

Prüfbericht-Nr.: Test Report No.:		50148698 001		Auftrags-Nr.: Order No.:		114077828		Seite 1 von 31 Page 1 of 31			
Kunden-Referenz-Nr.: Client Reference No.:		N/A		Auftragsdatum: Order date.:		22 May 2018					
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:		TUV Rheinland - EMC service									
Prüfgrundlage: Test specification:		EN 301 489-1 V2.1.1, EN 301 489-1 V2.2.0 EN 301 489-3 V1.6.1, EN 301 489-3 V2.1.1									
Wareneingangsdatum: Date of receipt:		10 Aug. 2018									
Prüfmuster-Nr.: Test sample No.:		A000769530-001 & 002									
Prüfzeitraum: Testing period:		Refer to test report									
Ort der Prüfung: Place of testing:		TÜV Rheinland Taiwan Ltd.									
Prüflaboratorium: Testing laboratory:		TÜV Rheinland Taiwan Ltd. Taichung Branch Office									
Prüfergebnis*: Test result*:		Pass									
geprüft von / tested by:				kontrolliert von / reviewed by:							
 21 Sep. 2018 Neil J. N. Tsai/ Project Manager				 21 Sep. 2018 Max Y. C. Yao/ Technical Certifier							
Datum Date		Name/Stellung Name/Position		Unterschrift Signature		Datum Date		Name/Stellung Name/Position		Unterschrift Signature	
Sonstiges / Other:											
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 specifications(s) F(ail) = failed a.m. test specifications(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. <i>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.</i>											

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1 Test Site

Laboratory:

TUV Rheinland Taiwan Ltd. Taichung Branch Office
No.9, Lane 36, Minsheng Rd., Sec. 3, Daya District, Taichung City 428, Taiwan, R.O.C.

Test Facility:

TÜV Rheinland Taiwan Ltd.
11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei City 105, Taiwan, R.O.C.

The test facility is accredited by TAF (member of ILAC), under number 0759 according to ISO/IEC 17025:2005.

1.1 Measurement Uncertainty

Testing Item	Frequency Range	Uncertainty
Conducted Emission (LISN)	9kHz - 30MHz	2.69 dB
Conducted Emission (ISN)	150kHz - 30MHz	3.20 dB
Radiated Emission (966 Chamber: 3m)	9kHz - 30MHz	4.40 dB
Radiated Emission (966 Chamber: 3m)	30MHz - 1000MHz	2.82 dB
Radiated Emission (966 Chamber: 3m)	Above 1GHz	2.42 dB
Radiated Emission (10m OATS: 10m)	30MHz - 1000MHz	2.82 dB

Note:

The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

2 Description of the Test Sample

2.1 General Description of Equipment

The tested sample is a "SAM R34 Xplained Pro Evaluation Kit" with model number "A09-3167" for new approval, which has LoRa function.

2.2 Rating and Physical Characteristics

Type Designation:	A09-3167
EUT Rating:	5Vdc via USB port
Host Notebook Rating:	230Vac, 50Hz
Protection Class:	III
Wireless Frequency:	863 - 870 MHz (LoRa function)

2.3 Sources of Interference

- 1) IC circuits

2.4 Noise Suppression Parts

Please refer to attachment documentation for details.

2.5 Submitted Documents

- 1) Product Specification

3 Measurement Conditions

3.1 Modes of Operation

A. The notebook was connected to sample1 and sample2 for TX and RX mode, and key-in command in “cmd.exe (MS-DOS command)” to control TX sample to transmit the data to RX sample.

The basic operation mode:

A. USB communication and LoRa link

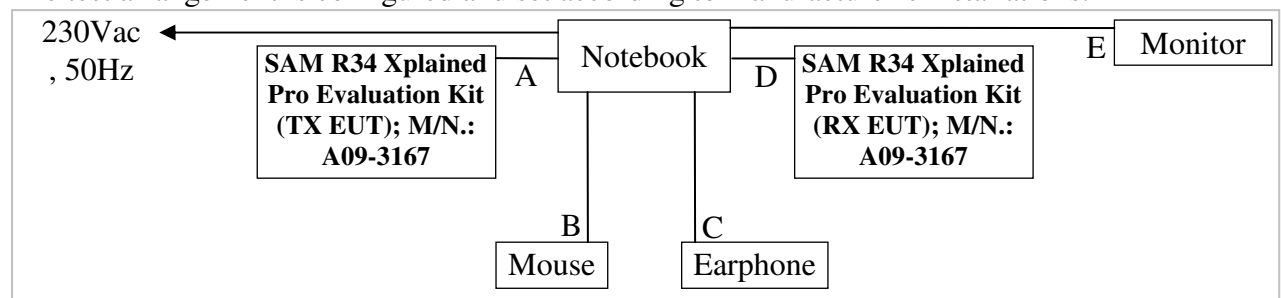
3.2 Additional Equipment

The subject sample was tested as an independent unit with the following equipment:

Description	Manufacturer	Model No.	Serial No.
Notebook	Lenovo	20150	CB21920765
Monitor	CHIMEI	TL-24LF60	24LF60K4362250
Mouse	Lenovo	MO28UOL	44E6889
Ear/Microphone	DENGEKI	SKM-X1	N/A

3.3 Test Setup

The test arrangement is configured and set according to manufacturer’s installations.



Signal Cable Type	Signal Cable Description	
A	USB cable	Shielding, 1m
B	USB cable	Shielding, 1.8m
C	Audio cable	Non Shielding, 1.2m
D	USB cable	Shielding, 1.8m
E	D-Sub cable	Shielding, 1.8m, 1 core

3.4 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment
For EMI/Radiation Measurement (Taipei: Semi-Anechoic Chamber B)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESR 7	101549	2017/11/10	2018/11/10
2	Spectrum Analyzer	Rohde & Schwarz	FSV-40	101112	2017/09/22	2018/09/22
3	Pre-Amplifier	Hewlett Packard	8447D	2944A06641	2017/12/26	2018/12/26
4	Pre-Amplifier	EM Electronics	EM01G18G	060558	2017/11/21	2018/11/21
5	Pre-Amplifier	EMC Instruments	EMC184045SE	980408	2018/06/08	2019/06/08
6	Bilog Antenna	TESEQ	CBL6111D	40101	2017/09/18	2018/09/18
7	Horn Antenna	ETS-Lindgren	3117	00138160	2018/06/01	2019/06/01
8	Horn Antenna	Com-Power	AH-840	101029	2017/11/28	2018/11/28
9	Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2018/06/21	2019/06/21
10	Test Software	Audix	e3	Ver. 9	N/A	N/A

For EMS/ESD Test (Taipei: Shield Room)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
1	ESD Simulator	TESEQ	NSG437	1259	2018/05/23	2019/05/23

For EMS/RF Field Strength Susceptibility Test (Taipei: Fully-Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
1	Signal Generator	Rohde & Schwarz	SMB-100A	104167	2018/08/23	2019/08/23
2	Power Amplifier (20-1GHz)	FRANKONIA	FLH-200B	1088	N.C.R.	N.C.R.
3	Power Amplifier (1-6GHz)	Bonn	BLMA1060-50D	108052	N.C.R.	N.C.R.
4	Broadband Antenna (30M-3GHz)	FRANKONIA	BTA-M	08009	N.C.R.	N.C.R.
5	Horn Antenna (0.7-10.5GHz)	FRANKONIA	MAX-9	MAX-9-801	N.C.R.	N.C.R.
6	Power Meter	FRANKONIA	PMS_1084	108B1251	2018/05/16	2019/05/16
7	2 Directional Coupler	AR	DC6180A	334572	N.C.R.	N.C.R.
8	Test Software	FRANKONIA	RF-LAB	Ver. 4.97	N/A	N/A

3.5 Abbreviations

PASS	: Complied with requirement	N/A	: Not applicable
FAIL	: Not complied	N.C.R.	: No calibration required

4 Test Results EMISSION

Result:	PASS
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4.1 Continuous Interference

4.1.1 Conducted Emission (AC Mains)

Port: AC Mains
Basic Standard: EN 301 489-1, clause 8.4
Frequency Range: 0.15 – 30 MHz
Limits: EN 55022, Table 2, Class B
EN 55032, Table A.9, Class B

Result:	N/A
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The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

4.1.2 Conducted Emission (Telecommunication Ports)

Port: Telecommunication Ports
Basic Standard: EN 301 489-1, clause 8.7
Frequency Range: 0.15 – 30 MHz
Limits: EN 55022, Table 4, Class B
EN 55032, Table A.11, Class B

Result:	N/A
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The subject sample has not telecommunication port. Therefore, this test is not applicable.

