

Test report No:
 NIE: 66865REM.001

Test report

FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 7 (October 2020)

(*) Identification of item tested	Door zone sensor for lift car positioning
(*) Trademark	KONE
(*) Model and /or type reference	KCEDZS (KM1362305G30)
Other identification of the product	HW version: rev1.02 SW version: 4.0.0.0 FCC ID: 2ALQBKCEDZS IC: 4228A-KCEDZS Kone Reference Number: 51793177D09
(*) Features	RFID
Manufacturer	KONE CORPORATION Keilasatama 3 02150 ESPOO, FINLAND
Test method requested, standard	FCC Rules and Regulations CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 7 (October 2020)
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager
Date of issue	2021-07-13
Report template No	FDT08_23 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
Code	EMC Test Code
Freq Rng	Frequency Range
OM	Operation Mode
S/	Sample
V	Verdict

Competences and guarantees

DEKRA Testing and Certification S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

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

DEKRA Testing and Certification S.A.U. 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 Testing and Certification S.A.U. at the time of performance of the test.

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

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Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $l = \pm 4,9$ dB for quasi-peak measurements, $l = \pm 4,6$ dB for peak measurements ($k = 2$).

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 12.75 GHz is $l = \pm 2,6$ dB for peaks and average measurements ($k = 2$).

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample consists of a Door zone sensor for lift car positioning. Radio product designed for lift application, installed in the car and providing the lift car positioning. This product has two different variants:
 - KM1362305G22
 - KM1362305G30

whose only difference is the size and material of the outer shell.

DEKRA Testing and Certification S.A.U. 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.

Id	Control Number	Description	Model	Serial N°	Date Reception	of	Application
S/01	66865B_1.1	Powerbox AB	OFW1005128-05	KM937469G01	2021-02-26		Element Under Test
S/01	66865B_3.1	Harness	LIYCY TP 4x2x0.25 shield not connected	KM796341G10500	2021-02-26		Element Under Test
S/01	66865B_9.1	Door zone sensor for lift car positioning	KCEDZS	KM1362305G30	2021-04-09		Element Under Test
S/01	66865B_2.1	Cable	2x1.5mm2, not shielded	---	2021-02-26		Element Under Test

Notes referenced to samples during the project:

None.

Test sample description

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	KCEDZS J3	12m	[X]	[X]	[]		
		[]	[]	[]		
Supplementary information to the ports..... :						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:	[]	[]	[]	[]	[]
	[X]	DC: 9 – 32 VDC					
Rated Power	1.7W typical						
Clock frequencies.....	13.56MHz (RFID), 12MHz (crystal), 72MHz (core)						
Other parameters	Typical supply current: 70 mA, max 180mA						
Software version	4.0.0.0						
Hardware version	rev1.02						
Dimensions in cm (W x H x D)	58.6 x 242.3 x 50mm						
Mounting position	[]	Table top equipment					
	[X]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[]	Other:					
Modules/parts..... :	Module/parts of test item		Type		Manufacturer		
	KCEDZS main board		KM51052247G30/B rev. 0.01		KONE		
	KCEDZS sensor board		KM989398G02/C rev. 0.07		KONE		
	KCEDZS PLASTIC ENCLOSURE		KM51464479V000		KONE		
	KCEDZS PLASTIC ENCLOSER, CAP		KM51464529V000		KONE		

Accessories (not part of the test item)	Description	Type	Manufacturer
	KCE 24Vdc power supply	KM51094148G03	KONE

Documents as provided by the applicant	Description	File name	Issue date
	LAB-01.92.889 (EMC test plan)

⁽³⁾ Only for Medical Equipment

Identification of the client

KONE Oyj
 Myllykatu 3
 05801, Hyvinkää, FINLAND

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-04-15
Date (finish)	2021-04-15

Document history

Report number	Date	Description
66865REM.001	2021-07-13	First release

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. = 860mbar Max. = 1060mbar

In the semianechoic 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. = 860mbar Max. = 1060mbar

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. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Rosa Maria Gallardo Perez & Antonio Ruiz.

