



FCC LISTED, REGISTRATION  
NUMBER: 2764.01

ISED LISTED REGISTRATION  
NUMBER: 23595-1

Test report No:  
**2595ERM.003A1**

## Test report

**FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition)  
&  
ICES-003 ISSUE 6 – Update April (2017)**

|                                           |                                                                                                                  |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Identification of item tested             | Smart Cooking Sensor                                                                                             |
| Trademark                                 | Safera                                                                                                           |
| Model and /or type reference              | IFU10B                                                                                                           |
| Other identification of the product       | FCCID: 2AT88-1000021194                                                                                          |
| Features                                  | Bluetooth LE                                                                                                     |
| Manufacturer                              | SAFERA OY<br>Tekniikantie 4B, 02150 Espoo, Finland.                                                              |
| Test method requested, standard           | FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition)<br>ICES-003 ISSUE 6 – Update April (2017) |
| Summary                                   | IN COMPLIANCE                                                                                                    |
| Approved by (name / position & signature) | Domingo Galvez<br>EMC&RF Lab Manager                                                                             |
| Date of issue                             | 01-30-2020                                                                                                       |
| Report template No                        | FDT08_21                                                                                                         |

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## Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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## General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

## Uncertainty

Uncertainty (factor  $k=2$ ) was calculated according to the DEKRA Certification internal document PODT000.

|                    | Frequency (MHz) | U(k=2) | Units |
|--------------------|-----------------|--------|-------|
| Conducted emission | 0,009 - 30      | 2.69   | dB    |
| Radiated emission  | 30-180          | 3.82   | dB    |
|                    | 180-1000        | 2.61   | dB    |
|                    | 1000-18000      | 2.92   | dB    |
|                    | 18000-40000     | 2.15   | dB    |
|                    |                 |        |       |

## Data provided by the client

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Bluetooth Low Energy.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

## Usage of samples

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Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

| Control N° | Description                   | Model    | Serial N° | Date of reception |
|------------|-------------------------------|----------|-----------|-------------------|
| 2595B.001  | EMC Commercial Test<br>Sample | 21092 01 | ----      | 07/23/2019        |

Sample S/01 was used in following testing: Radiated Emission

## Test sample description

|                                               |                                                                    |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
|-----------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Ports..... :                                  | Port name and description                                          |                                                                                                                                                                                                                                                                                                                                             | Cable                    |                          |                          |                          |                          |
|                                               |                                                                    |                                                                                                                                                                                                                                                                                                                                             | Specified length [m]     | Attached during test     | Shielded                 |                          |                          |
|                                               | No Ports in Final product                                          |                                                                                                                                                                                                                                                                                                                                             |                          | <input type="checkbox"/> | <input type="checkbox"/> |                          |                          |
|                                               |                                                                    |                                                                                                                                                                                                                                                                                                                                             |                          | <input type="checkbox"/> | <input type="checkbox"/> |                          |                          |
| Supplementary information to the ports..... : |                                                                    | Not provided data                                                                                                                                                                                                                                                                                                                           |                          |                          |                          |                          |                          |
| Rated power supply .....                      | Voltage and Frequency                                              |                                                                                                                                                                                                                                                                                                                                             | Reference poles          |                          |                          |                          |                          |
|                                               |                                                                    |                                                                                                                                                                                                                                                                                                                                             | L1                       | L2                       | L3                       | N                        | PE                       |
|                                               | <input type="checkbox"/>                                           | AC:                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input type="checkbox"/>                                           | AC:                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                                               | <input type="checkbox"/>                                           | DC:                                                                                                                                                                                                                                                                                                                                         |                          |                          |                          |                          |                          |
|                                               | <input checked="" type="checkbox"/>                                | DC: For the final product: 3 x AA Alkaline batteries as power supply. Operational voltage from 3.0 V to 5.0 V.<br><br>For testing purposes, power is wired externally to some sample units. This is done to make it possible to use an external power supply. When using an external power supply, allowed voltages are 3.0 VDC to 5.0 VDC. |                          |                          |                          |                          |                          |
| Rated Power .....                             | Max. peak current consumption 150 mA                               |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Clock frequencies .....                       | 64 MHz processor main clock.<br><br>32.768 kHz RTC auxiliary clock |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Other parameters..... :                       | Data Not Provided                                                  |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Software version .....                        | 1.0.0                                                              |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Hardware version..... :                       | B                                                                  |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Dimensions in cm (L x W x D) .....            | Data Not Provided                                                  |                                                                                                                                                                                                                                                                                                                                             |                          |                          |                          |                          |                          |
| Mounting position..... :                      | <input type="checkbox"/>                                           | Table top equipment                                                                                                                                                                                                                                                                                                                         |                          |                          |                          |                          |                          |
|                                               | <input checked="" type="checkbox"/>                                | Wall/Ceiling mounted equipment                                                                                                                                                                                                                                                                                                              |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                           | Floor standing equipment                                                                                                                                                                                                                                                                                                                    |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                           | Hand-held equipment                                                                                                                                                                                                                                                                                                                         |                          |                          |                          |                          |                          |
|                                               | <input type="checkbox"/>                                           | Other:                                                                                                                                                                                                                                                                                                                                      |                          |                          |                          |                          |                          |

