

System Test Plan

System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)			
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.	Actual Result
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit						
1	T1		REN0325HWRID06	Power Consumption of System	Voltmeter across input supply and ammeter in series with supply	Phase Voltage	240V	SV	Volt-Ampere	VA	As low as possible	8	1	2		Acceptable		
						Phase Current	10A											
						Frequency	50Hz											
2	T3		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SW_CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	The system is operated at voltage which is -20% below the nominal operating voltage which will be applied between 1S and 2S.At this voltage,six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 50Hz for accuracy.PF is varied between 0.5 lag and unity throughout these tests. Under these conditions,KWh is measured and checked for accuracy as per International Standard specifications. The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall be given the same inputs and their readings will be compared to measure accuracy. The data from the meter will be read-out through the RS232 port.	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.05%		Acceptable		
						Phase Current	500mA											
						Frequency	50Hz											
						PF	1											
						Time	1min											
3	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 +2.1%	1	-0.21%		Acceptable		
						Phase Current	500mA											
						Frequency	50Hz											
						PF	0.5lag											
						Time	1min											
4	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 +2.1%	1	-0.05%		Acceptable		
						Phase Current	1A											
						Frequency	50Hz											
						PF	1											
						Time	1min											
5	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 +3.0%	1	-0.24%		Acceptable		
						Phase Current	1A											
						Frequency	50Hz											
						PF	0.5lag											
						Time	1min											
6	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 +2.1%	1	-0.09%		Acceptable		
						Phase Current	2A											
						Frequency	50Hz											
						PF	1											
						Time	1min											
7	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 +3.0%	1	-0.29%		Acceptable		
						Phase Current	2A											
						Frequency	50Hz											
						PF	0.5lag											
						Time	1min											
8	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 +2.1%	1	-0.04%		Acceptable		
						Phase Current	10A											
						Frequency	50Hz											
						PF	1											
						Time	1min											
9	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 +3.0%	1	0.13%		Acceptable		
						Phase Current	10A											
						Frequency	50Hz											
						PF	0.5lag											
						Time	1min											
10	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 +2.1%	1	-0.05%		Acceptable		
						Phase Current	30A											
						Frequency	50Hz											
						PF	1											
						Time	1min											
						Phase Voltage	192V											

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Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit					
11	T3.1		REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Current	30A	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 +3.0%	1	-0.03%			Acceptable
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
12	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.23%			Acceptable
						Phase Current	60A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
13	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	192V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.33%			Acceptable
						Phase Current	60A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
14	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SW_ CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	The system is operated at voltage which is +15% above the nominal operating voltage which will be applied between 1S and 2S.At this voltage,six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 50Hz for accuracy.PF is varied between 0.5 lag and unity throughout these tests. Under these conditions,KWh is measured and checked for accuracy as per International Standard specifications. The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.07%			Acceptable
						Phase Current	500mA										
						Frequency	50Hz										
						PF	1										
						Time	1min										
15	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.09%			Acceptable
						Phase Current	500mA										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
16	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.03%			Acceptable
						Phase Current	1A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
17	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.15%			Acceptable
						Phase Current	1A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
18	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.07%			Acceptable
						Phase Current	2A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
19	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.12%			Acceptable
						Phase Current	2A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
20	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.01%			Acceptable
						Phase Current	10A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
21	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.25%			Acceptable
						Phase Current	10A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
22	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	0.07%			Acceptable
						Phase Current	30A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
						Phase Voltage	276V										

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Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.	Actual Result									
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit															
23	T3.1		REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Current	30A	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	0.03%			Acceptable										
						Frequency	50Hz																				
						PF	0.5lag																				
						Time	1min																				
24	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SW_CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 - 2.1%	Test result of test no.59 + 2.1%	1	-0.18%			Acceptable										
						Phase Current	60A																				
						Frequency	50Hz																				
						PF	1																				
						Time	1min																				
25	T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	276V	BVA	Active Energy	% Error	Test result of test no.59 -3%	Test result of test no.59 + 3%	1	-0.28%			Acceptable										
						Phase Current	60A																				
						Frequency	50Hz																				
						PF	0.5lag																				
						Time	1min																				
26	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SW_CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	The system is operated at a voltage which is -10% below the nominal operating voltage which will be applied between 1S and 2S.At this voltage, six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 50Hz for accuracy. PF is varied between 0.5 lag and unity throughout these tests. Under these conditions, the KWh,and PF is measured and checked for accuracy as per International Standard specifications.The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall be given the same inputs and their readings will be compared to measure accuracy. The data from the meter will be read-out through the RS232 port.	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	0.02%			Acceptable										
						Phase Current	500mA																				
						Frequency	50Hz																				
						PF	1																				
						Time	1min																				
27	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	NA	NA	1	-0.19%			Acceptable										
						Phase Current	500mA																				
						Frequency	50Hz																				
						PF	0.5lag																				
						Time	1min																				
28	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.03%			Acceptable										
						Phase Current	1A																				
						Frequency	50Hz																				
						PF	1																				
						Time	1min																				
29	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.20%			Acceptable										
						Phase Current	1A																				
						Frequency	50Hz																				
						PF	0.5lag																				
						Time	1min																				
30	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.05%			Acceptable										
						Phase Current	2A																				
						Frequency	50Hz																				
						PF	1																				
						Time	1min																				
31	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.20%			Acceptable										
						Phase Current	2A																				
						Frequency	50Hz																				
						PF	0.5lag																				
						Time	1min																				
32	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08	Accuracy Test of KWh	do	Phase Voltage	216V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.01%			Acceptable										
						Phase Current	10A																				
						Frequency	50Hz																				
						PF	1																				
						Time	1min																				

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System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)		
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit					
33	T2		REN0325HWRID07	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.06%			Acceptable
						Phase Voltage	216V										
						Phase Current	10A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
34	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	0.05%			Acceptable
						Phase Voltage	216V										
						Phase Current	30A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
35	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.10%			Acceptable
						Phase Voltage	216V										
						Phase Current	30A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
36	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.05%			Acceptable
						Phase Voltage	216V										
						Phase Current	60A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
37	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.23%			Acceptable
						Phase Voltage	216V										
						Phase Current	60A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
38	T2		REN0325SWRID01	Accuracy Test of KWh	The system is operated at a voltage which is +10% above the nominal operating voltage which will be applied between 1S and 2S.At this voltage, six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 50Hz for accuracy. PF is varied between 0.5 lag and unity throughout these tests. Under these conditions, the KWh,and PF is measured and checked for accuracy as per International Standard specifications.The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall be given the same inputs and their readings will be compared to measure accuracy. The data from the meter will be read-out through the RS232 port.			BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.04%			Acceptable
						Phase Voltage	264V										
						Phase Current	500mA										
						Frequency	50Hz										
						PF	1										
						Time	1min										
39	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	NA	NA	1	-0.04%			Acceptable
						Phase Voltage	264V										
						Phase Current	500mA										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
40	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.04%			Acceptable
						Phase Voltage	264V										
						Phase Current	1A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
41	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.15%			Acceptable
						Phase Voltage	264V										
						Phase Current	1A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										
42	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	3.00%			Acceptable
						Phase Voltage	264V										
						Phase Current	2A										
						Frequency	50Hz										
						PF	1										
						Time	1min										
43	T2		REN0325SWRID01	Accuracy Test of KWh	do			BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.20%			Acceptable
						Phase Voltage	264V										
						Phase Current	2A										
						Frequency	50Hz										
						PF	0.5lag										
						Time	1min										

