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Report On

FCC Testing of the
Orolia SAS KanAtoN3
In accordance with FCC CFR 47 Part 15B

COMMERCIAL-IN-CONFIDENCE

FCC ID: VIQ-KANATON

Document 75925284 Report 01 Issue 1

March 2014



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DATED

17 March 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. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler



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SECTION 1

REPORT SUMMARY

FCC Testing of the
Orolia SAS KanAtoN3
In accordance with FCC CFR 47 Part 15B



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC Testing of the Orolia SAS KanAtoN3 to the requirements of FCC CFR 47 Part 15B.

| | |
|--------------------------------|---|
| Objective | To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out. |
| Manufacturer | Orolia SAS |
| Model Number(s) | Kan AtoN3 |
| Serial Number(s) | LX1200023441 |
| Number of Samples Tested | 1 |
| Test Specification/Issue/Date | FCC CFR 47 Part 15B (2013) |
| Incoming Release Date | Declaration of Build Status 17 March 2014 |
| Disposal Reference Number Date | Held Pending Disposal Not Applicable Not Applicable |
| Order Number Date | 1400012 10 January 2014 |
| Start of Test | 5 March 2014 |
| Finish of Test | 5 March 2014 |
| Name of Engineer(s) | G Lawler |
| Related Document(s) | ANSI C63.4 (2003) |




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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 is shown below.

| Section | Spec Clause | Test Description | Result | Comments/Base Standard |
|---------|-------------|--------------------|--------|------------------------|
| Idle | | | | |
| 2.1 | 15.109 | Radiated Emissions | Pass | ANSI C63.4 (2003) |

**1.3 DECLARATION OF BUILD STATUS**

| | |
|-----------------------------|---|
| Manufacturer | OROLIA SAS |
| Country of origin | FRANCE |
| Technical Description | AIS transponder used in automated systems for Aids To Navigation |
| Model No | KanAtoN3 |
| Part No | 1202570 |
| Serial No | Not Applicable |
| Drawing Number | B0301801 |
| Build Status | In production |
| Software Issue | YLB0302K |
| Hardware Issue | I618A |
| FCC ID | VIQ-KANATON |
| IC ID | |
| Highest Operating Frequency | 162.025 MHz |
| Signature | S. SINCHELEAU  |
| Date | 19/03/2014 |
| D of B S Serial No | |

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.



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1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Orolia SAS KanAtoN3. 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 24 V DC supply.

FCC Measurement Facility Registration Number
90987 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 Testing of the
Orolia SAS KanAtoN3
In accordance with FCC CFR 47 Part 15B



2.1 RADIATED EMISSIONS

2.1.1 Specification Reference

FCC CFR 47 Part 15B, Clause 15.109

2.1.2 Equipment Under Test and Modification State

Kan AtoN3 S/N: LX1200023441 - Modification State 0

2.1.3 Date of Test

5 March 2014

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

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 was used to adjust the azimuth of the EUT. An antenna positioner was used to elevate the measuring antenna above the horizontal reference ground plane whereby the antenna elevation was 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 2 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 2 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 10 Hz.

All final measurements were assessed against the Class B radiated emission limits in Clause 15.109 of FCC CFR 47 FCC Part 15B.