|                                                                                    |                                                      |           |               |
|------------------------------------------------------------------------------------|------------------------------------------------------|-----------|---------------|
| Modules/parts .....                                                                | Module/parts of test item                            | Type      | Manufacturer  |
|                                                                                    | <i>Sensor Unit</i>                                   |           | <i>Safera</i> |
| Accessories (not part of the test item) .....                                      | Description                                          | Type      | Manufacturer  |
|                                                                                    | <i>Power Supply (Only for testing)</i>               |           |               |
|                                                                                    | <i>Battery Holder (Only for testing)</i>             |           |               |
| Documents as provided by the applicant.....                                        | Description                                          | File name | Issue date    |
|                                                                                    | <i>FDT30_14 Declaration Equipment Data SLI 4.pdf</i> |           | 13-08-2019    |
| Copy of marking plate:                                                             |                                                      |           |               |
|  |                                                      |           |               |

## Identification of the client

SAFERA OY

Tekniikantie 4 B, 02150 Espoo, Finland.

## Testing period and place

|                      |                          |
|----------------------|--------------------------|
| <b>Test Location</b> | DEKRA Certification Inc. |
| <b>Date (start)</b>  | 07-23-2019               |
| <b>Date (finish)</b> | 07-23-2019               |

## Document history

| Report number | Date       | Description             |
|---------------|------------|-------------------------|
| 2595ERM.003   | 01-15-2020 | First release           |
| 2595ERM.003A1 | 01-30-2020 | 2 <sup>nd</sup> release |

## Modifications to the reference test report

The following modifications in the test report number 2595ERM.003 related with the same samples, in the next clauses and sub-clauses:

| Clauses/ Sub-Clauses                           | Modification                                  | Justification     |
|------------------------------------------------|-----------------------------------------------|-------------------|
| Page 9/ List of equipment used during the test | Removed Horn Antenna 3116C to correct details | Typographic error |

This modification in test report cancels and replaces the test report 2595ERM.003

## Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 75 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

In the semi anechoic chamber, the following limits were not exceeded during the test.

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 75 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

In the chamber for conducted measurements, the following limits were not exceeded during the test:

|                   |                                     |
|-------------------|-------------------------------------|
| Temperature       | Min. = 15 °C<br>Max. = 35 °C        |
| Relative humidity | Min. = 30 %<br>Max. = 60 %          |
| Air pressure      | Min. = 860 mbar<br>Max. = 1060 mbar |

## Remarks and comments

The tests have been performed by the technical personnel: Nasir Khan and Poojita Bhattu

## Testing verdicts

|                  |     |
|------------------|-----|
| Not applicable : | N/A |
| Pass :           | P   |
| Fail :           | F   |
| Not measured :   | N/M |