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*Test Report No.*Seite 9 von 31
Page 9 of 31**4.1.3 Radiated Emission, 30 - 1000 MHz**

Port: Enclosure
Basic Standard: EN 301 489-1, clause 8.2
Frequency Range: 30 - 1000 MHz
Limits: EN 55022, Table 6, Class B (at 3m distance)
EN 55032, Table A.4, Class B

Result:	PASS
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Test Setup

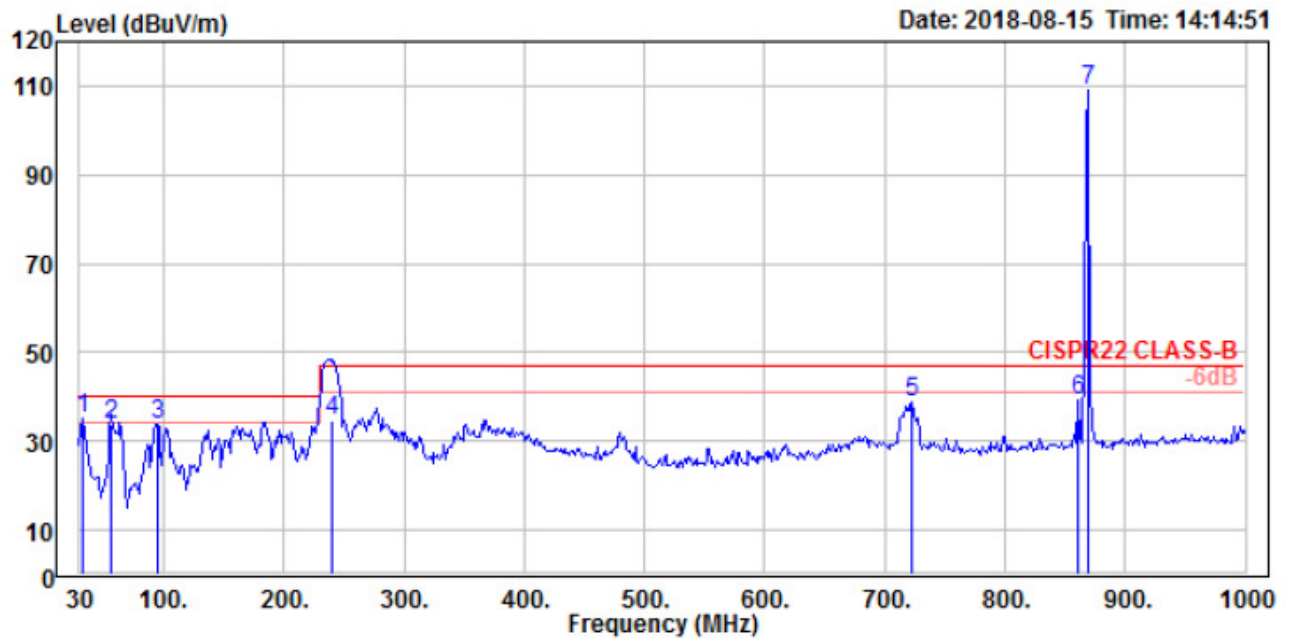
Date of Test: 15 Aug 2018
Input Voltage: See 2.2
Operational Mode: See 3.1
Temperature 24 °C
Relative Humidity 53 %

Table 2: Radiated Emission, 30 - 1000 MHz**Setting:**

Frequency		Settings	
Start	Stop	IF Bandwidth	Detector
30 MHz	1000 MHz	120 kHz	QP

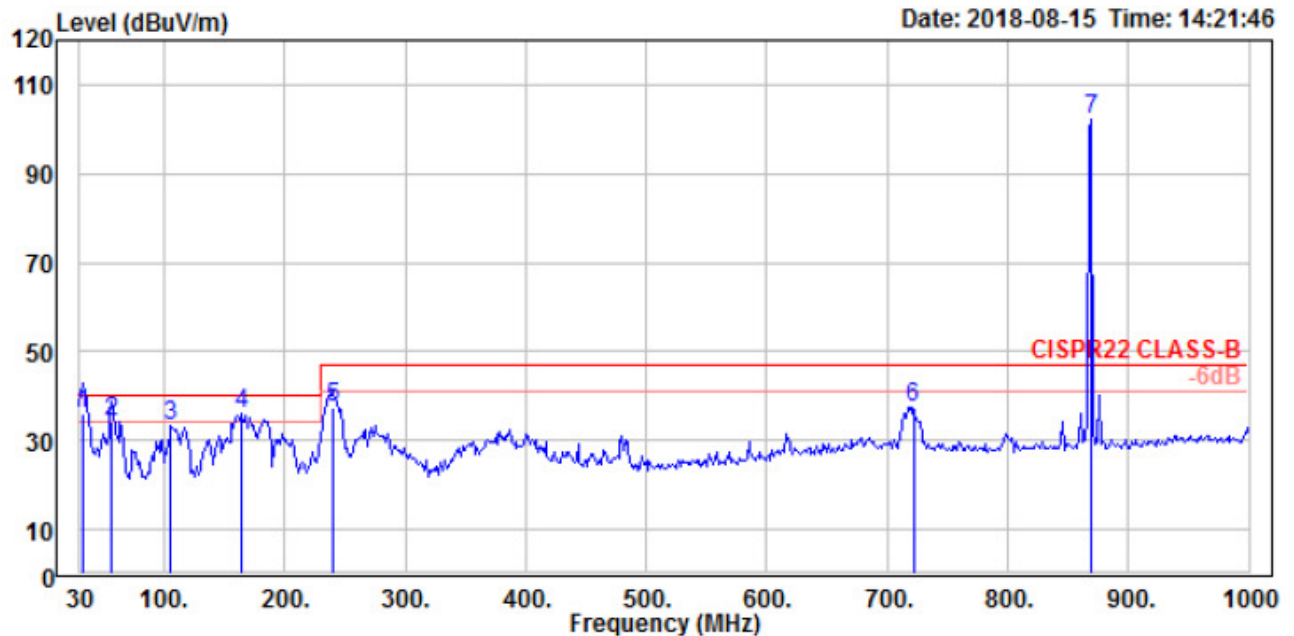
Note 1: Level = Reading(Read Level) + Factor
Margin(Over Limit) = Level – Limit(Limit Line)

Note 2: Factor = Antenna factor + Cable loss + (- Amplifier gain)