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P

List of equipment used during the test

Control Number	Description	Model	Manufacturer	Next Calibration
2942	EMI TEST RECEIVER 20Hz-40GHz	ESU40	ROHDE AND SCHWARZ	2021-09-17
4523	EMI TEST RECEIVER 20Hz-26.5GHz	ESU26	ROHDE AND SCHWARZ	2023-03-15
4612	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2021-06-14
5641	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2021-07-31
6064	SEMIANECHOIC ABSORBER LINED CHAMBER III	SAC-3	Frankonia	---
6121	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2021-10-01
6126	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2022-04-05
6132	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2022-04-05
6195	PRE-AMPLIFIER G>55dB 1-18GHz	AMF-7D-01001800-22-10P	NARDA	2021-05-19
6329	SHIELDED ROOM		FRANKONIA	---

Summary

Test Specification.	Requirement – Test case	Verdict	Remark
FCC 47 CFR Part 15B, Subpart B & ICES-003 Issue 7	RE Radiated emission. Electromagnetic field measure	Pass	---
FCC 47 CFR Part 15B, Subpart B & ICES-003 Issue 7	CE - Continuous conducted emission	N/A	(1)

Supplementary information and remarks:

1. The test is not applicable, not required by the standard. Equipment is powered in DC.

Appendix A: Test results

Appendix A content

DESCRIPTION OF THE OPERATION MODES	13
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<i>RE Radiated emission. Electromagnetic field measure</i>	15

Description of the operation modes

The operation modes described in this paragraph constitute a functionality of the sample under test for itself.
The operation modes used by the samples to which the present report refers, are shown in the following table:

Id	Description
OM/01	EUT ON. RFID OFF. Power supply: 24 Vdc

Test standards version applied

The product standards and test standards applied for each test cases are shown in the following table:

Product Test Standard	Test standard	Requirement – Test case
FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 7 (October 2020)	ANSI C63.4 (2014)	RE Radiated emission.

Test Cases Details

FCC CFR 47, Part 15, Subpart B (10-1-19 Edition) & ICES-003 Issue 7 (October 2020) RE Radiated emission. Electromagnetic field measure

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 (10-1-19 Edition), Secs. 15.109 & ICES-003 Issue 7 (October 2020):

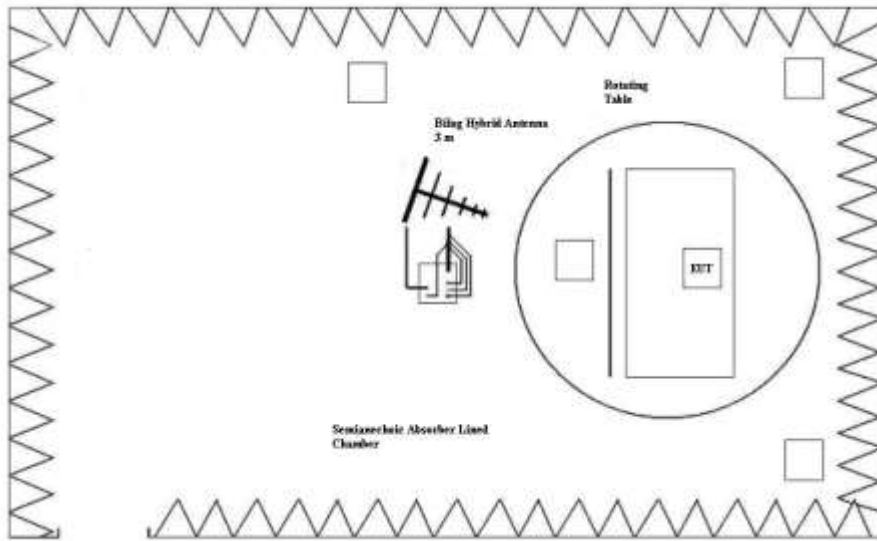
Table 2: Radiated emission limits

Frequency range (MHz)	FCC Part 15B Class B (3 m) Quasi-Peak (dBµV/m)	ICES-003 Issue 7 Limit for 3 m Quasi-Peak (dBµV/m)	FCC Part 15B & ICES-003 Issue 7	
			PK Limit for 3m (dBµV/m)	AVG Limit for 3m (dBµV/m)
30-88	40.0	40.0	---	---
88-216	43.5	43.5	---	---
216-230	46.0	46.0	---	---
230-960	46.0	47.0	---	---
960-1000	54.0	54.0	---	---
1 GHz – F _M	---	---	74	54

