SITE COMPLETION CHECKLIST (SCC) REMOTE TERMINAL UNIT (INSTALLATION)					
Doc No.	**SCC - RTU (INS)**	**Rev. No.**	**1**	**Date**	**5 JUNE 2020**

CONTRACT TITLE :

PEMBEKALAN, PEMASANGAN, PENGUJIAN DAN MULATUGAS FASILITI SCADA (RTU) UNTUK PROJEK SBU ASSET DEVELOPMENT DISTRIBUTION NETWORK DIVISION. TNB

CONTRACT NO. :	**TNB131/2024**			
CONTRACTOR :	**ARAS KEJURUTERAAN**			
DATE :	**05-07-2025**			
SUBSTATION NAME :	**PE KK2 SEGAMAT**			
FUNCTIONAL LOCATION :	**JSEG/PCE/J01790**			
SUBZONE :	**SEG**			
STATE :	**JOHOR**			
RTU BRAND :	**DONG FANG**			
RTU SERIAL NUMBER :	**RMU BJ0054**			
RTU TYPE : **Tick "√" whichever applicable**	**VCB**		**M-RMU**	✓

SITE COMPLETION CHECKLIST (SCC)
REMOTE TERMINAL UNIT
(INSTALLATION)

TENAGA NASIONAL

Doc No.	SCC - RTU (INS)	Rev. No.	1	Date	5 JUNE 2020

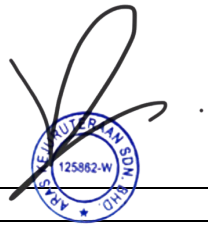
A1. SCC RTU (DURING INSTALLATION)

CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

Check boxes as follows: (✓) OK NI : Need Improvement (Pls. give comments at 'Remark' column)

No.	Description	OK	NI	REMARKS
1.	**Visual Checks on RTU Cabinet**			
i.	RTU cabinet is properly mounted & aligned at the wall / designated area.	✓		
ii.	QR code / label is available inside RTU Cabinet. Scan QR code and check contact (must be as per requirement in SOW). [* If available for this contract]	✓		
iii.	All wirings to the terminal blocks are terminated tightly and terminal blocks are in good condition.	✓		
iv.	All cables shall be properly glanded at the cable entry points using proper glanding and sealing (to ensure no space/gap between the cable entry points/glands and the panel).	✓		
2.	**Visual and Physical Checks on Cablings and Terminations**			
i.	All non-armoured cables shall be installed in rigid high impact PVC conduits, neatly secured in position and adequately supported where necessary in an approved manner.	✓		
ii.	For armoured cables, cable supports, elbows, cleats, trays shall be used. All materials must be of galvanised type (of at least 1.2 mm in thickness).	✓		
iii.	The size of the PVC conduit shall be 25 mm in diameter and the colour of the conduit and fittings shall be orange. The conduits shall be fixed by means of saddles secured rigidly at intervals not exceeding 750 mm.	✓		
iv.	Cable supports/brackets/elbows shall be installed at intervals not greater than 1500 mm for vertical runs and not greater than 1000 mm for horizontal runs. The brackets shall be derusted, finished in a primer and coated with standard orange enamel. The brackets/elbows shall not be painted.	✓		
3.	**Visual Checks on Installations**			
a.	**RTU equipment**			
i.	All cablings and internal wirings for RTU modules and accessories are laid properly & neatly secured.	✓		
ii.	All spares and unused points/modules/cards are wired internally, configured and ready for terminations from Plant (complete with its terminal blocks/connectors/wires and all other necessary accessories).	✓		
iii.	All cables for I/O signal, AC, DC & Ground are laid & terminated according to RTU Technical Specification.	✓		
iv.	Anti static wrist strap need to be installed on ESD bonding points.	✓		

Observations:

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
	
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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SITE COMPLETION CHECKLIST (SCC) REMOTE TERMINAL UNIT SITE ACCEPTANCE TEST (SAT)					
Doc No.	**SCC - RTU (SAT)**	**Rev. No.**	**1**	**Date**	**5 JUNE 2020**

CONTRACT TITLE :

PEMBEKALAN, PEMASANGAN, PENGUJIAN DAN MULATUGAS FASILITI SCADA (RTU) UNTUK PROJEK SBU ASSET DEVELOPMENT DISTRIBUTION NETWORK DIVISION. TNB

CONTRACT NO. :	**TNB131/2024**			
CONTRACTOR :	**ARAS KEJURUTERAAN**			
DATE :	**05-07-2025**			
SUBSTATION NAME :	**PE KK2 SEGAMAT**			
FUNCTIONAL LOCATION :	**JSEG/PCE/J01790**			
SUBZONE :	**SEG**			
STATE :	**JOHOR**			
RTU BRAND :	**DONG FANG**			
RTU SERIAL NUMBER :	**RMU BJ0054**			
RTU TYPE : Tick "√" whichever applicable	**VCB**		**M-RMU**	✓