Figure 1: Radiated Emission, 30 - 1000 MHz (EN 301 489-3 V1.6.1)
Horizontal


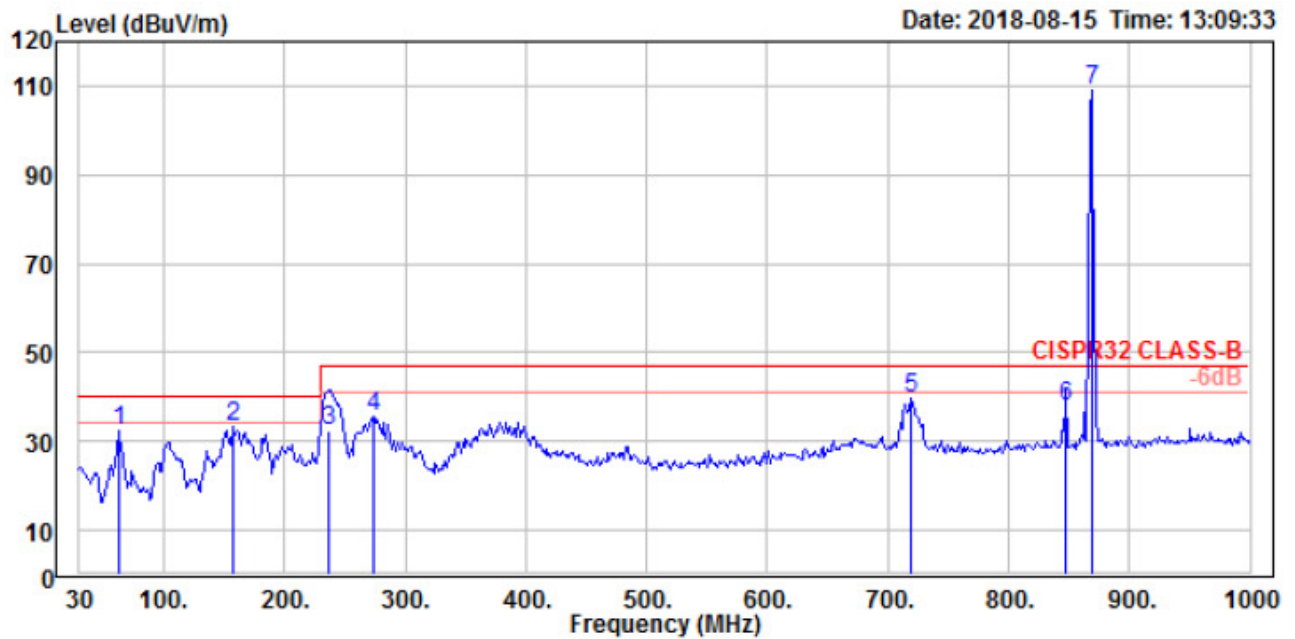
	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Note
	MHz	dBuV/m	Level	Factor	Line	Limit			
			dBuV	dB/m	dBuV/m	dB	cm	deg	
1 !	32.812	34.98	39.99	-5.01	40.00	-5.02	200	188	QP
2	56.710	33.64	49.80	-16.16	40.00	-6.36	300	132	QP
3	94.667	33.98	47.37	-13.39	40.00	-6.02	300	360	QP
4	239.464	34.51	44.60	-10.09	47.00	-12.49	100	220	QP
5	723.058	38.78	40.08	-1.30	47.00	-8.22	300	338	QP
6	860.826	39.27	38.25	1.02	47.00	-7.73	200	321	QP
7 *	869.261	109.21	108.11	1.10	47.00	62.21	300	221	TX

Note: The frequency 869MHz is coming from LoRa signal, so it's not requested by this standard.

Vertical


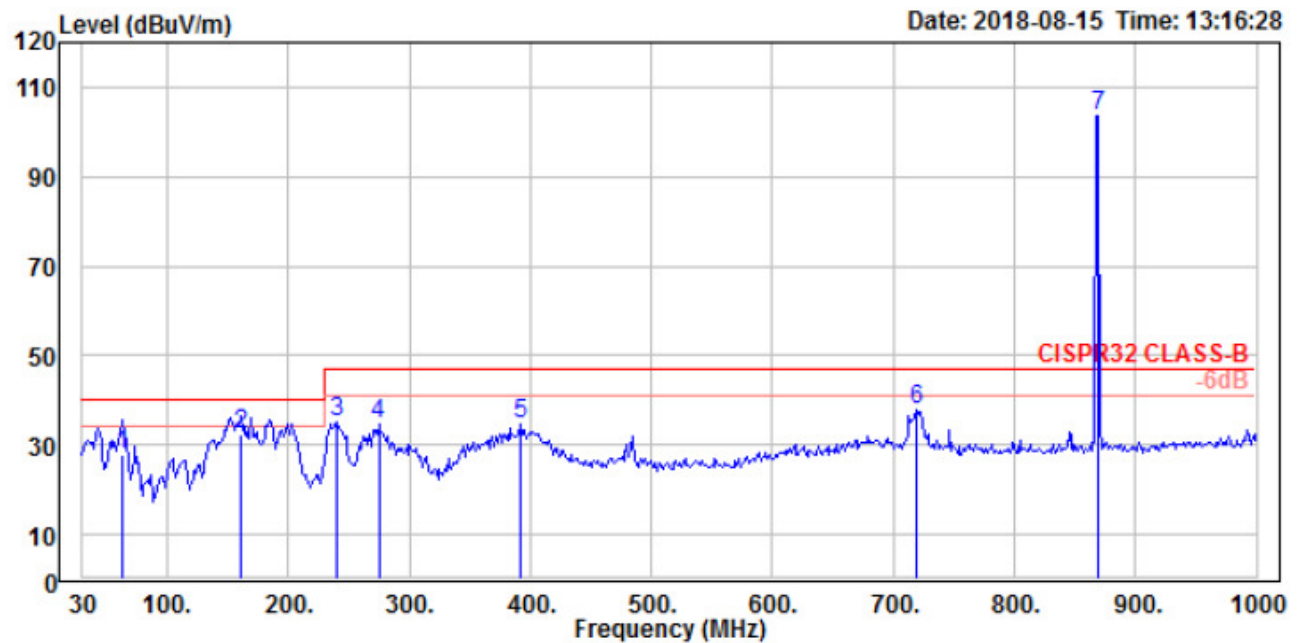
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1 !	32.812	35.99	41.00	-5.01	40.00	-4.01	100	188	QP	
2 !	56.710	34.44	50.60	-16.16	40.00	-5.56	300	272	QP	
3	105.913	33.11	45.14	-12.03	40.00	-6.89	200	10	QP	
4 !	164.957	36.07	47.87	-11.80	40.00	-3.93	100	0	QP	
5	239.464	37.51	47.60	-10.09	47.00	-9.49	100	292	QP	
6	721.652	37.60	38.93	-1.33	47.00	-9.40	100	238	QP	
7 *	869.261	102.38	101.28	1.10	47.00	55.38	300	230		TX

Note: The frequency 869MHz is coming from LoRa signal, so it's not requested by this standard.

Figure 2: Radiated Emission, 30 - 1000 MHz (EN 301 489-3 V2.1.1)
Horizontal


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	62.333	32.60	49.63	-17.03	40.00	-7.40	300	170	QP	
2	157.928	33.29	44.54	-11.25	40.00	-6.71	200	336	QP	
3	236.652	32.25	42.60	-10.35	47.00	-14.75	100	1	QP	
4	273.203	35.47	43.85	-8.38	47.00	-11.53	100	90	QP	
5	718.841	39.51	40.92	-1.41	47.00	-7.49	300	320	QP	
6	848.174	37.80	36.90	0.90	47.00	-9.20	200	198	QP	
7 *	869.261	109.21	108.11	1.10	47.00	62.21	300	246		TX

Note: The frequency 869MHz is coming from LoRa signal, so it's not requested by this standard.

