TEST REPORT CONCERNING THE COMPLIANCE OF A SMART CARD TRACER, ANALYZER, SIMULATOR, BRAND COLLIS, MODEL SMARTLINK BOX WITH 47 CFR PART 15 (JULY 10, 2008).

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June 07, 2010

FCC listed	: 90828
Industry Canada	: 2932G-1
VCCI Registered	: R-1518, C-1598
R&TTE, LVD, EMC Notified Body	: 1856

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MEASUREMENT/TECHNICAL REPORT

COLLIS
Model : SmartLink Box

FCC ID: XKD-SMARTLINKBOX

June 07, 2010

This report concerns: Original grant/certification ~~Class 2 change Verification~~

Equipment type: JPB Class B digital device

Report prepared by:

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The data taken for this test and report herein was done in accordance with 47 CFR Part 15 (july 10, 2008) and the measurement procedures of ANSI C63.4-2003. TÜV Rheinland EPS B.V. at Niekerk, The Netherlands, certifies that the data is accurate and contains a true representation of the emission profile of the Equipment Under Test (EUT) on the date of the test as noted in the test report. I have reviewed the test report and find it to be an accurate description of the test(s) performed and the EUT so tested.

Date: June 07, 2010 Signature:

O. Hoekstra
Senior Engineer Telecom TÜV Rheinland EPS B.V.

Description of test item

Test item	:	Smart card Tracer, Analyzer, Simulator
Manufacturer	:	Collis B.V.
Brand	:	Collis
Model(s)	:	SmartLink Box
Serial number(s)	:	n.a.
Revision	:	n.a.

Applicant information

Applicant's representative	:	Mr. R. Jozefzoon
Company	:	Collis B.V.
Address	:	De Heyderweg 1
Postal code	:	2314 XZ
City	:	Leiden
Country	:	The Netherlands
Telephone number	:	+31 71 581 36 36
Telefax number	:	+31 71 581 36 30
Email	:	info@collis.nl
Internet	:	www.collis.nl

Test(s) performed

Location	:	Niekerk
Test(s) started	:	April , 2010
Test(s) completed	:	May 18, 2010
Purpose of test(s)	:	Equipment Authorization (Original grant/certification)
Test specification(s)	:	47 CFR Part 15 (July 10, 2008)

Test engineer(s) : R. van der Meer 

Report written by : R. van der Meer 

Report date : June 07, 2010

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1 General information.

1.1 Product description.

1.1.1 Introduction.

The Smart card Tracer, Analyzer, Simulator, brand Collis, model SmartLink Box, does not hold any transmitter and can be classified as a Class B Digital Device. The SmartLink Box is a hardware tool for testing smart cards and terminals. It can be used for testing, analysing, intercepting, modifying, and simulating communication signals exchanged between a smart card and a terminal. A PC with a software package, the TEST REPORT , is set up by placing Collis SmartLink Box (in the case of contactless cards) in between the card and the terminal/reader. This picks up the communication between the two entities and sends it to the PC where the TEST REPORT software is running.

The content of this report and measurement results have not been changed other than the way of presenting the data.

1.2 Related submittal(s) and/or Grant(s).

1.2.1 General.

This test report supports the original grant/certification in equipment authorization files under FCC ID: XKD-SMARTLINKBOX.

2 Tested system details.

Details and an overview of the system and all of its components, as it has been tested, may be found below.

