



**Test Results
ConnectDER**

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01/15/2020



**ELECTRIC REVENUE METERING
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
48- 05 Van Dam Street
Long Island City, NY 11101**

**ConnectDER Adapter
Evaluation Test Report**

Case Number: 19-E-0597

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Executive Summary

Con Edison filed a letter of intent to use the ConnectDER adapter (Case Number: 19-E-0597). This report provides test results to demonstrate the viability of the adapter.

The ConnectDER is a UL-listed adapter, installed between the utility meter and the customer meter pan, that provides quick and easy interconnection for residential solar photovoltaic (PV) installations. In providing a direct connection of the PV Inverter to the customer's electric panel through the meter pan, it eliminates the need for expensive customer electric panel upgrades. This device creates a safe, standardized, low cost alternative to traditional wiring methods for integrating solar PV into a customer's electrical system.

The ConnectDER contains a built-in capability that monitors the PV generation, and an integrated circuit breaker for PV equipment protection and isolation of the PV output, if needed. The ConnectDER is available in forms 12S (5-jaw) and 2S (4-jaw). Both forms are electrically identical with the only difference being the addition of a neutral connection between the 4-jaw 2S adapter and the meter socket neutral block.

Con Edison's Meter Shop engineering group evaluated the ConnectDER adapter for use in the Con Edison electric service territory. The ConnectDER adapter was subjected to eight (8) tests in accordance with ANSI C12.1-2012.

The *Visual/Fit /Locking Ring Test* (Test 1), demonstrates compliance with the equipment listed in Con Edison's Specifications for Electric Installations, Section VII – Approved Electric Service Equipment. The ConnectDER passed all fit tests for meter pans and meter stacks except for the Durham model UG-H4213B-CC. A list of the meter pans tested is provided in a later section of this report. When the ConnectDER adapter was inserted into the Durham model UG-H4213B-CC pan, the device was unable to completely fit into the Durham pan due to a gap of approximately 0.25". The meter pan cover did not have enough clearance to go over the outer ring of the ConnectDER in order to secure it. The ConnectDER will thus not be used with the Durham UG-H4213B-CC meter pan.

In other field cases where a meter pan is found on site that is not on the approved equipment list, the job will be escalated to the Electric Meter Shop to determine the appropriate metering configuration.

The *Watts Loss Test* (Test 2) determines how much power is being consumed by the ConnectDER adapter. The results show the power in Volt Amps (VA) that the ConnectDER draws without and with a meter installed. During the test, the Watts Loss

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test results demonstrated a range of power consumed from 2.8 VA to 12.9 VA. This is an acceptable result per ANSI C12.20-2010 paragraph 5.5.4.8.

The *Impact on Meter Accuracy* (Test 3) focuses on the impact the ConnectDER has on the accuracy of the AMI revenue grade meter. During this test, no impact on the utility meter was measured. The maximum registration variance measured was within the maximum range allowed of +/- 0.2%.for the kV2C meter and +/-0.5% for the I-210 meter. This is an acceptable result.

The *Surge Test* (Test 4) was performed on the ConnectDER adapter with an AMI meter installed as part of the device under test. A baseline accuracy test was taken before the surge test on the AMI meter. Both ConnectDER and the AMI meter were subjected to IEEE C62.41.2-2002 1.2/50 μ s – 8/20 μ s combination waveform and IEEE C62.41.2-2002 100 kHz ring wave with a peak voltage of 6 kV surge. Accuracies on the AMI meter were measured within the expected +/- 0.2 % error margin for the kV2C and +/- 0.5% for the I-210. After the surge, a test on ConnectDER functionality performance was done with both utility meter forms, and each exhibited no variation in metrology or functionality. In conclusion, the ConnectDER along with the AMI meters successfully withstood the surge tests and remained fully functional after the tests.

Finally, the impact on the AMI meter’s metrology was tested by performing a series of tests, namely:

- *Accelerated Life Test* (Test 5),
- *Load Performance Test* (Test 6),
- *Effect of Variation of Power Factor* (Test 7) and
- *Effect of Variation of Voltage* (Test 8).

During the above tests, the utility meter registration remained within the required variance of +/- 0.2%.for the kV2C and +/-0.5% for the I-210.

In conclusion, the ConnectDER adapter passed all evaluation tests with the exception of the Visual/Fit /Locking Ring Test with respect to the Durham UG-H4213B-CC meter pan. Accordingly, as noted earlier, the ConnectDER will not be used on the Durham UG-H4213B-CC meter pan.

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Test 1 – Visual/Fit /Locking Ring Test

Purpose: This test is to identify the meter pans and meter stacks enclosures the ConnectDER adapter will fit.

Steps:

1. List meter pans and stacks enclosures available for testing that the ConnectDER fits and does not fit.
2. Comment if a sealing ring can be locked without any other tools besides the technician's hands and Morse lock key, for pans that require a ring, when the adapter is inserted into the meter pan.
3. Comment if the adapter leaves a gap in the meter pan, between the pan and the adapter, when it is installed.
4. Comment if the adapter hinders the closure of the meter pan cover when applicable.
5. Comment if the adapter will hinder the installation of other meters in a meter stacks that is adjacent to the socket the adapter is installed in.
6. Comment if the adapter will hinder the expansion of a meter stack.
7. Ensure that, during meter insertion, the meter neutral blade does not cause the adapter neutral jaw to break and/or dislodge.
8. Ensure that the ConnectDER adapter meets Con Edison's specification for minimum clearances top/bottom and side to side.

Observations:

A standard fit test was conducted to determine the compatibility of the ConnectDER product to approved meter pan samples and associated meters, as well as meter stacks. The 12S and 2S ConnectDER product fits all their respective meter pans used in the Con Edison territory except the Durham ringless pan cat. # UG-H4213B-CC where the meter pan cover does not have enough clearance to go over the outer ring of the ConnectDER. The ConnectDER will thus not be used with the Durham UG-H4213B-CC meter pan.

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In other field cases where a meter pan is found on site that is not on the approved equipment list, the job will be escalated to the Electric Meter Shop for assistance in determining the appropriate metering configuration. The fit test steps described in Test 1 shall be performed successfully before the ConnectDER is installed.

The ConnectDER adapter meets Con Edison's specification for minimum clearances top/bottom and side to side.

Ringed Meter Pans					
Manufacturer	Model	Side Lock	Center lock		
Milbank	U3532	Pass	Pass		
	U3522	Pass	Pass		
	U4383	Pass	Pass		
	U4382	Pass	Pass		
	7490	Pass	Pass		
Durham	U-2V1031B-CR	Pass	Pass		
Murray	UVS310	Pass	Pass		
	SN152CX	Pass	Pass		
Cutler Hammer	U-3V1031B-CR	Pass	Pass		
Siemens	WSN251CR	Pass	Pass		

Ringless Meter Pans					
Manufacturer	Model	W/ Bypass	W/o ByPass	Ring Seal Fitting	
Milbank	U3042	Pass			
	U4467		Pass		
Siemens	WRH173CRF	Pass			
Durham	UG-H4213B-CC	Fail			
L&G	40405-01C0	yes		Pass	
Siemens	WRH173CRF	yes		Pass	
Milbank	U3042	yes		Pass	

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Remark:	ConnectDER was unable to completely fit into Durham UG-H4213B-CC due to a gap of approximately 0.25". The meter pan cover did not have enough clearance to go over the outer ring of the ConnectDER in order to secure the device under test.
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Meters					
Manufacturer	Meter Type	Prefix	Meter #	Side Lock	Center lock
Itron	C1SRP	A72AQ	7911825	Pass	Pass
	CP1SD	71BM	8253109	Pass	Pass
	SS2S1T	A72BM	7383026	Pass	Pass
GE	I210+N	71BQ	8417426	Pass	Pass
	KV2C	A71BQ	8132634	Pass	Pass
Focus	ALF	71BQ	7507706	Pass	Pass

Meter Stacks			
Manufacturer	Model	Type	Ring Seal Fitting
Milbank	U3532	ringed	yes
Milbank	U3522	ringed	yes
Midwest	U3V1031BCR	ringed	yes
Midwest	U2V1031BCR	ringed	yes
Siemens	WSN251CR	ringed	yes
Square D	EZM316125M10	ringed	yes

Test 2 – Watts Loss Test

Purpose: The purpose of this test is to measure the power consumption of the ConnectDER adapter while operating without and with a meter installed.

Steps:

1. Apply 120/240V 3W power to the 12S (5-jaw) ConnectDER.
2. Connect an ammeter in series with the voltage source and the adapter.
3. Measure and record the Voltage and Current values consumed by the adapter itself.
4. Remove the front plate and insert a kV2c and I-210 meter into the ConnectDER.
5. Measure and record the Voltage and Current values consumed by the ConnectDER and the meters.
6. Repeat steps above for a 2S (4-jaw) ConnectDER.

Device information:

ConnectDER 5-Jaw Smart adapter
Model # S-B-5-12-JC-10-80 (12S)
Serial # S90702001-con

ConnectDER 4-Jaw Smart adapter
Model # S-B-5-02-JC-10-80 (2S)
Serial # S90805001-con

Test Equipment:

WECO 2300 (Voltage)
Fluke 77IV (Current)

Results:

Watt Loss Test (w/ 12S meter)												
Energize	Breaker	ConnectDER Display	Meter Display	Volts	A-ph mA	C-ph mA	MIN A-ph mA	MAX A-ph mA	MIN C-ph mA	MAX C-ph mA	Total Min Power VA	Total Max Power VA
Connect DER only												
Line side	On	Off	N/A	120	0	0					0.0	
w/o MTR	Off	Off	N/A	120	0	0					0.0	
Load side	On	On	N/A	120	23.2	0.15					2.8	
w/o MTR	Off	Off	N/A	120	0	0					0.0	
I-210												
Line side	On	On	On	120		1.81	54.61	74.99			6.8	9.2
with MTR	Off	Off	On	120	42.3	1.67					5.3	
Load side	On	On	On	120		1.81	49.4	89.1			6.1	10.9
with MTR	Off	Off	On	120	36.8	1.67					4.6	
KV2C												
Line side	On	On	On	120		0.26	63.02	83.73			7.6	10.1
with MTR	Off	Off	On	120	45.8	0.13					5.5	
Load side	On	On	On	120		0.26	61.12	80.38			7.4	9.7
with MTR	Off	Off	On	120	49.6	0.13					6.0	

Above table shows that the range of Power in VA the 12S (5-jaw) ConnectDER draws is from 2.8 to 10.9 VA.



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Watt Loss Test (w/ 2S meter)												
Energize	Breaker	ConnectDER Display	Meter Display	Volts	A-Ph mA	C-Ph mA	MIN A-Ph mA	MAX A-Ph mA	MIN C-Ph mA	MAX C-Ph mA	Total Min Power VA	Total Max Power VA
Line side	On	Off	N/A	240	0	0					0.0	
w/o MTR	Off	Off	N/A	240	0	0					0.0	
Load side	On	On	N/A	240			17	34.93	17.02	35.21	4.1	8.5
w/o MTR	Off	Off	N/A	240	0	0					0.0	
I-210												
Line side	On	On	On	240			32.75	50.35	32.86	50.99	7.9	12.2
with MTR	Off	Off	On	240	17.81	17.73					4.3	
Load side	On	On	On	240			33.39	53.33	33.45	53.93	8.0	12.9
with MTR	Off	Off	On	240	16.89	16.91					4.1	

Above table shows that the range of Power in VA the 2S (4-jaw) ConnectDER draws is from 4.1 to 12.9 VA.

Test 3 – Impact on Meter Accuracy

Purpose: The purpose of this test is to ensure that the ConnectDER has no impact on meter accuracy. The maximum registration error allowed is +/- 0.2%.for the kV2C and +/- 0.5% for the I-210.

Steps:

1. Select two (2) 12S meters, one each of kV2c and I210.
2. Measure the meters' accuracy without the ConnectDER.

12S: SF, SF, SL, SL, AF, AF, CF, CF, AL, AL, CL, CL, SP, SP, AP, AP, CP, CP
3. Measure the meters' accuracy with the ConnectDER without the ConnectDER unit transmitting data packets to the web server.

12S: SF, SF, SL, SL, AF, AF, CF, CF, AL, AL, CL, CL, SP, SP, AP, AP, CP, CP
4. Measure the meters' accuracy with the ConnectDER while the ConnectDER unit is continuously transmitting data packets to the web server.

12S: SF, SF, SL, SL, AF, AF, CF, CF, AL, AL, CL, CL, SP, SP, AP, AP, CP, CP
5. Repeat steps above for a 2S (4-jaw) ConnectDER with a 2S I210 meter.

Results: The accuracy range measured in all the tables below is within the required range of +/- 0.2% error for the kV2C and +/- 0.5% for the I-210 (See Figures 1 through 9).



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Prev Meter:	Meter Type: KV2C	Test Start: 08/27/2019 16:59
Meter No: 8946337	Form: 12 S	Test Stop: 08/27/2019 17:30
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes

Comments:

Test 5 Impact on MTR Accu. MTR only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.01	100.01	120.0	30.00	0	W	N	
2	FL	S	100.01	100.01	120.0	30.00	0	W	N	
3	LL	S	100.02	100.02	120.0	3.00	0	W	N	
4	LL	S	100.02	100.02	120.0	3.00	0	W	N	
5	FL	A	100.03	100.03	120.0	30.00	0	W	N	
6	FL	A	100.02	100.02	120.0	30.00	0	W	N	
7	FL	C	99.99	99.99	120.0	30.00	0	W	N	
8	FL	C	99.99	99.99	120.0	30.00	0	W	N	
9	LL	A	100.01	100.01	120.0	3.00	0	W	N	
10	LL	A	100.03	100.03	120.0	3.00	0	W	N	
11	LL	C	99.98	99.98	120.0	3.00	0	W	N	
12	LL	C	100.00	100.00	120.0	3.00	0	W	N	
13	PF	S	99.97	99.97	120.0	30.00	60.0	W	N	
14	PF	S	99.95	99.95	120.0	30.00	60.0	W	N	
15	PF	A	99.96	99.96	120.0	30.00	60.0	W	N	
16	PF	A	99.97	99.97	120.0	30.00	60.0	W	N	
17	PF	C	99.95	99.95	120.0	30.00	60.0	W	N	
18	PF	C	99.96	99.96	120.0	30.00	60.0	W	N	

Figure 1: 12S kV2c Meter only Accuracy (Step 2)



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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	99.97	99.97	120.0	30.00	0	W	N	
2	FL	S	99.98	99.98	120.0	30.00	0	W	N	
3	LL	S	99.98	99.98	120.0	3.00	0	W	N	
4	LL	S	100.00	100.00	120.0	3.00	0	W	N	
5	FL	A	99.97	99.97	120.0	30.00	0	W	N	
6	FL	A	99.98	99.98	120.0	30.00	0	W	N	
7	FL	C	100.03	100.03	120.0	30.00	0	W	N	
8	FL	C	99.97	99.97	120.0	30.00	0	W	N	
9	LL	A	100.02	100.02	120.0	3.00	0	W	N	
10	LL	A	100.00	100.00	120.0	3.00	0	W	N	
11	LL	C	100.04	100.04	120.0	3.00	0	W	N	
12	LL	C	100.04	100.04	120.0	3.00	0	W	N	
13	PF	S	100.01	100.01	120.0	30.00	60.0	W	N	
14	PF	S	100.02	100.02	120.0	30.00	60.0	W	N	
15	PF	A	99.99	99.99	120.0	30.00	60.0	W	N	
16	PF	A	100.01	100.01	120.0	30.00	60.0	W	N	
17	PF	C	99.99	99.99	120.0	30.00	60.0	W	N	
18	PF	C	100.00	100.00	120.0	30.00	60.0	W	N	

Figure 2: 12S I210 Meter only Accuracy (Step 2)



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Prev Meter:	Meter Type: KV2C	Test Start: 08/27/2019 17:32
Meter No: 8946337	Form: 12 S	Test Stop: 08/27/2019 18:03
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Test 5 Impact on MTR Accu.W connDER for ConnectDER S/N S9070200

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.02	100.02	120.0	30.00	0	W	N	
2	FL	S	100.01	100.01	120.0	30.00	0	W	N	
3	LL	S	100.17	100.17	120.0	3.00	0	W	N	
4	LL	S	100.11	100.11	120.0	3.00	0	W	N	
5	FL	A	100.03	100.03	120.0	30.00	0	W	N	
6	FL	A	100.01	100.01	120.0	30.00	0	W	N	
7	FL	C	100.00	100.00	120.0	30.00	0	W	N	
8	FL	C	100.00	100.00	120.0	30.00	0	W	N	
9	LL	A	100.24	100.24	120.0	3.00	0	W	N	
10	LL	A	100.24	100.24	120.0	3.00	0	W	N	
11	LL	C	100.20	100.20	120.0	3.00	0	W	N	
12	LL	C	100.21	100.21	120.0	3.00	0	W	N	
13	PF	S	99.95	99.95	120.0	30.00	60.0	W	N	
14	PF	S	99.96	99.96	120.0	30.00	60.0	W	N	
15	PF	A	100.01	100.01	120.0	30.00	60.0	W	N	
16	PF	A	100.01	100.01	120.0	30.00	60.0	W	N	
17	PF	C	99.97	99.97	120.0	30.00	60.0	W	N	
18	PF	C	99.99	99.99	120.0	30.00	60.0	W	N	

Figure 3: 12S kV2c Meter Accuracy w/ ConnectDER w/o transmission (Step 3)



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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Test 5 Impact on MTR Accu w connectder for ConnectDER S/N S9070200

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	99.95	99.95	120.0	30.00	0	W	N	
2	FL	S	99.96	99.96	120.0	30.00	0	W	N	
3	LL	S	100.15	100.15	120.0	3.00	0	W	N	
4	LL	S	100.04	100.04	120.0	3.00	0	W	N	
5	FL	A	99.95	99.95	120.0	30.00	0	W	N	
6	FL	A	99.94	99.94	120.0	30.00	0	W	N	
7	FL	C	99.93	99.93	120.0	30.00	0	W	N	
8	FL	C	99.94	99.94	120.0	30.00	0	W	N	
9	LL	A	100.05	100.05	120.0	3.00	0	W	N	
10	LL	A	100.03	100.03	120.0	3.00	0	W	N	
11	LL	C	100.06	100.06	120.0	3.00	0	W	N	
12	LL	C	100.03	100.03	120.0	3.00	0	W	N	
13	PF	S	99.99	99.99	120.0	30.00	60.0	W	N	
14	PF	S	100.00	100.00	120.0	30.00	60.0	W	N	
15	PF	A	100.02	100.02	120.0	30.00	60.0	W	N	
16	PF	A	100.01	100.01	120.0	30.00	60.0	W	N	
17	PF	C	100.01	100.01	120.0	30.00	60.0	W	N	
18	PF	C	100.00	100.00	120.0	30.00	60.0	W	N	

Figure 4: 12S I210 Meter Accuracy w/ ConnectDER w/o transmission (Step 3)



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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.00	100.00	120.0	30.00	0	W	N	
2	FL	S	100.01	100.01	120.0	30.00	0	W	N	
3	LL	S	100.14	100.14	120.0	3.00	0	W	N	
4	LL	S	100.12	100.12	120.0	3.00	0	W	N	
5	FL	A	100.04	100.04	120.0	30.00	0	W	N	
6	FL	A	100.03	100.03	120.0	30.00	0	W	N	
7	FL	C	99.99	99.99	120.0	30.00	0	W	N	
8	FL	C	100.02	100.02	120.0	30.00	0	W	N	
9	LL	A	100.22	100.22	120.0	3.00	0	W	N	
10	LL	A	100.22	100.22	120.0	3.00	0	W	N	
11	LL	C	100.21	100.21	120.0	3.00	0	W	N	
12	LL	C	100.21	100.21	120.0	3.00	0	W	N	
13	PF	S	99.96	99.96	120.0	30.00	60.0	W	N	
14	PF	S	99.95	99.95	120.0	30.00	60.0	W	N	
15	PF	A	99.98	99.98	120.0	30.00	60.0	W	N	
16	PF	A	100.01	100.01	120.0	30.00	60.0	W	N	
17	PF	C	99.97	99.97	120.0	30.00	60.0	W	N	
18	PF	C	99.98	99.98	120.0	30.00	60.0	W	N	

Figure 5: 12S kV2c Meter Accuracy with ConnectDER w/ transmission (Step 4)



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Prev Meter:	Meter Type: I210+CN	Test Start: 09/03/2019 09:05
Meter No: 3537090	Form: 12 S	Test Stop: 09/03/2019 09:54
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Test 5 Impact on MTR Accu W connDER for ConnectDER S/N S9070200

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	99.92	99.92	120.0	30.00	0	W	N	
2	FL	S	99.92	99.92	120.0	30.00	0	W	N	
3	LL	S	100.09	100.09	120.0	3.00	0	W	N	
4	LL	S	100.19	100.19	120.0	3.00	0	W	N	
5	FL	A	99.94	99.94	120.0	30.00	0	W	N	
6	FL	A	99.94	99.94	120.0	30.00	0	W	N	
7	FL	C	99.93	99.93	120.0	30.00	0	W	N	
8	FL	C	99.93	99.93	120.0	30.00	0	W	N	
9	LL	A	100.22	100.22	120.0	3.00	0	W	N	
10	LL	A	100.21	100.21	120.0	3.00	0	W	N	
11	LL	C	100.20	100.20	120.0	3.00	0	W	N	
12	LL	C	100.21	100.21	120.0	3.00	0	W	N	
13	PF	S	99.99	99.99	120.0	30.00	60.0	W	N	
14	PF	S	99.98	99.98	120.0	30.00	60.0	W	N	
15	PF	A	100.03	100.03	120.0	30.00	60.0	W	N	
16	PF	A	100.04	100.04	120.0	30.00	60.0	W	N	
17	PF	C	99.99	99.99	120.0	30.00	60.0	W	N	
18	PF	C	100.01	100.01	120.0	30.00	60.0	W	N	

Figure 6: 12S I210 Meter Accuracy with ConnectDER w/ transmission (Step 4)



Test Results ConnectDER

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Prev Meter:
Meter No: 9299335
Serial No:
AMR No:
Mfr: AC
Test Code: EN

Meter Type: I-210+C
Form: 2 S
Kh: 1
Volt: 240.0
Amp: 30.00

Test Start: 02/28/2020 10:34
Test Stop: 02/28/2020 10:45
Tester ID: WU
Test Station: 6977 1

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Test 5 Impact on MTR Accu MTR Only

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.04	100.04	120.0	30.00	0	W	N	
2	FL	S	100.05	100.05	120.0	30.00	0	W	N	
3	LL	S	100.14	100.14	120.0	3.00	0	W	N	
4	LL	S	100.14	100.14	120.0	3.00	0	W	N	
5	FL	A	100.07	100.07	120.0	30.00	0	W	N	
6	FL	A	100.09	100.09	120.0	30.00	0	W	N	
7	FL	C	100.09	100.09	120.0	30.00	0	W	N	
8	FL	C	100.09	100.09	120.0	30.00	0	W	N	
9	LL	A	100.18	100.18	120.0	3.00	0	W	N	
10	LL	A	100.18	100.18	120.0	3.00	0	W	N	
11	LL	C	100.21	100.21	120.0	3.00	0	W	N	
12	LL	C	100.21	100.21	120.0	3.00	0	W	N	
13	PF	S	100.08	100.08	120.0	30.00	60.0	W	N	
14	PF	S	100.09	100.09	120.0	30.00	60.0	W	N	
15	PF	A	100.17	100.17	120.0	30.00	60.0	W	N	
16	PF	A	100.16	100.16	120.0	30.00	60.0	W	N	
17	PF	C	100.06	100.06	120.0	30.00	60.0	W	N	
18	PF	C	100.02	100.02	120.0	30.00	60.0	W	N	

Figure 7: 2S I210 Meter only Accuracy (Step 5)



Test Results ConnectDER

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Prev Meter:
Meter No: 9299335
Serial No:
AMR No:
Mfr: AC
Test Code: EN

Meter Type: I-210+C
Form: 2 S
Kh: 1
Volt: 240.0
Amp: 30.00

Test Start: 02/28/2020 10:47
Test Stop: 02/28/2020 10:55
Tester ID: WU
Test Station: 6977 1

As Found KWH Reading: Breaker Off

As Left KWH Reading:

Trouble Codes

Comments:

Test 5 Impact on MTR Accu W connDER S/N S90201030 no Disp

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.08	100.08	120.0	30.00	0	W	N	
2	FL	S	100.09	100.09	120.0	30.00	0	W	N	
3	LL	S	100.17	100.17	120.0	3.00	0	W	N	
4	LL	S	100.17	100.17	120.0	3.00	0	W	N	
5	FL	A	100.11	100.11	120.0	30.00	0	W	N	
6	FL	A	100.11	100.11	120.0	30.00	0	W	N	
7	FL	C	100.12	100.12	120.0	30.00	0	W	N	
8	FL	C	100.12	100.12	120.0	30.00	0	W	N	
9	LL	A	100.20	100.20	120.0	3.00	0	W	N	
10	LL	A	100.20	100.20	120.0	3.00	0	W	N	
11	LL	C	100.22	100.22	120.0	3.00	0	W	N	
12	LL	C	100.23	100.23	120.0	3.00	0	W	N	
13	PF	S	100.10	100.10	120.0	30.00	60.0	W	N	
14	PF	S	100.10	100.10	120.0	30.00	60.0	W	N	
15	PF	A	100.21	100.21	120.0	30.00	60.0	W	N	
16	PF	A	100.34	100.34	120.0	30.00	60.0	W	N	
17	PF	C	99.92	99.92	120.0	30.00	60.0	W	N	
18	PF	C	99.92	99.92	120.0	30.00	60.0	W	N	

Figure 8: 2S I210 Meter w/ ConnectDER w/o transmission (Step 5)



Test Results ConnectDER

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Prev Meter:	Meter Type: I-210+C	Test Start: 02/28/2020 10:57
Meter No: 9299335	Form: 2 S	Test Stop: 02/28/2020 11:04
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 240.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	FL	S	100.13	100.13	120.0	30.00	0	W	N	
2	FL	S	100.13	100.13	120.0	30.00	0	W	N	
3	LL	S	100.43	100.43	120.0	3.00	0	W	N	
4	LL	S	100.42	100.42	120.0	3.00	0	W	N	
5	FL	A	100.16	100.16	120.0	30.00	0	W	N	
6	FL	A	100.17	100.17	120.0	30.00	0	W	N	
7	FL	C	100.16	100.16	120.0	30.00	0	W	N	
8	FL	C	100.17	100.17	120.0	30.00	0	W	N	
9	LL	A	100.46	100.46	120.0	3.00	0	W	N	
10	LL	A	100.44	100.44	120.0	3.00	0	W	N	
11	LL	C	100.46	100.46	120.0	3.00	0	W	N	
12	LL	C	100.48	100.48	120.0	3.00	0	W	N	
13	PF	S	100.15	100.15	120.0	30.00	60.0	W	N	
14	PF	S	100.14	100.14	120.0	30.00	60.0	W	N	
15	PF	A	100.35	100.35	120.0	30.00	60.0	W	N	
16	PF	A	100.35	100.35	120.0	30.00	60.0	W	N	
17	PF	C	100.03	100.03	120.0	30.00	60.0	W	N	
18	PF	C	100.04	100.04	120.0	30.00	60.0	W	N	

Figure 9: 2S I210 Meter w/ ConnectDER w/ transmission (Step 5)

	Test Results ConnectDER	Page 21 Revision 0 01/15/2020
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Test 4 – Surge Test

Purpose: The purpose of this test is to ensure the ConnectDER functionality after it has been subjected to short bursts of energy.

Steps:

1. Test the communication of the ConnectDER before surging it.
2. Insert a 12S utility meter into 12S ConnectDER.
3. Surge the ConnectDER adapters using the TESEQ NSG3060 surge machine (6000 VAC Ring and Combination wave) according to ANSI C12.-2008 spec.
4. Inspect the ConnectDER for physical damage.
5. Insert the ConnectDER with a meter into the Engineering board and apply 30 Amps forward and reverse for 30 min.
6. Confirm that energy was recorded by the meter plugged into the ConnectDER.
7. Record observations.
8. Repeat steps above for a 2S ConnectDER.

Observations:

A test on ConnectDER functionality performance was done with both utility meter forms exhibiting no change in metrology or functionality.

In conclusion, the ConnectDER along with the utility meters withstood the surge tests and remained fully functional after the tests.

