Everon[™] 6000 G2 v1.0

User Manual

CORNING



Everon[™] 6000 G2 v1.0

User Manual

Warranties

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If Customer invokes this Hardware Warranty, it shall notify Corning promptly of the claimed defect. Customer will allow Corning to inspect the Hardware at Customer's location, or to return the Hardware to Corning's closest repair facility. For Hardware returned to Corning's repair facility, Customer shall be responsible for payment of all transportation and freight costs (including insurance) to Corning's repair facility, and Corning shall be responsible for all transportation and freight costs (including insurance) incurred in connection with the shipment of such Hardware to other repair facilities of Corning and/or its return to Customer.

Notwithstanding the foregoing, in no event will Corning be liable for damage to Products resulting from improper

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Corning does not warrant any hardware, software or services not provided by Corning.

This warranty is the only warranty made by corning and is in lieu of all other warranties, express or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Corning shall not be liable for any other damage including, but not limited to, indirect, special or consequential damages arising out of or in connection with furnishing of goods, parts and service hereunder, or the performance, use of, or inability to use the goods, parts and service. Corning sales

agents or representatives are not authorized to make commitments on warranty returns.

Returns

above warranty, the following procedure shall be followed:

1. Return authorization is to be received from Corning prior to returning any unit. Advise Corning of the model, serial number, and discrepancy. The unit may then be forwarded to Corning, transportation prepaid. Devices returned collect or without authorization may not be accepted.

2. Prior to repair, Corning will advise the customer of our test results and any charges for repairing customer-caused problems or out-of-warranty conditions etc.

3. Repaired products are warranted for the balance of the original warranty period, or at least 90 days from date of shipment.

Limitations of Liabilities

Corning's liability on any claim, of any kind, including

negligence for any loss or damage arising from, connected with, or resulting from the purchase order, contract, quotation, or from the performance or breach thereof, or from the design, manufacture, sale, delivery, installation, inspection, operation or use of any device covered by or furnished under this contact, shall in no case exceed the purchase price of the device which gives rise to the claim.

Except as expressly provided herein, Corning makes no warranty, expressed or implied, with respect to any goods, parts and services provided in connection with this agreement including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Corning shall not be liable for any other damage including, but not limited to, indirect, special or consequential damages arising out of or in connection with furnishing of goods, parts and service hereunder, or the performance, use of, or inability to use the goods, parts and service.

Reporting Defects

The units were inspected before shipment and found to be free of mechanical and electrical defects. Examine the units for any damage that may have been caused in transit. If damage is discovered, file a claim with the freight carrier immediately. Notify Corning as soon as possible in writing.

Note: Keep all packing material until you have completed the inspection.

Warnings and Admonishments

There may be situations, particularly for workplace environments near high-powered RF sources, where recommended limits for safe exposure of human beings to RF energy could be exceeded. In such cases, restrictive measures or actions may be necessary to ensure the safe use of RF energy.

The device has been designed and constructed to prevent, as far as reasonably, practicable danger. Any work activity on or near device involving installation, operation or maintenance must be, as far as reasonably, free from danger.

Where there is a risk of damage to electrical systems involving adverse weather, extreme temperatures, wet, corrosive or dirty conditions, flammable or explosive atmospheres, the system must be suitably installed to prevent danger.

Device provided for the purpose of protecting individuals from electrical risk must be suitable for the purpose and properly maintained and used. This covers a range of activities including lifting, lowering, pushing, pulling, carrying, moving, holding or restraining an object, animal or person from the equipment. It also covers activities that require the use of force or effort, such as pulling a lever, or operating power tools.

Where some of the abovementioned activities are required, the device must be handled with care to avoid being damaged.

Observe standard precautions for handling ESD-sensitive devices. Assume that all solid-state electronic devices are ESD-sensitive. Ensure the use of a grounded wrist strap or equivalent while working with ESD-sensitive devices. Transport, store, and handle ESD-sensitive devices in static-safe environments.

WARNINGS!

According to the device type:

- For DLRU-678, dHRU-dHPAM-7, dHRU-dHPAM-85:
- WARNING: THIS IS A 90.219 CLASS B DEVICE. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC License to operate this device. You MUST register Part 90 Class B signal booster (as defined in 47 CFR 90.219) online at www.fcc.gov/signalboosters/registration. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of

\$100,000 for each continuing violation.

- For DLRU-G2-17192325, DLRU-G2-25, DLRU-G2-35, dHRU-dHPAM-6, dHRU-dHPAM-17, dHRU-dHPAM-19, dHRUdHPAM-23, dHRU-dHPAM-25, DMRU-G2-678, DMRU-G2-1719, DMRU-G2-2325, DMRU-G2-25, DMRU-35:
- WARNING: This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC License to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.

