

FCC Testing of the Axnes Aviation AS
Base Station. Model: BST50 and
Control Panel. Model: CP50
In accordance with FCC 47 CFR Part 15B

Prepared for: Axnes Aviation AS
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FCC ID: 2AOHP BST50A

COMMERCIAL-IN-CONFIDENCE

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Product Service

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RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Steven White	08 May 2018	
Authorised Signatory	Matthew Russell	08 May 2018	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15B. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Graeme Lawler	08 May 2018	

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15B: 2016.



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Contents

1 Report Summary2

1.1 Report Modification Record.....2

1.2 Introduction.....2

1.3 Brief Summary of Results3

1.4 Declaration of Build Status.....4

1.5 Product Information5

1.6 Deviations from the Standard.....5

1.7 EUT Modification Record5

1.8 Test Location.....5

2 Test Details6

2.1 Radiated Emissions.....6

3 Measurement Uncertainty11

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	08 May 2018

Table 1

1.2 Introduction

Applicant	Axnes Aviation AS
Manufacturer	Axnes Aviation AS
Model Number(s)	BST50 and CP50
Serial Number(s)	000 273 and 000 106
Hardware Version(s)	R8
Software Version(s)	AXS-SW-0311
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2016
Order Number	801584
Date	10 August 2017
Date of Receipt of EUT	11 August 2017
Start of Test	18 November 2017
Finish of Test	19 November 2017
Name of Engineer(s)	Graeme Lawler
Related Document(s)	ANSI C63.4 (2014)



Product Service

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15B is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: PNG BST50 - Idle				
-	15.107	AC Power Line Conducted Emissions	N/A	EUT Is DC Powered
2.1	15.109	Radiated Emissions	Pass	ANSI C63.4 (2014)

Table 2



1.4 Declaration of Build Status

Manufacturer	<u>Axnes AS</u>
Country of origin	<u>Norway</u>
UK Agent	<u>n/a</u>
Technical Description	<u>PNG BST50 Base station, component used in the PNG wireless intercom system</u>
Model No	<u>BST50</u>
Part No	<u>AXS-BS-D0100-N</u>
Serial No	<u>000 273</u>
Drawing Number	<u>AX-PNG-MCL-0185</u>
Build Status	<u>R8</u>
Software Issue	<u>AXS-SW-0311</u>
Hardware Issue	<u>R8</u>
Highest Internally Generated Frequency	<u>1880 MHz</u>
FCC ID	<u>2AOHP BST50A</u>
Industry Canada ID	<u></u>
Signature	<u>Petter Johnsen</u>
Date	<u>07/09/2017</u>
D of B S Serial No	<u></u>

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV SÜD Product Service as to the accuracy of the information declared in this document by the manufacturer.

1.5 Product Information

1.5.1 Technical Description

PNG BST50 Base station, component used in the PNG wireless intercom system. The CP50 is the Control Panel for the BST50.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.
The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Serial Number: 000 273			
0	As supplied by the customer	Not Applicable	Not Applicable
Serial Number: 000 106			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3

1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: PNG BST50 - Idle		
Radiated Emissions	Graeme Lawler	UKAS

Table 4

Office Address:

Octagon House
Concorde Way
Segensworth North
Fareham
Hampshire
PO15 5RL
United Kingdom



2 Test Details

2.1 Radiated Emissions

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109

2.1.2 Equipment Under Test and Modification State

BST50, S/N: 000 273 - Modification State 0
CP50, S/N: 000 106 - Modification State 0

2.1.3 Date of Test

18 November 2017 to 19 November 2017

2.1.4 Test Method

The test was performed in accordance with ANSI C63.4, clause 8.

The EUT was tested transmitting on the middle channel as it was not possible to disable the transmitter (434.9875 MHz). Both antenna ports were terminated with 50 ohm loads.

For measurements from 30 MHz to 1 GHz, measurements were performed at 3 m and the data was adjusted by $-20 \cdot \log(10/3)$.

Measurements > 1 GHz were performed at 3 m.

