TEST REPORT CONCERNING THE COMPLIANCE OF AN INDUCTIVE PROXIMITY CARD READER INCORPORATING THE NGRP-AC v1.21, OPERATING ON 13.56 MHz BRAND INID, MODEL 50XX WITH 47 CFR PART 15 (10-1-09 EDITION) AND THE REQUIREMENTS OF INDUSTRY CANADA: RSS-GEN AND RSS-210 (ISSUE 8, DECEMBER 2010)

10060901.fcc01
January 07, 2011

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

TÜV Rheinland EPS B.V.
P.O. Box 15
9822 ZG Niekerk (NL)
Smidshornerweg 18
9822 TL Niekerk (NL)

Telephone: +31 594 505005
Telefax: +31 594 504804

E-mail: info@tuv-eps.com
Web: www.tuv-eps.com

MEASUREMENT/TECHNICAL REPORT

Model Summary: This report covers only 1 of 8 transmitter models – the applicant states: differences are explained within the Attestation of Similarity found in Appendix 1. All models incorporate the identical circuitry and integral RF Section and PWB embedded antenna housed on the "NGRP-AC v1.21".
Preliminary scans before testing are performed to determine worst case models on types with and without RF amplifier and all models with RF amplifier. Prescans for testing on types 5040, 5050, 5060 and 5070 were completed and the worst case model tested – there are additional notes in sections were applicable to further clarify the applicability of the testing data shown to each of the covered models.

Brand: INID
Model: 50XX
FCC ID: YAB-ISOACRDR
IC: 8908A-ISOACRDR

January 07, 2011

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

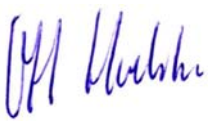
Equipment type: Inductive Proximity Card Reader

Report prepared by:

Name	: Richard van der Meer
Company name	: TÜV Rheinland EPS B.V.
Address	: Smidshornerweg 18
Postal code/city	: 9822 TL Niekerk
Mailing address	: P.O. Box 15
Postal code/city	: 9822 ZG Niekerk
Country	: The Netherlands
Telephone number	: + 31 594 505 005
Telefax number	: + 31 594 504 804
E-mail	: info@tuv-eps.com

The data taken for this test and report herein was done in accordance with 47 CFR Part 15 (10-1-09 Edition), RSS-GEN AND RSS-210 and the measurement procedures of ANSI C63.4-2009. 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: January 07, 2011

Signature: 

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

Summary

The device under test does:

- ● fulfill the general approval requirements as identified in this test report
- o not fulfill the general approval requirements as identified in this test report

Description of test item

Test item (EUT)	:	Inductive Proximity Card Reader, operating on 13.56 MHz
Manufacturer	:	INID B.V.
Brand	:	INID
Model(s)	:	50XX
Serial number(s)	:	--
FCC ID	:	YAB-ISOACRDR
IC	:	8908A-ISOACRDR
Receipt date	:	July 27, 2010

Applicant information

Applicant's representative	:	Mr. Mark de Olde
Company	:	INID B.V.
Address	:	Kollenbergweg 78c
Postal code	:	1101AV
City	:	Amsterdam
Country	:	The Netherlands
Telephone number	:	+31 206967441
Telefax number	:	+31 203653954
e-mail address	:	Mark@inid-readers.com

Test(s) performed

Location	:	Niekerk
Test(s) started	:	July 27, 2010
Test(s) completed	:	November 23, 2010
Purpose of test(s)	:	Equipment Authorization (Original grant/certification)
Test specification(s)	:	47 CFR Part 15 (10-1-09 Edition) and RSS-GEN AND RSS-210
Compliance statement	:	The test has demonstrated that this unit complies with stipulated standards.
Test engineer(s)	:	R. van der Meer
Report written by	:	R. van der Meer
Report date	:	January 07, 2011

Table of contents

1 General information.

1.1 Product description.

1.1.1 Introduction.

The EUT is an inductive proximity card reader intended to be used in access control systems, parking systems and other applications using RFID readers. It is capable of reading 13.56 MHz inductive tags. The content of this report and measurement results have not been changed other than the way of presenting the data.

In the case of this test report – 1 of 8 different types is covered. The applicant states that the tested model is representative for the other types as noted in the AoS, but it's outside the scope of TÜV Rheinland EPS B.V. to have any judgement on this. Preliminary scans before testing are performed to determine worst case models on types with and without RF amplifier and all models with RF amplifier. Prescans for testing on types 5040, 5050, 5060 and 5070 were completed and the worst case model tested – there are additional notes in sections were applicable to further clarify the applicability of the testing data shown to each of the covered models.

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 registration number.
FCC ID: YAB-ISOACRDR and IC: 8908A-ISOACRDR.

1.3 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	:	Inductive Proximity Card Reader, operating on 13.56 MHz
Manufacturer	:	INID B.V.
Brand	:	INID
Model	:	50XX
Type	:	5040, 5050, 5060 and 5070
Serial number	:	--
Voltage input rating	:	7 – 24 Vdc
Voltage output rating	:	--
Current input rating	:	--
Antenna	:	Intergral to the NGRP-AC v1.21 (PCB)
Operating frequency	:	13.56 MHz
Remarks	:	n.a.