For all devices:

Warning info: Preclude indications that the device supports home/personal use

For dMRU and dHRU:

- For pluggable equipment, the electrical outlet shall be easily accessible.
- The product shall have connection of the device protective earthing conductor to the installation protective earthing conductor (for example, by means of a power cord connected to an electrical outlet with earthing connection).

RF Safety

To comply with FCC RF exposure compliance requirement, adhere to the following warnings:

Warning! Antennas used for this product must be fixed mounted on indoor permanent structures, providing a separation distance of at least 80 and above cm from all persons during normal operation.

Warning! Each individual antenna used for this transmitter must be installed to provide a minimum separation distance of 50 cm or more from all persons and must not be co-located with any other antenna for meeting RF exposure requirements.

Warning! Antenna gain should not exceed 10 dBm.

Warning! The design of the antenna installation needs to be implemented in such a way so as to ensure RF radiation safety levels and non-environmental pollution during operation.

Compliance with RF Safety Requirements:

CAUTION! Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Power Requirements for DC Inputs

Warning! Only use a special DC supply cable with connector

Warning! Always keep DC IN connectors connected during the product operation

Warning! Disconnect all power from the device by means of an external circuit breaker before connecting or disconnecting the DC IN connectors.

RF Parameters

Frequency Range Name	Uplink	Downlink
600-band 71	663-698 MHz	617-652 MHz
700L (Lower Band)- band 12	698-716 MHz	728-746 MHz
700U (Upper Band)-band 13	776-787 MHz	746-757 MHz
FirstNet (700)-band 14	788-798 MHz	758-768 MHz
800/850 -band 26	817-849 MHz	862-894 MHz
1900 (PCS)-band 25	1850-1915 MHz	1930-2020 MHz
EAWS-band 66	1695-1780 MHz	2110-2200 MHz
WCS-band 30	2305-2315 MHz	2350-2360 MHz
2500-band 41	2496-2690 MHz (TDD)	
3500-band 77	3450-3980 MHz (TDD)	

Revision History

Revision	Date	Created by	Reviewed by	Changes
0.1	Sep 2022			First issue

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1. Introduction

Corning Everon[™] 6000 G2 is an advanced cellular service solution for small, medium, and large size venues, supporting a broad range of cellular generations, including 3G, 4G and 5G.

Corning Everon[™] 6000 G2 is based on venues, advanced digital transport and processing, and channelized implementation, enabling efficient utilization of digital links. It is designed to support multi-band, multi-technology, and multi-operator networks through the single fiber-based infrastructure.

Corning Everon[™] 6000 G2 is a high bandwidth distribution architecture that provides preparedness for future radio technologies, broader spectrum, and new frequency bands. Due to its modular design and configuration flexibility, this solution is highly scalable in terms of supported capacity (number of sectors, frequency bands, channels) and remote units (coverage), and can be easily configured to support a large variety of deployment scenarios including single and multi-building ("campus") network topologies.

This solution offers multiple types of digital remote units, supporting a variety of frequency band combinations, with different power levels ranging from 20 dBm per band to 46 dBm per band. Advanced network configuration and management capabilities enable on-site and remote end-to-end configuration, system diagnostics, maintenance, and support network operations center (NOC) connectivity.

1.1 Key Features and Capabilities

- Comprehensive service Support 600 MHz, 700 MHz, FirstNet, 800/850 MHz, 1900 MHz (PCS), 2100 MHz (EAWS), 2300 MHz (WCS), 2500 MHz (TDD), 3500 MHz (TDD). Supports MIMO services, FDD and TDD. Supports 3G, 4G, and 5G technologies.
- Multi-X system Supports multi-operator, multi-band, multi-technology services through a single infrastructure. Supports single and multi-building ("campus") network solutions.
- Highly modular/ Highly scalable Can be easily expanded to support additional capacity: sectors, frequency bands, channels, and coverage areas, by increasing the number of remotes.
- Advanced Digital Signal Processing Provides higher dynamic range, enables per-channel granularity, delivers enhanced overall power efficiency, and improves overall system performance.
- Digital CPRI based Transport Provides robust signal distribution with flexible scalability.
- Digital Service and capacity routing Enables advanced capacity and coverage management through flexible routing configuration management.
- Carrier-grade network management Network configuration and management capabilities enable on-site and remote end-to-end configuration, system diagnostics, maintenance, support management and control by network management system.