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System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
44	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.07%			Acceptable		
						Phase Current	10A												
						Frequency	50Hz												
						PF	1												
						Time	1min												
45	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 1%	Test result of test no.59 + 1%	1	0.20%			Acceptable		
						Phase Current	10A												
						Frequency	50Hz												
						PF	0.5lag												
						Time	1min												
46	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.03%			Acceptable		
						Phase Current	30A												
						Frequency	50Hz												
						PF	1												
						Time	1min												
47	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 1%	Test result of test no.59 + 1%	1	0.06%			Acceptable		
						Phase Current	30A												
						Frequency	50Hz												
						PF	0.5lag												
						Time	1min												
48	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 0.7%	Test result of test no.59 + 0.7%	1	-0.12%			Acceptable		
						Phase Current	60A												
						Frequency	50Hz												
						PF	1												
						Time	1min												
49	T2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	264V	BVA	Active Energy	% Error	Test result of test no.59 - 1%	Test result of test no.59 + 1%	1	-0.22%			Acceptable		
						Phase Current	60A												
						Frequency	50Hz												
						PF	0.5lag												
						Time	1min												
50	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SWW_CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	The system is operated at the nominal operating voltage which will be applied between 1S and 2S. At this voltage, six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 50Hz for accuracy. PF is varied between 0.5 lag, unity and 0.8 lead throughout these tests. Under these conditions, the KWh is measured and checked for accuracy as per International Standard specifications. The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall be given the same inputs and their readings will be compared to measure accuracy. The data from the meter will be read-out through the RS232 port.	Phase Voltage	240V	BVA	Active Energy	% Error	-2%	+2%	1	0.03%			Acceptable		
						Phase Current	200mA												
						Frequency	50Hz												
						PF	1												
						Time	1min												
51	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-2%	+2%	1	-0.10%			Acceptable		
						Phase Current	500mA												
						Frequency	50Hz												
						PF	0.5lag												
						Time	1min												
52	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-2%	+2%	1	0.05%			Acceptable		
						Phase Current	500mA												
						Frequency	50Hz												
						PF	0.8 lead												
						Time	1min												
53	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	1%	1	-0.05%			Acceptable		
						Phase Current	1A												
						Frequency	50Hz												
						PF	1												
						Time	1min												

System Test Plan

System Test Cases												Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)	
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.			Actual Result
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit						
			REN0325HWRID09 REN0325HWRID10															
54	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1.5%	+1.5%	1	-0.15%			Acceptable	
			REN0325SWRID02			Phase Current	1A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.5 lag											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
55	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1.5%	+1.5%	1	0.05%			Acceptable	
			REN0325SWRID02			Phase Current	1A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.8 lead											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
56	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	-0.10%			Acceptable	
			REN0325SWRID02			Phase Current	2A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	1											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
57	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1.5%	+1.5%	1	-0.20%			Acceptable	
			REN0325SWRID02			Phase Current	2A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.5 lag											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
58	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1.5%	+1.5%	1	0.03%			Acceptable	
			REN0325SWRID02			Phase Current	2A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.8 lead											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
59	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	0.07%			Acceptable	
			REN0325SWRID02			Phase Current	10A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	1											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
60	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	0.08%			Acceptable	
			REN0325SWRID02			Phase Current	10A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.5 lag											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
61	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	-0.03%			Acceptable	
			REN0325SWRID02			Phase Current	10A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.8 lead											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
62	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	7.00%			Acceptable	
			REN0325SWRID02			Phase Current	30A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	1											
			REN0325SWRID08			Time	1min											
			REN0325HWRID07															
			REN0325HWRID09															
REN0325HWRID10																		
63	T2,T3.1		REN0325SWRID01	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	-1%	+1%	1	0.07%			Acceptable	
			REN0325SWRID02			Phase Current	30A											
			REN0325SWRID04			Frequency	50Hz											
			REN0325SWRID05			PF	0.5 lag											
			REN0325SWRID08			Time	1min											

System Test Plan

System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
			REN0325HWRID07 REN0325HWRID09 REN0325HWRID10																
64	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 30A 50Hz 0.8 lead 1min	BVA	Active Energy	% Error	-1%	+1%	1	-0.05%				Acceptable	
65	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 60A 50Hz 1 1min	BVA	Active Energy	% Error	-1%	+1%	1	0.14%				Acceptable	
66	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 60A 50Hz 0.5 lag 1min	BVA	Active Energy	% Error	-1%	+1%	1	0.20%				Acceptable	
67	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 60A 50Hz 0.8 lead 1min	BVA	Active Energy	% Error	-1%	+1%	1	-0.12%				Acceptable	
68	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07 REN0325HWRID09 REN0325HWRID10 REN0325HWRID03 REN0325HWRID04 REN0325HWRID18 REN0325SW_CSR1 REN0325HW_PCSR1	Accuracy Test of KWh	The system is operated at the nominal operating voltage which will be applied between 1S and 2S.At this voltage,six different current values are specified for testing which will be adjusted by observing the reading on the ammeter connected to 1S. Each of these combinations of Phase current and Phase voltage are measured at 52.5Hz and 47.5Hz for accuracy. PF is varied between 0.5 lag and unity throughout these tests. Under these conditions, the KWh is measured and checked for accuracy as per International Standard specifications.The test will commence when the enter key is pressed thereafter exactly after one minute the enter key would be pressed again. During this duration, the EUT and a calibrated meter shall be given the same inputs and their readings will be compared to measure accuracy. The data from the meter will be read-out through the RS232 port.	Phase Voltage Phase Current Frequency PF Time	240V 500mA 52.5Hz 1 1min	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.01%				Acceptable	
69	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 500mA 52.5Hz 0.5lag 1min	BVA	Active Energy	% Error	NA	NA	1	-0.09%				Acceptable	
70	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 500mA 47.5Hz 1 1min	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.04%				Acceptable	
71	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 500mA 47.5Hz 0.5lag 1min	BVA	Active Energy	% Error	NA	NA	1	0.17%				Acceptable	
72	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage Phase Current Frequency PF Time	240V 1A 52.5Hz 1 1min	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.01%				Acceptable	
			REN0325SWRID01 REN0325SWRID02			Phase Voltage Phase Current	240V 1A				Test result	Test result							

