RX-7W22-B System Tune Up Procedure

1 INTRODUCTION	. 2
2 PREPARATION	. 2
2.1 PERSONAL PREPARATION	. 2
2.2 EQUIPMENT CONNECTION	. 3
2.2.1 GROUNDING COMMECTION	. 3
2.2.2 RX-7W22-B CONNECTION	. 3
2.2.3 CHECKLIST BEFORE POWERING	. 4
2.2.4 VERIFY NORMAL OPRATION	. 4
3 COMISSIONING	. 5

Figure 1: PS BDA Connectors	3	
Figure 2: Input IP Address	5	
Figure 3: Input Domain Name	5	
Figure 4: Input User Name and Password	5	
Figure 5: Web GUI Main Screen	6	
Figure 6: Overview Screen	6	
Figure 7: 800 Screen	7	
Figure 8: 700 Screen	7	
Figure 9: Commissioning Procedure - Start	8	
Figure 10: Commissioning Procedure – Site Info. Setting	8	
Figure 11: Dev Info & Date/Time	10	
Figure 12: Commissioning Procedure – Isolation Detective	11	
Figure 13: Commissioning Procedure – Isolation Detective Confirm	11	
Figure 14: Commissioning Procedure –Isolation Detection Failed	11	
Figure 15: Commissioning Procedure –Isolation Detection Finish	11	
Figure 16: Commissioning Procedure – Center Frequency Setting	12	
Figure 17: Commissioning Procedure – Finish	13	
Figure 18: [Firmware] Screen – MCU Firmware Upgrade	13	
Figure 19: [Management] Screen	14	
Table 1. Charle list	4	

Table 1: Check list	. 4
Table 2: LED Indications	. 4

1 INTRODUCTION

This document is primarily written for those who are new to RX-7W22-B system and wish to tune up the equipment. The document is applicable to below products from Comba. Model number: RX-7W22-B

2 PREPARATION

This section will be discussing on:

- 1 Preparation for those who are going to operate the equipment;
- 2 How to connect to equipment for setting;
- 3 LED Indicator description;

2.1 PERSONAL PREPARATION

1 - The following checklist will help to make sure relevant personnel get ready before opera-tion.

The personnel preparation list:

a. Only trained or qualified personnel is recommended for performing tuning with equip-ment. Operating person should be with necessary knowledge of electronic, RF, and familiar with local regulation, rules.

b. Personnel shall read through the manual/instructions/guide carefully before operation.

- c. Check if there is warning/alert sign on the equipment to avoid possible danger.
- d. Wear proper cloth. If necessary, equip with PPE (Personal Protective Equipment).
- e. Before operation, procedures and data recording form should be prepared.

2 - Package inspection

Visual inspect the external product package, and check internal items according to packing list. Prepare ample space and easy accessible to socket-outlet. For tools reference please find in manual.

3 - Tools preparation

Please prepare tools/cables and measuring instruments ready before hand-on. For tools recommendation, please refer to product user manual.

Handling Precautions

This covers a range of activities including lifting, lowering, pushing, pulling, carrying, moving, holding or restraining an object, animal or person. It also covers activities that require the use of force or effort, such as pulling a lever, or operating power tools.

Caution, Electrostatic Discharge (ESD)

Before removing the antistatic bag from repeater, enough caution shall be taken to avoid ESD. The Anti-static Wrist Strap is recommended.



2.2 EQUIPMENT CONNECTION

2.2.1 GROUNDING COMMECTION

Ground Connection

To ensure safe operation of the product, a ground (earth) connection is required. For single phase AC power source, the product must be grounded by connecting the "earth wire" of the power cord to the ground terminal of the AC supply. For operating this product with DC power system (such as rectifiers), the product should not be connected to power systems that switch open the return lead because the return lead could function as the ground (earth) connection for the equipment.

Protective Ground Connection

The enclosure must be grounded securely by connecting a copper wire (CSA 16mm²) to the grounding terminal on the equipment/rack, and the other end to a protective ground (i.e. building earth point). An internationally acceptable colour code of the ground connection wire is green/yellow.

Such a ground connection implements the "Protective Ground Connection", and must be connected to the equipment at the designated ground point. In general, do not connect the supply before establishing an adequate ground (earth) connection.

