UMS SUMMARY TEST REPORT

ISSUED BY:
CRANAGE EMC TESTING LIMITED
STABLE COURT
OAKLEY
MARKET DRAYTON
SHROPSHIRE, TF9 4AG

UKAS TESTING 1833

Report No: **U0082R** Date of Issue: **23rd October 2017**

This document summarises the results of testing to ascertain the appropriate Elexon Charge Codes for inclusion in BSCP520

Tested & Inspected for: **NEC UK Ltd,**
Athene,
Odyssey Business Park,
West End Road,
South Ruislip,
Middlesex.
HA4 6QE.

Test Dates: **19h October 2017 – 23rd October 2017.**
Initial Receipt Date of Test Item: **18th October 2017.**

Sample 1

Test Item Description: **3G + LTE FLEXIBLE RADIO NODE FOR USE IN SCALABLE AND MULTI-ACCESS SMALL CELL SYSTEMS**
Tested on behalf of: **NEC UK Ltd.**
Manufacturer: **SpiderCloud Wireless**
Model Number: **SCRN-310-0701**
Serial Number: **14162C25383**
Part Number: **01874-08-002**

Sample 2

Test Item Description: **3G + LTE FLEXIBLE RADIO NODE FOR USE IN SCALABLE AND MULTI-ACCESS SMALL CELL SYSTEMS**
Tested on behalf of: **NEC UK Ltd.**
Manufacturer: **SpiderCloud Wireless**
Model Number: **SCRN-310-0701**
Serial Number: **14197C26901**
Part Number: **01874-08-003**

Sample 3

Test Item Description: **3G + LTE FLEXIBLE RADIO NODE FOR USE IN SCALABLE AND MULTI-ACCESS SMALL CELL SYSTEMS**
Tested on behalf of: **NEC UK Ltd.**
Manufacturer: **SpiderCloud Wireless**
Model Number: **SCRN-310-0701**
Serial Number: **14162C25516**
Part Number: **01874-08-002**

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Sample 4

Test Item Description:	**3G + LTE FLEXIBLE RADIO NODE FOR USE IN SCALABLE AND MULTI-ACCESS SMALL CELL SYSTEMS**
Tested on behalf of:	**NEC UK Ltd.**
Manufacturer:	**SpiderCloud Wireless**
Model Number:	**SCRN-310-0701**
Serial Number:	**14197C26928**
Part Number:	**01874-08-003**

Sample 5

Test Item Description:	**3G + LTE FLEXIBLE RADIO NODE FOR USE IN SCALABLE AND MULTI-ACCESS SMALL CELL SYSTEMS**
Tested on behalf of:	**NEC UK Ltd.**
Manufacturer:	**SpiderCloud Wireless**
Model Number:	**SCRN-310-0701**
Serial Number:	**14139C23225**
Part Number:	**01874-08-002**

