



Product Service

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Report On

FCC and Industry Canada Testing of the
Kohler Co. KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL
1283748 In accordance with FCC CFR 47 Part 15C & Industry Canada
RSS-210 and Industry Canada RSS-GEN

COMMERCIAL-IN-CONFIDENCE

FCC ID: N82-KOHLER019

IC ID: 4554A-KOHLER019

Document 708881622804-00 Report 03 Issue 1

Aug 2016



Product Service

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COMMERCIAL-IN-CONFIDENCE

REPORT ON FCC and INDUSTRY CANADA Testing of the
Kohler Co.
KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748
In accordance with FCC CFR 47 Part 15C & Industry Canada RSS-
210 and Industry Canada RSS-GEN

Document 708881622804-00 Report 03 Issue 1

Aug 2016

PREPARED FOR Kohler Co.

PREPARED BY

Wenwen CHENG

Project Engineer

APPROVED BY

Hui TONG
Project Engineer

DATED Aug 26, 2016

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15C. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

Wenwen CHENG



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SECTION 1

REPORT SUMMARY

FCC & INDUSTRY CANADA Testing of the
Kohler Co.
KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL
1283748

In accordance with FCC CFR 47 Part 15C & Industry Canada RSS-210 and Industry Canada RSS-GEN



Product Service

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC and INDUSTRYCANADA Testing of the KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748 to the requirements of FCC CFR 47 Part 15C & Industry Canada RSS-210 and Industry Canada RSS-GEN.

| | |
|-------------------------------|---|
| Objective | To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out. |
| Manufacturer | Kohler Co. |
| Model Number(s) | 1283748 |
| Serial Number(s) | Engineering sample |
| Number of Samples Tested | 1 |
| Test Specification/Issue/Date | FCC CFR 47 Part 15C (2014) Industry Canada RSS-210 Issue 9 (2016) Industry Canada RSS-GEN Issue 4 (2014) |
| Incoming Release Date | Application Form April 07, 2016 |
| Order Number Date | Quote Acceptance Form April 07, 2016 |
| Start of Test | May 17, 2016 |
| Finish of Test | June 21, 2016 |
| Name of Engineer(s) | Hui TONG |
| Related Document(s) | ANSI C63.10: 2009 |



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15C and RSS-210 and RSS-GEN are shown below.

| Section | Spec Clause | | | Test Description | Result | Comments/Base Standard |
|---|--------------------------|-------------|---------|--------------------------------------|--------|------------------------|
| | FCC | RSS-210 | RSS-GEN | | | |
| Short range device wireless video transmitter DCS500T | | | | | | |
| 2.1 | 15.207 | - | 7.2.4 | AC Line Conducted Emissions | NA | |
| 2.2 | 15.249 (a) | A 2.9 | - | Field Strength of Fundamental | Pass | |
| 2.3 | 15.249 (a)(d), 15.209 | A 2.9 & 2.2 | - | Field Strength of Spurious Emissions | Pass | |
| 2.4 | - | Annex 8 | - | Occupied Bandwidth | Pass | |

Note: This EUT is powered by battery only; therefore the AC Conducted Emission test is not applicable.



Product Service

1.3 APPLICATION FORM

| APPLICANT'S DETAILS | |
|--|---|
| COMPANY NAME : | Kohler Co. |
| ADDRESS : | 444 Highland Drive Wisconsin United States |
| NAME FOR CONTACT PURPOSES : Timothy Stessman | |
| TELEPHONE NO: 920-457-4441 Extension: 2122 | FAX NO: E-MAIL: timothy.stessman@kohler.com |

| EQUIPMENT INFORMATION | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------|-----------|---------|-----------|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|---|--------|----|--------|
| MANUFACTURING DESCRIPTION | KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL | | | | | | | | | | | | | | | | | | | | | | | | |
| MANUFACTURER | Kohler Co. | | | | | | | | | | | | | | | | | | | | | | | | |
| TYPE | 1283748 | | | | | | | | | | | | | | | | | | | | | | | | |
| SERIAL NUMBER | Engineering sample | | | | | | | | | | | | | | | | | | | | | | | | |
| TRANSMITTER OPERATING RANGE | 2414.5MHz-2459.5MHz | | | | | | | | | | | | | | | | | | | | | | | | |
| COUNTRY OF ORIGIN | USA | | | | | | | | | | | | | | | | | | | | | | | | |
| Channel Number | 10 | | | | | | | | | | | | | | | | | | | | | | | | |
| Channels Spacing | 5MHz | | | | | | | | | | | | | | | | | | | | | | | | |
| Modulation Type | MSK | | | | | | | | | | | | | | | | | | | | | | | | |
| Antenna Gain | 4dbi | | | | | | | | | | | | | | | | | | | | | | | | |
| FCC ID | N82-KOHLER019 | | | | | | | | | | | | | | | | | | | | | | | | |
| IC ID | 4554A-KOHLER019 | | | | | | | | | | | | | | | | | | | | | | | | |
| TECHNICAL DESCRIPTION (a brief description of the intended use and operation) | 1283748 is the KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL with 2.4GHz Transceiver | | | | | | | | | | | | | | | | | | | | | | | | |
| MANUFACTURING DESCRIPTION | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Channel</th> <th>Freq(MHz)</th> <th>Channel</th> <th>Freq(MHz)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2414.5</td> <td>6</td> <td>2439.5</td> </tr> <tr> <td>2</td> <td>2419.5</td> <td>7</td> <td>2444.5</td> </tr> <tr> <td>3</td> <td>2424.5</td> <td>8</td> <td>2449.5</td> </tr> <tr> <td>4</td> <td>2429.5</td> <td>9</td> <td>2454.5</td> </tr> <tr> <td>5</td> <td>2434.5</td> <td>10</td> <td>2459.5</td> </tr> </tbody> </table> | Channel | Freq(MHz) | Channel | Freq(MHz) | 1 | 2414.5 | 6 | 2439.5 | 2 | 2419.5 | 7 | 2444.5 | 3 | 2424.5 | 8 | 2449.5 | 4 | 2429.5 | 9 | 2454.5 | 5 | 2434.5 | 10 | 2459.5 |
| Channel | Freq(MHz) | Channel | Freq(MHz) | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2414.5 | 6 | 2439.5 | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2419.5 | 7 | 2444.5 | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 2424.5 | 8 | 2449.5 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 2429.5 | 9 | 2454.5 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 2434.5 | 10 | 2459.5 | | | | | | | | | | | | | | | | | | | | | | |



Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) 1283748 was a Kohler Co. KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from 3.7V Li-on Rechargeable Battery.
Supply the EUT with fully charged battery during the testing.

Test Site 1:

FCC Accreditation 809388

IC Accreditation 11384A-1

Test Firm Name: MRT Technology (Suzhou) Co., Ltd

Location: D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Site 2:

FCC Accreditation 904822

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

No.16 Lane, 1951 Du Hui Road,

Shanghai 201108,

P.R. China

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard were made during testing.

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



Product Service

SECTION 2

TEST DETAILS

FCC and INDUSTRY CANADA Testing of the Kohler Co.
KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748
In accordance with FCC CFR 47 Part 15C & Industry Canada RSS-210 and Industry Canada
RSS-GEN



2.1 AC LINE CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.207 / Industry Canada RSS-GEN, Clause 7.2.4

2.1.2 Equipment Under Test and Modification State

NA

2.1.3 Date of Test

NA

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

The EUT is set up on a test table 800mm above a horizontal ground plane. A vertical ground plane is also required and is placed 400mm from the EUT. Where a EUT is floor standing it will be stood on but insulated from the ground plane by up to 12mm.

The EUT is powered through a Line Impedance Stabilisation Network (LISN) which is bonded to the ground plane. The EUT is located so that the distance between the EUT and the LISN is no less than 800mm. Where possible the cable between the mains input of the EUT and the LISN is 1m. Where this is not possible the cable is non inductively bundled with the bundle not exceeding 400mm in length.

