

Applicant: Elatec GmbH Zeppelinstraße 1 82178 Puchheim Tel.: +49 89 5529961-0

Test report no.:

200632-AU02+W09 for: Elatec GmbH RFID reader / writer TWN4 Slim LEGIC

> according to: Part 2 RSS 102







Page 2 of 25

Note:

Element Materials Technology Straubing GmbH is the legal successor of EMV Testhaus GmbH. Therefore, until the ongoing procedure for renaming the conformity assessment body applied for at German Accreditation Body DAkkS is completed, the certificates and appropriate annexes of EMV Testhaus GmbH are referred to.

Accreditation:



FCC test firm accreditation expiration date: 2021-05-30 MRA US-EU, FCC designation number: DE0010 FCC registration number: 97268 BnetzA-CAB-02/21-02/5 Valid until 2023-11-26



Recognized on March 14th, 2019 by the Department of Innovation, Science and Economic Development (ISED) Canada as a wireless testing laboratory CAB identifier: DE0011 ISED#: 3472A

Location of Testing:

Element Materials Technology Straubing GmbH Tel.: +49 9421 56868-0 Fax: +49 9421 56868-100 Email: info.straubing@element.com Gustav-Hertz-Straße 35 94315 Straubing, Germany

The technical accuracy is guaranteed through the quality management of Element Materials Technology Straubing GmbH.



Table of contents

1	Sur	mmary of test results	5
2	Tes	st regulations	6
3	Equ	uipment under test (EUT)	7
	3.1	General information	7
	3.2	Photographs of EUT	8
4	Tes	st results	9
	4.1	FCC	10
	4.2	Canada	12
5	Εqι	uipment calibration status	23
6	Me	asurement uncertainty	24
7	Rev	vision history	25



List of pictures

Picture 1: Setup of magnetic field test at a measurement distance of 0 cm	13
Picture 2: Setup of electric field test at a measurement distance of 0 cm	14

List of tables

Table 1: Result of SAR test exclusion, exposure to the head and body	11
Table 2: EUT used for testing	12
Table 3: Support equipment used for testing	12
Table 4: Electric field strength reference levels	15
Table 5: Magnetic field strength reference levels	15
Table 6: Limb exposure limit relaxation	16
Table 7: Electrical field strength at a distance of 0 cm, nerve stimulation of the body	17
Table 8: Magnetic field strength at a distance of 0 cm, nerve stimulation of the body	17
Table 9: Result of SAR test exclusion, exposure to the head and body	19
Table 10: Result of SAR test exclusion, exposure to the head and body	20
Table 11: SAR exemption limits	21
Table 12: Result of SAR exemption, simultaneous transmissions	



Page 5 of 25

1 Summary of test results

FCC standard Requirement		Page	Result	Note(s)
Part 2, § 2.1093	SAR test exclusion, except WPT	10	Passed	

IC standard	Requirement	Page	Result	Note(s)
RSS-102 Issue 5, section 2.5.1	Frequency range 3 kHz up to 10 MHz	12	Passed	
RSS-102 Issue 5, section 2.5.1	SAR test exclusion, except 3 kHz – 10 MHz	18	Passed	
RSS-102 Issue 5, section 2.5.1	Simultaneous transmissions SAR test exclusion, except 3 kHz – 10 MHz	21	Passed	