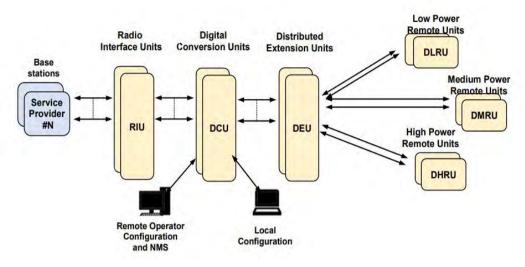
1.2 Terminology, Acronyms, and Abbreviations

Table 1 Abbreviations

Abbreviation	Full Name
RIU	Radio Interface Unit
DCU	Digital Conversion Unit
DEU	Distributed Extension Unit
DLRU	Digital low Power Remote Unit
DMRU	Digital Medium power Remote Unit
DHRU	Digital High-power Remote Unit
NOC	Network Operation Center
SMV	Small Medium Venues
CPRI	Common Public Radio Interface
DSP	Digital Signal Processing
EARFCN	E-UTRA Absolute Radio Frequency Channel Number
EPC	Evolved Packet Core
EUTRA	Evolved Universal Terrestrial Radio Access
EUTRAN	Evolved Universal Terrestrial Radio Access Network
FPGA -	Field Programmable Gate Array
GE / GigE	Gigabit Ethernet
GPS	Global Positioning System
LTE	Long Term Evolution
MNO	Mobile Network Operator
PLMN	Public Land Mobile Network
RF	Radio Frequency
SNMP	Simple Network Management Protocol
ТСР	Transmission Control Protocol
UDP	User Datagram Protocol
UE	User Equipment
UL	Uplink
UTRAN	Universal Terrestrial Radio Access Network
UDP	User Datagram Protocol

Table 2 Images

Abbreviation	Image
RIU	
DCU	
DEU	
DLRU	
DMRU	
DHRU	



1.3 Everon™ 6000 G2 Architecture Overview

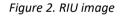
Figure 1 Architecture diagram

Corning Everon[™] 6000 G2 features a fully advanced digital system, which incorporates the RIU (Radio Interface Unit), DCU (Digital Conversion Unit), DEU (Distributed Extension Unit) and multi-type of remotes. All the devices in the system are managed via a web session to the DCU, which provides local and remote management capabilities for all connected system devices using both web GUI (HTTPs) and SNMP interfaces.

1.4 Internal Sub-units

1.4.1 RIU





Radio Interface Units (RIU) are modular design used for radio-radio interface between the base stations and the Everon[™] 6000 G2. The RIU interfaces up to 8 RF duplexed ports to the base station, and up to 8 simplex ports to the Digital Conversion Unit (DCU) with the following functions:

- Signal combination: the RIU combines different base station signals into one wideband signal, the combination matrix of which is software-controllable, listed as figure 3 to figure 5.
- Downlink/Uplink attenuation: With an embedded fixed attenuator with 30dB in downlink and 40dB in uplink, the RIU bears up to 37dBm average input power (with PARP no more than 10dB).
- Gain control: In addition to the fixed attenuator, the RIU includes an internal digital attenuator controlling the gain between the input and output in the range of 0-25dB.
- Device management: Remote control and monitor of RIU is available on the DCU via the 2xRJ45 connections. In the case of multiple RIU applications, the management can be achieved with a cascading topology, shown in figure 6.

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Figure 7 and figure 8 shows the RIU interfaces. Table 3 lists the interfaces description.

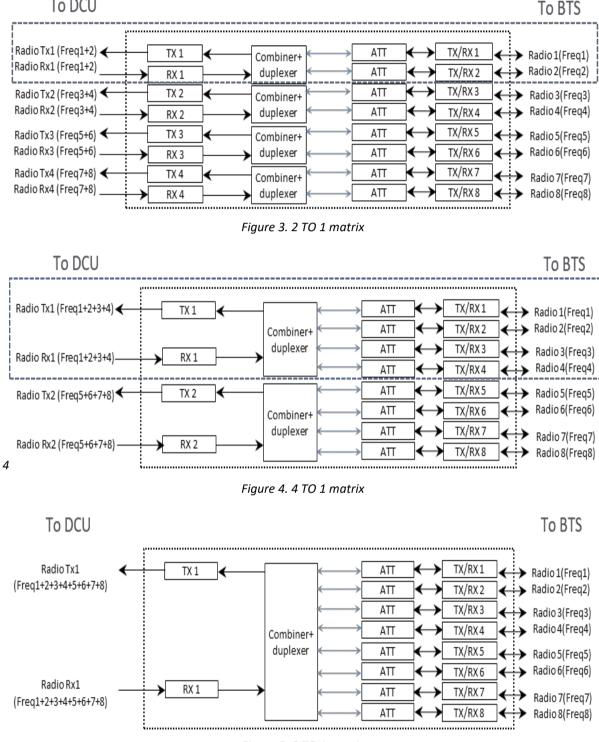
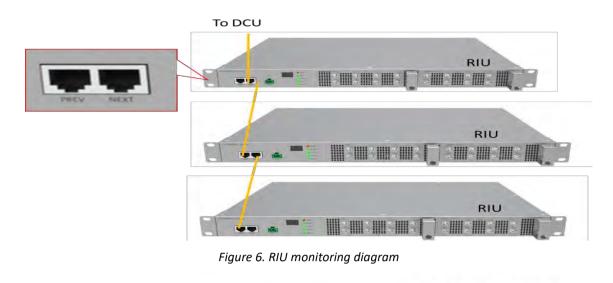


