

# TEST REPORT

**KCTL Inc.**

65, Sinwon-ro, Yeongtong-gu,  
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Report No.: KCTL16-SFR0069

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**KCTL**  
<http://www.kctl.co.kr>

## 1. Applicant

Name: SAM JIN CO., LTD.  
Address: (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si, Gyeonggi-do, Korea

## 2. Sample Description:

FCC ID: 2AF4S-STWTR-250  
IC ID: 20753-STSWTR250  
Type of equipment: Water Leak Sensor  
Basic Model: STS-WTR-250

## 3. Date of Test:

July 1 ~ July 4, 2016

## 4. Test standard used:

FCC Part 15 Subpart C, 15.247  
RSS-247 Issue 1 May 2015  
RSS GEN Issue 4 November 2014

## 5. Test Results

Test Item: Refer to page 7  
Result: Complied (Refer to page 8 ~ page 16)  
Measurement Uncertainty: Refer to page 7

This result shown in this report refer only to the sample(s) tested unless otherwise stated.

|             |                                                                                                                          |                                                                                                                                |
|-------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Affirmation | Tested by<br><br>Name: TAEK YONG, NAM | Technical Manager<br><br>Name: MIN GI, SON |
|-------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|

2016. 07. 12

**KCTL Inc.**

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## 1. Client information

**Applicant:** SAM JIN CO., LTD.  
**Address:** (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si,  
Gyeonggi-do, Korea  
**Telephone number:** +82-31-467-5949  
**Facsimile number:** +82-31-469-3115  
**Contact person:** Jung Woo Kim / jungwoo@samjin.com

**Manufacturer:** SAM JIN CO., LTD.  
**Address:** (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si,  
Gyeonggi-do, Korea

## 2. Laboratory information

### Address

#### **KCTL Inc.**

65 Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea

Telephone Number: 82-70-5008-1016 Facsimile Number: 82-505-299-8311

### Certificate

KOLAS No.: KT231

FCC Site Designation No.: KR0040

FCC Site Registration No.: 687132

VCCI Site Registration No.: R-3327, G-198, C-3706, T-1849

IC Site Registration No.:8035A-2

### SITE MAP



### 3. Description of E.U.T.

#### 3.1 Basic description

|                         |                                                                             |
|-------------------------|-----------------------------------------------------------------------------|
| Applicant:              | SAM JIN CO., LTD.                                                           |
| Address of Applicant    | (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si, Gyeonggi-do, Korea |
| Manufacturer            | SAM JIN CO., LTD.                                                           |
| Address of Manufacturer | (Anyang-dong) 81, Anyangcheonseo-ro, Manan-gu Anyang-si, Gyeonggi-do, Korea |
| Type of equipment       | Water Leak Sensor                                                           |
| Basic Model             | STS-WTR-250                                                                 |
| Serial number           | N/A                                                                         |

#### 3.2 General description

|                             |                       |
|-----------------------------|-----------------------|
| Frequency Range             | 2 405 MHz ~ 2 470 MHz |
| Type of Modulation          | O-QPSK                |
| Number of Channels          | 14 ch                 |
| Type of Antenna             | PCB Pattern Antenna   |
| Antenna Gain                | 1.9 dBi               |
| Transmit Power              | 17.69 dBm             |
| Power supply                | DC 3 V                |
| H/W Version                 | 1.0                   |
| S/W version                 | 1.0                   |
| Test SW Version             | Teraterm_version 2.3  |
| RF power setting in TEST SW | -6                    |

Note : The above EUT information was declared by the manufacturer.