## Summary

| Emission Test                                                                                                                                                                                                                                                                                                                                                                                          |                                                                  |         |         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------|---------|
| Report Section                                                                                                                                                                                                                                                                                                                                                                                         | Requirement – Test case                                          | Verdict | Remark  |
| A.1.                                                                                                                                                                                                                                                                                                                                                                                                   | Radiated emission electromagnetic field test (30 MHz – 1000 MHz) | P       | N/A     |
| A.1.                                                                                                                                                                                                                                                                                                                                                                                                   | Radiated emission electromagnetic field test (1 GHz – 18 GHz)    | P       | N/A     |
| -.                                                                                                                                                                                                                                                                                                                                                                                                     | Radiated emission electromagnetic field test (18 GHz – 40 GHz)   | N/A     | Refer 1 |
| -.                                                                                                                                                                                                                                                                                                                                                                                                     | Conducted emission test (150 kHz to 30 MHz)                      | N/A     | Refer 2 |
| <u>Supplementary information and remarks:</u> <ol style="list-style-type: none"> <li>As per standard 47 CFR §15.33 due to the highest frequency generated or used in the device is above 1000MHz the upper frequency of measurement range is up to 5th harmonic of the highest frequency or 40GHz, whichever is lower.</li> <li>DUT is a module and not the final product, battery powered.</li> </ol> |                                                                  |         |         |

## List of equipment used during the test

| CONTROL NUMBER | DESCRIPTION              | MANUFACTURER    | MODEL        | LAST CALIBRATION | NEXT CALIBRATION |
|----------------|--------------------------|-----------------|--------------|------------------|------------------|
| 0981           | Preamplifier             | BONN ELEKTRONIK | BLMA 0118-2A | 2018/10          | 2020/10          |
| 0982           | Preamplifier             | BONN ELEKTRONIK | BLMA1840-1M  | 2018/10          | 2020/10          |
| 1012           | EMI Test Receiver        | ROHDE & SCHWARZ | ESR26        | 2018/09          | 2020/09          |
| 1017           | EMC measurement software | ROHDE & SCHWARZ | EMC32 V9.01  | ---              | ---              |
| 1039           | Signal Analyser          | ROHDE & SCHWARZ | FSV40        | 2018/10          | 2020/10          |
| 1058           | Horn Antenna             | ETS LINDGREN    | 3115         | 2017/03          | 2020/03          |
| 1065           | Biconilog Antenna        | ETS LINDGREN    | 3142E        | 2017/03          | 2020/03          |

## Appendix A: Test results

# Appendix A Content

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## DESCRIPTION OF THE OPERATION MODES

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The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

The operation modes used by the samples to which the present report refers, are shown in the following table:

| OPERATION<br>MODE | DESCRIPTION                                 |
|-------------------|---------------------------------------------|
| OM#01*            | EUT ON. Stand Alone basis. Battery Powered. |

\*Worst configurations detected

## A.1.RADIATED EMISSION. ELECTROMAGNETIC FIELD TEST

|                |                   |                                                                                                                            |
|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>LIMITS:</b> | Product standard: | FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017)                    |
|                | Test standard:    | FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017); ANSI C63.4 (2014) |

### Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-01-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017) in the frequency range 30 MHz to 40 GHz for class B equipment.

| Frequency range<br>(MHz) | QP Limit for 3 m    |                       |
|--------------------------|---------------------|-----------------------|
|                          | ( $\mu\text{V/m}$ ) | (dB $\mu\text{V/m}$ ) |
| 30 to 88                 | 100                 | 40                    |
| 88 to 216                | 150                 | 43.5                  |
| 216 to 960               | 200                 | 46                    |
| Above 960                | 500                 | 54                    |

| Frequency range<br>(MHz) | AVG Limit for 3 m   |                       | PK Limit for 3 m (1)  |
|--------------------------|---------------------|-----------------------|-----------------------|
|                          | ( $\mu\text{V/m}$ ) | (dB $\mu\text{V/m}$ ) | (dB $\mu\text{V/m}$ ) |
| Above 1000               | 500                 | 54                    | 74                    |

Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)

## TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-1000 MHz (Bilog antenna) and at a distance of 1m for the frequency range 1-40 GHz (1 GHz-18 GHz and 18 GHz-40 GHz Double ridge horn antennas).

