



TEST REPORT

Test Report No. : UL-RPT-RP11066287JD02A

Manufacturer : Flextronics International Sweden AB
Model No. : SR0020-W
FCC ID : 2AIP8I
IC Certification No. : IC: 21579-I
Test Standard(s) : FCC Parts 15.107 & 15.109 / Industry Canada ICES – 003 Issue 5

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 1.0.

Date of Issue: 31 August 2016

Checked by: Steven White

Steven White
Service Lead, Radio Laboratory

Company Signatory: Sarah Williams

Sarah Williams
Senior Engineer, Radio Laboratory



This laboratory is accredited by UKAS.
The tests reported herein have been
performed in accordance with its terms
of accreditation.

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1. Customer Information

1.1. Customer Information

| | |
|----------------------|---|
| Company Name: | Sirin Labs AG |
| Address: | Muhlentalstrasse 2 8200 Schaffhausen Switzerland |

1.2. Manufacturer Information

| | |
|----------------------|--|
| Company Name: | Flextronics International Sweden AB |
| Address: | Datalinjen 3A SE – 583 30 Linköping Sweden |

2. Summary of Testing

2.1. General Information

| | |
|---------------------------------|---|
| Specification Reference: | 47CFR15.107 and 47CFR15.109 |
| Specification Title: | Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart B (Unintentional Radiators) – Sections 15.107 and 15.109 |
| Site Registration: | 209735 |
| Specification Reference: | ICES-003 Issue 5 |
| Specification Title: | Information Technology Equipment (ITE) – Limits and methods of measurement |
| Site Registration: | 3245B-2 |
| Location of Testing: | UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom |
| Test Dates: | 24 May 2016 to 23 August 2016 |

2.2. Summary of Test Results

| FCC (47CFR) | IC Reference | Measurement | Result |
|------------------------------------|--------------|--|--------|
| Part 15.107(a) | ICES-003 6.1 | Receiver/Idle Mode AC Conducted Spurious Emissions | ✓ |
| Part 15.109 | ICES-003 6.2 | Receiver/Idle Mode Radiated Spurious Emissions | ✓ |
| Key to Results | | | |
| ✓ = Complied ✗ = Did not comply | | | |

2.3. Methods and Procedures

| | |
|-------------------|--|
| Reference: | ANSI C63.4 (2013) |
| Title: | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

| | |
|---------------------------------|---|
| Brand Name: | SOLARIN |
| Model Name or Number: | SR0020-W |
| Unique Identification: | 0087 |
| Hardware Version Number: | TP1 |
| Software Version Number: | LRC1TA.1.0.2.3 |
| Handset Cover Material: | Technical leather with titanium coating |
| FCC ID: | 2AIP8I |
| ISED | IC: 21579-I |

| | |
|---------------------------------|---|
| Brand Name: | SOLARIN |
| Model Name or Number: | SR0020-W |
| Unique Identification: | 104 |
| Hardware Version Number: | TP1 |
| Software Version Number: | LRC1TA.1.0.2.3 |
| Handset Cover Material: | Technical leather with titanium coating |
| FCC ID: | 2AIP8I |
| ISED | IC: 21579-I |

3.2. Description of EUT

The equipment under test was a Mobile device supporting cellular, WLAN, BT, BTLE, RFID & GPS technologies

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Support Equipment

The following support equipment was used to exercise the EUT during testing:

| | |
|------------------------------|-----------------|
| Description: | USB Charger |
| Brand Name: | SIRIN LABS |
| Model Name or Number: | SRN15B1200150D6 |
| Serial Number: | Not Stated |

| | |
|------------------------------|---------------------------|
| Brand Name: | Personal Hands-Free (PHF) |
| Description: | SIRIN |
| Model Name or Number: | Not Stated |
| Serial Number: | Not Stated |

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Idle radiated spurious emissions tests were performed with the AC Charger and PHF connected to the EUT as this was found to be the worst case during pre-scans. All the accessories were individually connected and measurements made during the pre-scans to determine the worst case combination.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

| | | | |
|-----------------------|-------------------|-------------------|---------------------------|
| Test Engineer: | Matthew Galbraith | Test Date: | 24 th May 2016 |
| Sample Used: | 0087 | | |

| | |
|--------------------------|------------------------|
| FCC/IC Reference: | Part 15.107 / ICES-003 |
| Test Method Used: | ANSI C63.4 |

