

SC GROUP

FLEET VISUAL FUEL MONITORING SYSTEM (SC GLORY 7)

COMMISSIONING REPORT

							END USER  SC Management Co., Ltd. SC GROUP
							SUPPLIER  SAT Solutions Co., Ltd.
							PROJECT NO. : PJ1760
							PO. NO. :
0	For Review and Approval	Chatri	Chatri	Suttichai	24-Apr-18		REV.
REV.	DESCRIPTION	BY	CHK.	APPR.	DATE	SATS DOC. NO. : SATS-SC-FV-CM-SCGlory7-R0.1.docx	0



PROPRIETARY NOTICE

The information contained herein is the sole property of **SAT Solutions Co., Ltd.** This document is reserved for viewing by **SC Management Co., Ltd.** and consented recipients. No part of this document, may be reproduced, transmitted or modified (in any form or by any means) outside of the intended recipients without the express prior written consent of **SAT Solutions Co., Ltd.**

CERTIFICATE OF COMMISSIONING

Endorsement on this **Certification of Commissioning** by the authorized **SC Management Co., Ltd.** and **SAT Solutions Co., Ltd.** representative indicates satisfaction and acceptance of the **Fleet Visual Fuel Management System (SC Glory 7)**.

SAT Solutions' Representative	
Name:	<hr/>
Position:	<hr/>
Signature:	<hr/>
Date :	<hr/>

Witness by Client's Representative	
Company:	<hr/>
Name:	<hr/>
Position:	<hr/>
Signature:	<hr/>
Date :	<hr/>

Witness by Vessel Representative	
Company:	<hr/>
Name:	<hr/>
Position:	<hr/>
Signature:	<hr/>
Date :	<hr/>

TABLE OF CONTENTS

PROPRIETARY NOTICE	2
CERTIFICATE OF COMMISSIONING.....	3
TABLE OF CONTENTS	4
1. PURPOSE	7
2. OVERVIEW.....	8
2.1 System Overview.....	8
2.2 Main Engine Measurement.....	9
2.3 Aux. Engine Measurement.....	9
3. HARDWARE INSTALLATION.....	10
3.1 Port Main Engine.....	10
3.1.1 Flow Meter	10
3.1.2 Speed (Engine Flywheel)	10
3.1.3 Speed (Propeller Shaft)	11
3.2 Starboard Main Engine.....	11
3.2.1 Flow Meter	11
3.2.2 Speed (Engine Flywheel)	12
3.2.3 Speed (Propeller Shaft)	12
3.3 Center Main Engine.....	13
3.3.1 Flow Meter	13
3.3.2 Speed (Engine Flywheel)	13
3.3.3 Speed (Propeller Shaft)	14
3.4 Port Aux. Engine.....	14
3.4.1 Flow Meter	14
3.4.2 Speed (Engine Flywheel)	15
3.5 Starboard Aux. Engine.....	15
3.5.1 Flow Meter	15
3.5.2 Speed (Engine Flywheel)	16
3.6 DCP Panel (Outside)	16
3.7 DCP Panel (Inside)	17
3.8 FCP (Outside).....	17
3.9 FCP (Inside).....	18
3.10 DTP Panel	18

3.11 GPS Antenna.....	19
3.12 Satellite Internet Panel.....	19
4. SEA TRIAL TEST RESULT.....	20
4.1 Main Engine Fuel Consumption Summary.....	20
4.2 Aux. Engine Fuel Consumption	21
5. SEA TRIAL TEST RAW DATA	22
5.1 Vessel Tracking and Main Engine Speed	22
5.2 Port Main Engine.....	24
5.3 Starboard Main Engine.....	26
5.4 Center Main Engine.....	28
6. SEA TRIAL REPORT BY SC.....	30
6.1 Port Main Engine.....	31
6.2 Center Main Engine.....	32
6.3 Starboard Main Engine.....	33
7. FLEET VISUAL WEB APPLICATION	34
7.1 Login Page	34
7.2 First Landing Page (Real-Time).....	35
7.2.1 Top Bar Navigation – Page Selection	35
7.2.2 Left Side Bar Navigation – Vessel Selection	35
7.2.3 Today Summary	36
7.2.4 Current Vessel Location	36
7.2.5 Main Engine	37
7.2.6 Aux. Engine.....	38
7.3 Data Logger Page.....	39
7.3.1 Data Logger's Parameters Selection Bar	39
7.3.2 Tag Selection	39
7.3.3 Calendar for Start Time and End Time Selection	40
7.3.4 Data Logger Result	40
7.3.5 Data Logger File Download	41
7.4 Chart.....	42
7.4.1 Chart Parameter Selection Bar.....	42
7.4.2 Tag Selection	42
7.4.3 Calendar for Start Time and End Time Selection	43

7.4.4	Chart Result.....	43
7.4.5	Download Chart Result	44
7.5	Report.....	44
8.	DRAWING.....	45
8.1	Schematic Diagrams	45
8.2	System Diagram	61
9.	FLOW METER CALIBRATION CERTIFICATE	63
9.1	PME Inlet.....	64
9.2	PME Outlet.....	65
9.3	CME Inlet.....	66
9.4	CME Outlet.....	67
9.5	SME Inlet	68
9.6	SME Outlet	69
9.7	PAE Inlet	70
9.8	PAE Outlet	71
9.9	SAE Inlet	72
9.10	SAE Outlet	73

1. PURPOSE

This report summarizes the performance of the system as seen on board vessel, as such the witnessing of the commissioning process by the Client's Representative is necessary. Below are the steps involved covering system configuration, hardware supplied to overall performance.

1) Hardware installation inspection

- Flow meter M/E(p) supply and return
- Flow meter M/E(s) supply and return
- Flow meter M/E(c) supply and return
- RPM sensors M/E(p) Flywheel and shaft
- RPM sensors M/E(s) Flywheel and shaft
- RPM sensors M/E(c) Flywheel and shaft

2) Electrical installation inspection

- Cables from Flow meters to DCP
- Cables from RPM sensor to DCP
- Cables between DCP and DTP
- Cables between DTP to Satellite Switch
- Cables between DTP to GPS Terminal

3) Flow meter setting/configuration

- Flow meters configured per system requirement
- Flow meters are reset prior to sea trial
- Flow meters reading are correct

4) Satellite setting and access

- Port and firewall setting
- Email address for report sending, and recipient to unblock sender
- Username and password access to online portal successful

5) Commissioning and sea trial

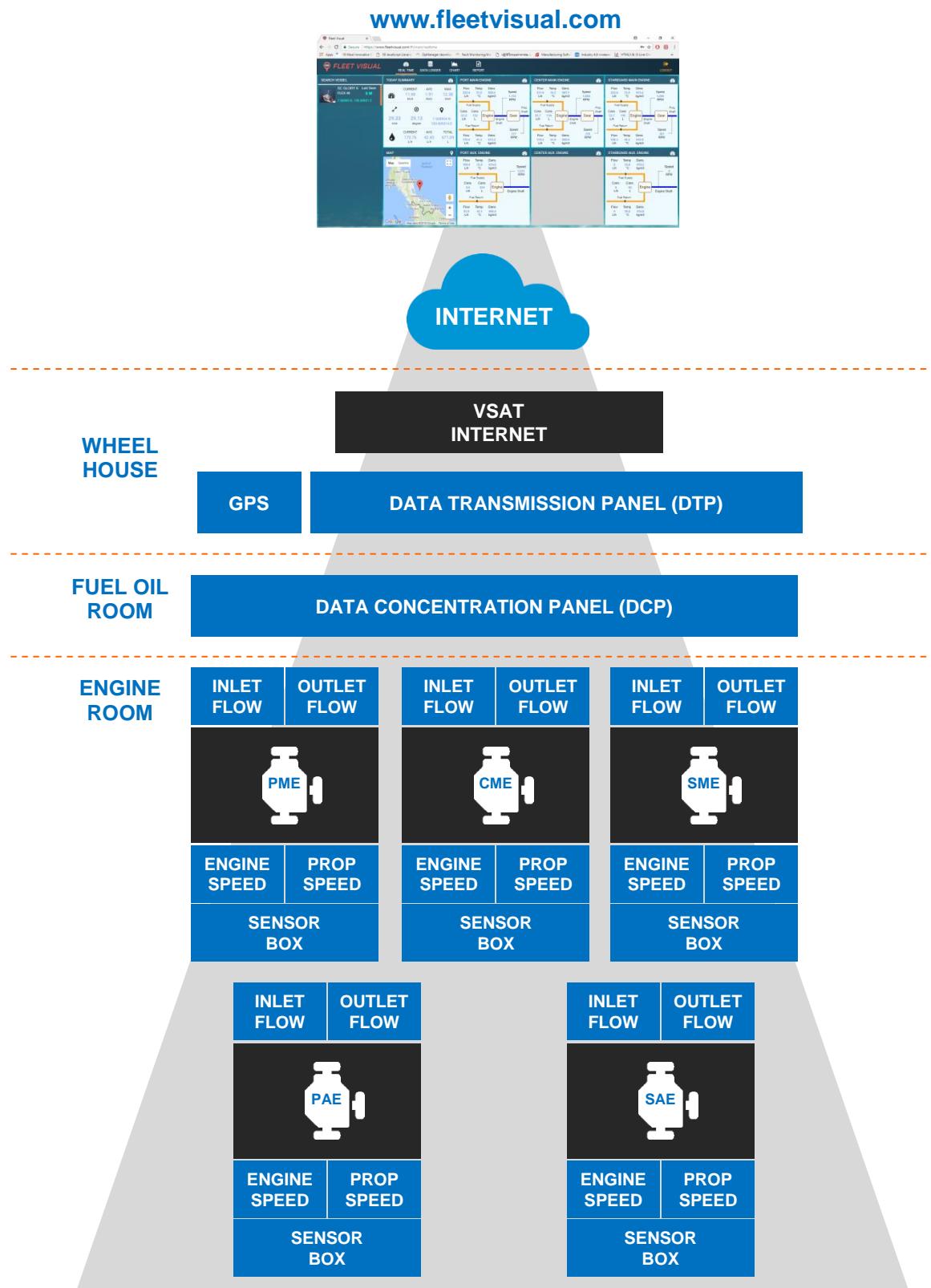
- Performance recording with minimum 10mins interval for each test
- Flow meters reading for supply and return of each engine
- RPM reading at 1000, 1200, 1400, 1600, 1800 and maximum when applicable
- Vessel position, speed and heading tracking
- Export of recorded data

6) Handover

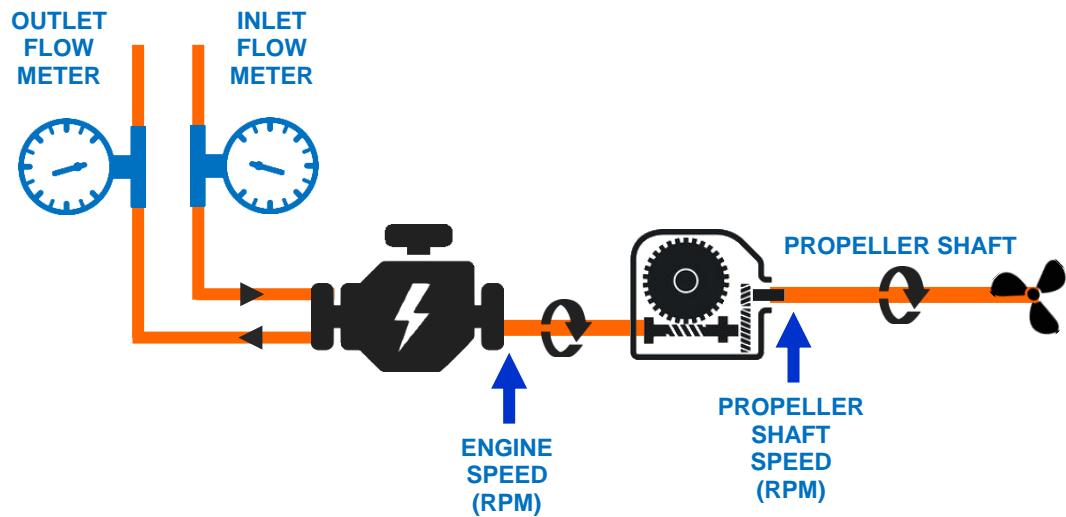
- Report signed by client's representative
- Test result along with report submitted
- Seals and applied accordingly