A preliminary profile of the Conducted Emissions is obtained over the frequency range 150kHz to 30MHz. Any points of interest are noted for formal measurements.

During formal measurements, the measuring receiver is tuned to the emission of interest where Quasi – Peak and Average measurements are performed in a 9kHz Video and Resolution Bandwidth.

2.1.6 Environmental Conditions

| | |
|---------------------|----|
| Ambient Temperature | -- |
| Relative Humidity | -- |

2.1.7 Test Results

NA



Product Service

2.2 FIELD STRENGTH OF FUNDAMENTAL

2.2.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.249 (a) / Industry Canada RSS-210, Clause A2.9

2.2.2 Equipment Under Test and Modification State

KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748 set up the 2.4GHz-Modification State 0

2.2.3 Date of Test

May 23, 2016

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The EUT is placed on a test table 800mm above the ground plane.

During formal measurement the spectrum analyser is tuned to the frequency of the fundamental. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum level occurs. Once the point of maximum emission has been determined the emission is measured.

2.2.6 Environmental Conditions

| | |
|---------------------|--------|
| Ambient Temperature | 24.6°C |
| Relative Humidity | 52.5% |



2.2.7 Test Results

2414.5 MHz

Fundamental

| Fundamental Frequency (MHz) | Polarisation (Vertical/ Horizontal) | Reading Level | Factor | Field Strength | Over Limit | Limit | | Type |
|-----------------------------|-------------------------------------|---------------|--------|----------------|------------|----------------|------|-------|
| | | (dB μ V/) | (dB) | dB μ V/m | (dB) | (dB μ V/m) | mV/m | AV/PK |
| 2414.436 | H | 62.646 | 31.532 | 94.178 | -19.822 | 114.0 | 50 | PK |
| 2414.382 | H | 62.227 | 31.532 | 93.759 | -0.241 | 94.0 | | AV |
| 2414.598 | V | 57.651 | 31.532 | 89.183 | -24.817 | 114.0 | 50 | PK |

2434.5 MHz

Fundamental

| Fundamental Frequency (MHz) | Polarisation (Vertical/ Horizontal) | Reading Level | Factor | Field Strength | Over Limit | Limit | | Type |
|-----------------------------|-------------------------------------|---------------|--------|----------------|------------|----------------|------|-------|
| | | (dB μ V/) | (dB) | dB μ V/m | (dB) | (dB μ V/m) | mV/m | AV/PK |
| 2434.613 | H | 61.536 | 31.51 | 93.046 | -20.954 | 114 | 50 | PK |
| 2434.075 | V | 58.281 | 31.51 | 89.791 | -24.209 | 114 | 50 | PK |

2449.5 MHz

Fundamental

| Fundamental Frequency (MHz) | Polarisation (Vertical/ Horizontal) | Reading Level | Factor | Field Strength | Over Limit | Limit | | Type |
|-----------------------------|-------------------------------------|---------------|--------|----------------|------------|----------------|------|-------|
| | | (dB μ V/) | (dB) | dB μ V/m | (dB) | (dB μ V/m) | mV/m | AV/PK |
| 2449.510 | H | 63.178 | 31.487 | 95.665 | -18.335 | 114.0 | 50 | PK |
| 2449.510 | H | 62.321 | 31.487 | 93.808 | -0.192 | 94.0 | | AV |
| 2449.510 | V | 58.897 | 31.487 | 90.384 | -23.616 | 114.0 | 50 | PK |

Remark: Form the peak reading test found the emission below the AV limit, so the average (AV) test doesn't need to be performed.

Limit Clause 15.249 (a) and A2.9

| Fundamental Frequency (MHz) | Field Strength of Fundamental (millivolts/meter) |
|-----------------------------|--|
| 902 to 928 | 50 |
| 2400 to 2483.5 | 50 |
| 5725 to 5875 | 50 |
| 24000 to 24250 | 250 |



2.3 FIELD STRENGTH OF SPURIOUS EMISSIONS

2.3.1 Specification Reference

FCC CFR 47 Part 15C, Clause 15.249 (a)(d), 15.209 / Industry Canada RSS-210 and Industry Canada RSS-GEN

2.3.2 Equipment Under Test and Modification State

KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748 set up the 2.4GHz transmit mode - Modification State 0

2.3.3 Date of Test

May 25, 2016 to June 21, 2016

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

A preliminary profile of the Spurious Radiated Emissions is obtained up to the 10th harmonic of the EUT's fundamental frequency. For frequencies from 30MHz to 18GHz the EUT is placed on a test table 800mm above the ground plane. For frequencies above 18GHz, the EUT height is increased by 200mm to a height of 1000mm. This is to ensure the beam width of the measuring antenna gives sufficient vertical coverage of the EUT.

During characterisation the turntable azimuth is adjusted from 0 to 360 degrees with the measuring antenna in one polarity. It is then repeated for the other polarity. Any frequencies of interest are noted for formal measuring later. The distance from the measuring antenna to the boundary of the EUT is 3m. Above 18GHz this distance may be reduced to 1m.

During formal measurement the spectrum analyser is tuned to the frequency of the emission. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum emission level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum emission level occurs. Once the point of maximum emission has been determined the emission is measured. Emissions in the 30MHz to 1GHz range are measured using a CISPR Quasi – Peak detector function in a 120kHz bandwidth. Emissions in the range 1GHz to 40GHz require Peak and Average measurements. The Peak measurements are made using a peak detector with 1MHz Resolution and Video bandwidths. The average measurements employ a peak detector with a Resolution bandwidth of 1MHz and a Video bandwidth of 10Hz. If measurements are made at a 1m measuring distance, then 10dB is added to the specification limit.

2.3.6 Environmental Conditions

| | |
|---------------------|---------------|
| Ambient Temperature | 23.4°C~25.6°C |
| Relative Humidity | 52.1%~56.8% |

