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Report On

FCC Testing of the
Pace Plc PX013ANM
In accordance with FCC CFR 47 Part 15B

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FCC ID: NQ8PX013ANM

Document 75926325 Report 04 Issue 1 May 2014

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COMMERCIAL-IN-CONFIDENCE

REPORT ON

FCC Testing of the
Pace Plc PX013ANM
In accordance with FCC CFR 47 Part 15B

Document 75926325 Report 04 Issue 1

May2014

PREPARED FOR

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PREPARED BY

Simon Bennett
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APPROVED BY

Ryan Henley
Authorised Signatory

DATED 01 May 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);

Simon Bennett

UKAS TESTING 0141

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SECTION 1

REPORT SUMMARY

FCC Testing of the
Pace Plc PX013ANM
In accordance with FCC CFR 47 Part 15B

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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Pace Plc, PX013ANM 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	Pace Plc
Model Number(s)	PX013ANM
Serial Number(s)	D2201403001
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15B (2013)
Test Plan/Issue/Date	Not Applicable
Incoming Release Date	Declaration of Build Status 14 April 2014
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	5169222 28 March 2014
Start of Test	25 April 2014
Finish of Test	25 April 2014
Name of Engineer(s)	Simon Bennett
Related Document(s)	ANSI C63.4 (2009)

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1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 15B is shown below.

Section	Spec Clause	Test Description	Result	Base Standard
2.1	15.115 (b)(1)	RF Output Terminal Power	Pass	ANSI C63.4 (2009)
2.2	15.115 (b)(2)	RF Output Terminal Spurious Emissions	Pass	ANSI C63.4 (2009)

Product Service

1.3 DECLARATION OF BUILD STATUS

Manufacturer	Calcomp Electronics (Thailand)
Country of Origin	Thailand
UK Agent	Pace Plc
Description	16x4 Hybrid Gateway Cable Set Top Box
Model Number	PX013ANM
Declared Variants	PX013ANC
Part Number	E1183415000
Serial Number	D22014030001
Drawing Number	PD12-2126A2A
Build Status	Design Verification (DV)
Software Issue	E118 1_48
Firmware Issue	0.323 (1.323.4.84

Highest Frequency 933MHz DDR - 1.5GHz Burst SATA main PCB / 2.4GHz Zigbee Front Panel
(Generated or used within EUT [FCC testing only])

Signature
Representatives of Customer J. Ryan

Date 14th April 2014

BSD Serial Number _____

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.

Product Service

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Pace Plc, PX013ANM. 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, test laboratories or an open test area as appropriate.

The EUT was powered from a 110 V AC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.7 MODIFICATION RECORD

No modifications were made to the EUT during testing.

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SECTION 2

TEST DETAILS

FCC Testing of the
Pace Plc PX013ANM
In accordance with FCC CFR 47 Part 15B

2.1 RF OUTPUT TERMINAL POWER

2.1.1 Specification Reference

FCC CFR 47 Part 15.115 (b)(1)

2.1.2 Equipment Under Test and Modification State

PX013ANM, S/N: D2201403001 - Modification State 0

2.1.3 Date of Test

25 April 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 video stream at 576MHz, 256QAM modulation with QAM-B standard was was fed to the set top box from a laptop via a DekTek DTV-215 VHF/UHF modulator. A test receiver was connected to the RF Output, (Cable Out) port via a 75Ω to 50Ω convertor. The test receiver detector was set to rms and the trace set to Max Hold. The video and audio signals were measured and recorded.