Construct the ground wire, and use appropriate crimp connectors where necessary. Locate and connect the equipment grounding terminal to a protective ground (i.e. building earth point).

2.2.2 RX-7W22-B CONNECTION

Step1: Connect the RF cable to RF module, DT port connects to donor antenna and MT port connects to service antenna.



Figure 1: PS BDA Connectors

Step 2: Connect the power cable to the power supply port (100-240VAC/1Amp maximum or -48VDC/2.1Amp maximum).

2.2.3 CHECKLIST BEFORE POWERING

Users *MUST* check the following items before powering on the equipment.

Table 1: Check list						
ltem	Check List					
Grounding	Make sure the equipment well grounded.					
Power	The utility voltage is within 100~240VAC or-48VDC.					
RF connection	RF cables are well connected.					
VSWR	The VSWR of antenna port must less than 1.5.					

2.2.4 VERIFY NORMAL OPRATION

Verify normal operation upon powering up the equipment.

Table	2:	LED	Indications
-------	----	-----	-------------

LED Indicator	Normal Status	Indication
PWR	Steady green	Power indicator. If LED is off, it indicates the system has no
		power.
RUN	Flashing green	Operation indicator. After initialization (1~2 mi-nutes), the
	(1 time/sec)	LED should flash at once per sec. If other flashing rate
		occurs, operates abnormally.
ALM	off	Alarm indicator. If LED is RED, there is an alarm.

End of Section

3 COMISSIONING

PS BDA can be monitored and controlled by Comba OMT, follow below contents to achieve system parameter setting and commissioning.

Step 1: Connect OMT port to PC RJ45 port with the supplied RJ45 cable to set up a physical connection.

Step 2: Open browser (browser IE7.0, IE8.0, Chrome or Firefox, suggest display resolution is 1024×768), input Web GUI IP address: 192.168.8.101, click [Enter].

NOTE: DHCP and DNS are also available to login Web GUI. The domain name is: www.combaomt.com.





Figure 3: Input Domain Name

Step 3: Input User Name: admin; Password (default password: admin). Click [Log in].

System Management Platform	
username: admin	
password:	
Log In	

Figure 4: Input User Name and Password

After log in, the Web GUI main screen will appear.



Home Devices Commissi		Commissioning	Firmware	Management	Logout
Dev Model: Uptime: Date/Time: Temperature: Serial Num: Dev Info: Firmware Version: Site ID:	RX-TW22 3:30:33:0/00 15:15:02:05/13/16 46'C M75RX7W22FH10V8 00000000	1098		PWR AUN O ALM O O	

Figure 5: Web GUI Main Screen

On Comba Web GUI Home Screen, there are four Menu bars: [Devices], [Commissioning], [Firmware] and [Management].

The [Devices] Screen shows the equipment status, such as PA status, alarm information, etc.

Overview Screen

Home	ſ	Device									Lo	gout
	<u>O</u> \	verview		800			700					
Slave	Freq Band	DL P_out	RF Switch	Commissioning	PA Status	PLL Alm	LNA Alm	DL PA A	Im PA VSWR AIm	Protection Shut Alm		
1	800(MHz)	1dBm	ON	Success	Normal	9 🗸	9 🗸	9 🗸		S	Modify	
2	700A(MHz)	<-10dBm	ON	Success	Normal	9 🗸	9 🗸	3		Solution	Modify	
				Name			Valuo					
			-	DE Linit	A lan		Value					
				RF Unit					11-16			
				Over rempera	aure Am				Modily			

Figure 6: Overview Screen



800 Screen

This screen is only available for the dual band PS BDA or 800MHz PS BDA.