SITE COMPLETION CHECKLIST (SCC)
REMOTE TERMINAL UNIT
SITE ACCEPTANCE TEST (SAT)

TENAGA NASIONAL

Doc No.	SCC - RTU (SAT)	Rev. No.	1	Date	5 JUNE 2020

A1. SCC RTU (DURING INSTALLATION)

CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

Check boxes as follows: (✓) OK NI : Need Improvement (Pls. give comments at 'Remark' column)

No.	Description	OK	NI	REMARKS
1.	**Visual Checks on RTU Cabinet**			
i.	Nameplate/Sticker with information on Serial Number, Site Acceptance Test (SAT) date & Warranty period is available in cabinet.	✓		
ii.	SAT date must be written clearly & in the correct text position on the Nameplate/Sticker.	✓		
2.	**Site Drawings & Tests**			
i.	Hardcopy of **Approved Drawings** Documents are available & placed inside RCB / RTU panel. [Note: Any changes to the drawings shall be **updated in softcopy** and passed to TNB as As-built drawings].	✓		
ii.	Hardcopy of **Mastersheet & Wiring List (Working Copies)** Any changes shall be updated/written in the Mastersheet & Wiring List & **verified signed and stamped by TNB supervisor / representative**	✓		
iii.	Check & verify all necessary tests are performed as required & have passed.	✓		
iv.	Approved Engineering Drawing at least **Tab 2 (RTU CONFIGURATION DRAWING), Tab 3 (RTU CUBICLE INTERNAL WIRING DRAWING) and Tab 5 (RTU CONFIGURATION DRAWING).**	✓		

Test Observations:

Test Result: PASS ☑ FAIL ☐

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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SITE COMPLETION CHECKLIST (SCC) REMOTE TERMINAL UNIT SITE ACCEPTANCE TEST (SAT)	TENAGA NASIONAL

Doc No.	SCC - RTU (SAT)	Rev. No.	1	Date	5 JUNE 2020

CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

Note: Please sketch the building layout and the location of:

a. RCB panel

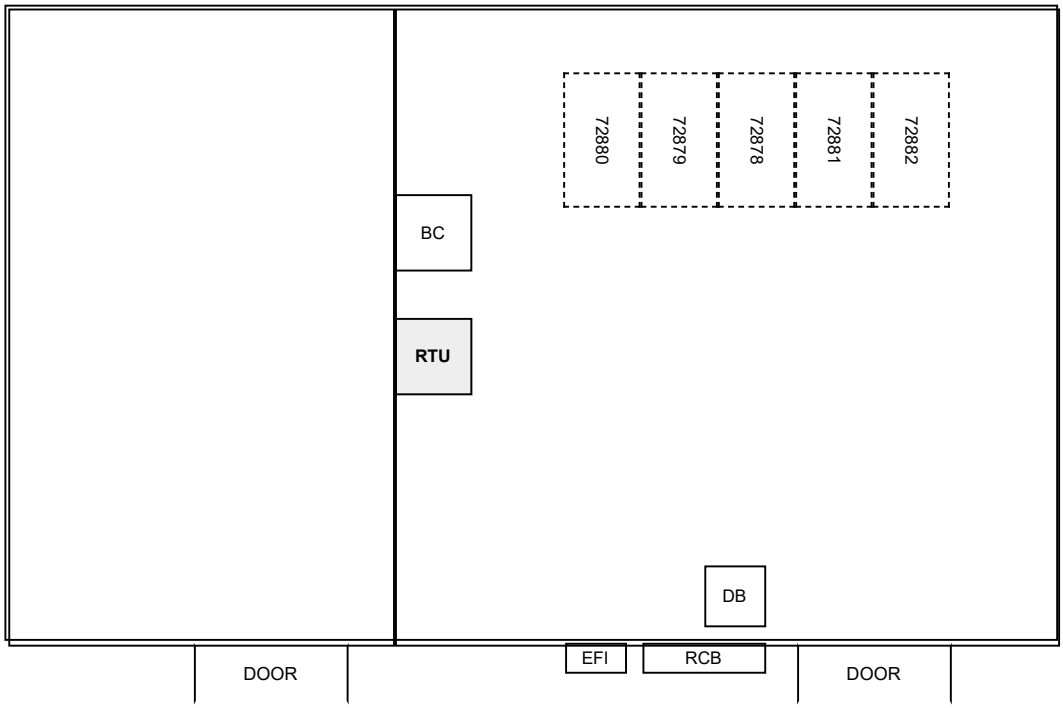
b. Battery Charger

c. EFIs location

d. Switchgear Panel

e. RTU Panel

SITE DRAWING:



Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE					
Doc No.	SAT TP-RTU	Rev. No.	1	Date	5 JUNE 2020

