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Report On

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

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FCC ID: 2ACURBLUE
IC: 12217A-BLUE

Document 75935062 Report 01 Issue 1

August 2016



Product Service

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Naim Audio Ltd BLUE
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PREPARED FOR

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DATED

03 August 2016

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 and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

J Tuckwell





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SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Naim Audio Ltd BLUE
In accordance with FCC 47 CFR 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 47 CFR 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 (75935062_TSR0001)
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15B (2015) ICES-003 (2016)
Incoming Release Date	Declaration of Build Status 22 June 2016
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	P-079412 24 May 2016
Start of Test	21 June 2016
Finish of Test	7 July 2016
Name of Engineer(s)	J Tuckwell
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 47 CFR Part 15B and ICES-003 is shown below.

Section	Specification Clause		Test Description	Result	Comments/Base Standard
	Part 15B	ICES-003			
Idle					
2.1	15.109	6.2	Radiated Emissions	Pass	



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1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Singular Modular BLuetooth Stereo FLASH APTX Streaming module
MANUFACTURER	RAYSON TECHNOLOGY Co., Ltd
MODEL NAME/NUMBER	BLUE
PART NUMBER	BTM875
SERIAL NUMBER	BLUE
HARDWARE VERSION	BTM875
SOFTWARE VERSION	a40-ARM-ATC-SPDIF-WithLL_HD_AAC_20160509
TRANSMITTER FREQUENCY OPERATING RANGE (MHz)	2402 MHz to 2480 MHz
RECEIVER FREQUENCY OPERATING RANGE (MHz)	2402 MHz to 2480 MHz
COUNTRY OF ORIGIN	China
INTERMEDIATE FREQUENCIES	Middle frequency 2441 MHz
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	F1X
MODULATION TYPES: (i.e. GMSK, QPSK)	GFSK
HIGHEST INTERNALLY GENERATED FREQUENCY	2480 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
MODULES (if applicable)	
MANUFACTURING DESCRIPTION	
MANUFACTURER	
TYPE	
POWER	
FCC ID	
COUNTRY OF ORIGIN	
INDUSTRY CANADA ID	
EMISSION DESIGNATOR	
DHSS/FHSS/COMBINED OR OTHER	
ANCILLARIES (if applicable)	
MANUFACTURING DESCRIPTION	
MANUFACTURER	
TYPE	
PART NUMBER	
SERIAL NUMBER	
COUNTRY OF ORIGIN	

I hereby declare that that the information supplied is correct and complete.

Name: Ashley Harper Position held: Compliance Engineer
 Date: 22 June 2016



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1.4 PRODUCT INFORMATION

1.4.1 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.

1.5 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 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

1.6 DEVIATIONS FROM THE STANDARD

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

1.7 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 47 CFR Part 15B and ICES-003



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2.1 RADIATED EMISSIONS

2.1.1 Specification Reference

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

2.1.2 Equipment Under Test and Modification State

BLUE S/N: Not Serialised (75935062_TSR0001) - Modification State 0

2.1.3 Date of Test

21 June 2016 & 7 July 2016

2.1.4 Test Equipment Used

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

2.1.5 Test Procedure

The test was performed in accordance with ANSI C63.4, Clause 8 and ICES-003, Clause 6.2.

Remarks

When frequencies greater than 18 GHz were measured the EUT was positioned 1 m above the horizontal reference ground plane.

