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TEST REPORT
Nr. R23124101

Federal Communication Commission (FCC)

Report Reference No. ..... :	R23124101
Date of issue: ..... :	04.08.2023
Total number pages: ..... :	14
Customer name ..... :	Teleco Automation S.r.l.
Address ..... :	Via Calmaggiore, 10/4 – 31100 Treviso (TV) – Italy
Test specification:	
Standards ..... :	KDB 447498 D01 General RF Exposure Guidance v06
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	15-247_HoppingDEKRA
Test Report Form(s) Originator .. :	DEKRA Testing and Certification S.r.l.
Master TRF ..... :	2023-08

General disclaimer:

The test results presented in this report relate only to the object tested.
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(*) Test item description ..... :	Transmitter NOON TVLINK/RTS
(*) Trademark ..... :	Teleco Automation
(*) Manufacturer ..... :	Teleco Automation S.r.l.
(*) Model / Type reference ..... :	RTNOON916NMRC
(*) FCC ID ..... :	P59RTNOON916
(*) Rating(s) ..... :	3 Vdc from battery

Report

Tested by (name + signature) ..... :	M. Segalla	.....
Approved by (name + signature) ..... :	F. Marenda	.....

(*) information provided by the customer

1 Summary

2 Reference standard	
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices
3 List of attachments	
Attachment 1: Measurement uncertainty, judgement of compliance and quality manual references	
4 Deviation(s) from test specification	
None	
5 Testing location	
DEKRA Testing and Certification S.r.l. Via della Fisica, 20 – 36016 Thiene (VI) – Italy Test site facility's FCC registration number: 182474	

Revision index	***Date***	***Change history***
1.0	04.08.2023	--

Testing and sampling:	
Date of receipt of test item	20.06.2023
Testing start date	04.08.2023
Testing end date	04.08.2023
Sampling procedure	Sample used for testing chosen by the customer; DEKRA Testing and Certification S.r.l. cannot be considered responsible for the selection of the sample
Internal identification	Adhesive label with the product number P230590
General remarks:	
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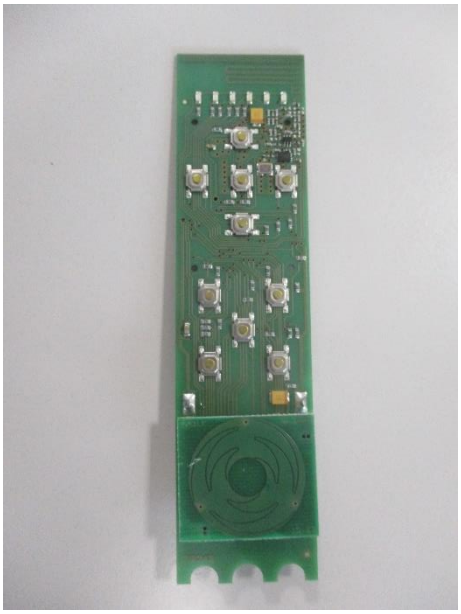
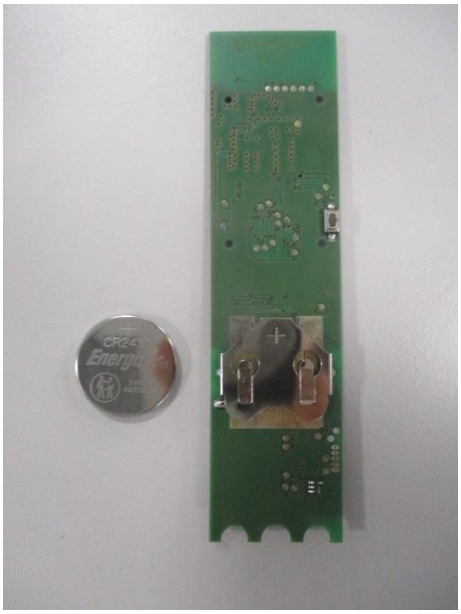
Possible test case verdicts:	
Test case does not apply to the test object:	N/A (Not Applicable)
Test object meets the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)
Test object was not evaluated for the requirement:	N/E (Not Executed)
Definition of symbols used in this test report:	
☒ Indicates that the listed condition, standard or equipment is applicable for this report. ☐ Indicates that the listed condition, standard or equipment is not applicable for this report.	