- TEST REPORT – 12S

Immunity to EMC Pulses (Combo waveform)

Test specification:			
Standard:	Level	Criteria	Result
IEC/EN61000-4-2	1	A	PASS or FAIL
IEC/EN61000-4-4	2	B	
IEC/EN61000-4-5	3	C	
IEC/EN61000-4-11	4	D	

Description of the criteria:	
Criteria	Description
A	normal performance;
B	temporary loss of function or temporary degradation of performance not requiring an operator;
C	temporary loss of function or temporary degradation of performance requiring an operator;
D	loss of function with permanent damage to equipment (which means failing the test).

Equipment Information

Main equipment:		
Manufacturer	Type	Serial Nr
Teseq	NSG 3040	
Teseq	NSG 3060	
Teseq	CDN 3061	

Modules:					
Manufacturer	Type	Serial No.	Version / FW	Calibration date	Certificate No.
Teseq	WIN 3000	1915-0-0104-0000-D01E-9C8D-9CB8-10C6	1.4.1	---	---
Teseq	MCR 3000	1915	0002.42	---	---
Teseq	SUI 3000	---	V02.41	---	---
Teseq	CWM 3651	3228	0002.50	1/31/2019	GV
Teseq	HVM 3060	825	0002.50	---	---
Teseq	RWM 3652	403	0002.50	1/31/2019	GV
Teseq	FTM 3425	3693	0002.50	1/31/2019	GV
Teseq	CDN 3063-C	5032	0002.50	1/31/2019	GV

Manual or additional Equipment :

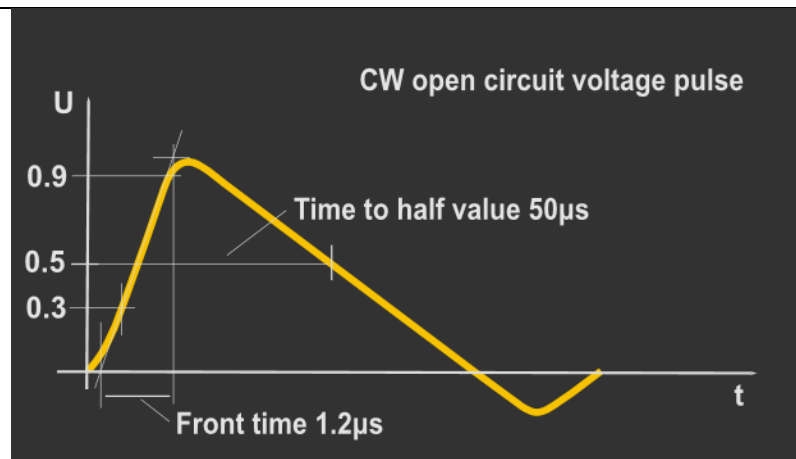
Manufacturer	Type	Serial Nr	Version/FW	Calibration date	Certificate Nr:
Teseq	CDN 163				
Teseq	CDN 3083				
Teseq	Coil				
Teseq	VAR 6503				

Settings:

EUT supply voltage U_{in} used for 100% reference value: 120 V
 Measured EUT Supply Voltage: 126 V
 Measured EUT Supply Frequency: 60 Hz
 EUT Power Status on EUT Fail: On
 Test Action on EUT Fail: Stop
 EUT Power Status on Interlock: On

Test Results

Combination Wave:



Time	Volt	Polarity	Impedance	Phase	Repetition Time	Step Duration	Coupling	Status
10/22/2019 10:42:32 AM	6000 V	Alt	2 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> N	Passed
10/22/2019 10:46:00 AM	6000 V	Alt	2 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L3 -> N	Passed
10/22/2019 10:49:26 AM	6000 V	Alt	2 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> L3	Passed
10/22/2019 10:52:34 AM	6000 V	Alt	2 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L3,L1 -> N	Passed

- TEST REPORT – 12S

Immunity to EMC Pulses (Ring Wave Test)

Test specification:

Standard:	Level	Criteria	Result
IEC/EN61000-4-2	1	A	PASS or FAIL
IEC/EN61000-4-4	2	B	
IEC/EN61000-4-5	3	C	
IEC/EN61000-4-11	4	D	

Description of the criteria:

Criteria	Description
A	normal performance;
B	temporary loss of function or temporary degradation of performance not requiring an operator;
C	temporary loss of function or temporary degradation of performance requiring an operator;
D	loss of function with permanent damage to equipment (which means failing the test).

Equipment Information

Main equipment:

Manufacturer	Type	Serial Nr
Teseq	NSG 3040	
Teseq	NSG 3060	
Teseq	CDN 3061	

Modules:

Manufacturer	Type	Serial No.	Version / FW	Calibration date	Certificate No.
Teseq	WIN 3000	1915-0-0104-0000-D01E-9C8D-9CB8-10C6	1.4.1	---	---
Teseq	MCR 3000	1915	0002.42	---	---
Teseq	SUI 3000	---	V02.41	---	---
Teseq	CWM 3651	3228	0002.50	1/31/2019	GV
Teseq	HVM 3060	825	0002.50	---	---
Teseq	RWM 3652	403	0002.50	1/31/2019	GV
Teseq	FTM 3425	3693	0002.50	1/31/2019	GV
Teseq	CDN 3063-C	5032	0002.50	1/31/2019	GV

Manual or additional Equipment:

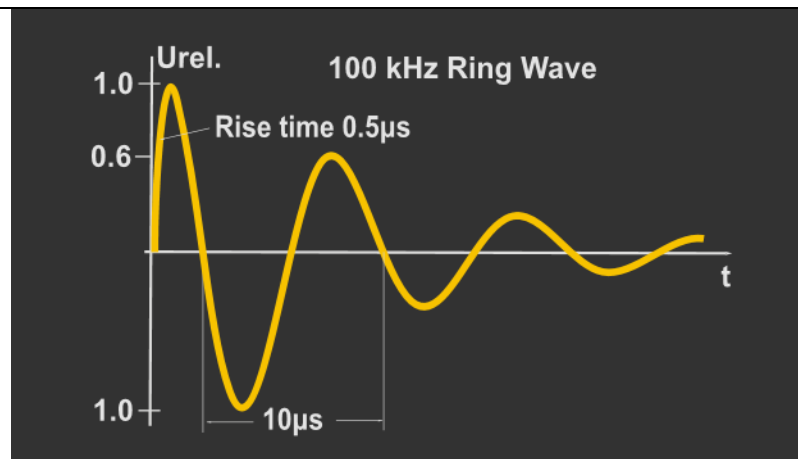
Manufacturer	Type	Serial Nr	Version/FW	Calibration date	Certificate Nr:
Teseq	CDN 163				
Teseq	CDN 3083				
Teseq	Coil				
Teseq	VAR 6503				

Settings:

EUT supply voltage U_{in} used for 100% reference value: 120 V
 Measured EUT Supply Voltage: 126 V
 Measured EUT Supply Frequency: 60 Hz
 EUT Power Status on EUT Fail: On
 Test Action on EUT Fail: Stop
 EUT Power Status on Interlock: On

Test Results

Ring Wave:



Time	Volt	Polarity	Impedance	Phase	Repetition Time	Step Duration	Coupling	Status
10/22/2019 11:00:42 AM	6000 V	Alt	12 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> N	Passed
10/22/2019 11:03:21 AM	6000 V	Alt	12 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L3 -> N	Passed
10/22/2019 11:06:01 AM	6000 V	Alt	12 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> L3	Passed
10/22/2019 11:08:20 AM	6000 V	Alt	12 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L3,L1 -> N	Passed

TEST REPORT – 2S

Immunity to EMC Pulses (Combo Waveform)

Test specification:

Standard :	Test #	Part	Result
ANSI 12.1-2008	17	A	PASS or FAIL
ANSI 12.1-2008	17	B	PASS or FAIL
ANSI 12.1-2008	17	C	PASS or FAIL
ANSI 12.1-2008	17	D	PASS or FAIL

Description of the criteria:

Criteria	Description
A	IEEE C62.41.2-2002 1.2/50 μ s – 8/20 μ s Combination Wave form surge test
B	IEEE C62.41.2-2002 100 KHz Ring Wave with a peak voltage of 6 KV
C	temporary loss of function or temporary degradation of performance requiring an operator;
D	loss of function with permanent damage to equipment (which means failing the test).

Equipment Information

Main equipment:

Manufacturer	Type	Serial Nr
Teseq	NSG 3060	4092
Teseq	CDN 3063-C32.1	5032

Modules:

Manufacturer	Type	Serial No.	Version / FW	Calibration date	Certificate No.
Teseq	WIN 3000	1915-0-0104-0000-D01E-9C8D-9CB8-10C6	1.4.1	---	---
Teseq	MCR 3000	1915	0002.42	---	---
Teseq	SUI 3000	---	V02.41	---	---
Teseq	CWM 3651	3228	0002.50	1/31/2019	GV
Teseq	HVM 3060	825	0002.50	---	---
Teseq	RWM 3652	403	0002.50	1/31/2019	GV
Teseq	FTM 3425	3693	0002.50	1/31/2019	GV
Teseq	CDN 3063-C	5032	0002.50	1/31/2019	GV

Manual or additional Equipment :

Manufacturer	Type	Serial Nr	Version/FW
Aclara	I210+c	9299335	5.1

Settings:

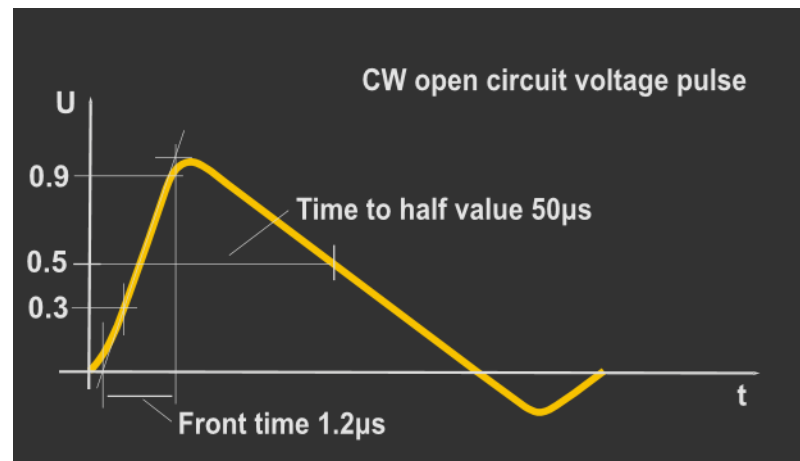
EUT supply voltage U_{in} used for 100% reference value: 208 V
 Measured EUT Supply Voltage: 208 V
 Measured EUT Supply Frequency: 61.2 Hz
 EUT Power Status on EUT Fail: On
 Test Action on EUT Fail: Stop
 EUT Power Status on Interlock: On

Descriptions or Explanation:

Test Results

Combination Wave:

\\coned\corp\home\7405\MillerAd\My Documents\WIN 3000\UserTests\Single Phase Combination Wave.cw



Time	Volt	Polarity	Impedance	Phase	Repetition Time	Step Duration	Coupling	Status
1/28/2020 7:42:47 AM	6000 V	Alt	2 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> L2	Passed

TEST REPORT – 2S

Immunity to EMC Pulses (Ring Wave Test)

Test specification:			
Standard :	Test #	Part	Result
ANSI 12.1-2008	17	A	PASS or FAIL
ANSI 12.1-2008	17	B	PASS or FAIL
ANSI 12.1-2008	17	C	PASS or FAIL
ANSI 12.1-2008	17	D	PASS or FAIL

Description of the criteria:	
Criteria	Description
A	IEEE C62.41.2-2002 1.2/50 μ s – 8/20 μ s Combination Wave form surge test
B	IEEE C62.41.2-2002 100 KHz Ring Wave with a peak voltage of 6 KV
C	temporary loss of function or temporary degradation of performance requiring an operator;
D	loss of function with permanent damage to equipment (which means failing the test).

Equipment Information

Main equipment:		
Manufacturer	Type	Serial Nr
Teseq	NSG 3060	4092
Teseq	CDN 3063-C32.1	5032

Modules:					
Manufacturer	Type	Serial No.	Version / FW	Calibration date	Certificate No.
Teseq	WIN 3000	1915-0-0104-0000-D01E-9C8D-9CB8-10C6	1.4.1	---	---
Teseq	MCR 3000	1915	0002.42	---	---
Teseq	SUI 3000	---	V02.41	---	---
Teseq	CWM 3651	3228	0002.50	1/31/2019	GV
Teseq	HVM 3060	825	0002.50	---	---
Teseq	RWM 3652	403	0002.50	1/31/2019	GV
Teseq	FTM 3425	3693	0002.50	1/31/2019	GV
Teseq	CDN 3063-C	5032	0002.50	1/31/2019	GV

Manual or additional Equipment :

Manufacturer	Type	Serial Nr	Version/FW
Aclara	I210+c	9299335	5.1

Settings:

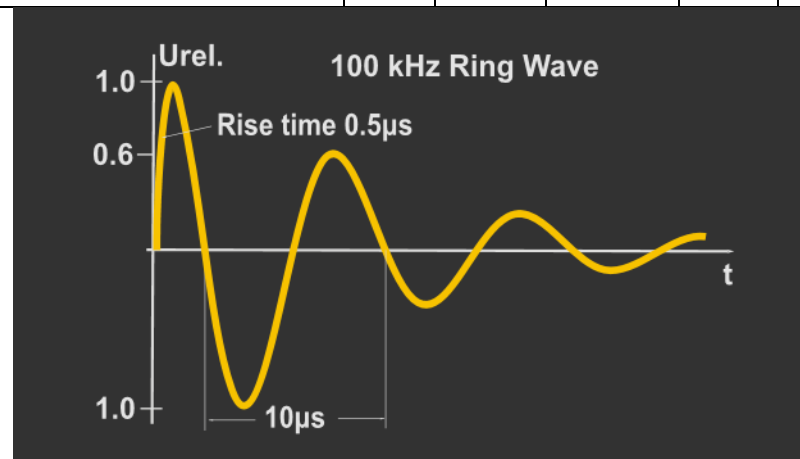
EUT supply voltage U_{in} used for 100% reference value: 208 V
 Measured EUT Supply Voltage: 208 V
 Measured EUT Supply Frequency: 61.2 Hz
 EUT Power Status on EUT Fail: On
 Test Action on EUT Fail: Stop
 EUT Power Status on Interlock: On

Descriptions or Explanation:

Test Results

Ring Wave:

\\coned\corp\home\7405\MillerAd\My Documents\WIN 3000\UserTests\Single Phase Ring Wave Test.rw



Time	Volt	Polarity	Impedance	Phase	Repetition Time	Step Duration	Coupling	Status
1/28/2020 7:58:44 AM	6000 V	Alt	12 Ω	0/270 ° 90 ° Lin	20 s	2 Pulses	IEC L1 -> L2	Passed

	Test Results ConnectDER	Page 30 Revision 0 01/15/2020
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Test 5 – Accelerated Life Test

Purpose: The purpose of this test is to determine how well the ConnectDER will operate over time by subjecting it to a predetermined range of temperature cycles.

Steps:

1. Place ConnectDER into the temperature chamber with associated meter attached.
2. Connect a phantom load in series to the 12S meter for 15 amps using the WECO 2300 engineering station.
3. Program the environmental chamber for a temperature range of -20 C to 60 C. Perform the test for 8 Cycles with a 1 hour ramp up time between each temperature change and hold at each extreme temperature for 8 hours. (Approximate total time is 143 hours).
4. Communicate with ConnectDER every 15 min during the whole duration of the test and record device parameters.
6. Repeat steps above for a 2S ConnectDER.

Results:

The accelerated life test had no appreciable effect on the performance of the ConnectDER adapters and the registration of the utility meter.

Readings from 12S ConnectDER adapter:

Sampled At (UTC)	Serial Number	Active Power (kW)	Reactive Power (kVar)	Temperature (F)	Energy Consumed (kWh)	Energy Produced (kWh)	RMS Voltage (V)	RMS Current (A)
10/10/2019 19:00	S90702001	3.154	0.29716	84.2	0	617.47	182.9	15.09
10/10/2019 18:45	S90702001	3.15118	0.29408	84.2	0	616.67	182.8	15.086
10/10/2019 18:30	S90702001	3.15126	0.2972	84.2	0	615.88	182.7	15.09
10/10/2019 18:15	S90702001	3.15515	0.29292	84.2	0	615.09	182.9	15.089
10/10/2019 18:00	S90702001	3.15654	0.29308	84.2	0	614.29	183	15.091
10/10/2019 17:45	S90702001	3.15063	0.29764	84	0	613.5	182.9	15.071
10/10/2019 17:30	S90702001	3.15302	0.2946	84	0	612.71	182.9	15.072
10/10/2019 17:15	S90702001	3.15366	0.29492	84	0	611.91	182.8	15.093
10/10/2019 17:00	S90702001	3.14978	0.29696	84	0	611.12	182.8	15.071
10/10/2019 16:45	S90702001	3.15163	0.2926	83.8	0	610.33	182.9	15.074
10/10/2019 16:30	S90702001	3.15294	0.29776	82.6	0	609.53	183	15.074
10/10/2019 16:15	S90702001	3.15318	0.29608	82.8	0	608.74	183	15.073
10/10/2019 16:00	S90702001	3.16441	0.29516	82.6	0	607.95	183.6	15.076
10/10/2019 15:45	S90702001	3.15693	0.29376	82.8	0	607.15	183.2	15.078
10/10/2019 15:30	S90702001	3.16183	0.29628	82.9	0	606.36	183.5	15.075
10/10/2019 15:15	S90702001	3.15726	0.29272	82.6	0	605.56	183.2	15.076
10/10/2019 15:00	S90702001	3.1523	0.29252	82.8	0	604.77	182.9	15.076
10/10/2019 14:45	S90702001	3.1562	0.29528	82.6	0	603.98	183.2	15.076
10/10/2019 14:30	S90702001	3.15259	0.29728	82.8	0	603.18	182.9	15.08
10/10/2019 14:15	S90702001	3.15399	0.29564	82.6	0	602.39	183	15.079
10/10/2019 14:00	S90702001	3.15624	0.29776	82.6	0	601.6	183.1	15.081
10/10/2019 13:45	S90702001	3.15446	0.29744	82.8	0	600.8	183	15.079
10/10/2019 13:30	S90702001	3.15381	0.29704	82.8	0	600.01	183	15.079
10/10/2019 13:15	S90702001	3.15253	0.29588	82.6	0	599.22	182.9	15.081
10/10/2019 13:00	S90702001	3.14917	0.29572	82.8	0	598.42	182.7	15.084
10/10/2019 12:45	S90702001	3.14953	0.29368	82.8	0	597.63	182.7	15.084
10/10/2019 12:30	S90702001	3.14715	0.29184	82.6	0	596.84	182.6	15.081
10/10/2019 12:15	S90702001	3.14672	0.29192	82.6	0	596.05	182.5	15.082
10/10/2019 12:00	S90702001	3.14417	0.29192	82.6	0	595.26	182.4	15.078
10/10/2019 11:45	S90702001	3.14611	0.29668	82.6	0	594.47	182.5	15.082
10/10/2019 11:30	S90702001	3.14381	0.2918	82.6	0	593.67	182.4	15.08



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10/10/2019 11:15	S90702001	3.14224	0.29632	82.6	0	592.88	182.3	15.08
10/10/2019 11:00	S90702001	3.14316	0.29668	81.9	0	592.09	182.3	15.081
10/10/2019 10:45	S90702001	3.14204	0.29184	82.3	0	591.3	182.3	15.08
10/10/2019 10:30	S90702001	3.14131	0.29136	82.4	0	590.51	182.3	15.08
10/10/2019 10:15	S90702001	3.1408	0.29644	82.6	0	589.72	182.2	15.082
10/10/2019 10:00	S90702001	3.14128	0.29596	81.4	0	588.93	182.3	15.08
10/10/2019 9:45	S90702001	3.14123	0.29352	82.1	0	588.14	182.3	15.081
10/10/2019 9:30	S90702001	3.14187	0.2948	81.8	0	587.35	182.3	15.08
10/10/2019 9:15	S90702001	3.14187	0.29116	81.4	0	586.56	182.3	15.08
10/10/2019 9:00	S90702001	3.14107	0.2958	81.4	0	585.77	182.3	15.081
10/10/2019 8:45	S90702001	3.14001	0.2914	81.6	0	584.98	182.2	15.082
10/10/2019 8:30	S90702001	3.13979	0.29572	81.4	0	584.19	182.2	15.082
10/10/2019 8:15	S90702001	3.13794	0.2932	81.2	0	583.4	182	15.083
10/10/2019 8:00	S90702001	3.13824	0.29608	81.4	0	582.62	182.1	15.081
10/10/2019 7:45	S90702001	3.1373	0.29184	81.4	0	581.83	182	15.079
10/10/2019 7:30	S90702001	3.13795	0.29592	81.2	0	581.04	182	15.08
10/10/2019 7:15	S90702001	3.13755	0.2934	81.4	0	580.25	182	15.08
10/10/2019 7:00	S90702001	3.137	0.29096	81.2	0	579.46	182	15.08
10/10/2019 6:45	S90702001	3.13699	0.29604	81.2	0	578.67	182	15.081
10/10/2019 6:30	S90702001	3.13632	0.2912	81.2	0	577.88	181.9	15.081
10/10/2019 6:15	S90702001	3.13656	0.29132	81.4	0	577.09	181.9	15.079
10/10/2019 6:00	S90702001	3.13679	0.29392	81.4	0	576.3	182	15.079
10/10/2019 5:45	S90702001	3.13734	0.29164	81.2	0	575.51	182	15.081
10/10/2019 5:30	S90702001	3.13702	0.28924	81	0	574.72	182	15.081
10/10/2019 5:15	S90702001	3.13937	0.29616	80.3	0	573.93	182.1	15.081
10/10/2019 5:00	S90702001	3.1418	0.29564	80	0	573.14	182.3	15.082
10/10/2019 4:45	S90702001	3.14126	0.29164	80	0	572.36	182.2	15.081
10/10/2019 4:30	S90702001	3.13992	0.28992	79.8	0	571.57	182.1	15.081
10/10/2019 4:15	S90702001	3.14011	0.28868	80	0	570.77	182.2	15.081
10/10/2019 4:00	S90702001	3.14001	0.2964	79.8	0	569.99	182.2	15.08
10/10/2019 3:45	S90702001	3.14065	0.29184	79.6	0	569.19	182.2	15.082
10/10/2019 3:30	S90702001	3.14181	0.29136	79.8	0	568.4	182.2	15.084
10/10/2019 3:15	S90702001	3.14147	0.28952	79.8	0	567.61	182.2	15.083
10/10/2019 3:00	S90702001	3.14208	0.2922	79.4	0	566.82	182.3	15.082
10/10/2019 2:45	S90702001	3.14253	0.29488	79.3	0	566.03	182.3	15.082
10/10/2019 2:30	S90702001	3.14268	0.28924	78.9	0	565.24	182.3	15.083



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10/10/2019 2:15	S90702001	3.14195	0.2912	78.8	0	564.45	182.3	15.081
10/10/2019 2:00	S90702001	3.14483	0.29452	78.8	0	563.66	182.4	15.083
10/10/2019 1:45	S90702001	3.14479	0.28984	78.4	0	562.87	182.4	15.082
10/10/2019 1:30	S90702001	3.14527	0.29352	78.6	0	562.08	182.4	15.081
10/10/2019 1:15	S90702001	3.14656	0.29004	78.4	0	561.29	182.5	15.085
10/10/2019 1:00	S90702001	3.14662	0.29488	78.4	0	560.5	182.5	15.083
10/10/2019 0:45	S90702001	3.14677	0.29036	77.4	0	559.71	182.5	15.085
10/10/2019 0:30	S90702001	3.14652	0.29192	77.2	0	558.91	182.4	15.087
10/10/2019 0:15	S90702001	3.14641	0.29512	77.2	0	558.12	182.4	15.086
10/10/2019 0:00	S90702001	3.14452	0.29352	77	0	557.33	182.4	15.088
10/9/2019 23:45	S90702001	3.14418	0.29456	77	0	556.54	182.4	15.086
10/9/2019 23:30	S90702001	3.14307	0.29432	77	0	555.75	182.3	15.086
10/9/2019 23:15	S90702001	3.1439	0.2932	75.8	0	554.96	182.4	15.086
10/9/2019 23:00	S90702001	3.14375	0.29488	75.8	0	554.17	182.3	15.086
10/9/2019 22:45	S90702001	3.1448	0.29092	75.8	0	553.38	182.4	15.088
10/9/2019 22:30	S90702001	3.14471	0.29252	75.6	0	552.59	182.4	15.086
10/9/2019 22:15	S90702001	3.14344	0.29572	75.6	0	551.8	182.3	15.089
10/9/2019 22:00	S90702001	3.14585	0.29112	74.9	0	551	182.4	15.089
10/9/2019 21:45	S90702001	3.14451	0.2938	74.4	0	550.21	182.5	15.071
10/9/2019 21:30	S90702001	3.14753	0.29492	74.2	0	549.42	182.5	15.088
10/9/2019 21:15	S90702001	3.14636	0.2958	74.2	0	548.63	182.5	15.089
10/9/2019 21:00	S90702001	3.15269	0.29628	73.5	0	547.84	182.8	15.091
10/9/2019 20:45	S90702001	3.15206	0.29144	72.6	0	547.04	182.8	15.09
10/9/2019 20:30	S90702001	3.14932	0.2928	73.1	0	546.25	182.7	15.071
10/9/2019 20:15	S90702001	3.14772	0.29164	72.8	0	545.46	182.6	15.07
10/9/2019 20:00	S90702001	3.1479	0.296	71.4	0	544.67	182.6	15.072
10/9/2019 19:45	S90702001	3.14717	0.29552	71.4	0	543.88	182.6	15.075
10/9/2019 19:30	S90702001	3.14653	0.29428	71.4	0	543.09	182.5	15.072
10/9/2019 19:15	S90702001	3.14652	0.2956	70.2	0	542.29	182.5	15.076
10/9/2019 19:00	S90702001	3.14673	0.29596	70.2	0	541.5	182.5	15.076
10/9/2019 18:45	S90702001	3.14778	0.29472	69.8	0	540.71	182.6	15.079
10/9/2019 18:30	S90702001	3.14736	0.29232	68.9	0	539.92	182.5	15.082
10/9/2019 18:15	S90702001	3.146	0.29572	68.4	0	539.13	182.5	15.077
10/9/2019 18:00	S90702001	3.14417	0.2906	68.4	0	538.34	182.5	15.077
10/9/2019 17:45	S90702001	3.14518	0.29056	67.2	0	537.55	182.5	15.076
10/9/2019 17:30	S90702001	3.14598	0.29128	67.4	0	536.75	182.5	15.087



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10/9/2019 17:15	S90702001	3.14554	0.2928	67.2	0	535.96	182.4	15.086
10/9/2019 17:00	S90702001	3.14671	0.29496	65.9	0	535.17	182.5	15.09
10/9/2019 16:45	S90702001	3.1488	0.29412	65.3	0	534.38	182.6	15.087
10/9/2019 16:30	S90702001	3.14792	0.2914	64.6	0	533.59	182.6	15.083
10/9/2019 16:15	S90702001	3.14885	0.29568	64.4	0	532.8	182.6	15.085
10/9/2019 16:00	S90702001	3.14991	0.29448	63.3	0	532	182.7	15.084
10/9/2019 15:45	S90702001	3.14757	0.29204	62.6	0	531.21	182.6	15.084
10/9/2019 15:30	S90702001	3.14748	0.29452	61.8	0	530.42	182.6	15.082
10/9/2019 15:15	S90702001	3.14613	0.29612	61.8	0	529.63	182.5	15.084
10/9/2019 15:00	S90702001	3.1466	0.29464	60.4	0	528.84	182.6	15.085
10/9/2019 14:45	S90702001	3.14852	0.2934	59.3	0	528.05	182.6	15.086
10/9/2019 14:30	S90702001	3.1492	0.29444	58.8	0	527.25	182.6	15.092
10/9/2019 14:15	S90702001	3.14927	0.29076	57.4	0	526.46	182.6	15.092
10/9/2019 14:00	S90702001	3.14605	0.29516	57.2	0	525.67	182.5	15.074
10/9/2019 13:45	S90702001	3.1491	0.2912	56.1	0	524.88	182.7	15.077
10/9/2019 13:30	S90702001	3.1497	0.29564	54.8	0	524.09	182.7	15.077
10/9/2019 13:15	S90702001	3.14879	0.295	53.5	0	523.29	182.7	15.078
10/9/2019 13:00	S90702001	3.14725	0.29472	53.2	0	522.5	182.6	15.077
10/9/2019 12:45	S90702001	3.14895	0.29532	51.8	0	521.71	182.7	15.08
10/9/2019 12:30	S90702001	3.14669	0.2926	50.7	0	520.92	182.6	15.075
10/9/2019 12:15	S90702001	3.14803	0.2944	49.1	0	520.13	182.6	15.077
10/9/2019 12:00	S90702001	3.14759	0.29456	47.8	0	519.34	182.6	15.079
10/9/2019 11:45	S90702001	3.14898	0.292	47.6	0	518.54	182.7	15.078
10/9/2019 11:30	S90702001	3.14773	0.29576	45.3	0	517.75	182.7	15.078
10/9/2019 11:15	S90702001	3.14881	0.296	44.8	0	516.96	182.7	15.077
10/9/2019 11:00	S90702001	3.14874	0.29388	42.3	0	516.17	182.7	15.077
10/9/2019 10:45	S90702001	3.14811	0.29128	40.8	0	515.38	182.6	15.075
10/9/2019 10:30	S90702001	3.14757	0.2914	39.1	0	514.58	182.6	15.075
10/9/2019 10:15	S90702001	3.14681	0.29124	37.6	0	513.79	182.6	15.074
10/9/2019 10:00	S90702001	3.14715	0.2886	35.1	0	513	182.6	15.072
10/9/2019 9:45	S90702001	3.14786	0.2904	33.8	0	512.21	182.6	15.088
10/9/2019 9:30	S90702001	3.14759	0.28864	32.1	0	511.42	182.5	15.087
10/9/2019 9:15	S90702001	3.14564	0.293	29.5	0	510.63	182.5	15.081
10/9/2019 9:00	S90702001	3.14658	0.28896	26.7	0	509.83	182.5	15.077
10/9/2019 8:45	S90702001	3.14548	0.28744	25.3	0	509.04	182.5	15.079
10/9/2019 8:30	S90702001	3.14552	0.29176	22.7	0	508.25	182.5	15.074