System Test Plan

System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
73	T2,T3.1		REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Frequency	52.5Hz	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.09%			Acceptable		
						PF	0.5lag												
						Time	1min												
74	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.04%			Acceptable		
						Phase Current	1A												
						Frequency	47.5Hz												
						PF	1												
						Time	1min												
75	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.17%			Acceptable		
						Phase Current	1A												
						Frequency	47.5Hz												
						PF	0.5lag												
						Time	1min												
76	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.00%			Acceptable		
						Phase Current	2A												
						Frequency	52.5Hz												
						PF	1												
						Time	1min												
77	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.13%			Acceptable		
						Phase Current	2A												
						Frequency	52.5Hz												
						PF	0.5lag												
						Time	1min												
78	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.01%			Acceptable		
						Phase Current	2A												
						Frequency	47.5Hz												
						PF	1												
						Time	1min												
79	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.18%			Acceptable		
						Phase Current	2A												
						Frequency	47.5Hz												
						PF	0.5lag												
						Time	1min												
80	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.05%			Acceptable		
						Phase Current	10A												
						Frequency	52.5Hz												
						PF	1												
						Time	1min												
81	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.01%			Acceptable		
						Phase Current	10A												
						Frequency	52.5Hz												
						PF	0.5lag												
						Time	1min												
82	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.06%			Acceptable		
						Phase Current	10A												
						Frequency	47.5Hz												
						PF	1												
						Time	1min												
83	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.32%			Acceptable		
						Phase Current	10A												
						Frequency	47.5Hz												
						PF	0.5lag												
						Time	1min												
84	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	-0.02%			Acceptable		
						Phase Current	30A												
						Frequency	52.5Hz												
						PF	1												
						Time	1min												
85	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.08%			Acceptable		
						Phase Current	30A												
						Frequency	52.5Hz												
						PF	0.5lag												
						Time	1min												
86	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04	Accuracy Test of	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test	Test result of test	1	-0.01%			Acceptable		
						Phase Current	30A												
						Frequency	47.5Hz												

System Test Plan

System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
86	T2,T3.1		REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	KWh	do	PF	1	BVA	Active Energy	% Error	no.59 - 0.8%	no.59 + 0.8%	1	0.01%			Acceptable		
						Time	1min												
87	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.34%			Acceptable		
						Phase Current	30A												
						Frequency	47.5Hz												
						PF	0.5lag												
						Time	1min												
88	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	0.22%			Acceptable		
						Phase Current	60A												
						Frequency	52.5Hz												
						PF	1												
						Time	1min												
89	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	0.42%			Acceptable		
						Phase Current	60A												
						Frequency	52.5Hz												
						PF	0.5lag												
						Time	1min												
90	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 - 0.8%	Test result of test no.59 + 0.8%	1	-0.20%			Acceptable		
						Phase Current	60A												
						Frequency	47.5Hz												
						PF	1												
						Time	1min												
91	T2,T3.1		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	do	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -1%	Test result of test no.59 + 1%	1	-0.14%			Acceptable		
						Phase Current	60A												
						Frequency	47.5Hz												
						PF	0.5lag												
						Time	1min												
92	T2,T3.2		REN0325SWRID01 REN0325SWRID02 REN0325SWRID04 REN0325SWRID05 REN0325SWRID08 REN0325HWRID07	Accuracy Test of KWh	KWh accuracy test during current reversal	Phase Voltage	240V	BVA	Active Energy	% Error	Test result of test no.59 -2%	Test result of test no.59 + 2%	1	-0.10%			Acceptable		
						Phase Current	-10A												
						Frequency	50Hz												
						PF	1												
						Time	1min												
93	T6		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	The system will be operated at nominal voltage and nominal current. The operating frequency will be maintained at 50Hz throughout this test. Only the power factor will be varied and will be observed over a duration of one minute.	Phase Voltage	240V	BVA	AMPERE	A	0.49	0.51	1	0.49			Acceptable		
						Phase Current	0.5A												
						Frequency	50Hz												
						PF	0.5lag												
94	T6		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	SV	AMPERE	A	0.49	0.51	1	0.49			Acceptable		
						Phase Current	0.5A												
						Frequency	50Hz												
						PF	1												
95	T6		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	0.49	0.51	1	0.49			Acceptable		
						Phase Current	0.5A												
						Frequency	50Hz												
						PF	0.8lead												
96	T7		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	3.92	4.08	1	3.98			Acceptable		
						Phase Current	4A												
						Frequency	50Hz												
						PF	0.5lag												
97	T7		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	SV	AMPERE	A	3.92	4.08	1	3.99			Acceptable		
						Phase Current	4A												
						Frequency	50Hz												
						PF	1												
98	T7		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	3.92	4.08	1	4			Acceptable		
						Phase Current	4A												
						Frequency	50Hz												
						PF	0.8lead												
99	T8		REN0325SWRID03	Accuracy Test of	do	Phase Voltage	240V	BVA	AMPERE	A	3.98	4.08	1	3.98			Acceptable		
						Phase Current	10A												
						Frequency	50Hz												