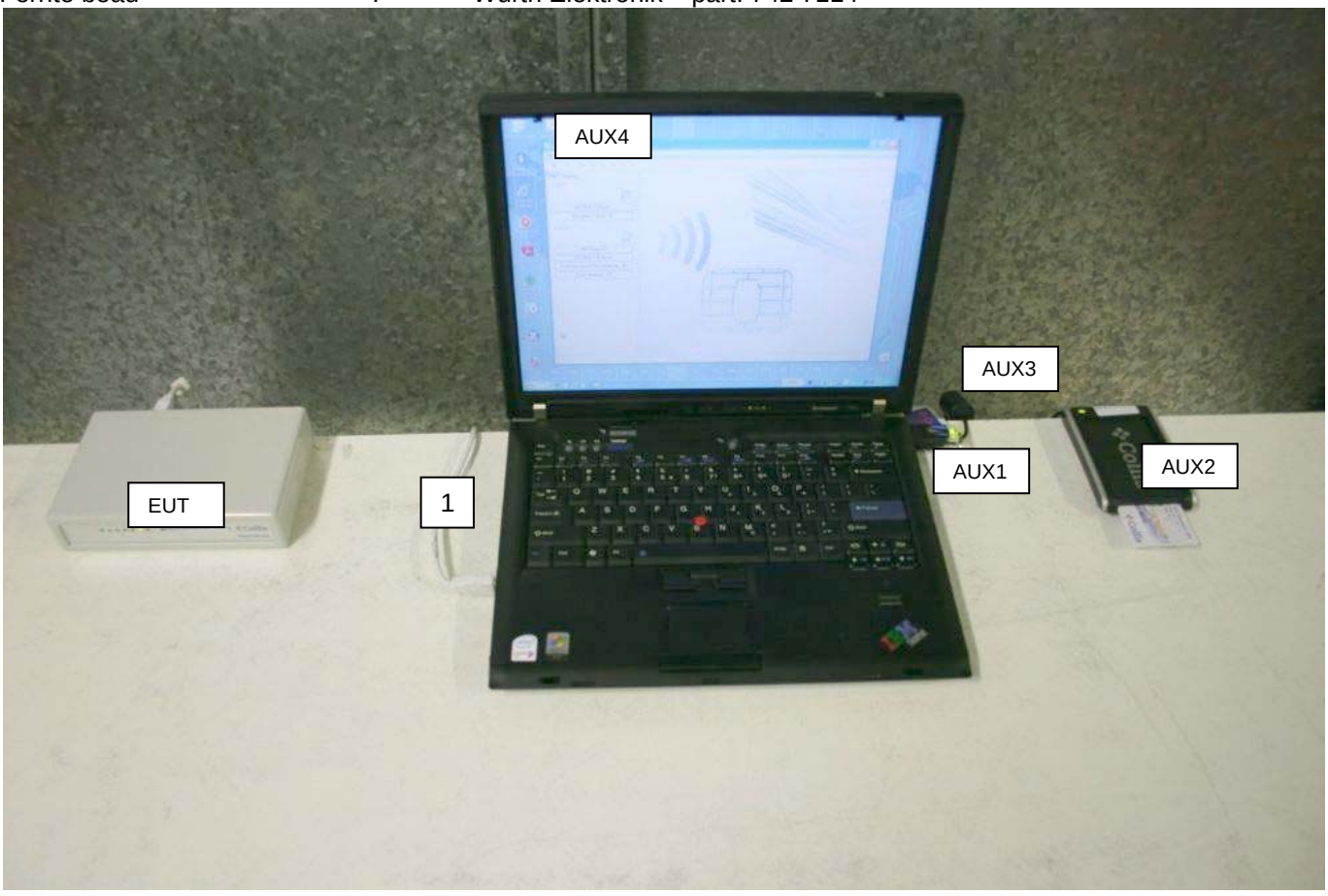
EUT	:	Smart card Tracer, Analyzer, Simulator
Manufacturer	:	Collis B.V.
Brand	:	Collis
Model	:	SmartLink Box
Serial number	:	n.a.
Voltage input rating	:	5 Vdc
Voltage output rating	:	n.a.
Current input rating	:	not provided
Antenna	:	none
Remarks	:	--
AUX1	:	USB hardware key
Manufacturer	:	Collis B.V.
Brand	:	Collis
Model	:	N.a.
Serial number	:	0.13.909.
Remark	:	Connect to AUX4, for enabling software only
AUX2	:	SCM Contact(less) Reader with Collis Test Card
Manufacturer	:	Collis
Brand	:	Collis
Models	:	---
Serial number	:	---
Voltage input rating	:	---
Current input rating	:	---
Remark	:	Connect to AUX4 with USB cable

AUX3	:	Adapter
Manufacturer	:	Friwo
Brand	:	Friwo
Models	:	FW75550/18
Serial number	:	---
Voltage input rating	:	100-240Vac 50/60Hz
Current input rating	:	18Vdc/840mA
Remark	:	Connect to EUT

AUX4	:	Laptop
Manufacturer	:	Lenovo
Brand	:	Lenovo
Models	:	IBM ThinkPad
Serial number	:	L3-BF847 07/02
Voltage input rating	:	18Vdc
Current input rating	:	18Vdc/5A
Remark	:	--
Software	:	Collis Card Spy v1.0

Note: 1 (USB cable between EUT and AUX4) is marketed with the EUT Details of “1” are as follows:

USB cable Brand	:	Tyco Electronics – part: 1487588-2
Ferrite bead	:	Würth Elektronik – part: 742 7114



Photograph of the system

2.1.1 Description of input and output ports.

Number	Terminal	From	To	Remarks
1	USB	AUX4	EUT	Cable 1.5m, includes a ferrite bead
2	USB	AUX1	AUX4	For enabling software
3	Link cable	AUX4	AUX2	Cable 60cm
4	RS-232	EUT	AUX4	Data connection

