

# Configuração do modo 2+0 e XPIC

# Rádios OmniBAS 2Wcx (Split)



Para Boas Práticas de Instalação, outras Notas Técnicas, Firmwares desse e de outros equipamentos consultar a área de Suporte Técnico no Portal Furukawa, clicando <u>aqui.</u>

#### Compatível com:

Rádio	Firmware					
OmniBAS 2Wcx	A partir da versão					
(Split)	5.6.3_1272_R.1.1.1.build_01					

## Importante:

#### A Furukawa recomenda manter o firmware atualizado sempre na última versão disponível.

Antes de iniciar as configurações é importante ter o projeto lógico em mãos. Ele deve ser o guia para que as configurações sejam executadas de maneira planejada, rápida e eficiente. O projeto lógico bem executado garante uma administração da rede tranquila e sem conflitos futuros, maior disponibilidade e confiabilidade além de permitir ampliações e alterações sem imprevistos. O projeto lógico ainda servirá de referência futura e será um auxílio poderoso na busca e solução de problemas de performance, instabilidade ou indisponibilidade de rede.



## 1 CONEXÃO ENTRE IDU E ODU 2

**<u>OBS</u>**: A conexão entre **ODU 2** e **IDU** deve ser realizada com a alimentação da **ODU** desligada, para evitar problemas de curto no terminal e/ou queima do equipamento.

**OBS\*:** Realizar a configuração, primeiramente, no rádio remoto e na sequência no rádio local.

Após acessar o equipamento, primeiramente, clicar em *Equipment Management* no *Menu* à esquerda, e na sequência clicar em *ODU*.



Na próxima tela, selecionar primeiramente a ODU 2 no campo ODU ID.

Menu	2 Refresh Auto-refresh 10 s	c(s) 🖸 🔘 🗐	Apply 💊 Notific	ations			IP : 192.1	68.230.80 Typ	pe : OmniBAS	Configuration	🕑 Log Out
Summary	✓ Configuration										× -
System	ODU ID : 1 🗸										
Modem	Configu <sup>1</sup> 2 7666000	Tx F	Power (dBm) : 0		Tx Mute : of	п	~				
Ethernet	DC Power : on	× (	Jpdate Mode : man	ual	*	Force Update					
E1 Lines	- Thresholds										
Gecurity Management	RSSI Threshold (dBm) : -90	н	ligh Temperature Th	reshold (*C): 65		Low Tempera	ture Threshold (°C)	: 0			
Gervice Provisioning	✓ Status										×
Generation     Real-Time Graphs	ODU ID Connection Status	Bandwidth	Actual Tx Power (dBm)	Actual Tx Frequency (KHz)	Actual Rx Frequency (KHz)	Current Temperature (°C)	Pif (dBm)	Actual Mute	Update Status Change	Active ODU to	est
🗉 📁 Maintenance & Troubleshoot	1 Connected	56MHz	12.5	7666000	7512000	52.0	-2.8	off	Updated	noTest	E
🗈 📁 Alarms & Events	2 NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	
License Administration	- Alarms			7:00							
linventory	COLUD PortALC Rx PL	TX PLL MV	V PLL Loopbac	k Frequency	Tx Cfg RSSI	Rx Min Pif M	ax Pif High	Low	H/W Cable	Model Lo	w if

Posteriormente, desligar a alimentação da ODU 2 no campo DC Power, o mesmo deve ficar como off.

Menu	🤁 Refresh 🛛 Auto	p-refresh 10 sec(s	s) 🖸 🔘	notif	ications			IP : 192.1	68.230.80 Type : (	OmniBAS 🛛 🧃	Configuration	💽 Log Out
Summary	✓ Configuration											X
System	ODU ID : 2	*										
Modem	Configuration -											
📄 ODU	Tx Frequency (K)	Hz): 0		Tx Power (dBm): 0		Tx Mute : on	1	*				
Ethernet	DC Pov	ver: off	~	Update Mode : mi	anual	<b>v</b>	Force Update					
E1 Lines		on										
RF Path	ost pigs	off										
Security Management	RSSI Threshold (	ubin)50		High Temperature	Inreshold (C): 65		Low tempera	ture Threshold (°C)	0			
Service Provisioning	✓ Status											×
E Performance		Connection		Actual Ty Down	Actual Ty	Actual Ry	Current			Lindate Status		
Real-Time Graphs	ODU ID	Status	Bandwidth	(dBm)	Frequency (KHz)	Frequency (KHz)	Temperature (°C)	Pif (dBm)	Actual Mute	Change	Active ODU to	ist
Maintenance & Troubleshoot	1	Connected	56MHz	12.5	7666000	7512000	52.0	-2.8	off	Updated	noTest	E
Alarms & Events	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	
E Clicense Administration	- Alarms				Ty Cfa							
inventory		ALC RX PLL	Tx PLL	MW PLL Loopb	sck Frequency	Tx Cfg Power Out RSSI	Rx Min Pif M	ax Pif High Temperature	Low H/W	Cable Calibratio	Model Lo	wif



Após realizar as configurações acima, é necessário aplicá-las, clicando no botão Apply.

