# Test Report

**FCC Part15 Subpart C**

| | | |
|---|---|---|
| Product Name | : | Wake-up Light |
| Model No. | : | HF3670, HF3671, HF3672, HF3673, HF3674 |
| FCC ID | : | 2APFC-HF367X |

| | | |
|---|---|---|
| Applicant | : | Philips Consumer Lifestyle B.V. |
| Address | : | Building TC, Tussendiepen 4, 9206 AD Drachten, The Nertherlands |

| | | |
|---|---|---|
| Date of Receipt | : | Jan. 18, 2018 |
| Test Date | : | Jan. 18, 2018 ~ Mar. 14, 2018 |
| Issued Date | : | May. 24, 2018 |
| Report No. | : | 1812126R-RF-US-P06V01 |
| Report Version | : | V1.1 |

# Test Report Certification

Issued Date : May. 24, 2018
Report No. : 1812126R-RF-US-P06V01

| | | |
|---|---|---|
| Product Name | : | Wake-up Light |
| Applicant | : | Philips Consumer Lifestyle B.V. |
| Address | : | Building TC, Tussendiepen 4, 9206 AD Drachten, The Nertherlands |
| Manufacturer | : | Philips Consumer Lifestyle B.V. |
| Address | : | Building TC, Tussendiepen 4, 9206 AD Drachten, The Nertherlands |
| Model No. | : | HF3670, HF3671, HF3672, HF3673, HF3674 |
| FCC ID | : | 2APFC-HF367X |
| EUT Voltage | : | 100-240Vac, 50/60Hz, 24W |
| Test Voltage | : | AC 120V/60Hz |
| Applicable Standard | : | FCC CFR Title 47 Part 15 Subpart C<br>ANSI C63.10:2013<br>KDB 558074 D01v04<br>KDB 662911 D01 Multiple Transmitter Output v02r01 |
| Test Result | : | Complied |
| Performed Location | : | DEKRA Testing and Certification (Suzhou) Co., Ltd.<br>No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China<br>TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098<br>FCC Designation Number: CN1199 |

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Reviewed By : Frank he
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Approved By : Harry Zhao
(Engineering Manager: Harry Zhao )

# TABLE OF CONTENTS

## History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| 1812126R-RF-US-P06V01 | V1.0 | Initial Issued Report | May. 08, 2018 |
| 1812126R-RF-US-P06V01 | V1.1 | Update power vs data rate | May. 24, 2018 |
| | | | |
| | | | |

# 1. General Information

## 1.1. EUT Description

| | |
|---|---|
| Product Name | Wake-up Light |
| Model No. | HF3670, HF3671, HF3672, HF3673, HF3674 |
| EUT Voltage | 100-240Vac, 50/60Hz, 24W |
| Frequency Range | For 2.4GHz Band<br>802.11b/g/n(20MHz): 2412~2462MHz |
| Channel Number | For 2.4GHz Band<br>802.11b/g/n(20MHz): 11 |
| Type of Modulation | 802.11b: DSSS-DBPSK, DQPSK, CCK |
| | 802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM |
| Data Rate | 802.11b: 1/2/5.5/11 Mbps |
| | 802.11g: 6/9/12/18/24/36/48/54 Mbps |
| | 802.11n: up to 150 Mbps |
| Channel Control | Auto |

Note: The different model name is just the difference in the color of the appearance.

## 1.2. Working Frequency of Each Channel:

| 802.11b/g/n Working Frequency of Each Channel: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 01 | 2412 MHz | 02 | 2417 MHz | 03 | 2422 MHz | 04 | 2427 MHz |
| 05 | 2432 MHz | 06 | 2437 MHz | 07 | 2442 MHz | 08 | 2447 MHz |
| 09 | 2452 MHz | 10 | 2457 MHz | 11 | 2462 MHz | N/A | N/A |

## 1.3. Antenna information

| | | | | | | |
|---|---|---|---|---|---|---|
| Model No. | N/A | | | | | |
| Antenna manufacturer | N/A | | | | | |
| Antenna Delivery | ☐ | 1*TX+1*RX | ☒ | 2*TX+2*RX | ☐ | 3*TX+3*RX |
| Antenna technology | ☒ | SISO | | | | |
| | ☐ | MIMO | ☐ | Basic | | |
| | | | ☐ | CDD | | |
| | | | ☐ | Sectorized | | |
| | | | ☐ | Beam-forming | | |
| Antenna Type | ☒ | External | ☒ | Metal | | |
| | | | ☐ | Sectorized | | |
| | ☒ | Internal | ☐ | PIFA | | |
| | | | ☒ | PCB | | |
| | | | ☐ | Ceramic Chip Antenna | | |
| | | | ☐ | Metal plate type F antenna | | |
| Antenna Technology | Ant1: Integral PCB antenna, Max. 3,0 dBi<br>Ant2: External antenna, Max. 2,8 dBi | | | | | |

## 1.4. Mode of Operation

| Test Modes List |
|---|
| Mode 1: Transmit by 802.11b |
| Mode 2: Transmit by 802.11g |
| Mode 3: Transmit by 802.11n(20MHz) |

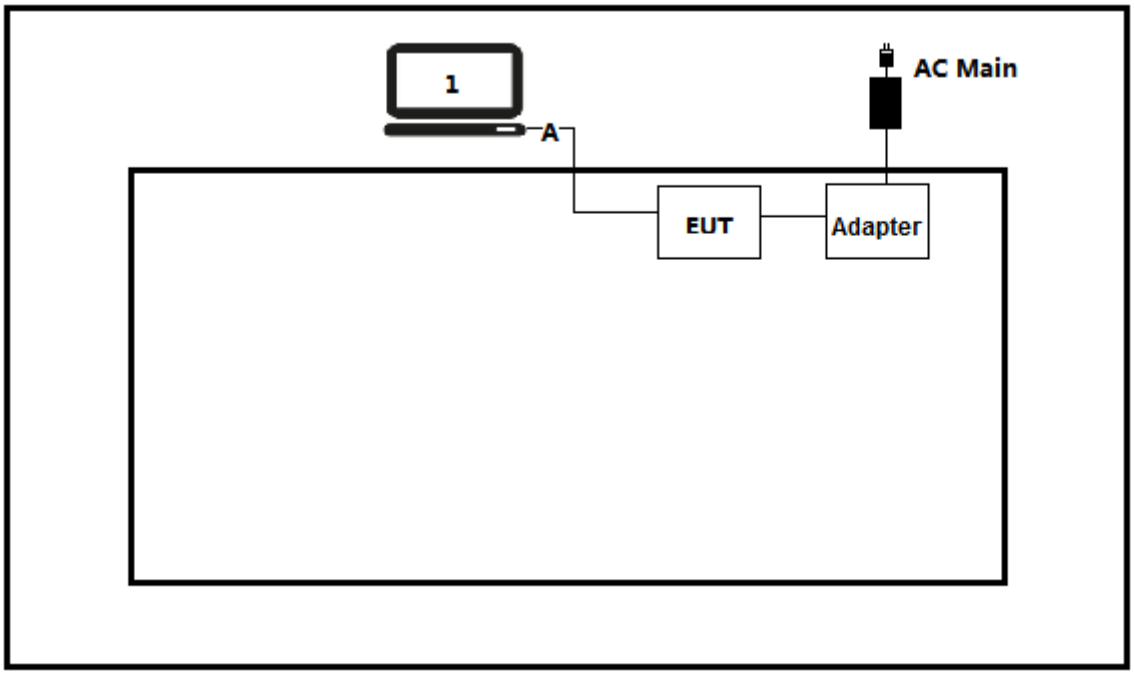
## 1.5. Tested System Details

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

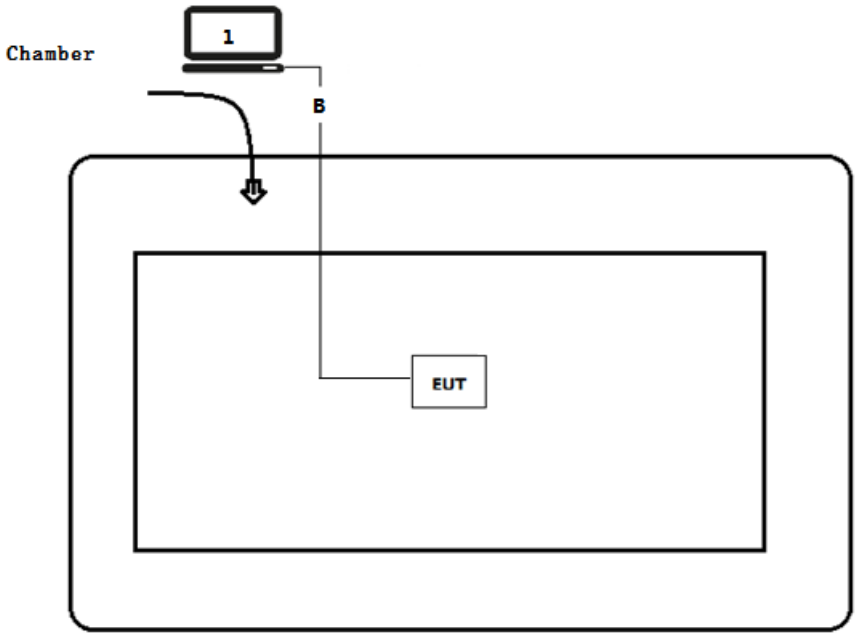
| No. | Product | Manufacturer | Model No. | Serial No. | Power Cord |
|---|---|---|---|---|---|
| 1 | Notebook | Lenovo | Think pad x220 | SUA0600195 | Non-shielded |
| A | USB cable | N/A | N/A | N/A | Shielded, 0.5m |
| B | USB cable | N/A | N/A | N/A | Shielded, 10m |

## 1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test




Test setup Diagram- Radiated Emission



## 1.7. EUT Exercise Software

| | |
|---|---|
| 1 | Setup the EUT and simulators as shown on above. |
| 2 | Turn on the power of equipment. |
| 3 | Run RF software [CMD], and set the test mode and channel, then press OK to start to continue transmit. |

# 2. Technical Test

## 2.1. Summary of Test Result

| Performed Test Item | Normative References | Limit | Result |
|---|---|---|---|
| AC Power Line Conducted Emission | FCC CFR Title 47 Part 15 Subpart C: Section 15.207 | FCC 15.207 | PASS |
| Emissions in restricted frequency bands | FCC CFR Title 47 Part 15 Subpart C: Section 15.209 | FCC 15.209 | PASS |
| Emissions in non-restricted frequency bands | FCC CFR Title 47 Part 15 Subpart C: Section 15.247(d) | ≥20dBc | PASS |
| Radiated Emission Band Edge | FCC CFR Title 47 Part 15 Subpart C: 15.247(d) | FCC 15.209 | PASS |
| Occupied Bandwidth | FCC CFR Title 47 Part 15 Subpart C: Section 15.247(a)(2) | ≥500kHz | PASS |
| Fundamental emission output power | FCC CFR Title 47 Part 15 Subpart C: Section 15.247(b)(3) | ≤30dBm | PASS |
| Power Spectral Density | FCC CFR Title 47 Part 15 Subpart C: Section 15.247(e) | ≤8dBm/3kHz | PASS |
| Antenna Requirement | FCC CFR Title 47 Part 15 Subpart C: Section 15.203 | FCC 15.203 | PASS |

## 2.2. Test Frequency configuration:

| Modulation Mode | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|---|
| **802.11b** | 01 | 2412 MHz | 06 | 2437MHz | 11 | 2462MHz |
| **802.11g** | 01 | 2412 MHz | 06 | 2437MHz | 11 | 2462MHz |
| **802.11n(20MHz)** | 01 | 2412 MHz | 06 | 2437MHz | 11 | 2462MHz |

## 2.3. Power vs Data Rate

| MCS Index for 802.11n | Spatial Streams | Data Rate (Mbps) | | | | |
|---|---|---|---|---|---|---|
| | | 802.11b | 802.11g | | 20MHz Bandwidth | |
| | | | | | 800ns GI | 400ns GI |
| 0 | 1 | 1 | 6 | --- | 6.5 | 7.2 |
| 1 | 1 | 2 | 9 | --- | 13.0 | 14.4 |
| 2 | 1 | 5.5 | 12 | --- | 19.5 | 21.7 |
| 3 | 1 | 11 | 18 | --- | 26.0 | 28.9 |
| 4 | 1 | --- | 24 | --- | 39.0 | 43.3 |
| 5 | 1 | --- | 36 | --- | 52.0 | 57.8 |
| 6 | 1 | --- | 48 | --- | 58.5 | 65.0 |
| 7 | 1 | --- | 54 | --- | 65.0 | 72.2 |
| 8 | 2 | --- | --- | --- | 13.0 | 14.4 |
| 9 | 2 | --- | --- | --- | 26.0 | 28.9 |
| 10 | 2 | --- | --- | --- | 39.0 | 43.3 |
| 11 | 2 | --- | --- | --- | 52.0 | 57.8 |
| 12 | 2 | --- | --- | --- | 78.0 | 86.7 |
| 13 | 2 | --- | --- | --- | 104.0 | 115.6 |
| 14 | 2 | --- | --- | --- | 117.0 | 130.0 |
| 15 | 2 | --- | --- | --- | 130.0 | 144.0 |

| Spatial Streams (Note1) | MCS Index | Modulation type | Coding rate | Data Rate(Mb/s) | |
|---|---|---|---|---|---|
| | | | | 20MHz | |
| | | | | Guard Interval | |
| | | | | 800ns | 400ns |
| 1 | 0 | BPSK | 1/2 | 6.5 | 7.2 |
| | 1 | QPSK | 1/2 | 13 | 14.4 |
| | 2 | QPSK | 3/4 | 19.5 | 21.7 |
| | 3 | 16-QAM | 1/2 | 26 | 28.9 |
| | 4 | 16-QAM | 3/4 | 39 | 43.3 |
| | 5 | 64-QAM | 2/3 | 52 | 57.8 |
| | 6 | 64-QAM | 3/4 | 58.5 | 65 |
| | 7 | 64-QAM | 5/6 | 65 | 72.2 |
| | 8 | 256-QAM | 3/4 | 78 | 86.7 |
| | 9 | 256-QAM | 5/6 | N/A | N/A |
| 2 | 0 | BPSK | 1/2 | 13 | 14.4 |
| | 1 | QPSK | 1/2 | 26 | 28.8 |
| | 2 | QPSK | 3/4 | 39 | 43.4 |
| | 3 | 16-QAM | 1/2 | 52 | 57.8 |
| | 4 | 16-QAM | 3/4 | 78 | 86.6 |
| | 5 | 64-QAM | 2/3 | 104 | 115.6 |
| | 6 | 64-QAM | 3/4 | 117 | 130 |
| | 7 | 64-QAM | 5/6 | 130 | 144.4 |
| | 8 | 256-QAM | 3/4 | 156 | 173.4 |
| | 9 | 256-QAM | 5/6 | N/A | N/A |

## 2.4. Test Environment

| Items | Required (IEC 68-1) | Actual |
|---|---|---|
| Temperature (°C) | 15-35 | 21 |
| Humidity (%RH) | 25-75 | 50 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

## 2.5. Measurement Uncertainty

| Test Items | Uncertainty |
|---|---|
| AC Power Line Conducted Emission | ±2.02dB |
| Radiated Emission | Below 1GHz ±3.8 dB |
| | Above 1GHz ±3.9 dB |
| RF Antenna Port Conducted Emission | ±1.27dB |
| Radiated Emission Band Edge | ±3.9dB |
| Occupied Bandwidth | ±1kHz |
| Power Spectral Density | ±1.27dB |

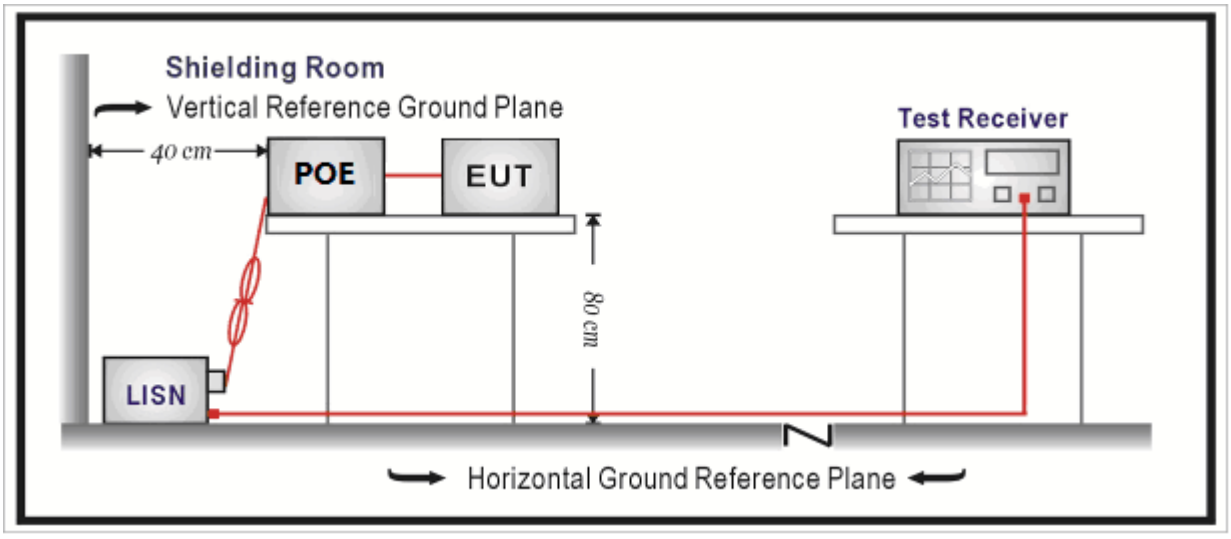
# 3. AC Power Line Conducted Emission

## 3.1. Test Equipment

| AC Power Line Conducted Emission / TR-1 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| EMI Test Receiver | R&S | ESCI | 100726 | 2017.03.29 | 2018.03.28 |
| Two-Line V-Network | R&S | ENV216 | 100043 | 2017.03.29 | 2018.03.28 |
| Two-Line V-Network | R&S | ENV216 | 100044 | 2017.09.17 | 2018.09.16 |
| 50ohm Coaxial Switch | Anritsu | MP59B | 6200464462 | 2018.03.02 | 2019.03.01 |
| 50ohm Termination | SHX | TF2 | 07081401 | 2017.09.17 | 2018.09.16 |
| Temperature/Humidity Meter | zhichen | ZC1-2 | TR1-TH | 2018.01.04 | 2019.01.03 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 3.2. Test Setup

AC Power Line Conducted Emission test setup



## 3.3. Limit

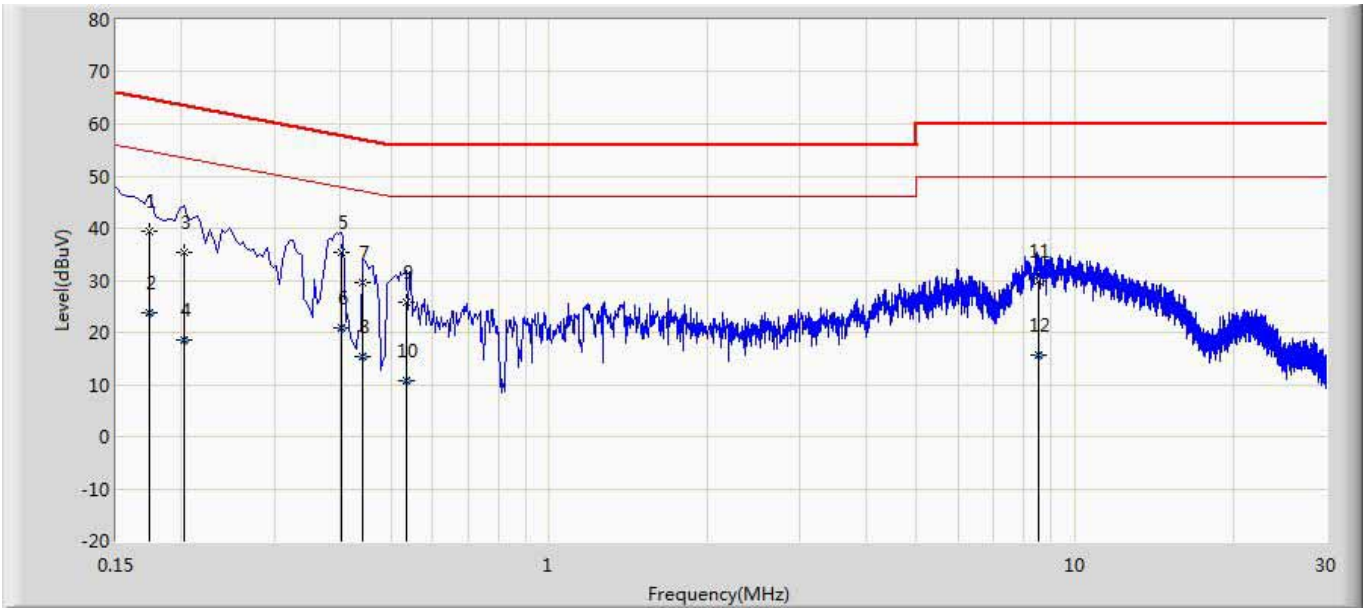
| Frequency of Emission (MHz) | Conducted Limit | |
|---|---|---|
| | Quasi-peak (dB μ V) | Average(dB μ V) |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |
| Note 1: The lower limit shall apply at the transition frequencies.<br>Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. | | |

## 3.4. Test Procedure

| Test Method | | | |
|---|---|---|---|
| | References Rule | Chapter | Item |
| ☒ | ANSI C63.10-2013 | 6.2 | Standard test method for ac power-line conducted emissions from unlicensed wireless devices |

## 3.5. Test Result

| | |
|---|---|
| Engineer: CptJack | |
| Site: TR1 | Time: 2018/01/30 |
| Limit: FCC_Part15.107_CE_AC Power_ClassB | Margin: 0 |
| Probe: ENV216_101190(0.009-30MHz) | Polarity: Line |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |

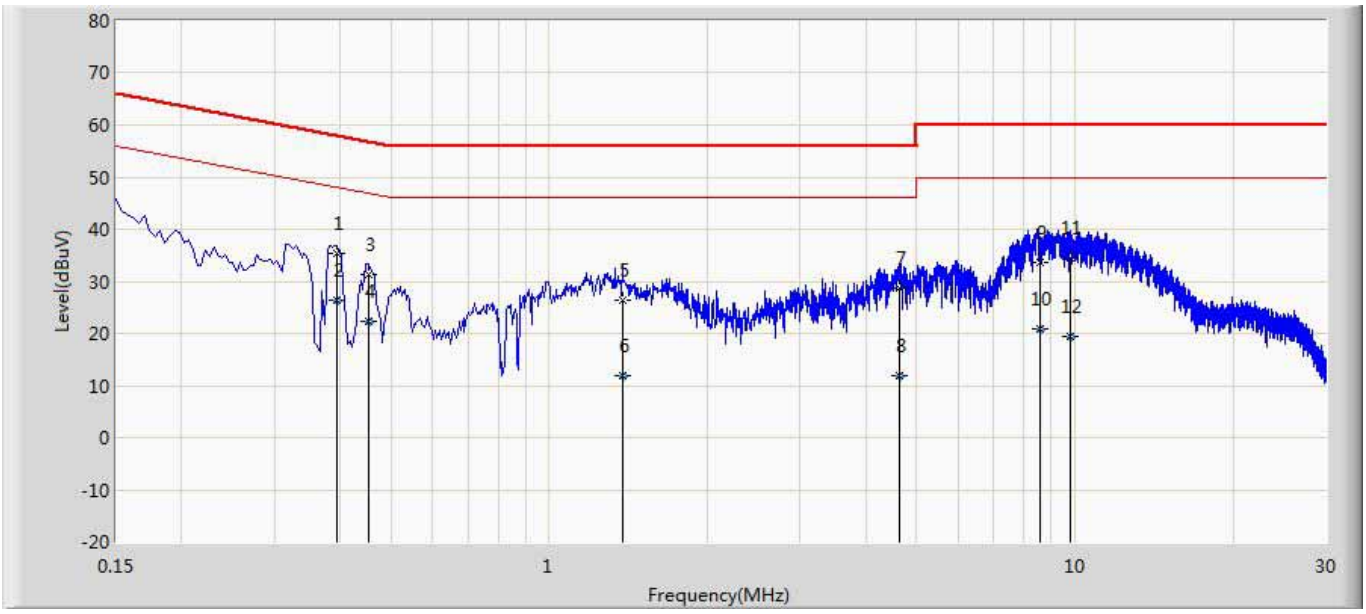



| No | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Probe (dB) | Cable (dB) | Amp (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.174 | 39.346 | 29.713 | -25.422 | 64.767 | 9.605 | 0.027 | 0.000 | QP |
| 2 | | 0.174 | 23.647 | 14.015 | -31.120 | 54.767 | 9.605 | 0.027 | 0.000 | AV |
| 3 | | 0.202 | 35.463 | 25.833 | -28.065 | 63.528 | 9.601 | 0.029 | 0.000 | QP |
| 4 | | 0.202 | 18.690 | 9.060 | -34.838 | 53.528 | 9.601 | 0.029 | 0.000 | AV |
| 5 | * | 0.402 | 35.442 | 25.803 | -22.370 | 57.812 | 9.600 | 0.038 | 0.000 | QP |
| 6 | | 0.402 | 20.944 | 11.305 | -26.868 | 47.812 | 9.600 | 0.038 | 0.000 | AV |
| 7 | | 0.442 | 29.556 | 19.915 | -27.468 | 57.024 | 9.600 | 0.041 | 0.000 | QP |
| 8 | | 0.442 | 15.501 | 5.861 | -31.523 | 47.024 | 9.600 | 0.041 | 0.000 | AV |
| 9 | | 0.534 | 25.914 | 16.270 | -30.086 | 56.000 | 9.600 | 0.044 | 0.000 | QP |
| 10 | | 0.534 | 10.592 | 0.948 | -35.408 | 46.000 | 9.600 | 0.044 | 0.000 | AV |
| 11 | | 8.507 | 29.846 | 19.925 | -30.154 | 60.000 | 9.735 | 0.186 | 0.000 | QP |
| 12 | | 8.507 | 15.560 | 5.639 | -34.440 | 50.000 | 9.735 | 0.186 | 0.000 | AV |

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

| | |
|---|---|
| Engineer: CptJack | |
| Site: TR1 | Time: 2018/01/30 |
| Limit: FCC_Part15.107_CE_AC Power_ClassB | Margin: 0 |
| Probe: ENV216_101190(0.009-30MHz) | Polarity: Neutral |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Probe (dB) | Cable (dB) | Amp (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.394 | 35.223 | 25.592 | -22.756 | 57.979 | 9.593 | 0.038 | 0.000 | QP |
| 2 | * | 0.394 | 26.238 | 16.606 | -21.741 | 47.979 | 9.593 | 0.038 | 0.000 | AV |
| 3 | | 0.454 | 31.189 | 21.557 | -25.613 | 56.802 | 9.591 | 0.041 | 0.000 | QP |
| 4 | | 0.454 | 22.387 | 12.755 | -24.414 | 46.802 | 9.591 | 0.041 | 0.000 | AV |
| 5 | | 1.378 | 26.485 | 16.818 | -29.515 | 56.000 | 9.598 | 0.070 | 0.000 | QP |
| 6 | | 1.378 | 12.003 | 2.335 | -33.997 | 46.000 | 9.598 | 0.070 | 0.000 | AV |
| 7 | | 4.634 | 28.753 | 18.971 | -27.247 | 56.000 | 9.645 | 0.137 | 0.000 | QP |
| 8 | | 4.634 | 11.977 | 2.195 | -34.023 | 46.000 | 9.645 | 0.137 | 0.000 | AV |
| 9 | | 8.578 | 33.659 | 23.725 | -26.341 | 60.000 | 9.748 | 0.186 | 0.000 | QP |
| 10 | | 8.578 | 20.732 | 10.798 | -29.268 | 50.000 | 9.748 | 0.186 | 0.000 | AV |
| 11 | | 9.770 | 34.616 | 24.635 | -25.384 | 60.000 | 9.783 | 0.198 | 0.000 | QP |
| 12 | | 9.770 | 19.367 | 9.385 | -30.633 | 50.000 | 9.783 | 0.198 | 0.000 | AV |

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

# 4. Emissions in restricted frequency bands

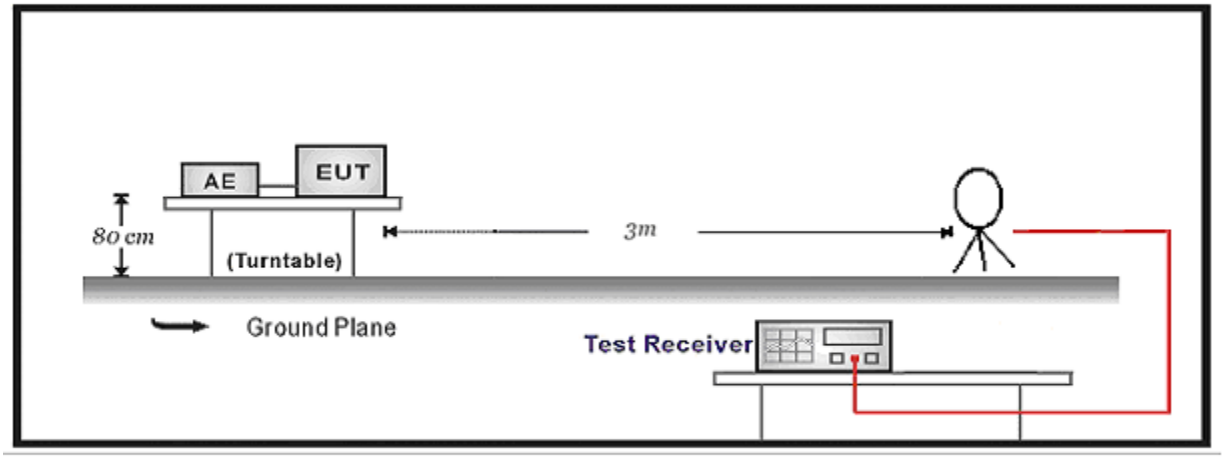
## 4.1. Test Equipment

| Radiated Emission(Below 1GHz) / AC-2 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| EMI Test Receiver | R&S | ESCI | 100573 | 2017.03.29 | 2018.03.28 |
| Loop Antenna | R&S | HFH2-Z2 | 833799/003 | 2017.11.16 | 2018.11.15 |
| Bilog Antenna | Teseq GmbH | CBL6112D | 27611 | 2017.10.16 | 2018.10.15 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC2-C | 2018.03.02 | 2019.03.01 |
| Temperature/Humidity Meter | Zhichen | ZC1-2 | AC2-TH | 2018.01.04 | 2019.01.03 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

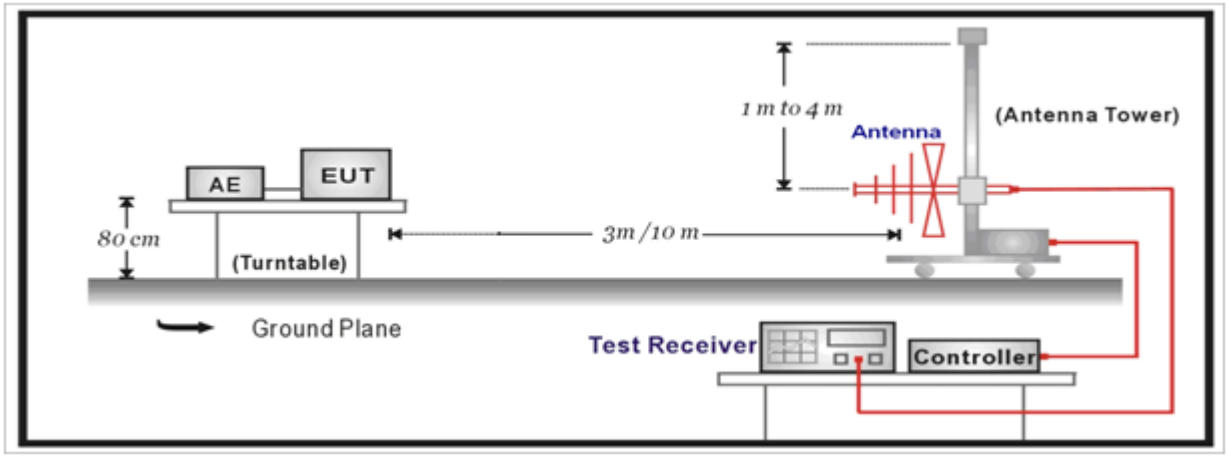
| Radiated Emission(Above 1GHz) / AC-5 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2018.01.04 | 2019.01.03 |
| Preamplifier | Miteq | NSP1800-25 | 1364185 | 2017.05.06 | 2018.05.05 |
| Preamplifier | QuieTek | AP-040G | CHM-0906001 | 2017.05.06 | 2018.05.05 |
| DRG Horn | ETS-Lindgren | 3117 | 00123988 | 2018.01.22 | 2019.01.21 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9170 | 294 | 2017.11.25 | 2018.11.24 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C1 | 2018.03.02 | 2019.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C2 | 2018.03.02 | 2019.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 102 | AC5-C3 | 2018.03.02 | 2019.03.01 |
| EMI Receiver | Agilent | N9038A | MY51210196 | 2017.06.10 | 2018.06.09 |
| Temperature/Humidity Meter | Zhichen | ZC1-2 | AC5-TH | 2018.01.04 | 2019.01.03 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 4.2. Test Setup

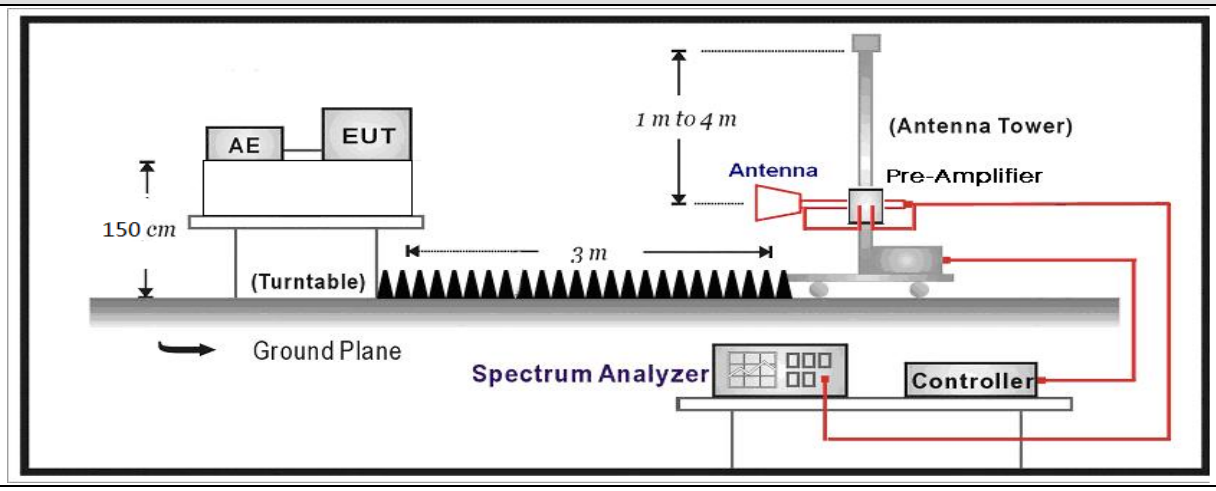
Below 30MHz Test Setup:




30MHz-1GHz Test Setup:




Above 1GHz Test Setup:



## 4.3. Limit

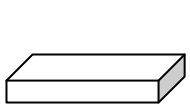
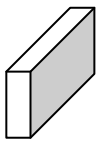
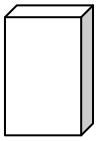
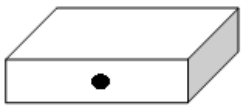
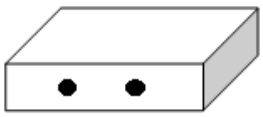
| Restricted Bands of operation | | | |
|---|---|---|---|
| Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (GHz) |
| 0.090 – 0.110 | 16.42 – 16.423 | 399.9 – 410 | 4.5 – 5.15 |
| 0.495 – 0.505 | 16.69475 –16.69525 | 608 – 614 | 5.35 – 5.46 |
| 2.1735 – 2.1905 | 16.80425 – 16.80475 | 960 – 1240 | 7.25 – 7.75 |
| 4.125 – 4.128 | 25.5 – 25.67 | 1300 – 1427 | 8.025 – 8.5 |
| 4.17725 – 4.17775 | 37.5 – 38.25 | 1435 – 1626.5 | 9.0 – 9.2 |
| 4.20725 – 4.20775 | 73 – 74.6 | 1645.5 – 1646.5 | 9.3 – 9.5 |
| 6.215 – 6.218 | 74.8 – 75.2 | 1660 – 1710 | 10.6 – 12.7 |
| 6.26775 – 6.26825 | 108 – 121.94 | 1718.8 – 1722.2 | 13.25 – 13.4 |
| 6.31175 – 6.31225 | 123 – 138 | 2200 – 2300 | 14.47 – 14.5 |
| 8.291 – 8.294 | 149.9 – 150.05 | 2310 – 2390 | 15.35 – 16.2 |
| 8.362 – 8.366 | 156.52475 – 156.52525 | 2483.5 – 2500 | 17.7 – 21.4 |
| 8.37625 – 8.38675 | 156.7 – 156.9 | 2690 – 2900 | 22.01 – 23.12 |
| 8.81425 – 8.81475 | 162.0125 – 167.17 | 3260 – 3267 | 23.6 – 24.0 |
| 12.29 – 12.293 | 167.72 – 173.2 | 3332 – 3339 | 31.2 – 31.8 |
| 12.51975–12.52025 | 240 – 285 | 3345.8 – 3358 | 36.43 – 36.5 |
| 12.57675–12.57725 | 322 – 335.4 | 3600 – 4400 | |
| 13.36 – 13.41 | | | |

| Restricted Bands of operation | | | |
|---|---|---|---|
| Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (GHz) |
| 0.090 – 0.110 | 16.42 – 16.423 | 399.9 – 410 | 4.5 – 5.15 |
| 0.495 – 0.505 | 16.69475 –16.69525 | 608 – 614 | 5.35 – 5.46 |
| 2.1735 – 2.1905 | 16.80425 – 16.80475 | 960 – 1240 | 7.25 – 7.75 |
| 4.125 – 4.128 | 25.5 – 25.67 | 1300 – 1427 | 8.025 – 8.5 |
| 4.17725 – 4.17775 | 37.5 – 38.25 | 1435 – 1626.5 | 9.0 – 9.2 |
| 4.20725 – 4.20775 | 73 – 74.6 | 1645.5 – 1646.5 | 9.3 – 9.5 |
| 6.215 – 6.218 | 74.8 – 75.2 | 1660 – 1710 | 10.6 – 12.7 |
| 6.26775 – 6.26825 | 108 – 121.94 | 1718.8 – 1722.2 | 13.25 – 13.4 |
| 6.31175 – 6.31225 | 123 – 138 | 2200 – 2300 | 14.47 – 14.5 |
| 8.291 – 8.294 | 149.9 – 150.05 | 2310 – 2390 | 15.35 – 16.2 |
| 8.362 – 8.366 | 156.52475 – 156.52525 | 2483.5 – 2500 | 17.7 – 21.4 |
| 8.37625 – 8.38675 | 156.7 – 156.9 | 2690 – 2900 | 22.01 – 23.12 |
| 8.81425 – 8.81475 | 162.0125 – 167.17 | 3260 – 3267 | 23.6 – 24.0 |
| 12.29 – 12.293 | 167.72 – 173.2 | 3332 – 3339 | 31.2 – 31.8 |
| 12.51975–12.52025 | 240 – 285 | 3345.8 – 3358 | 36.43 – 36.5 |
| 12.57675–12.57725 | 322 – 335.4 | 3600 – 4400 | |
| 13.36 – 13.41 | | | |