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

2.1.6 Environmental Conditions

Ambient Temperature	19.9 - 20.3°C
Relative Humidity	42.0 - 63.0%



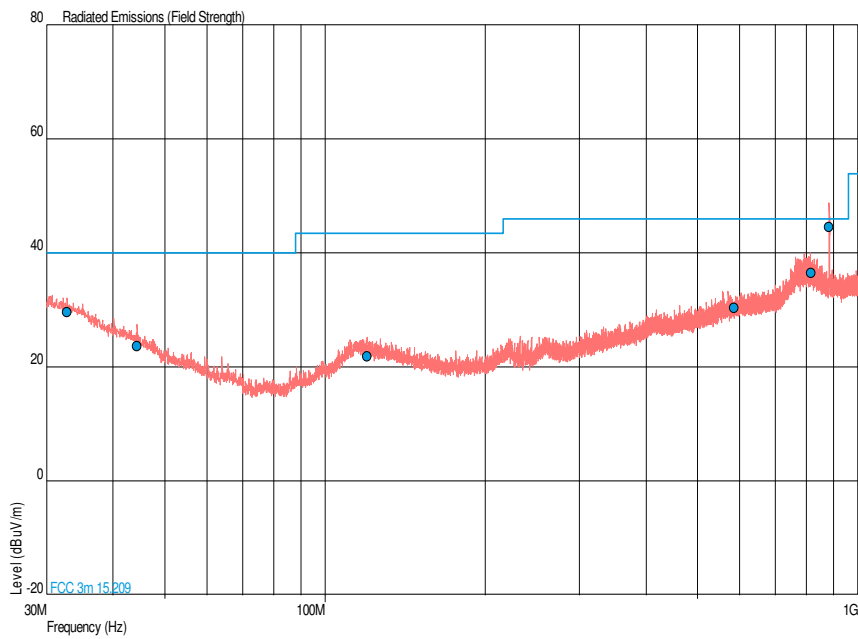
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2.1.7 Test Results

Idle, 30 MHz to 1 GHz Results

Frequency (MHz)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Margin (dµV/m)	Quasi-Peak Level (µV/m)	Quasi-Peak Margin (µV/m)	Angle (°)	Height (m)	Polarisation
32.827	29.6	-10.4	30.2	-69.8	233	1.00	Horizontal
44.357	23.7	-16.3	15.3	-84.7	0	1.00	Horizontal
119.752	21.8	-21.7	12.3	-137.7	262	1.00	Horizontal
585.302	30.4	-15.6	33.1	-166.9	64	1.00	Horizontal
815.974	36.5	-9.5	66.8	-133.2	162	2.00	Horizontal
882.359	44.6	-1.4	169.8	-30.2	338	1.27	Horizontal

Idle, 30 MHz to 1 GHz Plot





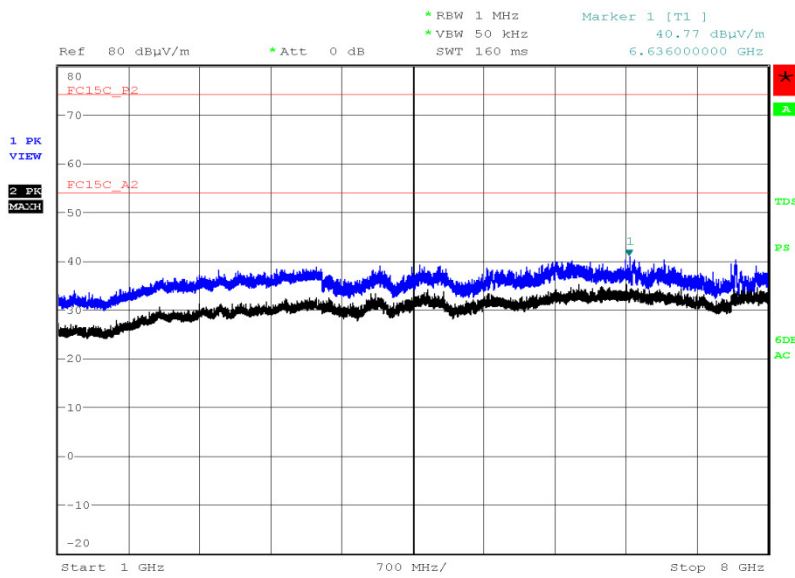
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Idle, 1 GHz to 25 GHz Results

Frequency (MHz)	Average Level (dBµV/m)	Peak Level (dBµV/m)	Average Level (µV/m)	Peak Level (µV/m)	Angle (deg)	Height (m)	Polarisation
*							

*No emissions were detected within 6 dB of the limit.

