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TEST REPORT

N°: 821760-R2-E

JDE : 133546

Subject

**Electromagnetic compatibility and Radio spectrum Matters (ERM) tests according to standards:
EN 50364 (2010)
EN 62369-1 (2009)**

Issued to

LEGRAND
128 Avenue de Lattre de Tassigny
87045 LIMOGES

Apparatus under test

↳ Product

Dalle tactile KNX / KNX Touch Command

↳ Trade mark

LEGRAND

↳ Manufacturer

LEGRAND

↳ Model under test

Touch Command KNX (4 Touch)

↳ Serial number

#1

Test date

Le 17 Février 2015 / February 17th, 2015

Test location

Moirans

Test performed by

Jonathan PAUC

Composition of document

9 pages

Modification of the last version

None

Document issued on

March 20th, 2015

Written by :
Jonathan PAUC
Tests operator

Approved by :
Anthony MERLIN
Technical manager



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SUMMARY

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1. TEST PROGRAM

References

- ✓ EN 50364 (2010)
- ✓ EN 62369-1 (2009)
- ✓ Reference level: Recommendation N° 1999/519/CE

General conclusion:

Measures performed on the sample of the product Touch Command KNX (4 Touch), SN: #1, in configuration and description presented in this test report, show compliance levels with EN 50364 (2010) and EN 62369-1 (2009).



2. EQUIPMENT DESCRIPTION

2.1. JUSTIFICATION

The system was configured for testing in a typical fashion (as a customer would normally use it).

2.2. HARDWARE IDENTIFICATION

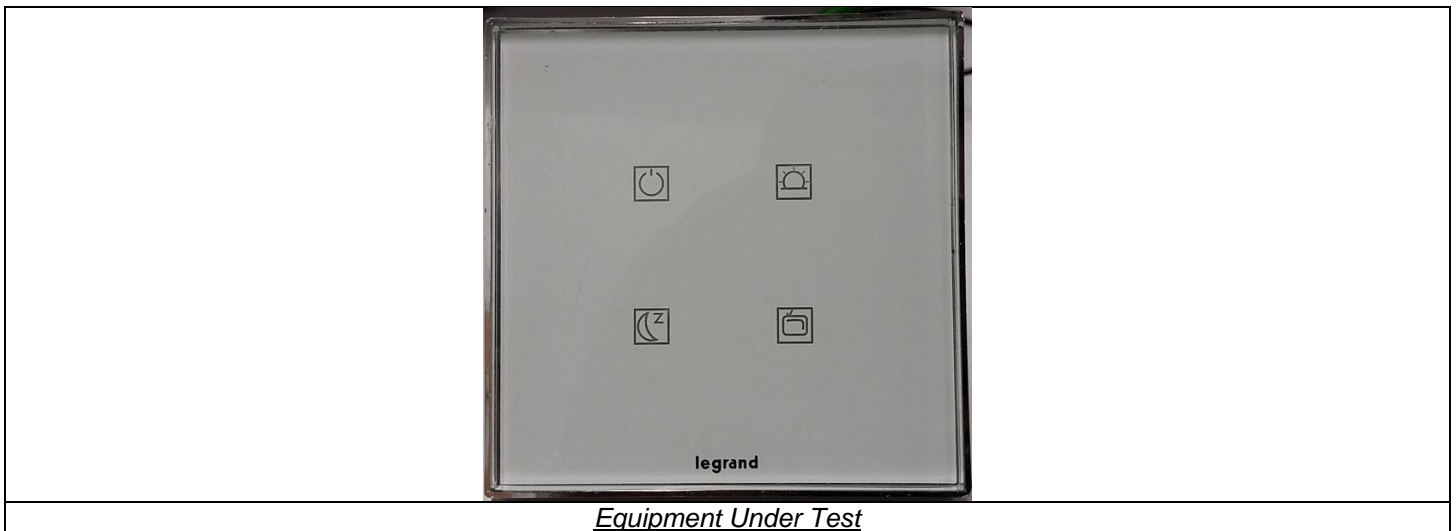
Equipment under test (EUT):