Vertical


	Freq	Level	Read	Factor	Limit	Over	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	63.739	27.66	44.60	-16.94	40.00	-12.34	100	360	QP	
2	160.739	32.19	43.59	-11.40	40.00	-7.81	100	12	QP	
3	239.464	35.13	45.22	-10.09	47.00	-11.87	100	1	QP	
4	274.609	34.81	43.21	-8.40	47.00	-12.19	200	352	QP	
5	391.290	34.50	40.30	-5.80	47.00	-12.50	100	1	QP	
6	718.841	37.95	39.36	-1.41	47.00	-9.05	100	95	QP	
7 *	869.261	103.47	102.37	1.10	47.00	56.47	100	9		TX

Note: The frequency 869MHz is coming from LoRa signal, so it's not requested by this standard.

4.1.4 Radiated Emission, Above 1 GHz

Port: Enclosure
Basic Standard: EN 301 489-1, clause 8.2
Frequency Range: 1 - 6 GHz
Limits: EN 55022, Table 8, Class B
EN 55032, Table A.5, Class B

Result:	PASS
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The highest internal source of the EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes.

- ☐ highest frequency is less than 108MHz, measurement shall only be made up to 1GHz
☐ highest frequency is between 108 & 500MHz, measurement shall only be made up to 2GHz
☒ highest frequency is between 500 & 1GHz, measurement shall only be made up to 5GHz
☐ highest frequency is above 1GHz, measurement shall be made up to 5 times the highest frequency or 6GHz, whichever is less.

Test Setup

Date of Test: 15 Aug. 2018
Input Voltage: See 2.2
Operational Mode: See 3.1
Temperature: 24 °C
Relative Humidity: 53 %

Table 3: Radiated Emission, Above 1 GHz

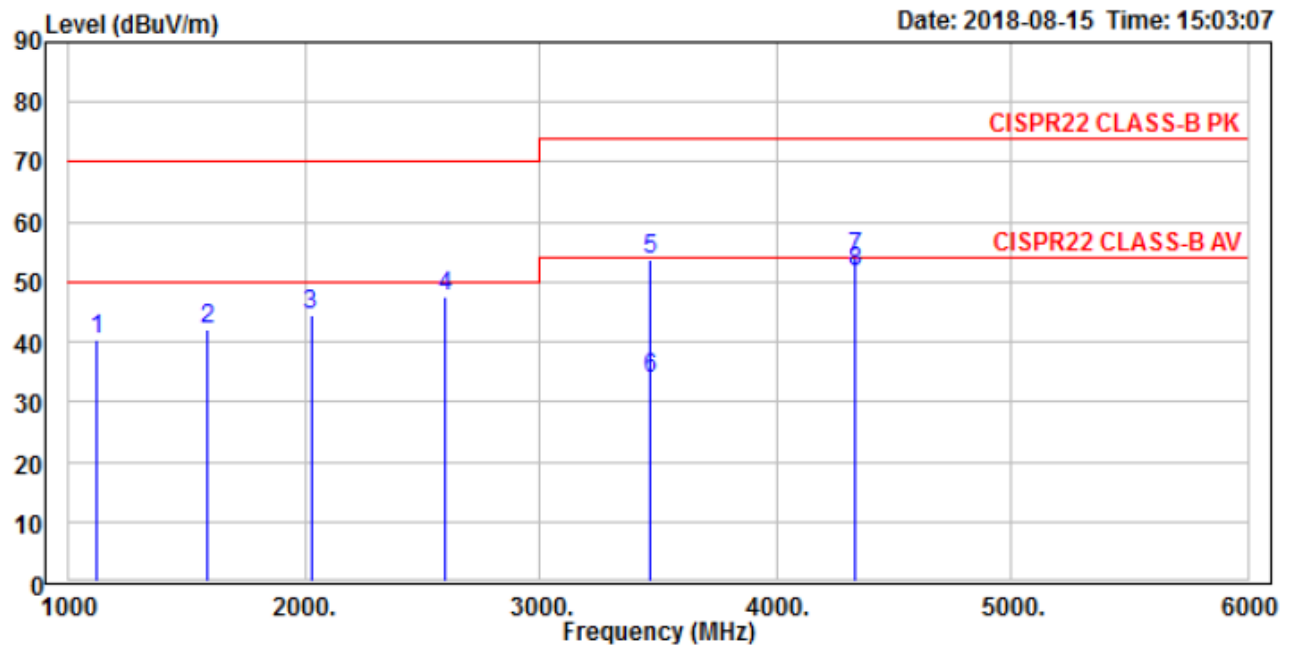
Setting:

Frequency		Settings	
Start	Stop	IF Bandwidth	Detector
1000 MHz	6000 MHz	1 MHz	Peak / Avg

Note 1: The highest frequency is 870MHz for LoRa function, measurement shall only be made up to 5GHz, the test result was measured up to 6GHz as described in this report.

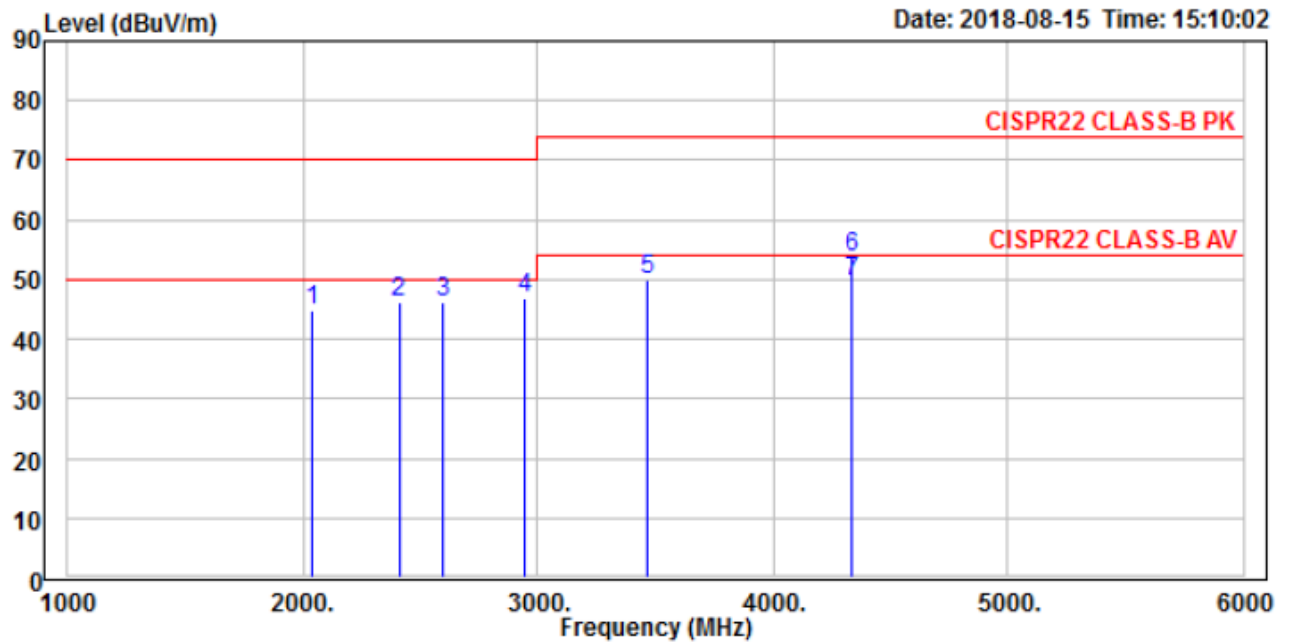
Note 2: Level = Reading(Read Level) + Factor
Margin(Over Limit) = Level – Limit(Limit Line)

Note 3: Factor = Antenna factor + Cable loss + (- Amplifier gain)