Menu	2 Refresh	Auto-refree	sh 10 sec(s		Apply (	💊 Notificat	tions				IP : 192.1	168.230.80 Ty	/pe : OmniBAS	📑 Ca	onfiguration	🕖 Log Ou
Summary  Comparison  Summary  Comparison  Summary  Summa	✓ Configur ODU ID : 2	ration		52	Apply											×
Modem	Configura	stion			~											
	Tx Frequer	ncy (KHz) : 0	)		Tx Power (dl	Bm): 0		Tx Mute	e: on		~					
E1 Lines	Threshok	3C Power : o	<i>M</i>	*	Update M	ode : manu	al	~	Force	Update				_		
RF Path     Security Management	RSSI Three	shold (dBm) :	-90		High Temp	erature Thre	eshold (*C) : 65			Low Temp	erature Threshold ("C	): 0				
Service Provisioning	✓ Status															×
Performance     GReal-Time Graphs	ODU ID	Conr Statu	nection us	Bandwidth	Actual T (dBm)	x Power A	Actual Tx Frequency (KHz)	Actual Rx Frequency (K	(Hz) Temp	ent berature (*C	) Pif (dBm)	Actual Mute	Update S Change	tatus	Active ODU	test
🗈 📁 Maintenance & Troubleshoot	1	Conn	ected	56MHz	12.5	7	666000	7512000	52.0		-2.8	off	Updated	r	oTest	=
Alarms & Events	2	NotC	onnected	7MHz	-60.0	0	)	0	0.0		0.0	off	Updated	r	oTest	
Compare Administration     Inventory	- Alarms -	Pout ALC	Rx PLL	Tx PLL	MW PLL	Loopback	Tx Cfg Frequency	Tx Cfg Power Out	RSSI Rx	Min Pif	Max Pif High	Low Temperature	H/W C Bandwidth C	able	Model L	ow if

Após desligar a alimentação da ODU 2, realizar a conexão entre IDU e ODU 2, conforme abaixo.



Após realizar as conexões físicas entre *IDU* e *ODU 2*, é necessário habilitar a alimentação da *ODU 2*. Para isso, ligar a alimentação no campo *DC Power*, o mesmo deve ficar como *on*.

Menu	🥭 Refresh 🛛 Au	to-refresh 10 sec(	s) 🚺 🔘	noti	fications			IP : 192	168.230.80	Type : OmniBAS	Configuration	😺 Log Out
Summary	✓ Configuration											X
Gequipment Management		Local Sector										
System	ODU ID : 2	~										
Modem	Configuration											
DDU 📄 ODU	Tx Frequency (F	(Hz): 0		Tx Power (dBm): 0		Tx Mute : o	n	~				
Ethernet	DC P	ower: off	~	Update Mode : m	anual	~	Force Update					
E1 Lines		on										
RF Path	Pestolos -	off			-							
E Gecurity Management	RSSI Threshold	(ubiii)90		High Temperature	Threshold (°C) : 65		Low Temper	ature Threshold ("C	): 0			
Service Provisioning	✓ Status											×
Performance		Consultan		Astural Top Descent	Asheed Too	Asheel De	Current			Undete Che		
Real-Time Graphs	ODU ID	Status	Bandwidth	(dBm)	Frequency (KHz)	Frequency (KHz)	Temperature (°C)	Pif (dBm)	Actual Mut	e Change	Active ODU	test
Maintenance & Troubleshoot	1	Connected	56MHz	12.5	7666000	7512000	52.0	-2.8	off	Updated	noTest	E
Alarms & Events	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	
License Administration	- Alarms				T							
Inventory	001110 80	RX PLL	Tx PLL	MW PLL Loopt	ack Frequency	Tx Cfg RSSI	Rx Min Pif M	lax Pif High	Low	H/W Cal	ble Model L	ow if



Após ligar a alimentação da ODU é necessário aplicá-la, clicando no botão Apply.

Menu	2 Refresh	Auto-refre	sh 10 sec(s	9 <b>0</b> ()	Apply	💊 Notificati	ons				IP : 192.	168.230.80 T	/pe : OmniBAS	Conf	iguration	🕑 Log	Out
Summary  Compared Equipment Management  System  Modem	Configur	ration 2 v ation		5	Apply		]									×	
	Tx Freque	ncy (KHz) :	0		Tx Power (d	Bm): 0		Tx M	ute : on		~						
Ethernet		DC Power :	off	~	Update M	ode : manua	al de la companya de	~	Fo	orce Update							
E1 Lines     RF Path     G Security Management	RSSI Thre	ids	: -90		High Tem;	erature Thre	shold ('C) : 65			Low Tempe	erature Threshold ('C	): 0					
Gervice Provisioning	✓ Status															×	5
C Performance     C Real-Time Graphs	ODU ID	Con Stat	nection us	Bandwidth	Actual T (dBm)	x Power A	ctual Tx requency (KHz)	Actual Rx Frequency	(KHz) Tr	Current emperature ("C	) Pif (dBm)	Actual Mute	Update St Change	atus Ac	tive ODU to	est	1
Maintenance & Troubleshoot	1	Con	nected	56MHz	12.5	76	566000	7512000	52	2.0	-2.8	off	Updated	nol	Test		Ε
Alarms & Events	2	Not	Connected	7MHz	-60.0	0		0	0.	.0	0.0	off	Updated	nol	Test		
Inventory	Alarms -	Dout ALC	Rx PLL	Tx PLL	MW PLL	Loopback	Tx Cfg Frequency	Tx Cfg	RSSI Rx	Min Pif	Max Pif High	Low	H/W Ci	able	Model Lo	ow if	1

Aguardar alguns segundos, até o LED de ODU ficar verde na IDU.

