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Test Report: 210354LCP

Testing of Wireless NB-IOT Lighting Controller Power for AEMO's NEM Load Table and other tests on optical systems

for CIMCON Intelligent wireless NB-IOT lighting controller

Type of product: NB-IOT Wireless Lighting Controller

Prepared for: Sylvania Schréder, Bldg 4A, Parklands Estate, 21-23 South Street, Rydalmere NSW 2116 Australia

Model number: iSLC3100-7P-N-AD-G-IO-CATC-05-SW

Description: CIMCON Intelligent wireless NB-IOT lighting controller to control ON/OFF switching, dimming control, GPS, power metering, sensor inputs, status and health monitoring of Streetlight.

Test objective and Method

Determination of the device supply operating parameters Voltage, Current, Power and Power Factor when tested at nominal test voltages of 250V. By the method of LEDLab Electrical Parameter Determination and AEMO Unmetered_Load_Guideline_v1_0.

Test configuration

The ten nodes supplied by the client were mounted into the test jig and operated at 25°C ambient temperature at 250VAC, 50Hz, until the monitored sample stabilised (30 minutes). Twenty readings were taken ten seconds apart and the average found. The average value is multiplied by the Calibration Correction given in the latest NATA endorsed calibration report. The other nine units having operated for the same or more time are switched one by one to the Wattmeter for their twenty readings. Note that, 5 samples were supplied with their relays ON and the 5 others with their relays OFF.

Client contact: Swati Dhembre, Bldg 4A Parklands Estate | 21-23 South St Rydalmere, NSW 2116, Australia.

Conclusion

The Average Load (W) with relay ON is 2.03W at 0.47 Power Factor.

The Average Load (W) with relay OFF is 1.43W at 0.38 Power Factor.

Tested by: David Orwin On 07/04/2021 Authorised Signatory Date: 09/04/2021

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Results

Time till stabilisation: 30min

Electrical Measurements

Sample 1	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.997	0.016	1.452	0.385
Min	249.040	0.016	1.433	0.384
Max	251.380	0.016	1.477	0.388
Calibration correction (see Newton 4th calibration	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.06	0.0156	1.45	0.385

Sample 2	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.014	0.016	1.380	0.385
Min	248.620	0.015	1.358	0.384
Max	250.790	0.016	1.449	0.388
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.08	0.0153	1.38	0.385

Sample 3	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.534	0.016	1.415	0.385
Min	249.710	0.016	1.395	0.384
Max	251.320	0.016	1.441	0.388
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.60	0.0157	1.42	0.385

Sample 4	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.144	0.017	1.467	0.385
Min	249.020	0.017	1.454	0.384
Max	251.450	0.017	1.491	0.388
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.21	0.0165	1.47	0.385

Sample 5	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.089	0.016	1.432	0.385
Min	249.210	0.016	1.404	0.384
Max	250.560	0.017	1.588	0.388
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.15	0.0162	1.43	0.385

Sample 6	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.403	0.020	2.089	0.470
Min	249.570	0.020	2.030	0.467
Max	251.080	0.021	2.184	0.476
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.46	0.0197	2.09	0.470

Sample 7	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.112	0.020	1.955	0.470
Min	249.380	0.020	1.946	0.467
Max	250.680	0.020	2.006	0.476
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.17	0.0195	1.96	0.470

Sample 8	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.972	0.020	2.095	0.470
Min	248.640	0.020	2.076	0.467
Max	251.070	0.021	2.111	0.476
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.03	0.0200	2.10	0.470

Sample 9	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	250.262	0.020	1.992	0.470
Min	249.260	0.020	1.978	0.467
Max	250.770	0.020	2.013	0.476
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	250.32	0.0197	1.99	0.470

Sample 10	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Average	249.866	0.020	2.031	0.470
Min	248.630	0.019	1.856	0.467
Max	251.070	0.021	2.115	0.476
Calibration correction (see Newton 4th calibra	1.00025	0.99958	1.00010	1.0000
Instrument impedance correction (N4)		0.00024	0.0000	
Final value	249.93	0.0202	2.03	0.470

Electrical operating parameters of CIMCON intelligent wireless NB-IOT Lighting Controller (iSLC3100-7P-

Sample No.	Serial No.	Relay State (ON/OFF)	Supply Voltage (Vrms)	Input Current (Arms)	Input Power (W)	Power Factor
Sample 1	1342177281	OFF	249.997	0.016	1.452	0.385
Sample 2	1342177289	OFF	250.014	0.015	1.380	0.385
Sample 3	1342177286	OFF	250.534	0.016	1.415	0.385
Sample 4	1342177288	OFF	250.144	0.017	1.467	0.385
Sample 5	1342177287	OFF	250.089	0.016	1.432	0.385
Sample 6	1342177641	ON	250.403	0.020	2.090	0.470
Sample 7	1342177639	ON	250.112	0.019	1.955	0.470
Sample 8	1342177638	ON	249.972	0.020	2.095	0.470
Sample 9	1342177637	ON	250.262	0.020	1.992	0.470
Sample 10	1342177681	ON	249.866	0.020	2.031	0.470

Illustration 1: Electrical operating parameters of CIMCON Intelligent wireless NB-IOT lighting controller (iSLC3100-7P-N-AD-G-IO-CATC-05-SW)

Uncertainties

At a Confidence Level of 95% with a Coverage Factor of 2

Supply Voltage: ± 0.07%
Supply Current: ± 0.14%
Supply Power: ± 0.19%
Power Factor: ± 0.005
Ambient Temperature: ± 1°C

Test Equipment Used

Power meter: Newton 4th Power Analyser KinetiQ Model PPA2520 SN 133-00467
Power meter integration time (s): 5
Calibration Report: PlusEs report no. 2020002794
Luminaire thermometer: AMA S No. 1086110-0.1°

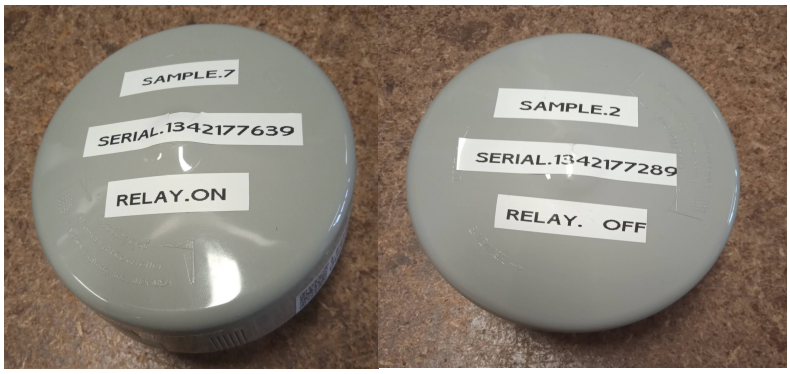

Illustration 2: Nodes (Relay ON/Relay OFF)

Illustration 3: Label

Illustration 4: Setup