Environmental Conditions:

| | |
|-------------------------------|----|
| Temperature (°C): | 22 |
| Relative Humidity (%): | 31 |

Results: Live / Quasi Peak

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.172 | Live | 42.1 | 64.8 | 22.7 | Complied |
| 0.258 | Live | 45.8 | 61.5 | 15.7 | Complied |
| 0.541 | Live | 37.1 | 56.0 | 18.9 | Complied |
| 1.324 | Live | 28.0 | 56.0 | 28.0 | Complied |
| 3.039 | Live | 25.8 | 56.0 | 30.2 | Complied |
| 19.797 | Live | 17.3 | 60.0 | 42.7 | Complied |

Results: Live / Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|------|--------------------|--------------------|-------------|----------|
| 0.199 | Live | 25.4 | 53.6 | 28.2 | Complied |
| 0.298 | Live | 24.6 | 50.3 | 25.7 | Complied |
| 0.532 | Live | 25.1 | 46.0 | 20.9 | Complied |
| 0.991 | Live | 15.4 | 46.0 | 30.6 | Complied |
| 2.035 | Live | 15.4 | 46.0 | 30.6 | Complied |
| 25.057 | Live | 16.0 | 50.0 | 34.0 | Complied |

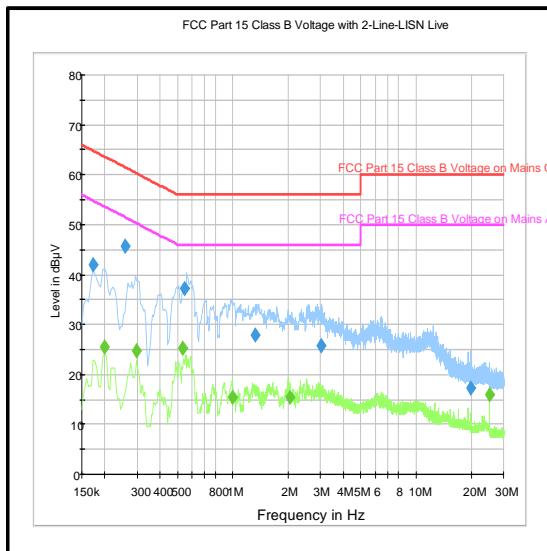
Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Neutral / Quasi Peak**

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.208 | Neutral | 38.1 | 63.3 | 25.2 | Complied |
| 0.523 | Neutral | 30.1 | 56.0 | 25.9 | Complied |
| 0.712 | Neutral | 24.6 | 56.0 | 31.4 | Complied |
| 1.194 | Neutral | 18.1 | 56.0 | 37.9 | Complied |
| 2.517 | Neutral | 11.1 | 56.0 | 44.9 | Complied |
| 10.261 | Neutral | 14.1 | 60.0 | 45.9 | Complied |

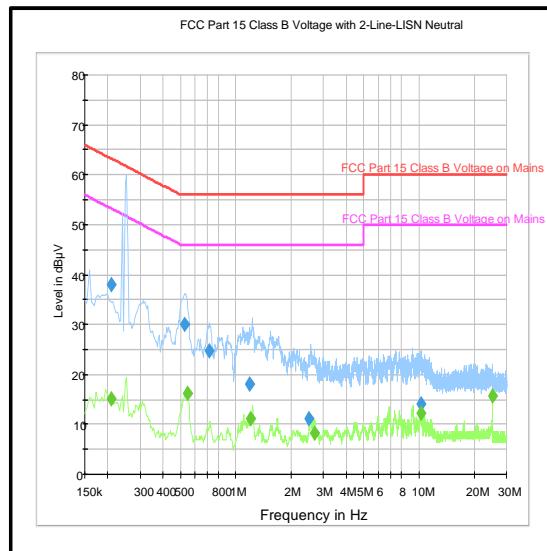
Results: Neutral / Average

| Frequency (MHz) | Line | Level (dB μ V) | Limit (dB μ V) | Margin (dB) | Result |
|-----------------|---------|--------------------|--------------------|-------------|----------|
| 0.208 | Neutral | 15.2 | 53.3 | 38.1 | Complied |
| 0.541 | Neutral | 16.3 | 46.0 | 29.7 | Complied |
| 1.207 | Neutral | 11.1 | 46.0 | 34.9 | Complied |
| 2.674 | Neutral | 8.2 | 46.0 | 37.8 | Complied |
| 10.266 | Neutral | 12.1 | 50.0 | 37.9 | Complied |
| 25.057 | Neutral | 15.8 | 50.0 | 34.2 | Complied |

