

UMS SUMMARY TEST REPORT

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



Report No: **U0064R** Date of Issue: **3rd May 2016**

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

Tested & Inspected for: **Swarco Traffic Limited,
7 Mercury Road,
Gallowfields Trading Estate,
Richmond,
North Yorkshire.
DL10 4TQ.**

Test Dates: **13th April 2016 – 29th April 2016**
Initial Receipt Date of Test Item: **12th April 2016**

EUT 1

Test Item Description: **Pedestrian Crossing Controller**
Tested on behalf of: **Swarco Traffic Limited**
Model Number: **ITC3-UKJ11**
Serial Number: **Production Sample**

EUT 2

Test Item Description: **Traffic Junction Controller**
Tested on behalf of: **Swarco Traffic Limited**
Model Number: **ITC3-UKJ19**
Serial Number: **Production Sample**

Approved Signatories: M. Richens - Technical Director


APPROVED SIGNATORY

Verification Signatories: K. Richens – Managing Director


VERIFICATION SIGNATORY

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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.

Modes of operation for EUT 1 and EUT 2

Mode of Operation 1: No I/O, detector or switch PCB's were installed. EUT powered.

Mode of Operation 2: A single switch PCB installed, 5 PCB samples measured on an individual basis (see details below). No I/O or detector PCB's were installed. EUT powered.

Single Switch Sample 1

Test Item Description: **Single Switch PCB**
V/N, Rev. & MT Number: **017.022.084.13, Rev.013, 46693.**
Serial Number: **230915-158308**

Single Switch Sample 2

Test Item Description: **Single Switch PCB**
V/N, Rev. & MT Number: **017.022.084.13, Rev.013, 46693.**
Serial Number: **230915-158310**

Single Switch Sample 3

Test Item Description: **Single Switch PCB**
V/N, Rev. & MT Number: **017.022.084.13, Rev.013, 46693.**
Serial Number: **230913-158391**

Single Switch Sample 4

Test Item Description: **Single Switch PCB**
V/N, Rev. & MT Number: **017.022.084.13, Rev.013, 46693.**
Serial Number: **230915-158338**

Single Switch Sample 5

Test Item Description: **Single Switch PCB**
V/N, Rev. & MT Number: **017.022.084.13, Rev.013, 46693.**
Serial Number: **230915-158317**

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Mode of Operation 3: A single I/O PCB installed, 5 PCB samples measured on an individual basis (see details below). No switch or detector PCB's were installed. EUT powered.

Single I/O Sample 1

Test Item Description: **Single I/O Module 16/8**
V/N & MT Number: **017.022.075, 46692.**
Serial Number: **051015-159022**

Single I/O Sample 2

Test Item Description: **Single I/O Module 16/8**
V/N & MT Number: **017.022.075, 46692.**
Serial Number: **051015-159021**

Single I/O Sample 3

Test Item Description: **Single I/O Module 16/8**
V/N & MT Number: **017.022.075, 46692.**
Serial Number: **051015-159015**

Single I/O Sample 4

Test Item Description: **Single I/O Module 16/8**
V/N & MT Number: **017.022.075, 46692.**
Serial Number: **051015-159014**

Single I/O Sample 5

Test Item Description: **Single I/O Module 16/8**
V/N & MT Number: **017.022.075, 46692.**
Serial Number: **051015-159048**

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Mode of Operation 4: A single Loop detector PCB installed, 5 PCB samples measured on an individual basis (see details below). No I/O or switch PCB's were installed. EUT powered.

Single Loop Detector Sample 1

Test Item Description: **Single Loop Detector PCB**
Manufacturer Number: **TIC-800E**
Serial Number: **2015V39105**

Single Loop Detector Sample 2

Test Item Description: **Single Loop Detector PCB**
Manufacturer Number: **TIC-800E**
Serial Number: **2015V3999**

Single Loop Detector Sample 3

Test Item Description: **Single Loop Detector PCB**
Manufacturer Number: **TIC-800E**
Serial Number: **2015V39138**

Single Loop Detector Sample 4

Test Item Description: **Single Loop Detector PCB**
Manufacturer Number: **TIC-800E**
Serial Number: **2015V48183**

Single Loop Detector Sample 5

Test Item Description: **Single Loop Detector PCB**
Manufacturer Number: **TIC-800E**
Serial Number: **2015V48159**

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EUT 1 - Mode 1

Voltage (Vrms)	Watts
210	34.13
220	36.43
230	38.92
240	41.65
250	44.63
Voltage (Vrms)	VA
210	53.90
220	61.96
230	71.95
240	84.02
250	98.82

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EUT 1 - Mode 2

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	34.66	34.65	34.54	34.77	34.64
220	37.04	37.03	36.92	37.07	37.03
230	39.62	39.51	39.97	39.60	39.58
240	42.26	42.25	42.59	42.33	42.23
250	45.20	45.16	45.42	45.33	45.20
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	54.64	54.67	54.55	54.60	54.56
220	62.69	62.73	62.54	62.50	62.62
230	72.63	72.57	72.54	72.34	72.48
240	84.65	84.53	84.43	84.40	84.39
250	99.32	99.25	99.02	99.37	99.21