2.1.6 Environmental Conditions

	25 April 2014
Ambient Temperature	22.3°C
Relative Humidity	42.5%

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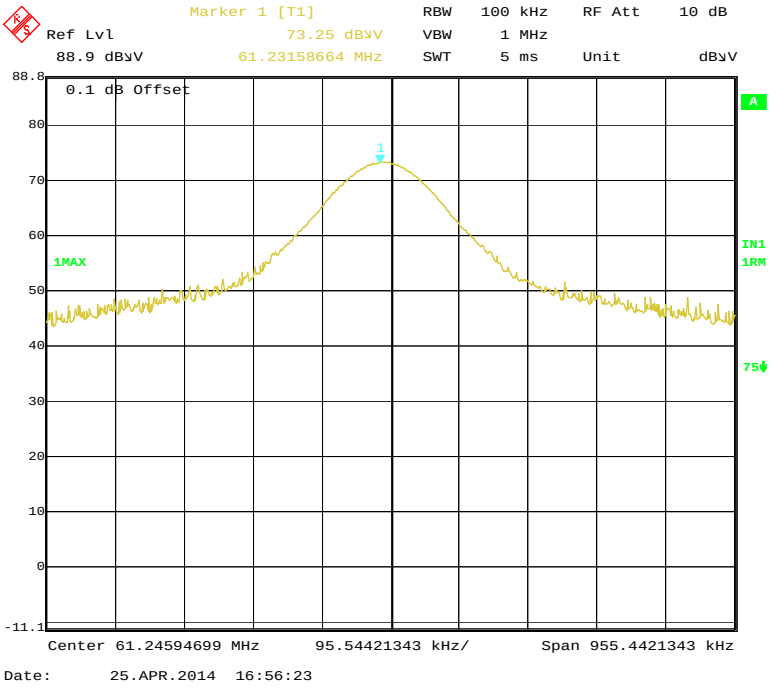
2.1.7 Test Results

Output Power

RF Output Terminal	Video RMS Voltage		Audio RMS Voltage	
	dBµV	µV	dBµV	µV