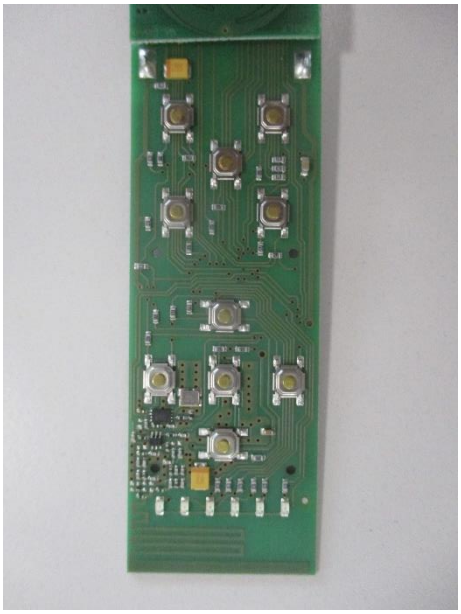
6 General description of tested item and testing condition(s)

Description ..... :	Transmitter NOON TVLINK/RTS						
Model Number ..... :	RTNOON916NMRC						
FCC ID ..... :	P59RTNOON916						
Serial Number ..... :	--						
Brand name ..... :	Teleco Automation						
Frequency bands ..... :	260 – 470 MHz 902 – 928 MHz						
Nominal frequencies ..... :	F_C: 433,42 MHz F_C: 916 MHz						
Test power supply ..... :		Voltage and Frequency	Reference poles				
			N	L1	L2	L3	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 3 V from battery					☐
Software version ..... :	V1.0						
Type of equipment ..... :	☑ Transmitter unit ❑ Receiver unit						
Type of station ..... :	☑ Portable station ❑ Mobile station						
Test arrangements of EUT ..... :	*Intended operational arrangement(s) of EUT*		*Test arrangement (see basic standard)*				
	❑ Table-top only		Table-top				
	❑ Floor-standing only		Floor-standing				
	❑ Can be floor-standing or table-top		Table-top				
	❑ Rack mounted		In rack or table-top				
	☑ Other, for example wall mounted, ceiling mounted, handheld, body worn		Table-top				
Operating modes ..... :	No.	Operating mode of test item					
	1	EUT in continuous transmission at maximum power					
Declination of responsibility ..... :	Information relating to the description of the sample, components list, and software/hardware version (if reported) are provided by the customer. DEKRA Testing and Certification S.r.l. cannot be considered responsible for this information, for any other document sent by the customer and for any difference between the software version present in the tested sample and that present in the object intended for final sale. In some cases, the software in the tested sample is in a version dedicated exclusively to the test, and therefore does not represent the software installed in the final version of the product.						

6.1 Photos of the test item







7 Verdict summary section

KDB 447498 D01 General RF Exposure Guidance v06			
Clause	**Requirement – Test case**	**Basic standard**	**Verdict**
7.1	RF Exposure Analysis	--	P

Normative references	
Reference no.	***Description***
KDB 447498 D01 General RF Exposure Guidance v06	RF exposure procedures and equipment authorization policies for mobile and portable devices

8 Test conditions

8.1 General

<table>
<tr><td>Environmental reference conditions.....:</td><td>The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.
The climatic conditions during the tests were within the following limits:
<table>
<tr><th>Temperature</th><th>Humidity</th><th>Atmospheric pressure</th></tr>
<tr><td>15 °C – 35 °C</td><td>30 % - 60 %</td><td>800 hPa – 1060 hPa</td></tr>
<tr><td colspan="3">If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.</td></tr>
</table></td></tr>
<tr><td>Measurement uncertainties .....:</td><td>Attachment 1</td></tr>
</table>

9 Test results

9.1 RF Exposure Analysis

Tested by ..... :	M. Segalla
Test date ..... :	04.08.2023
Test location (stand) ..... :	Laboratory
Reference standards ..... :	KDB 447498 D01 cl. 7.1 ANSI C63.10
Supplementary information..... :	--

Acceptance limits
Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition(s), listed below, is (are) satisfied

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following

[(max. power of channel, including tune-up tolerance, mW)/(min. separation distance, mm)]x(√f(GHz)) ≤ 3 for 1-g SAR and ≤ 7,5 for 10-g SAR

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

10-g Extremity SAR Test Exclusion Power Thresholds are 2,5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above.