## 2 CONFIGURAÇÃO DE BW E MODULAÇÃO

<u>OBS</u>: a configuração da **ODU 2** deve ser similar à configuração da **ODU 1**. Em caso de dúvidas sobre configurações do equipamento, consultar a Nota Técnica de **Configuração básica inicial**, clicando <u>aqui</u>.

No menu principal, primeiramente, clicar em *Equipment Management* no *Menu* à esquerda, e na sequência clicar em *Modem*.

Menu	2 Refresh Auto-refresh 10 sec(s) 🤤 🔘 🗞 Notifications	IP: 10.10.10.100 Type: OmniBAS	📋 Configuration 🥹 Log Out
Summary	Y Status		X
System Modem			
Et Lines	Control Modem ODU Ethemet Et Lines		E
Gecurity Management	Legend	Severity	Absolute Raised Date and Time
Gervice Provisioning	[Control card] Clock status switched to freerun	minor	1971-1-5,21:39:14.0
C Performance     C Real-Time Graphs			
Maintenance & Troubleshoot			
E G Alarms & Events			
<ul> <li>License Administration</li> <li>Inventory</li> </ul>			×

Na próxima tela, selecionar a ODU 2 para ser configurada, através do campo Modem ID.

Menu	🧟 Rofresh   Auto-refresh 10 sec(s) 🚯 🕗 🖓 Apply 🗞 Notifications   IP: 192.168.230.80 Type : OmniBAS   📳 Configuration 👔	🕖 Log Out
Summary	Y Confouration	52 4
Equipment Management		~ ~
System	Modem ID : 1 💌	
Modem	Capabilities	
DU ODU	Bachioff and a construction of the constructio	
Ethernet	Bandwidth : 56MHz v Profile : OptSysGain v Modern Name : Rx Spectral Inversion : disable v	
E1 Lines	- ACM/ATPC -	
RF Path	Adaptive Morie - v-	E
Security Management		
Service Provisioning	Manual Phymode : W Max Auto Phymode : V	
Performance	Min Tx Power (dBm) : Max Tx Power (dBm) :	
Real-Time Graphs	Thresholds & Traps Admin	
Maintenance & Troubleshoot	SNR Threshold (dB): 0 LDPC Threshold : 1.0E0 Rx Phymode Change Trap : off 💌 Tx Phymode Change Trap : off	
Alarms & Events		
License Administration	MAC reader suppression	
Inventory	Admin Status : disable 👻 Suppression Aging (sec.) : 60 Suppression Robustness : on 💌	



Na sequência, configurar primeiramente a largura de banda em *Bandwidth*, conforme definido em projeto.

Menu	🧟 Refresh   Auto-refresh 10 sec(s) 🚯 🕥 🚽 Apply 💊 Notifications   IP : 10.10.10.100 Type : OmniBAS   📳 Configuration 😝 Log Out
Summary	✓ Configuration 52 🖉
Equipment Management	
System	Modem ID: 2 ×
Modem	Capabilities
	Bandwidt/Profile
Ethernet	Bandwidth : 7MHz v Profile : OptSysGain v Modem Name : Rx Spectral Inversion : disable v
📄 E1 Lines 🖊	
RF Path	Advant/2
E Security Management	S6MHz
Service Provisioning	Manual P 40MHz Min Auto Phymode : 4QAM M Max Auto Phymode : 4QAM V
Performance	Max Tx Power (dBm): N/A
Real-Time Graphs	Thresholds & Traps Admin -
Maintenance & Troubleshoot	SNR Threshold (dB): 0 LDPC Threshold : 1.0E0 Rx Phymode Change Trap : off X Tx Phymode Change Trap : off
Alarms & Events	
License Administration	MAC Header Suppression
linventory	Admin Status : disable 💌 Suppression Aging (sec) : 60 Suppression Robustness : on 💌

## Posteriormente, é necessário configurar o tipo de modulação em ACM/ATPC.

Menu	a Refresh Auto-refresh 10 sec(s) 😜 🔄 🚽 Apply 💊 Notifications IP	10.10.10.100 Type : OmniBAS   🗍 Configuration 🥥 Log Out
Summary  Comparison of the second se	Configuration	XP
System Modem	Capabilities	
ODU  Ethernet	Bandwidth Profile Bandwidth : 56MHz w Profile : OptSysGain w Modern Name : Rx Spectral Inversion : disable w	
E1 Lines	ACM/ATPC	
Gecurity Management     Gervice Provisioning	Manual Phymode : 4QAM Max Auto Phymode : 4QAM Max Auto Phymode : 4QAM	×
G Performance     G Real-Time Graphs	Min Tx Power (dBm): ACM ON/Optimum Power ACM ON/Max SNR	
Maintenance & Troubleshoot	SNR Threshold (dB): 0 LDPC Threshold : 1.0E0 Rx Phymode Change Trap : off v Tx Phymode Cha	nge Trap : off 🛛 👻
Conse Administration     Inventory	MAC Header Suppression	

Como exemplo, será utilizada a modulação ACM ON/Optimum Power com Min Auto PHY Mode de 4 QAM e Max Auto PHY Mode de 4096 QAM.