Touch Command KNX (4 Touch)

Serial Number: #1

B002489AA PCBA TACTILES 4 TOUCHES
B002222AA PCBA NOEUD KNX 4 T

PCB : HS01240AB
PCB : HS01095AC



Equipment Under Test

Power supply:

During all the tests, EUT is supplied by through NFC field provided by Tagsys
For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply NFC	NFC power supply	NFC power supply From TAGSYS NFC Reader	/	/
Supply KNX	<input type="checkbox"/> AC <input checked="" type="checkbox"/> DC <input type="checkbox"/> Battery	29Vdc	/	/

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Supply KNX	KNX bus connector (power & data)	2m	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Shield not connected (both side)
Maintenance Access	Maintenance Factory connector	/	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
RFID NFC reader	TAGSYS MEDIO P213	M1442055B0	/



Equipment information:

RF module:	None		
Frequency band:	[13.554–13.567] MHz		
Sub-band REC7003:	Annex 9 (f)		
RF mode:	<input type="checkbox"/> Transmitter	<input checked="" type="checkbox"/> Transceiver	<input type="checkbox"/> Receiver <input type="checkbox"/> Standby
Product class § 7.1.4	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Receiver classification § 4.1.1	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3
Antenna type:	<input type="checkbox"/> External:		<input checked="" type="checkbox"/> Internal:
Antenna gain:	NC		
Extreme temperature range:	<input type="checkbox"/> Category I (General) -20°C to +55°C	<input type="checkbox"/> Category II (Portable) -10°C to +55°C	<input checked="" type="checkbox"/> Category III (Indoor) +5°C to +35°C
Extreme test source voltage:	NA		

NC : Not communicated by customer

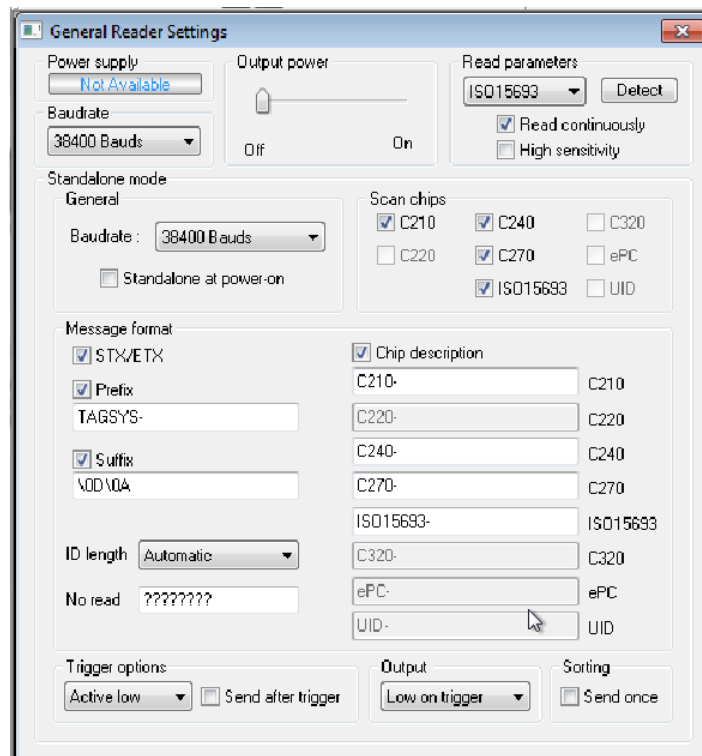
NA : Not applicable

2.3. RUNNING MODE

Firmware / Software version of EUT: 1.4

RFID Reader software : Px Explorer 2.1.0

RFID reader is set on EUT (RF power set as 10dBm), a continuous reading of data from EUT to RFID reader is performed, EUT is powered from RFID field





3. EVALUATION OF MAGNETIC FIELD

3.1. TEST CONDITIONS

Date of test	:February 17 th , 2015
Test performed by	:J.PAUC
Atmospheric pressure (hPa)	:1011
Relative humidity (%)	:25
Ambient temperature (°C)	:23