### 3.3 Test frequency

|                   | Frequency |
|-------------------|-----------|
| Lowest frequency  | 2 405 MHz |
| Middle frequency  | 2 440 MHz |
| Highest frequency | 2 470 MHz |

### 3.4 Test Voltage

| Mode            | Voltage  |
|-----------------|----------|
| Nominal Voltage | DC 3.0 V |

## 4. Summary of test results

### 4.1 Standards & results

| FCC Rule Reference              | IC Rule Reference                | Parameter                                         | Report Section | Test Result     |
|---------------------------------|----------------------------------|---------------------------------------------------|----------------|-----------------|
| 15.203, 15.247(b)(4)            | -                                | Antenna Requirement                               | 5.1            | C               |
| 15.247(b)(3)                    | RSS-247, 5.4(4)                  | Maximum Peak Output Power                         | 5.2            | NT <sub>1</sub> |
| 15.247(e)                       | RSS-247, 5.2(2)                  | Peak Power Spectral Density                       | 5.3            | NT <sub>1</sub> |
| 15.247(a)(2)                    | RSS-247, 5.2(1)                  | 6 dB Channel Bandwidth                            | 5.4            | NT <sub>1</sub> |
| -                               | RSS-GEN, 6.6                     | Occupied Bandwidth                                | 5.4            | NT <sub>1</sub> |
| 15.247(d), 15.205(a), 15.209(a) | RSS-247, 5.5<br>RSS-GEN, 8.9, 10 | Spurious Emission, Band Edge and Restricted bands | 5.5            | C               |
| 15.207(a)                       | RSS-GEN, 8.8                     | Conducted Emissions                               | 5.6            | NA <sub>1</sub> |

Note: C = complies

NC = Not complies

NT = Not tested

NA = Not Applicable

NA<sub>1</sub>: Since the device doesn't use rechargeable battery, this test is not applicable.

NT<sub>1</sub>: Since this is C2PC evaluation due to PCB art-work, only spurious emission test has done.

Please refer to original test report # KCTL15-FR0086(2).

Note: The general test methods used to test this device is ANSI C63.10:2013

### 4.2 Uncertainty

| Measurement Item             | Expanded Uncertainty<br>$U = kU_c (k = 2)$ |                      |
|------------------------------|--------------------------------------------|----------------------|
| Conducted RF power           | 1.44 dB                                    |                      |
| Conducted Spurious Emissions | 1.52 dB                                    |                      |
| Radiated Spurious Emissions  | 30 MHz ~ 300 MHz:                          | + 4.94 dB, - 5.06 dB |
|                              |                                            | + 4.93 dB, - 5.05 dB |
|                              | 300 MHz ~ 1 000 MHz:                       | + 4.97 dB, - 5.08 dB |
|                              |                                            | + 4.84 dB, - 4.96 dB |
|                              | 1 GHz ~ 25 GHz:                            | + 6.03 dB, - 6.05 dB |
|                              |                                            |                      |

## 5. Test results

### 5.1 Antenna Requirement

#### 5.1.1 Regulation

According to §15.203, 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.

And according to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 5.1.2 Result

##### - Complied

The transmitter has a PCB Pattern antenna attaching on PCB permanently and the directional peak gain is 1.9 dBi.

## 5.5 Spurious Emission, Band Edge, and Restricted bands

### 5.5.1 Regulation

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

According to §15.209(a), Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field strength ( $\mu V/m$ ) | Measurement distance (m) |
|-----------------|------------------------------|--------------------------|
| 0.009 - 0.490   | 2 400/F(kHz)                 | 300                      |
| 0.490 - 1.705   | 24 000/F(kHz)                | 30                       |
| 1.705 - 30      | 30                           | 30                       |
| 30 - 88         | 100**                        | 3                        |
| 88 - 216        | 150**                        | 3                        |
| 216 - 960       | 200**                        | 3                        |
| Above 960       | 500                          | 3                        |