Menu	ar Refresh   Auto-refresh 10 sec(s) 🔕 🕗   🔞 Apply 💊 Notifications	IP : 10.10.10.100 Type : OmniBAS   🗐 Configuration 😺 Log Out
Summary C Quipment Management System Modem	Configuration Modem ID: 2      Protect (IN Profile	××
	Bandwidth: 56MHz v Profie: OptSysGain v Modem Name : Rx Spectral Inversion : disable ACMATPC Adaptive Mode : ACM ON/Optimum Power v Manual Phymode : 4QAM Min Auto Phymode : 4QAM Min Auto Phymode : 4QAM Min Xx Power (dBm) : NIA Min Xx Power (dBm) : NIA Thresholds & Traps Admin SNR Threshold (dB) : 0 LDPC Thres old : 10E0 Rx Phymode Change Trap : off v 16QAM Admin Status : disable v Suppression v c 10 Suppression Robustness : on v SPIC XPIC Mode : disable v Line Protection LDPC Threshold v d06QAM	



Após realizar as configurações acima, é necessário aplicá-las, clicando no botão *Apply*. Isso deve ser feito em todas as telas, quando uma configuração é alterada.

Menu	2 Refresh   Auto-refresh 10 sec(s) 2 Notifications  P: 10.10.10.100 Type : OmniBAS   👔 Configuration 😡 Log	Out
<ul> <li>Summary</li> <li>Support Management</li> </ul>	Configuration	
System	Alcorem u: 2 M Capabilities	
ODU Ethernet	Bandwidth : 56MHz v Profile : OptSysGain v Modern Name : Rx Spectral Inversion : disable v	
E1 Lines	ACM/ATPC	=
Gecurity Management     Gecurity Management     Gecurity Management	Manual Phymode : 404AM V Max Auto Phymode : 4060AM V	

# 3 CONFIGURAÇÃO DE CANALIZAÇÃO E POTÊNCIA

Na sequência, clicar em ODU no Menu à esquerda.

Menu	2 Refresh Aut	to-refresh 10 sec(s	) 🖸 🔘	n Apply 💊 No	otifications			IP : 10	10.10.100 T	ype : OmniBAS	Configuration	🕑 Log Out
<ul> <li>Summary</li> <li>Ø Equipment Management</li> </ul>	✓ Configuration											×
System	ODU ID : 1	~										
Modem	Configuration											
	Tx Frequency (R	(Hz): 0		Tx Power (dBm) :	0	Tx Mute : or	n	~				
Ethernet	DC Po	wer: off	~	Update Mode :	manual	~	Force Update					
E1 Lines	- Thresholds -											
RF Path	RSSI Threshold	(dBm): .90		High Temperatur	re Threshold (*C) : 65		Low Temper	ature Threshold ('C)	: 0			
Security Management		(00000) - 000										
Service Provisioning	✓ Status											$\sim$
Graphs	ODU ID	Connection Status	Bandwidth	Actual Tx Pow (dBm)	Frequency (KHz	Actual Rx Frequency (KHz)	Current Temperature (*C)	Pif (dBm)	Actual Mute	Update Stat Change	Active ODU	test
Maintenance & Troubleshoot	1	NotConnected	56MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	E
Alarms & Events	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	
<ul> <li>Clicense Administration</li> </ul>	Alarms				Ty Cfn							
Inventory	ODU ID Po	ALC RX PLL	Tx PLL	MW PLL Loop	pback Frequency	Tx Cfg Power Out RSSI	Rx Min Pif M	ax Pif High Temperature	Low	H/W Cab Bandwidth Cal	bration Model L	ow if

Na nova tela, selecionar a ODU 2 para ser configurada, através do campo ODU ID.

Menu	Sefresh Au	to-refresh 10 sec	(\$) 🚺 🔘	🗐 Apply 💊 Notifi	ations			IP : 192.	168.230.80 Type :	OmniBAS	Configuration	🕖 Log Out
Summary	✓ Configuration											× 1
😑 🥩 Equipment Management		1										
System	ODU ID : 2	~										
Modem	Configuration											
DOU DOU	Tx Frequency (	KHz): 0		Tx Power (dBm): 0		Tx Mute : o	n	~				
Ethernet	DC P	ower: on	~	Update Mode : ma	nual	~	Force Update					
E1 Lines	Thresholds											
RF Path	- Inresholds -											
E Gecurity Management	RSSI Threshold	1 (dBm) : -90		High Temperature T	hreshold (°C) : 65		Low Tempera	ture Threshold (°C	): 0			
Service Provisioning	✓ Status											×
Performance		<b>A</b>			1.1.1.1.1.1.	1.1.1.1	Current					~
📁 Real-Time Graphs	ODU ID	Status	Bandwidth	(dBm)	Frequency (KHz)	Frequency (KHz)	Temperature (°C)	Pif (dBm)	Actual Mute	Change	Active ODU to	est
🗉 📁 Maintenance & Troubleshoot	1	Connected	56MHz	12.5	7666000	7512000	52.0	-2.9	off	Updated	noTest	E
📁 Alarms & Events	2	Connected	56MHz	-60.0	7666000	7512000	31.0	-1.8	on	NeedUpdate	noTest	
E Clicense Administration	- Alarms											
Inventory		Rx PLL	Tx PLL	MW PLL Loopba	ck Frequency	Tx Cfg RSSI	Rx Min Pif Mi	ax Pif High	Low H/M	Cable	Model Lo	wit

