

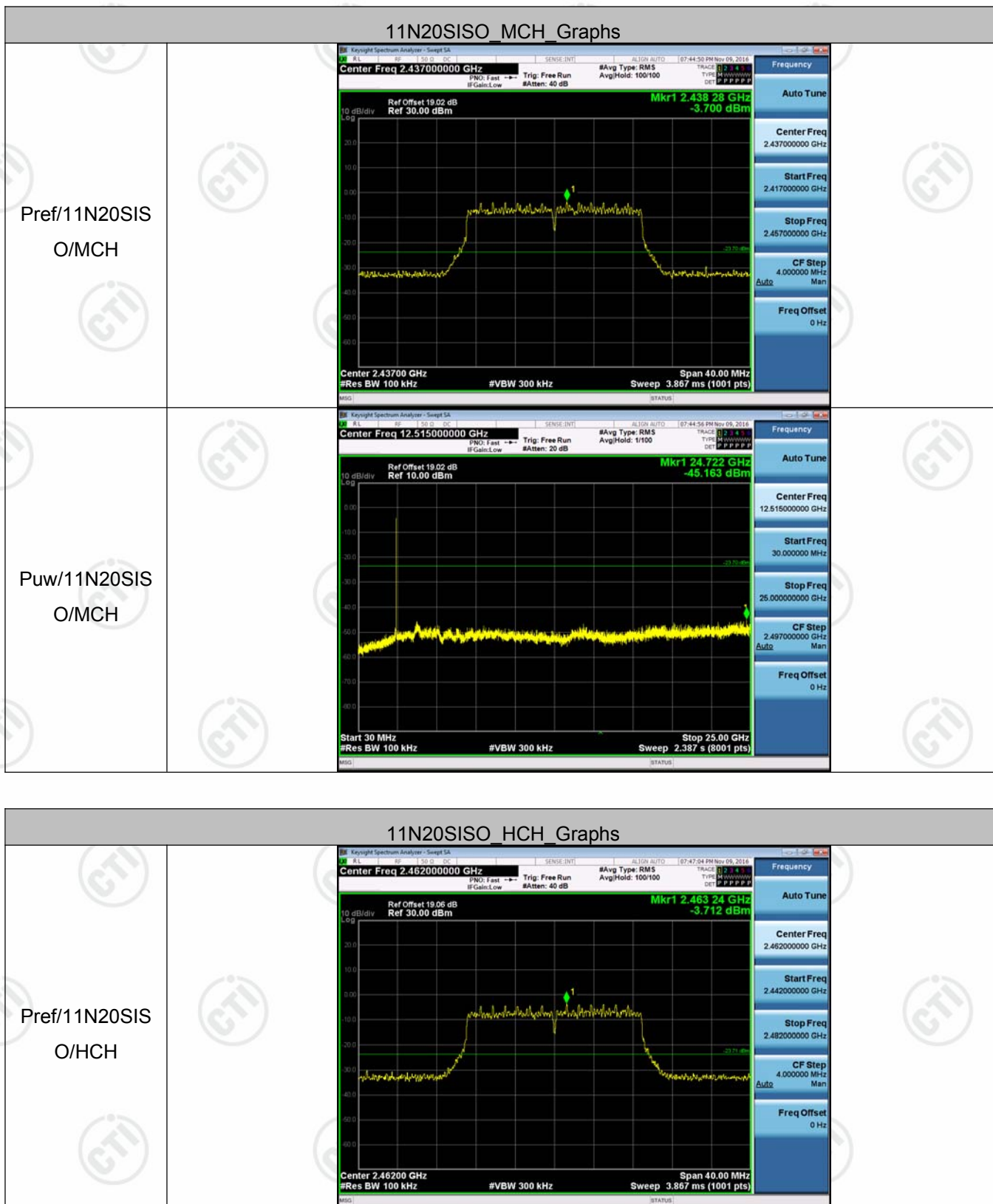


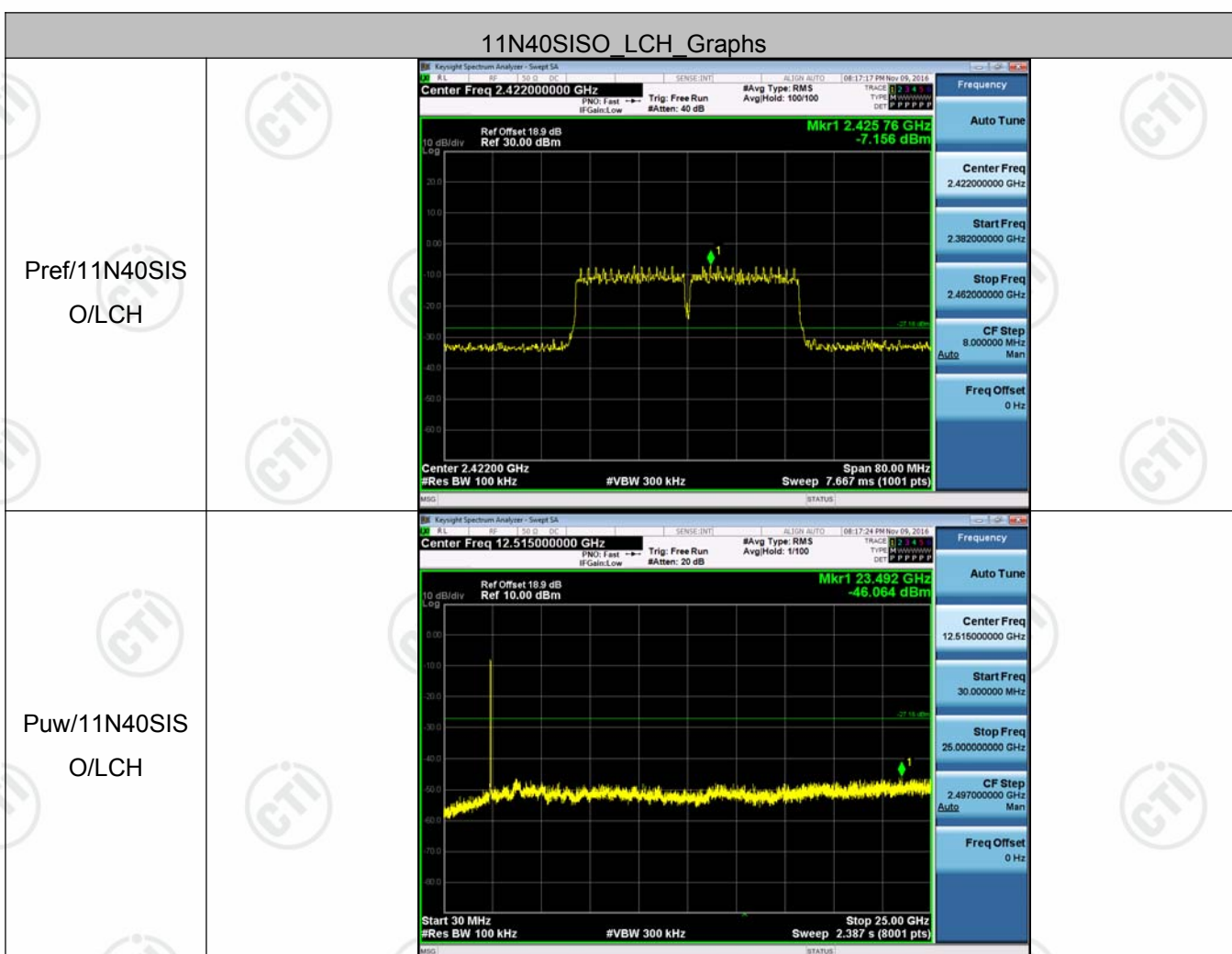
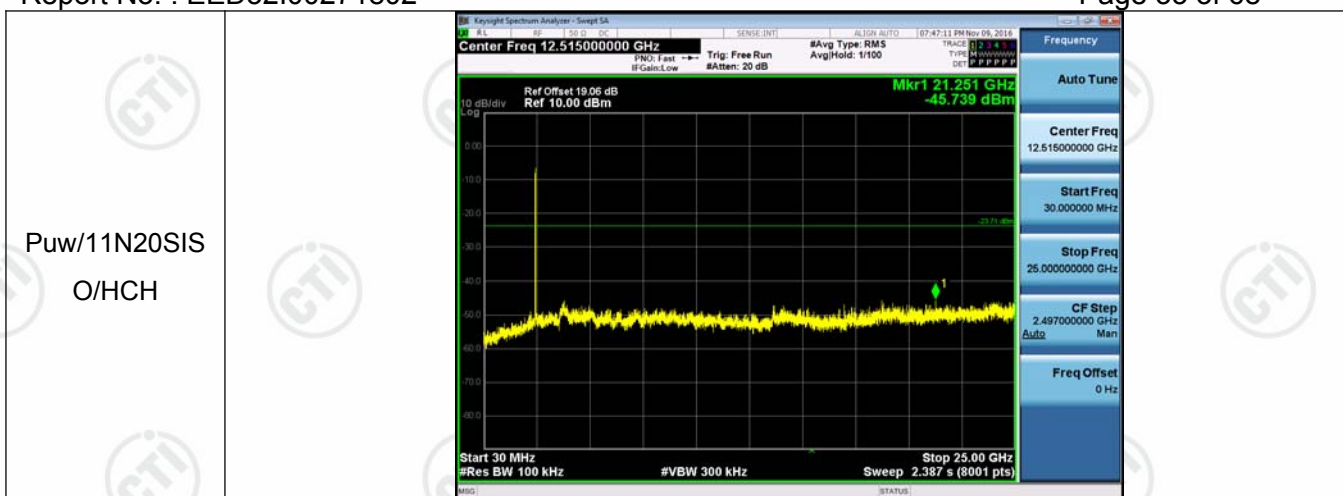