Channel 3	73.25	4597	58.08	801.7
Channel 4	73.24	4592	58.02	796.2

Channel 3 - Video Signal



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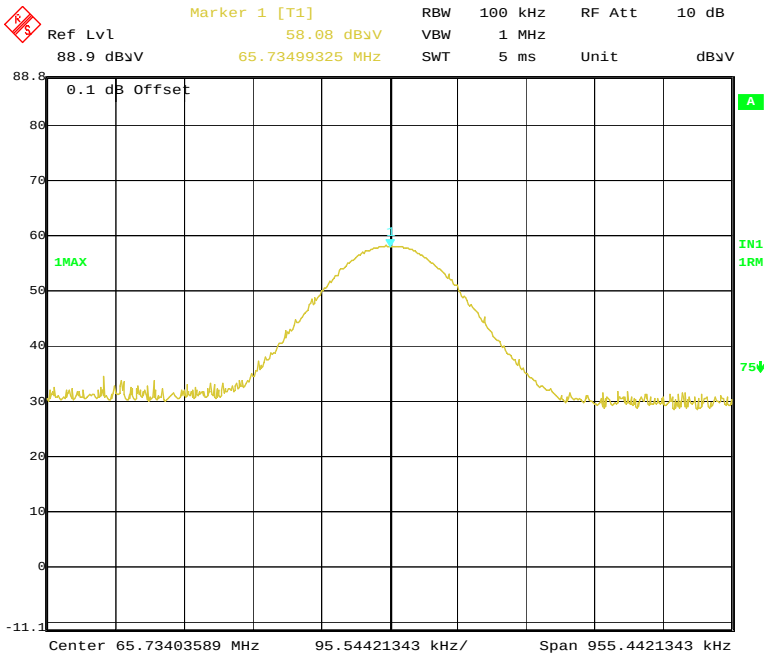
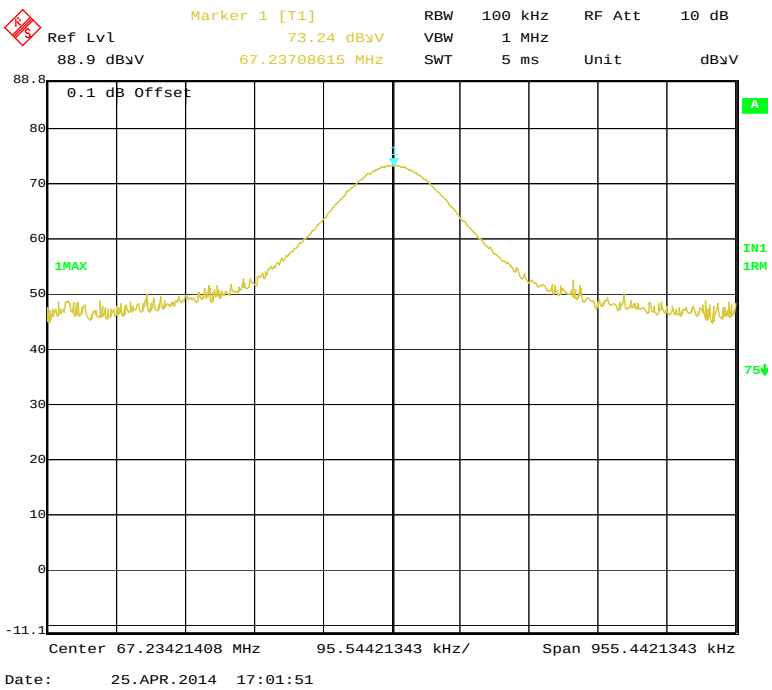
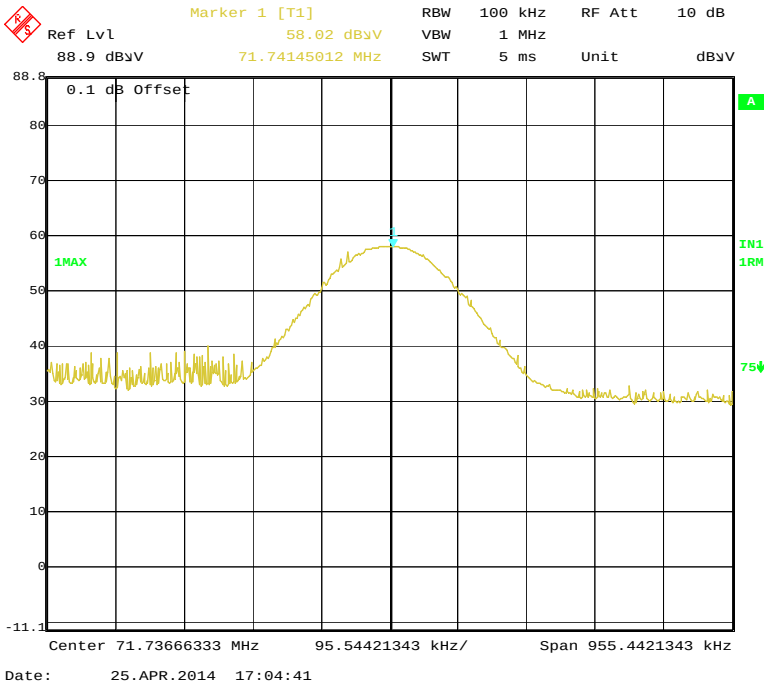
Channel 3 – Audio Signal