CONTRACT TITLE :

PEMBEKALAN, PEMASANGAN, PENGUJIAN DAN MULATUGAS FASILITI SCADA (RTU) UNTUK PROJEK SBU ASSET DEVELOPMENT DISTRIBUTION NETWORK DIVISION. TNB

CONTRACT NO. :	**TNB131/2024**			
CONTRACTOR :	**ARAS KEJURUTERAAN**			
DATE :	**05-07-2025**			
SUBSTATION NAME :	**PE KK2 SEGAMAT**			
FUNCTIONAL LOCATION :	**JSEG/PCE/J01790**			
SUBZONE :	**SEG**			
STATE :	**JOHOR**			
RTU BRAND :	**DONG FANG**			
RTU SERIAL NUMBER :	**RMU BJ0054**			
FIRMWARE VERSION :	**DFE ENGINEER TOOLS SOFTWARE**		**RTU**	
	Version 3.02.009 ☑		**Version 4.11.024 ☑**	
RTU TYPE : Tick "√" whichever applicable	**VCB**		**M-RMU**	✓

Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE					
Doc No.	**SAT TP-RTU**	**Rev. No.**	**1**	**Date**	**5 JUNE 2020**

TABLE OF CONTENT

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A2.	RTU SYSTEM'S DIGITAL OUTPUT Point Test – Digital Output	Test Ref. DO.1
A3.	RTU SYSTEM'S DIGITAL INPUT Point Test – Digital Input	Test Ref. DI.1
A5.	RTU ALARM DETECTION – GENERAL ALARM RTU General Alarm	Test Ref. GE.1

Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE	TENAGA NASIONAL

Doc No.	SAT TP-RTU	Rev. No.	1	Date	5 JUNE 2020

A1. RTU SYSTEM'S FUNCTIONAL CHECK

Test Ref: FC.1 — RTU System's Functional Check

a) RTU Power Up and Health Check

No.	Inspection Item	Check (✓)	REMARKS
1	i. Switch on the RTU load MCB at battery charger. Measure the voltage across the input to the RTU DC MCB and ensure that the reading is within Nominal Voltage which is ± 10% ii. Check the DC MCB rating	**Done**	DC Voltage = 30 Vdc DC MCB Rating = 6 Amp
2	i. Switch on the AC source to RTU cabinet. Measure the voltage across the AC input MCB and ensure that the reading is within 240 V ± 10% ii. Check the AC MCB rating.	**Done**	DC Voltage = 240 Vac DC MCB Rating = 16 Amp

b) RTU Control Enable/Disable

No.	Inspection Item	Check (✓)	REMARKS
1	At the CES switch marked 'CES', set the switch to the ON and OFF state and execute a control command using Protocol Analyser. (Note : ON – can control, OFF – cannot control)	**Done**	

Test Observations:

Test Result: PASS ☑ FAIL ☐

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE	TENAGA NASIONAL

Doc No.	SAT TP-RTU	Rev. No.	1	Date	5 JUNE 2020

A2. RTU SYSTEM'S DIGITAL OUTPUT

Test Ref:
DO.1

Point Test - Digital Output

No.	Inspection Item	Check (✓)	REMARKS
1	Isolate terminal block links at the marshalling panel. Establish communication between Protocol Analyser and RTU.	**Done**	
2	From Protocol Analyser, send control command to the Dummy Breaker and observe the result. Check the Digital Feedback.	**Done**	
3	From Protocol Analyser, send control command to the others RTU points and observe the result. Test all DO point and record in Master Sheet.	**YES**	

Test Observations:

Test Result: PASS ☑ FAIL ☐

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE					
Doc No.	**SAT TP-RTU**	**Rev. No.**	**1**	**Date**	**5 JUNE 2020**

A3. RTU SYSTEM'S DIGITAL INPUT

Test Ref:
DI.1

Point Test - Digital Input

No.	Inspection Item	Check (✓)	REMARKS
1	Isolate terminal block links at the marshalling panel. Establish communication between Protocol Analyser and RTU.	**Done**	
2	Initiate status from the selected point and observe status reported at Protocol Analyser. Test all DI points and record in Master Sheet.	**YES**	

Test Observations:

Test Result: PASS ☑ FAIL ☐

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE					
Doc No.	**SAT TP-RTU**	**Rev. No.**	**1**	**Date**	**5 JUNE 2020**

A5. RTU SYSTEM'S GENERAL ALARM

Test Ref: GE.1

RTU System's General Alarm

Test Objective:

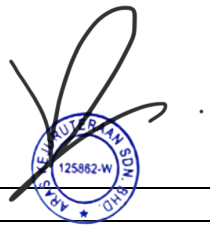
1. To verify the RTU should initiate an alarm due to detection of a malfunction on the IO module.