Approved Signatories: M. Richens - Technical Director

APPROVED SIGNATORY

Verification Signatories: K. Richens – Managing Director

VERIFICATION SIGNATORY

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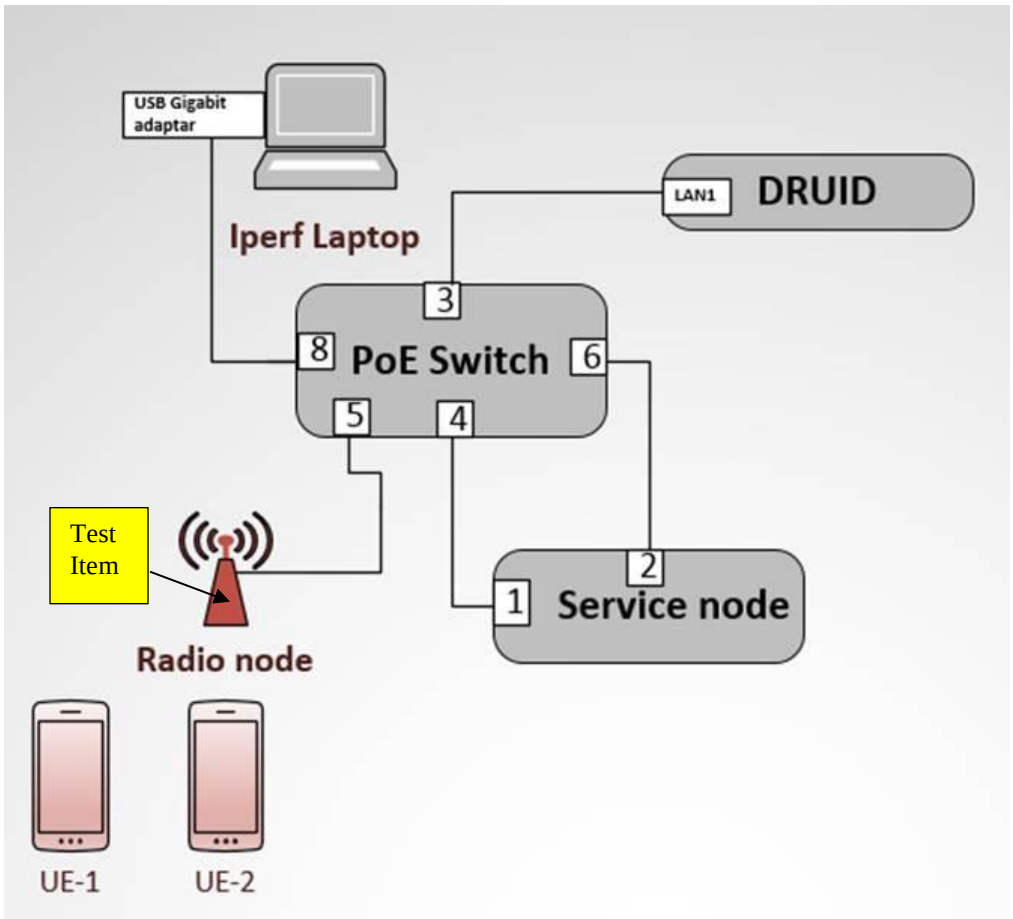
Mode of Operation 1: Full bandwidth utilisation.

AC mains (50Hz) supplied to a peripheral PoE switcher (Cisco sg300-10pp), which was connected to the SCRN-310-0701 radio node via an RJ45 cable. A peripheral laptop (running Iperf commands for creating data streams and measuring throughput), a peripheral Druid CMD simulator and a peripheral service node were also connected to the peripheral PoE switcher via RJ45 (shown below). Two mobile handsets (iphone & Samsung) were used in combination within this setup to simulate full bandwidth utilisation (advised by the manufacturer) when used with the radio node. In the downlink test, the radio node radiates data over-the-air to the handsets. In the uplink test, the handsets transmit the data back to the radio node. Screenshots showing the power consumption (mW) on GE5 (radio node) can be found in the photographs section of this report. In mode 1, the radio node consumes approx. 14400 mW. Screenshots from the command terminal on the peripheral laptop highlight the transfer and bandwidth conditions sent to the handsets and again can be found in the photographs section of this report.



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Mode of Operation 2: Quiescent.

AC mains (50Hz) supplied to peripheral PoE switcher (Cisco sg300-10pp), which was connected to the SCRN-310-0701 radio node via an RJ45 cable. A peripheral laptop (running Iperf commands for creating data streams and measuring throughput), a peripheral Druid CMD simulator and a peripheral service node were also connected to the peripheral PoE switcher via RJ45. In mode 2, the radio node consumes approx. 11100 mW. The handsets were powered down and therefore no traffic was sent to the radio node in this mode.

Mode 3: PoE Switcher without radio node.