## 4.4. Test Procedure

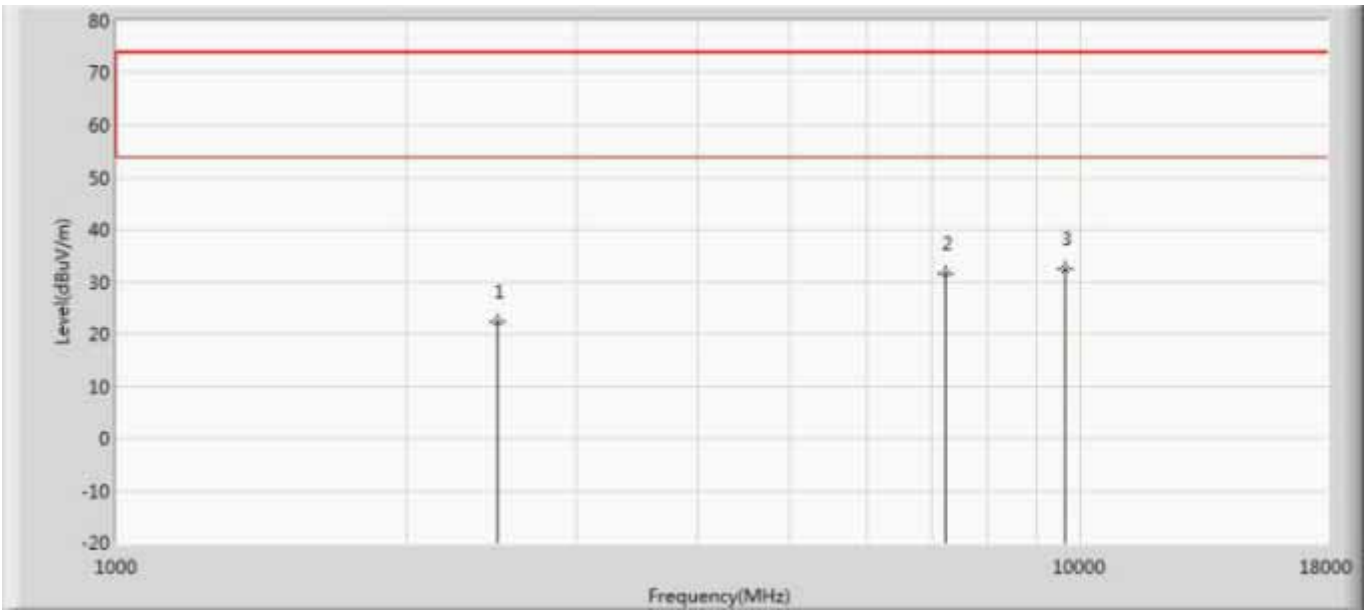
| Test Method | | | | | | |
|---|---|---|---|---|---|---|
| | References Rule | | | | Chapter | Description |
| ☐ | ANSI C63.10 | | | | 11.11 | Emissions in non-restricted frequency bands |
| | ☐ | ANSI C63.10 | | | 11.11.2 | Reference level measurement |
| | ☐ | ANSI C63.10 | | | 11.11.3 | Emission level measurement |
| ☒ | ANSI C63.10 | | | | 11.12 | Emissions in restricted frequency bands |
| | ☒ | ANSI C63.10 | | | 11.12.1 | Radiated emission measurements |
| | ☒ | ANSI C63.10 | | | 11.12.2.7 | Radiated spurious emission test |
| | | ☒ | ANSI C63.10 | | 6.4 | Radiated emissions from unlicensed wireless devices below 30 MHz |
| | | ☒ | ANSI C63.10 | | 6.5 | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| | | ☒ | ANSI C63.10 | | 6.6 | Radiated emissions from unlicensed wireless devices above 1 GHz |
| | ☐ | ANSI C63.10 | | | 11.12.2 | Antenna-port conducted measurements |
| | | ☐ | ANSI C63.10 | | 11.12.2.3 | Quasi-peak measurement procedure |
| | | ☐ | ANSI C63.10 | | 11.12.2.4 | Peak power measurement procedure |
| | | ☐ | ANSI C63.10 | | 11.12.2.5 | Average power measurement procedures |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.1 | Trace averaging with continuous EUT transmission at full power |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.2 | Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.3 | Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold |

## 4.5. EUT test Axis definition

<table>
<tr><th>Item</th><th colspan="4">Emissions in restricted frequency bands</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1~3</td></tr>
<tr><td rowspan="11">Test method</td><td>☒</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Worst Axis ☒</td><td>Worst Axis ☐</td><td>Worst Axis ☐</td></tr>
<tr><td>☐</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

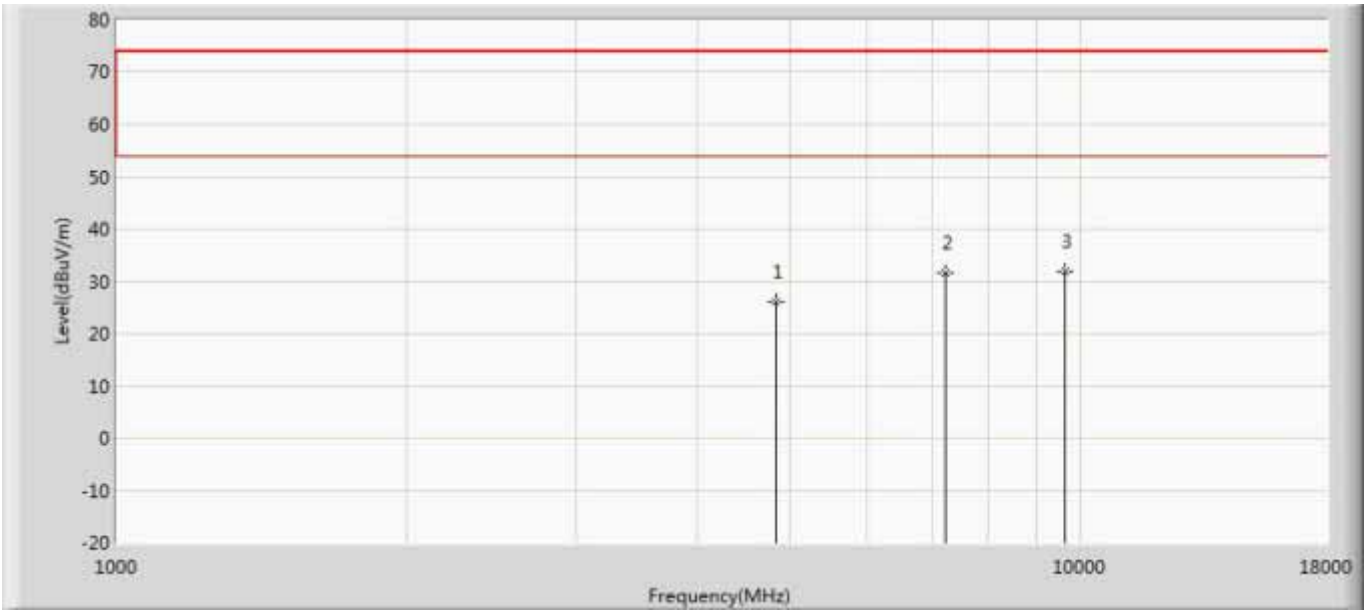
## 4.6. Test Result

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:09 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |



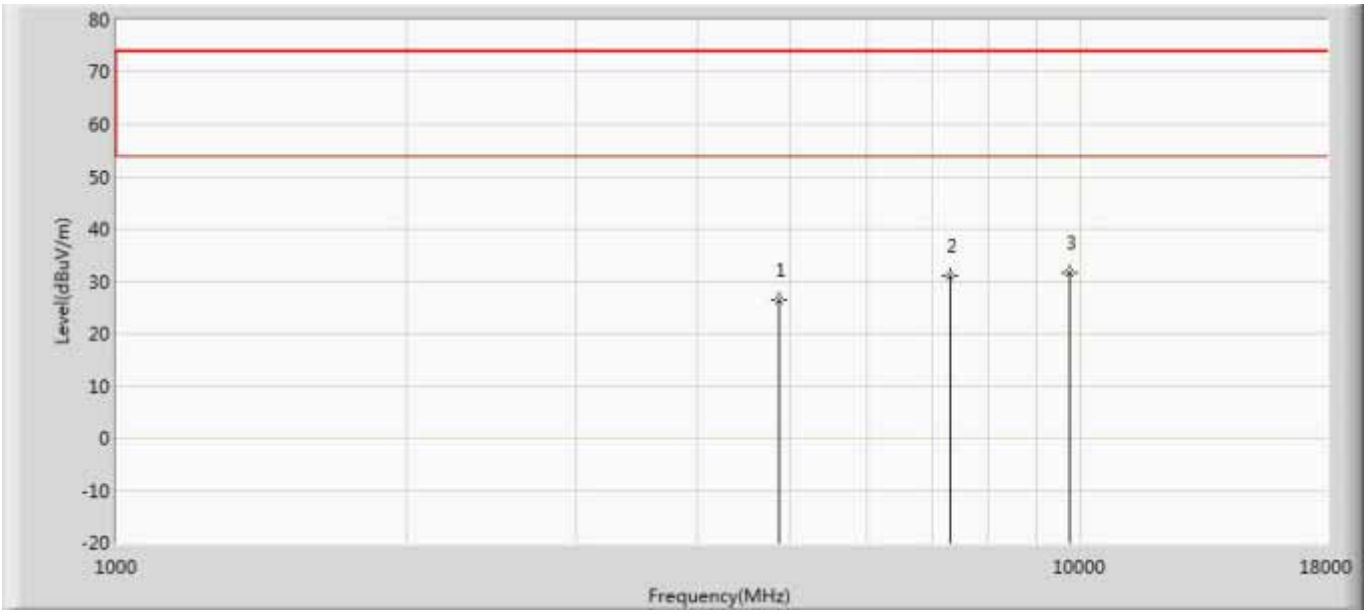

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2482.000 | 22.366 | 27.624 | -51.634 | 74.000 | -5.257 | PK |
| 2 | | 7236.000 | 31.689 | 28.281 | -42.311 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 32.593 | 27.597 | -41.407 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:09 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |



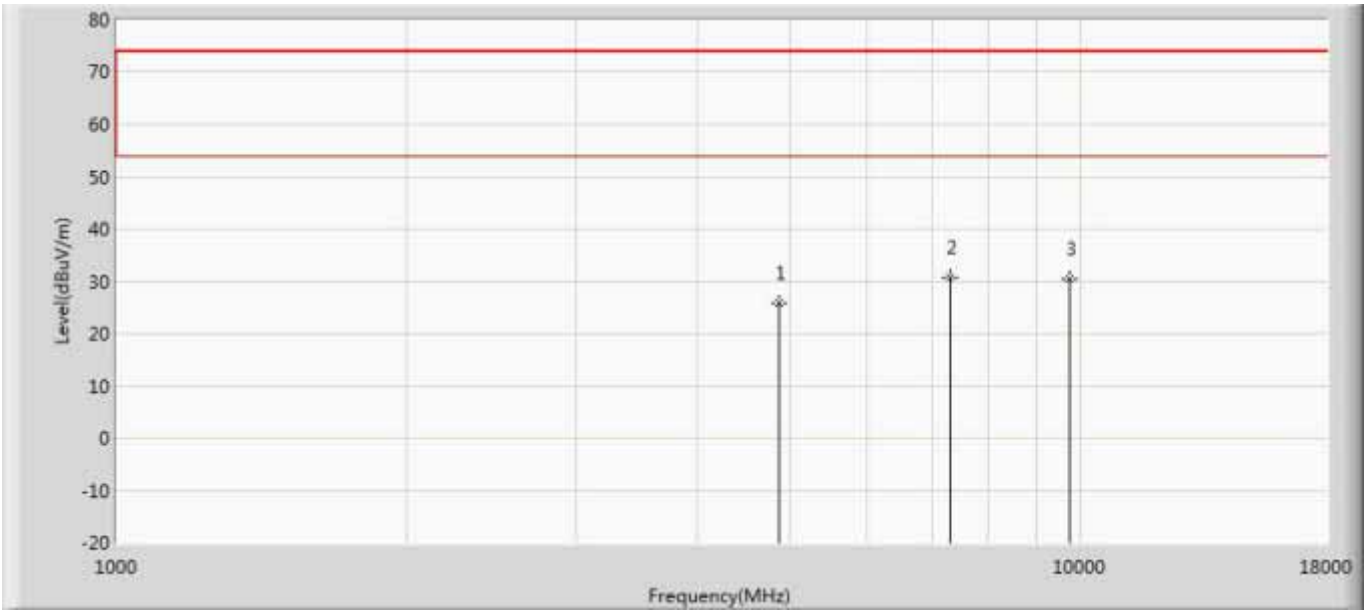

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 26.011 | 26.517 | -47.989 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 31.516 | 28.108 | -42.484 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.951 | 26.955 | -42.049 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2437MHz by 802.11b with Ant 1 | |



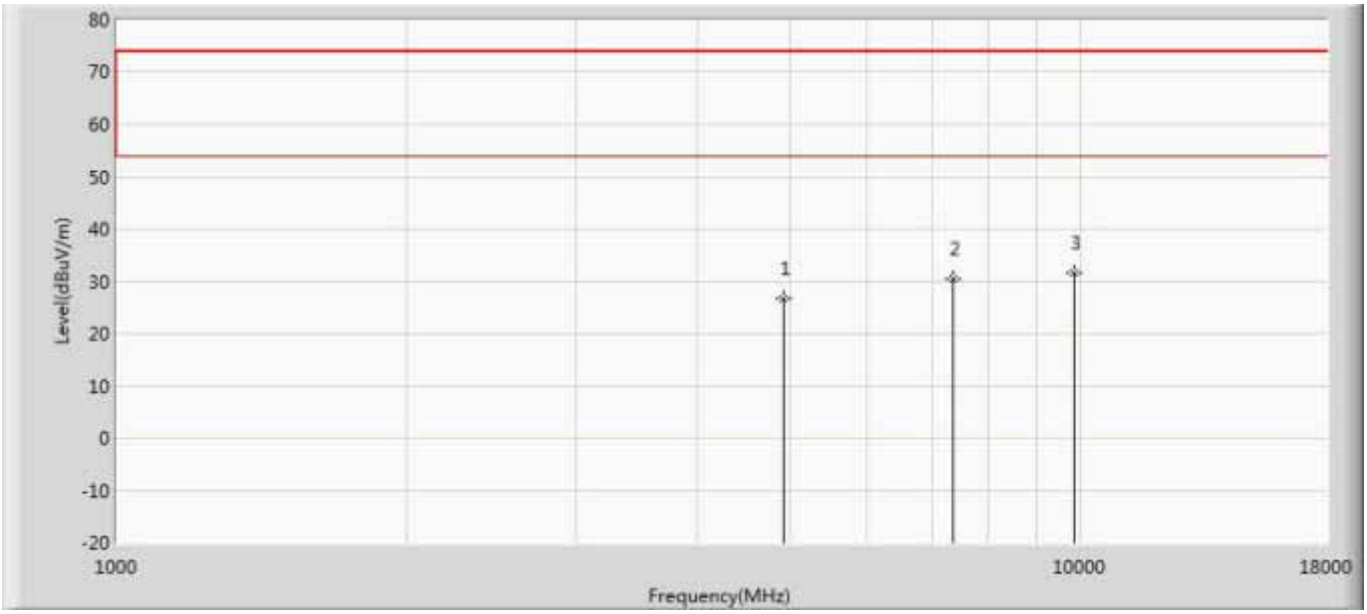

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.309 | 26.751 | -47.691 | 74.000 | -0.442 | PK |
| 2 | | 7311.000 | 30.931 | 27.059 | -43.069 | 74.000 | 3.872 | PK |
| 3 | * | 9748.000 | 31.669 | 26.668 | -42.331 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2437MHz by 802.11b with Ant1 | |



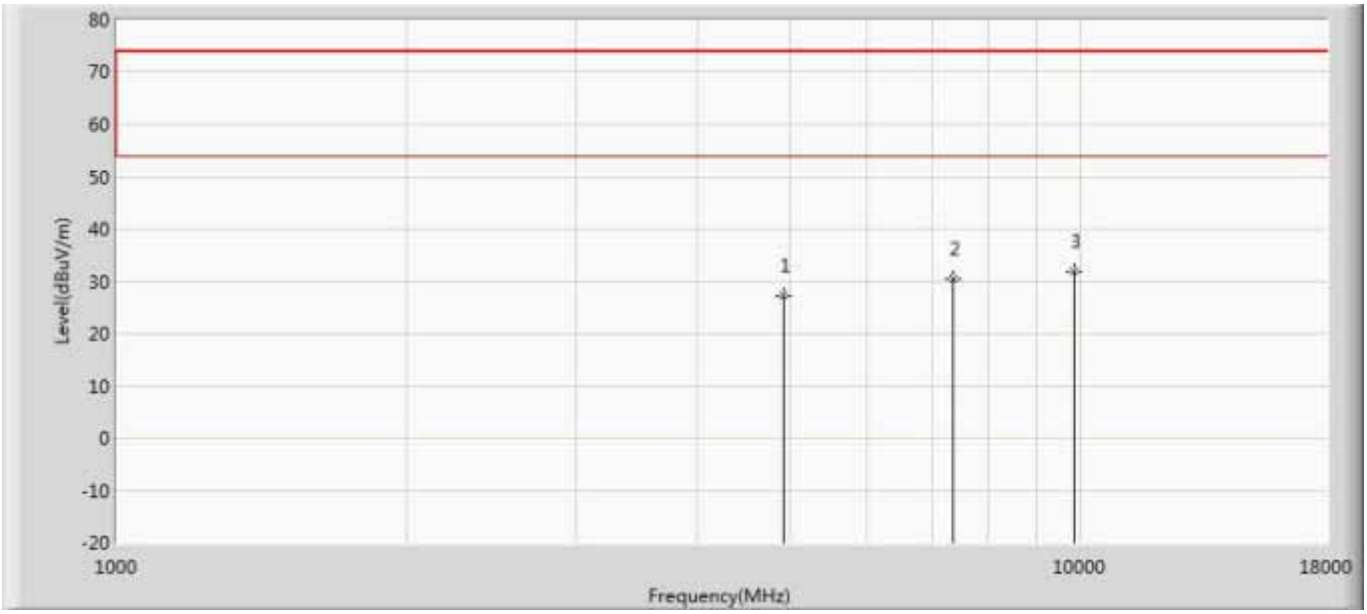

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 25.857 | 26.299 | -48.143 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.768 | 26.896 | -43.232 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.425 | 25.424 | -43.575 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant1 | |



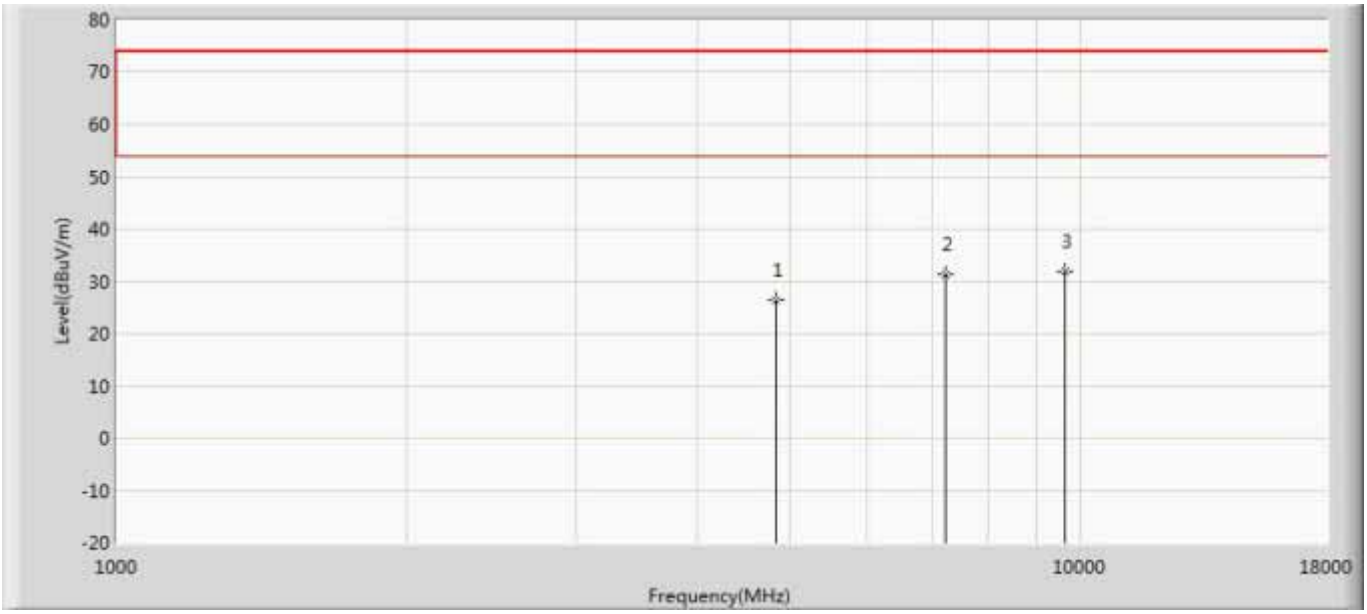

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 26.597 | 26.492 | -47.403 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.394 | 27.220 | -43.606 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.727 | 25.738 | -42.273 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant1 | |



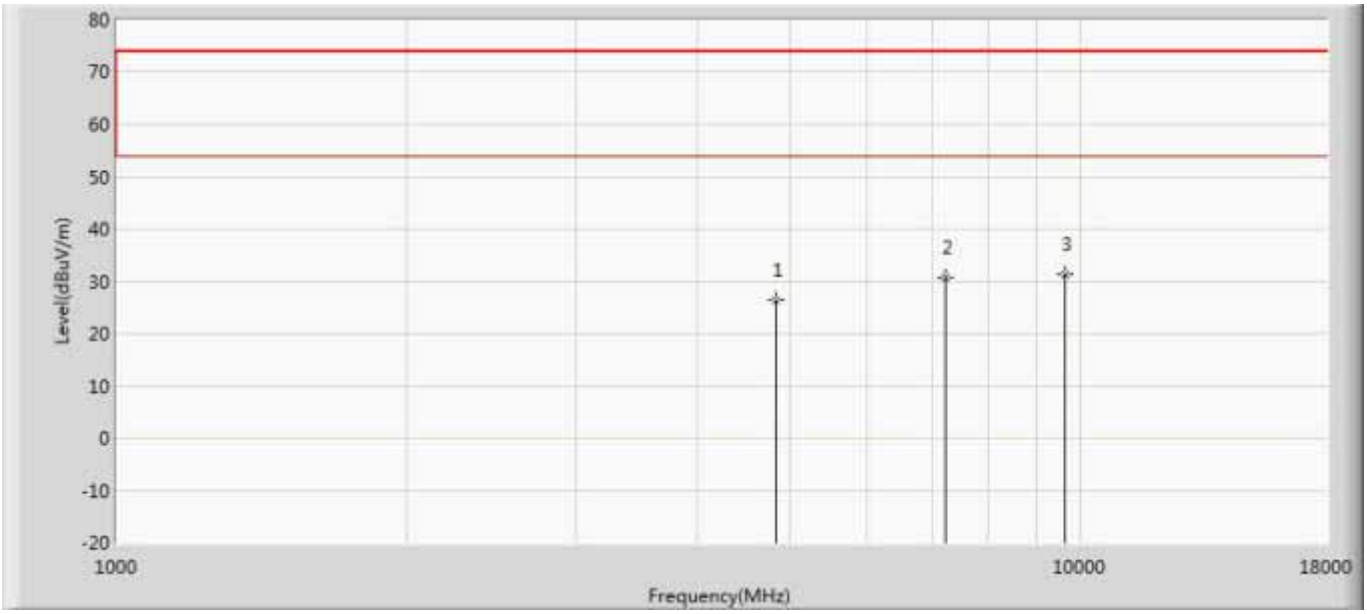

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.191 | 27.086 | -46.809 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.361 | 27.187 | -43.639 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.946 | 25.957 | -42.054 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant1 | |



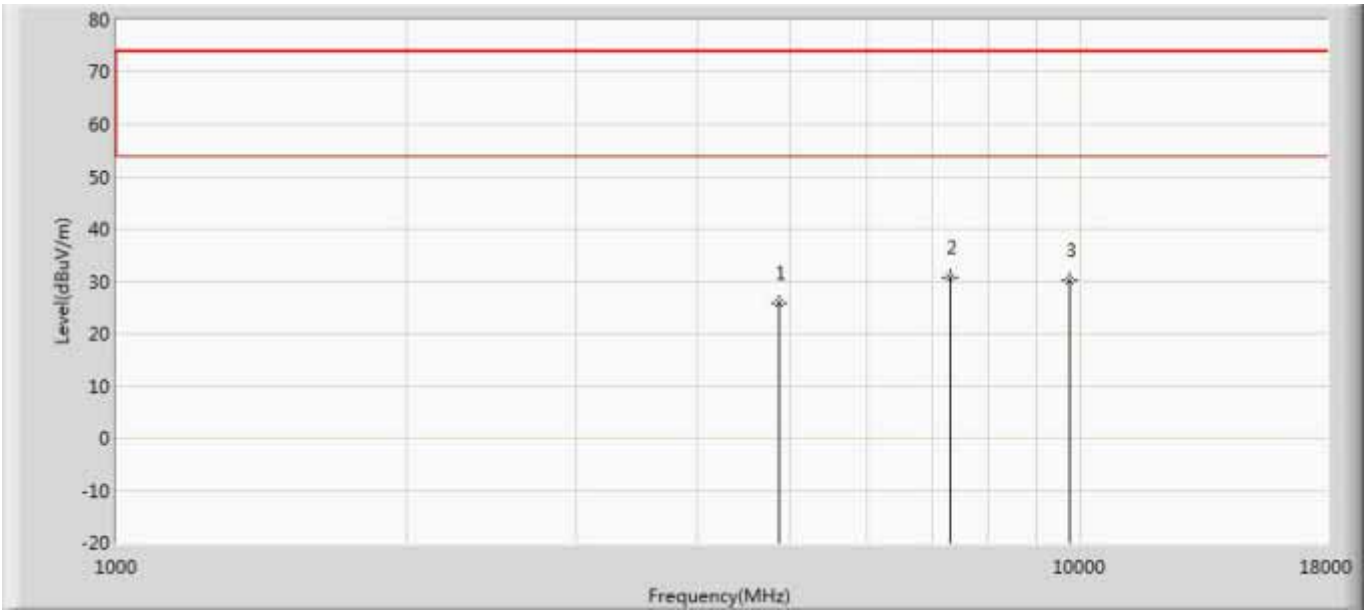

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 26.251 | 26.757 | -47.749 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 31.244 | 27.836 | -42.756 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.888 | 26.892 | -42.112 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant1 | |



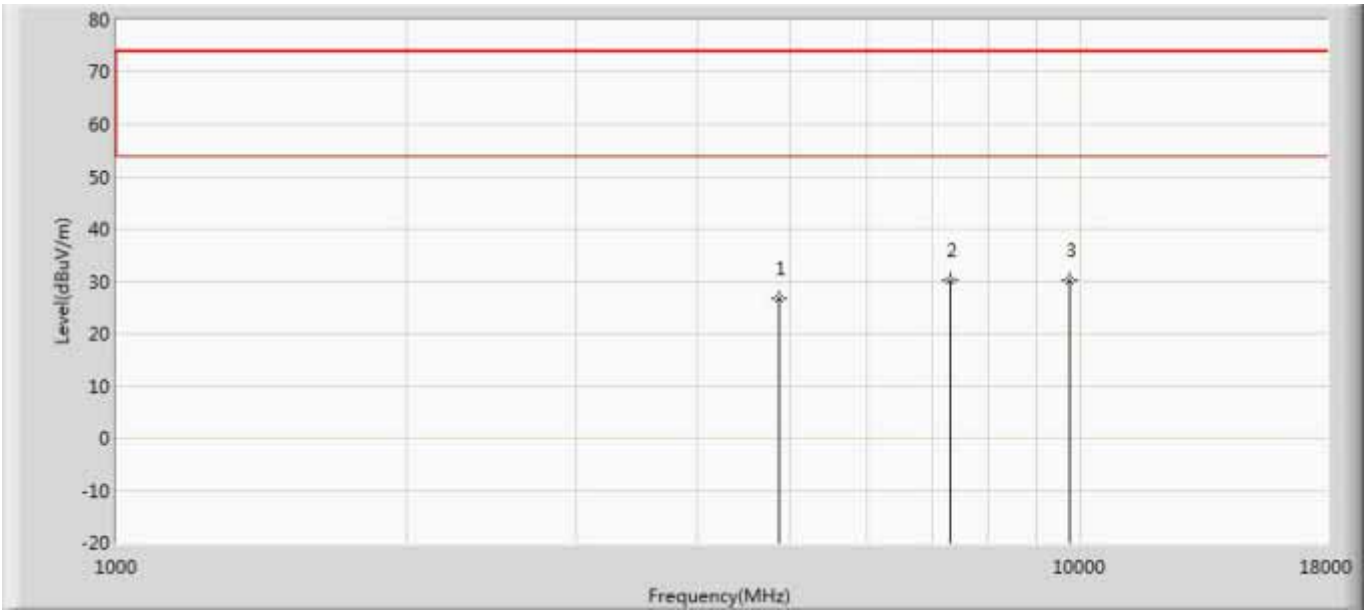

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 26.236 | 26.742 | -47.764 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.628 | 27.220 | -43.372 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.233 | 26.237 | -42.767 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2437MHz by 802.11g with Ant1 | |



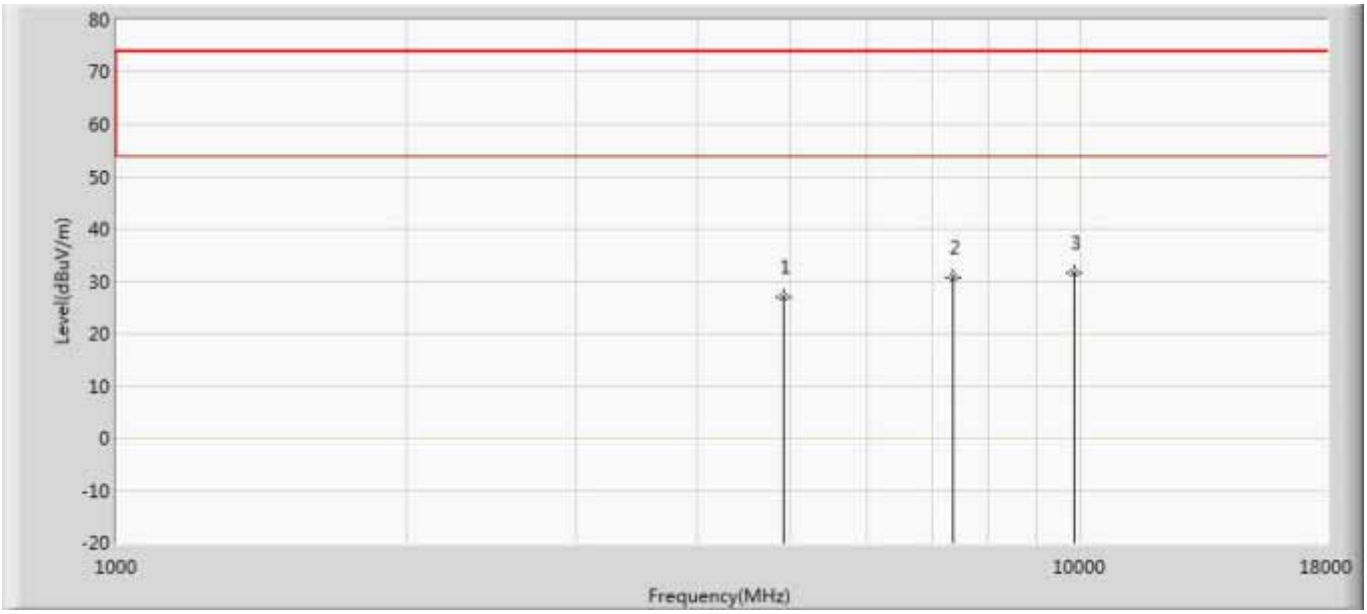

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 25.921 | 26.363 | -48.079 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.611 | 26.739 | -43.389 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.034 | 25.033 | -43.966 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2437MHz by 802.11g with Ant1 | |



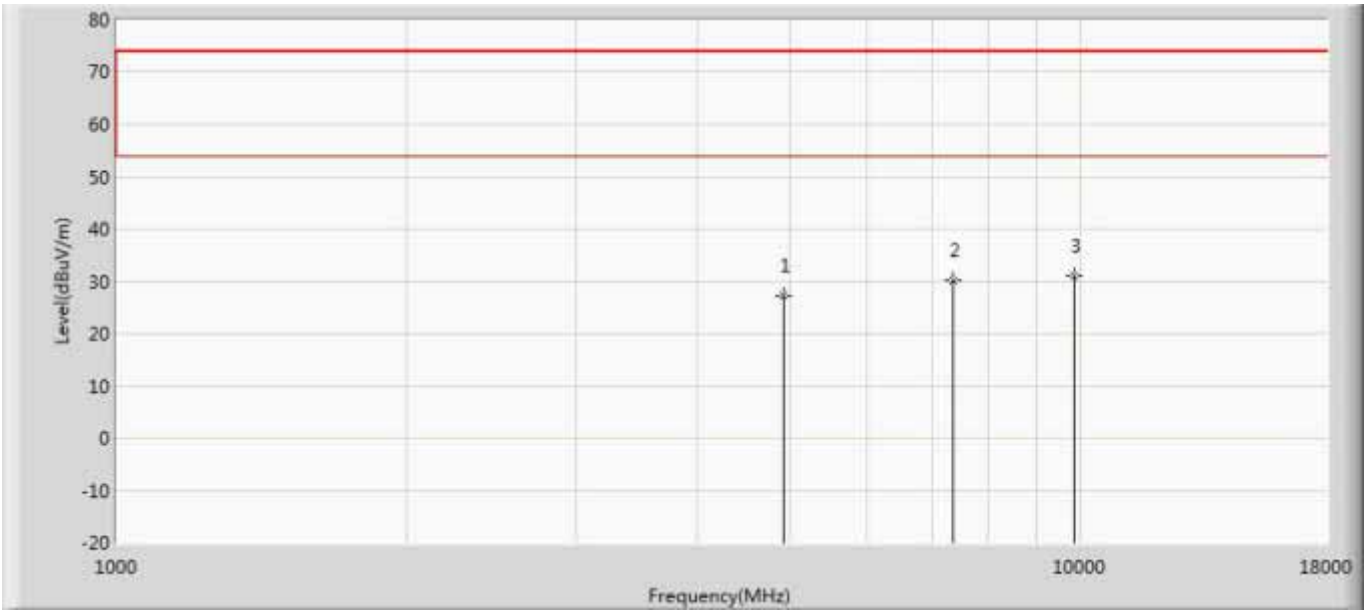

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.689 | 27.131 | -47.311 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.276 | 26.404 | -43.724 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.271 | 25.270 | -43.729 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant1 | |



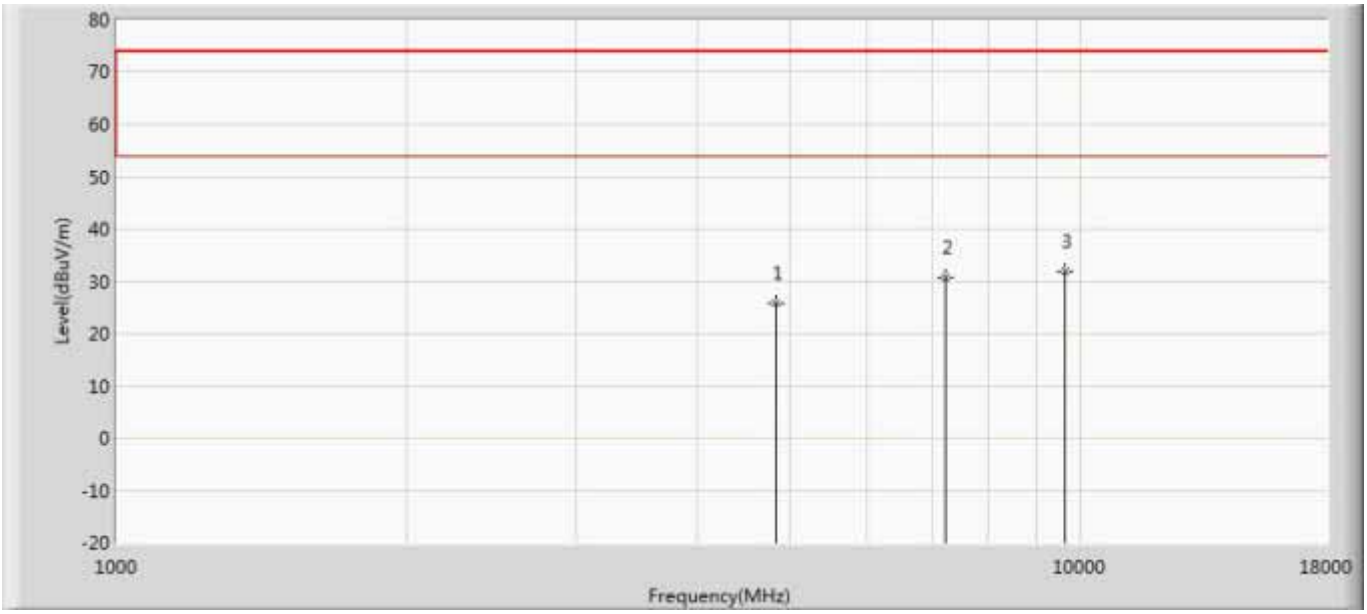

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 26.974 | 26.869 | -47.026 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.710 | 27.536 | -43.290 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.584 | 25.595 | -42.416 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant1 | |



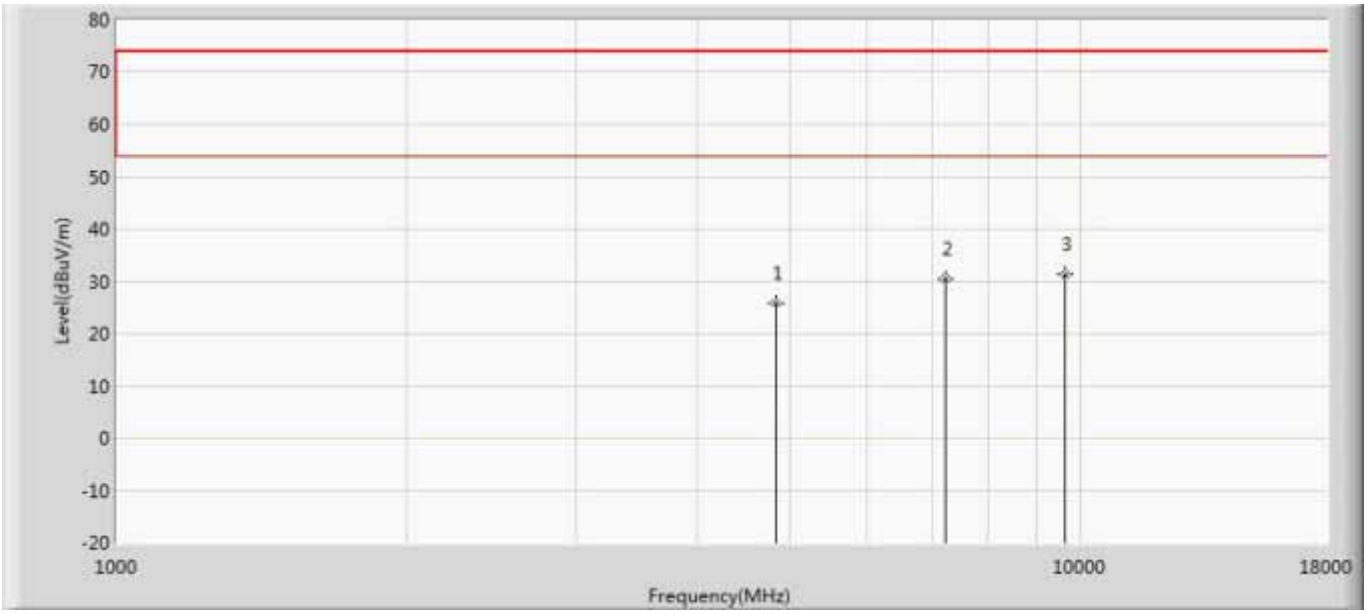

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.222 | 27.117 | -46.778 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.257 | 27.083 | -43.743 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.130 | 25.141 | -42.870 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant1 | |



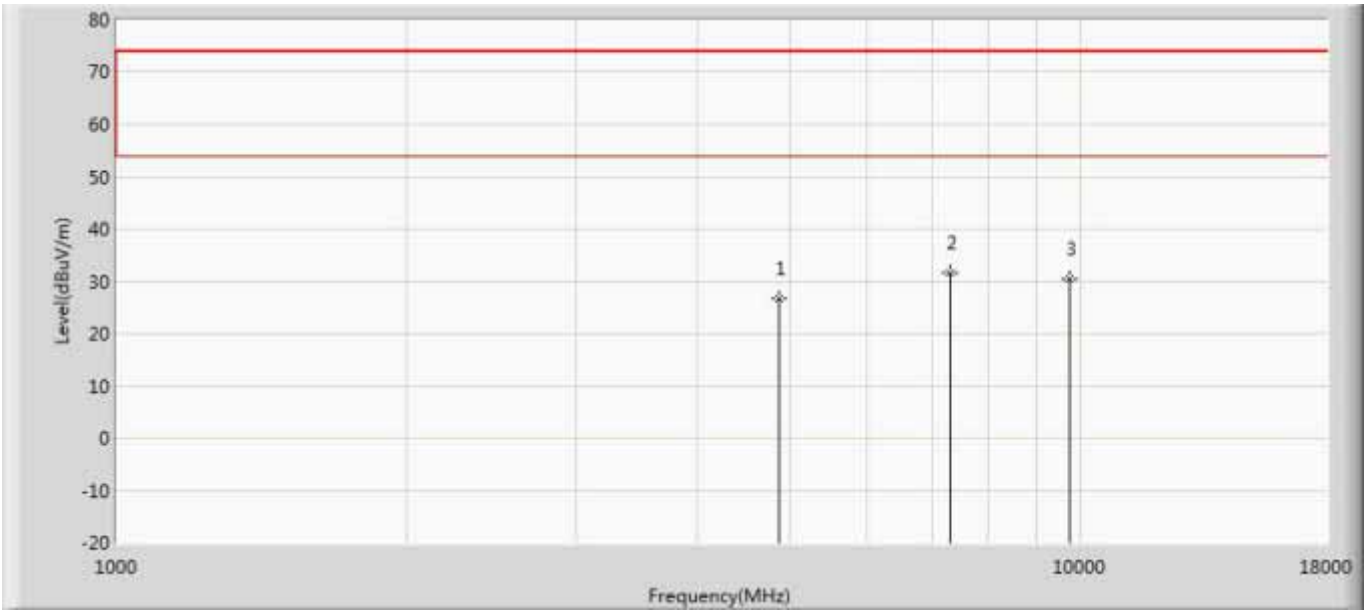

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.812 | 26.318 | -48.188 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.722 | 27.314 | -43.278 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.766 | 26.770 | -42.234 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant1 | |



