



# 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  
Service Lead, Radio Laboratory

**Company Signatory:**

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**

<b>Company Name:</b>	Sirin Labs AG
<b>Address:</b>	Muhlentalstrasse 2 8200 Schaffhausen Switzerland

### **1.2. Manufacturer Information**





<b>Company Name:</b>	Flextronics International Sweden AB
<b>Address:</b>	Datalinjen 3A SE – 583 30 Linköping Sweden

## **2. Summary of Testing**

### **2.1. General Information**

<b>Specification Reference:</b>	47CFR15.107 and 47CFR15.109
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart B (Unintentional Radiators) – Sections 15.107 and 15.109
<b>Site Registration:</b>	209735
<b>Specification Reference:</b>	ICES-003 Issue 5
<b>Specification Title:</b>	Information Technology Equipment (ITE) – Limits and methods of measurement
<b>Site Registration:</b>	3245B-2
<b>Location of Testing:</b>	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
<b>Test Dates:</b>	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	
<b>Key to Results</b>  = Complied  = Did not comply			

### **2.3. Methods and Procedures**

<b>Reference:</b>	ANSI C63.4 (2013)
<b>Title:</b>	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:

<b>Description:</b>	USB Charger
<b>Brand Name:</b>	SIRIN LABS
<b>Model Name or Number:</b>	SRN15B1200150D6
<b>Serial Number:</b>	Not Stated

<b>Brand Name:</b>	Personal Hands-Free (PHF)
<b>Description:</b>	SIRIN
<b>Model Name or Number:</b>	Not Stated
<b>Serial Number:</b>	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 <sup>th</sup> 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 (dBμV)	Limit (dBμV)	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

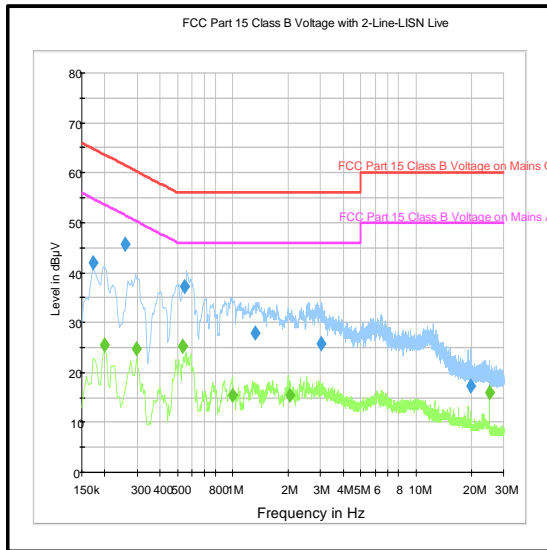
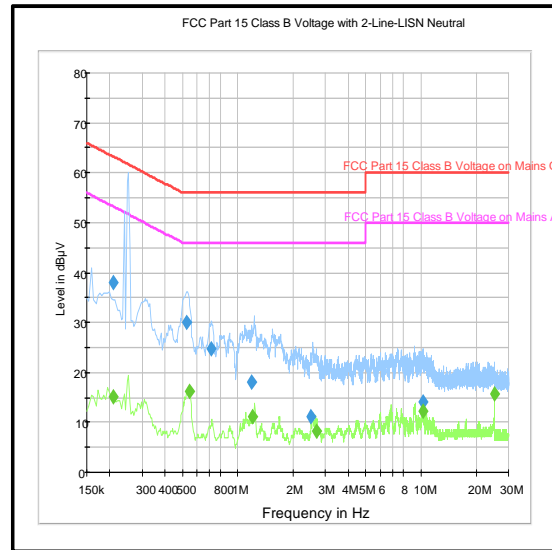
Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.199	Live	25.4	53.6	28.2	Complied
0.298	Live	24.6	50.3	25.7	Complied
0.532	Live	25.1	46.0	20.9	Complied
0.991	Live	15.4	46.0	30.6	Complied
2.035	Live	15.4	46.0	30.6	Complied
25.057	Live	16.0	50.0	34.0	Complied

