



TEST REPORT CONCERNING THE COMPLIANCE OF AN ACCESS CONTROL SYSTEM, BRAND CROSS POINT, TYPE XM3 EM125KHZ + HID PROXIMITY READER, INCLUDING CONNECTION UNITS XMCU3 AND XMCU3A, WITH 47 CFR PART 15 (2001-5-24).

FCC listed : 90828 Industry Canada : IC3501

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Project number: 02042301 Page 1 of 13



Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

MEASUREMENT/TECHNICAL REPORT

CROSS POINT B.V.

Model: XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A connection units

FCC ID: N9G-XM3

May 23, 2002

This report concerns: Original grant/certification Class 2 change Verification Equipment type: Access Control System operating on 125 kHz Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? n.a. Report prepared by: Name : P.A.J.M. Robben, B.Sc.E.E. : TNO Electronic Products & Services (EPS) B.V. Company name Address : Smidshornerweg 18 Postal code/city : 9822 ZG Niekerk Mailing address : P.O. Box 15 Postal code/city : 9822 TL Niekerk Country : The Netherlands Telephone number : + 31 594 505 005 Telefax number : + 31 594 504 804 E-mail : info@eps.tno.nl

The data taken for this test and report herein was done in accordance with 47 CFR Part 15 and the measurement procedures of ANSI C63.4-1992. TNO Certification EPS 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: May 23, 2002 Signature:

O.H. Hoekstra

TNO Electronic Products & Services (EPS) B.V.

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47 CFR Part 15 (2001-5-24) **Test specification(s): Description of EUT: Access Control System** Manufacturer: Cross Point B.V. Brand mark: **Cross Point**

Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A

FCC ID: N9G-XM3

Description of test item

Test item Access Control System Cross Point B.V. Manufacturer Brand Cross Point

XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A Type

connection units

Serial numbers n.a. Revision n.a. Receipt number 1

Receipt date April 23, 2002

Applicant information

Applicant's representative Mr. J. Wiggerink Company Cross Point B.V. Address Waanderweg 64 Postal code 7812 HZ City Emmen PO-box 2112 7801 CC Postal code City Emmen

Country The Netherlands Telephone number +31 591 668 866 Telefax number +31 591 668 867

Test(s) performed

Location Niekerk May 23, 2002 Test(s) started May 23, 2002 Test(s) completed

Purpose of test(s) Compliance with standard 47 CFR Part 15 (2001-5-24) Test specification(s)

Test engineer

Project leader

P.A.J.M. Robben, B.Sc.E.E.

D.H. Hoekstra

1 y 24, 2002 Report written by

Report approved by

Report date

This report is in conformity with NEN-EN-ISO/IEC 17025: 2000.

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Test specification(s):
Description of EUT:
Manufacturer:
Brand mark:
A7 CFR Part 15 (2001-5-24)
Access Control System
Cross Point B.V.
Cross Point

Type: $XM3\ EM125kHz + HID$, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

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Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

FCC ID: N9G-XM3

1 General information.

1.1 Product description.

1.1.1 Introduction.

The Access Control System, brand Cross Point, type XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A connection units, is designed to function as a security measure in order to prevent unauthorized access to buildings (or parts of buildings). A person who wants to enter a secure building, or a secure area in the building, must have a key card in which a valid access code is stored. When the key card is in close proximity of the card reader the code will be transmitted and validated by a computer system, which is connected to the reader itself. Access will be granted to the secure area if it is determined that a valid code has been transmitted.

1.1.2 Choice of operating frequency.

The operating frequency of the inductive proximity card reader, brand Cross Point, type XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A connection units, is 125 kHz (continuous carrier).

1.1.3 Operating principles.

The inductive proximity card reader is a DC powered system with an integral antenna. The inductive proximity card reader generates a RF-field at a frequency of 125 kHz (continuous carrier) which activates the electronics in the key card. The activated key card then sends an identification code to the inductive proximity card reader by modulating the RF-field. The modulation of the 125 kHz RF-field can be detected and then the code is demodulated by the inductive proximity card reader. The code is then transmitted by a wired connection to the computer system for validation.

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

Not applicable.

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 in table 1 below. FCC ID's are stated in this overview where applicable. The EUT is listed in the first row of table 1.