System Test Plan

System Test Cases										Test Results				Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)	
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.			Actual Result
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit						
99	T8		REN0325SWRID17	RMS Current	do	PF	0.5lag	BVA	AMPERE	A	9.8	10.2	1	9.99			Acceptable	
100	T8		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	SV	AMPERE	A	9.8	10.2	1	10.01			Acceptable	
						Phase Current	10A											
						Frequency	50Hz											
						PF	1											
101	T8		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	9.8	10.2	1	9.99			Acceptable	
						Phase Current	10A											
						Frequency	50Hz											
						PF	0.8lead											
102	T9		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	58.8	61.2	1	59.86			Acceptable	
						Phase Current	60A											
						Frequency	50Hz											
						PF	0.5lag											
103	T9		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	SV	AMPERE	A	58.8	61.2	1	59.1			Acceptable	
						Phase Current	60A											
						Frequency	50Hz											
						PF	1											
104	T9		REN0325SWRID03 REN0325SWRID17	Accuracy Test of RMS Current	do	Phase Voltage	240V	BVA	AMPERE	A	58.8	61.2	1	60			Acceptable	
						Phase Current	60A											
						Frequency	50Hz											
						PF	0.8lead											
105	T21.1		REN0325SWRID19 REN0325SHWRID13	Test for Autoscroll	The System will be operated at nominal voltage and nominal current and the display sequence will be checked. The display shall scroll through the specified sequence for every 10 sec and repeat after the last parameter of the sequence has been displayed. The sequence of the paramters is as follows: 1. Vrms 2. Irms 3.Cos (phi) 4. Cumulative Active Energy of tariff 1. 5. Cumulative Active Energy of tariff 2 6. Cumulative Active Energy of tariff 3 7. Cumulative Active Energy of tariff 4 8. Cumulative Apparent Energy of tariff 1 9. Cumulative Apparent Energy of tariff 2 10. Cumulative Apparent Energy of tariff 3 11. Cumulative Apparent Energy of tariff 4 12. Total Cumulative Active Energy (resolution 1 decimal points) 13. Total Cumulative Apparent Energy (resolution 1 decimal points)	Up Scroll key	Realeased	IOD	The display will be checked if the sequence of parameters is in accordance with the sequence specified.	NA	NA	1	The display enters into Auto mode on power-on.The display scrolls for every 10 secs and the order of the display parameter is the same as specified and the it repeats.			Acceptable		
						Down Scoll Key	Released											
						MD reset key	Released											
						Display	ON											
107	T21.2		REN0325SWRID19 REN0325SHWRID13	Test for Manual Scroll	The System will be operated at nominal voltage and nominal current and the display sequence will be checked. The display shall scroll through the specified sequence whenever there is UP / DOWN key press. If the scrolling is in AUTO mode and user has pressed any of the UP or DOWN key then the	Up Scroll key	user press	IOD	The display will be checked if the sequence of parameters is	NA	NA	1	The display scrolls Up and the parameters displayed are in specified order.			Acceptable		
						Down Scoll Key	Released											
						MD reset key	Released											
						Display	ON											
108	T21.3		REN0325SWRID19 REN0325SHWRID13 REN0325SW_UIR1 REN0325SW_DDSR1 REN0325SW_FSR1	Manual scrolling to auto scrolling	Press the up or down key to swich the meter to maual scrolling mode and after 5 min the meter will again start scrolling in auto scrolling mode.	Phase Voltage	240V	IOD	The switch over from manual to auto scroll will be 5 min.	NA	NA	1	To switch over from Manual to Auto mode the meter takes 5 mins.			Acceptable		
						Phase Current	10A											
						PF	1											
						Frequency	50Hz											
109	T12		REN0325SWRID12 REN0325SWRID18 REN0325SW_UIR1 REN0325SW_PSR1	Test of Scrolling Keys,MD reset.	Several combinations of these keys will be pressed to validate the proper operation of the system without letting the system to enter into any invalid state of operation.	Up Scroll key	Depressed	IOD	The display will be checked whether the	NA	NA	1	The sequence of the display parameters scrolls Up as follows: 1. Maximum Demand			Acceptable		
						Down Scoll Key	Released											
						MD reset key	Released											
						Display	ON											
110	T13		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1	<-do->	do	Up Scroll key	Released	IOD	The display will be checked whether the	NA	NA	1	The sequence of the display parameters scrolls Down as follows:			Acceptable		
						Down Scoll Key	Depressed											
						MD reset key	Released											
						Display	ON											
			REN0325SWRID12			Up Scroll key	Released	The back-up of the present MD value shall be					12 Back-up of MD					
						Down Scoll Key	Released											
						MD reset key	Depressed											

System Test Plan

System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
111	T14		REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25 REN0325SWRID14	<-do->	Press the MD Reset key.Then MD value from the EEPROM will be read-out through the RS232 port and verified. This test shall be repeted for 11 times to confirm the 12 history savings in the EEPROM.	Display	ON	IOD	MD reset key The active		NA	NA	12	value with energies are stored in EEPROM and MD becomes zero in each reset when MD key is pressed.			Acceptable		
112	T15		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25	<-do->	Several combinations of these keys will be pressed to validate the proper operation of the system without letting the system to enter into any invalid state of operation.	Up Scroll key Down Scroll Key MD reset key Display	Released Released Released ON	IOD	The specified keys will not perform any of their assigned task and the system shall not show any haphazard operation.		NA	NA	1	The meter is operational and display scrolls automatically.			Acceptable		
113	T16		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25	<-do->	do	Up Scroll key Down Scroll Key MD reset key Display	Depressed Depressed Depressed ON	IOD	The specified keys will not perform any of their assigned task and the system shall not show any haphazard operation.		NA	NA	1	The meter is operational. The specific functions for each of the key are not performed (i.e., the display does not scroll UP or DOWN or the MD reset does not occur).			Acceptable		
114	T16		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25	<-do->	do	Time Up Scroll key Down Scroll Key MD reset key Display	15sec Depressed Depressed Released ON	IOD	The specified keys will not perform any of their assigned task and the system shall not show any haphazard operation.		NA	NA	1	The meter is operational. The specific functions for each of the key are not performed (i.e., the display does not scroll UP or DOWN).			Acceptable		
115	T16		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25	<-do->	do	Up Scroll key Down Scroll Key MD reset key Display	Depressed Released Depressed ON	IOD	The specified keys will not perform any of their assigned task and the system shall not show any haphazard operation.		NA	NA	1	The meter is operational. The specified functions for each key are not performed (i.e., the display does not scroll UP or the MD reset does not occur).			Acceptable		
116	T16		REN0325SWRID12 REN0325SWRID19 REN0325SW_UIR1 REN0325SW_PSR1 REN0325HW_PHR1 REN0325HWRID25	<-do->	do	Up Scroll key Down Scroll Key MD reset key Display	Released Depressed Depressed ON	IOD	The specified keys will not perform any of their assigned task and the		NA	NA	1	The meter is operational.The specified functions for each key are not performed(i.e., the display does not			Acceptable		
117	T17.1		REN0325SWRID23 REN0325SWRID08 REN0325SWRID24 REN0325HWRID03 REN0325HWRID04	Test of functionality of RS232 when system is working in normal mode	Transmit the header of the frame for the protocol followed,to the energy meter via the optical port. In response to this, the acknowledgement transmitted by the energymeter shall be compared with the "acknowledgement format".	Data transmitted to energymeter Phase Voltage Switch Battery Source	Header (/7f1x0d0x0a) 240V F T	IOD	Data received shall match with the specified acknowledge		NA	NA	1	Acknowledged by the system via RS232 and response message obtained from the meter is			Acceptable		
118	T17.2		REN0325SWRID23 REN0325SWRID08 REN0325SWRID24 REN0325HWRID03 REN0325SW_DDOR1 REN0325 HW_CHR1 REN0325HW_PHR1 REN0325HW_EIHR1	Test of functionality of Optical port when the system is working in Battery mode	Transmit the header of the frame for the protocol followed,to the energy meter via the optical port. In response to this, the acknowledgement transmitted by the enerymeter shall be compared with the "acknowledgement format".	Data transmitted to Phase Voltage Switch Battery Source	Header 0v T T	IOD	The data shall be sent and received via Optical port only, not by RS232		NA	NA	1	Acknowledged by the system via optical port and response message obtained from the meter is RS4RESPEM.			Acceptable		
119	T18		REN0325HWRID11 REN0325HWRID20 REN0325HWRID22 REN0325SWRID11 REN0325SWRID10 REN0325SWRID06	LED Indication and Fault Indication Tests	The system shall be operated at the nominal operating voltage which will be applied between 1S and 2S.	Phase Voltage Phase Current Neutral Current Frequency PF	240V 10A 10A 50Hz 1	IOD	The KWh LED shall blink at a rate proportional to the power consumed		NA	NA	1	kWh LED blinks at the rate proportional to the power consumed and Power LED is ON.			Acceptable		
			REN0325HWRID11 REN0325HWRID20			Phase Voltage	240V		Reversal LED and Power LED					Power and Reversal LEDs are on when reverse current is				Difference between the	