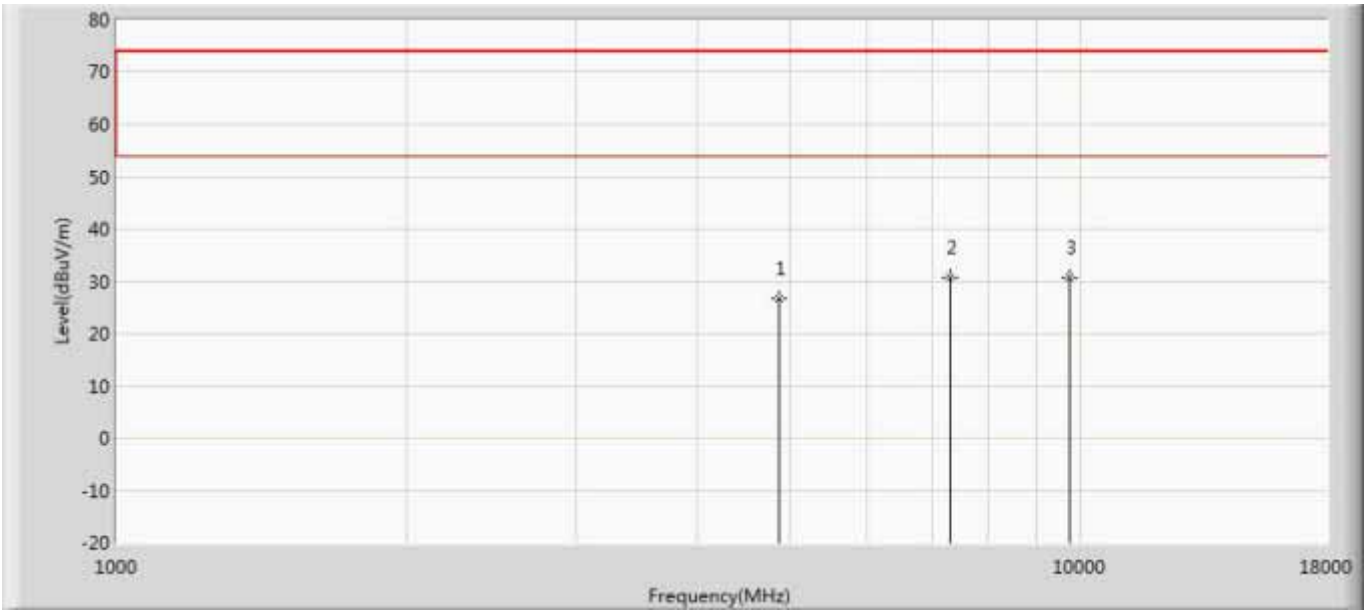

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.797 | 26.303 | -48.203 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.499 | 27.091 | -43.501 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.189 | 26.193 | -42.811 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2437MHz by 802.11n20 with Ant1 | |



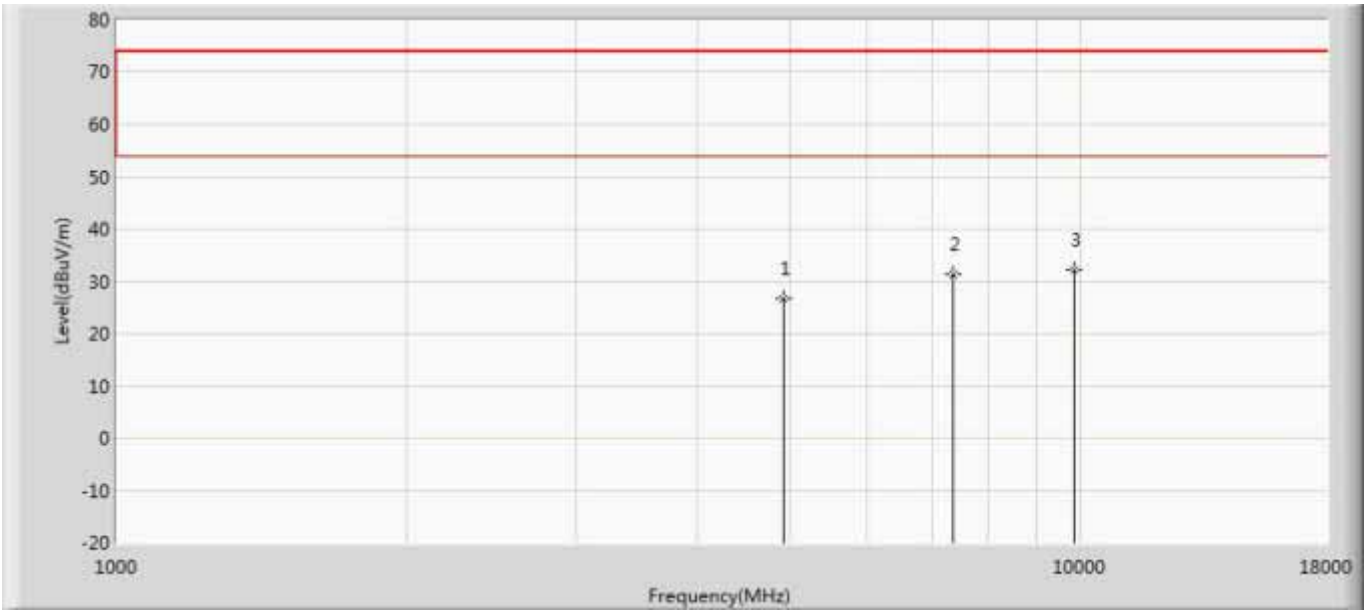

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.727 | 27.169 | -47.273 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 31.490 | 27.618 | -42.510 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.569 | 25.568 | -43.431 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:11 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2437MHz by 802.11n20 with Ant1 | |



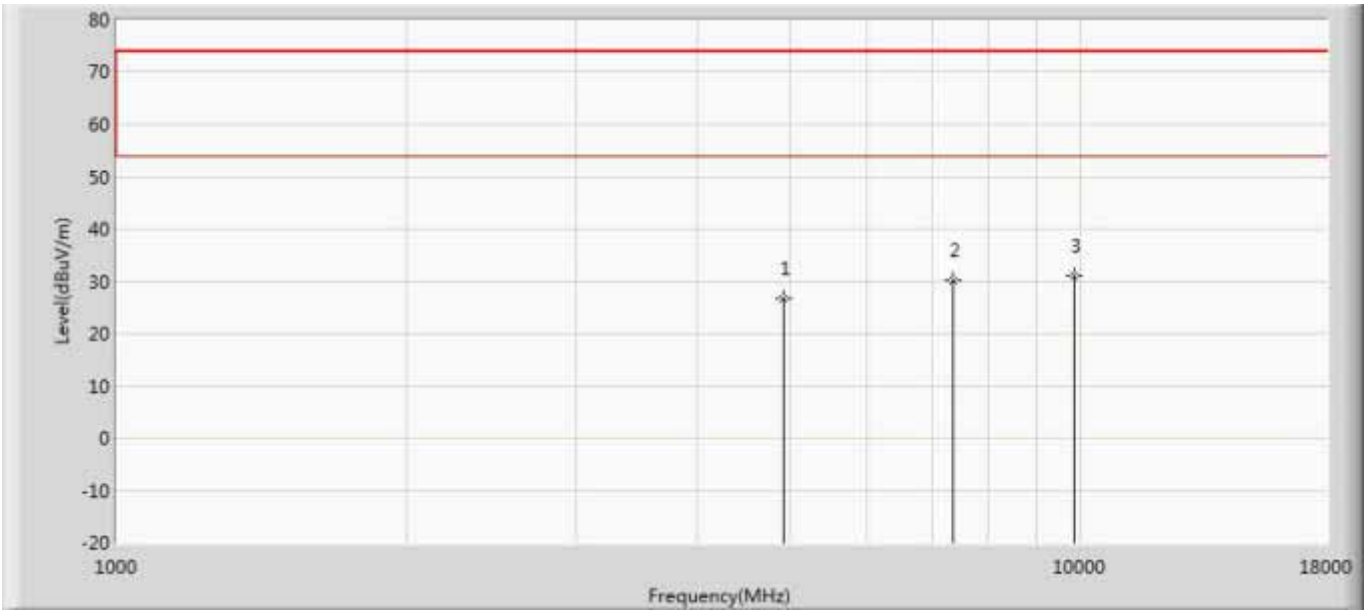

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.632 | 27.074 | -47.368 | 74.000 | -0.442 | PK |
| 2 | | 7311.000 | 30.592 | 26.720 | -43.408 | 74.000 | 3.872 | PK |
| 3 | * | 9748.000 | 30.625 | 25.624 | -43.375 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant1 | |



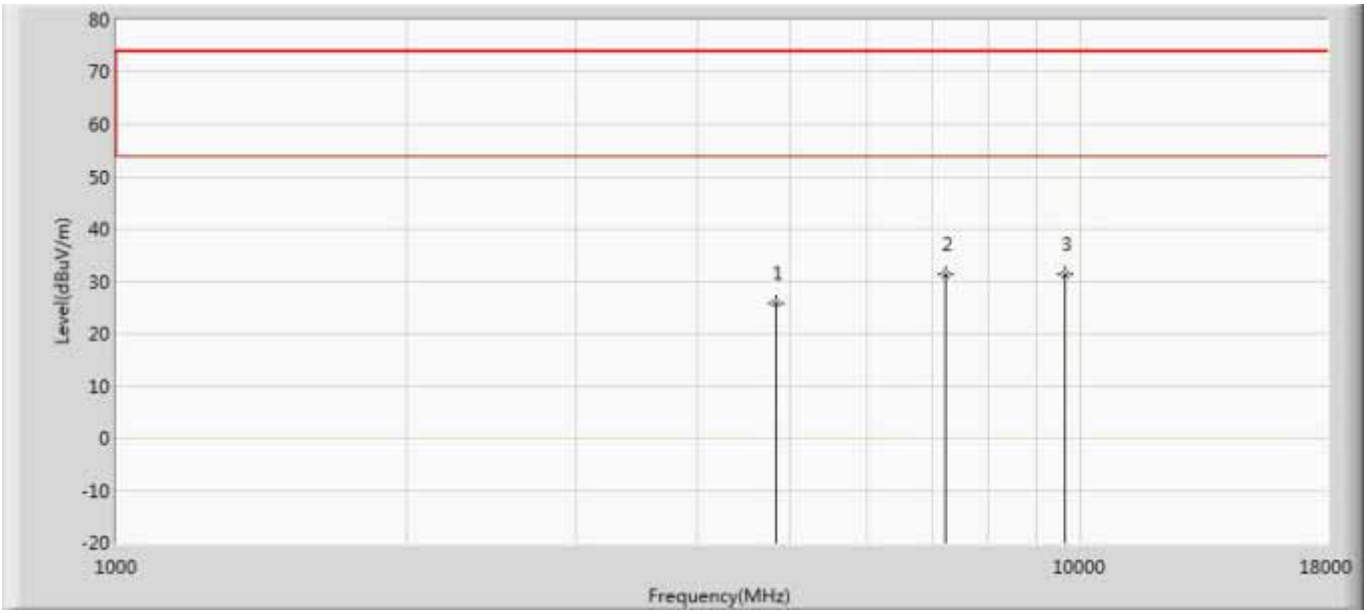

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 26.659 | 26.554 | -47.341 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 31.417 | 28.243 | -42.583 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 32.116 | 26.127 | -41.884 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant1 | |



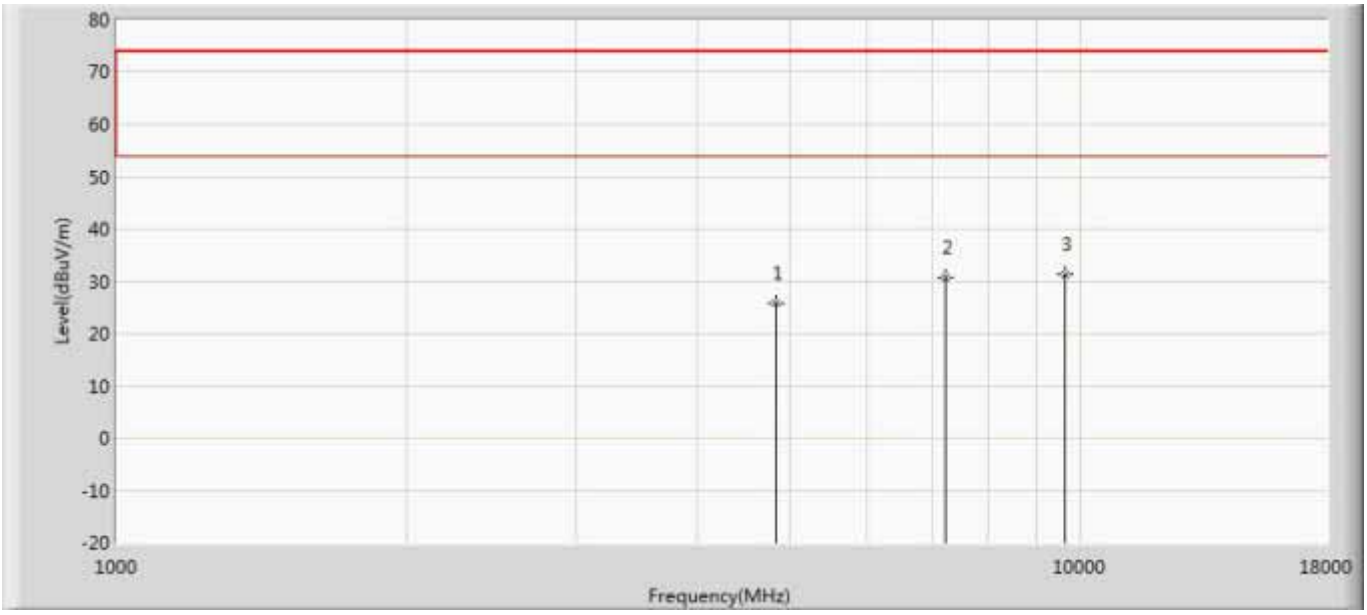

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 26.770 | 26.665 | -47.230 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.054 | 26.880 | -43.946 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.146 | 25.157 | -42.854 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant2 | |



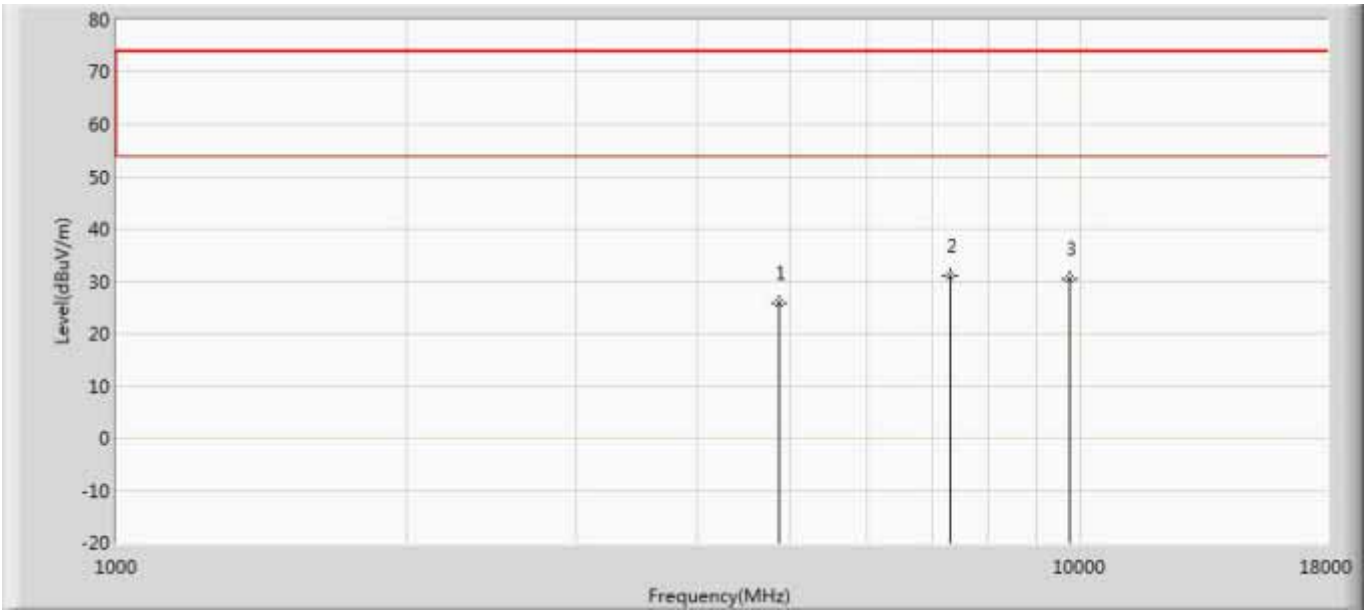

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.800 | 26.306 | -48.200 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 31.331 | 27.923 | -42.669 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.427 | 26.431 | -42.573 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant2 | |



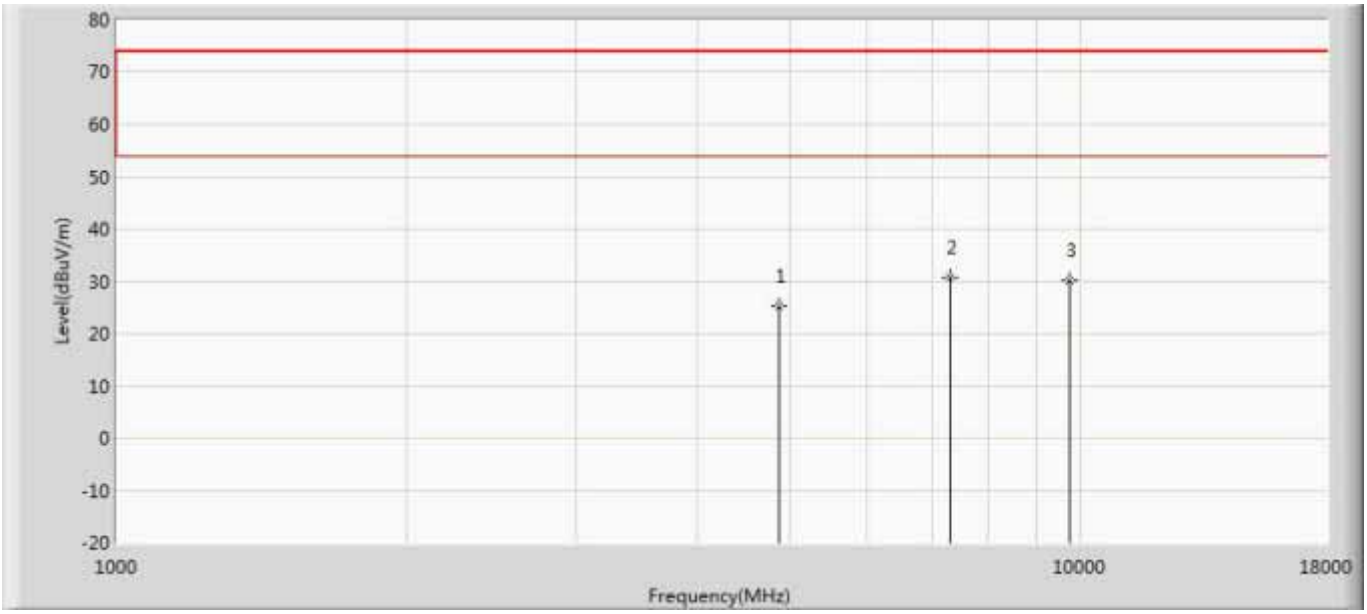

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.810 | 26.316 | -48.190 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.813 | 27.405 | -43.187 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.377 | 26.381 | -42.623 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2437MHz by 802.11b with Ant2 | |



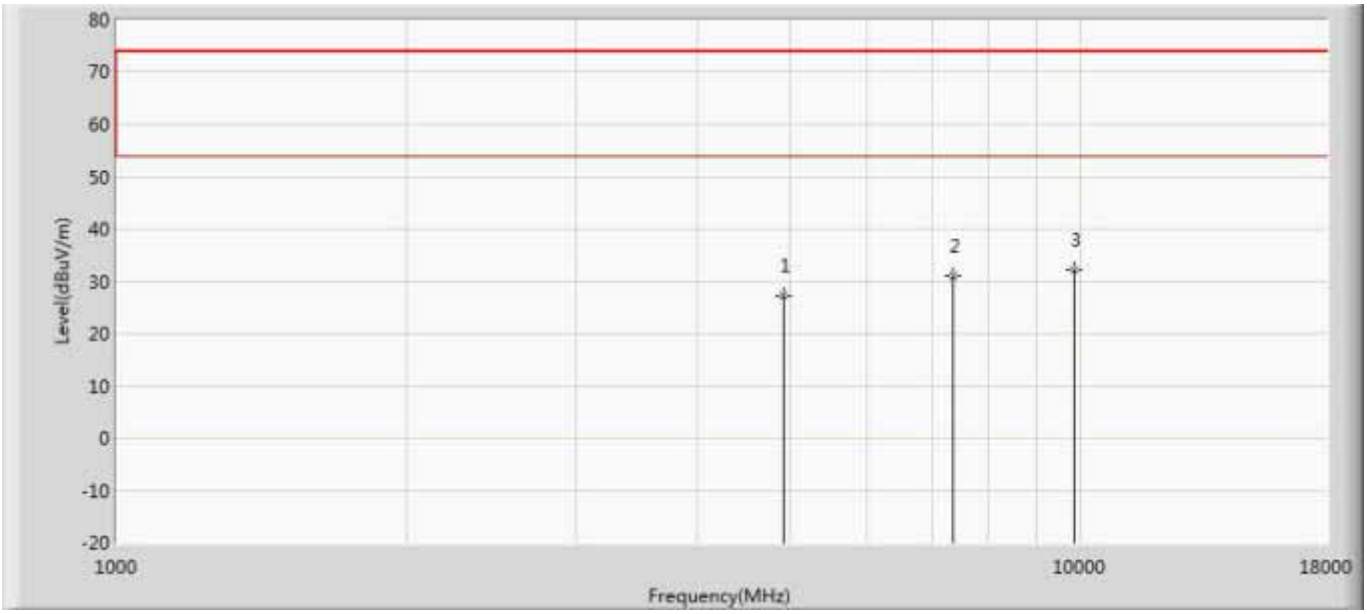

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 25.912 | 26.354 | -48.088 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.901 | 27.029 | -43.099 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.551 | 25.550 | -43.449 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2437MHz by 802.11b with Ant2 | |



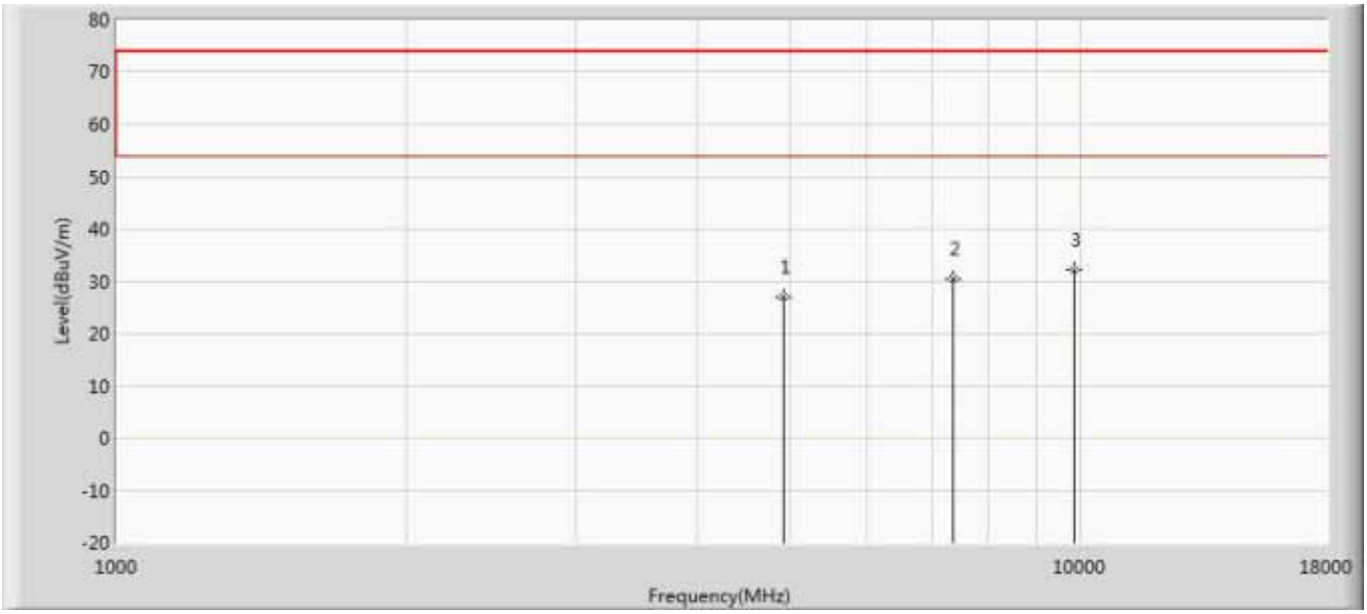

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 25.272 | 25.714 | -48.728 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.683 | 26.811 | -43.317 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.189 | 25.188 | -43.811 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant2 | |



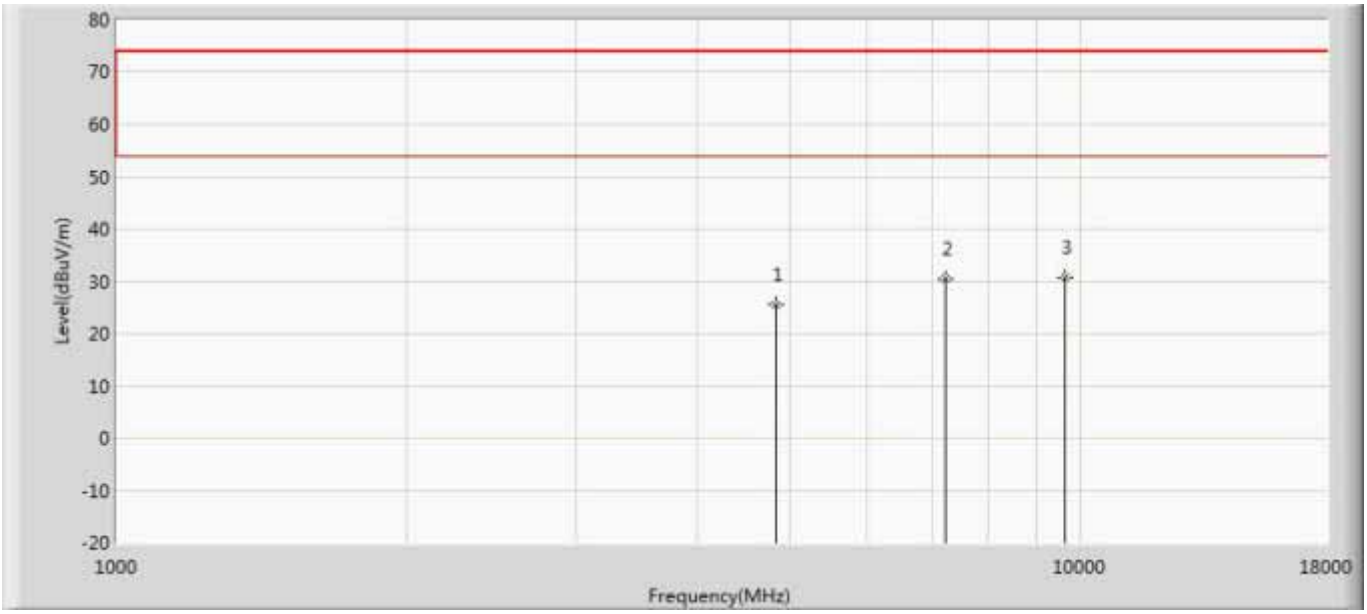

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.250 | 27.145 | -46.750 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.926 | 27.752 | -43.074 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 32.046 | 26.057 | -41.954 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant2 | |



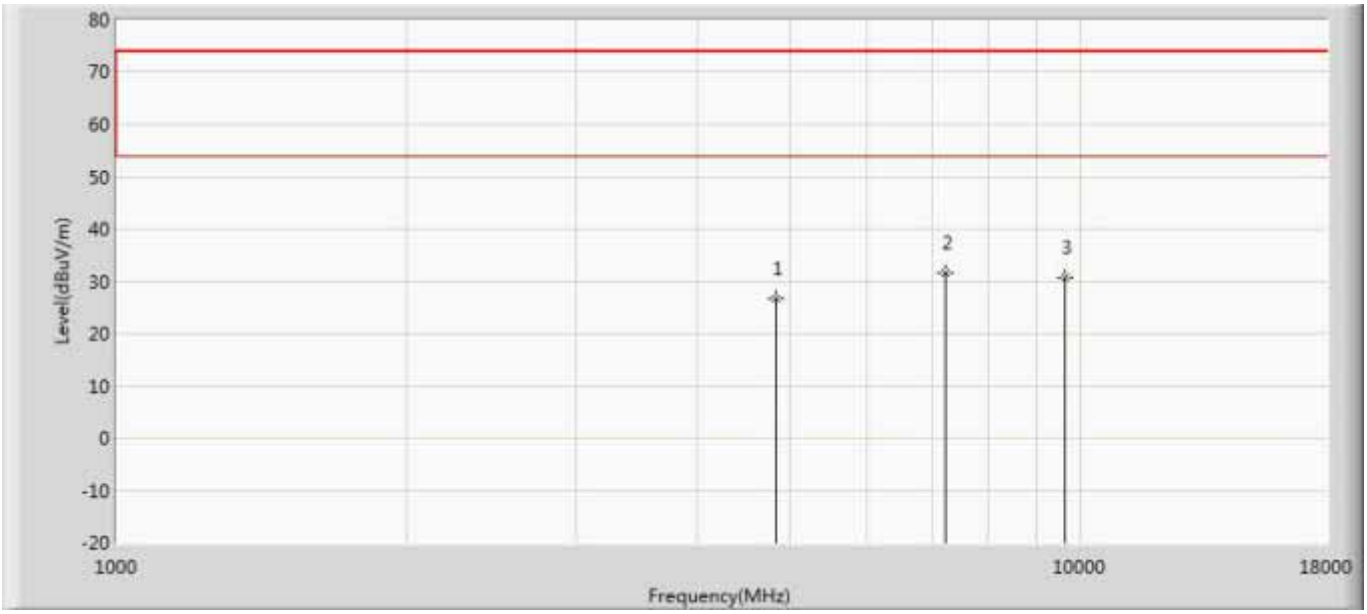

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.034 | 26.929 | -46.966 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.387 | 27.213 | -43.613 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 32.045 | 26.056 | -41.955 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant2 | |



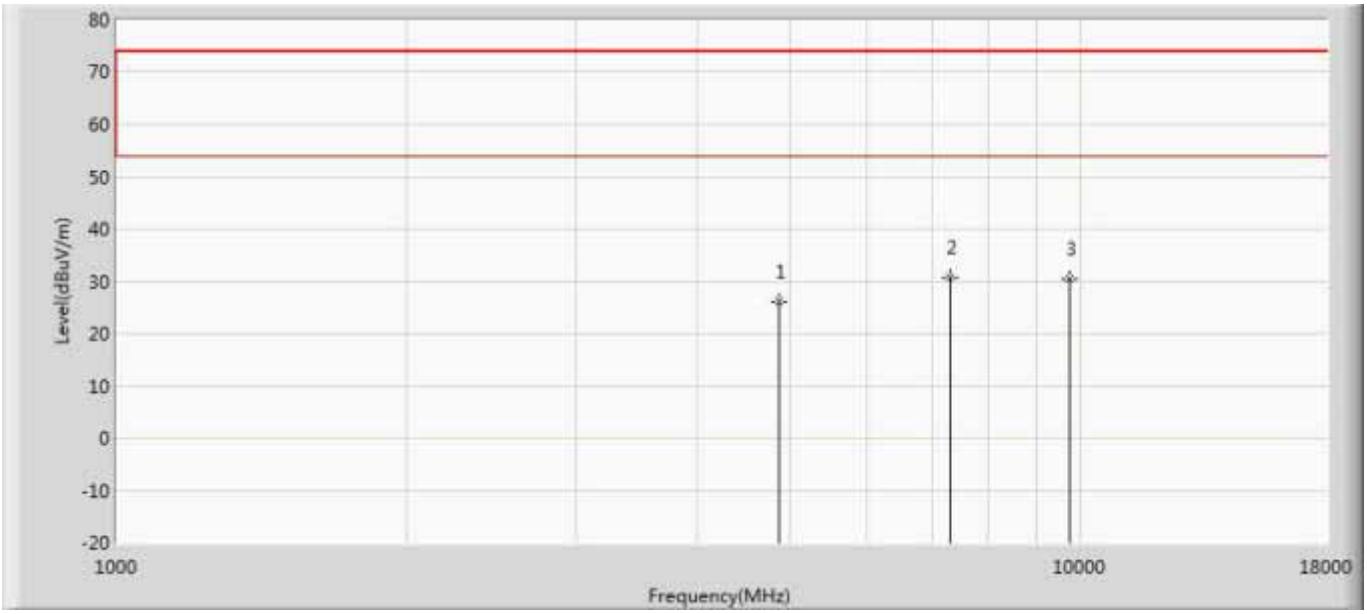

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.588 | 26.094 | -48.412 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.335 | 26.927 | -43.665 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 30.821 | 25.825 | -43.179 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant2 | |



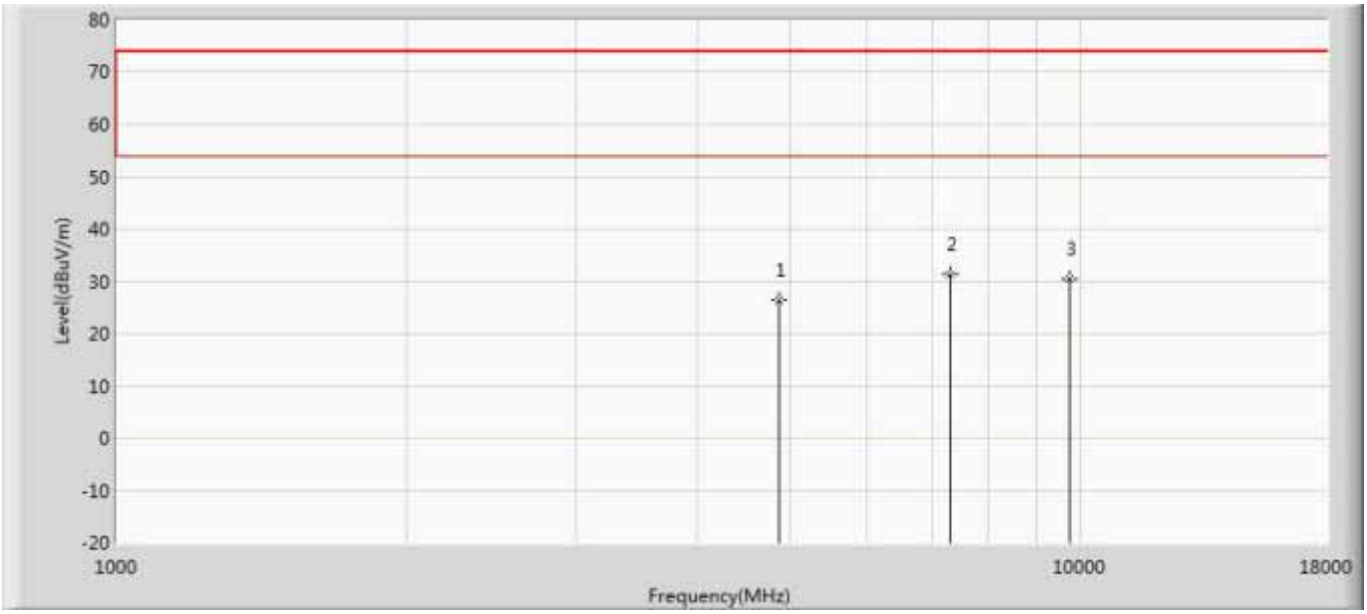

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 26.654 | 27.160 | -47.346 | 74.000 | -0.505 | PK |
| 2 | * | 7236.000 | 31.532 | 28.124 | -42.468 | 74.000 | 3.407 | PK |
| 3 | | 9648.000 | 30.797 | 25.801 | -43.203 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2437MHz by 802.11g with Ant2 | |



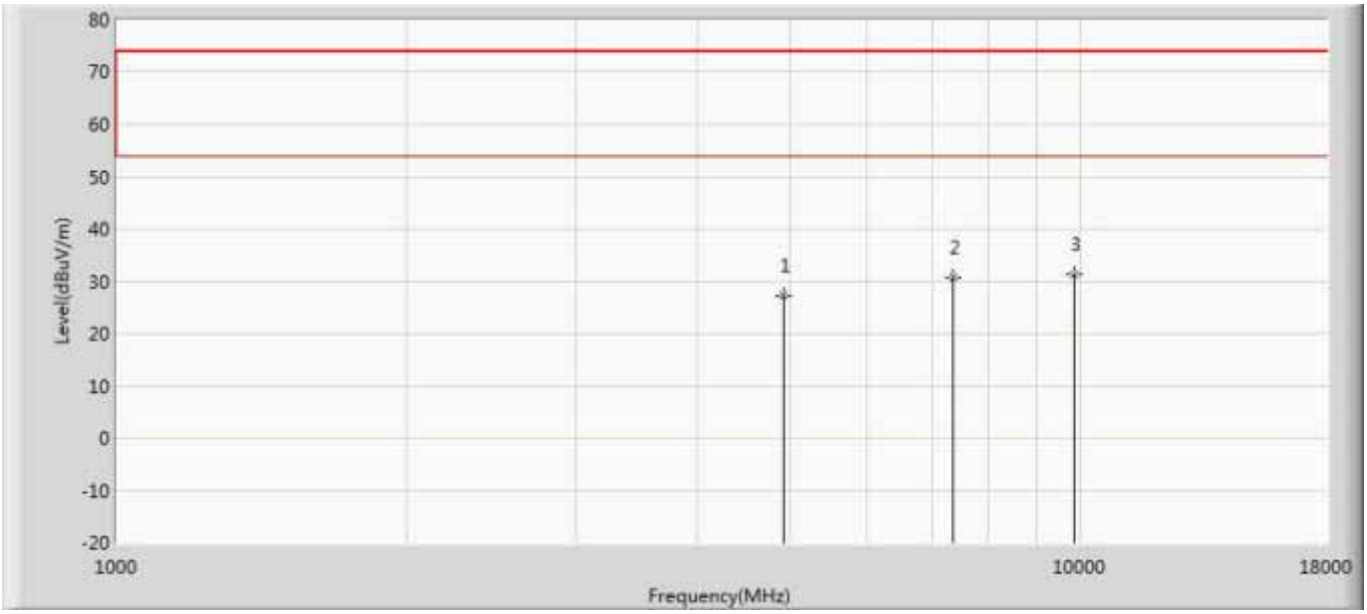

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.212 | 26.654 | -47.788 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.775 | 26.903 | -43.225 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.475 | 25.474 | -43.525 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2437MHz by 802.11g with Ant2 | |



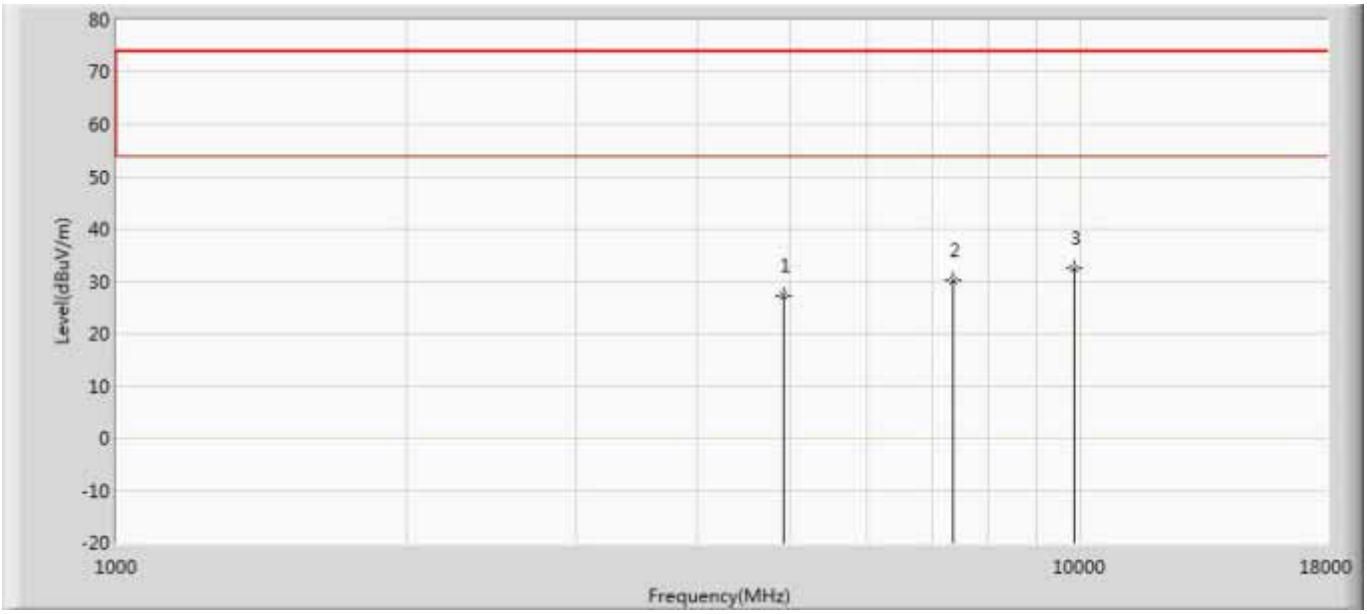

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.309 | 26.751 | -47.691 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 31.363 | 27.491 | -42.637 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.453 | 25.452 | -43.547 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant2 | |