Idle, 1 GHz to 8 GHz Plot

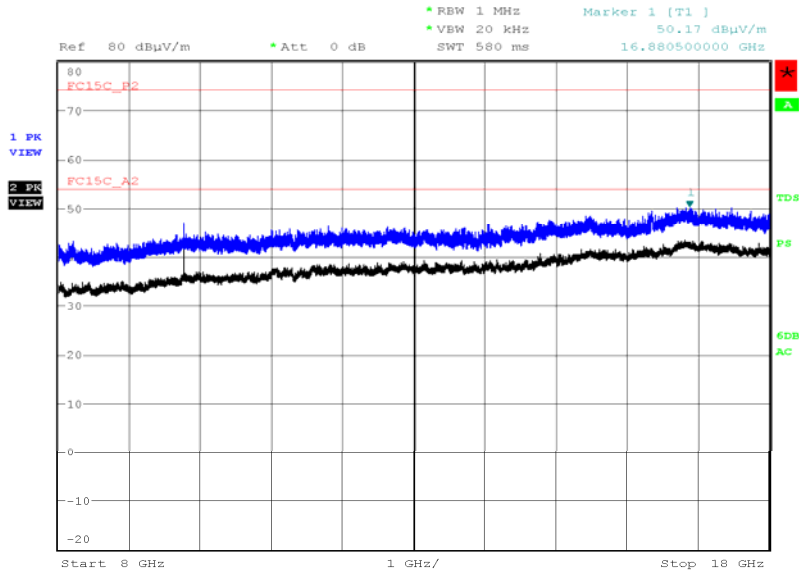


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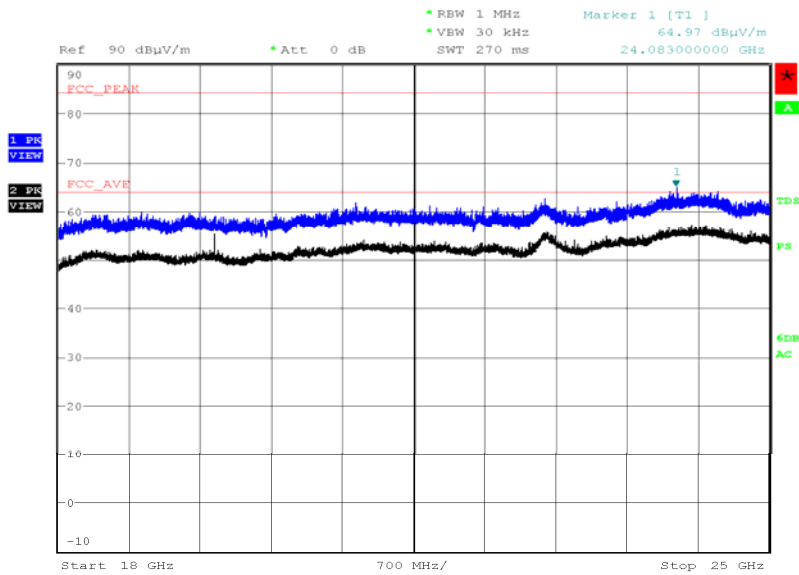


Idle, 8 GHz to 18 GHz Plot



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Idle, 18 GHz to 25 GHz Plot



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FCC 47 CFR Part 15, Limit Clause 15.109

Class B

Frequency of Emission (MHz)	Field Strength ($\mu\text{V}/\text{m}$)
30 to 88	100.0
88 to 216	150.0
216 to 960	200.0
Above 960	500.0

ICES-003, Limit Clause 6.2

Class B

Frequency of Emission (MHz)	Quasi-Peak ($\text{dB}\mu\text{V}/\text{m}$)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 to 1000	54.0

Frequency of Emission (MHz)	Field Strength ($\text{dB}\mu\text{V}/\text{m}$)	
	Linear Average Detector	Peak Detector
Above 1000	54.0	74.0



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SECTION 3

TEST EQUIPMENT USED



3.1 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 18-40GHz (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	27-Nov-2016
Pre-Amplifier	Phase One	PS04-0086	1533	12	30-Jul-2016
18GHz - 40GHz Pre-Amplifier	Phase One	PS04-0087	1534	12	23-Dec-2016
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
Tilt Antenna Mast	maturu GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturu GmbH	NCD	3917	-	TU
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	6-Oct-2016
Antenna (Bilog)	Chase	CBL6143	2904	12	11-Jun-2017
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	29-Dec-2016

TU – Traceability Unscheduled



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3.2 MEASUREMENT UNCERTAINTY

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

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



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SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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4.1 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
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