AUX1	:	Laptop PC including power supply adapter
Manufacturer	:	Lenovo
Brand	:	Lenovo
Model	:	Thinkpad R60
Serial number	:	L3-BF847 07/02
Voltage input rating	:	20Vdc
Voltage output rating	:	--
Current input rating	:	3.25 A
Remarks	:	Required to read data from EUT

AUX2a	:	2-reader interface
Manufacturer	:	IE Keyprocessor
Brand	:	IE Keyprocessor
Model	:	Orbit-2
Serial number	:	--
Voltage input rating	:	7 -24Vdc
Voltage output rating	:	7 -24Vdc
Current input rating	:	--
Remarks	:	Power to AUX2 is supplied by 99405 (see section 7)

AUX2b	:	Power supply
Manufacturer	:	Ansmann
Brand	:	Ansmann
Model	:	ML120P080E
Serial number	:	--
Voltage input rating	:	100 – 240V 50-60Hz
Voltage output rating	:	12Vdc
Current input rating	:	170mA
Remarks	:	n.a.

Photo 1a: EUT

Photo 1b: EUT in typical setup

1.3.1 Description of input and output ports.

Number	Ports	From	To	Shielding	Remarks
1	AC mains	AC mains	AUX2a or b	~~yes~~ / no	None
2	DC power	AUX2	EUT	~~yes~~ / no	None
3	Serial port	EUT	AUX1	~~yes~~ / no	None

1.4 Test Summary

The EUT was tested in accordance with the specifications given in Table 1 below.

Test Standard		Description	Pass / Fail
47 CFR Part 15.225 (10-1-09 Edition)	**RSS-210 Issue 8, December 2010**		
15.207(a)	RSS-Gen(7.2.4)	Conducted emissions	Pass
15.225(a)	RSS-210(A2.6(a))	Emissions in the band 13.533-13.567 MHz	Pass
15.225(d), 15.209	RSS-210(A2.6)	Emissions outside the band 13.110-14.010 MHz	Pass
15.225(e)	RSS-210(A2.6)	Frequency stability	Pass
	RSS-Gen(4.6.1)	Occupied bandwidth	Pass

Table 1: testspecifications

Testmethods: ANSI C63:2009 and RSS-Gen Issue 3, December 2010

1.5 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 15 (10-1-09 Edition), sections 15.31, 15.35, 15.205, 15.209, 15.209 and 15.225 and RSS-GEN AND RSS-210 (ISSUE 8, DECEMBER 2010).

The test methods, which have been used, are based on ANSI C63.4: 2009.

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.

1.6 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.

1.7 Test conditions.

Normal test conditions:

Temperature (*)	: +15°C to +35°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: 7 – 24VDC
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.

2 System test configuration.

2.1 Justification.

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

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: 2009.

2.2 EUT mode of operation.

The EUT has been tested in active mode, i.e. the EUT is ready to detect a card. To assess the behavior of the EUT while reading the card, the EUT is tested with a card presented such that it continuously reads the card, and continuously sends data to the serial port of the EUT.

The intentional radiator tests (47 CFR Part 15 sections, 15.207, 15.209 and 15.225) have been performed with a complete functioning EUT and interconnections.

2.3 Special accessories.

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

2.4 Equipment modifications.

Only for the Conducted Emissions testing (section 4) test, the test unit was modified to add a resistive termination in lieu of the antenna. Pictures are available to show the modifications. For all other tests no modifications have been made to the equipment.

2.5 Product Labeling

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

2.6 Block diagram of the EUT.

The block diagram is available in the technical documentation package.

2.7 Schematics of the EUT.

The schematics are available in the technical documentation package.

2.8 Part list of the EUT.

The part list is available in the technical documentation package.

3 Radiated emission data.

3.1 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
39.75	4.3	-1.5	14.5	18.8	13.0	40	Pass
47.25	10.8	-0.3	10.4	21.2	10.1	40	Pass
81.36	24.5	14.7	8.7	33.2	23.4	40	Pass
108.75	3.7	-1.2	12.5	16.2	11.3	43.5	Pass
135.60	21.6	15.0	13.2	34.8	28.2	43.5	Pass
149.25	19.0	3.3	12.7	31.7	16.0	43.5	Pass
162.72	16.3	9.5	12.0	28.3	21.5	43.5	Pass
189.75	5.4	0.7	10.8	16.2	11.5	43.5	Pass
203.40	12.0	16.0	11.1	23.1	27.1	43.5	Pass
244.08	17.8	18.3	14.3	32.1	32.6	46	Pass
271.20	20.8	18.4	15.5	36.3	33.9	46	Pass

Table 2 Radiated emissions of the EUT

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15 section 15.205, 15.209 and 15.225 and RSS-210 and RSS-Gen, section 2.2 and 2.6 are depicted in Table 2.

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 EUT was varied in three positions, the loop antenna was varied in horizontal and vertical orientations and also around it's axis. The reported value is the worst case found at the reported frequency
4. The EUT was tested in both normal mode (i.e. without a label in its proximity) and in activated mode (i.e. with a label in its proximity). Worst case noted.
5. A Quasi-peak detector was used with a bandwidth of 1 MHz.