Sub Band Center Freq BandWidth DL P_in UL P_in Switch UL ATT DL ATT CH09-16 1 851012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2 860012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2 860012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2 8600175kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2H25-32 4 880075kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 2H25-32 4 880075kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 2H25-32 6 860105kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 2H25-32 6 860105kHz 12.5kHz -108dBm
Sub Band Center Freq BandWidth DL P_in UL P_in Switch UL ATT DL ATT 1 851012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2 860012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2H17-24 3 868987.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2H25-32 4 860075kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 5 860100kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 6 860125kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 6 860125kHz 12.5kHz -108dBm -112dBm OFF 0dB 0dB Modify 7 860150kHz 12.5kHz -108dBm -112dBm OFF 0dB 0
Sub Band Center Freq BandWith DL P_in SWLP_in SWLth DL ATT DL ATT CH09-16 151012.5kHz 25KHz 108dBm 112dBm ON 0dB 0dB Modify 2 860012.5kHz 25KHz 108dBm 112dBm ON 0dB 0dB Modify 2 860075.6Hz 25KHz 108dBm 112dBm ON 0dB 0dB Modify 2 860075.6Hz 25KHz 108dBm 112dBm ON 0dB 0dB Modify 2 860075.6Hz 125.6Hz 108dBm 112dBm ON 0dB 0dB Modify 2H25-32 869105.6Hz 12.5KHz 108dBm 112dBm OFF 0dB 0dB Modify 6 860105.6Hz 12.5KHz 108dBm 112dBm OFF 0dB 0dB Modify 7 860150.6Hz 12.5KHz 108dBm 112dBm OFF 0dB Modify 860175.KHz
CH09-16 1 851012.5KHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 2 860012.5KHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 3 868987.5KHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify CH25-32 4 860075KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify CH25-32 4 860075KHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify CH25-32 6 860105KHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify CH25-32 6 860105KHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify CH25-32 7 860105KHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify CH25-32 7 860150KHz
2 860012.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify 3 868987.5kHz 25KHz -108dBm 112dBm ON 0dB 0dB Modify 2K25-32 4 860075kHz 25KHz -108dBm 112dBm OK 0dB 0dB Modify 5 860100kHz 12.5kHz -108dBm 112dBm OFF 0dB 0dB Modify 6 860125kHz 12.5kHz -108dBm 112dBm OFF 0dB 0dB Modify 7 860150kHz 12.5kHz -108dBm 112dBm OFF 0dB 0dB Modify 860175kHz 12.5kHz -108dBm 112dBm OFF 0dB 0dB Modify 860175kHz 12.5kHz -108dBm 112dBm OFF 0dB 0dB Modify
3 868987.5kHz 25KHz -108dBm -112dBm ON 0dB 0dB Modify CH25-32 4 860075kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 5 860100kHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify 6 860125kHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify 7 860150kHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify 860175KHz 12.5KHz -108dBm 112dBm OFF 0dB 0dB Modify
4 860075KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 5 860100kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 6 860125kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 7 860150kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 8 860175kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify
5 860100KHz 12.5KHz -108dBm -112dBm OFF 0dB Modify 6 860125KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 7 860150KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 8 860175KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify
6 860125kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 7 860150kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 8 860175kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify
7 860150KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify 8 860175kHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify
8 860175KHz 12.5KHz -108dBm -112dBm OFF 0dB 0dB Modify

Figure 7: 800 Screen

700 Screen

This screen is only available for the dual band PS BDA or 700MHz PS BDA.

Overview 800 700 CH01-08 Sub Band Center Freq BandWidth DL P_in UL P_in Switch UL ATT DL ATT CH09-16 1 768012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify 2 772012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
Sub Band Center Freq BandWidth DL P_in UL P_in Switch UL ATT DL ATT CH09-16 1 768012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify 2 772012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
Sub Band Center Freq BandWidth DL P_in UL P_in Switch UL ATT DL ATT CH09-16 1 768012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify 2 772012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
CH09-16 1 768012.5kHz 25KHz -107dBm -111dBm ON 0dB 0ddB Modify 2 772012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
2 772012.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
3 775987.5kHz 25KHz -107dBm -111dBm ON 0dB 0dB Modify
CH25-32 4 770006.25KHz 12.5KHz -107dBm -111dBm OFF 0dB 0dB Modify
5 759206.25kHz 12.5KHz -107dBm -111dBm OFF 0dB 0dB Modify
6 759806.25kHz 12.5KHz -107dBm -111dBm OFF 0dB 0dB Modify
7 760406.25kHz 12.5KHz -107dBm -111dBm OFF 0dB 0dB Modify
8 765006.25KHz 12.5KHz -107dBm -111dBm OFF 0dB 0dB Modify

Figure 8: 700 Screen

A work flow of commissioning is shown on [Commissioning] page. Click the [Start] button, the software will guide you through the commissioning step by step.



Step 1: Click Menu bar [Commissioning] on home screen, a work flow will show up.

Figure 9: Commissioning Procedure - Start

Step 2: Click Start to start the process.