2. OVERVIEW

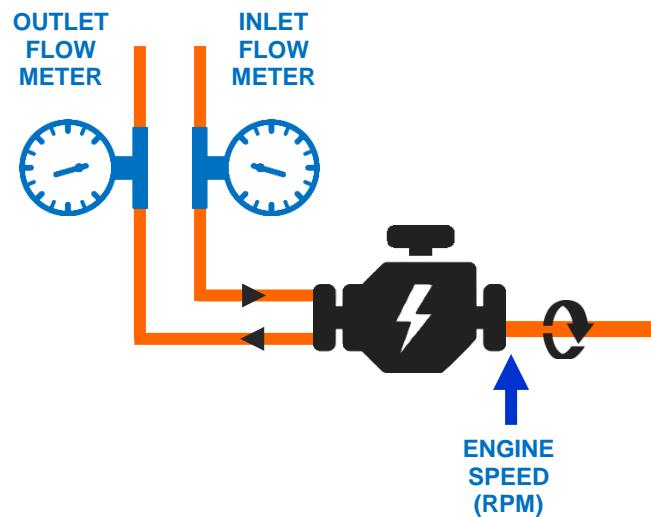
2.1 System Overview



2.2 Main Engine Measurement



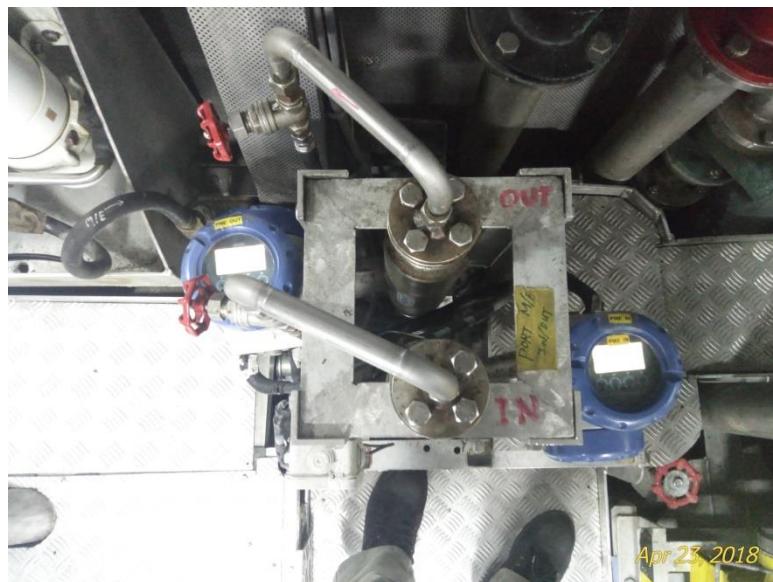
2.3 Aux. Engine Measurement



3. HARDWARE INSTALLATION

3.1 Port Main Engine

3.1.1 Flow Meter



3.1.2 Speed (Engine Flywheel)

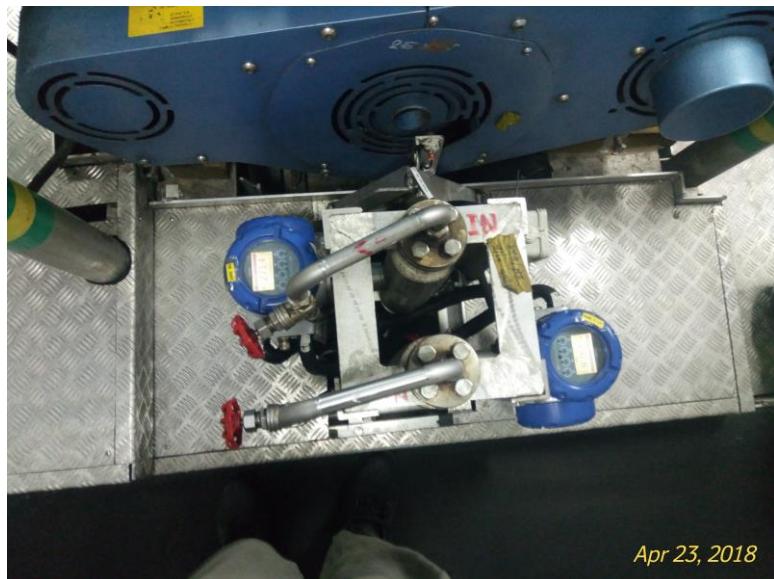


3.1.3 Speed (Propeller Shaft)

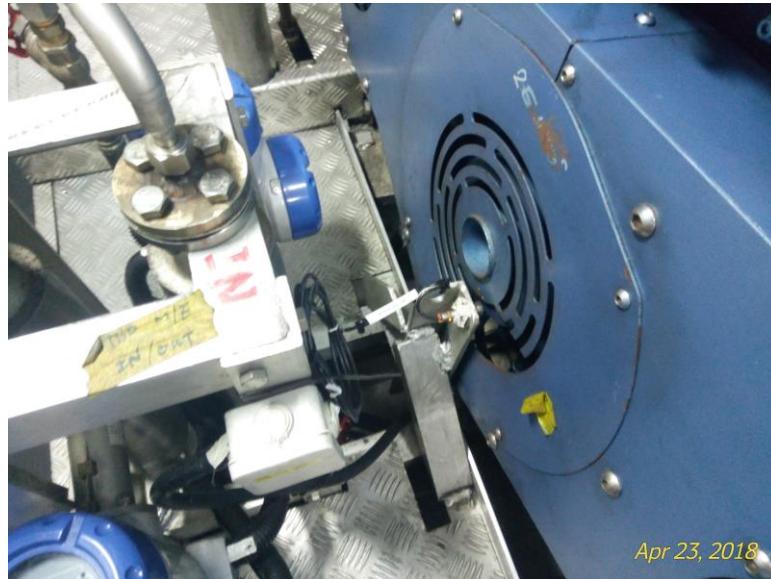


3.2 Starboard Main Engine

3.2.1 Flow Meter



3.2.2 Speed (Engine Flywheel)

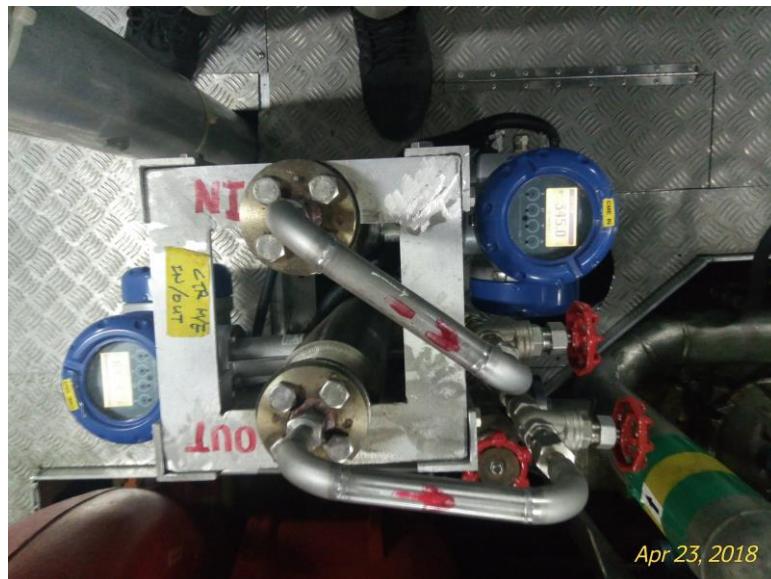


3.2.3 Speed (Propeller Shaft)

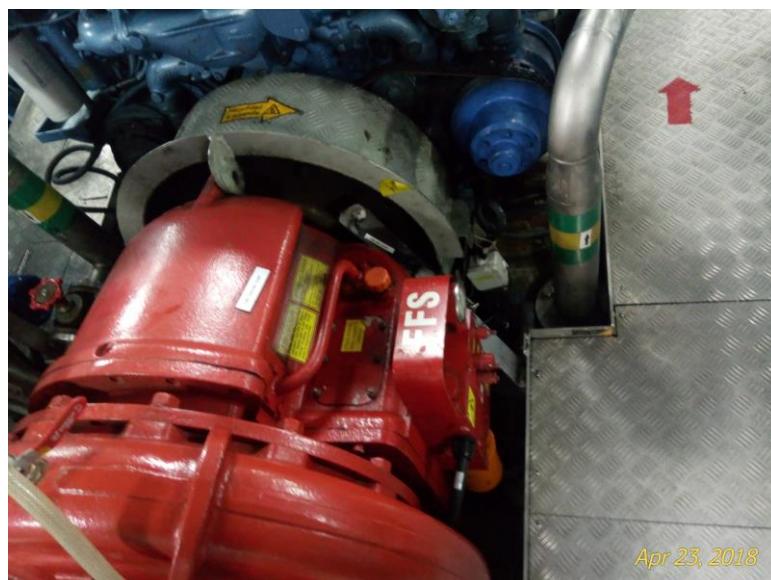


3.3 Center Main Engine

3.3.1 Flow Meter



3.3.2 Speed (Engine Flywheel)



3.3.3 Speed (*Propeller Shaft*)



3.4 Port Aux. Engine

3.4.1 Flow Meter



3.4.2 Speed (Engine Flywheel)



3.5 Starboard Aux. Engine

3.5.1 Flow Meter



3.5.2 Speed (Engine Flywheel)



3.6 DCP Panel (Outside)



3.7 DCP Panel (Inside)



3.8 FCP (Outside)



3.9 FCP (Inside)



3.10 DTP Panel



3.11 GPS Antenna



3.12 Satellite Internet Panel



4. SEA TRIAL TEST RESULT

4.1 Main Engine Fuel Consumption Summary

Engine Speed (RPM) Condition	1000	1200	1400	1600	1800	MAX
Start Time	09:40	09:55	10:23	10:39	10:57	11:42
End Time	09:50	10:05	10:33	10:49	11:07	11:52
Vessel Speed (Knots)	11.88	14.38	16.76	19.28	22.13	22.67
Vessel Tracking Position Latitude	7.258663	7.300973	7.371981	7.393493	7.375475	7.326857
Vessel Tracking Position Longitude	100.604828	100.638762	100.720093	100.795474	100.794082	100.662365
Heading	48.8	40.8	68.7	94.5	240.3	250.8
Port ME Data	1000	1200	1400	1600	1800	MAX
Port ME Speed (RPM) at Monitoring	1,009	1,206	1,404	1,606	1,810	1,857
Port ME Inlet Mass Flow Rate (Kg/Hr)	200.40	220.44	260.52	300.60	335.67	342.74
Port ME Inlet Total Mass (Kg)	33.40	36.74	43.42	50.10	55.95	57.12
Port ME Outlet Mass Flow Rate (Kg/Hr)	155.99	171.15	184.84	194.62	192.67	185.74
Port ME Outlet Total Mass (Kg)	26.00	28.53	30.81	32.44	32.11	30.96
Port ME Fuel Consumption (L/Hr)	48.60	54.00	85.20	121.20	165.60	182.57
Port ME Total Fuel Used (L)	8.10	9.00	14.20	20.20	27.60	30.43
Stbd ME Data	1000	1200	1400	1600	1800	MAX
Stbd ME Speed (RPM) at Monitoring	1,009	1,206	1,404	1,606	1,810	1,857
Stbd ME Inlet Mass Flow Rate (Kg/Hr)	86.67	122.24	160.82	198.40	236.47	243.01
Stbd ME Inlet Total Mass (Kg)	14.45	20.37	26.80	33.07	39.41	40.50
Stbd ME Outlet Mass Flow Rate (Kg/Hr)	62.10	82.15	98.29	100.73	93.40	88.40
Stbd ME Outlet Total Mass (Kg)	10.35	13.69	16.38	16.79	15.57	14.73
Stbd ME Fuel Consumption (L/Hr)	27.60	45.60	72.00	114.00	168.60	182.56
Stbd ME Total Fuel Used (L)	4.60	7.60	12.00	19.00	28.10	30.43
Center ME Data	1000	1200	1400	1600	1800	MAX
Ctr ME Speed (RPM) at Monitoring	1,009	1,206	1,404	1,606	1,810	1,857
Ctr ME Inlet Mass Flow Rate (Kg/Hr)	170.34	185.37	225.45	260.52	295.59	308.56
Ctr ME Inlet Total Mass (Kg)	28.39	30.90	37.58	43.42	49.27	51.43
Ctr ME Outlet Mass Flow Rate (Kg/Hr)	127.63	140.34	148.17	149.15	142.79	142.27
Ctr ME Outlet Total Mass (Kg)	21.27	23.39	24.69	24.86	23.80	23.71
Ctr ME Fuel Consumption (L/Hr)	47.40	49.80	88.20	129.00	178.80	194.96
Ctr ME Total Fuel Used (L)	7.90	8.30	14.70	21.50	29.80	32.49

* Test to be conducted at each speed with at least 10mins record

* Density used for this calculation is 0.85 Kg/L

4.2 Aux. Engine Fuel Consumption

	PAE	SAE
Start	10:00	10:00
End	11:00	11:00
Speed (RPM)	1,506	1,506
Inlet Mass Flow Rate (kg/h)	90.30	128.44
Inlet Total Mass (kg)	90.30	128.44
Outlet Mass Flow Rate (kg/h)	66.44	102.90
Outlet Total Mass (kg)	66.44	102.90
Fuel Consumption (L/h)	28.40	30.40
Total Fuel Used (L)	28.40	30.40

* Chamber room was not running during the test since there is no provision inside.

* Test to be conducted at each speed with at least 10mins record

* Density used for this calculation is 0.85 Kg/L

5. SEA TRIAL TEST RAW DATA

5.1 Vessel Tracking and Main Engine Speed

Timestamp	Speed (Knot)	Latitude	Longitude	Heading	Port ME Engine Speed (RPM)	Center ME Engine Speed (RPM)	Stbd ME Engine Speed (RPM)	Port ME Shaft Speed (RPM)	Center ME Shaft Speed (RPM)	Stbd ME Shaft Speed (RPM)
1000 RPM										
24-Apr-18 09:40 ICT	11.95	7.247790	100.594721	46.13	1,009	1,009	1,009	343.92	343.90	343.93
24-Apr-18 09:41 ICT	11.60	7.250059	100.597123	45.21	1,011	1,011	1,012	344.83	344.83	344.83
24-Apr-18 09:42 ICT	12.15	7.252270	100.599562	48.78	1,008	1,007	1,008	343.50	343.42	343.58
24-Apr-18 09:43 ICT	11.81	7.254521	100.602020	44.59	1,008	1,008	1,008	343.58	343.75	343.75
24-Apr-18 09:44 ICT	11.63	7.257128	100.603975	34.49	1,008	1,007	1,007	343.50	343.33	343.33
24-Apr-18 09:45 ICT	11.81	7.259722	100.606107	39.40	1,009	1,009	1,009	344.00	344.08	344.17
24-Apr-18 09:46 ICT	12.07	7.262399	100.608088	35.60	1,009	1,008	1,009	344.00	343.83	343.83
24-Apr-18 09:47 ICT	12.10	7.265012	100.610191	41.98	1,009	1,009	1,009	343.83	343.83	343.92
24-Apr-18 09:48 ICT	11.81	7.267483	100.612328	30.66	1,007	1,008	1,008	343.50	343.67	343.58
24-Apr-18 09:49 ICT	11.88	7.270242	100.614165	39.79	1,009	1,008	1,008	343.83	343.67	343.75
1200 RPM										
24-Apr-18 09:55 ICT	14.42	7.286759	100.627567	40.77	1,206	1,206	1,206	411.22	411.21	411.22
24-Apr-18 09:56 ICT	14.28	7.289814	100.630179	39.65	1,206	1,206	1,206	411.08	411.00	411.00
24-Apr-18 09:57 ICT	14.41	7.292943	100.632692	38.25	1,206	1,206	1,206	411.08	411.17	411.17
24-Apr-18 09:58 ICT	14.34	7.296107	100.635185	38.64	1,206	1,206	1,206	411.33	411.25	411.33
24-Apr-18 09:59 ICT	14.32	7.299249	100.637687	35.60	1,206	1,206	1,206	411.00	411.17	411.08
24-Apr-18 10:00 ICT	14.45	7.302487	100.640070	36.01	1,207	1,206	1,206	411.25	411.08	411.25
24-Apr-18 10:01 ICT	14.42	7.305743	100.642468	36.87	1,206	1,207	1,206	411.42	411.42	411.33
24-Apr-18 10:02 ICT	14.36	7.308972	100.644867	36.92	1,206	1,206	1,206	411.17	411.17	411.25
24-Apr-18 10:03 ICT	14.45	7.312205	100.647256	35.84	1,207	1,207	1,207	411.33	411.33	411.25
24-Apr-18 10:04 ICT	14.41	7.315451	100.649649	36.63	1,207	1,207	1,207	411.33	411.25	411.33
1400 RPM										
24-Apr-18 10:23 ICT	16.81	7.364319	100.700455	68.48	1,404	1,404	1,404	478.51	478.51	478.52
24-Apr-18 10:24 ICT	16.78	7.366015	100.704821	68.55	1,404	1,403	1,404	478.50	478.50	478.67
24-Apr-18 10:25 ICT	16.72	7.367699	100.709185	68.42	1,404	1,404	1,403	478.50	478.50	478.42
24-Apr-18 10:26 ICT	16.81	7.369384	100.713555	68.51	1,404	1,404	1,404	478.58	478.50	478.58
24-Apr-18 10:27 ICT	16.74	7.371095	100.717918	68.66	1,404	1,403	1,404	478.50	478.50	478.50
24-Apr-18 10:28 ICT	16.65	7.372802	100.722288	68.09	1,404	1,404	1,404	478.67	478.67	478.67
24-Apr-18 10:29 ICT	16.77	7.374526	100.726654	68.19	1,404	1,404	1,404	478.58	478.58	478.50
24-Apr-18 10:30 ICT	16.71	7.376252	100.731004	68.20	1,403	1,403	1,403	478.42	478.42	478.50
24-Apr-18 10:31 ICT	16.84	7.377992	100.735351	67.95	1,403	1,403	1,403	478.50	478.42	478.42
24-Apr-18 10:32 ICT	16.77	7.379727	100.739699	67.97	1,404	1,404	1,403	478.33	478.42	478.42
1600 RPM										
24-Apr-18 10:39 ICT	19.28	7.393493	100.795474	94.48	1,606	1,606	1,606	547.46	547.45	547.44
	19.29	7.392458	100.771376	72.46	1,606	1,605	1,605	547.50	547.25	547.25

Timestamp	Speed (Knot)	Latitude	Longitude	Heading	Port ME Engine Speed (RPM)	Center ME Engine Speed (RPM)	Stbd ME Engine Speed (RPM)	Port ME Shaft Speed (RPM)	Center ME Shaft Speed (RPM)	Stbd ME Shaft Speed (RPM)
24-Apr-18 10:40 ICT	19.27	7.393631	100.776633	81.76	1,606	1,607	1,607	547.67	547.83	547.75
24-Apr-18 10:41 ICT	19.19	7.394026	100.782003	87.28	1,606	1,606	1,606	547.50	547.58	547.58
24-Apr-18 10:42 ICT	19.33	7.394270	100.787384	88.06	1,606	1,606	1,606	547.42	547.50	547.42
24-Apr-18 10:43 ICT	19.27	7.394432	100.792773	94.25	1,606	1,606	1,606	547.67	547.42	547.50
24-Apr-18 10:44 ICT	19.36	7.394030	100.798148	94.48	1,605	1,606	1,606	547.33	547.50	547.50
24-Apr-18 10:45 ICT	19.36	7.393618	100.803525	93.92	1,606	1,606	1,606	547.33	547.42	547.33
24-Apr-18 10:46 ICT	19.22	7.393217	100.808909	94.14	1,606	1,605	1,606	547.33	547.33	547.50
24-Apr-18 10:47 ICT	19.24	7.392818	100.814299	94.44	1,605	1,605	1,605	547.42	547.25	547.25
24-Apr-18 10:48 ICT	19.28	7.392431	100.819688	94.14	1,606	1,606	1,606	547.42	547.42	547.33
1800 RPM	22.13	7.375475	100.794082	240.26	1,810	1,810	1,810	617.06	617.05	617.03
24-Apr-18 10:57 ICT	22.15	7.389508	100.818091	240.26	1,809	1,809	1,809	616.67	616.75	616.67
24-Apr-18 10:58 ICT	22.04	7.386400	100.812757	239.10	1,810	1,810	1,810	617.08	617.00	617.00
24-Apr-18 10:59 ICT	22.11	7.383273	100.807409	239.86	1,811	1,810	1,810	617.25	617.25	617.25
24-Apr-18 11:00 ICT	22.08	7.380173	100.802098	240.04	1,809	1,809	1,809	616.75	616.75	616.83
24-Apr-18 11:01 ICT	22.15	7.377069	100.796765	239.89	1,810	1,810	1,810	617.00	617.00	616.92
24-Apr-18 11:02 ICT	22.35	7.373914	100.791404	239.26	1,811	1,811	1,811	617.42	617.33	617.33
24-Apr-18 11:03 ICT	22.13	7.370769	100.786086	239.12	1,810	1,810	1,810	617.17	617.25	617.17
24-Apr-18 11:04 ICT	22.05	7.367646	100.780751	239.69	1,811	1,811	1,811	617.25	617.17	617.33
24-Apr-18 11:05 ICT	22.12	7.364553	100.775404	239.39	1,810	1,810	1,809	616.92	617.00	616.83
24-Apr-18 11:06 ICT	22.09	7.361447	100.770058	239.39	1,810	1,810	1,810	617.08	617.00	617.00
MAX RPM	22.67	7.326857	100.662365	250.78	1,857	1,857	1,857	633.10	633.11	633.12
24-Apr-18 11:42 ICT	22.86	7.341014	100.686298	250.78	1,856	1,856	1,856	632.75	632.75	632.92
24-Apr-18 11:43 ICT	22.75	7.338880	100.680304	250.54	1,858	1,858	1,858	633.42	633.50	633.42
24-Apr-18 11:44 ICT	23.02	7.336745	100.674342	250.03	1,857	1,857	1,857	633.25	633.17	633.25
24-Apr-18 11:45 ICT	22.51	7.334355	100.668473	240.98	1,857	1,858	1,858	633.08	633.33	633.42
24-Apr-18 11:46 ICT	22.68	7.330442	100.663537	224.35	1,855	1,855	1,855	632.33	632.33	632.33
24-Apr-18 11:47 ICT	22.83	7.325583	100.659412	218.74	1,858	1,858	1,857	633.58	633.25	633.17
24-Apr-18 11:48 ICT	22.59	7.320687	100.655401	218.91	1,858	1,858	1,858	633.25	633.42	633.33
24-Apr-18 11:49 ICT	22.55	7.317299	100.650251	213.60	1,857	1,857	1,857	633.15	633.17	633.15
24-Apr-18 11:50 ICT	22.52	7.313702	100.645243	207.44	1,857	1,857	1,857	633.11	633.11	633.11
24-Apr-18 11:51 ICT	22.43	7.309862	100.640393	200.34	1,857	1,857	1,857	633.09	633.10	633.09

5.2 Port Main Engine

Timestamp	Speed (Knot)	Port ME Engine Speed (RPM)	Port ME Shaft Speed (RPM)	Port ME Inlet Mass Flow Rate (Kg/Hr)	Port ME Inlet Mass Total (Kg)	Port ME Inlet Volume Total (L)	Port ME Outlet Mass Flow Rate (Kg/Hr)	Port ME Outlet Mass Total (Kg)	Port ME Outlet Volume Total (L)	Port ME Engine Fuel Consumption Rate (L/Hr)	Port ME Total Fuel Used (L)
1000 RPM											
24-Apr-18 09:40 ICT	11.95	1,011	345	200.40	3.34	4.00	151.59	2.53	3.10	54.00	0.90
24-Apr-18 09:41 ICT	11.60	1,011	345	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 09:42 ICT	12.15	1,008	343	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 09:43 ICT	11.81	1,008	344	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 09:44 ICT	11.63	1,008	344	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 09:45 ICT	11.81	1,009	344	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 09:46 ICT	12.07	1,009	344	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 09:47 ICT	12.10	1,009	344	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 09:48 ICT	11.81	1,007	343	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 09:49 ICT	11.88	1,009	344	200.40	3.34	4.00	141.81	2.36	2.90	66.00	1.10
1200 RPM											
24-Apr-18 09:55 ICT	14.42	1,206	411	200.40	3.34	4.00	166.26	2.77	3.40	36.00	0.60
24-Apr-18 09:56 ICT	14.28	1,206	411	250.50	4.18	5.00	185.82	3.10	3.80	72.00	1.20
24-Apr-18 09:57 ICT	14.41	1,206	411	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 09:58 ICT	14.34	1,206	411	250.50	4.18	5.00	166.26	2.77	3.40	96.00	1.60
24-Apr-18 09:59 ICT	14.32	1,206	411	200.40	3.34	4.00	185.82	3.10	3.80	12.00	0.20
24-Apr-18 10:00 ICT	14.45	1,207	411	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 10:01 ICT	14.42	1,206	411	250.50	4.18	5.00	166.26	2.77	3.40	96.00	1.60
24-Apr-18 10:02 ICT	14.36	1,206	411	200.40	3.34	4.00	185.82	3.10	3.80	12.00	0.20
24-Apr-18 10:03 ICT	14.45	1,207	411	200.40	3.34	4.00	161.37	2.69	3.30	42.00	0.70
24-Apr-18 10:04 ICT	14.41	1,207	411	250.50	4.18	5.00	171.15	2.85	3.50	90.00	1.50
1400 RPM											
24-Apr-18 10:23 ICT	16.81	1,404	478	250.50	4.18	5.00	176.04	2.93	3.60	84.00	1.40
24-Apr-18 10:24 ICT	16.78	1,404	478	300.60	5.01	6.00	180.93	3.02	3.70	138.00	2.30
24-Apr-18 10:25 ICT	16.72	1,404	478	250.50	4.18	5.00	195.60	3.26	4.00	60.00	1.00
24-Apr-18 10:26 ICT	16.81	1,404	479	250.50	4.18	5.00	180.93	3.02	3.70	78.00	1.30
24-Apr-18 10:27 ICT	16.74	1,404	478	250.50	4.18	5.00	176.04	2.93	3.60	84.00	1.40
24-Apr-18 10:28 ICT	16.65	1,404	479	250.50	4.18	5.00	205.38	3.42	4.20	48.00	0.80
24-Apr-18 10:29 ICT	16.77	1,404	479	250.50	4.18	5.00	176.04	2.93	3.60	84.00	1.40
24-Apr-18 10:30 ICT	16.71	1,403	478	300.60	5.01	6.00	176.04	2.93	3.60	144.00	2.40
24-Apr-18 10:31 ICT	16.84	1,403	478	250.50	4.18	5.00	200.49	3.34	4.10	54.00	0.90
24-Apr-18 10:32 ICT	16.77	1,404	478	250.50	4.18	5.00	180.93	3.02	3.70	78.00	1.30
1600 RPM											
24-Apr-18 10:39 ICT	19.29	1,606	548	300.60	5.01	6.00	210.27	3.50	4.30	102.00	1.70

Timestamp	Speed (Knot)	Port ME Engine Speed (RPM)	Port ME Shaft Speed (RPM)	Port ME Inlet Mass Flow Rate (Kg/Hr)	Port ME Inlet Mass Total (Kg)	Port ME Inlet Volume Total (L)	Port ME Outlet Mass Flow Rate (Kg/Hr)	Port ME Outlet Mass Total (Kg)	Port ME Outlet Volume Total (L)	Port ME Engine Fuel Consumption Rate (L/Hr)	Port ME Total Fuel Used (L)
24-Apr-18 10:40 ICT	19.27	1,606	548	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 10:41 ICT	19.19	1,606	547	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 10:42 ICT	19.33	1,606	547	300.60	5.01	6.00	205.38	3.42	4.20	108.00	1.80
24-Apr-18 10:43 ICT	19.27	1,606	548	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 10:44 ICT	19.36	1,605	547	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 10:45 ICT	19.36	1,606	547	300.60	5.01	6.00	210.27	3.50	4.30	102.00	1.70
24-Apr-18 10:46 ICT	19.22	1,606	547	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 10:47 ICT	19.24	1,605	547	250.50	4.18	5.00	185.82	3.10	3.80	72.00	1.20
24-Apr-18 10:48 ICT	19.28	1,606	547	350.70	5.85	7.00	205.38	3.42	4.20	168.00	2.80
1800 RPM	22.13	1,810	617	335.67	55.95	67.00	192.67	32.11	39.40	165.60	27.60
24-Apr-18 10:57 ICT	22.15	1,809	617	350.70	5.85	7.00	205.38	3.42	4.20	168.00	2.80
24-Apr-18 10:58 ICT	22.04	1,810	617	300.60	5.01	6.00	180.93	3.02	3.70	138.00	2.30
24-Apr-18 10:59 ICT	22.11	1,811	617	350.70	5.85	7.00	185.82	3.10	3.80	192.00	3.20
24-Apr-18 11:00 ICT	22.08	1,809	617	350.70	5.85	7.00	205.38	3.42	4.20	168.00	2.80
24-Apr-18 11:01 ICT	22.15	1,810	617	300.60	5.01	6.00	185.82	3.10	3.80	132.00	2.20
24-Apr-18 11:02 ICT	22.35	1,811	617	350.70	5.85	7.00	180.93	3.02	3.70	198.00	3.30
24-Apr-18 11:03 ICT	22.13	1,810	617	350.70	5.85	7.00	210.27	3.50	4.30	162.00	2.70
24-Apr-18 11:04 ICT	22.05	1,811	617	300.60	5.01	6.00	180.93	3.02	3.70	138.00	2.30
24-Apr-18 11:05 ICT	22.12	1,810	617	350.70	5.85	7.00	205.38	3.42	4.20	168.00	2.80
24-Apr-18 11:06 ICT	22.09	1,810	617	350.70	5.85	7.00	185.82	3.10	3.80	192.00	3.20
MAX RPM	22.67	1,857	633	342.74	57.12	68.41	185.74	30.96	37.98	182.57	30.43
24-Apr-18 11:42 ICT	22.86	1,856	633	350.70	5.85	7.00	180.93	3.02	3.70	198.00	3.30
24-Apr-18 11:43 ICT	22.75	1,858	633	350.70	5.85	7.00	200.49	3.34	4.10	174.00	2.90
24-Apr-18 11:44 ICT	23.02	1,857	633	350.70	5.85	7.00	176.04	2.93	3.60	204.00	3.40
24-Apr-18 11:45 ICT	22.51	1,857	633	350.70	5.85	7.00	185.82	3.10	3.80	192.00	3.20
24-Apr-18 11:46 ICT	22.68	1,855	632	350.70	5.85	7.00	195.60	3.26	4.00	180.00	3.00
24-Apr-18 11:47 ICT	22.83	1,858	634	300.60	5.01	6.00	180.93	3.02	3.70	138.00	2.30
24-Apr-18 11:48 ICT	22.59	1,858	633	350.70	5.85	7.00	180.93	3.02	3.70	198.00	3.30
24-Apr-18 11:49 ICT	22.55	1,857	633	342.35	5.71	6.83	186.63	3.11	3.82	181.00	3.02
24-Apr-18 11:50 ICT	22.52	1,857	633	340.96	5.68	6.81	184.33	3.07	3.77	182.17	3.04
24-Apr-18 11:51 ICT	22.43	1,857	633	339.33	5.66	6.77	185.71	3.10	3.80	178.53	2.98