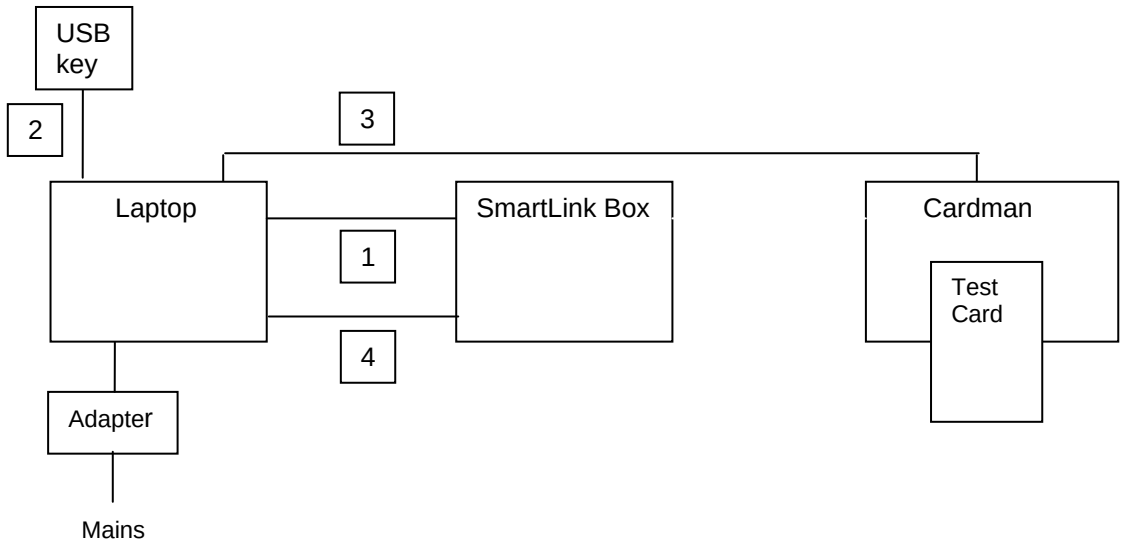


Figure 1. Basic set-up normal use

2.2 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 15 (july 10, 2008), sections 15.31, 15.107 and 15.109.

The test methods, which have been used, are based on ANSI C63.4: 2003.

Radiated emission tests above 30 MHz were performed at a measurement distance of 3 meters.
Radiated emission tests below 30 MHz were performed at a measurement distance of 3 meters. To calculate the field strength level from these results to the appropriate distance at which the limit is specified, the appropriate extrapolation factor is used.

The receivers are switching automatically to the right bandwidth in accordance with CISPR 16. This is implemented in the receiver. The antenna factors are programmed in the test receiver. The receiver automatically calculates the appropriate correction factor for the utilized antenna and also the appropriate antenna factor for the cable loss. The total correction is automatically added to the measured value.

2.3 Test facility.

The Federal Communications Commission and Industry Canada has reviewed the technical characteristics of the test facilities at TÜV Rheinland EPS B.V., located in Niekerk, 9822 TL Smidshornerweg 18, The Netherlands, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948, (10-1-06 edition).

The description of the test facilities has been filed at the Office of the Federal Communications Commission under registration number 90828. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The description of the test facilities has been filed to Industry Canada under registration number 2932G-1. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

2.4 Test conditions.

Normal test conditions:

Temperature (*)	: +15°C to +35°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: 120VAC/60Hz
Air pressure	: 950 – 1050 hPa

*When is was impracticable to carry out the tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests are stated separately.

3 System test configuration.

3.1 Justification.

The system was configured for testing in a typical fashion (as a customer would normally use it).
The EUT is not AC powered, however Conducted Emissions is tested in combination with a laptop computer that supplies the EUT with power from the USB port. By this means it can be investigated if any emissions from the EUT is conducted to the mains through a host.

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.4: 2003.

3.2 EUT mode of operation.

The EUT has been tested as table Top Equipment . The unintentional radiator tests (47 CFR Part 15 sections, 15.107 and 15.109) have been performed with a complete functioning EUT and interconnections.

3.3 Special accessories.

No special accessories are used and/or needed to achieve compliance.

3.4 Equipment modifications.

No modifications have been made to the equipment in order to achieve compliance.

3.5 Product Labelling

The product labeling information is available in the technical documentation package.

3.6 Block diagram of the EUT.

The block diagram is available in the technical documentation package.

3.7 Schematics of the EUT.

The schematics are available in the technical documentation package.

3.8 Part list of the EUT.

The part list is available in the technical documentation package.