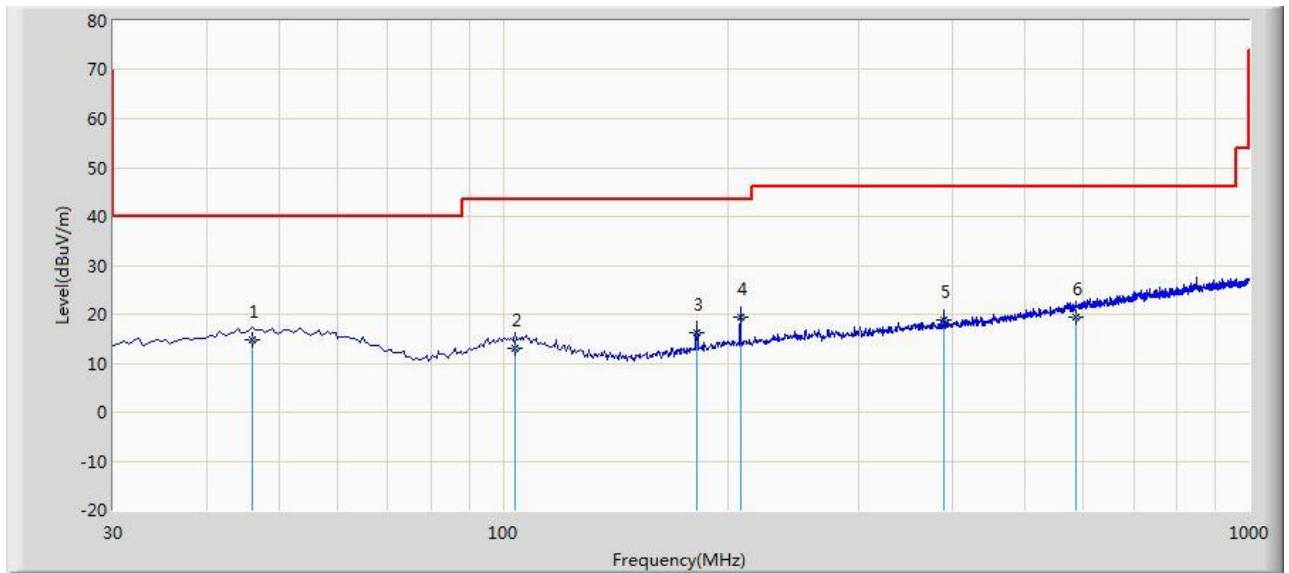


2.3.7 Test Results

30 MHz to 1 GHz

Worst Case Mode: Transmit at Channel 2414.5MHz

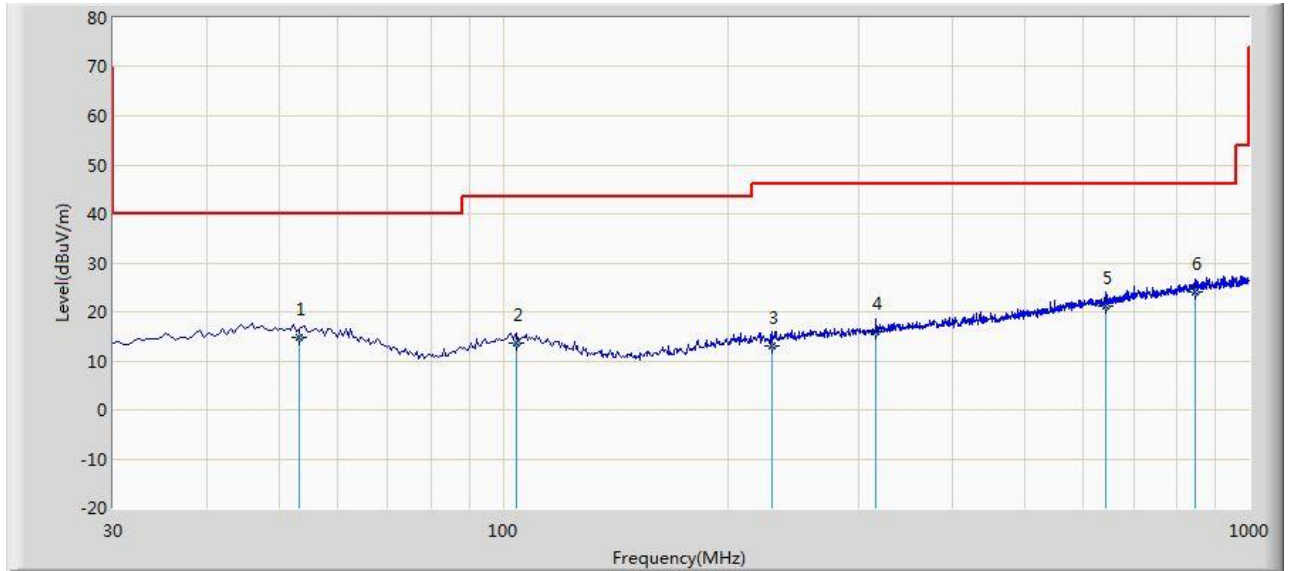
Horizontal Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1 | | | 46.030 | 14.695 | -0.310 | -25.305 | 40.000 | 15.005 | QP |
| 2 | | | 103.630 | 13.187 | 0.040 | -30.313 | 43.500 | 13.147 | QP |
| 3 | | | 181.850 | 16.244 | 5.160 | -27.256 | 43.500 | 11.084 | QP |
| 4 | | * | 208.010 | 19.357 | 6.940 | -24.143 | 43.500 | 12.416 | QP |
| 5 | | | 389.940 | 18.910 | 2.410 | -27.090 | 46.000 | 16.500 | QP |
| 6 | | | 585.630 | 19.335 | -0.530 | -26.665 | 46.000 | 19.865 | QP |



Vertical Polarisation



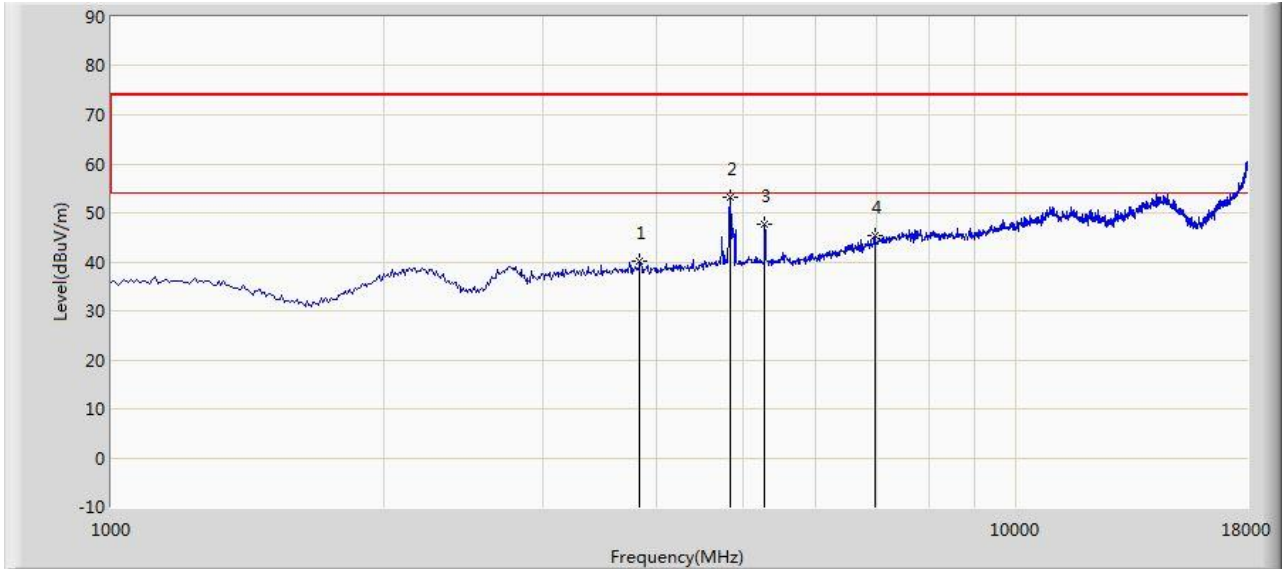
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|--------|------|
| 1 | | | 53.290 | 14.791 | -0.070 | -25.209 | 40.000 | 14.862 | QP |
| 2 | | | 104.180 | 13.648 | 0.520 | -29.852 | 43.500 | 13.128 | QP |
| 3 | | | 228.910 | 13.091 | 0.050 | -32.909 | 46.000 | 13.041 | QP |
| 4 | | | 316.200 | 15.920 | 0.940 | -30.080 | 46.000 | 14.980 | QP |
| 5 | | | 643.360 | 21.274 | 0.670 | -24.726 | 46.000 | 20.603 | QP |
| 6 | | * | 848.200 | 24.026 | 0.420 | -21.974 | 46.000 | 23.607 | QP |