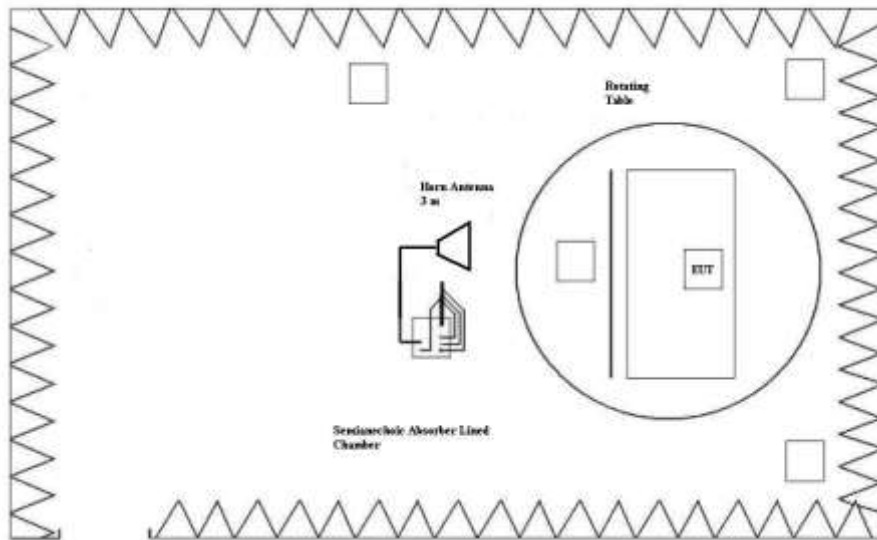
Above 1 GHz, except for outdoor units of home satellite receiving systems, the ITE or digital apparatus shall comply with the limits specified in table 2 up to the frequency F_M, which shall be determined as per table 3.

Table 3: Required highest measurement frequency for radiated emission

Highest internal Frequency (F _x)	Highest measurement Frequency (F _M)
F _x ≤ 108 MHz	1 GHz
108 MHz < F _x ≤ 500 MHz	2 GHz
500 MHz < F _x ≤ 1 GHz	5 GHz
F _x > 1 GHz	5 x F _x up to a maximum of 40 GHz
*F _x is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.	



Setup for measurements < 1GHz.



Setup for measurements > 1GHz.

Results

S/	OM	Code	Freq Rng (MHz)	V
01	OM/01	RE0101LR	[30, 1000]	P
01	OM/01	RE0101HR	[1000, 12750]	P

Note: Range: $f > 12.75$ GHz. Test required only if the 5th harmonics of the maximum internal work frequency EUT is higher than 12.75GHz.

Verdict

Pass

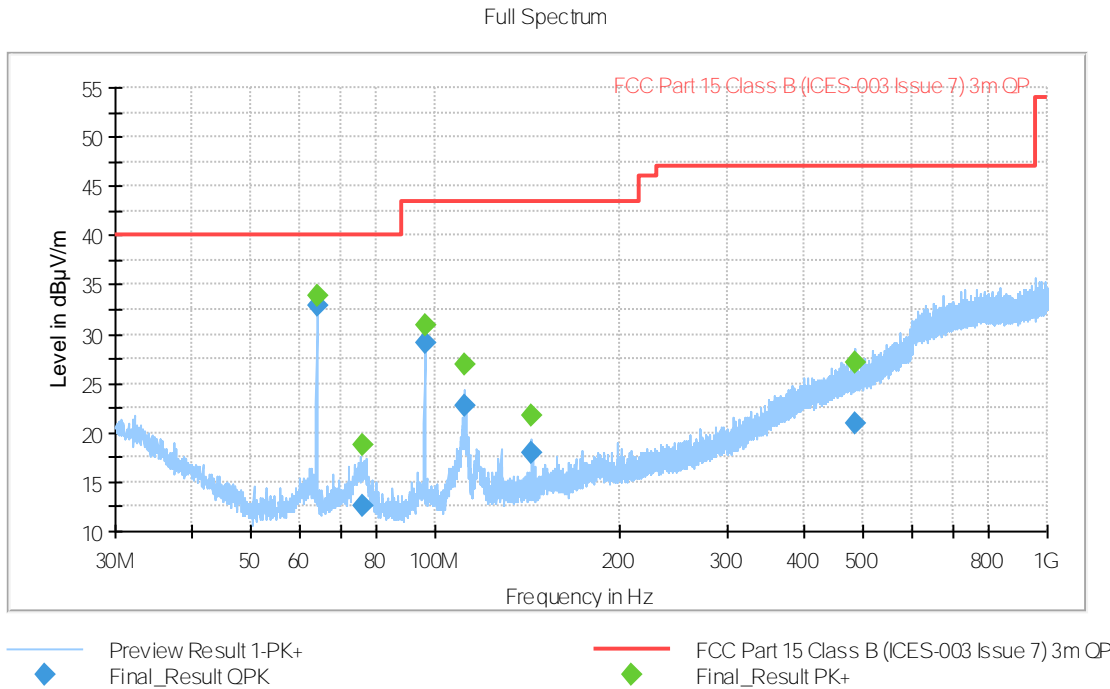
Attachments

EMC Test Code = RE0101LR, Frequency Range MHz = [30, 1000]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. RFID OFF. Power supply: 24 Vdc.