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EUT 1 - Mode 3

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	34.62	34.56	34.53	34.83	34.73
220	37.94	36.99	36.96	37.23	37.12
230	39.54	39.52	39.53	39.89	39.67
240	42.36	42.32	42.30	42.58	42.46
250	45.29	45.32	45.31	45.57	45.37
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	54.60	54.58	54.63	54.45	54.66
220	62.65	36.99	62.77	62.51	62.69
230	72.50	39.52	72.77	72.47	72.61
240	84.62	42.32	84.74	84.33	84.66
250	99.46	45.32	99.49	99.20	99.41

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EUT 1 - Mode 4

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	34.86	34.80	35.22	34.99	35.00
220	37.24	37.24	37.57	37.41	37.39
230	39.81	39.76	40.15	39.85	39.95
240	42.56	42.48	42.69	42.57	42.68
250	45.43	45.40	45.71	45.49	45.55
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	54.78	54.86	54.96	54.94	54.82
220	62.80	62.99	62.99	63.07	62.91
230	72.68	72.81	72.69	72.70	72.71
240	84.64	84.71	84.23	84.66	84.71
250	99.45	99.40	99.25	99.32	99.25

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EUT 2 - Mode 1

Voltage (Vrms)	Watts
210	42.35
220	45.31
230	48.57
240	51.98
250	55.70
Voltage (Vrms)	VA
210	67.22
220	77.52
230	90.34
240	105.64
250	124.55

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EUT 2 - Mode 2

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	43.25	43.00	43.26	42.90	43.06
220	46.31	46.06	46.29	45.94	45.98
230	49.49	49.23	49.46	49.69	49.21
240	52.94	52.70	52.86	52.99	52.55
250	56.63	56.40	56.53	56.69	56.24
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	68.09	68.12	68.24	68.08	68.22
220	78.56	78.49	78.62	78.48	78.31
230	91.00	91.05	91.16	91.28	90.91
240	106.40	106.62	106.45	106.20	106.41
250	125.10	125.39	125.13	124.93	125.20

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EUT 2 - Mode 3

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	42.40	42.28	42.27	42.86	42.56
220	45.43	45.27	45.28	45.98	45.62
230	48.63	48.51	48.50	49.10	48.76
240	52.07	52.28	51.92	52.52	52.18
250	55.74	55.61	55.60	56.33	55.95
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	67.53	67.48	67.63	67.80	67.60
220	77.93	77.80	77.95	78.30	77.97
230	90.58	90.62	90.75	90.71	90.58
240	105.99	107.59	106.05	106.11	105.85
250	124.76	125.05	124.86	125.09	124.96

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EUT 2 - Mode 4

Watts					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	42.66	42.62	42.49	42.49	42.54
220	45.69	45.62	45.53	45.62	45.60
230	48.87	48.87	48.82	48.84	48.81
240	52.34	52.25	52.39	52.31	52.26
250	56.02	55.95	55.97	56.05	56.07
VA					
Voltage (Vrms)	Sample No.				
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
210	67.79	67.86	67.74	67.54	67.70
220	78.06	78.08	78.12	78.12	78.19
230	90.68	90.89	90.88	90.85	90.74
240	106.19	105.95	106.70	106.17	106.34
250	124.80	125.13	125.17	125.09	125.34

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Test Equipment

Asset Number	Description	Calibration Date	Calibration Due
AN873	Power Source	-	-
AN1162	Power Analyser	16/07/2014	15/07/2015

Photographs of the Test Item



Above: EUT 1 (Mode 1)

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Above: EUT 1 (Mode 1)

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Above: EUT 1 (Mode 2)

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Above: EUT 1 (Mode 3)

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Above: EUT 1 (Mode 4)