Ao final dessa janela, é possível verificar a faixa de frequência de operação do equipamento, através dos valores mínimos e máximos em *Minimum Tx Frequency (KHz)* e *Maximum Tx Frequency (KHz)*. A informação é exibida apenas quando o *DC Power* esta em *On*.

V Capabilitie	95				-			X
ODU ID	Minimum Tx Power (dBm)	Maximum Tx Power (dBm)	Minimum Tx Frequency (KHz)	Maximum Tx Frequency (KHz)	Tx Frequency Step (KHz)	Band	Active Duplex Spacing (KHz)	
2	0.0	31.0	7512000	7512000	250	Low	154000	



Na sequência, configurar a frequência de Tx do canal em *Tx Frequency (KHz)*, conforme definido em projeto.

<u>OBS:</u> Se o sistema 2+0 não for utilizado com XPIC, o canal configurado na **ODU 2** deve ser diferente da **ODU 1**. Caso o sistema seja utilizado com XPIC, o canal configurado na **ODU 2** deve ser o mesmo da **ODU 1**.

Menu	🤁 Refresh 🛛 Au	to-refresh 10 sec	s) 🚺 🔘 📢	引 Apply 💊 Notifi	ations			IP : 10	.10.10.100 Ty	ype : OmniBAS	Configuration	🕑 Log Out
Summary												× 3 ×
😑 🧔 Equipment Management	ODU ID : 2	*										
System	- Configuration											
Modem	Tx Frequency (	KHz): 7666000	1	Tx Power (dBm) : 0		Tx Mute :	on	*				
📄 ODU	DCP	ower: on	~	Update Mode : ma	oual	~	Force Update					
Ethernet				-,		parts.	(******					
E1 Lines	Thresholds -			_								
RF Path	RSSI Threshold	(dBm): -90		High Temperature T	'hreshold (°C): 65		Low Temper	ature Threshold (*C	): 0			
<ul> <li>Security Management</li> </ul>												
<ul> <li>Service Provisioning</li> </ul>	✓ Status											25
Performance	ODU ID	Connection Status	Bandwidth	Actual Tx Power (dBm)	Actual Tx Frequency (KHz)	Actual Rx Frequency (KHz	) Current Temperature (*C)	Pif (dBm)	Actual Mute	Update Statur Change	Active ODU te	st
Real-Time Graphs	: 1	Connected	56MHz	-60.0	7666000	7512000	41.0	-2.2	on	Updated	noTest	
Gaintenance & Troubleshoot	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	E
Alarms & Events												- 1

**<u>OBS</u>**: A frequência deve ser inserida manualmente, com o valor definido para cada canal, para isso, consultar a tabela com as frequências, canalizações, largura de banda e sub-bandas definidas para o rádio, clicando <u>aqui</u>.

Na sequência, configurar a potência de Tx em *Tx Power (dBm)*, <u>somente se a mesma foi</u> <u>configurada anteriormente como manual</u>, caso contrário, deixar o campo como 0.

Menu	Sefresh Aut	o-refresh 10 sec(s	) 🖸 🔘	🚮 Apply 💊 Notifi	ations			IP : 10	.10.10.100 Type :	OmniBAS	Configuration	😈 Log Out
Summary  Given the second sec	✓ Configuration											× ^
System	ODU ID : 2 Configuration	*										
	Tx Frequency (K	0(Hz): 0	- SA	Tx Power (dBm): 0		Tx Mute :	on	~				- 1
Ethernet	DC Po	wer: off	*	Update Mode : ma	nual	~	Force Update					
E1 Lines	- Thresholds -											
RF Path     Security Management	RSSI Threshold	(dBm) : -90		High Temperature T	hreshold (*C) : 65		Low Temper	rature Threshold ('C	): 0			
Service Provisioning	✓ Status											×
Performance     Geal-Time Graphs	ODU ID	Connection Status	Bandwidth	Actual Tx Power (dBm)	Actual Tx Frequency (KHz)	Actual Rx Frequency (KHz	Current ) Temperature (°C)	Pif (dBm)	Actual Mute	Update Status Change	Active ODU t	est
Maintenance & Troubleshoot	1	NotConnected	56MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	1
Alarms & Events	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	_
Compare Administration     Inventory	Alarms	Rx PLL	Tx PLL	MW PLL Loopbs	Tx Cfg ck Frequency	Tx Cfg RS	SI Rx Min Pif N	fax Pif High	Low H/V	V Cable	Model L	ow if

Posteriormente, habilitar a transmissão do rádio em *Tx Mute*, para isso o campo deve ficar como *off*.

