

Acceptance Test Document

Microwave Radio System

VENDOR/CONTRACTOR	:	AVIAT
PROJECT CODE	:	2025MCO-T
PT INDEX	:	25D001
BRAND	:	NEC
LINK ID	:	KAL-KB-SBS-0730/KAL-KB-SBS-0389
LINK NAME	:	TEBAS SUNGAI SAMBAS/Bekut SAMBAS
TOWER ID NE	:	KAL-KB-SBS-0730
SITE NAME NE	:	TEBAS SUNGAI SAMBAS
TOWER ID FE	:	KAL-KB-SBS-0389
SITE NAME FE	:	Bekut SAMBAS
DATE OF ACCEPTANCE	:	5 July 2025
SOW / Detail Scenario	:	Upgrade BW
ACCEPTANCE STATUS	:	

Approved by :

Managed Services		Operation XLSMART	
FOP	ROH	Region Team	Region Team Leader
		 Dwi Wahyu L	
Name : Muhammad Arfandi Saputra	Name : Haris Kurniawan	Name : Aris Rohman S	Name : Dedik Sulistiyyono
Date : July 14, 2025	Date :	Date : 17 Juli 2025	Date :

ITEM SOW yang digunakan

Project	Config	Description	Type	QTY Used
Inject License Capacity & Modulasi	FE GE U900 Service Inject License	FE GE U900 Service Inject License	Service	0
Inject License Capacity & Modulasi	UPGRADE MODULATION BY REMOTE	UPGRADE MODULATION BY REMOTE	Service	1
Inject License Capacity & Modulasi	SOFTWARE:CAP 50M / MODEM EXCPT IPASO EX	SOFTWARE:CAP 50M / MODEM EXCPT IPASO EX	Software	12
Inject License Capacity & Modulasi	Higher Modulation up to 1024QAM	Higher Modulation up to 1024QAM	Software	0
Inject License Capacity & Modulasi	Higher Modulation up to 2048QAM	Higher Modulation up to 2048QAM	Software	2
Inject License	SOFTWARE : Eth Aggregation (LAG)	SOFTWARE : ETH Aggregation	Software	0
Inject License	Software IPASO / Software IPASO GBE	SW LIC SOFTWARE:IPASO GBE	Software	0
Inject License	SOFTWARE : Link Aggregation (RTA)	SOFTWARE : Link Aggregation (RTA)	Software	0
Provide License	SOFTWARE,LICENSERadio Redundancy 1+1 Usage (1 Pair)	SOFTWARE,LICENSERadio Redundancy 1+1 Usage (1 Pair)	Software	0

Link Upgarde (SW/License)

Tower Id	Regi on	Proj ect Code	PT Ind ex	P O	Link Id	Ne tw ork	Q T Y	SOW	Config Before	Config After	Hop Use	Syste m/IPas olin	Type Licens e	Serial Num ber	Main Card	Ter m- MS/ N	IP Addr ess	
KAL-KB-SBS-0730	KALIMAN TAN	2025 MCO -T	25 D0 01		KAL-KB-SBS-0730/KAL-KB-SBS-0389	NE	1	Upgr ade BW	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	-	KAL-KB-SBS-0730/KAL-KB-SBS-0389	ipaso 400A/ 400A	Radio Capa city	4706 3/16 161	4742 6/16 508		10.10 4.226 .83

Detail SOW :

Project	Config Before	Config After	NE/ FE	Description	Type	QTY Used	Link
License Upgrade	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	NE	Upgrade Modulation By Remote	Service	1	KAL-KB-SBS-0730/KAL-KB-SBS-0389
License Upgrade	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	NE	Higher Modulation up to 2048QAM	Software	1	KAL-KB-SBS-0730/KAL-KB-SBS-0389
License Upgrade	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	FE	Higher Modulation up to 2048QAM	Software	1	KAL-KB-SBS-0730/KAL-KB-SBS-0389
License Upgrade	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	NE	Capacity License (50MB)	Software	6	KAL-KB-SBS-0730/KAL-KB-SBS-0389
License Upgrade	15GHz/1+0/0.6-0.6/28MHz/512QAM	15GHz/1+0/0.6-0.6/56MHz/2048QAM	FE	Capacity License (50MB)	Software	6	KAL-KB-SBS-0730/KAL-KB-SBS-0389

License :

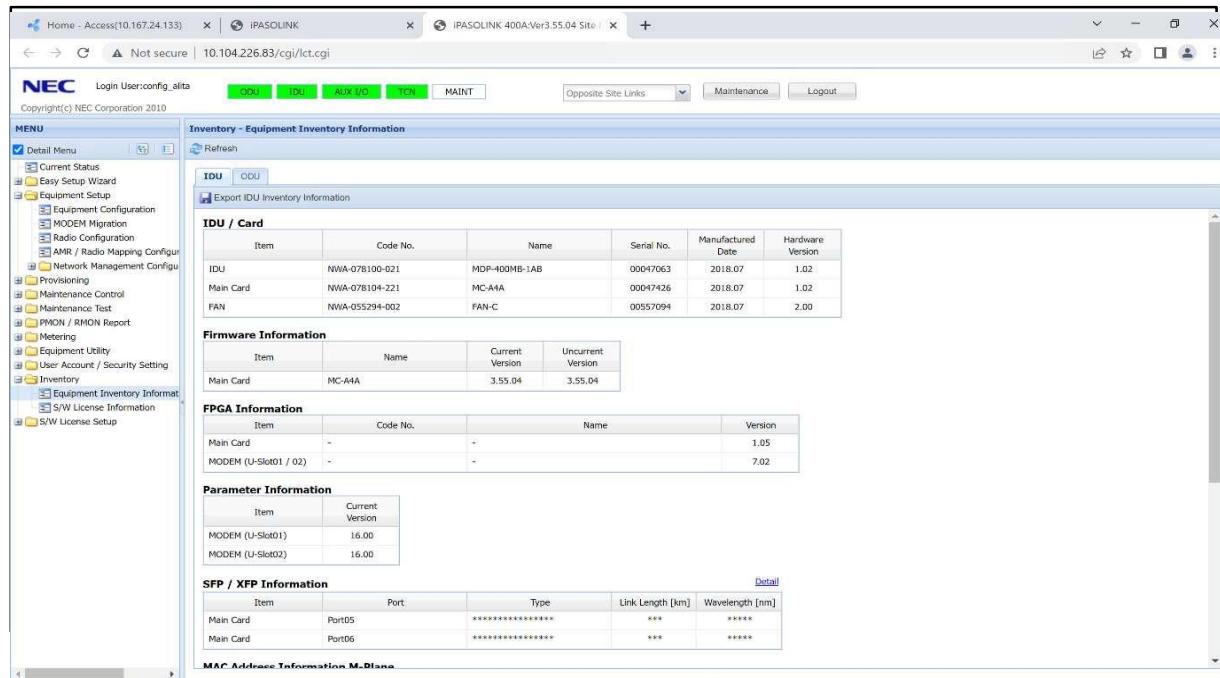
SoftKey File Name	Serial Number	Key Type	Parameter	Order Number	IP	Site ID	Link ID	Release Date
UP400A_00016161_7001 170909.key	16161	Radio Capacity Key - Radio Capacity - 1	200MB to 500MB	ZZZ-958282-0001	10.104.22 6.82	KAL-KB-SBS-0389	KAL-KB-SBS-0730-KAL-KB-SBS-0389	17-May-25
UP400A_00047063_7001 170910.key	47063	Radio Capacity Key - Radio Capacity - 1	200MB to 500MB	ZZZ-958282-0001	10.104.22 6.83	KAL-KB-SBS-0730	KAL-KB-SBS-0730-KAL-KB-SBS-0389	17-May-25
UP400A_00016161_7001 170994.key	16161	System & Radio Key - High Modulation	1024Q to 2048Q	ZZZ-958282-0001	10.104.22 6.82	KAL-KB-SBS-0389	KAL-KB-SBS-0730-KAL-KB-SBS-0389	18-May-25
UP400A_00047063_7001 170995.key	47063	System & Radio Key - High Modulation	1024Q to 2048Q	ZZZ-958282-0001	10.104.22 6.83	KAL-KB-SBS-0730	KAL-KB-SBS-0730-KAL-KB-SBS-0389	18-May-25