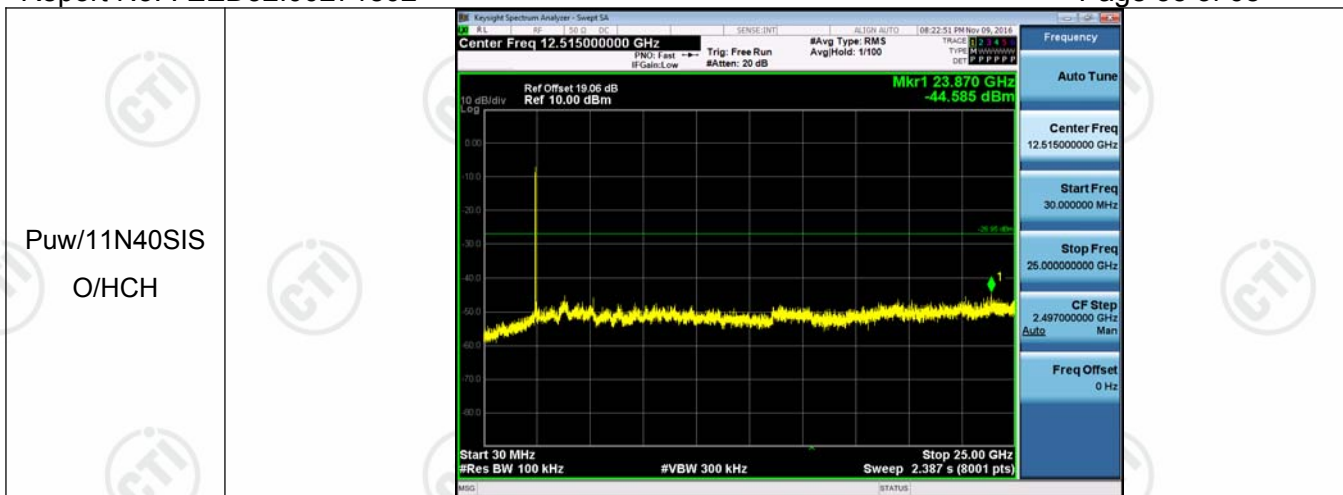










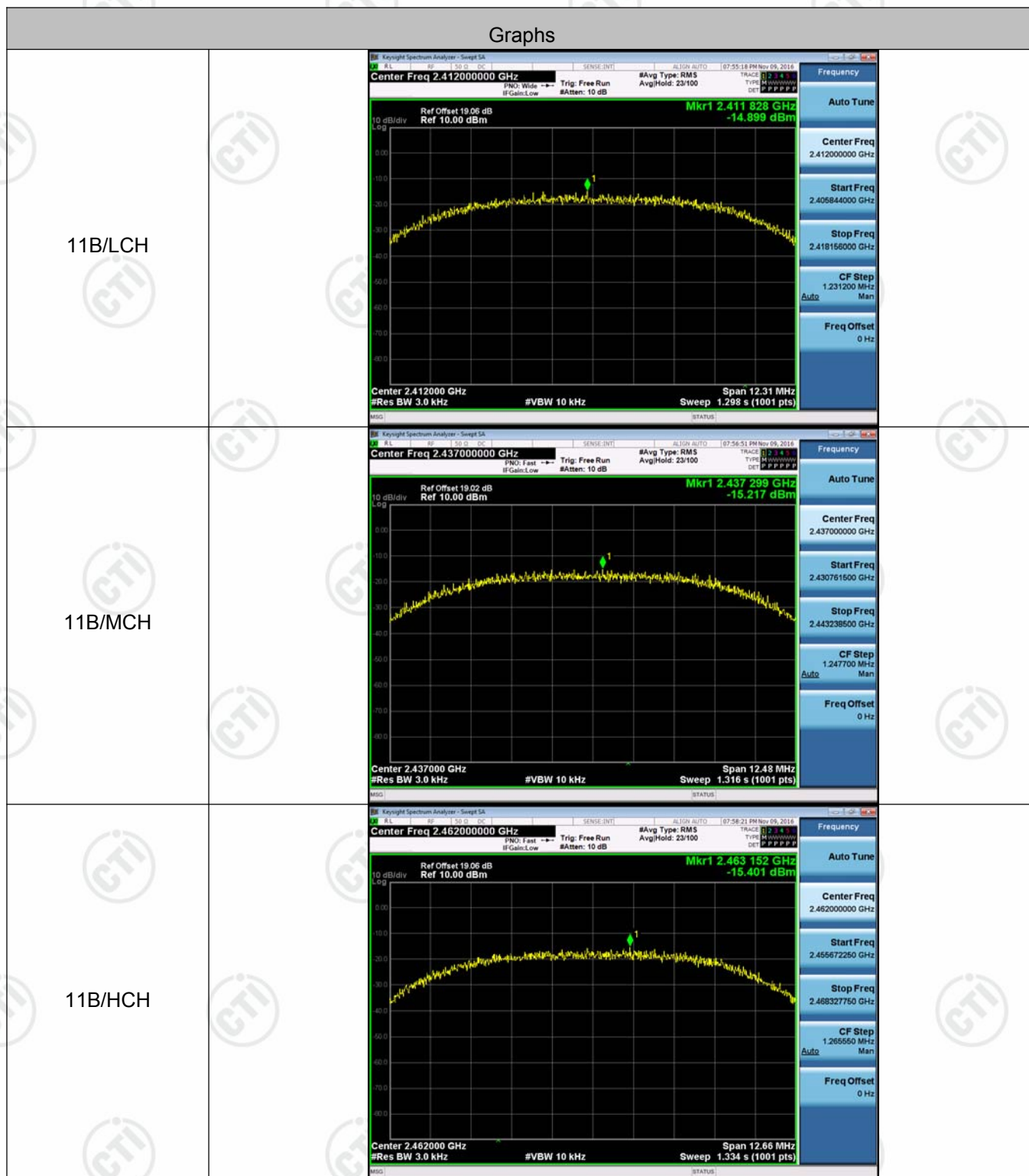


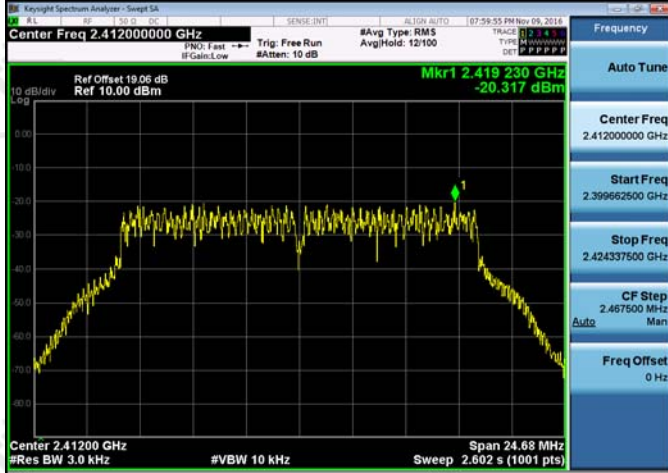
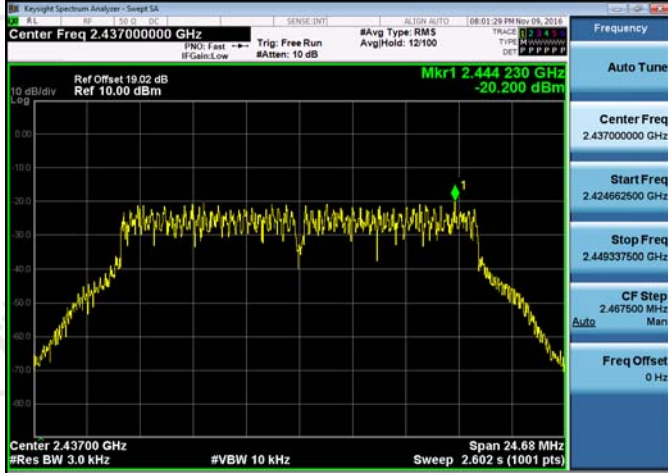
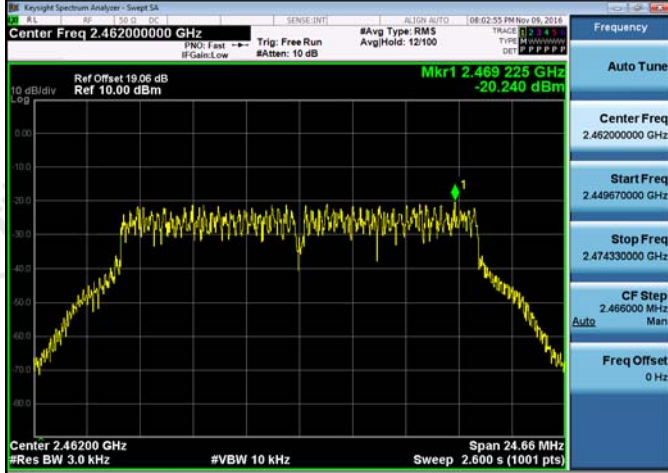
Appendix E): Power Spectral Density

Result Table

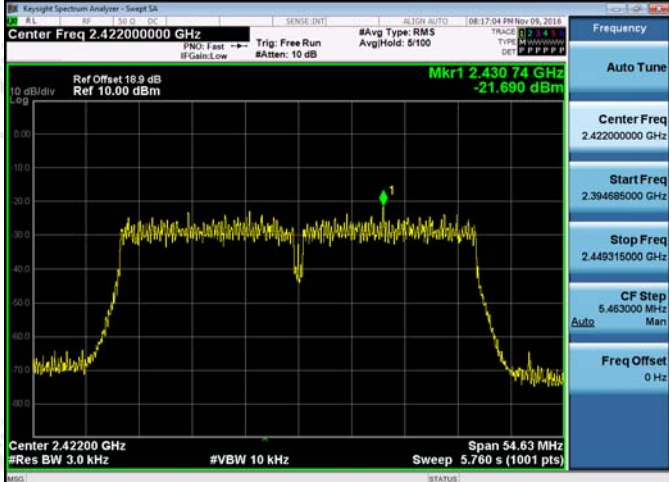
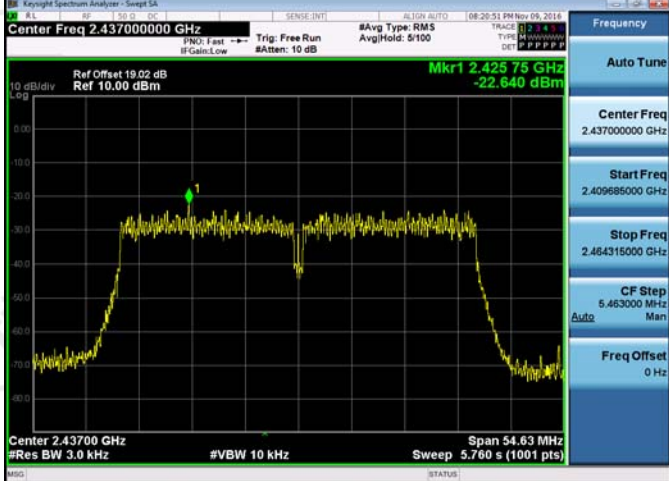
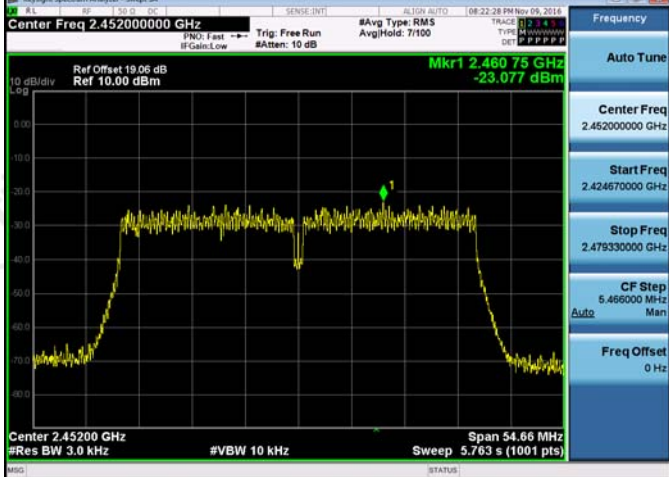
| Mode | Channel | PSD [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|-----------|---------|----------------|------------------|---------|
| 11B | LCH | -14.899 | 8 | PASS |
| 11B | MCH | -15.217 | 8 | PASS |
| 11B | HCH | -15.401 | 8 | PASS |
| 11G | LCH | -20.317 | 8 | PASS |
| 11G | MCH | -20.200 | 8 | PASS |
| 11G | HCH | -20.240 | 8 | PASS |
| 11N20SISO | LCH | -19.558 | 8 | PASS |
| 11N20SISO | MCH | -17.997 | 8 | PASS |
| 11N20SISO | HCH | -17.563 | 8 | PASS |
| 11N40SISO | LCH | -21.690 | 8 | PASS |
| 11N40SISO | MCH | -22.640 | 8 | PASS |
| 11N40SISO | HCH | -23.077 | 8 | PASS |

Test Graph



| | |
|---------|--|
| 11G/LCH |  <p>Keynote Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.41200000 GHz</p> <p>Ref Offset 19.06 dB Ref 10.00 dBm</p> <p>Mkr1 2.419 230 GHz -20.317 dBm</p> <p>Center 2.41200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.602 s (1001 pts)</p> <p>Span 24.68 MHz</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.41200000 GHz</p> <p>Start Freq 2.399662500 GHz</p> <p>Stop Freq 2.424337500 GHz</p> <p>CF Step 2.467500 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11G/MCH |  <p>Keynote Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.43700000 GHz</p> <p>Ref Offset 19.02 dB Ref 10.00 dBm</p> <p>Mkr1 2.444 230 GHz -20.200 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.602 s (1001 pts)</p> <p>Span 24.68 MHz</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.43700000 GHz</p> <p>Start Freq 2.424662500 GHz</p> <p>Stop Freq 2.449337500 GHz</p> <p>CF Step 2.467500 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| 11G/HCH |  <p>Keynote Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.46200000 GHz</p> <p>Ref Offset 19.06 dB Ref 10.00 dBm</p> <p>Mkr1 2.469 225 GHz -20.240 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 2.600 s (1001 pts)</p> <p>Span 24.66 MHz</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.46200000 GHz</p> <p>Start Freq 2.449670000 GHz</p> <p>Stop Freq 2.474330000 GHz</p> <p>CF Step 2.466000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |

| | |
|---------------|---|
| 11N20SISO/LCH |  <p>Center Freq 2.41200000 GHz</p> <p>Ref Offset 19.06 dB Ref 10.00 dBm</p> <p>Mkr1 2.410 750 GHz -19.558 dBm</p> <p>Center 2.41200 GHz #Res BW 3.0 kHz</p> <p>#VBW 10 kHz</p> <p>Span 26.60 MHz Sweep 2.804 s (1001 pts)</p> |
| 11N20SISO/MCH |  <p>Center Freq 2.43700000 GHz</p> <p>Ref Offset 19.02 dB Ref 10.00 dBm</p> <p>Mkr1 2.440 752 GHz -17.997 dBm</p> <p>Center 2.43700 GHz #Res BW 3.0 kHz</p> <p>#VBW 10 kHz</p> <p>Span 26.61 MHz Sweep 2.806 s (1001 pts)</p> |
| 11N20SISO/HCH |  <p>Center Freq 2.46200000 GHz</p> <p>Ref Offset 19.06 dB Ref 10.00 dBm</p> <p>Mkr1 2.469 491 GHz -17.563 dBm</p> <p>Center 2.46200 GHz #Res BW 3.0 kHz</p> <p>#VBW 10 kHz</p> <p>Span 26.57 MHz Sweep 2.801 s (1001 pts)</p> |

| | |
|---------------|---|
| 11N40SISO/LCH |  <p>Key parameters for 11N40SISO/LCH:</p> <ul style="list-style-type: none"> Center Freq: 2.422000000 GHz Ref Offset: 18.9 dB Ref: 10.00 dBm Mkr1: 2.43074 GHz, -21.690 dBm Center: 2.42200 GHz #Res BW: 3.0 kHz #VBW: 10 kHz Span: 54.63 MHz Sweep: 5.760 s (1001 pts) |
| 11N40SISO/MCH |  <p>Key parameters for 11N40SISO/MCH:</p> <ul style="list-style-type: none"> Center Freq: 2.437000000 GHz Ref Offset: 19.02 dB Ref: 10.00 dBm Mkr1: 2.42575 GHz, -22.640 dBm Center: 2.43700 GHz #Res BW: 3.0 kHz #VBW: 10 kHz Span: 54.63 MHz Sweep: 5.760 s (1001 pts) |
| 11N40SISO/HCH |  <p>Key parameters for 11N40SISO/HCH:</p> <ul style="list-style-type: none"> Center Freq: 2.452000000 GHz Ref Offset: 19.06 dB Ref: 10.00 dBm Mkr1: 2.46075 GHz, -23.077 dBm Center: 2.45200 GHz #Res BW: 3.0 kHz #VBW: 10 kHz Span: 54.66 MHz Sweep: 5.763 s (1001 pts) |

Appendix F): Antenna Requirement

15.203 requirement:

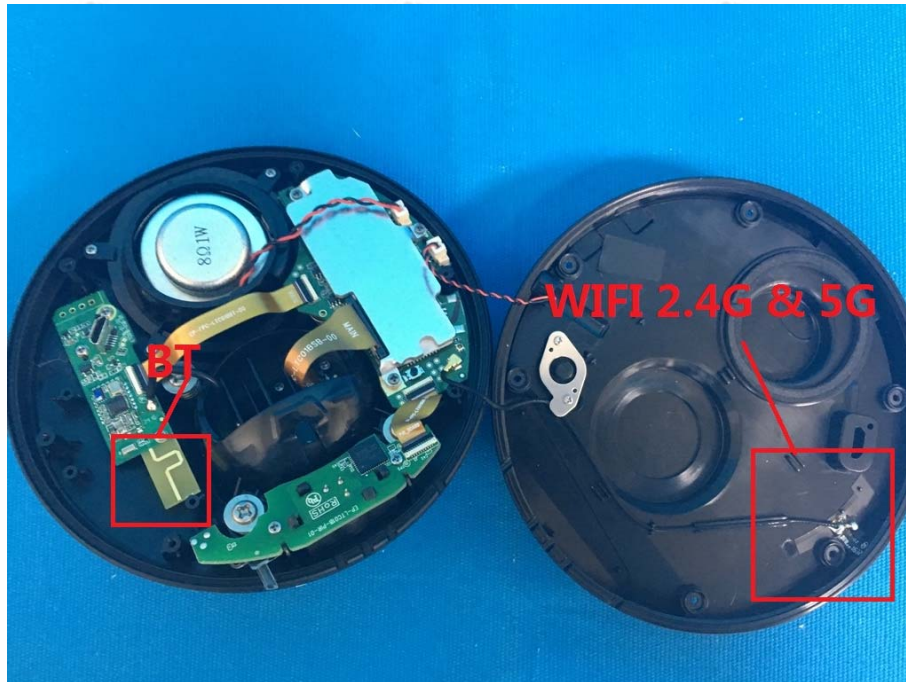
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the WIFI antenna is 3Bi.