AC mains (50Hz) supplied to peripheral PoE switcher (Cisco sg300-10pp). A peripheral laptop, a peripheral Druid CMD simulator and a peripheral service node were also connected to the peripheral PoE switcher via RJ45. A radio node was not connected to the peripheral PoE switcher. This mode is for information only in order to obtain power measurements of the PoE switcher without a radio node connected.

Test Condition: - Stabilisation period of 15 minutes given prior to measurements at 230V 50Hz. Measurements were subsequently taken after 15 minutes at each voltage level. This was found to be an adequate time window for the purpose of the test measurements.

All results are rounded to 2 decimal places.

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Mode 1

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**
210	**25.80**	**25.61**	**25.70**	**25.68**	**25.76**
220	**25.91**	**25.64**	**25.74**	**25.71**	**25.78**
230	**25.98**	**25.67**	**25.80**	**25.88**	**25.85**
240	**26.01**	**25.71**	**25.86**	**25.94**	**25.95**
250	**26.03**	**25.81**	**26.07**	**25.99**	**25.97**

VA					
Voltage (Vrms)	Sample No.				
	Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**
210	**73.96**	**73.52**	**73.73**	**73.67**	**73.61**
220	**75.64**	**75.02**	**75.27**	**75.20**	**75.11**
230	**77.26**	**76.57**	**76.91**	**77.03**	**76.71**
240	**78.82**	**78.17**	**78.54**	**78.66**	**78.44**
250	**80.35**	**79.98**	**80.45**	**80.28**	**79.97**

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Mode 2

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**
210	**22.95**	**22.14**	**22.95**	**22.27**	**22.21**
220	**22.97**	**22.16**	**23.02**	**22.32**	**22.25**
230	**23.01**	**22.21**	**22.63**	**22.37**	**22.28**
240	**23.03**	**22.26**	**22.67**	**22.44**	**22.31**
250	**23.07**	**22.30**	**22.72**	**22.49**	**22.37**

VA					
Voltage (Vrms)	Sample No.				
	Sample 1	**Sample 2**	**Sample 3**	**Sample 4**	**Sample 5**
210	**67.92**	**66.12**	**67.91**	**66.44**	**66.32**
220	**69.43**	**67.72**	**69.58**	**68.06**	**67.98**
230	**71.06**	**69.39**	**70.27**	**69.73**	**69.63**
240	**72.63**	**71.02**	**71.89**	**71.41**	**71.23**
250	**74.21**	**72.64**	**73.54**	**73.10**	**72.86**

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Mode 3

Watts	
Voltage (Vrms)	
210	**9.45**
220	**9.49**
230	**9.52**
240	**9.53**
250	**9.56**

VA	
Voltage (Vrms)	
210	**41.15**
220	**43.23**
230	**45.20**
240	**47.14**
250	**49.12**

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Test Equipment

Asset Number	Description	Calibration Date	Calibration Due
AN288	Power Source	-	-
AN1162	Power Analyser	14/09/2017	-
AN452	Timer	-	-

Peripheral Equipment

Description	Manufacturer	Model
Service Node	SpiderCloud Wireless	SCSN-8000
Laptop	Hewlett Packard	EliteBook 8440p
PoE Switch	Cisco	sg300-10pp
Communication Simulator	Druid	-
Mobile Handset	Apple Inc.	Iphone 6s Plus
Mobile Handset	Samsung	Galaxy Note 3