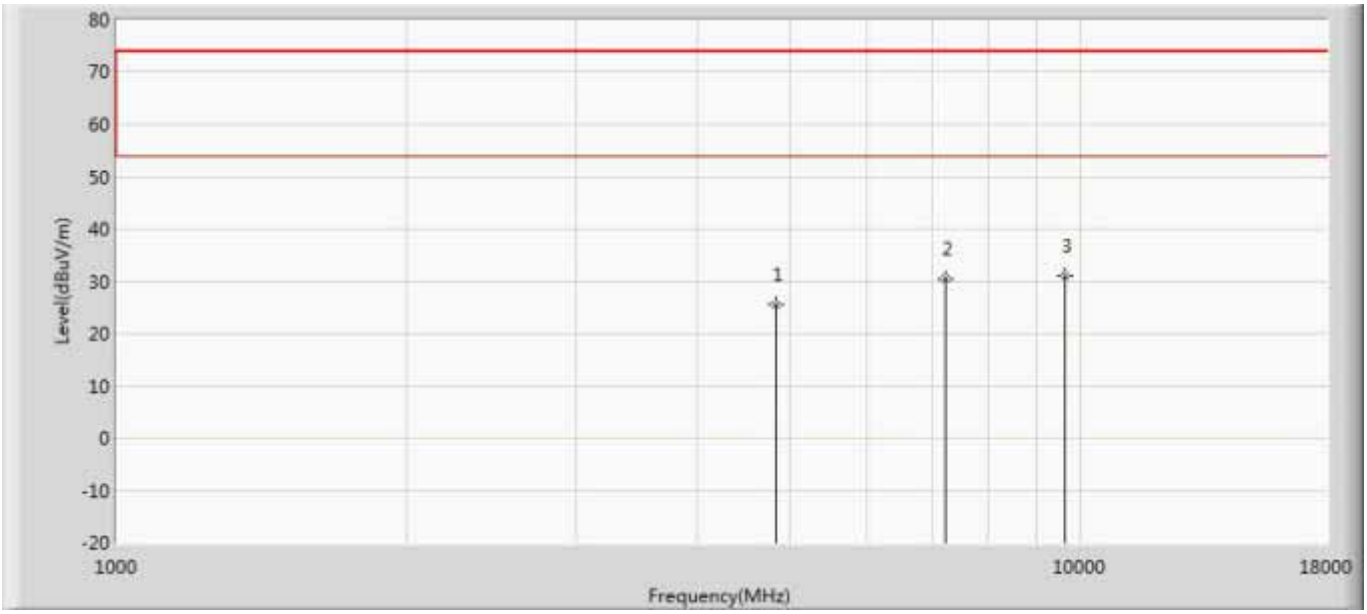

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.102 | 26.997 | -46.898 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.755 | 27.581 | -43.245 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 31.408 | 25.419 | -42.592 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant2 | |



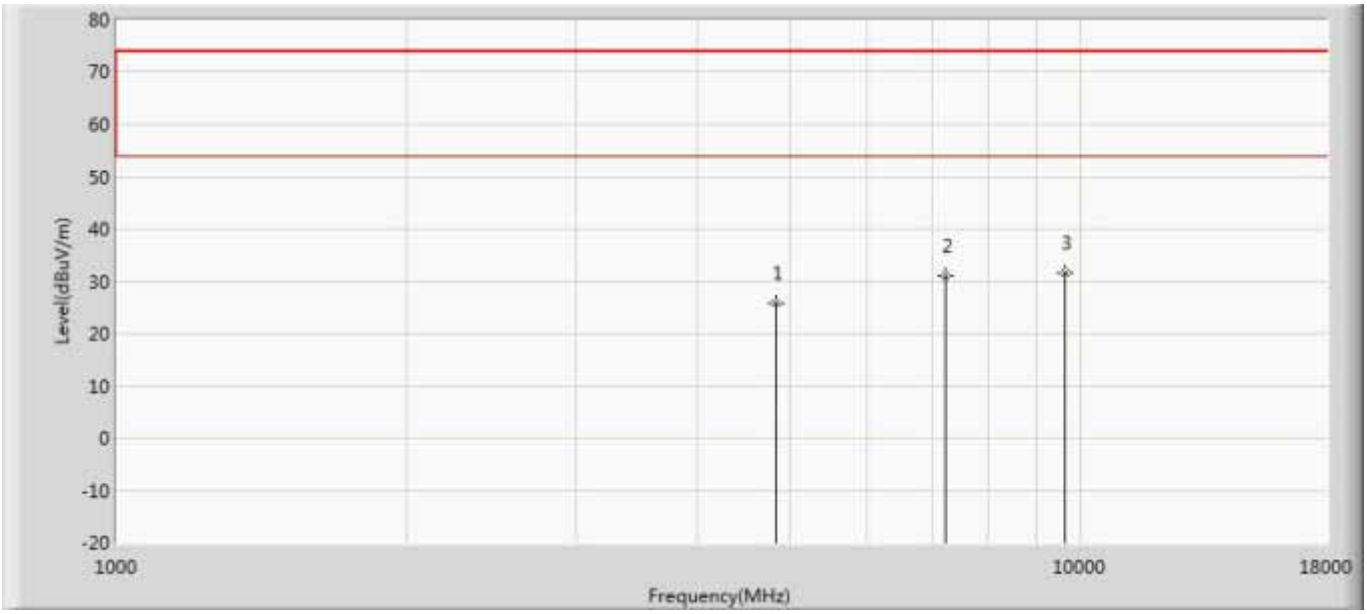

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.375 | 27.270 | -46.625 | 74.000 | 0.104 | PK |
| 2 | | 7386.000 | 30.268 | 27.094 | -43.732 | 74.000 | 3.174 | PK |
| 3 | * | 9848.000 | 32.365 | 26.376 | -41.635 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant2 | |



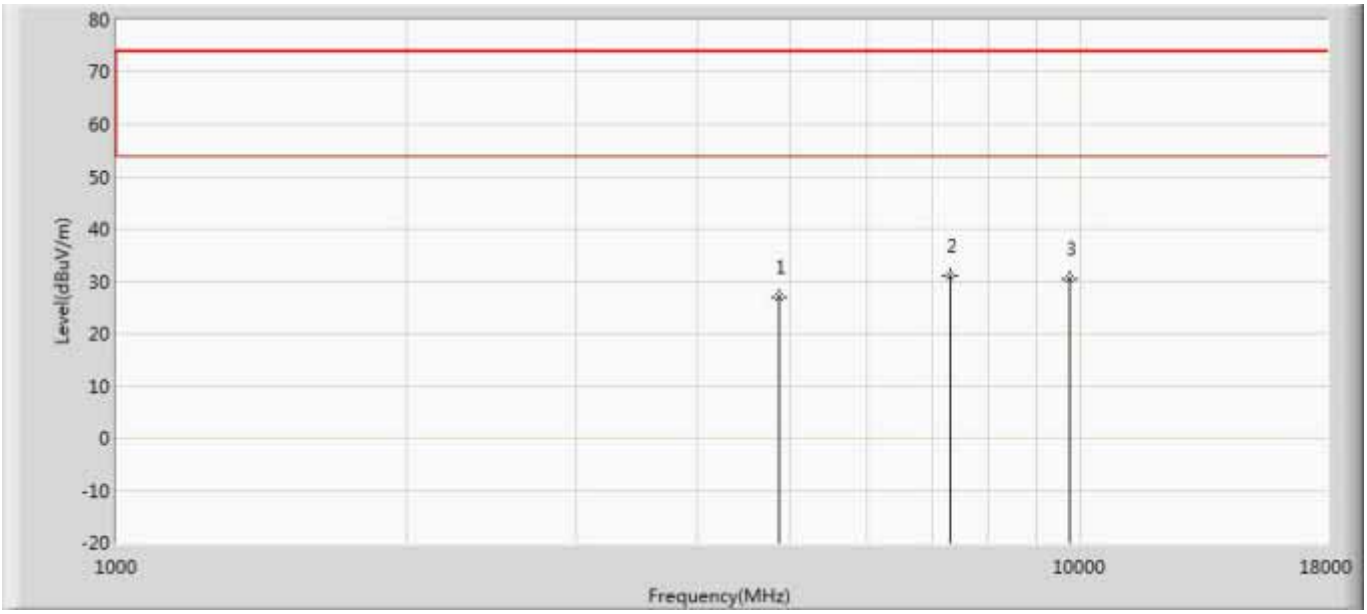

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.586 | 26.092 | -48.414 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 30.520 | 27.112 | -43.480 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.114 | 26.118 | -42.886 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant2 | |



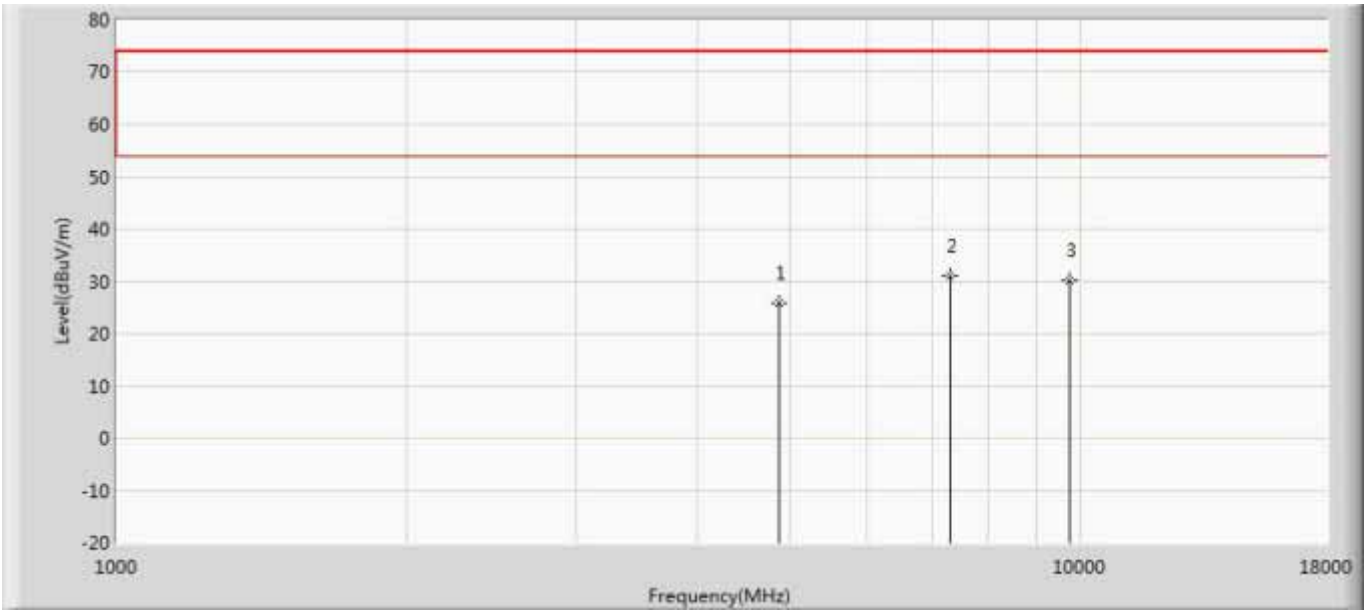

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4824.000 | 25.823 | 26.329 | -48.177 | 74.000 | -0.505 | PK |
| 2 | | 7236.000 | 31.014 | 27.606 | -42.986 | 74.000 | 3.407 | PK |
| 3 | * | 9648.000 | 31.648 | 26.652 | -42.352 | 74.000 | 4.996 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:14 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2437MHz by 802.11n20 with Ant2 | |



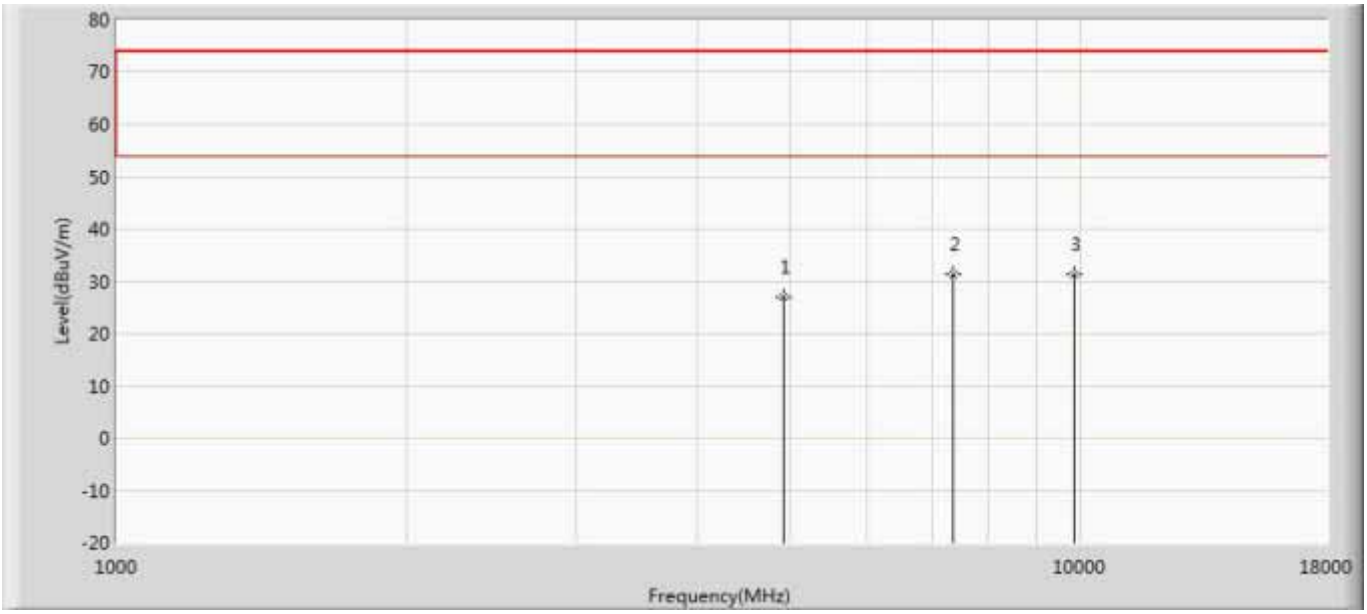

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 26.831 | 27.273 | -47.169 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 30.931 | 27.059 | -43.069 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.392 | 25.391 | -43.608 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:14 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2437MHz by 802.11n20 with Ant2 | |



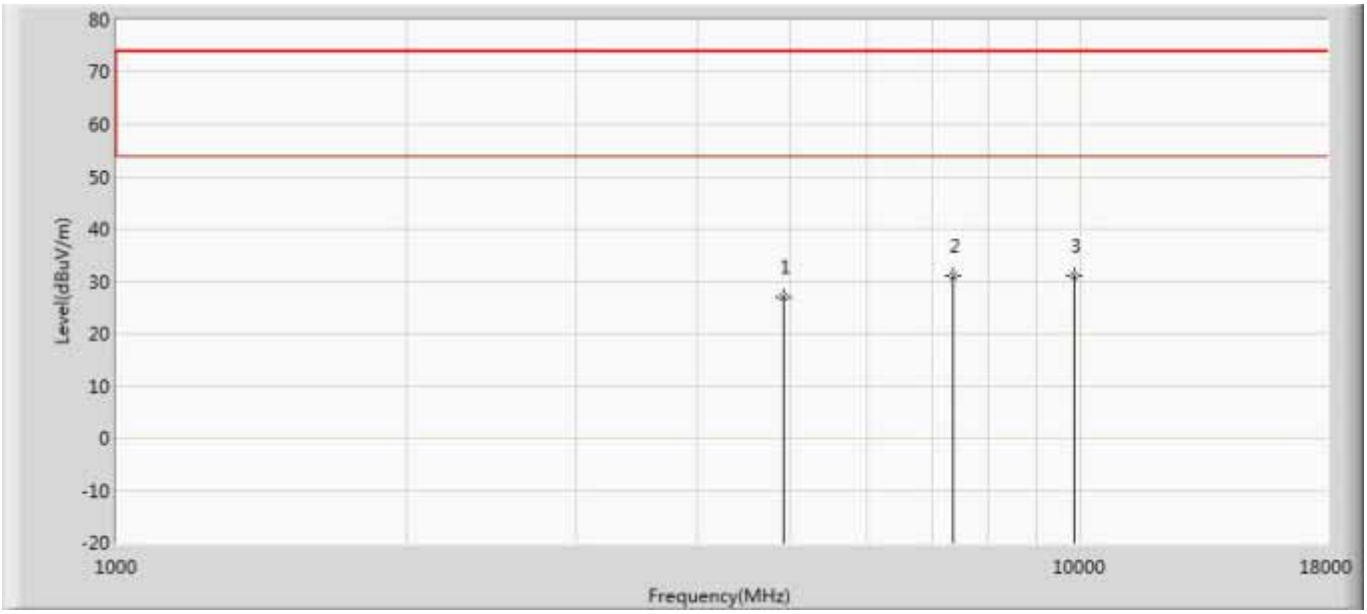

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4874.000 | 25.867 | 26.309 | -48.133 | 74.000 | -0.442 | PK |
| 2 | * | 7311.000 | 31.091 | 27.219 | -42.909 | 74.000 | 3.872 | PK |
| 3 | | 9748.000 | 30.130 | 25.129 | -43.870 | 74.000 | 5.002 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:14 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant2 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 27.018 | 26.913 | -46.982 | 74.000 | 0.104 | PK |
| 2 | * | 7386.000 | 31.269 | 28.095 | -42.731 | 74.000 | 3.174 | PK |
| 3 | | 9848.000 | 31.170 | 25.181 | -42.830 | 74.000 | 5.989 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 21:14 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant2 | |



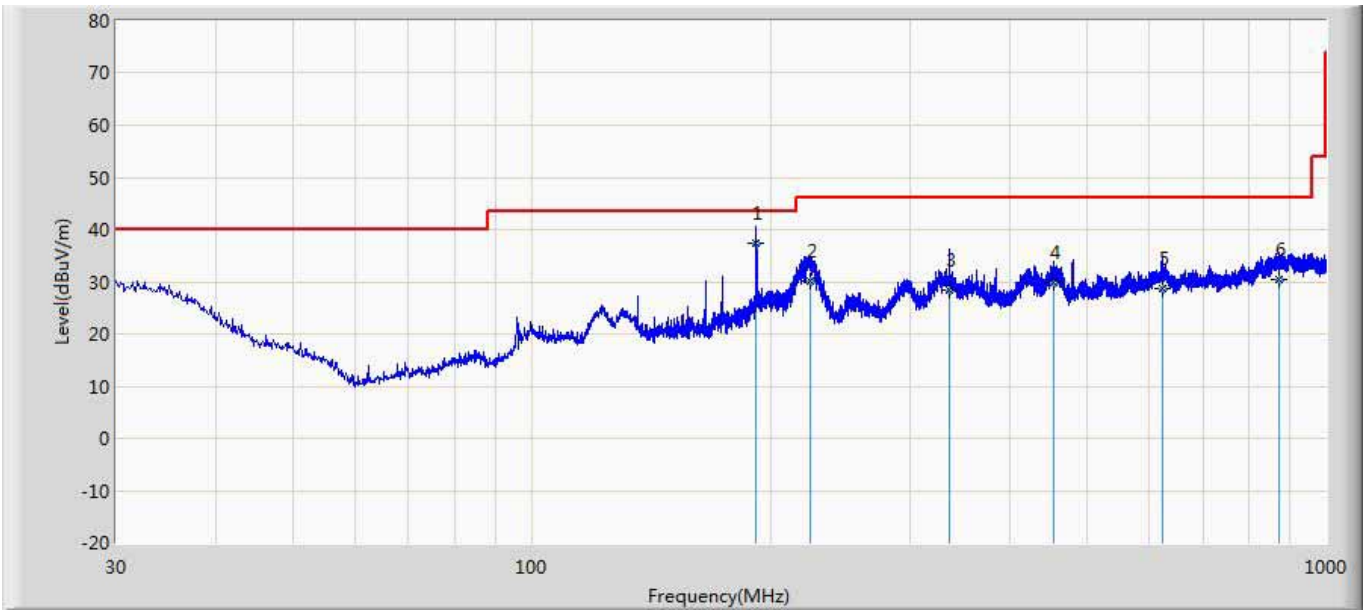

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 4924.000 | 26.983 | 26.878 | -47.017 | 74.000 | 0.104 | PK |
| 2 | * | 7386.000 | 31.100 | 27.926 | -42.900 | 74.000 | 3.174 | PK |
| 3 | | 9848.000 | 31.031 | 25.042 | -42.969 | 74.000 | 5.989 | PK |

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.

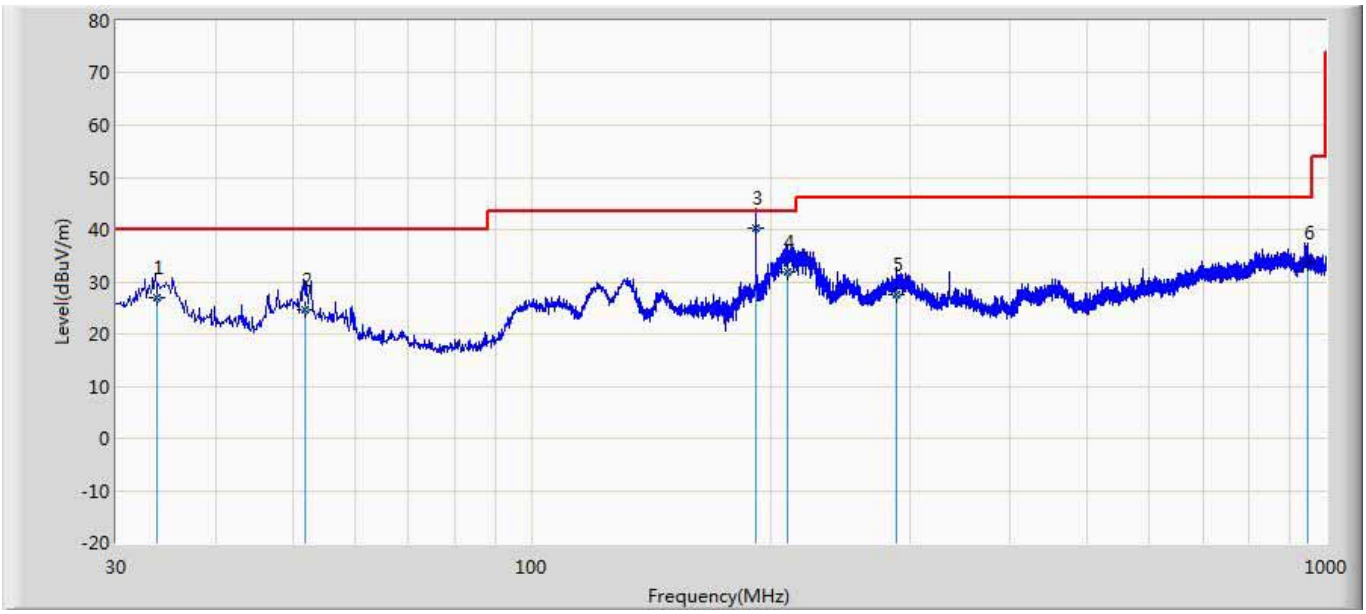
## The worst case of Radiated Emission below 1GHz:

| | |
|---|---|
| Engineer: Kay | |
| Site: AC2 | Time: 2018/01/29 |
| Limit: FCC_Part15.109_RE(3m)_ClassB | Margin: 0 |
| Probe: AC2_3M(30-1000M) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Probe (dB/m) | Cable (dB) | Amp (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * | 191.516 | 37.311 | 19.980 | -6.189 | 43.500 | 10.008 | 7.323 | 0.000 | 200 | 138 | QP |
| 2 | | 223.845 | 30.124 | 12.103 | -15.876 | 46.000 | 10.571 | 7.450 | 0.000 | 200 | 139 | QP |
| 3 | | 335.812 | 28.450 | 5.600 | -17.550 | 46.000 | 15.112 | 7.738 | 0.000 | 100 | 81 | QP |
| 4 | | 454.251 | 29.748 | 2.510 | -16.252 | 46.000 | 19.239 | 7.998 | 0.000 | 100 | 325 | QP |
| 5 | | 623.845 | 28.621 | -2.120 | -17.379 | 46.000 | 22.175 | 8.566 | 0.000 | 100 | 144 | QP |
| 6 | | 874.523 | 30.407 | -2.120 | -15.593 | 46.000 | 23.339 | 9.188 | 0.000 | 200 | 104 | QP |

| | |
|---|---|
| Engineer: Kay | |
| Site: AC2 | Time: 2018/01/29 |
| Limit: FCC_Part15.109_RE(3m)_ClassB | Margin: 0 |
| Probe: AC2_3M(30-1000M) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 1 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Probe (dB/m) | Cable (dB) | Amp (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 33.715 | 26.920 | 3.690 | -13.080 | 40.000 | 16.571 | 6.658 | 0.000 | 200 | 102 | QP |
| 2 | | 51.985 | 24.506 | 5.680 | -15.494 | 40.000 | 12.248 | 6.578 | 0.000 | 100 | 143 | QP |
| 3 | * | 191.886 | 40.297 | 18.700 | -3.203 | 43.500 | 14.273 | 7.324 | 0.000 | 100 | 34 | QP |
| 4 | | 209.625 | 31.992 | 8.600 | -11.508 | 43.500 | 16.007 | 7.385 | 0.000 | 200 | 147 | QP |
| 5 | | 287.956 | 27.623 | 2.635 | -18.377 | 46.000 | 17.380 | 7.608 | 0.000 | 100 | 145 | QP |
| 6 | | 950.635 | 33.519 | 0.121 | -12.481 | 46.000 | 24.047 | 9.351 | 0.000 | 100 | 214 | QP |

Note:

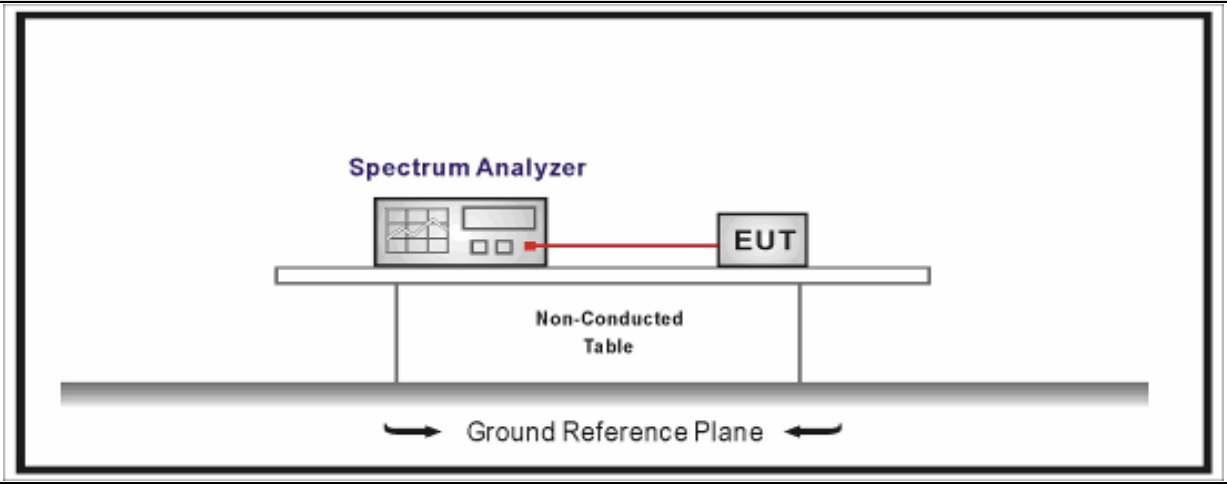
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

# 5. Emissions in non-restricted frequency bands

## 5.1. Test Equipment

| Emissions in non-restricted frequency bands / TR-8 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | N9010A | MY48030494 | 2018.02.04 | 2019.02.03 |
| EXA Spectrum Analyzer | Keysight | N9010A | MY55370495 | 2017.04.09 | 2018.04.08 |
| MXA Signal Analyzer | Keysight | N9020A | MY56060147 | 2017.04.09 | 2018.04.08 |
| Temperature/Humidity Meter | zhichen | ZC1-2 | TR8-TH | 2017.04.10 | 2018.04.09 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 5.2. Test Setup

| Emissions in non-restricted frequency bands |
| --- |
|  |

## 5.3. Limit

| Un-Restricted Band Emissions Limit | |
|---|---|
| RF Output power (Detection methods) | Limit(dB) |
| RF Output power(Average detector) | 30c(Note1) |
| RF Output power(PK detector) | 20c(Note2) |

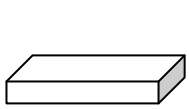
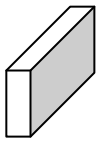
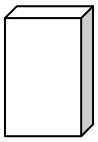
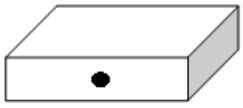
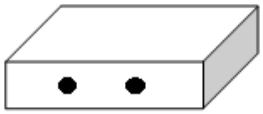
Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

## 5.4. Test Procedure

| Test Method | | | | | | |
|---|---|---|---|---|---|---|
| | References Rule | | | | Chapter | Description |
| ☒ | ANSI C63.10 | | | | 11.11 | Emissions in non-restricted frequency bands |
| | ☒ | ANSI C63.10 | | | 11.11.2 | Reference level measurement |
| | ☒ | ANSI C63.10 | | | 11.11.3 | Emission level measurement |
| ☐ | ANSI C63.10 | | | | 11.12 | Emissions in restricted frequency bands |
| | ☐ | ANSI C63.10 | | | 11.12.1 | Radiated emission measurements |
| | ☐ | ANSI C63.10 | | | 11.12.2.7 | Radiated spurious emission test |
| ☐ | ANSI C63.10 | | | | 6.4 | Radiated emissions from unlicensed wireless devices below 30 MHz |
| ☐ | ANSI C63.10 | | | | 6.5 | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| ☐ | ANSI C63.10 | | | | 6.6 | Radiated emissions from unlicensed wireless devices above 1 GHz |
| | ☐ | ANSI C63.10 | | | 11.12.2 | Antenna-port conducted measurements |
| | | ☐ | ANSI C63.10 | | 11.12.2.3 | Quasi-peak measurement procedure |
| | | ☐ | ANSI C63.10 | | 11.12.2.4 | Peak power measurement procedure |
| | | ☐ | ANSI C63.10 | | 11.12.2.5 | Average power measurement procedures |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.1 | Trace averaging with continuous EUT transmission at full power |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.2 | Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction |
| | | | ☐ | ANSI C63.10 | 11.12.2.5.3 | Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold |

## 5.5. EUT test Axis definition

<table>
<tr><th>Item</th><th colspan="4">Emissions in non-restricted frequency bands</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1 ~ 3</td></tr>
<tr><td rowspan="12">Test method</td><td>☐</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Worst Axis ☐</td><td>Worst Axis ☐</td><td>Worst Axis ☐</td></tr>
<tr><td>☒</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☒</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

## 5.6. Test Result

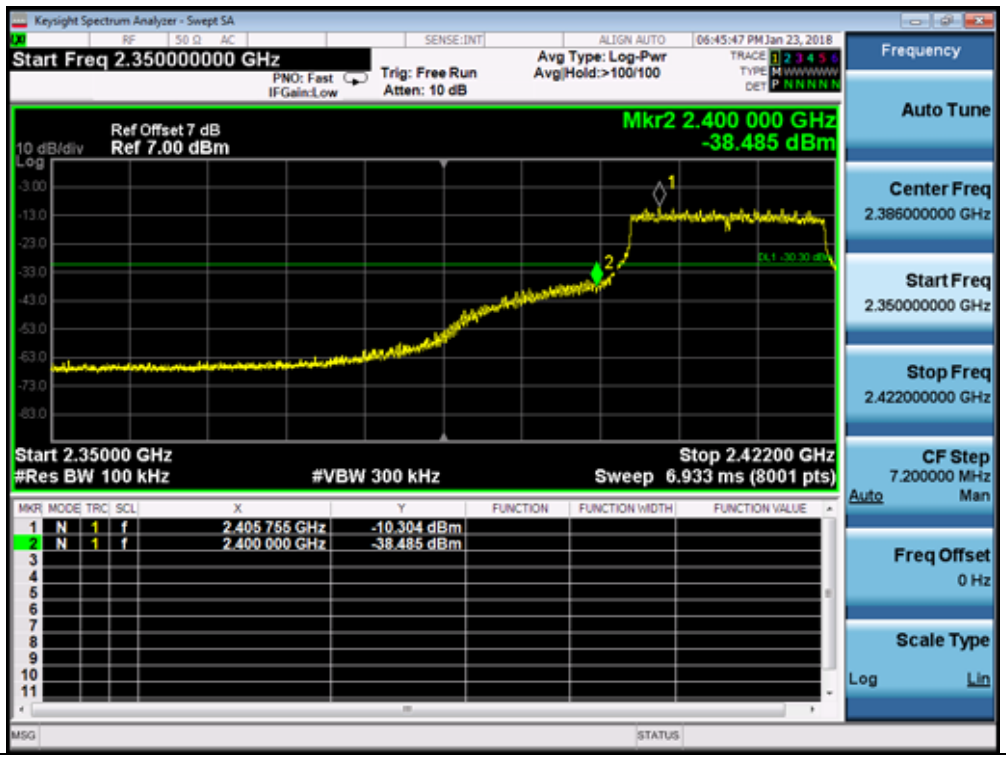
| | | | | | |
|---|---|---|---|---|---|
| Product Name | : | Wake-up Light | Power | : | AC 120V/60Hz |
| Test Mode | : | Mode1~3 | Test Site | : | TR8 |
| Test Date | : | 2018.01.23 | Test Engineer | : | Tommie |

**Antenna #1**

| Mode | Channel | Test Frequency (MHz) | Maximum In-Band PSD[a] (dBm/100kHz) | Frequency (MHz) | Out-Band PSD[b] (dBm/100kHz) | [a]-[b] (dB) | Limit (dB) | Result |
|---|---|---|---|---|---|---|---|---|
| 1 | 01 | 2412 | -6.349 | 2400 | -52.567 | 46.218 | >20 | Pass |
| 1 | 11 | 2462 | -5.879 | 2500 | -62.513 | 56.634 | >20 | Pass |
| 2 | 01 | 2412 | -5.614 | 2400 | -51.021 | 45.407 | >20 | Pass |
| 2 | 11 | 2462 | -5.670 | 2500 | -62.814 | 57.144 | >20 | Pass |
| 3 | 01 | 2412 | -10.304 | 2400 | -38.485 | 28.181 | >20 | Pass |
| 3 | 11 | 2462 | -9.493 | 2500 | -63.974 | 54.481 | >20 | Pass |

Note: The worst case of emissions in non-restricted frequency bands as below:

Mode 3 CH01(2412MHz)



**Antenna #2**

| Mode | Channel | Test Frequency (MHz) | Maximum In-Band PSD[a] (dBm/100kHz) | Frequency (MHz) | Out-Band PSD[b] (dBm/100kHz) | [a]-[b] (dB) | Limit (dB) | Result |
|---|---|---|---|---|---|---|---|---|
| 1 | 01 | 2412 | 6.561 | 2400 | -36.349 | 42.91 | >20 | Pass |
| 1 | 11 | 2462 | 7.675 | 2500 | -48.173 | 55.848 | >20 | Pass |
| 2 | 01 | 2412 | 6.935 | 2400 | -35.759 | 42.694 | >20 | Pass |
| 2 | 11 | 2462 | 7.194 | 2500 | -48.856 | 56.05 | >20 | Pass |
| 3 | 01 | 2412 | 3.027 | 2400 | -27.107 | 30.134 | >20 | Pass |
| 3 | 11 | 2462 | 2.890 | 2500 | -48.594 | 51.484 | >20 | Pass |

Note: The worst case of emissions in non-restricted frequency bands as below:

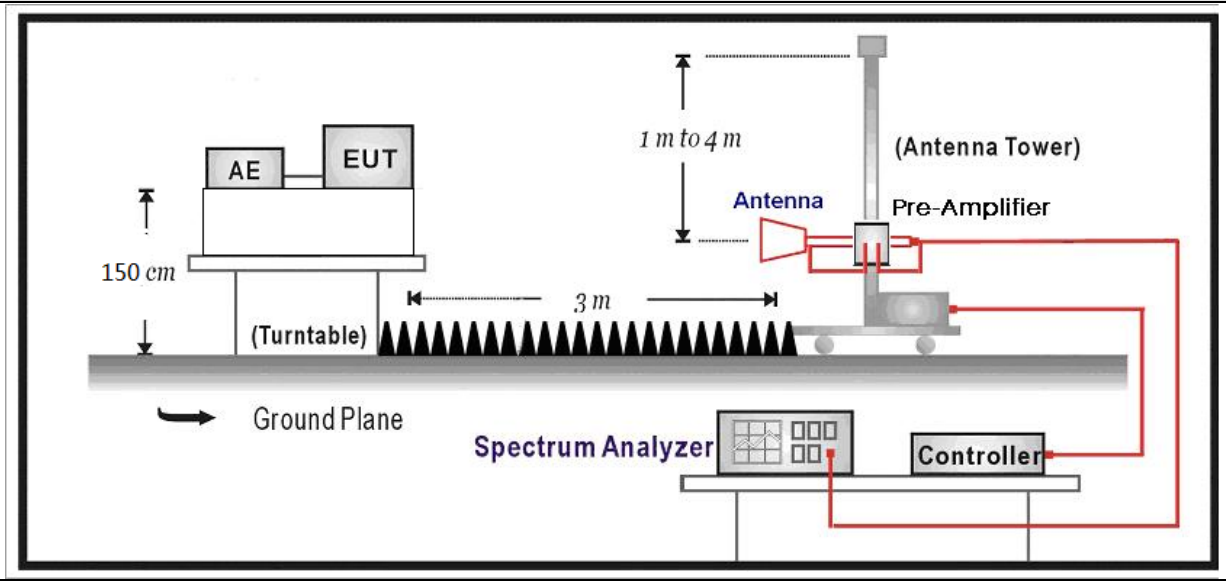
Mode 3 CH01(2412MHz)

# 6. Radiated Emission Band Edge

## 6.1. Test Equipment

| Radiated Emission Band Edge / AC-5 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2018.01.04 | 2019.01.03 |
| Preamplifier | Miteq | NSP1800-25 | 1364185 | 2017.05.06 | 2018.05.05 |
| Preamplifier | QuieTek | AP-040G | CHM-0906001 | 2017.05.06 | 2018.05.05 |
| DRG Horn | ETS-Lindgren | 3117 | 00123988 | 2018.01.22 | 2019.01.21 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9170 | 294 | 2017.11.25 | 2018.11.24 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C1 | 2018.03.02 | 2019.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C2 | 2018.03.02 | 2019.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 102 | AC5-C3 | 2018.03.02 | 2019.03.01 |
| EMI Receiver | Agilent | N9038A | MY51210196 | 2017.06.10 | 2018.06.09 |
| Temperature/Humidity Meter | Zhichen | ZC1-2 | AC5-TH | 2018.01.04 | 2019.01.03 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 6.2. Test Setup

| Radiated Emission Band Edge |
|---|
|  |



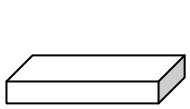
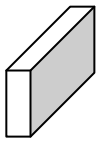
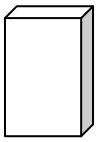
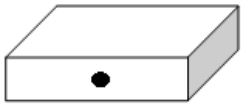
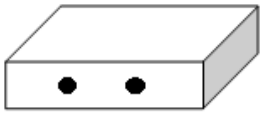
## 6.3. Limit

| Band edge Limit | | | | |
|---|---|---|---|---|
| Frequency bands (MHz) | Detector | Limit (dB μ V/m) | RBW (MHz) | Distance (m) |
| 2310-2390<br>2483.5-2500 | PK | 74 | 1 | 3 |
| | AV | 54 | 1 | 3 |
| Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits. | | | | |

## 6.4. Test Procedure

| Radiated Emission Band Edge | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | References Rule | | | | | | | Chapter | Description |
| ☒ | ANSI C63.10 | | | | | | | 6.10 | Band-edge testing |
| | ☒ | ANSI C63.10 | | | | | | 6.10.5 | Restricted-band band-edge measurements |
| | ☐ | ANSI C63.10 | | | | | | 6.10.6 | Marker-delta method |
| ☒ | ANSI C63.10 | | | | | | | 11.12 | Emissions in restricted frequency bands |
| | ☒ | ANSI C63.10 | | | | | | 11.12.1 | Radiated emission measurements |
| | ☒ | ANSI C63.10 | | | | | | 11.12.2.7 | Radiated spurious emission test |
| ☐ | ANSI C63.10 | | | | | | | 6.4 | Radiated emissions from unlicensed wireless devices below 30 MHz |
| ☐ | ANSI C63.10 | | | | | | | 6.5 | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| ☒ | ANSI C63.10 | | | | | | | 6.6 | Radiated emissions from unlicensed wireless devices above 1 GHz |
| | ☐ | ANSI C63.10 | | | | | | 11.12.2 | Antenna-port conducted measurements |
| | | ☐ | ANSI C63.10 | | | | | 11.12.2.3 | Quasi-peak measurement procedure |
| | | ☐ | ANSI C63.10 | | | | | 11.12.2.4 | Peak power measurement procedure |
| | | ☐ | ANSI C63.10 | | | | | 11.12.2.5 | Average power measurement procedures |
| | | | ☐ | ANSI C63.10 | | | | 11.12.2.5.1 | Trace averaging with continuous EUT transmission at full power |
| | | | ☐ | ANSI C63.10 | | | | 11.12.2.5.2 | Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction |
| | | | ☐ | ANSI C63.10 | | | | 11.12.2.5.3 | Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold |

## 6.5. EUT test definition

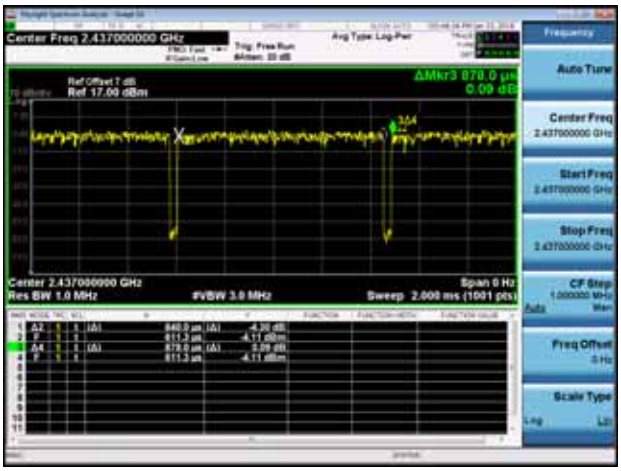
<table>
<tr><th>Item</th><th colspan="4">Radiated Emission Band Edge</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1~3</td></tr>
<tr><td rowspan="14">Test method</td><td>☒</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Worst Axis ☒</td><td>Worst Axis ☐</td><td>Worst Axis ☐</td></tr>
<tr><td>☐</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

