

**EMISSION MEASUREMENTS IN ACCORDANCE
WITH FCC PART 15 AND ANSI C63.4-1992 ON TWO
TRANSPONDERS, BRAND AMB PRODUCTS, TYPES
TRANX 160 AND TRANX 260, INCLUDING A
BATTERY CHARGER, BRAND MNI CELLUAR LTD.,
TYPE V834K01.**

FCC ID: NXYTRANX

FCC report layout endorsed by the FCC by
Public Notice of March 11, 1992.

| | |
|------------------------|---|
| Accredited by | :STERLAB accreditation number L029 D.A.R., TTI-P-G.127/96-00 |
| Competent body | :Article 10-2 EMC Directive |
| Notified body nr. 0122 | :Article 10-5 EMC Directive Low Voltage Directive TTE Directive |
| Certification body | :Electrical Products Safety regulation, Hong Kong |
| Designated laboratory | :TTE Directive |
| Notified test service | :Automotive Directive |
| FCC listed | :31040/SIT |
| VCCI registered | :R-592 C-607 |

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9822 TL Niekerk (NL)**

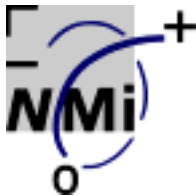
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Subsidiary companies:
NMI Certin B.V. (27233418)
NMI Van Swinden Laboratorium B.V. (27228703)
NMI International B.V. (27239176)



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

MEASUREMENT/TECHNICAL REPORT

AMB i.t. B.V.

FCC ID: NXYTRANX

Date: July 23, 1999

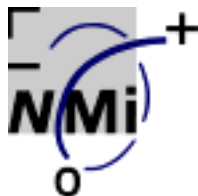
| | |
|---|---|
| This report concerns: Verification / Notification / Certification | |
| Equipment type: Intentional radiator | |
| Deferred grant requested per 47 CFR 0.457(d)(1)(ii) No | |
| If yes defer until: not applicable | |
| Transition Rules Request per 15.37: No | |
| Report prepared by: | Name : P.A.J.M. Robben, B.Sc.E.E. Company name : NMI Certin B.V. Address : Smidshornerweg 18 Telephone number : + 31 594 505005 Telefax number : + 31 594 504804 Mailing address : P.O. Box 15 City/Place/Postal cd. : 9822 ZG NIEKERK Country : The Netherlands Email : et-desk@nmi.nl |

The data taken for this test and report herein was done in accordance with FCC Part 15 and ANSI C63.4-1992 measurements. NMI Certin B.V., location 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 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: July 23, 1999

Signature:

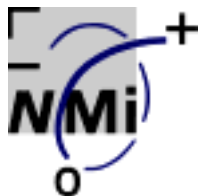
J.S. Sikkema, B.Sc.E.E.
 Department EMC and Telecommunication



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

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Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

1 General Information.

1.1 Product description.

The product tested is part of an inductive laptiming system. The inductive laptiming system may include transponders, brand AMB products, types TranX 160 and TranX 260, and a battery charger, brand MNI Cellular Ltd., type V834K01.

1.2 Related Submittal(s)/grant(s).

The related similar submittals are: FCC ID: NXYTRANXREC (TranX decoder) and FCC ID: NXYTRANKART (transponder, type TranX 120).

1.3 Test Methodology.

The Test methodology of ANSI C63.4-1992 has been applied to provide adequate measuring data.

Complete data of the tested model has been recorded.

According to FCC Part 15, § 101 the EUT shall be classified as an intentional radiator and is therefore subject to certification.

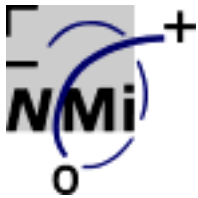
1.4 Test facility.

The FCC has per Public Notice declared that the measurement facilities located at the NMI Certin B.V. testsite Niekerk, Smidshornerweg 18, The Netherlands, have been reviewed and found to be in compliance with the requirements of section 2.948 (previously section 15.38) of the FCC rules per August 4, 1994.

