



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
2595ERM.003A1

Test report

**FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition)
&
ICES-003 ISSUE 6 – Update April (2017)**

Identification of item tested	Smart Cooking Sensor
Trademark	Safera
Model and /or type reference	IFU10B
Other identification of the product	FCCID: 2AT88-1000021194
Features	Bluetooth LE
Manufacturer	SAFERA OY Tekniikantie 4B, 02150 Espoo, Finland.
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-18 Edition) ICES-003 ISSUE 6 – Update April (2017)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager
Date of issue	01-30-2020
Report template No	FDT08_21

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

	Frequency (MHz)	U(k=2)	Units
Conducted emission	0,009 - 30	2.69	dB
Radiated emission	30-180	3.82	dB
	180-1000	2.61	dB
	1000-18000	2.92	dB
	18000-40000	2.15	dB

Data provided by the client

Bluetooth Low Energy.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
2595B.001	EMC Commercial Test Sample	21092 01	----	07/23/2019

Sample S/01 was used in following testing: Radiated Emission

Test sample description

Ports..... :	Port name and description		Cable				
			Specified length [m]	Attached during test	Shielded		
	No Ports in Final product			☐	☐		
				☐	☐		
Supplementary information to the ports..... :		Not provided data					
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☐	DC:					
	☒	DC: For the final product: 3 x AA Alkaline batteries as power supply. Operational voltage from 3.0 V to 5.0 V. For testing purposes, power is wired externally to some sample units. This is done to make it possible to use an external power supply. When using an external power supply, allowed voltages are 3.0 VDC to 5.0 VDC.					
Rated Power	Max. peak current consumption 150 mA						
Clock frequencies	64 MHz processor main clock. 32.768 kHz RTC auxiliary clock						
Other parameters..... :	Data Not Provided						
Software version	1.0.0						
Hardware version..... :	B						
Dimensions in cm (L x W x D)	Data Not Provided						
Mounting position..... :	☐	Table top equipment					
	☒	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					

Modules/parts	Module/parts of test item	Type	Manufacturer
	<i>Sensor Unit</i>		<i>Safera</i>
Accessories (not part of the test item)	Description	Type	Manufacturer
	<i>Power Supply (Only for testing)</i>		
	<i>Battery Holder (Only for testing)</i>		
Documents as provided by the applicant.....	Description	File name	Issue date
	<i>FDT30_14 Declaration Equipment Data SLI 4.pdf</i>		13-08-2019
Copy of marking plate:			
			

Identification of the client

SAFERA OY

Tekniikantie 4 B, 02150 Espoo, Finland.

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	07-23-2019
Date (finish)	07-23-2019

Document history

Report number	Date	Description
2595ERM.003	01-15-2020	First release
2595ERM.003A1	01-30-2020	2 nd release

Modifications to the reference test report

The following modifications in the test report number 2595ERM.003 related with the same samples, in the next clauses and sub-clauses:

Clauses/ Sub-Clauses	Modification	Justification
Page 9/ List of equipment used during the test	Removed Horn Antenna 3116C to correct details	Typographic error

This modification in test report cancels and replaces the test report 2595ERM.003

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semi anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Nasir Khan and Poojita Bhattu

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

Emission Test			
Report Section	Requirement – Test case	Verdict	Remark
A.1.	Radiated emission electromagnetic field test (30 MHz – 1000 MHz)	P	N/A
A.1.	Radiated emission electromagnetic field test (1 GHz – 18 GHz)	P	N/A
-.	Radiated emission electromagnetic field test (18 GHz – 40 GHz)	N/A	Refer 1
-.	Conducted emission test (150 kHz to 30 MHz)	N/A	Refer 2
<u>Supplementary information and remarks:</u> - As per standard 47 CFR §15.33 due to the highest frequency generated or used in the device is above 1000MHz the upper frequency of measurement range is up to 5th harmonic of the highest frequency or 40GHz, whichever is lower. - DUT is a module and not the final product, battery powered.			

List of equipment used during the test

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
0981	Preamplifier	BONN ELEKTRONIK	BLMA 0118-2A	2018/10	2020/10
0982	Preamplifier	BONN ELEKTRONIK	BLMA1840-1M	2018/10	2020/10
1012	EMI Test Receiver	ROHDE & SCHWARZ	ESR26	2018/09	2020/09
1017	EMC measurement software	ROHDE & SCHWARZ	EMC32 V9.01	---	---
1039	Signal Analyser	ROHDE & SCHWARZ	FSV40	2018/10	2020/10
1058	Horn Antenna	ETS LINDGREN	3115	2017/03	2020/03
1065	Biconilog Antenna	ETS LINDGREN	3142E	2017/03	2020/03

Appendix A: Test results

Appendix A Content

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DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. Every operation mode takes failure criteria for the immunity test that they were applying to it and a monitoring to guarantee performance of the same ones.