Channel 4 – Video Signal



Channel 4 – Audio Signal



Limit Clause 15.115(b)(1)(i)

692.8 x √75 = 5999.82 µV or 195.56 dBµV

2.2 RF OUTPUT TERMINAL SPURIOUS EMISSIONS

2.2.1 Specification Reference

FCC CFR 47 Part 15.115 (b)(2)

2.2.2 Equipment Under Test and Modification State

PX013ANM, S/N: D2201403001 - Modification State 0

2.2.3 Date of Test

25 April 2014

2.2.4 Test Equipment Used

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

2.2.5 Test Procedure

A video stream at 576MHz, 256QAM modulation with QAM-B standard was was fed to the set top box from a laptop via a DekTek DTV-215 VHF/UHF modulator. A test receiver was connected to the RF Output, (Cable Out) port via a 75Ω to 50Ω convertor. The test receiver detector was set to rms and the trace set to Max Hold. Spurious emissions from the RF Output port were measured and recorded up to 1GHz. Using a Network Analyser, the path loss was measured and entered as a Reference Level Offset in the test receiver.

2.2.6 Environmental Conditions

	25 April 2014
Ambient Temperature	22.7°C
Relative Humidity	44.8%

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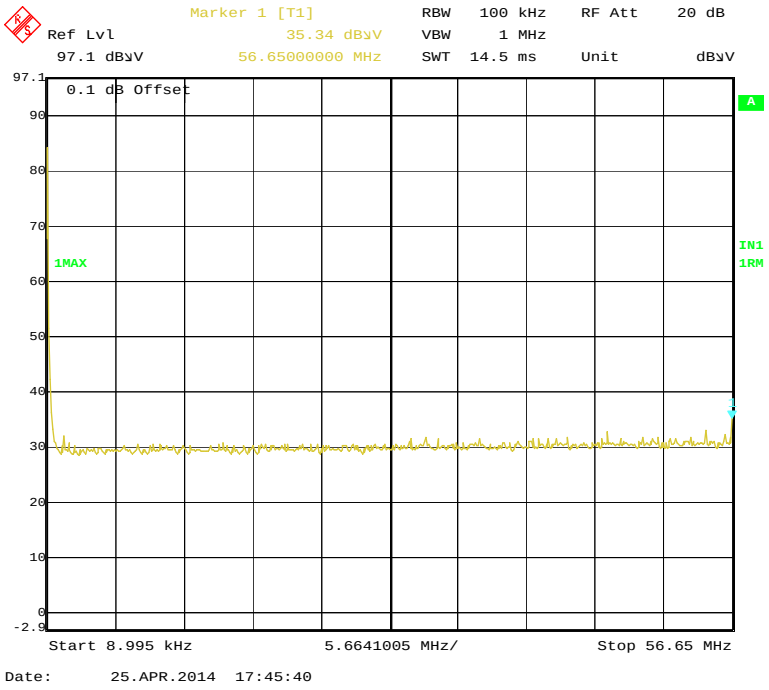
2.2.7 Test Results

Spurious Emisions

Channel 3

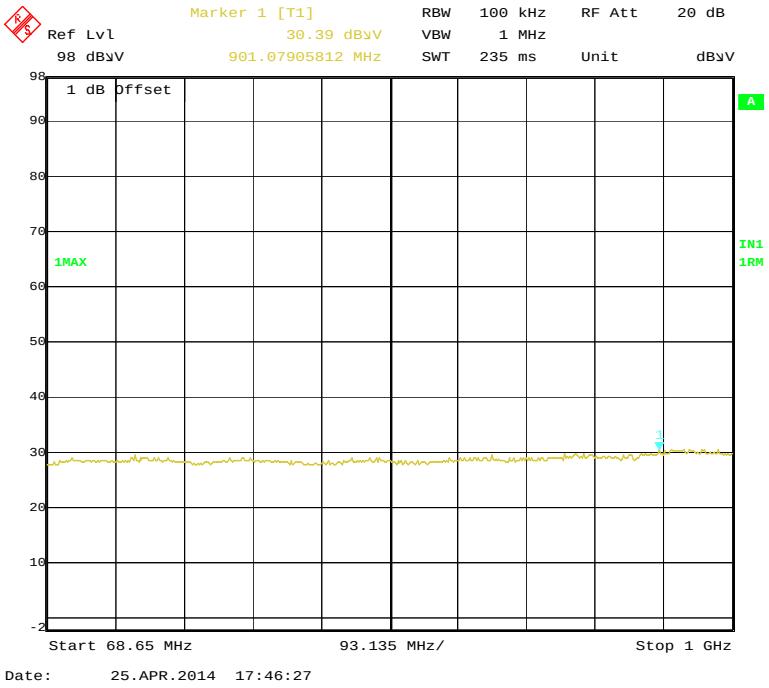
Frequency Range (MHz)	Frequency (MHz)	Amplitude	
		dBµV	µV
0.009 – 56.65	36.65	35.34	58.48
68.65 - 1000	901.08	30.39	33.08