The description of the measuring facilities have been filed with reference 31040/SIT, 1300B3 at the FCC's Offices.

1.5 List of measurement equipment.

| NMI number | Description | Marketing name | Type |
|-------------------|-----------------------------------|-----------------------|---------------|
| 14277 | Antennamast 4m | Heinrich Deisel | HD100 |
| 14278 | Controller OATS | Heinrich Deisel | MA240 |
| 14340 | Biconilog antenna 20MHz - 1100MHz | EMCO | 3143 |
| 12473 | Log-per antenna 200MHz - 1000MHz | Eaton | 96005 |
| 12471 | Biconical antenna 20MHz - 200MHz | Eaton | 94455-1 |
| 12636 | Plastic measurement room | Polyforce | - |
| 13886 | Open Area Test Site | Comtest | - |
| 99108 | Turntable OATS | Heinrich Deisel | HD050 |
| 15667 | Measuring receiver 9kHz - 2750MHz | Rohde & Schwarz | ESCS30 |
| 12507 | Artificial mains network 3-phase | Rohde & Schwarz | ESH2-Z5 |
| 13313 | Impuls limiter | Rohde & Schwarz | ESH3Z2.357... |
| 99115 | Voltage probe | Schwarzbeck | TK9416 |



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

1.6 Bandwidth and antenna factors.

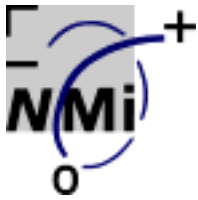
The utilized measuring equipment is stated in § 1.5. The bandwidth of the receiver switches automatically to the right bandwidth in accordance with CISPR 16. This is implemented in the receiver. Also the antenna factors are included in the test receiver. The receiver automatically calculates the appropriate correction factor for the utilized antenna and also the appropriate correction factor for the cable loss. The total correction is automatically added to the measured value.

2 Product labelling.

The following text shall be attached to the EUT, by means of a label, or -in case the enclosure is too small- on a prominent location in the users manual.

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 dimensions of the label, the location of the label and the type of font can be found in the FCC regulation book CFR 47, parts 0 to 19, revised as per October 1, 1997.



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

3 System test configuration.

3.1 Justification.

During all measurements the transponders were transmitting continuously. The RF signal, generated by the transponder, is a CW signal. During radiated emission measurements the turntable was rotated in order to find the maximum radiated emission on each frequency.

The differences between the two transponders can be described as follows:

1. TranX 160

This transponder is identical to the TranX 260 transponder. This only difference consists of the internal jumper settings for setting the level of RF output power.

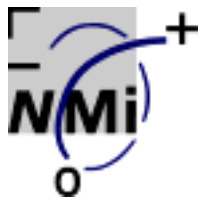
2. Tranx 260

This transponder is identical to the TranX 160 transponder. This only difference consists of the internal jumper settings for setting the level of RF output power.

In accordance with § 11.2.4. of ANSI C63.4-1992 the placing and manipulation of interface cables has been carried out.

3.2 Equipment modifications.

Not applicable.

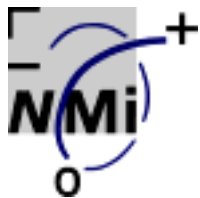


Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

3.3 Description of tested EUT.

3.3.1 Transponder TranX 160.

| | | |
|----------------------------|---|---|
| Unit title | : | Transponder |
| Model number | : | TranX 160 |
| Part number | : | Not applicable |
| FCC ID number | : | NXYTRANX |
| Frequency range | : | 3.58 MHz |
| Description/details | : | see section 3.1 of this report and exhibits to the application |
| Power supply | : | Internal NiCd battery (to be charged by battery charger, brand MNI Cellular Ltd., type V834K01) |
| Clock Oscillator(s) | : | 3.58 MHz |
| Cabinet & Screening | : | Plastic |
| Interface Cable(s) | : | Not applicable |
| Method of screening | : | Not applicable |
| Method of grounding | : | Not applicable |
| Operating configuration | : | Transponder is continuously transmitting |
| Applicant's representative | : | F. Hin |
| Company | : | AMB i.t. B.V. |
| Address | : | Herenweg 29A |
| Postal code and city | : | 2105 MB HEEMSTEDE |
| Country | : | The Netherlands |
| Telephone number | : | +31 (0)23 5291893 |
| Telefax number | : | +31 (0)23 5290156 |



