



**TEST REPORT CONCERNING THE COMPLIANCE OF A
LOW POWER TRANSPONDER OPERATING ON 6.78 MHz,
BRAND MYLAPS ,
MODEL ProChip FLEX
WITH 47 CFR PART 15 (10-1-10 Edition).**

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December 10, 2012**

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Industry Canada : 2932G-2
VCCI Registered : R-1518, C-1598
R&TTE, LVD, EMC Notified Body : 1856

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MEASUREMENT/TECHNICAL REPORT

MYLAPS
Model : ProChip FLEX

FCC ID: NXYPROCHIPFLEX

This report concerns: Original grant/certification Class 2 change Verification	
Equipment type: DXX Low Power Communication Device Transmitter	
Report prepared by:	Name : Richard van der Meer Company name : TÜV Rheinland EPS B.V. Address : Eiberkamp 10 Postal code/city : 9351VT Leek Mailing address : P.O. Box 37 Postal code/city : 9350AA Leek 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 (10-1-10 Edition) and the measurement procedures of ANSI C63.4-2009. TÜV Rheinland EPS B.V. at Leek, 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: December 10, 2012

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

Description of test item

Test item : Low Power Transponder
Manufacturer : MYLAPS BV
Brand : MYLAPS
Model : ProChip FLEX
Serial number : --
Revision : Not applicable

Applicant information

Applicant's representative : Mr. B. van Rens & Mr. J. Willemse
Company : MYLAPS BV
Address : Zuiderhoutlaan 4
Postal code : 2012PJ
City : Haarlem
Country : The Netherlands
Telephone number : +31 23 5291893
Telefax number : +31 23 5290156
Email : brens@mylaps.com & Jeroen.Willemse@mylaps.com
Internet : www.mylaps.com

Test(s) performed

Location : Leek
Test(s) started : December 04, 2012
Test(s) completed : December 04, 2012
Purpose of test(s) : Equipment Authorization
Test specification(s) : 47 CFR Part 15 (10-1-10 Edition)

Test engineer(s) : R. van der Meer
Report written by : R. van der Meer
Report date : December 10, 2012



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The test results relate only to the item(s) tested.**



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1 General information.

1.1 Product description.

1.1.1 Introduction.

The product tested is part of an inductive lap timing system.

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 certification in equipment authorization files under FCC ID: NXYPROCHIPFLEX.

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	:	Low Power Transponder
Manufacturer	:	MYLAPS BV
Brand	:	MYLAPS
Model	:	ProChip FLEX
Serial number	:	--
Operating frequency	:	6.78 MHz
Modulation	:	BPSK
Voltage input rating	:	battery operated, 3V Lithium battery type CR2032
Voltage output rating	:	n.a.
Current input rating	:	--
Antenna	:	Internal
Remarks	:	n.a.
Interface cable(s)	:	n.a.
Operating configuration	:	Transponder is continuously transmitting
Communication port	:	USB 2.0
AUX1	:	Testloop
Manufacturer	:	AMB-it BV
Brand	:	AMB-it
Model	:	n.a.
Serial number	:	n.a.
Remark	:	--
AUX2	:	Decoder
Manufacturer	:	AMB-it BV
Brand	:	AMB-it
Model	:	TranX3
Serial number	:	60341
Remark	:	--