5.3 Starboard Main Engine

Timestamp	Speed (Knot)	Stbd ME Engine Speed (RPM)	Stbd ME Shaft Speed (RPM)	Stbd ME Inlet Mass Flow Rate (Kg/Hr)	Stbd ME Inlet Mass Total (Kg)	Stbd ME Inlet Volume Total (L)	Stbd ME Outlet Mass Flow Rate (Kg/Hr)	Stbd ME Outlet Mass Total (Kg)	Stbd ME Outlet Volume Total (L)	Stbd ME Engine Fuel Consumption Rate (L/Hr)	Stbd ME Total Fuel Used (L)
1000 RPM											
24-Apr-18 09:40 ICT	11.95	1,012	345	85.17	1.42	1.70	58.68	0.98	1.20	30.00	0.50
24-Apr-18 09:41 ICT	11.60	1,011	345	85.17	1.42	1.70	63.57	1.06	1.30	24.00	0.40
24-Apr-18 09:42 ICT	12.15	1,008	344	95.19	1.59	1.90	63.57	1.06	1.30	36.00	0.60
24-Apr-18 09:43 ICT	11.81	1,008	344	85.17	1.42	1.70	63.57	1.06	1.30	24.00	0.40
24-Apr-18 09:44 ICT	11.63	1,007	343	80.16	1.34	1.60	58.68	0.98	1.20	24.00	0.40
24-Apr-18 09:45 ICT	11.81	1,009	344	95.19	1.59	1.90	68.46	1.14	1.40	30.00	0.50
24-Apr-18 09:46 ICT	12.07	1,009	344	85.17	1.42	1.70	58.68	0.98	1.20	30.00	0.50
24-Apr-18 09:47 ICT	12.10	1,009	344	90.18	1.50	1.80	58.68	0.98	1.20	36.00	0.60
24-Apr-18 09:48 ICT	11.81	1,008	344	85.17	1.42	1.70	68.46	1.14	1.40	18.00	0.30
24-Apr-18 09:49 ICT	11.88	1,008	344	80.16	1.34	1.60	58.68	0.98	1.20	24.00	0.40
1200 RPM											
24-Apr-18 09:55 ICT	14.42	1,206	411	120.24	2.00	2.40	78.24	1.30	1.60	48.00	0.80
24-Apr-18 09:56 ICT	14.28	1,206	411	130.26	2.17	2.60	78.24	1.30	1.60	60.00	1.00
24-Apr-18 09:57 ICT	14.41	1,206	411	120.24	2.00	2.40	88.02	1.47	1.80	36.00	0.60
24-Apr-18 09:58 ICT	14.34	1,206	411	115.23	1.92	2.30	78.24	1.30	1.60	42.00	0.70
24-Apr-18 09:59 ICT	14.32	1,206	411	135.27	2.25	2.70	83.13	1.39	1.70	60.00	1.00
24-Apr-18 10:00 ICT	14.45	1,206	411	115.23	1.92	2.30	88.02	1.47	1.80	30.00	0.50
24-Apr-18 10:01 ICT	14.42	1,206	411	115.23	1.92	2.30	78.24	1.30	1.60	42.00	0.70
24-Apr-18 10:02 ICT	14.36	1,206	411	135.27	2.25	2.70	83.13	1.39	1.70	60.00	1.00
24-Apr-18 10:03 ICT	14.45	1,207	411	115.23	1.92	2.30	88.02	1.47	1.80	30.00	0.50
24-Apr-18 10:04 ICT	14.41	1,207	411	120.24	2.00	2.40	78.24	1.30	1.60	48.00	0.80
1400 RPM											
24-Apr-18 10:23 ICT	16.81	1,404	479	160.82	26.80	32.10	98.29	16.38	20.10	72.00	12.00
24-Apr-18 10:24 ICT	16.78	1,404	478	160.32	2.67	3.20	92.91	1.55	1.90	78.00	1.30
24-Apr-18 10:25 ICT	16.72	1,403	478	175.35	2.92	3.50	92.91	1.55	1.90	96.00	1.60
24-Apr-18 10:26 ICT	16.81	1,404	479	155.31	2.59	3.10	102.69	1.71	2.10	60.00	1.00
24-Apr-18 10:27 ICT	16.74	1,404	478	150.30	2.51	3.00	97.80	1.63	2.00	60.00	1.00
24-Apr-18 10:28 ICT	16.65	1,404	479	175.35	2.92	3.50	92.91	1.55	1.90	96.00	1.60
24-Apr-18 10:29 ICT	16.77	1,404	479	155.31	2.59	3.10	102.69	1.71	2.10	60.00	1.00
24-Apr-18 10:30 ICT	16.71	1,403	478	155.31	2.59	3.10	97.80	1.63	2.00	66.00	1.10
24-Apr-18 10:31 ICT	16.84	1,403	478	175.35	2.92	3.50	92.91	1.55	1.90	96.00	1.60
24-Apr-18 10:32 ICT	16.77	1,403	478	155.31	2.59	3.10	102.69	1.71	2.10	60.00	1.00
1600 RPM											
24-Apr-18 10:39 ICT	19.29	1,605	547	198.40	33.07	39.60	100.73	16.79	20.60	114.00	19.00

Timestamp	Speed (Knot)	Stbd ME Engine Speed (RPM)	Stbd ME Shaft Speed (RPM)	Stbd ME Inlet Mass Flow Rate (Kg/Hr)	Stbd ME Inlet Mass Total (Kg)	Stbd ME Inlet Volume Total (L)	Stbd ME Outlet Mass Flow Rate (Kg/Hr)	Stbd ME Outlet Mass Total (Kg)	Stbd ME Outlet Volume Total (L)	Stbd ME Engine Fuel Consumption Rate (L/Hr)	Stbd ME Total Fuel Used (L)
24-Apr-18 10:40 ICT	19.27	1,607	548	215.43	3.59	4.30	112.47	1.87	2.30	120.00	2.00
24-Apr-18 10:41 ICT	19.19	1,606	548	190.38	3.17	3.80	92.91	1.55	1.90	114.00	1.90
24-Apr-18 10:42 ICT	19.33	1,606	547	195.39	3.26	3.90	97.80	1.63	2.00	114.00	1.90
24-Apr-18 10:43 ICT	19.27	1,606	547	210.42	3.51	4.20	107.58	1.79	2.20	120.00	2.00
24-Apr-18 10:44 ICT	19.36	1,606	547	195.39	3.26	3.90	97.80	1.63	2.00	114.00	1.90
24-Apr-18 10:45 ICT	19.36	1,606	547	190.38	3.17	3.80	97.80	1.63	2.00	108.00	1.80
24-Apr-18 10:46 ICT	19.22	1,606	547	215.43	3.59	4.30	107.58	1.79	2.20	126.00	2.10
24-Apr-18 10:47 ICT	19.24	1,605	547	190.38	3.17	3.80	97.80	1.63	2.00	108.00	1.80
24-Apr-18 10:48 ICT	19.28	1,606	547	190.38	3.17	3.80	97.80	1.63	2.00	108.00	1.80
1800 RPM	22.13	1,810	617	236.47	39.41	47.20	93.40	15.57	19.10	168.60	28.10
24-Apr-18 10:57 ICT	22.15	1,809	617	250.50	4.18	5.00	88.02	1.47	1.80	192.00	3.20
24-Apr-18 10:58 ICT	22.04	1,810	617	225.45	3.76	4.50	97.80	1.63	2.00	150.00	2.50
24-Apr-18 10:59 ICT	22.11	1,810	617	230.46	3.84	4.60	92.91	1.55	1.90	162.00	2.70
24-Apr-18 11:00 ICT	22.08	1,809	617	250.50	4.18	5.00	88.02	1.47	1.80	192.00	3.20
24-Apr-18 11:01 ICT	22.15	1,810	617	225.45	3.76	4.50	97.80	1.63	2.00	150.00	2.50
24-Apr-18 11:02 ICT	22.35	1,811	617	225.45	3.76	4.50	88.02	1.47	1.80	162.00	2.70
24-Apr-18 11:03 ICT	22.13	1,810	617	250.50	4.18	5.00	92.91	1.55	1.90	186.00	3.10
24-Apr-18 11:04 ICT	22.05	1,811	617	225.45	3.76	4.50	97.80	1.63	2.00	150.00	2.50
24-Apr-18 11:05 ICT	22.12	1,809	617	230.46	3.84	4.60	88.02	1.47	1.80	168.00	2.80
24-Apr-18 11:06 ICT	22.09	1,810	617	250.50	4.18	5.00	102.69	1.71	2.10	174.00	2.90
MAX RPM	22.67	1,857	633	243.01	40.50	48.50	88.40	14.73	18.08	182.56	30.43
24-Apr-18 11:42 ICT	22.86	1,856	633	235.47	3.92	4.70	83.13	1.39	1.70	180.00	3.00
24-Apr-18 11:43 ICT	22.75	1,858	633	235.47	3.92	4.70	83.13	1.39	1.70	180.00	3.00
24-Apr-18 11:44 ICT	23.02	1,857	633	260.52	4.34	5.20	92.91	1.55	1.90	198.00	3.30
24-Apr-18 11:45 ICT	22.51	1,858	633	235.47	3.92	4.70	88.02	1.47	1.80	174.00	2.90
24-Apr-18 11:46 ICT	22.68	1,855	632	235.47	3.92	4.70	83.13	1.39	1.70	180.00	3.00
24-Apr-18 11:47 ICT	22.83	1,857	633	260.52	4.34	5.20	97.80	1.63	2.00	192.00	3.20
24-Apr-18 11:48 ICT	22.59	1,858	633	235.47	3.92	4.70	88.02	1.47	1.80	174.00	2.90
24-Apr-18 11:49 ICT	22.55	1,857	633	243.82	4.06	4.87	88.84	1.48	1.82	183.00	3.05
24-Apr-18 11:50 ICT	22.52	1,857	633	245.21	4.09	4.89	89.79	1.50	1.84	183.50	3.06
24-Apr-18 11:51 ICT	22.43	1,857	633	242.66	4.04	4.84	89.27	1.49	1.83	181.08	3.02

5.4 Center Main Engine

Timestamp	Speed (Knot)	Center ME Engine Speed (RPM)	Center ME Shaft Speed (RPM)	Center ME Inlet Mass Flow Rate (Kg/Hr)	Center ME Inlet Mass Total (Kg)	Center ME Inlet Volume Total (L)	Center ME Outlet Mass Flow Rate (Kg/Hr)	Center ME Outlet Mass Total (Kg)	Center ME Outlet Volume Total (L)	Center ME Engine Fuel Consumption Rate (L/Hr)	Center ME Total Fuel Used (L)
1000 RPM	11.88	1,009	344	170.34	28.39	34.00	127.63	21.27	26.10	47.40	7.90
24-Apr-18 09:40 ICT	11.95	1,011	345	200.40	3.34	4.00	132.03	2.20	2.70	78.00	1.30
24-Apr-18 09:41 ICT	11.60	1,011	345	150.30	2.51	3.00	127.14	2.12	2.60	24.00	0.40
24-Apr-18 09:42 ICT	12.15	1,007	343	150.30	2.51	3.00	127.14	2.12	2.60	24.00	0.40
24-Apr-18 09:43 ICT	11.81	1,008	344	200.40	3.34	4.00	132.03	2.20	2.70	78.00	1.30
24-Apr-18 09:44 ICT	11.63	1,007	343	150.30	2.51	3.00	122.25	2.04	2.50	30.00	0.50
24-Apr-18 09:45 ICT	11.81	1,009	344	150.30	2.51	3.00	122.25	2.04	2.50	30.00	0.50
24-Apr-18 09:46 ICT	12.07	1,008	344	200.40	3.34	4.00	132.03	2.20	2.70	78.00	1.30
24-Apr-18 09:47 ICT	12.10	1,009	344	150.30	2.51	3.00	127.14	2.12	2.60	24.00	0.40
24-Apr-18 09:48 ICT	11.81	1,008	344	200.40	3.34	4.00	127.14	2.12	2.60	84.00	1.40
24-Apr-18 09:49 ICT	11.88	1,008	344	150.30	2.51	3.00	127.14	2.12	2.60	24.00	0.40
1200 RPM	14.38	1,206	411	185.37	30.90	37.00	140.34	23.39	28.70	49.80	8.30
24-Apr-18 09:55 ICT	14.42	1,206	411	150.30	2.51	3.00	146.70	2.45	3.00	0.00	0.00
24-Apr-18 09:56 ICT	14.28	1,206	411	200.40	3.34	4.00	136.92	2.28	2.80	72.00	1.20
24-Apr-18 09:57 ICT	14.41	1,206	411	200.40	3.34	4.00	132.03	2.20	2.70	78.00	1.30
24-Apr-18 09:58 ICT	14.34	1,206	411	150.30	2.51	3.00	151.59	2.53	3.10	-6.00	-0.10
24-Apr-18 09:59 ICT	14.32	1,206	411	200.40	3.34	4.00	132.03	2.20	2.70	78.00	1.30
24-Apr-18 10:00 ICT	14.45	1,206	411	200.40	3.34	4.00	136.92	2.28	2.80	72.00	1.20
24-Apr-18 10:01 ICT	14.42	1,207	411	200.40	3.34	4.00	146.70	2.45	3.00	60.00	1.00
24-Apr-18 10:02 ICT	14.36	1,206	411	150.30	2.51	3.00	132.03	2.20	2.70	18.00	0.30
24-Apr-18 10:03 ICT	14.45	1,207	411	200.40	3.34	4.00	136.92	2.28	2.80	72.00	1.20
24-Apr-18 10:04 ICT	14.41	1,207	411	200.40	3.34	4.00	151.59	2.53	3.10	54.00	0.90
1400 RPM	16.76	1,404	479	225.45	37.58	45.00	148.17	24.69	30.30	88.20	14.70
24-Apr-18 10:23 ICT	16.81	1,404	478	250.50	4.18	5.00	136.92	2.28	2.80	132.00	2.20
24-Apr-18 10:24 ICT	16.78	1,403	479	200.40	3.34	4.00	166.26	2.77	3.40	36.00	0.60
24-Apr-18 10:25 ICT	16.72	1,404	478	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
24-Apr-18 10:26 ICT	16.81	1,404	479	200.40	3.34	4.00	141.81	2.36	2.90	66.00	1.10
24-Apr-18 10:27 ICT	16.74	1,403	478	250.50	4.18	5.00	161.37	2.69	3.30	102.00	1.70
24-Apr-18 10:28 ICT	16.65	1,404	479	200.40	3.34	4.00	146.70	2.45	3.00	60.00	1.00
24-Apr-18 10:29 ICT	16.77	1,404	479	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
24-Apr-18 10:30 ICT	16.71	1,403	478	200.40	3.34	4.00	156.48	2.61	3.20	48.00	0.80
24-Apr-18 10:31 ICT	16.84	1,403	478	200.40	3.34	4.00	146.70	2.45	3.00	60.00	1.00
24-Apr-18 10:32 ICT	16.77	1,404	478	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
1600 RPM	19.28	1,606	547	260.52	43.42	52.00	149.15	24.86	30.50	129.00	21.50
24-Apr-18 10:39 ICT	19.29	1,605	547	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10

24-Apr-18 10:40 ICT	19.27	1,607	548	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
24-Apr-18 10:41 ICT	19.19	1,606	548	300.60	5.01	6.00	161.37	2.69	3.30	162.00	2.70
24-Apr-18 10:42 ICT	19.33	1,606	548	250.50	4.18	5.00	146.70	2.45	3.00	120.00	2.00
24-Apr-18 10:43 ICT	19.27	1,606	547	250.50	4.18	5.00	146.70	2.45	3.00	120.00	2.00
24-Apr-18 10:44 ICT	19.36	1,606	547	250.50	4.18	5.00	161.37	2.69	3.30	102.00	1.70
24-Apr-18 10:45 ICT	19.36	1,606	547	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
24-Apr-18 10:46 ICT	19.22	1,605	547	250.50	4.18	5.00	146.70	2.45	3.00	120.00	2.00
24-Apr-18 10:47 ICT	19.24	1,605	547	300.60	5.01	6.00	161.37	2.69	3.30	162.00	2.70
24-Apr-18 10:48 ICT	19.28	1,606	547	250.50	4.18	5.00	141.81	2.36	2.90	126.00	2.10
1800 RPM	22.13	1,810	617	295.59	49.27	59.00	142.79	23.80	29.20	178.80	29.80
24-Apr-18 10:57 ICT	22.15	1,809	617	250.50	4.18	5.00	136.92	2.28	2.80	132.00	2.20
24-Apr-18 10:58 ICT	22.04	1,810	617	350.70	5.85	7.00	136.92	2.28	2.80	252.00	4.20
24-Apr-18 10:59 ICT	22.11	1,810	617	250.50	4.18	5.00	156.48	2.61	3.20	108.00	1.80
24-Apr-18 11:00 ICT	22.08	1,809	617	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:01 ICT	22.15	1,810	617	350.70	5.85	7.00	136.92	2.28	2.80	252.00	4.20
24-Apr-18 11:02 ICT	22.35	1,811	617	250.50	4.18	5.00	156.48	2.61	3.20	108.00	1.80
24-Apr-18 11:03 ICT	22.13	1,810	617	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:04 ICT	22.05	1,811	617	300.60	5.01	6.00	151.59	2.53	3.10	174.00	2.90
24-Apr-18 11:05 ICT	22.12	1,810	617	300.60	5.01	6.00	141.81	2.36	2.90	186.00	3.10
24-Apr-18 11:06 ICT	22.09	1,810	617	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
MAX RPM	22.67	1,857	633	308.56	51.43	61.59	142.27	23.71	29.09	194.96	32.49
24-Apr-18 11:42 ICT	22.86	1,856	633	300.60	5.01	6.00	151.59	2.53	3.10	174.00	2.90
24-Apr-18 11:43 ICT	22.75	1,858	634	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:44 ICT	23.02	1,857	633	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:45 ICT	22.51	1,858	633	350.70	5.85	7.00	146.70	2.45	3.00	240.00	4.00
24-Apr-18 11:46 ICT	22.68	1,855	632	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:47 ICT	22.83	1,858	633	300.60	5.01	6.00	136.92	2.28	2.80	192.00	3.20
24-Apr-18 11:48 ICT	22.59	1,858	633	300.60	5.01	6.00	151.59	2.53	3.10	174.00	2.90
24-Apr-18 11:49 ICT	22.55	1,857	633	308.95	5.15	6.17	140.99	2.35	2.88	197.00	3.28
24-Apr-18 11:50 ICT	22.52	1,857	633	310.34	5.17	6.19	141.67	2.36	2.90	197.83	3.30
24-Apr-18 11:51 ICT	22.43	1,857	633	311.97	5.20	6.23	142.47	2.37	2.91	198.81	3.31

6. SEA TRIAL REPORT BY SC

6.1 Port Main Engine

M.V. SC GLORY 7
PORT MAIN ENGINE TRIAL

ENGINE										REDUCTION GEAR						LINE SHAFTING						
Name:	S.C Management Co.,ltd.	Type:	BAUDOIN 12 M26.2,	No:	2M262-0021	Oil type:	MGO	Engine running hours:	9121	Type:	Twin dish model; MGX 6690SC	No:	2150728	Reduction gear:		No. of blades:	5	Diam (mm)		Pitch:		
Boat:		Oil type:		Engine running hours:		Oil type:		Max Engine speed (rpm):	1900	Oil type:		Oil type:		Ratio:	2.93 : 1	Reversible propeller:				Reversible propeller:		
HP:		Power (HP):	1200 bhp	Power (HP):		Power (HP):		Draft	1.4	Mtr		Aft:	1.6 Mtr									
Field:	Chevron	Hull material:	Aluminium	Sea condition/ direction:		Wind direction/Speed		Sea condition/ direction:		Wind direction/Speed		Slight				Diameter (mm):		Length (mm):		Lubrication Oil bath		
Client:												S/3 Knots										
Country:	Thailand											S/0.4 m.										
TEMPERATURE (C)																						
Eng.	RPM	FW.	SW.	Input	Output	Oil	Gear	Port	St'Bd	Port	St'Bd	ER Temp	Eng	Gear	Port	St'Bd	Intake	Oil	Intake	Cons.L	Smoke	MGO/FW
Time Hrs																		/Hr	/Tons)		Pitch	Spd
0940-0950	1000	77						81	59	304	312	36	30	34	5.3	25	0.3	0.3	38.4	Clear	31/5	
0955-1010	1200	77						83	59	305	315	36	30	34	5.3	25	0.3	0.3	55	Clear	31/5	11.8
1014-1037	1400	77						81	59	331	350	36	30	34	5.7	25	0.3	0.3	84.1	Clear	31/5	14.3
1037-1052	1600	77						86	60	377	378	37	30	34	5.6	25	0.4	0.3	119.8	Clear	31/5	16.8
1055-1109	1800	87						97	62	384	382	40	38	34	5.8	25	1.2	1.2	171.2	Clear	31/5	19.2
1142-1150	MAX	96						101	62	385	385	42	38	34	5.7	25	1.4	1.3	180.6	Clear	31/5	22.1
																						22.7

KEEL COOLING										Observation/Remark									
Engine speed	T°C									PI(Pars)									
	Input	Output								Input	Output								

M.V. SC GLORY 7
 The engine was running with normal condition.