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

According to § 15.205(a) and (b), only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                   | MHz                     | MHz               | GHz           |
|-----------------------|-------------------------|-------------------|---------------|
| 0.009 - 0.110         | 16.42 - 16.423          | 399.9 - 410       | 4.5 - 5.15    |
| 0.495 - 0.505         | 16.694 75 - 16.695 25   | 608 - 614         | 5.35 - 5.46   |
| 2.173 5 - 2.190 5     | 16.804 25 - 16.804 75   | 960 - 1 240       | 7.25 - 7.75   |
| 4.125 - 4.128         | 25.5 - 25.67            | 1 300 - 1 427     | 8.025 - 8.5   |
| 4.177 25 - 4.177 75   | 37.5 - 38.25            | 1 435 - 1 626.5   | 9.0 - 9.2     |
| 4.207 25 - 4.207 75   | 73 - 74.6               | 1 645.5 - 1 646.5 | 9.3 - 9.5     |
| 6.215 - 6.218         | 74.8 - 75.2             | 1 660 - 1 710     | 10.6 - 12.7   |
| 6.267 75 - 6.268 25   | 108 - 121.94            | 1 718.8 - 1 722.2 | 13.25 - 13.4  |
| 6.311 75 - 6.312 25   | 123 - 138               | 2 200 - 2 300     | 14.47 - 14.5  |
| 8.291 - 8.294         | 149.9 - 150.05          | 2 310 - 2 390     | 15.35 - 16.2  |
| 8.362 - 8.366         | 156.524 75 - 156.525 25 | 2 483.5 - 2 500   | 17.7 - 21.4   |
| 8.376 25 - 8.386 75   | 156.7 - 156.9           | 2 690 - 2 900     | 22.01 - 23.12 |
| 8.414 25 - 8.414 75   | 162.012 5 - 167.17      | 3 260 - 3 267     | 23.6 - 24.0   |
| 12.29 - 12.293        | 167.72 - 173.2          | 3 332 - 3 339     | 31.2 - 31.8   |
| 12.519 75 - 12.520 25 | 240 - 285               | 3 345.8 - 3 358   | 36.43 - 36.5  |
| 12.576 75 - 12.577 25 | 322 - 335.4             | 3 600 - 4 400     | Above 38.6    |
| 13.36 - 13.41         |                         |                   |               |

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

## 5.5.2 Measurement Procedure

### 5.5.2.1 Band-edge Compliance of RF Conducted Emissions

#### 5.5.2.1.1 Reference Level Measurement

Establish a reference level by using the following procedure:

- 1) Set instrument center frequency to DTS channel center frequency.
- 2) Set the span to  $\geq 1.5$  times the DTS bandwidth.
- 3) Set the RBW = 100 kHz.
- 4) Set the VBW  $\geq 3 \times$  RBW.
- 5) Detector = peak.
- 6) Sweep time = auto couple.
- 7) Trace mode = max hold.
- 8) Allow trace to fully stabilize.
- 9) Use the peak marker function to determine the maximum PSD level.

#### 5.5.2.1.2 Emissions Level Measurement

- 1) Set the center frequency and span to encompass frequency range to be measured.
- 2) Set the RBW = 100 kHz.
- 3) Set the VBW  $\geq 3 \times$  RBW.
- 4) Detector = peak.
- 5) Ensure that the number of measurement points  $\geq \text{span/RBW}$
- 6) Sweep time = auto couple.
- 7) Trace mode = max hold.
- 8) Allow trace to fully stabilize.
- 9) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b).  
Report the three highest emissions relative to the limit.

### 5.5.2.2 Conducted Spurious Emissions

Set the spectrum analyzer as follows:

- 1) Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.

Typically, several plots are required to cover this entire span.

- 2) RBW = 100 kHz
- 3) VBW  $\geq$  RBW
- 4) Sweep = auto
- 5) Detector function = peak
- 6) Trace = max hold
- 7) Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
- 8) Each frequency found during preliminary measurements was re-examined and investigated.

The test-receiver system was set up to average, peak and quasi-peak detector function with specified bandwidth.

### 5.5.2.3 Radiated Spurious Emissions

- 1) The preliminary and final radiated measurements were performed to determine the frequency producing the maximum emissions in at a 10m anechoic chamber. The EUT was tested at a distance 3 meters.
- 2) The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360°.
- 3) The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 9 kHz to 30 MHz using the loop antenna, and from 30 to 1 000 MHz using the TRILOG broadband antenna, and from 1 000 MHz to 26 500 MHz using the horn antenna.
- 4) Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

#### Note

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1 GHz.  
The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz ( $\geq 1/T$ ) for Average detection (AV) at frequency above 1 GHz. (where T = pulse width)

### 5.5.3 Test Result

#### - Complied

1. Conducted Spurious Emissions was shown in figure 3.  
Note: We took the insertion loss of the cable into consideration within the measuring instrument.
2. Measured value of the Field strength of spurious Emissions (Radiated)
3. It tested x,y and z – 3 axis each, mentioned only worst case data at this report.