1 GHz to 18 GHz

Tx: 2414.5MHz

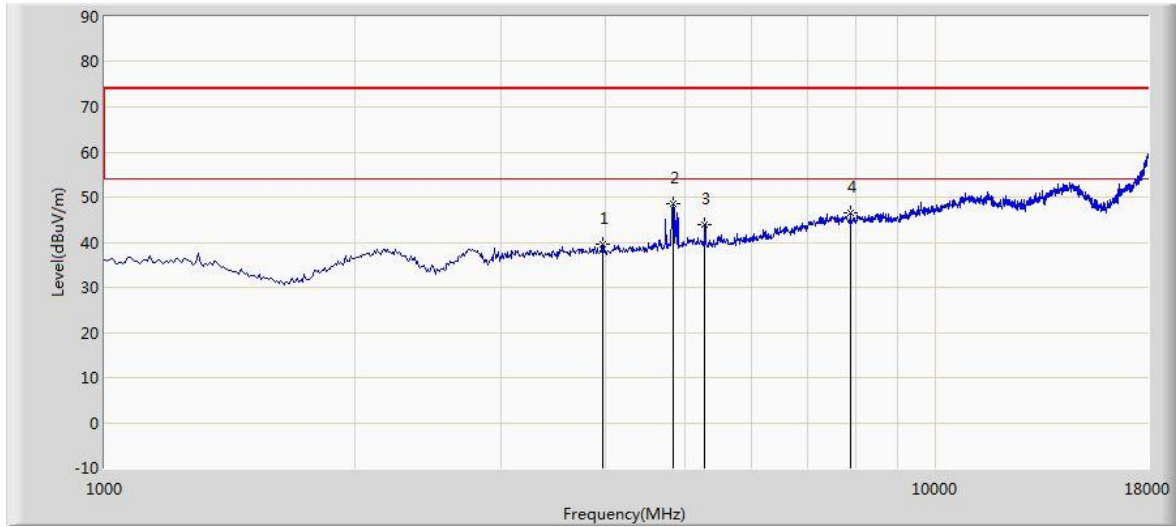
Horizontal Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 3839.000 | 40.199 | 39.218 | -33.801 | 74.000 | 0.981 | PK |
| 2 | | * | 4825.000 | 53.088 | 49.590 | -20.912 | 74.000 | 3.498 | PK |
| 3 | | | 5275.500 | 47.819 | 43.808 | -26.181 | 74.000 | 4.011 | PK |
| 4 | | | 6975.500 | 45.488 | 37.543 | -28.512 | 74.000 | 7.945 | PK |



Vertical Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 3975.000 | 39.435 | 38.032 | -34.565 | 74.000 | 1.403 | PK |
| 2 | | * | 4825.000 | 48.591 | 45.093 | -25.409 | 74.000 | 3.498 | PK |
| 3 | | | 5275.500 | 43.915 | 39.904 | -30.085 | 74.000 | 4.011 | PK |
| 4 | | | 7893.500 | 46.419 | 36.927 | -27.581 | 74.000 | 9.492 | PK |

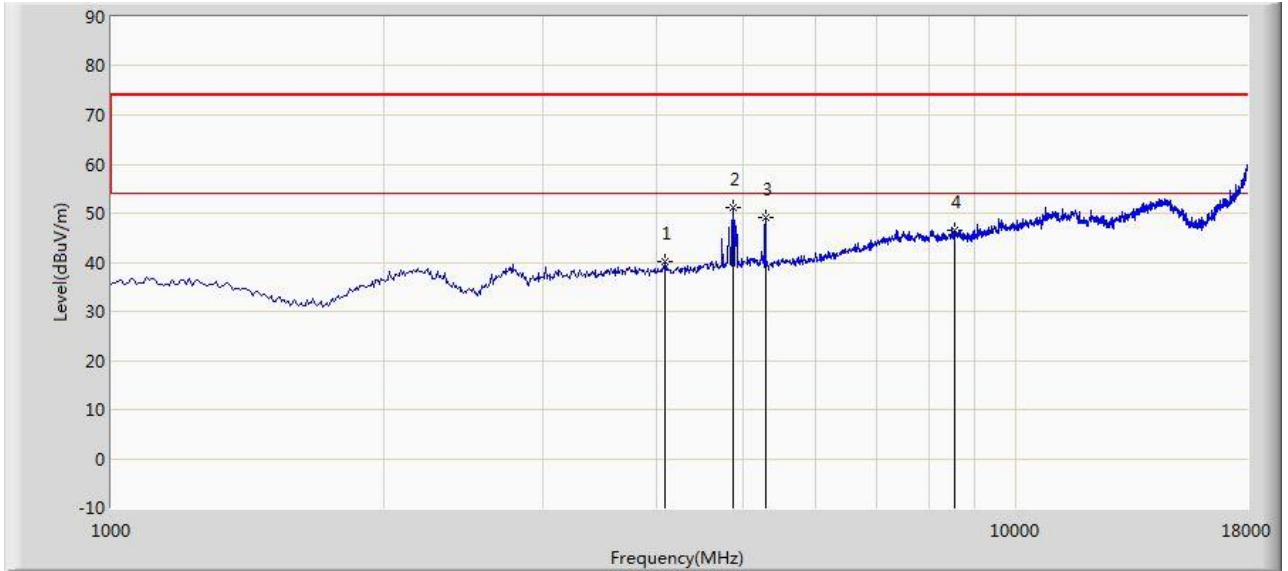


Product Service

1 GHz to 18 GHz

Tx: 2434.5MHz

Horizontal Polarisation

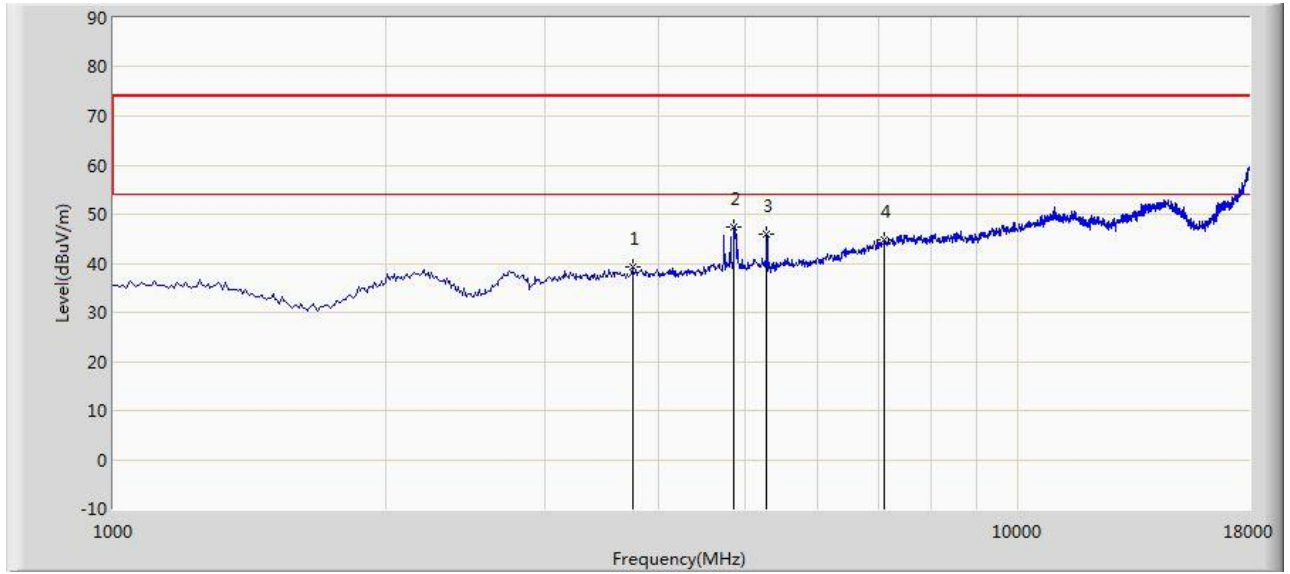


| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 4085.500 | 40.191 | 38.752 | -33.809 | 74.000 | 1.439 | PK |
| 2 | | * | 4867.500 | 51.186 | 47.651 | -22.814 | 74.000 | 3.535 | PK |
| 3 | | | 5284.000 | 49.164 | 45.114 | -24.836 | 74.000 | 4.050 | PK |
| 4 | | | 8565.000 | 46.652 | 36.840 | -27.348 | 74.000 | 9.812 | PK |