3.1.1 Test equipment used (for reference see test equipment listing).

99699	99547	99071	99070	99069	99174	12483
99733	99606	99580	99608	99742	99107	12476
12477	15633	99161				

Test engineer

Signature : 

Name : Richard van der Meer
Date : November 02, 2010

3.2 Radiated field strength measurements (frequency range of 0.009-30 MHz, H-field).

Frequency (MHz)	(a) Measurement results (dBµV)	Detector	(b) Antenna factor	(c) Cable loss	(d) Distance Extrapolation factor	Measurement results (calculated a+b+c-d)	Limits
	3 meters		dB	dB	dB	dB(µV)/m	dB(µV)/m
13.561 (fundamental)	56.2	Qp	19.6	1	40	36.8 @30m	84 @30m
0.170	38.4	Av	20.1	1	80	-20.5 @300m	22.96 @300m
0.240	22.1	Av	20.1	1	80	-36.8 @300m	20.00 @300m
0.329	21.9	Av	20.1	1	80	-37.0 @300m	18.88 @300m
0.401	17.9	Av	20.1	1	80	-41.0 @300m	17.86 @300m
1.420	32.7	Qp	20.7	1	40	14.5 @30m	24.6 @30m
1.588	33.0	Qp	20.7	1	40	14.7 @30m	23.6 @30m
6.032	26.6	Qp	20.5	1	40	8.1 @30m	29.5 @30m
13.483	25.8	Qp	19.6	1	40	6.4 @30m	29.5 @30m
13.983	13.0	Qp	19.6	1	40	-6.4 @30m	29.5 @30m
27.122	17.5	Qp	19.7	1	40	-1.8 @30m	29.5 @30m

Table 3 Radiated emissions of the EUT, in the frequency range 0.009 – 30 MHz

The results of the radiated emission tests in the frequency range 0.009 – 30 MHz, carried out in accordance with 47 CFR Part 15 section 15.209 and RSS-210 and RSS-Gen are depicted in Table 3.

Notes:

1. Calculated measurement results are obtained by using the 40dB/decade factor (antenna factor and cable loss is included). i.e at 13.561 MHz: 56.2 dBuv + 19.6 dB + 1dB - 40dB= 36.8 dBuV/m.
2. A resolution bandwidth of 9kHz was used during testing
3. No EUT related emissions detected, only ambient noise detected which are given in Table 3.
4. Field strength values of radiated emissions at frequencies not listed in Table 3 are more than 20 dB below the applicable limit
5. The loop antenna was varied in horizontal and vertical orientations and also around it's axis. The reported value is the worst case found at the reported frequency.
6. The EUT was tested in horizontal and vertical orientations but showed no difference between these orientations. Worst case values noted.
7. Measurement uncertainty is ±5.0dB

3.2.1 Test equipment used (for reference see test equipment listing).

99699	99547	99071	99070	99069	15453	99161
99580	99608					

Test engineer

Signature : 

Name : R. van der Meer
Date : November 03, 2010

4 Conducted emission data.

4.1 Conducted emission data of the EUT (full configuration).

Supply Voltage (V)	Frequency (MHz)	Measurement results dB(µV) Neutral		Measurement results dB(µV) Line 1		Limits dB(µV)		Result
		QP	AV	QP	AV	QP	AV	
	0.150	44.1	*note 5	44.2	*note 5	60	50	PASS
	0.790	42.9	33.8	43.8	33.5	50	40	PASS
7	4.620	13.6	*note 5	13.6	*note 5	50	40	PASS
	13.560	28.0	"	28.2	"	60	50	PASS
	16.000	15.9	"	16.1	"	60	50	PASS
	27.120	34.5	"	34.5	"	60	50	PASS
	0.150	42.4	*note 5	42.9	*note 5	60	50	PASS
	0.760	43.1	39.1	42.5	38.9	50	40	PASS
12	13.560	28.2	*note 5	28.9	*note 5	60	50	PASS
	16.000	15.6	"	21.5	"	60	50	PASS
	16.325	14.0	"	14.2	"	60	50	PASS
	20.825	14.6	"	15.1	"	60	50	PASS
	21.950	13.5	"	10.7	"	60	50	PASS
	27.120	32.0	"	34.7	"	60	50	PASS
	0.150	40.6	*note 5	41.1	*note 5	60	50	PASS
	0.790	40.4	38.4	40.4	38.6	50	40	PASS
24	4.500	10.8	*note 5	10.3	*note 5	50	40	PASS
	5.445	3.2	"	18.6	"	60	50	PASS
	6.755	10.6	"	12.6	"	60	50	PASS
	8.445	12.0	"	12.3	"	60	50	PASS
	13.560	28.8	"	28.7	"	60	50	PASS
	15.760	13.3	"	21.7	"	60	50	PASS
	20.835	20.3	"	18.3	"	60	50	PASS
	21.395	19.0	"	17.6	"	60	50	PASS
	27.120	32.1	"	34.5	"	60	50	PASS

Table 4 Conducted emission measurements

The results of the conducted emission tests, carried out in accordance with 47 CFR Part 15 section 15.207 & RSS-Gen, section 7.2.4, at the 120 Volts AC mains connection terminals of the AC/DC power supply which was connected to the EUT, are depicted in Table 4.

Notes:

1. The test unit of type 5040 was modified to add a resistive termination in lieu of the antenna**.**
2. The test data shown above is of the worst case EUT. Maximum values recorded.
3. The values of conducted emissions at frequencies not listed in the table above are more than 20 dB below the applicable limit.
4. Measurement uncertainty is ±3.5dB
5. QP levels are already within AV limits and therefore AV is not tested.

4.1.1 Test equipment used (for reference see test equipment listing).

15667	12512	99161	99548	99045		

Test engineer

Signature : 

Name : R. van der Meer

Date : November 23, 2010

5 Carrier stability under special conditions.

5.1 Frequency stability (on 13.56 MHz) in accordance with 47 CFR Part 15, section 15.225 (e) & RSS-Gen section 4.7 and 7.2.4 and RSS-210 section A2.6:

1) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 °C to +50 °C at normal supply voltage (see Table 5).