Appendix G): AC Power Line Conducted Emission

| Test Procedure: | <p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement. | | | | | | | | | | | | | | | |
|-----------------------|---|-----------|-----------------------|--------------------|--|------------|---------|----------|-----------|-----------|-------|----|----|------|----|----|
| Limit: | <table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr> <tr> <th>Quasi-peak</th><th>Average</th></tr> </thead> <tbody> <tr> <td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr> <tr> <td>0.5-5</td><td>56</td><td>46</td></tr> <tr> <td>5-30</td><td>60</td><td>50</td></tr> </tbody> </table> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. NOTE : The lower limit is applicable at the transition frequency</p> | | Frequency range (MHz) | Limit (dB μ V) | | Quasi-peak | Average | 0.15-0.5 | 66 to 56* | 56 to 46* | 0.5-5 | 56 | 46 | 5-30 | 60 | 50 |
| Frequency range (MHz) | Limit (dB μ V) | | | | | | | | | | | | | | | |
| | Quasi-peak | Average | | | | | | | | | | | | | | |
| 0.15-0.5 | 66 to 56* | 56 to 46* | | | | | | | | | | | | | | |
| 0.5-5 | 56 | 46 | | | | | | | | | | | | | | |
| 5-30 | 60 | 50 | | | | | | | | | | | | | | |

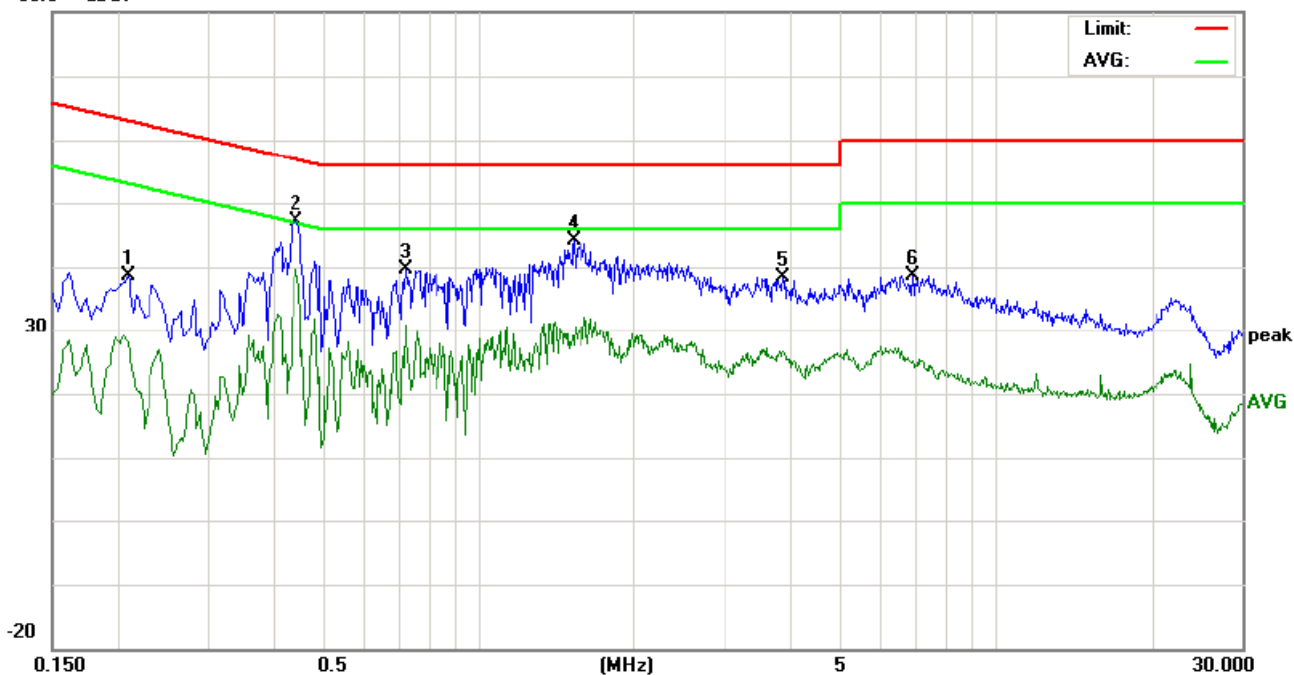
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:

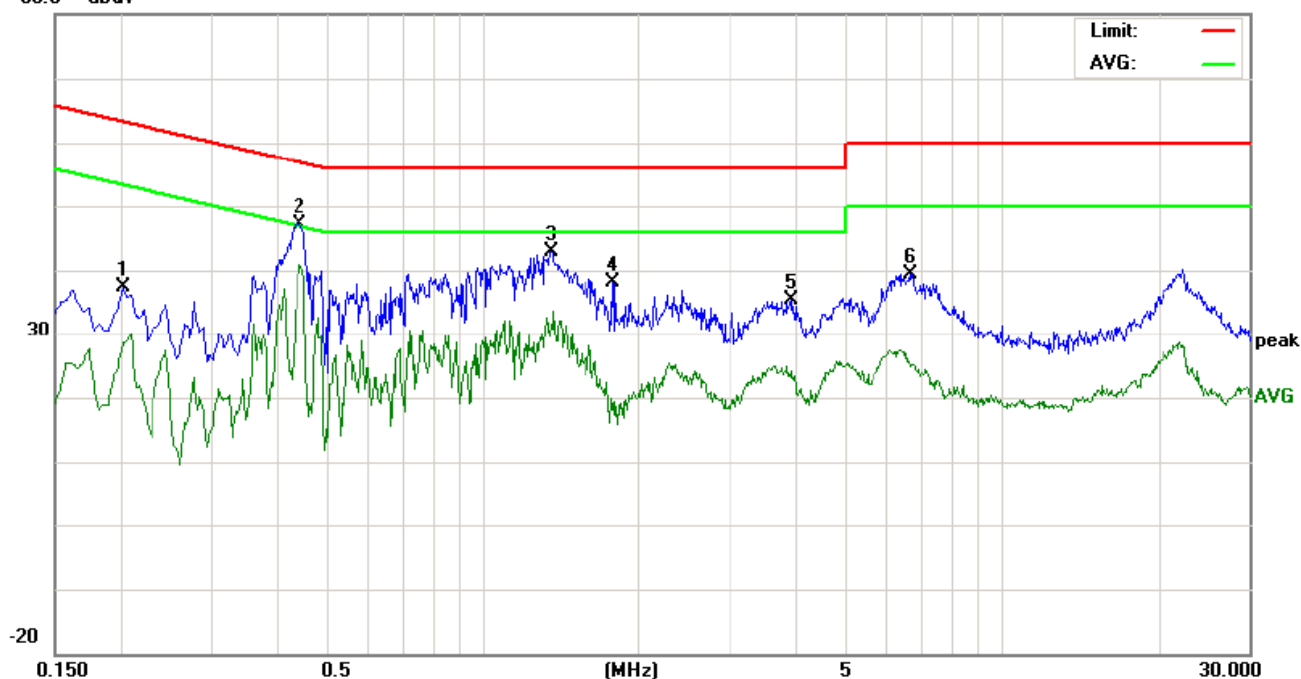
80.0 dBuV



| No. | Freq. MHz | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.2100 | 28.82 | | 18.22 | 9.80 | 38.62 | | 28.02 | 63.20 | 53.20 | -24.58 | -25.18 | P | |
| 2 | 0.4460 | 37.17 | | 29.72 | 9.90 | 47.07 | | 39.62 | 56.95 | 46.95 | -9.88 | -7.33 | P | |
| 3 | 0.7220 | 29.85 | | 20.89 | 9.90 | 39.75 | | 30.79 | 56.00 | 46.00 | -16.25 | -15.21 | P | |
| 4 | 1.5339 | 34.38 | | 17.77 | 9.86 | 44.24 | | 27.63 | 56.00 | 46.00 | -11.76 | -18.37 | P | |
| 5 | 3.8980 | 28.48 | | 16.70 | 10.00 | 38.48 | | 26.70 | 56.00 | 46.00 | -17.52 | -19.30 | P | |
| 6 | 6.9220 | 28.69 | | 15.15 | 10.00 | 38.69 | | 25.15 | 60.00 | 50.00 | -21.31 | -24.85 | P | |

Neutral line:

80.0 dBuV



| No. | Freq. MHz | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.2020 | 27.55 | | 18.64 | 9.80 | 37.35 | | 28.44 | 63.52 | 53.52 | -26.17 | -25.08 | P | |
| 2 | 0.4460 | 37.13 | | 31.00 | 9.90 | 47.03 | | 40.90 | 56.95 | 46.95 | -9.92 | -6.05 | P | |
| 3 | 1.3580 | 33.15 | | 21.83 | 9.81 | 42.96 | | 31.64 | 56.00 | 46.00 | -13.04 | -14.36 | P | |
| 4 | 1.7900 | 28.22 | | 8.68 | 9.94 | 38.16 | | 18.62 | 56.00 | 46.00 | -17.84 | -27.38 | P | |
| 5 | 3.9260 | 25.40 | | 14.08 | 10.00 | 35.40 | | 24.08 | 56.00 | 46.00 | -20.60 | -21.92 | P | |
| 6 | 6.6820 | 29.50 | | 15.13 | 10.00 | 39.50 | | 25.13 | 60.00 | 50.00 | -20.50 | -24.87 | P | |

Notes:

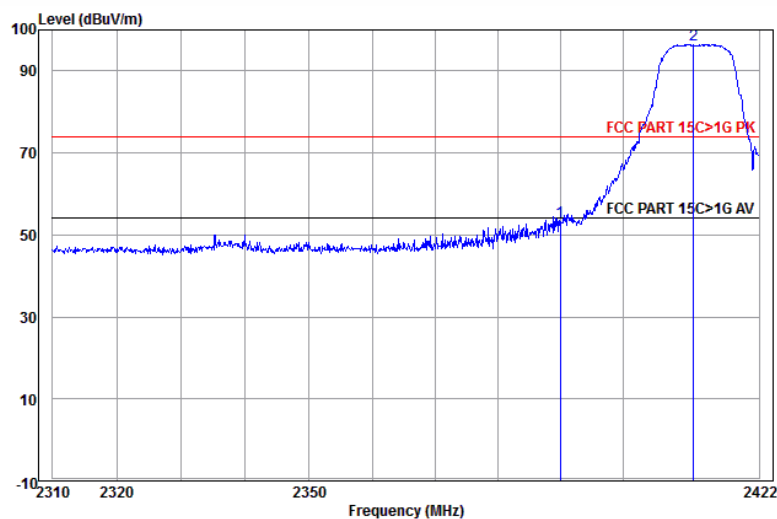
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

Appendix H): Restricted bands around fundamental frequency (Radiated)

| | | | | | |
|-----------------|---|--------------------|------------------|--------|------------|
| Receiver Setup: | Frequency | Detector | RBW | VBW | Remark |
| | 30MHz-1GHz | Quasi-peak | 120kHz | 300kHz | Quasi-peak |
| | Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | | Peak | 1MHz | 10Hz | Average |
| Test Procedure: | <p>Below 1GHz test procedure as below:</p> <ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel <p>Above 1GHz test procedure as below:</p> <ol style="list-style-type: none"> Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter). Test the EUT in the lowest channel , the Highest channel The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. Repeat above procedures until all frequencies measured was complete. | | | | |
| Limit: | Frequency | Limit (dBμV/m @3m) | Remark | | |
| | 30MHz-88MHz | 40.0 | Quasi-peak Value | | |
| | 88MHz-216MHz | 43.5 | Quasi-peak Value | | |
| | 216MHz-960MHz | 46.0 | Quasi-peak Value | | |
| | 960MHz-1GHz | 54.0 | Quasi-peak Value | | |
| | Above 1GHz | 54.0 | Average Value | | |
| | | 74.0 | Peak Value | | |

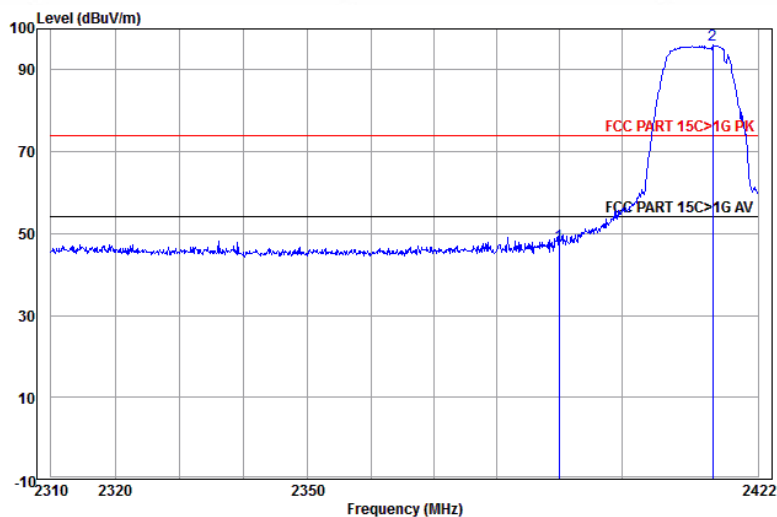
Test plot as follows:

| | | | |
|----------------------|----------------------|--------------------------|--------------|
| Worse case mode: | 802.11b (11Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Peak |



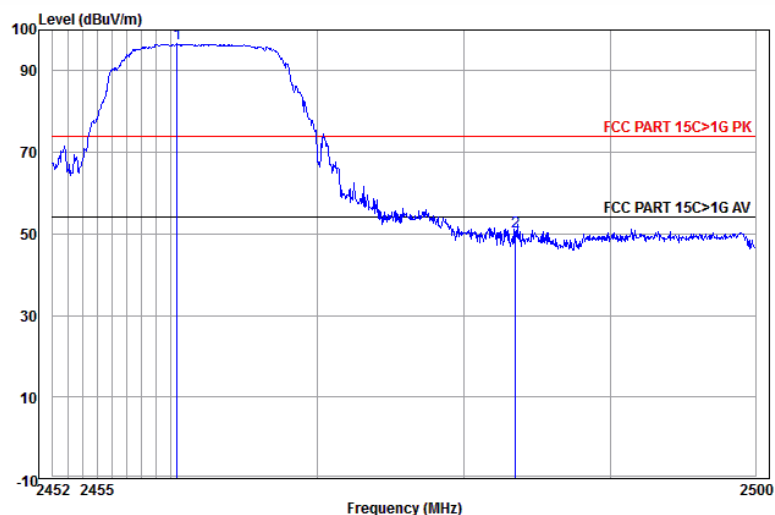
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|-------|------------|------------|-----------|------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dB | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 50.85 | 53.27 | 74.00 | -20.73 | Horizontal |
| 2 pp | 2411.359 | 32.58 | 4.33 | 34.39 | 93.90 | 96.42 | 74.00 | 22.42 | Horizontal |

| | | | |
|----------------------|----------------------|------------------------|--------------|
| Worse case mode: | 802.11b (11Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Vertical | Remark: Peak |



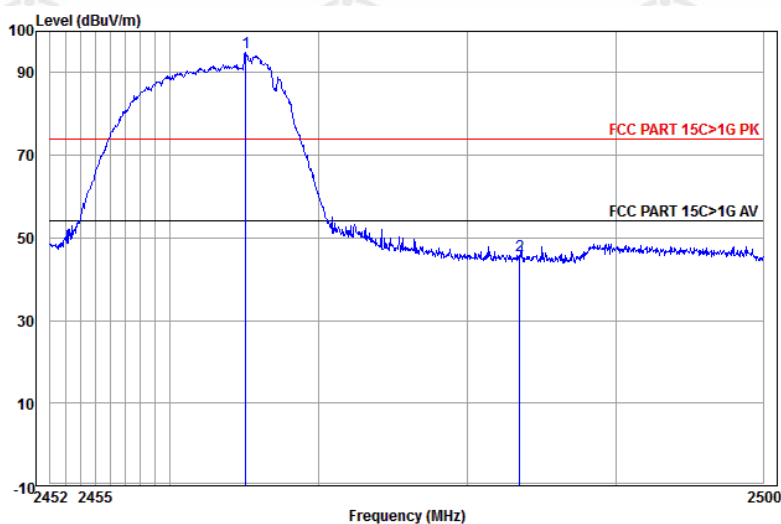
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|-------|------------|------------|-----------|----------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dB | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 44.80 | 47.22 | 74.00 | -26.78 | Vertical |
| 2 pp | 2414.672 | 32.58 | 4.34 | 34.39 | 93.46 | 95.99 | 74.00 | 21.99 | Vertical |

| | | | |
|----------------------|-----------------------|--------------------------|--------------|
| Worse case mode: | 802.11b (11Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Peak |