Figure 5. 8 TO 1 matrix



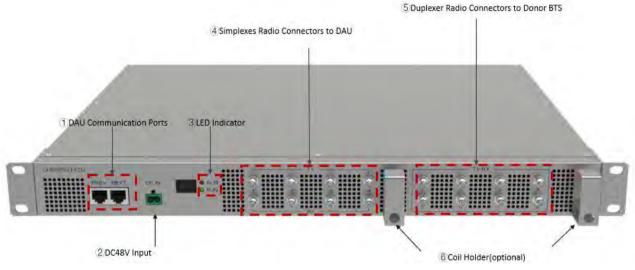


Figure 7. RIU Interface(front view)



Figure 8. RIU Interface (back view)

SN	Interface	Interface Type	Silk Screen	Description
1	DCU communication port	RJ45 x 2	PREV NEXT	PREV: Upper cascade port to DCU or upper level RIU NEXT: Lower cascade port to other RIU
2	DC input	Phoenix connector x 1	DC_IN	48V DC
3	LED indicator	LED x 2	ALM RUN	Please check the "RIU LED Definition" (table 4) for the color definition
4	Radio connectors to DCU	QMA x 8	TX 1~4 RX 1~4	Simplex QMA interface to DCU
5	Radio connector to donor signal	4.3-10 x 8(FDD RIU) QMA x 8(TDD RIU)	TX/RX 1~8	Duplex QMA interface to BTS, small cells or other donor signals
6	Coil holder	Coil holder x 2		The holder for the cable rostering
7	GND	Two holes M4 x 2	GND	Connect to the ground

Table 3. RIU Interfaces

Table 4. RIU LED Definitions

LED	Description	Color	State
	Alarm	Red	Solid
ALM	Device detection (Identified and controlled by the DCU)	Red	Flash (1Hz, 10s)
	No alarm	OFF	Off
RUN	The system is up and running	Green	Flash(1Hz)
	Software or hardware failure	OFF	Off
2TO1	Working mode: 2 TO 1	Green	Solid
2101	Other working modes		Off
4T01	Working mode: 4 TO 1	Green	Solid
4101	Other working modes	OFF	Off
8TO1	Working mode: 8 TO 1	Green	Solid
8101	Other working modes	OFF	Off
	Cascade level, displayed as "1" or "2"		
LED displayer	1 - First cascade level	_	_
	2 - Secondary cascade level		
	A maximum of 16 devices can be cascaded		

1.4.2 DCU



Figure 9. DCU

Digital Conversion Units (DCU) is the Everon[™] 6000 G2 central controller. The DCU interfaces between the RIU and DEU, implementing signal processing and routing to the Distributed Extension Unit (DEU), major functionalities of which include:

- RF signal processing and routing: The DCU transfers the RIU radio signal to digital signal in CPRI format. One DCU supports up to 8 RIUs of different bands with 2x2 MIMO, and configures all the radio signal features including frequency, attenuation, operation mode (TDD/FDD).
- Optical port router controlling: The DCU controls the digital signals of different DEUs at different CPRI line rates of 10Gbps or 25Gbps.
- TDD synchronization: The DCU introduces a TDD baseband signal processing module, demodulates TDD-LTE or NR RF signals and recovers the TDD switch time in the remote units. For a fast detection and commissioning, parameters in table 5 and table 6 are needed.
- Center management of the complete system: the DCU is the main management entity of the entire system. All the device and operation information are centrally collected by the DCU, and the DCU interfaces to operators' management system through the SNMP interface.
- Flexible networking for different deployment strategies: The DCU supports daisy chain and/or star connections* as shown in figure 10 and figure 11, where distributed deployments can be enabled, e.g., remote slave site deployment.

Figure 12 and figure 13 shows the DCU interfaces. Table 9 lists the interfaces description.

*Note: please check the software release note for the DCU daisy chain/star connection limitations and supported version.