Stability under special conditions	Supply Voltage	Measured frequency (MHz)	Frequency deviation (limit ±0.01%) (%)	PASS/FAIL
Temperature (°C)	(Vdc)			
20.0	+12	13.561.060 (reference)	N.A.	N.A.
-20.0	+12	13.561.087	< 0.01	PASS
50.0	+12	13.561.080	< 0.01	PASS

Table 5 The frequency tolerance of the carrier signal

5.1.1 At 85% and 115% of rated voltage supply level

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency at 85% and at 115% of the rated power supply voltage (+7Vdc to 24Vdc) at 20 °C environmental temperature. The reference is taken at +12Vdc which is the recommended supply voltage. The results are stated in Table 6.

Stability under special conditions	Measured frequency (MHz)	Frequency deviation (limit ±0.01%) (%)	PASS/FAIL
% variation U			
100.0 (+12 Vdc)	13.561.060 *(reference)*	N.A.	N.A.
85.0 (+5.95 Vdc)	13.561.060	< 0.01	PASS
115.0 (+27.6 Vdc)	13.561.030	< 0.01	PASS

Table 6 The frequency tolerance of the carrier signal

5.2 Bandwidth of the emission on 13.56 MHz in accordance with RSS-Gen section 4.7 and 7.2.4 and RSS-210 section A2.6.

Limit: 20 dB of the bandwidth of the emission shall be within the specified frequency band.
Bandwidth of the emission is determined at the points 20 dB down from the modulated carrier.
Specified frequency band: 13553 kHz - 13567 kHz.

Temperature (°C)	Minimum frequency (kHz)	Maximum frequency (kHz)
+20.0	13.557.060	13.565.040
-20.0	13.561.087	13.560.808
+50.0	13.557.080	13.565.040
Bandwidth	13.557.060	13.565.040

Table 7 Bandwidth of the emission

The measured minimum frequency of 13.557.060 kHz and maximum frequency of 13.565.040 kHz are well within the specified frequency bandwidth.

The applicant wants to state:
Since all models incorporated the same electronics for signal generation and control and is housed in a plastic enclosure that does not provide different isolative properties to the products – the carrier stability testing was completed on a 5050 only and is representative of all models.

5.2.1 Test equipment used (for reference see test equipment listing).

99318	99092	13640	99613	99683		

Test engineer

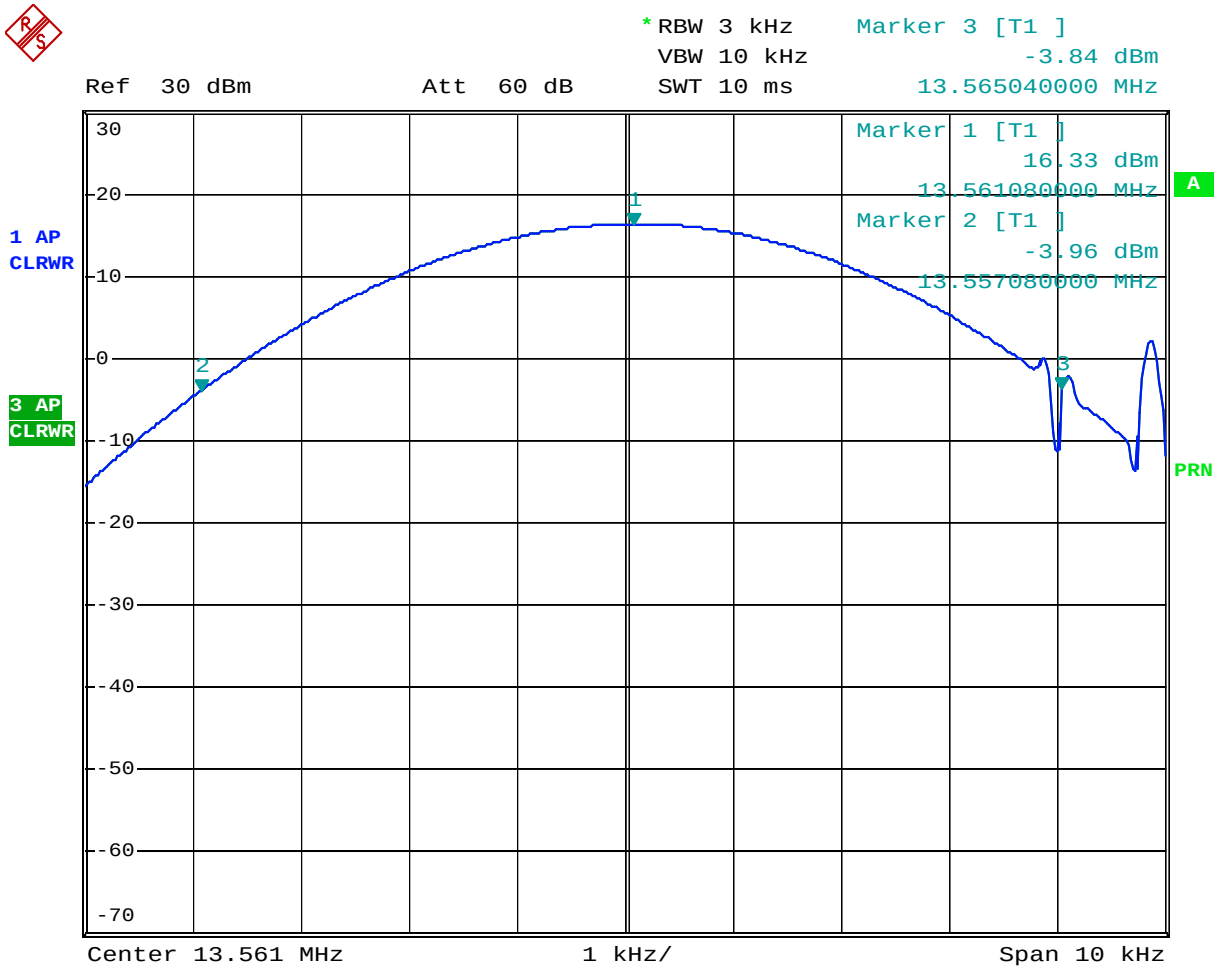
Signature : 