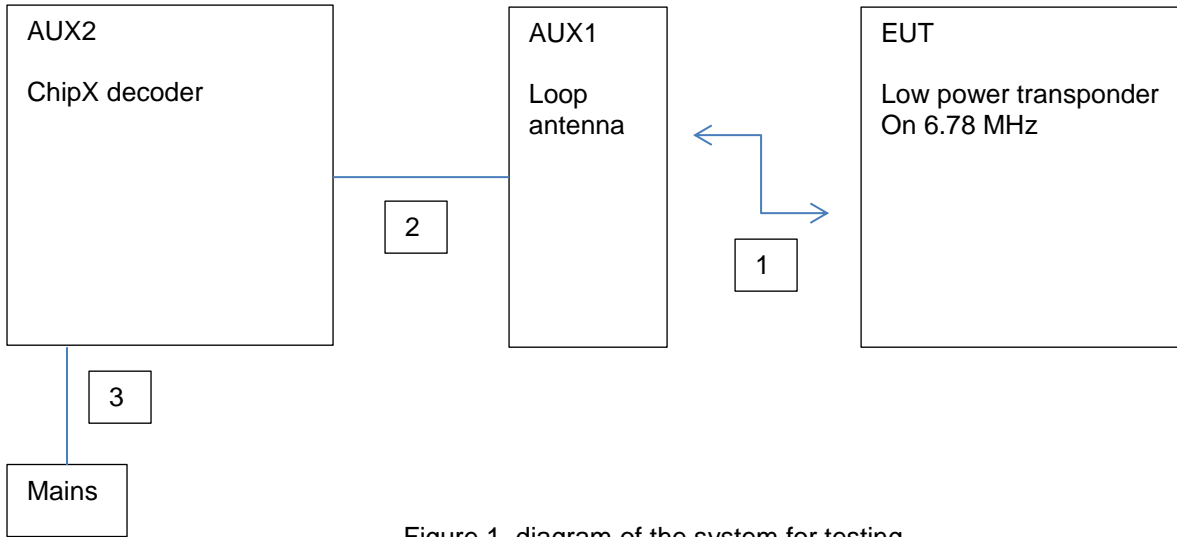


Figure 1. diagram of the system for testing

2.1.1 Description of input and output ports.

Number	Terminal	From	To	Remarks
1	--	AUX1	EUT	Wireless connection
2	--	AUX1	AUX2	Shielded cable >3m
3	mains	mains	AUX2	--



2.2 Test Summary

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

Test Standard		Description	Page	Pass / Fail
FCC 47 CFR Part 15 (10-1-10 Edition)				
15.209		Radiated emissions	10 - 12	Pass
15.215(c)		Occupied bandwidth	14	Pass

Table : testspecifications

Testmethods: ANSI C63:2009

2.3 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 15 (10-1-10 Edition), sections 15.31, 15.209 and 15.223.

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 EUT and AUX1 were placed in the shielded room and AUX2 outside of the shielded room so not to affect the test results.

2.4 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 Leek, 9351VT Eiberkamp 10, 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-2. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

2.5 Test conditions.

Normal test conditions:

Temperature (*)	: +15°C to +35°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: 3V battery pack (new full capacity battery is used for testing)
Air pressure	: 950 – 1050 hPa

*When it 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 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.

3.2 EUT mode of operation.

The EUT has been tested while continuously transmitting. The have been performed with a complete functioning EUT with a new battery installed.

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 Labeling

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/m)	Measurement results @3m Horizontal (dBuV/m)	Correction factor (dB)	Measurement results @3m Vertical After correction (dBuV/m)	Measurement results @3m Horizontal After correction (dBuV/m)	Limits @3m (dBuV/m)	Pass/Fail
30.00	3.8	-2.6	18.4	22.2	15.8	29.5	Pass
94.230	-1.3	-2.9	9.7	8.4	6.8	43.5	Pass
99.840	-2.3	-3.4	10.2	7.9	6.8	43.5	Pass
229.82	-4.1	-4.2	12.4	8.3	8.2	46.0	Pass
239.52	-3.9	-4.1	13.1	9.2	9.0	46.0	Pass
482.02	-3.5	-3.7	20.3	16.8	16.6	46.0	Pass
990.30	2.7	-0.7	27.9	30.6	27.2	46.0	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 15.209 with the EUT operating on 6.78 MHz are depicted in Table 1.

Notes:

- Field strength values of radiated emissions at frequencies not listed in the table above are more than 20 dB below the applicable limit.
- Measurement uncertainty is ± 5.0 dB
- 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).
- 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.

Used test equipment and ancillaries:

99855	99699	15633	99741	99580/99847	99861	99608	99609	

Test engineer

Signature :



Name : Richard van der Meer

Date : December 04, 2012

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

Frequency (MHz)	(a) Measurement results	(b) Antenna factor	(c) Cable loss	(d) Distance extrapolation factor 3m to 30m	Detector	Measurement results (calculated = a+b+c-d)	Limits Part 15.223
	dBµV @3m	dB	dB	dB			dBµV/m@30m
2.00	5.8	19.5	1	40	Qp	-13.7	29.5
3.70	5.6	19.5	1	40	Qp	-13.9	29.5
6.78 fundamental (Note 2)	41.1	19.5	1	40	Pk	21.5	43.5 Pk /23.5 (Av limit)
8.26	5.3	19.5	1	40	Qp	-14.2	29.5
13.56	4.3	19.7	1	40	Qp	-15.0	29.5
20.34	3.5	20.0	1	40	Qp	-15.5	29.5
27.12	1.8	19.7	1	40	Qp	-17.5	29.5

Table 2a Radiated emissions of the EUT.

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 15.223 with the EUT operating in continuous transmit mode on 6.78 MHz, are depicted in Table 2a.