D. Nguen
 CHIEF ENGINEER

Chief engineer

6.2 Center Main Engine

M.V. SC GLORY 7
CENTER MAIN ENGINE TRIAL



ENGINE										REDUCTION GEAR				LINE SHAFTING			
Name:	SC Management Co.,Ltd.	Type:	BAUDON 12 M26.2,	No.:	2M262-0023	Oil type:	MGO	Engine running hours:	8368	No. of blades:	5	Diam (mm):		Date:	24/4/2018		
Boat:		No:		Reduction gear:	2150730	Oil type:		Oil type:		Pitch:		Reversible propeller:					
HP:												Fixed propeller:					
Field:	Chevron	Max Engine speed (rpm):	1900	Power (HP):	1200 bhp	Draft	Fwd:	1.4	Mtr	Aft:	1.6 Mtr						
Client:						Sea condition/ direction:											
Country:	Thailand					Wind direction/Speed											
Operation type:	Crew Boat	Hull material:	Aluminium			Swell direction/Speed											
Weight (tons):	266 mt																
Length overall (Mtr)	40 m																
Breadth (Mtr):	7.6 m																
TEMPERATURE (C)																	
Eng.	RPM	FW.	SW.	Input	Output	Eng	Gear	Port	St'Bd	Intake	ER Temp	Eng	Gear	Port	St'Bd	/Hr	Spd
Time Hrs																	Fuel
0940-0950	1000	76		86	60	330	332	38	34	34	5.5	24	0.2	0.2	30	Clear	11.8
0955-1010	1200	76		86	60	343	339	38	34	34	5.5	24	0.2	0.4	52.6	Clear	31/5
1014-1037	1400	78		89	60	397	398	38	34	34	5.8	24	0.4	0.4	84.4	Clear	31/5
1037-1052	1600	78		92	60	405	406	38	38	34	5.8	25	0.4	0.4	126.8	Clear	31/5
1055-1109	1800	86		101	64	402	397	44	42	34	6.0	25	1.4	1.4	182.4	Clear	31/5
1142-1150	MAX	89		103	64	399	390	44	42	34	6.0	25	1.4	1.5	199.8	Clear	31/5
																	22.7

KEEL COOLING										Observation/Remark							
Engine speed										T°C	PI(Bar)s	Speed Km					
										Input	Output						

The M.V. SC GLORY 7 in normal condition.

Chief engineer

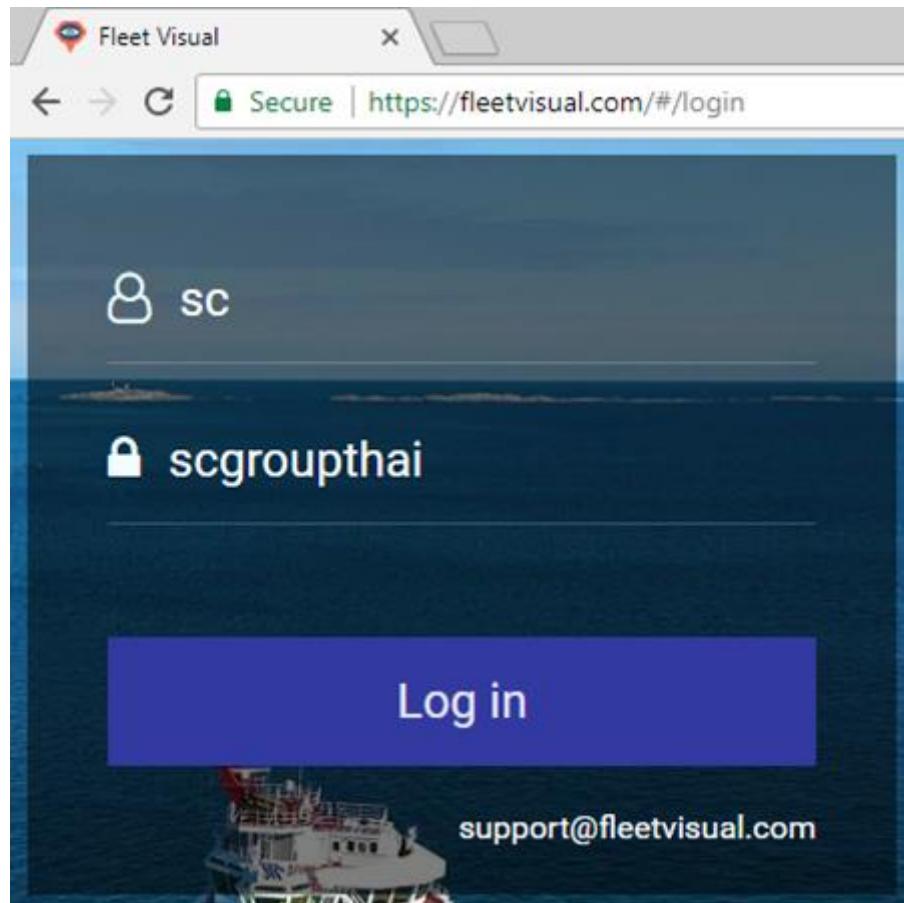
CHIEF ENGINEER

6.3 Starboard Main Engine

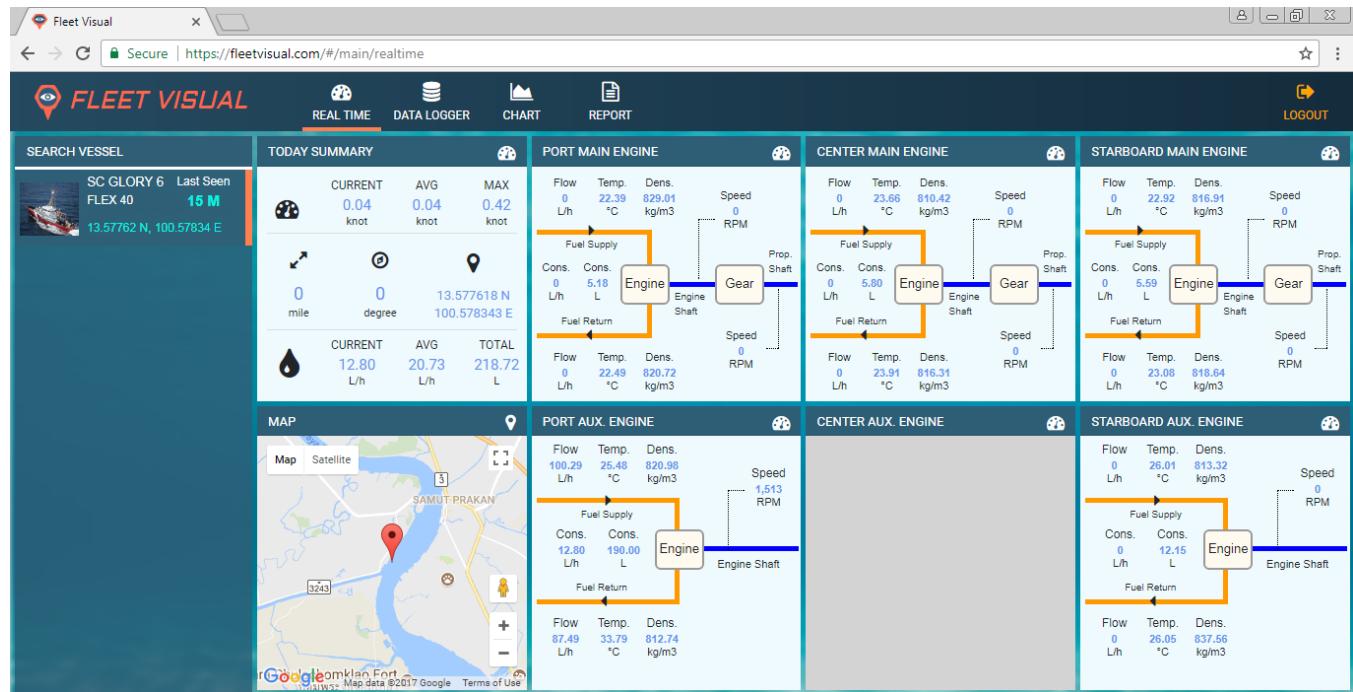
7. FLEET VISUAL WEB APPLICATION

7.1 Login Page

URL	https://www.fleetvisual.com
Username	sc
Password	scgroupthai



7.2 First Landing Page (Real-Time)



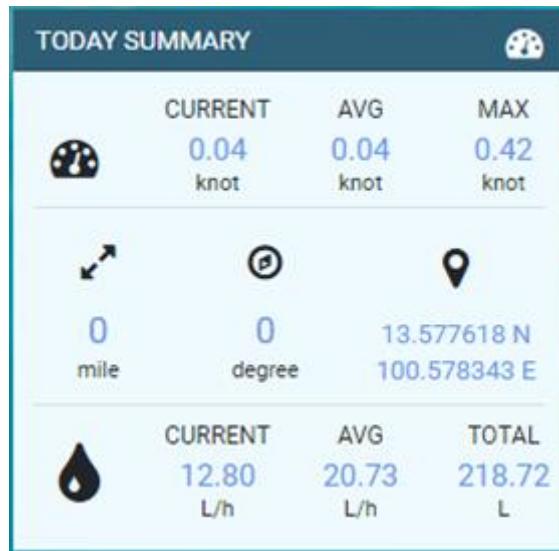
7.2.1 Top Bar Navigation – Page Selection



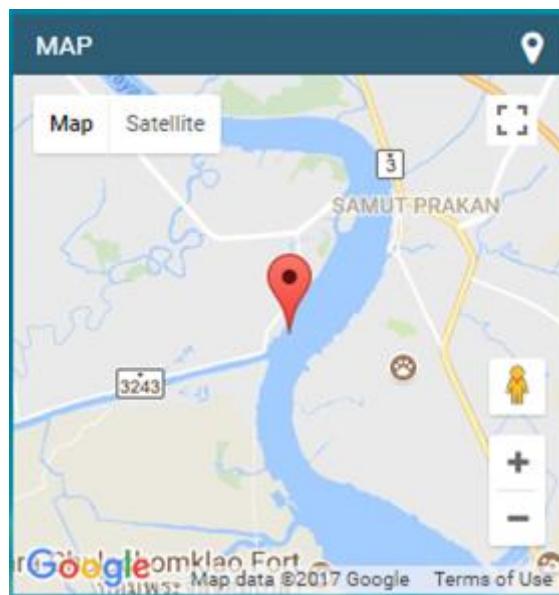
7.2.2 Left Side Bar Navigation – Vessel Selection



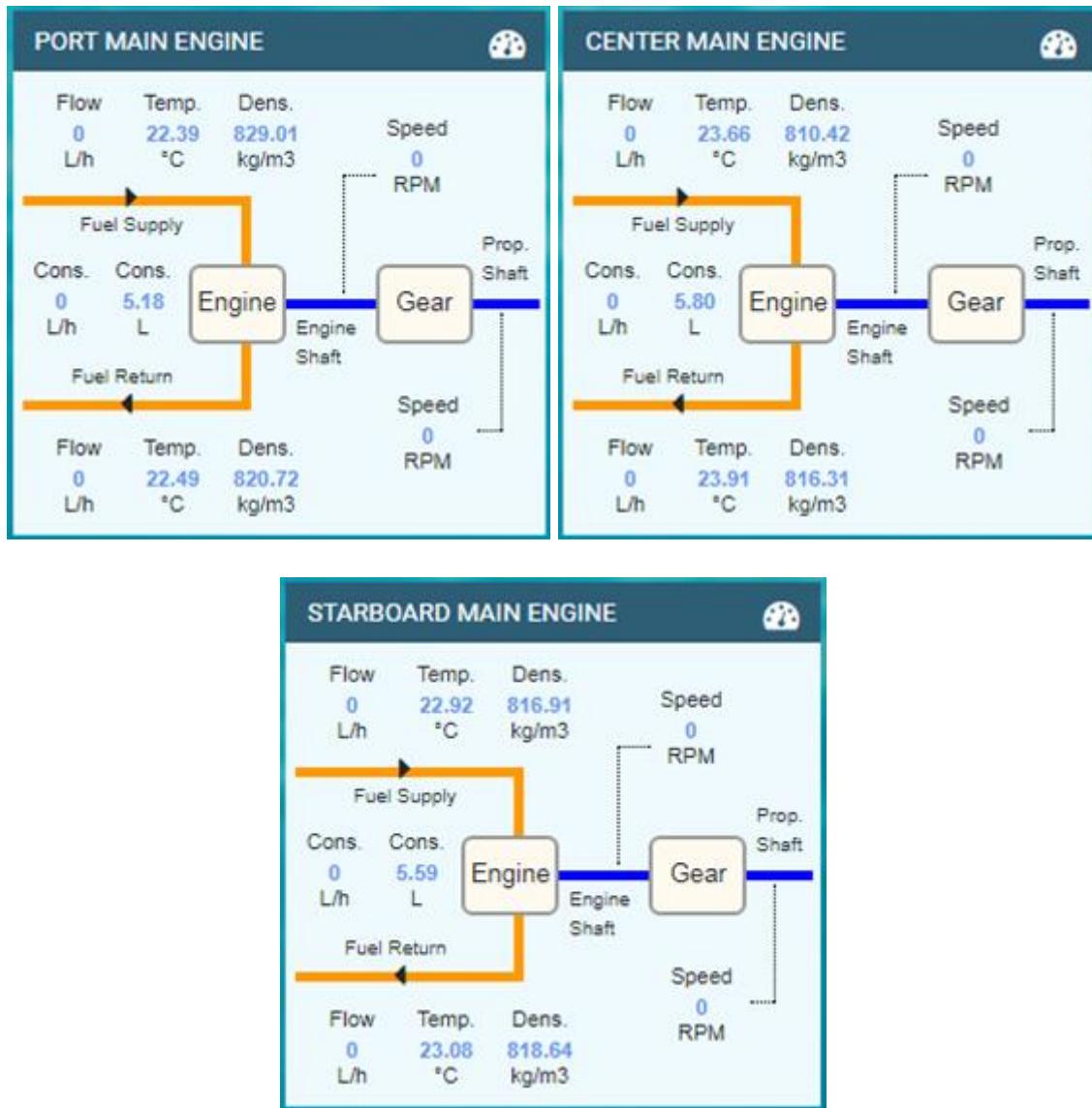
7.2.3 Today Summary



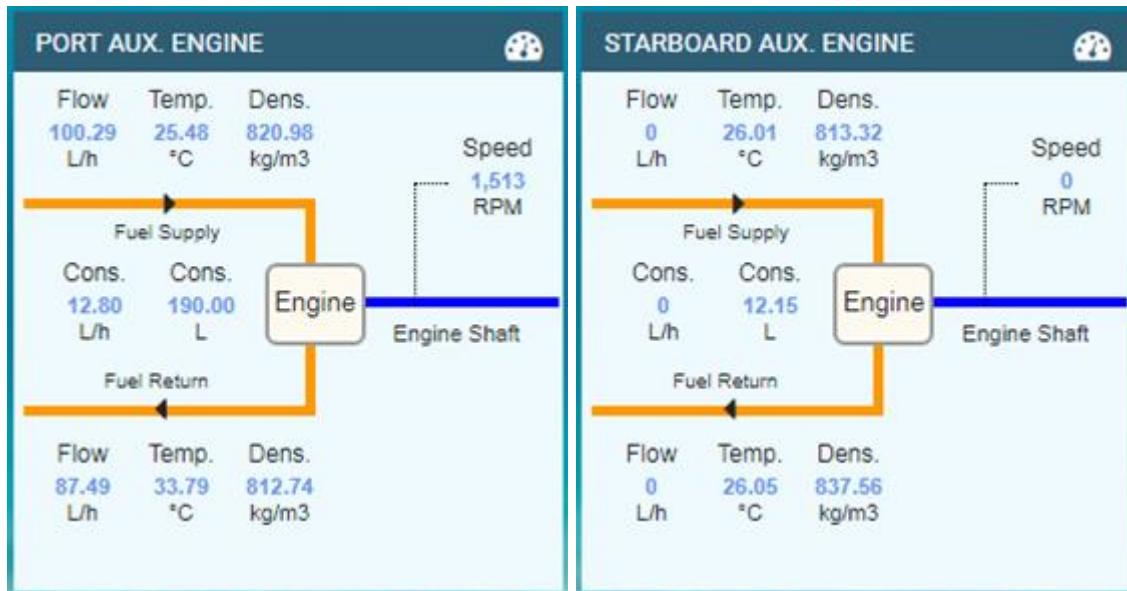
7.2.4 Current Vessel Location



7.2.5 Main Engine



7.2.6 Aux. Engine



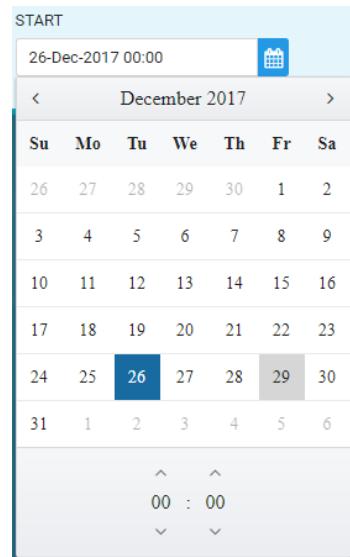
7.3 Data Logger Page

7.3.1 Data Logger's Parameters Selection Bar

7.3.2 Tag Selection

FAVORITE	PME	CME	SME	PAE	SAE
PME Raw Data	PME-FIN-DENS	CME-FIN-DENS	SME-FIN-DENS	PAE-FIN-DENS	SAE-FIN-DENS
CME Raw Data	PME-FIN-MFLOW	CME-FIN-MFLOW	SME-FIN-MFLOW	PAE-FIN-MFLOW	SAE-FIN-MFLOW
SME Raw Data	PME-FIN-MTOTAL	CME-FIN-MTOTAL	SME-FIN-MTOTAL	PAE-FIN-MTOTAL	SAE-FIN-MTOTAL
Speed Raw Data	PME-FIN-TEMP	CME-FIN-TEMP	SME-FIN-TEMP	PAE-FIN-TEMP	SAE-FIN-TEMP
Test Result	PME-FIN-TEMPC	CME-FIN-TEMPC	SME-FIN-TEMPC	PAE-FIN-TEMPC	SAE-FIN-TEMPC
VES	PME-FIN-VFLOW	CME-FIN-VFLOW	SME-FIN-VFLOW	PAE-FIN-VFLOW	SAE-FIN-VFLOW
VES-GPS-DIS	PME-FIN-VTOTAL	CME-FIN-VTOTAL	SME-FIN-VTOTAL	PAE-FIN-VTOTAL	SAE-FIN-VTOTAL
VES-GPS-DIS-TODAY	PME-FLOW-CONS	CME-FLOW-CONS	SME-FLOW-CONS	PAE-FLOW-CONS	SAE-FLOW-CONS
VES-GPS-DIS-TOTAL	PME-FLOW-VTOTAL-CALC	CME-FLOW-VTOTAL-CALC	SME-FLOW-VTOTAL-CALC	PAE-FLOW-VTOTAL-CALC	SAE-FLOW-VTOTAL-CALC
VES-GPS-HEAD	PME-FOUT-DENS	CME-FOUT-DENS	SME-FOUT-DENS	PAE-FOUT-DENS	SAE-FOUT-DENS
VES-GPS-LAT	PME-FOUT-MFLOW	CME-FOUT-MFLOW	SME-FOUT-MFLOW	PAE-FOUT-MFLOW	SAE-FOUT-MFLOW
VES-GPS-LONG	PME-FOUT-MTOTAL	CME-FOUT-MTOTAL	SME-FOUT-MTOTAL	PAE-FOUT-MTOTAL	SAE-FOUT-MTOTAL
VES-GPS-QLTY	PME-FOUT-TEMP	CME-FOUT-TEMP	SME-FOUT-TEMP	PAE-FOUT-TEMP	SAE-FOUT-TEMP
VES-GPS-SPEED	PME-FOUT-TEMPC	CME-FOUT-TEMPC	SME-FOUT-TEMPC	PAE-FOUT-TEMPC	SAE-FOUT-TEMPC
	PME-FOUT-VFLOW	CME-FOUT-VFLOW	SME-FOUT-VFLOW	PAE-FOUT-VFLOW	SAE-FOUT-VFLOW
	PME-FOUT-VTOTAL	CME-FOUT-VTOTAL	SME-FOUT-VTOTAL	PAE-FOUT-VTOTAL	SAE-FOUT-VTOTAL
	PME-SPD	CME-SPD	SME-SPD	PAE-SPD	SAE-SPD
	PME-SPD-CALC	CME-SPD-CALC	SME-SPD-CALC	PAE-SPD-CALC	SAE-SPD-CALC
	PPS-SPD	CPS-SPD	SPS-SPD		
	PPS-SPD-CALC	CPS-SPD-CALC	SPS-SPD-CALC		