Name : R. van der Meer

Date : November 09, 2010

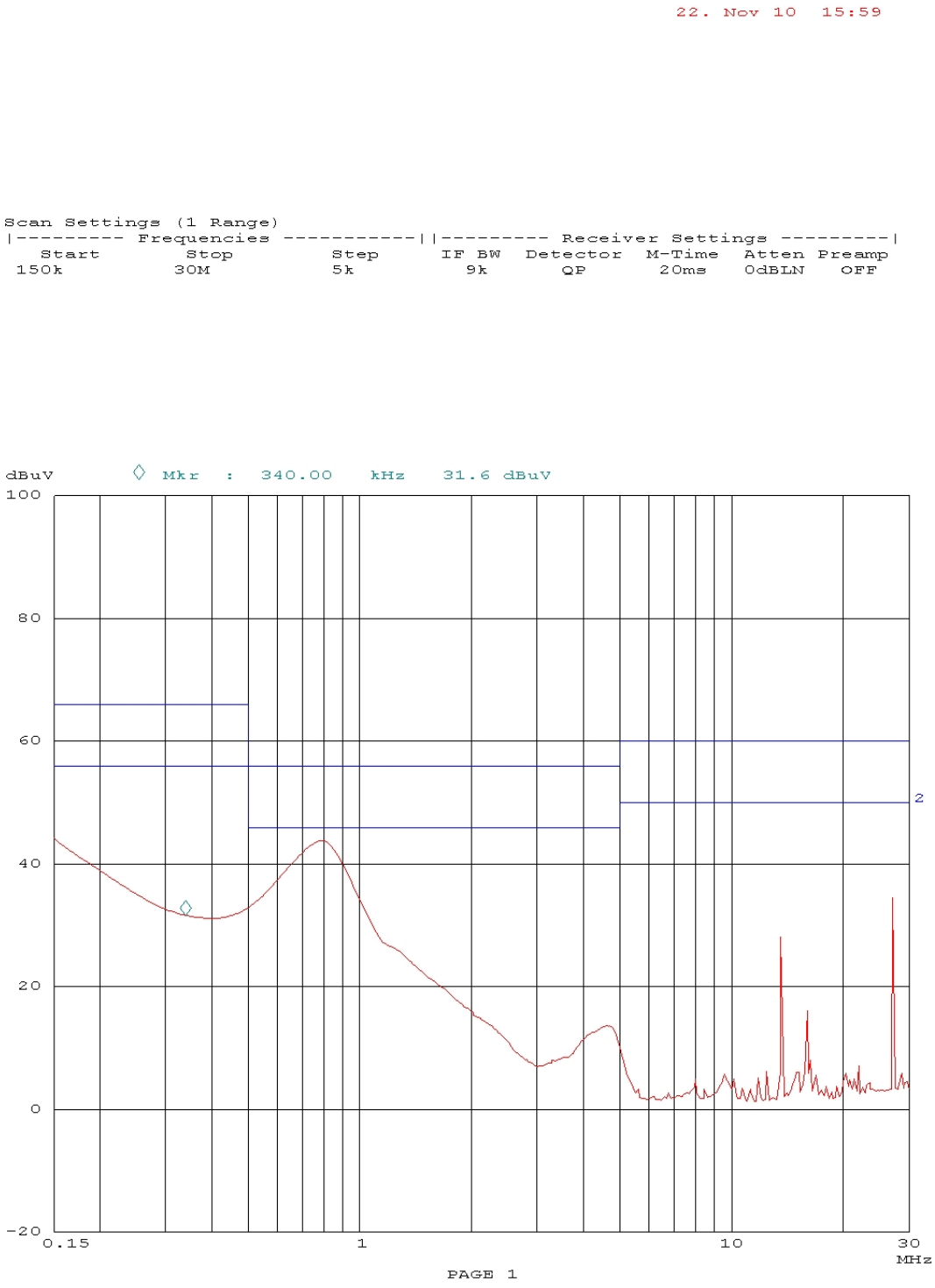
6 Plots of measurement data

6.1 Bandwidth of the emission



Plot1: Bandwidth of the emission at 13560 kHz (Fundamental Carrier),
for IC the measured Occupied Bandwidth is 4 kHz. Measured on a spectrum analyzer.