Description	Manufacturer	Type number	Serial number	FCC ID	Cable descriptions
Access Control System	Cross Point B.V.	XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A connection units	n.a.	N9G-XM3	Shielded data/DC power cable.

Table 1 - Tested system details overview.

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Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

1.4 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 15, issue of May 24, 2001, sections 15.207, 15.205 and 15.209.

The test methods, which have been used, are based on ANSI C63.4: 1992.

Radiated emission tests above 30 MHz were performed at a measurement distance of 3 meters. Below 30 MHz the radiated emission tests were carried out at measurement distances of 3 and 10 meters. The test results regarding the radiated emission tests on frequencies below 30 MHz have been extrapolated in order to determine the field strength of the measured values at measurement distances of 30 and 300 meters (as required by 47 CFR Part 15).

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.

1.5 Test facility.

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at TNO Certification EPS, 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, per October 23, 2000, with reference 31040/SIT.

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

The list of all public test facilities is available on the Internet at http://www.fcc.gov.

1.6 Product labeling.

In accordance with 47 CFR Part 15.19 (a)(3) the following text shall be placed on a label, which is attached to the EUT:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The FCC ID of the EUT must be placed on a label, which is attached to the EUT.

For further details about the labeling requirements (size, legibility, etc.) as set by the Federal Communications Commission see 47 CFR Part 15.19 (a)(3), 47 CFR Part 15.19 (b)(2), 47 CFR Part 15.19 (b)(4), 47 CFR Part 2.925 and 47 CFR Part 2.926.

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Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

2 System test configuration.

2.1 Justification.

The system was configured for testing in a typical fashion (as a customer would normally use it). During all tests the EUT was set up to function in accordance with the manufacturer's instructions.

The justification and manipulation of cables and equipment in order to simulate a worst-case behaviour of the test setup has been carried out as prescribed in ANSI C63.4: 1992.

2.2 EUT mode of operation.

Radiated and conducted emission measurements were carried out when the system was active and was generating a continuous transmitting signal.

2.3 Special accessories.

No special accessories are used and/or needed to achieve compliance with the appropriate sections of 47 CFR Part 15.

2.4 Equipment modifications.

No modifications have been made to the equipment in order to achieve compliance with the appropriate sections of 47 CFR Part 15.

2.5 Configuration of the tested system.

Unit title : Inductive proximity card reader

Model number : XM3 EM125kHz + HID proximity reader, including XMCU3 and XMCU3A

connection units

Part number : n.a.

FCC ID : N9G-XM3

Frequency range : 125 kHz (continuous carrier)

Description/details : see section 1.1 of this test report

Power supply : +12 Volts DC

Clock Oscillator(s) : 8 MHz

Cabinet & Screening : Plastic

Interface Cable(s) : Shielded data/DC power cable

Method of screening : Not applicable

Method of grounding : Not applicable

Operating configuration : see section 1.3 of this test report

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Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

2.6 Block diagram of the EUT.

The block diagram is available in the technical documentation package as an addendum to this test report.

2.7 Schematics of the EUT.

The schematics are available in the technical documentation package as an addendum to this test report.

2.8 Partlist of the EUT.

The partlist is available in the technical documentation package as an addendum to this test report.

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Type: XM3 EM125kHz + HID , including XMCU3 and

XMCU3A FCC ID: N9G-XM3

3 Radiated emission data.

3.1 Radiated field strength measurements (frequency range of 30-1000 MHz, E-field).

Frequency (MHz)	Measurement results dB(μV)/m @ 3 meters Quasi-peak		Limits dB(µV)/m @ 3 meters Quasi-peak	Ma (c Quas	Result	
	Vertical Horizontal			Vertical	Horizontal	
130.38	34.3	20.1	43.5	-9.2	-23.4	PASS
159.13	26.4	16.5	43.5	-17.2	-27.1	PASS
194.13	18.2	12.0	43.5	-25.3	-31.5	PASS

Table 2

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15, sections 15.205 and 15.209, with the EUT operating in continuous transmit mode on 125 kHz, are depicted in table 2.

<u>Note:</u> - Field strength values of radiated emissions at frequencies not listed in table 2 are more than 20 dB below the applicable limit.