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

| Asset No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (Months) |
|-----------|-----------------------|-----------------|------------|-------------|----------------------|------------------------|
| M1623 | Thermohygrometer | JM Handelpunkt | 30.5015.13 | None stated | 11 Jan 2017 | 12 |
| A649 | LISN | Rohde & Schwarz | ESH3-Z5 | 825562/008 | 14 Jul 2016 | 12 |
| A1829 | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100671 | 07 May 2017 | 12 |
| M2014 | Thermohygrometer | Testo | 608-H1 | 45046246 | 10 Jun 2017 | 12 |
| M1251 | Multimeter | Fluke | 175 | 89170179 | 13 May 2017 | 12 |
| M1273 | Test Receiver | Rhode & Schwarz | ESIB 26 | 100275 | 11 Apr 2017 | 12 |
| K0001 | Semi-Anechoic Chamber | Rainford EMC | N/A | N/A | 12 Jan 2017 | 12 |

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

| | | | |
|-----------------------|-------------------|-------------------|---------------|
| Test Engineer: | Matthew Galbraith | Test Date: | 28 April 2016 |
| Sample Used: | 104 | | |

| | |
|--------------------------|------------------------|
| FCC/IC Reference: | Part 15.109 / ICES-003 |
| Test Method Used: | ANSI C63.4 |
| Frequency Range: | 30 MHz to 1000 MHz |

Environmental Conditions:

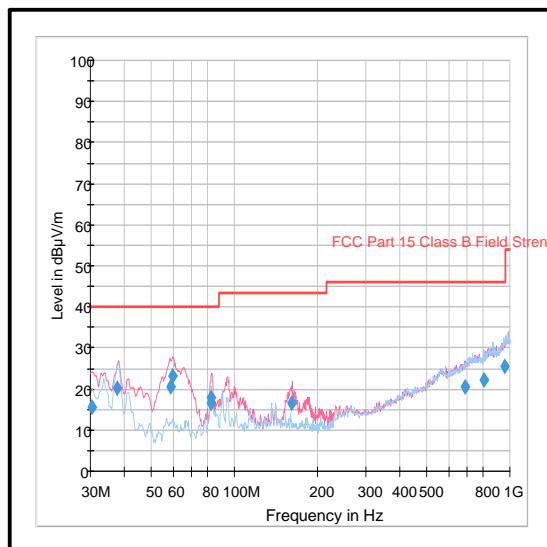
| | |
|-------------------------------|----|
| Temperature (°C): | 23 |
| Relative Humidity (%): | 39 |

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Results: Quasi Peak

| Frequency (MHz) | Antenna Polarity | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Result |
|------------------------|-------------------------|--------------------------------------|--------------------------------------|--------------------|---------------|
| 30.507 | Vertical | 15.6 | 40.000 | 24.400 | Complied |
| 37.637 | Vertical | 20.2 | 40.000 | 19.800 | Complied |
| 58.633 | Vertical | 20.7 | 40.000 | 19.300 | Complied |
| 59.706 | Vertical | 23.1 | 40.000 | 16.900 | Complied |
| 82.285 | Vertical | 17.8 | 40.000 | 22.200 | Complied |
| 82.389 | Vertical | 16.6 | 40.000 | 23.400 | Complied |
| 161.633 | Vertical | 16.5 | 43.500 | 27.000 | Complied |
| 687.471 | Vertical | 20.4 | 46.000 | 25.600 | Complied |
| 804.233 | Horizontal | 22.2 | 46.000 | 23.800 | Complied |
| 953.675 | Horizontal | 25.6 | 46.000 | 20.400 | Complied |

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

| | | | |
|-----------------------|--------------|-------------------|----------------|
| Test Engineer: | Aaron Murray | Test Date: | 23 August 2016 |
| Sample Used: | 104 | | |

| | |
|--------------------------|------------------------|
| FCC/IC Reference: | Part 15.109 / ICES-003 |
| Test Method Used: | ANSI C63.4 |
| Frequency Range: | 1 GHz to 26.5 GHz |

