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Report On

FCC and Industry Canada Testing of the
Naim Audio Ltd BLUE
In accordance with FCC CFR 47 Part 15B and ICES-003

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FCC ID: 2ACURBLUE
IC: 12217A-BLUE

Document 75927770 Report 02 Issue 1

November 2014



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DATED

05 November 2014

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 CFR 47 Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler





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CONTENTS

Section	Page No
1	REPORT SUMMARY 3
1.1	Introduction 4
1.2	Brief Summary of Results 5
1.3	Declaration of Build Status 6
3.1	Product Information 7
3.2	Test Conditions 7
3.3	Deviations from the Standard 7
3.4	Modification Record 7
2	TEST DETAILS 8
4.1	Radiated Emissions 9
3	TEST EQUIPMENT USED 12
5.1	Test Equipment Used 13
5.2	Measurement Uncertainty 14
4	ACCREDITATION, DISCLAIMERS AND COPYRIGHT 15
6.1	Accreditation, Disclaimers and Copyright 16



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SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Naim Audio Ltd BLUE
In accordance with FCC CFR 47 Part 15B and ICES-003



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1.1 INTRODUCTION

The information contained in this report is intended to show the verification of FCC and Industry Canada Testing of the Naim Audio Ltd BLUE to the requirements of FCC CFR 47 Part 15B and ICES-003.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Naim Audio Ltd
Model Number(s)	BLUE
Serial Number(s)	Not Serialised (75927770-TSR0008)
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15B (2013) ICES-003 (2012)
Incoming Release Date	Declaration of Build Status 13 October 2014
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	P-074692 18 August 2014
Start of Test	7 September 2014
Finish of Test	7 September 2014
Name of Engineer(s)	G Lawler
Related Document(s)	ANSI C63.4 (2014)



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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 15B and ICES-003 is shown below.

Section	Spec Clause		Test Description	Result	Comments/Base Standard
	FCC	IC			
Idle					
2.1	15.109	6.2	Radiated Emissions	Pass	ANSI C63.4



1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Single Modular Bluetooth Stereo FLASH APTX Streaming module
MANUFACTURER	RAYSON TECHNOLOGY Co., Ltd
TYPE	Bluetooth V3.0 +
PART NUMBER	BTM867
SERIAL NUMBER	BLUE
HARDWARE VERSION	BTM867A0(20130313)
SOFTWARE VERSION	Naim-a20-ARM-ATC-867_20140818
TRANSMITTER OPERATING RANGE	2402 MHz to 2480 MHz
RECEIVER OPERATING RANGE	2402 MHz to 2480 MHz
COUNTRY OF ORIGIN	China
INTERMEDIATE FREQUENCIES	Middle frequency 2441 MHz
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	G2E
MODULATION TYPES: (i.e. GMSK, QPSK)	GFSK
HIGHEST INTERNALLY GENERATED FREQUENCY	2408 MHz
OUTPUT POWER (W or dBm)	4dBm
FCC ID	2ACURBLUE
INDUSTRY CANADA ID	12217A-BLUE
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	This is to be approved as a standalone Bluetooth module intended to be fitted to Naim Audio products to connect to external Bluetooth devices to stream audio playback through the Naim product. UART or USB communication protocol to be used
BATTERY/POWER SUPPLY	
MANUFACTURING DESCRIPTION	+5V DC power supply
MANUFACTURER	NAIM AUDIO
TYPE	Linear
PART NUMBER	Naim product (varied)
VOLTAGE	+5V DC
COUNTRY OF ORIGIN	UK


 Signature

Date 13th October 2014
 Declaration of Build Status Serial Number



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3.1 PRODUCT INFORMATION

3.1.1 Technical Description

The Equipment Under Test (EUT) was a Naim Audio Ltd BLUE. A full technical description can be found in the manufacturer's documentation.

3.2 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 5.0 V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

Industry Canada Company Address Code
IC2932B-1 Octagon House, Fareham Test Laboratory

3.3 DEVIATIONS FROM THE STANDARD

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

3.4 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



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SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
Naim Audio Ltd BLUE
In accordance with FCC CFR 47 Part 15B and ICES-003



4.1 RADIATED EMISSIONS

4.1.1 Specification Reference

FCC CFR 47 Part 15B, Clause 15.109
ICES-003, Clause 6.2

4.1.2 Equipment Under Test and Modification State

BLUE S/N: Not Serialised (75927770-TSR0008) - Modification State 0

4.1.3 Date of Test

7 September 2014

4.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

4.1.5 Test Procedure

A test environment and testing arrangement meeting the specification of ANSI C63.4 was used during all testing. The Equipment Under Test (EUT) was set upon a non-conducting platform at an elevation of 80 cm above a horizontal reference ground plane.