Uplink-downlink	Downlink-to-Uplink	Subframe number									
configuration	Switch-point periodicity	0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

	Normal cyc	lormal cyclic prefix in downlink			Extended cyclic prefix in downlink					
Special subframe	DwPTS	UpPTS		DwPTS	UpPTS	UpPTS				
configuration	/	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink	/	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink				
0	$6592 \cdot T_{\rm s}$			$7680 \cdot T_{\rm s}$						
1	$19760 \cdot T_{\rm s}$			$20480 \cdot T_{\rm s}$	$2192 \cdot T_{\rm s}$	$2560 \cdot T_{\rm s}$				
2	$21952 \cdot T_{\rm s}$	$2192 \cdot T_{\rm s}$	$2560 \cdot T_{\rm s}$	$23040 \cdot T_{\rm s}$	2192.1 _s					
3	$24144 \cdot T_{\rm s}$						$25600 \cdot T_{\rm s}$			
4	$26336 \cdot T_{\rm s}$			$7680 \cdot T_{\rm s}$						
5	$6592 \cdot T_{\rm s}$			$20480 \cdot T_{\rm s}$	$4384 \cdot T_{\rm s}$	$5120 \cdot T_{\rm s}$				
6	$19760 \cdot T_s$	$4384 \cdot T_{s}$	$5120 \cdot T_s$	$23040 \cdot T_{\rm s}$						
7	$21952 \cdot T_{\rm s}$	1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	5120·1 _s	5120·1 _s	5120.18	5120 ⁻¹ s	-	-	-	
8	$24144 \cdot T_{\rm s}$			-	-	-				

Table 6. Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe	Normal cyclic prefix in downlink						
configuration	DwPTS	GP	UpPTS				
0	3	10	1				
1	9	4	1				
2	10	3	1				
3	11	2	1				
4	12	1	1				
5	3	9	2				
6	9	3	2				
7	10	2	2				
8	11	1	2				

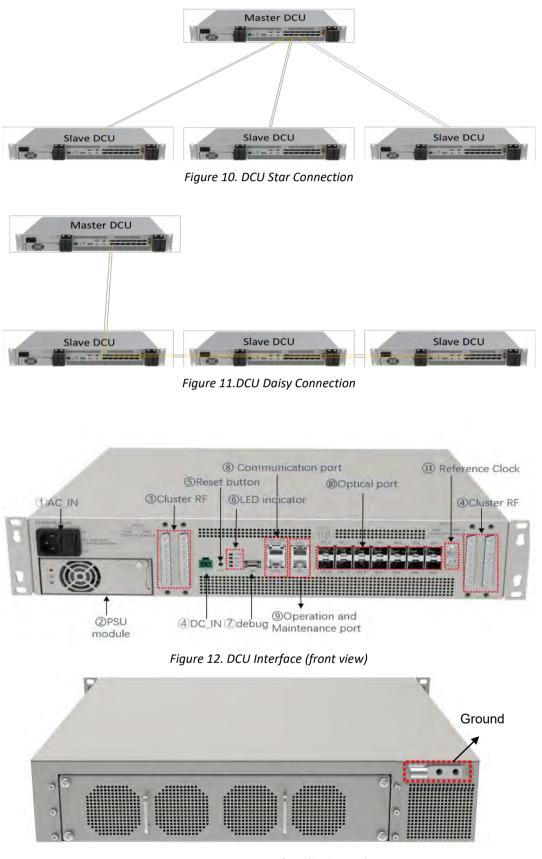


Figure 13. DCU interface (back view)

Table 7. DCU Interface In	troduction
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SN	Interface	Interface Type	Silk Screen	Description
1	AC_IN	US Type socket	AC IN 100V~240V, 3A, 50/60Hz	AC input connector with switch, 100~240V
2	PSU Module	PSU module x 1		PSU module with replaceable design
3	Cluster RF connector	Cluster RF connector x 4	IRFC1~4 SISO TX/RX 1~4 SISO TX/RX 5~8 MIMO TX/RX 1~4 MIMO TX/RX 5~8	IRFC: Integrated Radio Frequency Cluster There are totally 4 pcs of cluster and each one has 8 radio ports. The operation frequency range of each radio port is listed in table 10
4	DC_IN	Phoenix connector	DC_IN	48V DC input
5	Reset button	Button x 1	RST	Reset button for the system setup to factory config
6	LED indicator	LED x 4	PWR/ALM/RUN/PRI	Please check the 'Appendix B' for LED definition
7	Debug	USB	USB	For internal debug purpose
8	Communication port	RJ4 5 x 2	COMM Port/RIU/PSU	Communication port for RIU and PSU
9	Operation and Maintenance port	RJ45 x 2	ОМТ ОМС	1 for local monitor and config (OMT), 1 for remote monitor (OMC)
10	Optical port	SFP x 14	OP_A~OP_F (LOS A~F / SYNC A~F) OP1~OP8 (LOS 1~8 / SYNC 1~8)	24.3 Gbps CPRI interface, connects to DEU (port 1~8) or cascade DCU (port A~F) Please check the 'Appendix B' for Optical LED definition
11	Reference clock	QMA x 2	REF_IN REF_OUT	10MHz reference signal, input and output clock
12	GND	Two holes M4 x 2	GND	Connect to the ground