Item ATP Check

Site : KAL-KB-SBS-0730

Before

- Equipment Inventory Informations



Item	Code No.	Name	Serial No.	Manufactured Date	Hardware Version
IDU	NWA-078100-021	MDP-400MB-1AB	00047063	2018.07	1.02
Main Card	NWA-078104-221	MC-A4A	00047426	2018.07	1.02
FAN	NWA-055294-002	FAN-C	00557094	2018.07	2.00

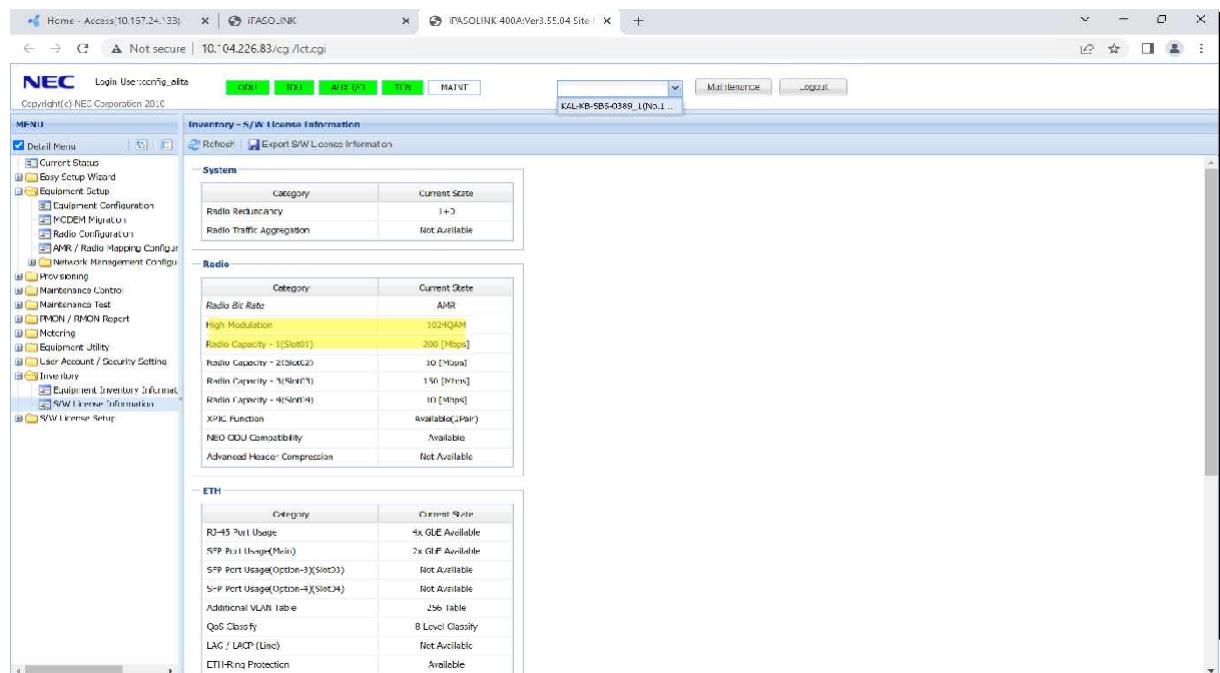
Item	Name	Current Version	Uncurrent Version
Main Card	MC-A4A	3.55.04	3.55.04

Item	Code No.	Name	Version
Main Card	-	-	1.05
MODEM (U-Slot01 / 02)	-	-	7.02

Item	Current Version
MODEM (U-Slot01)	16.00
MODEM (U-Slot02)	16.00

Item	Port	Type	Link Length [km]	Wavelength [nm]
Main Card	Port05	*****	***	*****
Main Card	Port06	*****	***	*****

- S/W License Inventory Informations



Category	Current State
Radio Redundancy	1+0
Radio Traffic Aggregation	Not Available

Category	Current State
Radio Bit Rate	AMR
High Modulation	1024QAM
Radio Capacity - 1(Slot01)	200 [Mbps]
Radio Capacity - 2(Slot02)	10 [Mbps]
Radio Capacity - 3(Slot03)	150 [Mbps]
Radio Capacity - 4(Slot04)	10 [Mbps]
XPF Function	Available(Pair)
NE0 CDU Compatibility	Available
Advanced Header Compression	Not Available

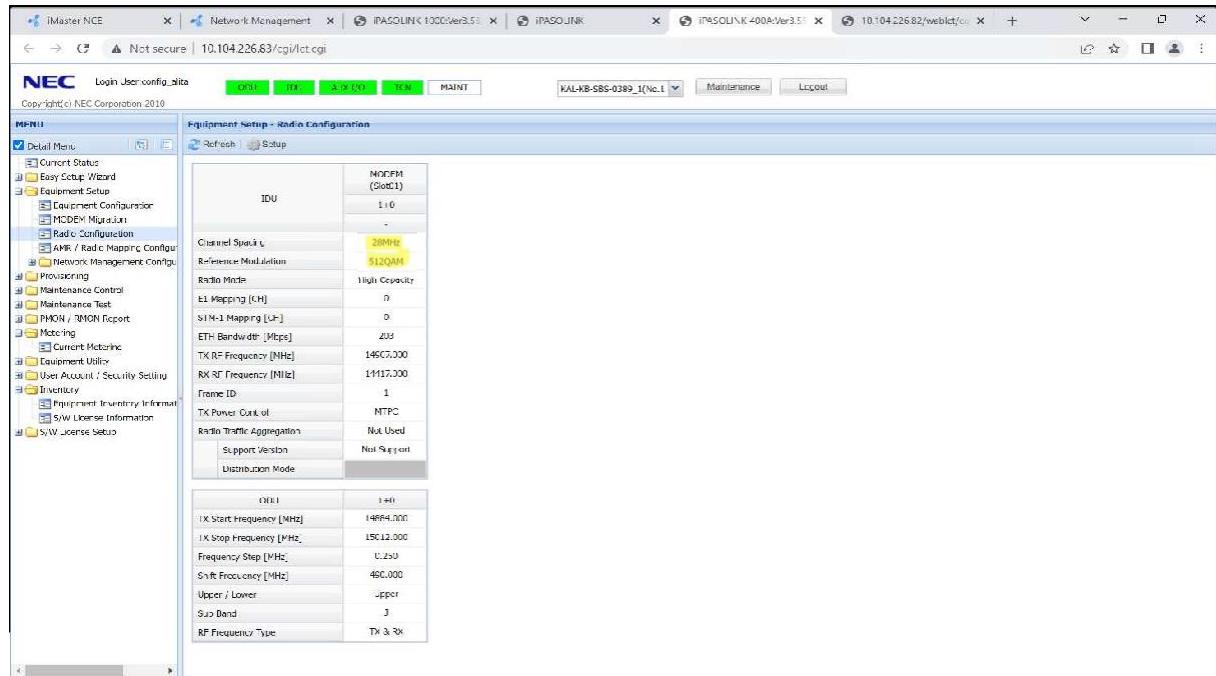
Category	Current State
RJ-45 Port Usage	4x GLE Available
SFP Port Usage(Main)	2x GLE Available
SFP Port Usage(Option-3)(Slot03)	Not Available
S-IP Port Usage(Option-3)(Slot04)	Not Available
Additional VLAN Table	256 Table
QoS Classify	8 Level Classify
LAG / LACP (Line)	Not Available
CTI/Ring Protection	Available