6.2 Conducted emissions

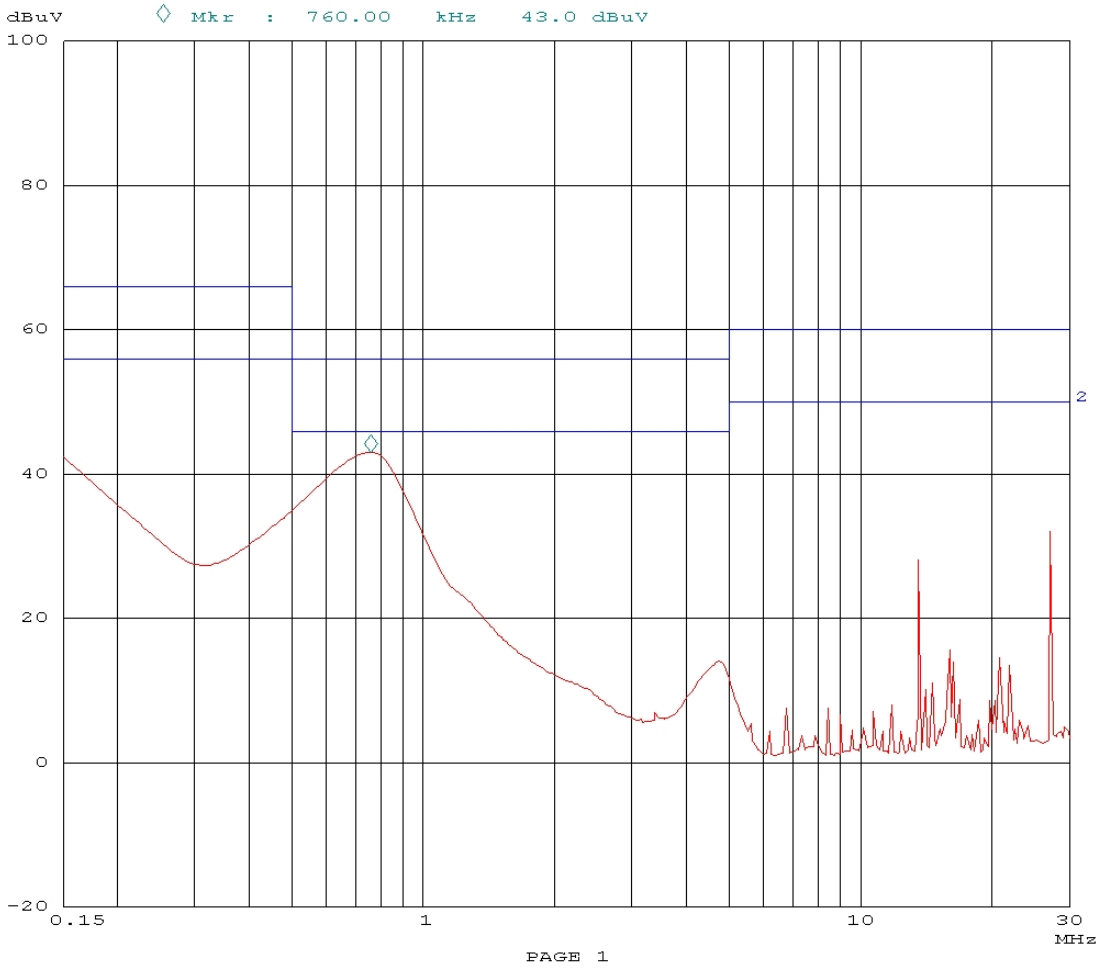


Plot 2: Conducted emissions of the EUT at a supply voltage of 7VDC

23. Nov 10 09:07

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	QP	20ms	0dBLN	OFF

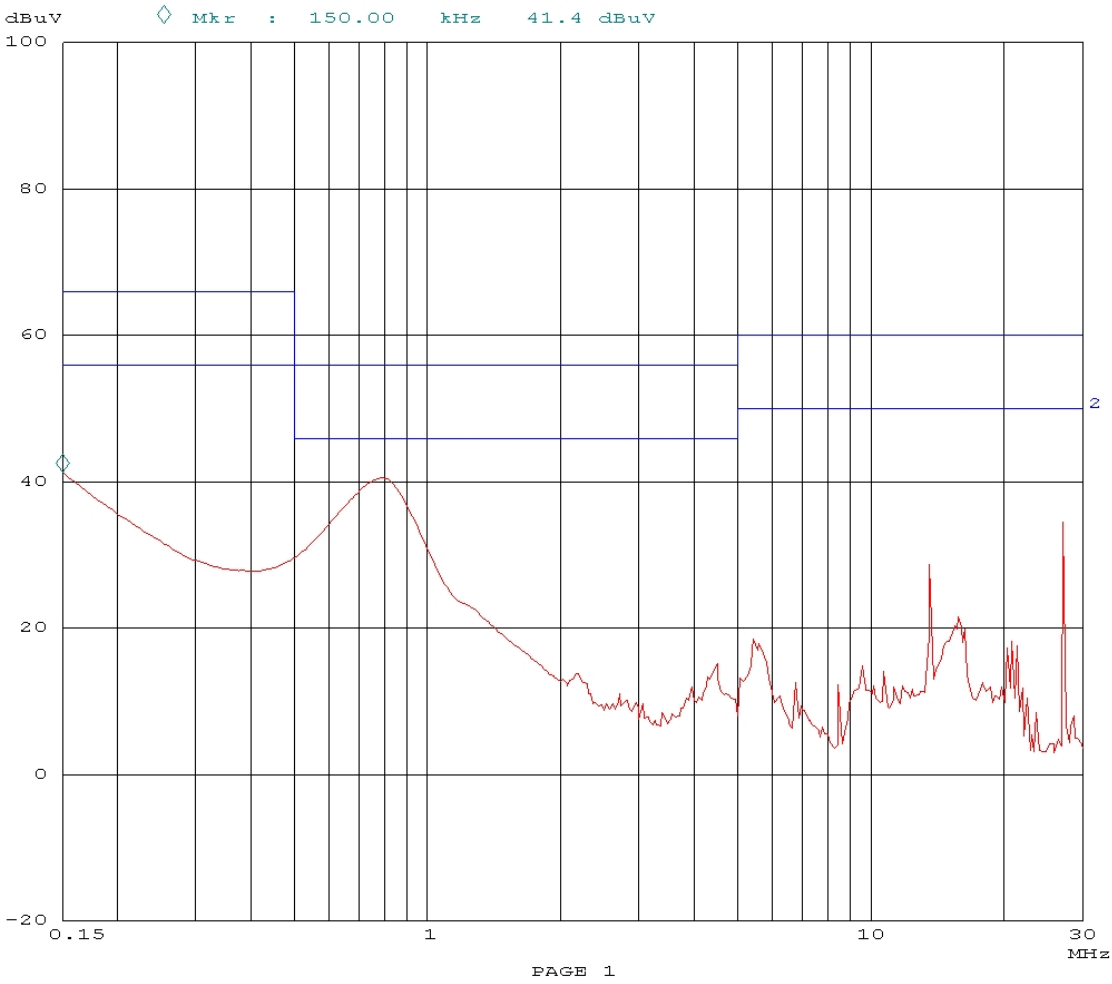


Plot 3: Conducted emissions of the EUT at a supply voltage of 12VDC

23. Nov 10 10:13

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	QP	20ms	0dBLN	OFF



Plot 4: Conducted emissions of the EUT at a supply voltage of 24VDC

7 List of utilized test equipment.

Inventory number	Description	Brand	Model	Last cal.	Next cal.
12476	Antenna mast	EMCO	TR3	NA	NA
12477	Antenna mast 1-4 mtr	Poelstra	NA	NA	NA
12512	LISN	EMCO	3625/2	01/2010	01/2012
15453	Active loopant. 60 cm	Chase	HLA6120	05/2010	05/2011
15633	Biconilog Testantenna	Chase	CBL 6111B	02/2010	02/2011
12640	Temperature chamber	Heraeus	VEM03/500	10/2010	10/2011
15667	Measuring receiver	R&S	ESCS30	06/201	06/2011
99045	Power supply	Delta	E030-3	04/2010	04/2011
99069	Coax 5m RG213 OATS	NMi Certin B.V.	CABLE 5M OATS	11/2009	11/2010
99070	Coax 15m RG213 OATS	NMi Certin B.V.	CABLE 15M OATS	11/2009	11/2010
99071	Coax OATS ground	NMi Certin B.V.	CABLE OATS	11/2009	11/2010
99092	RF Cable	--	Cable A	NA	NA
99161	Variac 120Vac	RFT	LTS001	NA	NA
99107	Controller OATS	Heinrich Deisel	4630-100	NA	NA
99318	Digital multimeter	HP	34401A	10/2010	10/2011
99538	Spectrum analyzer	R&S	FSP40	05/2010	05/2011
99547	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2010	10/2011
99580	OATS	Comtest	FCC listed: 90828	08/2008	08/2011
99161	Variac 250V 6A	RFT	LTS006	NA	NA
99608	Controller (OATS)	EMCS	DOC202	NA	NA
99609	Antenna mast	EMCS	AP-4702C	NA	NA
99613	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2010	10/2011
99651	Variac	NA	Vast Activa: 08-9510	NA	NA
99699	Measuring receiver	R&S	ESCI	12/2009	12/2010
99683	Loop antenna, 6cm	--	7405-901	3-Sep-2010	03-Sep-11
99733	Spectrum Analyzer	R&S	FSV30	05/2010	05/2011

NA= Not Applicable

Appendix 1 - Attestation of Similarity

January 10th, 2011

To whom it may concern:

This submittal for certification consists of different products that are comprised of the identical main board, RF Circuit and integral antenna on the main PCB. Since adequate testing of the non-keypad and keypad geometries was completed by TÜV Rheinland EPS B.V. (FCC Listed: 90828 and IC Registered: 2932G-1), and the fact that the plastic enclosure differences do not affect compliance; the model designation for certification for FCC shall be "50XX and 51XX Proximity Card Readers" For Industry Canada, the Model Numbers listed shall be "5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070 and 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170" (refer to the AoS on the following pages for differences).

The FCC ID's shall be:

YAB-ISOACRDR	model 50XX (with RF amplifier)
YAB-ISORDR	model 51XX (without RF amplifier)

The IC ID's shall be:

8908A-ISOACRDR	(with RF amplifier)
8908A-ISORDR	(without RF amplifier)

Sincerely,

Mark de Olde
Chief Technical Officer
INID BV

Kollenbergweg 78c
1101 AV Amsterdam ZO
The Netherlands
T: +31 (0)20 69 67 441
F: +31 (0)20 36 53 954
E: info@inid-readers.com

C. of C.: KvK - 20158413
Rabobank: 1401.76.691
IBAN: NL11 RABO 0140 1766 91
SWIFT/BIC: RABONL2U
VAT: NL8211.34.589.B01
www.inid-readers.com

Attestation of Similarity

The **INID ISO14443** reader product family consists of different models that incorporate an identical main PWA (**NGRP-AC v1.21**) that has integral: Power Section, I/O Section, Digital Processing Section, RF Section and Antenna. The main PWA has optional integral, RF amplifier and keyboard. The integral I/O Section of the main PWA is equipped with one out of four possible interfaces. This main board is then placed within different plastic enclosures that do not impact compliance for Safety, Radio, Emissions and immunity requirements. In addition, other PWA's may be added to the main PWA integral to the plastic enclosure to add functionality to the device (e.g. a SAM interface, 125kHz proximity reader module, biometrics). In cases where the basic geometries may affect compliance – prescans are performed in order to identify the worst case model. All Engineering justifications and or compliance impacts are addressed within the report in the form of additional testing and/or notes.