## 6.6. Duty Cycle

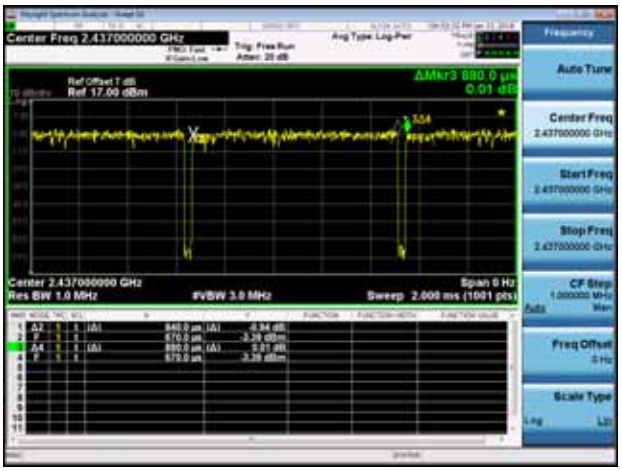
**Ant1:**

| Test Mode | Tx On (ms) | Tx Off (ms) | VBW | Tx On + Tx Off (ms) | Duty Cycle |
|---|---|---|---|---|---|
| 802.11b | 0.84 | 0.038 | 1.2kHz | 0.878 | 95.67% |
| 802.11g | 0.84 | 0.04 | 1.2kHz | 0.88 | 95.45% |
| 802.11n(20MHz) | 0.1635 | 0.0425 | 6.2kHz | 0.206 | 79.37% |

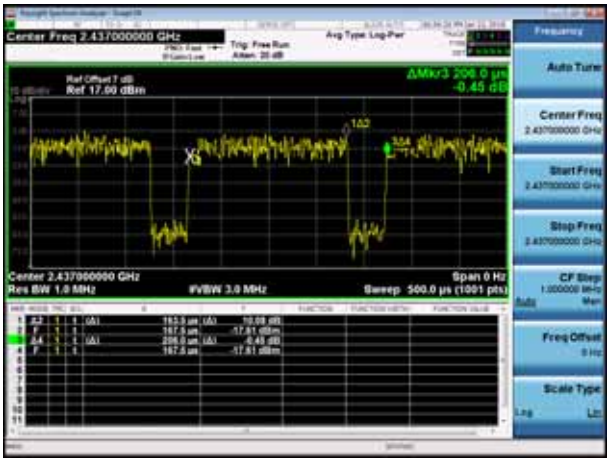
802.11b



802.11g



802.11n(20MHz)



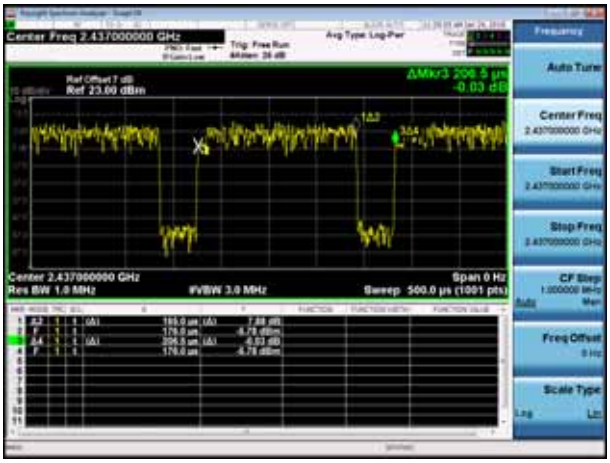
**Ant2:**

| Test Mode | Tx On (ms) | Tx Off (ms) | VBW | Tx On + Tx Off (ms) | Duty Cycle |
|---|---|---|---|---|---|
| 802.11b | 0.84 | 0.04 | 1.2kHz | 0.88 | 95.45% |
| 802.11g | 0.838 | 0.04 | 1.2kHz | 0.878 | 95.44% |
| 802.11n(20MHz) | 0.165 | 0.0415 | 6.2kHz | 0.2065 | 79.90% |

802.11b

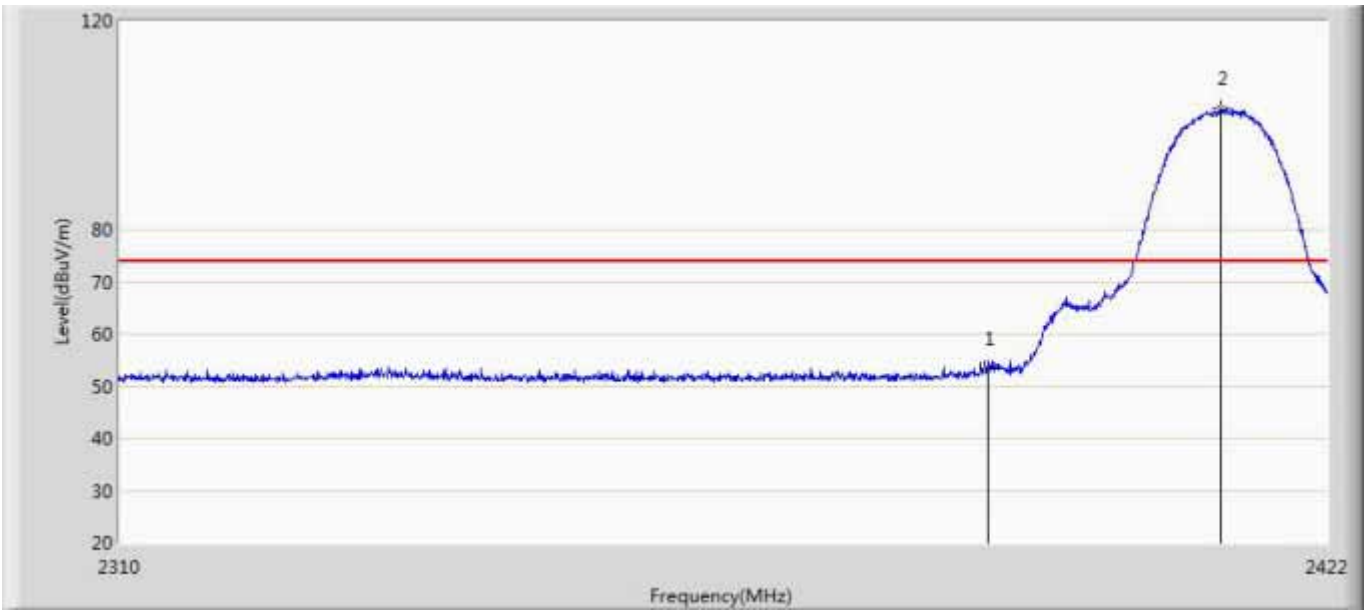
802.11g

802.11n(20MHz)



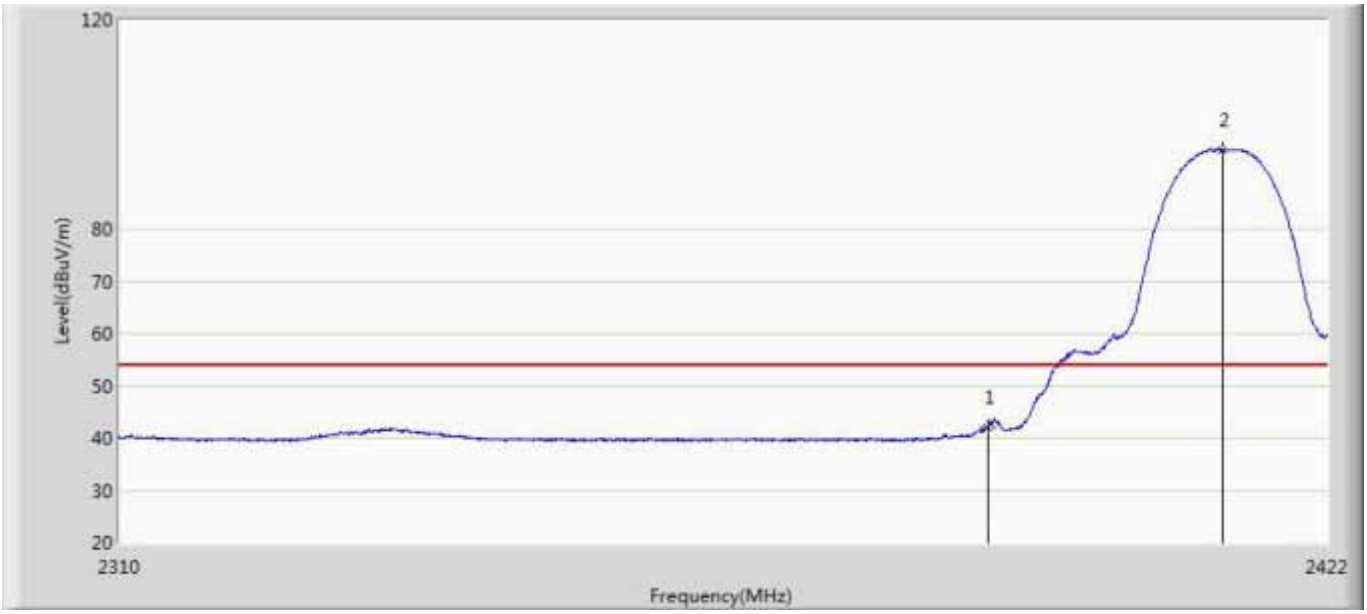
## 6.7. Test Result

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:15 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz at 802.11b with Ant 1 | |



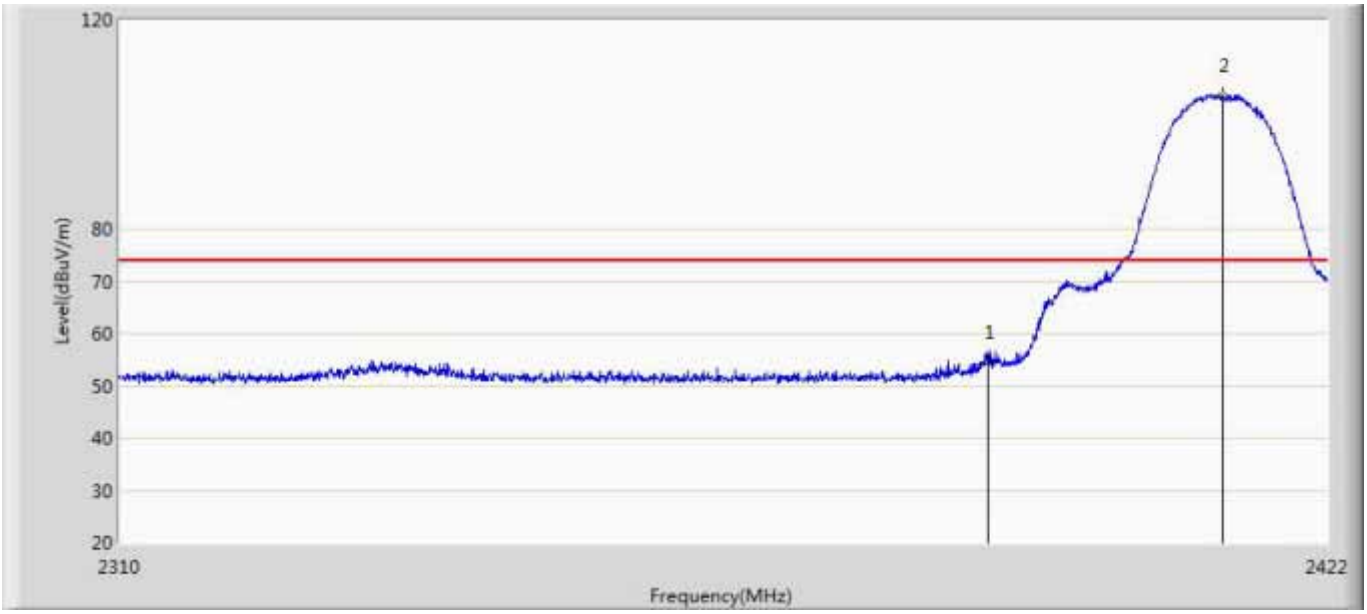

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 53.446 | 17.116 | -20.554 | 74.000 | 36.329 | PK |
| 2 | * | 2412.032 | 103.202 | 66.859 | N/A | N/A | 36.343 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:19 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz at 802.11b with Ant 1 | |



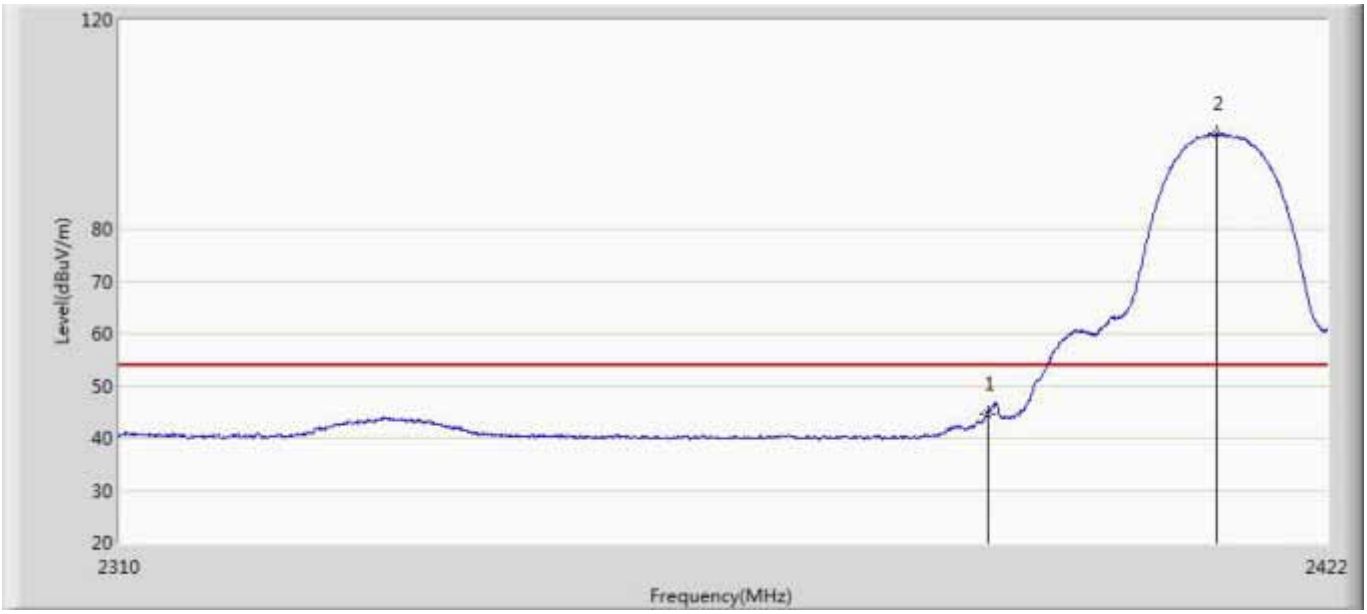

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 42.073 | 5.743 | -11.927 | 54.000 | 36.329 | AV |
| 2 | * | 2412.088 | 95.134 | 58.790 | N/A | N/A | 36.344 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:22 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz at 802.11b with Ant 1 | |



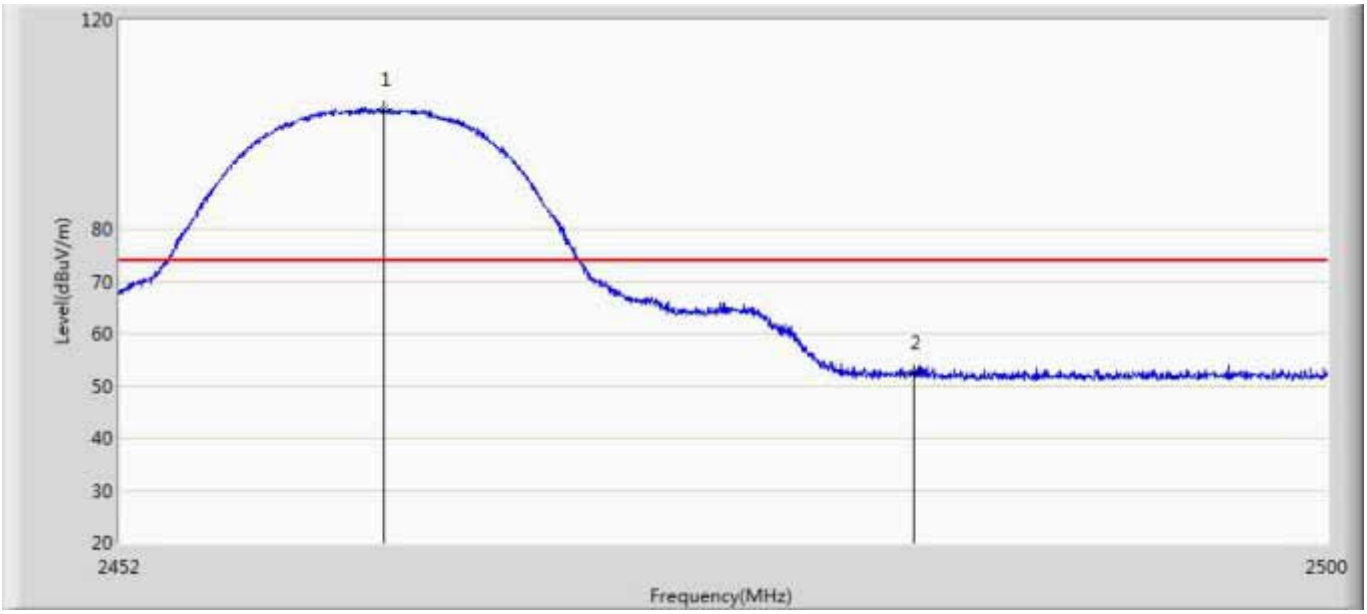

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 54.563 | 18.233 | -19.437 | 74.000 | 36.329 | PK |
| 2 | * | 2412.088 | 105.640 | 69.296 | N/A | N/A | 36.344 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:23 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz at 802.11b with Ant 1 | |



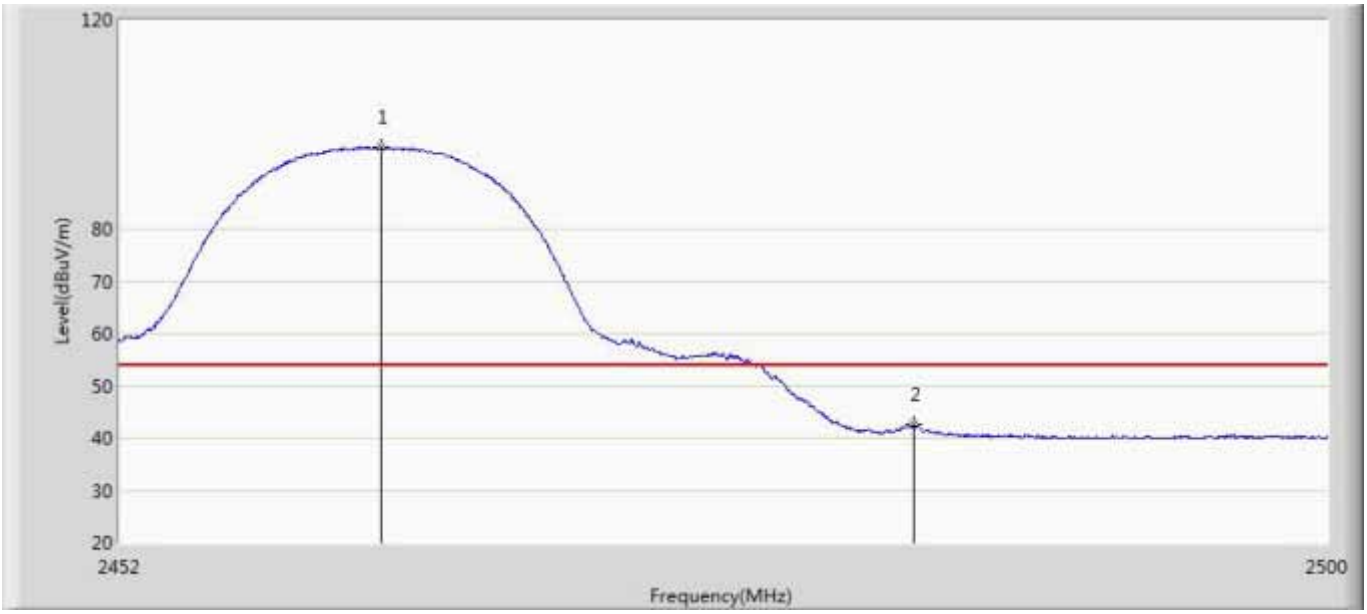

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 44.605 | 8.275 | -9.395 | 54.000 | 36.329 | AV |
| 2 | * | 2411.584 | 98.275 | 61.939 | N/A | N/A | 36.337 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:29 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2480MHz at 802.11b with Ant 1 | |



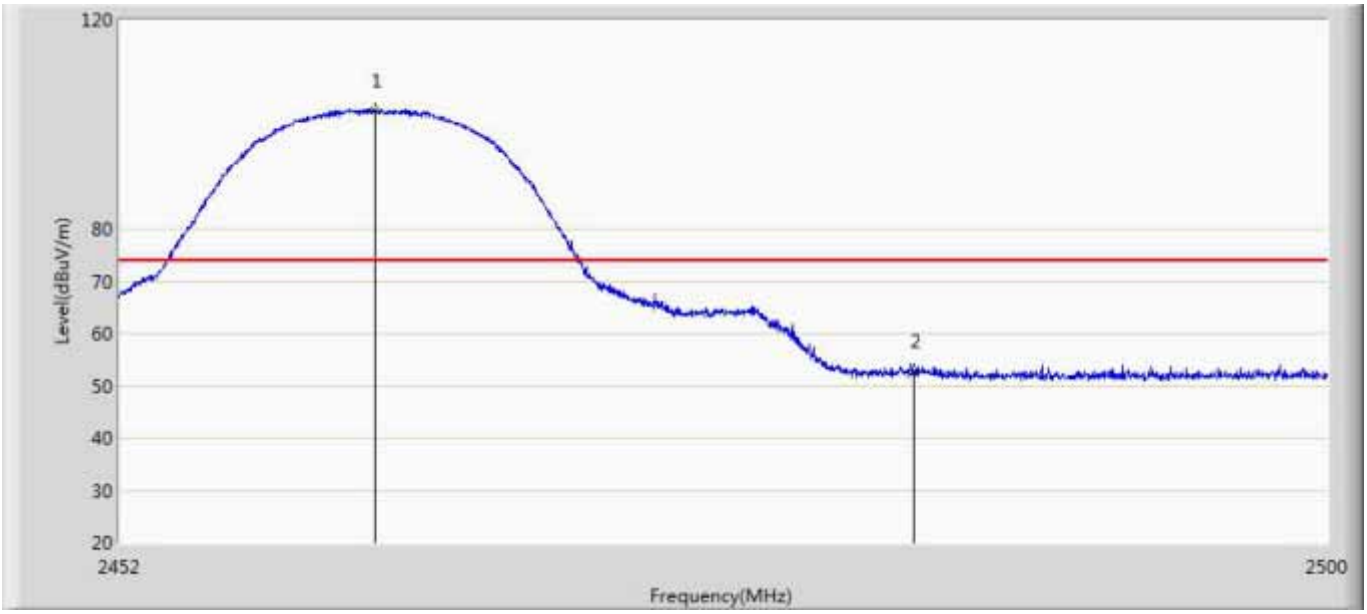

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.464 | 102.789 | 66.166 | N/A | N/A | 36.623 | PK |
| 2 | | 2483.500 | 52.322 | 15.855 | -21.678 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:33 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2480MHz at 802.11b with Ant 1 | |



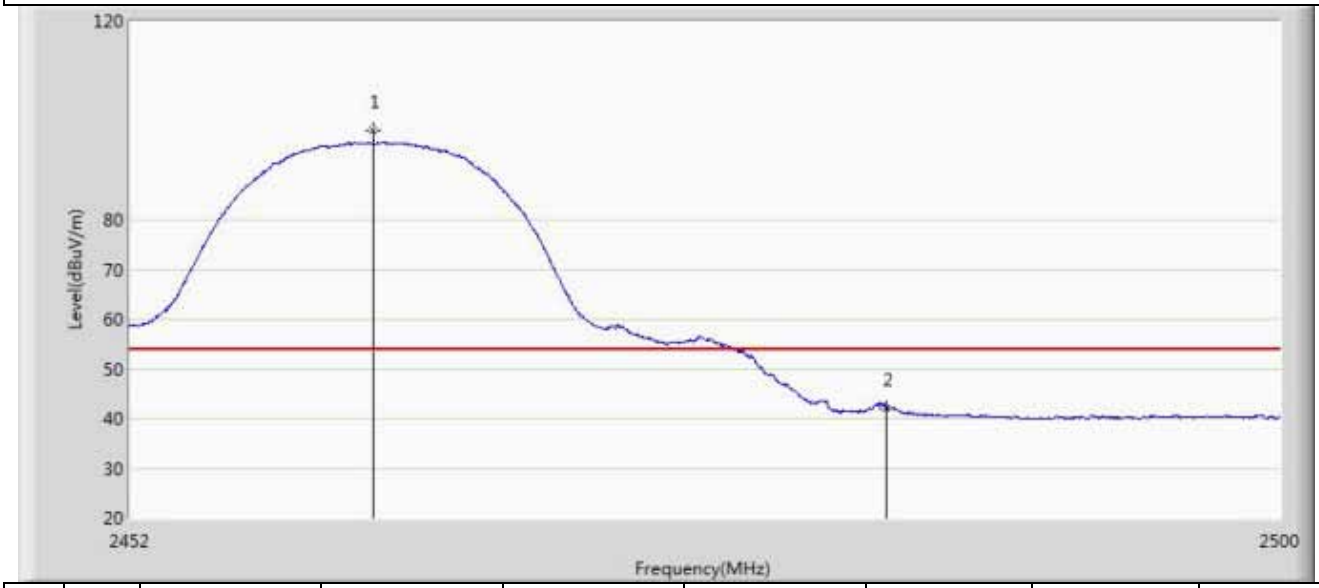

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.344 | 95.513 | 58.889 | N/A | N/A | 36.624 | AV |
| 2 | | 2483.500 | 42.468 | 6.001 | -11.532 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:35 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2480MHz at 802.11b with Ant 1 | |



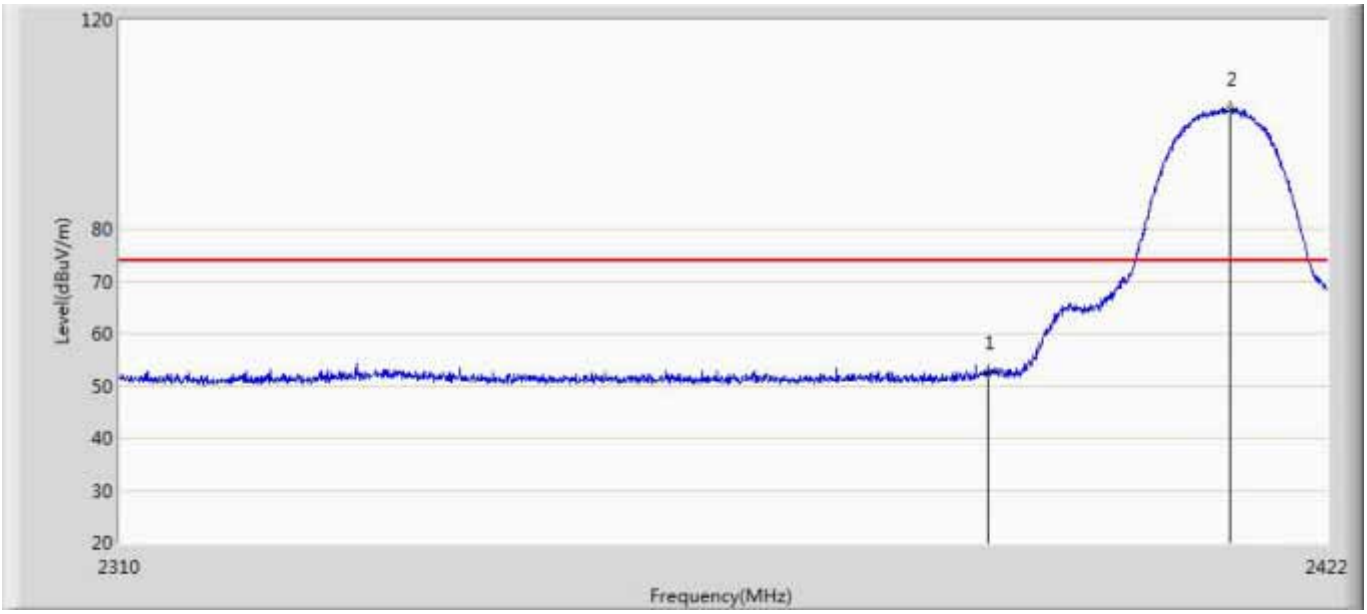

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.104 | 102.632 | 66.004 | N/A | N/A | 36.627 | PK |
| 2 | | 2483.500 | 52.693 | 16.226 | -21.307 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:36 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2480MHz at 802.11b with Ant 1 | |



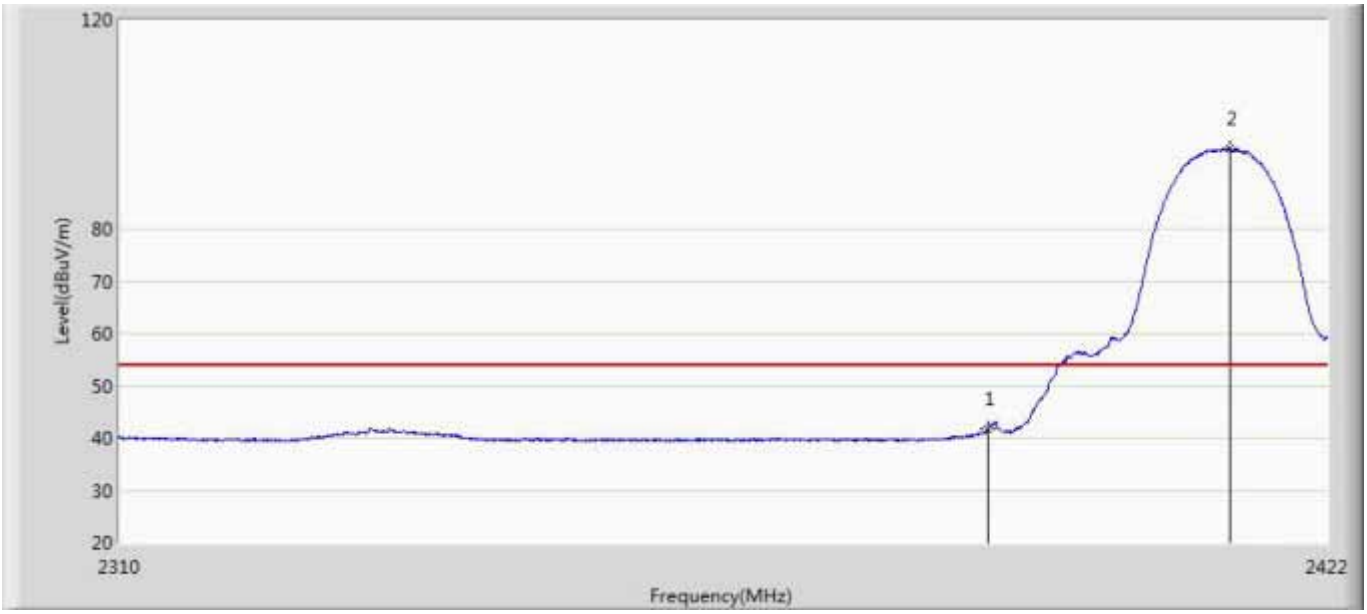

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.104 | 102.632 | 66.004 | N/A | N/A | 36.627 | AV |
| 2 | | 2483.500 | 42.116 | 5.649 | -11.884 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:38 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz at 802.11g with Ant 1 | |



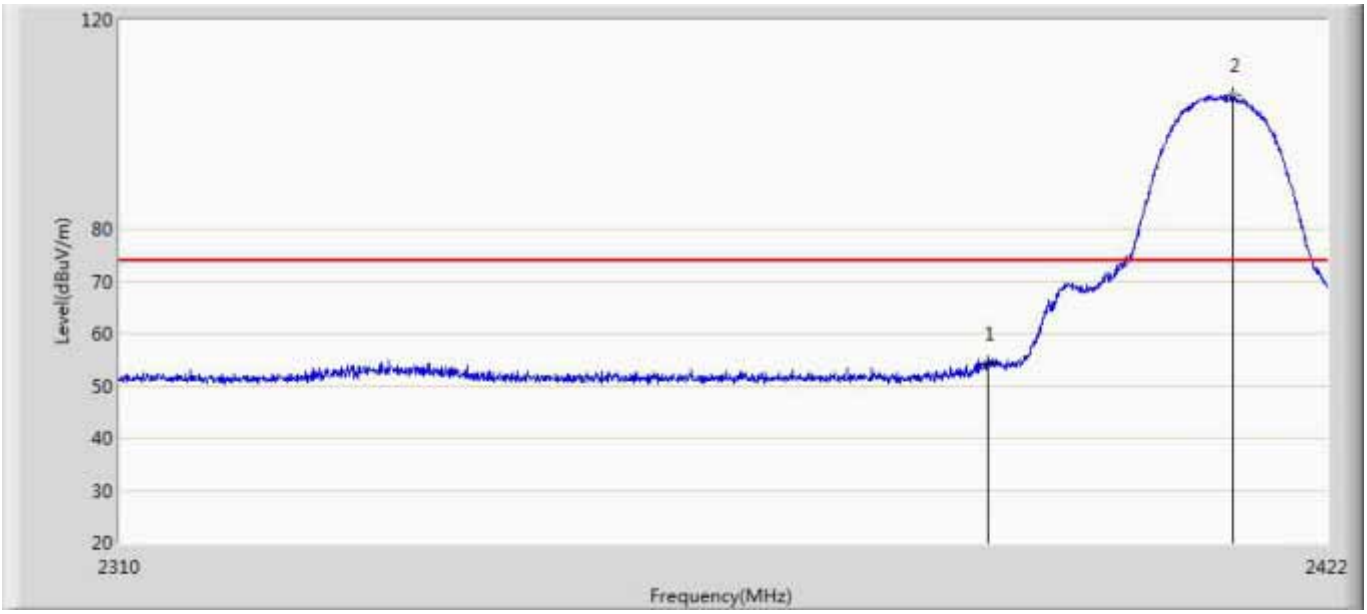

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 52.361 | 16.031 | -21.639 | 74.000 | 36.329 | PK |
| 2 | * | 2412.816 | 102.889 | 66.533 | N/A | N/A | 36.356 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:42 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz at 802.11g with Ant 1 | |



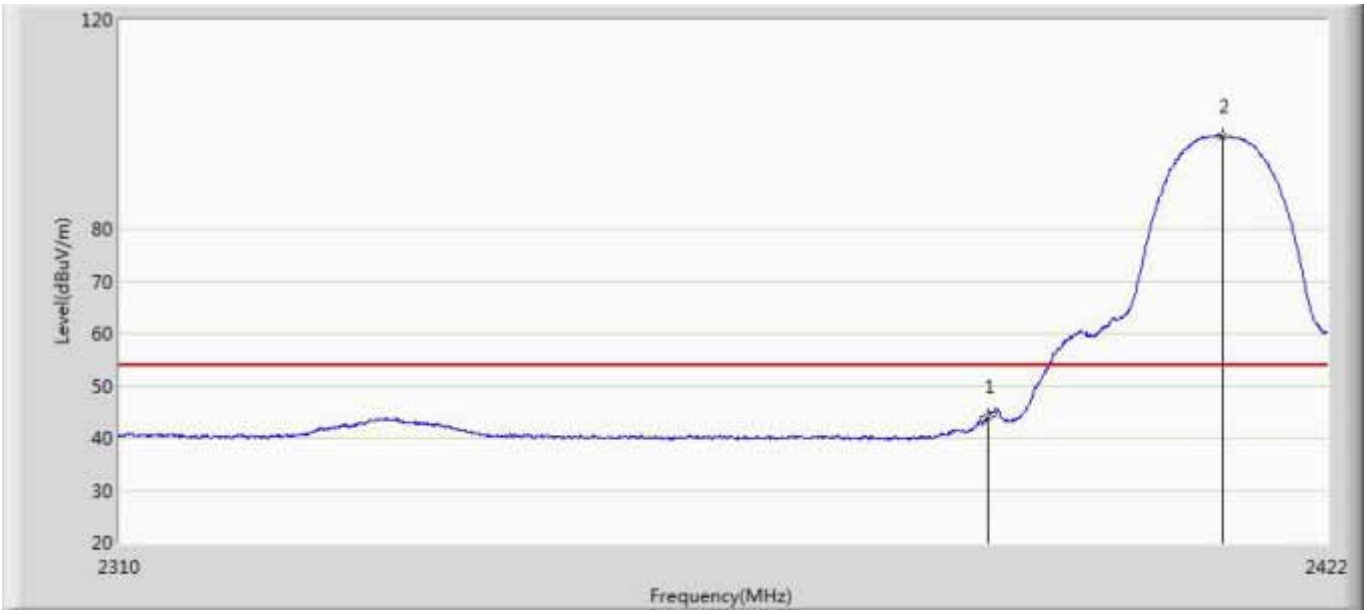

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 41.716 | 5.386 | -12.284 | 54.000 | 36.329 | AV |
| 2 | * | 2412.816 | 95.407 | 59.051 | N/A | N/A | 36.356 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:44 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz at 802.11g with Ant 1 | |



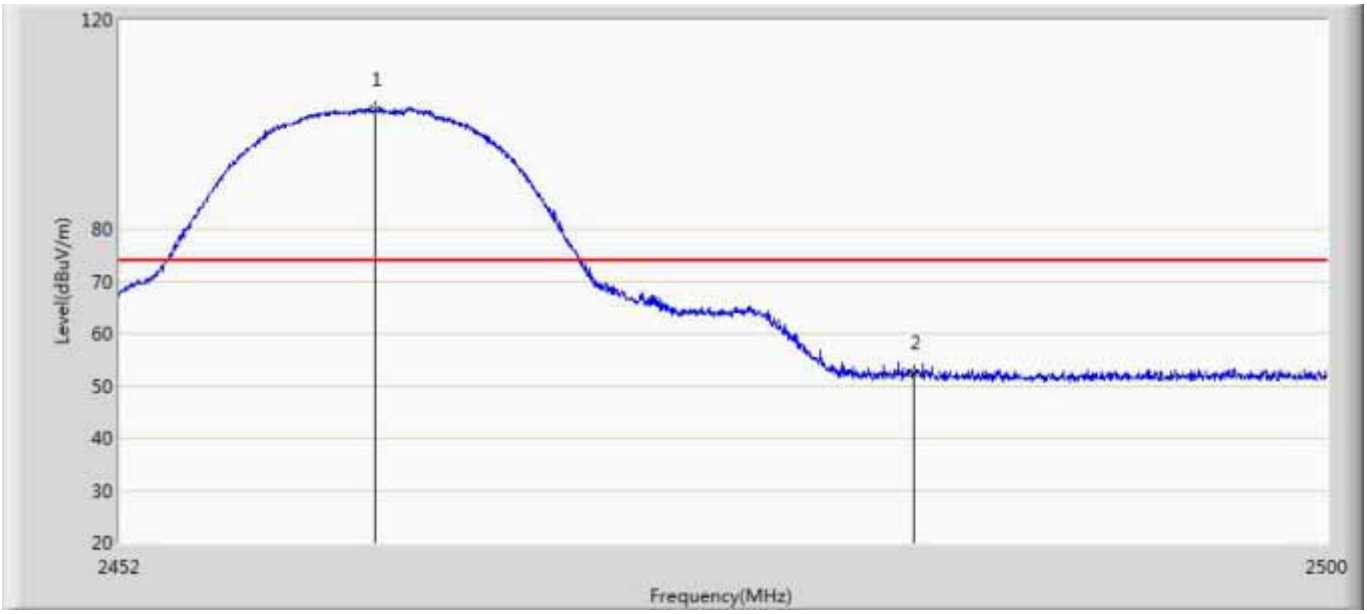

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 54.265 | 17.935 | -19.735 | 74.000 | 36.329 | PK |
| 2 | * | 2413.040 | 105.636 | 69.277 | N/A | N/A | 36.360 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:45 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz at 802.11g with Ant 1 | |



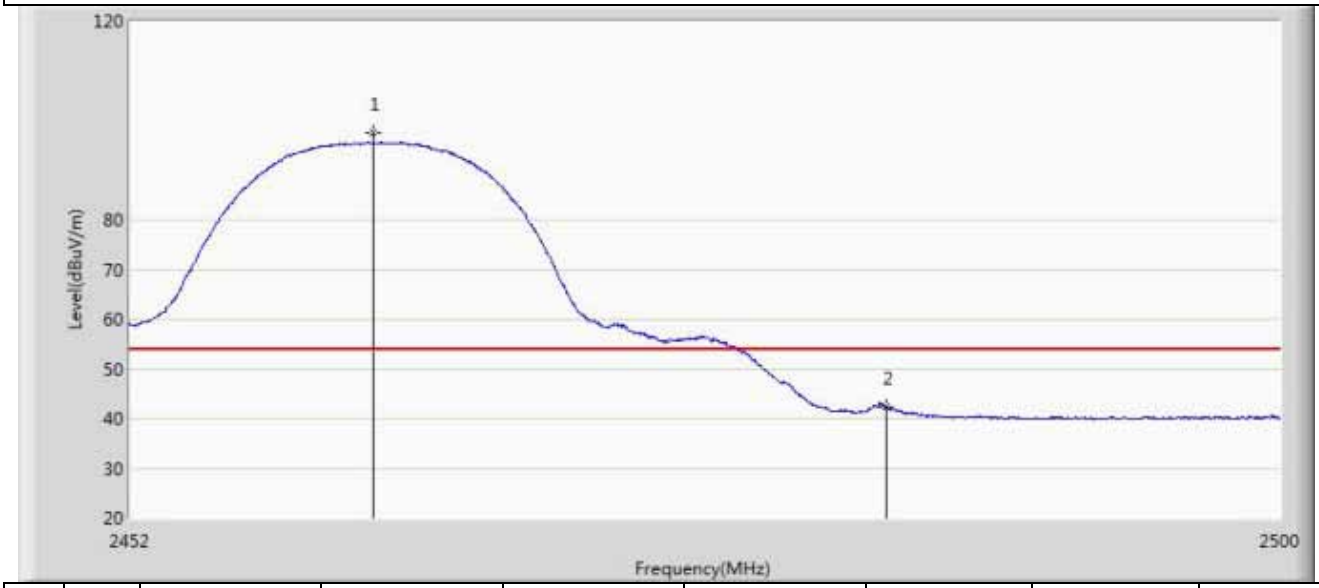

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 43.923 | 7.593 | -10.077 | 54.000 | 36.329 | AV |
| 2 | * | 2412.088 | 97.740 | 61.396 | N/A | N/A | 36.344 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:47 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2480MHz by 802.11g with Ant 1 | |