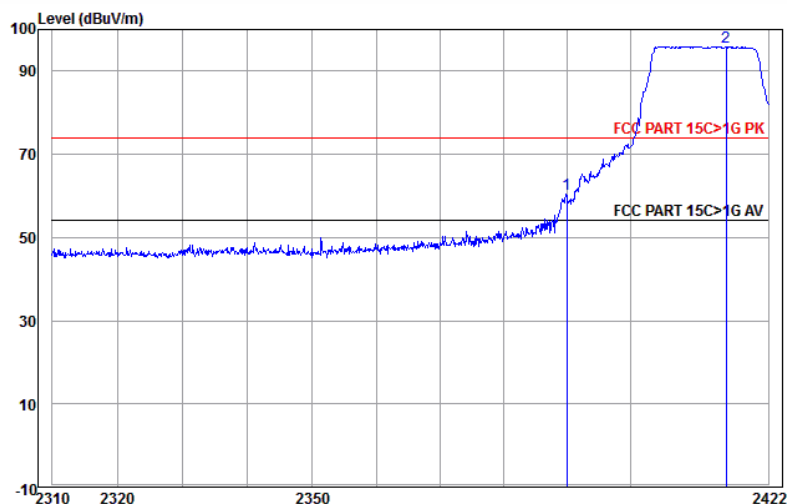
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Read Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|------------|------------|------------|-----------|------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2460.428 | 32.67 | 4.45 | 34.40 | 93.84 | 96.56 | 74.00 | 22.56 | Horizontal |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 47.70 | 50.51 | 74.00 | -23.49 | Horizontal |

| | | | |
|----------------------|-----------------------|------------------------|--------------|
| Worse case mode: | 802.11b (11Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Vertical | Remark: Peak |



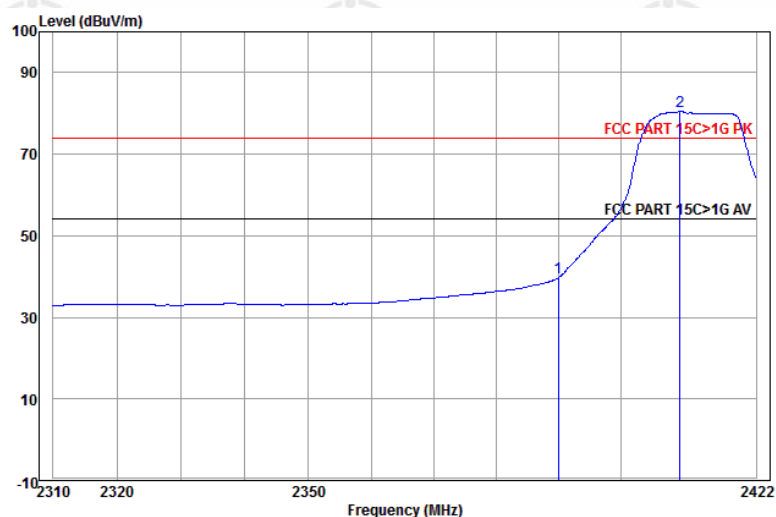
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Read Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|------------|------------|------------|-----------|----------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2465.060 | 32.68 | 4.46 | 34.40 | 92.06 | 94.80 | 74.00 | 20.80 | Vertical |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 42.94 | 45.75 | 74.00 | -28.25 | Vertical |

| | | | |
|----------------------|----------------------|--------------------------|--------------|
| Worse case mode: | 802.11g (6Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Peak |



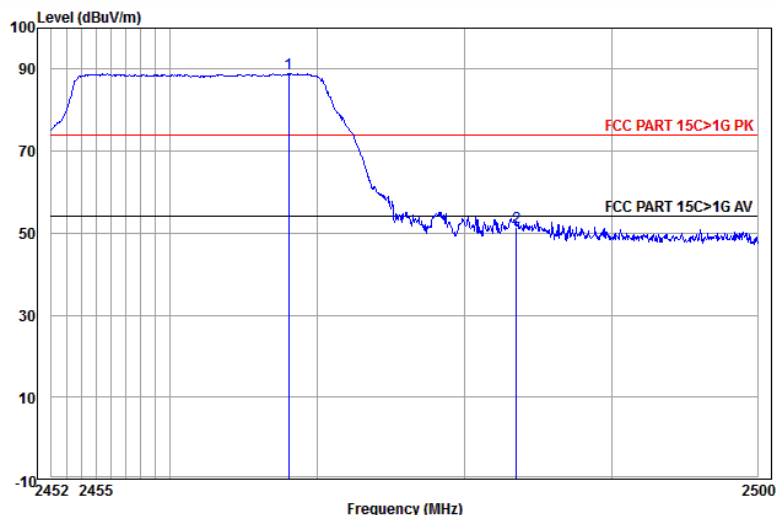
| | Ant | Cable | Preamp | Read | Limit | Over | | |
|---------------|--------|-------|--------|-------|--------|--------|-----------|------------|
| Freq | Factor | Loss | Factor | Level | Line | Limit | Pol/Phase | Remark |
| MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 2390.000 | 32.53 | 4.28 | 34.39 | 57.89 | 60.31 | 74.00 | -13.69 | Horizontal |
| 2 pp 2415.244 | 32.58 | 4.34 | 34.39 | 93.40 | 95.93 | 74.00 | 21.93 | Horizontal |

| | | | |
|----------------------|----------------------|--------------------------|-----------------|
| Worse case mode: | 802.11g (6Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Average |



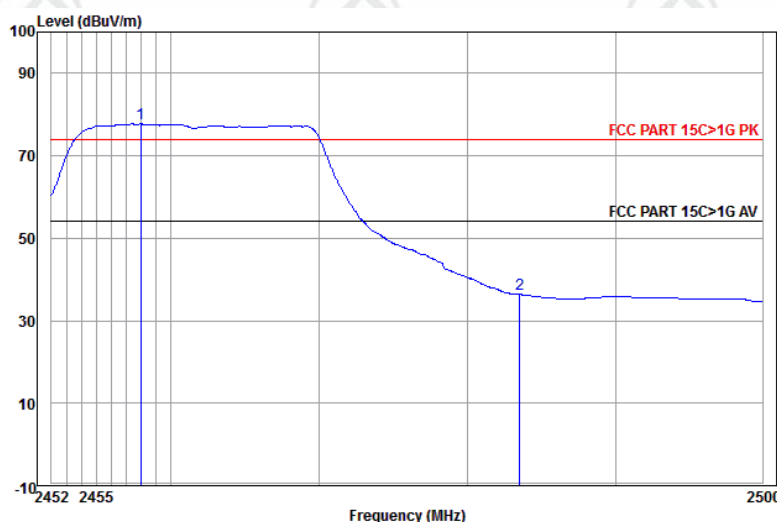
| | Ant | Cable | Preamp | Read | Limit | Over | | |
|---------------|--------|-------|--------|-------|--------|--------|-----------|--------------------|
| Freq | Factor | Loss | Factor | Level | Line | Limit | Pol/Phase | Remark |
| MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 2390.000 | 32.53 | 4.28 | 34.39 | 37.46 | 39.88 | 54.00 | -14.12 | Horizontal Average |
| 2 pp 2409.647 | 32.57 | 4.33 | 34.39 | 77.99 | 80.50 | 54.00 | 26.50 | Horizontal Average |

| | | | |
|----------------------|-----------------------|--------------------------|--------------|
| Worse case mode: | 802.11g (6Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Peak |



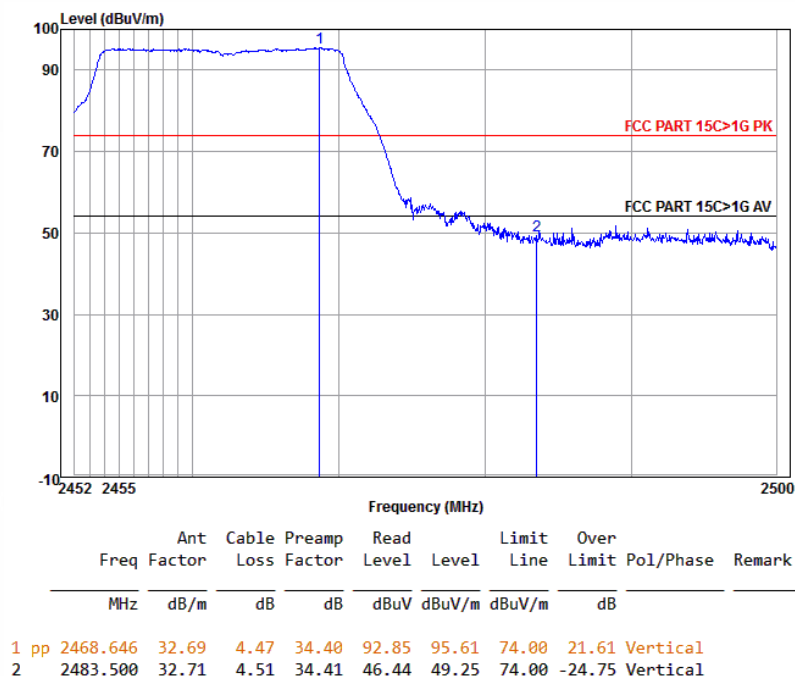
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|-------|------------|------------|-----------|------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2468.024 | 32.69 | 4.47 | 34.40 | 86.13 | 88.89 | 74.00 | 14.89 | Horizontal |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 48.73 | 51.54 | 74.00 | -22.46 | Horizontal |

| | | | |
|----------------------|-----------------------|--------------------------|-----------------|
| Worse case mode: | 802.11g (6Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Average |

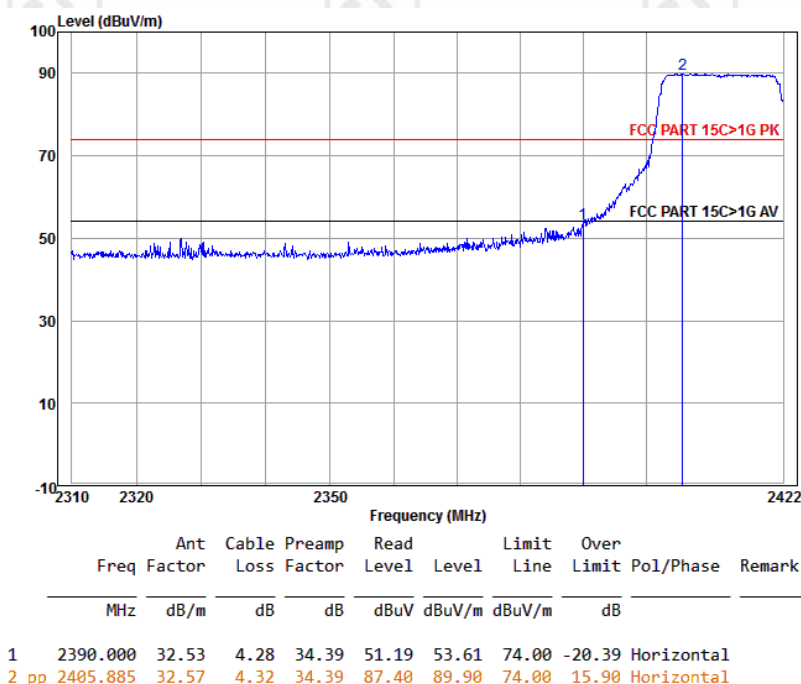


| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|------------|-------|------------|------------|-----------|--------------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2457.997 | 32.67 | 4.45 | 34.40 | 74.98 | 77.70 | 54.00 | 23.70 | Horizontal Average |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 33.54 | 36.35 | 54.00 | -17.65 | Horizontal Average |

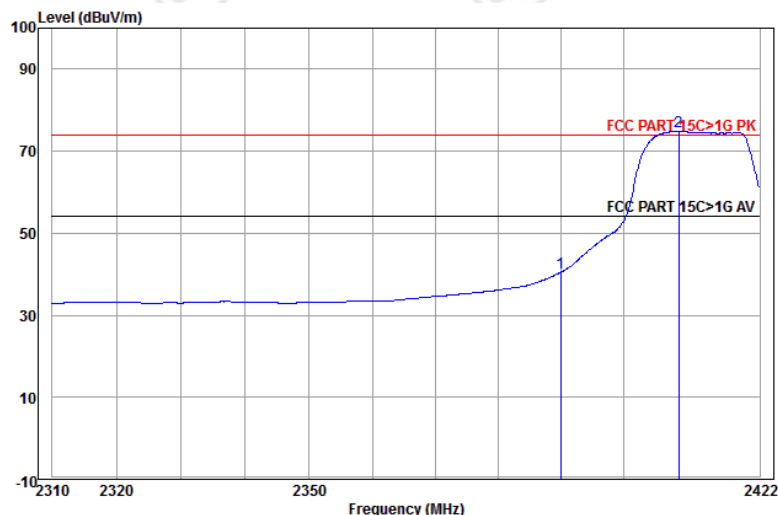
| | | | |
|----------------------|-----------------------|------------------------|--------------|
| Worse case mode: | 802.11g (6Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Vertical | Remark: Peak |



| | | | |
|----------------------|-------------------------|--------------------------|--------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Peak |

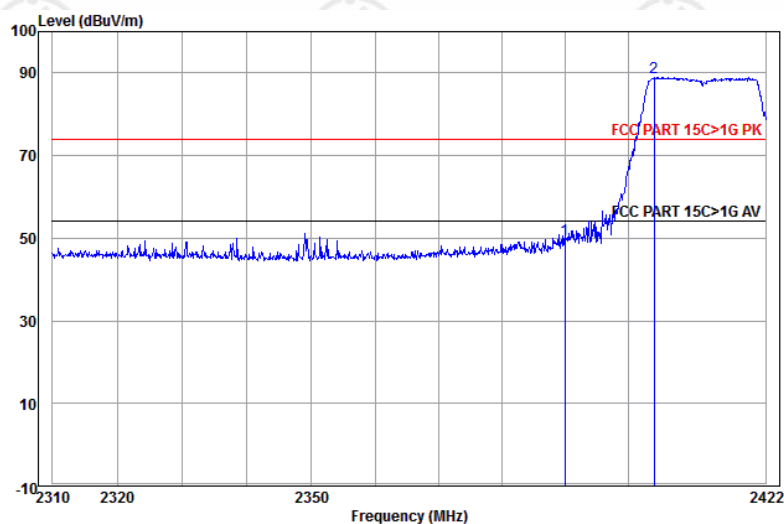


| | | | |
|----------------------|-------------------------|--------------------------|-----------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Average |