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10/9/2019 8:15	S90702001	3.14535	0.29228	20.9	0	507.46	182.5	15.083
10/9/2019 8:00	S90702001	3.14519	0.29296	18.3	0	506.67	182.4	15.085
10/9/2019 7:45	S90702001	3.14398	0.28848	16.8	0	505.88	182.4	15.069
10/9/2019 7:30	S90702001	3.14285	0.29172	14.1	0	505.09	182.4	15.073
10/9/2019 7:15	S90702001	3.14404	0.28992	11.3	0	504.3	182.4	15.08
10/9/2019 7:00	S90702001	3.14542	0.28736	9.7	0	503.51	182.4	15.08
10/9/2019 6:45	S90702001	3.14421	0.29364	9.7	0	502.72	182.4	15.079
10/9/2019 6:30	S90702001	3.14463	0.29204	9.7	0	501.93	182.4	15.08
10/9/2019 6:15	S90702001	3.145	0.29232	9.7	0	501.13	182.4	15.079
10/9/2019 6:00	S90702001	3.14393	0.29428	9.7	0	500.34	182.4	15.079
10/9/2019 5:45	S90702001	3.14475	0.29132	9.7	0	499.55	182.4	15.078
10/9/2019 5:30	S90702001	3.1447	0.2942	9.4	0	498.76	182.4	15.08
10/9/2019 5:15	S90702001	3.14538	0.29	9.6	0	497.97	182.4	15.081
10/9/2019 5:00	S90702001	3.14577	0.28768	9.9	0	497.18	182.5	15.08
10/9/2019 4:45	S90702001	3.14572	0.28752	9.2	0	496.39	182.5	15.079
10/9/2019 4:30	S90702001	3.14458	0.28756	9.9	0	495.6	182.4	15.08
10/9/2019 4:15	S90702001	3.1448	0.28768	9.7	0	494.81	182.4	15.081
10/9/2019 4:00	S90702001	3.14546	0.28764	9.7	0	494.01	182.5	15.076
10/9/2019 3:45	S90702001	3.14576	0.29184	9.7	0	493.22	182.4	15.079
10/9/2019 3:30	S90702001	3.14576	0.29268	9.4	0	492.43	182.4	15.081
10/9/2019 3:15	S90702001	3.14511	0.2924	9.7	0	491.64	182.4	15.079
10/9/2019 3:00	S90702001	3.14501	0.28856	9.7	0	490.85	182.4	15.077
10/9/2019 2:45	S90702001	3.14371	0.28724	9.7	0	490.06	182.4	15.077
10/9/2019 2:30	S90702001	3.14475	0.2878	9.9	0	489.27	182.4	15.077
10/9/2019 2:15	S90702001	3.14443	0.289	9.6	0	488.48	182.4	15.077
10/9/2019 2:00	S90702001	3.14424	0.28828	9.9	0	487.69	182.4	15.076
10/9/2019 1:45	S90702001	3.14346	0.28952	9.7	0	486.9	182.4	15.073
10/9/2019 1:30	S90702001	3.14216	0.2874	9.6	0	486.11	182.3	15.073
10/9/2019 1:15	S90702001	3.14303	0.29396	9.7	0	485.31	182.4	15.073
10/9/2019 1:00	S90702001	3.1414	0.28912	9.7	0	484.52	182.3	15.074
10/9/2019 0:45	S90702001	3.14346	0.2916	9.9	0	483.73	182.4	15.073
10/9/2019 0:30	S90702001	3.14274	0.29388	9.7	0	482.94	182.3	15.069
10/9/2019 0:15	S90702001	3.14365	0.28908	11.1	0	482.15	182.4	15.072
10/9/2019 0:00	S90702001	3.14312	0.2908	11.3	0	481.36	182.4	15.069
10/8/2019 23:45	S90702001	3.14413	0.29364	11.3	0	480.57	182.4	15.082
10/8/2019 23:30	S90702001	3.1435	0.29192	12.7	0	479.78	182.3	15.075



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10/8/2019 23:15	S90702001	3.14367	0.28936	16.6	0	478.99	182.4	15.076
10/8/2019 23:00	S90702001	3.14422	0.29256	20.9	0	478.2	182.4	15.085
10/8/2019 22:45	S90702001	3.14374	0.29188	26.6	0	477.41	182.4	15.073
10/8/2019 22:30	S90702001	3.1481	0.28876	33.8	0	476.62	182.6	15.085
10/8/2019 22:15	S90702001	3.14536	0.28788	43.4	0	475.83	182.5	15.076
10/8/2019 22:00	S90702001	3.14692	0.29716	54.8	0	475.03	182.6	15.077
10/8/2019 21:45	S90702001	3.14651	0.29264	70	0	474.24	182.5	15.079
10/8/2019 21:30	S90702001	3.1432	0.29232	88.1	0	473.45	182.4	15.078
10/8/2019 21:15	S90702001	3.14655	0.29232	107.8	0	472.66	182.6	15.072
10/8/2019 21:00	S90702001	3.14431	0.29364	122	0	471.87	182.4	15.072
10/8/2019 20:45	S90702001	3.1397	0.29748	133.1	0	471.08	182.2	15.076
10/8/2019 20:30	S90702001	3.14214	0.294	134.6	0	470.29	182.4	15.069
10/8/2019 20:15	S90702001	3.14005	0.29748	135.9	0	469.5	182.3	15.067
10/8/2019 20:00	S90702001	3.13933	0.29412	135.7	0	468.71	182.1	15.087
10/8/2019 19:45	S90702001	3.14326	0.29432	136.1	0	467.92	182.3	15.084
10/8/2019 19:30	S90702001	3.14136	0.29576	135.9	0	467.13	182.2	15.083
10/8/2019 19:15	S90702001	3.1367	0.29556	135.9	0	466.34	182	15.08
10/8/2019 19:00	S90702001	3.1349	0.29176	135.7	0	465.56	182	15.068
10/8/2019 18:45	S90702001	3.14841	0.29764	135.7	0	464.77	182.6	15.085
10/8/2019 18:30	S90702001	3.15229	0.29944	135.2	0	463.98	183	15.08
10/8/2019 18:15	S90702001	3.15268	0.29596	135.7	0	463.19	183	15.076
10/8/2019 18:00	S90702001	3.14559	0.29568	135.7	0	462.39	182.6	15.071
10/8/2019 17:45	S90702001	3.14326	0.29824	135.9	0	461.6	182.4	15.069
10/8/2019 17:30	S90702001	3.1427	0.29492	135.9	0	460.81	182.4	15.07
10/8/2019 17:15	S90702001	3.15687	0.29628	134.6	0	460.02	183.2	15.071
10/8/2019 17:00	S90702001	3.16188	0.30108	134.6	0	459.23	183.5	15.071
10/8/2019 16:45	S90702001	1.79181	0.16453	134.6	0	458.59	103.9	15.07
10/8/2019 16:30	S90702001	1.79318	0.16445	134.6	0	457.81	103.9	15.083
10/8/2019 16:15	S90702001	3.13731	0.29492	134.4	0	457.33	182.1	15.079
10/8/2019 16:00	S90702001	1.79187	0.16365	134.4	0	456.8	103.9	15.071
10/8/2019 15:45	S90702001	1.79307	0.16361	133.3	0	456.3	103.9	15.082
10/8/2019 15:30	S90702001	1.79214	0.16409	131.8	0	455.84	103.9	15.074
10/8/2019 15:15	S90702001	1.79192	0.16521	129.4	0	455.39	103.9	15.071
10/8/2019 13:00	S90702001	3.16202	0.2962	105.2	0	454.39	183.4	15.083
10/8/2019 12:45	S90702001	3.11807	0.28852	92.8	0	453.6	181.3	15.05
10/8/2019 12:30	S90702001	1.78436	0.15677	74.2	0	453.03	103.4	15.074



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10/8/2019 12:15	S90702001	3.12916	0.2916	49.7	0	452.32	181.6	15.079
10/8/2019 12:00	S90702001	3.12218	0.29144	26.9	0	451.59	181.1	15.08
10/8/2019 11:45	S90702001	3.11454	0.28872	11.6	0	450.8	180.8	15.067
10/8/2019 11:30	S90702001	3.11541	0.29012	9.7	0	450.02	180.8	15.075
10/8/2019 11:15	S90702001	3.1142	0.28984	9.7	0	449.24	180.8	15.068
10/8/2019 11:00	S90702001	3.11425	0.287	9.7	0	448.45	180.8	15.069
10/8/2019 10:45	S90702001	3.11466	0.28712	9.7	0	447.67	180.8	15.07
10/8/2019 10:30	S90702001	3.11429	0.2894	9.7	0	446.88	180.8	15.067
10/8/2019 10:15	S90702001	3.1135	0.28448	9.7	0	446.1	180.7	15.068
10/8/2019 10:00	S90702001	3.11379	0.2848	10.1	0	445.32	180.7	15.068
10/8/2019 9:45	S90702001	3.1135	0.28516	9.9	0	444.54	180.7	15.067
10/8/2019 9:30	S90702001	3.11597	0.29	9.6	0	443.75	180.7	15.087
10/8/2019 9:15	S90702001	3.11578	0.2912	9.9	0	442.97	180.7	15.086
10/8/2019 9:00	S90702001	3.11514	0.28884	9.7	0	442.19	180.7	15.085
10/8/2019 8:45	S90702001	3.11523	0.29104	9.7	0	441.4	180.7	15.082
10/8/2019 8:30	S90702001	3.11548	0.29196	11.1	0	440.62	180.7	15.084
10/8/2019 8:15	S90702001	3.11525	0.28652	9.9	0	439.83	180.7	15.084
10/8/2019 8:00	S90702001	3.11463	0.29084	9.7	0	439.05	180.7	15.08
10/8/2019 7:45	S90702001	3.11485	0.2866	9.7	0	438.27	180.7	15.078
10/8/2019 7:30	S90702001	3.11461	0.28876	9.9	0	437.48	180.7	15.075
10/8/2019 7:15	S90702001	3.11461	0.29056	9.7	0	436.7	180.7	15.078
10/8/2019 7:00	S90702001	3.11357	0.29084	9.7	0	435.92	180.6	15.076
10/8/2019 6:45	S90702001	3.11469	0.28892	9.7	0	435.13	180.7	15.076
10/8/2019 6:30	S90702001	3.11432	0.29124	9.7	0	434.35	180.7	15.075
10/8/2019 6:15	S90702001	3.11332	0.28836	9.9	0	433.57	180.6	15.073
10/8/2019 6:00	S90702001	3.11428	0.29296	9.7	0	432.78	180.7	15.072
10/8/2019 5:45	S90702001	3.11494	0.29116	9.7	0	432	180.7	15.071
10/8/2019 5:30	S90702001	3.11431	0.28756	9.7	0	431.22	180.7	15.067
10/8/2019 5:15	S90702001	3.11723	0.29172	9.9	0	430.43	180.8	15.086
10/8/2019 5:00	S90702001	3.11677	0.28612	9.7	0	429.65	180.8	15.084
10/8/2019 4:45	S90702001	3.11623	0.28708	10.8	0	428.87	180.7	15.082
10/8/2019 4:30	S90702001	3.11588	0.29016	11.1	0	428.08	180.7	15.08
10/8/2019 4:15	S90702001	3.11505	0.28896	11.3	0	427.3	180.7	15.076
10/8/2019 4:00	S90702001	3.11499	0.28688	12	0	426.52	180.8	15.07
10/8/2019 3:45	S90702001	3.1151	0.2912	15	0	425.73	180.7	15.076
10/8/2019 3:30	S90702001	3.1141	0.28956	18.1	0	424.95	180.8	15.069



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10/8/2019 3:15	S90702001	3.11614	0.29212	23.2	0	424.16	180.8	15.08
10/8/2019 3:00	S90702001	3.11775	0.2886	29.5	0	423.38	180.8	15.088
10/8/2019 2:45	S90702001	3.11624	0.2892	37.8	0	422.6	180.8	15.069
10/8/2019 2:30	S90702001	1.79044	0.16341	47.6	0	422.04	103.7	15.084
10/8/2019 2:15	S90702001	1.7917	0.16057	60.5	0	421.59	103.8	15.089
10/8/2019 2:00	S90702001	1.79111	0.16201	77.9	0	421.14	103.8	15.079
10/8/2019 1:45	S90702001	1.7917	0.16121	96.6	0	420.69	103.8	15.079
10/8/2019 1:30	S90702001	1.79078	0.16285	114.7	0	420.24	103.8	15.068
10/8/2019 1:15	S90702001	1.79189	0.16297	127.3	0	419.78	103.9	15.075
10/8/2019 1:00	S90702001	1.79241	0.16465	135.7	0	419.33	103.9	15.078
10/8/2019 0:45	S90702001	1.79167	0.16445	135.9	0	418.88	103.9	15.073
10/8/2019 0:30	S90702001	1.792	0.16465	135.9	0	418.33	103.9	15.076
10/8/2019 0:15	S90702001	1.79332	0.16517	135.9	0	417.88	103.9	15.087
10/8/2019 0:00	S90702001	1.7931	0.16501	135.9	0	417.43	103.9	15.085
10/7/2019 23:45	S90702001	1.79253	0.16477	136.1	0	416.98	103.9	15.081
10/7/2019 23:30	S90702001	1.79269	0.16473	135.7	0	416.53	103.9	15.08
10/7/2019 23:15	S90702001	1.79247	0.16461	135.9	0	416.08	103.9	15.078
10/7/2019 23:00	S90702001	1.792	0.16453	135.9	0	415.63	103.9	15.074
10/7/2019 22:45	S90702001	1.79106	0.16425	135.9	0	415.18	103.9	15.068
10/7/2019 22:30	S90702001	1.79286	0.16409	135.7	0	414.73	103.9	15.083
10/7/2019 22:15	S90702001	1.79255	0.16397	135.9	0	414.28	103.9	15.081
10/7/2019 22:00	S90702001	1.79252	0.16397	135.7	0	413.83	103.9	15.078
10/7/2019 21:45	S90702001	1.79168	0.16369	135.9	0	413.38	103.9	15.073
10/7/2019 21:30	S90702001	1.79199	0.16377	135.9	0	412.93	103.9	15.074
10/7/2019 21:15	S90702001	1.79219	0.16393	135.7	0	412.47	103.9	15.077
10/7/2019 21:00	S90702001	1.79176	0.16373	135.7	0	412.02	103.9	15.073
10/7/2019 20:45	S90702001	1.79327	0.16349	135.9	0	411.56	103.9	15.087
10/7/2019 20:30	S90702001	1.79241	0.16357	135.7	0	411.11	103.9	15.078
10/7/2019 20:15	S90702001	1.79187	0.16389	134.6	0	410.66	103.9	15.074
10/7/2019 20:00	S90702001	1.792	0.16373	134.6	0	410.13	103.9	15.075
10/7/2019 19:45	S90702001	1.79154	0.16369	134.6	0	409.63	103.9	15.071
10/7/2019 19:30	S90702001	1.79164	0.16357	134.4	0	409.16	103.9	15.072
10/7/2019 19:15	S90702001	1.79171	0.16361	134.4	0	408.71	103.9	15.071
10/7/2019 19:00	S90702001	1.79392	0.16353	133.3	0	408.25	103.9	15.092
10/7/2019 18:45	S90702001	1.79364	0.16369	131.8	0	407.79	103.9	15.088
10/7/2019 18:30	S90702001	1.79317	0.16257	131.8	0	407.34	103.9	15.086



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10/7/2019 18:15	S90702001	1.79116	0.16357	129	0	406.86	103.9	15.07
10/7/2019 18:00	S90702001	1.79219	0.16369	124.6	0	406.34	103.9	15.078
10/7/2019 17:45	S90702001	1.7918	0.16565	118.2	0	405.88	103.9	15.075
10/7/2019 17:30	S90702001	1.79279	0.16317	115.2	0	405.36	103.9	15.084
10/7/2019 17:15	S90702001	3.03451	0.28944	101	0	404.78	176.3	15.063
10/7/2019 17:00	S90702001	1.78136	0.15469	85.4	0	404.33	103.4	15.06
10/7/2019 16:45	S90702001	3.23549	0.30164	64.4	0	403.6	188	15.062
10/7/2019 16:30	S90702001	3.5741	0.32612	40.9	0	402.71	207.5	15.072
10/7/2019 16:15	S90702001	3.56636	0.32572	19.7	0	401.81	206.9	15.077
10/7/2019 16:00	S90702001	3.56518	0.32572	10.8	0	400.92	206.9	15.068
10/7/2019 15:45	S90702001	3.56693	0.32304	9.9	0	400.02	206.9	15.079
10/7/2019 15:30	S90702001	3.56597	0.3246	9.7	0	399.12	206.9	15.073
10/7/2019 15:15	S90702001	3.56638	0.32076	9.9	0	398.22	206.9	15.075
10/7/2019 15:00	S90702001	3.56579	0.32356	9.7	0	397.33	206.9	15.072
10/7/2019 14:45	S90702001	3.56459	0.32632	9.9	0	396.43	206.9	15.068
10/7/2019 14:30	S90702001	3.56639	0.3198	9.9	0	395.53	206.9	15.084
10/7/2019 14:15	S90702001	3.56552	0.31964	9.9	0	394.64	206.8	15.082
10/7/2019 14:00	S90702001	3.56613	0.32472	9.9	0	393.74	206.9	15.081
10/7/2019 13:45	S90702001	3.56687	0.32048	9.7	0	392.84	206.9	15.081
10/7/2019 13:30	S90702001	3.56678	0.32012	9.7	0	391.95	206.9	15.08
10/7/2019 13:15	S90702001	3.56595	0.31916	9.7	0	391.05	206.9	15.077
10/7/2019 13:00	S90702001	3.56561	0.32068	9.7	0	390.15	206.8	15.079
10/7/2019 12:45	S90702001	3.56648	0.32556	9.6	0	389.26	206.9	15.082
10/7/2019 12:30	S90702001	3.56485	0.31932	8.3	0	388.36	206.9	15.07
10/7/2019 12:15	S90702001	3.56451	0.32024	7.9	0	387.46	206.9	15.07
10/7/2019 11:00	S90702001	3.56663	0.324	9.7	0	384.64	206.9	15.073
10/7/2019 10:45	S90702001	3.56635	0.32132	9.9	0	383.75	206.9	15.073
10/7/2019 10:30	S90702001	3.5665	0.32088	9.7	0	382.85	206.9	15.072
10/7/2019 10:15	S90702001	3.56654	0.32376	9.7	0	381.95	206.9	15.074
10/7/2019 10:00	S90702001	3.5659	0.32484	9.6	0	381.06	206.9	15.07
10/7/2019 9:45	S90702001	3.56609	0.32208	9.9	0	380.16	206.9	15.071
10/7/2019 9:30	S90702001	3.56602	0.31884	9.9	0	379.26	206.9	15.07
10/7/2019 9:15	S90702001	3.56582	0.32096	9.4	0	378.36	206.9	15.069
10/7/2019 9:00	S90702001	3.56603	0.32512	9.9	0	377.47	206.9	15.071
10/7/2019 8:45	S90702001	3.56573	0.325	11.1	0	376.57	206.9	15.07
10/7/2019 8:30	S90702001	3.56482	0.32732	11.5	0	375.67	206.9	15.067



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10/7/2019 8:15	S90702001	3.56588	0.3224	12.5	0	374.77	206.9	15.073
10/7/2019 8:00	S90702001	3.56523	0.31936	16.8	0	373.88	207	15.07
10/7/2019 7:45	S90702001	3.56955	0.319	21.1	0	372.98	207	15.086
10/7/2019 7:30	S90702001	3.56695	0.31916	26.7	0	372.08	207.1	15.073
10/7/2019 7:15	S90702001	3.56777	0.32036	34.9	0	371.19	207.1	15.069
10/7/2019 7:00	S90702001	3.56886	0.32672	44.8	0	370.29	207.2	15.069
10/7/2019 6:45	S90702001	3.57335	0.32896	56.3	0	369.39	207.3	15.073
10/7/2019 6:30	S90702001	3.57576	0.3314	72.6	0	368.49	207.4	15.08
10/7/2019 6:15	S90702001	3.57576	0.32696	91	0	367.59	207.5	15.086
10/7/2019 6:00	S90702001	3.57791	0.32964	110.4	0	366.69	207.6	15.081
10/7/2019 5:45	S90702001	3.57896	0.33128	123.8	0	365.79	207.7	15.081
10/7/2019 5:30	S90702001	3.58061	0.32996	134.6	0	364.89	207.7	15.087
10/7/2019 5:15	S90702001	3.5783	0.32508	135.9	0	363.99	207.7	15.072
10/7/2019 5:00	S90702001	3.57747	0.331	135.9	0	363.09	207.7	15.07
10/7/2019 4:45	S90702001	3.57747	0.33112	135.7	0	362.19	207.7	15.07
10/7/2019 4:30	S90702001	3.57813	0.32856	135.7	0	361.29	207.7	15.071
10/7/2019 4:15	S90702001	3.57794	0.32728	135.3	0	360.39	207.7	15.07
10/7/2019 4:00	S90702001	3.57741	0.32848	135.9	0	359.49	207.7	15.067
10/7/2019 3:45	S90702001	3.57687	0.326	136.1	0	358.59	207.7	15.066
10/7/2019 3:30	S90702001	3.57969	0.32772	135.3	0	357.69	207.7	15.084
10/7/2019 3:15	S90702001	3.57905	0.32568	135	0	356.79	207.7	15.082
10/7/2019 3:00	S90702001	3.57929	0.32952	135.9	0	355.89	207.7	15.08
10/7/2019 2:45	S90702001	3.57824	0.33064	135.3	0	354.99	207.7	15.076
10/7/2019 2:30	S90702001	3.57736	0.32408	135.5	0	354.09	207.7	15.07
10/7/2019 2:15	S90702001	3.57724	0.32408	135.7	0	353.19	207.7	15.069
10/7/2019 2:00	S90702001	3.57775	0.32412	135.9	0	352.29	207.7	15.068
10/7/2019 1:45	S90702001	3.57753	0.32488	135.5	0	351.39	207.7	15.067
10/7/2019 1:30	S90702001	3.57971	0.32784	135.3	0	350.49	207.7	15.086
10/7/2019 1:15	S90702001	3.57983	0.32776	135.7	0	349.59	207.7	15.087
10/7/2019 1:00	S90702001	3.57841	0.33084	134.8	0	348.69	207.7	15.084
10/7/2019 0:45	S90702001	3.57705	0.33016	134.6	0	347.79	207.7	15.065
10/7/2019 0:30	S90702001	3.5776	0.32404	134.6	0	346.89	207.7	15.067
10/7/2019 0:15	S90702001	3.57878	0.32736	134.6	0	345.99	207.7	15.084
10/7/2019 0:00	S90702001	3.57837	0.33188	134.6	0	345.09	207.6	15.084
10/6/2019 23:45	S90702001	3.57132	0.33228	133.8	0	344.19	207.2	15.081
10/6/2019 23:30	S90702001	3.55728	0.32296	133.1	0	343.3	206.5	15.078



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10/6/2019 23:15	S90702001	3.55416	0.32312	131.8	0	342.4	206.3	15.077
10/6/2019 23:00	S90702001	3.54552	0.32648	130.3	0	341.51	205.8	15.072
10/6/2019 22:45	S90702001	3.551	0.3306	127.4	0	340.62	206	15.082
10/6/2019 22:30	S90702001	3.46383	0.323	124.8	0	339.73	200.9	15.087
10/6/2019 22:15	S90702001	3.43617	0.32104	120.6	0	338.87	199.4	15.081
10/6/2019 22:00	S90702001	3.42196	0.31456	116.4	0	338.01	198.7	15.076
10/6/2019 21:45	S90702001	3.43813	0.3166	106.4	0	337.15	199.5	15.076
10/6/2019 21:30	S90702001	3.38432	0.30716	89.8	0	336.29	197	15.045
10/6/2019 21:15	S90702001	3.62117	0.33076	68.1	0	335.38	210.4	15.064
10/6/2019 21:00	S90702001	3.59304	0.33196	46.2	0	334.48	208.6	15.073
10/6/2019 20:45	S90702001	3.57106	0.31976	23.9	0	333.58	207.1	15.086
10/6/2019 20:30	S90702001	3.56563	0.31988	11.1	0	332.68	206.9	15.084
10/6/2019 20:15	S90702001	3.56487	0.32052	9.6	0	331.78	206.9	15.078
10/6/2019 20:00	S90702001	3.56468	0.32032	9.7	0	330.89	206.9	15.078
10/6/2019 19:45	S90702001	3.56531	0.32776	9.7	0	329.99	206.9	15.081
10/6/2019 19:30	S90702001	3.56549	0.32608	9.6	0	329.1	206.9	15.078
10/6/2019 19:15	S90702001	3.56541	0.32348	9.6	0	328.2	206.9	15.078
10/6/2019 19:00	S90702001	3.56448	0.32356	9.6	0	327.3	206.9	15.078
10/6/2019 18:45	S90702001	3.56476	0.3266	9.7	0	326.41	206.9	15.078
10/6/2019 18:30	S90702001	3.56472	0.32644	9.7	0	325.51	206.9	15.078
10/6/2019 18:15	S90702001	3.56484	0.32028	9.7	0	324.61	206.9	15.079
10/6/2019 18:00	S90702001	3.56475	0.32652	9.6	0	323.71	206.9	15.079
10/6/2019 17:45	S90702001	3.56478	0.3222	9.4	0	322.82	206.9	15.08
10/6/2019 17:30	S90702001	3.56533	0.3268	9.7	0	321.92	206.9	15.081
10/6/2019 17:15	S90702001	3.56541	0.32012	9.9	0	321.02	206.9	15.081
10/6/2019 17:00	S90702001	3.56549	0.32168	9.4	0	320.13	206.9	15.08
10/6/2019 16:45	S90702001	3.56541	0.32036	9.4	0	319.23	206.9	15.079
10/6/2019 16:30	S90702001	3.56472	0.32352	9.6	0	318.33	206.9	15.078
10/6/2019 16:15	S90702001	3.56477	0.3242	9.7	0	317.44	206.9	15.078
10/6/2019 16:00	S90702001	3.56466	0.32004	9.2	0	316.54	206.9	15.079
10/6/2019 15:45	S90702001	3.56417	0.32624	9.7	0	315.65	206.9	15.077
10/6/2019 15:30	S90702001	3.56463	0.32536	9.9	0	314.75	206.9	15.078
10/6/2019 15:15	S90702001	3.56439	0.32064	9.6	0	313.85	206.9	15.076
10/6/2019 15:00	S90702001	3.56451	0.32724	9.6	0	312.96	206.9	15.075
10/6/2019 14:45	S90702001	3.56492	0.32344	9.4	0	312.06	206.9	15.077
10/6/2019 14:30	S90702001	3.56422	0.32	9.6	0	311.16	206.9	15.075