Figure 3: Radiated Emission, Above 1 GHz (EN 301 489-3 V1.6.1)
Horizontal


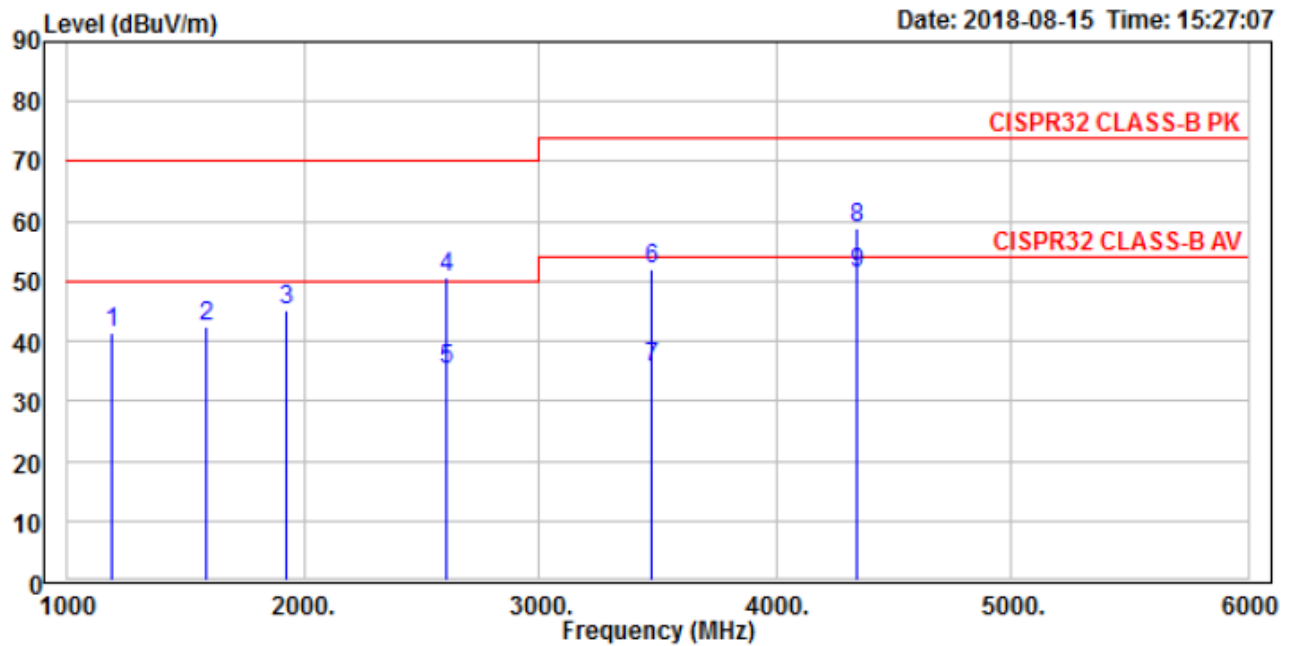
	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Note
	MHz	dBuV/m	Level	Factor	Line	Limit			
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg	
1	1121.739	40.49	49.44	-8.95	70.00	-29.51	100	137	Peak
2	1591.304	42.00	51.08	-9.08	70.00	-28.00	100	359	Peak
3	2026.087	44.64	51.28	-6.64	70.00	-25.36	100	252	Peak
4	2600.000	47.73	53.23	-5.50	70.00	-22.27	100	314	Peak
5	3469.565	53.86	57.89	-4.03	74.00	-20.14	100	230	Peak
6	3469.565	33.97	38.00	-4.03	54.00	-20.03	100	230	Average
7	4339.130	54.04	55.50	-1.46	74.00	-19.96	100	218	Peak
8	4339.130	51.54	53.00	-1.46	54.00	-2.46	100	218	Average

Note: The other peak readings were below average limit, thus no average measuring required for those.

Vertical


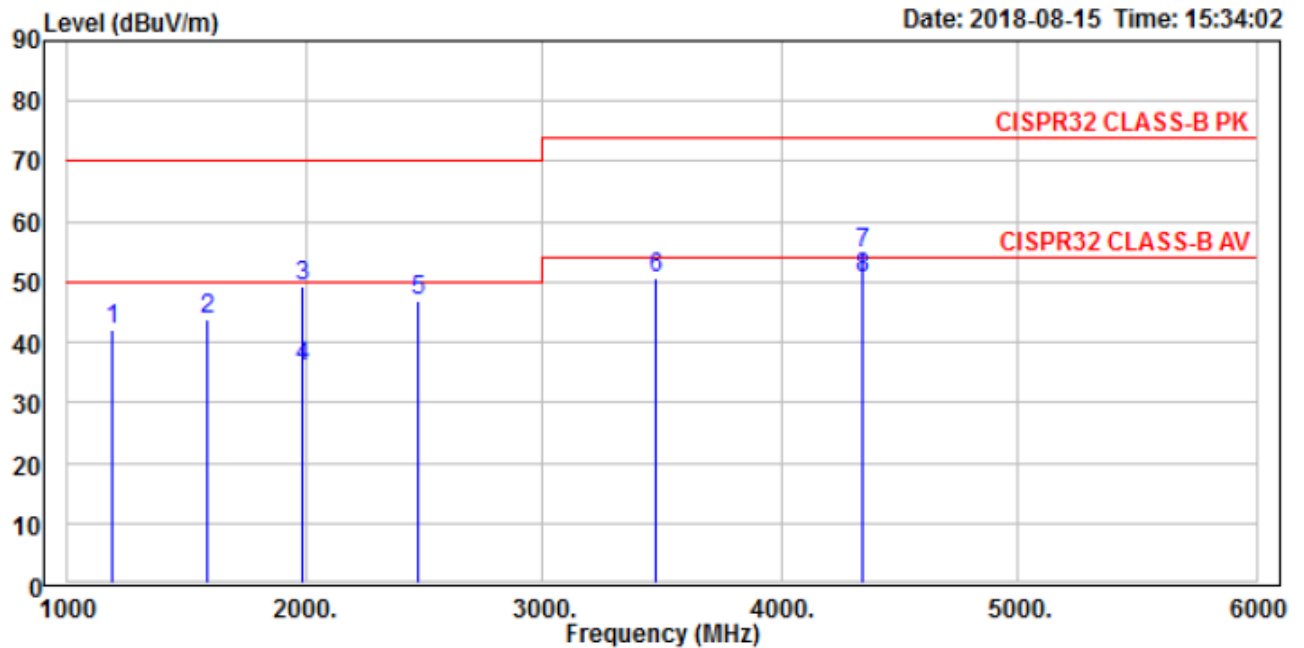
	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2043.478	44.91	51.50	-6.59	70.00	-25.09	100	217	Peak	
2	2408.696	46.31	52.21	-5.90	70.00	-23.69	100	208	Peak	
3	2600.000	46.32	51.82	-5.50	70.00	-23.68	100	166	Peak	
4	2947.826	46.78	51.51	-4.73	70.00	-23.22	100	266	Peak	
5	3469.565	49.84	53.87	-4.03	74.00	-24.16	100	263	Peak	
6	4339.130	53.77	55.23	-1.46	74.00	-20.23	100	278	Peak	
7	4339.130	49.54	51.00	-1.46	54.00	-4.46	100	278	Average	

Note: The other peak readings were below average limit, thus no average measuring required for those.

