

Test report

20114276302 - rev. 1.0

based on:
FCC Part 15 Subpart C, section 15.209
(10-1-11 Edition)
RSS-210 (Issue 8, December 2010) section 2.5

Avalanche Beacon
Mammut
Element Barryvox A10012-10000

Contents

MAIN MODULE	3
1 INTRODUCTION.....	3
2 PRODUCT	4
3 TEST SCHEDULE	4
4 PRODUCT DOCUMENTATION.....	5
5 OBSERVATIONS AND COMMENTS.....	5
6 SUMMARY.....	5
7 CONCLUSIONS	6
TEST RESULTS MODULE	7
1 SUMMARY.....	7
2 EMISSION TESTS	8
2.1 <i>Field strength of intentional signal</i>	8
2.2 <i>Field strength of unwanted emissions (< 30 MHz)</i>	9
USED TEST EQUIPMENT MODULE	11
REVISION HISTORY	12

This report comprises of three modules. The total number of pages exclusive of the pages enclosed in the additional information module is: 12

Main module

1 Introduction

This report contains the result of tests performed by:

Telefication B.V.
Edisonstraat 12a
6902 PK Zevenaar
The Netherlands

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:1999. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie). The copyright of this test report is owned by Telefication bv and may not be reproduced except in full without the written approval of Telefication bv.

Ordering party:

Company name : Adaxys Solutions AG
Address : Eichtalstrasse 55
Zipcode : CH-8634
City/town : Hombrechtikon
Country : Switzerland
Date of order : 8 November 2011

2 Product

A sample of the following product was submitted for testing:

Product name	:	Avalanche Beacon
Product category	:	Intentional radiators
Manufacturer	:	Mammut Sports Group AG
Trade mark	:	Mammut
Type designation	:	Element Barryvox A10012-10000
FCC ID	:	ARN -ELEMENT-B-211
Emission designator	:	P0N
Hardware version	:	HW1
Software version	:	1.0
Serial number	:	1127807097

3 Test schedule

Tests were carried out in accordance with the specification detailed in chapter 6 "Summary" of this report.

Tests were carried out at the following location:

- Telefication, Zevenaar

The sample of the product was received on:

- 6 December 2011

Tests were carried between:

- 30 January and 10 February 2012
-

4 Product documentation

For production of this report the following product documentation was used:

Identification	Date
ELEMENT_Barryvox_WLINK_certification_short_instructions_nov_2011.pdf	2011-12-05
ELEMENT Barryvox Users Manual.pdf	2012-01-20
ELEMENT Barryvox Operational Description.pdf	2012-01-20

5 Observations and comments

The Element Barryvox A10012-10000 is an avalanche beacon that transmits on 457 kHz and in the 902 - 928 MHz band. This report only describes the tests on the 457 kHz transmitter and receiver

6 Summary

The product is intended for use in the following application area:

- Avalanche beacon

The sample was tested according to the following specification:

- FCC Part 15 Subpart C, section 15.209 (10-1-11 Edition)
 - RSS-210 (Issue 8, December 2010), section 2.5
-

7 Conclusions

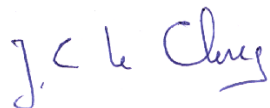
The sample of the product showed **NO NON-COMPLIANCES** to the specification stated in chapter 6 of this report.

The results of the tests as stated in this report, are exclusively applicable to the product item as identified in this report. Telefication does not accept any responsibility for the results stated in this report, with respect to the properties of product items not involved in these tests.

All tests are performed by:

name : ing. J.C. le Clercq

function : Test Engineer

signature : 

Review of test methods and report by:

name : G.J. Gort

function : Senior Test Engineer


signature : 

The above conclusions have been verified by the following signatory:

date : 26 April 2012

name : ing .A. van der Valk

function : Manager Laboratory

signature : 

Test results module

1 Summary

Test Form: FCC Part 15; subpart C; section 15.209

Summary

According to FCC Part 15; subpart C; section 15.209 the following tests have been performed:

Port	Reference	Phenomena	Result
Enclosure	section 15.209	Radiated emissions	P

According to RSS-210 the following tests have been performed:

Port	Reference	Phenomena	Result
Enclosure	section 2.5	Radiated emissions	P

Results:

P = pass
F = fail

NA = not applicable
NP = not performed

2 Emission tests

2.1 Field strength of intentional signal

Compliance standard : FCC part 15, subpart C, section 15.209
 RSS-210 (Issue 8, Dec 2010) section 2.5

Method of test : ANSI C63.10-2009, section 6.4; FCC part 15, subpart A, section 15.31 (f)(2), 15.33, 15.35.
 RSS-GEN (Issue 3, Dec 2010) section 4.7 and 4.9.

Justification : Because of strong ambient signals, measurements have been performed inside a Semi Anechoic Room. A measuring distance of 3 m has been chosen. An inverse linear distance extrapolation factor of -40 dB/decade has been applied to determine results at a distance of 300 meters.

Transmitter frequency : 457 kHz

Test results :

Measurement in front of EUT when transmitting		
Orthogonal	Test result	Extrapolation
Plane	3 m distance (Peak)	300 m distance (Peak)
X	84.82 dB μ V/m	4.82 dB μ V/m
Y	92.05 dB μ V/m	12.05 dB μ V/m
Z	92.65 dB μ V/m	12.65 dB μ V/m

Limit at 300 meter distance: 2400/457 μ V/m, 14.4 dB μ V/m.

Extrapolation is -40 dB/decade.