7.3.3 Calendar for Start Time and End Time Selection



7.3.4 Data Logger Result

Timestamp	A01-SME-FIN-VTOTAL	A01-SME-FOUT-MFLOW	A01-SME-FOUT-VTOTAL	A01-CME-FIN-VTOTAL	A01-CME-FOUT-MFLOW	A01-CME-FOUT-VTOTAL	A01-PME-FIN-VTOTAL	A01-PME-FOUT-MFLOW	A01-PME-FOUT-VTOTAL	A01-VES-GPS-LAT	A01-VES-GPS-LONG	A01-VES-GPS-SPEED	A01-VES-GPS-HEAD	A01-SME-FLOW-CONS	A01-CME-FLOW-CONS	A01-SME-FIN-MTOTAL	A01-CME-FOUT-MTOTAL	A0 CM FOL	
2017-12-26 00:00:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.02	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:01:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.03	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:02:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.02	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:03:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.01	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:04:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.01	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:05:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.02	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:06:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.01	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:07:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.03	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26 00:08:00	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.01	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462
2017-12-26	2.94	0.00	2.47	7.72	0.00	7.76	2.66	0.00	2.10	13.57	100.58	0.02	0.00	0.00	0.00	2,379.77	2,006.76	3,879.90	2,462

7.3.5 Data Logger File Download

Logger 2017-12-26 00_00_00-2017-12-27 00_00_00.csv - Microsoft Excel													
File Home Insert Page Layout Formulas Data Review View Developer - □ X													
Clipboard Font Alignment Number General Conditional Formatting Insert Σ Cells Format Delete Sort & Find Filter Select													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Timestamp	A01-SME-FI	A01-SME-FO	A01-SME-FO	A01-CME-FI	A01-CME-FO	A01-CME-FO	A01-PME-FI	A01-PME-FO	A01-PME-FO	A01-VES-GP	A01-VES-GP	A01-VES-GP
2	12/26/2017 0:00	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725072	100.57585	0.024
3	12/26/2017 0:01	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725025	100.575845	0.032
4	12/26/2017 0:02	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572531	100.575836	0.024
5	12/26/2017 0:03	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724997	100.575838	0.013
6	12/26/2017 0:04	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.57249	100.575849	0.008
7	12/26/2017 0:05	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725078	100.575847	0.021
8	12/26/2017 0:06	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725075	100.575849	0.009
9	12/26/2017 0:07	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724998	100.575837	0.03
10	12/26/2017 0:08	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572493	100.575833	0.008
11	12/26/2017 0:09	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724788	100.575835	0.016
12	12/26/2017 0:10	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572479	100.57583	0.013
13	12/26/2017 0:11	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724843	100.575829	0.011
14	12/26/2017 0:12	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724883	100.575838	0.018
15	12/26/2017 0:13	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724905	100.575845	0.031
16	12/26/2017 0:14	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724943	100.575838	0.01
17	12/26/2017 0:15	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725028	100.575823	0.026
18	12/26/2017 0:16	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725112	100.575825	0.007
19	12/26/2017 0:17	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724955	100.575824	0.005
20	12/26/2017 0:18	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725033	100.57583	0.016
21	12/26/2017 0:19	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725005	100.575827	0.021
22	12/26/2017 0:20	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725187	100.575832	0.017
23	12/26/2017 0:21	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725138	100.575827	0.006
24	12/26/2017 0:22	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724853	100.575828	0.015
25	12/26/2017 0:23	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724842	100.575829	0.009
26	12/26/2017 0:24	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724878	100.575824	0.01
27	12/26/2017 0:25	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724853	100.575822	0.019
28	12/26/2017 0:26	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724917	100.575812	0.014
29	12/26/2017 0:27	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724985	100.575823	0.007
30	12/26/2017 0:28	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572499	100.575836	0.008
31	12/26/2017 0:29	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724905	100.575842	0.005
32	12/26/2017 0:30	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724927	100.575831	0.003
33	12/26/2017 0:31	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724877	100.575844	0.008
34	12/26/2017 0:32	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725022	100.575863	0.01
35	12/26/2017 0:33	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724935	100.575828	0.019
36	12/26/2017 0:34	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725058	100.575826	0.018
37	12/26/2017 0:35	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725033	100.575816	0.01
38	12/26/2017 0:36	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724993	100.575818	0.016
39	12/26/2017 0:37	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725055	100.575829	0.016
40	12/26/2017 0:38	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724973	100.575832	0.007
41	12/26/2017 0:39	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724988	100.57584	0.008
42	12/26/2017 0:40	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572493	100.575842	0.016
43	12/26/2017 0:41	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724917	100.575854	0.018
44	12/26/2017 0:42	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724918	100.575851	0.011
45	12/26/2017 0:43	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724823	100.575842	0.01
46	12/26/2017 0:44	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724788	100.575856	0.022
47	12/26/2017 0:45	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724873	100.575846	0.016
48	12/26/2017 0:46	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.572496	100.575834	0.01
49	12/26/2017 0:47	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5724957	100.575833	0.008
50	12/26/2017 0:48	2.936518	0	2.471036	7.715783	0	7.764703	2.661773	0	2.102668	13.5725062	100.575834	0.01

7.4 Chart

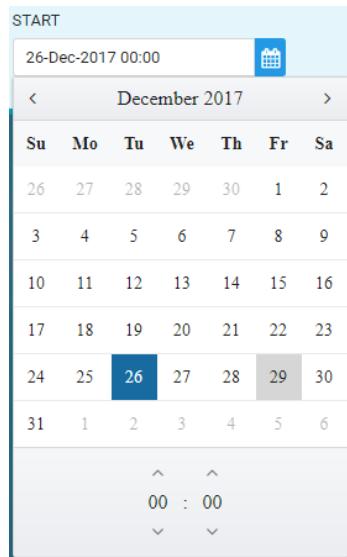
7.4.1 Chart Parameter Selection Bar

PARAMETERS	START	END	1H	12H	24H	48H	OK
select tags.	26-Dec-2017 00:00	27-Dec-2017 00:00	1W	2W	1M	2M	

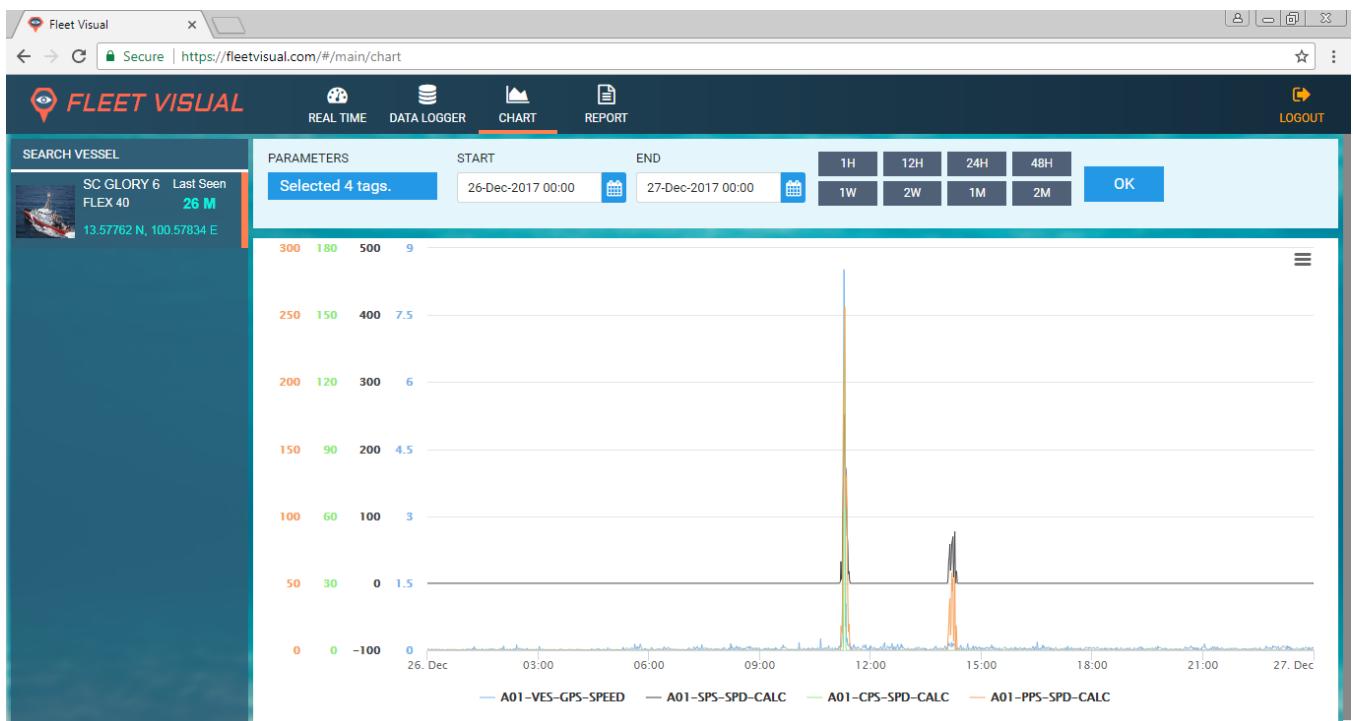
7.4.2 Tag Selection

						OK	Clear	Cancel
FAVORITE	PME	CME	SME	PAE	SAE			
PME Raw Data	PME-FIN-DENS	CME-FIN-DENS	SME-FIN-DENS	PAE-FIN-DENS	SAE-FIN-DENS			
CME Raw Data	PME-FIN-MFLOW	CME-FIN-MFLOW	SME-FIN-MFLOW	PAE-FIN-MFLOW	SAE-FIN-MFLOW			
SME Raw Data	PME-FIN-MTOTAL	CME-FIN-MTOTAL	SME-FIN-MTOTAL	PAE-FIN-MTOTAL	SAE-FIN-MTOTAL			
Speed Raw Data	PME-FIN-TEMP	CME-FIN-TEMP	SME-FIN-TEMP	PAE-FIN-TEMP	SAE-FIN-TEMP			
Test Result	PME-FIN-TEMPC	CME-FIN-TEMPC	SME-FIN-TEMPC	PAE-FIN-TEMPC	SAE-FIN-TEMPC			
VES	PME-FIN-VFLOW	CME-FIN-VFLOW	SME-FIN-VFLOW	PAE-FIN-VFLOW	SAE-FIN-VFLOW			
VES-GPS-DIS	PME-FIN-VTOTAL	CME-FIN-VTOTAL	SME-FIN-VTOTAL	PAE-FIN-VTOTAL	SAE-FIN-VTOTAL			
VES-GPS-DIS-TODAY	PME-FLOW-CONS	CME-FLOW-CONS	SME-FLOW-CONS	PAE-FLOW-CONS	SAE-FLOW-CONS			
VES-GPS-DIS-TOTAL	PME-FLOW-VTOTAL-CALC	CME-FLOW-VTOTAL-CALC	SME-FLOW-VTOTAL-CALC	PAE-FLOW-VTOTAL-CALC	SAE-FLOW-VTOTAL-CALC			
VES-GPS-HEAD	PME-FOUT-DENS	CME-FOUT-DENS	SME-FOUT-DENS	PAE-FOUT-DENS	SAE-FOUT-DENS			
VES-GPS-LAT	PME-FOUT-MFLOW	CME-FOUT-MFLOW	SME-FOUT-MFLOW	PAE-FOUT-MFLOW	SAE-FOUT-MFLOW			
VES-GPS-LONG	PME-FOUT-MTOTAL	CME-FOUT-MTOTAL	SME-FOUT-MTOTAL	PAE-FOUT-MTOTAL	SAE-FOUT-MTOTAL			
VES-GPS-QLTY	PME-FOUT-TEMP	CME-FOUT-TEMP	SME-FOUT-TEMP	PAE-FOUT-TEMP	SAE-FOUT-TEMP			
VES-GPS-SPEED	PME-FOUT-TEMPC	CME-FOUT-TEMPC	SME-FOUT-TEMPC	PAE-FOUT-TEMPC	SAE-FOUT-TEMPC			
	PME-FOUT-VFLOW	CME-FOUT-VFLOW	SME-FOUT-VFLOW	PAE-FOUT-VFLOW	SAE-FOUT-VFLOW			
	PME-FOUT-VTOTAL	CME-FOUT-VTOTAL	SME-FOUT-VTOTAL	PAE-FOUT-VTOTAL	SAE-FOUT-VTOTAL			
	PME-SPD	CME-SPD	SME-SPD	PAE-SPD	SAE-SPD			
	PME-SPD-CALC	CME-SPD-CALC	SME-SPD-CALC	PAE-SPD-CALC	SAE-SPD-CALC			
	PPS-SPD	CPS-SPD	SPS-SPD					
	PPS-SPD-CALC	CPS-SPD-CALC	SPS-SPD-CALC					

7.4.3 Calendar for Start Time and End Time Selection



7.4.4 Chart Result



7.4.5 Download Chart Result



7.5 Report

Measured Value	Average	Max.
Port M/E Engine Speed (RPM)	25.8	757.0
Ctr. M/E Engine Speed (RPM)	26.3	764.5
Stb. M/E Engnr Speed (RPM)	26.1	786.7
	Summary	
Port M/E Running Hour (Hour)	0.93	
Ctr. M/E Running Hour (Hour)	0.92	
Stb. M/E Running Hour (Hour)	0.92	
Port M/E Total Fuel Used (L)	11.59	
Ctr. M/E Total Fuel Used (L)	10.41	
Stb. M/E Total Fuel Used (L)	11.33	
Port A/E Total Fuel Used (L)	282.19	
Stb. A/E Total Fuel Used (L)	129.00	

Measured Value	Average	Max.
Port Shaft Engine Speed (RPM)	1.2	256.3
Ctr. Shaft Engine Speed (RPM)	0.3	153.4
Stb. Shaft Engnr Speed (RPM)	1.4	251.8
	Summary	
Port Shaft Running Hour (Hour)	0.48	
Ctr. Shaft Running Hour (Hour)	0.08	
Stb. Shaft Running Hour (Hour)	0.52	
Port A/E Running Hour (Hour)	17.67	
Stb. A/E Running Hour (Hour)	6.93	
M/E Total Fuel Used (L)	33.33	
A/E Total Fuel Used (L)	411.19	
Total Fuel Used (L)	444.52	

8. DRAWING

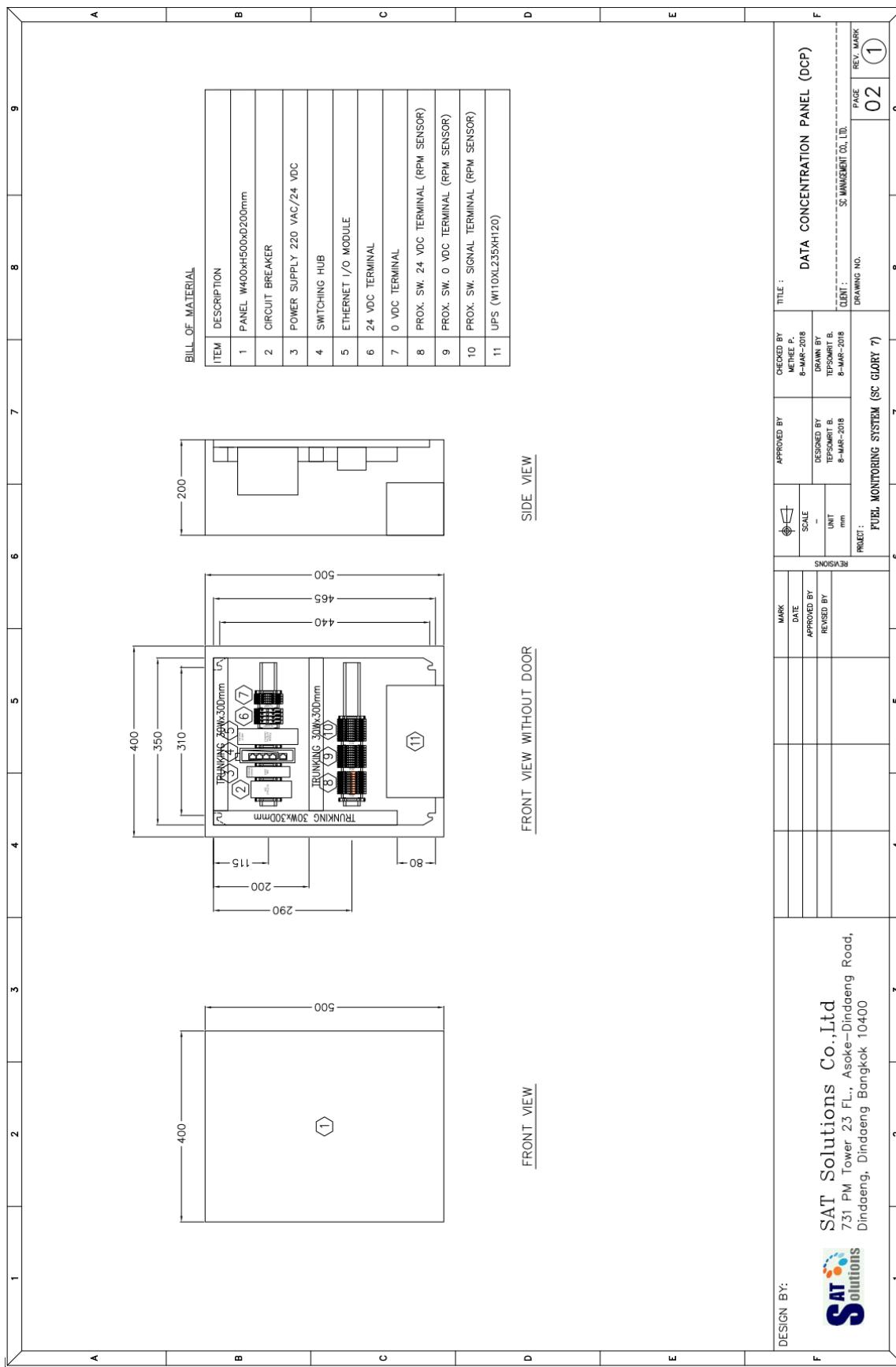
8.1 Schematic Diagrams

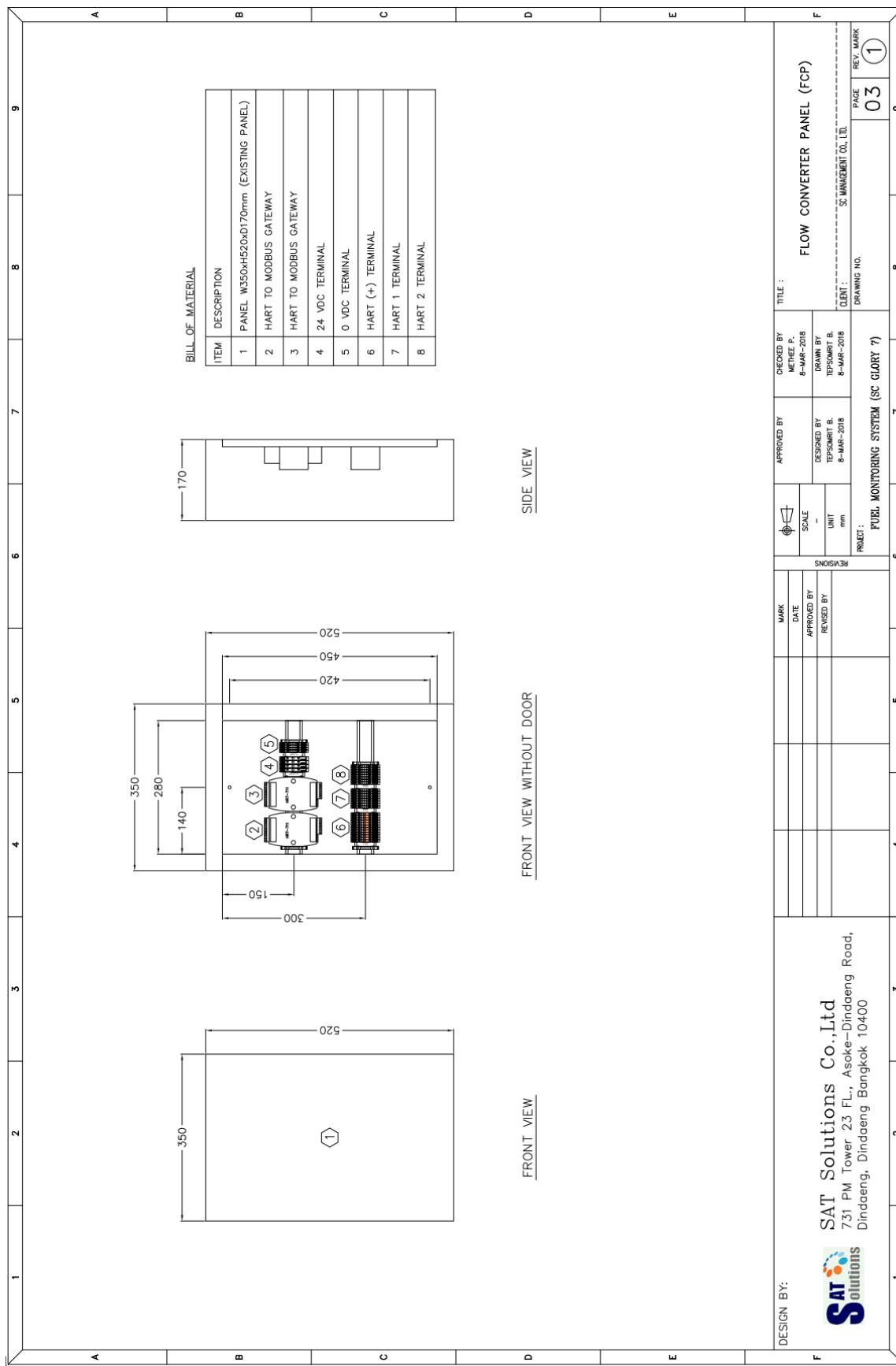
A	B	C	D	E	F
1	2	3	4	5	6
7	8	9			
SCHEMATIC DIAGRAMS					
CUSTOMER	SC MANAGEMENT CO., LTD.		END USER	SC MANAGEMENT CO., LTD.	
PROJECT	FUEL MONITORING SYSTEM (SC GLORY 7)		PANEL NAME	DCP, FCP AND DTP	
DESIGN BY:			APPROVED BY:	CHECKED BY:	
SAT Solutions Co.,Ltd 731 PM Tower 23 Fl., Asoke-Dindeng Road, Dindeng, Dindeng Bangkok 10400			M. THEE P. 8-MAR-2018	TITLE : COVER	
SCALE	DATE	REVISIONS	DESIGNED BY	DRAWN BY	CLIENT
-			TEPSOMIT B. 8-MAR-2018	TERSONG B. 8-MAR-2018	SC MANAGEMENT CO., LTD.
UNIT	UNIT	PROJECT :	DRAWING NO.	PAGE	REV. MARK
mm	mm	PUB: MONITORING SYSTEM (SC GLORY 7)	00	00	1