Figure 4: Radiated Emission, Above 1 GHz (EN 301 489-3 V2.1.1)
Horizontal


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1188.406	41.34	50.41	-9.07	70.00	-28.66	100	350	Peak	
2	1586.957	42.47	51.57	-9.10	70.00	-27.53	100	357	Peak	
3	1927.536	45.28	52.38	-7.10	70.00	-24.72	100	322	Peak	
4	2601.449	50.79	56.29	-5.50	70.00	-19.21	100	326	Peak	
5	2601.449	35.14	40.64	-5.50	50.00	-14.86	100	326	Average	
6	3471.014	52.11	56.14	-4.03	74.00	-21.89	100	0	Peak	
7	3471.014	35.62	39.65	-4.03	54.00	-18.38	100	0	Average	
8	4340.580	58.91	60.37	-1.46	74.00	-15.09	100	241	Peak	
9	4340.580	51.42	52.88	-1.46	54.00	-2.58	100	241	Average	

Note: The other peak readings were below average limit, thus no average measuring required for those.

Vertical


	Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	1188.406	42.05	51.12	-9.07	70.00	-27.95	100	264	Peak	
2	1586.957	43.81	52.91	-9.10	70.00	-26.19	100	321	Peak	
3	1985.507	49.36	56.12	-6.76	70.00	-20.64	100	95	Peak	
4	1985.507	35.80	42.56	-6.76	50.00	-14.20	100	95	Average	
5	2471.014	46.88	52.66	-5.78	70.00	-23.12	100	16	Peak	
6	3471.014	50.68	54.71	-4.03	74.00	-23.32	100	355	Peak	
7	4340.580	54.79	56.25	-1.46	74.00	-19.21	100	350	Peak	
8	4340.580	50.55	52.01	-1.46	54.00	-3.45	100	350	Average	

Note: The other peak readings were below average limit, thus no average measuring required for those.

4.2 Disturbances in Supply Systems

4.2.1 Harmonics

Port: AC Mains
Product Standard: EN 301 489-3
EN 61000-3-2
Basic Standard: EN 301 489-1, clause 8.5
IEC 61000-3-2
Limits: EN 61000-3-2, clause 7

Result:**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

4.2.2 Voltage Fluctuations

Port: AC Mains
Product Standard: EN 301 489-3
EN 61000-3-3
Basic Standard: EN 301 489-1, clause 8.6
IEC 61000-3-3
Limits: EN 61000-3-3, clause 5

Result:**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5 Test Results I M M U N I T Y

Result:	PASS
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5.1 Enclosure Port

5.1.1 Radiated Susceptibility

Port:	Enclosure
Product Standard:	EN 301 489-3
Basic Standard:	IEC/EN 61000-4-3
Performance Criteria:	Transmitters: CT Receivers: CT
Test Specification:	EN 301 489-1
	Frequency Range: 80 - 6000 MHz
	Field Strength: 3 V/m (unmodulated)
	Modulation: 1 kHz AM 80%

Result:	PASS
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Test Setup

Date of Test:	15 Aug. 2018
Input Voltage:	See 2.2
Operational Mode:	See 3.1
Temperature	21 °C
Relative Humidity	50 %

Table 4: Radiated Susceptibility

Setting:

Freq.	Freq. Step	Field Strength	Sweep mode	Meas. Time	Modulation	Observation	Result
80 – 6000 MHz	1% of the Preceding freq.	3 V/m	auto	3000 ms	1 kHz, AM 80%	Normal function	PASS

No abnormalities were observed during and after the tests.

5.1.2 Electrostatic Discharge

Port:	Enclosure	
Product Standard:	EN 301 489-3	
Basic Standard:	IEC/EN 61000-4-2	
Performance Criteria:	Transmitters: TT	
	Receivers: TT	
Test Specification:	EN 301 489-1	
	Voltage:	8 kV (Air Discharge) 4 kV (Contact Discharge) H.C.P. and V.C.P.

Result:	PASS
----------------	-------------

Test Setup

Date of Test:	30 Aug. 2018
Input Voltage:	See 2.2
Operational Mode:	See 3.1
Temperature	23 °C
Relative Humidity	51 %

Table 5: Electrostatic Discharge

Setting:

Test point	Polarity	Number of Discharges	Observation	Result
H.C.P.	+/- 4 kV	20	normal function	PASS
V.C.P.	+/- 4 kV	20	normal function	PASS

No abnormalities were observed during and after the tests.

Note: There is no enclosure case on the subject sample, only H.C.P. and V.C.P. discharge method was performed during this test.

5.2 Input and Output AC Power Ports

5.2.1 Conducted Disturbances

Port:	AC Mains	
Product Standard:	EN 301 489-3	
Basic Standard:	IEC/EN 61000-4-6	
Performance Criteria:	Transmitters:	CT
	Receivers:	CT
Test Specification:	EN 301 489-1	
	Frequency Range:	0.15 - 80 MHz
	Voltage Level:	3 Vrms (unmodulated)
	Modulation:	AM 80%, 1kHz sine wave

Result:**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.2 Fast Transients Common Mode

Port:	AC Mains	
Product Standard:	EN 301 489-3	
Basic Standard:	IEC/EN 61000-4-4	
Performance Criteria:	Transmitters:	TT
	Receivers:	TT
Test Specification:	EN 301 489-1	
	Peak Voltage:	1.0 kV
	T _r /T _n	5/50 ns
	Rep. Frequency	5 kHz

Result:**N/A**

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.3 Surges

Port:	AC Mains		
Product Standard:	EN 301 489-3		
Basic Standard:	IEC/EN 61000-4-5		
Performance Criteria:	Transmitters:	TT	
	Receivers:	TT	
Test Specification:	EN 301 489-1		
	Peak Voltage:	1.0 kV (line to line)	
		2.0 kV (line to ground)	
	T_r/T_h	1,2/50 μ s	

Result:	N/A
----------------	------------

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.2.4 Voltage Dips and Interruptions

Port:	AC Mains		
Product Standard:	EN 301 489-3		
Basic Standard:	IEC/EN 61000-4-11		
Test Specification:	EN 301 489-1		
	Test Level:	100% U_T for Voltage Reductions, no. of 250 periods	
		100% U_T for Voltage Reductions, no. of 0.5 period	
		100% U_T for Voltage Reductions, no. of 1 period	
		30% U_T for Voltage Reductions, no. of 25 period	

Result:	N/A
----------------	------------

The subject sample is not intended to be connected to AC mains supply. Therefore, this test is not applicable.

5.3 Signal and Telecommunication Ports

5.3.1 Fast Transients Common Mode

Port:	Signal / Telecommunication Ports	
Product Standard:	EN 301 489-3	
Basic Standard:	IEC/EN 61000-4-4	
Performance Criteria:	Transmitters: TT	
	Receivers: TT	
Test Specification:	EN 301 489-1	
	Peak Voltage:	0.5 kV
	T _r /T _n	5/50 ns
	Rep. Frequency	5 kHz

Result:

N/A

There are no signal lines and control lines on subject sample. Therefore, this test is not applicable.

5.3.2 Conducted Disturbances

Port:	Signal / Telecommunication Ports	
Product Standard:	EN 301 489-3	
Basic Standard:	IEC/EN 61000-4-6	
Performance Criteria:	Transmitters: CT	
	Receivers: CT	
Test Specification:	EN 301 489-1	
	Frequency Range:	0.15 - 80 MHz
	Voltage Level	3 Vrms (unmodulated)
	Modulation:	AM 80%, 1kHz sine wave

Result:

N/A

There are no signal lines and control lines on subject sample. Therefore, this test is not applicable.