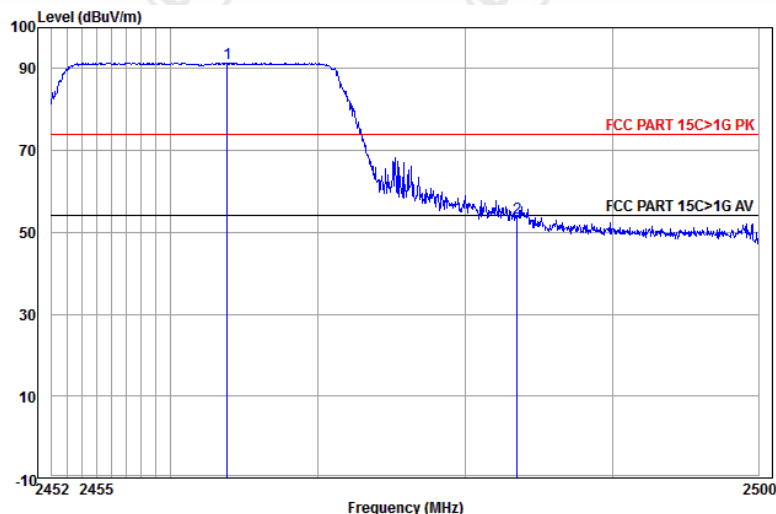
| | Ant Freq | Cable Factor | Preamp Loss | Preamp Factor | Read Level | Level | Limit | Over | Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|---------------|------------|--------|--------|--------|------------|-----------|--------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 38.07 | 40.49 | 54.00 | -13.51 | Horizontal | Average | |
| 2 pp | 2408.963 | 32.57 | 4.33 | 34.39 | 72.41 | 74.92 | 54.00 | 20.92 | Horizontal | Average | |

| | | | |
|----------------------|-------------------------|------------------------|--------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Vertical | Remark: Peak |



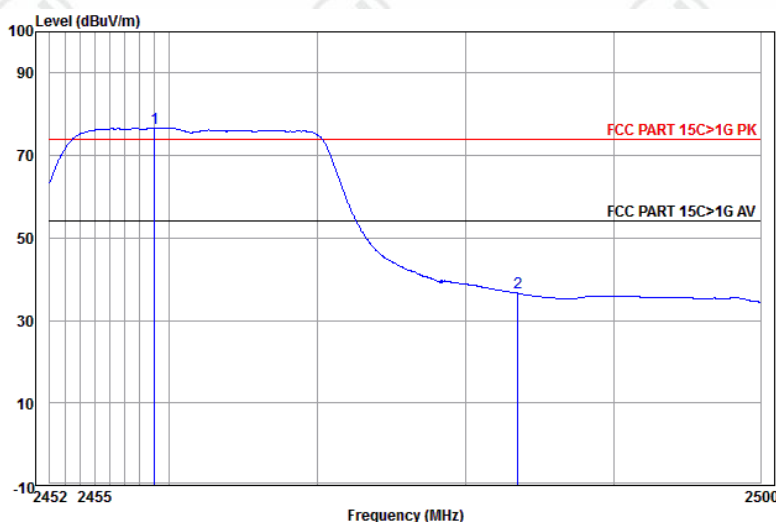
| | Ant Freq | Cable Factor | Preamp Loss | Preamp Factor | Read Level | Level | Limit | Over | Limit | Pol/Phase | Remark |
|------|----------|--------------|-------------|---------------|------------|--------|--------|--------|----------|-----------|--------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 47.37 | 49.79 | 74.00 | -24.21 | Vertical | | |
| 2 pp | 2404.177 | 32.56 | 4.31 | 34.39 | 86.46 | 88.94 | 74.00 | 14.94 | Vertical | | |

| | | | |
|----------------------|-------------------------|--------------------------|--------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Peak |



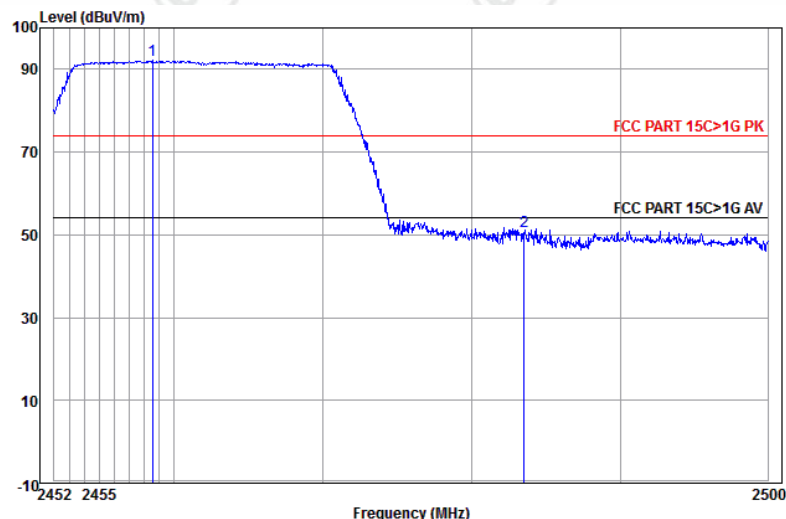
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|-------------|-----------------|----------------|---------------|-------|---------------|---------------|-----------|------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2463.817 | 32.68 | 4.46 | 34.40 | 88.70 | 91.44 | 74.00 | 17.44 | Horizontal |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 50.70 | 53.51 | 74.00 | -20.49 | Horizontal |

| | | | |
|----------------------|-------------------------|--------------------------|-----------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Average |



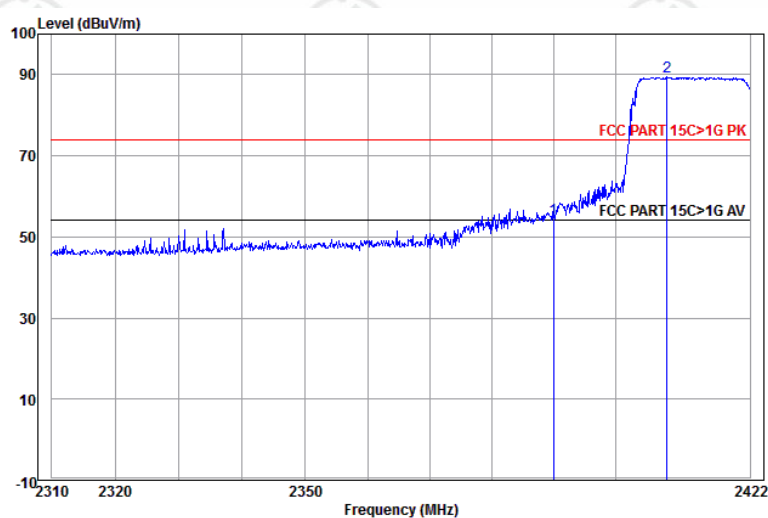
| | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|-------------|-----------------|----------------|---------------|-------|---------------|---------------|-----------|--------------------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp | 2458.998 | 32.67 | 4.45 | 34.40 | 73.94 | 76.66 | 54.00 | 22.66 | Horizontal Average |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 33.81 | 36.62 | 54.00 | -17.38 | Horizontal Average |

| | | | |
|----------------------|-------------------------|------------------------|--------------|
| Worse case mode: | 802.11n(HT20) (6.5Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Vertical | Remark: Peak |



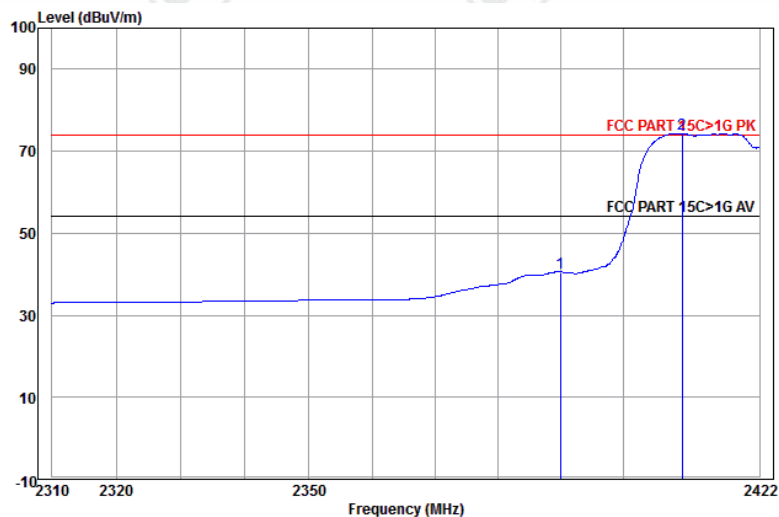
| | Frequency (MHz) | Ant Freq | Ant Factor | Cable Loss | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|-----------------|----------|------------|------------|---------------|------------|--------|------------|------------|-----------|--------|
| | MHz | | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | pp 2458.569 | | 32.67 | 4.45 | 34.40 | 89.38 | 92.10 | 74.00 | 18.10 | Vertical | |
| 2 | 2483.500 | | 32.71 | 4.51 | 34.41 | 48.06 | 50.87 | 74.00 | -23.13 | Vertical | |

| | | | |
|----------------------|---------------------------|--------------------------|--------------|
| Worse case mode: | 802.11n(HT40) (13..5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Peak |



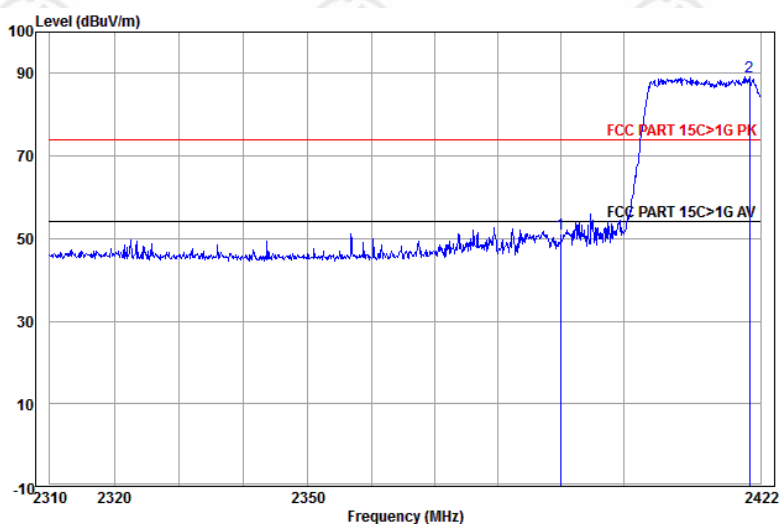
| | Frequency (MHz) | Ant Freq | Ant Factor | Cable Loss | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|-----------------|----------|------------|------------|---------------|------------|--------|------------|------------|------------|--------|
| | MHz | | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 2390.000 | | 32.53 | 4.28 | 34.39 | 52.08 | 54.50 | 74.00 | -19.50 | Horizontal | |
| 2 | pp 2408.392 | | 32.57 | 4.33 | 34.39 | 86.90 | 89.41 | 74.00 | 15.41 | Horizontal | |

| | | | |
|----------------------|--------------------------|--------------------------|-----------------|
| Worse case mode: | 802.11n(HT40) (13.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Horizontal | Remark: Average |



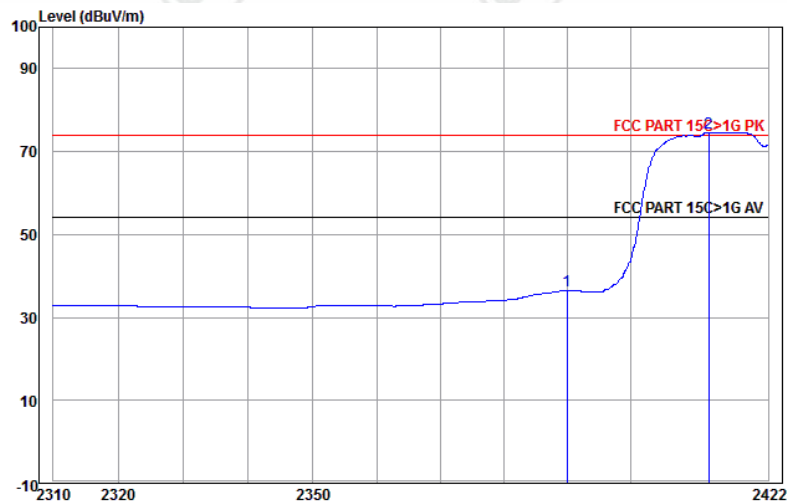
| | Freq | Ant Factor | Cable Loss | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|------------|------------|---------------|------------|--------|------------|------------|------------|---------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 37.99 | 40.41 | 54.00 | -13.59 | Horizontal | Average |
| 2 pp | 2409.533 | 32.57 | 4.33 | 34.39 | 71.86 | 74.37 | 54.00 | 20.37 | Horizontal | Average |

| | | | |
|----------------------|--------------------------|------------------------|--------------|
| Worse case mode: | 802.11n(HT40) (13.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Vertical | Remark: Peak |



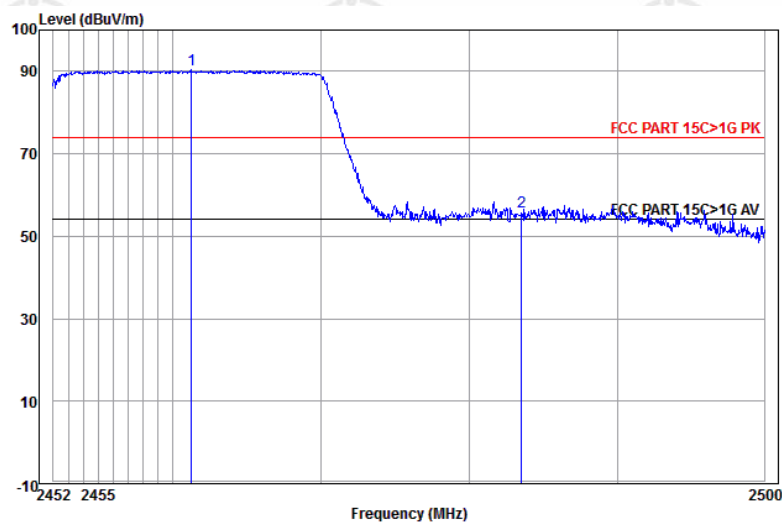
| | Freq | Ant Factor | Cable Loss | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|----------|------------|------------|---------------|------------|--------|------------|------------|-----------|--------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 48.75 | 51.17 | 74.00 | -22.83 | Vertical | |
| 2 pp | 2420.281 | 32.59 | 4.35 | 34.39 | 86.65 | 89.20 | 74.00 | 15.20 | Vertical | |

| | | | |
|----------------------|--------------------------|------------------------|-----------------|
| Worse case mode: | 802.11n(HT40) (13.5Mbps) | | |
| Frequency: 2390.0MHz | Test channel: Lowest | Polarization: Vertical | Remark: Average |