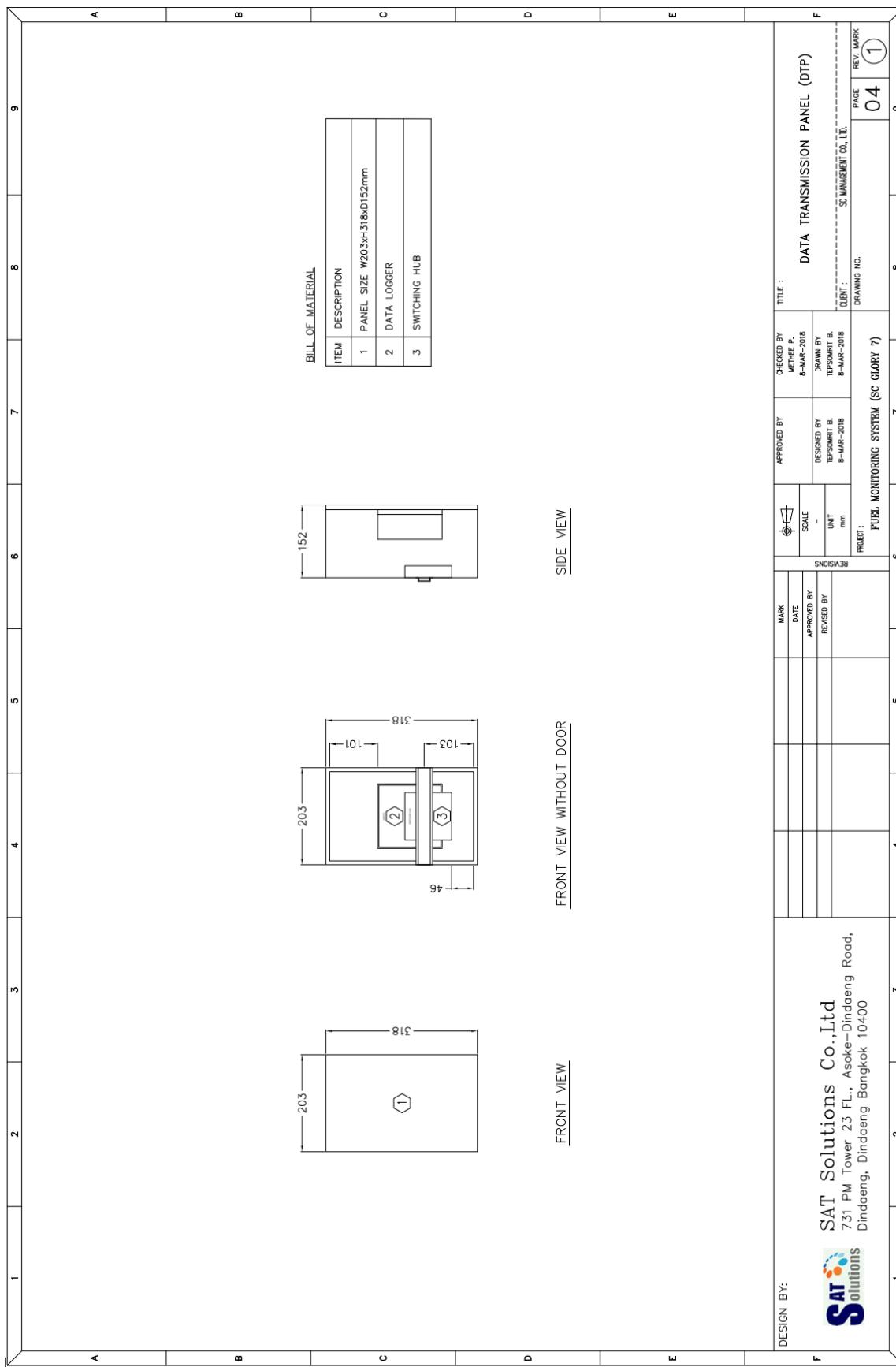
CONTENT

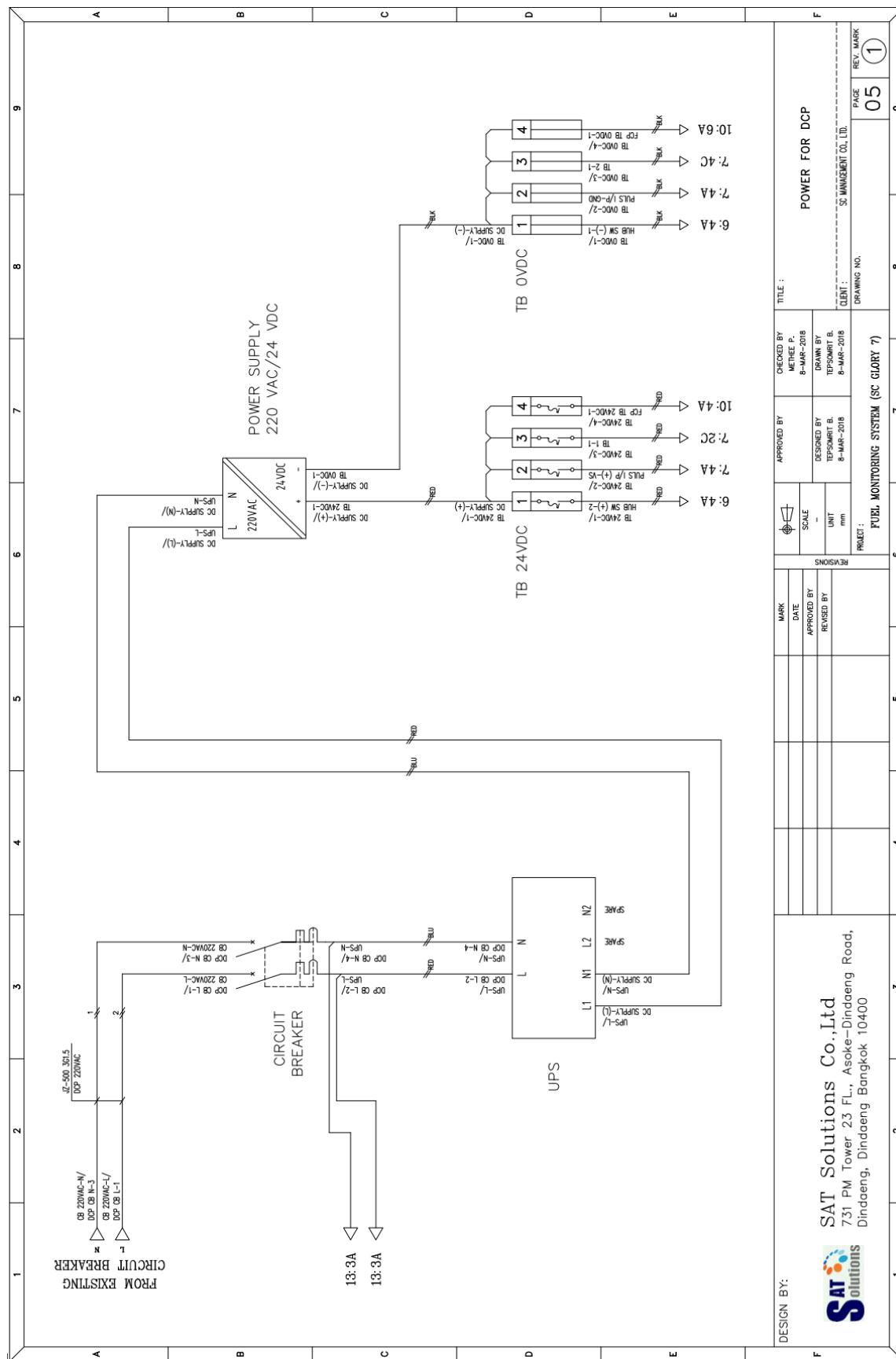
ITEM	DESCRIPTION	PAGE NO.	REV.1	REV.2	REV.3	REV.4	REV.5
1	COVER	00	X				
2	CONTENT	01	X				
3	DATA CONCENTRATION PANEL (DCP)	02	X				
4	FLOW CONVERTER PANEL (FCP)	03	X				
5	DATA TRANSMISSION PANEL (DTP)	04	X				
6	POWER FOR DCP	05	X				
7	HUB SWITCH FOR DCP	06	X				
8	PULSE I/O MODULE	07	X				
9	PROXIMITY SWITCH 1/2	08	X				
10	PROXIMITY SWITCH 2/2	09	X				
11	POWER FOR FCP	10	X				
12	HART GATEWAY	11	X				
13	FLOW METER	12	X				
14	POWER FOR DTP	13	X				
15	HUB SWITCH FOR DTP	14	X				
16	DATA LOGGER	15	X				

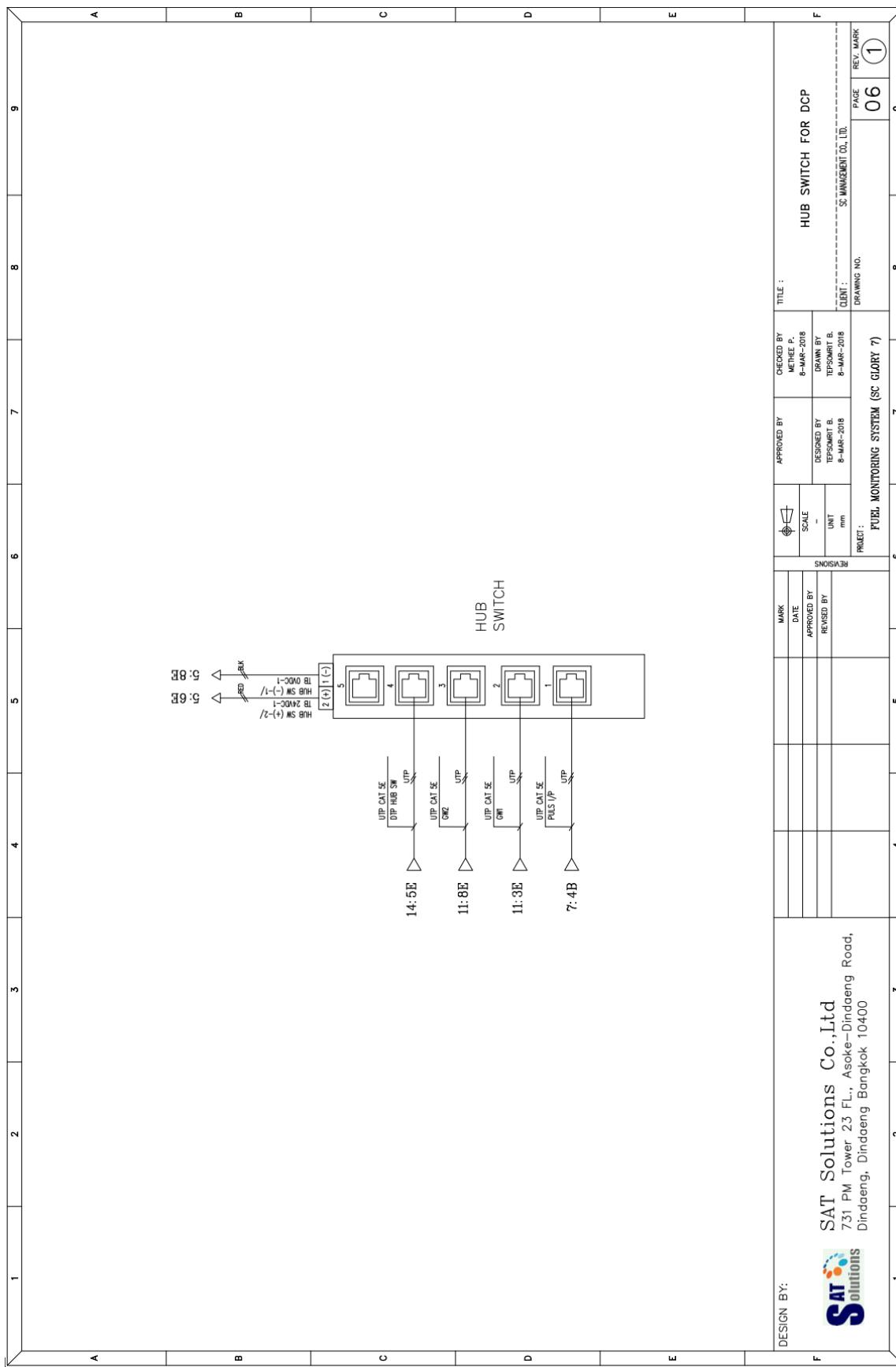
DESIGN BY:								APPROVED BY		APPROVED BY		CHECKED BY		TITLE :	
								FIRMEE P.		FIRMEE P.		FIRMEE P.			
								8-MAR-2018		8-MAR-2018		8-MAR-2018		8-MAR-2018	
F		SAT Solutions Co.,Ltd		731 PM Tower 23 Fl., Asoke-Dindeng Road, Dindeng, Dindeng Bangkok 10400		SNO:13438		APPROVED BY		DESIGNED BY		DRAWN BY		CLIENT :	
								REVISER BY		TESENIRUT B.		TESENIRUT B.		SC MANAGEMENT CO., LTD.	
								DATE		8-MAR-2018		8-MAR-2018		DRAWING NO.	
								MARK		SCALE		UNIT		PAGE	
										mm		mm		REV. MARK	
														01	
														1	
CONTENT															
FUEL MONITORING SYSTEM (SC GLORY)															