4 Radiated emission data.

4.1 Radiated field strength measurements (30 MHz – 1 GHz, E-field)

Frequency (MHz)	Measurement results @3m Vertical (dBuV)	Measurement results @3m Horizontal (dBuV)	Correction factor (dB)	Results after correction Vertical (dBuV/m)	Results after correction Horizontal (dBuV/m)	Limits @3m (dBuV/m)	Pass/Fail
48.00	15.0	13.0	10.4	25.4	23.4	40	Pass
72.00	14.5	15.0	7.8	22.3	22.8	40	Pass
117.65	13.0	13.7	13.6	26.6	27.3	43.5	Pass
120.00	18.0	13.7	13.7	31.7	28.7	43.5	Pass
144.00	16.0	13.9	13.9	29.9	29.9	43.5	Pass
168.00	15.0	12.3	12.3	27.3	27.3	43.5	Pass
180.30	13.6	13.0	12.2	27.0	25.2	43.5	Pass
192.00	15.0	15.0	12.0	27.0	27.0	43.5	Pass
211.87	14.0	14.0	12.7	26.7	26.7	43.5	Pass
216.00	16.0	16.0	12.8	28.8	28.8	43.5	Pass
240.00	18.7	16.0	15.2	33.9	31.9	46	Pass
367.00	15.4	13.3	20.2	35.6	33.5	46	Pass
480.00	14.0	14.0	23.7	37.7	37.7	46	Pass
675.90	14.0	14.0	28.4	42.4	42.4	46	Pass
867.90	12.0	12.0	32.7	44.7	44.7	46	Pass

Table 1 Radiated emissions of the EUT.

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15 section 15.109 are depicted in Table 1. The system is tested without AUX 2 and AUX4 and the associating cables. AUX2 and AUX4 were only used in the situation for programming the EUT for continues transmitting.

Notes:

1. Field strength values of radiated emissions at frequencies not listed in the table above are more than 20 dB below the applicable limit.
2. Measurement uncertainty is ±5.0dB
3. The reported field strength values are the worst case values at the indicated frequency. The EUT was varied in three positions, the antenna was varied in horizontal and vertical orientations and also in height (between 1m and 4m).
4. A Quasi-peak detector was used with a resolution bandwidth of 120 kHz, except for frequencies above 960 MHz where an average detector was used.

4.1.1.1 Test equipment used (for reference see test equipment listing section 6).

99069 15633	99070	99071	99107	99608	99609	99547	99699

Test engineer

Signature : 

Name : Richard van der Meer
Date : May 12, 2010

5 Conducted emission data.

5.1 Conducted emission data of the EUT

Frequency (MHz)	Measurement results dB(µV) Neutral		Measurement results dB(µV) Line 1		Limits dB(µV)		Result
	QP	AV	QP	AV	QP	AV	
0.1748	28.2	<20	<20	<20	65	55	PASS
0.1865	36.6	22.6	39.8	<20	64.5	54.5	PASS
0.1959	37.2	<20	<20	<20	63.6	53.6	PASS
0.216074	41.6	<20	41.0	22.0	63.2	53.2	PASS
0.2374	31.4	<20	28.2	<20	62.4	52.4	PASS
0.246	29.8	<20	<20	<20	61.8	51.8	PASS
0.2799	32.0	31.4	31.2	30.8	60.8	50.8	PASS
3.1843	27.0	31.2	24.6	29.2	56	46	PASS
4.9519	32.4	31.0	29.0	26.6	56	46	PASS
5.252	29.8	30.8	27.4	22.0	56	46	PASS
5.4731	29.4	26	29.0	14.0	56	46	PASS
5.603	28.4	18	24.4	16.4	56	46	PASS
9.631	28.8	24	21.0	<20	56	46	PASS
9.919	28.4	23.4	21.0	<20	56	46	PASS
13.630	26.6	23.6	12.6	<20	60	50	PASS

Table 2 Conducted emission measurements.