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

3.3.2 Transponder TranX 260.

Unit title : Transponder

Model number : TranX 260

Part number : Not applicable

FCC ID number : NXYTRANX

Frequency range : 3.58 MHz

Description/details : see section 3.1 of this report and the exhibits to the application

Power supply : Internal NiCd battery (to be charged by battery charger, brand MNI Cellular Ltd., type V834K01)

Clock Oscillator(s) : 3.58 MHz

Cabinet & Screening : Plastic

Interface Cable(s) : Not applicable

Method of screening : Not applicable

Method of grounding : Not applicable

Operating configuration : Transponder is continuously transmitting

Applicant's representative : F. Hin

Company : AMB i.t. B.V.

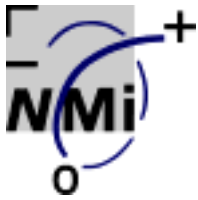
Address : Herenweg 29A

Postal code and city : 2105 MB HEEMSTEDE

Country : The Netherlands

Telephone number : +31 (0)23 5291893

Telefax number : +31 (0)23 5290156

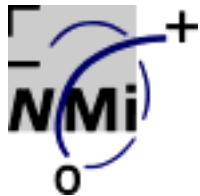


Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

4 Conducted and radiated measurement photos.

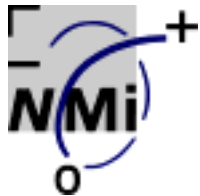
On pages 10 to 24 the conducted and radiated emission measurements photos are given:

- Page 10: TranX 160 (radiated emission, front, x-orientation)
- Page 11: TranX 160 (radiated emission, back, x-orientation)
- Page 12: TranX 160 (radiated emission, front, y-orientation)
- Page 13: TranX 160 (radiated emission, back, y-orientation)
- Page 14: TranX 160 (radiated emission, front, z-orientation)
- Page 15: TranX 160 (radiated emission, back, z-orientation)
- Page 16: TranX 260 (radiated emission, front, x-orientation)
- Page 17: TranX 260 (radiated emission, back, x-orientation)
- Page 18: TranX 260 (radiated emission, front, y-orientation)
- Page 19: TranX 260 (radiated emission, back, y-orientation)
- Page 20: TranX 260 (radiated emission, front, z-orientation)
- Page 21: TranX 260 (radiated emission, back, z-orientation)
- Page 22: Tranx 260 including a battery charger, type V834K01 (front, radiated emission)
- Page 23: Tranx 260 including a battery charger, type V834K01 (back radiated emission)
- Page 24: Tranx 260 including a battery charger, type V834K01 (front, conducted emission)
- Page 25: Tranx 260 including a battery charger, type V834K01 (back conducted emission)



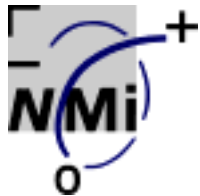
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Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX





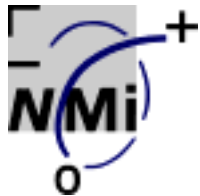
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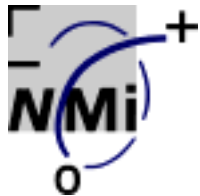
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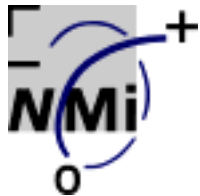
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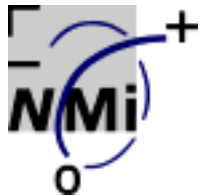
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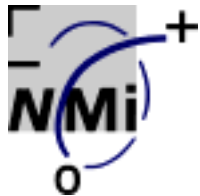
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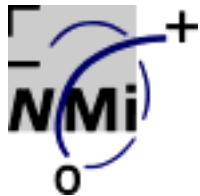
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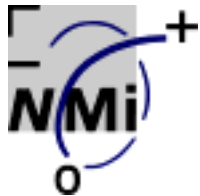
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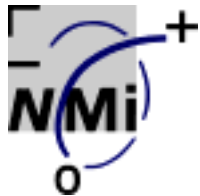
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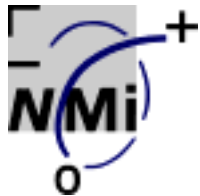
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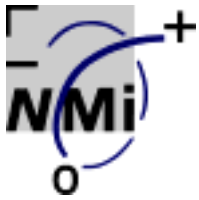
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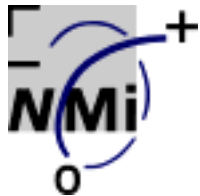
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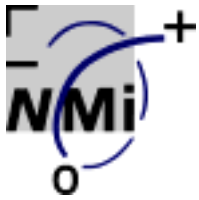
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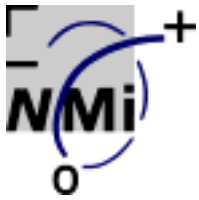
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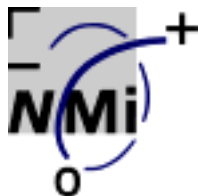
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5 Conducted emission data.

| Frequency (MHz) | Measurement results dB(μ V) Neutral | Measurement results dB(μ V) Line 1 | Limits dB(μ V) section 207 | Result |
|-----------------|--|---|---------------------------------|--------|
| | QP | QP | QP | |
| 0.45 - 30.0 | < 20.0 | < 20.0 | 48.0 | PASS |

QP = Quasi-peak

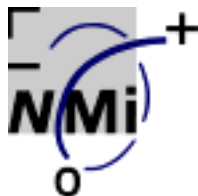
Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 1

The results of the disturbance voltage level measurements at the AC mains connection terminal **LINE and NEUTRAL** of the battery charger, brand MNI Cellular, type V834K01, when charging a transponder, brand AMB products, type TranX 260, carried out in accordance with FCC Part 15, section 207 and ANSI C63.4-1992, are depicted in table 1. Measurement results are quasi-peak results.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

6 Radiated emission data.

6.1 Radiated field strength measurement (30 MHz - 1000 MHz, E-field).

6.1.1 TranX 160 transponder.

| Frequency (MHz) | Measurement results dB(μ V)/m 3 metres QP | | Limits dB(μ V)/m @ 3 metres QP section 209 |
|-----------------|--|------------|---|
| | Vertical | Horizontal | |
| 30.0 - 88.0 | < 20.0 | < 20.0 | 40,0 |
| 88.0 - 216.0 | < 20.0 | < 20.0 | 43.5 |
| 216.0 - 425.0 | < 20.0 | < 20.0 | 46.0 |
| 425.0 - 630.0 | < 25.0 | < 25.0 | 46.0 |
| 630.0 - 960.0 | < 30.0 | < 30.0 | 46.0 |
| 960.0 - 1000.0 | < 31.0 | < 31.0 | 54.0 |

QP = Quasi-peak

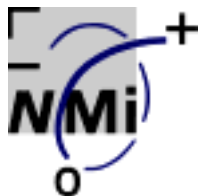
Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 2

Results of the radiated field strength (E-field) measurements on the transponder, brand AMB products, type TranX 160, carried out in accordance with FCC Part 15, section 209 and ANSI C63.4-1992 in the configuration and operation mode(s) as stated in this testreport, are depicted in table 2. Measurement results are quasi-peak results.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