Images:



Documents:

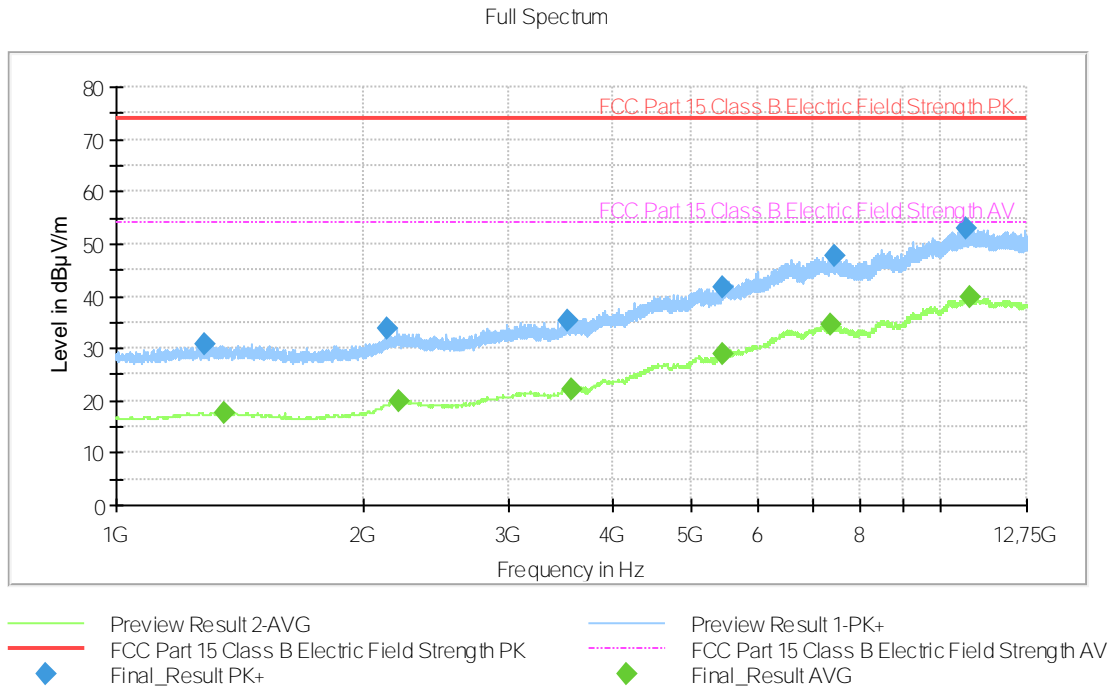
Frequency(MHz)	QuasiPeak(dBµV/m)	MaxPeak(dBµV/m)	Limit(dBµV/m)	Margin(dB)	Height (cm)	PoI	Azimuth (deg)
64.001000	32.85	---	40.00	7.15	181.0	V	-64.0
64.001000	---	33.87	---	---	181.0	V	-64.0
76.288000	---	18.72	---	---	118.0	V	-83.0
76.288000	12.49	---	40.00	27.51	118.0	V	-83.0
96.010000	29.14	---	43.52	14.38	120.0	V	122.0
96.010000	---	30.90	---	---	120.0	V	122.0
112.012000	---	26.91	---	---	122.0	V	41.0
112.012000	22.82	---	43.52	20.70	122.0	V	41.0
144.009000	17.88	---	43.52	25.64	100.0	V	-22.0
144.009000	---	21.84	---	---	100.0	V	-22.0
485.230000	20.91	---	47.00	26.09	229.0	H	131.0
485.230000	---	27.22	---	---	229.0	H	131.0

EMC Test Code = RE0101HR, Frequency Range MHz = [1000, 12750]

Sample ID: S/01

Operation Mode: OM/01. EUT ON. RFID OFF. Power supply: 24 Vdc.

Images:



Documents:

Frequency(MHz)	MaxPeak(dBµV/m)	Average(dBµV/m)	Limit(dBµV/m)	Margin(dB)
1282.000000	30.82	---	73.97	43.15
1352.000000	---	17.81	53.97	36.16
2135.200000	33.72	---	73.97	40.25
2201.600000	---	20.06	53.97	33.91
3531.600000	35.16	---	73.97	38.81
3569.200000	---	22.25	53.97	31.72
5456.400000	41.80	---	73.97	32.17
5456.800000	---	28.99	53.97	24.98
7374.000000	---	34.70	53.97	19.27
7433.200000	47.85	---	73.97	26.12
10744.000000	53.06	---	73.97	20.91
10853.200000	---	39.72	53.97	14.25