Straubing, February 8, 2021

Riedel lér 114

Jennifer Riedel B. Eng. Radio Test Engineer

Lamad Spape

Konrad Graßl Department Manager Radio



2 Test regulations

Standard	Title
RSS-102 Issue 5 March 2015	Spectrum Management and Telecommunications Radio Standards Specification Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)
SPR-002 Issue 1 September 2016	Spectrum Management and Telecommunications Supplementary Procedure Supplementary Procedure for Assessing Compliance with RSS-102 Nerve Stimulation Exposure Limits
Safety Code 6 (2015)	Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz
Notice 2016-DRS001 September 20, 2016 Updated July 2020	Applicability of Latest FCC RF Exposure KDB Procedures and Other Procedures
KDB 447498 D01 v06	Mobile and portable devices RF Exposure procedures and equipment authorisation policies, October 23, 2015.
IEEE C95.3-2002 (R2008) Approved December 11, 2002 Reaffirmed June 12, 2008	IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz–300 GHz
KDB 680106 D01 May 31, 2013 (published by the Federal Communications Commission FCC)	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications
OET Bulletin 65, 65A, 65B Edition 97-01, August 1997	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields
Part 1, Subpart I, Section 1.1310	Radiofrequency radiation exposure limits
Part 1, Subpart 2, Section 2.1091	Radiofrequency radiation exposure evaluation: mobile devices.
Part 1, Subpart 2, Section 2.1093	Radiofrequency radiation exposure evaluation: portable device
KDB 447498 D01 v06	Mobile and portable devices RF Exposure procedures and equipment authorisation policies, October 23, 2015.
KDB 865664 D01	SAR Measurement Requirements for 100 MHz to 6 GHz, August 7, 2015.
ANSI C95.1: 2005	IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
ANSI C63.10 June 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Page 7 of 25



3

Equipment under test (EUT)

3.1 General information

Product type:	RFID reader / writer	
Model Name:	TWN4 Slim LEGIC	
HVIN:	20207	
Manufacturer:	Elatec GmbH	
Serial number:	2021024617	
Version:	Hardware:	В
	Software:	B1.09/NKB3.22/STD2.03/B/BT1.07EL
Short description:		r / writer operating at the frequencies 125 Additionally, a fully certified Bluetooth Low o integrated.
FCC ID:	WP5TWN4F16	
IC certification number:	7948A-TWN4F16	
FCC ID of integrated BLE module:	WP5EINTLEG1	
IC certification number of integrated BLE module:	7948A-EINTLEG1	
RF technology 1:		
Technology:	RFID	
Operating frequency :	125 kHz	
Antenna type:	Loop antenna	
	□ detachable	⊠ not detachable
RF technology 2:		
Technology:	RFID	
Operating frequency:	13.56 MHz	
Antenna type:	Loop antenna	⊠ not detachable
RF technology 3:		
Technology:	Bluetooth Low Energy	/
Operating frequency band:	2402 MHz to 2480 MH	Hz
Antenna type:	Chip antenna	
	□ detachable	⊠ not detachable



Page 8 of 25

Power supply:	DC supply nominal voltage: 5 V		
Exposure tier:	\boxtimes	Head	
	\boxtimes	Body	
		Limbs	
		other	
		See appropriate results	
Separation distance:	\boxtimes	≤ 20 cm	
		> 20 cm	
		See appropriate results	
Evaluated against exposure	\boxtimes	General public use	
limits:		Controlled use	

3.2 Photographs of EUT

See Annex B of test report 200632-AU02+W05 Test report of test laboratory Element Materials Technology Straubing GmbH.



4 Test results

This clause gives details about the test results as collected on page 5.

The climatic conditions are recorded during the tests. It is ensured that the climatic conditions are within the following ranges:

Ambient temperature	Ambient humidity	Ambient pressure	
15°C to 35°C	30 % to 75 %	86 kPa to 106 kPa	



Page 10 of 25

4.1 FCC

4.1.1 SAR test exclusion, except WPT

Reference: Basic standard:	Part 2, Section 2.1093 n/a		
Performed by:	Jennifer Riedel B. Eng.	Date of test:	February 8, 2021
Result:	⊠ Limits kept	□ Limits not kept	

4.1.1.1 Requirements and limits for separation distance ≤ 20 cm

This estimation follows the general guidelines for RF Exposure according to KDB 447498.

As noted in §2.103(b) For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

According §2.1093 (d)(i)(2): The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.