The horizontal reference ground plane encompasses a turntable which is used to adjust the azimuth of the EUT. An antenna positioner is used to elevate the measuring antenna above the horizontal reference ground plane whereby the antenna elevation is adjustable between 1 m and 4 m.

Exploratory radiated emissions measurements were made by azimuth emissions searches over a range of 0° and 360°. These exploratory radiated emissions measurements were made using a peak detector over a frequency range of 30 MHz to 13 GHz, with the measuring antenna in both vertical and horizontal polarizations.

At least six of the greatest peak emissions, frequency positions were selected from the exploratory radiated emissions measurements for further evaluation as final measuring points.

To ascertain the azimuth and measuring antenna polarization that yields the highest peak emission level, each final measurement frequency was investigated by continuous azimuth emissions searching with the measuring antenna in both vertical and horizontal polarizations. For each final measurement frequency, the respective peak emission azimuth and measuring antenna polarization was used during a measuring antenna elevation search from 1 m to 4 m. Each final measurement frequency was then measured with the EUT azimuth, measuring antenna height and polarization that yielded the greatest peak emission level.

Final measurement points over the frequency range of 30 MHz to 1 GHz were measured using a quasi-peak detector. Final measurement points over the frequency range of 1 GHz and 13 GHz were measured using peak and average methods. Peak measurements were made using a peak detector with 1 MHz resolution and video bandwidths. Average measurements were made using a resolution bandwidth of 1 MHz and a video bandwidth of at least 10 Hz.



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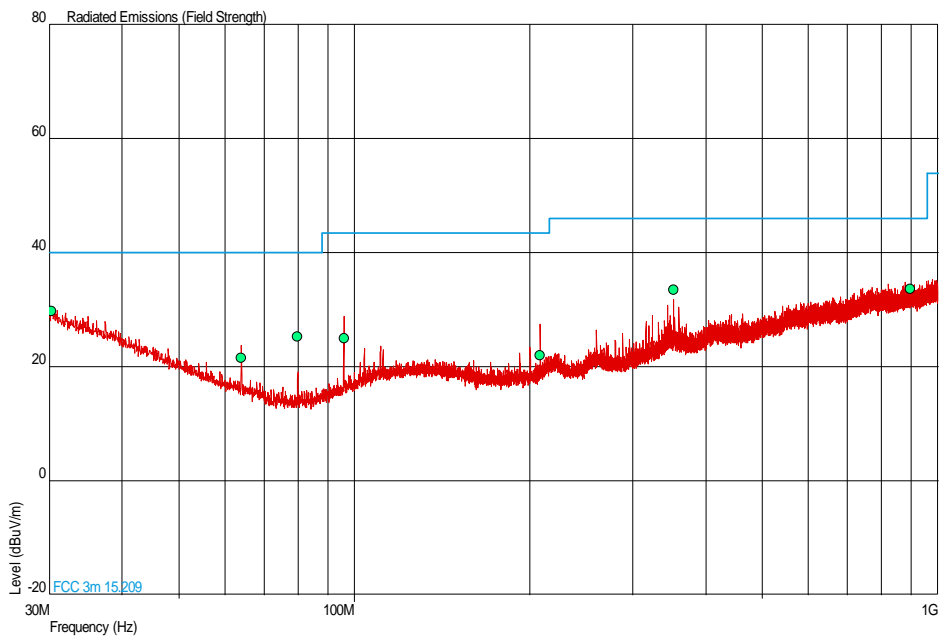
All final measurements were assessed against the Class B emission limits in Clause 15.109 of FCC CFR 47 FCC Part 15B and ICES-003 Clause 6.2.