Test Procedure:

No.	Inspection Item	Check (✓)	REMARKS
1	Confirm that no alarms are active and the RTU is not in program mode.	**Done**	
2	Disconnect the 'Link' port at an IO module to initiate a general alarm.	**Done**	
3	Check 'RTU Fault Alarm' indicator is lit and at DI point configured for IO module alarm.	**Done**	

Test Observations:

Test Result: PASS ☑ FAIL ☐

Checks conducted by: Contractor's Signature & Stamp:	Verified by: TNB's Representative Signature & Stamp:
	
Name: HASFARUDDIN	Name:
Date: 05-07-2025	Date: 05-07-2025

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SITE COMPLETION CHECKLIST (SCC)
REMOTE TERMINAL UNIT
(INSTALLATION)

TENAGA NASIONAL

Doc No.	SCC - RTU (INS)	Rev. No.	1	Date	5 JUNE 2020

A2. PICTURES (BEFORE & AFTER DURING PRE-CABLING & INSTALLATION)

CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

BEFORE INSTALLATION

OVERALL PICTURE OF SUBSTATION OUTER WALL (WITH SUBSTATION NAME)	DESIGNATED SPACE/WALL FOR RTU BEFORE	

AFTER INSTALLATION

RTU AFTER INSTALLATION		

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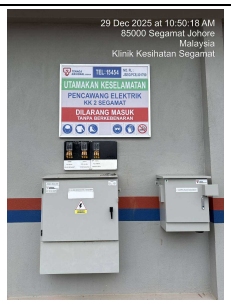
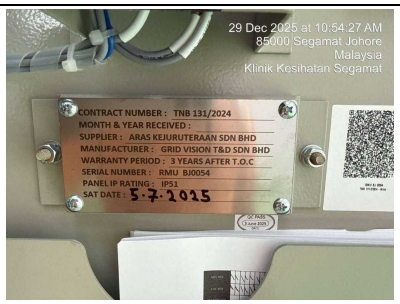
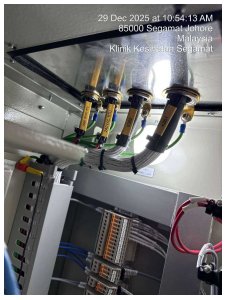
SITE COMPLETION CHECKLIST (SCC)
REMOTE TERMINAL UNIT
SITE ACCEPTANCE TEST (SAT)

TENAGA NASIONAL

Doc No.	SCC - RTU (SAT)	Rev. No.	1	Date	5 JUNE 2020

A2. PICTURES (BEFORE & AFTER DURING PRE-CABLING & INSTALLATION)

CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

		
OVERALL PICTURE OF SUBSTATION OUTER WALL (WITH SUBSTATION NAME)	RTU AFTER INSTALLATION (WITH INSIDE PICTURE)	RTU WARRANTY STICKER (COMPLETE WITH SAT DATE)
		
OVERALL PICTURE OF MASTERSHEET INSIDE RTU PANEL	CABLES GLAND INSIDE RTU PANEL	CABLES GLAND INSIDE RTU PANEL SECOND PIC (IF ANY)
INDIVIDUAL EARTHING CONNECTIONS COMPLETED FOR I/O CABLES TO RTU EARTH BAR	INDIVIDUAL EARTHING CONNECTIONS COMPLETED FOR I/O CABLES TO EARTH STUD AT RCB PANEL	INDIVIDUAL EARTHING CONNECTIONS COMPLETED FOR I/O CABLES TO EARTH STUD AT RCB PANEL SECOND PICTURE (IF ANY)

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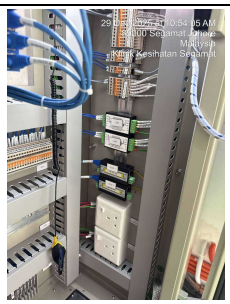
Remote Terminal Unit (RTU) SITE ACCEPTANCE TEST PROCEDURE	TENAGA NASIONAL

Doc No.	SAT TP-RTU	Rev. No.	1	Date	5 JUNE 2020

A2. PICTURES (BEFORE & AFTER DURING PRE-CABLING & INSTALLATION)	
CONTRACT NO. :	TNB131/2024
FUNCTIONAL LOCATION :	JSEG/PCE/J01790
SUBSTATION NAME :	PE KK2 SEGAMAT

		
INDIVIDUAL EARTHING CONNECTIONS COMPLETED FOR I/O CABLES TO EARTH STUD AT RCB PANEL THIRD PIC (IF ANY)	INSTALLATION INDIVIDUAL EARTHING FOR SPD TO RTU EARTH BAR	ANTI STATIC WRIST STRAP NEED TO BE INSTALLED ON ESD BONDING POINTS

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VERIFIED BY TNB

TNB Personnel:
Verified at: 16-04-2026 15:29:58