4.1.1.2 Results

The following data are based on applicants document: Test report 200632-AU02+W08 Test report of the test laboratory Element Materials Technology Straubing GmbH

RF technology 3:	
Application:	Bluetooth low energy
Operation frequency range:	2402 MHz – 2480 MHz
Antenna model	Chip antenna
Antenna connector:	none
Antenna type:	internal
	not detachable
Antenna gain:	0.5 dBi
Maximum conducted output power:	-0.74 dBm at 2402 MHz
Information related to Exposure:	
Tune-up tolerance (according to the manufacturer):	± 4 dB
Separation distance:	< 5 mm
Exposure tier:	general public
Power averaging over time:	Not applied

Separation distance (mm)	Channel Frequency (MHz)	rated power + tolerance (dBm)	Rounded rated power + tolerance (mW)	Rounded 1-g SAR	Limit 1-g SAR	Fraction of limit (%)	Result
< 5	2402	3.26	2.1	0.7	3.0	23.3	Passed

Table 1: Result of SAR test exclusion, exposure to the head and body



4.2 Canada

4.2.1 Frequency range 3 kHz up to 10 MHz

Requirement:	RSS-102 Issue 5, section 2.5.1					
Basic standard:	SPR-002 IEEE C95.3					
Performed by:	Jennifer Riedel B. Eng.	Date of test:	January 25, 2021			
Result (Note 1):	⊠ Test passed	□ Test not passed				

Note(s):

1. For information about measurement uncertainties see page 24.

4.2.1.1 Test configuration

Device	Type designation	Serial or inventory no.	Manufacturer
RFID reader / writer	TWN4 Slim LEGIC	2021024617	Elatec GmbH

Table 2: EUT used for testing

Device	Type designation	Serial or inventory no.	Manufacturer
RFID-tag	125 kHz		Elatec GmbH
Laptop	Lifebook A531	E001053	FUJITSU
Power supply for laptop	AC adapter	E001053	FUJITSU

Table 3: Support equipment used for testing

4.2.1.2 Mode of operation

The software "TWN4_NKx403_C6T106_CH00_125kHz.bix" was used. In this case, the EUT was continuously searching for the 125 kHz tag.

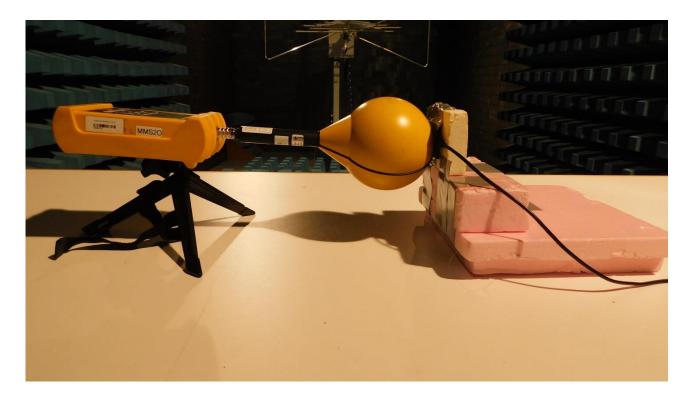


Page 13 of 25

4.2.1.3 Test equipment

Туре	Designation	Manufacturer	Inventory no.
Exposure level tester with magnetic field probe 100 cm ²	ELT-400 with BN 2300/90.10	Narda Safety Test Solutions GmbH	E00276
Broadband field meter	NBM-550	Narda Safety Test Solutions GmbH	E00900
Electric field probe	EF0691	Narda Safety Test Solutions GmbH	E00902

4.2.1.4 Test setup



Picture 1: Setup of magnetic field test at a measurement distance of 0 cm

Page 14 of 25





Picture 2: Setup of electric field test at a measurement distance of 0 cm



4.2.1.5 Limits

According to note 5 in section 2.5.1 of RSS-102:

Transmitters operating between 3 kHz and 10 MHz, meeting the exemption from routine SAR evaluation, shall demonstrate compliance to the instantaneous limits in section 4 of RSS-102. Therefore, these limits apply irrespective of the separation distance between the user or bystanders and the device.

The exposure limits in section 4 of RSS-102 are adopted from Health Canada's Safety Code 6.

According to section 2.1 of Safety Code 6:

Limits for internal electric field strength are intended to prevent the occurrence of nerve stimulation (NS). At frequencies between 3 kHz and 10 MHz, basic restrictions for internal electric field strength in excitable tissues as shown in table 1 of Safety Code 6 (i.e. table 2 of RSS-102) shall not be exceeded. For conditions where the determination of internal electric field strength is not possible or practical (e.g. by measurement or modelling), external unperturbed field strength assessment shall be carried out and the reference levels outlined in section 2.2 of Safety Code 6 shall be respected.