Table 8. Radio Spec of Cluster RF port

DCU Input Port	Cluster RF Port number	IBW	Frequency Range
SISO/MIMO TX/RX 1~2	4	300MHz	1710~4000MHz, TDD/FDD
SISO/MIMO TX/RX 3~4	4	300MHz	1710~4000MHz, TDD/FDD
SISO/MIMO TX/RX 5~6	4	200MHz	600~2700MHz, TDD/FDD
SISO/MIMO TX/RX 7~8	4	200MHz	600~2700MHz, TDD/FDD

1.4.3 DEU



Figure 14 DEU diagram

Distributed Extension Units (DEU) is the central Hub and Distribution element. The DEU interfaces between the DCU modules and the remote unit, enabling to receive the operators service signals in CPRI format, and to route these signals to the remote units. The DEU supports all Corning digital remote antenna units' styles, for all services, power levels and antenna configurations. Each DEU includes 4 F/O CPRI ports connected to the DCUs or cascaded DEUs, and 24 F/O CPRI ports for connection to the remote units. When additional remote antenna units are needed, the system can be scaled up easily by adding additional system modules, major functionalities of which include:

- Channelization function: The DEU is the channel controller of Everon[™] 6000 G2 system. Tables 5(TDD 2.5GHz + TDD 3.5GHz) and Table 6(Full FDD + TDD 2.5GHz) list the possible channel capacities of the DEU.
- CPRI signal router and transfer: The DEU transfers the dedicated carrier signal to dedicated remote units*. DEU supports 10Gbps or 25Gbps line rate and various kinds of remote units. The line rates and remote units supported are listed in table 11.
- Flexible network architecture: One DCU supports up to 16 DEUs* by star and/or daisy chain connections, which meets flexible site deployment requirement. The DEU connection topology is shown in figure 15.
- The DEU manages all connected remote radios which can be monitored and controlled by the user via SNMP trap.

Figure 16 and figure 17 shows the DEU interfaces. Table 12 lists the interfaces description.

*Note: please check the software release note for the DEU signal router features and its supporting range of remote units

*Note: please check the software release note for the DEU cascade features and limitation on each software version



Band	Maximum C	Carrier Number (2	Maximum Total	Maximum Total		
banu	10/20MHz	30/40/50MHz	60/80/100MHz	150/200MHz	Carrier Number	BW
2.5GHz	3	2	2	0	5	190MHz
3.5G-A (3450~3700MHz)	8	3	3	1	8	250MHz
3.5G-B (3700~3980MHz)	8	3	3	1	8	280MHz

Table 9. Carrier Config Option 1. Full FDD band + TDD 2.5GHz band

Table 10.Carrier Config Option 2. Full FDD band + TDD 2.5GHz band

Tupo	Band	Maximum Carrier Number (2T2R)		Maximum Total	Maximum Total BW	
Туре	вапи	5/10MHz	15/20MHz	40/60/80/100MHz	Carrier Number	
	600M	3	1	0		35MHz
DMRU678 DLRU-678	700L+700U	4	1	0	12	40MHz
	850M	3	1	0		32MHz
DMRU –1921	PCS	4	4	0	14	90MHz
DLRU- 19212325	EAWS	4	4	0	(Each sub-band ≤8)	90MHz
DMRU-2325 DLRU- 19212325	wcs	1	0	0	6	10MHz
	2500M	0	3	2		190MHz

Table 11. DEU Line Rate Application

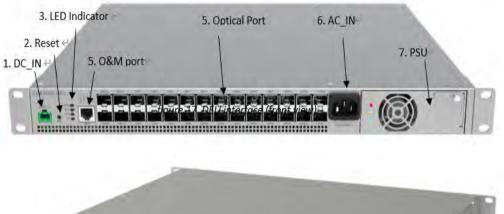
DEU Line Rate	Remote Unit Type
10Gbps	DLRU-G2-678/DLRU-G2-17192125/DHRU-G2-600/DHRU-G2-700/DHRU-G2-800/DHRU-G2- 1900/DHRU-G2-2100/DHRU-G2-2300
25Gbps	DLRU-G2-25/DLRU-G2-35/DMRU-G2-678/DMRU-G2-1719/ DMRU-G2-2325/DMRU-G2-25/DMRU-G2-35/DHRU-G2-35/DHRU-G2-35

1. DEU supports flexible network architecture of 4 level daisy chain connections as shown in figure 15.



Figure 15. DEU Daisy chain connection

*Note: Please check the software release note for the DEU cascading features and limitation of each software version.