Environmental Conditions:

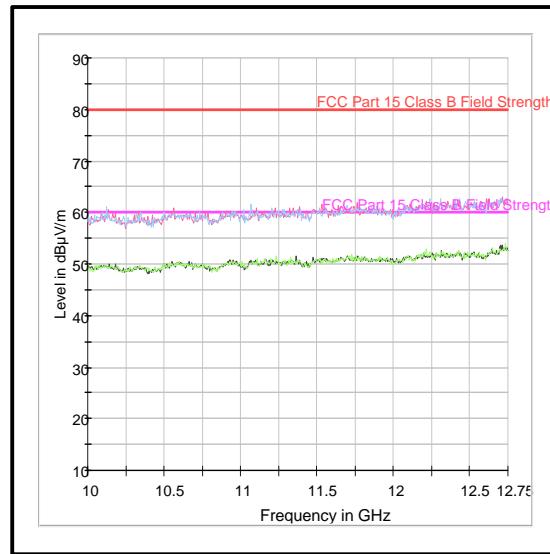
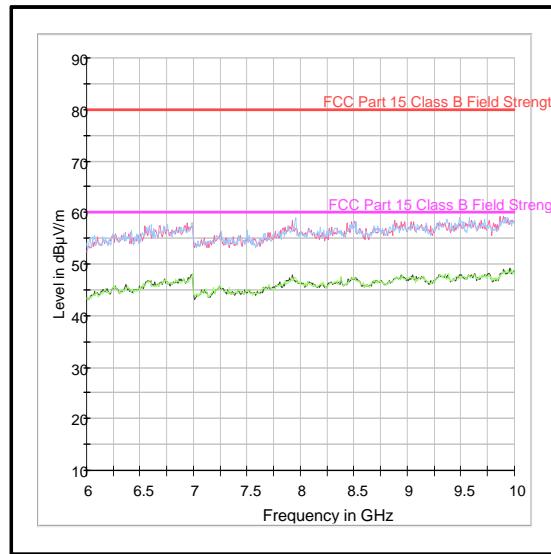
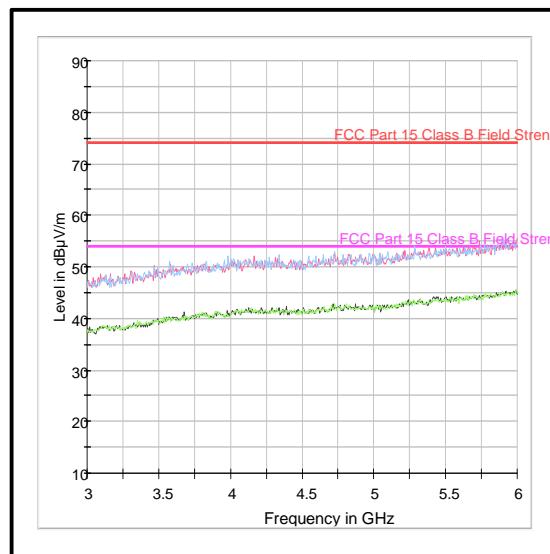
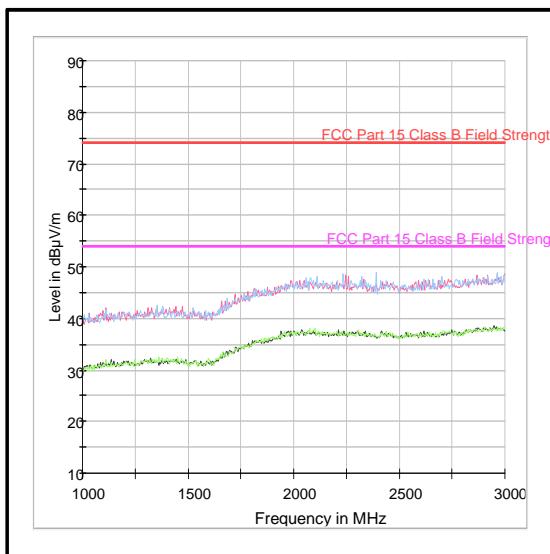
| | |
|-------------------------------|----|
| Temperature (°C): | 24 |
| Relative Humidity (%): | 50 |