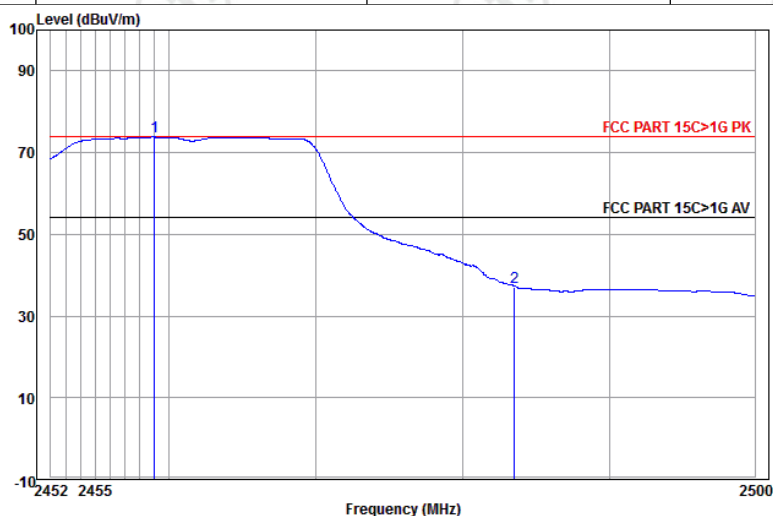
| | Frequency (MHz) | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|-----------------|----------|--------------|-------------|------------|--------|------------|------------|-----------|---------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 2390.000 | 32.53 | 4.28 | 34.39 | 34.05 | 36.47 | 54.00 | -17.53 | Vertical | Average |
| 2 pp | 2412.501 | 32.58 | 4.34 | 34.39 | 72.14 | 74.67 | 54.00 | 20.67 | Vertical | Average |

| | | | |
|----------------------|---------------------------|--------------------------|--------------|
| Worse case mode: | 802.11n(HT40) (13..5Mbps) | | |
| Frequency: 2483.5MHz | Test channel: Highest | Polarization: Horizontal | Remark: Peak |



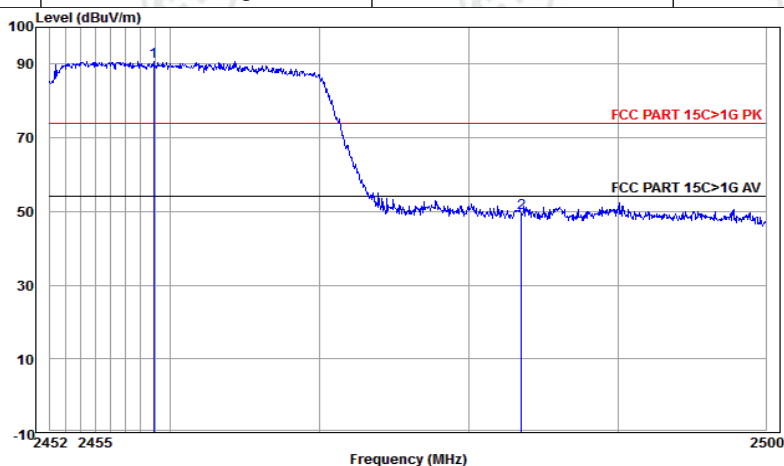
| | Frequency (MHz) | Ant Freq | Cable Factor | Preamp Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|-----------------|----------|--------------|-------------|------------|--------|------------|------------|------------|--------|
| | MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 pp | 2461.240 | 32.67 | 4.45 | 34.40 | 87.56 | 90.28 | 74.00 | 16.28 | Horizontal | |
| 2 | 2483.500 | 32.71 | 4.51 | 34.41 | 53.00 | 55.81 | 74.00 | -18.19 | Horizontal | |

| | | | |
|----------------------|--------------------------|--------------------------|-----------------|
| Worse case mode: | 802.11n(HT40) (13.5Mbps) | | |
| Frequency: 2483.5MHz | Test channel:Highest | Polarization: Horizontal | Remark: Average |



| | Ant | Cable | Preamp | Read | Limit | Over | | |
|---------------|--------|-------|--------|-------|--------|--------|-----------|--------------------|
| Freq | Factor | Loss | Factor | Level | Line | Limit | Pol/Phase | Remark |
| MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp 2458.998 | 32.67 | 4.45 | 34.40 | 71.11 | 73.83 | 54.00 | 19.83 | Horizontal Average |
| 2 2483.500 | 32.71 | 4.51 | 34.41 | 34.20 | 37.01 | 54.00 | -16.99 | Horizontal Average |

| | | | |
|----------------------|--------------------------|------------------------|--------------|
| Worse case mode: | 802.11n(HT40) (13.5Mbps) | | |
| Frequency: 2483.5MHz | Test channel:Highest | Polarization: Vertical | Remark: Peak |



| | Ant | Cable | Preamp | Read | Limit | Over | | |
|---------------|--------|-------|--------|-------|--------|--------|-----------|----------|
| Freq | Factor | Loss | Factor | Level | Line | Limit | Pol/Phase | Remark |
| MHz | dB/m | dB | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 pp 2458.902 | 32.67 | 4.45 | 34.40 | 87.92 | 90.64 | 74.00 | 16.64 | Vertical |
| 2 2483.500 | 32.71 | 4.51 | 34.41 | 46.90 | 49.71 | 74.00 | -24.29 | Vertical |

Note:

1) Through Pre-scan transmitting mode with all kind of modulation and data rate, and the 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) ; 13.5Mbps of rate is the worst case of 802.11n(HT40), and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

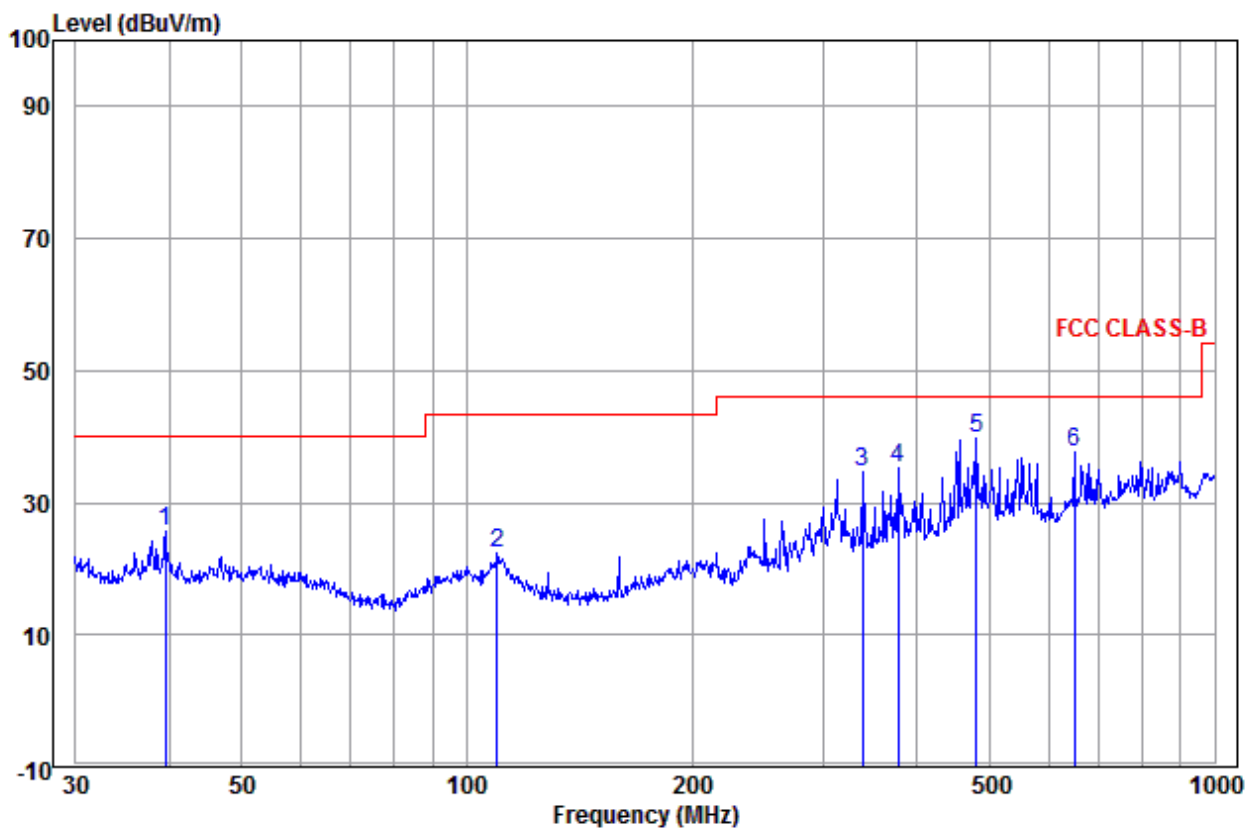
Appendix I): Radiated Spurious Emissions

| | | | | | |
|--|-------------------|----------------------------------|----------------|------------|--------------------------|
| Receiver Setup: | Frequency | Detector | RBW | VBW | Remark |
| | 0.009MHz-0.090MHz | Peak | 10kHz | 30kHz | Peak |
| | 0.009MHz-0.090MHz | Average | 10kHz | 30kHz | Average |
| | 0.090MHz-0.110MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| | 0.110MHz-0.490MHz | Peak | 10kHz | 30kHz | Peak |
| | 0.110MHz-0.490MHz | Average | 10kHz | 30kHz | Average |
| | 0.490MHz -30MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| | 30MHz-1GHz | Quasi-peak | 120kHz | 300kHz | Quasi-peak |
| | Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| Peak | | 1MHz | 10Hz | Average | |
| Test Procedure: | | | | | |
| Below 1GHz test procedure as below: | | | | | |
| a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. | | | | | |
| b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. | | | | | |
| c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. | | | | | |
| d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. | | | | | |
| e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. | | | | | |
| f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. | | | | | |
| Above 1GHz test procedure as below: | | | | | |
| g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).. | | | | | |
| h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel | | | | | |
| i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. | | | | | |
| j. Repeat above procedures until all frequencies measured was complete. | | | | | |
| Limit: | Frequency | Field strength (microvolt/meter) | Limit (dBµV/m) | Remark | Measurement distance (m) |
| | 0.009MHz-0.490MHz | 2400/F(kHz) | - | - | 300 |
| | 0.490MHz-1.705MHz | 24000/F(kHz) | - | - | 30 |
| | 1.705MHz-30MHz | 30 | - | - | 30 |
| | 30MHz-88MHz | 100 | 40.0 | Quasi-peak | 3 |
| | 88MHz-216MHz | 150 | 43.5 | Quasi-peak | 3 |
| | 216MHz-960MHz | 200 | 46.0 | Quasi-peak | 3 |
| | 960MHz-1GHz | 500 | 54.0 | Quasi-peak | 3 |
| | Above 1GHz | 500 | 54.0 | Average | 3 |
| Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device. | | | | | |

Radiated Spurious Emissions test Data:
Radiated Emission below 1GHz

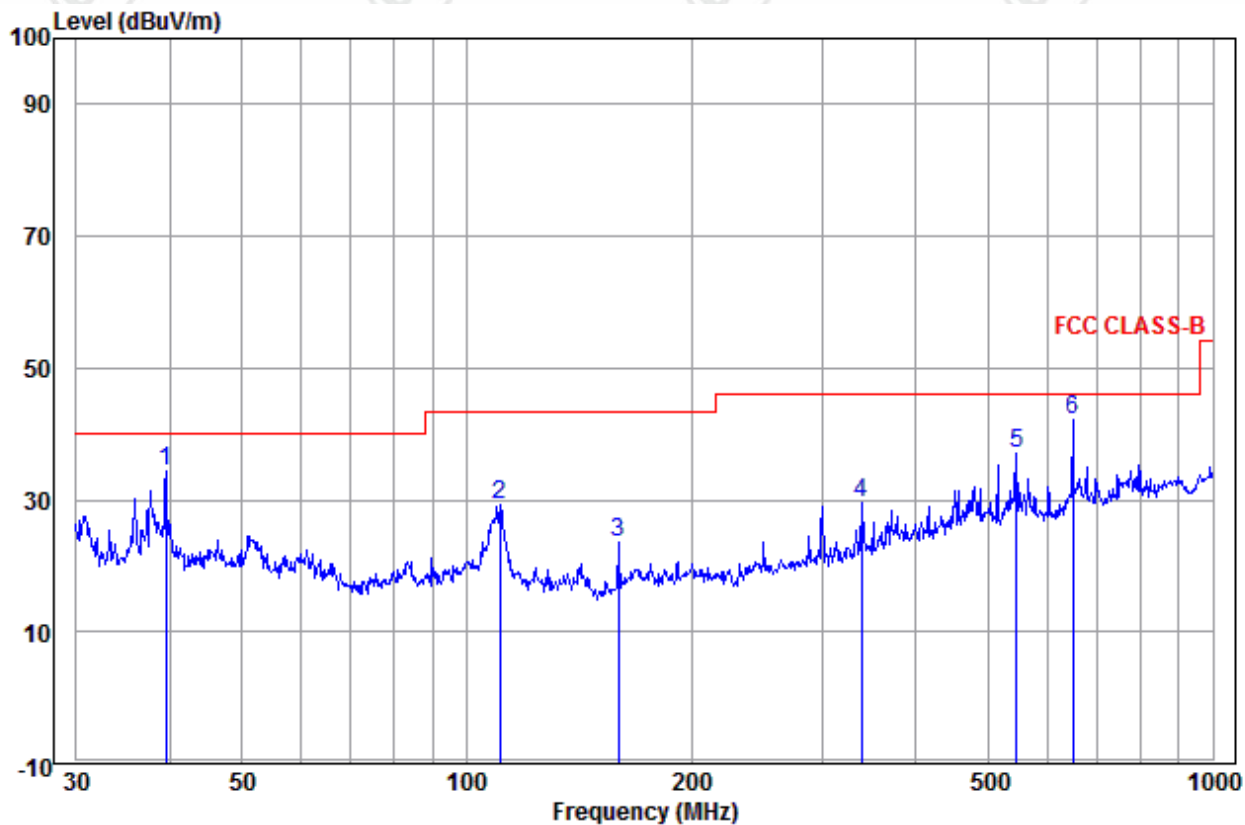
30MHz~1GHz (QP)

| | | |
|------------|--------------|------------|
| Test mode: | Transmitting | Horizontal |
|------------|--------------|------------|



| | Freq | Ant Factor | Cable Loss | Read Level | Limit Level | Over Limit | Pol/Phase | Remark |
|------|---------|------------|------------|------------|-------------|------------|-----------|------------|
| | MHz | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 39.576 | 14.14 | 0.55 | 10.88 | 25.57 | 40.00 | -14.43 | Horizontal |
| 2 | 109.796 | 12.39 | 1.57 | 8.47 | 22.43 | 43.50 | -21.07 | Horizontal |
| 3 | 338.400 | 14.52 | 2.64 | 17.47 | 34.63 | 46.00 | -11.37 | Horizontal |
| 4 | 377.259 | 15.64 | 2.76 | 16.78 | 35.18 | 46.00 | -10.82 | Horizontal |
| 5 pp | 480.528 | 17.91 | 3.08 | 18.85 | 39.84 | 46.00 | -6.16 | Horizontal |
| 6 | 649.660 | 19.59 | 3.57 | 14.42 | 37.58 | 46.00 | -8.42 | Horizontal |

| | | |
|------------|--------------|----------|
| Test mode: | Transmitting | Vertical |
|------------|--------------|----------|



| | Freq | Ant Factor | Cable Loss | Read Level | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|------|---------|------------|------------|------------|--------|------------|------------|-----------|--------|
| | MHz | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 39.576 | 14.14 | 0.55 | 19.53 | 34.22 | 40.00 | -5.78 | Vertical | |
| 2 | 110.957 | 12.30 | 1.57 | 15.35 | 29.22 | 43.50 | -14.28 | Vertical | |
| 3 | 159.784 | 10.12 | 1.72 | 11.81 | 23.65 | 43.50 | -19.85 | Vertical | |
| 4 | 338.400 | 14.52 | 2.64 | 12.28 | 29.44 | 46.00 | -16.56 | Vertical | |
| 5 | 545.183 | 18.58 | 3.20 | 15.13 | 36.91 | 46.00 | -9.09 | Vertical | |
| 6 pp | 649.660 | 19.59 | 3.57 | 19.13 | 42.29 | 46.00 | -3.71 | Vertical | |

Remark: for 30MHz~1GHz test, low middle highest channel are tested, only show worst data in the report.