System Test Plan

System Test Cases														Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result	Iteration No.	Actual Result			
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit							
120	T19		REN0325HWRID22 REN0325SWRID11 REN0325SWRID10 REN0325SWRID06 REN0325SW_PSR1	Current reversal indication	The Phase current is made to flow in opposite direction.ie 1L to 1S. Nominal phase voltage shall be applied to the system.	Phase Current	10A(reverse direction)	EB,IOD	Power LEDs should be ON. The tamper details shall be recorded.		NA	NA	1	applied and the tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable	Phase and Neutral current shall be more than 200mA	
121	T20		REN0325HWRID11 REN0325HWRID20 REN0325HWRID22 REN0325SWRID11 REN0325SWRID10 REN0325SWRID06 REN0325SW_PSR1	Earth Leakage indication	The neutral current connection will be removed (2L) and the load will be connected to earth (1L).	Phase Voltage	240V	EB,IOD	ELT and Power LEDs shall be ON. The tamper details shall be recorded.		12.5% of lb	NA	1	Power and ELT LEDs are on when neutral current connection is removed or it is equal to 0 and the tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Phase Current	10A												
						Neutral Current	0A												
						Frequency	50Hz												
						PF	1												
122	T22		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	Anti-Tampering and Anti-Fraud Testing	The meter shall operate at nominal voltage and current.During these tests, the various methods of tampering will be simulated on the meter and recorded the details of tampering. Simultaneously the meter functionality will be tested for proper operation.	Incoming Phase	Connected to incoming Phase	EB	The meter should be operational and Reversal LED shall glow. The tamper details shall be recorded.		NA	NA	1	The meter is operational and Reversal LED is On and the tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected												
						Outgoing Neutral	Connected												
						Phase Voltage	240V												
123	T23		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On and the tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	earthed												
						Phase Voltage	240V												
124	T23		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	earthed												
						Phase Voltage	240V												
125	T23		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	earthed												
						Phase Voltage	240V												
126	T23		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	earthed												
						Phase Voltage	240V												
127	T24		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Connected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	Connected to earth via resistor												
						Phase Voltage	240V												
128	T25		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325SWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												
						Outgoing Neutral	Disconnected												
						Phase Voltage	240V												
129	T25		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1	<-do->	do	Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable		
						Incoming Neutral	Disconnected												
						Outgoing Phase	Connected to earth via load												

System Test Plan

System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)				
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.	Actual Result	
							Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit		Date, Month and Year).				
			REN0325HWRID21				Outgoing Neutral Phase Voltage	Disconnected 240V		Value shall be recorded.									
							Phase Current	10A											
130	T25		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325HWRID21	<-do->	do		Incoming Phase	Connected	EB	The meter should be powered ON and ELT shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable	
							Incoming Neutral	Disconnected											
							Outgoing Phase	Connected to earth via load											
							Outgoing Neutral Phase Voltage	Disconnected 240V											
							Phase Current	30A											
131	T25		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325HWRID21	<-do->	do		Incoming Phase	Connected	EB	The meter should be powered ON and ELT LEDs shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Earth Load Tamper LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable	
							Incoming Neutral	Disconnected											
							Outgoing Phase	Connected to earth via load											
							Outgoing Neutral Phase Voltage	Disconnected 240V											
							Phase Current	60A											
132	T26		REN0325SWRID10 REN0325SWRID11 REN0325HWRID19 REN0325HWRID20 REN0325HWRID22 REN0325SW_DBSR1 REN0325HWRID21	<-do->	do		Incoming Phase	Connected to outgoing Phase	EB	The meter should be operational and the Reversal and ELT LEDs shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and Reversal LED is ON. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable	
							Incoming Neutral	Connected											
							Outgoing Phase	Connected to incoming Phase											
							Outgoing Neutral	Connected											
							Phase Voltage	240V											
							Phase Current	10A											
133	T45		REN0325HWRID08	Meter Bypass Test	The meter shall be bypassed using a low resistance wire between 1S and 1L.		Incoming Phase	Connected	EB	The meter should be operational and the "ELT" LED shall glow. The tamper details shall be recorded.		12.5% of lb	NA	1	Meter functions normally and the "ELT" LED is On. The tamper details are recorded (i.e., S.No, Tamper type, Date, Month and Year).			Acceptable	
							Incoming Neutral	Disconnected											
							Outgoing Phase	Connected											
							Outgoing Neutral	Disconnected											
							Phase Voltage	240V											
Phase Current	10A																		
134	T46		REN0325HWRID08	Impulse voltage test	The impulse of 6KV is applied 10 times with one polarity and then repeated with the other polarity. The minimum time between the impulses shall be 3s.Impulse voltage test of electric circuits relative to earth. This shall be only a functional test.		Impulse Voltage	6KV		Functionality							NA	Not in the Scope of project because it depends on casing, but test plan prepared for general class 1.0 meters	
135	T47		REN0325HWRID08	AC Voltage Test	For Protective Class 1 Meters:Points of application of test voltage: a.) Between: On one hand, all the current and voltage circuits as well as the auxiliary circuits whose reference voltage is over 40V, connected together and on the other hand, earth. b.) Between circuits not intended to be connected together in service.The test voltage shall be substantially sinusoidal, having a frequency between 45Hz and 65Hz and applied for 1 min.		Test Voltage R.M.S.:	4KV		Insulation								NA	Not in the Scope of project because it depends on casing, but test plan prepared for general class 1.0 meters
136	T48		REN0325HWRID08	Meter Constant	The relation between the test output and the indication on the display shall comply with the marking on the nameplate.		Incoming Phase	Connected		Energy accumulated for 1600 pulses shall be equal to the back	kwh			1	0.99996			Acceptable	
							Incoming Neutral	Connected											
							Outgoing Phase	Connected											
							Outgoing Neutral	Connected											
							Phase Voltage	240V											