For transmitters operating between 3 kHz and 10 MHz, the requirements of table 4 and table 6 in section 4 of RSS-102 apply which are adopted from table 3 and table 4 of Safety Code 6, section 2.2:

Electric Field Strength Reference Levels							
	Reference Level (E _{RL}), (V/m, RMS)						
Frequency Range (MHz)	Reference Level Basis	Uncontrolled Controlled Environment Environment		Reference Period			
0.003 – 10 NS 83 170 Instantaneous (Note							

 Table 4: Electric field strength reference levels

Magnetic Field Strength Reference Levels								
Reference Level (H _{RL}), (A/m, RMS)								
Frequency Range (MHz)	Reference Level Basis	Uncontrolled Environment						
0.003 – 10	0.003 – 10 NS 90 180 Instantaneous (Note 1							

 Table 5: Magnetic field strength reference levels

Notes:

1 At no point in time shall the RMS values for electric- and magnetic-fields exceed the reference levels with an instantaneous reference period in table 4 and table 5. In the case of RF fields with amplitude modulation, the RMS value during the maximum of the modulation envelope shall be compared to the reference level.

According to section 6.5 of SPR-002:

The basic restrictions are based on internal induced electric field or SAR. The relationship between the induced field and that of the exposure area is proportional; thus, in cases where the limbs are the primary point of exposure, the induced field would be less than that induced in the trunk of the human body.

When assessing compliance at the compliance distance, where limb exposure is the primary exposed condition, the following table may be used for relaxation of the RSS-102 nerve stimulation reference levels.

Exposure condition	Relaxation factor
Whole Body / Torso / Head	1.0
Leg	1.5
Arm	2.5
Hand / foot	5.0

Table 6: Limb exposure limit relaxation

A second exposure evaluation must be taken at the distance at which the trunk of the body would rest in relation to the device under test.



4.2.1.6 Test procedure

The RF exposure test is performed by the direct measurement method using a Broadband probe as described in clause 6.6.1.1 of the supplementary procedure SPR-002.

To find the worst case emissions, the field probe is moved over all sides of the EUT at the separation distances as noted in clause 4.2.1.7 while observing the display of the field meter. At the worst case position, the final value is measured and recorded.

According to section 3.2 of RSS-102, RF exposure evaluation of devices shall be made in accordance with the latest version of IEEE C95.3. Definition 3.95 in clause 3 of IEEE C95.3 specifies the separation distance applied to the measurement of electric and magnetic fields as the "distance between a source and the nearest point on the probe sensing elements".

4.2.1.7 Test results

RF technology 1:	
Application:	RFID
Operation frequency range:	125 kHz
Antenna model	Loop antenna
Antenna connector:	none
Antenna type:	internal
	not detachable
Environment:	Uncontrolled
Primary exposure condition:	Whole body

Note(s):

- 1. Premeasurements were performed to determine the worst case which is documented below.
- 2. The worst case emission occurred without tag.

Frequency (kHz)	Measured value (V/m)	Relaxation factor	Limit (V/m)	Fraction of limit (%)	Result
125	0.6	1.0	83	0.7	Passed

Table 7: Electrical field strength at a distance of 0 cm, nerve stimulation of the body

Frequency (kHz)	Measured value (A/m)	Relaxation factor	Limit (A/m)	Fraction of limit (%)	Result
125	2.4	1.0	90	2.7	Passed

Table 8: Magnetic field strength at a distance of 0 cm, nerve stimulation of the body



4.2.2 SAR test exclusion, except 3 kHz – 10 MHz

Requirement: Basic standard:	RSS-102 Issue 5, section 2.5.1 n/a					
Performed by:	Jennifer Riedel B. Eng.	Date of test:	February 8, 2021			
Result:	☐ Limits kept ☐ Limits not kept					

4.2.2.1 Exemption Limits for Routine Evaluation – SAR Evaluation

According RSS 102 clause 2.5.1:

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Frequency					
(MHz)	At separation distance of <5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW ·	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency	Exemption Limits (mW)						
(MHz)	At separation	At separation	At separation	At separation	At separation		
	distance of	distance of	distance of	distance of	distance of		
	30 mm	35 mm	40 mm	45 mm	≥50 mm		
≤300	223 mW	254 mW	284 mW	315 mW	345 mW		
450	141 mW	159 mW	177 mW	195 mW	213 mW		
835	80 mW	92 mW	105 mW	$117 \mathrm{mW}$	130 mW		
1900	99 mW	153 mW	225 mW	316 mW	431 mW		
2450	83 mW	123 mW	173 mW	235 mW	309 mW		
3500	86 mW	124 mW	170 mW	225 mW	290 mW		
5800	56 mW	$71 \mathrm{mW}$	85 mW	97 mW	106 mW		

⁴ The exemption limits in Table 1 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 25 mm from a flat phantom, providing a SAR value of approximately 0.4 W/kg for 1 g of tissue. For low frequencies (300 MHz to 835 MHz), the exemption limits are derived from a linear fit. For high frequencies (1900 MHz and above), the exemption limits are derived from a third order polynomial fit.

⁵ Transmitters operating between 0.003-10 MHz, meeting the exemption from routine SAR evaluation, shall demonstrate compliance to the instantaneous limits in Section 4.



Page 19 of 25

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

4.2.2.2 Results

The following data are based on applicants document: Test report 200632-AU02+W06 Test report of the test laboratory Element Materials Technology Straubing GmbH

RF technology 2:			
Application:	RFID		
Operation frequency range:	13.56 MHz		
Antenna model	Loop antenna		
Antenna connector:	none		
Antenna type:	internal		
	not detachable		
Maximum E-Field:	45.53 dBµV / m at 30 m		
Information related to Exposure:			
Tune-up tolerance (according to the manufacturer):	± 4 dB		
Separation distance:	< 5 mm		
Separation distance.	< 5 mm		
Exposure tier:	general public		
Power averaging over time:	Not applied		

Ratio Result Separation Channel ERP ERP Limit of limit distance frequency + tolerance + tolerance 1-g SAR (dBm) (mW)(mm) (MHz) (mW)0.00006 < 5 13.56 -24.23 0.004 71.0 Passed

Table 9: Result of SAR test exclusion, exposure to the head and body

EIRP is calculated using the formula of ANSI C63.10-2013 clause 9.5:

EIRP = E + 20log(d) - 104.7

Where: EIRP = equivalent isotropically radiated power in dBm E = electric field strength in dB μ V/m d = measurement distance in meters (m)



200632-AU02+W09

Page 20 of 25

The following data are based on applicants document: Test report 200632-AU02+W08 Test report of the test laboratory Element Materials Technology Straubing GmbH

RF technology 3:	
Application:	Bluetooth low energy
Operation frequency range:	2402 MHz to 2480 MHz
Antenna model	Chip antenna
Antenna gain:	0.5 dBi
Antenna connector:	none
Antenna type:	internal
	not detachable
Maximum conducted output power:	-0.74 dBm at 2402 MHz

Information related to Exposure:

Tune-up tolerance (according to the manufacturer):	± 4 dB
Separation distance:	< 5 mm
Exposure tier:	general public
Power averaging over time:	Not applied

Separation distance (mm)	Channel frequency (MHz)	EIRP + tolerance (dBm)	EIRP + tolerance (mW)	Limit 1-g SAR (mW)	Ratio of limit	Result
< 5	2402	3.76	3.0	4.0	0.75	Passed

Table 10: Result of SAR test exclusion, exposure to the head and body



4.2.3 Simultaneous transmissions SAR test exclusion, except 3 kHz – 10 MHz

Result:	☑ Limits kept	Limits not kept			
Performed by:	Jennifer Riedel B. Eng.	Date of test:	February 8, 2021		
Reference:	Notice 2016-DRS001				
Requirement:	RSS-102 Issue 5, section 2.5.1				

4.2.3.1 Requirements and limit

According to Notice 2016-DRS001:

The SAR exemption limits outlined in clause 2.5.1 of RSS-102 have been derived based on an approximate SAR value of 0.4 W/kg using half-wave dipole antennas. As such, when simultaneous transmitter SAR evaluations include transmitters that have been exempt from routine SAR evaluation, the SAR must be estimating based on the ratio between the maximum tune-up tolerance limit of the transmitter that has been exempt and the exemption limit at the specific distance and frequency for that transmitter. This ratio must be multiplied by 0.4 W/kg (2.0 W/kg for controlled use and 1.0 W/kg for limb worn devices) in order to calculate the estimated SAR level.