Home Devices	Commissioning	Firmware	Managemer	it	Logout
Start 🤟	Site Info Setting	Work Flow	→ RF Setting	Finish	I
Tips: 1 Modify devices information. 2 After modification, please click "Next" button.	Site ID D	tate/Time Longitude 2:16 06/05/14	Latitude Dev	Info	Modify

Figure 10: Commissioning Procedure – Site Info. Setting





```
Step 3: Click Modify
```

, users can set the site information.

Name	Current Value	Config Value
Dev Info	GZ BuildingE-6	
Date/Time	10:32:04 01/09/14	

Figure 11: Dev Info & Date/Time

Dev Info mainly used to record device location and Date/Time provides a time reference. Click the Config Value of Date/Time, will update Date/time automatically.

NOTE: Make sure the device is connected with appropriate donor and service antennas before proceeding to step 4.



- ✓ Select a frequency band (RFU) that need to commission.
- Click Click to continue. If isolation detection success, the process will go to RF Settiing Screen shown as Figure 55. If failed, a Tips window will pop-up shown as Figure 54, users need to check whether the system isolation is very weak.

NOTE: At the end of first frequency band commissioning, user can start other frequency band commission.

Home	Devices	Commissioning	Firmware	Management	Logout					
	Work Flow									
	Start	→ Site Info Setting →	solation Detection	RF Setting	Finish					
Tips:										
The isolati detecting,	on value is under please wait for a few									
seconds.										
	88% (2001									
			Back	Next						







Figure 13: Commissioning Procedure – Isolation Detective Confirm

Tips:	
Isolation detection failed	
	Ok

Figure 14: Commissioning Procedure –Isolation Detection Failed

Home	Devices	Commissioning		Firmware	Management	Logout
	Start	Site Info Setting	W solatior	Pork Flow	RF Setting ————————————————————————————————————	ush
Tips:		Ple	ease ei	nter the main control c	hannel information.(Isolation:1	20dB)
Click the t	ext box, and fill the value ers_and then click "Next"		Band	Freq Band(MHz)	Center Freq	
button.			1	800(MHz)	851012.5KHz Modif	<u>, </u>
			2	700(MHz)	768012.5KHz Modif	<u>, </u>
				Back	Next Skip	

Figure 15: Commissioning Procedure – Isolation Detection Finish

Step 5: RF Setting Screen for setting center frequency.



Home	Devices	Commissioning	Firmware	Management	Logout
	Start	→ Site Info Setting → I	Work Flow	RF Setting	Finish
Tips: Click the tr of paramet button.	ext box, and fill the value ers, and then click "Next"	Commissioning Name Center Freq	Current Value C 851012.5KHz Submit Cancel	config Value	pn: 120dB) odify odify
			Back	Next Skip	

Figure 16: Commissioning Procedure – Center Frequency Setting



Home	Devices	Commissioning	Firmware	Management		Lo
			Work Flow			
	Start	→ Site Info Setting ←→	Isolation Detection	▹ RF Setting ↔ →	Finish	
Tips:						
1 If you want click "Finish	to exit the flow, please 'button					
2 If you want	to commission another					
button	nu,please click mole					

Figure 17: Commissioning Procedure – Finish

There are two functions on the [Firmware] bar: [upgrade] and [swap]. [Upgrade] is used to upgrade software, and [Swap] is to replace current firmware version to the previous one.

Home	Devices		Commissioning	Firmware	Ma	inagement		Logout
Monitorin	g Upgrade	Swap	Module Upgrade					
	Dev Info	Dev Model	Firmware Version	Progress			File	
		RX-7W22	M75RX7W22FH10V8	098	0%			Add File
				Upgrade				

Figure 18: [Firmware] Screen – MCU Firmware Upgrade



Remote communication parameter can be configured on [Management] page.

	Commissioning	Firmware	Management	Logout
Import&Export IP Setting Comm. Setting Maintenance Security Device Reset Device Info Isolation Dry Contacts Test Report		Dev Info: Dev Model: RX-71 Serial Num: Firmware Version: M75F Date/Time: 16:07 Site ID: 0000 Longitude: Latitude: File Import	N22 IX7W22FH10V8098 IS7 05/13/16 D000 File Export Export	t

Figure 19: [Management] Screen

End of Section

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