Notes:

1. Calculated measurement results are obtained by using the 40 dB/decade extrapolation factor and the antenna factor and cable loss is included. For instance the corrected value for 6.78 MHz is calculated as:
 Measurement result + Antenna Factor + Cable loss – Extrapolation Factor =>
 41.1 dBµV + 19.5 dB + 1 dB – 40 dB =21.5 dBµV/m.
2. Peak (Pk) value already within Average limit therefor Average not tested. Peak value is compared to Average limit.
3. Frequency range:
 - a. 9- 90 kHz Average detector used during measurements
 - b. 110-490 kHz Average detector used during measurements
 - c. 490 kHz – 1705 kHz Quasi peak detector used during measurements
 - d. 1705 kHz – 10 MHz Average detector used during measurements
 - e. 10 MHz – 30 MHz Quasi peak detector used during measurements
4. A resolution bandwidth of 9kHz was used during testing
5. Field strength values of radiated emissions at frequencies in the frequency range 0.009 – 30 MHz not listed in Table 2a are more than 20 dB below the applicable limit
6. 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.
7. Measurement uncertainty is ±5.0dB

Used test equipment and ancillaries:

99855	99699	15453	99741	99580/99847	99861			



Test engineer

Signature :

Name

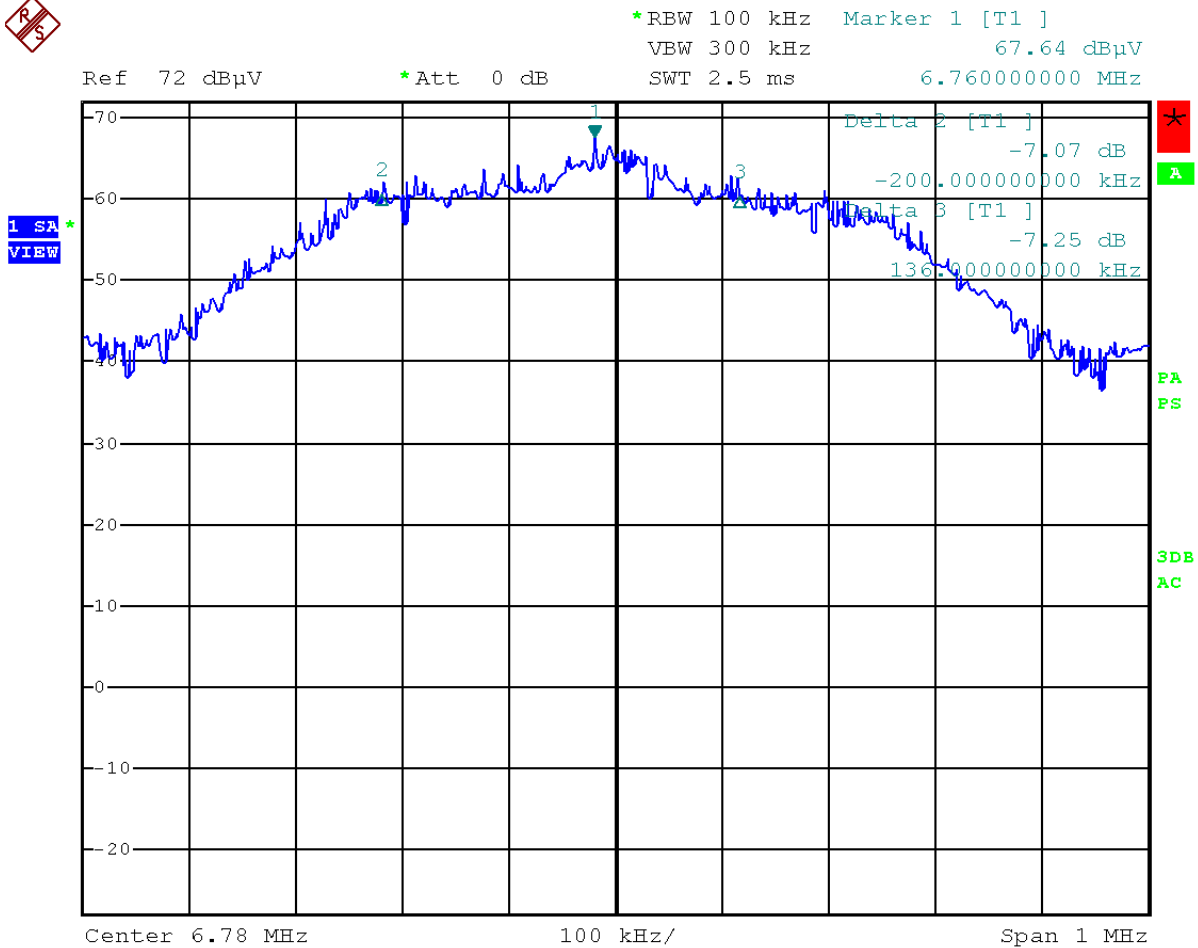