Test engineer

Signature :

Name : H.J. Pieters

Date : May 23, 2002

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Type: XM3 EM125kHz + HID , including XMCU3 and XMCU3A

FCC ID: N9G-XM3

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

Frequency (MHz)	Measurement results dBμV Quasi-peak		Antenna factor	Cable loss	Measurement results dB(μV)/m Quasi-peak	Limits Part 15.209 dB(μV)/m		
	3 meters	10 meters	dB	dB	(calculated)	(calculated)		
0.009 - 0.125	<10.0	n.a.	19	1	<10.0	48.5 - 25.7 (300 m)		
0.125	56.5	243	19	1	<10.0	25.7 (300 m)		
0.250	< 10.0	n.a.	19	1	<10.0	19.6 (300 m)		
0.375	<10.0	n.a.	19	1	<10.0	16.1 (300 m)		
0.375 - 0.490	<10.0	n.a.	19	1	<10.0	16.1 - 13.8 (300 m)		
0.490 - 1.705	<10.0	n.a.	19	1	<10.0	33.8 - 22.9 (30 m)		
1.705 - 30.00	<10.0	n.a.	19	1	<10.0	29.5 (30 m)		

Table 3

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15, sections 15.205 and 15.209, with the EUT operating in continuous transmit mode on 125 kHz, are depicted in table 3.

Notes: - Frequency range: 9-90 kHz Average detector used during measurements

110-490 kHz Average detector used during measurements

- The radiated field strengths were measured at a distance of 3 and 10 meters. Measured field strengths at a distance of 10 meters were already below the limit of 30/300 meters

- n.a. indicates that no field strength values could be measured on the listed frequencies or in the listed frequency range

Field strength values of radiated emissions at frequencies not listed in table 3 are more than 20 dB below the applicable limit

Test engineer

Signature

Name

: H.J. Pieters

Date : May 23, 2002

Project number: 02042301 Page 10 of 13



Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

4 Conducted emission data.

Frequency (MHz)	Measurement results dB(μV) Neutral		Measurement results dB(μV) Line 1		Limits dB(μV)		Margin (dB) Neutral		Margin (dB) Line 1		Result
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	
0.99	23.2	21.8	22.2	20.8	56.0	46.0	-32.8	-24.2	-33.8	-25.2	PASS
1.80	26.6	25.0	21.0	19.6	56.0	46.0	-29.4	-21.0	-35.0	-26.4	PASS
2.45	33.3	26.8	29.0	24.8	56.0	46.0	-22.7	-19.2	-27.0	-21.2	PASS
6.12	22.9	19.4	18.2	14.0	60.0	50.0	-37.1	-30.6	-41.8	-36.0	PASS
12.37	16.8	12.0	16.2	11.7	60.0	50.0	-43.2	-38.0	-43.8	-38.3	PASS
17.62	17.5	14.0	15.8	12.2	60.0	50.0	-42.5	-36.0	-44.2	-37.8	PASS
22.12	15.7	11.6	14.1	10.5	60.0	50.0	-44.3	-38.4	-45.9	-39.5	PASS
27.37	23.0	19.0	20.6	18.2	60.0	50.0	-37.0	-31.0	-39.4	-31.8	PASS
29.87	26.6	24.3	25.7	23.5	60.0	50.0	-33.4	-25.7	-34.3	-26.5	PASS

Table 4

The results of the conducted emission tests, carried out in accordance with 47 CFR Part 15, section 15.207, at the 110 Volts AC mains connection terminals of the AC/DC adapter connected to the EUT and with the EUT operating in continuous transmit mode on 125 kHz, are depicted in table 4.

Note: During the measurement it was taken into account that the main operating frequency of 125 kHz of the EUT could be present on the 110 Volts AC mains terminals. The possible occurrence of this frequency of 125 kHz and its harmonics, throughout the range of 125 kHz to 30 MHz, was checked during the measurement. The conducted emissions on frequencies which are not listed in table 4 were found to be below 25 dB(μ V) on both line 1 and line 2.