#### - 9 kHz ~ 1 GHz (worst-case)

##### Highest channel (2 470 MHz)

| Frequency<br>[MHz]                             | Receiver<br>Bandwidth<br>[kHz] | Pol.<br>[V/H] | Reading<br>[dB(μV)] | Factor<br>[dB] | Result<br>[dB(μV/m)] | Limit<br>[dB(μV/m)] | Margin<br>[dB] |
|------------------------------------------------|--------------------------------|---------------|---------------------|----------------|----------------------|---------------------|----------------|
| <b>Quasi-Peak DATA. Emissions below 30 MHz</b> |                                |               |                     |                |                      |                     |                |
| Below<br>30.00                                 | <b>Not<br/>Detected</b>        | -             | -                   | -              | -                    | -                   | -              |
| <b>Quasi-Peak DATA. Emissions below 1 GHz</b>  |                                |               |                     |                |                      |                     |                |
| 85.41                                          | 120                            | V             | 26.30               | -16.20         | 10.10                | 40.00               | 29.90          |
| Above<br>100.00                                | <b>Not<br/>Detected</b>        | -             | -                   | -              | -                    | -                   | -              |

**- 1 GHz ~ 26.5 GHz data**

**Lowest channel (2 405 MHz)**

| Frequency<br>[MHz]                         | Receiver<br>Bandwidth<br>[kHz] | Pol.<br>[V/H] | Reading<br>[dB( $\mu$ V)] | Factor<br>[dB] | Result<br>[dB( $\mu$ V/m)] | Limit<br>[dB( $\mu$ V/m)] | Margin<br>[dB] |
|--------------------------------------------|--------------------------------|---------------|---------------------------|----------------|----------------------------|---------------------------|----------------|
| <b>Peak DATA. Emissions above 1 GHz</b>    |                                |               |                           |                |                            |                           |                |
| 2 389.50 <sup>1)</sup>                     | 1 000                          | H             | 53.70                     | 3.50           | 57.20                      | 74.00                     | 16.80          |
| 3 735.00                                   | 1 000                          | H             | 35.40                     | 6.80           | 42.20                      | 74.00                     | 31.80          |
| 4 809.38 <sup>2)</sup>                     | 1 000                          | H             | 51.00                     | 9.50           | 60.50                      | 74.00                     | 13.50          |
| 5 983.13                                   | 1 000                          | H             | 34.80                     | 12.20          | 47.00                      | 74.00                     | 27.00          |
| 7 216.88 <sup>2)</sup>                     | 1 000                          | H             | 37.60                     | 14.30          | 51.90                      | 74.00                     | 22.10          |
| 9 616.87 <sup>2)</sup>                     | 1 000                          | V             | 41.30                     | 16.30          | 57.60                      | 74.00                     | 16.40          |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                         | -              | -                          | -                         | -              |
| <b>Average DATA. Emissions above 1 GHz</b> |                                |               |                           |                |                            |                           |                |
| 2 389.50 <sup>1)</sup>                     | 1 000                          | H             | 41.70                     | 3.50           | 45.20                      | 54.00                     | 8.80           |
| 3 735.00                                   | 1 000                          | H             | 23.90                     | 6.80           | 30.70                      | 54.00                     | 23.30          |
| 4 809.38 <sup>2)</sup>                     | 1 000                          | H             | 40.70                     | 9.50           | 50.20                      | 54.00                     | 3.80           |
| 5 983.13                                   | 1 000                          | H             | 23.20                     | 12.20          | 35.40                      | 54.00                     | 18.60          |
| 7 216.88 <sup>2)</sup>                     | 1 000                          | H             | 27.90                     | 14.30          | 42.20                      | 54.00                     | 11.80          |
| 9 616.87 <sup>2)</sup>                     | 1 000                          | V             | 28.30                     | 16.30          | 44.60                      | 54.00                     | 9.40           |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                         | -              | -                          | -                         | -              |

<sup>1)</sup> Restricted band.