4.1.6 Environmental Conditions

Ambient Temperature 19.2°C
 Relative Humidity 58.0%

4.1.7 Test Results

30 MHz to 1 GHz

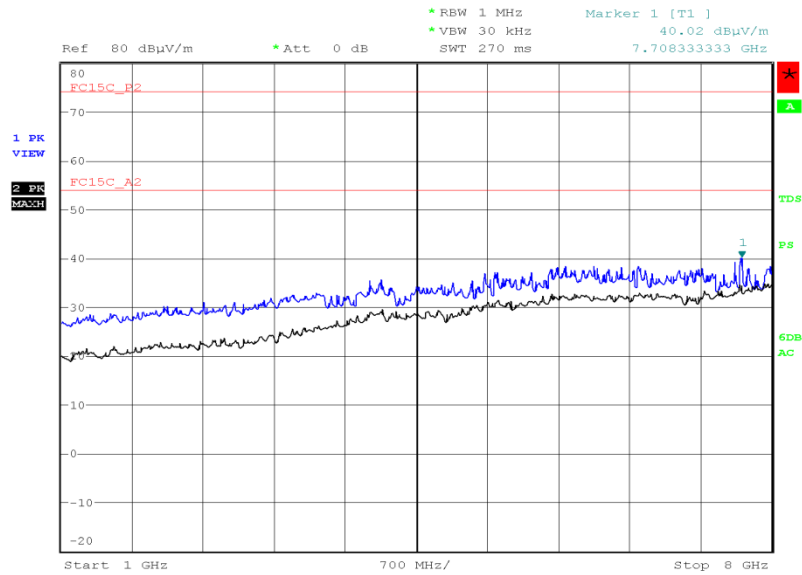


Frequency (MHz)	QP Level (dBµV/m)	QP Level (µV/m)	QP Limit (dBµV/m)	QP Limit (µV/m)	QP Margin (dBµV/m)	QP Margin (µV/m)	Angle (Deg)	Height (m)	Polarity
30.272	29.8	30.9	40.0	100	-10.2	-69.1	100	1.00	Horizontal
64.004	21.6	12.0	40.0	100	-18.4	-88.0	31	1.00	Vertical
79.987	25.2	18.2	40.0	100	-14.8	-81.8	185	1.00	Vertical
95.991	25.0	17.8	43.5	150	-18.5	-132.2	114	1.00	Vertical
207.988	22.0	12.6	43.5	150	-21.5	-137.4	182	1.00	Horizontal
351.977	33.5	47.3	46.0	200	-12.5	-152.7	207	1.00	Horizontal
897.763	33.6	47.9	46.0	200	-12.4	-152.1	271	3.95	Horizontal



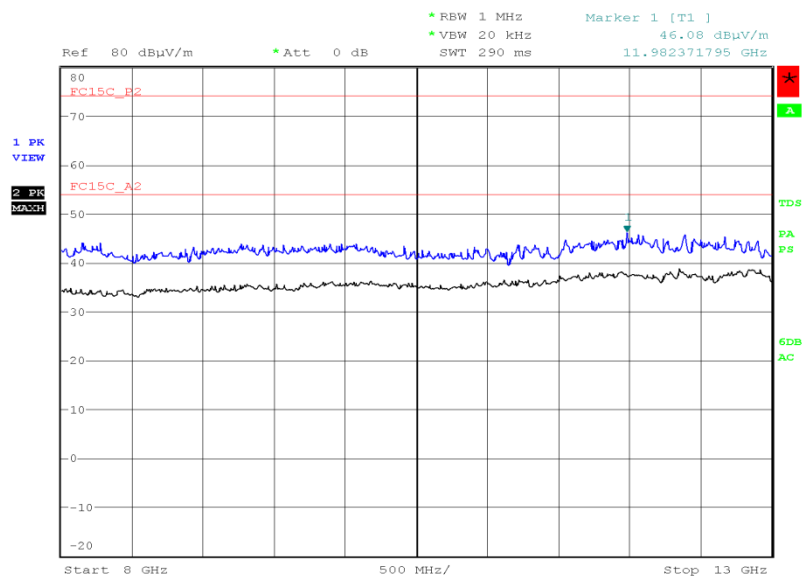
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1 GHz to 8 GHz



Date: 7.SEP.2014 10:25:12

8 GHz to 13 GHz



Date: 7.SEP.2014 12:30:21

No emissions were detected within 10 dB of the limit.



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SECTION 3

TEST EQUIPMENT USED



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5.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	2-May-2015
Screened Room (5)	Rainford	Rainford	1545	24	10-Jan-2015
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Amplifier (8 - 18GHz)	Phase One	PS06-0061	3176	12	11-Aug-2015
Antenna (Bilog)	Chase	CBL6143	2904	24	10-Jun-2015
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Oct-2014
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
1 Metre SMA Cable	Rhophase	3PS-1801A-1000-3PS	4101	12	5-Nov-2014
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	1-Oct-2014

TU – Traceability Unscheduled



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5.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Radiated Emissions	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB



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SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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6.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA
(Not UKAS Accredited).

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