Product Service

Vertical Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 3745.500 | 39.174 | 38.544 | -34.826 | 74.000 | 0.630 | PK |
| 2 | | * | 4850.500 | 47.326 | 43.829 | -26.674 | 74.000 | 3.496 | PK |
| 3 | | | 5275.500 | 45.847 | 41.836 | -28.153 | 74.000 | 4.011 | PK |
| 4 | | | 7120.000 | 44.886 | 36.076 | -29.114 | 74.000 | 8.810 | PK |

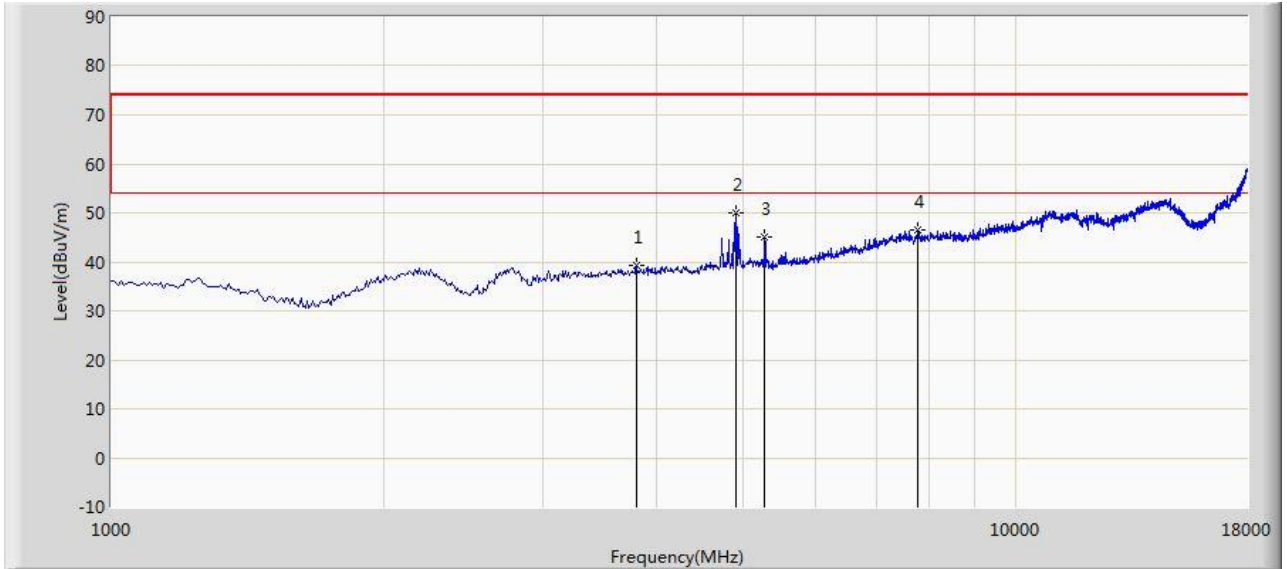


Product Service

1 GHz to 18 GHz

Tx: 2449.5MHz

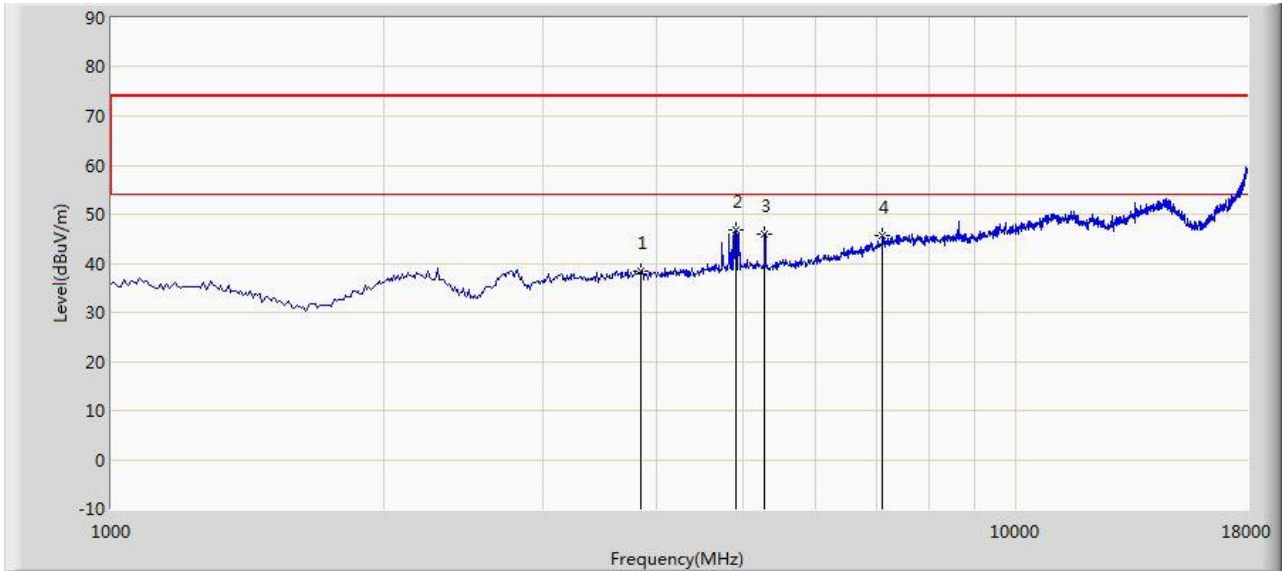
Horizontal Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 3805.000 | 39.253 | 38.334 | -34.747 | 74.000 | 0.918 | PK |
| 2 | | * | 4901.500 | 50.047 | 46.551 | -23.953 | 74.000 | 3.496 | PK |
| 3 | | | 5275.500 | 45.012 | 41.001 | -28.988 | 74.000 | 4.011 | PK |
| 4 | | | 7783.000 | 46.499 | 37.140 | -27.501 | 74.000 | 9.359 | PK |



Vertical Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 3847.500 | 38.360 | 37.242 | -35.640 | 74.000 | 1.118 | PK |
| 2 | | * | 4910.000 | 46.883 | 43.391 | -27.117 | 74.000 | 3.492 | PK |
| 3 | | | 5275.500 | 46.086 | 42.075 | -27.914 | 74.000 | 4.011 | PK |
| 4 | | | 7120.000 | 45.748 | 36.938 | -28.252 | 74.000 | 8.810 | PK |

Remark: Form the peak reading test found the emission below the AV limit, so the average (AV) test doesn't need to be performed.

Limit Clause

15.249 (a) and A2.9

| Fundamental Frequency (MHz) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------------|--|
| 902 to 928 | 500 |
| 2400 to 2483.5 | 500 |
| 5725 to 5875 | 500 |
| 24000 to 24250 | 2500 |