6.1.2 TranX 260 transponder.

| Frequency (MHz) | Measurement results dB(μ V)/m 3 metres QP | | Limits dB(μ V)/m @ 3 metres QP section 209 |
|-----------------|--|------------|---|
| | Vertical | Horizontal | |
| 30.0 - 88.0 | < 20.0 | < 20.0 | 40,0 |
| 88.0 - 216.0 | < 20.0 | < 20.0 | 43.5 |
| 216.0 - 425.0 | < 20.0 | < 20.0 | 46.0 |
| 425.0 - 630.0 | < 25.0 | < 25.0 | 46.0 |
| 630.0 - 960.0 | < 30.0 | < 30.0 | 46.0 |
| 960.0 - 1000.0 | < 31.0 | < 31.0 | 54.0 |

QP = Quasi-peak

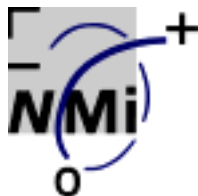
Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 3

Results of the radiated field strength (E-field) measurements on the transponder, brand AMB products, type TranX 260, carried out in accordance with FCC Part 15, section 209 and ANSI C63.4-1992 in the configuration and operation mode(s) as stated in this testreport, are depicted in table 3. Measurement results are quasi-peak results.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

6.1.3 Battery charger.

| Frequency (MHz) | Measurement results dB(μ V)/m 3 metres QP | | Limits dB(μ V)/m @ 3 metres QP section 209 |
|-----------------|--|------------|---|
| | Vertical | Horizontal | |
| 30.0 - 88.0 | < 20.0 | < 20.0 | 40,0 |
| 88.0 - 216.0 | < 20.0 | < 20.0 | 43.5 |
| 216.0 - 425.0 | < 20.0 | < 20.0 | 46.0 |
| 425.0 - 630.0 | < 25.0 | < 25.0 | 46.0 |
| 630.0 - 960.0 | < 30.0 | < 30.0 | 46.0 |
| 960.0 - 1000.0 | < 31.0 | < 31.0 | 54.0 |

QP = Quasi-peak

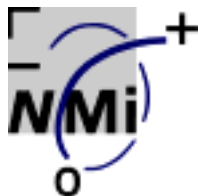
Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 4

Results of the radiated field strength (E-field) measurements on the battery charger, brand MNI Celluar Ltd., type V834K01, when charging a transponder, brand AMB products, type TranX 260, carried out in accordance with FCC Part 15, section 209 and ANSI C63.4-1992 in the configuration and operation mode(s) as stated in this testreport, are depicted in table 4. Measurement results are quasi-peak results.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2 Radiated field strength measurement (9 kHz - 30 MHz, H-field).

6.2.1 TranX 160 transponder (x-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 44.5 | 22.5 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 5

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 160, are depicted in table 5. Orientation of the transponder during measurement was x-orientation.

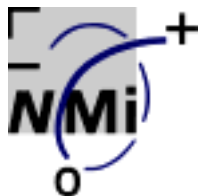
Notes: -Frequency range: 9-90 kHz Average detector used during measurements
 110-490 kHz Average detector used during measurements

-The radiated field strengths were measured at a distance of 1, 3 and 10 metres.

-A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2.2 TranX 160 transponder (y-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 54.0 | 26.5 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 6

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 160, are depicted in table 6. Orientation of the transponder during measurement was y-orientation.

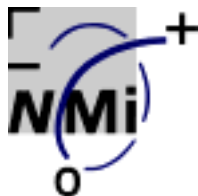
Notes: -Frequency range: 9-90 kHz Average detector used during measurements
 110-490 kHz Average detector used during measurements

-The radiated field strengths were measured at a distance of 1, 3 and 10 metres.

-A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2.3 TranX 160 transponder (z-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 54.5 | 26.5 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

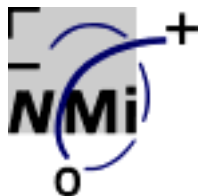
Table 7

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 160, are depicted in table 7. Orientation of the transponder during measurement was z-orientation.

- 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 1, 3 and 10 metres.
 - A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2.4 TranX 260 transponder (x-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 59.0 | 29.0 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

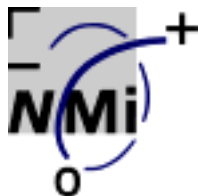
Table 8

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 260, are depicted in table 8. Orientation of the transponder during measurement was x-orientation.