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10/6/2019 14:15	S90702001	3.56426	0.32112	9.7	0	310.27	206.9	15.073
10/6/2019 14:00	S90702001	3.56413	0.321	9.7	0	309.37	206.9	15.074
10/6/2019 13:45	S90702001	3.56333	0.32432	9.9	0	308.47	206.9	15.071
10/6/2019 13:30	S90702001	3.56577	0.32716	9.9	0	307.58	206.9	15.068
10/6/2019 13:15	S90702001	3.56532	0.3284	11.1	0	306.68	206.9	15.068
10/6/2019 13:00	S90702001	3.56552	0.32588	11.1	0	305.78	206.9	15.069
10/6/2019 12:45	S90702001	3.56571	0.32672	12.5	0	304.89	206.9	15.069
10/6/2019 12:30	S90702001	3.56475	0.32032	15.5	0	303.99	206.9	15.068
10/6/2019 12:15	S90702001	3.56652	0.31996	19.5	0	303.09	207	15.081
10/6/2019 12:00	S90702001	3.5668	0.32584	25.3	0	302.19	207	15.068
10/6/2019 11:45	S90702001	3.56934	0.31848	33.6	0	301.3	207.1	15.078
10/6/2019 11:30	S90702001	3.57069	0.32784	42.1	0	300.4	207.2	15.079
10/6/2019 11:15	S90702001	3.57011	0.32044	54.4	0	299.5	207.3	15.071
10/6/2019 11:00	S90702001	3.57368	0.32548	68.8	0	298.6	207.4	15.079
10/6/2019 10:45	S90702001	3.57558	0.32236	88.2	0	297.7	207.5	15.07
10/6/2019 10:30	S90702001	3.57746	0.33056	107.8	0	296.8	207.6	15.086
10/6/2019 10:15	S90702001	3.57791	0.32816	121.9	0	295.9	207.6	15.082
10/6/2019 10:00	S90702001	3.57738	0.332	133.1	0	295	207.7	15.067
10/6/2019 9:45	S90702001	3.5796	0.32604	135.3	0	294.11	207.7	15.085
10/6/2019 9:30	S90702001	3.57979	0.32604	135.9	0	293.2	207.7	15.084
10/6/2019 9:15	S90702001	3.57803	0.33232	135.5	0	292.3	207.7	15.067
10/6/2019 9:00	S90702001	3.57804	0.33192	135	0	291.4	207.7	15.066
10/6/2019 8:45	S90702001	3.57735	0.33168	134.6	0	290.5	207.7	15.065
10/6/2019 8:30	S90702001	3.57726	0.32576	134.8	0	289.6	207.7	15.065
10/6/2019 8:15	S90702001	3.57816	0.33208	135.9	0	288.7	207.7	15.067
10/6/2019 8:00	S90702001	3.58049	0.32608	135.9	0	287.8	207.7	15.086
10/6/2019 7:45	S90702001	3.57963	0.32868	135.7	0	286.9	207.7	15.084
10/6/2019 7:30	S90702001	3.58034	0.33056	134.8	0	286	207.7	15.084
10/6/2019 7:15	S90702001	3.57944	0.32592	134.6	0	285.1	207.7	15.08
10/6/2019 7:00	S90702001	3.57854	0.3274	134.6	0	284.2	207.7	15.075
10/6/2019 6:45	S90702001	3.57821	0.33028	135.9	0	283.3	207.7	15.071
10/6/2019 6:30	S90702001	3.5776	0.33156	134.8	0	282.4	207.7	15.068
10/6/2019 6:15	S90702001	3.57762	0.32984	135.3	0	281.5	207.7	15.067
10/6/2019 6:00	S90702001	3.57996	0.33148	134.6	0	280.6	207.7	15.087
10/6/2019 5:45	S90702001	3.57965	0.33148	134.8	0	279.7	207.7	15.085
10/6/2019 5:30	S90702001	3.57979	0.3286	135	0	278.8	207.7	15.083



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10/6/2019 5:15	S90702001	3.57987	0.3252	134.6	0	277.9	207.7	15.086
10/6/2019 5:00	S90702001	3.58007	0.32944	134.6	0	277	207.7	15.084
10/6/2019 4:45	S90702001	3.57949	0.32544	134.6	0	276.1	207.7	15.082
10/6/2019 4:30	S90702001	3.57909	0.33076	134.3	0	275.2	207.7	15.079
10/6/2019 4:15	S90702001	3.57919	0.32768	134.1	0	274.3	207.7	15.077
10/6/2019 4:00	S90702001	3.5785	0.32748	133.3	0	273.4	207.7	15.076
10/6/2019 3:45	S90702001	3.57855	0.32488	132	0	272.5	207.7	15.075
10/6/2019 3:30	S90702001	3.57904	0.32264	130.3	0	271.6	207.7	15.076
10/6/2019 3:15	S90702001	3.57879	0.32612	128.9	0	270.7	207.7	15.076
10/6/2019 3:00	S90702001	3.57704	0.32624	126.1	0	269.8	207.7	15.077
10/6/2019 2:45	S90702001	3.57725	0.32848	121.7	0	268.9	207.7	15.075
10/6/2019 2:30	S90702001	3.57911	0.32268	115	0	268	207.6	15.089
10/6/2019 2:15	S90702001	3.57809	0.32624	105.2	0	267.1	207.6	15.076
10/6/2019 2:00	S90702001	3.5773	0.32436	89.8	0	266.2	207.5	15.08
10/6/2019 1:45	S90702001	3.56609	0.32612	67.6	0	265.31	207.1	15.064
10/6/2019 1:30	S90702001	3.51529	0.32852	47.8	0	264.41	204.2	15.066
10/6/2019 1:15	S90702001	3.57162	0.32352	27.9	0	263.51	207.1	15.088
10/6/2019 1:00	S90702001	3.56573	0.32144	11.6	0	262.62	206.9	15.066
10/6/2019 0:45	S90702001	3.56597	0.3242	9.6	0	261.72	206.9	15.077
10/6/2019 0:30	S90702001	3.56579	0.31848	9.7	0	260.82	206.9	15.076
10/6/2019 0:15	S90702001	3.56604	0.31988	9.7	0	259.93	206.9	15.078
10/6/2019 0:00	S90702001	3.56626	0.32208	9.9	0	259.03	206.9	15.078
10/5/2019 23:45	S90702001	3.56602	0.32476	9.2	0	258.13	206.9	15.076
10/5/2019 23:30	S90702001	3.5658	0.32456	8.3	0	257.24	206.9	15.076
10/5/2019 23:15	S90702001	3.56607	0.32492	9.7	0	256.34	206.9	15.076
10/5/2019 23:00	S90702001	3.56533	0.32196	9.7	0	255.44	206.9	15.075
10/5/2019 22:45	S90702001	3.56588	0.32488	9.6	0	254.54	206.9	15.075
10/5/2019 22:30	S90702001	3.56563	0.31852	9.7	0	253.65	206.9	15.074
10/5/2019 22:15	S90702001	3.56589	0.32472	9.4	0	252.75	206.9	15.075
10/5/2019 22:00	S90702001	3.56526	0.32348	9.7	0	251.86	206.9	15.073
10/5/2019 21:45	S90702001	3.56498	0.32	8.7	0	250.96	206.9	15.075
10/5/2019 21:30	S90702001	3.56449	0.3248	9.7	0	250.06	206.9	15.074
10/5/2019 21:15	S90702001	3.5648	0.32372	9.2	0	249.16	206.9	15.074
10/5/2019 21:00	S90702001	3.56486	0.3248	9	0	248.27	206.9	15.074
10/5/2019 20:45	S90702001	3.56342	0.31916	9.4	0	247.37	206.8	15.072
10/5/2019 20:30	S90702001	3.56426	0.32444	9.6	0	246.47	206.9	15.071



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10/5/2019 20:15	S90702001	3.56476	0.32364	9.9	0	245.58	206.9	15.071
10/5/2019 20:00	S90702001	3.56437	0.32376	9.7	0	244.68	206.9	15.068
10/5/2019 19:45	S90702001	3.5665	0.3202	9.7	0	243.78	206.9	15.087
10/5/2019 19:30	S90702001	3.56608	0.32132	9.7	0	242.89	206.9	15.085
10/5/2019 19:15	S90702001	3.566	0.32512	9.9	0	241.99	206.9	15.085
10/5/2019 19:00	S90702001	3.56572	0.3188	9.7	0	241.1	206.9	15.084
10/5/2019 18:45	S90702001	3.5681	0.31812	9.2	0	240.2	206.9	15.084
10/5/2019 18:30	S90702001	3.56782	0.32104	9.7	0	239.3	206.9	15.082
10/5/2019 18:15	S90702001	3.56777	0.32812	9.9	0	238.4	206.9	15.08
10/5/2019 18:00	S90702001	3.56657	0.32252	9.7	0	237.51	206.9	15.075
10/5/2019 17:45	S90702001	3.56695	0.32788	10.6	0	236.61	206.9	15.076
10/5/2019 17:30	S90702001	3.56654	0.3228	11.3	0	235.71	206.9	15.075
10/5/2019 17:15	S90702001	3.56764	0.32108	12.5	0	234.81	206.9	15.081
10/5/2019 17:00	S90702001	3.56775	0.32328	15.3	0	233.92	207	15.081
10/5/2019 16:45	S90702001	3.56588	0.3272	19.4	0	233.02	207	15.074
10/5/2019 16:30	S90702001	3.56942	0.32388	25.3	0	232.12	207.1	15.089
10/5/2019 16:15	S90702001	3.5694	0.3212	32.1	0	231.22	207.1	15.075
10/5/2019 16:00	S90702001	3.57178	0.32836	40.6	0	230.33	207.2	15.081
10/5/2019 15:45	S90702001	3.57351	0.32836	51.9	0	229.43	207.3	15.088
10/5/2019 15:30	S90702001	3.57496	0.32624	67.4	0	228.53	207.4	15.079
10/5/2019 15:15	S90702001	3.57531	0.32804	85.4	0	227.63	207.5	15.079
10/5/2019 15:00	S90702001	3.57815	0.32292	105.2	0	226.73	207.6	15.075
10/5/2019 14:45	S90702001	3.57726	0.32688	120.4	0	225.83	207.7	15.069
10/5/2019 14:30	S90702001	3.57885	0.32448	131.5	0	224.93	207.7	15.07
10/5/2019 14:15	S90702001	3.58056	0.32712	135	0	224.03	207.7	15.086
10/5/2019 14:00	S90702001	3.58018	0.33228	135	0	223.13	207.7	15.084
10/5/2019 13:45	S90702001	3.58022	0.3272	134.6	0	222.23	207.7	15.084
10/5/2019 13:30	S90702001	3.58055	0.33012	134.6	0	221.33	207.7	15.084
10/5/2019 13:15	S90702001	3.58039	0.33344	135	0	220.43	207.7	15.083
10/5/2019 13:00	S90702001	3.58018	0.32728	134.6	0	219.53	207.7	15.085
10/5/2019 12:45	S90702001	3.58019	0.33328	134.6	0	218.63	207.7	15.085
10/5/2019 12:30	S90702001	3.58035	0.327	135.2	0	217.73	207.7	15.084
10/5/2019 12:15	S90702001	3.57994	0.33008	134.6	0	216.83	207.7	15.083
10/5/2019 12:00	S90702001	3.5799	0.33324	134.6	0	215.93	207.7	15.081
10/5/2019 11:45	S90702001	3.57965	0.32684	135.9	0	215.03	207.7	15.081
10/5/2019 11:30	S90702001	3.57912	0.32708	134.6	0	214.13	207.7	15.075

10/5/2019 11:15	S90702001	3.57811	0.33256	135.2	0	213.22	207.7	15.07
10/5/2019 11:00	S90702001	3.58	0.32744	135.2	0	212.32	207.7	15.085
10/5/2019 10:45	S90702001	3.57831	0.32932	134.8	0	211.43	207.7	15.076
10/5/2019 10:30	S90702001	3.57842	0.32908	134.6	0	210.53	207.7	15.072
10/5/2019 10:15	S90702001	3.57731	0.3314	135	0	209.63	207.7	15.067
10/5/2019 10:00	S90702001	3.57721	0.329	134.6	0	208.72	207.7	15.065
10/5/2019 9:45	S90702001	3.57929	0.32832	134.6	0	207.82	207.7	15.085
10/5/2019 9:30	S90702001	3.57994	0.32672	134.6	0	206.92	207.7	15.087
10/5/2019 9:15	S90702001	3.57933	0.3252	134.6	0	206.02	207.7	15.084
10/5/2019 9:00	S90702001	3.57977	0.3316	134.3	0	205.13	207.7	15.084
10/5/2019 8:45	S90702001	3.57903	0.3314	133.3	0	204.22	207.7	15.08
10/5/2019 8:30	S90702001	3.57893	0.32844	133.3	0	203.32	207.7	15.077
10/5/2019 8:15	S90702001	3.57902	0.32496	132.2	0	202.43	207.7	15.077
10/5/2019 8:00	S90702001	3.57911	0.32904	130.6	0	201.53	207.7	15.076
10/5/2019 7:45	S90702001	3.57965	0.32584	128.9	0	200.62	207.7	15.084
10/5/2019 7:30	S90702001	3.57916	0.33072	125.9	0	199.72	207.7	15.079
10/5/2019 7:15	S90702001	3.57993	0.33164	121.9	0	198.82	207.7	15.08
10/5/2019 7:00	S90702001	3.57762	0.3272	115	0	197.92	207.7	15.079
10/5/2019 6:45	S90702001	3.57856	0.32692	106.6	0	197.02	207.6	15.084
10/5/2019 6:30	S90702001	3.57564	0.32972	92.1	0	196.12	207.6	15.074
10/5/2019 6:15	S90702001	3.46792	0.31556	72.3	0	195.25	201.5	15.062
10/5/2019 6:00	S90702001	3.51486	0.32212	52.1	0	194.38	204	15.085
10/5/2019 5:45	S90702001	3.56921	0.3222	29.5	0	193.48	207.1	15.068
10/5/2019 5:30	S90702001	3.56514	0.32228	12.9	0	192.59	207	15.07
10/5/2019 5:15	S90702001	3.56438	0.31728	9.7	0	191.69	206.9	15.068
10/5/2019 5:00	S90702001	3.56462	0.32136	9.7	0	190.79	206.9	15.07
10/5/2019 4:45	S90702001	3.56414	0.31736	9.6	0	189.9	206.9	15.068
10/5/2019 4:30	S90702001	3.56452	0.32224	9.7	0	189	206.9	15.07
10/5/2019 4:15	S90702001	3.56397	0.32064	9.7	0	188.1	206.9	15.069
10/5/2019 4:00	S90702001	3.564	0.32024	9.9	0	187.21	206.9	15.069
10/5/2019 3:45	S90702001	3.56296	0.32324	9.7	0	186.31	206.9	15.066
10/5/2019 3:30	S90702001	3.56611	0.31856	9.7	0	185.41	206.9	15.068
10/5/2019 3:15	S90702001	3.56611	0.32372	9.6	0	184.52	206.9	15.068
10/5/2019 3:00	S90702001	3.56602	0.32368	9.7	0	183.62	206.9	15.067
10/5/2019 2:45	S90702001	3.56381	0.31728	9.6	0	182.72	206.9	15.068
10/5/2019 2:30	S90702001	3.56556	0.32012	9.6	0	181.83	206.9	15.066



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10/5/2019 2:15	S90702001	3.56835	0.32076	9.7	0	180.93	206.9	15.087
10/5/2019 2:00	S90702001	3.56759	0.32172	9.7	0	180.03	206.9	15.084
10/5/2019 1:45	S90702001	3.568	0.31788	9.9	0	179.13	206.9	15.086
10/5/2019 1:30	S90702001	3.56687	0.32172	9.9	0	178.24	206.9	15.082
10/5/2019 1:15	S90702001	3.56666	0.32464	9.9	0	177.34	206.9	15.08
10/5/2019 1:00	S90702001	3.56623	0.32632	9.7	0	176.44	206.9	15.076
10/5/2019 0:45	S90702001	3.56718	0.32216	9.7	0	175.54	206.9	15.077
10/5/2019 0:30	S90702001	3.56705	0.32556	9.9	0	174.65	206.9	15.077
10/5/2019 0:15	S90702001	3.56696	0.32456	9.7	0	173.75	206.9	15.077
10/5/2019 0:00	S90702001	3.56673	0.32644	9.7	0	172.85	206.9	15.074
10/4/2019 23:45	S90702001	3.56618	0.3222	9.7	0	171.96	206.9	15.071
10/4/2019 23:30	S90702001	3.5661	0.32248	9.7	0	171.06	206.9	15.073
10/4/2019 23:15	S90702001	3.56535	0.32592	9.7	0	170.16	206.9	15.07
10/4/2019 23:00	S90702001	3.56466	0.32392	9.9	0	169.27	206.9	15.065
10/4/2019 22:45	S90702001	3.56416	0.32228	9.7	0	168.37	206.9	15.067
10/4/2019 22:30	S90702001	3.56631	0.32	9.9	0	167.47	206.9	15.085
10/4/2019 22:15	S90702001	3.56631	0.3258	10.8	0	166.57	206.9	15.085
10/4/2019 22:00	S90702001	3.56628	0.31936	11.1	0	165.68	206.9	15.083
10/4/2019 21:45	S90702001	3.56575	0.32704	11.3	0	164.78	206.9	15.081
10/4/2019 21:30	S90702001	3.56638	0.32384	14.1	0	163.88	206.9	15.086
10/4/2019 21:15	S90702001	3.56781	0.32028	17.4	0	162.99	207	15.082
10/4/2019 21:00	S90702001	3.56625	0.32508	21.3	0	162.09	207	15.07
10/4/2019 20:45	S90702001	3.56945	0.32592	27.9	0	161.19	207.1	15.085
10/4/2019 20:30	S90702001	3.56957	0.32228	35.1	0	160.29	207.1	15.071
10/4/2019 20:15	S90702001	3.57122	0.3276	43.7	0	159.4	207.2	15.074
10/4/2019 20:00	S90702001	3.57257	0.32192	56.1	0	158.5	207.3	15.076
10/4/2019 19:45	S90702001	3.57547	0.32868	71.4	0	157.6	207.4	15.085
10/4/2019 19:30	S90702001	3.57555	0.32636	89.4	0	156.7	207.5	15.079
10/4/2019 19:15	S90702001	3.57739	0.32896	108	0	155.8	207.6	15.071
10/4/2019 19:00	S90702001	3.57687	0.32832	122	0	154.9	207.6	15.067
10/4/2019 18:45	S90702001	3.57905	0.32548	133.1	0	154	207.7	15.072
10/4/2019 18:30	S90702001	3.57676	0.32396	135	0	153.1	207.7	15.07
10/4/2019 18:15	S90702001	3.57751	0.33052	134.6	0	152.2	207.7	15.071
10/4/2019 18:00	S90702001	3.57624	0.32488	135	0	151.3	207.7	15.069
10/4/2019 17:45	S90702001	3.57657	0.33024	135.7	0	150.4	207.7	15.069
10/4/2019 17:30	S90702001	3.57773	0.33036	135.3	0	149.5	207.8	15.07



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10/4/2019 17:15	S90702001	3.57713	0.33032	135.3	0	148.6	207.7	15.069
10/4/2019 17:00	S90702001	3.57763	0.32524	135.7	0	147.7	207.8	15.069
10/4/2019 16:45	S90702001	3.57757	0.32736	135.9	0	146.8	207.7	15.069
10/4/2019 16:30	S90702001	3.57809	0.32404	134.8	0	145.9	207.8	15.071
10/4/2019 16:15	S90702001	3.5778	0.32892	135.2	0	145	207.8	15.069
10/4/2019 16:00	S90702001	3.57963	0.32416	135.9	0	144.1	207.8	15.085
10/4/2019 15:45	S90702001	3.57886	0.32496	135.7	0	143.2	207.7	15.085
10/4/2019 15:30	S90702001	3.57827	0.3266	135.9	0	142.3	207.7	15.08
10/4/2019 15:15	S90702001	3.57828	0.33264	135.9	0	141.4	207.7	15.079
10/4/2019 15:00	S90702001	3.57733	0.33232	135.9	0	140.51	207.7	15.069
10/4/2019 14:45	S90702001	3.57841	0.33196	135.2	0	139.61	207.7	15.082
10/4/2019 14:30	S90702001	3.57893	0.3256	134.8	0	138.71	207.7	15.081
10/4/2019 14:15	S90702001	3.57916	0.32768	134.6	0	137.81	207.7	15.078
10/4/2019 14:00	S90702001	3.5789	0.33204	134.6	0	136.91	207.7	15.077
10/4/2019 13:45	S90702001	3.57887	0.32588	134.6	0	136	207.7	15.074
10/4/2019 13:30	S90702001	3.57898	0.3316	134.6	0	135.1	207.7	15.074
10/4/2019 13:15	S90702001	3.57847	0.3302	134.6	0	134.2	207.7	15.073
10/4/2019 13:00	S90702001	3.5782	0.32808	133.3	0	133.31	207.7	15.07
10/4/2019 12:45	S90702001	3.57756	0.32904	133.4	0	132.41	207.7	15.066
10/4/2019 12:30	S90702001	3.58035	0.33092	131.8	0	131.5	207.7	15.085
10/4/2019 12:15	S90702001	3.57953	0.33184	130.4	0	130.6	207.7	15.083
10/4/2019 12:00	S90702001	3.5779	0.33068	127.6	0	129.71	207.7	15.084
10/4/2019 11:45	S90702001	3.57669	0.32904	124.8	0	128.81	207.6	15.077
10/4/2019 11:30	S90702001	3.57746	0.32628	120.4	0	127.91	207.6	15.085
10/4/2019 11:15	S90702001	3.57601	0.3258	113.6	0	127	207.5	15.079
10/4/2019 11:00	S90702001	3.5699	0.33064	104	0	126.11	207.3	15.07
10/4/2019 10:45	S90702001	3.49986	0.28996	89.8	0	125.22	203.7	15.039
10/4/2019 10:30	S90702001	3.56094	0.3244	73.1	0	124.32	207.1	15.056
10/4/2019 10:15	S90702001	3.55684	0.32536	50.6	0	123.44	206.6	15.068
10/4/2019 10:00	S90702001	3.56292	0.32304	26.9	0	122.54	206.7	15.078
10/4/2019 9:45	S90702001	3.56219	0.32432	12.9	0	121.65	206.6	15.084
10/4/2019 9:30	S90702001	3.56028	0.3184	9.9	0	120.75	206.6	15.077
10/4/2019 9:15	S90702001	3.56032	0.31852	9.9	0	119.85	206.6	15.077
10/4/2019 9:00	S90702001	3.56025	0.3212	9.6	0	118.96	206.6	15.077
10/4/2019 8:45	S90702001	3.56018	0.31832	9.9	0	118.06	206.6	15.076
10/4/2019 8:30	S90702001	3.56012	0.31996	9.9	0	117.17	206.6	15.075



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10/4/2019 8:15	S90702001	3.55983	0.31912	9.7	0	116.27	206.6	15.074
10/4/2019 8:00	S90702001	3.55998	0.31848	9.7	0	115.38	206.6	15.074
10/4/2019 7:45	S90702001	3.55959	0.32052	9.7	0	114.48	206.6	15.072
10/4/2019 7:30	S90702001	3.55973	0.3244	9.9	0	113.58	206.6	15.073
10/4/2019 7:15	S90702001	3.55928	0.32432	9.9	0	112.69	206.6	15.072
10/4/2019 7:00	S90702001	3.55999	0.3208	9.9	0	111.8	206.6	15.074
10/4/2019 6:45	S90702001	3.55964	0.31824	9.7	0	110.9	206.6	15.072
10/4/2019 6:30	S90702001	3.55888	0.32188	9.7	0	110	206.6	15.067
10/4/2019 6:15	S90702001	3.55906	0.32436	9.7	0	109.11	206.6	15.068
10/4/2019 6:00	S90702001	3.5591	0.32388	9.9	0	108.22	206.6	15.066
10/4/2019 5:45	S90702001	3.55869	0.31812	9.7	0	107.32	206.6	15.066
10/4/2019 5:30	S90702001	3.56069	0.32268	9.7	0	106.42	206.6	15.084
10/4/2019 5:15	S90702001	3.56111	0.32188	9.7	0	105.53	206.6	15.085
10/4/2019 5:00	S90702001	3.56064	0.32424	9.9	0	104.63	206.6	15.084
10/4/2019 4:45	S90702001	3.56109	0.32408	9.7	0	103.74	206.6	15.085
10/4/2019 4:30	S90702001	3.5609	0.31808	9.7	0	102.84	206.6	15.085
10/4/2019 4:15	S90702001	3.56077	0.31808	9.6	0	101.94	206.6	15.082
10/4/2019 4:00	S90702001	3.56013	0.31756	9.9	0	101.05	206.6	15.079
10/4/2019 3:45	S90702001	3.56022	0.32696	9.9	0	100.15	206.6	15.077
10/4/2019 3:30	S90702001	3.55974	0.32656	9.9	0	99.26	206.6	15.073
10/4/2019 3:15	S90702001	3.55945	0.32052	9.7	0	98.36	206.6	15.072
10/4/2019 3:00	S90702001	3.55933	0.3244	9.6	0	97.47	206.6	15.07
10/4/2019 2:45	S90702001	3.56025	0.32008	10.9	0	96.57	206.6	15.084
10/4/2019 2:30	S90702001	3.55878	0.32192	10.9	0	95.68	206.6	15.073
10/4/2019 2:15	S90702001	3.55943	0.3208	11.3	0	94.78	206.6	15.078
10/4/2019 2:00	S90702001	3.55932	0.3292	12.5	0	93.89	206.6	15.075
10/4/2019 1:45	S90702001	3.5632	0.32072	15.3	0	92.99	206.6	15.087
10/4/2019 1:30	S90702001	3.56149	0.31848	18.3	0	92.1	206.7	15.081
10/4/2019 1:15	S90702001	3.5621	0.327	23.8	0	91.2	206.7	15.069
10/4/2019 1:00	S90702001	3.56097	0.32304	30.6	0	90.3	206.8	15.07
10/4/2019 0:45	S90702001	3.56316	0.32596	39.1	0	89.41	206.8	15.079
10/4/2019 0:30	S90702001	3.56519	0.32804	48.9	0	88.51	206.8	15.09
10/4/2019 0:15	S90702001	3.56655	0.32408	62.1	0	87.61	206.9	15.075
10/4/2019 0:00	S90702001	3.56747	0.3266	78.4	0	86.72	207	15.086
10/3/2019 23:45	S90702001	3.56836	0.3276	98.2	0	85.82	207	15.083
10/3/2019 23:30	S90702001	3.57006	0.32888	115.7	0	84.92	207.1	15.08



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10/3/2019 23:15	S90702001	3.56722	0.32452	127.4	0	84.02	207	15.079
10/3/2019 23:00	S90702001	3.56646	0.33292	134.6	0	83.13	207	15.079
10/3/2019 22:45	S90702001	3.56496	0.32644	135	0	82.23	207	15.078
10/3/2019 22:30	S90702001	3.56637	0.33044	134.6	0	81.33	207	15.077
10/3/2019 22:15	S90702001	3.56499	0.33256	134.6	0	80.44	207	15.075
10/3/2019 22:00	S90702001	3.56658	0.32776	134.6	0	79.54	207.1	15.077
10/3/2019 21:45	S90702001	3.56747	0.32644	134.6	0	78.64	207.1	15.077
10/3/2019 21:30	S90702001	3.56996	0.32676	134.8	0	77.75	207.3	15.078
10/3/2019 21:15	S90702001	3.56629	0.32864	134.4	0	76.85	207.1	15.073
10/3/2019 21:00	S90702001	3.56398	0.3272	134.6	0	75.95	207	15.07
10/3/2019 20:45	S90702001	3.56242	0.32592	134.6	0	75.06	206.8	15.073
10/3/2019 20:30	S90702001	3.5624	0.33228	134.6	0	74.16	206.8	15.076
10/3/2019 20:15	S90702001	3.55684	0.33056	134.6	0	73.27	206.6	15.068
10/3/2019 20:00	S90702001	3.55984	0.33132	134.6	0	72.37	206.6	15.087
10/3/2019 19:45	S90702001	3.55577	0.33148	134.6	0	71.48	206.4	15.086
10/3/2019 19:30	S90702001	3.55148	0.32484	134.6	0	70.58	206.2	15.078

Readings from 2S ConnectDER adapter:

Sampled At (UTC)	Serial Number	Active Power (kW)	Reactive Power (kVar)	Temperature (F)	Energy Consumed (kWh)	Energy Produced (kWh)	RMS Voltage (V)	RMS Current (A)
2/24/2020 16:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/24/2020 15:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/24/2020 15:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/24/2020 15:15	S90201030	0	4.00E-05	7.9	0	0	239.6	0.008
2/24/2020 15:00	S90201030	0	8.00E-05	8.1	0	0	239.6	0.008
2/24/2020 14:45	S90201030	0	8.00E-05	7.9	0	0	239.6	0.008
2/24/2020 14:30	S90201030	0	4.00E-05	8.3	0	0	239.6	0.008
2/24/2020 14:15	S90201030	0	4.00E-05	8.8	0	0	239.6	0.008
2/24/2020 14:00	S90201030	0	1.20E-04	7.9	0	0	239.6	0.008
2/24/2020 13:45	S90201030	0	0	8.7	0	0	239.6	0.008
2/24/2020 13:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/24/2020 13:15	S90201030	0	8.00E-05	7.4	0	0	239.6	0.008
2/24/2020 13:00	S90201030	0	4.00E-05	6.9	0	0	239.6	0.008
2/24/2020 12:00	S90201030	0	4.00E-05	18.8	0	0	239.7	0.007
2/24/2020 11:45	S90201030	0	1.20E-04	23.1	0	0	239.8	0.008
2/24/2020 11:30	S90201030	0	4.00E-05	30.1	0	0	239.8	0.007
2/24/2020 11:15	S90201030	0	1.60E-04	38.1	0	0	240	0.008
2/24/2020 11:00	S90201030	0	8.00E-05	48.1	0	0	240.1	0.008
2/24/2020 10:45	S90201030	0	1.20E-04	62.6	0	0	240.2	0.008
2/24/2020 10:30	S90201030	0	8.00E-05	81.4	0	0	240.3	0.008
2/24/2020 10:15	S90201030	0	4.00E-05	101.4	0	0	240.5	0.008
2/24/2020 10:00	S90201030	0	0	116.9	0	0	240.5	0.008
2/24/2020 9:45	S90201030	0	8.00E-05	129.6	0	0	240.6	0.008
2/24/2020 9:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/24/2020 9:15	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/24/2020 9:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/24/2020 8:45	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/24/2020 8:30	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/24/2020 8:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/24/2020 8:00	S90201030	0	0	132.4	0	0	240.6	0.009
2/24/2020 7:45	S90201030	0	8.00E-05	132.9	0	0	240.6	0.009



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2/24/2020 7:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/24/2020 7:15	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/24/2020 7:00	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/24/2020 6:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/24/2020 6:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/24/2020 6:15	S90201030	0	0	132.9	0	0	240.6	0.009
2/24/2020 6:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/24/2020 5:45	S90201030	0	1.20E-04	132.4	0	0	240.6	0.009
2/24/2020 5:30	S90201030	0	0	132.4	0	0	240.6	0.009
2/24/2020 5:15	S90201030	0	4.00E-05	132.2	0	0	240.6	0.008
2/24/2020 5:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/24/2020 4:45	S90201030	0	1.20E-04	132.4	0	0	240.6	0.008
2/24/2020 4:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/24/2020 4:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/24/2020 4:00	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/24/2020 3:45	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/24/2020 3:30	S90201030	0	8.00E-05	131.1	0	0	240.6	0.008
2/24/2020 3:15	S90201030	0	4.00E-05	130.8	0	0	240.6	0.009
2/24/2020 3:00	S90201030	0	8.00E-05	129.4	0	0	240.6	0.009
2/24/2020 2:45	S90201030	0	0	128	0	0	240.6	0.009
2/24/2020 2:30	S90201030	0	8.00E-05	124.3	0	0	240.6	0.009
2/24/2020 2:15	S90201030	0	8.00E-05	119.4	0	0	240.6	0.008
2/24/2020 2:00	S90201030	0	4.00E-05	109.8	0	0	240.5	0.008
2/24/2020 1:45	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/24/2020 1:30	S90201030	0	4.00E-05	70.9	0	0	240.2	0.008
2/24/2020 1:15	S90201030	0	8.00E-05	47.1	0	0	240	0.008
2/24/2020 1:00	S90201030	0	8.00E-05	27.3	0	0	239.8	0.008
2/24/2020 0:45	S90201030	0	8.00E-05	11.1	0	0	239.6	0.007
2/24/2020 0:30	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/24/2020 0:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/24/2020 0:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 23:45	S90201030	0	0	7.6	0	0	239.6	0.007
2/23/2020 23:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 23:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 23:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 22:45	S90201030	0	4.00E-05	7.4	0	0	239.6	0.007

2/23/2020 22:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 22:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 22:00	S90201030	0	0	7.6	0	0	239.6	0.007
2/23/2020 21:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 21:30	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/23/2020 21:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 21:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 20:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 20:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 20:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 20:00	S90201030	0	0	7.4	0	0	239.6	0.007
2/23/2020 19:45	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/23/2020 19:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 19:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 19:00	S90201030	0	4.00E-05	7.4	0	0	239.6	0.007
2/23/2020 18:45	S90201030	0	4.00E-05	7.4	0	0	239.6	0.007
2/23/2020 18:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 18:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 18:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 17:45	S90201030	0	1.20E-04	7.8	0	0	239.6	0.007
2/23/2020 17:30	S90201030	0	4.00E-05	8.1	0	0	239.6	0.007
2/23/2020 17:15	S90201030	0	4.00E-05	8.1	0	0	239.6	0.007
2/23/2020 17:00	S90201030	0	4.00E-05	8.7	0	0	239.6	0.007
2/23/2020 16:45	S90201030	0	4.00E-05	10.4	0	0	239.6	0.007
2/23/2020 16:30	S90201030	0	8.00E-05	11.6	0	0	239.7	0.007
2/23/2020 16:15	S90201030	0	0	14.4	0	0	239.7	0.007
2/23/2020 16:00	S90201030	0	8.00E-05	18.8	0	0	239.8	0.007
2/23/2020 15:45	S90201030	0	0	23.6	0	0	239.8	0.008
2/23/2020 15:30	S90201030	0	4.00E-05	30.1	0	0	239.9	0.007
2/23/2020 15:15	S90201030	0	8.00E-05	38.3	0	0	240	0.008
2/23/2020 15:00	S90201030	0	4.00E-05	49.5	0	0	240.1	0.008
2/23/2020 14:45	S90201030	0	4.00E-05	63.5	0	0	240.2	0.008
2/23/2020 14:30	S90201030	0	8.00E-05	81.8	0	0	240.4	0.008
2/23/2020 14:15	S90201030	0	4.00E-05	102.4	0	0	240.5	0.008
2/23/2020 14:00	S90201030	0	8.00E-05	117.6	0	0	240.6	0.008
2/23/2020 13:45	S90201030	0	4.00E-05	130.4	0	0	240.6	0.009



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2/23/2020 13:30	S90201030	0	4.00E-05	132.7	0	0	240.6	0.009
2/23/2020 13:15	S90201030	0	-4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 13:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 12:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/23/2020 12:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 12:15	S90201030	0	4.00E-05	132.6	0	0	240.6	0.008
2/23/2020 12:00	S90201030	0	0	132.2	0	0	240.6	0.009
2/23/2020 11:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/23/2020 11:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 11:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 11:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 10:45	S90201030	0	4.00E-05	132.7	0	0	240.6	0.009
2/23/2020 10:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/23/2020 10:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 10:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/23/2020 9:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 9:30	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/23/2020 9:15	S90201030	0	0	132.2	0	0	240.6	0.009
2/23/2020 9:00	S90201030	0	0	132.2	0	0	240.6	0.008
2/23/2020 8:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/23/2020 8:30	S90201030	0	8.00E-05	132.6	0	0	240.6	0.009
2/23/2020 8:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/23/2020 8:00	S90201030	0	0	132.2	0	0	240.6	0.009
2/23/2020 7:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/23/2020 7:30	S90201030	0	4.00E-05	131.7	0	0	240.6	0.009
2/23/2020 7:15	S90201030	0	4.00E-05	130.9	0	0	240.6	0.008
2/23/2020 7:00	S90201030	0	4.00E-05	129.4	0	0	240.6	0.008
2/23/2020 6:45	S90201030	0	4.00E-05	127.1	0	0	240.6	0.009
2/23/2020 6:30	S90201030	0	4.00E-05	123.8	0	0	240.6	0.008
2/23/2020 6:15	S90201030	0	4.00E-05	118.3	0	0	240.6	0.008
2/23/2020 6:00	S90201030	0	8.00E-05	108.6	0	0	240.5	0.008
2/23/2020 5:45	S90201030	0	1.20E-04	92.9	0	0	240.4	0.008
2/23/2020 5:30	S90201030	0	4.00E-05	69.3	0	0	240.2	0.008
2/23/2020 5:15	S90201030	0	0	45.6	0	0	240	0.008
2/23/2020 5:00	S90201030	0	4.00E-05	24.8	0	0	239.8	0.007
2/23/2020 4:45	S90201030	0	4.00E-05	10.8	0	0	239.7	0.007

2/23/2020 4:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 4:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 4:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 3:45	S90201030	0	4.00E-05	7.9	0	0	239.6	0.007
2/23/2020 3:30	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/23/2020 3:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 3:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 2:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 2:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/23/2020 2:15	S90201030	0	0	7.8	0	0	239.6	0.007
2/23/2020 2:00	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/23/2020 1:45	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/23/2020 1:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 1:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 1:00	S90201030	0	4.00E-05	7.4	0	0	239.6	0.008
2/23/2020 0:45	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/23/2020 0:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/23/2020 0:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/23/2020 0:00	S90201030	0	1.60E-04	7.6	0	0	239.6	0.007
2/22/2020 23:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 23:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 23:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/22/2020 23:00	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/22/2020 22:45	S90201030	0	4.00E-05	7.9	0	0	239.6	0.007
2/22/2020 22:30	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/22/2020 22:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 22:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 21:45	S90201030	0	1.20E-04	7.8	0	0	239.6	0.007
2/22/2020 21:30	S90201030	0	8.00E-05	8.7	0	0	239.6	0.008
2/22/2020 21:15	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/22/2020 21:00	S90201030	0	8.00E-05	8.8	0	0	239.6	0.007
2/22/2020 20:45	S90201030	0	4.00E-05	10.4	0	0	239.6	0.007
2/22/2020 20:30	S90201030	0	8.00E-05	13.3	0	0	239.7	0.007
2/22/2020 20:15	S90201030	0	4.00E-05	15.9	0	0	239.7	0.007
2/22/2020 20:00	S90201030	0	4.00E-05	20.1	0	0	239.8	0.008
2/22/2020 19:45	S90201030	0	4.00E-05	25.7	0	0	239.8	0.007



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2/22/2020 19:30	S90201030	0	8.00E-05	32.9	0	0	239.9	0.008
2/22/2020 19:15	S90201030	0	4.00E-05	42.3	0	0	240	0.008
2/22/2020 19:00	S90201030	0	4.00E-05	54.9	0	0	240.1	0.008
2/22/2020 18:45	S90201030	0	0	70.5	0	0	240.2	0.008
2/22/2020 18:30	S90201030	0	0	90.3	0	0	240.4	0.008
2/22/2020 18:15	S90201030	0	8.00E-05	109.8	0	0	240.5	0.008
2/22/2020 18:00	S90201030	0	-4.00E-05	123.8	0	0	240.6	0.009
2/22/2020 17:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/22/2020 17:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 17:15	S90201030	0	0	132.4	0	0	240.6	0.009
2/22/2020 17:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 16:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/22/2020 16:30	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/22/2020 16:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/22/2020 16:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.008
2/22/2020 15:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/22/2020 15:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 15:15	S90201030	0	8.00E-05	132.6	0	0	240.6	0.009
2/22/2020 15:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/22/2020 14:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 14:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.008
2/22/2020 14:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.008
2/22/2020 14:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/22/2020 13:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 13:30	S90201030	0	8.00E-05	132.6	0	0	240.6	0.009
2/22/2020 13:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/22/2020 13:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/22/2020 12:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/22/2020 12:30	S90201030	0	0	132.4	0	0	240.6	0.009
2/22/2020 12:15	S90201030	0	0	132.4	0	0	240.6	0.008
2/22/2020 12:00	S90201030	0	4.00E-05	132.2	0	0	240.6	0.008
2/22/2020 11:45	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/22/2020 11:30	S90201030	0	4.00E-05	130.9	0	0	240.6	0.009
2/22/2020 11:15	S90201030	0	8.00E-05	130.6	0	0	240.6	0.009
2/22/2020 11:00	S90201030	0	4.00E-05	129	0	0	240.6	0.009
2/22/2020 10:45	S90201030	0	8.00E-05	126.4	0	0	240.6	0.009



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2/22/2020 10:30	S90201030	0	1.20E-04	122.4	0	0	240.5	0.008
2/22/2020 10:15	S90201030	0	4.00E-05	115.4	0	0	240.5	0.009
2/22/2020 10:00	S90201030	0	4.00E-05	102.9	0	0	240.5	0.008
2/22/2020 9:45	S90201030	0	8.00E-05	84.7	0	0	240.3	0.008
2/22/2020 9:30	S90201030	0	4.00E-05	59.3	0	0	240.1	0.008
2/22/2020 9:15	S90201030	0	4.00E-05	37.6	0	0	239.9	0.008
2/22/2020 9:00	S90201030	0	8.00E-05	18.8	0	0	239.7	0.008
2/22/2020 8:45	S90201030	0	8.00E-05	8.5	0	0	239.6	0.007
2/22/2020 8:30	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/22/2020 8:15	S90201030	0	8.00E-05	7.9	0	0	239.6	0.007
2/22/2020 8:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/22/2020 7:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 7:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 7:15	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/22/2020 7:00	S90201030	0	4.00E-05	7.9	0	0	239.6	0.007
2/22/2020 6:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 6:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 6:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 6:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 5:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 5:30	S90201030	0	4.00E-05	7.3	0	0	239.6	0.007
2/22/2020 5:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/22/2020 5:00	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/22/2020 4:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 4:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 4:15	S90201030	0	0	7.8	0	0	239.6	0.007
2/22/2020 4:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 3:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 3:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 3:15	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/22/2020 3:00	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/22/2020 2:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 2:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/22/2020 2:15	S90201030	0	4.00E-05	8.1	0	0	239.6	0.007
2/22/2020 2:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/22/2020 1:45	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007



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2/22/2020 1:30	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/22/2020 1:15	S90201030	0	8.00E-05	8.8	0	0	239.6	0.007
2/22/2020 1:00	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/22/2020 0:45	S90201030	0	0	11.3	0	0	239.6	0.007
2/22/2020 0:30	S90201030	0	8.00E-05	13.3	0	0	239.7	0.007
2/22/2020 0:15	S90201030	0	4.00E-05	17.3	0	0	239.7	0.007
2/22/2020 0:00	S90201030	0	8.00E-05	21.1	0	0	239.8	0.008
2/21/2020 23:45	S90201030	0	8.00E-05	27.1	0	0	239.8	0.008
2/21/2020 23:30	S90201030	0	0	34.1	0	0	239.9	0.007
2/21/2020 23:15	S90201030	0	8.00E-05	44.1	0	0	240	0.008
2/21/2020 23:00	S90201030	0	8.00E-05	56.5	0	0	240.2	0.008
2/21/2020 22:45	S90201030	0	4.00E-05	73.3	0	0	240.3	0.008
2/21/2020 22:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/21/2020 22:15	S90201030	0	4.00E-05	111.2	0	0	240.5	0.008
2/21/2020 22:00	S90201030	0	8.00E-05	125.2	0	0	240.6	0.008
2/21/2020 21:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/21/2020 21:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/21/2020 21:15	S90201030	0	8.00E-05	133.3	0	0	240.6	0.008
2/21/2020 21:00	S90201030	0	0	133.8	0	0	240.6	0.009
2/21/2020 20:45	S90201030	0	-4.00E-05	134.3	0	0	240.6	0.009
2/21/2020 20:30	S90201030	0	4.00E-05	134.8	0	0	240.6	0.009
2/21/2020 20:15	S90201030	0	0	134.8	0	0	240.6	0.008
2/21/2020 20:00	S90201030	0	4.00E-05	134.8	0	0	240.6	0.009
2/21/2020 19:45	S90201030	0	4.00E-05	134.1	0	0	240.6	0.008
2/21/2020 19:30	S90201030	0	0	134.6	0	0	240.7	0.014
2/21/2020 19:15	S90201030	0	1.20E-04	134.4	0	0	240.6	0.009
2/21/2020 19:00	S90201030	0	4.00E-05	135	0	0	240.6	0.009
2/21/2020 18:45	S90201030	0	4.00E-05	133.8	0	0	240.6	0.009
2/21/2020 18:30	S90201030	0	4.00E-05	135	0	0	240.6	0.009
2/21/2020 18:15	S90201030	0	4.00E-05	133.8	0	0	240.6	0.009
2/21/2020 18:00	S90201030	0	8.00E-05	133.4	0	0	240.6	0.009
2/21/2020 17:45	S90201030	0	1.20E-04	133.9	0	0	240.6	0.009
2/21/2020 17:30	S90201030	0	4.00E-05	133.8	0	0	240.6	0.008
2/21/2020 17:15	S90201030	0	4.00E-05	133.6	0	0	240.2	0.009
2/21/2020 17:00	S90201030	0	0	132.2	0	0	240.6	0.009
2/21/2020 16:45	S90201030	0	0	132.2	0	0	240.6	0.009



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2/21/2020 16:30	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/21/2020 16:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/21/2020 16:00	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/21/2020 15:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/21/2020 15:30	S90201030	0	4.00E-05	130.9	0	0	240.6	0.008
2/21/2020 15:15	S90201030	0	0	130.8	0	0	240.6	0.009
2/21/2020 15:00	S90201030	0	8.00E-05	128.1	0	0	240.6	0.009
2/21/2020 14:45	S90201030	0	0	125.4	0	0	240.6	0.009
2/21/2020 14:30	S90201030	0	4.00E-05	121.1	0	0	240.6	0.008
2/21/2020 14:15	S90201030	0	4.00E-05	114.1	0	0	240.5	0.008
2/21/2020 14:00	S90201030	0	4.00E-05	101.5	0	0	240.4	0.008
2/21/2020 13:45	S90201030	0	8.00E-05	80.5	0	0	240.3	0.008
2/21/2020 13:30	S90201030	0	1.20E-04	56.7	0	0	240.1	0.008
2/21/2020 13:15	S90201030	0	8.00E-05	34.6	0	0	239.9	0.007
2/21/2020 13:00	S90201030	0	8.00E-05	16.2	0	0	239.7	0.007
2/21/2020 12:45	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 12:30	S90201030	0	1.20E-04	8.8	0	0	239.6	0.007
2/21/2020 12:15	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 12:00	S90201030	0	0	8.3	0	0	239.6	0.007
2/21/2020 11:45	S90201030	0	8.00E-05	8.3	0	0	239.6	0.007
2/21/2020 11:30	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 11:15	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 11:00	S90201030	0	8.00E-05	8.1	0	0	239.6	0.007
2/21/2020 10:45	S90201030	0	0	8.8	0	0	239.6	0.007
2/21/2020 10:30	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 10:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/21/2020 10:00	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/21/2020 9:45	S90201030	0	8.00E-05	8.5	0	0	239.6	0.007
2/21/2020 9:30	S90201030	0	8.00E-05	8.3	0	0	239.6	0.007
2/21/2020 9:15	S90201030	0	1.20E-04	7.8	0	0	239.6	0.007
2/21/2020 9:00	S90201030	0	4.00E-05	8.8	0	0	239.5	0.007
2/21/2020 8:45	S90201030	0	4.00E-05	8.1	0	0	239.6	0.008
2/21/2020 8:30	S90201030	0	0	8.5	0	0	239.6	0.007
2/21/2020 8:15	S90201030	0	4.00E-05	8.3	0	0	239.6	0.007
2/21/2020 8:00	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 7:45	S90201030	0	8.00E-05	8.8	0	0	239.6	0.007

2/21/2020 7:30	S90201030	0	8.00E-05	8.3	0	0	239.6	0.007
2/21/2020 7:15	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 7:00	S90201030	0	1.20E-04	8.3	0	0	239.6	0.007
2/21/2020 6:45	S90201030	0	4.00E-05	8.5	0	0	239.6	0.007
2/21/2020 6:30	S90201030	0	1.20E-04	8.3	0	0	239.6	0.007
2/21/2020 6:15	S90201030	0	8.00E-05	8.8	0	0	239.6	0.007
2/21/2020 6:00	S90201030	0	0	8.8	0	0	239.6	0.007
2/21/2020 5:45	S90201030	0	1.20E-04	8.8	0	0	239.6	0.007
2/21/2020 5:30	S90201030	0	4.00E-05	8.8	0	0	239.6	0.007
2/21/2020 5:15	S90201030	0	8.00E-05	9	0	0	239.6	0.007
2/21/2020 5:00	S90201030	0	0	10.1	0	0	239.6	0.007
2/21/2020 4:45	S90201030	0	8.00E-05	11.5	0	0	239.7	0.008
2/21/2020 4:30	S90201030	0	1.60E-04	14.4	0	0	239.7	0.007
2/21/2020 4:15	S90201030	0	8.00E-05	18.6	0	0	239.7	0.007
2/21/2020 4:00	S90201030	0	8.00E-05	23.1	0	0	239.8	0.007
2/21/2020 3:45	S90201030	0	8.00E-05	29.9	0	0	239.9	0.007
2/21/2020 3:30	S90201030	0	4.00E-05	37.3	0	0	240	0.008
2/21/2020 3:15	S90201030	0	1.20E-04	48.1	0	0	240.1	0.008
2/21/2020 3:00	S90201030	0	4.00E-05	62.3	0	0	240.2	0.008
2/21/2020 2:45	S90201030	0	0	80.3	0	0	240.3	0.008
2/21/2020 2:30	S90201030	0	8.00E-05	99.9	0	0	240.4	0.008
2/21/2020 2:15	S90201030	0	1.20E-04	116.1	0	0	240.6	0.008
2/21/2020 2:00	S90201030	0	8.00E-05	129.4	0	0	240.6	0.009
2/21/2020 1:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/21/2020 1:30	S90201030	0	0	132.6	0	0	240.6	0.009
2/21/2020 1:15	S90201030	0	1.20E-04	132.4	0	0	240.6	0.009
2/21/2020 1:00	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/21/2020 0:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/21/2020 0:30	S90201030	0	4.00E-05	132.6	0	0	240.6	0.008
2/21/2020 0:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/21/2020 0:00	S90201030	0	0	132.4	0	0	240.6	0.009
2/20/2020 23:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/20/2020 23:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.008
2/20/2020 23:15	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/20/2020 23:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.008
2/20/2020 22:45	S90201030	0	0	132.4	0	0	240.6	0.009



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2/20/2020 22:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 22:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 22:00	S90201030	0	0	132.4	0	0	240.6	0.009
2/20/2020 21:45	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/20/2020 21:30	S90201030	0	8.00E-05	132.6	0	0	240.6	0.009
2/20/2020 21:15	S90201030	0	0	132.2	0	0	240.6	0.009
2/20/2020 21:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 20:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 20:30	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/20/2020 20:15	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/20/2020 20:00	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/20/2020 19:45	S90201030	0	4.00E-05	130.8	0	0	240.6	0.009
2/20/2020 19:30	S90201030	0	1.20E-04	130.9	0	0	240.6	0.009
2/20/2020 19:15	S90201030	0	4.00E-05	129.6	0	0	240.6	0.009
2/20/2020 19:00	S90201030	0	8.00E-05	128.1	0	0	240.6	0.009
2/20/2020 18:45	S90201030	0	8.00E-05	124.1	0	0	240.5	0.009
2/20/2020 18:30	S90201030	0	0	119.6	0	0	240.6	0.008
2/20/2020 18:15	S90201030	0	1.20E-04	109.9	0	0	240.5	0.008
2/20/2020 18:00	S90201030	0	8.00E-05	95.9	0	0	240.4	0.008
2/20/2020 17:45	S90201030	0	4.00E-05	72.1	0	0	240.3	0.008
2/20/2020 17:30	S90201030	0	4.00E-05	48.6	0	0	240	0.008
2/20/2020 17:15	S90201030	0	4.00E-05	27.9	0	0	239.8	0.008
2/20/2020 17:00	S90201030	0	8.00E-05	11.8	0	0	239.6	0.008
2/20/2020 16:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 16:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 16:15	S90201030	0	4.00E-05	7.4	0	0	239.6	0.007
2/20/2020 16:00	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/20/2020 15:45	S90201030	0	0	7.6	0	0	239.6	0.007
2/20/2020 15:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 15:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 15:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 14:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 14:30	S90201030	0	8.00E-05	7.9	0	0	239.6	0.007
2/20/2020 14:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 14:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 13:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007



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2/20/2020 13:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/20/2020 13:15	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/20/2020 13:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 12:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 12:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/20/2020 12:15	S90201030	0	1.20E-04	7.6	0	0	239.6	0.008
2/20/2020 12:00	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/20/2020 11:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 11:30	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/20/2020 11:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 11:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 10:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/20/2020 10:30	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/20/2020 10:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 10:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 9:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/20/2020 9:30	S90201030	0	8.00E-05	8.5	0	0	239.6	0.007
2/20/2020 9:15	S90201030	0	1.20E-04	7.9	0	0	239.6	0.007
2/20/2020 9:00	S90201030	0	8.00E-05	10.1	0	0	239.7	0.007
2/20/2020 8:45	S90201030	0	4.00E-05	11.6	0	0	239.7	0.007
2/20/2020 8:30	S90201030	0	4.00E-05	14.6	0	0	239.7	0.007
2/20/2020 8:15	S90201030	0	4.00E-05	18.6	0	0	239.8	0.007
2/20/2020 8:00	S90201030	0	8.00E-05	22.9	0	0	239.8	0.008
2/20/2020 7:45	S90201030	0	4.00E-05	29.9	0	0	239.9	0.008
2/20/2020 7:30	S90201030	0	1.20E-04	37.8	0	0	240	0.008
2/20/2020 7:15	S90201030	0	0	48.1	0	0	240.1	0.008
2/20/2020 7:00	S90201030	0	0	63.5	0	0	240.2	0.008
2/20/2020 6:45	S90201030	0	8.00E-05	80.5	0	0	240.3	0.008
2/20/2020 6:30	S90201030	0	0	101	0	0	240.4	0.008
2/20/2020 6:15	S90201030	0	0	116.8	0	0	240.6	0.009
2/20/2020 6:00	S90201030	0	0	129.6	0	0	240.6	0.009
2/20/2020 5:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/20/2020 5:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 5:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 5:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 4:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009



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2/20/2020 4:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 4:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 4:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 3:45	S90201030	0	0	132.6	0	0	240.6	0.009
2/20/2020 3:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 3:15	S90201030	0	0	132.4	0	0	240.6	0.009
2/20/2020 3:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 2:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 2:30	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/20/2020 2:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 2:00	S90201030	0	1.20E-04	132.4	0	0	240.6	0.009
2/20/2020 1:45	S90201030	0	0	132.2	0	0	240.6	0.009
2/20/2020 1:30	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 1:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/20/2020 1:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 0:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/20/2020 0:30	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/20/2020 0:15	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/20/2020 0:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/19/2020 23:45	S90201030	0	4.00E-05	131.1	0	0	240.6	0.009
2/19/2020 23:30	S90201030	0	8.00E-05	130.9	0	0	240.6	0.009
2/19/2020 23:15	S90201030	0	4.00E-05	129.4	0	0	240.6	0.009
2/19/2020 23:00	S90201030	0	1.20E-04	127.1	0	0	240.6	0.009
2/19/2020 22:45	S90201030	0	0	123.9	0	0	240.6	0.008
2/19/2020 22:30	S90201030	0	8.00E-05	118	0	0	240.5	0.008
2/19/2020 22:15	S90201030	0	8.00E-05	109.9	0	0	240.5	0.008
2/19/2020 22:00	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/19/2020 21:45	S90201030	0	8.00E-05	70.5	0	0	240.2	0.008
2/19/2020 21:30	S90201030	0	0	47.1	0	0	240	0.007
2/19/2020 21:15	S90201030	0	4.00E-05	26.9	0	0	239.8	0.008
2/19/2020 21:00	S90201030	0	8.00E-05	10.6	0	0	239.6	0.008
2/19/2020 20:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/19/2020 20:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 20:15	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/19/2020 20:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/19/2020 19:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007