System Test Plan

System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)		
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit					
						Phase Current	10A		computed energy from pulses.								
137	T58		REN0325HWRID08	Test of no-load condition	The current circuit must be open circuit and a voltage of 115 % of Un shall be applied to the voltage circuit. The test output of the meter shall not produce more than one output pulse count.The minimum test period will be Dt ² (600 X 106)/(k X m X Un X lmax) min where k = number of pulses emitted by the output device of the meter per kilowatt hour(imp/KWh) m = number of measuring elements Un = reference voltage in volts lmax = maximum current in amperes The maximum time should not exceed 200min.The minimum test period will be decided after design phase.	Phase Voltage	276V		Test shall be conducted for minimum 20min there should not be any increment in energies and should not emit pulse	one pulse	one pulse	1	No pulse observed			Acceptable	
						Time	20 min										
138	T49		REN0325HWRID08	Test of power consumption	The active and apparent power consumption in each voltage circuit of a meter at sinusoidal reference voltage (240V +1%), reference temperature (27°C+2%), reference frequency (50Hz +0.3%) and zero magnetic induction shall not exceed 1.5W and 8VA and for each current circuit at Ib shall not exceed 1.0VA. This is in compliance with standards	Phase Voltage	240V			NA	8VA	1	The active and apparent power consumption in each voltage circuit is <2VA			Acceptable	
						Frequency	50Hz										
139	T50		REN0325HWRID08	Voltage Dips and short Interruptions	For testing, MD display will be used. The voltage dips and short interruptions shall not produce a change in the register of more than 0.01 KWh.When the voltage is restored, there shall not have suffered degradation of its meteorological characteristics. Test Conditions:- Voltage circuit energized by reference voltage- No current in current circuits	Voltage interruptions	100%	functionality								Acceptable	Supply voltage disturbance has been conducted, system is working normally
						interruption time	1s										
						number of interruptions	3										
						Restoring time between interruptions	50ms										
140	T50		REN0325HWRID08	do	do	Voltage interruptions	100%	EB	functionality							Acceptable	Supply voltage disturbance has been conducted, system is working normally
						interruption time	20 ms										
						number of interruptions	1										
						Restoring time between interruptions											
141	T50		REN0325HWRID08	do	do	Voltage interruptions	50%	EB	functionality							Acceptable	Supply voltage disturbance has been conducted, system is working normally
						Dip time	1 min										
						Number of dips	1										
142	T51		REN0325HWRID08	Test of influence of short-time over-currents	After the application of the short-time overcurrent with the voltage maintained at the terminals, the meter shall be allowed to return to the initial temperature with the voltage circuits energized for one hour individually. The meter shall be able to carry a short-time overcurrent of 30 times lmax for one half cycle at rated frequency	Basic Current	10A	EB	Short-time overcurrent shall not damage the meter. The meter shall perform correctly, the meter shall perform correctly, when back to its initial working conditions and the variation of error shall not exceed the values in the table given	Error percentage		+ / - S876N4%	1	0.20%		Acceptable	
						Power Factor	1										
						Limits of Variation in Percentage error	1.50%										
143	T52		REN0325HWRID08	Test of influence of self-heating	After the voltage circuits of the meter have been energized at nominal voltage and meters without any current in the current circuits for at least 2 hours, the rated maximum current shall be applied to the current circuits. The meter error shall be measured at unity power-factor and at 0.5 lag immediately after the current is applied and then at intervals short enough to allow a correct drawing to be made of the curve of error variation as a function of time.	Phase Voltage	240V	EB								NA	Not in the scope of Project
						Phase Current	10A										
						Power Factor	1										
						Limits of Variation in Percentage error	0.70%										
						Phase Voltage	240V										
						Phase Current	10A										

System Test Plan

System Test Cases											Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)							
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result			Iteration No.	Actual Result					
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit											
144	T52		REN0325HWRID08	<-do->	do	Power Factor	0.5lag	EB	when back to its initial working conditions and the variation of error shall not							NA	Not in the scope of Project						
					Limits of Variation in Percentage error	1%																	
145	T53		REN0325HWRID08	Fast Transient Burst Test		Test Voltage on the current and voltage	4K(Common Mode)	EB	During the test a temporary degradation or loss of function or performance is acceptable.	Accuracy - Error percentage			1	-0.96%			Acceptable						
					Duration	60s at each polarity																	
					Cable length between coupling device and EUT	1m									4%								
					Limits of Variation in Percentage error	4%																	
146	T54		REN0325HWRID08	Test of immunity to electromagnetic RF fields	Carrier modulated within 80% AM at 1KHz sine wave a.) Test with current:Unmodulated Test Field Strength: 10V/mDuring the test, the behavior of the equipment shall not be perturbed and the variation of error shall be within 2%.b.)	Frequency Band:	80MHz to 2000MHz	EB	The application of RF field shall not produce a change in the register of more than 0.01 KWh and the test output shall not produce a signal equivalent to more than				1	1.06%			Acceptable						
					Cable length exposed to the field:	1m																	
					Test Field Strength	10V/m									2%								
147	T54		REN0325HWRID08	<-do->	<-do->	Frequency Band:	80MHz to 2000MHz	EB	The application of RF field shall not produce a change in the register of more than 0.01 KWh and the test								NA						
					Cable length exposed to the field:	1m																	
					Test Field Strength	30V/m																	
148	T55		REN0325HWRID08	Test of immunity to electrostatic discharge	Meter in operating condition- Voltage circuit energized with reference voltage (Un)- Without any current in the current circuits and the current circuit shall be open circuitThe application of the electrostatic discharge test voltage shall not produce a change in the register of more than 0.01 KWh and the test output shall not produce a signal equivalent to more than 0.01 KWh. Meter in non-operating condition- Voltage and current circuit shall be unenergized	Test voltage:	8KV	EB	After application of the electrostatic discharge the meter shall show no damage or change of information and shall stay within the accuracy requirements of this specification.								NA	Not in the scope of project, since it depends on casing					
					Test severity level:	4																	
					Number of discharges:	10																	
					Type of Discharge	Contact Discharge																	
149	T56		REN0325HWRID08	Radio Interference Measurement	The test will be carried out according to CISPR22, under the following conditions:- For Class B equipment- Tested as table-top equipment- For connection to the voltage circuits, an unshielded cable length of 1m to each connector shall be used- Voltage circuits energized with reference voltage (Un)- With a current between 0.1lb and 0.2lb respectively.			EB	The test results shall comply with the requirements given in								Acceptable	Results are in Compliance Test Document					
150	T57		REN0325HWRID08	Surge Immunity Test	Cable length between Surge generator and EUT: 1mPhase angle: pulses to be applied at 60 deg. and 240deg. after zero-crossing of ACTest voltage: 4KV Generator impedance: 2W			EB	The application of the surge immunity test voltage shall not produce a	Kwh		Register values should not more than 0.01 KWh	1	No change in register value[zero]			Acceptable						
151	T27		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1 REN0325SWRID13	MD test	The meter shall operate at a phase voltage of 240V and a Phase current of 10A and unity PF. Initially MD reset shall be done, then the meter is operated for 30min at the same operating condition. For Auto Reset RTC shall be forced to month end.	Phase Voltage	240V	SV	Verify whether the corresponding KW value is stored in MD register.	KW	2.376	2.424	1	The MD value is 2.062			Acceptable						
					Phase Current	10A																	
					Power Factor	1																	
						Time	30min																
152	T28		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1	<-do->	The meter shall now be operated at a relatively higher KW. The MD register shall be updated at the end of this test duration.	Phase Voltage	240V	SV	The corresponding KW value is overwritten the previous	KW	4.752	4.848	1	The MD value is overwritten. The new MD value is 4.214			Acceptable						
					Phase Current	20A																	
					Power Factor	1																	
						Time	30min																