: R. van der Meer

Date

: December 04, 2012

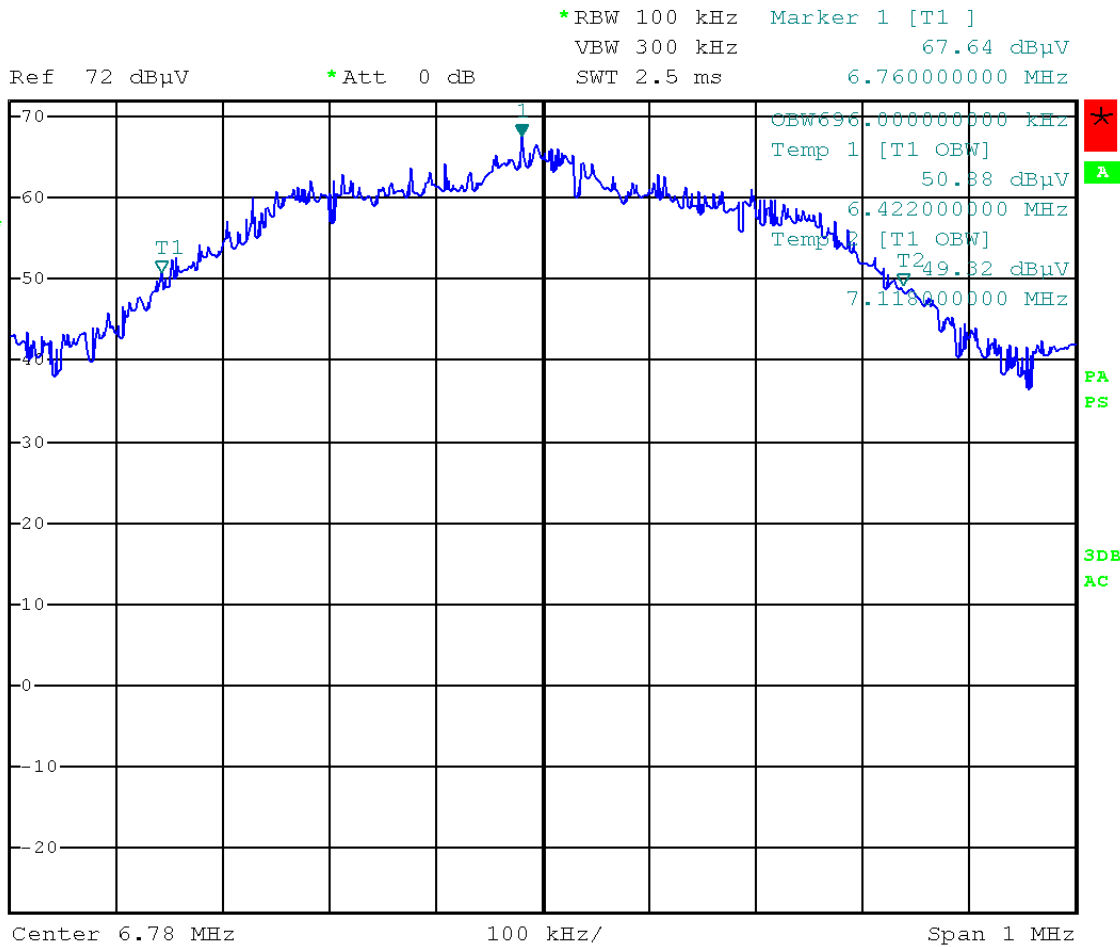


5 Plot of the carrier bandwidth



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Plot 1: 6 dB bandwidth of the carrier, actual bandwidth is 0.336 MHz, which is less than 10% of the center frequency therefore the 23.5 dBuV/m limit for radiated emissions is applicable according to 47 CFR Part 15.223. Measured on a spectrum analyzer.



Date: 4.DEC.2012 09:19:15

Plot 2: 20 dB Occupied bandwidth of the carrier, actual bandwidth is 636 kHz. Measured on a spectrum analyzer using the automated function.



6 List of utilized test equipment.

Inventory number	Description	Brand	Model	Last cal.	Next cal.
15453	Loop antenna	Chase	HLA6120	05/2012	05/2013
15633	Biconilog Testantenna	Chase	CBL 6111B	02/2012	02/2013
99107	Controller	Heinrich Deisel	4630-100	NA	NA
99538	Spectrum analyzer	R&S	FSP40	05/2012	05/2013
99852	Temperature-Humiditymeter	Extech	SD500	02/2012	02/2013
99847	Test site	Comtest	FCC listed: 90828	02/2012	02/2015
99608	Controller	EMCS	DOC202	NA	NA
99609	Antenna mast	EMCS	AP-4702C	NA	NA
99858	Cable S-AR	Gigalink	APG0500	01/2012	01/2013
99861	Controller S-AR	Maturo	SCU/088/8090811	NA	NA
99683	Loop antenna, 6cm	NA	7405-901	10/2012	10/2013

NA= Not Applicable