Exposure tier	Region of body	SAR exemption limit (W/kg)
General public	Head and trunk	0.4
General public	Limbs	1.0
Occupational	Head and trunk	2.0
Occupational	Limbs	5.0

Table 11: SAR exemption limits



4.2.3.2 Results

Note(s):

- 1. There is only one technology below 10 MHz (nerve stimulation), therefore no simultaneous transmission consideration.
- 2. There are two technologies operating above 10 MHz (technology 2 and 3) which can transmit simultaneously.
- 3. The ratios are taken from clause 4.2.2.2.

Exposure tier:

Head and trunk

Technology	Ratio	Factor (W/kg)	Estimated SAR (W/kg)	Sum of estimated SAR (W/kg)	SAR exemption limit (W/kg)	Result
2	0.00006	0.4	0.000024	0.300024	0.4	Passed
3	0.75	0.4	0.3	0.300024	0.4	Fasseu

Table 12: Result of SAR exemption, simultaneous transmissions



5 Equipment calibration status

Description	Modell number(s)	Serial number(s)	Inventory number(s)	Last calibration	Next calibration
Exposure level tester with magnetic field probe 100 cm ²	ELT-400 with BN 2300/90.10	B-0087 B-0102	E00276	2020-10	2022-10
Broadband field meter with magnetic field probe	NBM-550 with HF3061	H-0015 D-0595	E00900 E00901	2019-03	2021-03
Broadband field meter with electric field probe	NBM-550 with EF0691	H-0015 H-0318	E00900 E00902	2019-03	2021-03

Page 24 of 25

Test	Frequency range	Equipment used	Expanded uncertainty	U _{Limit}	k=
Magnetic field	1 Hz – 10 kHz	ELT 400 + probe	± 28.147 %	+58.% / -37 %	2
Magnetic field	10 kHz – 400 kHz	ELT 400 + probe	± 28.147 %	+41.% / -30 %	2
H-field	300 kHz – 800 kHz	NBM 550 + HF3061	± 25.602 %	+41.% / -30 %	2
H-field	800 kHz – 1 MHz	NBM 550 + HF3061	± 25.245 %	+41.% / -30 %	2
H-field	1 MHz – 30 MHz	NBM 550 + HF3061	± 25.245 %	+41.% / -30 %	2
E-field	100 kHz – 1 MHz	NBM 550 + EF0691	± 28.467 %	+41.% / -30 %	2
E-field	1 MHz – 30 MHz	NBM 550 + EF0691	± 27.324 %	+41.% / -30 %	2
E-field	30 MHz – 1 GHz	NBM 550 + EF0691	± 27.324 %	+100.% / -50 %	2
E-field	1 GHz – 4 GHz	NBM 550 + EF0691	± 30.244 %	+100.% / -50 %	2
E-field	4 GHz – 6 GHz	NBM 550 + EF0691	± 32.150 %	+100.% / -50 %	2
Contact current	0 Hz – 110 MHz	EZ 17	+41.25 % / -29.21.%	+100.% / -50 %	2

6 Measurement uncertainty

Note(s):

1. The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k. For a confidence level of 95 % the coverage factor k is 2.

- 2. The values of the measurement uncertainty as listed above are equal to or lower than the required ones stated in table 3 of EN 62369-1 2009 and listed as (U_{Limit}) in the table above.
- 3. Simple acceptance is applied as the decision rule while keeping the specified limits (U_{ETSI}) for the expanded measurement uncertainty (i.e. Test Uncertainty Ratio TUR \geq 1:1). That means, compliance is based on the recorded level by the lab irrespective of the expanded measurement uncertainty value but with a limitation to it.

4. All used test instrument as well as the test accessories are calibrated at regular intervals.



7 Revision history

Revision	Date	Issued by	Description of modifications
0	2021-02-08	Jennifer Riedel B. Eng.	First edition

Template: RF_FCC_IC_Human Exposure_V1.1