2.1.5 Environmental Conditions

Ambient Temperature	16.5 °C
Relative Humidity	44.0 %

2.1.6 Test Results

PNG BST50 - Idle

Highest frequency generated or used within the EUT: 1880 MHz

Upper frequency test limit: 10 GHz

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
30.060	19.7	39.1	-19.4	262	1.00	Vertical
349.894	13.7	46.4	-32.7	50	1.00	Vertical
434.951	45.0	46.4	-1.4	138	1.00	Vertical
449.887	16.4	46.4	-30.0	223	1.00	Vertical
456.488	16.2	46.4	-30.2	112	1.00	Vertical
648.212	20.1	46.4	-26.3	210	1.00	Vertical

Table 5 - 30 MHz to 1 GHz

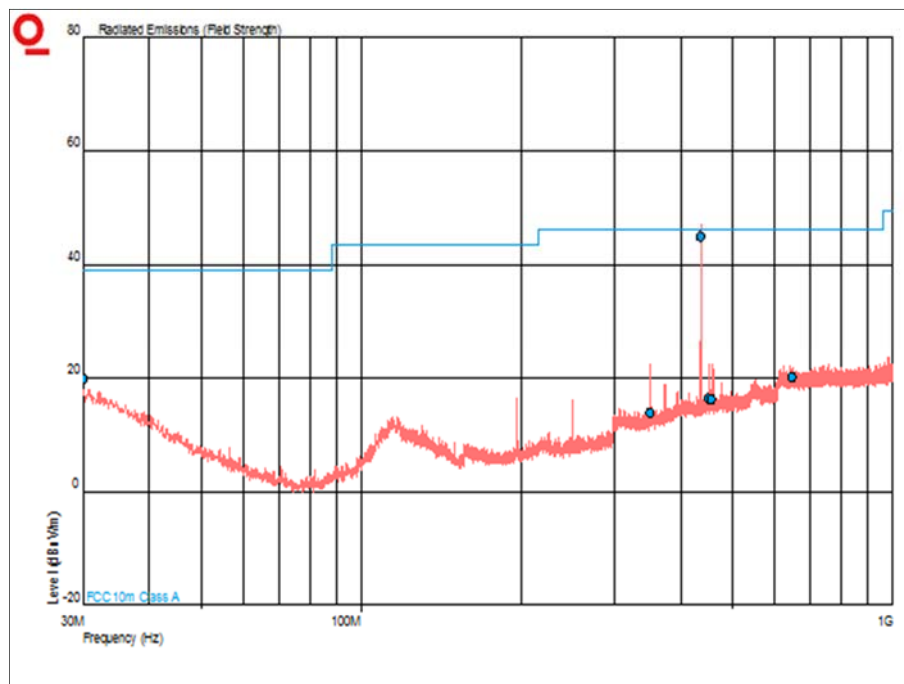


Figure 1 - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (GHz)	Result (µV/m)		Limit (µV/m)		Margin (µV/m)		Angle (°)	Height (m)	Polarisation
	Peak	Average	Peak	Average	Peak	Average			

Table 6 - 1 GHz to 10 GHz

*No emissions were detected within 10 dB of the limit.