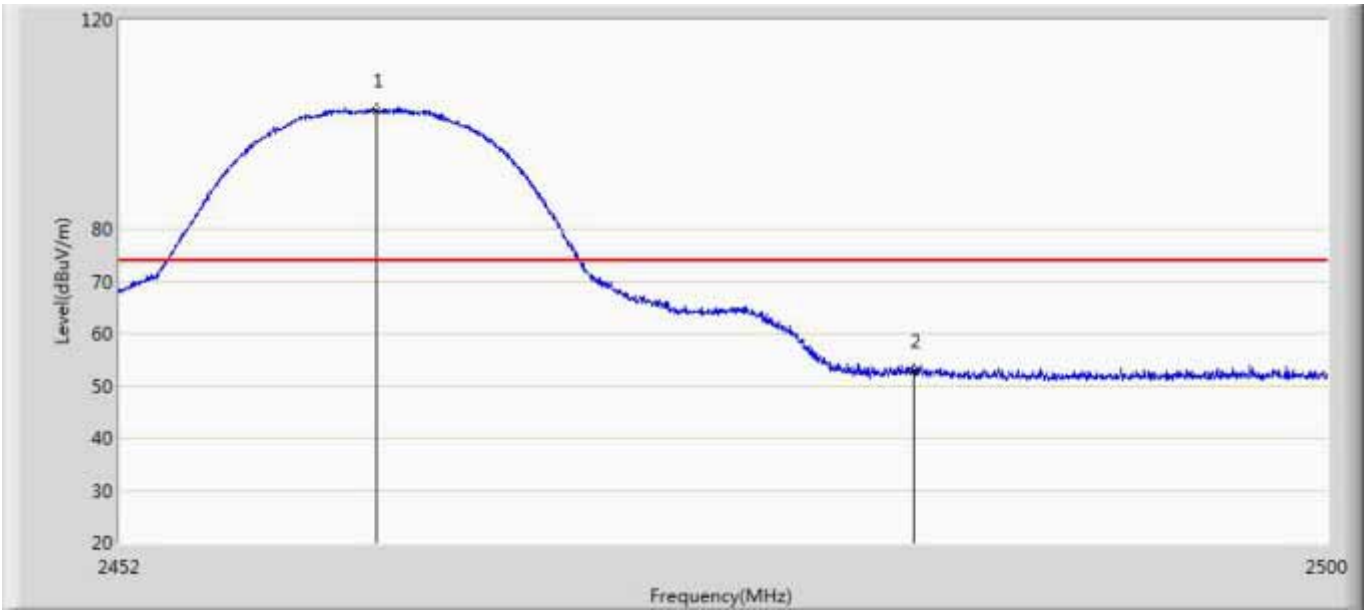

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.080 | 102.868 | 66.240 | N/A | N/A | 36.628 | PK |
| 2 | | 2483.500 | 52.362 | 15.895 | -21.638 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:49 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2480MHz by 802.11g with Ant 1 | |



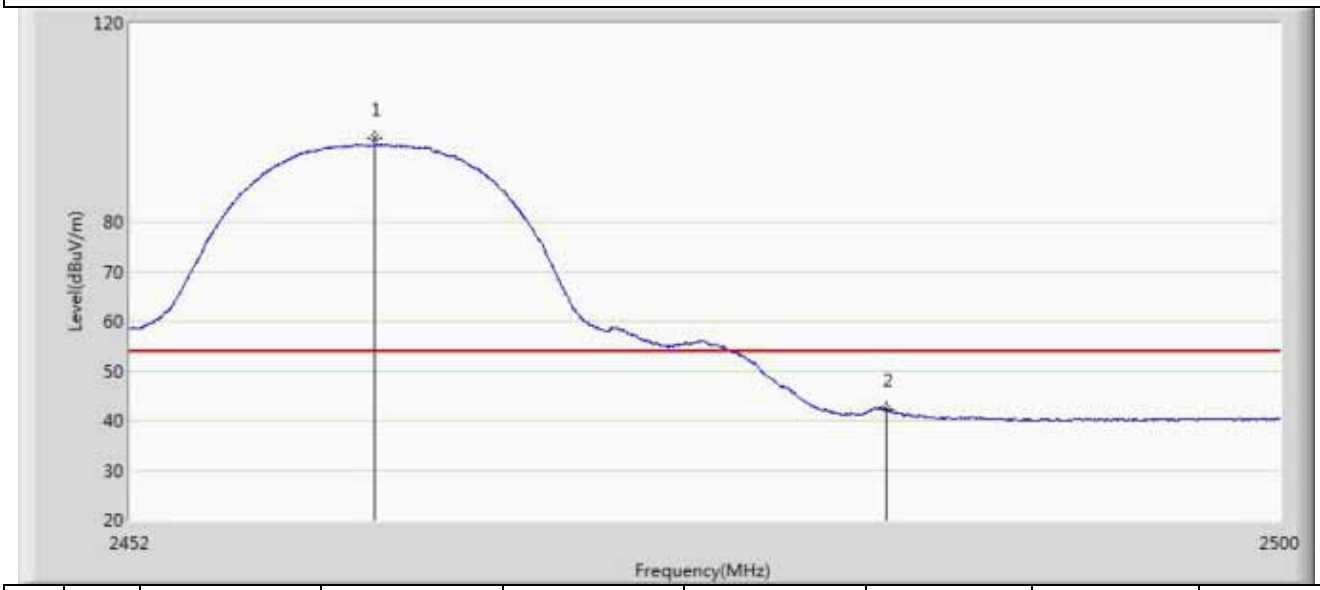

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.080 | 102.868 | 66.240 | N/A | N/A | 36.628 | AV |
| 2 | | 2483.500 | 42.229 | 5.762 | -11.771 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:52 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2480MHz by 802.11g with Ant 1 | |



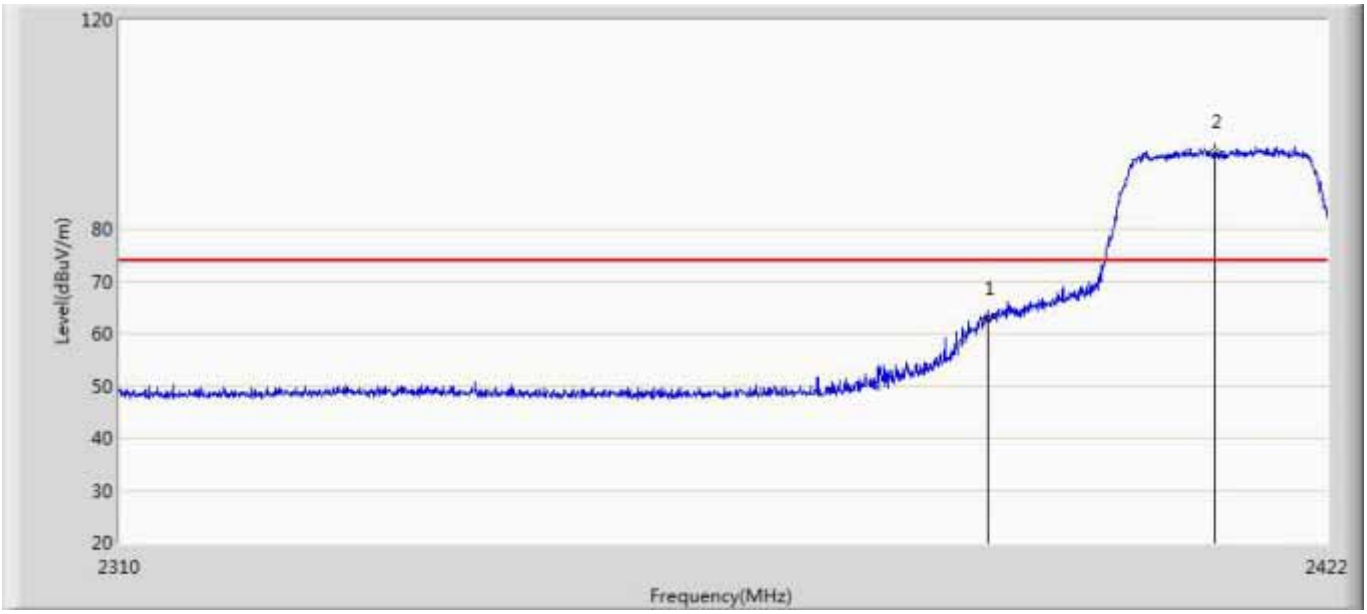

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.176 | 102.484 | 65.857 | N/A | N/A | 36.626 | PK |
| 2 | | 2483.500 | 52.666 | 16.199 | -21.334 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 17:54 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2480MHz by 802.11g with Ant 1 | |



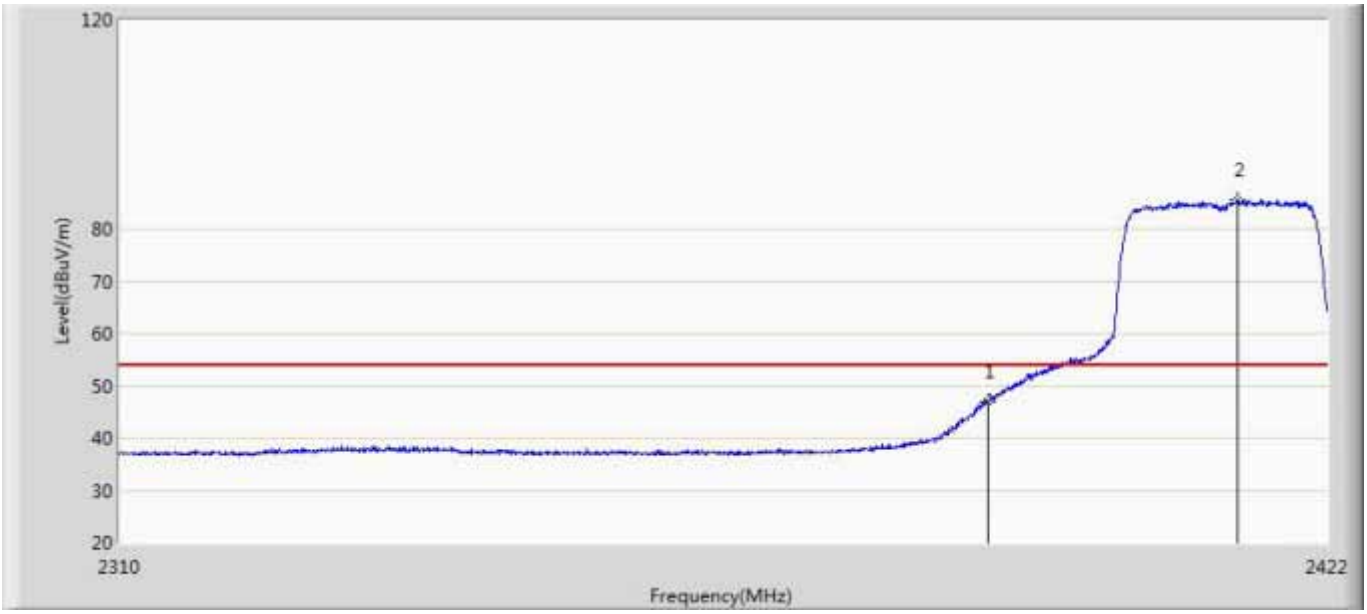

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.176 | 102.484 | 65.857 | N/A | N/A | 36.626 | AV |
| 2 | | 2483.500 | 42.313 | 5.846 | -11.687 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 08:59 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 1 | |



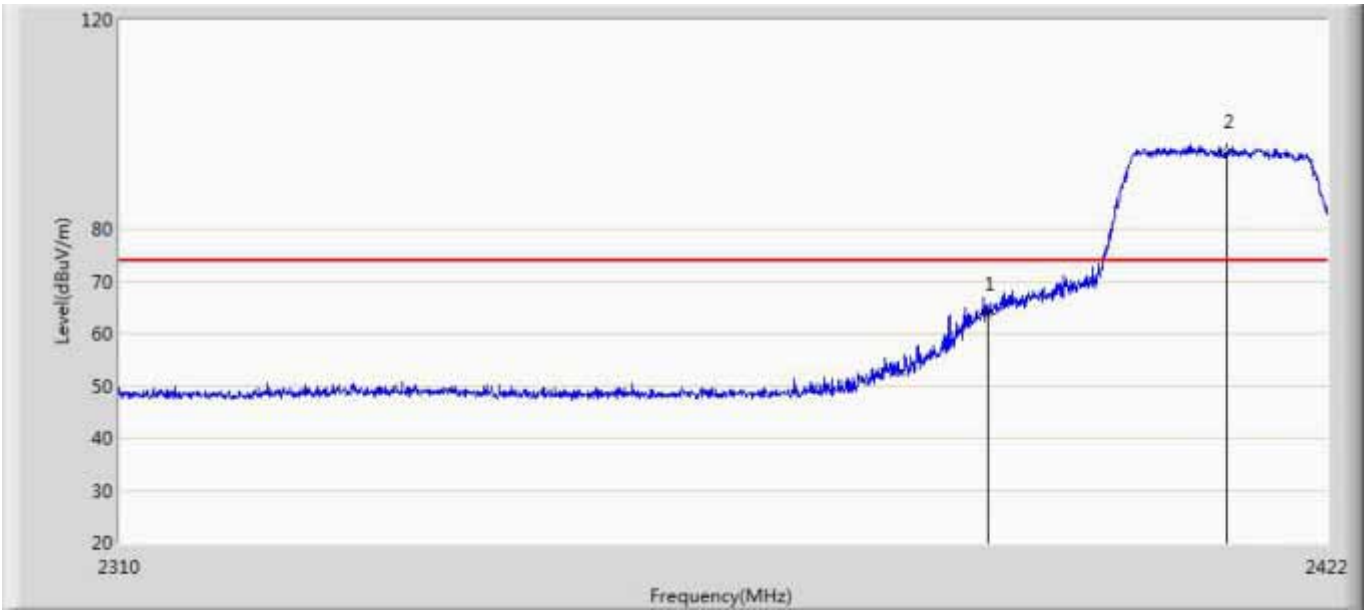

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 62.887 | 26.557 | -11.113 | 74.000 | 36.329 | PK |
| 2 | * | 2411.416 | 94.750 | 58.416 | N/A | N/A | 36.334 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:06 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 1 | |



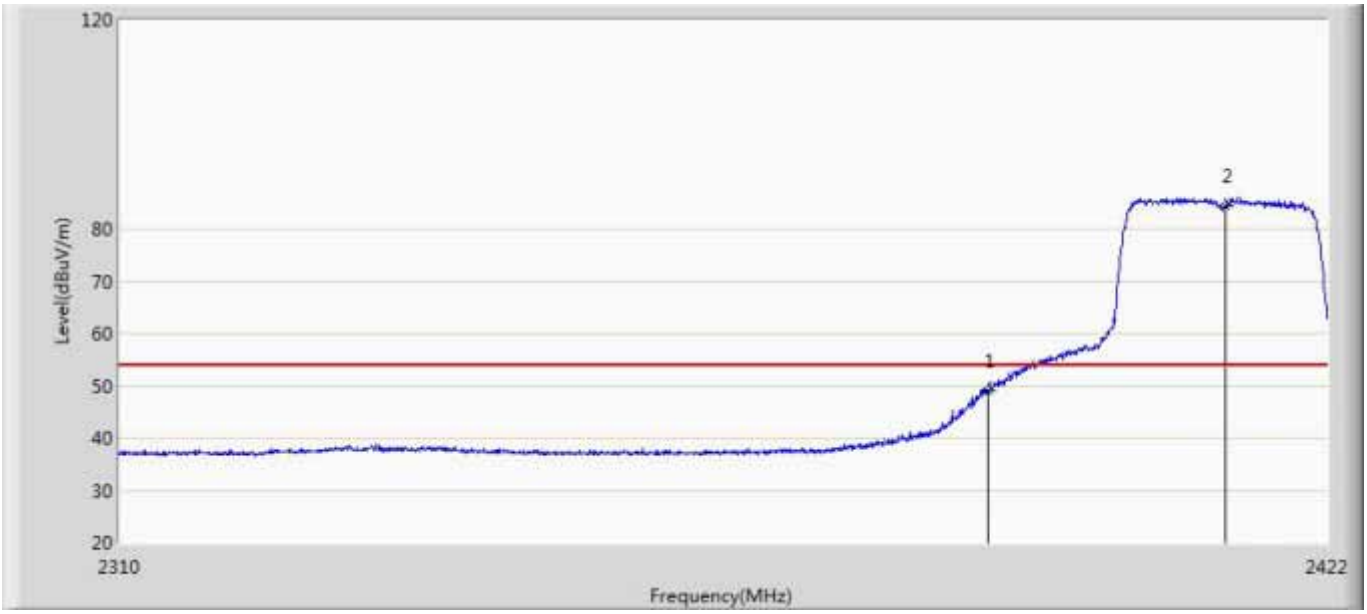

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 46.835 | 10.505 | -7.165 | 54.000 | 36.329 | AV |
| 2 | * | 2413.600 | 85.574 | 49.206 | N/A | N/A | 36.368 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:10 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 1 | |



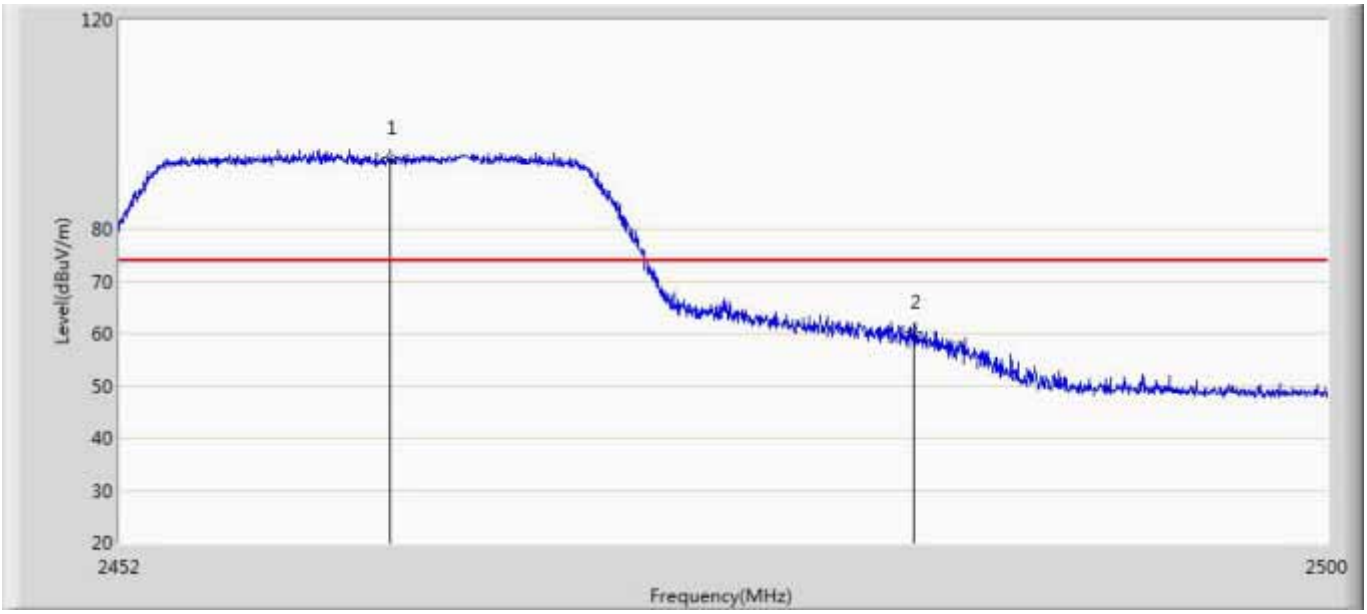

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 63.784 | 27.454 | -10.216 | 74.000 | 36.329 | PK |
| 2 | * | 2412.536 | 94.834 | 58.483 | N/A | N/A | 36.351 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 1 | |



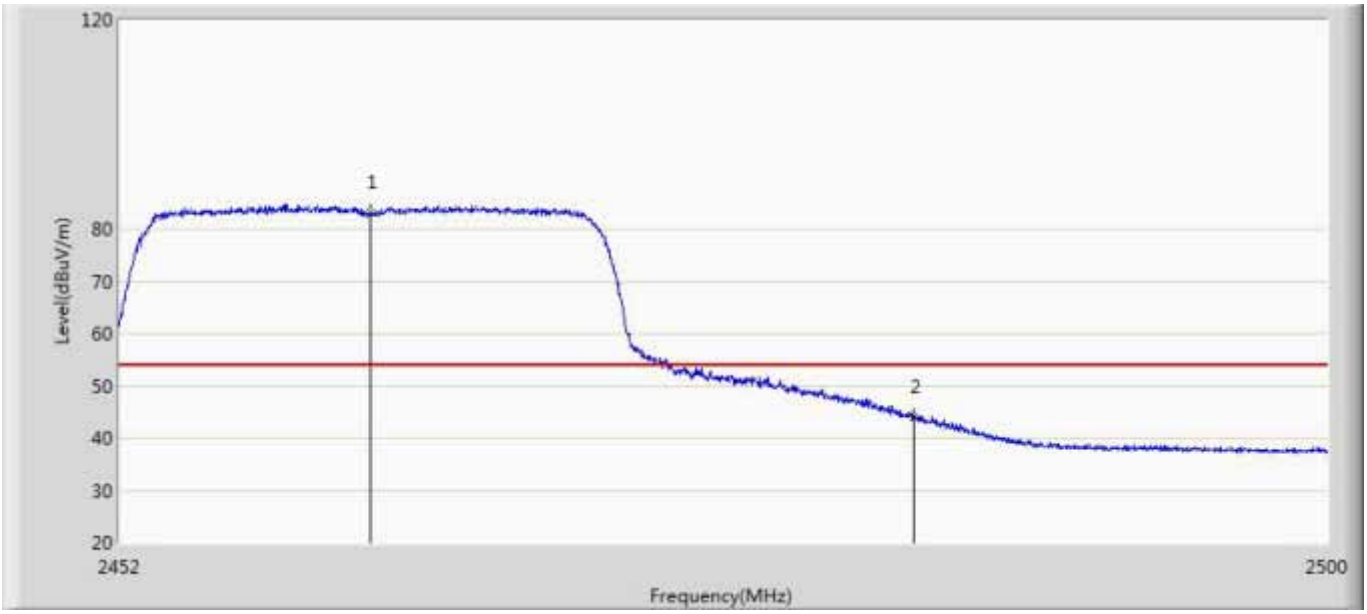

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 49.115 | 12.785 | -4.885 | 54.000 | 36.329 | AV |
| 2 | * | 2412.424 | 84.324 | 47.974 | N/A | N/A | 36.350 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:14 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 1 | |



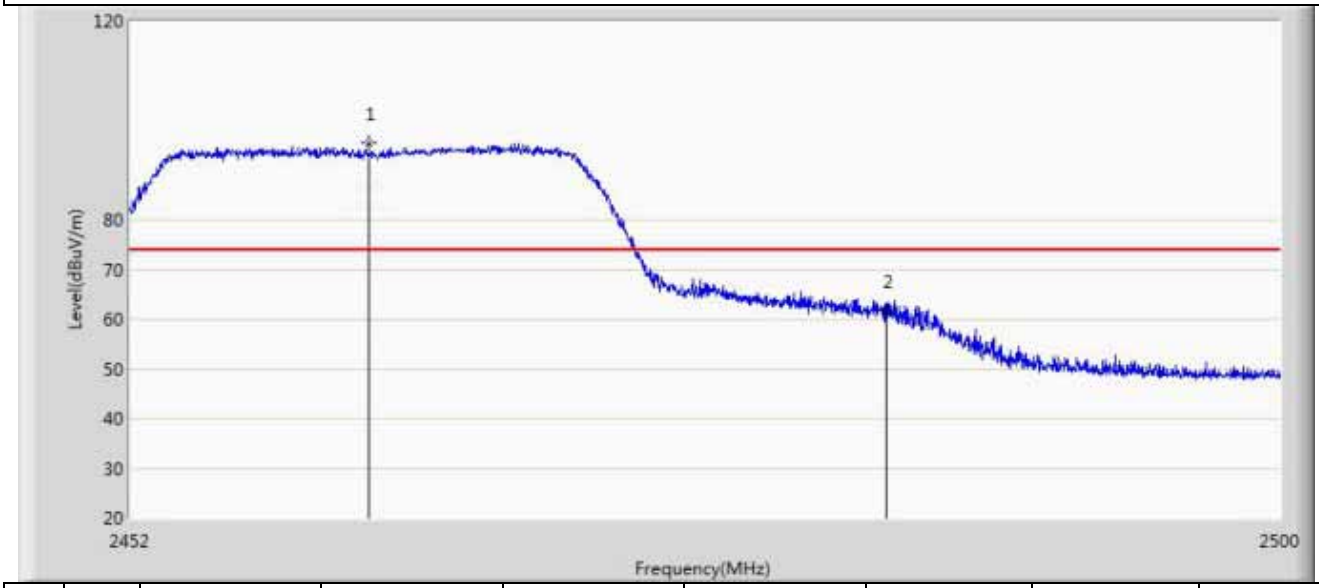

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.704 | 93.760 | 57.140 | N/A | N/A | 36.620 | PK |
| 2 | | 2483.500 | 60.181 | 23.714 | -13.819 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:17 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 1 | |



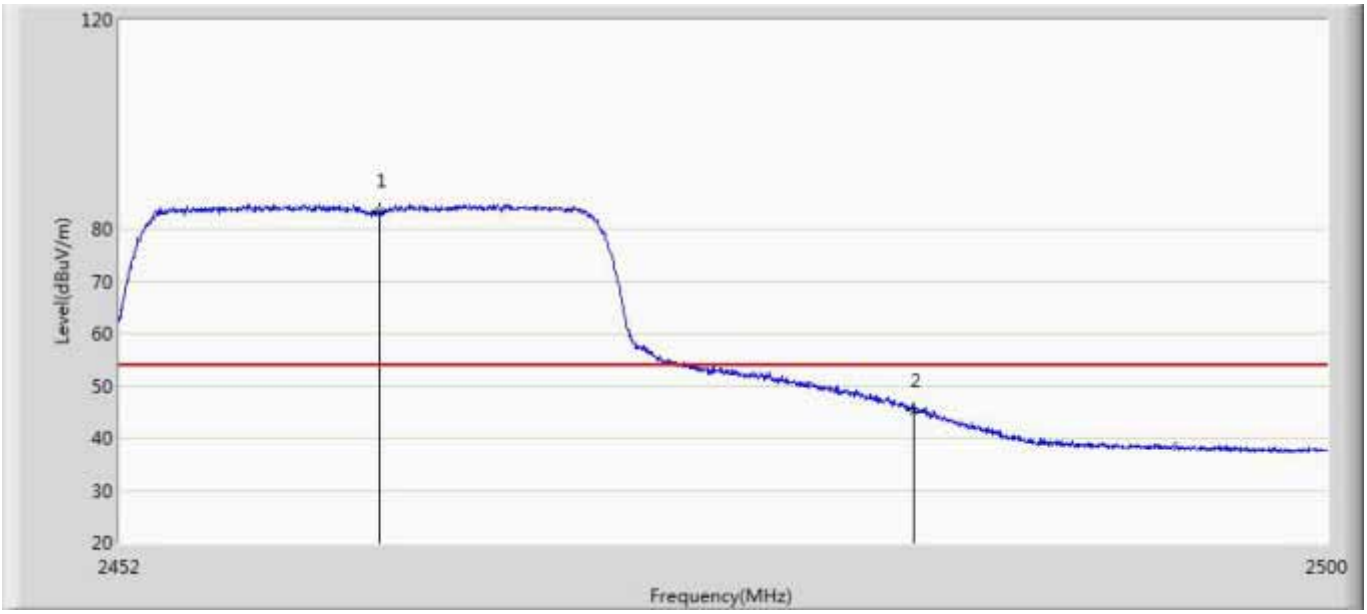

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.888 | 83.101 | 46.474 | N/A | N/A | 36.627 | AV |
| 2 | | 2483.500 | 44.124 | 7.657 | -9.876 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:18 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 1 | |



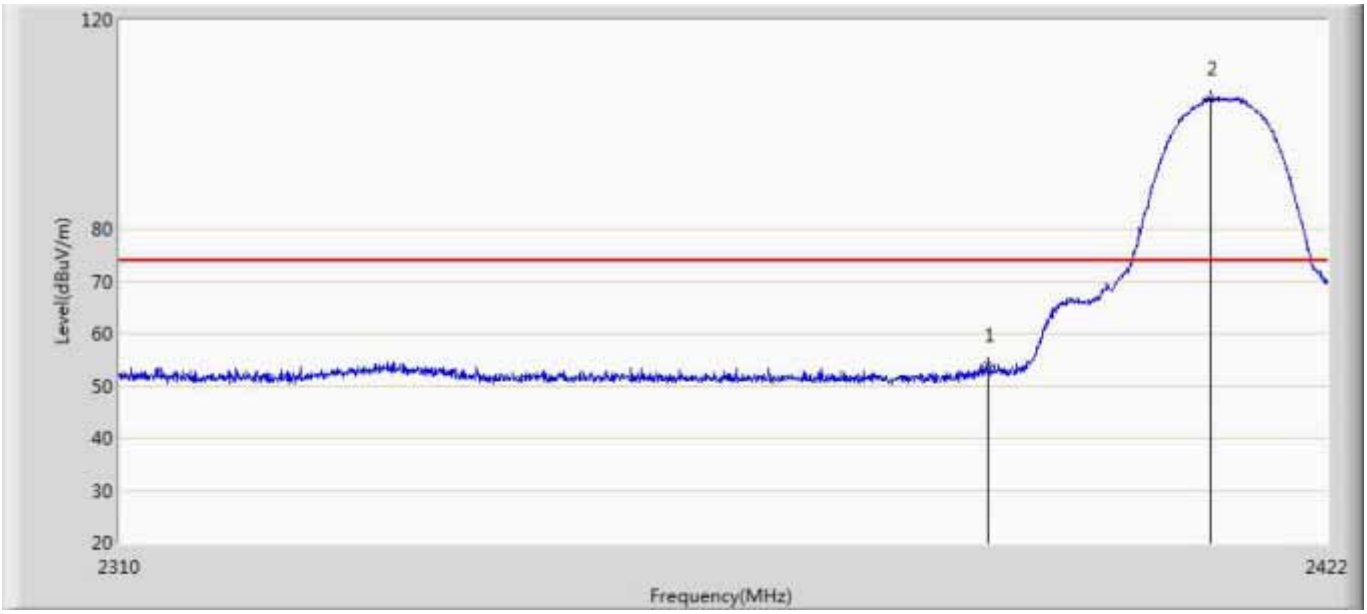

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.888 | 93.101 | 56.474 | N/A | N/A | 36.627 | PK |
| 2 | | 2483.500 | 61.679 | 25.212 | -12.321 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:19 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 1 | |



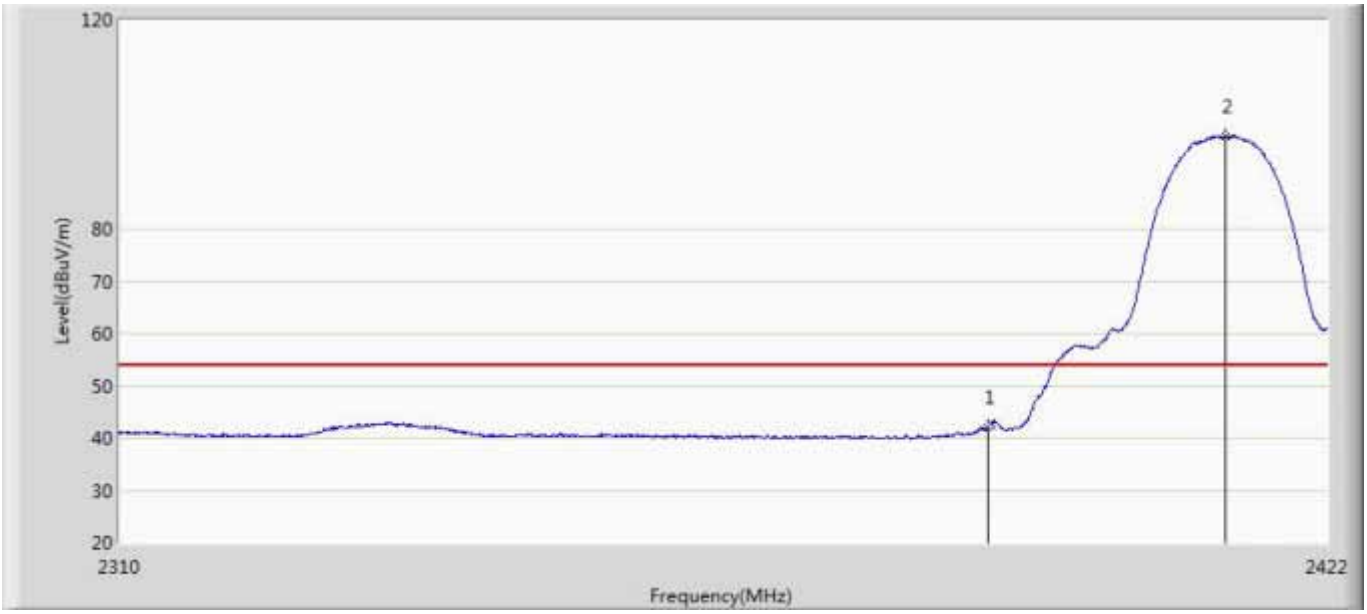

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.248 | 83.564 | 46.938 | N/A | N/A | 36.625 | AV |
| 2 | | 2483.500 | 45.358 | 8.891 | -8.642 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:07 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 2 | |



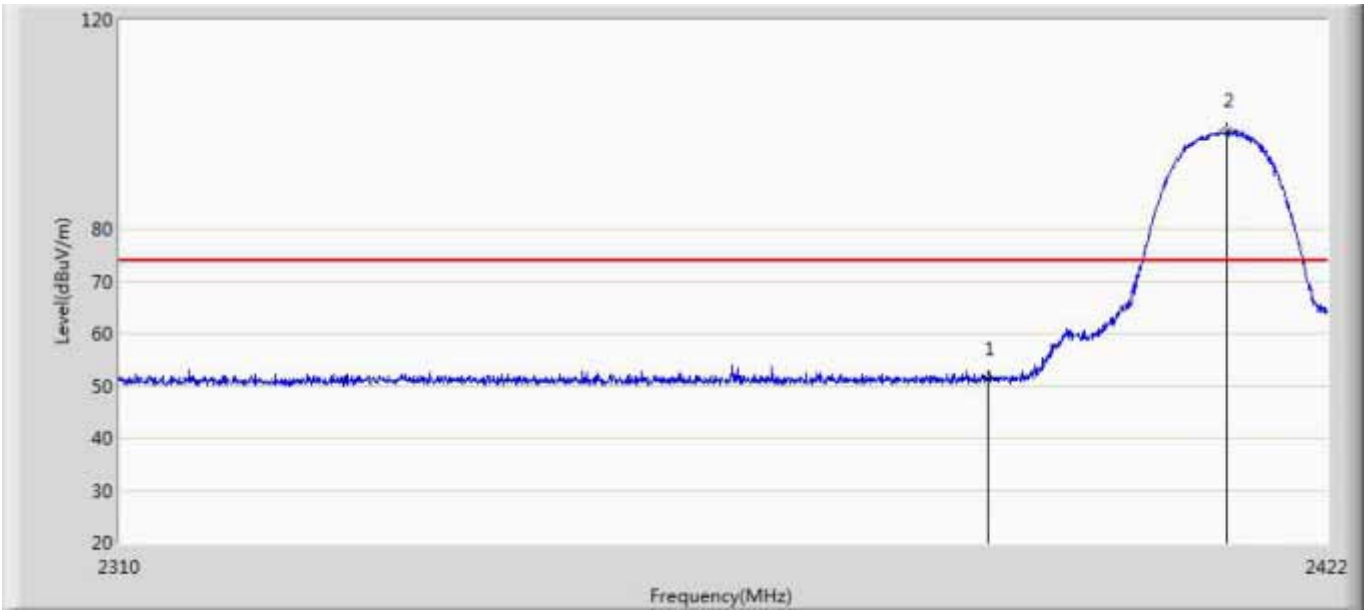

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 53.998 | 17.668 | -20.002 | 74.000 | 36.329 | PK |
| 2 | * | 2410.912 | 105.024 | 68.697 | N/A | N/A | 36.327 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:09 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 2 | |



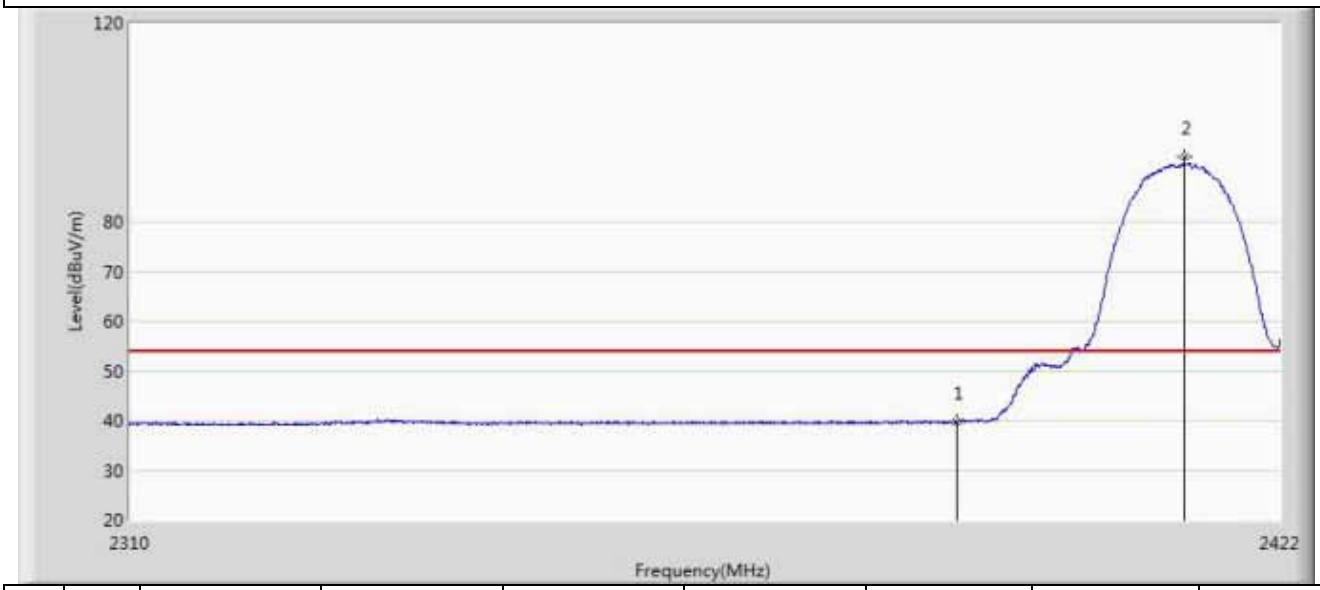

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 41.978 | 5.648 | -12.022 | 54.000 | 36.329 | AV |
| 2 | * | 2412.424 | 97.597 | 61.247 | N/A | N/A | 36.350 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:12 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 2 | |



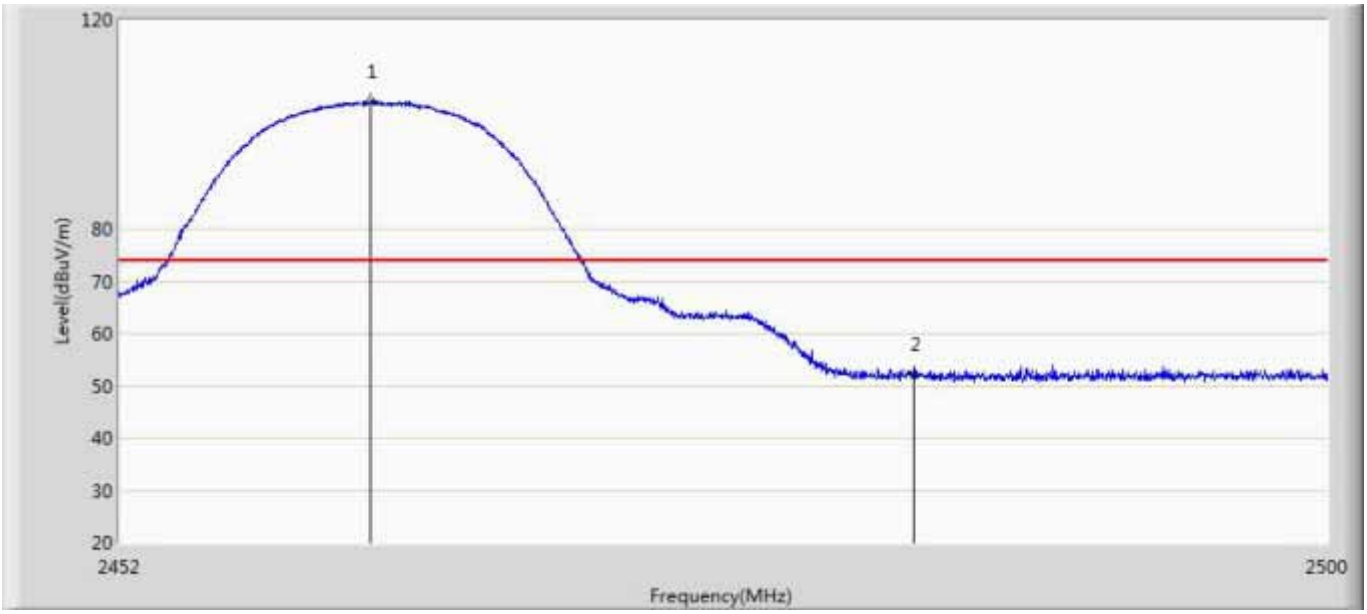

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 51.355 | 15.025 | -22.645 | 74.000 | 36.329 | PK |
| 2 | * | 2412.592 | 98.759 | 62.407 | N/A | N/A | 36.352 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:13 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2412MHz by 802.11b with Ant 2 | |