Transmitter Emission above 1GHz

| Test mode: 802.11b(11Mbps) | | | Test Frequency: 2412MHz | | | Remark: Peak | | | |
|----------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1087.632 | 29.94 | 2.38 | 35.09 | 44.43 | 41.66 | 74.00 | -32.34 | Pass | Horizontal |
| 1439.090 | 30.75 | 2.77 | 34.73 | 43.74 | 42.53 | 74.00 | -31.47 | Pass | Horizontal |
| 1768.619 | 31.35 | 3.06 | 34.46 | 43.06 | 43.01 | 74.00 | -30.99 | Pass | Horizontal |
| 4824.000 | 34.73 | 5.11 | 34.35 | 45.11 | 56.60 | 74.00 | -23.40 | Pass | Horizontal |
| 7236.000 | 36.42 | 6.68 | 34.90 | 41.31 | 49.51 | 74.00 | -24.49 | Pass | Horizontal |
| 9648.000 | 37.91 | 7.71 | 35.07 | 39.97 | 54.52 | 74.00 | -23.48 | Pass | Horizontal |
| 1165.013 | 30.14 | 2.47 | 35.00 | 44.53 | 42.14 | 74.00 | -31.86 | Pass | Vertical |
| 1495.101 | 30.86 | 2.82 | 34.68 | 43.35 | 42.35 | 74.00 | -31.65 | Pass | Vertical |
| 1958.189 | 31.64 | 3.20 | 34.33 | 43.68 | 44.19 | 74.00 | -29.81 | Pass | Vertical |
| 4824.000 | 34.73 | 5.11 | 34.35 | 40.76 | 46.25 | 74.00 | -27.75 | Pass | Vertical |
| 7236.000 | 36.42 | 6.68 | 34.90 | 40.89 | 49.09 | 74.00 | -24.91 | Pass | Vertical |
| 9648.000 | 37.91 | 7.71 | 35.07 | 40.16 | 51.71 | 74.00 | -23.29 | Pass | Vertical |

| Test mode: 802.11b(11Mbps) | | | Test Frequency: 2437MHz | | | Remark: Peak | | | |
|----------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1204.210 | 30.24 | 2.52 | 34.96 | 45.15 | 42.95 | 74.00 | -31.05 | Pass | Horizontal |
| 1439.090 | 30.75 | 2.77 | 34.73 | 44.02 | 42.81 | 74.00 | -31.19 | Pass | Horizontal |
| 1786.719 | 31.37 | 3.07 | 34.45 | 42.64 | 42.63 | 74.00 | -31.37 | Pass | Horizontal |
| 4874.000 | 34.86 | 5.08 | 34.33 | 44.64 | 51.25 | 74.00 | -23.75 | Pass | Horizontal |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.20 | 49.50 | 74.00 | -24.50 | Pass | Horizontal |
| 9748.000 | 38.02 | 7.62 | 35.05 | 40.15 | 50.74 | 74.00 | -23.26 | Pass | Horizontal |
| 1244.726 | 30.33 | 2.57 | 34.92 | 44.54 | 42.52 | 74.00 | -31.48 | Pass | Vertical |
| 1453.818 | 30.78 | 2.78 | 34.71 | 44.43 | 43.28 | 74.00 | -30.72 | Pass | Vertical |
| 1880.038 | 31.52 | 3.14 | 34.38 | 43.05 | 43.33 | 74.00 | -30.67 | Pass | Vertical |
| 4874.000 | 34.83 | 5.09 | 34.34 | 42.54 | 48.12 | 74.00 | -25.88 | Pass | Vertical |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.34 | 49.64 | 74.00 | -24.36 | Pass | Vertical |
| 9748.000 | 38.05 | 7.60 | 35.05 | 39.51 | 51.11 | 74.00 | -23.89 | Pass | Vertical |

| Test mode: 802.11b(11Mbps) | | | Test Frequency: 2462MHz | | | Remark: Peak | | | |
|----------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1195.049 | 30.21 | 2.51 | 34.97 | 43.82 | 41.57 | 74.00 | -32.43 | Pass | Horizontal |
| 1521.981 | 30.91 | 2.85 | 34.65 | 44.42 | 43.53 | 74.00 | -30.47 | Pass | Horizontal |
| 1908.972 | 31.57 | 3.16 | 34.36 | 42.52 | 42.89 | 74.00 | -31.11 | Pass | Horizontal |
| 4924.000 | 34.94 | 5.07 | 34.32 | 44.65 | 50.34 | 74.00 | -23.66 | Pass | Horizontal |
| 7386.000 | 36.44 | 6.82 | 34.90 | 40.75 | 49.11 | 74.00 | -24.89 | Pass | Horizontal |
| 9848.000 | 38.15 | 7.52 | 35.03 | 40.17 | 51.81 | 74.00 | -23.19 | Pass | Horizontal |
| 1147.354 | 30.10 | 2.45 | 35.02 | 44.52 | 42.05 | 74.00 | -31.95 | Pass | Vertical |
| 1402.920 | 30.68 | 2.73 | 34.76 | 44.14 | 42.79 | 74.00 | -31.21 | Pass | Vertical |
| 1884.829 | 31.53 | 3.15 | 34.38 | 42.46 | 42.76 | 74.00 | -31.24 | Pass | Vertical |
| 4924.000 | 34.96 | 5.06 | 34.32 | 40.39 | 46.09 | 74.00 | -27.91 | Pass | Vertical |
| 7386.000 | 36.44 | 6.84 | 34.90 | 40.24 | 48.62 | 74.00 | -25.38 | Pass | Vertical |
| 9848.000 | 38.13 | 7.54 | 35.03 | 40.36 | 51.00 | 74.00 | -23.00 | Pass | Vertical |

| Test mode: 802.11g(6Mbps) | | | Test Frequency: 2412MHz | | | Remark: Peak | | | |
|---------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1216.534 | 30.27 | 2.53 | 34.95 | 44.07 | 41.92 | 74.00 | -32.08 | Pass | Horizontal |
| 1577.198 | 31.01 | 2.90 | 34.61 | 44.20 | 43.50 | 74.00 | -30.50 | Pass | Horizontal |
| 1958.189 | 31.64 | 3.20 | 34.33 | 43.06 | 43.57 | 74.00 | -30.43 | Pass | Horizontal |
| 4824.000 | 34.73 | 5.11 | 34.35 | 44.46 | 49.95 | 74.00 | -24.05 | Pass | Horizontal |
| 7236.000 | 36.42 | 6.68 | 34.90 | 39.76 | 47.96 | 74.00 | -26.04 | Pass | Horizontal |
| 9648.000 | 37.91 | 7.71 | 35.07 | 39.66 | 51.21 | 74.00 | -23.79 | Pass | Horizontal |
| 1185.958 | 30.19 | 2.50 | 34.98 | 44.74 | 42.45 | 74.00 | -31.55 | Pass | Vertical |
| 1439.090 | 30.75 | 2.77 | 34.73 | 44.28 | 43.07 | 74.00 | -30.93 | Pass | Vertical |
| 1764.123 | 31.34 | 3.05 | 34.46 | 42.81 | 42.74 | 74.00 | -31.26 | Pass | Vertical |
| 4824.000 | 34.73 | 5.11 | 34.35 | 40.14 | 45.63 | 74.00 | -28.37 | Pass | Vertical |
| 7236.000 | 36.42 | 6.68 | 34.90 | 39.45 | 47.65 | 74.00 | -26.35 | Pass | Vertical |
| 9648.000 | 37.91 | 7.71 | 35.07 | 40.09 | 50.64 | 74.00 | -23.36 | Pass | Vertical |

| Test mode: 802.11g(6Mbps) | | | Test Frequency: 2437MHz | | | Remark: Peak | | | |
|---------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1144.437 | 30.09 | 2.45 | 35.02 | 45.32 | 42.84 | 74.00 | -31.16 | Pass | Horizontal |
| 1428.142 | 30.73 | 2.76 | 34.74 | 43.50 | 42.25 | 74.00 | -31.75 | Pass | Horizontal |
| 1913.838 | 31.57 | 3.17 | 34.36 | 44.40 | 44.78 | 74.00 | -29.22 | Pass | Horizontal |
| 4874.000 | 34.83 | 5.09 | 34.34 | 45.33 | 52.91 | 74.00 | -23.09 | Pass | Horizontal |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.11 | 49.41 | 74.00 | -24.59 | Pass | Horizontal |
| 9748.000 | 38.05 | 7.60 | 35.05 | 39.38 | 49.98 | 74.00 | -24.02 | Pass | Horizontal |
| 1198.095 | 30.22 | 2.51 | 34.97 | 44.55 | 42.31 | 74.00 | -31.69 | Pass | Vertical |
| 1495.101 | 30.86 | 2.82 | 34.68 | 44.46 | 43.46 | 74.00 | -30.54 | Pass | Vertical |
| 1786.719 | 31.37 | 3.07 | 34.45 | 43.81 | 43.80 | 74.00 | -30.20 | Pass | Vertical |
| 4874.000 | 34.83 | 5.09 | 34.34 | 42.25 | 47.83 | 74.00 | -26.17 | Pass | Vertical |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.07 | 49.37 | 74.00 | -24.63 | Pass | Vertical |
| 9748.000 | 38.05 | 7.60 | 35.05 | 39.45 | 50.05 | 74.00 | -23.95 | Pass | Vertical |

| Test mode: 802.11g(6Mbps) | | | Test Frequency: 2462MHz | | | Remark: Peak | | | |
|---------------------------|-----------------------|-----------------|-------------------------|-------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1144.437 | 30.09 | 2.45 | 35.02 | 44.49 | 42.01 | 74.00 | -31.99 | Pass | Horizontal |
| 1364.182 | 30.60 | 2.69 | 34.80 | 45.29 | 43.78 | 74.00 | -30.22 | Pass | Horizontal |
| 1724.166 | 31.27 | 3.02 | 34.49 | 43.81 | 43.61 | 74.00 | -30.39 | Pass | Horizontal |
| 4924.000 | 34.96 | 5.06 | 34.32 | 41.91 | 47.61 | 74.00 | -26.39 | Pass | Horizontal |
| 7386.000 | 36.44 | 6.82 | 34.90 | 39.74 | 48.10 | 74.00 | -25.90 | Pass | Horizontal |
| 9848.000 | 38.13 | 7.54 | 35.03 | 39.55 | 51.19 | 74.00 | -23.81 | Pass | Horizontal |
| 1165.013 | 30.14 | 2.47 | 35.00 | 44.65 | 42.26 | 74.00 | -31.74 | Pass | Vertical |
| 1461.238 | 30.79 | 2.79 | 34.71 | 43.78 | 42.65 | 74.00 | -31.35 | Pass | Vertical |
| 1860.992 | 31.49 | 3.13 | 34.39 | 42.72 | 42.95 | 74.00 | -31.05 | Pass | Vertical |
| 4924.000 | 34.94 | 5.07 | 34.32 | 41.18 | 46.87 | 74.00 | -27.13 | Pass | Vertical |
| 7386.000 | 36.44 | 6.82 | 34.90 | 40.56 | 48.92 | 74.00 | -25.08 | Pass | Vertical |
| 9848.000 | 38.13 | 7.54 | 35.03 | 40.36 | 51.00 | 74.00 | -23.00 | Pass | Vertical |

| Test mode: 802.11n(HT20)(6.5Mbps) | | | | Test Frequency: 2412MHz | | | Remark: Peak | | |
|-----------------------------------|-----------------------|-----------------|------------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1153.210 | 30.11 | 2.46 | 35.01 | 44.99 | 42.55 | 74.00 | -31.45 | Pass | Horizontal |
| 1353.804 | 30.57 | 2.68 | 34.81 | 44.95 | 43.39 | 74.00 | -30.61 | Pass | Horizontal |
| 1828.125 | 31.44 | 3.10 | 34.42 | 43.41 | 43.53 | 74.00 | -30.47 | Pass | Horizontal |
| 4824.000 | 34.75 | 5.10 | 34.35 | 43.24 | 48.74 | 74.00 | -25.26 | Pass | Horizontal |
| 7236.000 | 36.42 | 6.68 | 34.90 | 40.04 | 48.24 | 74.00 | -25.76 | Pass | Horizontal |
| 9648.000 | 37.91 | 7.71 | 35.07 | 40.23 | 51.78 | 74.00 | -23.22 | Pass | Horizontal |
| 1201.149 | 30.23 | 2.52 | 34.96 | 45.16 | 42.95 | 74.00 | -31.05 | Pass | Vertical |
| 1533.648 | 30.93 | 2.86 | 34.64 | 43.61 | 42.76 | 74.00 | -31.24 | Pass | Vertical |
| 1856.261 | 31.48 | 3.13 | 34.40 | 43.35 | 43.56 | 74.00 | -30.44 | Pass | Vertical |
| 4824.000 | 34.75 | 5.10 | 34.35 | 41.15 | 46.65 | 74.00 | -27.35 | Pass | Vertical |
| 7236.000 | 36.42 | 6.67 | 34.90 | 38.67 | 46.86 | 74.00 | -27.14 | Pass | Vertical |
| 9648.000 | 37.91 | 7.71 | 35.07 | 39.54 | 50.09 | 74.00 | -23.91 | Pass | Vertical |

| Test mode: 802.11n(HT20)(6.5Mbps) | | | | Test Frequency: 2437MHz | | | Remark: Peak | | |
|-----------------------------------|-----------------------|-----------------|------------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1222.743 | 30.28 | 2.54 | 34.94 | 44.93 | 42.81 | 74.00 | -31.19 | Pass | Horizontal |
| 1435.431 | 30.74 | 2.77 | 34.73 | 44.46 | 43.24 | 74.00 | -30.76 | Pass | Horizontal |
| 1759.638 | 31.33 | 3.05 | 34.47 | 43.76 | 43.67 | 74.00 | -30.33 | Pass | Horizontal |
| 4874.000 | 34.83 | 5.09 | 34.34 | 46.61 | 50.19 | 74.00 | -23.81 | Pass | Horizontal |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.06 | 49.36 | 74.00 | -24.64 | Pass | Horizontal |
| 9748.000 | 38.02 | 7.62 | 35.05 | 38.09 | 48.68 | 74.00 | -25.32 | Pass | Horizontal |
| 1247.899 | 30.34 | 2.57 | 34.91 | 42.76 | 40.76 | 74.00 | -33.24 | Pass | Vertical |
| 1561.221 | 30.99 | 2.88 | 34.62 | 44.35 | 43.60 | 74.00 | -30.40 | Pass | Vertical |
| 1894.450 | 31.54 | 3.15 | 34.37 | 43.03 | 43.35 | 74.00 | -30.65 | Pass | Vertical |
| 4874.000 | 34.80 | 5.09 | 34.34 | 40.51 | 46.06 | 74.00 | -27.94 | Pass | Vertical |
| 7311.000 | 36.43 | 6.77 | 34.90 | 39.77 | 48.07 | 74.00 | -25.93 | Pass | Vertical |
| 9748.000 | 38.02 | 7.62 | 35.05 | 38.76 | 49.35 | 74.00 | -24.65 | Pass | Vertical |