Menu	🤓 Refresh 🛛 Au	to-refresh 10 sec(s	I 🔾 😋 📢	🔞 Apply 💊 Notifi	cations			IP : 10	.10.10.100	Type : OmniBAS	Configuration	🕖 Log Out
<ul> <li>Summary</li> <li>Ø Equipment Management</li> </ul>	✓ Configuration											×
System	ODU ID : 2	*										
Modem     ODU	Tx Frequency (	(Hz): 0		Tx Power (dBm): 0	_	Tx Mute : or	n	~				
Ethernet	DC P	ower: off	~	Update Mode : ma	nual		n ff					
RF Path	- Thresholds -										]	
Gecurity Management	RSSI Threshold	(dBm) : -90		High Temperature	Threshold (°C) : 65		Low Temper	ature Threshold (*C	): 0			
Gervice Provisioning     Gerdormance	✓ Status											×
Graphs	ODU ID	Connection Status	Bandwidth	Actual Tx Power (dBm)	Actual Tx Frequency (KHz)	Actual Rx Frequency (KHz)	Current Temperature (°C)	Pif (dBm)	Actual Mute	e Update Str Change	Active ODU	test
Maintenance & Troubleshoot	1	NotConnected	56MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	1
Alarms & Events	2	NotConnected	7MHz	-60.0	0	0	0.0	0.0	off	Updated	noTest	
Conse Administration     Inventory	Alarms	RX PLL	Tx PLL	MW PLL Loopbe	Tx Cfg sck Frequency	Tx Cfg RSSI	Rx Min Pif M	tax Pif High	Low	H/W Ca	ble Model L	ow if



Após realizar as configurações acima, é necessário aplicá-las, clicando no botão Apply.

Menu	2 Refresh Au	to-refresh 10 sec(		Apply	Notificatio	ons					IP : 10.1	10.10.100 T	ype : OmniBA	s   🏢 c	onfiguration	🕑 Log	Out
Summary			5/	A	oply											× 1	•
🖃 🧐 Equipment Management	ODU ID : 2	~															
System	- Configuration																
Modem	Tx Frequency (	KHz): 7666000		Tx Power (dB	m): 0		Tx Mu	ite : off		~							
📄 ODU	DCP	ower: on	~	Update Mo	de : manual		~	Force	Undate								
Ethernet			100				1000										
E1 Lines	Thresholds -																
RF Path	RSSI Threshold	(dBm): -90		High Temps	erature Three	shold (*C) : 65			Low Tempe	arature Thre	eshold (*C)	: 0		_			
Security Management	N. Carbon													_		5.	
Service Provisioning	✓ Status															~	91
Performance	ODU ID	Connection Status	Bandwidth	Actual Tx (dBm)	Power Ac	ctual Tx requency (KHz)	Actual Rx Frequency	(KHz) Temp	ent perature (*C	Pif (dBn	n)	Actual Mute	Update Change	Status	Active ODU	test	
Real-Time Graphs	1	Connected	56MHz	-60.0	76	66000	7512000	41.0		-2.2		on	Update	d	noTest		1
Maintenance & Troubleshoot	2	NotConnected	7MHz	-60.0	0		0	0.0		0.0		off	Update	d	noTest		
Alarms & Events	- Alarma																11
Conse Administration     Inventory	ODU ID Po	out ALC Rx PLL Locked	Tx PLL Locked	MW PLL Locked	Loopback PLL Locked	Tx Cfg Frequency d Out of	Tx Cfg Power Out of Range	RSSI Rx User Alarm	Min Pif Alarm	Max Pif Te Alarm Al	gh mperature arm	Low Temperature Alarm	H/W Bandwidth Alarm	Cable Calibration Alarm	Model Alarm	Low if Alarm	

## 4 CONFIGURAÇÃO DE RLA

Posteriormente, clicar em *Service Provisioning* no *Menu* à esquerda, e na sequência clicar em *RLA*.

Menu	2 Refresh Auto-refresh 10 sec(	s) 🚺 🔛 💊 Notification	3		IP : 192.168.230.79 Type : OmniBAS	6 🗐 Configuration 🥘 Log Out
Summary	Configuration / Status					
Equipment Management						
Gecurity Management	RLA Group	Name	Admin Status	Modem Members	Admin Modem L2 Port	Oper Status
🖃 🥼 Service Provisioning <	1		enabled	1,2	modem1	up
Bridge						
FDB						
🗉 📁 Traffic Management						
STP						
CFM OAM						
EFM OAM						
Synchronization						
LAG						
G.8032 Ring Protection						
Pseudowires						
LLDP						

Na nova tela, clicar duas vezes sobre o número **1** no campo **Configuration / Status** para habilitar a edição. O campo **Admin Status** deve ficar como **enabled**.

Menu		Refresh Auto-refresh 10 sec	(s) 🚺 🔵 💊 Notifications				IP : 192.168.230.79 Type : OmniB	AS 🛛 📑 Configuration 🥘 Lo	og Out
Summary		Configuration / Status							
Couplinent management     Security Management	N	RLA Group	Name	Admin Status		Modem Members	Admin Modem L2 Port	Oper Status	
🖃 🅼 Service Provisioning	И	1		disabled	~	1,2	modem1	up	
Bridge				disabled					
FDB				enabled					<b>_</b>

Após alterar o campo *Admin Status* para *enabled*, apertar *enter* no teclado para finalizar a edição, uma mensagem de confirmação é exibida, clicar em **Yes**.