Item ATP Check

Site : KAL-KB-SBS-0730

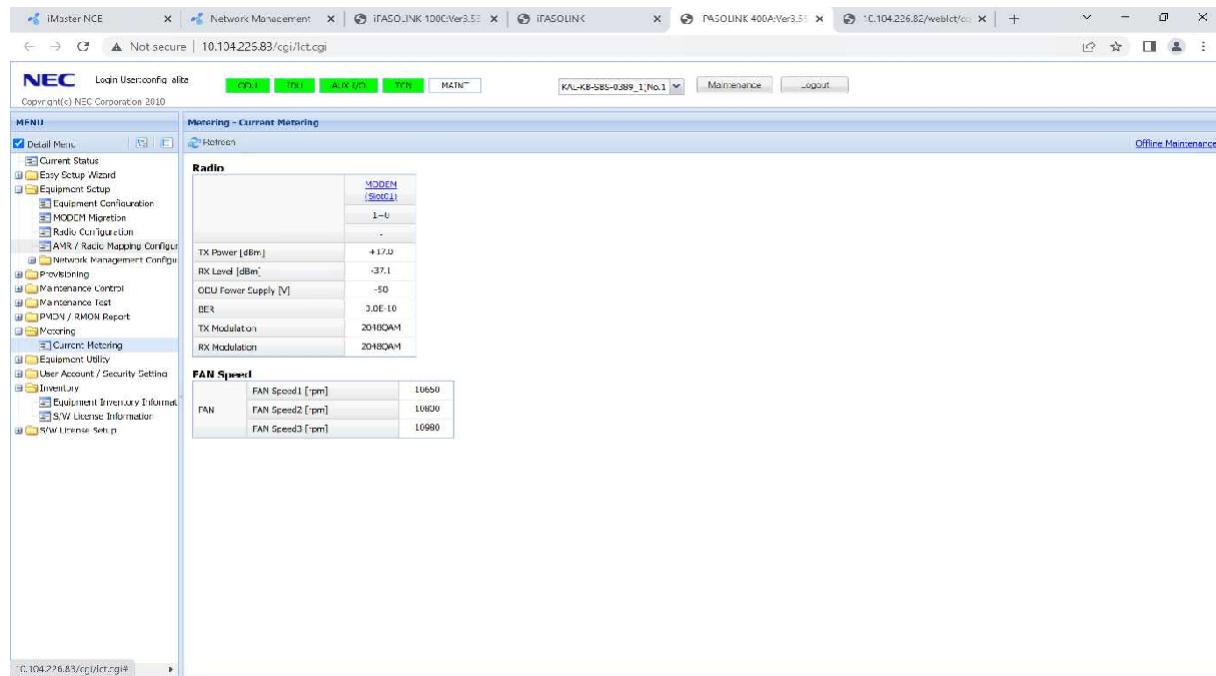
Before

- RADIO CONFIGURATION**



The screenshot shows the 'Equipment Setup - Radio Configuration' page. The 'IDU' section displays 'MODPM (Socel1)' and '1x0'. The 'Channel Specific' section shows '28MHz' and '512QAM'. The 'Radio Mode' is set to 'High Capacity'. Other parameters include 'ETI Mapping (LH)', 'SINR Mapping (UH)', 'ETI Bandwidth [Mbps]', 'TX RF Frequency [MHz]', 'RX RF Frequency [MHz]', 'Frame ID', 'TX Power Control', 'Radio Traffic Aggregation', 'Support Version', and 'Distribution Mode'. Below these, there are sections for 'ODU' settings like 'TX Start Frequency [MHz]', 'TX Stop Frequency [MHz]', 'Frequency Step [MHz]', 'Shift Frequency [MHz]', 'Upper / Lower', 'Sub Band', and 'RF Frequency Type'.

- Metering**



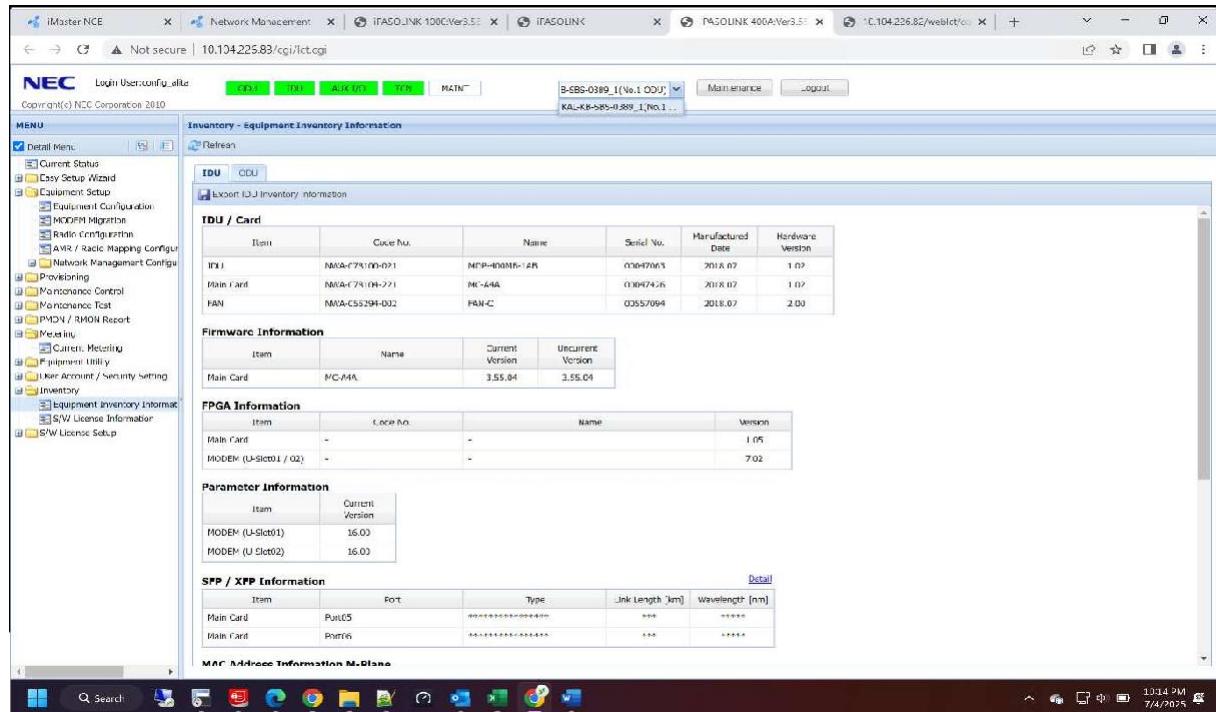
The screenshot shows the 'Monitoring - Current Metering' page. The 'Radio' section displays 'MODPM (Socel1)' and '1x0'. The 'TX Power [dBm]' is '+17.0', 'RX Level [dBm]' is '-37.1', 'ODU Power Supply [V]' is '-50', 'BER' is '3.0E-10', 'TX Modulation' is '20IQAM', and 'RX Modulation' is '20IQAM'. The 'FAN Speed' section shows three fan speeds: 'FAN Speed1 [rpm]' at 10680, 'FAN Speed2 [rpm]' at 10600, and 'FAN Speed3 [rpm]' at 10980.

Item ATP Check

Site : KAL-KB-SBS-0730

After

- Equipment Inventory Informations



Item	Code No.	Name	Serial No.	Manufactured Date	Hardware Version
IDU	NVA-C7K-00-071	NEP-400MFR-AB	03047003	2018.07	1.07
Main Card	NVA-C7K-00-221	MC-A4A	03047426	2018.07	1.07
PAN	NVA-CS5294-002	PAN-C	03557094	2018.07	2.00

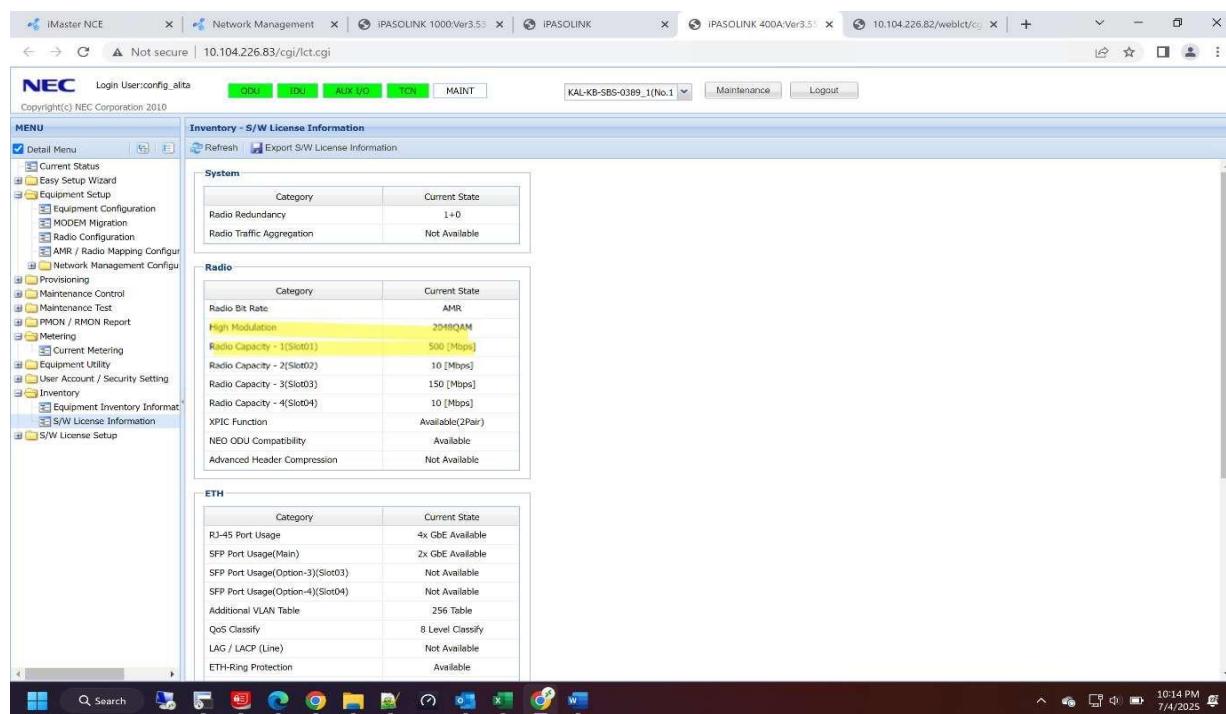
Item	Name	Current Version	Uncurrent Version
Main Card	MC-MA	3.55.04	3.55.04