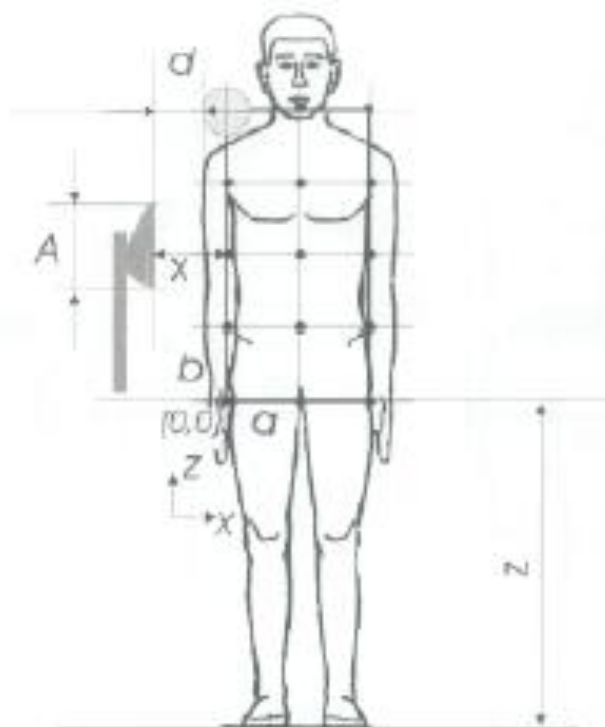
3.2. TEST SETUP

Measures are performed in order to check the conformity to reference level. Measure is performed for each frequency used for RFID system and for which a level is higher than 1/1000 of the limit value stated by the European Council Recommendation from July 12th, 1999.

For the EUT antenna, the dimensions are:

- a, b, c: 15cm
- Z = 85cm
- X = 10cm
- Height = 120cm

The antenna is set on an insulating support 120cm above the ground in vertical position. Measure is performed at 10cm.



vue de face

Figure: 3



3.3. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE
Passive loop antenna	ELECTROMETRIC	EM6993	C2040210
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642049
Cable	-	-	A5329045
Thermo-hygrometer (PM2)	OREGON	BAR916HG-G	B4206011
Amplifier 0.1MHz – 1300 MHz	HEWLETT PACKARD	8447D	A7085009

3.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None



3.5. TEST SEQUENCE AND RESULTS

Results for the magnetic field measured with a loop probe at 13.56MHz:

Measures at 10cm:

Position Z ↓	Measure (A/m)			Mean (A/m)
E	0.0002	0.0004	0.0005	0.00045A/m
D	0.0004	0.0009	0.0008	
C	0.0004	0.0009	0.0006	
B	0.0002	0.0009	0.0002	
A	0.0001	0.0002	0.0001	
Position X →	1	2	3	

Total arithmetic mean:

Frequency (MHz)	Magnetic field (A/m)	Limit value (A/m)	Limit / Magnetic field
13.56	0.00045	0.073	161 times lower



4. EVALUATION OF BODY TO GROUND CURRENT AND TOUCH CURRENT

4.1. TEST CONDITIONS

Date of test :February 17th, 2015
 Test performed by :J.PAUC
 Atmospheric pressure (hPa) :1011
 Relative humidity (%) :25
 Ambient temperature (°C) :23

4.2. TEST SETUP

The antenna is set on an insulating table 80cm above the ground in horizontal position.
 Measure is performed at 10cm.

4.3. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE
Current Probe	FCC	F-80-1	A4069010
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642049
Cable	-	-	A5329045

4.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

4.5. MEASUREMENT RESULTS: BODY TO GROUND CURRENT

Measured current (mA)	Limit (mA)	Measured level / Limit
0.214	20	93 times lower

4.1. MEASUREMENT RESULTS: TOUCH CURRENT

Measured current (mA)	Limit (mA)	Measured level / Limit
0.278	20.0	72 times lower