- 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 1, 3 and 10 metres.
 - A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2.5 TranX 260 transponder (y-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 69.5 | 43.0 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 9

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 260, are depicted in table 9. Orientation of the transponder during measurement was y-orientation.

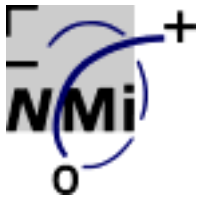
Notes: -Frequency range: 9-90 kHz Average detector used during measurements
 110-490 kHz Average detector used during measurements

-The radiated field strengths were measured at a distance of 1, 3 and 10 metres.

-A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

Tester signature : Date: July 23, 1999



Description of EUT: Transponders
 Manufacturer: AMB i.t. B.V.
 Brand mark: AMB products
 Type: TranX 160 and TranX 260
 FCC ID: NXYTRANX

6.2.6 TranX 260 transponder (z-orientation).

| Frequency | Measurement results (QP) 1m | Measurement results (QP) 3m | Measurement results (QP) 10m | Antenna factor | Cable loss | Measurement results (QP, 30 m.) | Limits FCC Part 15 section 209 |
|----------------|-----------------------------|-----------------------------|------------------------------|----------------|------------|---------------------------------|--------------------------------|
| (MHz) | dB μ V | dB μ V | | dB | dB | (dB μ V/m) | (dB μ V/m) |
| 0.009 - 0.490 | << | << | << | 17 | 1 | < 18.0 | 48.5 - 13.8 (300 m.) |
| 0.490 - 1.705 | << | << | << | 17 | 1 | < 18.0 | 33.8 - 22.9 (30 m.) |
| 1.705 - 3.580 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 | 69.7 | 42.5 | n.m. | 17 | 1 | < 18.0 | 29.5 (30 m.) |
| 3.580 - 30.000 | << | << | << | 17 | 1 | < 18.0 | 29.5 (30 m.) |

QP = Quasi-peak, n.m. = could not be measured

Measured levels on frequencies not stated in this report have been measured more than 20 dB below the applicable limit.

Table 10

Results of the radiated field strength (H-field) measurements, carried out in accordance with FCC Part 15, section 209 (Edition 10-1-97) and ANSI C63.4-1992, on a transponder, brand AMB products, type TranX 260, are depicted in table 10. Orientation of the transponder during measurement was z-orientation.

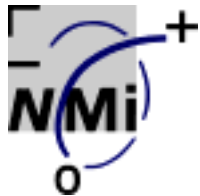
Notes: -Frequency range: 9-90 kHz Average detector used during measurements
 110-490 kHz Average detector used during measurements

-The radiated field strengths were measured at a distance of 1, 3 and 10 metres.

-A plot of the carrier bandwidth can be found in appendix A.

Test engineer : P.A.J.M. Robben, B.Sc.E.E.

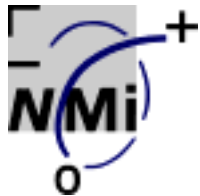
Tester signature : Date: July 23, 1999



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

7 Photos of tested EUT.

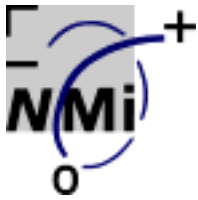
Not applicable, see § 4 of this report.