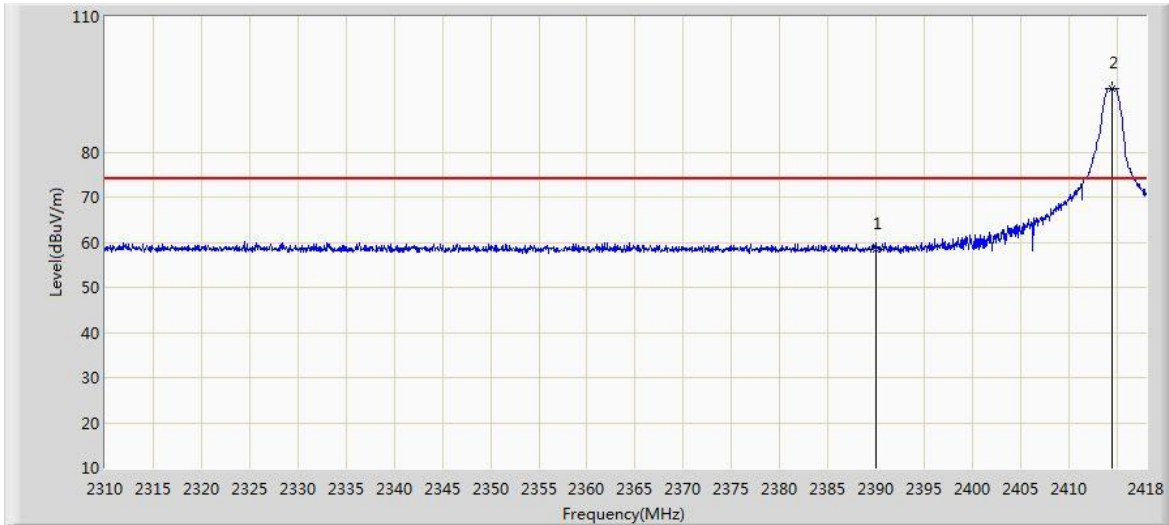
15.249 (d), 15.209

| Frequency (MHz) | Field Strength (microvolts/meter) |
|-----------------|-----------------------------------|
| 0.009 to 0.490 | 2400/F (kHz) |
| 0.490 to 1.705 | 24000/F (kHz) |
| 1.705 to 30.0 | 30 |
| 30 to 88 | 100 |
| 88 to 216 | 150 |
| 216 to 960 | 200 |
| Above 960 | 500 |

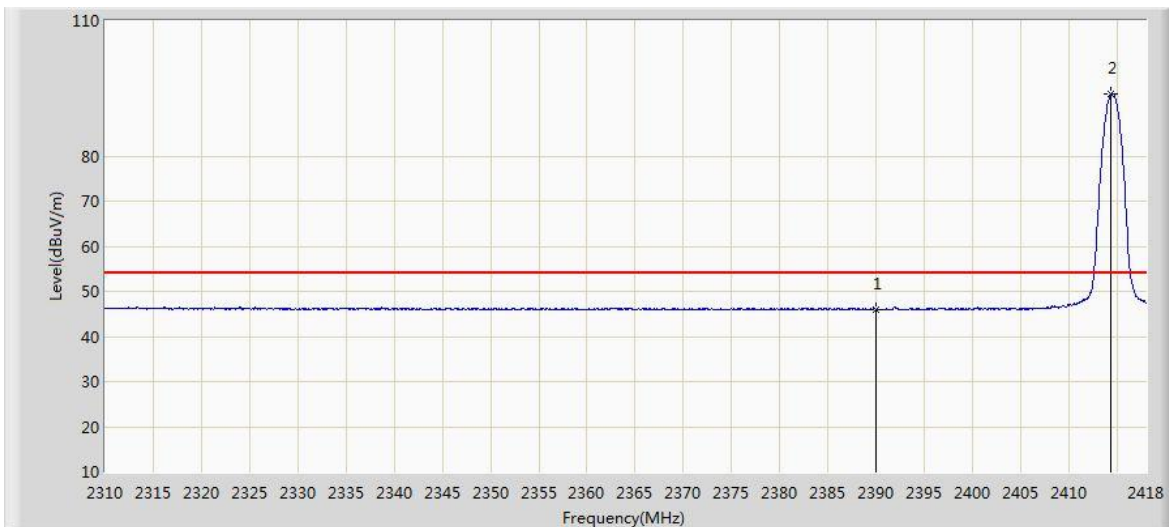


Product Service

Band Edge Emissions
Tx: 2414.5MHz
 Horizontal Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 2390.000 | 58.550 | 26.983 | -15.450 | 74.000 | 31.567 | PK |
| 2 | | * | 2414.436 | 94.178 | 62.646 | N/A | N/A | 31.532 | PK |

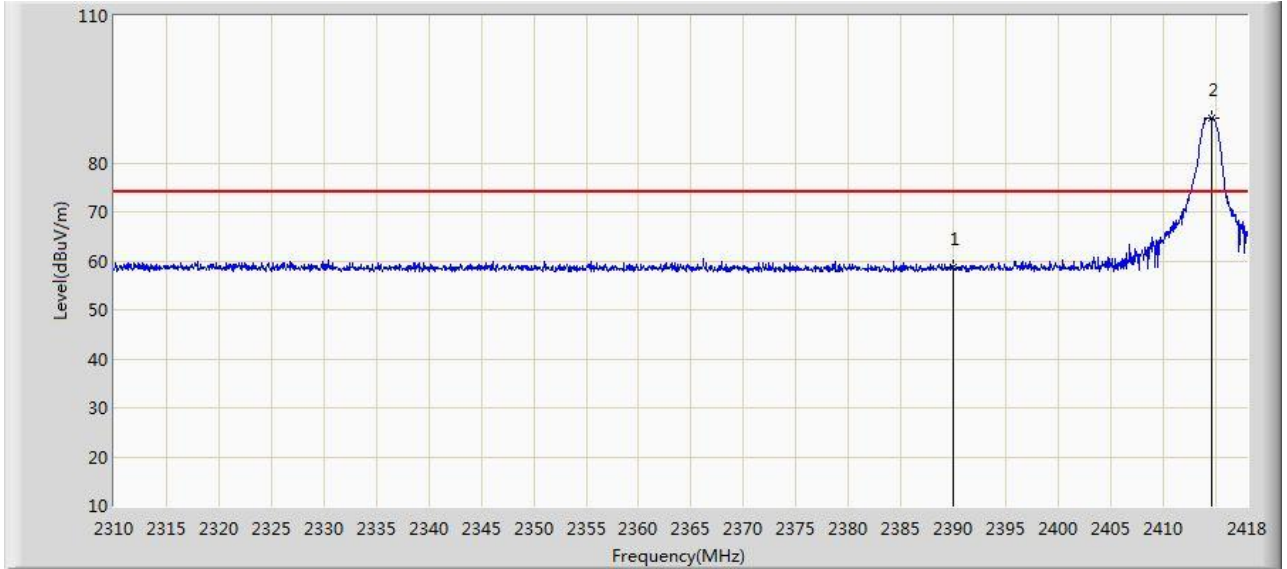


| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 2390.000 | 46.018 | 14.451 | -7.982 | 54.000 | 31.567 | AV |
| 2 | | * | 2414.382 | 93.759 | 62.227 | N/A | N/A | 31.532 | AV |