The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01*	EUT ON. Stand Alone basis. Battery Powered.

*Worst configurations detected

A.1.RADIATED EMISSION. ELECTROMAGNETIC FIELD TEST

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017); ANSI C63.4 (2014)

Limits of interference Class B

The applied limit for radiated emissions, 3 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 15, Subpart B (10-01-18 Edition), Secs. 15.109 & ICES-003 Issue 6 – Update April (2017) in the frequency range 30 MHz to 40 GHz for class B equipment.

Frequency range (MHz)	QP Limit for 3 m	
	(μ V/m)	(dB μ V/m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46
Above 960	500	54

Frequency range (MHz)	AVG Limit for 3 m		PK Limit for 3 m (1)
	(μ V/m)	(dB μ V/m)	(dB μ V/m)
Above 1000	500	54	74

Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30-1000 MHz (Bilog antenna) and at a distance of 1m for the frequency range 1-40 GHz (1 GHz-18 GHz and 18 GHz-40 GHz Double ridge horn antennas).

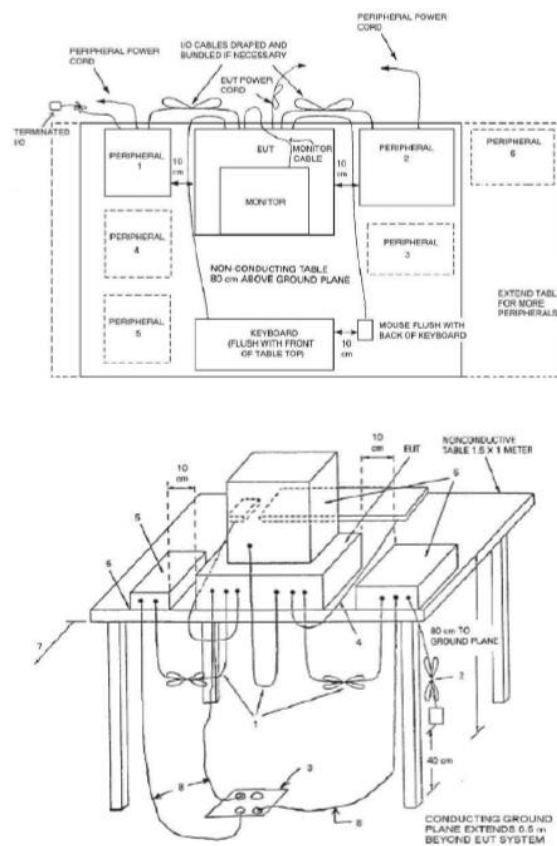
For radiated emissions in the range 1-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (Cont.)



TESTED SAMPLES:

S/01

TESTED OPERATION MODES:

OM#01

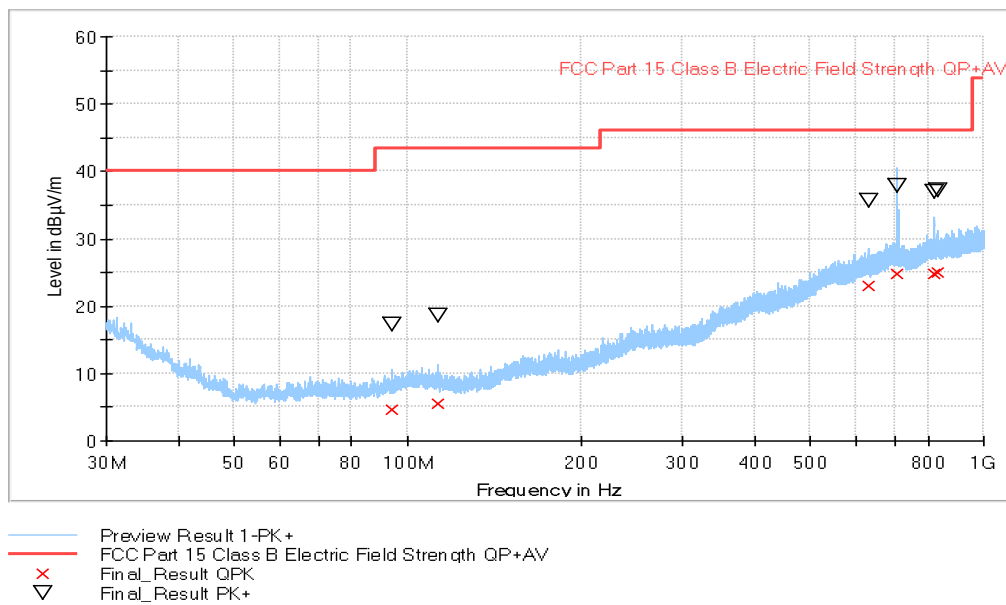
TEST RESULTS:

CRmmnnxx: CR, Radiation Condition; mm: Sample number; nn: Operation mode.,xx:Range,

CRmmnnxx	Description	Result
CR0101LR	Range: 30 MHz - 1000 MHz Horizontal Polarization	P
CR0101LR	Range: 30 MHz - 1000 MHz Vertical Polarization	P
CR0101HR1	Range: 1-18 GHz Horizontal Polarization	P
CR0101HR1	Range: 1-18 GHz Vertical Polarization	P

Radiated Emission. CR0101LR

Project: 02595ERM003
Company: SAFERA
Sample: S/01
Operation mode: OM#01
Description: EUT ON. Standalone. Battery Powered. Both polarizations.

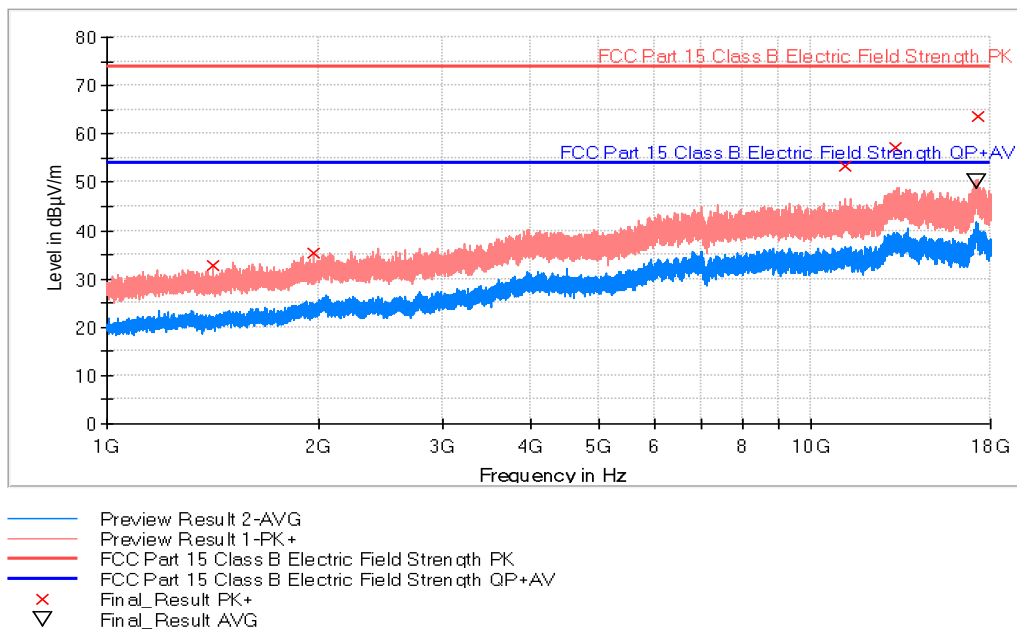


Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
93.639498	---	17.23	---	---	300.0	H	-35.0
93.639498	4.61	---	40.00	35.39	300.0	H	-35.0
112.879315	---	18.66	---	---	211.0	H	98.0
112.879315	5.46	---	40.00	34.54	211.0	H	98.0
630.959199	---	35.72	---	---	210.0	V	-165.0
630.959199	22.97	---	47.00	24.03	210.0	V	-165.0
704.679167	---	37.88	---	---	269.0	V	99.0
704.679167	24.74	---	47.00	22.26	269.0	V	99.0
817.599141	---	36.96	---	---	259.0	V	82.0
817.599141	24.77	---	47.00	22.23	259.0	V	82.0
832.281000	---	37.29	---	---	100.0	V	-11.0
832.281000	24.94	---	47.00	22.06	100.0	V	-11.0

Radiated Emission. CR0101HR1

Project: 02595ERM003
Company: SAFERA
Sample: S/01
Operation mode: OM#01
Description: EUT ON. IDLE. Battery Powered. Both polarizations.



Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
1413.005000	32.74	---	73.90	41.16	226.0	V	87.0
1970.207715	35.42	---	73.90	38.48	232.0	H	-4.0
11170.486000	53.25	---	73.90	20.65	203.0	V	-106.0
13214.029000	57.33	---	73.90	16.57	190.0	H	0.0
17176.628143	---	50.08	53.90	3.82	121.0	V	-33.0
17241.535286	63.57	---	73.90	10.33	232.0	V	29.0