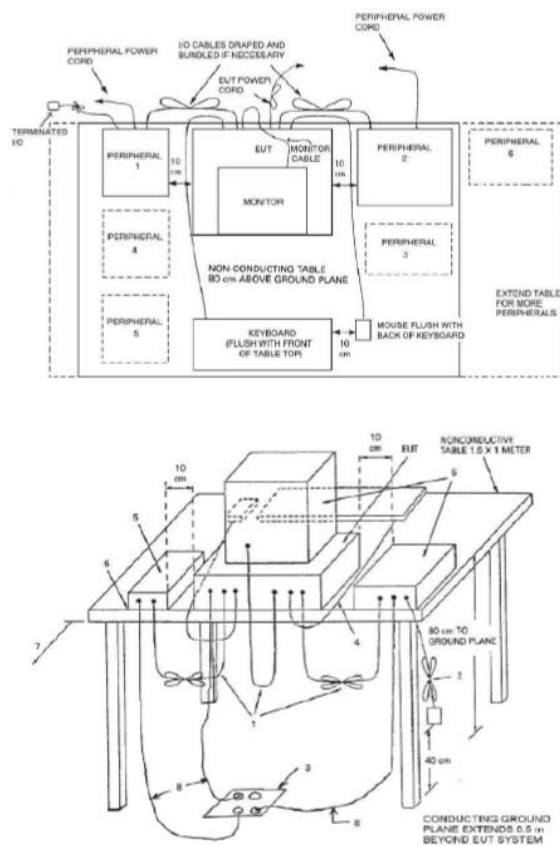
For radiated emissions in the range 1-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

## TEST SETUP (Cont.)



**TESTED SAMPLES:**

S/01

**TESTED OPERATION MODES:**

OM#01

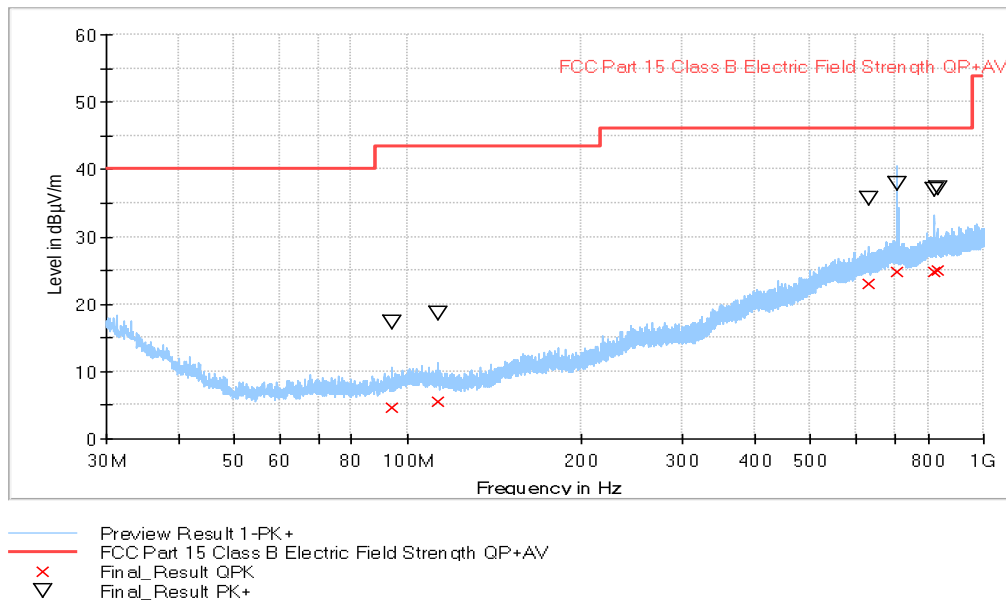
**TEST RESULTS:**

CRmmnnxx: CR, Radiation Condition; mm: Sample number; nn: Operation mode.,xx:Range,

| CRmmnnxx  | Description                                      | Result |
|-----------|--------------------------------------------------|--------|
| CR0101LR  | Range: 30 MHz - 1000 MHz Horizontal Polarization | P      |
| CR0101LR  | Range: 30 MHz - 1000 MHz Vertical Polarization   | P      |
| CR0101HR1 | Range: 1-18 GHz Horizontal Polarization          | P      |
| CR0101HR1 | Range: 1-18 GHz Vertical Polarization            | P      |

## Radiated Emission. CR0101LR

Project: 02595ERM003  
Company: SAFERA  
Sample: S/01  
Operation mode: OM#01  
Description: EUT ON. Standalone. Battery Powered. Both polarizations.