Item	Code No.	Name	Version
Main Card	-	-	1.05
Modem (U-Slot01 / 02)	-	-	7.02

Item	Current Version
MODEM (U-Slot01)	16.03
MODEM (U Slot02)	16.03

Item	Port	Type	Link Length [km]	Wavelength [nm]
Main Card	Port05	*****	***	*****
Main Card	Port06	*****	***	*****

- S/W License Inventory Informations



Category	Current State
Radio Redundancy	1+0
Radio Traffic Aggregation	Not Available

Category	Current State
Radio Bit Rate	AMR
High Modulation	2048QAM
Radio Capacity - 1(Slot01)	500 [Mbps]
Radio Capacity - 2(Slot02)	10 [Mbps]
Radio Capacity - 3(Slot03)	150 [Mbps]
Radio Capacity - 4(Slot04)	10 [Mbps]
XPC Function	Available(2Pair)
NEO ODU Compatibility	Available
Advanced Header Compression	Not Available

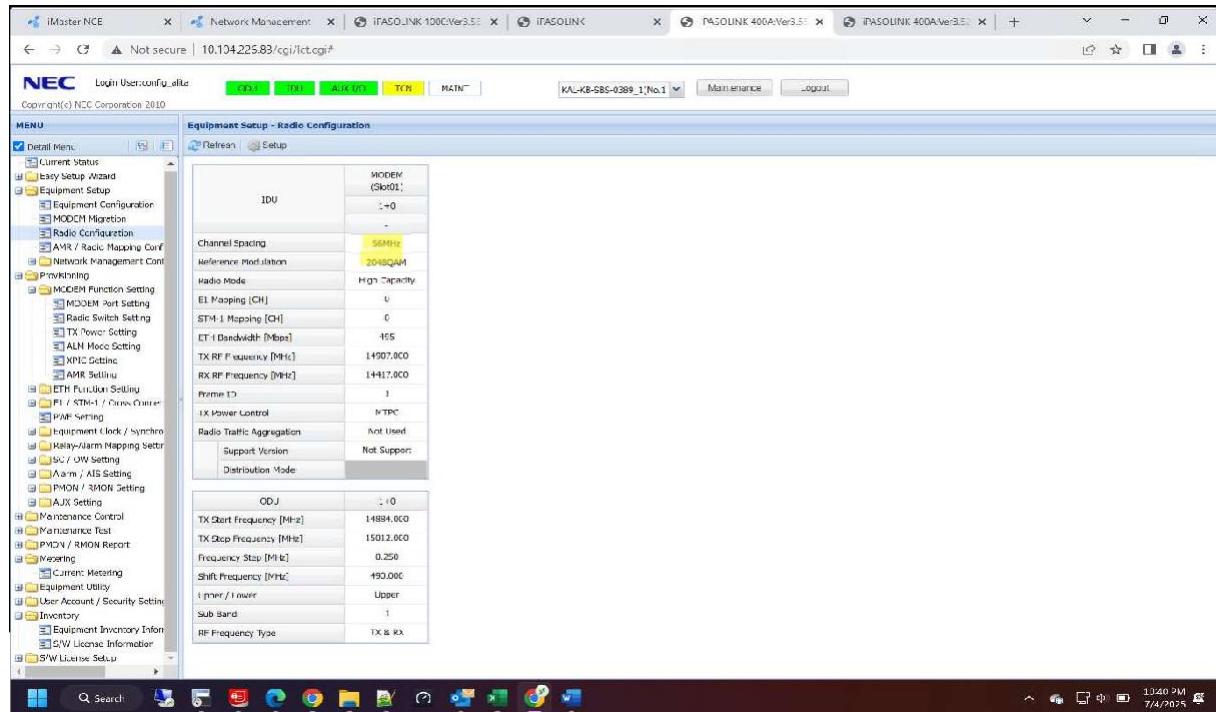
Category	Current State
RJ-45 Port Usage	4x GbE Available
SFP Port Usage(Main)	2x GbE Available
SFP Port Usage(Option-3)(Slot03)	Not Available
SFP Port Usage(Option-4)(Slot04)	Not Available
Additional VLAN Table	256 Table
QoS Classify	8 Level Classify
LAG / LACP (Line)	Not Available
ETH-Ring Protection	Available

Item ATP Check

Site : KAL-KB-SBS-0730

After

- RADIO CONFIGURATION**



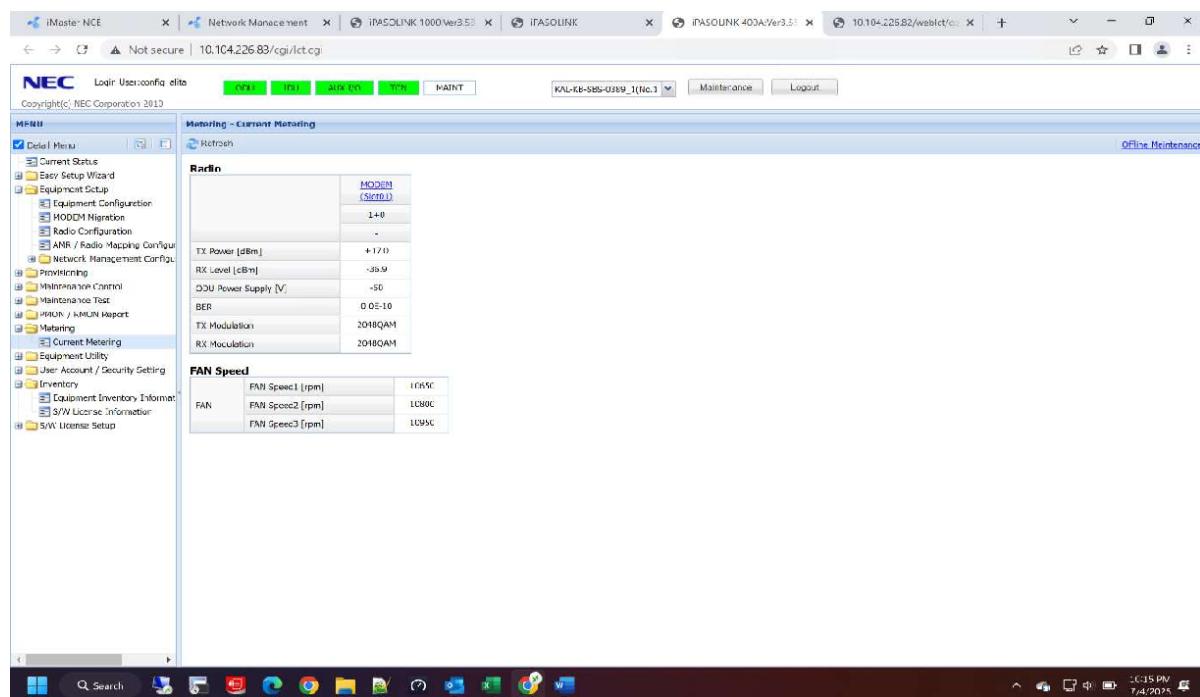
IDU

Modem (S0/0/1)	-0
Channel Spacing	5MHz
Reference Modulation	2048QAM
Radio Mode	High Capacity
EI Mapping [CH]	v
STM 1 Mapping [CH]	0
ET [Bandwidth [Mbps]]	165
TX RF Frequency [MHz]	1497.900
RX RF Frequency [MHz]	14417.900
Prime ID	1
TX Power Control	NTPC
Radio Traffic Aggregation	Not Used
Support Version	Not Support
Distribution Mode	