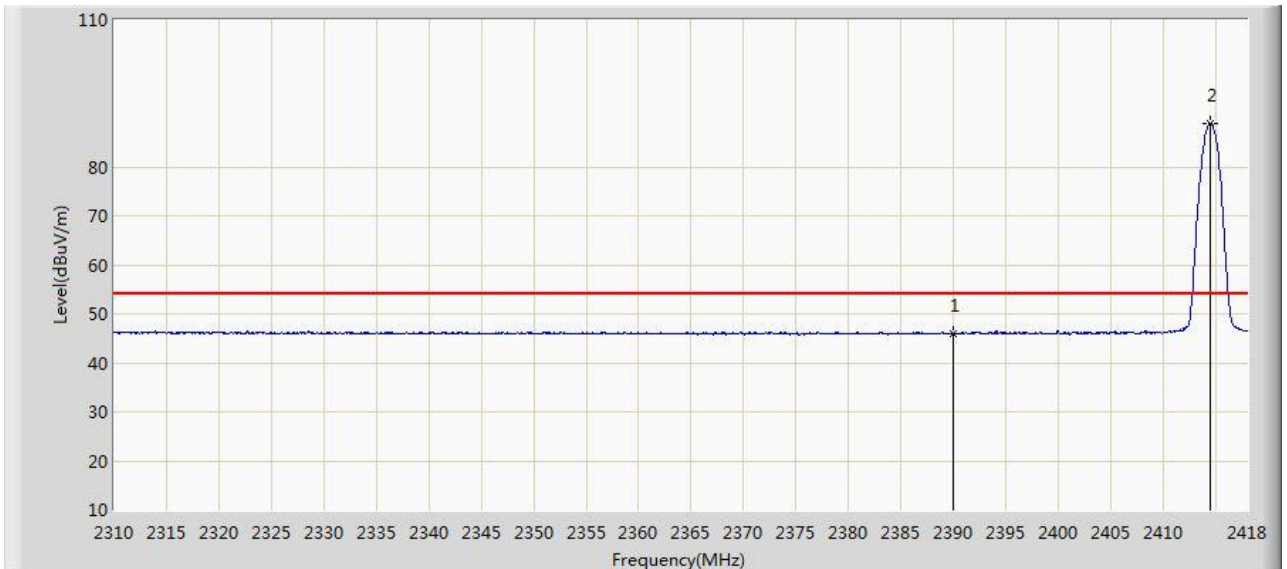


Product Service

Tx: 2414.5MHz
Vertical Polarisation



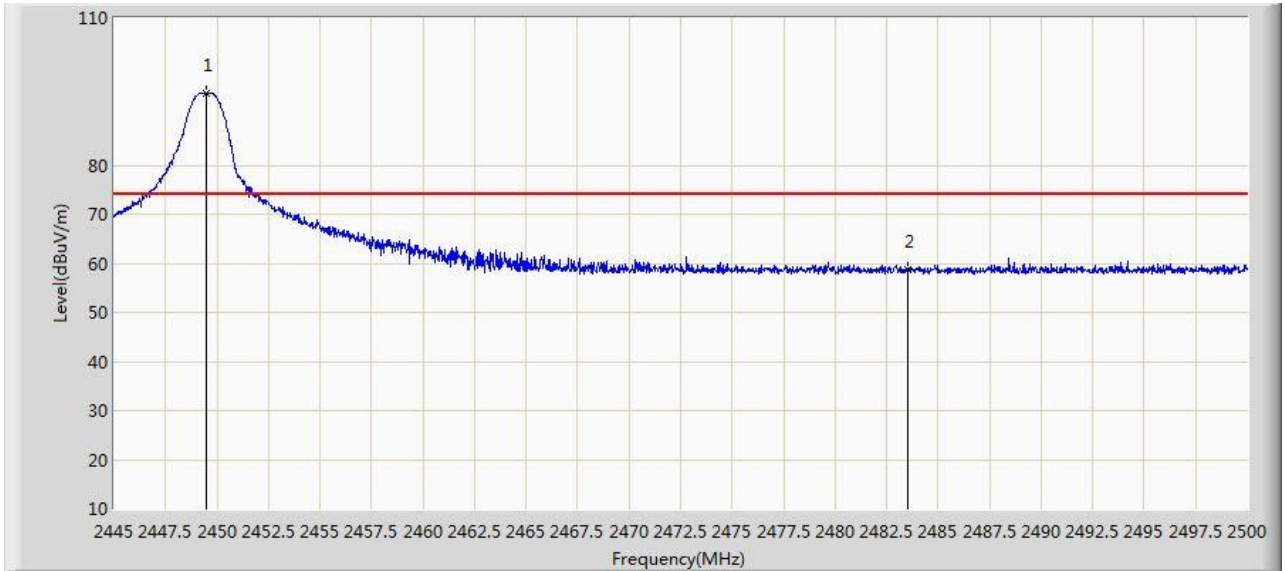
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 2390.000 | 58.712 | 27.145 | -15.288 | 74.000 | 31.567 | PK |
| 2 | | * | 2414.598 | 89.183 | 57.651 | N/A | N/A | 31.532 | PK |



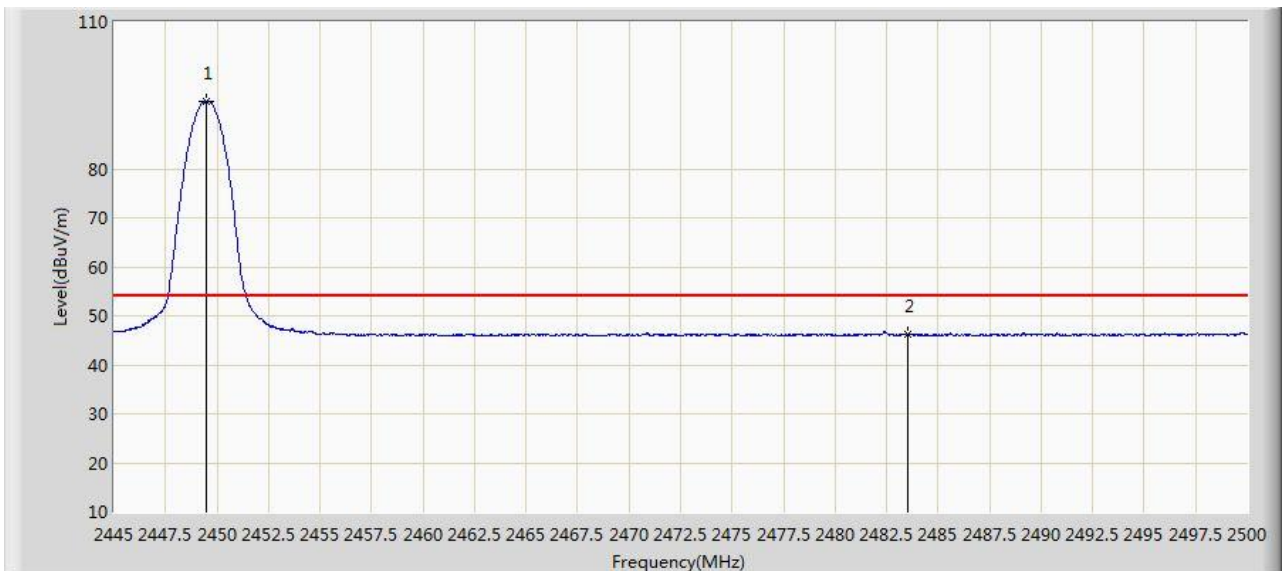
| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | | 2390.000 | 46.012 | 14.445 | -7.988 | 54.000 | 31.567 | AV |
| 2 | | * | 2414.436 | 88.876 | 57.344 | N/A | N/A | 31.532 | AV |



Tx: 2449.5MHz
Horizontal Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | * | 2449.510 | 94.665 | 63.178 | N/A | N/A | 31.487 | PK |
| 2 | | | 2483.500 | 58.826 | 27.242 | -15.175 | 74.000 | 31.584 | PK |

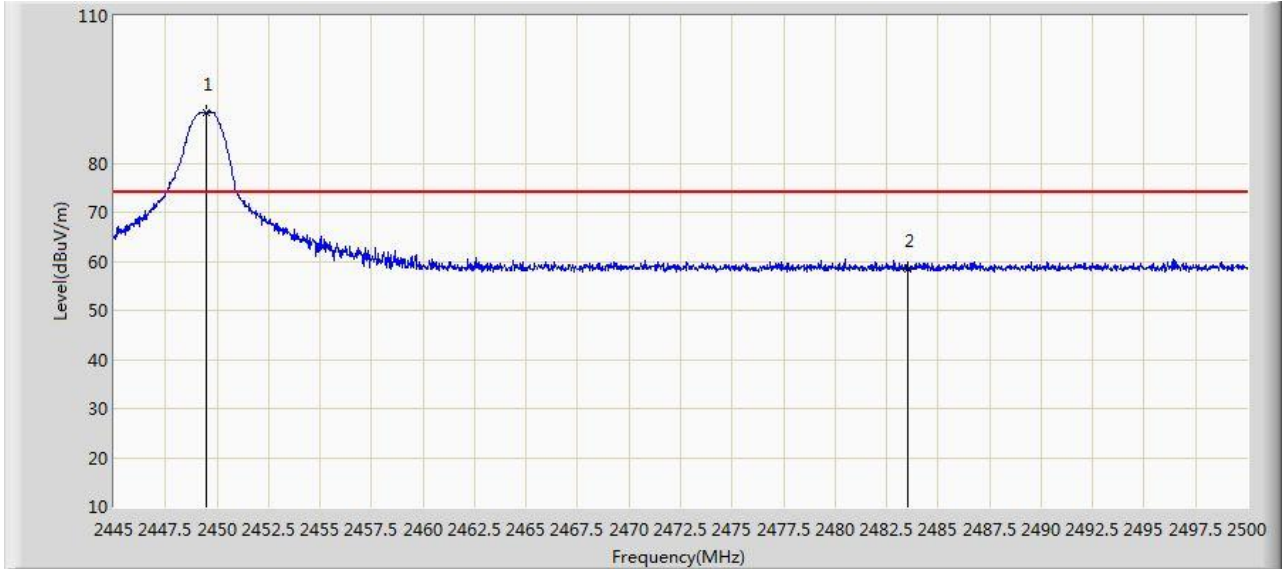


| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | * | 2449.510 | 93.808 | 62.321 | N/A | N/A | 31.487 | AV |
| 2 | | | 2483.500 | 46.118 | 14.534 | -7.883 | 54.000 | 31.584 | AV |