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2/19/2020 19:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 19:15	S90201030	0	4.00E-05	7.6	0	0	239.5	0.007
2/19/2020 19:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.008
2/19/2020 18:45	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/19/2020 18:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 18:15	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/19/2020 18:00	S90201030	0	8.00E-05	7.4	0	0	239.6	0.007
2/19/2020 17:45	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/19/2020 17:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 17:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 17:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/19/2020 16:45	S90201030	0	8.00E-05	7.4	0	0	239.5	0.007
2/19/2020 16:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/19/2020 16:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 16:00	S90201030	0	8.00E-05	8.7	0	0	239.5	0.007
2/19/2020 15:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/19/2020 15:30	S90201030	0	4.00E-05	8.3	0	0	239.5	0.007
2/19/2020 15:15	S90201030	0	8.00E-05	7.4	0	0	239.6	0.008
2/19/2020 15:00	S90201030	0	8.00E-05	7.8	0	0	239.6	0.008
2/19/2020 14:45	S90201030	0	4.00E-05	7.6	0	0	239.5	0.007
2/19/2020 14:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 14:15	S90201030	0	4.00E-05	7.8	0	0	239.6	0.007
2/19/2020 14:00	S90201030	0	4.00E-05	8.3	0	0	239.6	0.007
2/19/2020 13:45	S90201030	0	8.00E-05	7.9	0	0	239.6	0.008
2/19/2020 13:30	S90201030	0	4.00E-05	8.8	0	0	239.6	0.008
2/19/2020 13:15	S90201030	0	4.00E-05	8.5	0	0	239.6	0.007
2/19/2020 13:00	S90201030	0	4.00E-05	10.3	0	0	239.6	0.007
2/19/2020 12:45	S90201030	0	4.00E-05	11.6	0	0	239.6	0.007
2/19/2020 12:30	S90201030	0	1.20E-04	14.4	0	0	239.6	0.007
2/19/2020 12:15	S90201030	0	8.00E-05	17.3	0	0	239.7	0.007
2/19/2020 12:00	S90201030	0	8.00E-05	21.4	0	0	239.8	0.007
2/19/2020 11:45	S90201030	0	8.00E-05	26.7	0	0	239.8	0.008
2/19/2020 11:30	S90201030	0	0	34.1	0	0	239.9	0.007
2/19/2020 11:15	S90201030	0	4.00E-05	43.9	0	0	240	0.008
2/19/2020 11:00	S90201030	0	4.00E-05	55.8	0	0	240.1	0.008
2/19/2020 10:45	S90201030	0	0	71.8	0	0	240.3	0.008



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2/19/2020 10:30	S90201030	0	8.00E-05	91.7	0	0	240.4	0.008
2/19/2020 10:15	S90201030	0	0	109.8	0	0	240.5	0.008
2/19/2020 10:00	S90201030	0	4.00E-05	123.6	0	0	240.6	0.009
2/19/2020 9:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/19/2020 9:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/19/2020 9:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/19/2020 9:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/19/2020 8:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/19/2020 8:30	S90201030	0	0	132.4	0	0	240.6	0.009
2/19/2020 8:15	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/19/2020 8:00	S90201030	0	-4.00E-05	132.4	0	0	240.6	0.009
2/19/2020 7:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/19/2020 7:30	S90201030	0	1.20E-04	132.4	0	0	240.6	0.009
2/19/2020 7:15	S90201030	0	0	132.6	0	0	240.6	0.009
2/19/2020 7:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/19/2020 6:45	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/19/2020 6:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/19/2020 6:15	S90201030	0	4.00E-05	132.6	0	0	240.6	0.009
2/19/2020 6:00	S90201030	0	0	132.4	0	0	240.6	0.009
2/19/2020 5:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/19/2020 5:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.008
2/19/2020 5:15	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/19/2020 5:00	S90201030	0	0	132.4	0	0	240.6	0.009
2/19/2020 4:45	S90201030	0	0	132.2	0	0	240.6	0.009
2/19/2020 4:30	S90201030	0	-4.00E-05	132.2	0	0	240.6	0.009
2/19/2020 4:15	S90201030	0	0	132.2	0	0	240.6	0.008
2/19/2020 4:00	S90201030	0	4.00E-05	132.2	0	0	240.6	0.008
2/19/2020 3:45	S90201030	0	1.20E-04	131.1	0	0	240.6	0.009
2/19/2020 3:30	S90201030	0	4.00E-05	130.9	0	0	240.6	0.009
2/19/2020 3:15	S90201030	0	8.00E-05	129.8	0	0	240.6	0.009
2/19/2020 3:00	S90201030	0	8.00E-05	128.1	0	0	240.6	0.008
2/19/2020 2:45	S90201030	0	4.00E-05	125.2	0	0	240.6	0.009
2/19/2020 2:30	S90201030	0	4.00E-05	121	0	0	240.6	0.008
2/19/2020 2:15	S90201030	0	8.00E-05	114.1	0	0	240.5	0.008
2/19/2020 2:00	S90201030	0	8.00E-05	102.9	0	0	240.4	0.008
2/19/2020 1:45	S90201030	0	4.00E-05	82.1	0	0	239.8	0.008



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2/19/2020 1:30	S90201030	0	4.00E-05	60.9	0	0	239.6	0.008
2/19/2020 1:15	S90201030	0	4.00E-05	38.4	0	0	240.1	0.008
2/19/2020 1:00	S90201030	0	8.00E-05	17.3	0	0	239.7	0.007
2/19/2020 0:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 0:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/19/2020 0:15	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/19/2020 0:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.008
2/18/2020 23:45	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/18/2020 23:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 23:15	S90201030	0	8.00E-05	7.4	0	0	239.6	0.007
2/18/2020 23:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 22:45	S90201030	0	8.00E-05	7.4	0	0	239.6	0.007
2/18/2020 22:30	S90201030	0	8.00E-05	7.6	0	0	239.5	0.007
2/18/2020 22:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 22:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 21:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 21:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 21:15	S90201030	0	1.20E-04	7.6	0	0	239.6	0.007
2/18/2020 21:00	S90201030	0	8.00E-05	7.6	0	0	239.5	0.007
2/18/2020 20:45	S90201030	0	8.00E-05	7.8	0	0	239.6	0.007
2/18/2020 20:30	S90201030	0	1.20E-04	7.4	0	0	239.6	0.007
2/18/2020 20:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 20:00	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 19:45	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 19:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 19:15	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 19:00	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 18:45	S90201030	0	8.00E-05	7.4	0	0	239.6	0.007
2/18/2020 18:30	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 18:15	S90201030	0	4.00E-05	7.6	0	0	239.6	0.007
2/18/2020 18:00	S90201030	0	4.00E-05	8.7	0	0	239.6	0.007
2/18/2020 17:45	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 17:30	S90201030	0	8.00E-05	7.6	0	0	239.6	0.007
2/18/2020 17:15	S90201030	0	1.20E-04	7.9	0	0	239.6	0.007
2/18/2020 17:00	S90201030	0	8.00E-05	8.8	0	0	239.6	0.007
2/18/2020 16:45	S90201030	0	8.00E-05	10.9	0	0	239.7	0.007



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2/18/2020 16:30	S90201030	0	8.00E-05	13.3	0	0	239.7	0.007
2/18/2020 16:15	S90201030	0	8.00E-05	16	0	0	239.7	0.008
2/18/2020 16:00	S90201030	0	4.00E-05	20.1	0	0	239.8	0.008
2/18/2020 15:45	S90201030	0	8.00E-05	25.7	0	0	239.8	0.008
2/18/2020 15:30	S90201030	0	8.00E-05	31.1	0	0	239.9	0.008
2/18/2020 15:15	S90201030	0	8.00E-05	45.1	0	0	240	0.008
2/18/2020 15:00	S90201030	0	0	55.1	0	0	240.1	0.008
2/18/2020 14:45	S90201030	0	1.20E-04	62.3	0	0	240.2	0.008
2/18/2020 14:30	S90201030	0	4.00E-05	73.5	0	0	240.3	0.008
2/18/2020 14:15	S90201030	0	8.00E-05	73.3	0	0	240.3	0.008
2/18/2020 14:00	S90201030	0	4.00E-05	74.6	0	0	240.2	0.008
2/18/2020 13:45	S90201030	0	4.00E-05	80.1	0	0	240.3	0.008
2/18/2020 13:30	S90201030	0	1.20E-04	84.5	0	0	240.3	0.008
2/18/2020 13:15	S90201030	0	0	92.9	0	0	240.4	0.008
2/18/2020 13:00	S90201030	0	4.00E-05	92.9	0	0	240.3	0.008
2/18/2020 12:00	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/18/2020 11:45	S90201030	0	8.00E-05	94.5	0	0	240.4	0.008
2/18/2020 11:30	S90201030	0	0	94.3	0	0	240.4	0.009
2/18/2020 11:15	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/18/2020 11:00	S90201030	0	0	94.3	0	0	240.4	0.009
2/18/2020 10:45	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/18/2020 10:30	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/18/2020 10:15	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/18/2020 10:00	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/18/2020 9:45	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/18/2020 9:30	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/18/2020 9:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/18/2020 9:00	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/18/2020 8:45	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/18/2020 8:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/18/2020 8:15	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/18/2020 8:00	S90201030	0	8.00E-05	94.5	0	0	240.4	0.008
2/18/2020 7:45	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/18/2020 7:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 7:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 7:00	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009



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2/18/2020 6:45	S90201030	0	8.00E-05	94.2	0	0	240.4	0.008
2/18/2020 6:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 6:15	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/18/2020 6:00	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/18/2020 5:45	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/18/2020 5:30	S90201030	0	4.00E-05	94	0	0	240.4	0.008
2/18/2020 5:15	S90201030	0	8.00E-05	94.2	0	0	240.4	0.009
2/18/2020 5:00	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/18/2020 4:45	S90201030	0	0	94.3	0	0	240.4	0.009
2/18/2020 4:30	S90201030	0	8.00E-05	94.3	0	0	240.3	0.008
2/18/2020 4:15	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/18/2020 4:00	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/18/2020 3:45	S90201030	0	4.00E-05	93.8	0	0	240.4	0.008
2/18/2020 3:30	S90201030	0	4.00E-05	93.6	0	0	240.4	0.008
2/18/2020 3:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/18/2020 3:00	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 2:45	S90201030	0	4.00E-05	94.5	0	0	240.3	0.008
2/18/2020 2:30	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/18/2020 2:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 2:00	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/18/2020 1:45	S90201030	0	0	94.3	0	0	240.4	0.008
2/18/2020 1:30	S90201030	0	8.00E-05	94.2	0	0	240.4	0.009
2/18/2020 1:15	S90201030	0	8.00E-05	93.8	0	0	240.4	0.009
2/18/2020 1:00	S90201030	0	8.00E-05	94.2	0	0	240.4	0.009
2/18/2020 0:45	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/18/2020 0:30	S90201030	0	4.00E-05	94	0	0	240.4	0.009
2/18/2020 0:15	S90201030	0	-4.00E-05	94.3	0	0	240.4	0.008
2/18/2020 0:00	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/17/2020 23:45	S90201030	0	1.20E-04	94.3	0	0	240.4	0.009
2/17/2020 23:30	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/17/2020 23:15	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/17/2020 23:00	S90201030	0	8.00E-05	93.8	0	0	240.4	0.009
2/17/2020 22:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/17/2020 22:30	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/17/2020 22:15	S90201030	0	8.00E-05	94.2	0	0	240.4	0.008
2/17/2020 22:00	S90201030	0	0	94.2	0	0	240.4	0.008



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2/17/2020 21:45	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/17/2020 21:30	S90201030	0	0	94.2	0	0	240.4	0.008
2/17/2020 21:15	S90201030	0	8.00E-05	94.2	0	0	240.4	0.008
2/17/2020 21:00	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/17/2020 20:45	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 20:30	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/17/2020 20:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 20:00	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/17/2020 19:45	S90201030	0	4.00E-05	94	0	0	240.4	0.009
2/17/2020 19:30	S90201030	0	4.00E-05	94.2	0	0	240.4	0.008
2/17/2020 19:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 19:00	S90201030	0	8.00E-05	93.3	0	0	240.4	0.009
2/17/2020 18:45	S90201030	0	8.00E-05	94.2	0	0	240.4	0.009
2/17/2020 18:30	S90201030	0	8.00E-05	93.4	0	0	240.4	0.009
2/17/2020 18:15	S90201030	0	1.20E-04	94.5	0	0	240.4	0.008
2/17/2020 18:00	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/17/2020 17:45	S90201030	0	8.00E-05	94.2	0	0	240.4	0.008
2/17/2020 17:30	S90201030	0	8.00E-05	93.3	0	0	240.4	0.009
2/17/2020 17:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 17:00	S90201030	0	1.20E-04	94.2	0	0	240.4	0.009
2/17/2020 16:45	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/17/2020 16:30	S90201030	0	4.00E-05	93.8	0	0	240.4	0.008
2/17/2020 16:15	S90201030	0	0	94.3	0	0	240.4	0.008
2/17/2020 16:00	S90201030	0	8.00E-05	93.6	0	0	240.4	0.008
2/17/2020 15:45	S90201030	0	4.00E-05	92.9	0	0	240.3	0.009
2/17/2020 15:30	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/17/2020 15:15	S90201030	0	4.00E-05	94	0	0	240.4	0.009
2/17/2020 15:00	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 14:45	S90201030	0	4.00E-05	94	0	0	240.3	0.009
2/17/2020 14:30	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/17/2020 14:15	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/17/2020 14:00	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/17/2020 13:45	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/17/2020 13:30	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 13:15	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 13:00	S90201030	0	4.00E-05	94.3	0	0	240.3	0.009



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2/17/2020 12:45	S90201030	0	0	94.3	0	0	240.3	0.008
2/17/2020 12:30	S90201030	0	4.00E-05	94.2	0	0	240.3	0.009
2/17/2020 12:15	S90201030	0	0	94.3	0	0	240.4	0.008
2/17/2020 12:00	S90201030	0	8.00E-05	94.5	0	0	240.3	0.009
2/17/2020 11:45	S90201030	0	4.00E-05	94.3	0	0	240.3	0.008
2/17/2020 11:30	S90201030	0	1.20E-04	94.5	0	0	240.3	0.009
2/17/2020 11:15	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 11:00	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/17/2020 10:45	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/17/2020 10:30	S90201030	0	4.00E-05	94.5	0	0	240.3	0.009
2/17/2020 10:15	S90201030	0	0	94.5	0	0	240.4	0.009
2/17/2020 10:00	S90201030	0	0	94.5	0	0	240.3	0.008
2/17/2020 9:45	S90201030	0	4.00E-05	94.3	0	0	240.3	0.008
2/17/2020 9:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/17/2020 9:15	S90201030	0	4.00E-05	94.5	0	0	240.3	0.008
2/17/2020 9:00	S90201030	0	1.20E-04	94.5	0	0	240.3	0.009
2/17/2020 8:45	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/17/2020 8:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/17/2020 8:15	S90201030	0	8.00E-05	94.5	0	0	240.3	0.009
2/17/2020 8:00	S90201030	0	8.00E-05	94	0	0	240.3	0.008
2/17/2020 7:45	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/17/2020 7:30	S90201030	0	4.00E-05	94.5	0	0	240.3	0.008
2/17/2020 7:15	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 7:00	S90201030	0	4.00E-05	94.3	0	0	240.3	0.008
2/17/2020 6:45	S90201030	0	-4.00E-05	94.5	0	0	240.3	0.008
2/17/2020 6:30	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/17/2020 6:15	S90201030	0	4.00E-05	94.5	0	0	240.4	0.008
2/17/2020 6:00	S90201030	0	8.00E-05	94.2	0	0	240.3	0.009
2/17/2020 5:45	S90201030	0	0	94.3	0	0	240.3	0.009
2/17/2020 5:30	S90201030	0	4.00E-05	94.5	0	0	240.4	0.009
2/17/2020 5:15	S90201030	0	0	94.7	0	0	240.4	0.009
2/17/2020 5:00	S90201030	0	4.00E-05	94.2	0	0	240.4	0.009
2/17/2020 4:45	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 4:30	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/17/2020 4:15	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009
2/17/2020 4:00	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008



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2/17/2020 3:45	S90201030	0	4.00E-05	94.2	0	0	240.3	0.009
2/17/2020 3:30	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/17/2020 3:15	S90201030	0	8.00E-05	94.5	0	0	240.4	0.009
2/17/2020 3:00	S90201030	0	4.00E-05	93.8	0	0	240.4	0.009
2/17/2020 2:45	S90201030	0	4.00E-05	94.3	0	0	240.3	0.009
2/17/2020 2:30	S90201030	0	8.00E-05	94.3	0	0	240.3	0.008
2/17/2020 2:15	S90201030	0	8.00E-05	94.3	0	0	240.3	0.008
2/17/2020 2:00	S90201030	0	1.60E-04	94.3	0	0	240.3	0.009
2/17/2020 1:45	S90201030	0	8.00E-05	92.9	0	0	240.3	0.009
2/17/2020 1:30	S90201030	0	1.20E-04	94.5	0	0	240.3	0.008
2/17/2020 1:15	S90201030	0	4.00E-05	94.3	0	0	240.3	0.009
2/17/2020 1:00	S90201030	0	4.00E-05	94	0	0	240.3	0.009
2/17/2020 0:45	S90201030	0	8.00E-05	94.5	0	0	240.3	0.008
2/17/2020 0:30	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/17/2020 0:15	S90201030	0	4.00E-05	94.3	0	0	240.3	0.009
2/17/2020 0:00	S90201030	0	8.00E-05	94.5	0	0	240.4	0.008
2/16/2020 23:45	S90201030	0	8.00E-05	94	0	0	240.3	0.009
2/16/2020 23:30	S90201030	0	4.00E-05	94.3	0	0	240.3	0.009
2/16/2020 23:15	S90201030	0	0	94.3	0	0	240.3	0.008
2/16/2020 23:00	S90201030	0	4.00E-05	94	0	0	240.3	0.009
2/16/2020 22:45	S90201030	0	0	94.3	0	0	240.3	0.008
2/16/2020 22:30	S90201030	0	0	94.3	0	0	240.4	0.009
2/16/2020 22:15	S90201030	0	8.00E-05	94.5	0	0	240.3	0.009
2/16/2020 22:00	S90201030	0	4.00E-05	93.8	0	0	240.3	0.008
2/16/2020 21:45	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/16/2020 21:30	S90201030	0	4.00E-05	93.8	0	0	240.3	0.009
2/16/2020 21:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/16/2020 21:00	S90201030	0	4.00E-05	94.3	0	0	240.4	0.008
2/16/2020 20:45	S90201030	0	4.00E-05	93.4	0	0	240.3	0.008
2/16/2020 20:30	S90201030	0	4.00E-05	93.4	0	0	240.4	0.008
2/16/2020 20:15	S90201030	0	-4.00E-05	94.3	0	0	240.4	0.009
2/16/2020 20:00	S90201030	0	4.00E-05	93.8	0	0	240.4	0.009
2/16/2020 19:45	S90201030	0	4.00E-05	94.5	0	0	240.3	0.009
2/16/2020 19:30	S90201030	0	4.00E-05	93.8	0	0	240.4	0.009
2/16/2020 19:15	S90201030	0	8.00E-05	93.8	0	0	240.3	0.009
2/16/2020 19:00	S90201030	0	8.00E-05	94.3	0	0	240.4	0.009



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2/16/2020 18:45	S90201030	0	8.00E-05	94.3	0	0	240.3	0.009
2/16/2020 18:30	S90201030	0	8.00E-05	94.3	0	0	240.3	0.008
2/16/2020 18:15	S90201030	0	8.00E-05	94	0	0	240.3	0.008
2/16/2020 18:00	S90201030	0	4.00E-05	92.8	0	0	240.3	0.008
2/16/2020 17:45	S90201030	0	0	92.9	0	0	240.3	0.009
2/16/2020 17:30	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 17:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/16/2020 17:00	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/16/2020 16:45	S90201030	0	1.20E-04	93.3	0	0	240.3	0.008
2/16/2020 16:30	S90201030	0	8.00E-05	92.9	0	0	240.4	0.009
2/16/2020 16:15	S90201030	0	0	93.1	0	0	240.3	0.009
2/16/2020 16:00	S90201030	0	8.00E-05	93.3	0	0	240.4	0.008
2/16/2020 15:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/16/2020 15:30	S90201030	0	8.00E-05	92.9	0	0	240.3	0.009
2/16/2020 15:15	S90201030	0	-4.00E-05	93.1	0	0	240.3	0.008
2/16/2020 15:00	S90201030	0	8.00E-05	92.9	0	0	240.4	0.008
2/16/2020 14:45	S90201030	0	4.00E-05	92.9	0	0	240.3	0.008
2/16/2020 14:30	S90201030	0	4.00E-05	93.1	0	0	240.3	0.009
2/16/2020 14:15	S90201030	0	8.00E-05	93.1	0	0	240.3	0.009
2/16/2020 14:00	S90201030	0	8.00E-05	93.1	0	0	240.3	0.009
2/16/2020 13:45	S90201030	0	8.00E-05	93.1	0	0	240.3	0.009
2/16/2020 13:30	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 13:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/16/2020 13:00	S90201030	0	0	93.1	0	0	240.4	0.008
2/16/2020 12:45	S90201030	0	8.00E-05	92.9	0	0	240.4	0.008
2/16/2020 12:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 12:15	S90201030	0	0	93.1	0	0	240.3	0.008
2/16/2020 12:00	S90201030	0	4.00E-05	93.1	0	0	240.3	0.008
2/16/2020 11:45	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 11:30	S90201030	0	8.00E-05	92.9	0	0	240.4	0.008
2/16/2020 11:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/16/2020 11:00	S90201030	0	0	92.9	0	0	240.4	0.008
2/16/2020 10:45	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 10:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 10:15	S90201030	0	4.00E-05	93.4	0	0	240.4	0.008
2/16/2020 10:00	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008



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2/16/2020 9:45	S90201030	0	8.00E-05	92.9	0	0	240.4	0.009
2/16/2020 9:30	S90201030	0	8.00E-05	93.3	0	0	240.4	0.008
2/16/2020 9:15	S90201030	0	4.00E-05	93.1	0	0	240.3	0.008
2/16/2020 9:00	S90201030	0	8.00E-05	92.9	0	0	240.4	0.009
2/16/2020 8:45	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/16/2020 8:30	S90201030	0	4.00E-05	93.1	0	0	240.3	0.009
2/16/2020 8:15	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 8:00	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 7:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 7:30	S90201030	0	8.00E-05	93.1	0	0	240.3	0.008
2/16/2020 7:15	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 7:00	S90201030	0	4.00E-05	93.4	0	0	240.3	0.009
2/16/2020 6:45	S90201030	0	4.00E-05	92.9	0	0	240.3	0.008
2/16/2020 6:30	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/16/2020 6:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/16/2020 6:00	S90201030	0	1.20E-04	92.9	0	0	240.3	0.009
2/16/2020 5:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/16/2020 5:30	S90201030	0	0	93.3	0	0	240.4	0.009
2/16/2020 5:15	S90201030	0	4.00E-05	93.1	0	0	240.3	0.008
2/16/2020 5:00	S90201030	0	4.00E-05	92.9	0	0	240.3	0.008
2/16/2020 4:45	S90201030	0	4.00E-05	93.4	0	0	240.3	0.008
2/16/2020 4:30	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/16/2020 4:15	S90201030	0	8.00E-05	93.8	0	0	240.4	0.008
2/16/2020 4:00	S90201030	0	0	93.3	0	0	240.4	0.008
2/16/2020 3:45	S90201030	0	1.20E-04	93.3	0	0	240.4	0.009
2/16/2020 3:30	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/16/2020 3:15	S90201030	0	8.00E-05	93.4	0	0	240.4	0.008
2/16/2020 3:00	S90201030	0	8.00E-05	93.8	0	0	240.4	0.008
2/16/2020 2:45	S90201030	0	4.00E-05	93.8	0	0	240.4	0.008
2/16/2020 2:30	S90201030	0	1.20E-04	94.2	0	0	240.4	0.008
2/16/2020 2:15	S90201030	0	0	94.3	0	0	240.4	0.008
2/16/2020 2:00	S90201030	0	8.00E-05	94	0	0	240.4	0.008
2/16/2020 1:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/16/2020 1:30	S90201030	0	4.00E-05	93.6	0	0	240.4	0.008
2/16/2020 1:15	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/16/2020 1:00	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009



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2/16/2020 0:45	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/16/2020 0:30	S90201030	0	4.00E-05	93.3	0	0	240.4	0.008
2/16/2020 0:15	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/16/2020 0:00	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/15/2020 23:45	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/15/2020 23:30	S90201030	0	0	93.1	0	0	240.4	0.008
2/15/2020 23:15	S90201030	0	8.00E-05	93.4	0	0	240.4	0.008
2/15/2020 23:00	S90201030	0	8.00E-05	93.1	0	0	240.4	0.009
2/15/2020 22:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/15/2020 22:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/15/2020 22:15	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/15/2020 22:00	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/15/2020 21:45	S90201030	0	4.00E-05	93.1	0	0	240.4	0.008
2/15/2020 21:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 21:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/15/2020 21:00	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/15/2020 20:45	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/15/2020 20:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 20:15	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/15/2020 20:00	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 19:45	S90201030	0	0	93.1	0	0	240.4	0.009
2/15/2020 19:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 19:15	S90201030	0	0	92.9	0	0	240.4	0.009
2/15/2020 19:00	S90201030	0	4.00E-05	92.1	0	0	240.4	0.008
2/15/2020 18:45	S90201030	0	8.00E-05	92.9	0	0	240.4	0.008
2/15/2020 18:30	S90201030	0	8.00E-05	92.4	0	0	240.4	0.008
2/15/2020 18:15	S90201030	0	4.00E-05	92.6	0	0	240.4	0.008
2/15/2020 18:00	S90201030	0	4.00E-05	92.1	0	0	240.4	0.008
2/15/2020 17:45	S90201030	0	8.00E-05	91.7	0	0	240.4	0.009
2/15/2020 17:30	S90201030	0	4.00E-05	92.1	0	0	240.4	0.008
2/15/2020 17:15	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 17:00	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 16:45	S90201030	0	4.00E-05	92.4	0	0	240.4	0.008
2/15/2020 16:30	S90201030	0	0	92.8	0	0	240.4	0.008
2/15/2020 16:15	S90201030	0	4.00E-05	93.1	0	0	240.4	0.009
2/15/2020 16:00	S90201030	0	8.00E-05	92.9	0	0	240.4	0.009



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2/15/2020 15:45	S90201030	0	4.00E-05	92.9	0	0	240.4	0.009
2/15/2020 15:30	S90201030	0	0	92.9	0	0	240.4	0.008
2/15/2020 15:15	S90201030	0	8.00E-05	93.1	0	0	240.4	0.008
2/15/2020 15:00	S90201030	0	8.00E-05	92.9	0	0	240.4	0.009
2/15/2020 14:45	S90201030	0	8.00E-05	92.9	0	0	240.4	0.008
2/15/2020 14:30	S90201030	0	4.00E-05	92.9	0	0	240.4	0.008
2/15/2020 14:15	S90201030	0	1.20E-04	93.1	0	0	240.4	0.009
2/15/2020 14:00	S90201030	0	1.20E-04	94.3	0	0	240.4	0.009
2/15/2020 13:45	S90201030	0	0	94.5	0	0	240.4	0.009
2/15/2020 13:30	S90201030	0	8.00E-05	94.3	0	0	240.4	0.008
2/15/2020 13:15	S90201030	0	4.00E-05	94.3	0	0	240.4	0.009
2/15/2020 13:00	S90201030	0	0	94.5	0	0	240.4	0.009
2/15/2020 12:45	S90201030	0	0	94.5	0	0	240.4	0.008
2/15/2020 12:30	S90201030	0	0	94.5	0	0	240.4	0.008
2/15/2020 12:15	S90201030	0	8.00E-05	95.2	0	0	240.3	0.009
2/15/2020 12:00	S90201030	0	8.00E-05	95.8	0	0	240.4	0.009
2/15/2020 11:45	S90201030	0	0	95.8	0	0	240.4	0.009
2/15/2020 11:30	S90201030	0	0	95.9	0	0	240.3	0.008
2/15/2020 11:15	S90201030	0	8.00E-05	96.3	0	0	240.4	0.008
2/15/2020 11:00	S90201030	0	4.00E-05	97.1	0	0	240.4	0.009
2/15/2020 10:45	S90201030	0	4.00E-05	97.1	0	0	240.4	0.009
2/15/2020 10:30	S90201030	0	4.00E-05	96.9	0	0	240.4	0.009
2/15/2020 10:15	S90201030	0	0	97.3	0	0	240.4	0.009
2/15/2020 10:00	S90201030	0	8.00E-05	97.5	0	0	240.4	0.009
2/15/2020 9:45	S90201030	0	4.00E-05	98.6	0	0	240.4	0.009
2/15/2020 9:30	S90201030	0	4.00E-05	98.2	0	0	240.5	0.009
2/15/2020 9:15	S90201030	0	8.00E-05	98.8	0	0	240.5	0.009
2/15/2020 9:00	S90201030	0	4.00E-05	98.8	0	0	240.4	0.009
2/15/2020 8:45	S90201030	0	8.00E-05	99.4	0	0	240.4	0.009
2/15/2020 8:30	S90201030	0	4.00E-05	99.9	0	0	240.4	0.008
2/15/2020 8:15	S90201030	0	4.00E-05	99.9	0	0	240.5	0.009
2/15/2020 8:00	S90201030	0	0	100.6	0	0	240.4	0.009
2/15/2020 7:45	S90201030	0	1.20E-04	101.5	0	0	240.5	0.008
2/15/2020 7:30	S90201030	0	4.00E-05	101.4	0	0	240.5	0.009
2/15/2020 7:15	S90201030	0	4.00E-05	101.5	0	0	240.5	0.009
2/15/2020 7:00	S90201030	0	4.00E-05	102.6	0	0	240.5	0.009