ODJ

Modem (S0/0/1)	-10
TX Start Frequency [MHz]	14984.000
TX Stop Frequency [MHz]	15012.000
Frequency Step [MHz]	0.250
Shift Frequency [MHz]	490.000
1 Polar / 1 Invert	Upper
Sub Band	1
RF Frequency Type	TX & RX

- Metering**



Radio

Modem (S0/0/1)	-140
TX Power [dBm]	+17.0
RX Level [dBm]	-35.9
ODU Power Supply [V]	-50
BER	0.05-10
TX Modulation	2048QAM
RX Modulation	2048QAM

FAN Speed

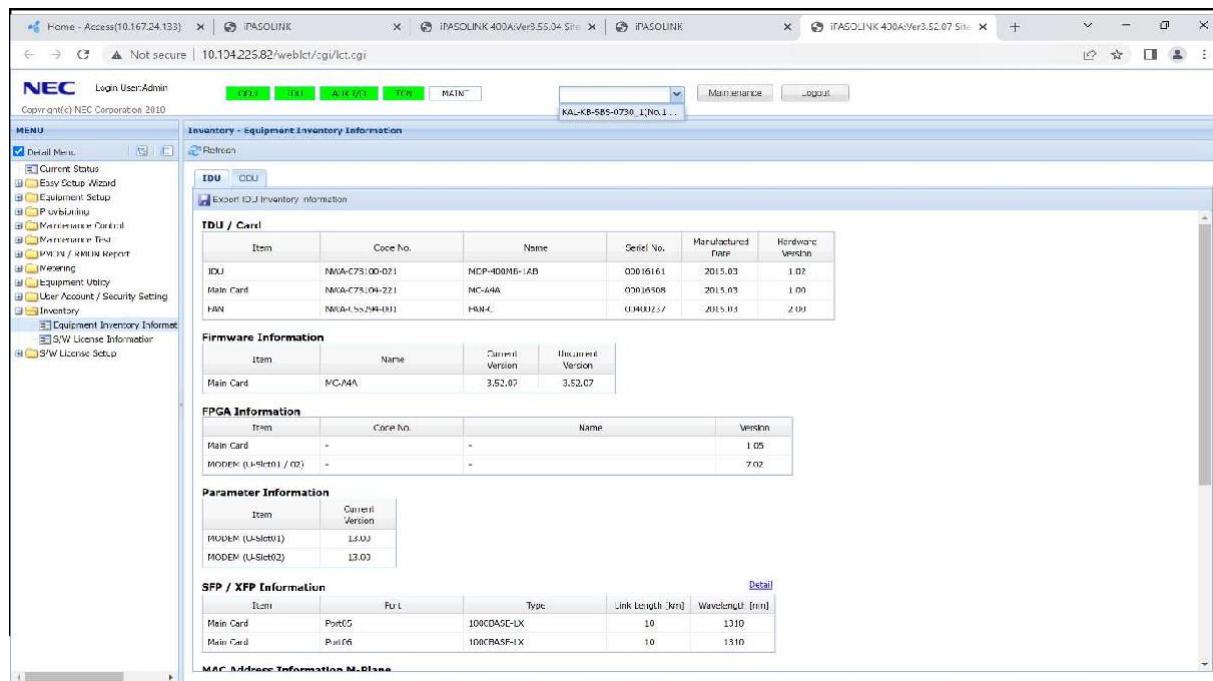
FAN Spec1 [rpm]	17950
FAN Spec2 [rpm]	10900
FAN Spec3 [rpm]	10950

Item ATP Check

Site : KAL-KB-SBS-0389

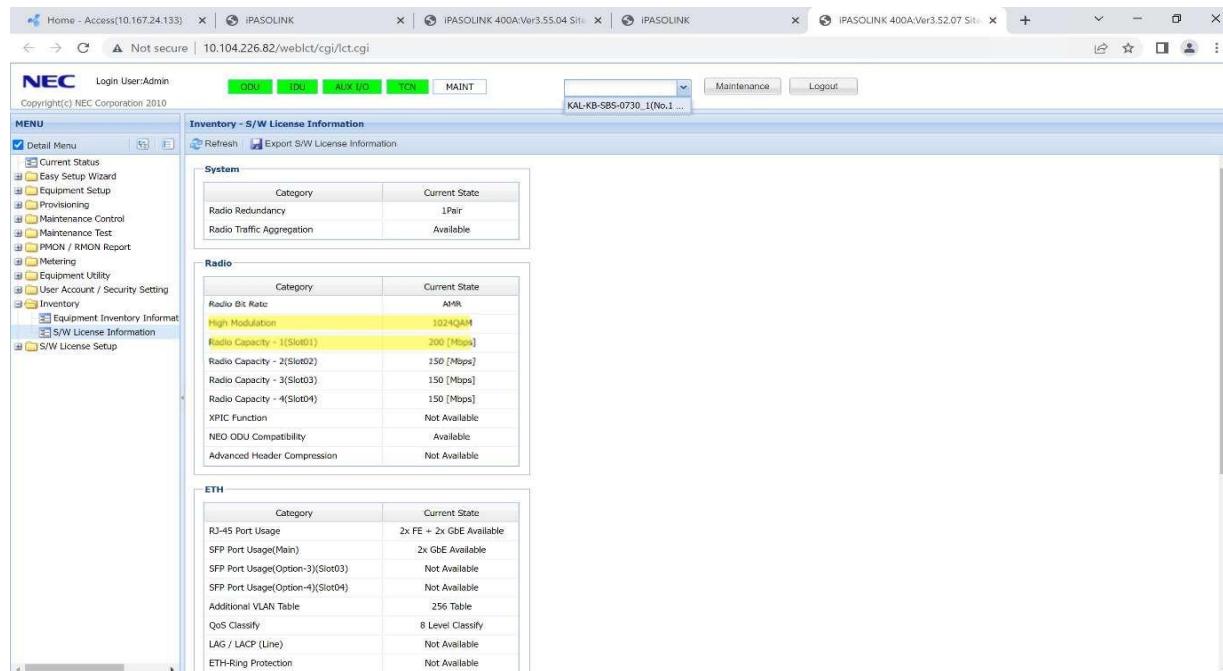
Before

- Equipment Inventory Informations



Item	Code No.	Name	Serial No.	Manufactured Date	Hardware Version
IDU	NVA-C73-00-021	MDP-400MB-1AB	03016161	2015.03	1.02
Main Card	NVA-C73-04-221	MC-A4A	03016508	2015.03	1.00
HAN	NVA-C55-M4-001	HAN-	04H00557	2015.03	2.00

- S/W License Inventory Informations



Category	Current State
Radio Redundancy	1Pair
Radio Traffic Aggregation	Available

Category	Current State
Radio Bit Rate	AMR
High Modulation	1024Mbps
Radio Capacity - 1(Slot01)	200 [Mbps]
Radio Capacity - 2(Slot02)	150 [Mbps]
Radio Capacity - 3(Slot03)	150 [Mbps]
Radio Capacity - 4(Slot04)	150 [Mbps]
XPC Function	Not Available
NEO ODU Compatibility	Available
Advanced Header Compression	Not Available