Question	×
Modified values will be downloaded. Proceed?	
Yes No	



Após realizar as configurações acima, a comunicação irá cair para reconfiguração do link.

Aguardar a comunicação do enlace voltar para salvar as configurações, para isso, consultar o item <u>6 SALVANDO AS CONFIGURAÇÕES</u>.

OBS: Toda a configuração acima deve ser refeita para o rádio mestre.

<u>OBS\*:</u> Se o sistema 2+0 não utilizar o XPIC, pular o item <u>5 CONFIGURAÇÃO DO XPIC</u> e ir direto para o item <u>7 VERIFICAÇÃO DO STATUS DO ENLACE</u>.

OBS\*\*: Caso o sistema 2+0 utilize o XPIC, realizar o item 5 CONFIGURAÇÃO DO XPIC.

## 5 CONFIGURAÇÃO DO XPIC

OBS: O XPIC permite utilizar o mesmo canal para as duas polarizações do sistema 2+0.

**<u>OBS\*</u>**: Realizar a configuração, primeiramente, no rádio remoto e na sequência no rádio local.

Para isso, clicar em *Equipment Management* no *Menu* à esquerda, e na sequência clicar em *Modem*.



Na próxima tela, iniciar a configuração pela *ODU 2*, para isso, selecionar a mesma através do campo *Modem ID*.

Menu	🧬 Refresh Auto-refresh 10 sec(s) 🚱 🕢 🗐 Apply 🗞 Notifications	IP: 192.168.230.80 Type: OmniBAS   📑 Configuration 🥹 Lo	g Out
Summary	✓ Configuration	>	< -
E 💋 Equipment Management			-
System	Modem ID : 1 m		
📄 Modem	1 Capabilities		
DU ODU	Radduidt anna anna		
Ethernet	Bandwidth : 56MHz 👻 Profile : OptSysGain 👻 Modern Name : Rx Spectral Inversion : disable	~	
E1 Lines	- ACM/ATPC		
RF Path	Adaptive Mode		Е
E Gecurity Management			
E Service Provisioning	Manual Phymode : v Min Auto Phymode : v Max Auto Phymode :	*	
Performance	Min Tx Power (dBm) : Max Tx Power (dBm) :		
Real-Time Graphs	- Thresholds & Traps Admin		
<ul> <li>Maintenance &amp; Troubleshoot</li> </ul>	SNR Threshold (dB): 0 LDPC Threshold : 1.0E0 Rx Phymode Change Trap : off 💌 Tx Phymode	e Change Trap : off	
🗉 💋 Alarms & Events			
E Clicense Administration	MAC Header Suppression		
linventory	Admin Status : disable 👻 Suppression Aging (sec) : 60 Suppression Robustness : on 👻		



Na sequência, habilitar o XPIC no campo XPIC Mode, o mesmo deve ficar como enable.

Menu	a Refresh Auto-refresh 10 sec(s) 😜 🕗 🗐 Apply 💊 Notifications	IP : 192.168.230.79 Type : OmniBAS	Configuration	🕑 Log Out
Summary Control Equipment Management System	Configuration     Modern ID : 2      v			X
Modem OU Ethernet Et Lines RF Path SScurity Management GScurity Management GScurice Provisioning CPerformance GR Performance GR Assummers & Trobleshoot GR Alarms & Events GS License Administration Inventory	Capabilities     A Capabilities     Bandwidth/Profile     Bandwidth/Profile     Bandwidth/Stoffer     Adaptive Mode : ACM CNUOptimum Power     Manual Phymode : 40AM     Max Auto Phymode : 40AM     Max Auto Phymode : 40BeQAA     Min Tx Power (BBm): 12.0     Max Tx Power (BBm): 13.0     Thresholds & Traps Admin     SNR Threshold (dB): 0     LDPC Threshold : 1.0E0     Rx Phymode Change Trap: off     w Tx Phymo     MAC Header Suppression     Admin Status : disable     Suppression Aging (sec): 60     Suppression Robustness : on     w     XPIC Mode : disable     w	de Change Trap : Off		E.
~~	Line Protec disable			×

Posteriormente, selecionar a **ODU 1** para configuração, para isso, selecionar a mesma através do campo **Modem ID**.



Na sequência, habilitar o XPIC no campo XPIC Mode, o mesmo deve ficar como enable.

Menu	😂 Rofresh   Auto-refresh 10 sec(s) 😳 🕞 🕥 Apply 🗞 Notifications   IP : 192.168.230.79 Type : OmniBAS   🧃 Configuration	1 🔘 Log Out
Menu Summary Equipment Management System Modem OU Ethernet Ethernet FLines RF Path Security Management Security Management Security Management Performance Performance RF Path	Retresh Auto-refresh 10 sec(s)     Notifications      Pontice:     Pontice:	E Cog Out
Alarms & Events  Alarms & Events  Clicense Administration  Inventory	AMAC Header Suppression     V     LOPO Internal.     LOPO Internal.     LOPO Internal.     V       MAC Header Suppression     V     Suppression Robustness : on v       XPIC     v       VIC Mode : disable v       v       Line Protect disable	×



Após realizar as configurações acima, é necessário aplicá-las, clicando no botão Apply.