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2/15/2020 6:45	S90201030	0	4.00E-05	102.8	0	0	240.5	0.009
2/15/2020 6:30	S90201030	0	4.00E-05	102.9	0	0	240.5	0.008
2/15/2020 6:15	S90201030	0	8.00E-05	104.1	0	0	240.5	0.009
2/15/2020 6:00	S90201030	0	4.00E-05	104.3	0	0	240.5	0.009
2/15/2020 5:45	S90201030	0	4.00E-05	104.7	0	0	240.5	0.009
2/15/2020 5:30	S90201030	0	0	105.8	0	0	240.5	0.009
2/15/2020 5:15	S90201030	0	1.20E-04	106.8	0	0	240.5	0.009
2/15/2020 5:00	S90201030	0	0	107.1	0	0	240.5	0.009
2/15/2020 4:45	S90201030	0	8.00E-05	107.8	0	0	240.5	0.009
2/15/2020 4:30	S90201030	0	8.00E-05	108.2	0	0	240.5	0.009
2/15/2020 4:15	S90201030	0	4.00E-05	109.1	0	0	240.4	0.008
2/15/2020 4:00	S90201030	0	8.00E-05	109.8	0	0	240.5	0.009
2/15/2020 3:45	S90201030	0	4.00E-05	110.1	0	0	240.5	0.009
2/15/2020 3:30	S90201030	0	4.00E-05	111.2	0	0	240.5	0.008
2/15/2020 3:15	S90201030	0	4.00E-05	112.6	0	0	240.5	0.009
2/15/2020 3:00	S90201030	0	0	113.8	0	0	240.5	0.009
2/15/2020 2:45	S90201030	0	8.00E-05	114.1	0	0	240.5	0.009
2/15/2020 2:30	S90201030	0	8.00E-05	115.4	0	0	240.5	0.009
2/15/2020 2:15	S90201030	0	0	116.8	0	0	240.5	0.009
2/15/2020 2:00	S90201030	0	8.00E-05	116.8	0	0	240.5	0.009
2/15/2020 1:45	S90201030	0	4.00E-05	118.3	0	0	240.5	0.009
2/15/2020 1:30	S90201030	0	8.00E-05	119.6	0	0	240.5	0.009
2/15/2020 1:15	S90201030	0	4.00E-05	121	0	0	240.5	0.009
2/15/2020 1:00	S90201030	0	4.00E-05	122.6	0	0	240.5	0.009
2/15/2020 0:45	S90201030	0	4.00E-05	123.8	0	0	240.5	0.009
2/15/2020 0:30	S90201030	0	4.00E-05	125.4	0	0	240.5	0.009
2/15/2020 0:15	S90201030	0	0	126.9	0	0	240.6	0.009
2/15/2020 0:00	S90201030	0	4.00E-05	128.1	0	0	240.6	0.009
2/14/2020 23:45	S90201030	0	4.00E-05	130.8	0	0	240.6	0.009
2/14/2020 23:30	S90201030	0	0	131.7	0	0	240.6	0.009
2/14/2020 23:15	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/14/2020 23:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 22:45	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 22:30	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/14/2020 22:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 22:00	S90201030	0	0	132.2	0	0	240.6	0.009



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2/14/2020 21:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/14/2020 21:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/14/2020 21:15	S90201030	0	0	132.2	0	0	240.6	0.009
2/14/2020 21:00	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 20:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/14/2020 20:30	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/14/2020 20:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 20:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/14/2020 19:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/14/2020 19:30	S90201030	0	8.00E-05	132.2	0	0	240.6	0.009
2/14/2020 19:15	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/14/2020 19:00	S90201030	0	0	132.2	0	0	240.6	0.009
2/14/2020 18:45	S90201030	0	0	132.4	0	0	240.6	0.009
2/14/2020 18:30	S90201030	0	0	132.2	0	0	240.6	0.009
2/14/2020 18:15	S90201030	0	8.00E-05	132.4	0	0	240.6	0.009
2/14/2020 18:00	S90201030	0	4.00E-05	132.4	0	0	240.6	0.009
2/14/2020 17:45	S90201030	0	4.00E-05	132.2	0	0	240.6	0.009
2/14/2020 17:30	S90201030	0	8.00E-05	132.6	0	0	240.5	0.009
2/14/2020 17:15	S90201030	0	4.00E-05	132	0	0	240.6	0.009
2/14/2020 17:00	S90201030	0	8.00E-05	130.9	0	0	240.6	0.009
2/14/2020 16:45	S90201030	0	8.00E-05	130.6	0	0	240.6	0.009
2/14/2020 16:30	S90201030	0	4.00E-05	129.4	0	0	240.6	0.009
2/14/2020 16:15	S90201030	0	4.00E-05	127.3	0	0	240.5	0.009
2/14/2020 16:00	S90201030	0	4.00E-05	123.8	0	0	240.5	0.009
2/14/2020 15:45	S90201030	0	4.00E-05	119.8	0	0	240.5	0.009
2/14/2020 15:30	S90201030	0	4.00E-05	110.8	0	0	240.4	0.009
2/14/2020 15:15	S90201030	0	4.00E-05	95.8	0	0	240.4	0.008
2/14/2020 15:00	S90201030	0	4.00E-05	79.1	0	0	240.3	0.008
2/14/2020 14:45	S90201030	0	4.00E-05	73.3	0	0	240.2	0.008
2/14/2020 14:30	S90201030	0	4.00E-05	73.1	0	0	240.2	0.008
2/14/2020 14:15	S90201030	0	4.00E-05	75.6	0	0	240.2	0.008
2/14/2020 14:00	S90201030	0	0	75.8	0	0	240.2	0.008
2/14/2020 13:45	S90201030	0	8.00E-05	74.9	0	0	240.3	0.008
2/14/2020 13:30	S90201030	0	0	75.1	0	0	240.3	0.009
2/14/2020 13:15	S90201030	0	4.00E-05	74.9	0	0	240.3	0.008
2/14/2020 13:00	S90201030	0	8.00E-05	73.3	0	0	240.3	0.008

Test 6 – Load Performance Test

Purpose: To test the effect of the ConnectDER on the metrology of the meter during normal usage.

Steps:

1. Perform load curve tests for the 2S and 12S AMI meters.
2. Install the 2S and 12S meters in the corresponding 12S and 2S ConnectDER meter adapter with the breaker in the “OFF” position and repeat tests.
3. Install the 2S and 12S meters in the corresponding 12S and 2S ConnectDER meter adapter with the breaker in the “ON” position and repeat tests.

Results:

The utility meter registration was measured within the required maximum error margin of +/- 0.2% for the kV2C and +/- 0.5% for the I-210 (See figures 10 through 18).



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Prev Meter:	Meter Type: KV2C	Test Start: 08/28/2019 07:44
Meter No: 8946337	Form: 12 S	Test Stop: 08/28/2019 07:58
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev	Power	Notes
			Found	Left							
1		S	100.01	100.01	120.0	30.00	0	W	N		Ref. PT
2		S	100.01	100.01	120.0	2.00	0	W	N		+/- 0.4
3		S	100.02	100.02	120.0	3.00	0	W	N		+/- 0.2
4		S	100.01	100.01	120.0	6.00	0	W	N		+/- 0.2
5		S	100.01	100.01	120.0	20.00	0	W	N		+/- 0.2
6		S	99.99	99.99	120.0	60.00	0	W	N		+/- 0.2
7		S	99.99	99.99	120.0	100.00	0	W	N		+/- 0.2
8		S	99.96	99.96	120.0	150.00	0	W	N		+/- 0.2
9		S	99.97	99.97	120.0	180.00	0	W	N		+/- 0.2
10		S	99.96	99.96	120.0	200.00	0	W	N		+/- 0.2

Figure 10: 12S kV2c Load performance test – meter only (Step 1)



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Prev Meter:	Meter Type: I210+CN	Test Start: 08/27/2019 14:08
Meter No: 3537090	Form: 12 S	Test Stop: 08/27/2019 14:11
Serial No:	Kh: 1.0	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes

Comments:

Ansi T3 load Perf. MTR only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		99.92	99.92	120.0	30.00	0	W	N	Ref. PT
2	S		99.95	99.95	120.0	2.00	0	W	N	+/- 1.0
3	S		100.00	100.00	120.0	3.00	0	W	N	+/- 0.5
4	S		99.93	99.93	120.0	6.00	0	W	N	+/- 0.5
5	S		99.93	99.93	120.0	20.00	0	W	N	+/- 0.5
6	S		99.92	99.92	120.0	60.00	0	W	N	+/- 0.5
7	S		99.91	99.91	120.0	100.00	0	W	N	+/- 0.5
8	S		99.92	99.92	120.0	150.00	0	W	N	+/- 0.5
9	S		99.92	99.92	120.0	180.00	0	W	N	+/- 0.5
10	S		99.92	99.92	120.0	200.00	0	W	N	+/- 0.5

Figure 11: 12S I210 Load performance test – meter only (step 1)



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Prev Meter:		Meter Type:	I-210+C	Test Start:	02/28/2020 12:52
Meter No:	9299335	Form:	2 S	Test Stop:	02/28/2020 14:28
Serial No:		Kh:	1.0	Tester ID:	WU
AMR No:		Volt:	240.0	Test Station:	6977 1
Mfr:	AC	Amp:	30.00		
Test Code:	EN				

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T3 load Perf. Mtr Only for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.01	100.01	120.0	30.00	0	W	N	Ref. PT
2		S	100.12	100.12	120.0	2.00	0	W	N	+/- 1.0
3		S	100.10	100.10	120.0	3.00	0	W	N	+/- 0.5
4		S	100.07	100.07	120.0	6.00	0	W	N	+/- 0.5
5		S	100.05	100.05	120.0	20.00	0	W	N	+/- 0.5
6		S	100.03	100.03	120.0	60.00	0	W	N	+/- 0.5
7		S	100.02	100.02	120.0	100.00	0	W	N	+/- 0.5
8		S	100.02	100.02	120.0	150.00	0	W	N	+/- 0.5
9		S	100.01	100.01	120.0	180.00	0	W	N	+/- 0.5
10		S	100.01	100.01	120.0	200.00	0	W	N	+/- 0.5

Figure 12: 2S I210 Load performance test – meter only (step 1)



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Prev Meter:		Meter Type:	KV2C	Test Start:	09/04/2019 10:48
Meter No:	8946337	Form:	12 S	Test Stop:	09/04/2019 11:02
Serial No:		Kh:	14.4	Tester ID:	WU
AMR No:		Volt:	120.0	Test Station:	6977 1
Mfr:	AC	Amp:	30.00		
Test Code:	EN				

As Found KWH Reading:	Breaker Off	As Left KWH Reading:	
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Trouble Codes	Comments:
	Ansi T3 load Perf. W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.00	100.00	120.0	30.00	0	W	N	Ref. PT
2	S		99.99	99.99	120.0	2.00	0	W	N	+/- 0.4
3	S		100.02	100.02	120.0	3.00	0	W	N	+/- 0.2
4	S		100.00	100.00	120.0	6.00	0	W	N	+/- 0.2
5	S		99.99	99.99	120.0	20.00	0	W	N	+/- 0.2
6	S		99.98	99.98	120.0	60.00	0	W	N	+/- 0.2
7	S		99.96	99.96	120.0	100.00	0	W	N	+/- 0.2
8	S		99.95	99.95	120.0	150.00	0	W	N	+/- 0.2
9	S		99.94	99.94	120.0	180.00	0	W	N	+/- 0.2
10	S		99.94	99.94	120.0	200.00	0	W	N	+/- 0.2

Figure 13: 12S kV2c Load performance test with ConnectDER and breaker OFF (step 2)



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Prev Meter:	Meter Type: I210+CN	Test Start: 09/04/2019 07:54
Meter No: 3537090	Form: 12 S	Test Stop: 09/04/2019 07:57
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T3 load Perf. W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	99.94	99.94	120.0	30.00	0	W	N	Ref. PT
2		S	100.00	100.00	120.0	2.00	0	W	N	+/- 1.0
3		S	99.98	99.98	120.0	3.00	0	W	N	+/- 0.5
4		S	99.98	99.98	120.0	6.00	0	W	N	+/- 0.5
5		S	99.95	99.95	120.0	20.00	0	W	N	+/- 0.5
6		S	99.94	99.94	120.0	60.00	0	W	N	+/- 0.5
7		S	99.92	99.92	120.0	100.00	0	W	N	+/- 0.5
8		S	99.92	99.92	120.0	150.00	0	W	N	+/- 0.5
9		S	99.91	99.91	120.0	180.00	0	W	N	+/- 0.5
10		S	99.91	99.91	120.0	200.00	0	W	N	+/- 0.5

Figure 14: 12S I210 Load performance test with ConnectDER and breaker OFF (step 2)



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Prev Meter:		Meter Type:	I-210+C	Test Start:	02/28/2020 14:34
Meter No:	9299335	Form:	2 S	Test Stop:	02/28/2020 14:37
Serial No:		Kh:	1	Tester ID:	WU
AMR No:		Volt:	240.0	Test Station:	6977 1
Mfr:	AC	Amp:	30.00		
Test Code:	EN				

As Found KWH Reading: Breaker Off

As Left KWH Reading:

Trouble Codes

Comments:

Ans T3 load Perf. W connDER for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.10	100.10	120.0	30.00	0	W	N	Ref. PT
2		S	100.21	100.21	120.0	2.00	0	W	N	+/- 1.0
3		S	100.16	100.16	120.0	3.00	0	W	N	+/- 0.5
4		S	100.14	100.14	120.0	6.00	0	W	N	+/- 0.5
5		S	100.11	100.11	120.0	20.00	0	W	N	+/- 0.5
6		S	100.09	100.09	120.0	60.00	0	W	N	+/- 0.5
7		S	100.08	100.08	120.0	100.00	0	W	N	+/- 0.5
8		S	100.07	100.07	120.0	150.00	0	W	N	+/- 0.5
9		S	100.08	100.08	120.0	180.00	0	W	N	+/- 0.5
10		S	100.07	100.07	120.0	200.00	0	W	N	+/- 0.5

Figure 15: 2S I210 Load performance test with ConnectDER and breaker OFF (step 2)



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Prev Meter:	Meter Type: KV2C	Test Start: 09/04/2019 10:32
Meter No: 8946337	Form: 12 S	Test Stop: 09/04/2019 10:46
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T3 load Perf. W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.00	100.00	120.0	30.00	0	W	N	Ref. PT
2		S	100.00	100.00	120.0	2.00	0	W	N	+/- 0.4
3		S	100.01	100.01	120.0	3.00	0	W	N	+/- 0.2
4		S	100.01	100.01	120.0	6.00	0	W	N	+/- 0.2
5		S	100.00	100.00	120.0	20.00	0	W	N	+/- 0.2
6		S	99.99	99.99	120.0	60.00	0	W	N	+/- 0.2
7		S	99.96	99.96	120.0	100.00	0	W	N	+/- 0.2
8		S	99.96	99.96	120.0	150.00	0	W	N	+/- 0.2
9		S	99.95	99.95	120.0	180.00	0	W	N	+/- 0.2
10		S	99.94	99.94	120.0	200.00	0	W	N	+/- 0.2

Figure 16: 12S kv2c Load performance test with ConnectDER and breaker ON (step 3)



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Prev Meter:		Meter Type:	I210+CN	Test Start:	09/04/2019 07:49
Meter No:	3537090	Form:	12 S	Test Stop:	09/04/2019 07:52
Serial No:		Kh:	1	Tester ID:	WU
AMR No:		Volt:	120.0	Test Station:	6977 1
Mfr:	AC	Amp:	30.00		
Test Code:	EN				

As Found KWH Reading: Breaker on As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T3 load Perf. W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	99.93	99.93	120.0	30.00	0	W	N	Ref. PT
2		S	100.26	100.26	120.0	2.00	0	W	N	+/- 1.0
3		S	100.08	100.08	120.0	3.00	0	W	N	+/- 0.5
4		S	100.02	100.02	120.0	6.00	0	W	N	+/- 0.5
5		S	99.95	99.95	120.0	20.00	0	W	N	+/- 0.5
6		S	99.92	99.92	120.0	60.00	0	W	N	+/- 0.5
7		S	99.90	99.90	120.0	100.00	0	W	N	+/- 0.5
8		S	99.90	99.90	120.0	150.00	0	W	N	+/- 0.5
9		S	99.88	99.88	120.0	180.00	0	W	N	+/- 0.5
10		S	99.87	99.87	120.0	200.00	0	W	N	+/- 0.5

Figure 17:12S I210 Load performance test with ConnectDER and breaker ON (step 3)



Test Results ConnectDER

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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.08	100.08	120.0	30.00	0	W	N	Ref. PT
2	S		100.39	100.39	120.0	2.00	0	W	N	+/- 1.0
3	S		100.32	100.32	120.0	3.00	0	W	N	+/- 0.5
4	S		100.17	100.17	120.0	6.00	0	W	N	+/- 0.5
5	S		100.09	100.09	120.0	20.00	0	W	N	+/- 0.5
6	S		100.07	100.07	120.0	60.00	0	W	N	+/- 0.5
7	S		100.06	100.06	120.0	100.00	0	W	N	+/- 0.5
8	S		100.06	100.06	120.0	150.00	0	W	N	+/- 0.5
9	S		100.05	100.05	120.0	180.00	0	W	N	+/- 0.5
10	S		100.04	100.04	120.0	200.00	0	W	N	+/- 0.5

Figure 18: 2S I210 Load performance test with ConnectDER and breaker ON (step 3)

Test 7 – Effect of Variation of Power Factor

Purpose: To determine if the ConnectDER adapter affects the meter's ability to properly measure power when there is a variation in power factor.

Steps:

1. Connect a 12S meter (using both I-210 and kv2c) and 2S meter (I-210) to the WECC test board and record the percent registration for the following test points 120V for 12S, 240V for 2S.
 - a. 6 amps @ unity power factor (reference point)
 - b. 6 amps @ 0.866 lead power factor
 - c. 12 amps @ 0.5 lag power factor
 - d. 30 amps @ unity power factor (reference point)
 - e. 30 amps @ 0.866 lead power factor
 - f. 100 amps @ unity power factor (reference point)
 - g. 100 amps @ 0.866 lead power factor
 - h. 100 amps @ 0.5 lag power factor
 - i. 200 amps @ unity power factor (reference point)
 - j. 200 amps @ 0.866 lead power factor
 - k. 200 amps @ 0.5 lag power factor
2. Repeat step 1 with the ConnectDER inserted and the breaker open.
3. Repeat step 1 with the ConnectDER inserted and the breaker closed.

Results:

The utility meter registration was measured within the required maximum error margin of +/- 0.2% for the kv2C and +/-0.5% for the I-210. (See figures 19 through 27).

Prev Meter:	Meter Type: KV2C	Test Start: 08/28/2019 08:22
Meter No: 8946337	Form: 12 S	Test Stop: 08/28/2019 09:52
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T4 Vari. of pwr FT Mtr only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.01	100.01	120.0	6.00	0	W	N	Ref. Pt.
2	S		100.00	100.00	120.0	6.00	30.0	W	N	+/- 0.5
3	S		100.04	100.04	120.0	12.00	300.0	W	N	+/- 0.5
4	S		100.00	100.00	120.0	30.00	0	W	N	Ref.Pt.
5	S		99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.3
6	S		99.97	99.97	120.0	100.00	0	W	N	Ref. Pt.
7	S		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.3
8	S		100.05	100.05	120.0	100.00	300.0	W	N	+/- 0.3
9	S		99.96	99.96	120.0	200.00	0	W	N	Ref. Pt.
10	S		99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.3
11	S		100.03	100.03	120.0	200.00	300.0	W	N	+/- 0.3
12	A		100.02	100.02	120.0	6.00	0	W	N	Ref. Pt.
13	A		100.01	100.01	120.0	6.00	30.0	W	N	+/- 0.5
14	A		100.05	100.05	120.0	12.00	300.0	W	N	+/- 0.5
15	A		100.01	100.01	120.0	30.00	0	W	N	Ref. Pt.
16	A		99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.3
17	A		99.97	99.97	120.0	100.00	0	W	N	Ref.Pt.
18	A		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.3
19	A		100.03	100.03	120.0	100.00	300.0	W	N	+/- 0.3
20	A		99.94	99.94	120.0	200.00	0	W	N	Ref.Pt.
21	A		99.90	99.90	120.0	200.00	30.0	W	N	+/- 0.3
22	A		99.99	99.99	120.0	200.00	300.0	W	N	+/- 0.3
23	C		99.99	99.99	120.0	6.00	0	W	N	Ref.Pt.
24	C		99.98	99.98	120.0	6.00	30.0	W	N	+/- 0.5
25	C		100.03	100.03	120.0	12.00	300.0	W	N	+/- 0.5
26	C		99.99	99.99	120.0	30.00	0	W	N	Ref. Pt.
27	C		99.97	99.97	120.0	30.00	30.0	W	N	+/- 0.3
28	C		99.96	99.96	120.0	100.00	0	W	N	Ref.Pt.
29	C		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.3
30	C		100.04	100.04	120.0	100.00	300.0	W	N	+/- 0.3
31	C		99.96	99.96	120.0	200.00	0	W	N	Ref. Pt.
32	C		99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.3
33	C		100.02	100.02	120.0	200.00	300.0	W	N	+/- 0.3

Figure 19: 12S kV2c Variation of Power Factor – meter only (Step 1)

Prev Meter:	Meter Type: I210+CN	Test Start: 08/27/2019 16:22
Meter No: 3537090	Form: 12 S	Test Stop: 08/27/2019 16:31
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:	As Left KWH Reading:
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Trouble Codes	Comments:
	Ansi T4 Vari. of pwr FT Mtr only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		99.93	99.93	120.0	6.00	0	W	N	Ref. Pt.
2	S		99.96	99.96	120.0	6.00	30.0	W	N	+/- 1.0
3	S		99.89	99.89	120.0	12.00	300.0	W	N	+/- 1.0
4	S		99.91	99.91	120.0	30.00	0	W	N	Ref.Pt.
5	S		99.93	99.93	120.0	30.00	30.0	W	N	+/- 0.6
6	S		99.91	99.91	120.0	100.00	0	W	N	Ref. Pt.
7	S		99.91	99.91	120.0	100.00	30.0	W	N	+/- 0.6
8	S		99.89	99.89	120.0	100.00	300.0	W	N	+/- 0.6
9	S		99.90	99.90	120.0	200.00	0	W	N	Ref. Pt.
10	S		99.90	99.90	120.0	200.00	30.0	W	N	+/- 0.6
11	S		99.88	99.88	120.0	200.00	300.0	W	N	+/- 0.6
12	A		99.96	99.96	120.0	6.00	0	W	N	Ref. Pt.
13	A		99.99	99.99	120.0	6.00	30.0	W	N	+/- 1.0
14	A		99.92	99.92	120.0	12.00	300.0	W	N	+/- 1.0
15	A		99.94	99.94	120.0	30.00	0	W	N	Ref. Pt.
16	A		99.95	99.95	120.0	30.00	30.0	W	N	+/- 0.6
17	A		99.93	99.93	120.0	100.00	0	W	N	Ref.Pt.
18	A		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.6
19	A		99.90	99.90	120.0	100.00	300.0	W	N	+/- 0.6
20	A		99.92	99.92	120.0	200.00	0	W	N	Ref.Pt.
21	A		99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.6
22	A		99.90	99.90	120.0	200.00	300.0	W	N	+/- 0.6
23	C		100.03	100.03	120.0	6.00	0	W	N	Ref.Pt.
24	C		100.03	100.03	120.0	6.00	30.0	W	N	+/- 0.6
25	C		99.95	99.95	120.0	12.00	300.0	W	N	+/- 0.6
26	C		99.96	99.96	120.0	30.00	0	W	N	Ref. Pt.
27	C		99.97	99.97	120.0	30.00	30.0	W	N	+/- 0.6
28	C		99.94	99.94	120.0	100.00	0	W	N	Ref.Pt.
29	C		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.6
30	C		99.91	99.91	120.0	100.00	300.0	W	N	+/- 0.6
31	C		99.93	99.93	120.0	200.00	0	W	N	Ref. Pt.
32	C		99.93	99.93	120.0	200.00	30.0	W	N	+/- 0.6
33	C		99.86	99.86	120.0	200.00	300.0	W	N	+/- 0.6

Figure 20: 12S I210 Variation of Power Factor – meter only (Step 1)



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Prev Meter:	Meter Type: I-210+C	Test Start: 02/28/2020 14:58
Meter No: 9299335	Form: 2 S	Test Stop: 02/28/2020 15:08
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 240.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T4 Vari. of pwr FT Mtr only for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.13	100.13	120.0	6.00	0	W	N	Ref. Pt.
2	S		100.15	100.15	120.0	6.00	30.0	W	N	+/- 1.0
3	S		100.13	100.13	120.0	12.00	300.0	W	N	+/- 1.0
4	S		100.10	100.10	120.0	30.00	0	W	N	Ref.Pt.
5	S		100.12	100.12	120.0	30.00	30.0	W	N	+/- 0.6
6	S		100.09	100.09	120.0	100.00	0	W	N	Ref. Pt.
7	S		100.08	100.08	120.0	100.00	30.0	W	N	+/- 0.6
8	S		100.12	100.12	120.0	100.00	300.0	W	N	+/- 0.6
9	S		100.08	100.08	120.0	200.00	0	W	N	Ref. Pt.
10	S		100.12	100.12	120.0	200.00	30.0	W	N	+/- 0.6
11	S		99.99	99.99	120.0	200.00	300.0	W	N	+/- 0.6
12	A		100.17	100.17	120.0	6.00	0	W	N	Ref. Pt.
13	A		100.21	100.21	120.0	6.00	30.0	W	N	+/- 1.0
14	A		100.06	100.06	120.0	12.00	300.0	W	N	+/- 1.0
15	A		100.12	100.12	120.0	30.00	0	W	N	Ref. Pt.
16	A		100.17	100.17	120.0	30.00	30.0	W	N	+/- 0.6
17	A		100.12	100.12	120.0	100.00	0	W	N	Ref.Pt.
18	A		100.11	100.11	120.0	100.00	30.0	W	N	+/- 0.6
19	A		100.05	100.05	120.0	100.00	300.0	W	N	+/- 0.6
20	A		100.11	100.11	120.0	200.00	0	W	N	Ref.Pt.
21	A		100.15	100.15	120.0	200.00	30.0	W	N	+/- 0.6
22	A		100.06	100.06	120.0	200.00	300.0	W	N	+/- 0.6
23	C		100.18	100.18	120.0	6.00	0	W	N	Ref.Pt.
24	C		100.18	100.18	120.0	6.00	30.0	W	N	+/- 0.6
25	C		100.22	100.22	120.0	12.00	300.0	W	N	+/- 0.6
26	C		100.14	100.14	120.0	30.00	0	W	N	Ref. Pt.
27	C		100.11	100.11	120.0	30.00	30.0	W	N	+/- 0.6
28	C		100.12	100.12	120.0	100.00	0	W	N	Ref.Pt.
29	C		100.10	100.10	120.0	100.00	30.0	W	N	+/- 0.6
30	C		100.22	100.22	120.0	100.00	300.0	W	N	+/- 0.6
31	C		100.11	100.11	120.0	200.00	0	W	N	Ref. Pt.
32	C		100.09	100.09	120.0	200.00	30.0	W	N	+/- 0.6
33	C		100.22	100.22	120.0	200.00	300.0	W	N	+/- 0.6

Figure 21: 2S Variation of I210 Power factor – meter only (Step 1)