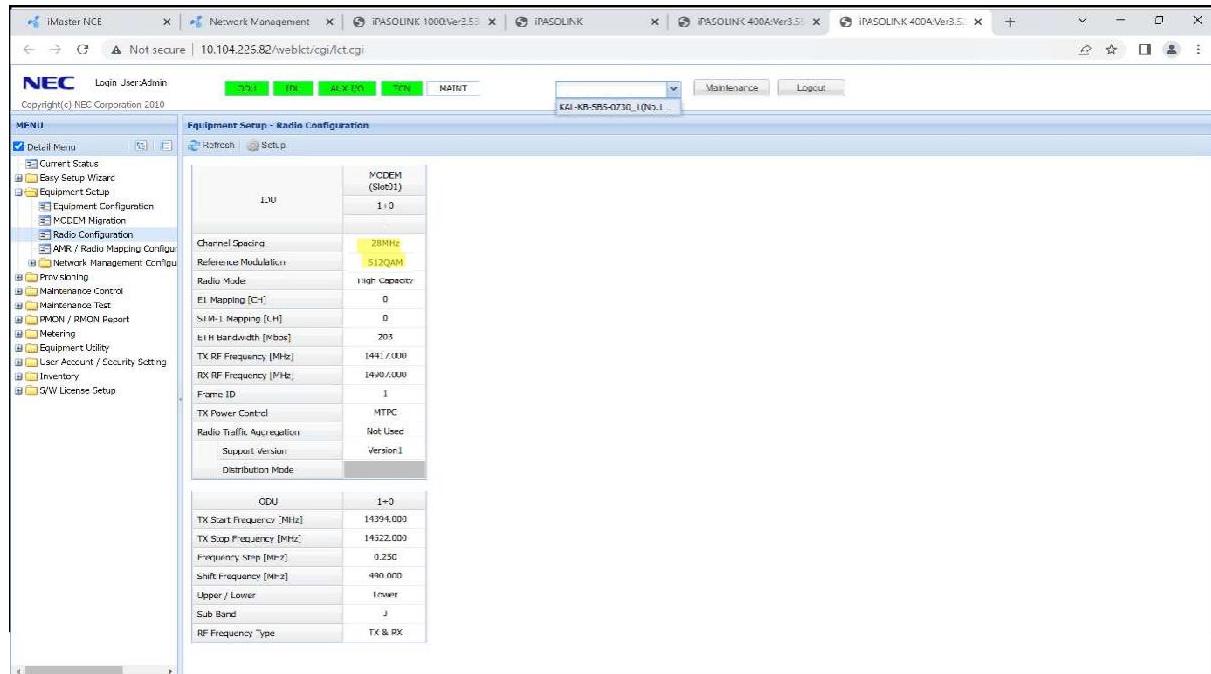
Category	Current State
RJ-45 Port Usage	2x FE + 2x GbE Available
SFP Port Usage(Main)	2x GbE Available
SFP Port Usage(Option-3)(Slot03)	Not Available
SFP Port Usage(Option-4)(Slot04)	Not Available
Additional VLAN Table	256 Table
QoS Classify	8 Level Classify
LAG / LACP (Line)	Not Available
ETH-Ring Protection	Not Available

Item ATP Check

Site : KAL-KB-SBS-0389

Before

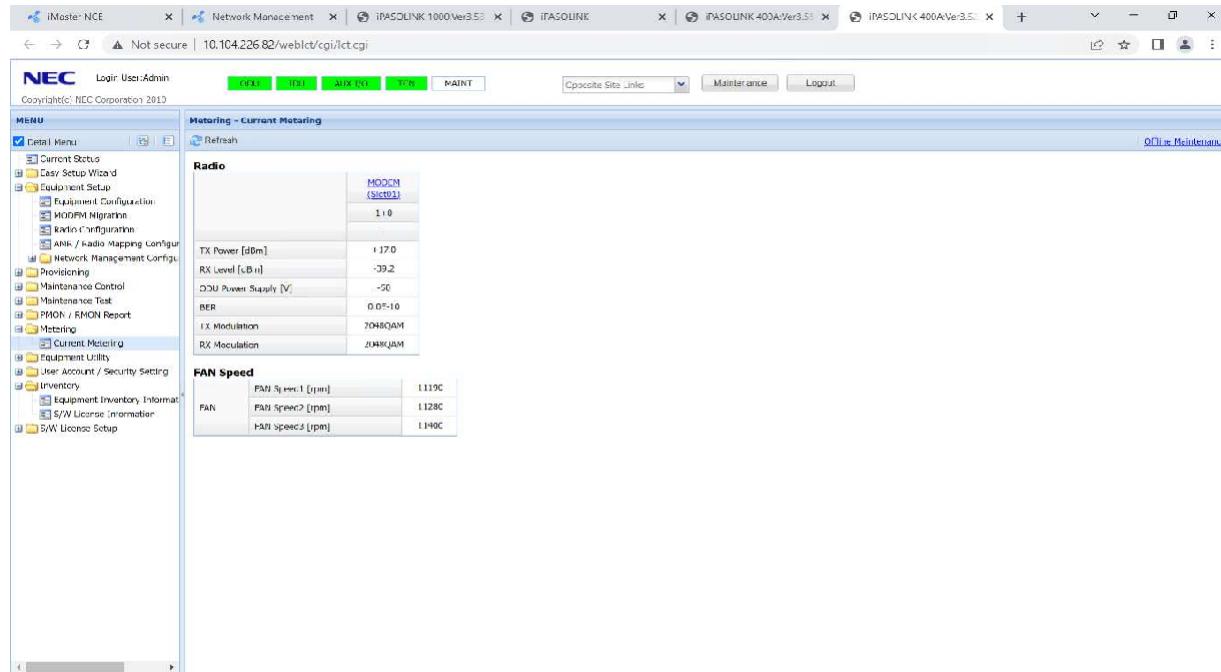
- RADIO CONFIGURATION**



The screenshot shows the 'Equipment Setup - Radio Configuration' page. Key settings include:

Setting	Value
MCDEM (Slot0)	1:0
Channel Spacing	28MHz
Reference Modulation	512QAM
Radio Mode	High Capacity
EI Mapping [Ch]	0
SIM-L Mapping [L-H]	0
Bit Error Rate [Mbps]	203
TX RF Frequency [MHz]	1441.000
RX RF Frequency [MHz]	1440.000
Frame ID	1
TX Power Control	MTPC
Radio Traffic Acquisition	Not Used
Support Version	Version1
Distribution Mode	
ODU	1:0
TX Start Frequency [MHz]	14394.000
TX Stop Frequency [MHz]	14322.000
Frequency Step [MHz]	0.250
Shift Frequency [MHz]	-490.000
Upper / Lower	Lower
Sub Band	J
RF Frequency Type	TX & RX

- Metering**



The screenshot shows the 'Metering - Current Metering' page. Key metrics include:

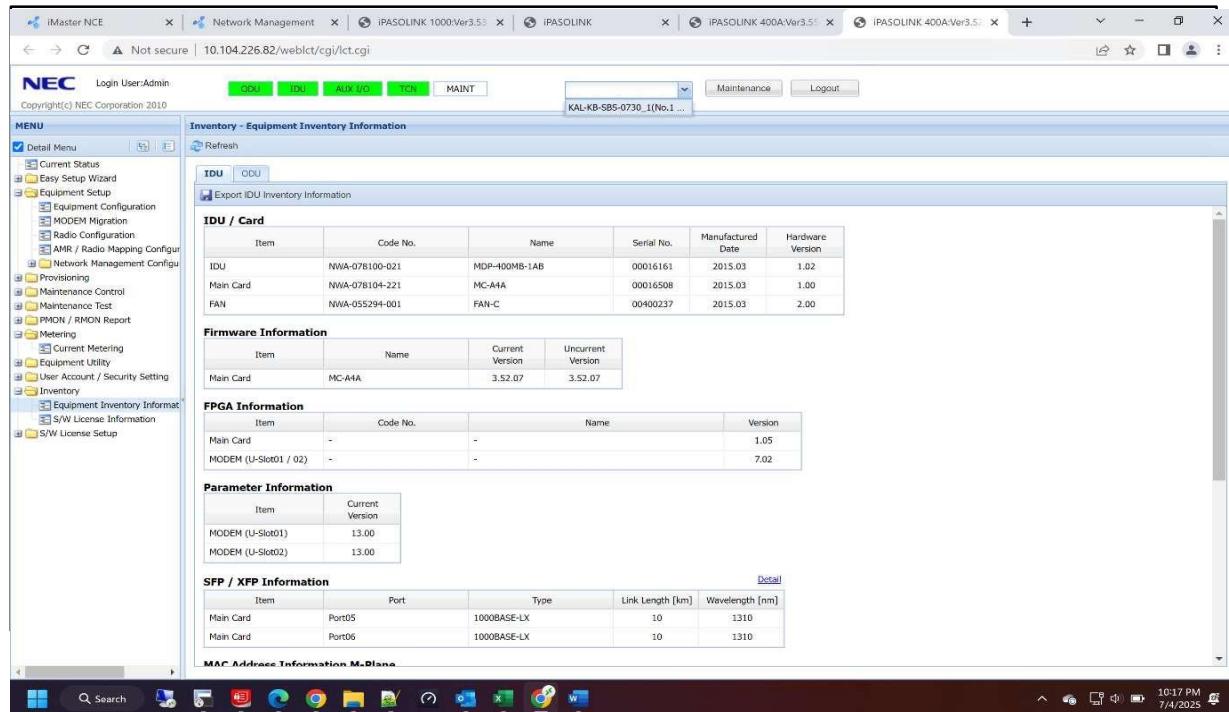
Metric	Value
Radio	MCDEM (Slot0)
TX Power [dBm]	17.0
RX Level [dBm]	-39.2
ODU Power Supply [V]	-50
BER	0.0E-10
TX Modulation	2048QAM
RX Modulation	2048QAM
PAN Speed1 [rpm]	1119C
PAN Speed2 [rpm]	1128C
PAN Speed3 [rpm]	1140C