Menu	😂 Refresh   Auto-refresh 10 sec(s) 😜 🔍 國 Apply 📎 Notifications	IP : 192.168.230.79 Type : OmniBAS 🛛 📳 Configuration 🥹	Log Out
<ul> <li>Summary</li> <li>Ø Equipment Management</li> </ul>	Configuration Apply		× -
System	Modem ID : 1		
Modem		∧ Capabilities	
DDU	Bandwidth/Profile		
Ethernet	Bandwidth : 56MHz v Profile : OptSysGain v Modem Name :	Rx Spectral Inversion : disable 🗸	
E1 Lines			
RF Path	Adaptive Mode : ACM ON/Optimum Power		E
🗈 📁 Security Management			
E Gervice Provisioning	Manual Phymode : 4QAM Min Auto Phymode : 4QAM	Max Auto Priymode : 40960AM	

Após aplicar as configurações acima, é necessário salvá-las, para isso, consultar o item <u>6</u> <u>SALVANDO AS CONFIGURAÇÕES</u>.

OBS: Toda a configuração acima deve ser refeita para o rádio mestre.

## 6 SALVANDO AS CONFIGURAÇÕES

Clicar em *Maintenance & Troubleshoot* no *Menu* à esquerda, e na sequência clicar em *Maintenance*. Na nova tela, clicar em *Save* no campo *Save Configuration*.

<u>OBS</u>: Se as configurações forem aplicadas e não forem salvas, caso o equipamento for desligado ou reinicado, ao reinicializar <u>ele voltará com a última configuração salva, e não com as configurações aplicadas</u>.

Menu	Notifications	IP : 192.168.230.79
Summary	✓ Configuration Operations	
Equipment Management	- Save Configuration	- Restore Default Configuration
		Postoro Dofault u
E Convice Provisioning	Save	Nestore Deladit V
E C Performance	Backup Configuration	Export Text Configuration
Graphs	Backup	Export
🖃 🅼 Maintenance & Troubleshoot		Export
Maintenance	Restore Configuration Backup	Import Text Configuration
Troubleshoot	Backup : Browse No file selected.	Text : Browse No file selected
Alarms & Events		
License Administration	Apply Exclude Persistent	Apply
Inventory		

## 7 VERIFICAÇÃO DO STATUS DO ENLACE

Após realizar todas as configurações, é possível verificar o status do enlace em duas telas. Para isso, clicar em *Summary* no *Menu* à esquerda.

Menu	4	Refresh A	Auto-refresh 1	D sec(s) 🜔	🔘 💊 м	otifications					IP :	192.168.230.79	Type : OmniBa	AS   🧊 Co	onfiguration	🕘 Log
Summary		gbe2		e	lectrical	down	N//	A	N/A	enat	oled	N/A	N/A		N/A	
🗉 📁 Equipment Management		gbe3		e	lectrical	down	N//	A	N/A	enat	led	N/A	N/A		N/A	
🗉 📁 Security Management		gbe4		e	lectrical	down	N//	A	N/A	enat	led	N/A	N/A		N/A	
E Gervice Provisioning		gbe5		5	FP	down	N//	Ą	N/A	enab	oled	non-existent	true		false	
Performance		gbe6		5	FP	down	N//	A	N/A	enab	oled	non-existent	true	1	false	
🗉 📁 Real-Time Graphs										1-	-				_	_
🗉 📁 Maintenance & Troubleshoot		Modem ID 🔺	Bandwidth	Profile	Adaptive	MAC Header	XPIC Mode	Current Rx	Current Tx Rhymode	Rx Frequency	Tx Frequency	Tx Power	Link Status	Remote Ip	Line Protect	tion 🛓
🗉 📫 Alarms & Events	41		(10112)		WOOD	Suppression		Filyinouo	Filymous	(kHz)	(kHz)	(upiny		Audi	otatus	
License Administration	1	1	56MHz	OptSysGain	autooptimum	disable	enable	4096QAM	4096QAM	7666000	7512000	13.2	Locked	192.168.23	none	
		2	56MHz	OptSysGain	autooptimum	disable	enable	4096QAM	4096QAM	7666000	7512000	9.3	Locked	192.168.23	none	

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Na sequência, clicar em *Modem* no *Menu* à esquerda, nesta tela existem mais algumas informações, como a taxa máxima disponível no enlace, nível, etc.

✓ Status	/ Status												1
Modem ID 🔺	Current Rx Phymode	Current Tx Phymode	RSSI (dBm)	SNR (dB)	Tx Symbol Rate (bps)	LDPC Stress	Uncorrected Blocks	Tx Air Capacity (Mbps)	Rx Air Capacity (Mbps)	XPD (dB)	Temperature (℃)	î	
1	4096QAM	4096QAM	-47.0	40.9	52000000	1.33E-3	2151	546.71	546.71	>40	61.0	$\langle -$	
2	4096QAM	4096QAM	-42.0	40.9	52000000	1.43E-3	3478	546.71	546.71	>40	61.0		