| Test mode: 802.11n(HT20)(6.5Mbps) | | | | Test Frequency: 2462MHz | | | Remark: Peak | | |
|-----------------------------------|-----------------------|-----------------|------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1132.844 | 30.06 | 2.43 | 35.04 | 45.08 | 42.53 | 74.00 | -31.47 | Pass | Horizontal |
| 1336.682 | 30.54 | 2.67 | 34.82 | 42.63 | 41.02 | 74.00 | -32.98 | Pass | Horizontal |
| 1737.384 | 31.29 | 3.03 | 34.48 | 43.23 | 43.07 | 74.00 | -30.93 | Pass | Horizontal |
| 4924.000 | 34.94 | 5.07 | 34.32 | 42.92 | 48.61 | 74.00 | -25.39 | Pass | Horizontal |
| 7386.000 | 36.44 | 6.82 | 34.90 | 40.21 | 48.57 | 74.00 | -25.43 | Pass | Horizontal |
| 9848.000 | 38.13 | 7.54 | 35.03 | 40.29 | 50.93 | 74.00 | -23.07 | Pass | Horizontal |
| 1195.049 | 30.21 | 2.51 | 34.97 | 44.75 | 42.50 | 74.00 | -31.50 | Pass | Vertical |
| 1442.758 | 30.76 | 2.77 | 34.72 | 43.01 | 41.82 | 74.00 | -32.18 | Pass | Vertical |
| 1894.450 | 31.54 | 3.15 | 34.37 | 42.34 | 42.66 | 74.00 | -31.34 | Pass | Vertical |
| 4924.000 | 34.96 | 5.06 | 34.32 | 41.13 | 46.83 | 74.00 | -27.17 | Pass | Vertical |
| 7386.000 | 36.44 | 6.84 | 34.90 | 40.45 | 48.83 | 74.00 | -25.17 | Pass | Vertical |
| 9848.000 | 38.13 | 7.54 | 35.03 | 39.81 | 50.45 | 74.00 | -23.55 | Pass | Vertical |

| Test mode: 802.11n(HT40)(13.5Mbps) | | | | Test Frequency: 2422MHz | | | Remark: Peak | | |
|------------------------------------|-----------------------|-----------------|------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1173.943 | 30.16 | 2.48 | 34.99 | 44.93 | 42.58 | 74.00 | -31.42 | Pass | Horizontal |
| 1395.796 | 30.66 | 2.73 | 34.77 | 45.20 | 43.82 | 74.00 | -30.18 | Pass | Horizontal |
| 1809.605 | 31.41 | 3.09 | 34.43 | 42.98 | 43.05 | 74.00 | -30.95 | Pass | Horizontal |
| 4844.000 | 34.78 | 5.10 | 34.34 | 42.34 | 47.88 | 74.00 | -26.12 | Pass | Horizontal |
| 7266.000 | 36.43 | 6.72 | 34.90 | 41.43 | 49.68 | 74.00 | -24.32 | Pass | Horizontal |
| 9688.000 | 37.97 | 7.66 | 35.06 | 39.39 | 49.96 | 74.00 | -24.04 | Pass | Horizontal |
| 1176.935 | 30.17 | 2.49 | 34.99 | 43.37 | 41.04 | 74.00 | -32.96 | Pass | Vertical |
| 1367.659 | 30.60 | 2.70 | 34.79 | 44.25 | 42.76 | 74.00 | -31.24 | Pass | Vertical |
| 1786.719 | 31.37 | 3.07 | 34.45 | 42.76 | 42.75 | 74.00 | -31.25 | Pass | Vertical |
| 4844.000 | 34.80 | 5.09 | 34.34 | 42.23 | 47.78 | 74.00 | -26.22 | Pass | Vertical |
| 7266.000 | 36.43 | 6.72 | 34.90 | 40.16 | 48.41 | 74.00 | -25.59 | Pass | Vertical |
| 9688.000 | 37.97 | 7.66 | 35.06 | 38.67 | 49.24 | 74.00 | -24.76 | Pass | Vertical |

| Test mode: 802.11n(HT40)(13.5Mbps) | | | | Test Frequency: 2437MHz | | | Remark: Peak | | |
|------------------------------------|-----------------------|-----------------|------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1167.982 | 30.15 | 2.48 | 35.00 | 45.42 | 43.05 | 74.00 | -30.95 | Pass | Horizontal |
| 1381.656 | 30.63 | 2.71 | 34.78 | 45.07 | 43.63 | 74.00 | -30.37 | Pass | Horizontal |
| 1719.783 | 31.26 | 3.02 | 34.50 | 43.85 | 43.63 | 74.00 | -30.37 | Pass | Horizontal |
| 4874.000 | 34.83 | 5.09 | 34.34 | 44.10 | 49.68 | 74.00 | -24.32 | Pass | Horizontal |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.05 | 49.35 | 74.00 | -24.65 | Pass | Horizontal |
| 9748.000 | 38.02 | 7.62 | 35.05 | 39.30 | 49.89 | 74.00 | -24.11 | Pass | Horizontal |
| 1118.517 | 30.02 | 2.42 | 35.05 | 45.07 | 42.46 | 74.00 | -31.54 | Pass | Vertical |
| 1263.883 | 30.38 | 2.59 | 34.90 | 43.54 | 41.61 | 74.00 | -32.39 | Pass | Vertical |
| 1646.948 | 31.14 | 2.96 | 34.55 | 42.92 | 42.47 | 74.00 | -31.53 | Pass | Vertical |
| 4874.000 | 34.83 | 5.09 | 34.34 | 40.18 | 45.76 | 74.00 | -28.24 | Pass | Vertical |
| 7311.000 | 36.43 | 6.77 | 34.90 | 41.05 | 49.35 | 74.00 | -24.65 | Pass | Vertical |
| 9748.000 | 38.02 | 7.62 | 35.05 | 38.88 | 49.47 | 74.00 | -24.53 | Pass | Vertical |

| Test mode: 802.11n(HT40)(13.5Mbps) | | | | Test Frequency: 2452MHz | | | Remark: Peak | | |
|------------------------------------|-----------------------|-----------------|------------------|-------------------------|---------------------------|----------------|-----------------|--------|-----------------|
| Frequency (MHz) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Gain (dB) | Read Level (dBμV) | Final test level (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Result | Antenna Polaxis |
| 1159.096 | 30.13 | 2.47 | 35.01 | 44.84 | 42.43 | 74.00 | -31.57 | Pass | Horizontal |
| 1385.177 | 30.64 | 2.72 | 34.78 | 44.18 | 42.76 | 74.00 | -31.24 | Pass | Horizontal |
| 1719.783 | 31.26 | 3.02 | 34.50 | 42.83 | 42.61 | 74.00 | -31.39 | Pass | Horizontal |
| 4904.000 | 34.91 | 5.07 | 34.32 | 41.68 | 47.34 | 74.00 | -26.66 | Pass | Horizontal |
| 7356.000 | 36.44 | 6.80 | 34.90 | 39.91 | 48.25 | 74.00 | -25.75 | Pass | Horizontal |
| 9808.000 | 38.10 | 7.56 | 35.04 | 40.06 | 51.68 | 74.00 | -23.32 | Pass | Horizontal |
| 1127.091 | 30.05 | 2.43 | 35.04 | 44.91 | 42.35 | 74.00 | -31.65 | Pass | Vertical |
| 1428.142 | 30.73 | 2.76 | 34.74 | 43.05 | 41.80 | 74.00 | -32.20 | Pass | Vertical |
| 1908.972 | 31.57 | 3.16 | 34.36 | 42.63 | 43.00 | 74.00 | -31.00 | Pass | Vertical |
| 4904.000 | 34.91 | 5.07 | 34.32 | 40.08 | 45.74 | 74.00 | -28.26 | Pass | Vertical |
| 7356.000 | 36.44 | 6.80 | 34.90 | 40.46 | 48.80 | 74.00 | -25.20 | Pass | Vertical |
| 9808.000 | 38.10 | 7.56 | 35.04 | 40.51 | 50.13 | 74.00 | -23.87 | Pass | Vertical |

Note:

1) Through Pre-scan transmitter mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) ; 13.5Mbps of rate is the worst case of 802.11n(HT40), and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor - Antenna Factor - Cable Factor

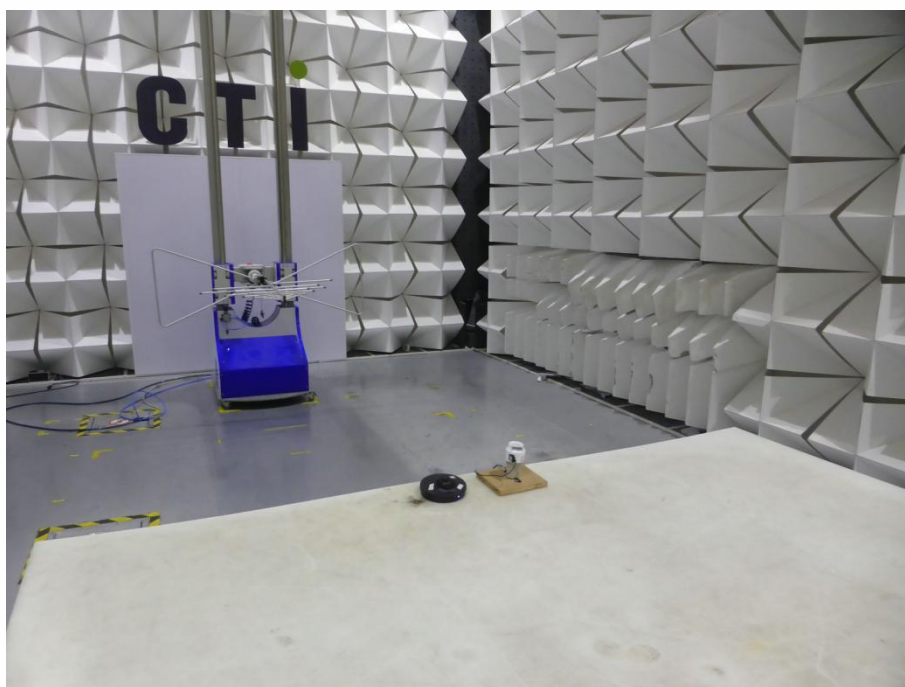
3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

PHOTOGRAPHS OF TEST SETUP

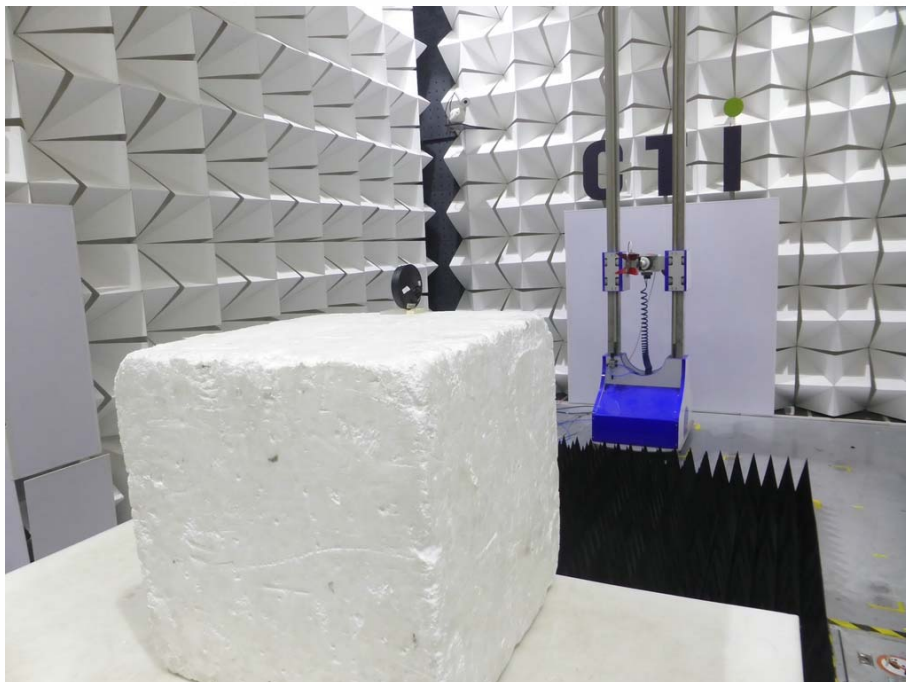
Test Model No.: TC200KU



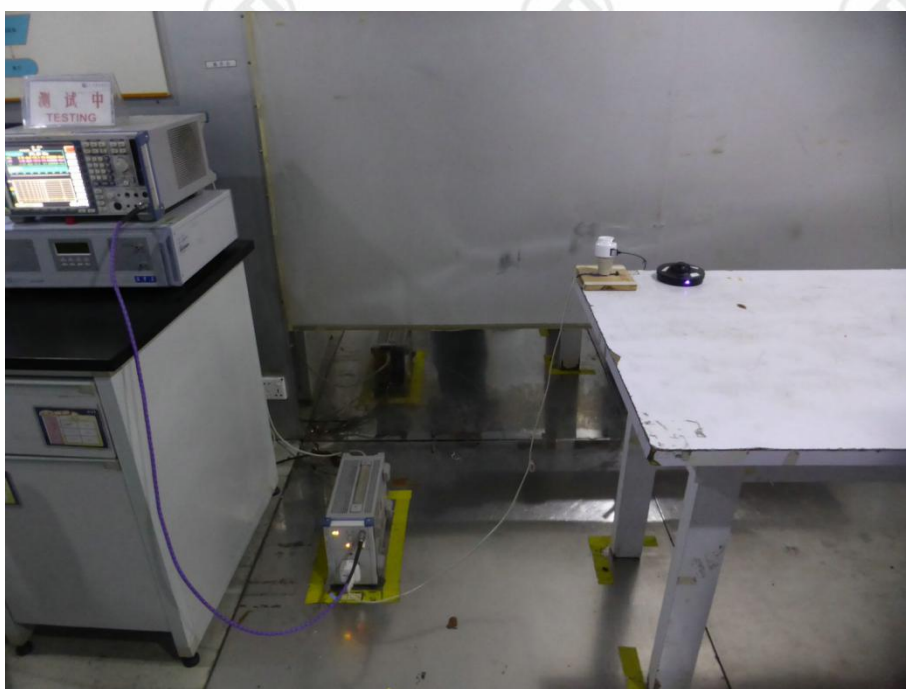
Radiated spurious emission Test Setup-1(Below 30MHz)



Radiated spurious emission Test Setup-2(30MHz-1GHz)



Radiated spurious emission Test Setup-3(Above 1GHz)



Conducted Emissions Test Setup

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32I00271801 for EUT external and internal photos.

*** End of Report ***

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