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Prev Meter:	Meter Type: KV2C	Test Start: 09/04/2019 14:45
Meter No: 8946337	Form: 12 S	Test Stop: 09/04/2019 15:23
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes: Comments:

Hypersequence:

		Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
Step	Test	Found	Left						
1	S	100.00	100.00	120.0	6.00	0	W	N	Ref. Pt.
2	S	99.99	99.99	120.0	6.00	30.0	W	N	+/- 0.5
3	S	100.04	100.04	120.0	12.00	300.0	W	N	+/- 0.5
4	S	99.98	99.98	120.0	30.00	0	W	N	Ref.Pt.
5	S	99.96	99.96	120.0	30.00	30.0	W	N	+/- 0.3
6	S	99.98	99.98	120.0	100.00	0	W	N	Ref. Pt.
7	S	99.92	99.92	120.0	100.00	30.0	W	N	+/- 0.3
8	S	100.00	100.00	120.0	100.00	300.0	W	N	+/- 0.3
9	S	99.96	99.96	120.0	200.00	0	W	N	Ref. Pt.
10	S	99.93	99.93	120.0	200.00	30.0	W	N	+/- 0.3
11	S	100.04	100.04	120.0	200.00	300.0	W	N	+/- 0.3
12	A	100.01	100.01	120.0	6.00	0	W	N	Ref. Pt.
13	A	100.00	100.00	120.0	6.00	30.0	W	N	+/- 0.5
14	A	100.04	100.04	120.0	12.00	300.0	W	N	+/- 0.5
15	A	99.99	99.99	120.0	30.00	0	W	N	Ref. Pt.
16	A	99.97	99.97	120.0	30.00	30.0	W	N	+/- 0.3
17	A	99.97	99.97	120.0	100.00	0	W	N	Ref.Pt.
18	A	99.92	99.92	120.0	100.00	30.0	W	N	+/- 0.3
19	A	100.00	100.00	120.0	100.00	300.0	W	N	+/- 0.3
20	A	99.90	99.90	120.0	200.00	0	W	N	Ref.Pt.
21	A	99.90	99.90	120.0	200.00	30.0	W	N	+/- 0.3
22	A	99.93	99.93	120.0	200.00	300.0	W	N	+/- 0.3
23	C	99.97	99.97	120.0	6.00	0	W	N	Ref.Pt.
24	C	99.96	99.96	120.0	6.00	30.0	W	N	+/- 0.5
25	C	100.01	100.01	120.0	12.00	300.0	W	N	+/- 0.5
26	C	99.97	99.97	120.0	30.00	0	W	N	Ref. Pt.
27	C	99.95	99.95	120.0	30.00	30.0	W	N	+/- 0.3
28	C	99.94	99.94	120.0	100.00	0	W	N	Ref.Pt.
29	C	99.93	99.93	120.0	100.00	30.0	W	N	+/- 0.3
30	C	99.99	99.99	120.0	100.00	300.0	W	N	+/- 0.3
31	C	99.92	99.92	120.0	200.00	0	W	N	Ref. Pt.
32	C	99.89	99.89	120.0	200.00	30.0	W	N	+/- 0.3
33	C	99.97	99.97	120.0	200.00	300.0	W	N	+/- 0.3

Figure 22: 12S kV2c Variation of Power Factor with ConnectDER – Breaker OFF (Step 2)



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Prev Meter:	Meter Type: I210+CN	Test Start: 09/04/2019 09:31
Meter No: 3537090	Form: 12 S	Test Stop: 09/04/2019 09:40
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.00	100.00	120.0	6.00	0	W	N	Ref. Pt.
2	S		100.02	100.02	120.0	6.00	30.0	W	N	+/- 1.0
3	S		99.94	99.94	120.0	12.00	300.0	W	N	+/- 1.0
4	S		99.98	99.98	120.0	30.00	0	W	N	Ref. Pt.
5	S		99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.6
6	S		99.94	99.94	120.0	100.00	0	W	N	Ref. Pt.
7	S		99.94	99.94	120.0	100.00	30.0	W	N	+/- 0.6
8	S		99.90	99.90	120.0	100.00	300.0	W	N	+/- 0.6
9	S		99.95	99.95	120.0	200.00	0	W	N	Ref. Pt.
10	S		99.94	99.94	120.0	200.00	30.0	W	N	+/- 0.6
11	S		99.89	99.89	120.0	200.00	300.0	W	N	+/- 0.6
12	A		100.02	100.02	120.0	6.00	0	W	N	Ref. Pt.
13	A		100.05	100.05	120.0	6.00	30.0	W	N	+/- 1.0
14	A		99.97	99.97	120.0	12.00	300.0	W	N	+/- 1.0
15	A		99.99	99.99	120.0	30.00	0	W	N	Ref. Pt.
16	A		100.01	100.01	120.0	30.00	30.0	W	N	+/- 0.6
17	A		99.99	99.99	120.0	100.00	0	W	N	Ref. Pt.
18	A		99.97	99.97	120.0	100.00	30.0	W	N	+/- 0.6
19	A		99.94	99.94	120.0	100.00	300.0	W	N	+/- 0.6
20	A		99.95	99.95	120.0	200.00	0	W	N	Ref. Pt.
21	A		99.96	99.96	120.0	200.00	30.0	W	N	+/- 0.6
22	A		99.97	99.97	120.0	200.00	300.0	W	N	+/- 0.6
23	C		100.03	100.03	120.0	6.00	0	W	N	Ref. Pt.
24	C		100.04	100.04	120.0	6.00	30.0	W	N	+/- 0.6
25	C		99.96	99.96	120.0	12.00	300.0	W	N	+/- 0.6
26	C		99.98	99.98	120.0	30.00	0	W	N	Ref. Pt.
27	C		100.00	100.00	120.0	30.00	30.0	W	N	+/- 0.6
28	C		99.96	99.96	120.0	100.00	0	W	N	Ref. Pt.
29	C		99.96	99.96	120.0	100.00	30.0	W	N	+/- 0.6
30	C		99.92	99.92	120.0	100.00	300.0	W	N	+/- 0.6
31	C		99.92	99.92	120.0	200.00	0	W	N	Ref. Pt.
32	C		99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.6
33	C		99.85	99.85	120.0	200.00	300.0	W	N	+/- 0.6

Figure 23: 12S I210 Variation of Power Factor with ConnectDER – Breaker OFF (Step 2)



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Prev Meter:	Meter Type: I-210+C	Test Start: 02/28/2020 15:19
Meter No: 999335	Form: 2 S	Test Stop: 02/28/2020 15:28
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 240.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T4 Vari. of pwr FT W connDER for ConnectDER SN S90201030

Hypersequence:

		Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
Step	Test	Found	Left						
1	S	100.18	100.18	120.0	6.00	0	W	N	Ref. Pt.
2	S	100.21	100.21	120.0	6.00	30.0	W	N	+/- 1.0
3	S	100.16	100.16	120.0	12.00	300.0	W	N	+/- 1.0
4	S	100.16	100.16	120.0	30.00	0	W	N	Ref.Pt.
5	S	100.14	100.14	120.0	30.00	30.0	W	N	+/- 0.6
6	S	100.13	100.13	120.0	100.00	0	W	N	Ref. Pt.
7	S	100.13	100.13	120.0	100.00	30.0	W	N	+/- 0.6
8	S	100.13	100.13	120.0	100.00	300.0	W	N	+/- 0.6
9	S	100.11	100.11	120.0	200.00	0	W	N	Ref. Pt.
10	S	100.10	100.10	120.0	200.00	30.0	W	N	+/- 0.6
11	S	100.08	100.08	120.0	200.00	300.0	W	N	+/- 0.6
12	A	100.23	100.23	120.0	6.00	0	W	N	Ref. Pt.
13	A	100.27	100.27	120.0	6.00	30.0	W	N	+/- 1.0
14	A	100.15	100.15	120.0	12.00	300.0	W	N	+/- 1.0
15	A	100.19	100.19	120.0	30.00	0	W	N	Ref. Pt.
16	A	100.21	100.21	120.0	30.00	30.0	W	N	+/- 0.6
17	A	100.17	100.17	120.0	100.00	0	W	N	Ref.Pt.
18	A	100.16	100.16	120.0	100.00	30.0	W	N	+/- 0.6
19	A	100.10	100.10	120.0	100.00	300.0	W	N	+/- 0.6
20	A	100.15	100.15	120.0	200.00	0	W	N	Ref.Pt.
21	A	100.22	100.22	120.0	200.00	30.0	W	N	+/- 0.6
22	A	99.97	99.97	120.0	200.00	300.0	W	N	+/- 0.6
23	C	100.20	100.20	120.0	6.00	0	W	N	Ref.Pt.
24	C	100.21	100.21	120.0	6.00	30.0	W	N	+/- 0.6
25	C	100.26	100.26	120.0	12.00	300.0	W	N	+/- 0.6
26	C	100.16	100.16	120.0	30.00	0	W	N	Ref. Pt.
27	C	100.14	100.14	120.0	30.00	30.0	W	N	+/- 0.6
28	C	100.14	100.14	120.0	100.00	0	W	N	Ref.Pt.
29	C	100.12	100.12	120.0	100.00	30.0	W	N	+/- 0.6
30	C	100.24	100.24	120.0	100.00	300.0	W	N	+/- 0.6
31	C	100.12	100.12	120.0	200.00	0	W	N	Ref. Pt.
32	C	100.08	100.08	120.0	200.00	30.0	W	N	+/- 0.6
33	C	100.18	100.18	120.0	200.00	300.0	W	N	+/- 0.6

Figure 24: 2S I210 Variation of Power Factor with ConnectDER – Breaker OFF (Step 2)



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Prev Meter:	Meter Type: KV2C	Test Start: 09/04/2019 13:55
Meter No: 8946337	Form: 12 S	Test Stop: 09/04/2019 14:41
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T4 Vari. of pwr FT W connDER for ConnectDER SN S90702001

Hypersequence:

		Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
Step	Test Elem	Found	Left						
1	S	100.09	100.09	120.0	6.00	0	W	N	Ref. Pt.
2	S	100.07	100.07	120.0	6.00	30.0	W	N	+/- 0.5
3	S	100.10	100.10	120.0	12.00	300.0	W	N	+/- 0.5
4	S	100.01	100.01	120.0	30.00	0	W	N	Ref.Pt.
5	S	99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.3
6	S	99.99	99.99	120.0	100.00	0	W	N	Ref. Pt.
7	S	99.95	99.95	120.0	100.00	30.0	W	N	+/- 0.3
8	S	100.01	100.01	120.0	100.00	300.0	W	N	+/- 0.3
9	S	99.90	99.90	120.0	200.00	0	W	N	Ref. Pt.
10	S	99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.3
11	S	99.93	99.93	120.0	200.00	300.0	W	N	+/- 0.3
12	A	100.13	100.13	120.0	6.00	0	W	N	Ref. Pt.
13	A	100.14	100.14	120.0	6.00	30.0	W	N	+/- 0.5
14	A	100.16	100.16	120.0	12.00	300.0	W	N	+/- 0.5
15	A	100.03	100.03	120.0	30.00	0	W	N	Ref. Pt.
16	A	100.01	100.01	120.0	30.00	30.0	W	N	+/- 0.3
17	A	99.96	99.96	120.0	100.00	0	W	N	Ref.Pt.
18	A	99.95	99.95	120.0	100.00	30.0	W	N	+/- 0.3
19	A	100.02	100.02	120.0	100.00	300.0	W	N	+/- 0.3
20	A	99.98	99.98	120.0	200.00	0	W	N	Ref.Pt.
21	A	99.85	99.85	120.0	200.00	30.0	W	N	+/- 0.3
22	A	99.96	99.96	120.0	200.00	300.0	W	N	+/- 0.3
23	C	100.10	100.10	120.0	6.00	0	W	N	Ref.Pt.
24	C	100.10	100.10	120.0	6.00	30.0	W	N	+/- 0.5
25	C	100.13	100.13	120.0	12.00	300.0	W	N	+/- 0.5
26	C	100.01	100.01	120.0	30.00	0	W	N	Ref. Pt.
27	C	99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.3
28	C	99.95	99.95	120.0	100.00	0	W	N	Ref.Pt.
29	C	99.93	99.93	120.0	100.00	30.0	W	N	+/- 0.3
30	C	100.04	100.04	120.0	100.00	300.0	W	N	+/- 0.3
31	C	99.91	99.91	120.0	200.00	0	W	N	Ref. Pt.
32	C	99.90	99.90	120.0	200.00	30.0	W	N	+/- 0.3
33	C	99.94	99.94	120.0	200.00	300.0	W	N	+/- 0.3

Figure 25: 12S kV2c Variation of Power Factor with ConnectDER – Breaker ON (Step 3)



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Prev Meter:	Meter Type: I210+CN	Test Start: 09/04/2019 09:18
Meter No: 3537090	Form: 12 S	Test Stop: 09/04/2019 09:28
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes: Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.06	100.06	120.0	6.00	0	W	N	Ref. Pt.
2	S		100.05	100.05	120.0	6.00	30.0	W	N	+/- 1.0
3	S		100.00	100.00	120.0	12.00	300.0	W	N	+/- 1.0
4	S		99.95	99.95	120.0	30.00	0	W	N	Ref.Pt.
5	S		99.96	99.96	120.0	30.00	30.0	W	N	+/- 0.6
6	S		99.91	99.91	120.0	100.00	0	W	N	Ref. Pt.
7	S		99.92	99.92	120.0	100.00	30.0	W	N	+/- 0.6
8	S		99.87	99.87	120.0	100.00	300.0	W	N	+/- 0.6
9	S		99.90	99.90	120.0	200.00	0	W	N	Ref. Pt.
10	S		99.90	99.90	120.0	200.00	30.0	W	N	+/- 0.6
11	S		99.86	99.86	120.0	200.00	300.0	W	N	+/- 0.6
12	A		100.10	100.10	120.0	6.00	0	W	N	Ref. Pt.
13	A		100.14	100.14	120.0	6.00	30.0	W	N	+/- 1.0
14	A		100.06	100.06	120.0	12.00	300.0	W	N	+/- 1.0
15	A		99.98	99.98	120.0	30.00	0	W	N	Ref. Pt.
16	A		100.00	100.00	120.0	30.00	30.0	W	N	+/- 0.6
17	A		99.95	99.95	120.0	100.00	0	W	N	Ref.Pt.
18	A		99.96	99.96	120.0	100.00	30.0	W	N	+/- 0.6
19	A		99.93	99.93	120.0	100.00	300.0	W	N	+/- 0.6
20	A		99.95	99.95	120.0	200.00	0	W	N	Ref.Pt.
21	A		99.94	99.94	120.0	200.00	30.0	W	N	+/- 0.6
22	A		99.93	99.93	120.0	200.00	300.0	W	N	+/- 0.6
23	C		100.11	100.11	120.0	6.00	0	W	N	Ref.Pt.
24	C		100.20	100.20	120.0	6.00	30.0	W	N	+/- 0.6
25	C		100.08	100.08	120.0	12.00	300.0	W	N	+/- 0.6
26	C		99.97	99.97	120.0	30.00	0	W	N	Ref. Pt.
27	C		99.99	99.99	120.0	30.00	30.0	W	N	+/- 0.6
28	C		99.90	99.90	120.0	100.00	0	W	N	Ref.Pt.
29	C		99.96	99.96	120.0	100.00	30.0	W	N	+/- 0.6
30	C		99.72	99.72	120.0	100.00	300.0	W	N	+/- 0.6
31	C		99.91	99.91	120.0	200.00	0	W	N	Ref. Pt.
32	C		99.92	99.92	120.0	200.00	30.0	W	N	+/- 0.6
33	C		99.84	99.84	120.0	200.00	300.0	W	N	+/- 0.6

Figure 26: 12S I210 Variation of Power Factor with ConnectDER – Breaker ON (Step 3)



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Prev Meter:	Meter Type: I-210+C	Test Start: 02/28/2020 15:09
Meter No: 9299335	Form: 2 S	Test Stop: 02/28/2020 15:18
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 240.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T4 Vari. of pwr FT W connDER for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.29	100.29	120.0	6.00	0	W	N	Ref. Pt.
2	S		100.26	100.26	120.0	6.00	30.0	W	N	+/- 1.0
3	S		100.25	100.25	120.0	12.00	300.0	W	N	+/- 1.0
4	S		100.15	100.15	120.0	30.00	0	W	N	Ref.Pt.
5	S		100.16	100.16	120.0	30.00	30.0	W	N	+/- 0.6
6	S		100.11	100.11	120.0	100.00	0	W	N	Ref. Pt.
7	S		100.10	100.10	120.0	100.00	30.0	W	N	+/- 0.6
8	S		100.10	100.10	120.0	100.00	300.0	W	N	+/- 0.6
9	S		100.10	100.10	120.0	200.00	0	W	N	Ref. Pt.
10	S		100.04	100.04	120.0	200.00	30.0	W	N	+/- 0.6
11	S		100.06	100.06	120.0	200.00	300.0	W	N	+/- 0.6
12	A		100.31	100.31	120.0	6.00	0	W	N	Ref. Pt.
13	A		100.41	100.41	120.0	6.00	30.0	W	N	+/- 1.0
14	A		100.13	100.13	120.0	12.00	300.0	W	N	+/- 1.0
15	A		100.18	100.18	120.0	30.00	0	W	N	Ref. Pt.
16	A		100.25	100.25	120.0	30.00	30.0	W	N	+/- 0.6
17	A		100.16	100.16	120.0	100.00	0	W	N	Ref.Pt.
18	A		100.21	100.21	120.0	100.00	30.0	W	N	+/- 0.6
19	A		100.03	100.03	120.0	100.00	300.0	W	N	+/- 0.6
20	A		100.15	100.15	120.0	200.00	0	W	N	Ref.Pt.
21	A		100.20	100.20	120.0	200.00	30.0	W	N	+/- 0.6
22	A		100.13	100.13	120.0	200.00	300.0	W	N	+/- 0.6
23	C		100.31	100.31	120.0	6.00	0	W	N	Ref.Pt.
24	C		100.28	100.28	120.0	6.00	30.0	W	N	+/- 0.6
25	C		100.46	100.46	120.0	12.00	300.0	W	N	+/- 0.6
26	C		100.18	100.18	120.0	30.00	0	W	N	Ref. Pt.
27	C		100.12	100.12	120.0	30.00	30.0	W	N	+/- 0.6
28	C		100.15	100.15	120.0	100.00	0	W	N	Ref.Pt.
29	C		100.06	100.06	120.0	100.00	30.0	W	N	+/- 0.6
30	C		100.30	100.30	120.0	100.00	300.0	W	N	+/- 0.6
31	C		100.10	100.10	120.0	200.00	0	W	N	Ref. Pt.
32	C		100.04	100.04	120.0	200.00	30.0	W	N	+/- 0.6
33	C		100.24	100.24	120.0	200.00	300.0	W	N	+/- 0.6

Figure 27: 2S I210 Variation of Power Factor with ConnectDER – Breaker ON (Step 3)

Test 8 – Effect of Variation of Voltage

Purpose: To confirm that there will be no effect on registration or performance of the meter when the ConnectDER is introduced into the circuit.

Steps:

1. Connect a 12S (using both I-210 and kV2c) and 2S (I-210) meters to the WECO test board and record the percent registration for the following test points:
 - a. Nominal voltage (120V for 12S/240V for 2S) @ 3 Amps (reference point)
 - b. 90% of nominal voltage @ 3 amps
 - c. 110% of nominal voltage @ 3 amps
 - d. Nominal voltage (120V for 12S/240V for 2S) @ 30 Amps (reference point)
 - e. 90% of nominal voltage @ 30 amps
 - f. 110% of nominal voltage @ 30 amps
2. Repeat step 1 with the ConnectDER inserted and the breaker open.
3. Repeat step 1 with the ConnectDER inserted and the breaker closed.

Results:

The utility meter registration was measured within the required maximum error margin of +/- 0.2%. for the kV2C and +/-0.5% for the I-210 (See figures 28 through 36).



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Prev Meter:		Meter Type:	KV2C	Test Start:	08/28/2019 12:25
Meter No:	8946337	Form:	12 S	Test Stop:	08/28/2019 12:40
Serial No:		Kh:	14.4	Tester ID:	WU
AMR No:		Volt:	120.0	Test Station:	6977 1
Mfr:	AC	Amp:	30.00		
Test Code:	EN				

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T5 Vari.of voltage MTR only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1	S		100.02	100.02	120.0	3.00	0	W	N	Ref. PT.
2	S		100.02	100.02	108.0	3.00	0	W	N	+/- 0.2
3	S		100.01	100.01	132.0	3.00	0	W	N	+/- 0.2
4	S		100.00	100.00	120.0	30.00	0	W	N	Ref. PT.
5	S		100.01	100.01	108.0	30.00	0	W	N	+/- 0.2
6	S		100.01	100.01	132.0	30.00	0	W	N	+/- 0.2

Figure 28: 12S kV2c Variance of Voltage – meter only (Step 1)



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Prev Meter:	Meter Type: I210+CN	Test Start: 08/27/2019 16:50
Meter No: 3537090	Form: 12 S	Test Stop: 08/27/2019 16:52
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T5 Vari.of voltage MTR only for ConnectDER S/N S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.01	100.01	120.0	3.00	0	W	N	Ref. PT.
2		S	100.03	100.03	108.0	3.00	0	W	N	+/- 0.2
3		S	100.03	100.03	132.0	3.00	0	W	N	+/- 0.2
4		S	100.00	100.00	120.0	30.00	0	W	N	Ref. PT.
5		S	99.99	99.99	108.0	30.00	0	W	N	+/- 0.2
6		S	99.99	99.99	132.0	30.00	0	W	N	+/- 0.2

Figure 29: 12S I210 Variance of Voltage – meter only (Step 1)



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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.15	100.15	120.0	3.00	0	W	N	Ref. PT.
2		S	100.16	100.16	108.0	3.00	0	W	N	+/- 0.2
3		S	100.16	100.16	132.0	3.00	0	W	N	+/- 0.2
4		S	100.11	100.11	120.0	30.00	0	W	N	Ref. PT.
5		S	100.10	100.10	108.0	30.00	0	W	N	+/- 0.2
6		S	100.12	100.12	132.0	30.00	0	W	N	+/- 0.2

Figure 30: 2S I210 Variance of Voltage – meter only (Step 1)



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Prev Meter:	Meter Type: KV2C	Test Start: 09/05/2019 08:00
Meter No: 8946337	Form: 12 S	Test Stop: 09/05/2019 08:16
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T5 Vari.of voltage W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	99.99	99.99	120.0	3.00	0	W	N	Ref. PT.
2		S	99.99	99.99	108.0	3.00	0	W	N	+/- 0.2
3		S	99.99	99.99	132.0	3.00	0	W	N	+/- 0.2
4		S	99.99	99.99	120.0	30.00	0	W	N	Ref. PT.
5		S	99.99	99.99	108.0	30.00	0	W	N	+/- 0.2
6		S	99.99	99.99	132.0	30.00	0	W	N	+/- 0.2

Figure 31: 12S kV2c Variance of Voltage with ConnectDER - breaker OFF (Step 2)



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Prev Meter:	Meter Type: I210+CN	Test Start: 09/04/2019 09:55
Meter No: 3537090	Form: 12 S	Test Stop: 09/04/2019 09:57
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T5 Vari.of voltage W connectDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.03	100.03	120.0	3.00	0	W	N	Ref. PT.
2		S	100.03	100.03	108.0	3.00	0	W	N	+/- 0.2
3		S	100.04	100.04	132.0	3.00	0	W	N	+/- 0.2
4		S	99.99	99.99	120.0	30.00	0	W	N	Ref. PT.
5		S	100.01	100.01	108.0	30.00	0	W	N	+/- 0.2
6		S	100.00	100.00	132.0	30.00	0	W	N	+/- 0.2

Figure 32: 12S I210 Variance of Voltage with ConnectDER - breaker OFF (Step 2)



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Prev Meter:
Meter No: 9299335
Serial No:
AMR No:
Mfr: AC
Test Code: EN

Meter Type: I-210+C
Form: 2 S
Kh: 1
Volt: 240.0
Amp: 30.00

Test Start: 02/28/2020 14:49
Test Stop: 02/28/2020 14:51
Tester ID: WU
Test Station: 6977 1

As Found KWH Reading: Breaker Off

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T5 Vari.of voltage W connDER for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.20	100.20	120.0	3.00	0	W	N	Ref. PT.
2		S	100.19	100.19	108.0	3.00	0	W	N	+/- 0.2
3		S	100.20	100.20	132.0	3.00	0	W	N	+/- 0.2
4		S	100.14	100.14	120.0	30.00	0	W	N	Ref. PT.
5		S	100.13	100.13	108.0	30.00	0	W	N	+/- 0.2
6		S	100.14	100.14	132.0	30.00	0	W	N	+/- 0.2

Figure 33: 2S I210 Variance of Voltage with ConnectDER - breaker OFF (Step 2)



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Prev Meter:	Meter Type: KV2C	Test Start: 09/05/2019 07:44
Meter No: 8946337	Form: 12 S	Test Stop: 09/05/2019 07:59
Serial No:	Kh: 14.4	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading: As Left KWH Reading:

Trouble Codes	Comments:
	Ansi T5 Vari.of voltage W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.10	100.10	120.0	3.00	0	W	N	Ref. PT.
2		S	100.13	100.13	108.0	3.00	0	W	N	+/- 0.2
3		S	100.10	100.10	132.0	3.00	0	W	N	+/- 0.2
4		S	100.00	100.00	120.0	30.00	0	W	N	Ref. PT.
5		S	100.00	100.00	108.0	30.00	0	W	N	+/- 0.2
6		S	100.00	100.00	132.0	30.00	0	W	N	+/- 0.2

Figure 34: 12S kV2c Variance of Voltage with ConnectDER - breaker ON (Step 3)



Test Results ConnectDER

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Prev Meter:	Meter Type: I210+CN	Test Start: 09/04/2019 09:50
Meter No: 3537090	Form: 12 S	Test Stop: 09/04/2019 09:52
Serial No:	Kh: 1	Tester ID: WU
AMR No:	Volt: 120.0	Test Station: 6977 1
Mfr: AC	Amp: 30.00	
Test Code: EN		

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T5 Vari.of voltage W connDER for ConnectDER SN S90702001

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev	Power	Notes
			Found	Left							
1		S	100.26	100.26	120.0	3.00	0	W	N		Ref. PT.
2		S	100.14	100.14	108.0	3.00	0	W	N		+/- 0.2
3		S	100.26	100.26	132.0	3.00	0	W	N		+/- 0.2
4		S	100.01	100.01	120.0	30.00	0	W	N		Ref. PT.
5		S	100.00	100.00	108.0	30.00	0	W	N		+/- 0.2
6		S	100.02	100.02	132.0	30.00	0	W	N		+/- 0.2

Figure 35: 12S I210 Variance of Voltage with ConnectDER - breaker ON (Step 3)



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Prev Meter:
Meter No:
Serial No:
AMR No:
Mfr:
Test Code:

Meter Type:
Form:
Kh:
Volt:
Amp:

Test Start:
Test Stop:
Tester ID:
Test Station:

As Found KWH Reading:

As Left KWH Reading:

Trouble Codes

Comments:

Ansi T5 Vari.of voltage W connDER for ConnectDER SN S90201030

Hypersequence:

Step	Test	Elem	Results		Volts	Amps	Phase	STD Mode	Rev Power	Notes
			Found	Left						
1		S	100.29	100.29	120.0	3.00	0	W	N	Ref. PT.
2		S	100.38	100.38	108.0	3.00	0	W	N	+/- 0.2
3		S	100.28	100.28	132.0	3.00	0	W	N	+/- 0.2
4		S	100.13	100.13	120.0	30.00	0	W	N	Ref. PT.
5		S	100.13	100.13	108.0	30.00	0	W	N	+/- 0.2
6		S	100.14	100.14	132.0	30.00	0	W	N	+/- 0.2

Figure 36: 2S I210 Variance of Voltage with ConnectDER - breaker ON (Step 3)

APPENDIX

Glossary of terms

Revenue or Utility Meter	Meter for recording electric energy for billing
ConnectDER adapter	A device that plugs into a meter enclosure that provides quick and easy interconnection of a PV system to the customer's electric panel.
PV	Photovoltaic (solar) energy system that generates electricity from the sun.
Breaker	A circuit breaker built-in to the ConnectDER used to disconnect the output of the PV system from the customer's panel (grid).
Production Meter	An electric energy meter used to monitor the PV Inverter output
Inverter	An electronic device that converts the solar panel output to 120VAC.

List of revenue meters used

12S Aclara kV2c meter # 8946337

12S Aclara I-210+CN meter # 3537090

2S Aclara I-210+C meter # 9299335