Item ATP Check

Site : KAL-KB-SBS-0389

After

- Equipment Inventory Informations



Item	Code No.	Name	Serial No.	Manufactured Date	Hardware Version
IDU	NWA-078100-021	MOP-400MB-1AB	00016161	2015.03	1.02
Main Card	NWA-078104-221	MC-AHA	00016508	2015.03	1.00
FAN	NWA-055294-001	FAN-C	00400237	2015.03	2.00

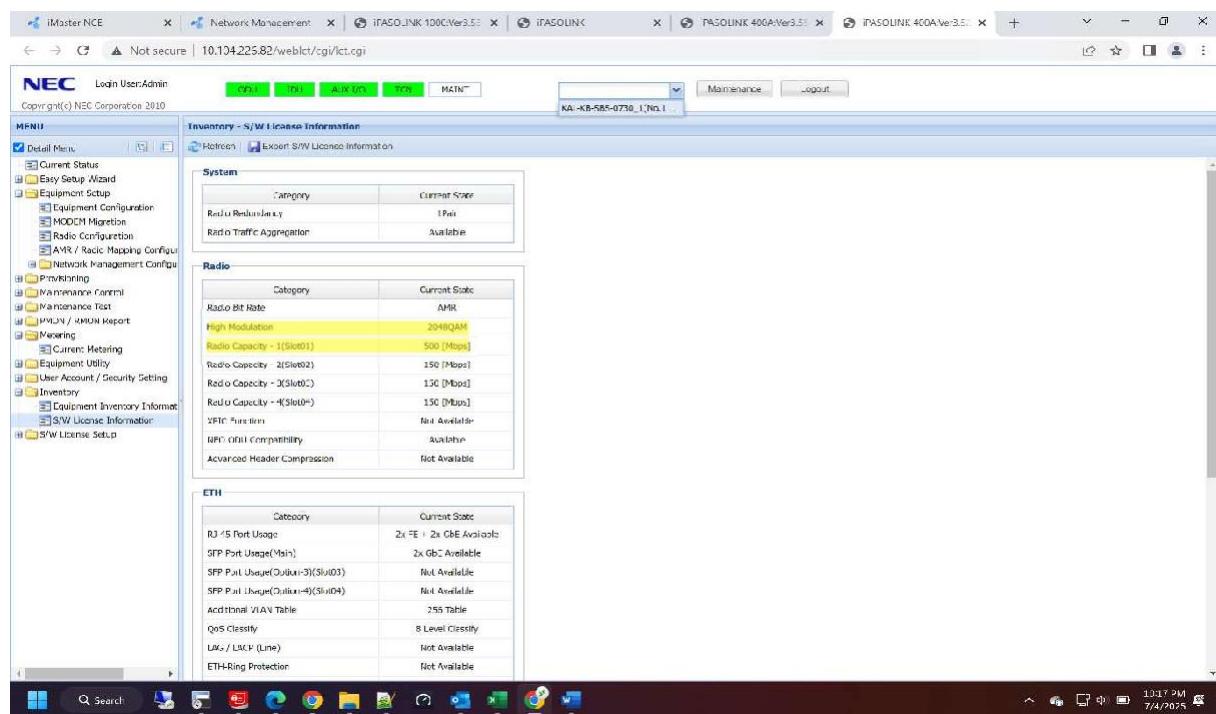
Item	Name	Current Version	Uncurrent Version
Main Card	MC-AHA	3.52.07	3.52.07

Item	Code No.	Name	Version
Main Card	-	-	1.05
MODEM (U-Slot01 / 02)	-	-	7.02

Item	Current Version
MODEM (U-Slot01)	13.00
MODEM (U-Slot02)	13.00

Item	Port	Type	Link Length [km]	Wavelength [nm]
Main Card	Port05	1000BASE-LX	10	1310
Main Card	Port06	1000BASE-LX	10	1310

- S/W License Inventory Informations



Category	Current State
Radio Redundancy	1Pair
Radio Traffic Aggregator	Available

Category	Current State
Radio Bit Rate	AMR
High Modulation	2048QAM
Radio Capacity - 1(Slot01)	500 [Mbps]
Radio Capacity - 2(Slot02)	150 [Mbps]
Radio Capacity - 3(Slot03)	150 [Mbps]
Radio Capacity - 4(Slot04)	150 [Mbps]
SFRI - Four Link	Not Available
IPPC - QINQ Compatibility	Available
Advanced Header Compression	Not Available

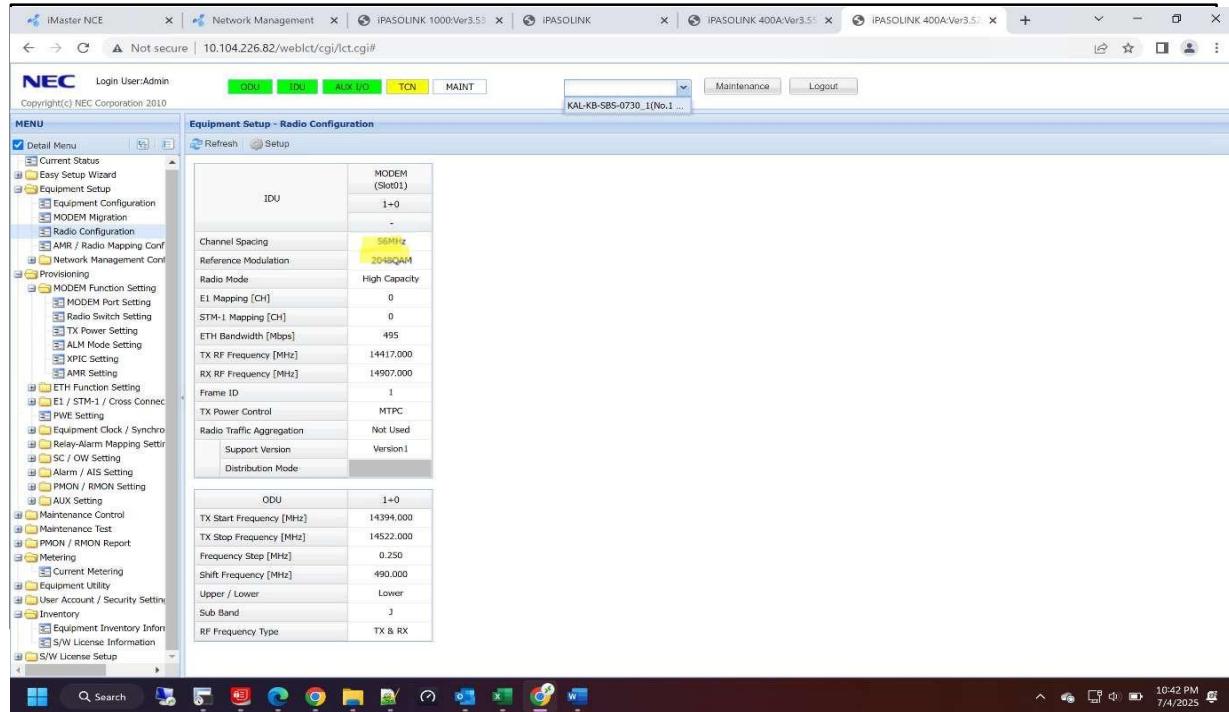
Category	Current State
RJ-45 Port Usage	2x FE + 2x GE Available
SFP Port Usage(Main)	2x GbE Available
SFP Port Usage(2Slot01+3)(Slot03)	Not Available
SFP Port Usage(2Slot01+4)(Slot04)	Not Available
Additional VLAN Table	255 Table
QoS Classify	8 Level Classify
LMC / LMC (Line)	Not Available
ETH-Ring Protection	Not Available