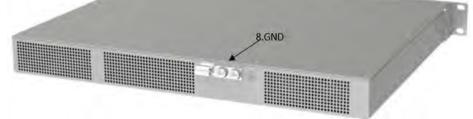


Figure 17. DEU interface (back view)

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NO.	Interface	Interface Type	Silk Screen	Description
1	DC_IN	Phoenix connector	DC_IN	48V DC input
2	Reset Button	Button x 1	RST	Reset button for the system reset to factory config
3	LED Indicator	LED x 4	PWR RUN ALM 25G	ALM/RUN/PWR: Indicates the DEU working mode and alarm status 25G: Indicates the DEU is running in 24.3Gbps line rate
4	Operation and Maintenance port	RJ45 x 1	ОМТ	Ethernet connection for a local setup session
5	Optical Port	SFP x 28	OP_A~OP_D OP1~OP24	 24 ports (1~24) for RU connection, 10.1Gbps/24.3 Gbps CPRI interface, 2 ports(A~B) for upper unit connection, 2 ports(C~D) for lower unit cascade, 24.3 Gbps CPRI interface,
6	AC_IN	US Type socket + Switch x 1	AC IN 100V~240V, 3A,50/60Hz	AC input connector, Max current 3A, 100~240V
7	PSU Module	PSU module x 1	POWER MODULE	PSU module with easy assembly installation design
8	GND	Two holes M4 x 2	GND	Connect to the ground

Table 12. DEU interface introduction

1.4.4 Remote Units

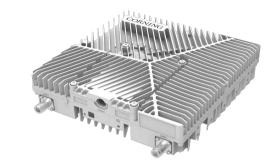


Figure 18. DLRU image



Figure 19. DLRU image

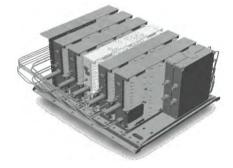


Figure 20. DLRU image

Remote Unit (RU) is the radio coverage unit located at the end of the DAS system. The Remote unit interfaces between DEU and the UE (User Equipment), enabling to receive the operator service signals in CPRI format, transfer to RF signal and send to UE. Corning digital remote antenna units includes three power level types: DLRU/DMRU/DHRU. The power levels vary from 20dBm to 43dBm to meet different coverage scenarios. The major functionalities include:

- Digital and analog signal transfer: the RU transfer digital and analog signal between DEU and antenna port. The DU supports up to 530 IBW signal in C-band with its powerful transceiver
- Multi-band signal process: The RU supports multiple band signal of the single unit. One DLRU supports up to 4 bands, one DMRU supports up to 2 bands and one DHRU supports single band.
- Channel control function: The RU config all emission channels including power level, ON/OFF status and working mode (UL/DL/TDD).
- Control and management function: The RU can be remotely upgraded and monitored. All RU's parameters including the alarm, device status and emission power are all transferred to DEU via CPRI lines in optical ports.

Table 13 shows RU band, CPRI line rate and optical port number.

The DLRU interfaces and the description are shown in figure 21 and table 14.

RU Type	RU	Operation band	CPRI Line Rate	Optical Fiber Number
	DLRU-G2-678	600 700L 700U FirstNet 800/850MHz	10Gbps	1
DLRU	DLRU-G2-19212325	1900(PCS) 2100(EAWS) 2300(WCS) 2500 TDD	10Gbps	2
	DLRU-G2-25	2500 TDD	25Gbps	1
	DLRU-G2-35	3500 TDD	25Gbps	2
	DMRU-G2-678	600 700L 700U FirstNet 800/850MHz	25Gbps	1
DMRU	DMRU-G2-1921	1900(PCS) 2100(EAWS)	25Gbps	1
	DMRU-G2-2325	2300(WCS) 2500 TDD	25Gbps	1
	DMRU-G2-25	2500 TDD	25Gbps	1
	DMRU-G2-35	3500 TDD	25Gbps	2
	DHRU-G2-06	600	10Gbps	1
	DHRU-G2-07	700L/700U/FirstNet	10Gbps	1
	DHRU-G2-08	800/850MHz	10Gbps	1
DHRU	DHRU-G2-19	1900(PCS)	10Gbps	1
	DHRU-G2-21	2100(EAWS)	10Gbps	1
	DHRU-G2-23	2300(WCS)	10Gbps	1
	DHRU-G2-25	2500 TDD	10Gbps	1