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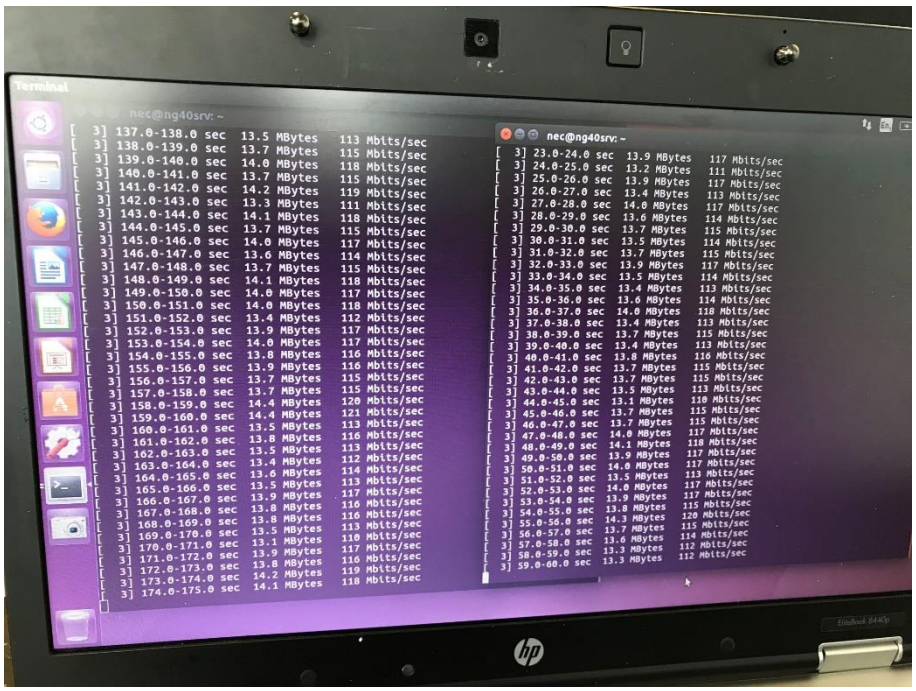
Photographs of the Test Item



Above: iPerf laptop showing traffic conditions between mobile handsets and radio node (test item).

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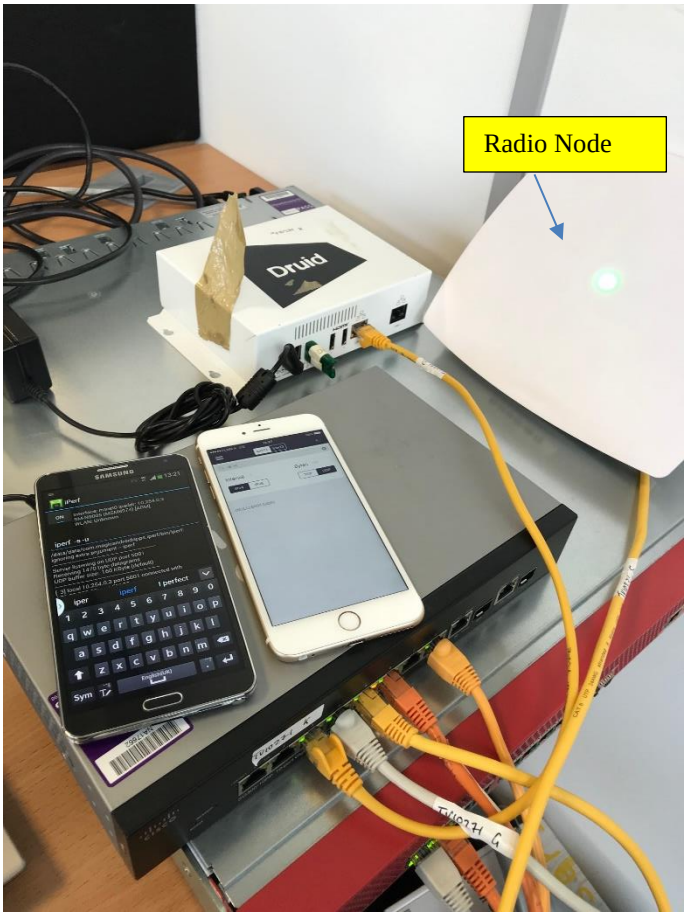

Above: Handsets used as part of the traffic simulation. The radio node (test item) is also shown.