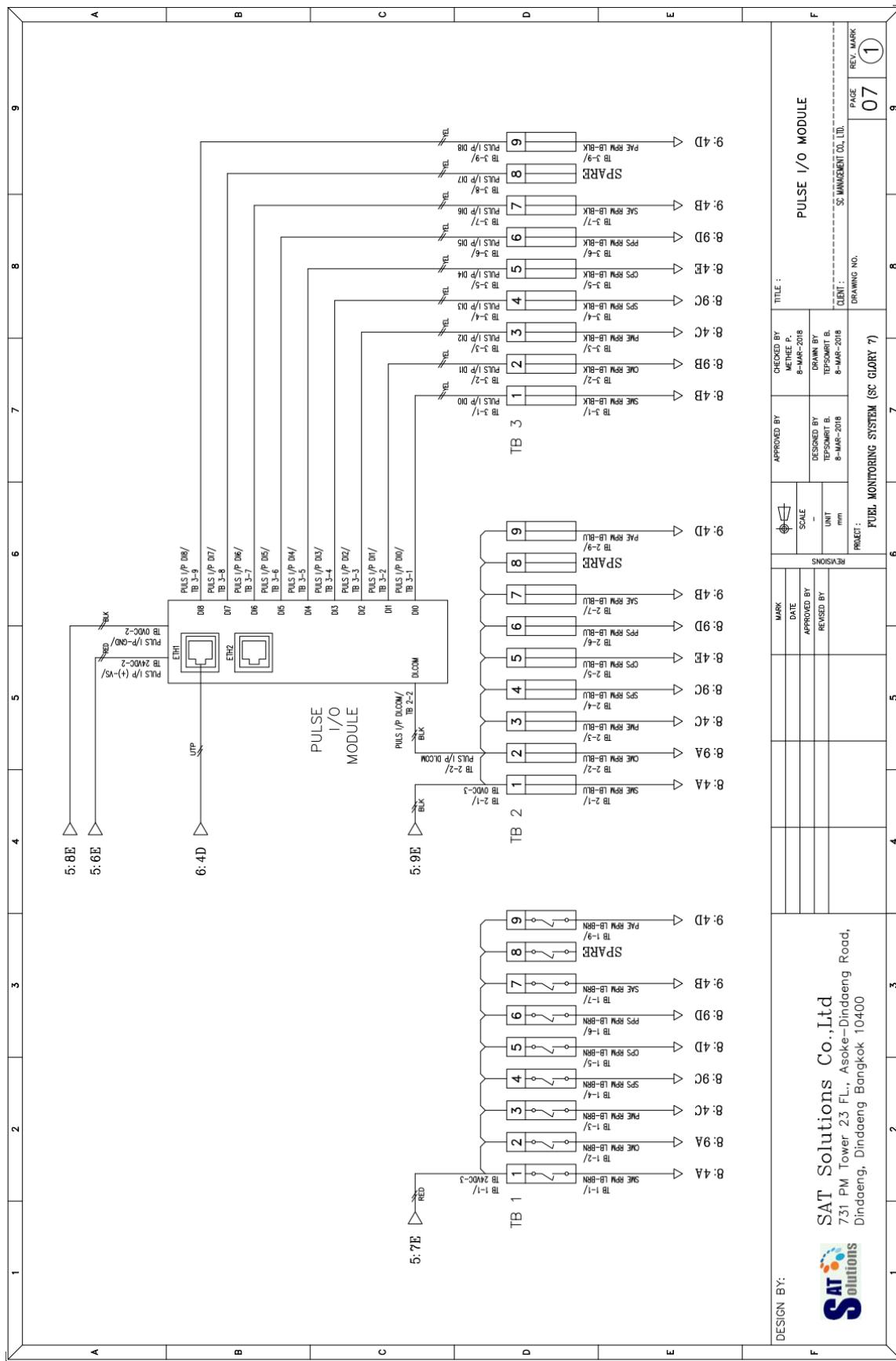


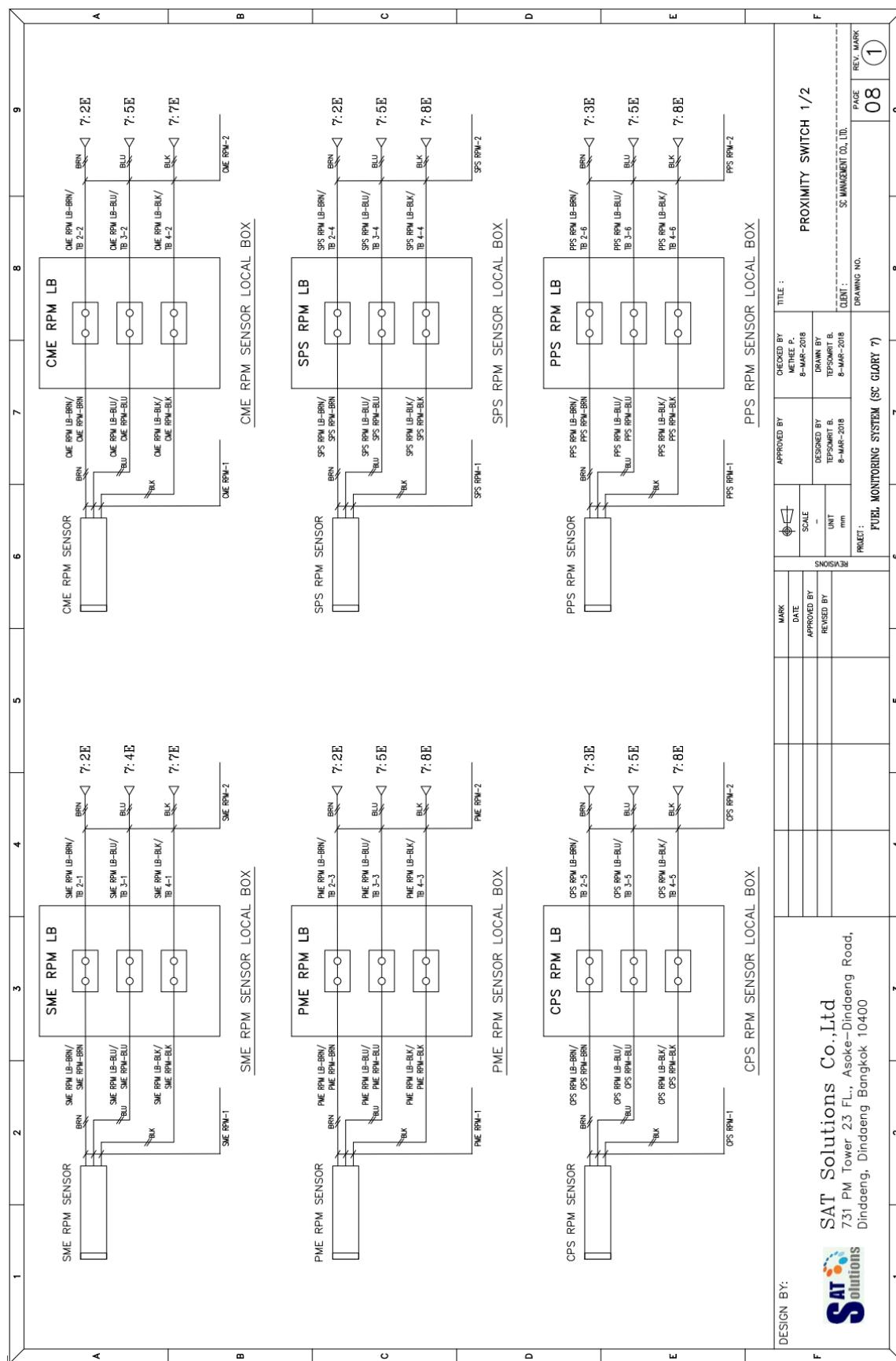


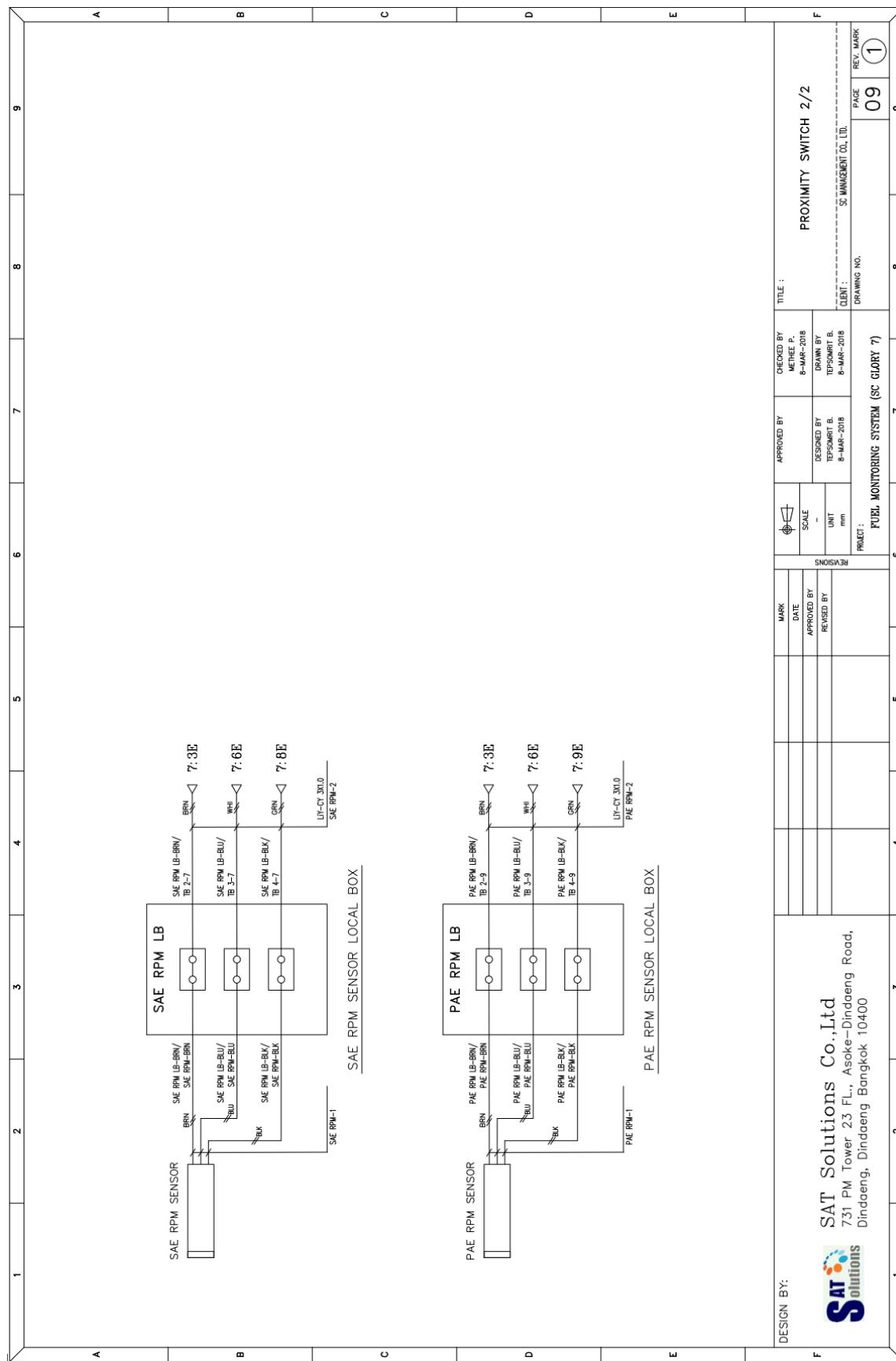


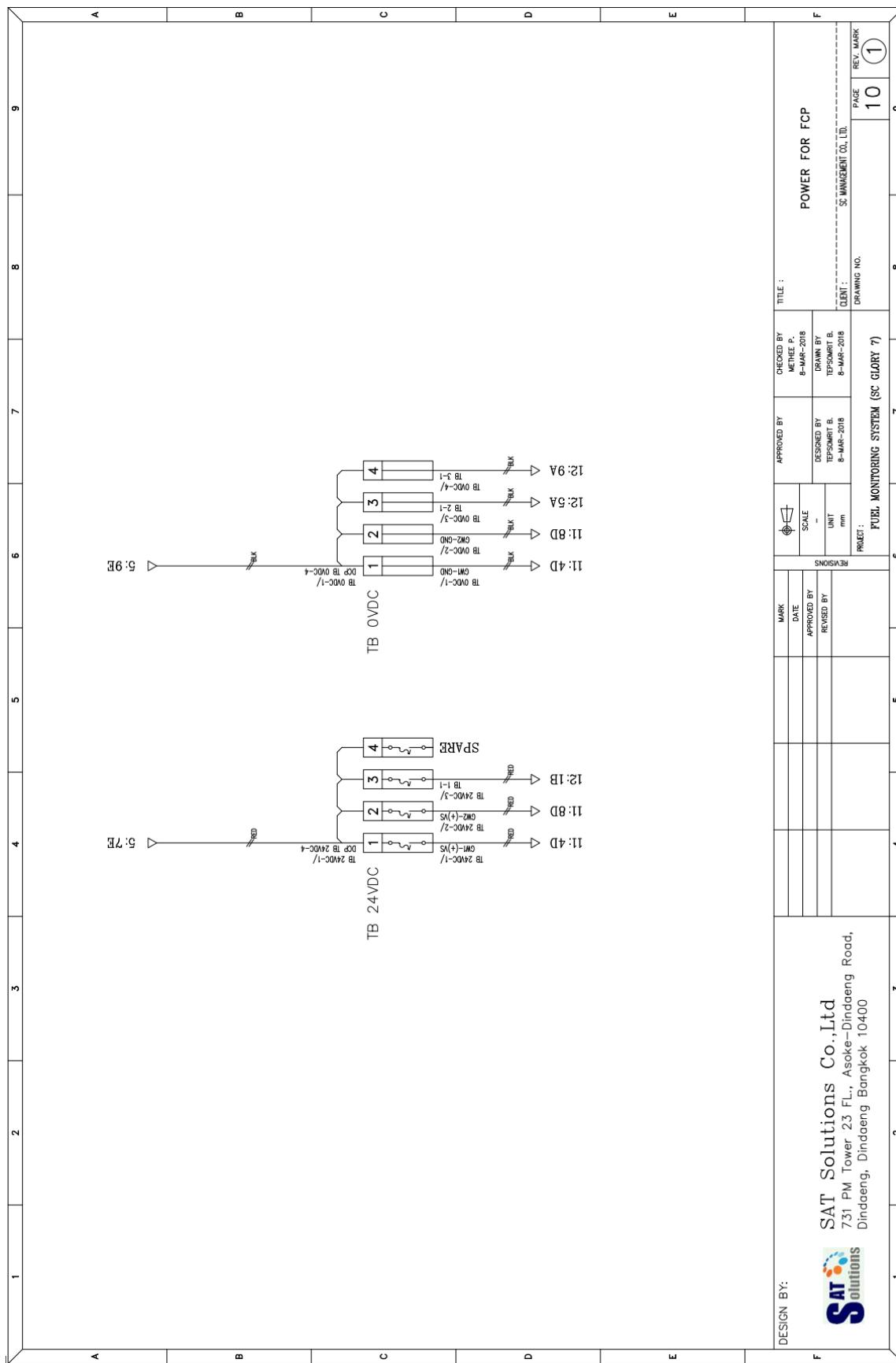


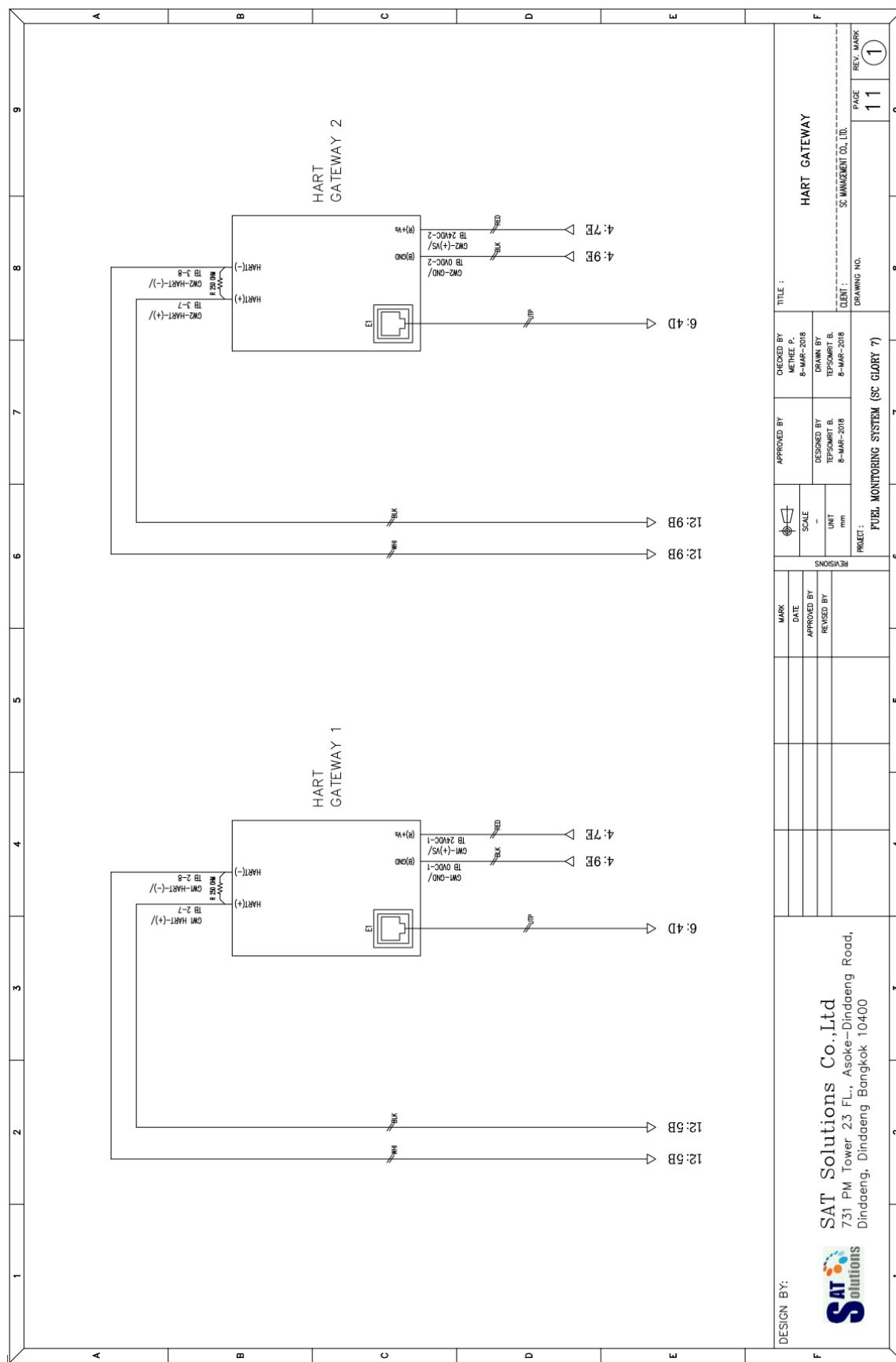


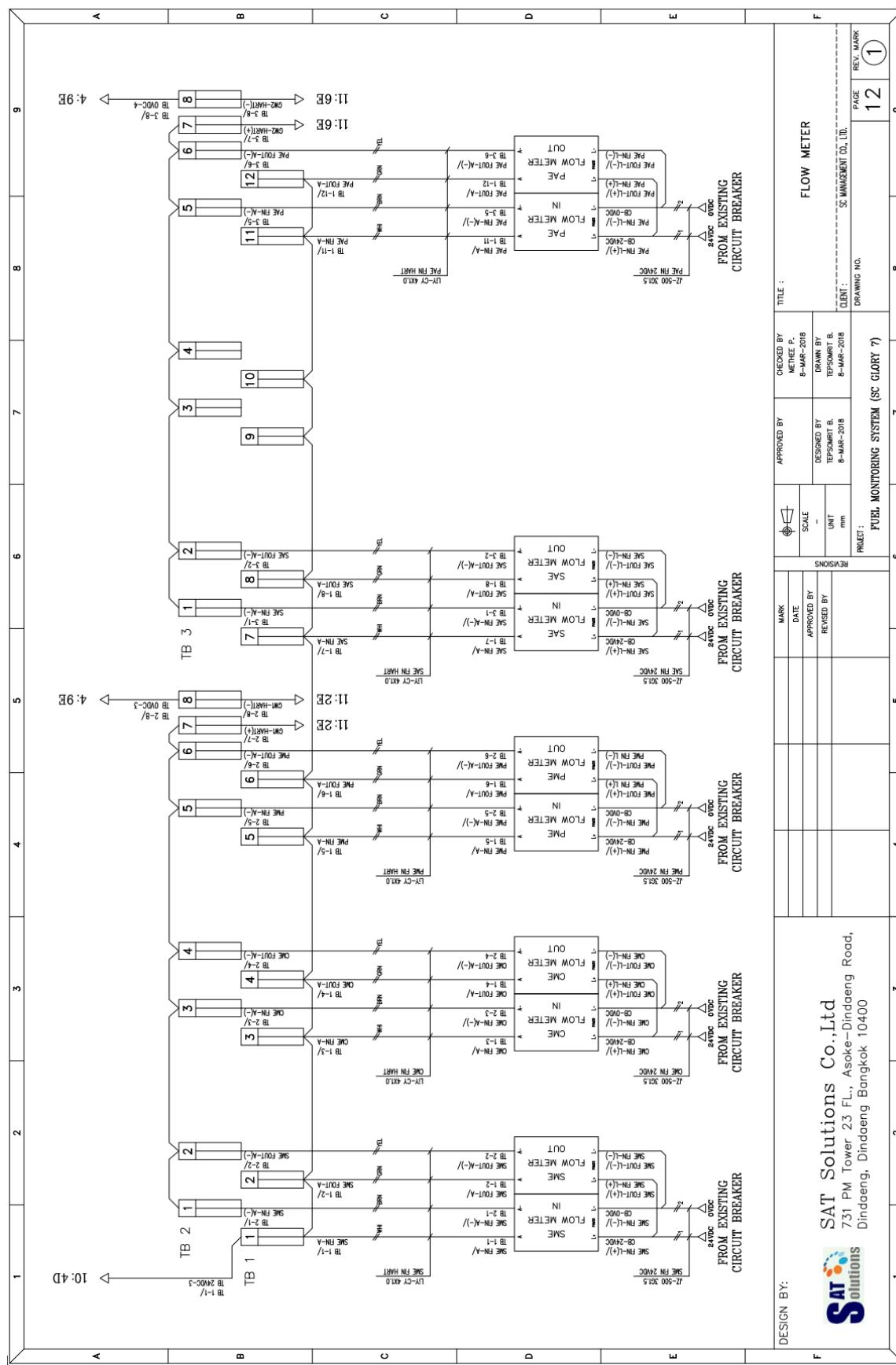


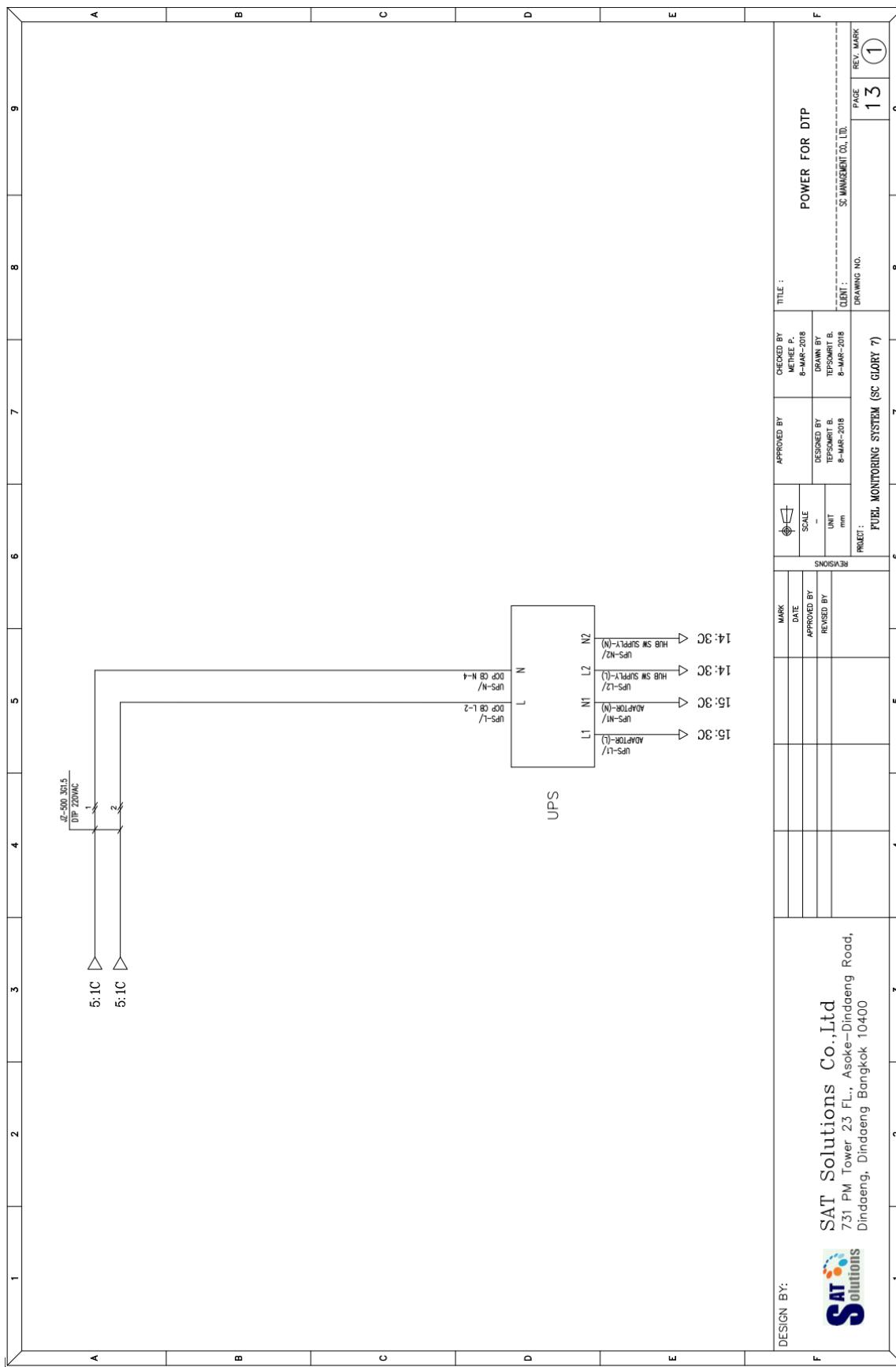


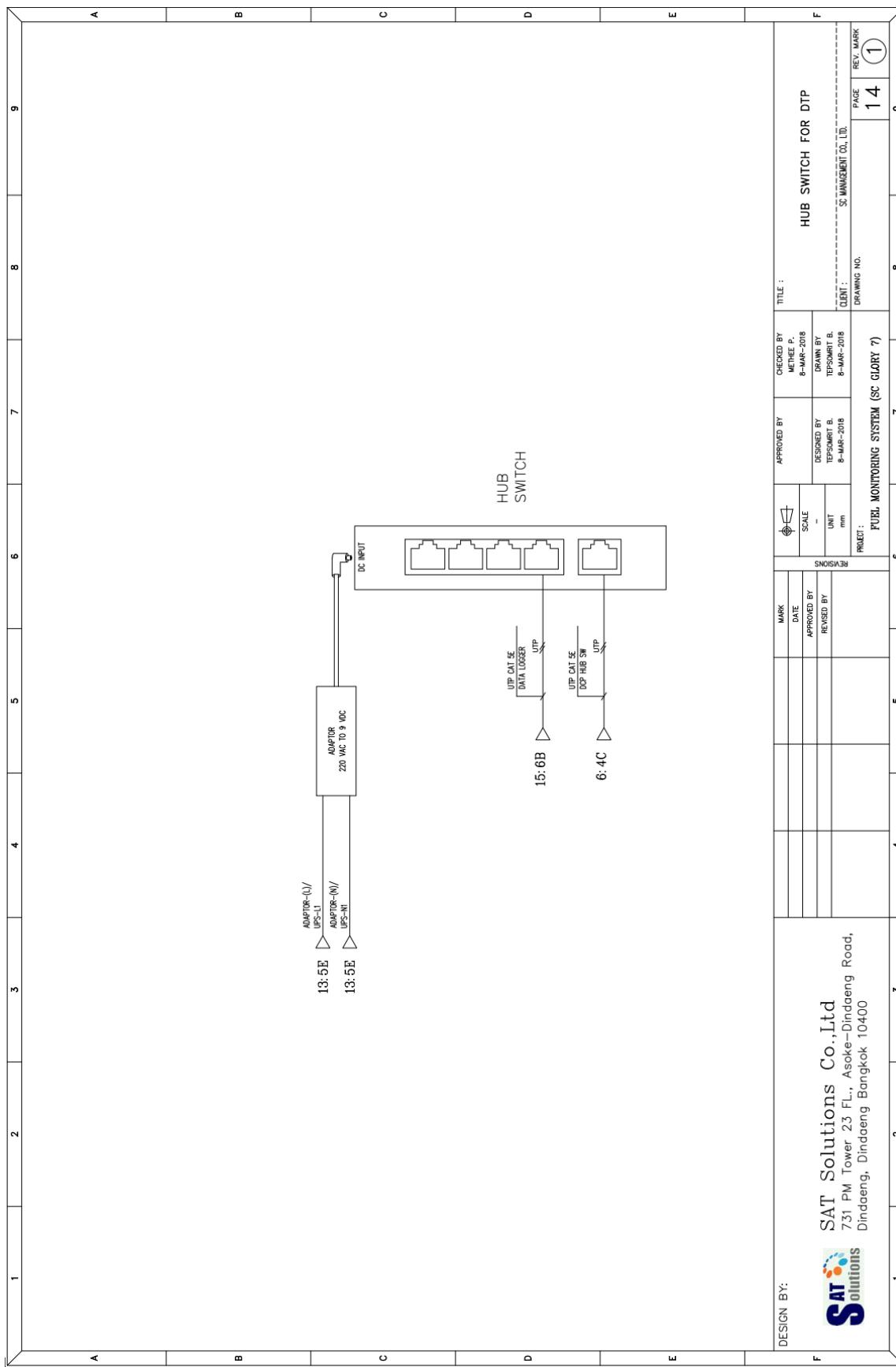


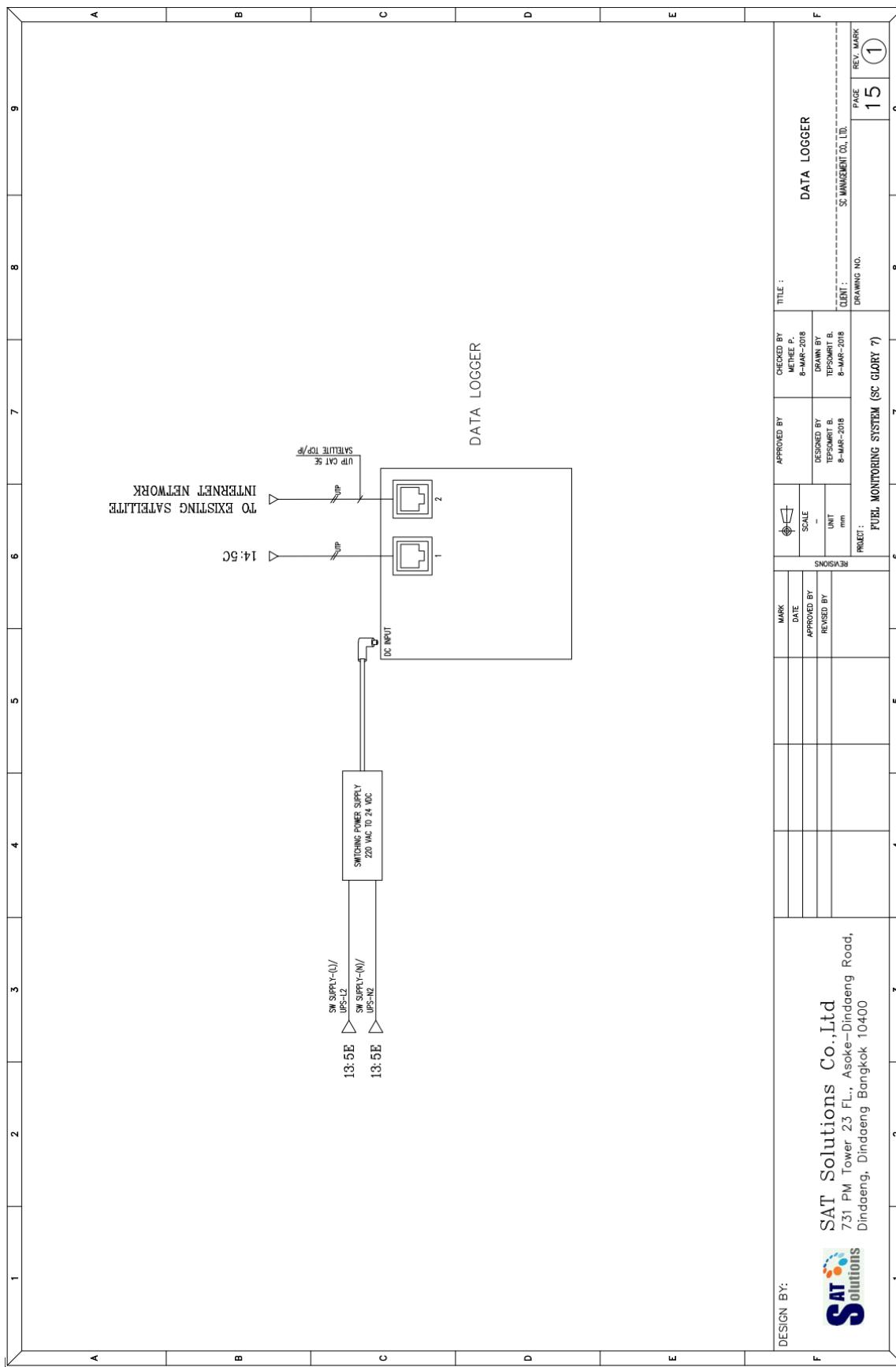




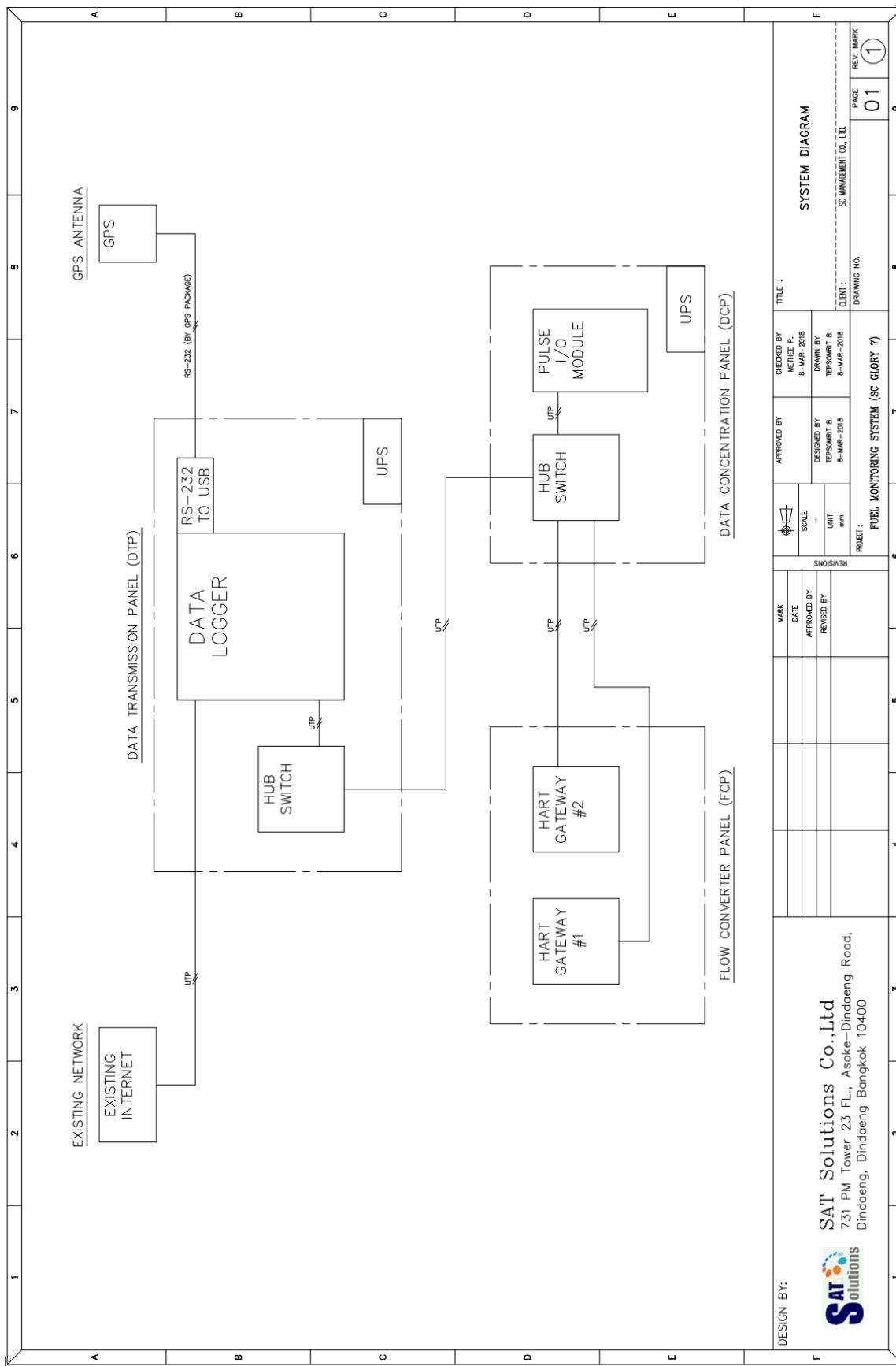








8.2 System Diagram



9. FLOW METER CALIBRATION CERTIFICATE

9.1 PME Inlet

SC Glory 7 PME - IN

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
Sales Order / VK-Auftrag / Commande de vente : 870001994
Serial Number / Seriennummer / Numéro de série : S170000008311431
Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständern mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masse mesurée (kg)	Actual Mass tatsächliche Masse Masse réelle (kg)	Deviation Abweichung Ecart %
733	41.06129	41.06586	-0.011
2310	41.44676	41.44073	0.015
4255	41.99957	41.97726	0.053

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.3	CF2: 574.62	CF3: 300.00	CF4: 1134.5001	CF5: 83640.281
CF6: -103.15015	CF7: 0.000000	CF8: 0.000000		
CF11: 2062.4646	CF12: -156.22578	CF13: 0.000000	CF14: 0.000000	CF15: -65.737869
CF16: -34.505119	CF17: 0.000000	CF18: 0.000000	CF19: -2364.6772	CF20: 2255.0806
CF21: 0.000000	CF22: 0.000000	CF23: 0.000000	CF24: 0.000000	CF25: 0
CF26: 0.000000	CF27: 0.000000			
DCF1: 2	DCF2: 998.25592	DCF3: 1.000000	DCF4: 57.611263	DCF5: 0
DCF6: 0.000000	DCF7: 1.000000	DCF8: 51.332287		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6_ S/N: 104326378

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

9.2 PME Outlet

SC Glory 7 PME - OUT

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage
DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S170000008311429
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée (kg)	Actual Mass tatsächliche Masse Masze réelle (kg)	Deviation Abweichung Ecart %
740	41.35526	41.34621	0.022
2309	41.25174	41.24510	0.016
4223	41.68416	41.66900	0.036

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 18.9	CF2: 562.51	CF3: 300.00	CF4: 1143.4431	CF5: 80341.938
CF6: -103.53368	CF7: 0.000000	CF8: 0.000000		
CF11: 2069.1960	CF12: -159.29202	CF13: 0.000000	CF14: 0.000000	CF15: -64.268768
CF16: -35.697166	CF17: 0.000000	CF18: 0.000000	CF19: -1938.0559	CF20: 1484.2704
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.36420	DCF3: 1.0000000	DCF4: 57.265369	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 50.864098		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6 S/N: 104326385

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

9.3 CME Inlet

SC Glory 7 CME-IN

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S17000008311425
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B407283682/3404432
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masse mesurée (kg)	Actual Mass tatsächliche Masse Masse réelle (kg)	Deviation Abweichung Ecart %
684	131.99707	132.04290	-0.035
3027	147.93167	147.91657	0.010
5051	149.18547	149.19325	-0.005

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.8	CF2: 540.07	CF3: 300.00	CF4: 1209.3483	CF5: 79633.180
CF6: -107.90597	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2239.9866	CF12: -169.35159	CF13: 0.0000000	CF14: 0.0000000	CF15: -70.202103
CF16: -35.210293	CF17: 0.0000000	CF18: 0.0000000	CF19: -1839.9116	CF20: 859.52979
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.15009	DCF3: 1.0000000	DCF4: 59.814602	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 53.166790		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6_ S/N: 104326384

Calibration Date / Kalibriertdatum / Date d'étalonnage : 2017-03-27

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

1/1

9.4 CME Outlet

SC Glory 7 CME-OUT

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage
DIN 55 350-18-4.2.2

Type / Typ / Type	:	OPTIMASS 1000 S15
Sales Order / VK-Auftrag / Commande de vente	:	870001994
Serial Number / Seriennummer / Numéro de série	:	S170000008311423
Tag Number / Tagnummer / Repère	:	

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kallbrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série	:	B407283682/3404432
Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage	:	Water / Wasser / Eau
Uncertainty / Messunsicherheit / Incertitude	:	0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée	Actual Mass tatsächliche Masse Masze réelle (kg)	Deviation Abweichung Ecart %
684	132.04194	132.04290	-0.001
3026	147.93444	147.91657	0.012
5051	149.23790	149.19325	0.030

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.7	CF2: 569.67	CF3: 300.00	CF4: 1129.5123	CF5: 79638.445
CF6: -101.67946	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2138.9988	CF12: -158.77362	CF13: 0.0000000	CF14: 0.0000000	CF15: -70.011566
CF16: -35.615742	CF17: 0.0000000	CF18: 0.0000000	CF19: -2398.0850	CF20: 1185.0331
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.17273	DCF3: 1.0000000	DCF4: 59.144203	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 52.589596		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6_ S/N: 104326388

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-27

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

1/1

9.5 SME Inlet

SC Glory 7 SME - IN

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S170000008311433
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massendurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée (kg)	Actual Mass tatsächliche Masse Masze réelle (kg)	Deviation Abweichung Ecart %
730	41.07813	41.06960	0.021
2317	41.35037	41.33979	0.026
4268	41.83140	41.80569	0.061

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.2	CF2: 553.48	CF3: 300.00	CF4: 1187.9941	CF5: 81604.766
CF6: -96.619843	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2117.0771	CF12: -146.36156	CF13: 0.0000000	CF14: 0.0000000	CF15: -68.768593
CF16: -39.137028	CF17: 0.0000000	CF18: 0.0000000	CF19: -2287.1509	CF20: 1909.5210
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.28314	DCF3: 1.0000000	DCF4: 56.699512	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 50.392551		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6_ S/N: 104326398

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-29

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

9.6 SME Outlet

SC Glory 7 SME - OUT

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S17000008311424
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée	Actual Mass tatsächliche Masse Masze réelle	Deviation Abweichung Ecart %
740	41.33660	41.34621	-0.023
2310	41.24627	41.24510	0.003
4225	41.67929	41.66900	0.025

