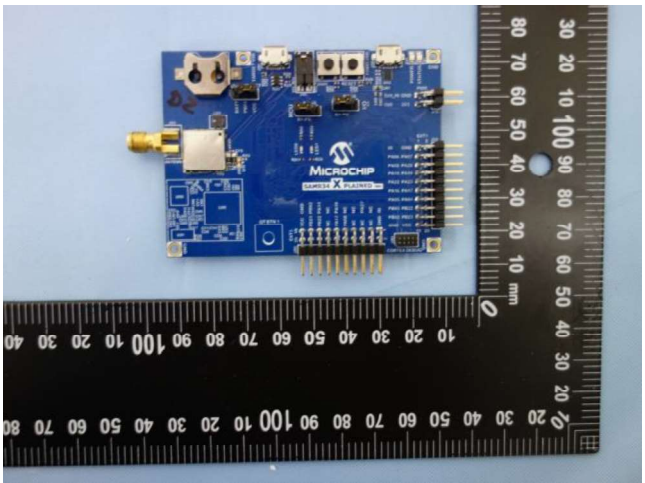




Prüfbericht-Nr.: Test Report No.:	50175102 002	Auftrags-Nr.: Order No.:	238112715	Seite 1 von 14 Page 1 of 14
Kunden-Referenz-Nr.: Client Reference No.:	N/A	Auftragsdatum: Order date:	28-Nov-2019	
Auftraggeber: Client:	Microchip Technology Inc. 2355 West Chandler Blvd. Chandler, Arizona 85224-6199, United States.			
Prüfgegenstand: Test item:	SAM R34 Xplained Pro Evaluation Kit			
Bezeichnung / Typ-Nr.: Identification / Type No.:	A09-3167			
Auftrags-Inhalt: Order content:	EN 300 220 Test Report(Spurious Emission Testing)			
Prüfgrundlage: Test specification:	EN 300 220-1 V3.1.1 EN 300 220-2 V3.1.1			
Wareneingangsdatum: Date of receipt:	05-Jun-2018			
Prüfmuster-Nr.: Test sample No.:	A000769530-002			
Prüfzeitraum: Testing period:	03-Dec-2019			
Ort der Prüfung: Place of testing:	EMC/RF Laboratory Taipei			
Prüflaboratorium: Testing laboratory:	TUV Rheinland Taiwan Ltd.			
Prüfergebnis*: Test result*:	Pass			



geprüft von / tested by: <div style="text-align: center; margin-top: 10px;">  </div>	kontrolliert von / reviewed by: <div style="text-align: center; margin-top: 10px;">  </div>
13-Dec-2019 Jack Chang / Project Manager	13-Dec-2019 Ryan W. T. Chen / Project Manager
Datum Date	Datum Date
Name / Stellung Name / Position	Name / Stellung Name / Position
Unterschrift Signature	Unterschrift Signature

Sonstiges / Other:
 RSE test for additional antenna as RFA-ZW-C55-B70-D034, the antenna gain is 2dBi.

Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged
---	--

* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft
 P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet

Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor
 P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

Prüfbericht - Nr.: 50175102 002
Test Report No.

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Page 2 of 14

TEST SUMMARY

5.1.1 TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN
RESULT: PASS

5.2.1 RECEIVER RADIATED SPURIOUS EMISSIONS
RESULT: PASS

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: IUT Photos

(File Name: 50175102 002 AppendixP)

Appendix 2: Test Result of Radiated Emissions

(File Name: 50175102 002 AppendixD)

Table 1: Applied Standard and Test Levels

Radio
EN 300 220-1 V 3.1.1
EN 300 220-2 V 3.1.1
EN 62479:2010

2. Test Sites

2.1 Test Laboratory

TUV Rheinland Taiwan Ltd.

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

TUV Rheinland Taiwan Ltd.

No. 458-18, Sec 2, Fenliao., Linkou Dist.
New Taipei City 244
Taiwan (R.O.C.)

FCC Registration No.: 226631
IC Canada Registration No.: 25563
TAF Accredited NCC Test Lab. No.:3567
TAF ISO17025 Certification effective period: 6th-May-2019 to 05th-May-2022



Testing Laboratory
3567

2.3 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV40	101507	2019/2/6	2020/2/6
Pre-Amplifier	R&S	SCU08F1	08320042	2019/5/9	2020/5/8
Pre-Amplifier	R&S	SCU-18F	180114	2019/5/9	2020/5/8
Pre-Amplifier	R&S	SCU-18F	180115	2019/5/9	2020/5/8
Pre-Amplifier	R&S	SCU40A	100497	2019/5/9	2020/5/8
Pre-Amplifier	R&S	SCU40A	100498	2019/5/9	2020/5/8
Bilog Antenna	SCHWARZBECK	VUBA-9117	393	2019/3/15	2020/3/14
Trilog Antenna	SCHWARZBECK	VULB-9162	247	2019/3/15	2020/3/14
Horn Antenna	ETS-Lindgren	3117	00218927	2018/12/18	2019/12/18
Loop Antenna	EMCI	LPA600	287	2018/12/20	2019/12/19
Test Software	Audix	e3	Ver. 9	N/A	N/A
Test Cable	Timesmicrowave	HF-290	W11.01	2019/6/12	2020/6/11
Test Cable	Timesmicrowave	HF-290	W11.02	2019/6/12	2020/6/11
Test Cable	Timesmicrowave	HF-290	W12.01	2019/6/12	2020/6/11
Test Cable	Timesmicrowave	HF-290	W12.02	2019/6/12	2020/6/11
Test Cable	Timesmicrowave	HF-290	W140	2019/6/12	2020/6/11
Test Cable	JUNFLON	MWX221	1812S583	2019/6/20	2020/6/19
Test Cable	JUNFLON	N/A	J12J102453-00-1	2019/6/20	2020/6/19
Test Cable	JUNFLON	N/A	J12J102453-00-2	2019/6/20	2020/6/19