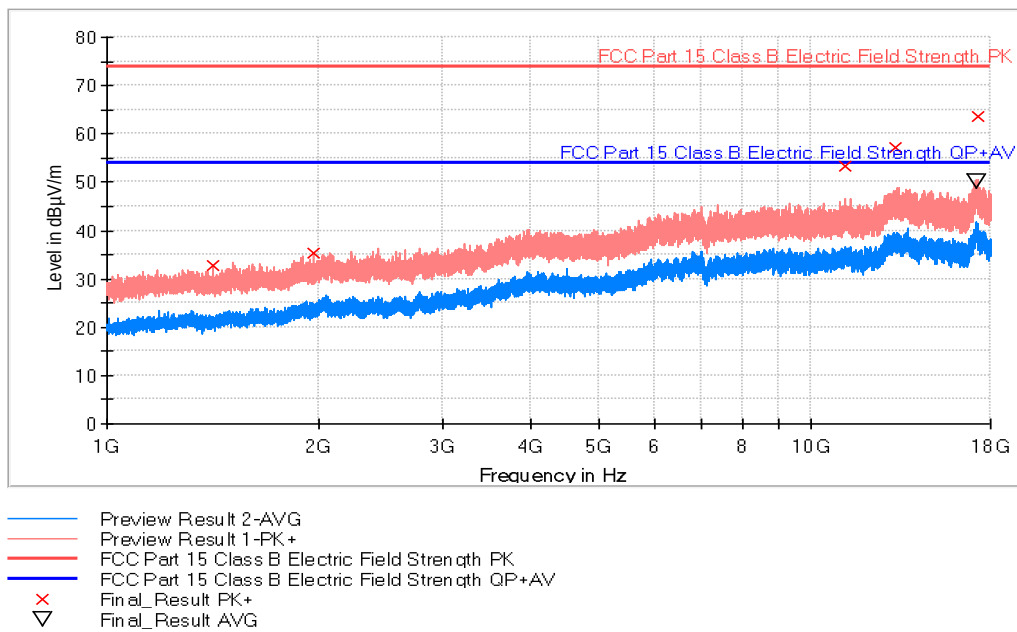


## Final\_Result

| Frequency (MHz) | QuasiPeak (dBµV/m) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------------|------------------|----------------|-------------|-------------|-----|---------------|
| 93.639498       | ---                | 17.23            | ---            | ---         | 300.0       | H   | -35.0         |
| 93.639498       | 4.61               | ---              | 40.00          | 35.39       | 300.0       | H   | -35.0         |
| 112.879315      | ---                | 18.66            | ---            | ---         | 211.0       | H   | 98.0          |
| 112.879315      | 5.46               | ---              | 40.00          | 34.54       | 211.0       | H   | 98.0          |
| 630.959199      | ---                | 35.72            | ---            | ---         | 210.0       | V   | -165.0        |
| 630.959199      | 22.97              | ---              | 47.00          | 24.03       | 210.0       | V   | -165.0        |
| 704.679167      | ---                | 37.88            | ---            | ---         | 269.0       | V   | 99.0          |
| 704.679167      | 24.74              | ---              | 47.00          | 22.26       | 269.0       | V   | 99.0          |
| 817.599141      | ---                | 36.96            | ---            | ---         | 259.0       | V   | 82.0          |
| 817.599141      | 24.77              | ---              | 47.00          | 22.23       | 259.0       | V   | 82.0          |
| 832.281000      | ---                | 37.29            | ---            | ---         | 100.0       | V   | -11.0         |
| 832.281000      | 24.94              | ---              | 47.00          | 22.06       | 100.0       | V   | -11.0         |

## Radiated Emission. CR0101HR1

Project: 02595ERM003  
Company: SAFERA  
Sample: S/01  
Operation mode: OM#01  
Description: EUT ON. IDLE. Battery Powered. Both polarizations.



### Final\_Result

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|
| 1413.005000     | 32.74            | ---              | 73.90          | 41.16       | 226.0       | V   | 87.0          |
| 1970.207715     | 35.42            | ---              | 73.90          | 38.48       | 232.0       | H   | -4.0          |
| 11170.486000    | 53.25            | ---              | 73.90          | 20.65       | 203.0       | V   | -106.0        |
| 13214.029000    | 57.33            | ---              | 73.90          | 16.57       | 190.0       | H   | 0.0           |
| 17176.628143    | ---              | 50.08            | 53.90          | 3.82        | 121.0       | V   | -33.0         |
| 17241.535286    | 63.57            | ---              | 73.90          | 10.33       | 232.0       | V   | 29.0          |