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

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	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 (dBμV)	Limit (dBμV)	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 Handelspunkt	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:**

<b>Test Engineer:</b>	Matthew Galbraith	<b>Test Date:</b>	28 April 2016
<b>Sample Used:</b>	104		

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

**Environmental Conditions:**

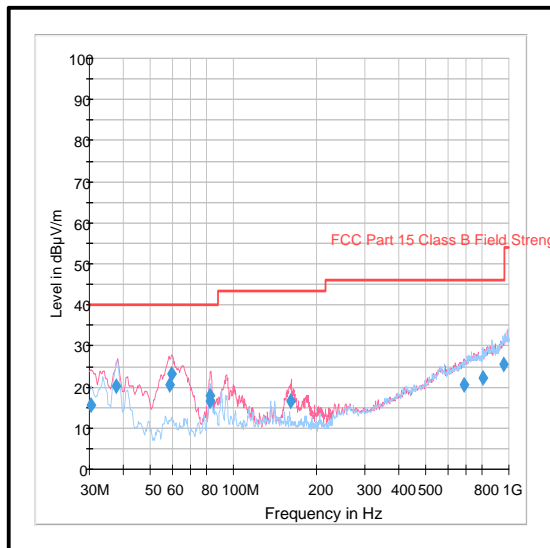
<b>Temperature (°C):</b>	23
<b>Relative Humidity (%):</b>	39

**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:**

<b>Test Engineer:</b>	Aaron Murray	<b>Test Date:</b>	23 August 2016
<b>Sample Used:</b>	104		

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

**Environmental Conditions:**

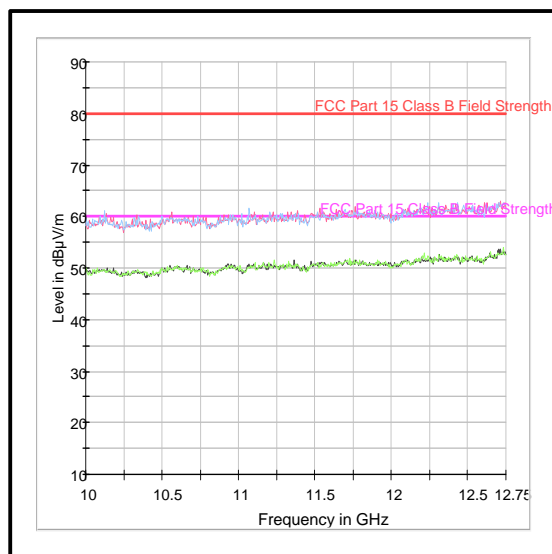
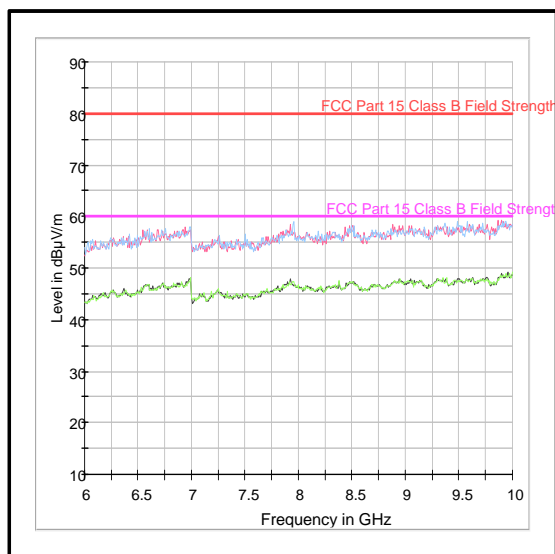
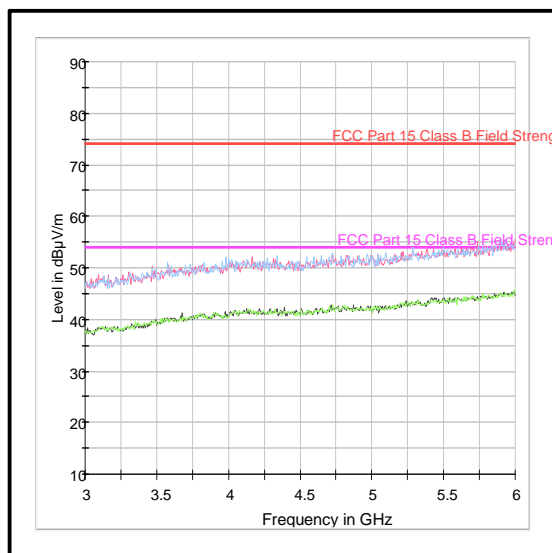
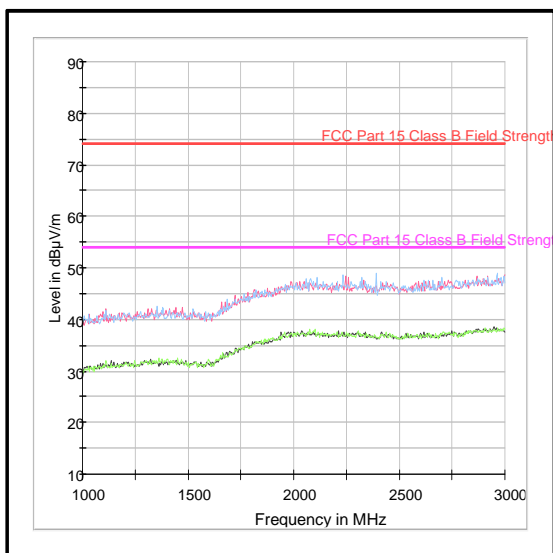
<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	50