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 18.9	CF2: 520.52	CF3: 300.00	CF4: 1293.3730	CF5: 80874.555
CF6: -105.51317	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2379.6213	CF12: -163.55458	CF13: 0.0000000	CF14: 0.0000000	CF15: -68.578392
CF16: -36.394821	CF17: 0.0000000	CF18: 0.0000000	CF19: -2096.4065	CF20: 2021.1091
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.37097	DCF3: 1.0000000	DCF4: 59.197704	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 52.641029		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6_ S/N: 104326400

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

9.7 PAE Inlet

SC Glory 7 PAE - IN

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S17000008311432
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusstständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série	:	B406271627/3404433
Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage	:	Water / Wasser / Eau
Uncertainty / Messunsicherheit / Incertitude	:	0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée (kg)	Actual Mass tatsächliche Masse Masze réelle (kg)	Deviation Abweichung Ecart %
740	41.33352	41.34621	-0.031
2309	41.25012	41.24510	0.012
4225	41.68980	41.66900	0.050

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.0	CF2: 590.95	CF3: 300.00	CF4: 1167.8650	CF5: 81202.227
CF6: -97.025566	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2098.7939	CF12: -147.76329	CF13: 0.0000000	CF14: 0.0000000	CF15: -74.167343
CF16: -42.685162	CF17: 0.0000000	CF18: 0.0000000	CF19: -2758.7500	CF20: 2631.9868
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.34326	DCF3: 1.0000000	DCF4: 58.152103	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 51.776531		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6 S/N: 104326420

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

1/1

9.8 PAE Outlet

SC Glory 7 PAE-OUT

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S170000008311434
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée (kg)	Actual Mass tatsächliche Masse Masze réelle (kg)	Deviation Abweichung Ecart %
740	41.33884	41.34621	-0.018
2309	41.25088	41.24510	0.014
4226	41.69196	41.66900	0.055

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.0	CF2: 573.25	CF3: 300.00	CF4: 1195.1760	CF5: 81178.953
CF6: -95.705894	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2130.1072	CF12: -145.27771	CF13: 0.0000000	CF14: 0.0000000	CF15: -66.970940
CF16: -38.456280	CF17: 0.0000000	CF18: 0.0000000	CF19: -2709.3606	CF20: 2370.0007
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.34509	DCF3: 1.0000000	DCF4: 57.965237	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 51.561806		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6 S/N: 104326417

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

1/1

9.9 SAE Inlet

SC Glory 7 SAE-IN

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S170000008311427
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massendurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série	:	B406271627/3404433
Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage	:	Water / Wasser / Eau
Uncertainty / Messunsicherheit / Incertitude	:	0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Massee mesurée (kg)	Actual Mass tatsächliche Masse Massee réelle (kg)	Deviation Abweichung Ecart %
731	41.01351	41.06586	-0.127
2308	41.44561	41.44073	0.012
4254	42.01962	41.97726	0.101

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.2	CF2: 599.00	CF3: 300.00	CF4: 1165.9205	CF5: 81739.750
CF6: -97.399544	CF7: 0.0000000	CF8: 0.0000000		
CF11: 2049.0942	CF12: -143.18803	CF13: 0.0000000	CF14: 0.0000000	CF15: -71.787163
CF16: -38.039192	CF17: 0.0000000	CF18: 0.0000000	CF19: -1883.0521	CF20: 2027.7915
CF21: 0.0000000	CF22: 0.0000000	CF23: 0.0000000	CF24: 0.0000000	CF25: 0
CF26: 0.0000000	CF27: 0.0000000			
DCF1: 2	DCF2: 998.28717	DCF3: 1.0000000	DCF4: 58.131447	DCF5: 0
DCF6: 0.0000000	DCF7: 1.0000000	DCF8: 51.794468		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6 S/N: 104326406

Calibration Date / Kalibriertdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature

1/1

9.10 SAE Outlet

SC Glory 7 SAE-OUT

KROHNE

Calibration Certificate – Kalibrierzertifikat – Certificat d'étalonnage DIN 55 350-18-4.2.2

Type / Typ / Type : OPTIMASS 1000 S15
 Sales Order / VK-Auftrag / Commande de vente : 870001994
 Serial Number / Seriennummer / Numéro de série : S17000008311430
 Tag Number / Tagnummer / Repère :

Calibration Method / Kalibriermethode / Méthode d'étalonnage

The calibration was performed in mass flow rigs using weighing scales in start / stop operation. All weighing scales are periodically calibrated by internationally accredited laboratories.

Die Kalibrierung wurde an Massedurchflusständen mit Waagen im Start / Stop-Betrieb durchgeführt. Alle Waagen werden regelmäßig durch international akkreditierte Prüflabore kalibriert.

L'étalonnage a été réalisé sur un banc utilisant des pesons de référence avec plusieurs pesées successives. Tous les pesons sont contrôlés périodiquement par des laboratoires internationaux accrédités.

Test Equipment Data / Kalibrierstand / Données du banc d'étalonnage

Serial Number / Seriennummer / Numéro de série : B406271627/3404433
 Calibration fluid / Kalibrierflüssigkeit / Fluide d'étalonnage : Water / Wasser / Eau
 Uncertainty / Messunsicherheit / Incertitude : 0.035%

Calibration Results / Kalibrierergebnis / Résultats d'étalonnage

Set Flow rate gewählter Durchfluss Débit réglé (kg/h)	Measured Mass gemessene Masse Masze mesurée	Actual Mass tatsächliche Masse Masze réelle	Deviation Abweichung Ecart %
733	41.06695	41.06586	0.003
2309	41.45045	41.44073	0.023
4253	42.00557	41.97726	0.067

Configuration Data / Konfigurationsdaten / Données de Configuration

CF1: 19.2	CF2: 568.02	CF3: 300.00	CF4: 1674.9222	CF5: 81759.508
CF6: -102.09351	CF7: 0.000000	CF8: 0.000000		
CF11: 3021.8149	CF12: -156.88618	CF13: 0.000000	CF14: 0.000000	CF15: -97.538116
CF16: -55.262184	CF17: 0.000000	CF18: 0.000000	CF19: -1750.0471	CF20: 1827.3555
CF21: 0.000000	CF22: 0.000000	CF23: 0.000000	CF24: 0.000000	CF25: 0
CF26: 0.000000	CF27: 0.000000			
DCF1: 2	DCF2: 998.28235	DCF3: 1.000000	DCF4: 57.384399	DCF5: 0
DCF6: 0.000000	DCF7: 1.000000	DCF8: 51.013950		

Additional Data / Zusatzdaten / Données complémentaires

Electronic Revision / Elektronik Revision / Version électronique : ER1.0.6 S/N: 104326393

Calibration Date / Kalibrierdatum / Date d'étalonnage : 2017-03-28

30 MAR 2017

This certificate is produced with EDP and valid without signature / Dieses Zertifikat wurde maschinell erstellt und ist ohne Unterschrift gültig / Ce certificat a été généré par un système automatisé, il est valide sans signature