Item ATP Check

Site : KAL-KB-SBS-0389

After

- RADIO CONFIGURATION**

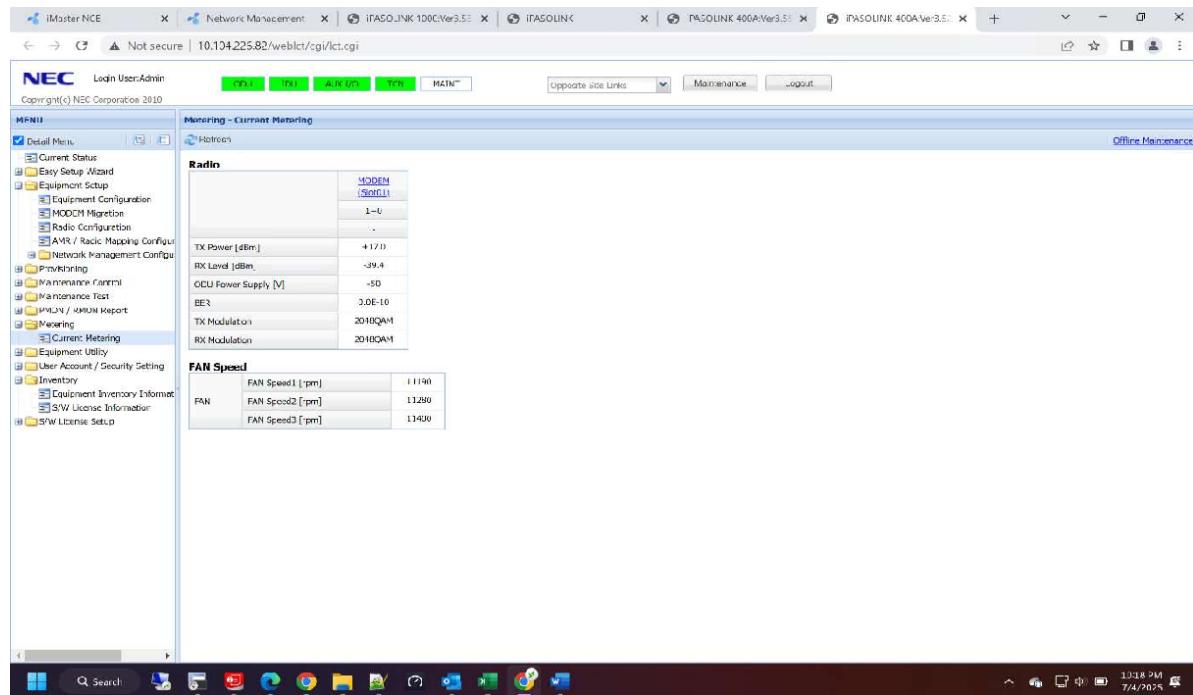


The screenshot shows the 'Equipment Setup - Radio Configuration' page. The left sidebar has 'Radio Mode' selected under 'Radio Configuration'. The main panel displays two tables: one for IDU and one for ODU.

IDU	MODEM (Slot01)
Modem Type	1+0
Channel Spacing	5MHz
Reference Modulation	2048QAM
Radio Mode	High Capacity
E1 Mapping [CH]	0
STM-1 Mapping [CH]	0
ETH Bandwidth [Mbps]	495
TX RF Frequency [MHz]	14417.000
RX RF Frequency [MHz]	14907.000
Frame ID	1
TX Power Control	MTPC
Radio Traffic Aggregation	Not Used
Support Version	Version1
Distribution Mode	

ODU	1+0
TX Start Frequency [MHz]	14394.000
TX Stop Frequency [MHz]	14522.000
Frequency Step [MHz]	0.250
Shift Frequency [MHz]	490.000
Upper / Lower	Lower
Sub Band	J
RF Frequency Type	TX & RX

- Metering**

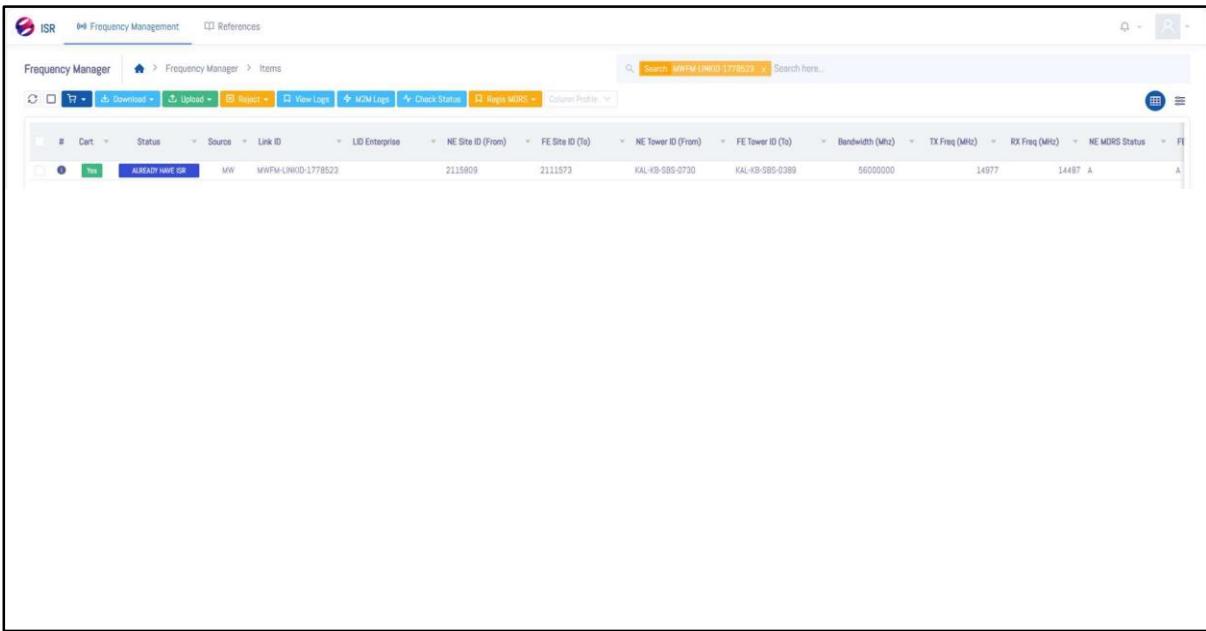


The screenshot shows the 'Metering - Current Metering' page. The left sidebar has 'Current Metering' selected under 'Monitoring'. The main panel displays two tables: one for Radio and one for FAN Speed.

Radio	MODEM (Slot01)
Modem Type	1+0
TX Power [dBm]	+17.0
RX Level [dBm]	-39.4
ODU Power Supply [V]	-50
BER	3.0E-10
TX Modulation	2048QAM
RX Modulation	2048QAM

FAN Speed	FAN Speed1 [rpm]	FAN Speed2 [rpm]	FAN Speed3 [rpm]
FAN	11190	11280	11400

ISR NUMBER



The screenshot shows a web-based application interface for managing frequency assignments. The top navigation bar includes links for 'Frequency Management' and 'References'. Below the navigation is a search bar with placeholder text 'Search MNFM Item ID 1778523... Search here...'. The main content area is titled 'Frequency Manager' and displays a table of data. The table has columns for: #, Cart, Status, Source, Link ID, LID Enterprise, NE Site ID (From), FE Site ID (To), NE Tower ID (From), FE Tower ID (To), Bandwidth (MHz), TX Freq (MHz), RX Freq (MHz), NE MORS Status, and F. A single row of data is visible, with the status column showing 'ALREADY HAVE GR'.

#	Cart	Status	Source	Link ID	LID Enterprise	NE Site ID (From)	FE Site ID (To)	NE Tower ID (From)	FE Tower ID (To)	Bandwidth (MHz)	TX Freq (MHz)	RX Freq (MHz)	NE MORS Status	F
		ALREADY HAVE GR	MW	MWFM-LINKID-1778523		21115809	2111573	KAL-KB-SBS-0389	KAL-KB-SBS-0389	56000000	14977	14487	A	A