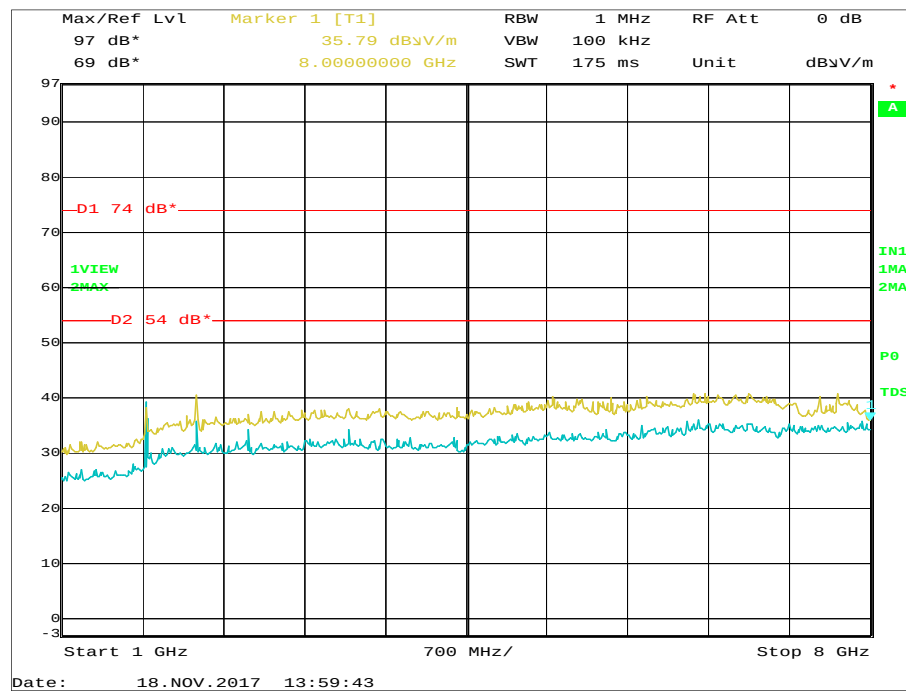


Figure 2 - 1 GHz to 8 GHz - Horizontal and Vertical

*The limit shown on the above plot is for a non-Class A device as this was considered to be more stringent than the limit for a Class A device.

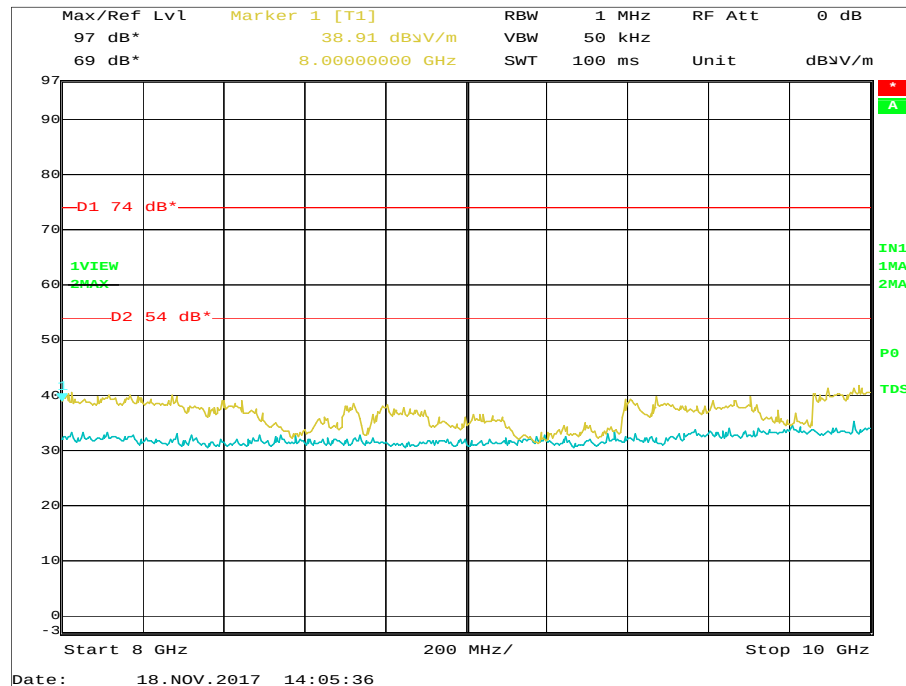


Figure 3 - 8 GHz to 10 GHz - Horizontal and Vertical

*The limit shown on the above plot is for a non-Class A device as this was considered to be more stringent than the limit for a Class A device.

FCC 47 CFR Part 15, Limit Clause 15.109 (Class A)

Frequency of Emission (MHz)	Field Strength (μ V/m) at 10 m.
30 to 88	90.0
88 to 216	150.0
216 to 960	210.0
Above 960	300.0



2.1.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Test Receiver	Rohde & Schwarz	ESIB26	242	12	19-Jun-2018
Antenna (Bilog)	Schaffner	CBL6143	287	24	18-Apr-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	31-Jul-2018
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygrometer	Rotronic	HYGROPALM 1	2338	12	24-Oct-2018
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	02-May-2018
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
TRUE RMS MULTIMETER	Fluke	179	4006	12	13-Dec-2017
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	18-Oct-2018
Cable (Yellow, Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4527	6	04-Dec-2017
EMI Receiver	Keysight Technologies	N9038A MXE	4628	12	22-Jun-2018
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	17-Feb-2018

Table 7

TU - Traceability Unscheduled



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3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
AC Power Line Conducted Emissions	150 kHz to 30 MHz, LISN, ± 3.7 dB
Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB
	1 GHz to 40 GHz: ± 6.3 dB

Table 8