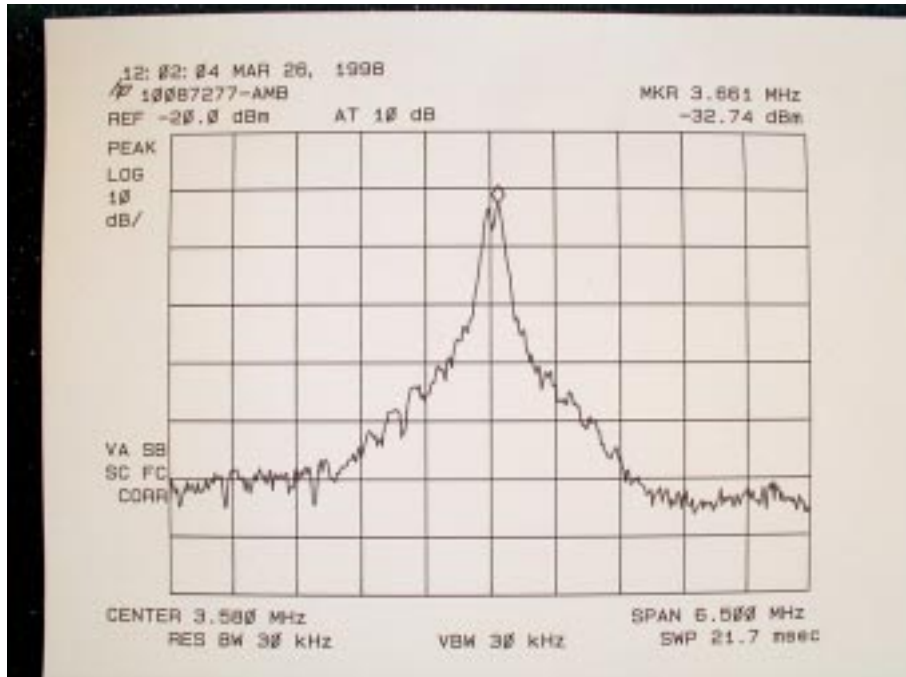
Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX

APPENDIX A

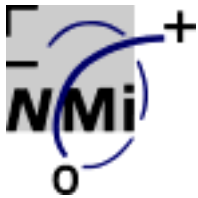
Plots of carrier bandwidth



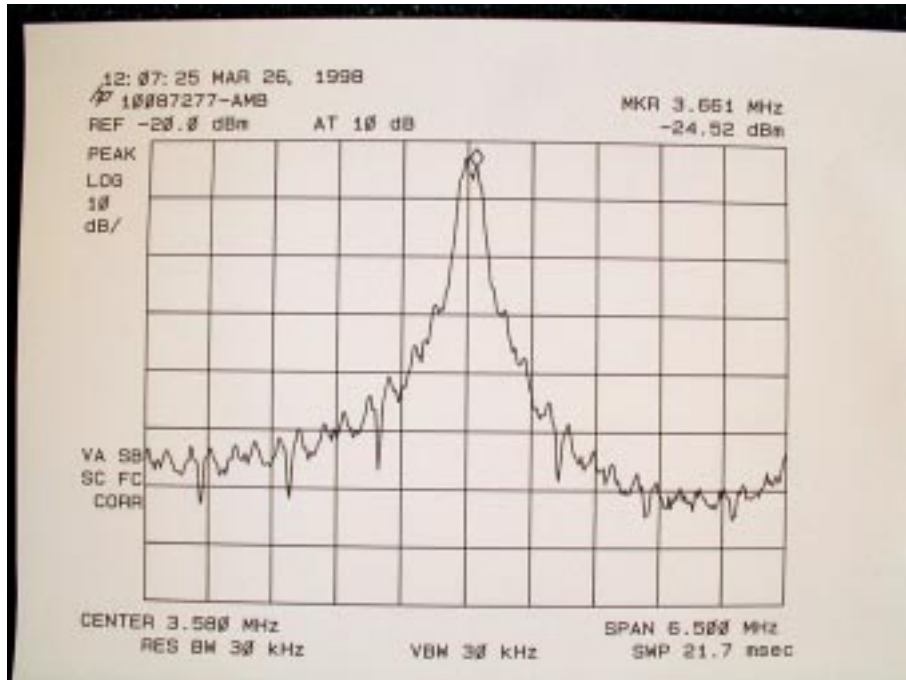
Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX



Plot 1 - Carrier bandwidth TranX 160



Description of EUT: Transponders
Manufacturer: AMB i.t. B.V.
Brand mark: AMB products
Type: TranX 160 and TranX 260
FCC ID: NXYTRANX



Plot 2 - Carrier bandwidth TranX 260