Test engineer

Signature

Name : H.J. Pieters

Date : May 23, 2002

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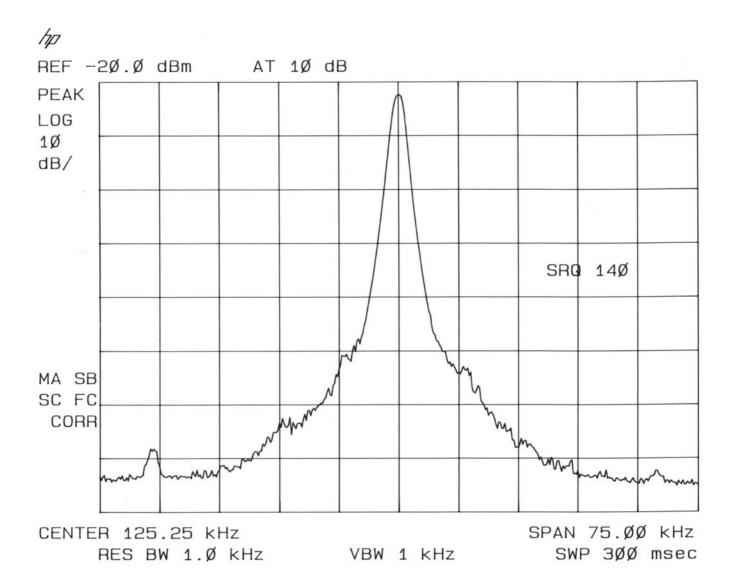


Test specification(s):
Description of EUT:
Manufacturer:
Brand mark:
A7 CFR Part 15 (2001-5-24)
Access Control System
Cross Point B.V.
Cross Point

 $Type: \quad XM3\;EM125kHz + HID\;, including\; XMCU3\; and \\$

XMCU3A FCC ID: N9G-XM3

5 Plot of emission bandwidth of carrier signal.



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Test specification(s):
Description of EUT:
Manufacturer:
Brand mark:
A7 CFR Part 15 (2001-5-24)
Access Control System
Cross Point B.V.
Cross Point

Type: XM3 EM125kHz + HID, including XMCU3 and

XMCU3A FCC ID: N9G-XM3

6 List of utilized test equipment.

Inventory number	Description	Brand	Туре		
12471	Biconical antenna 20MHz-200MHz	EATON	94455-1		
12473	Log-per antenna 200-1000MHz	EATON	96005		
12476	Antenna mast	EMCO	TR3		
12477	Antenna mast 1-4 mtr	Poelstra			
12482	Loop antenna	EMCO	6507		
12483	Guidehorn	EMCO	3115		
12484	Guidehorn	EMCO	3115		
12488	Guidehorn 18 - 26.5 GHz	EMCO	RA42-K-F-4B-C		
12533	Signalgenerator	MARCONI	2032		
12559	Digital storage oscilloscope	Le Croy	9310M		
12561	DC Power Supply 20A/70V	DELTA	SM7020D		
12567	Plotter	HP	7440A		
12605	calibrated dipole 28MHz-1GHz	Emco	3121c		
12608	HF milliwattmeter	Hewlett Packard	HP435a		
12609	Power sensor 10MHz-18GHz	Hewlett Packard	HP8481A		
12636	Polyester chamber	Polyforce			
12640	Temperature chamber	Heraeus	VEM03/500		
13664	Spectrum analyzer	HP	HP8593E		
13078	Preamplifier 0.1 GHz - 12 GHz	Miteq	AMF-3D-001120-35-14p		
13452	Digital multi meter	HP	34401A		
13526	Signalgenerator 20 GHz	Hewlett & Packard	83620A		
13594	Preamplifier 10 GHz - 25 GHz	Miteq	AMF-6D-100250-10p		
13886	Open Area testsite	Comtest			
14051	Anechoic room	Comtest			
14450	2.4 GHz bandrejectfilter	BSC	XN-1783		
15633	Biconilog Testantenna	Chase	CBL 6111B		
15667	Measuring receiver	R&S	ESCS 30		
99045	DC Power Supply 3A/30V	DELTA	E030/3		
99055	Non-conducting support	NMi			
99061	Non-conducting support 150cm	NMi			
99068	Detector N-F/BNC-F	Radiall	R451576000		
99069	Cable 5m RG214	NMi			
99071	Cable 10m RG214	NMi			
99076	Bandpassfilter 4 - 10 GHz	Reactel	7AS-7G-6G-511		
99077	Regulating trafo	RFT	LTS006		
99112	Tripod	Chase			
99136	Bandpassfilter 10 - 26.5 GHz	Reactel	9HS-10G/26.5G-S11		

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