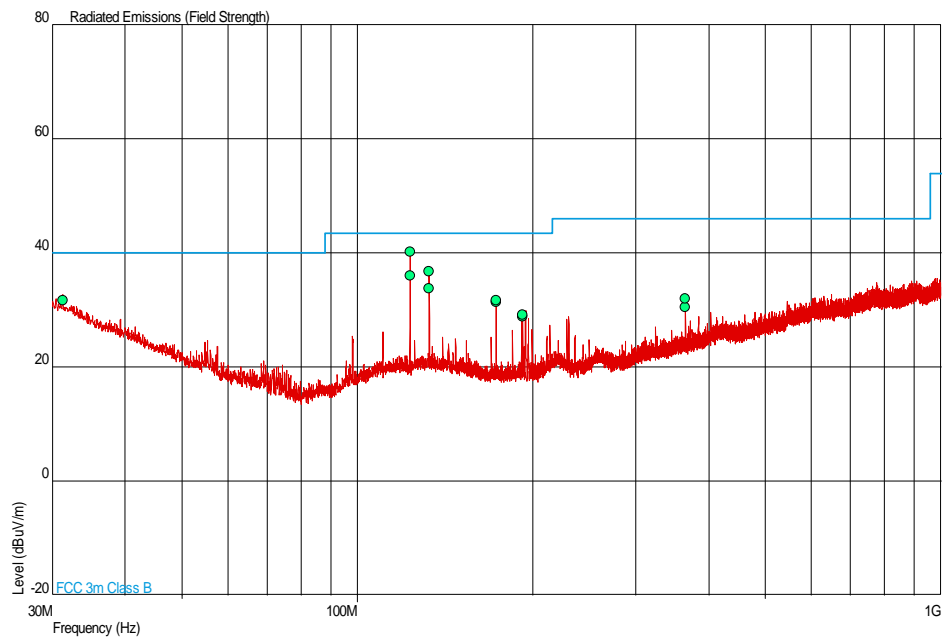


2.1.6 Environmental Conditions

Ambient Temperature 18.4°C
Relative Humidity 35.0%

2.1.7 Test Results

30 MHz to 1 GHz

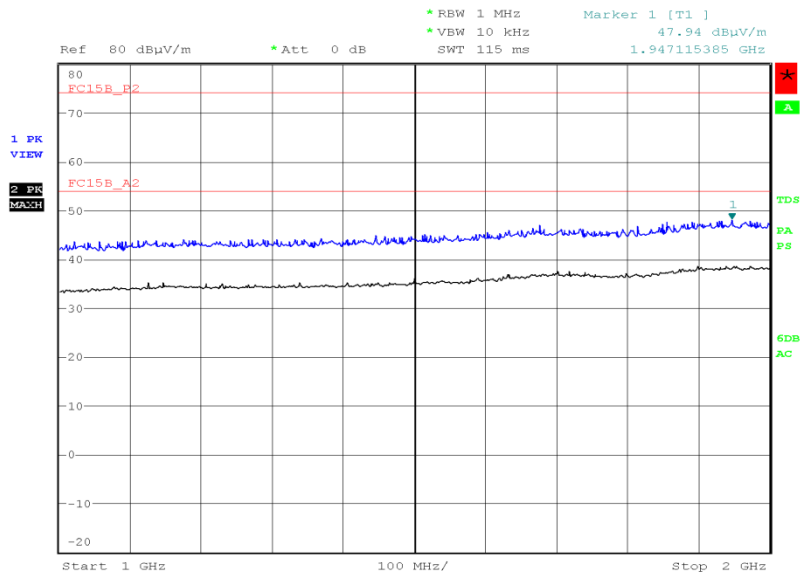


| Frequency (MHz) | QP Level (dBμV/m) | QP Level (μV/m) | QP Limit (dBμV/m) | QP Limit (μV/m) | QP Margin (dBμV/m) | QP Margin (μV/m) | Angle (Deg) | Height (m) | Polarity |
|-----------------|-------------------|-----------------|-------------------|-----------------|--------------------|------------------|-------------|------------|------------|
| 31.300 | 31.6 | 38.0 | 40.0 | 100 | -8.4 | 62.0 | 30 | 1.00 | Vertical |
| 123.119 | 36.1 | 63.8 | 43.5 | 150 | -7.4 | 86.2 | 111 | 2.59 | Horizontal |
| 123.125 | 40.3 | 103.5 | 43.5 | 150 | -3.2 | 46.5 | 309 | 1.00 | Vertical |
| 132.766 | 33.8 | 49.0 | 43.5 | 150 | -9.7 | 101.0 | 280 | 2.88 | Horizontal |
| 132.781 | 36.8 | 69.2 | 43.5 | 150 | -6.7 | 80.8 | 264 | 1.00 | Vertical |
| 172.790 | 31.4 | 37.2 | 43.5 | 150 | -12.1 | 112.8 | 265 | 2.30 | Horizontal |
| 172.817 | 31.8 | 38.9 | 43.5 | 150 | -11.7 | 61.1 | 327 | 1.00 | Vertical |
| 191.985 | 28.8 | 27.5 | 43.5 | 150 | -14.7 | 122.5 | 55 | 1.00 | Horizontal |
| 192.001 | 29.2 | 28.8 | 43.5 | 150 | -14.3 | 121.2 | 56 | 1.00 | Vertical |
| 364.821 | 32.0 | 39.8 | 46.0 | 200 | -14.0 | 160.2 | 200 | 1.25 | Vertical |
| 364.821 | 30.5 | 33.5 | 46.0 | 200 | -15.5 | 166.5 | 331 | 1.00 | Horizontal |

1 GHz to 2 GHz



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Date: 5.MAR.2014 20:46:47



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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 (Double Ridge Guide, 1GHz-18GHz) | EMCO | 3115 | 234 | 12 | 3-Apr-2014 |
| Screened Room (5) | Rainford | Rainford | 1545 | 24 | 10-Jan-2015 |
| Turntable Controller | Inn-Co GmbH | CO 1000 | 1606 | - | TU |
| 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 |

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 | 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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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
(Not UKAS Accredited).

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