**Note(s):**

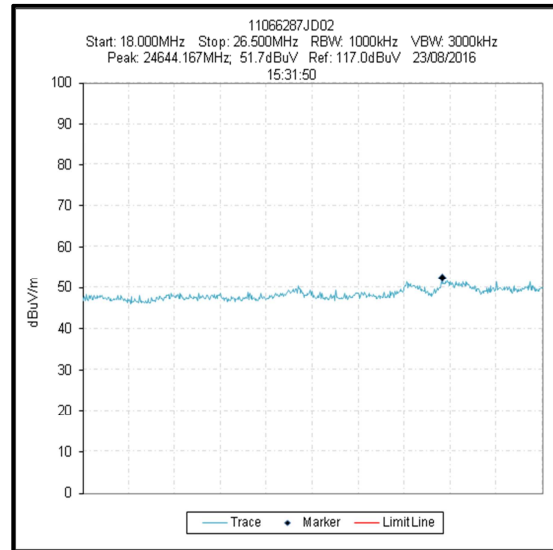
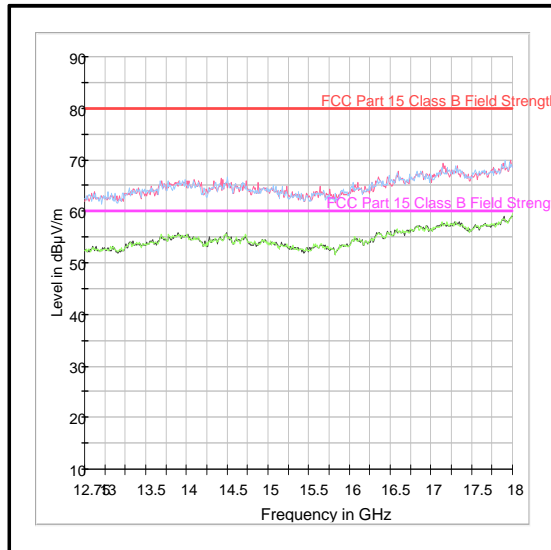
1. No spurious emissions were detected above the noise floor of the measuring receiver, in the above 1 GHz range.
2. Measurements were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre 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 (dBµV/m)	Average Limit (dBµV/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".

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
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 ---