– Model 50XX –

Reader Type	**#1 - Mullion with Keypad - 13.56MHz Reader with RF amplifier**								
Part number	**Enclosure**	**Main PWA**	**RF amp**	**Key-board**	**WG C&D TTL**	**RS485 RS422**	**RS232**	**CAN**	**PWA #2**
5040	Plastic	NGRP-AC v1.21	Y	Y	Y	-	-	-	N/A
5050	Plastic	NGRP-AC v1.21	Y	Y	-	Y	-	-	N/A
5060	Plastic	NGRP-AC v1.21	Y	Y	-	-	Y	-	N/A
5070	Plastic	NGRP-AC v1.21	Y	Y	-	-	-	Y	N/A
Differences	The only difference between these models is the integral I/O section on the PWA.								

Reader Type	**#2 - Mullion - 13.56MHz Reader with RF amplifier**								
Part number	**Enclosure**	**Main PWA**	**RF amp**	**Key-board**	**WG C&D TTL**	**RS485 RS422**	**RS232**	**CAN**	**PWA #2**
5000	Plastic	NGRP-AC v1.21	Y	-	Y	-	-	-	N/A
5010	Plastic	NGRP-AC v1.21	Y	-	-	Y	-	-	N/A
5020	Plastic	NGRP-AC v1.21	Y	-	-	-	Y	-	N/A
5030	Plastic	NGRP-AC v1.21	Y	-	-	-	-	Y	N/A
Differences	1. The only difference between these models is the integral I/O section on the PWA. 2. The only difference with **reader type #1** is the absence of the keyboard.								

– Model 51XX –

Reader Type	#3 - Mullion with Keypad - 13.56MHz Reader without RF amplifier								
Part number	**Enclosure**	**Main PWA**	**RF amp**	**Key-board**	**WG C&D TTL**	**RS485 RS422**	**RS232**	**CAN**	**PWA #2**
5140	Plastic	NGRP-AC v1.21	-	Y	Y	-	-	-	N/A
5150	Plastic	NGRP-AC v1.21	-	Y	-	Y	-	-	N/A
5160	Plastic	NGRP-AC v1.21	-	Y	-	-	Y	-	N/A
5170	Plastic	NGRP-AC v1.21	-	Y	-	-	-	Y	N/A
Differences	1. The only difference between these models is the integral I/O section on the PWA. 2. The only difference with **reader type #1** is there is no RF amplifier this reduces the RF output power and total power consumption.								

Reader Type	Mullion - 13.56MHz Reader without RF amplifier								
Part number	**Enclosure**	**Main PWA**	**RF amp**	**Key-board**	**WG C&D TTL**	**RS485 RS422**	**RS232**	**CAN**	**PWA #2**
5100	Plastic	NGRP-AC v1.21	-	-	Y	-	-	-	N/A
5110	Plastic	NGRP-AC v1.21	-	-	-	Y	-	-	N/A
5120	Plastic	NGRP-AC v1.21	-	-	-	-	Y	-	N/A
5130	Plastic	NGRP-AC v1.21	-	-	-	-	-	Y	N/A
Difference	3. The only difference between these models is the integral I/O section on the PWA. 4. The difference with **reader type #1** is there is no RF amplifier and keyboard, this reduces the RF output power and total power consumption.								

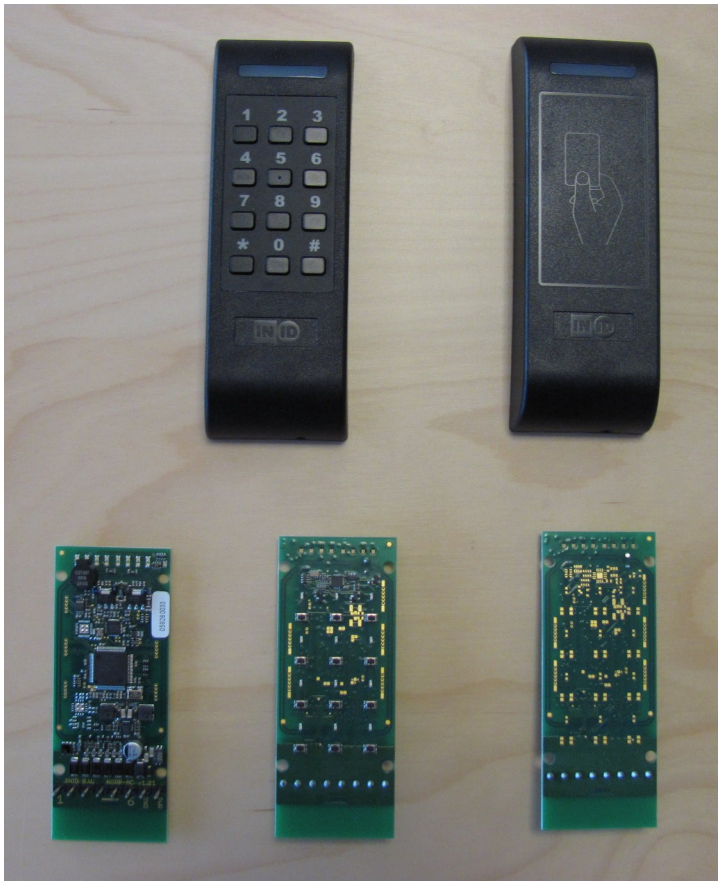
Supporting product photos are on the following page under the signature below

January 10th 2010

Company Representative Signature:
Mark de Olde / Chief Technical Officer

Statement date:

Product photos



From left to right and top to bottom:

1. INID ISO14443 PIN reader (models: 5040, 5050, 5060, 5070 and 5140, 5150, 5160, 5170)
2. INID ISO14443 reader (models: 5000, 5010, 5020, 5030 and 5100, 5110, 5120, 5130)
3. NGRP-AC v1.21 connector side
4. NGRP-AC v1.21 keyboard side with keyboard.
5. NGRP-AC v1.21 keyboard side without keyboard