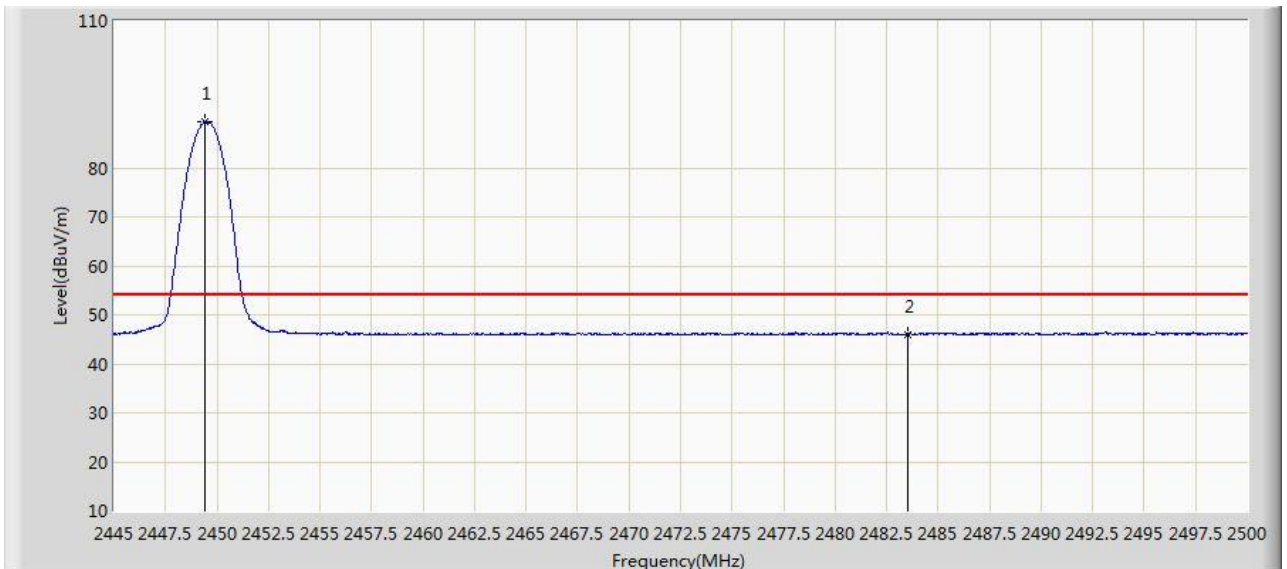


Product Service

Tx: 2449.5MHz
Vertical Polarisation



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | * | 2449.510 | 90.384 | 58.897 | N/A | N/A | 31.487 | PK |
| 2 | | | 2483.500 | 58.284 | 26.700 | -15.717 | 74.000 | 31.584 | PK |



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1 | | * | 2449.427 | 89.392 | 57.904 | N/A | N/A | 31.488 | AV |
| 2 | | | 2483.500 | 46.047 | 14.463 | -7.954 | 54.000 | 31.584 | AV |



Product Service

2.4 OCCUPIED BANDWIDTH

2.4.1 Specification Reference

FCC CFR 47 Part 2: 2008, Clause 2.1049(h) / RSS 210 Issue 9

2.4.2 Equipment Under Test and Modification State

KARING 2.0 INTELLIGENT TOILET REMOTE CONTROL 1283748 set up the 2.4GHz Tx-Modification State 0

2.4.3 Date of Test

May 17, 2016

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 2: 2008.

Connect EUT's antenna terminal to the spectrum analyser via a low loss cable with transmitting mode.

Adjust the centre frequency of the spectrum analyser on the frequency be measured, and set for peak detector mode; max hold trace mode RBW=100 KHz and VBW=300 KHz.

The span of the analyzer approximately 2 to 3 times the channel bandwidth shall be set to capture all products of the modulation process, including the emission skirts. Use the marker-to-peak function to set the marker to the peak of the emission.

Use the OBW function to measure -20db bandwidth and 99% emission bandwidth..

2.4.6 Environmental Conditions

| | |
|---------------------|--------|
| Ambient Temperature | 24.4°C |
| Relative Humidity | 58.0% |



Product Service

2.4.7 Test Results

| Frequency (MHz) | 20dB Occupied Bandwidth (kHz) |
|-----------------|-------------------------------|
| 2414.5 | 781.8 |
| 2434.5 | 763.2 |
| 2449.5 | 772.4 |

| Frequency (MHz) | 99% Occupied Bandwidth (kHz) |
|-----------------|------------------------------|
| 2414.5 | 810.65 |
| 2434.5 | 725.29 |
| 2449.5 | 754.93 |





Product Service





Product Service

SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of Test Instruments

Conducted Emissions

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|----------|-------------|----------------|----------------|
| EMI Test Receiver | R&S | ESR7 | MRTSUE06001 | 1 year | 2016/11/03 |
| Two-Line V-Network | R&S | ENV216 | MRTSUE06002 | 1 year | 2016/11/03 |
| Two-Line V-Network | R&S | ENV216 | MRTSUE06003 | 1 year | 2016/11/03 |
| Temperature/Humidity Meter | Ouleinuo | N/A | MRTSUE06114 | 1 year | 2016/11/20 |

Radiated Emission

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-----------|-------------|----------------|----------------|
| Spectrum Analyzer | Agilent | E4447A | MRTSUE06028 | 1 year | 2016/12/08 |
| EMI Test Receiver | R&S | ESR7 | MRTSUE06001 | 1 year | 2016/11/03 |
| Preamplifier | Schwarzbeck | BBV 9721 | MRTSUE06121 | 1 year | 2017/04/16 |
| Preamplifier | Agilent | 83017A | MRTSUE06076 | 1 year | 2017/03/29 |
| Loop Antenna | Schwarzbeck | FMZB1519 | MRTSUE06025 | 1 year | 2016/12/14 |
| TRILOG Antenna | Schwarzbeck | VULB9162 | MRTSUE06022 | 1 year | 2016/11/07 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9120D | MRTSUE06023 | 1 year | 2016/11/07 |
| Broadband Horn Antenna | Schwarzbeck | BBHA9170 | MRTSUE06024 | 1 year | 2017/01/05 |
| Temperature/Humidity Meter | Ouleinuo | N/A | MRTSUE06115 | 1 year | 2016/11/20 |



Product Service

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty | |
|--|----------------------|
| Test Items | Extended Uncertainty |
| Uncertainty for Radiated Emission in 3m chamber 9kHz-1000MHz | 4.18dB |
| Uncertainty for Radiated Emission in 3m chamber 1000MHz-40000MHz | 4.76dB |
| Uncertainty for Conducted Emission 150KHz-30MHz | 3.46dB |



Product Service

SECTION 4

DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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