System Test Plan

System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)			
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.	Actual Result
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit						
153	T29		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1	<-do->	The meter shall now be operated at a relatively lower KW. The MD register shall not be updated at the end of this test duration.	Phase Voltage	240V	SV	value in MD				1	The MD value is retained i.e., 4.214			Acceptable	
						Phase Current	10A		The MD register shall retain its previous MD value without being	KW	4.752	4.848						
						Power Factor	1											
						Time	30min											
154	T27		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1 REN0325SW_DBSR1	MD test	The meter shall operate at a Phase current of 240V and a Phase current of 10A and unity PF. Initially, a MD reset shall be done then the meter is operated for 60min at the same operating condition.	Phase Voltage	240V	SV	Verify whether the corresponding KW value is stored in MD register.	KW	2.376	2.424	1	The MD value is 2.412				
						Phase Current	10A											
						Power Factor	1											
						Time	60min											
155	T28		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1 REN0325SW_DBSR1	<-do->	The meter shall now be operated at a relatively higher KW. The MD register shall be updated at the end of this test duration.	Phase Voltage	240V	SV	The corresponding KW value is overwritten the previous value in MD register	KW	4.752	4.848	1	The MD value is overwritten. The new MD value is 4.833			Acceptable	
						Phase Current	20A											
						Power Factor	1											
						Time	60min											
156	T29		REN0325SWRID09 REN0325SWRID12 REN0325SW_UIR1 REN0325SW_DBSR1	<-do->	The meter shall now be operated at a relatively lower KW. The MD register shall not be updated at the end of this test duration.	Phase Voltage	240V	SV	The MD register shall retain its previous MD value without being	KW	4.752	4.848	1	The MD value is retained i.e., 4.833				
						Phase Current	10A											
						Power Factor	1											
						Time	60min											
157	T62		REN0325SWRID20	Power-Failure Interrupt	The power supply to the energymeter is switched off. The value of all the energies are noted before the commencement of this test to be compared with the data after the power is switched ON again with no current.	Phase Voltage	240V	SV	The back-up data like, cumulative active energy, Maximum Demand, RTC Backup, Present tariff shall be read from the EEPROM and shall be found equal to the values before the power failure.				1	The backup of values are taken when power is failed and it is retrived after power is switched on without current supply.			Acceptable	
						Phase Current	10A											
						Power Factor	1											
158	T63		REN0325SWRID13	Monthly Auto Reset	The RTC will be programmed to a suitable time very near to a month change-over. At the instant the month change-over occurs a a back-up of the following parameters are taken in the EEPROM:(1) Cumulative Active & Apparent Energy (2) Maximum Demand in KW, (3) Date and Time from RTC (4) Type of Reset (5) Total Cumulative active energy	Phase Voltage	240V	SV	The values of the specified parameters at the time of RESET shall be read through serial port in the data collection mode.				1	The backup of (1) Cumulative Active & Apparent Energy (2) Maximum Demand in KW, (3) Date and Time from RTC (4) Type of Reset (5) Total Cumulative active energy are			Acceptable	
						Phase Current	10A											
						Power Factor	1											
159	T64		REN0325SWRID15 REN0325SWRID08 REN0325SWRID16	Tariff update test	The meter shall be operated at the nominal voltage and current during the entire period of a specified tariff. During this period the energy consumed shall be updated in the respective tariff till the end of slot.	Phase Voltage	240V	SV	The LCD displays the respective tariff energies.				1	The meter operates normally. The energy consumed is updated in the respective tariff till the end of slot.			Acceptable	
						Phase Current	10A											
						PF	1											
						Frequency	50Hz											
160	T65		REN0325SWRID09 REN0325SWRID22 REN0325SWRID23	Programming tariff	Refer serial Comm. document for programming various parameters	Phase Voltage	240V	SV	The result should as per the document				1	The Parameters is updated as the meter is programmed			Acceptable	
						Phase Current	10A											
						PF	1											
						Frequency	50Hz											
161	T66		REN0325SWRID15 REN0325SWRID22 REN0325SWRID23	Programming RTC parameters	Refer serial Comm. document for programming various parameters	Phase Voltage	240V	SV	The result should as per the document				1	The Parameters is updated as the meter is programmed			Acceptable	
						Phase Current	10A											
						PF	1											
						Frequency	50Hz											
162	T67		REN0325SWRID22 REN0325SWRID23	Scroll and MD integration period	Refer serial Comm. document for programming various parameters	Phase Voltage	240V	SV	The result should as per the document				1	The Parameters is updated as the meter			Acceptable	
						Phase Current	10A											
						PF	1											
						Frequency	50Hz											

System Test Plan

System Test Cases										Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)		
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.			Actual Result	Iteration No.
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit					
			REN0325SWR1B25	programming										is programmed			
163	T30		REN0325SWRID25 REN0325HW_PCSR1 REN0325HWRID27 REN0325HWRID15	Battery Power Supply, To test if there Phase voltage is not there and switch is	Switch OFF the Phase voltage or the power supply to the unit and press the Battery power switch.	Battery Switch	User Press	IOD	Power LED shall be switched OFF, and Display module shall be ON				1	Power LED is switched off. Voltage and Current are displayed as zero and the energy values are			Acceptable
						Power Supply to controller	0v										
							Battery Supply		3.3V								
164	T31		REN0325SWRID25 REN0325HWRID28 REN0325HW_PCSR1 REN0325HWRID27 REN0325HWRID15	Battery Power Supply, To test if Phase voltage is not there and switch is NOT	Switch OFF the Phase voltage or the power supply to the unit and DO NOT press the Battery power switch.	Battery Switch	No Press	IOD	Power LED shall be switched OFF, and Display module shall also be OFF				1	Meter is not operational			Acceptable
						Power Supply to controller	0v										
							Battery Supply		3.3V								
164	T32		REN0325SWRID25 REN0325HWRID28 REN0325HW_PCSR1 REN0325HWRID27 REN0325HWRID15	Battery Power Supply, To test if Phase voltage is Present and switch is pressed or even	Switch ON the Phase voltage or the power supply to the unit.	Battery Switch	X	IOD	Power LED and the Display Module shall be switched ON.				1	Meter is operational. Power led is switched on.Voltage and Current are displayed and Energy values			Acceptable
						Power Supply to controller	3.3V										
							Battery Supply		X								
165	T33		REN0325SWRID25 REN0325HWRID28 REN0325HW_PCSR1 REN0325HWRID27 REN0325HWRID15	Battery Power Supply, If the Power Supply and Battery Supply is NOT present	Switch OFF the Phase voltage or the power supply to the unit.	Battery Switch	X	IOD	Power LED and the Display Module shall be switched OFF				1	Meter is not operational			Acceptable
						Power Supply to controller	0V										
							Battery Supply		0V								
166	T34		REN0325HWRID24 REN0325SW_OSR1	Starting Current Test	The power supply of 240V and current of 20mA shall be applied	Phase voltage Supply	240V	IOD	the meter shall be able to measure the RMS current and power. kWh LED should make one pulse with in 10 min.				1	The meter functions normally and kWh LED blinks with in 10 min			Acceptable
						Phase current	20mA										
						Neutral current	20mA										
167	T35		REN0325HWRID24 REN0325SW_OSR1	Starting Current Test, Phase current is there and Neutral current is not present	The power supply of 240V and current of 20mA shall be applied	Phase voltage Supply	240V	IOD	the meter shall be able to measure the RMS current and power. kWh LED should make one pulse with in 10 min.				1	The meter functions normally and kWh LED blinks with in 10 min			Acceptable
						Phase current	20mA										
						Neutral current	0										
168	T36		REN0325HWRID24 REN0325SW_OSR1	Starting Current Test, Phase current is not there but Neutral current is present	The power supply of 240V and current of 20mA shall be applied	Phase voltage Supply	240V	IOD	the meter shall be able to measure the RMS current and power. kWh LED should make one pulse with in 10 minPower LED and the Display Module shall be switched OFF.				1	The meter functions normally and kWh LED blinks with in 10 min			Acceptable
						Phase current	0										
						Neutral current	20mA										
169	T38		REN0325HWRID06 REN0325SW_PSR1	Power On Test	At-40% of 240V the meter shall be checked for ON condition.	Phae Voltage Supply	144V	IOD	Meter shall ON				1	Meter functions normally			Acceptable
						Frequency	50Hz										
170	T39		REN0325SWRID20 REN0325SW_DDSR1 REN0325HW_PHR1	RTC Parameter settings	If the received RTC parameter contains the error in the TIME parameter	Time	30:90:90	IOD	RTC parameter shall not be programmed because of invalid time entred				1	The RTC is not programmed and invalid message is			Acceptable
						Date	20-04-05							The RTC is not programmed and invalid message is obtained from the			
171	T40		REN0325SWRID20 REN0325SW_DDSR1 REN0325HW_PHR1	RTC Parameter settings	If the received RTC parameter contains the error in the DATE parameter	Time	Hour, within the 0-23 and	IOD	RTC parameter shall not be programmed because of invalid date entred				1	programmed and invalid message is obtained from the			Acceptable
						Date	40-30-20										
172	T41		REN0325SWRID20 REN0325SW_DDSR1 REN0325HW_PHR1	RTC Parameter settings	If the received RTC parameter contains ALL acceptable parameter	Time	Hour, within the 0-23 and If the Date is with in 1 to	IOD	RTC date parameter shall be programmed				1	RTC is programmed			Acceptable
						Date											
173	T59		REN0325HWRID21	Third CT Performance Check	The power supply of 0V and current of 1A - Above 3A shall be applied	Incoming Phase	Connected	EB	The meter should not be powered ON.				1	Meter is not powered on			Acceptable
						Incoming Neutral	Disconnected										
						Outgoing Phase	Connected to earth via load										
						Outgoing Neutral	Disconnected										
						Phase Voltage	0V										
						Phase Current	1A										
	Incoming Phase	Connected															