Above: EUT 2

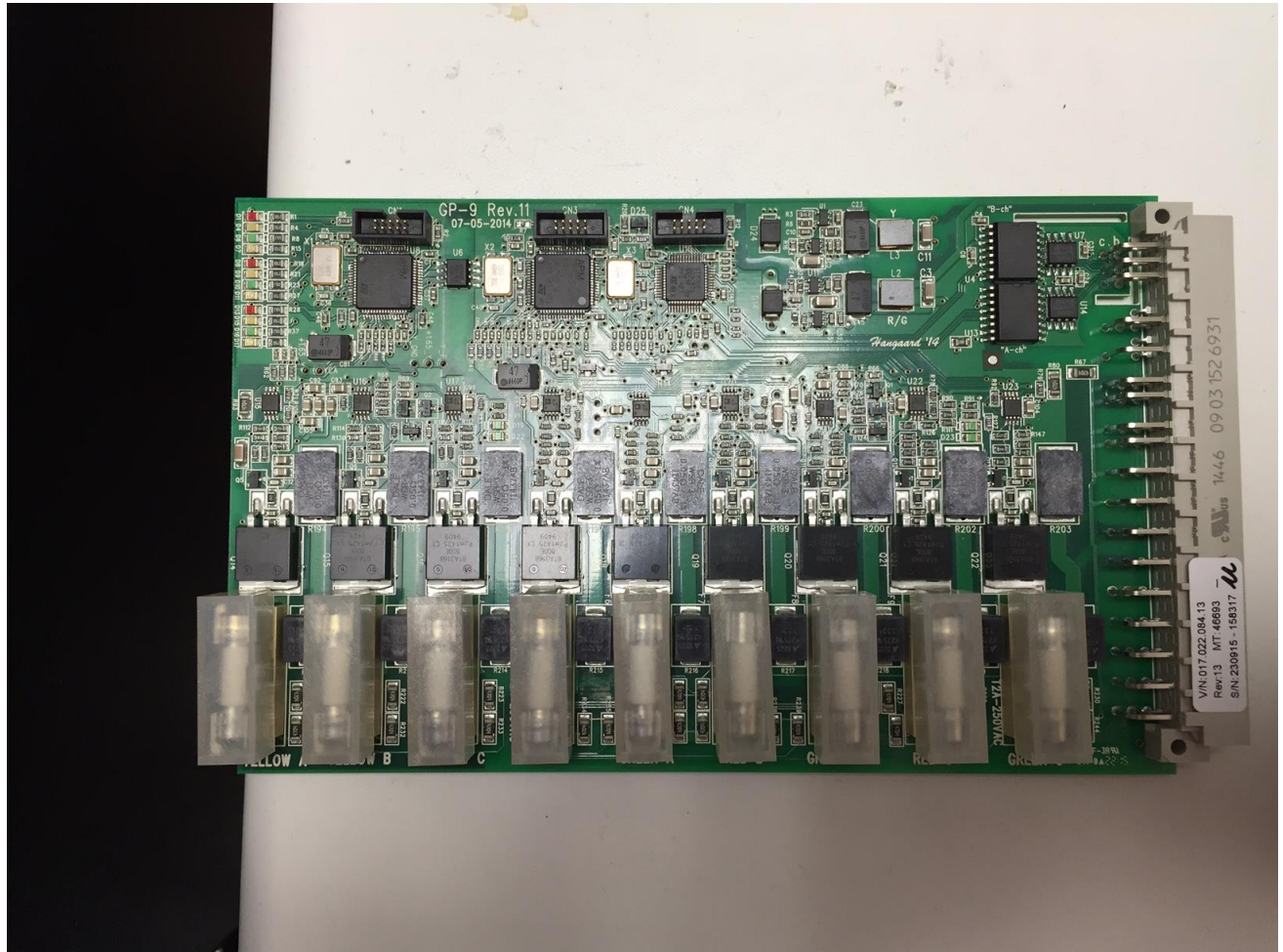
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Above: Switch Board PCB

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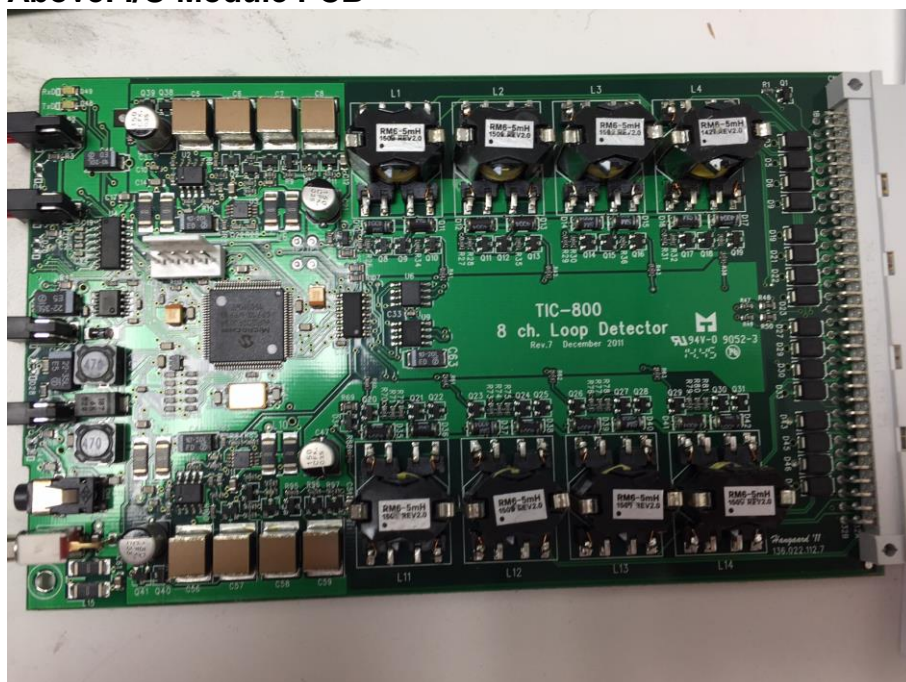
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Above: I/O Module PCB



Above: Loop Detector PCB

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Measurement Uncertainty

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