9 kHz to 62.65 MHz



Product Service

68.65 MHz to 1000 MHz



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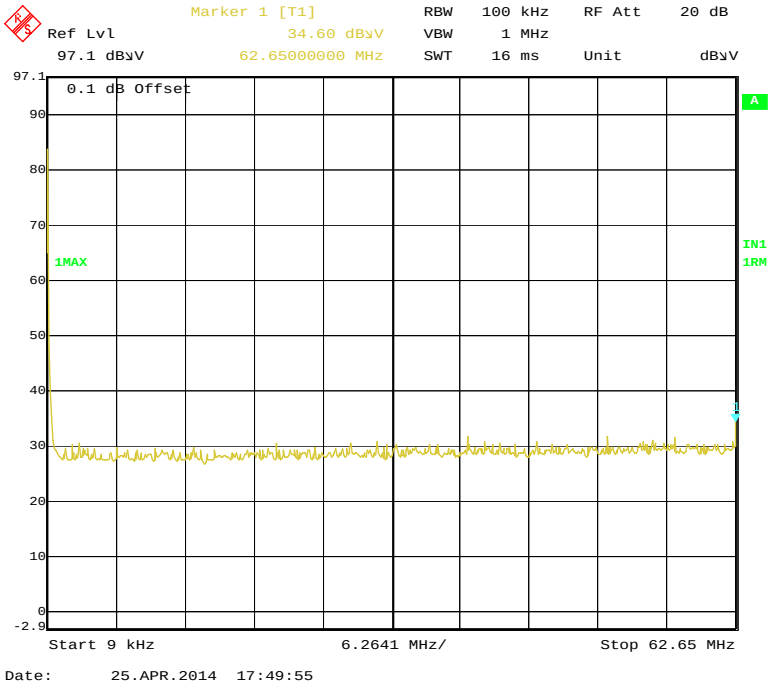
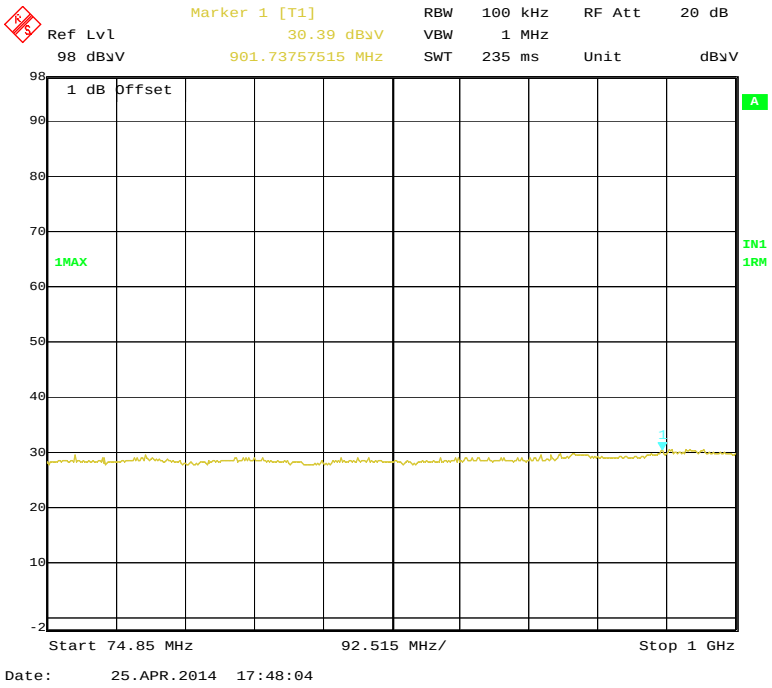
Channel 4

Frequency Range (MHz)	Frequency (MHz)	Amplitude	
		dBµV	µV
0.009 – 62.65	62.65	34.60	53.70
74.85 - 1000	901.74	30.39	33.08

9 kHz to 62.65 MHz



74.85 MHz to 1000 MHz



Limit Clause 15.115(b)(2)(i)

692.8 x √75 = 5999.82 µV or 195.56 dBµV

Product Service

SECTION 3

TEST EQUIPMENT USED

Product Service

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 and 2.2 - RF Output Terminal Power and RF Output Terminal Spurious Emissions					
THG	Rotronic	I-1000	3220	12	16-Jul-2014
DVM	White Gold	WG022	190	12	28-Oct-2014
Power Supply	Behlman Hauppauge	P1350-CE	1434	-	-
75Ω to 50Ω Convertor	Alan	1050	-	-	O/P Mon
Laptop	Dell	Lattitude D400	-	-	-
Laptop	Dell	Latitude D810	-	-	-
VHF/UHF Modulator	DekTec	DTU-215	4215.001.814	-	-
Software	DekTec	StreamXpress	V3.7.1 Build 677	-	-
Software	DigDebug	Pace	V2.4	-	-
Receiver	Rohde & Schwarz	ESIB	1934	12	13-Jan-2015

O/P MON – Output Monitored with Calibrated Equipment

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3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
RF Output Terminal Power	± 3.454 dB
RF Output Terminal Spurious Emissions	± 3.454 dB

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SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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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