System Test Plan

System Test Cases											Test Results		Regression Test, if any		Inference on the acceptability of the results	Remarks (If any)		
Test No.	Test ID	Test Date	Req. ID	Test Case Scenario Description	Test Description (explaining test Condition, Setup and other details)	Input Test Values		Test Case Designed For	Expected Result				Iteration No.	Actual Result			Iteration No.	Actual Result
						Data Element	Input Values		Output Parameter	UOM	Lower Limit	Upper Limit						
174	T60		REN0325HWRID21	<-do->	do	Incoming Neutral	Disconnected	EB	The meter should not be powered ON.				1	Meter is not powered on			Acceptable	
						Outgoing Phase	Connected to earth via load											
						Outgoing Neutral	Disconnected											
						Phase Voltage	0V											
						Phase Current	2A											
175	T61		REN0325HWRID21	<-do->	do	Incoming Phase	Connected	EB	The meter should be operational, powered up by the third CT. The tamper details shall be recorded.				1	Meter functions normally and Earth Load Tamper LED is On. The Tamper details are recorded.			Acceptable	Units are marginally switching on at 3 to 4A
						Incoming Neutral	Disconnected											
						Outgoing Phase	Connected to earth via load											
						Outgoing Neutral	Disconnected											
						Phase Voltage	0V											
Phase Current	Above 3A																	

System Test Plan

Annexure		
System Test Plan & Test Results		
Sr No	Codes	Description
1	Project ID	Project ID allotted by SQA
2	Project Name	Name of the project
3	System Test plan prepared /last modified by	Initials of the person who has prepared or last modified the System Test Plan
4	System Test plan prepared /last modified on	indicate the date on which the system test plan was prepared or last modified whichever is later
5	RS version	Indicate the version of RS against which this Test Plan is prepared / updated
6	Firmware /Software version	Version of the firmware / Software being tested
7	Test Start Date	indicate the date on which the system testing has started
8	Test End Date	The date on which the system testing has concluded including all the regression tests done , if any
9	Total No. of bugs	Count of the total number of bugs uncovered from System testing (including regression tests done if any)
10	Test Environment Details	Indicate the test environment if the test is performed in other than the normal ambient conditions
11	Test bench Details	Specify the test equipments /tools used for performing the system testing along with their version /configuration details
12	Test No.	Test number with respect to requirement ID
13	Test Case Scenario No	unique running serial number
14	Test Date	date on which all the iterations and regression tests as applicable for the particular test were completed
15	Req ID	Indicate the requirement ID as specified in the RTT
16	Test Case Scenario Description	Indicate here the specific details of the test if the information provided in the decision table is not sufficient
17	Test Description (explaining test Condition, Setup and other details)	describe the test conditions in detail including the set up , interconnections , trigger etc. for each test number
18	Input Test Values	Input data for each of the data elements connected with each business scenario
19	Data Element	List all the input data conditions connected to this test scenario
20	Input Values	For each of the data elements assign specific input values considering the business scenario under test
21	Test Case Designed For	Mention here the design technique used for arriving at the test case values, like : >Boundary Value Analysis >Equivalence Partitioning >Domain Analysis >Special Value >Error based >Robustness test cases
22	Expected Result	Indicate the results expected as per customer's requirement
23	Output Parameter	The parameter through which the output of this test is being measured
24	UOM	Indicate the unit of measurement as appropriate
25	Upper Limit	Acceptable Upper limit of the expected result, as applicable
26	Lower Limit	Acceptable Lower Limit of the expected result, as applicable
27	Iteration No.	indicate the iteration number of the test viz., '1' indicates the test is being performed for the first time, '2' indicates that the test is being repeated again here, it is assumed the system test is being redone on either the same prototype multiple number of times or being repeated on a different prototype
28	Actual Result	the actual result indicating the measurements /outcome of the test
29	Inference on the acceptability of the results	A: Acceptable B: Not Acceptable C: To be Reworked D: Accepted with Limitations
30	Remarks (If any)	Remarks if any
31	Details of As - Run Tests	Enlist here other test sequences followed during the actual test (which are not planned in the above table)
32	Limitations / Deficiencies / Risks perceived, if any	indicate the limitations/ deficiencies/risks expected in the final product performance taking into consideration the result of system testing
33	Tested By	indicate the initials of the person conducting the test
34	Tested On	indicate the date on which the test was concluded
35	Conclusion	Take into account the inferences drawn out of the test/regression test results as explained above, limitations, deficiencies and risks perceived before arriving at the conclusion on the acceptance or rejection of the product