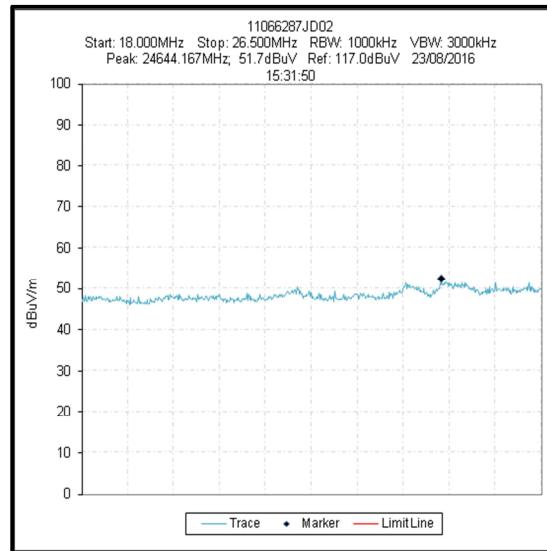
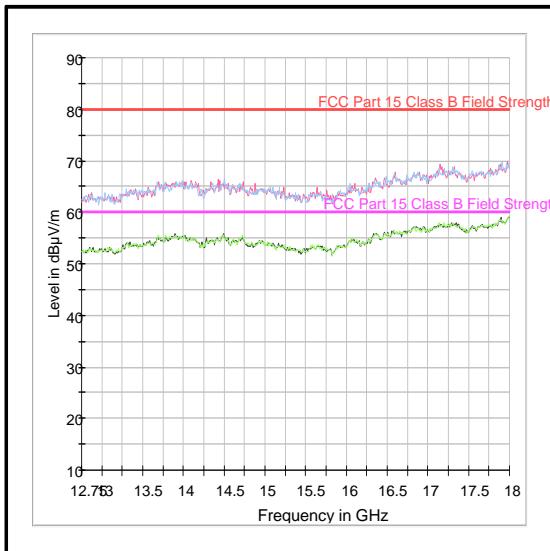
Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver, in the above 1 GHz range.
2. Measurements were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Results:

| Frequency (MHz) | Antenna Polarity | Peak Level (dB μ V/m) | Average Limit (dB μ V/m) | Margin (dB) | Result |
|-----------------|------------------|---------------------------|------------------------------|-------------|--------|
| See Note 1 | | | | | |

Receiver/Idle Mode Radiated Spurious Emissions (continued)



Test Equipment Used:

| Asset No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (Months) |
|-----------|------------------|-----------------------|-----------|------------|----------------------|------------------------|
| M2014 | Thermohygrometer | Testo | 608-H1 | 45046246 | 10 Jun 2017 | 12 |
| K0001 | 3m RSE Chamber | Rainford EMC | N/A | N/A | 12 Jan 2017 | 12 |
| M1273 | Test Receiver | Rohde & Schwarz | ESIB 26 | 100275 | 11 Apr 2017 | 12 |
| A2959 | Antenna | Schwarzbeck | VULB 9163 | 9163-967 | 22 Apr 2017 | 12 |
| A1818 | Horn Antenna | EMCO | 3115 | 00075692 | 17 Dec 2016 | 12 |
| A430 | Horn Antenna | Flann | 18240-20 | 425 | 06 Jan 2017 | 12 |
| G0543 | Pre Amplifier | Sonoma Instrument Co. | 310N | 230801 | 09 Dec 2016 | 6 |
| A1834 | Attenuator | Hewlett Packard | 8491B | 10444 | 30 Mar 2017 | 12 |

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

| Measurement Type | Range | Confidence Level (%) | Calculated Uncertainty |
|---------------------------------|--------------------|----------------------|------------------------|
| AC Conducted Spurious Emissions | 0.15 MHz to 30 MHz | 95% | ±4.69 dB |
| Radiated Spurious Emissions | 30 MHz to 1 GHz | 95% | ±5.65 dB |
| Radiated Spurious Emissions | 1 GHz to 5 GHz | 95% | ±2.94 dB |

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

| Version Number | Revision Details | | |
|----------------|------------------|--------|-----------------|
| | Page No(s) | Clause | Details |
| 1.0 | - | - | Initial Version |

--- END OF REPORT ---