2.4 Uncertainty of Measurement

According to the requirement of clause 4.4 of EN 300 220-1 V3.1.1, the value of the measurement uncertainty of each parameter is listed as below:

Table 3: Measurement Uncertainty

Parameter	Uncertainty
Radio frequency	±0,5 ppm
RF power, conducted	±1,5 dB
Conducted spurious emission of transmitter, valid up to 6 GHz	±3 dB
Conducted emission of receivers	±3 dB
Radiated emission of transmitter, valid up to 6 GHz	±6 dB
Radiated emission of receiver, valid up to 6 GHz	±6 dB
RF level uncertainty for a given BER	±1,5 dB
Radiated emission of receiver, valid up to 26 GHz	± 6 dB
Occupied BandWidth	±5 %
Temperature	±2,5 °C
Humidity	±2,5 °C

3. General Product Information

3.1 Product Function and Intended Use

The EUT is suitable for simple long range sensor applications with external host MCU. It contains a 868MHz compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Table 4: Technical Specification of EUT

Technical Specification	Value
Kind of Equipment	Low-Power Long Range LoRa® Technology Transceiver Module
Operating Frequency	868.1MHz – 868.5MHz
Channel number	3
Extreme Temperature Range	-40~85 °C
Operation Voltage	5Vdc through USB
Modulation	FSK, GFSK, and LoRa (Tests done with LoRa Modulation)
Antenna Gain	2 dBi

3.3 Independent Operation Modes

Testing basic operation modes are:

- A. Transmitting
- B. Receiving
- C. Standby
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) were configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB to UART interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed in section 3.3 as appropriate.

The samples were used as follows:

Radiation: A000769530-002

4.3 Special Accessories and Auxiliary Equipment

None.

4.4 Countermeasures to Achieve Compliance

The test sample which has been tested contained the noise suppression parts as can be seen in the Photo documentation. No additional measures were employed to achieve compliance.

5. Test Results RADIO

5.1.1 Transmitter unwanted emissions in the spurious domain

RESULT:**PASS**

Date of testing:	Refer to Appendix D
Ambient temperature:	Refer to Appendix D
Ambient Relative humidity:	Refer to Appendix D
Atmospheric pressure:	100-103 kPa
Test requirement:	EN 300 328 V 2.1.1, clause 4.3.1.10
Test procedure:	EN 300 328 V 2.1.1, clause 5.4.9.2.2
Frequency range:	30MHz - 12.75GHz
Measurement distance:	3m
Kind of test site:	Semi Anechoic Chamber
Test mode applied:	A, C

Please Refer to Appendix D: Test result of Radiated Emissions

5.2 Receiver Parameters

5.2.1 Receiver Radiated Spurious Emissions

RESULT:**PASS**

Date of testing:	Refer to Appendix D
Ambient temperature:	Refer to Appendix D
Ambient Relative humidity:	Refer to Appendix D
Atmospheric pressure:	100-103 kPa
Test requirement:	EN 300 328 V 2.1.1, clause 4.3.1.11
Test procedure:	EN 300 328 V 2.1.1, clause 5.4.10.2.2
Frequency range:	30MHz - 12.75GHz
Measurement distance:	3m
Kind of test site:	Semi Anechoic Chamber
Test mode applied:	D, E

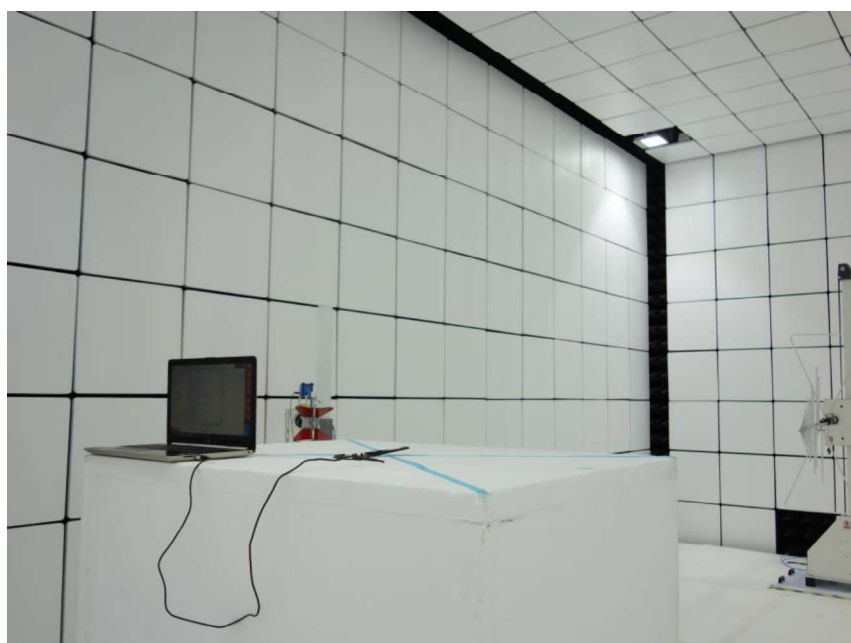
Please Refer to Appendix D: Test result of Radiated Emissions

6. Photographs of the Test Set-Up

Photograph 1: Setup for Radiated Emission (Front View)



Photograph 2: Set-up for Radiated Emission (Rear View)



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