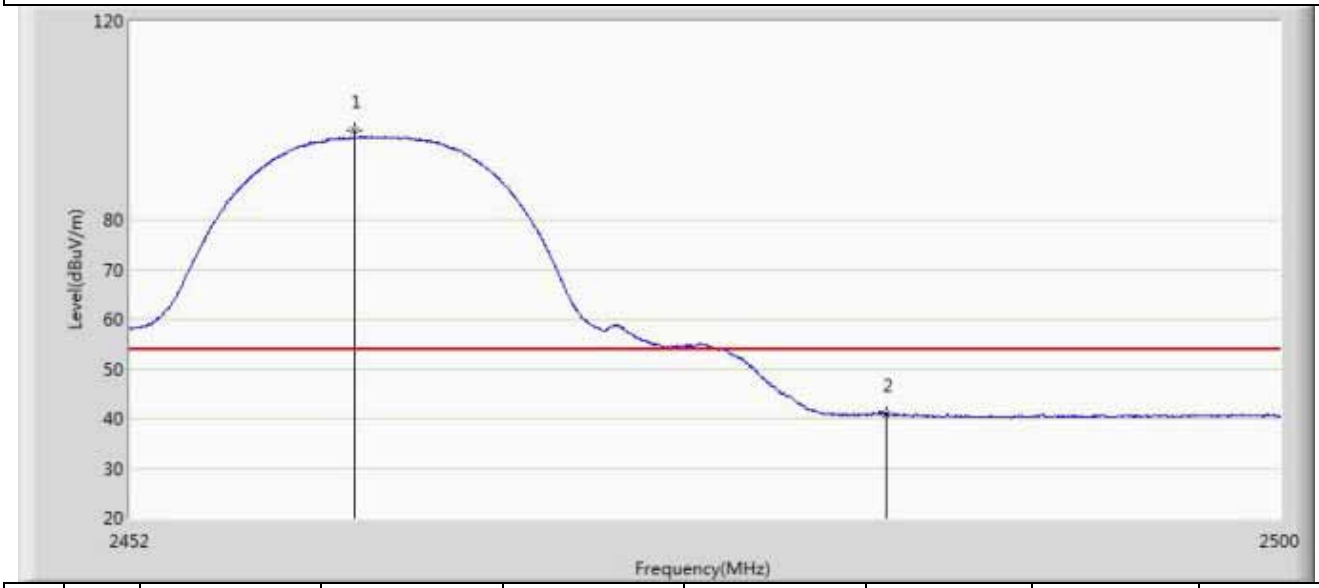

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 39.820 | 3.490 | -14.180 | 54.000 | 36.329 | AV |
| 2 | * | 2412.592 | 98.759 | 62.407 | N/A | N/A | 36.352 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:15 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant 2 | |



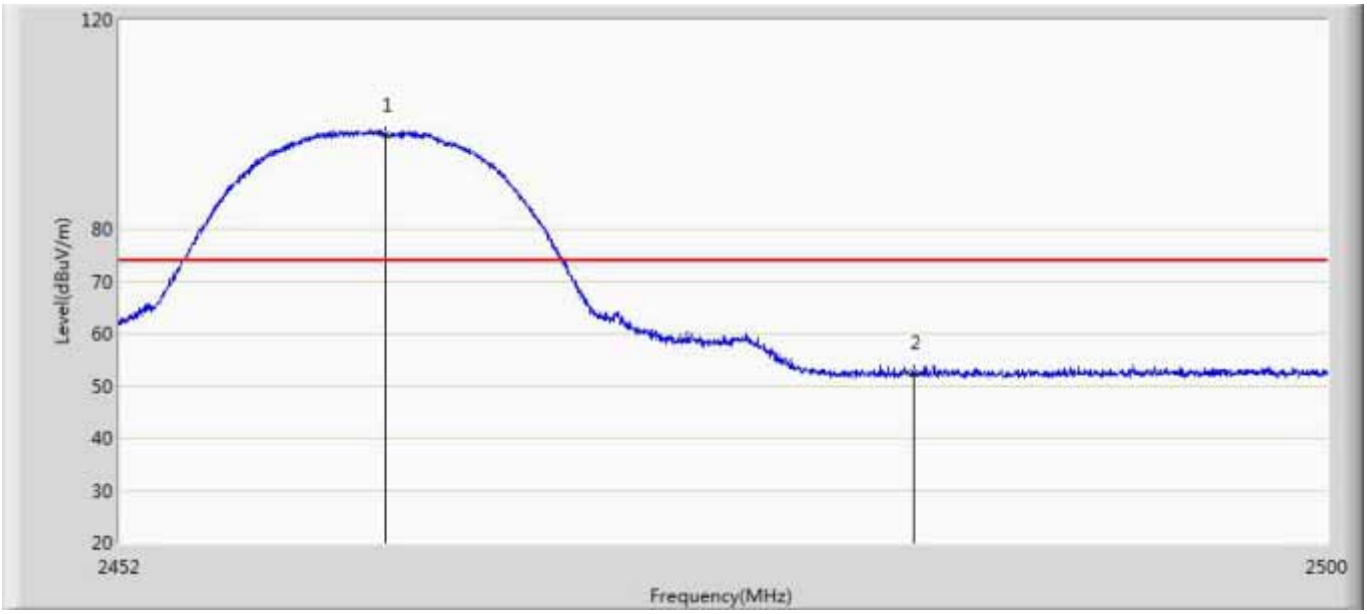

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.888 | 104.393 | 67.766 | N/A | N/A | 36.627 | PK |
| 2 | | 2483.500 | 52.071 | 15.604 | -21.929 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:16 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant 2 | |



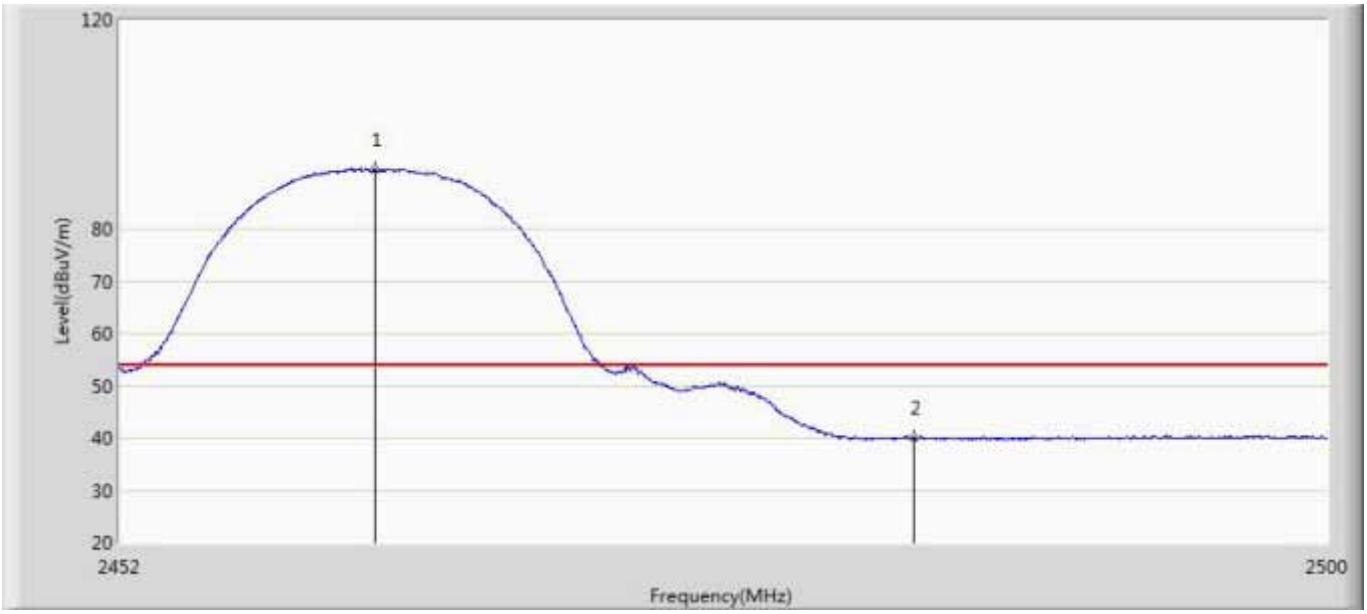

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.288 | 103.646 | 67.031 | N/A | N/A | 36.615 | AV |
| 2 | | 2483.500 | 41.009 | 4.542 | -12.991 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:19 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant 2 | |



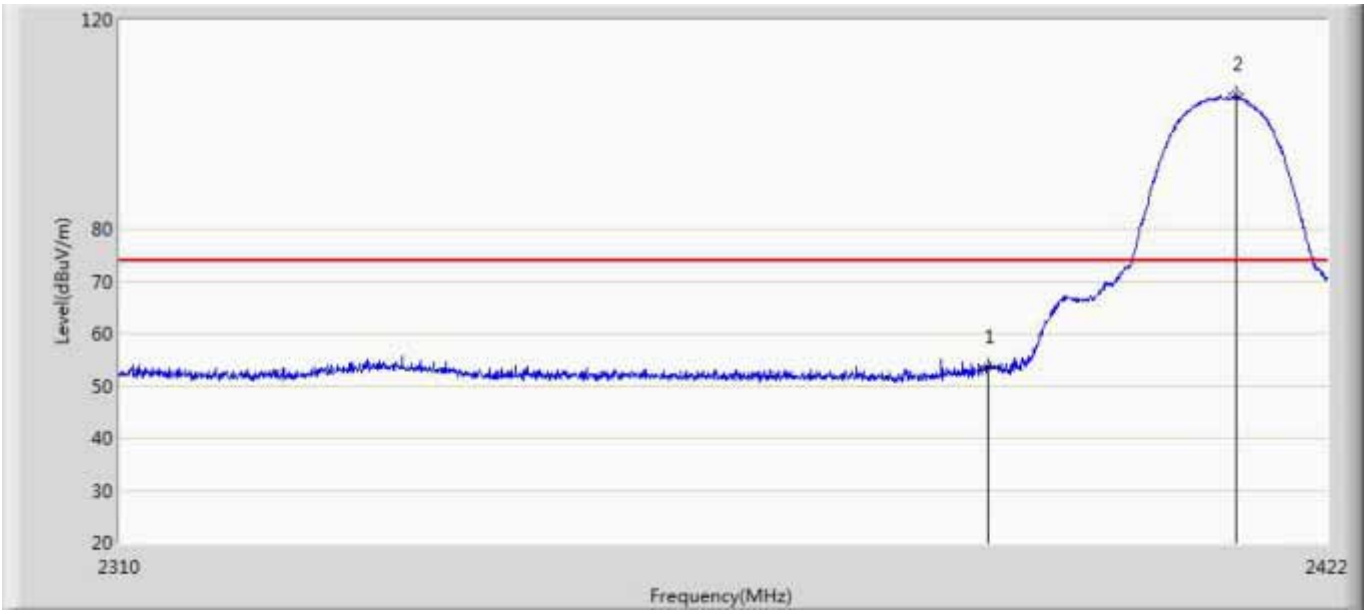

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.512 | 97.842 | 61.220 | N/A | N/A | 36.622 | PK |
| 2 | | 2483.500 | 52.497 | 16.030 | -21.503 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:29 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 1:Transmit at 2462MHz by 802.11b with Ant 2 | |



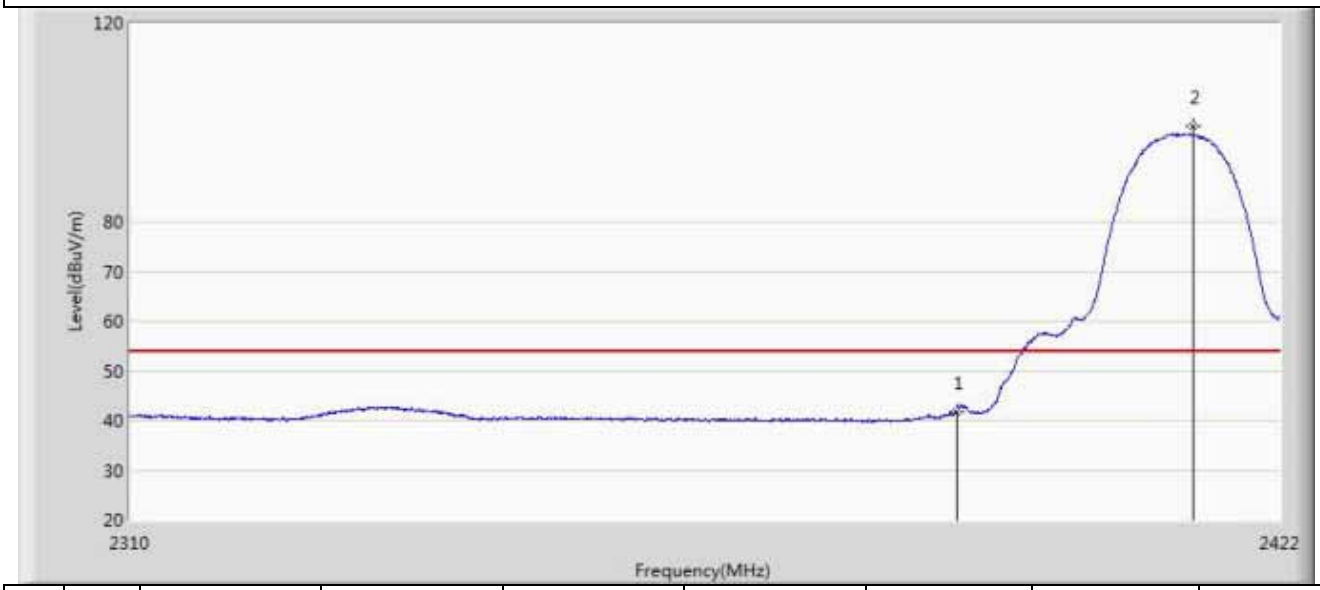

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.104 | 91.357 | 54.729 | N/A | N/A | 36.627 | AV |
| 2 | | 2483.500 | 39.954 | 3.487 | -14.046 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:31 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant 2 | |



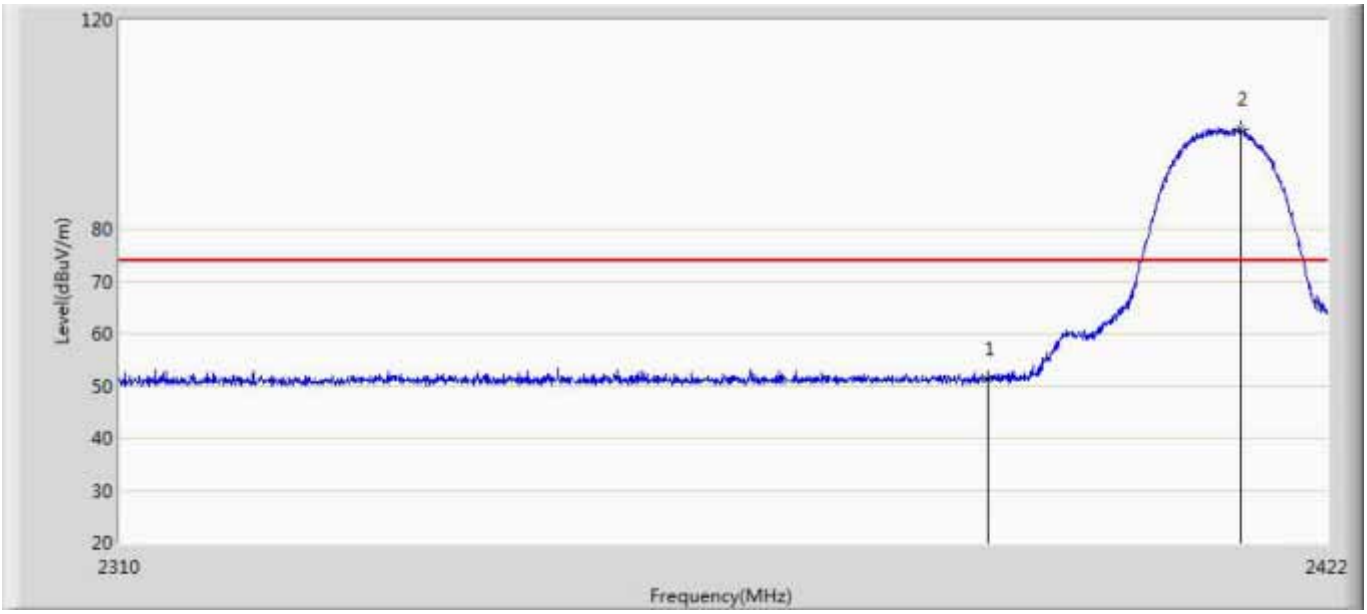

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 53.624 | 17.294 | -20.376 | 74.000 | 36.329 | PK |
| 2 | * | 2413.376 | 105.699 | 69.334 | N/A | N/A | 36.365 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:36 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant 2 | |



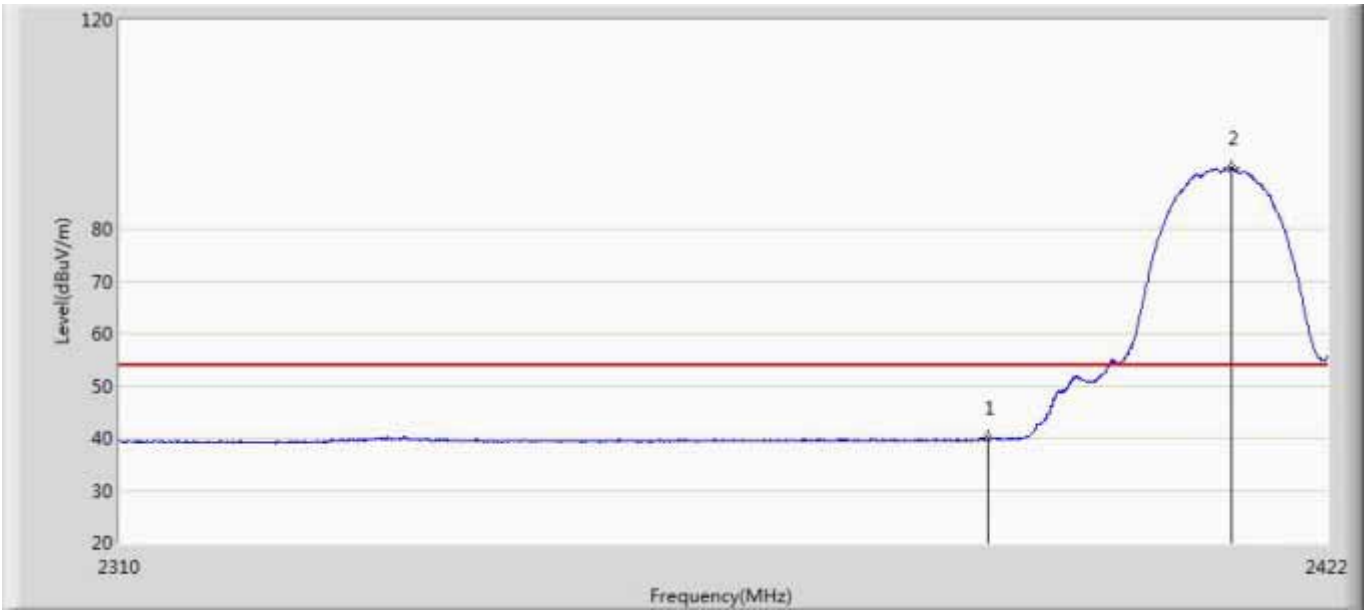

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 41.680 | 5.350 | -12.320 | 54.000 | 36.329 | AV |
| 2 | * | 2413.376 | 105.699 | 69.334 | N/A | N/A | 36.365 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:38 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant 2 | |



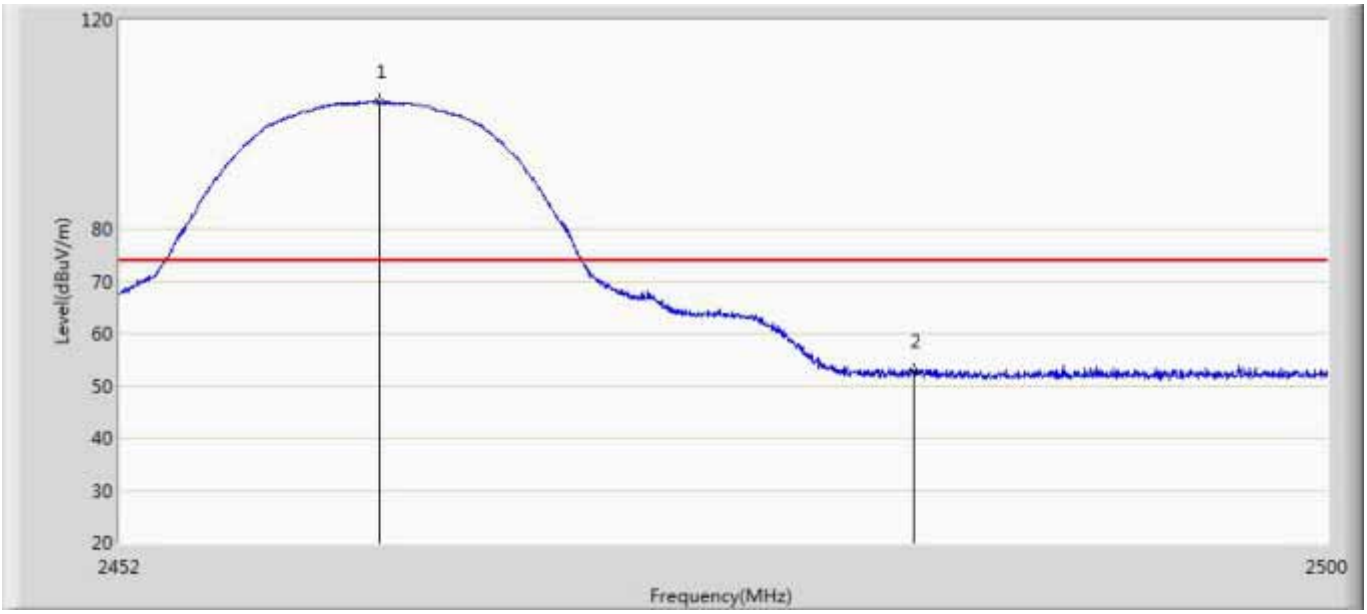

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 51.368 | 15.038 | -22.632 | 74.000 | 36.329 | PK |
| 2 | * | 2413.824 | 99.146 | 62.774 | N/A | N/A | 36.371 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:41 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2412MHz by 802.11g with Ant 2 | |



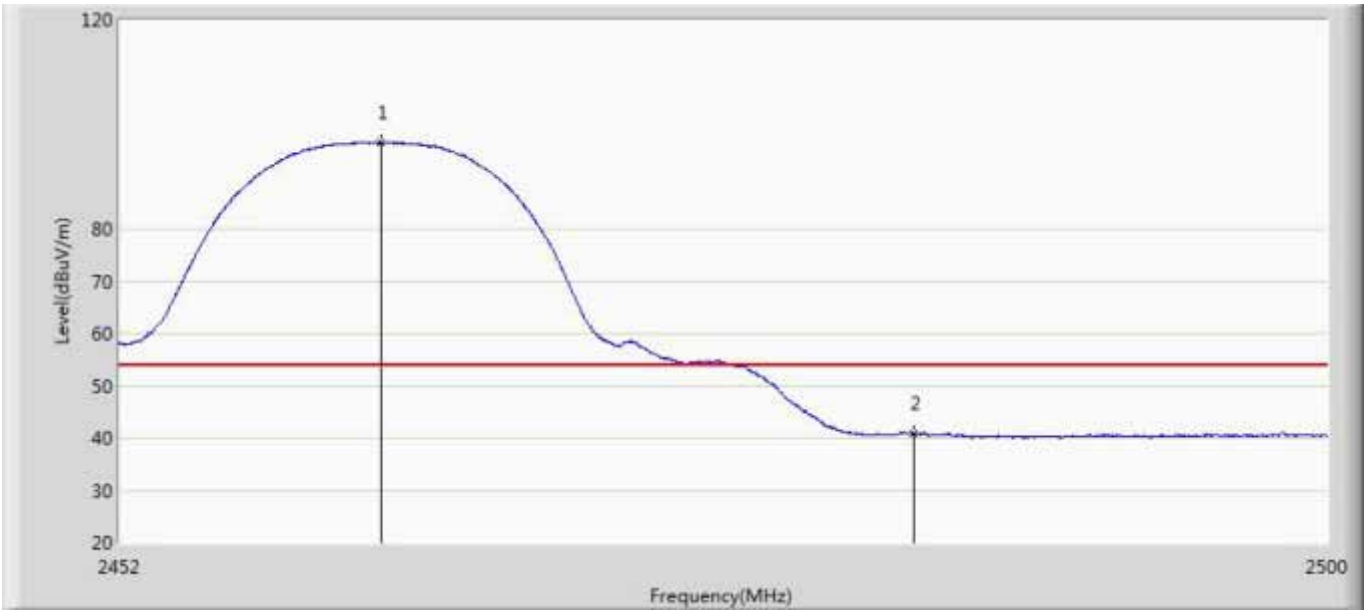

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 39.992 | 3.662 | -14.008 | 54.000 | 36.329 | AV |
| 2 | * | 2412.984 | 91.712 | 55.353 | N/A | N/A | 36.358 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:43 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant 2 | |



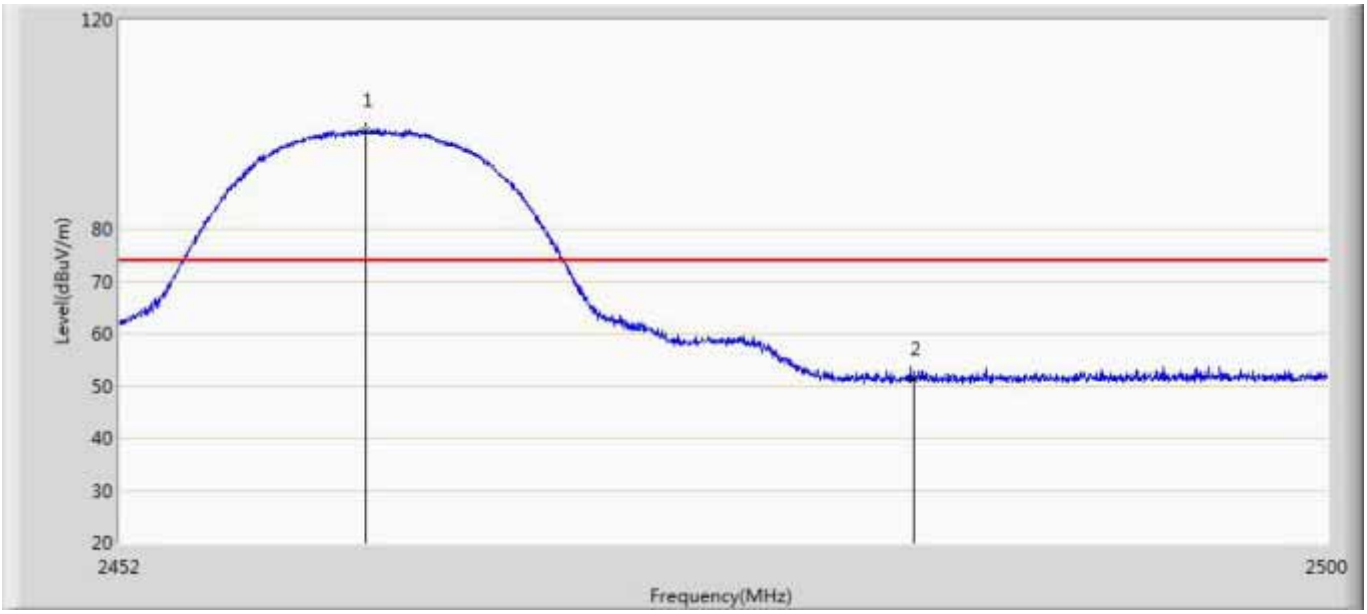

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.272 | 104.368 | 67.743 | N/A | N/A | 36.625 | PK |
| 2 | | 2483.500 | 52.780 | 16.313 | -21.220 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:45 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant 2 | |



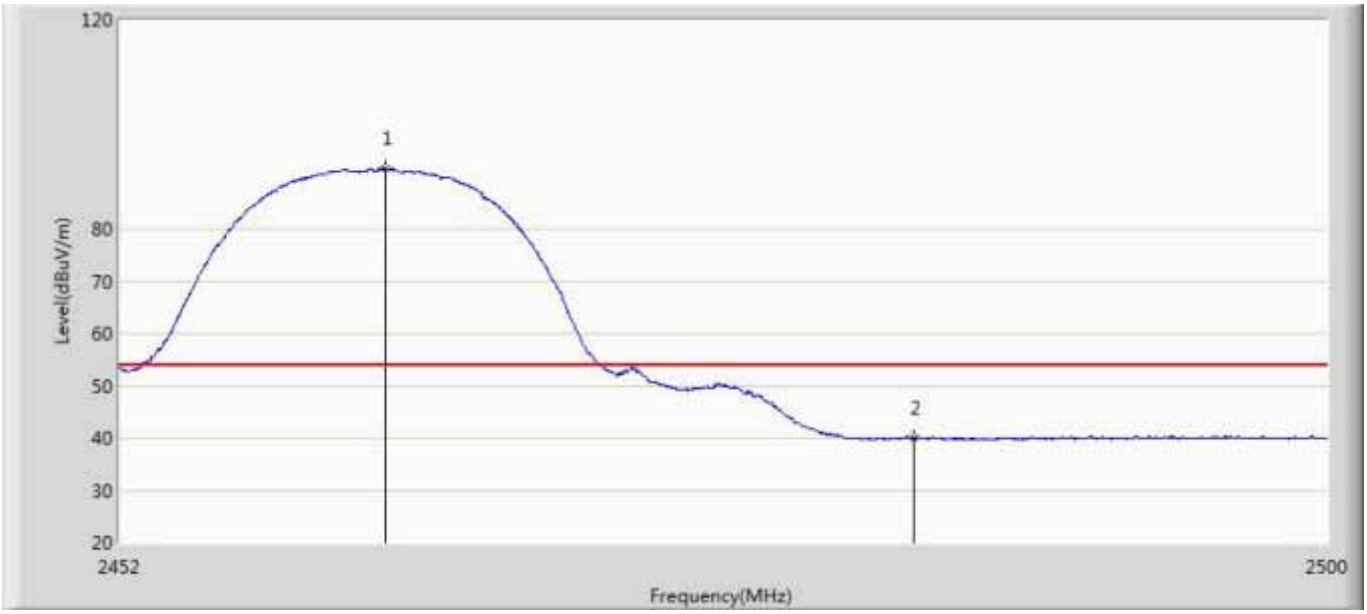

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.320 | 96.558 | 59.933 | N/A | N/A | 36.624 | AV |
| 2 | | 2483.500 | 40.863 | 4.396 | -13.137 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:48 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant 2 | |



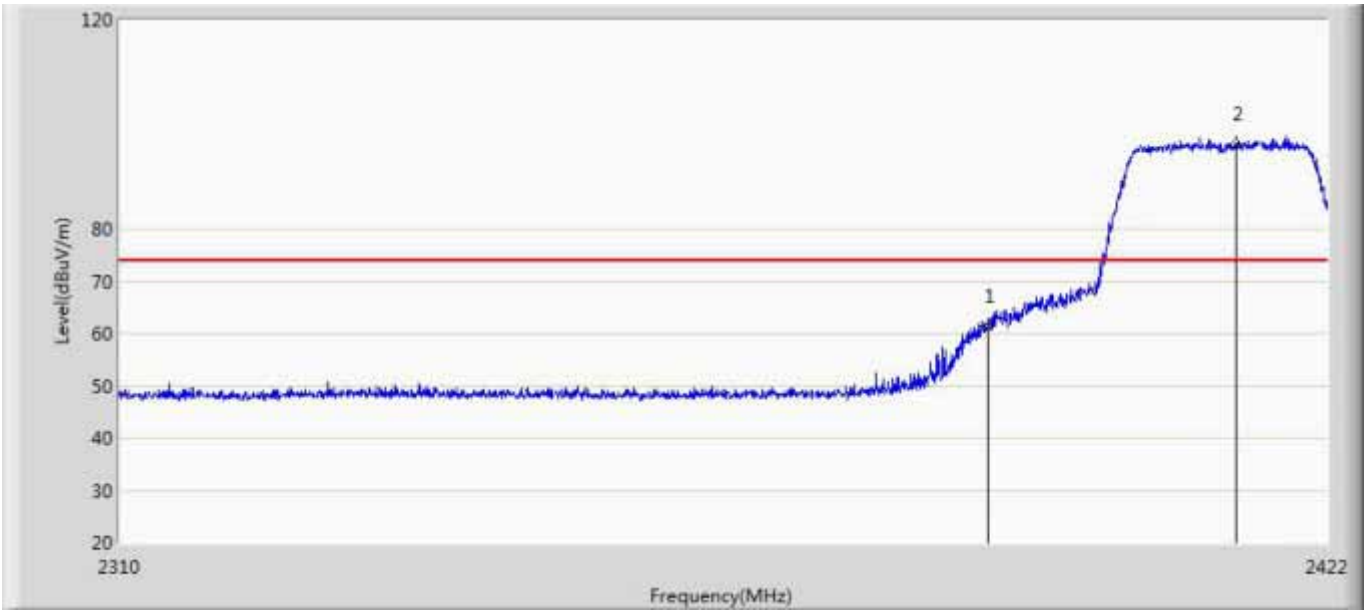

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.720 | 98.770 | 62.147 | N/A | N/A | 36.624 | PK |
| 2 | | 2483.500 | 51.408 | 14.941 | -22.592 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/12 - 19:48 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 2:Transmit at 2462MHz by 802.11g with Ant 2 | |



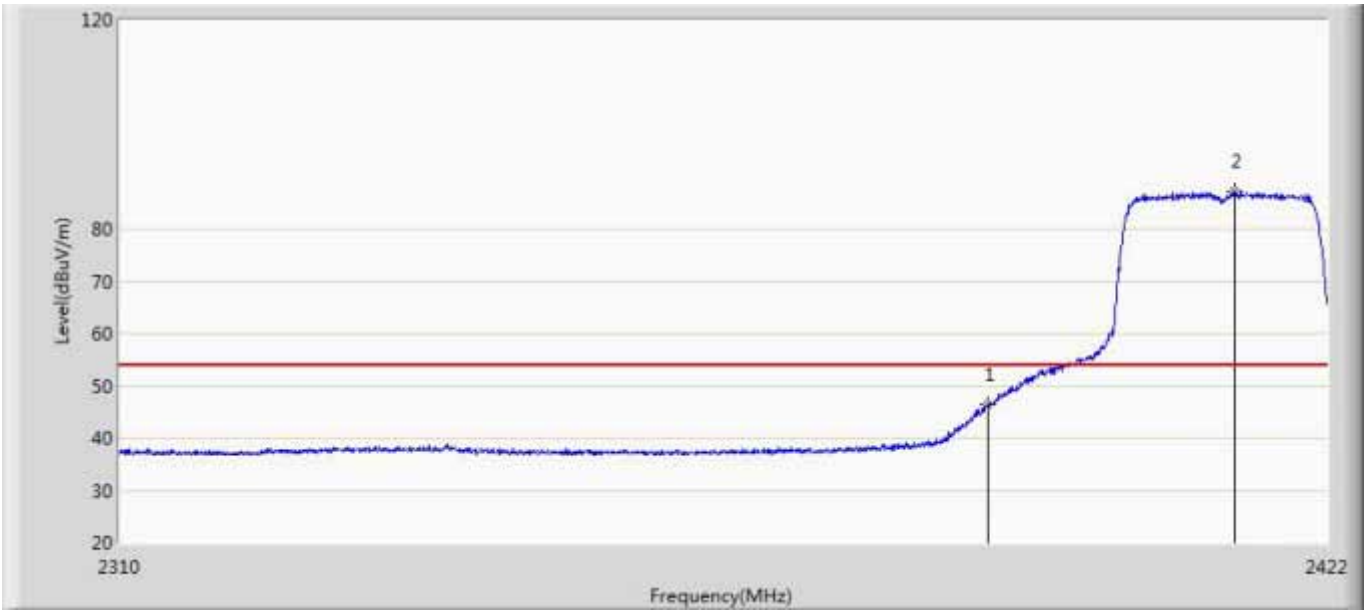

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.488 | 91.616 | 54.994 | N/A | N/A | 36.623 | AV |
| 2 | | 2483.500 | 39.912 | 3.445 | -14.088 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:21 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 2 | |



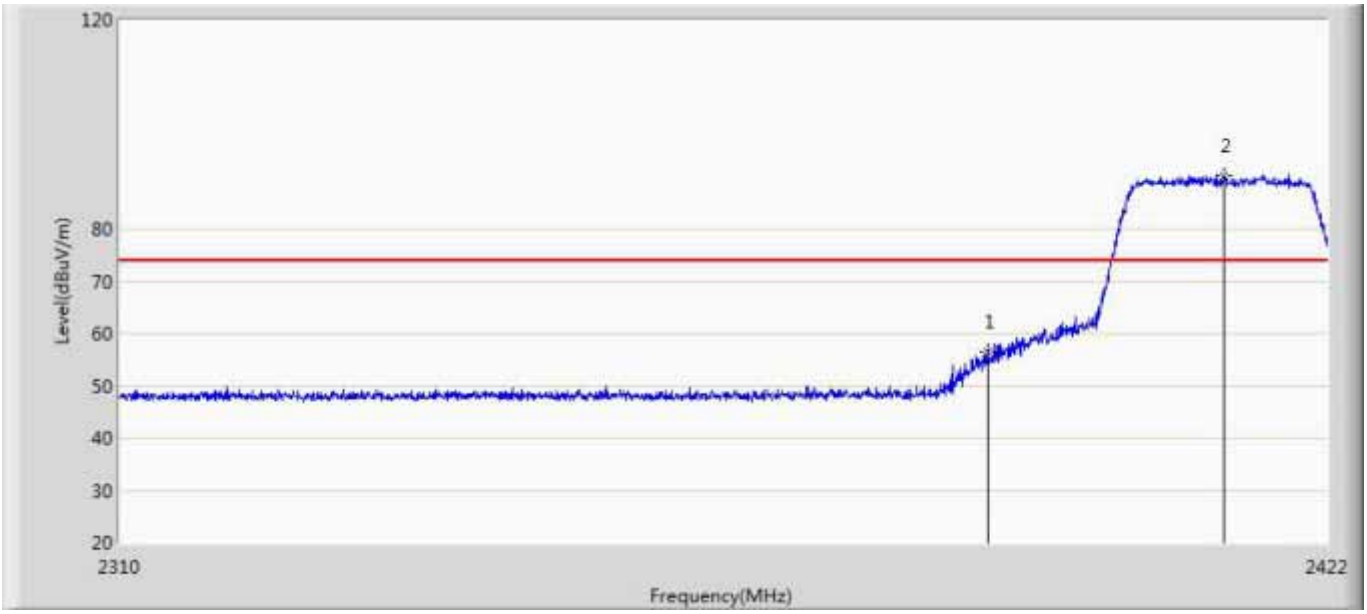

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 61.544 | 25.214 | -12.456 | 74.000 | 36.329 | PK |
| 2 | * | 2413.376 | 96.329 | 59.964 | N/A | N/A | 36.365 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:23 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 2 | |