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5.3.3 Surges

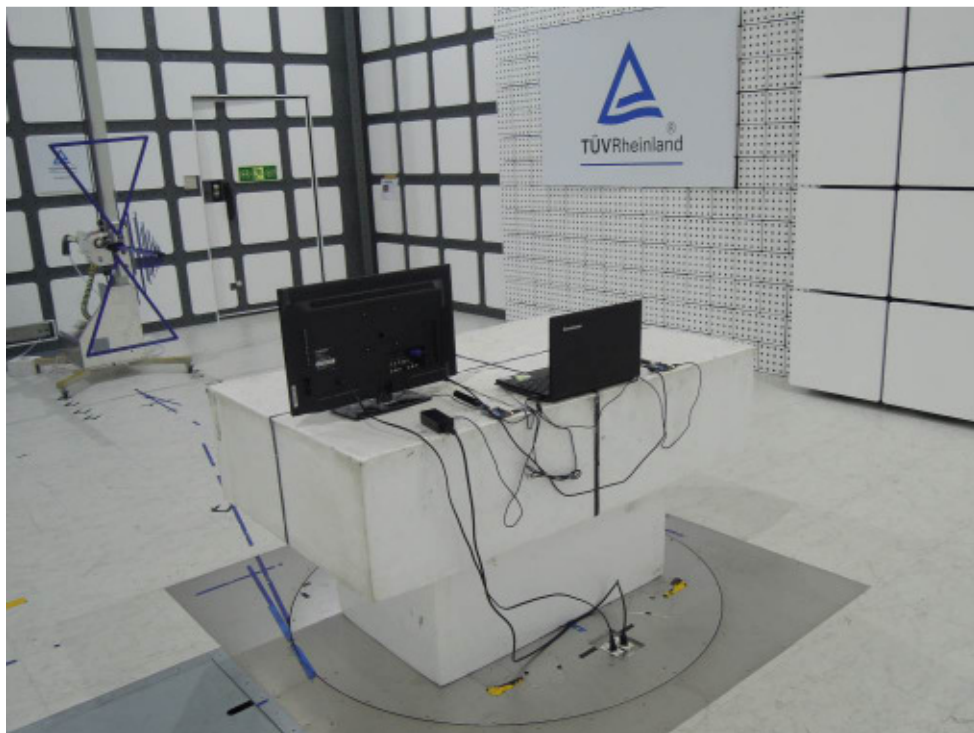
Port: Signal / Telecommunication ports
Product Standard: EN 301 489-3
Basic Standard: IEC/EN 61000-4-5
Performance Criteria: Transmitters: TT
Receivers: TT
Test Specification: EN 301 489-1
Peak Voltage: 1.0 kV
 T_r/T_h 1,2/50 μ s

Result:**N/A**

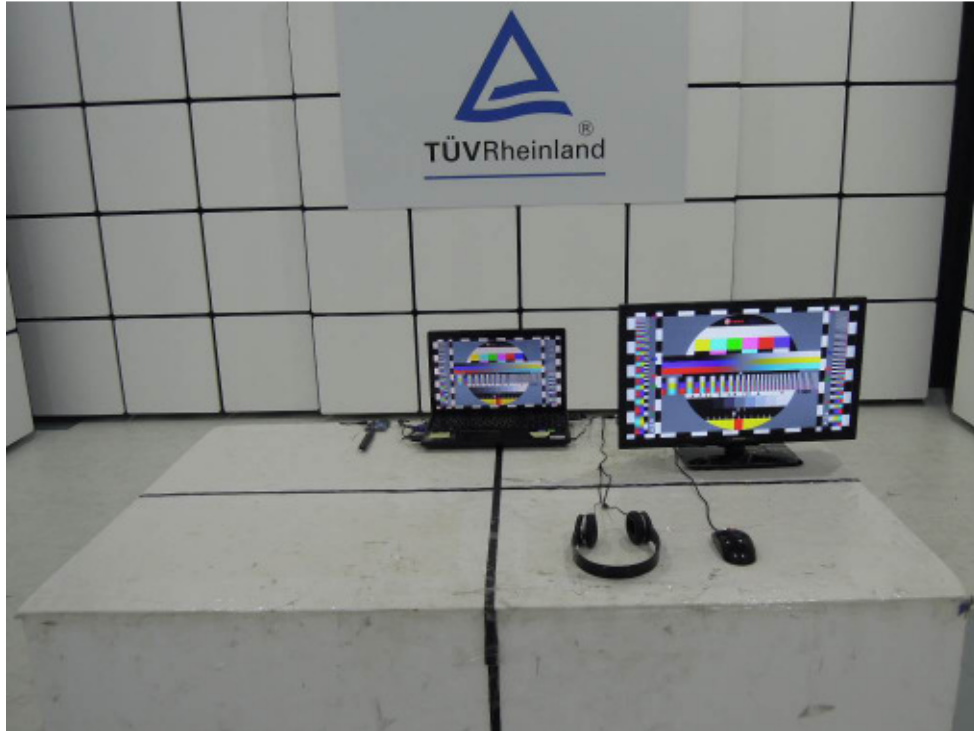
The subject sample is not connected directly to outdoor cable. Therefore, this test is not applicable.

6 Photographs of the Test Set-up

Picture 1: Radiated Emission, 30 - 1000 MHz (EN 301 489-3 V1.6.1)



Picture 2: Radiated Emission, 30 - 1000 MHz (EN 301 489-3 V2.1.1)



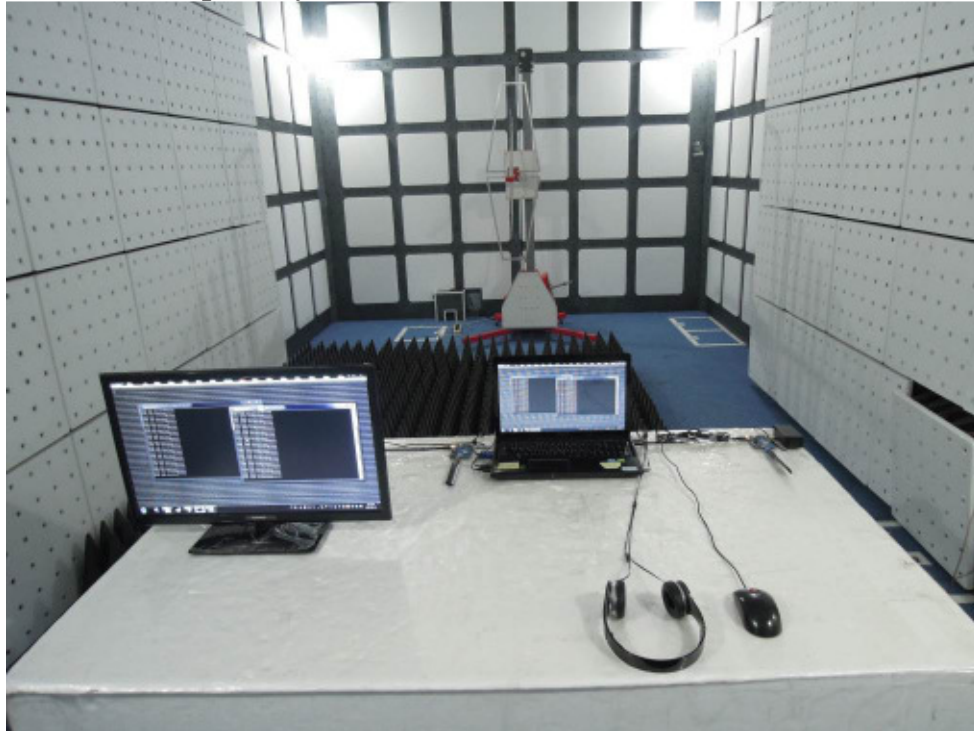
Picture 3: Radiated Emission, Above 1 GHz (EN 301 489-3 V1.6.1)



Picture 4: Radiated Emission, Above 1 GHz (EN 301 489-3 V2.1.1)