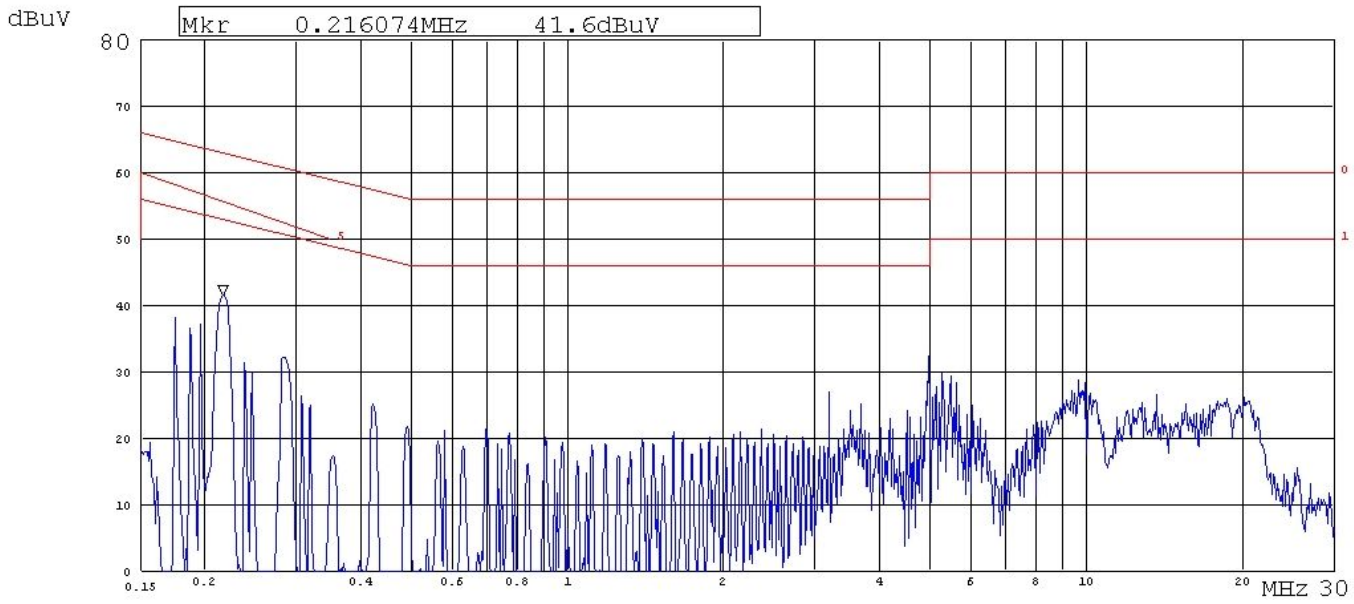
The results of the conducted emission tests, carried out in accordance with 47 CFR Part 15 section 15.107, at the 120 Volts AC mains connection terminals of the AC/DC power supply which was connected to the PC which in turn supplies the EUT with power through USB, are depicted in Table 2. Maximum values recorded. The system is tested as in whole, so with all equipment as shown in Figure.1 in place and functioning. Being the worst case situation.

Notes:

1. Measurement uncertainty is ±3.5dB
2. The resolution bandwidth used was 9 kHz.
3. Values of conducted emissions at frequencies not listed in Table 2 are more than 20 dB below the applicable limit.

5.1.1.1 Test equipment used (for reference see test equipment listing section 6).

12491 99663	12493	12512	13313	99161	99548	99615



Plot 1: Plot of the conducted emissions

Test engineer

Signature :

Name : R. van der Meer

Date : May 18, 2010

6 List of utilized test equipment.

Inventory number	Description	Brand	Model	Last cal.	Next cal.
12491	Measuring receiver	R&S	ESH3	01/2010	01/2011
12493	Spectrum monitor ESH3	R&S	EZM	NA	NA
12512	LISN	EMCO	3625/2	01/2010	01/2012
13313	Pulse Limiter	R&S	ESH3-Z2	02/2010	02/2011
15633	Biconilog Testantenna	Chase	CBL 6111B	02/2010	02/2011
99069	Coax 5m RG213 OATS	NMi Certin B.V.	KABEL 5M OATS	11/2009	11/2010
99070	Coax 15m RG213 OATS	NMi Certin B.V.	KABEL 15M OATS	11/2009	11/2010
99071	Coax OATS ground	NMi Certin B.V.	KABEL GROND OATS	11/2009	11/2010
99107	Controller OATS	Heinrich Deisel	4630-100	NA	NA
99161	Variac 250V 6A	RFT	LTS006	NA	NA
99547	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2009	10/2010
99548	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2009	10/2010
99580	OATS	Comtest	FCC listed: 90828	08/2008	08/2011
99608	Controller (OATS)	EMCS	DOC202	NA	NA
99609	Antenna mast	EMCS	AP-4702C	NA	NA
99613	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2009	10/2010
99615	Laptop	IBM	Lenovo 9456-HTG	NA	NA
99663	Laptop	DELL	Latitude	NA	NA
99699	Measuring receiver	R&S	ESCI	11/2008	11/2009

NA= Not Applicable

7 Conclusion

The EUT complice with the requirements of the FCC regulations in accordance with 47 CFR Part 15 (july 10, 2008) and the results are deemed satisfactory evidence of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003.