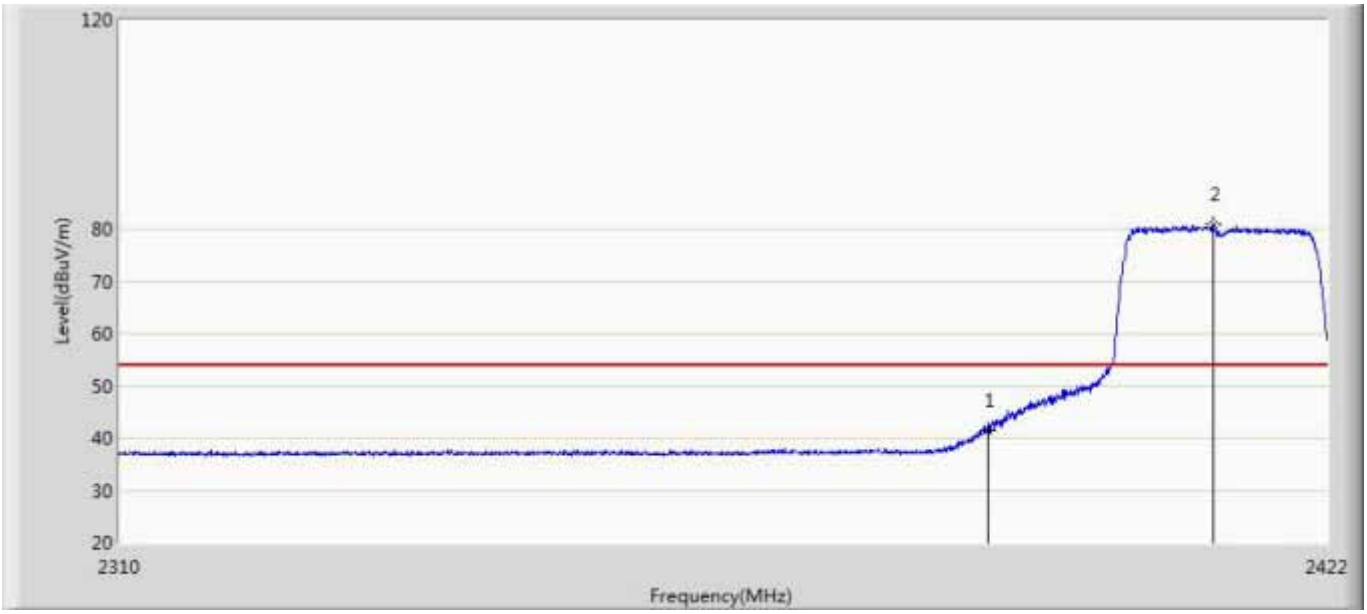

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 46.380 | 10.050 | -7.620 | 54.000 | 36.329 | AV |
| 2 | * | 2413.208 | 87.256 | 50.894 | N/A | N/A | 36.362 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:24 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 2 | |



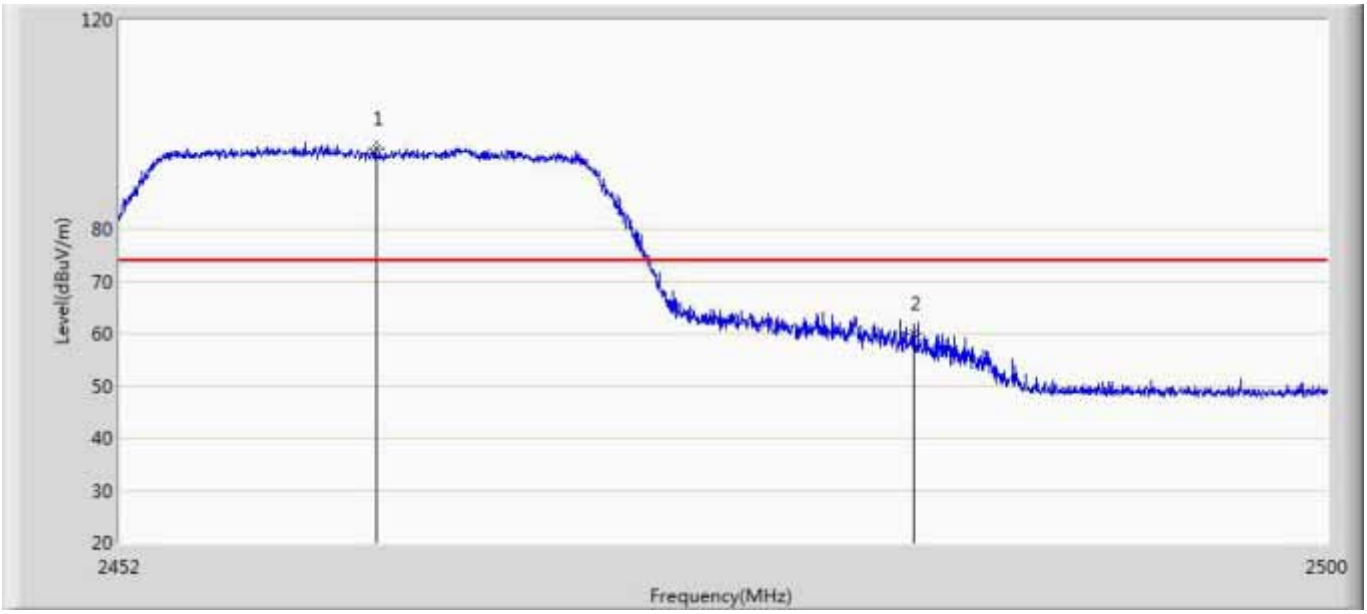

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 56.595 | 20.265 | -17.405 | 74.000 | 36.329 | PK |
| 2 | * | 2412.256 | 90.130 | 53.783 | N/A | N/A | 36.347 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:28 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2412MHz by 802.11n20 with Ant 2 | |



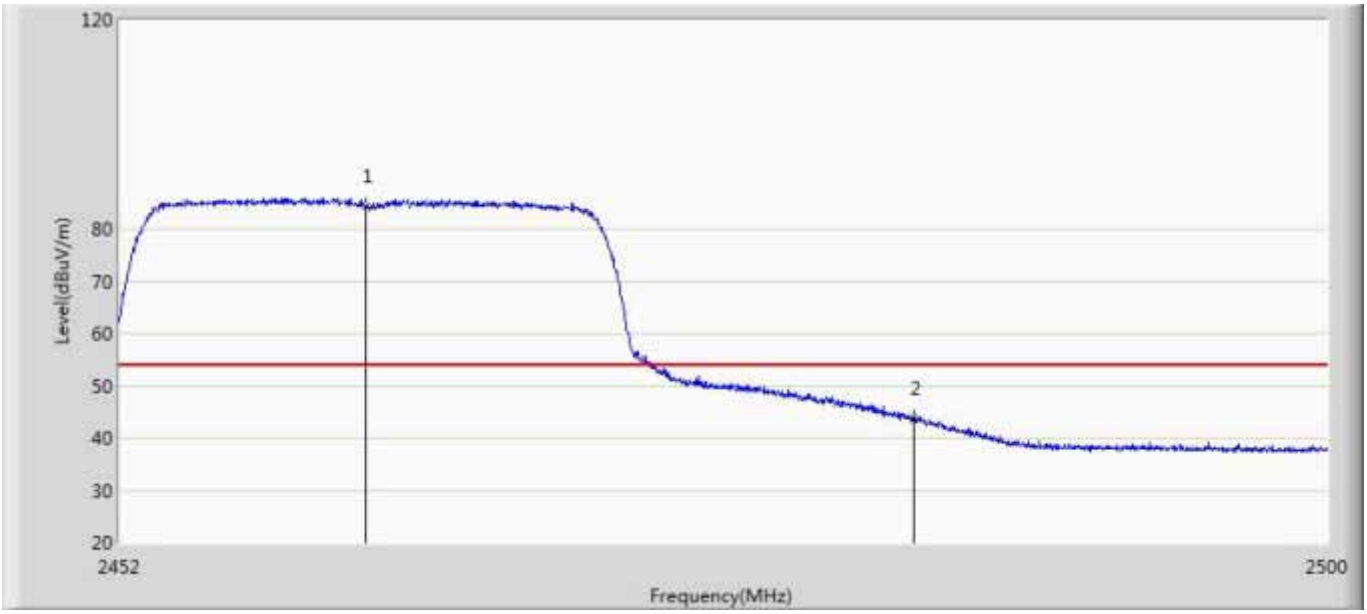

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | | 2390.000 | 41.557 | 5.227 | -12.443 | 54.000 | 36.329 | AV |
| 2 | * | 2411.192 | 80.781 | 44.451 | N/A | N/A | 36.330 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:29 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 2 | |



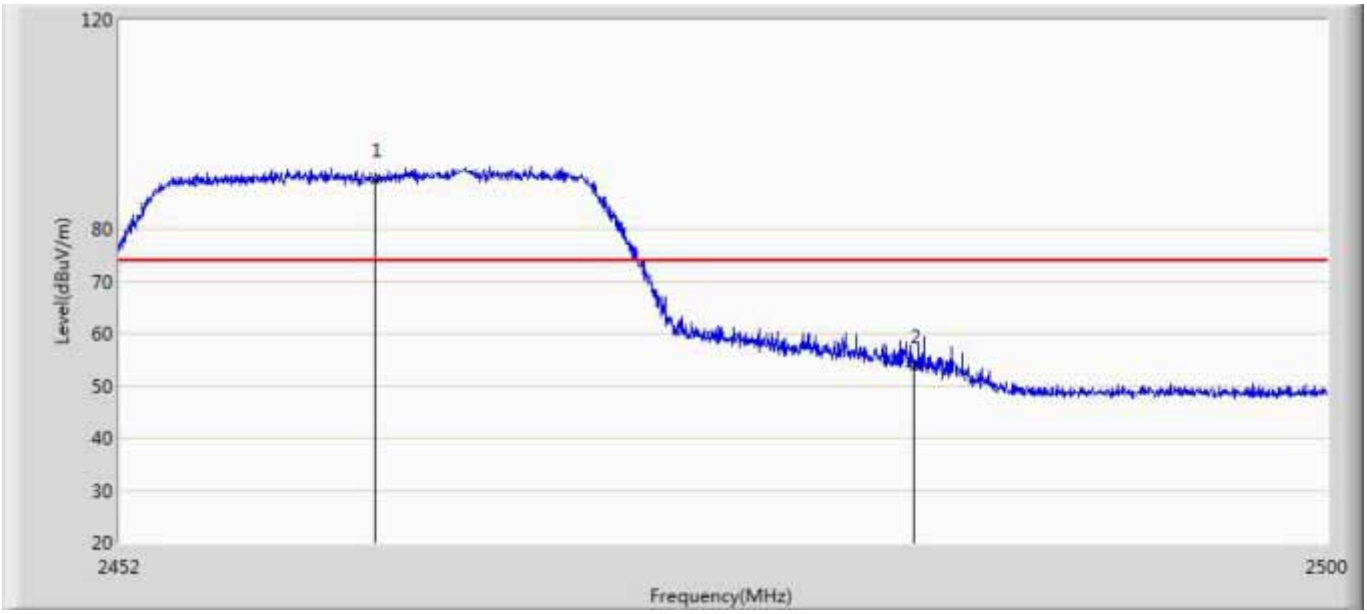

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.152 | 95.286 | 58.659 | N/A | N/A | 36.627 | PK |
| 2 | | 2483.500 | 59.901 | 23.434 | -14.099 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:31 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Horizontal |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 2 | |



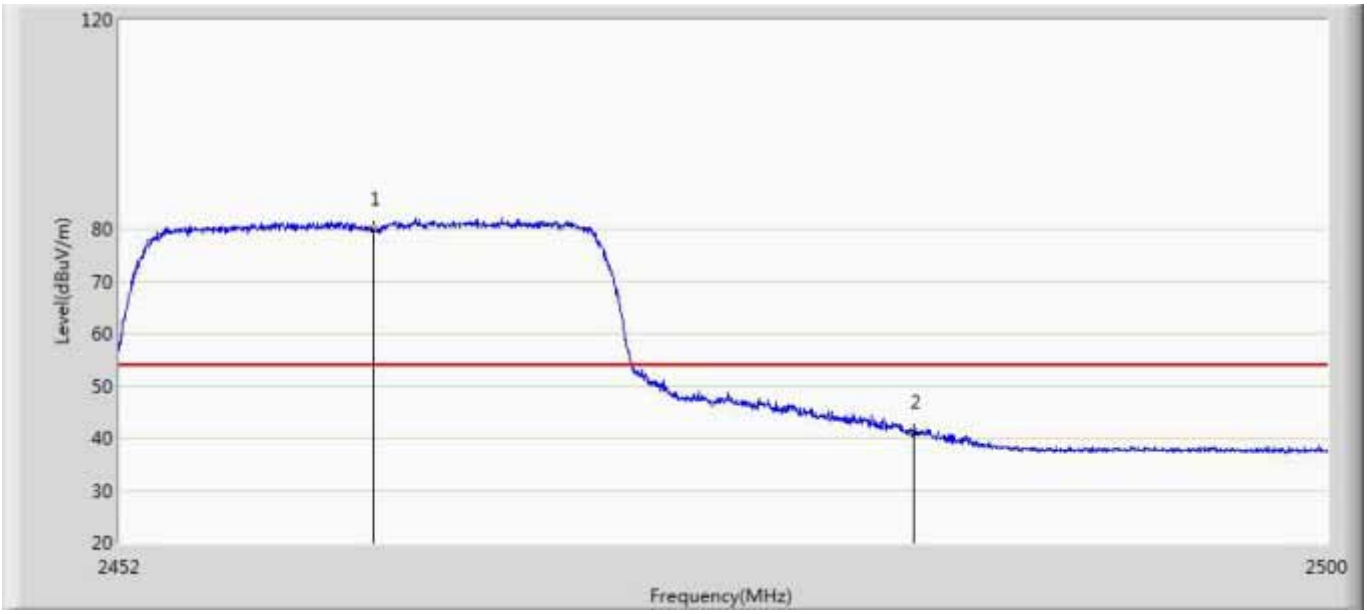

| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2461.744 | 84.361 | 47.737 | N/A | N/A | 36.624 | AV |
| 2 | | 2483.500 | 43.632 | 7.165 | -10.368 | 54.000 | 36.467 | AV |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:32 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 2 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.104 | 89.315 | 52.687 | N/A | N/A | 36.627 | PK |
| 2 | | 2483.500 | 53.503 | 17.036 | -20.497 | 74.000 | 36.467 | PK |

| | |
|---|---|
| Engineer: Tommie | |
| Site: AC5 | Time: 2018/02/28 - 09:33 |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical |
| EUT: Wake-up Light | Power: AC 120V/60Hz |
| Note: Mode 3:Transmit at 2462MHz by 802.11n20 with Ant 2 | |




| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|
| 1 | * | 2462.056 | 80.120 | 43.492 | N/A | N/A | 36.628 | AV |
| 2 | | 2483.500 | 41.020 | 4.553 | -12.980 | 54.000 | 36.467 | AV |

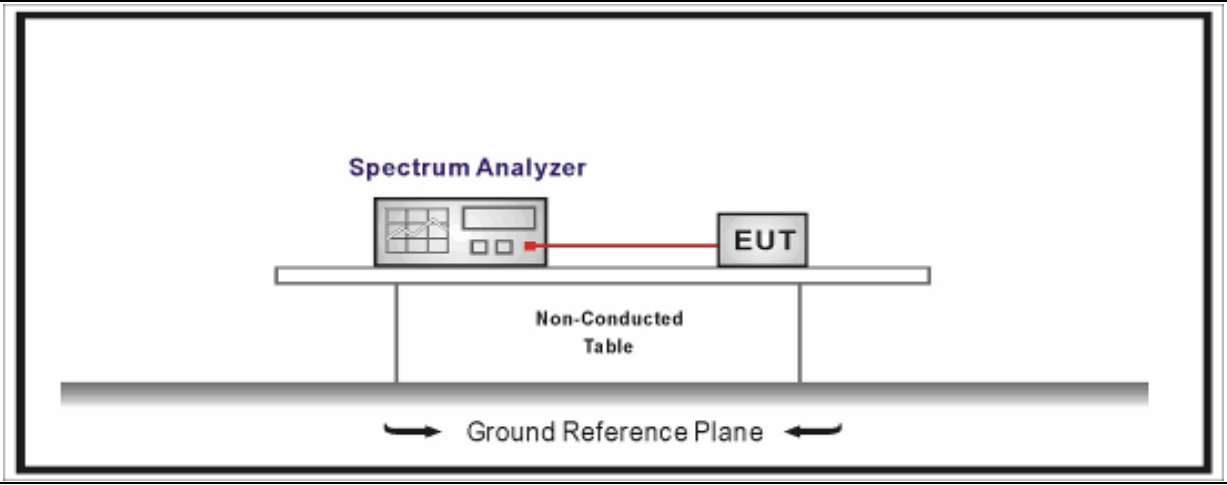
# 7. Occupied Bandwidth

## 7.1. Test Equipment

| Occupied Bandwidth / TR-8 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | N9010A | MY48030494 | 2018.02.04 | 2019.02.03 |
| EXA Spectrum Analyzer | Keysight | N9010A | MY55370495 | 2017.04.09 | 2018.04.08 |
| MXA Signal Anlyzer | Keysight | N9020A | MY56060147 | 2017.04.09 | 2018.04.08 |
| Temperature/Humidity Meter | zhichen | ZC1-2 | TR8-TH | 2017.04.10 | 2018.04.09 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 7.2. Test Setup

Occupied Bandwidth test setup:



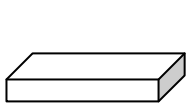
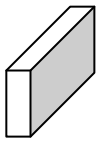
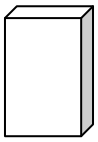
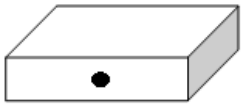
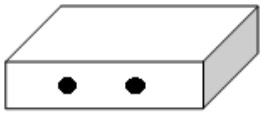
## 7.3. Limit

| Occupied Bandwidth |
|---|
| Systems using digital modulation techniques operate in the2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at least 500 kHz |

## 7.4. Test Procedure

| Test Method | | | | |
|---|---|---|---|---|
| | Reference Rule | | Chapter | Description |
| ☒ | ANSI C63.10 | | 11.8 | DTS bandwidth |
| | ☐ | ANSI C63.10 | 11.8.1 | Option 1 |
| | ☒ | ANSI C63.10 | 11.8.2 | Option 2 |

## 7.5. EUT test definition

<table>
<tr><th>Item</th><th colspan="4">Occupied Bandwidth</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1~3</td></tr>
<tr><td rowspan="12">Test method</td><td>☐</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Worst Axis ☐</td><td>Worst Axis ☐</td><td>Worst Axis ☐</td></tr>
<tr><td>☒</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☒</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

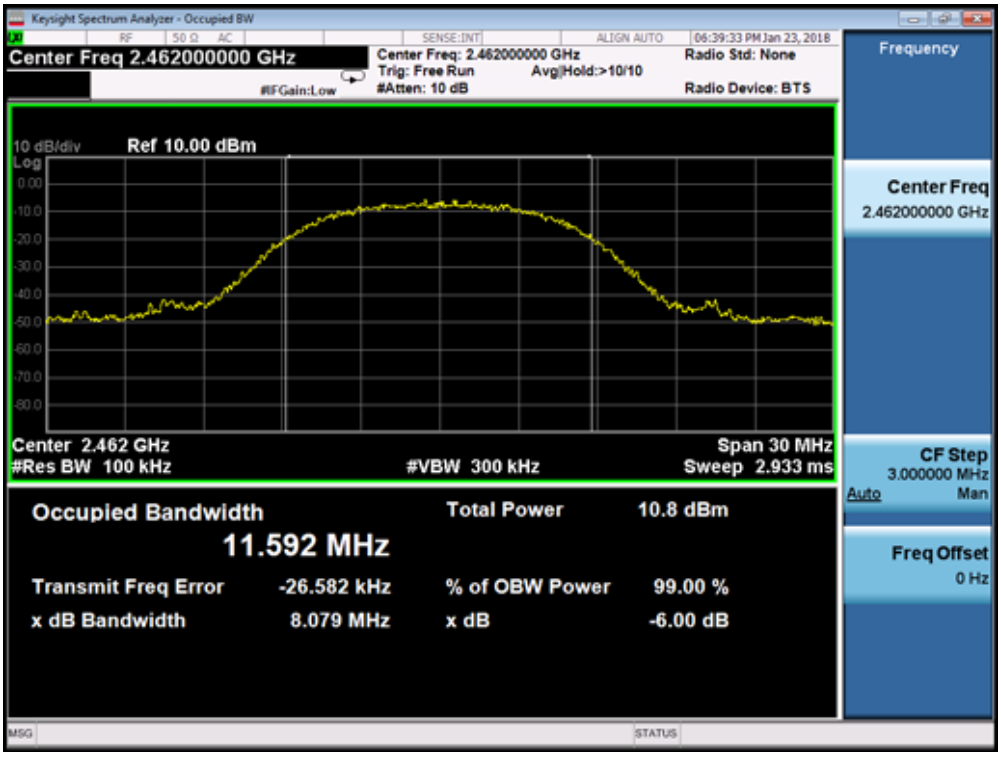
## 7.6. Test Result

| | | | | | |
|---|---|---|---|---|---|
| Product Name | : | Wake-up Light | Power | : | AC 120V/60Hz |
| Test Mode | : | Mode1~3 | Test Site | : | TR8 |
| Test Date | : | 2018.01.23 | Test Engineer | : | Tommie |

| Mode | CH. | Test Freq. (MHz) | 99% Occupied Bandwidth (MHz) | | 6dB Occupied Bandwidth (MHz) | | Limit (kHz) | Result |
|---|---|---|---|---|---|---|---|---|
| | | | Ant 1 | Ant 2 | Ant 1 | Ant 2 | | |
| 1 | 01 | 2412 | 11.600 | 11.578 | 8.584 | 8.610 | >500 | Pass |
| 1 | 06 | 2437 | 11.590 | 11.551 | 8.657 | 8.412 | >500 | Pass |
| 1 | 11 | 2462 | 11.611 | 11.578 | 8.799 | 9.157 | >500 | Pass |
| 2 | 01 | 2412 | 11.564 | 11.553 | 8.662 | 8.320 | >500 | Pass |
| 2 | 06 | 2437 | 11.631 | 11.547 | 8.448 | 8.502 | >500 | Pass |
| 2 | 11 | 2462 | 11.592 | 11.533 | 8.079 | 8.351 | >500 | Pass |
| 3 | 01 | 2412 | 17.760 | 17.724 | 17.720 | 17.740 | >500 | Pass |
| 3 | 06 | 2437 | 17.786 | 17.731 | 17.770 | 17.770 | >500 | Pass |
| 3 | 11 | 2462 | 17.772 | 17.731 | 17.760 | 17.750 | >500 | Pass |

Note : The worst case of Occupied Bandwidth as below in next page:

**Mode 2 CH11 (2462MHz) Ant 1**



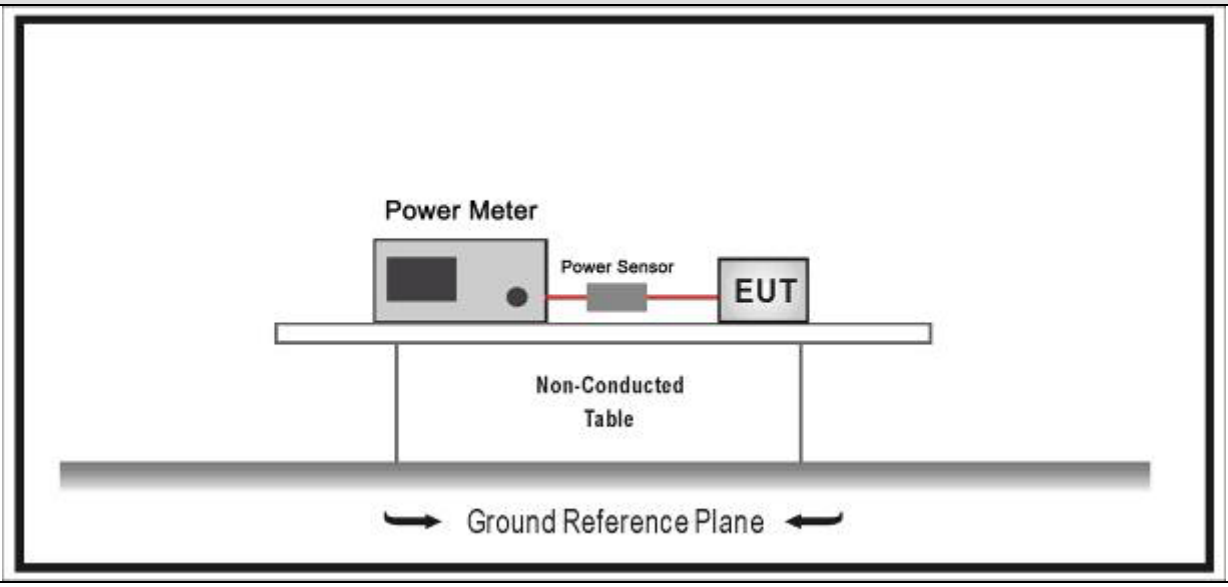
# 8. Fundamental emission output power

## 8.1. Test Equipment

| Fundamental emission output power/ TR-8 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2018.01.04 | 2019.01.03 |
| Spectrum Analyzer | Agilent | N9010A | MY48030494 | 2018.02.04 | 2019.02.03 |
| Wideband Peak Power Meter | Anritsu | ML2495A | 0905006 | 2017.10.14 | 2018.10.13 |
| Power Sensor | Anritsu | MA2411B | 0846014 | 2017.10.14 | 2018.10.13 |
| Temperature/Humidity Meter | zhicheng | ZC1-2 | TR8-TH | 2017.04.10 | 2018.04.09 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 8.2. Test Setup

Fundamental emission output power test setup



## 8.3. Limit

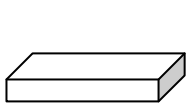
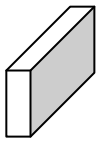
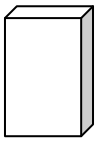
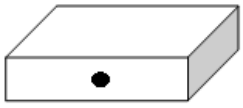
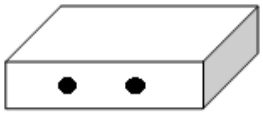
| Fundamental emission output power Limit | | | |
|---|---|---|---|
| ☒ | $G_{TX}$ ＜6dBi | | $P_{out}$≤30dBm |
| ☐ | $G_{TX}$ ＞6dBi | | |
| | ☐ | Non-Fix point-point | $P_{out}$≤30-( $G_{TX}$ -6) |
| | ☐ | Fix point-point | $P_{out}$≤30-[($G_{TX}$-6)]/3 |
| | ☐ | Point-to-multipoint | Pout≤30-(GTX-6) |
| | ☐ | Overlap Beams | $P_{out}$≤30-[($G_{TX}$-6)]/3 |
| | ☐ | Aggregate power transmitted simultaneously on all beams | $P_{out}$≤30-[($G_{TX}$-6)]/3 |
| | ☐ | single directional beam | $P_{out}$≤30-[($G_{TX}$-6)]/3+8dB |
| Note 1 : $G_{TX}$ directional gain of transmitting antennas.<br>Note 2 : $P_{out}$ is maximum peak conducted output power . | | | |

## 8.4. Test Procedure

| Fundamental emission output power Test Method | | | | | | |
|---|---|---|---|---|---|---|
| | References Rule | | | | Chapter | Description |
| ☒ | ANSI C63.10 | | | | 11.9 | Fundamental emission output power |
| | ☒ | ANSI C63.10 | | | 11.9.1 | Maximum peak conducted output power |
| | | ☐ | ANSI C63.10 | | 11.9.1.1 | RBW ≥ DTS bandwidth |
| | | ☐ | ANSI C63.10 | | 11.9.1.2 | Integrated band power method |
| | | ☒ | ANSI C63.10 | | 11.9.1.3 | PKPM1 Peak power meter method |
| | ☐ | ANSI C63.10 | | | 11.9.2 | Maximum conducted (average) output power |
| | | ☐ | ANSI C63.10 | | 11.9.2.2 | Measurement using a spectrum analyzer (SA) |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.2 | Method AVGSA-1(Duty cycle≥98%) |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.3 | Method AVGSA-1A(Duty cycle≥98%) |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.4 | Method AVGSA-2(Duty cycle≤98%) |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.5 | Method AVGSA-2A(Duty cycle≤98%) |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.4 | Method AVGSA-3 |
| | | | ☐ | ANSI C63.10 | 11.9.2.2.5 | Method AVGSA-3A |
| | | ☐ | ANSI C63.10 | | 11.9.2.3 | Measurement using a power meter (PM) |
| | | | ☐ | ANSI C63.10 | 11.9.2.3.1 | Method AVGPM |
| | | | ☐ | ANSI C63.10 | 11.9.2.3.2 | Method AVGPM-G |

| Directional Gain Calculations for In-Band test method | | | | |
|---|---|---|---|---|
| | References Rule | | Chapter | Description |
| ☐ | KDB 662911 | | F2)a) | Basic methodology |
| | ☐ | KDB 662911 | F2)a) (i) | transmit signals are correlated |
| | ☐ | KDB 662911 | F2)a) (ii) | transmit signals are uncorrelated |
| ☐ | KDB 662911 | | F2)b) | Sectorized antenna systems. |
| ☐ | KDB 662911 | | F2)c) | Cross-polarized antennas |
| | ☐ | ANSI C63.10 | F2)c) (i) | Cross-polarized antennas |
| | ☐ | ANSI C63.10 | F2)c) (ii) | Multiple antennas |
| ☒ | KDB 662911 | | F2)e) | Spatial Multiplexing |
| | ☐ | KDB 662911 | F2)e) (i) | Antennas have the same gain |
| | ☐ | KDB 662911 | F2)e) (ii) | Antenna have the different gain with one spatial stream |
| | ☒ | KDB 662911 | F2)e) (iii) | Antenna have the different gain with more than one spatial stream |
| ☒ | KDB 662911 | | F2)f) | Cyclic Delay Diversity (CDD) |
| | ☐ | KDB 662911 | F2)f) (i) | Antennas have the same gain |
| | ☒ | KDB 662911 | F2)f) (ii) | Antenna have the different gain with one spatial stream |
| | ☐ | KDB 662911 | F2)f) (iii) | Antenna have the different gain with more than one spatial stream |

## 8.5. EUT test definition

<table>
<tr><th>Item</th><th colspan="4">Fundamental emission output power</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1~3</td></tr>
<tr><td rowspan="14">Test method</td><td>☐</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Worst Axis ☐</td><td>Worst Axis ☐</td><td>Worst Axis ☐</td></tr>
<tr><td>☒</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☒</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

## 8.6. Test Result

| | | | | | |
|---|---|---|---|---|---|
| Product Name | : | Wake-up Light | Power | : | AC 120V/60Hz |
| Test Mode | : | Mode1~3 | Test Site | : | TR8 |
| Test Date | : | 2018.03.05 | Test Engineer | : | Tommie |

| Mode | Channel | Test Frequency (MHz) | Peak Power Output (dBm) | | Limit (dBm) | Result |
|---|---|---|---|---|---|---|
| | | | Ant 1 | Ant 2 | | |
| 1 | 01 | 2412 | 15.01 | 18.37 | 30 | Pass |
| 1 | 06 | 2437 | 14.94 | 18.23 | 30 | Pass |
| 1 | 11 | 2462 | 14.92 | 18.55 | 30 | Pass |
| 2 | 01 | 2412 | 14.98 | 18.37 | 30 | Pass |
| 2 | 06 | 2437 | 14.91 | 18.25 | 30 | Pass |
| 2 | 11 | 2462 | 14.87 | 18.52 | 30 | Pass |
| 3 | 01 | 2412 | 19.23 | 22.63 | 30 | Pass |
| 3 | 06 | 2437 | 19.34 | 22.65 | 30 | Pass |
| 3 | 11 | 2462 | 19.35 | 23.03 | 30 | Pass |

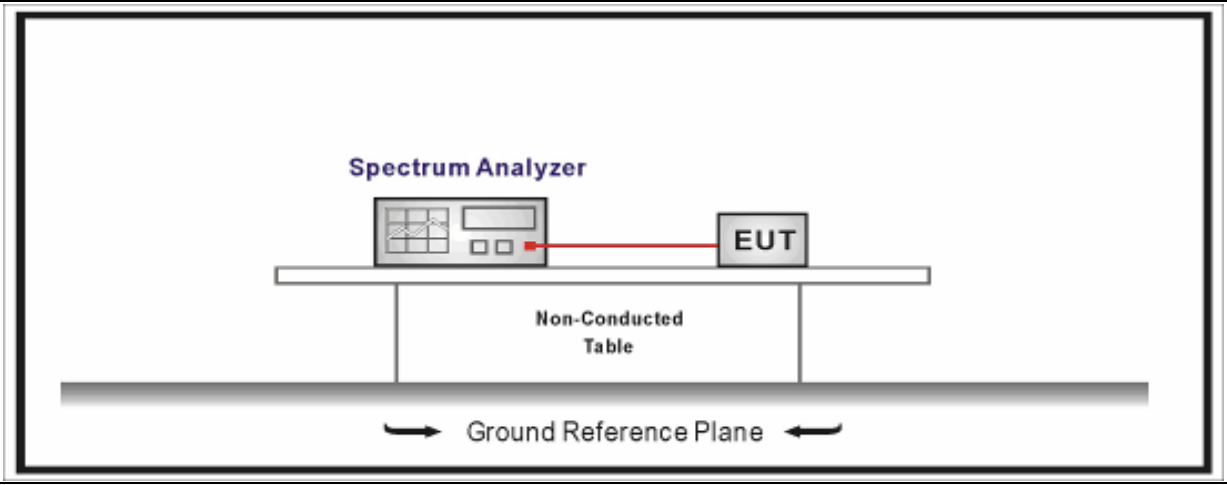
# 9. Power Spectral Density

## 9.1. Test Equipment

| Power Spectral Density / TR-8 | | | | | |
|---|---|---|---|---|---|
| Instrument | Manufacturer | Type No. | Serial No. | Cal. Date | Cal. Due Date |
| Spectrum Analyzer | Agilent | N9010A | MY48030494 | 2018.02.04 | 2019.02.03 |
| EXA Spectrum Analyzer | Keysight | N9010A | MY55370495 | 2017.04.09 | 2018.04.08 |
| MXA Signal Anlyzer | Keysight | N9020A | MY56060147 | 2017.04.09 | 2018.04.08 |
| Temperature/Humidity Meter | zhichen | ZC1-2 | TR8-TH | 2017.04.10 | 2018.04.09 |
| Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. | | | | | |

## 9.2. Test Setup

Power Spectral Density test setup




## 9.3. Limit

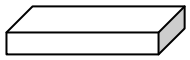
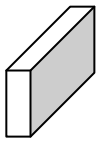
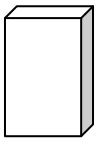
| Power Spectral Density Limit |
|---|
| Power Spectral Density≤8dBm/3kHz |

## 9.4. Test Procedure

| Power Spectral Density Test Method | | | | |
|---|---|---|---|---|
| | References Rule | | Chapter | Description |
| ☒ | ANSI C63.10 | | 11.10 | Maximum power spectral density level in the fundamental emission |
| | ☒ | ANSI C63.10 | 11.10.2 | Method PKPSD (peak PSD) |
| | ☐ | ANSI C63.10 | 11.10.3 | Method AVGPSD-1(Duty cycle≥98%) |
| | ☐ | ANSI C63.10 | 11.10.4 | Method AVGPSD-1A(Duty cycle≥98%) |
| | ☐ | ANSI C63.10 | 11.10.5 | Method AVGPSD-2(Duty cycle＜98%) |
| | ☐ | ANSI C63.10 | 11.10.6 | Method AVGPSD-2A(Duty cycle＜98%) |
| | ☐ | ANSI C63.10 | 11.10.7 | Method AVGPSD-3 |
| | ☐ | ANSI C63.10 | 11.10.8 | Method AVGPSD-3A |

| Directional Gain Calculations for In-Band test method | | | | |
|---|---|---|---|---|
| | Referred Rule | | Chapter | Description |
| ☐ | KDB 662911 | | F2)a) | Basic methodology |
| | ☐ | KDB 662911 | F2)a) (i) | transmit signals are correlated |
| | ☐ | KDB 662911 | F2)a) (ii) | transmit signals are uncorrelated |
| ☐ | KDB 662911 | | F2)b) | Sectorized antenna systems. |
| ☐ | KDB 662911 | | F2)c) | Cross-polarized antennas |
| | ☐ | ANSI C63.10 | F2)c) (i) | Cross-polarized antennas |
| | ☐ | ANSI C63.10 | F2)c) (ii) | Multiple antennas |
| ☒ | KDB 662911 | | F2)e) | Spatial Multiplexing |
| | ☐ | KDB 662911 | F2)e) (i) | Antennas have the same gain |
| | ☐ | KDB 662911 | F2)e) (ii) | Antenna have the different gain with one spatial stream |
| | ☒ | KDB 662911 | F2)e) (iii) | Antenna have the different gain with more than one spatial stream |
| ☒ | KDB 662911 | | F2)f) | Cyclic Delay Diversity (CDD) |
| | ☐ | KDB 662911 | F2)f) (i) | Antennas have the same gain |
| | ☒ | KDB 662911 | F2)f) (ii) | Antenna have the different gain with one spatial stream |
| | ☐ | KDB 662911 | F2)f) (iii) | Antenna have the different gain with more than one spatial stream |

## 9.5. EUT test definition

<table>
<tr><th>Item</th><th colspan="4">Power Spectral Density Test Method</th></tr>
<tr><td rowspan="3">Device Category</td><td>☐</td><td colspan="3">Fixed point-to-point</td></tr>
<tr><td>☐</td><td colspan="3">Emit multiple directional beams, simultaneously or sequentially</td></tr>
<tr><td>☒</td><td colspan="3">Other cases</td></tr>
<tr><td>Test mode</td><td colspan="4">Mode 1~3</td></tr>
<tr><td rowspan="12">Test method</td><td>☐</td><td colspan="3">Radiated</td></tr>
<tr><td rowspan="3"></td><td>X Axis</td><td>Y Axis</td><td>Z Axis</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
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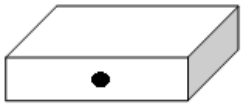
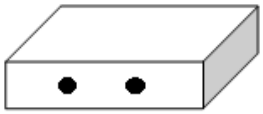
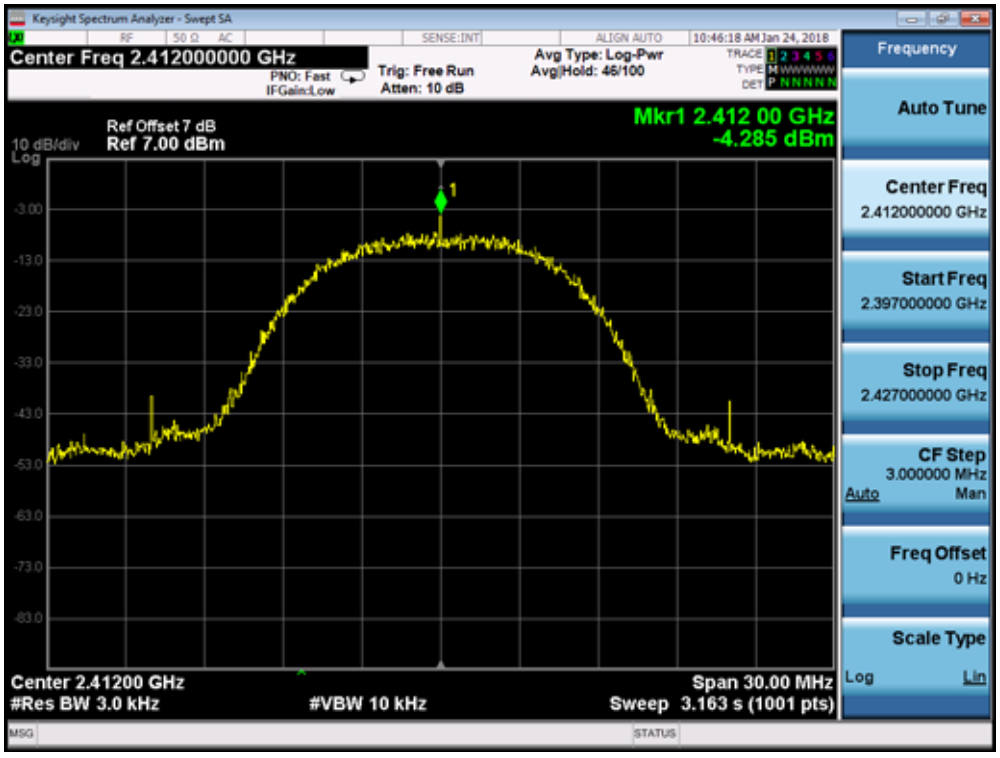
<tr><td>☒</td><td colspan="3">Conducted</td></tr>
<tr><td>☐</td><td colspan="3">Chain 1</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☒</td><td>Chain 1</td><td colspan="2">Chain 2</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
<tr><td>☐</td><td>Chain 1</td><td>Chain 2</td><td>Chain 3</td></tr>
<tr><td></td><td colspan="3">  </td></tr>
</table>

## 9.6. Test Result

| Product Name | : | Wake-up Light | Power | : | AC 120V/60Hz |
|---|---|---|---|---|---|
| Test Mode | : | Mode1~3 | Test Site | : | TR8 |
| Test Date | : | 2018.03.05 | Test Engineer | : | Tommie |

| Mode | Channel | Test Frequency (MHz) | Measurement PSD (dBm/3kHz) | | Limit (dBm/3kHz) | Result |
|---|---|---|---|---|---|---|
| | | | Ant 1 | Ant 2 | | |
| 1 | 01 | 2412 | -9.580 | -4.285 | 8.0 | Pass |
| 1 | 06 | 2437 | -12.241 | -5.046 | 8.0 | Pass |
| 1 | 11 | 2462 | -10.751 | -4.611 | 8.0 | Pass |
| 2 | 01 | 2412 | -10.026 | -6.534 | 8.0 | Pass |
| 2 | 06 | 2437 | -12.353 | -5.155 | 8.0 | Pass |
| 2 | 11 | 2462 | -10.061 | -6.288 | 8.0 | Pass |
| 3 | 01 | 2412 | -12.970 | -8.504 | 8.0 | Pass |
| 3 | 06 | 2437 | -13.864 | -7.999 | 8.0 | Pass |
| 3 | 11 | 2462 | -13.104 | -8.497 | 8.0 | Pass |

Mode 1 CH01(2412MHz) Ant 2



# 10. Antenna Requirement

## 10.1. Limit

| Antenna Requirement Limit |
|---|
| 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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded. |

## 10.2. Antenna Connector Construction

| Antenna Connector Construction | |
|---|---|
| ☐ | The use of a permanently attached antenna |
| ☐ | The antenna use of a unique coupling to the intentional radiator |
| ☒ | The use of a nonstandard antenna jack or electrical connector |
| Please refer to the attached document “Internal Photograph” to show the antenna connector. | |

The End