In the frequency band 110-490 kHz an Average detector should be used.

Because all Peak test results are below the Average limit, no Average measurements have been performed.

Measurement uncertainty)	+1.5 / -1.6 dB
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Test equipment used: (Item numbers)	1, 2.
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Item numbers refer to the used test equipment module.

2.2 Field strength of unwanted emissions (< 30 MHz)

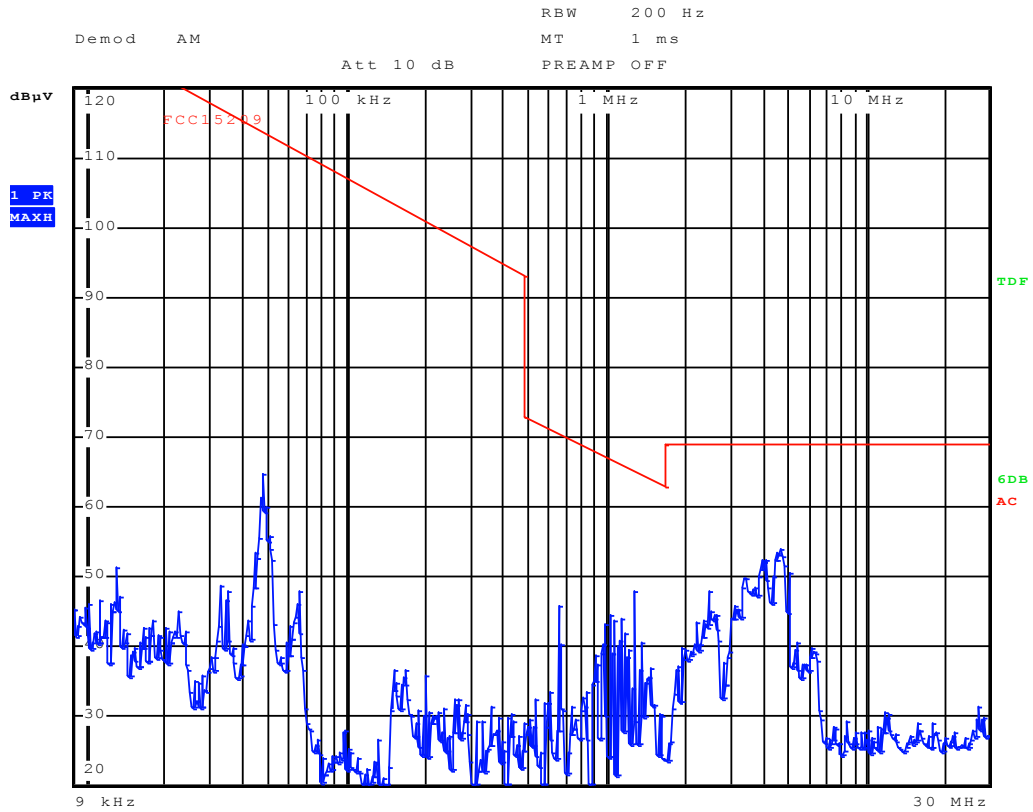
Compliance standard : FCC part 15, subpart C, section 15.209.
 RSS-210 (Issue 8, Dec 2010) section 2.5

Method of test : ANSI C63.10-2009, section 6.4; FCC part 15, subpart A, section 15.31 (f)(2), 15.33, 15.35.
 RSS-GEN (Issue 3, Dec 2010) section 4.7, 4.8 and 4.9

Justification : Because of strong ambient signals, measurements have been performed inside a Semi Anechoic Room. A measuring distance of 3 m has been chosen.. An inverse linear distance extrapolation factor of -40 dB/decade has been applied to determine results at a distance of 30 or 300 meters.

Test results :

Orthogonal plane: X, Y, Z			
Frequency band	Test result @ 3 m distance	Extrapolation to 30/300 m distance	Limit ($\mu\text{V/m}$)
	$\text{dB}\mu\text{V/m QP}$	$\text{dB}\mu\text{V/m QP}$	
9 – 490 kHz	--	--	$2400/F(\text{kHz}) \mu\text{V/m @ 300m}$
490 – 1705 kHz	--	--	$24000/F(\text{kHz}) \mu\text{V/m @ 30m}$
1.705 – 30 MHz	--	--	$30 \mu\text{V/m @ 30m}$



No unwanted emissions in the frequency range 9 kHz - 30 MHz were detected during the exploratory and compliance measurements in either transmit or receive mode. The emissions on other frequencies than 457 kHz are not originating from the Element Barryvox A10012-10000.

Measurement uncertainty)	+1.5 / -1.6 dB
Test equipment used: (Item numbers)	1, 2.

Item numbers refer to the used test equipment module.

Used test equipment module

This module contains the list of test equipment used.

Ref	Description	Manufacturer	Model	ID
1	EMI test receiver	Rohde & Schwarz	ESCI	TE 11128
2	Active loop antenna	R & S	HFH 2-Z2	TE 00746
3	Biconilog antenna	Chase	CBL6113A	TE 00967
4	Antenna tower	inn-Co	MA-4000	SAR
5	Antenna mast	inn-Co	1070	SAR
6	Turn table	inn-Co	1060-2M	SAR
7	Semi Anechoic Room	Comtest	--	SAR

Revision History

REVISION	DATE	REMARKS	REVISED BY
1.0	26 April 2011	Correction of paragraph number RS-210 par. 2.5 on page 5, 8, 9.	ing. J.C. le Clercq