Result

Transmission channel (MHz)	*Measured level (dBµV/m)*	*Peak Output Power (mW)*
433,42	70,50	0,0016
916,00	90,30	0,1535

Standalone 10-g extremity
Using separation distance of 5 mm with the formula above results:

(0,0016 mW / 5 mm) * √0,43342 GHz = 0,0002 ≤ 7,5
(0,1535 mW / 5 mm) * √0,916 GHz = 0,0294 ≤ 7,5

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more.

Attachment 1

Measurement uncertainty

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150 MHz	PE001_01	3,4 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_01	2,9 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30 MHz	PE001_02	2,1 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30 MHz	PE001_03	2,5 dB	1
Conducted emission CISPR 16 ISN 0,15-30 MHz	PE001_04	4,7 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_05	2,9 dB	1
Radiated Emission CDNE 30-300 MHz	PE001_06	3,3 dB	1
Disturbance Power 30-300 MHz	PE002_01	3,7 dB	1
Radiated Emission LAS 0,15-30 MHz	PE003_01	1,9 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30 MHz	PE004_01	4,1 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300 MHz	PE004_02	4,6 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000 MHz	PE004_03	4,5 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18 GHz	PE004_04	4,7 dB	1
Human Exposure to electromagnetic fields	PE005_01	14,2 %	1
Harmonics	PE006_01	10 mA + 2,9 %	1
Flicker	PE007_01	4,20 %	1
Radiated Immunity 80 MHz - 6 GHz	PE102_XX	2,25 dB 0,89 V/m a 3V/m	1
Conducted Immunity 0,15 - 230 MHz	PE105_XX	1,19 dB 0,44 V a 3V	1
AC Magnetic field	PE106_01	1,55 % 0,15 A/m a 10A/m	1
Pulse Magnetic field	PE107_01	6,25 % 18,8 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,25 % 1,88 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,22 % 0,22 V a 10V	1

Attachment 1

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Power/Spurious 9kHz-30MHz	PR001_01	4,1 dB	1
Power/Spurious ERP 30-1000MHz d=10m	PR001_02+03	4,7 dB	1
Misura della potenza EiRP 1-18GHz d=3m	PR001_04+05	4,7 dB	1
Misura della potenza EiRP 18-40GHz d=3m	PR001_06	5,1 dB	1
Frequency error	PR002_01+02	< 1x10-7	1
Timing zero span (1001pts.)	PR002_01+02	0,2 % SWT	1
Modulation bandwidth	PR002_01+02	< 1x10-7	1
Conducted RF power and spurious emission	PR002_01+02	1,1 dB	1
Adjacent channel power	PR002_01+02	1,1 dB	1
Blocking	PR002_01+02	1,1 dB	1

Test	*Test Setup*	*Expanded uncertainty*	*Note*
Electrostatic discharge immunity test	PE101_0X		2
Electrical fast transients / burst immunity test	PE103_0X		2
Surge immunity test	PE104_0X		2
Short interruption immunity test	PE109_01		2
Ring Wave immunity test	PE110_01		2
Low frequency immunity test	PE111_01		2
Dumped Oscillotary immunity test	PE113_01		2
Rev_23_01 date 20/03/2023			

Note 1:

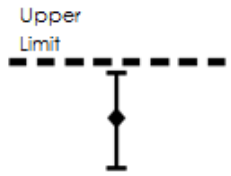
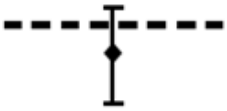
The expanded uncertainty reported according to the document EA-4-02 is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k=2

Attachment 1

Judgement of compliance

Case 1	Case 2	Case 3	Case 4
			
The sample complies with the requirements. The measurement results is within the specification limit when the measurement uncertainty is taken into account.	The sample complies with the requirements. It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.	The sample does not comply with the requirements. It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.	The sample does not comply with the requirements. The measurement results is outside the specification limit when the measurement uncertainty is taken into account.

In agreement with ILAC-G8:09/2019 cl.4.2.1 Guidelines on Decision Rules and Statements of Conformity

Quality manual references – Internal procedure

Internal Procedure PM001 rev. 4.0 (Quality Manual)	Measure procedure
Internal Procedure INC_M rev. 10.0 (Quality Manual)	Measurement uncertainty calculation