<sup>2)</sup> Harmonic components.

**Middle channel (2 440 MHz)**

| Frequency<br>[MHz]                         | Receiver<br>Bandwidth<br>[kHz] | Pol.<br>[V/H] | Reading<br>[dB( $\mu$ V)] | Factor<br>[dB] | Result<br>[dB( $\mu$ V/m)] | Limit<br>[dB( $\mu$ V/m)] | Margin<br>[dB] |
|--------------------------------------------|--------------------------------|---------------|---------------------------|----------------|----------------------------|---------------------------|----------------|
| <b>Peak DATA. Emissions above 1 GHz</b>    |                                |               |                           |                |                            |                           |                |
| 3 956.25                                   | 1 000                          | H             | 35.50                     | 6.60           | 42.10                      | 74.00                     | 31.90          |
| 4 880.63 <sup>1)</sup>                     | 1 000                          | H             | 49.40                     | 9.10           | 58.50                      | 74.00                     | 15.50          |
| 6 613.13                                   | 1 000                          | V             | 37.30                     | 12.90          | 50.20                      | 74.00                     | 23.80          |
| 8 199.38                                   | 1 000                          | H             | 32.60                     | 15.40          | 48.00                      | 74.00                     | 26.00          |
| 9 761.25 <sup>1)</sup>                     | 1 000                          | V             | 39.40                     | 16.80          | 56.20                      | 74.00                     | 17.80          |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                         | -              | -                          | -                         | -              |
| <b>Average DATA. Emissions above 1 GHz</b> |                                |               |                           |                |                            |                           |                |
| 3 956.25                                   | 1 000                          | H             | 25.00                     | 6.60           | 31.60                      | 54.00                     | 22.40          |
| 4 880.63 <sup>1)</sup>                     | 1 000                          | H             | 40.90                     | 9.10           | 50.00                      | 54.00                     | 4.00           |
| 6 613.13                                   | 1 000                          | V             | 24.10                     | 12.90          | 37.00                      | 54.00                     | 17.00          |
| 8 199.38                                   | 1 000                          | H             | 22.20                     | 15.40          | 37.60                      | 54.00                     | 16.40          |
| 9 761.25 <sup>1)</sup>                     | 1 000                          | V             | 29.90                     | 16.80          | 46.70                      | 54.00                     | 7.30           |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                         | -              | -                          | -                         | -              |

<sup>1)</sup> Harmonic components.