Picture 5: Radiated Susceptibility



Picture 6: Electrostatic Discharge



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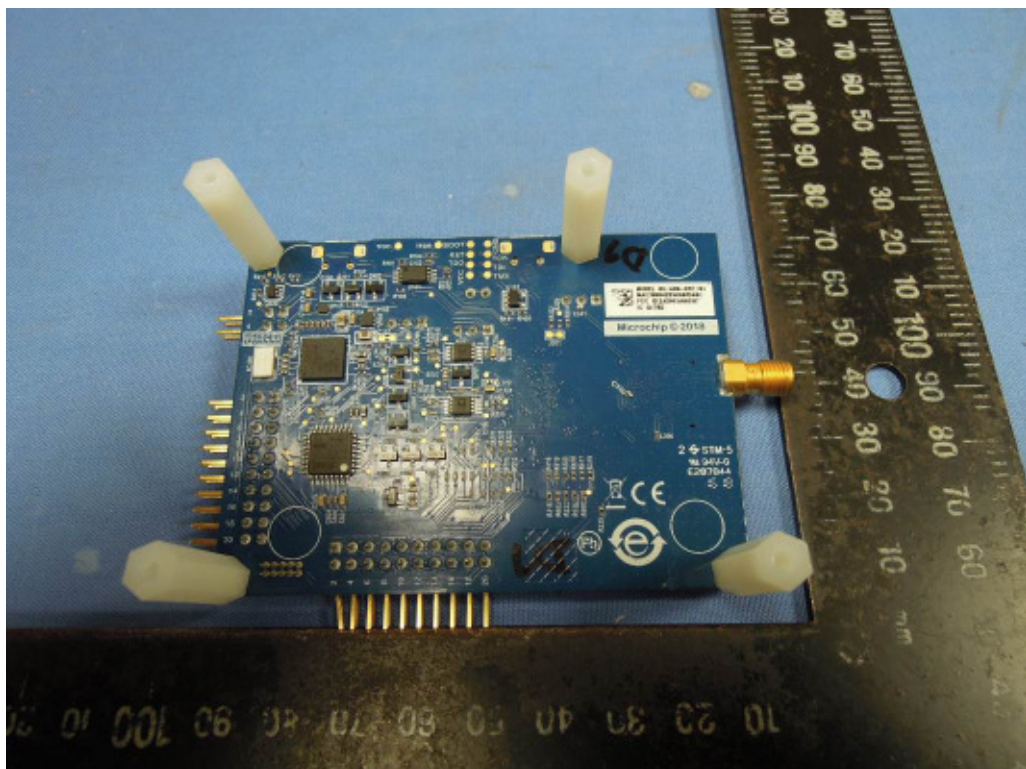
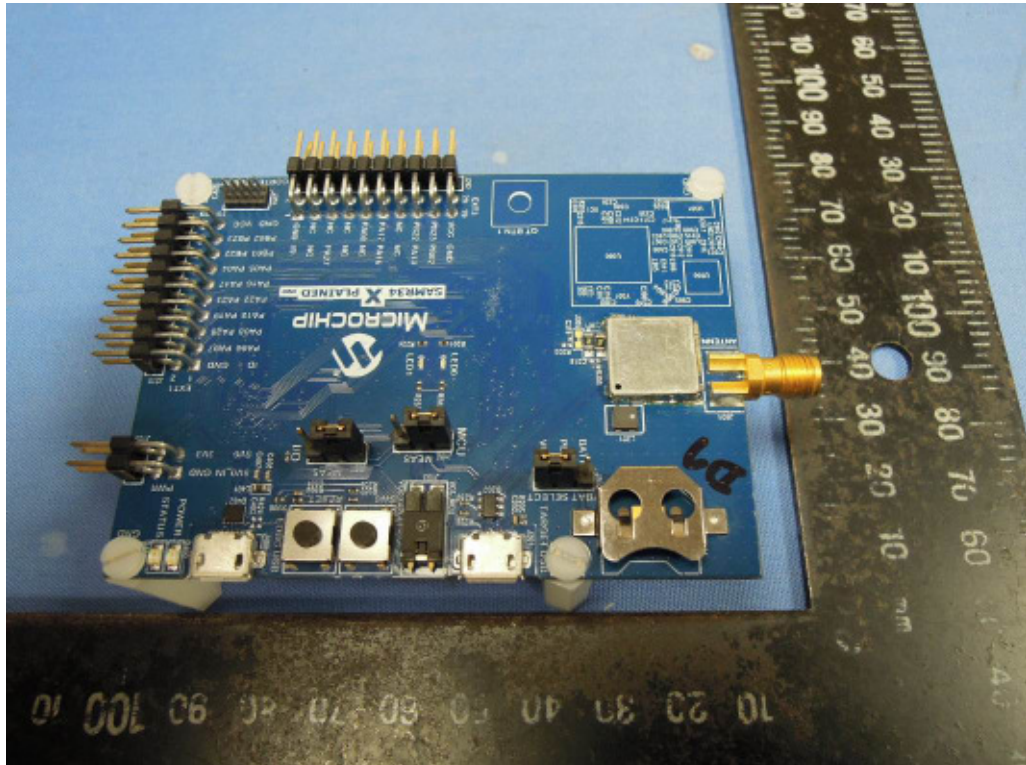
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Product: SAM R34 Xplained Pro Evaluation Kit

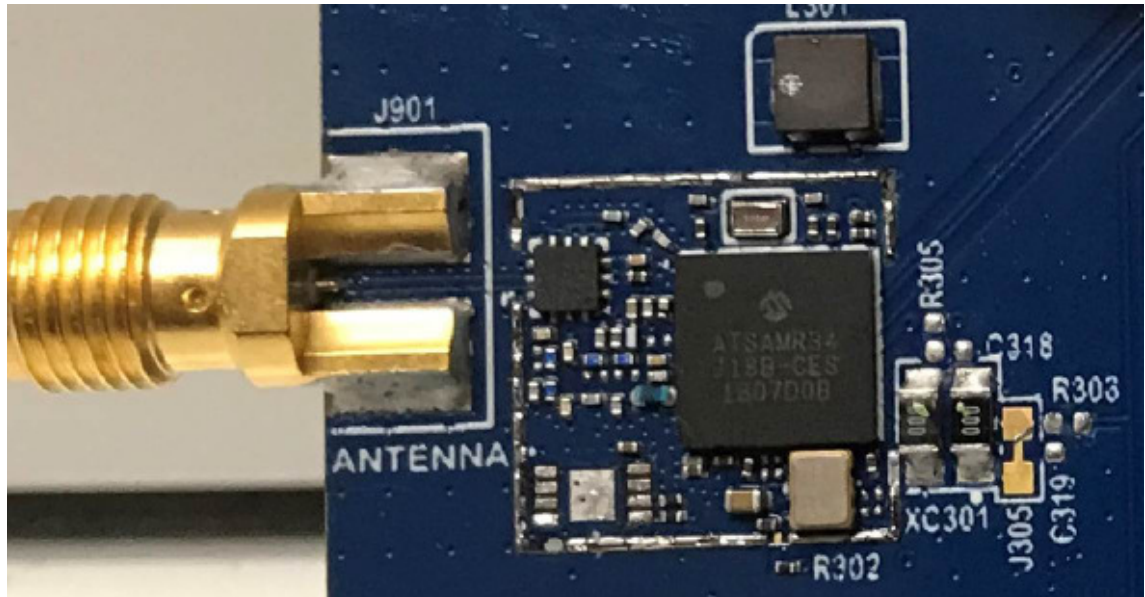
Type Designation: A09-3167



Product: SAM R34 Xplained Pro Evaluation Kit

Type Designation: A09-3167

RF Section without U301.



RF Section with U301.