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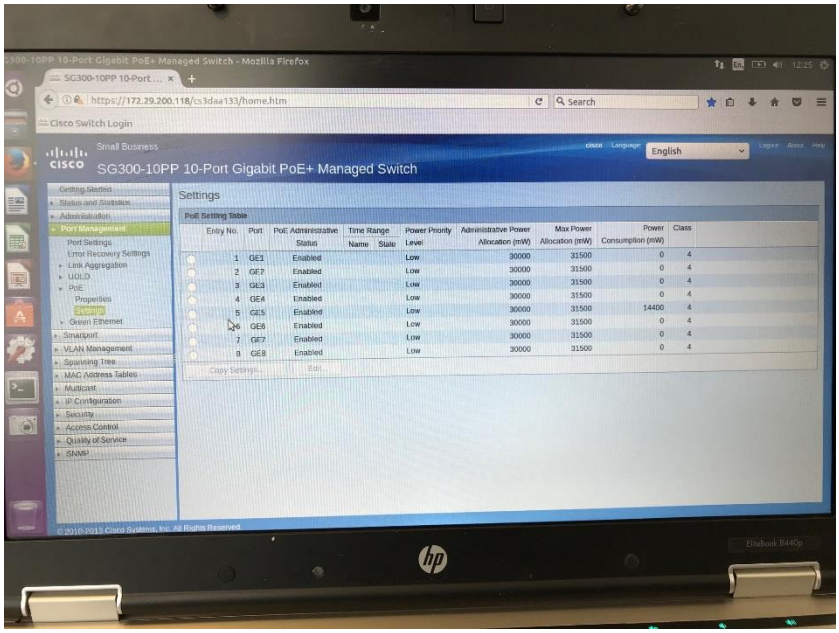
Above: Test Setup.



Above: Management browser of the Cisco Switch. The power consumption (mW) of radio node (GE5) under test is shown above. These are the conditions for mode 1.

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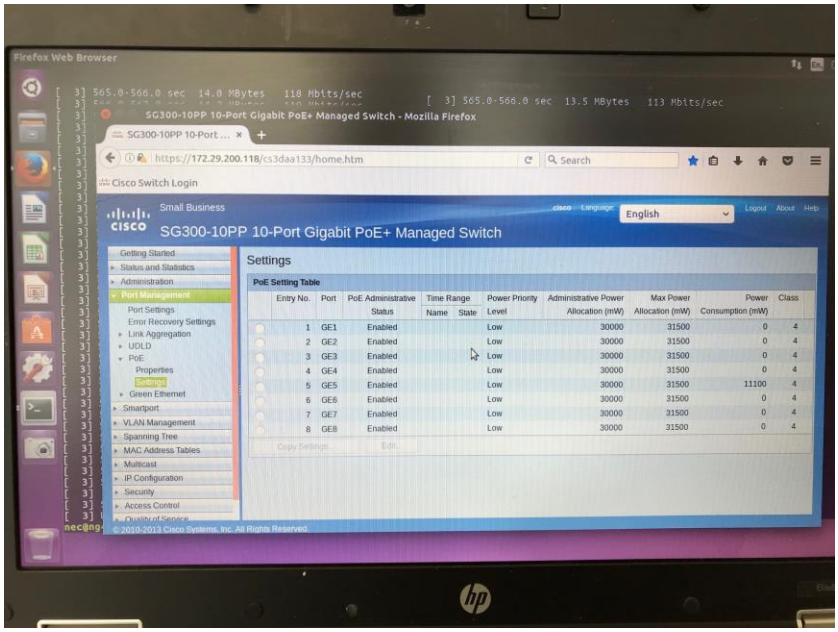

Above: Management browser of the Cisco Switch. The power consumption (mW) of radio node (GE5) under test is shown above. These are the conditions for mode 2.

Measurement Uncertainty

The 95 % confidence measurement uncertainty for AC Power (Analyser) is 0.17%.