**Highest channel (2 470 MHz)**

| Frequency<br>[MHz]                         | Receiver<br>Bandwidth<br>[kHz] | Pol.<br>[V/H] | Reading<br>[dB(μV)] | Factor<br>[dB] | Result<br>[dB(μV/m)] | Limit<br>[dB(μV/m)] | Margin<br>[dB] |
|--------------------------------------------|--------------------------------|---------------|---------------------|----------------|----------------------|---------------------|----------------|
| <b>Peak DATA. Emissions above 1 GHz</b>    |                                |               |                     |                |                      |                     |                |
| 2 483.75 <sup>1)</sup>                     | 1 000                          | H             | 53.80               | 3.60           | 57.40                | 74.00               | 16.60          |
| 3 421.88                                   | 1 000                          | H             | 35.50               | 5.70           | 41.20                | 74.00               | 32.80          |
| 4 940.63 <sup>2)</sup>                     | 1 000                          | H             | 54.00               | 9.20           | 63.20                | 74.00               | 10.80          |
| 6 461.25                                   | 1 000                          | H             | 33.70               | 12.70          | 46.40                | 74.00               | 27.60          |
| 8 021.25                                   | 1 000                          | H             | 30.30               | 15.10          | 45.40                | 74.00               | 28.60          |
| 9 877.50 <sup>2)</sup>                     | 1 000                          | V             | 40.70               | 17.10          | 57.80                | 74.00               | 16.20          |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                   | -              | -                    | -                   | -              |
| <b>Average DATA. Emissions above 1 GHz</b> |                                |               |                     |                |                      |                     |                |
| 2 483.75 <sup>1)</sup>                     | 1 000                          | H             | 42.30               | 3.60           | 45.90                | 54.00               | 8.10           |
| 3 421.88                                   | 1 000                          | H             | 24.60               | 5.70           | 30.30                | 54.00               | 23.70          |
| 4 940.63 <sup>2)</sup>                     | 1 000                          | H             | 42.80               | 9.20           | 52.00                | 54.00               | 2.00           |
| 6 461.25                                   | 1 000                          | H             | 23.90               | 12.70          | 36.60                | 54.00               | 17.40          |
| 8 021.25                                   | 1 000                          | H             | 22.70               | 15.10          | 37.80                | 54.00               | 16.20          |
| 9 877.50 <sup>2)</sup>                     | 1 000                          | V             | 32.00               | 17.10          | 49.10                | 54.00               | 4.90           |
| Above<br>10 000.00                         | Not<br>Detected                | -             | -                   | -              | -                    | -                   | -              |

<sup>1)</sup> Restricted band.

<sup>2)</sup> Harmonic components.

## 6. Test equipment used for test

|   | Description                | Manufacturer                   | Model No.            | Serial No.  | Next Cal Date. |
|---|----------------------------|--------------------------------|----------------------|-------------|----------------|
| ■ | Test Receiver              | R & S                          | ESR7                 | 101078      | 17.02.26       |
| ■ | Bi-Log Antenna             | SCHWARZBECK                    | VULB 9168            | 583         | 18.06.10       |
| ■ | Amplifier                  | SONOMA<br>INSTRUMENT           | 310N                 | 188280      | 17.04.07       |
| ■ | ATTENUATOR                 | HP                             | 8497B-003            | 2408A18758  | 16.09.01       |
| ■ | Turn Table                 | MATURO                         | CO2000-SOFT          | -           | -              |
| ■ | Antenna Mast               | MATURO                         | AM4.0                | 079/3440509 | -              |
| ■ | Broadband Preamplifier     | SCHWARZBECK                    | BBV9718              | 9718-233    | 17.01.09       |
| ■ | LOOP Antenna               | R & S                          | HFH2-Z2              | 100355      | 18.03.03       |
| ■ | Horn antenna               | ETS.lindgren                   | 3116                 | 86632       | 16.11.05       |
| ■ | Horn antenna               | ETS.lindgren                   | 3117                 | 00155787    | 16.11.25       |
| ■ | Broadband<br>Preamplifier  | SCHWARZBECK                    | BBV9721              | 2           | 17.05.03       |
| ■ | DC POWER SUPPLY            | AGILENT                        | E3632A               | KR73001026  | 17.01.07       |
| ■ | SPECTRUM ANALYZER          | R & S                          | FSV30                | 101437      | 16.11.03       |
| ■ | VECTOR SIGNAL<br>GENERATOR | R & S                          | SMBV100A             | 257566      | 17.01.07       |
| ■ | SIGNAL GENERATOR           | R & S                          | SMB100A              | 176206      | 17.03.14       |
| ■ | WIDEBAND<br>POWER SENSOR   | R & S                          | NRP-Z81              | 102398      | 17.02.11       |
| ■ | Highpass Filter            | Wainwright<br>Instruments GmbH | WHKX3.0/<br>18G-12SS | 44          | 17.02.01       |
| ■ | CABLE Assembly             | HUER+SUHNER                    | SUCOFLEX 102         | MY3565/2    | -              |
| ■ | CABLE Assembly             | JUNFLON                        | MWX221<br>DMSMNS     | J1012214    | -              |
| ■ | ATTENUATOR                 | HP                             | 8491A                | 18591       | 17.05.03       |