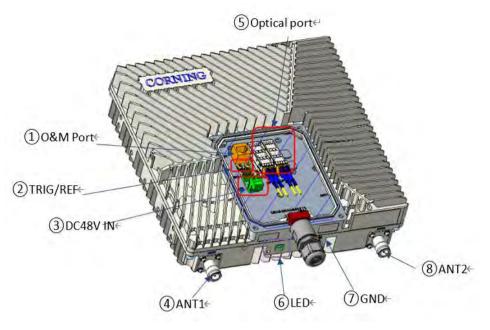


Figure 21. DLRU interface image

Table 14. L	DLRU interface	introduction
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NO.	Item	Interface Type	Silk Screen	Description
1	Operation and Maintenance port	RJ45	OMT	Ethernet connection for the local setup
2	TRIG/REF	MCX interface	TRIG/REF	Synchronous trigger signal, used for device test
3	DC48V IN	Power input port	DC48V IN	Power input port, voltage input range 38V~58V, PWR1 and PWR2 will be combined inside the device before supplying power to the device
4/8	ANT	4.3-10 interface	ANT1	RF input and output, used for external
4/8		4.5-10 Interface	ANT2	antenna connection
5	Optical Port	SFP optical port	OP1/OP2	24.3/9.8 Gbps CPRI interface for DEU connection
6	Status	LED indicator	STAT	Indicating the operation status of the equipment
7	GND	GND interface		Used for grounding the chassis and the earth, single hole



Figure 22. DMRU Interfaces

Table 15. DMRU Interface Introduction

NO.	Item	Interface Type	Silk Screen	Description
1	ANT	4.3-10 interface	ANT1	RF input and output, used for external
		4.5-10 Interface	ANT2	antenna connection
2	Couple port	SMA	Couple 2	RF couple port, used for signal test and debug
3	Optical port	SFP optical port	OP1/OP2	24.3 Gbps CPRI interface for DEU connection
4	Operation and Maintenance port	RJ45	OMT	Ethernet connection for the local setup
5	LED	LED indicator	STAT	The operation status of the equipment
6	AC IN	Power input port	AC IN	Power input port, voltage input range 100V~240V, 3A



1.4.5 System topology and gain assignment

The system topology contains the following network elements:

- One master DCU- All the configs and alarms of RIUs, DCUs, DEUs and remote units are transferred to it, and also interfaces the SNMP server of DAS system.
- Slave DCU one master DCU connects to 3 slave DCUs
- RIUs each DCU can connect up to 16 RIUs
- DEU –one master DCU connects up to 4 DEUs, and each DEU connects to 4 DEU in cascade, so that one master DCU supports 16 DEUs
- Remote units each DEU connects to 12 or 24 remote units, depending on the types and line rates of the remote unit. For more detail, please refer to Table 11.

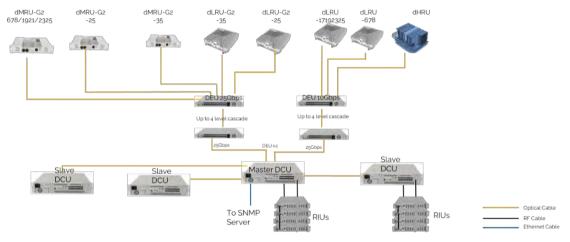


Figure 23. System topology

Two switches for gain control are available in the system– RIU high gain mode switch and DCU high gain mode switch. The suggestions for the switches are listed in the following table.

- The RIU high gain mode will add 30dB insert loss while switching to OFF status
- The DCU high gain mode will add 12dB insert loss while switching to OFF status

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Table 16. Gain setting guide

Base station power	RIU high gain mode switch	DCU high gain mode switch	RIU input power	DCU input power	DCU output power	DLRU output power
	30dB IL while OFF; -7dB IL while ON	12dB gain while OFF	RIU ATT range (0~20dB)	DCU ATT range (0~20dB)	-7dBFS mapping to max output power	
37dBm	OFF -30dB	OFF O	37dBm (RIU ATT set to 14, total IL=44dB)	-7dBm (DCU ATT set to 0)	-7dBFS	24dBm
23~37dBm	OFF -30dB	OFF O	23~37dBm (RIU ATT set to 0~14, total IL=30~44dB)	-7dBm (DCU ATT set to 0)	-7dBFS	24dBm
0~23dBm	ON -7dB	OFF O	0~23dBm (RIU ATT set to 0~20, IL=7~27dB)	-7~-4dBm (DCU ATT set to 0~3 dB)	-7dBFS	24dBm
-10~0dBm	ON -7dB	ON +12dB	-10~0dBm (RIU ATT set to 0~12, IL=7~19dB)	-17~-19dBm (DCU ATT set to 0~2dB, gain=10~12 dB)	-7dBFS	24dBm



2. System Installation

This chapter provides installation instructions for the system units. Refer to the specific elements required in your deployment:

- Head End (HEU, HIU), see 2.1
- DRU, see 2.5.
- Remote Units Installation:
- LRU, see 2.5
- MRU, see 2.6.

*Note: Refer to chapter 6 for dimensions and specifications.

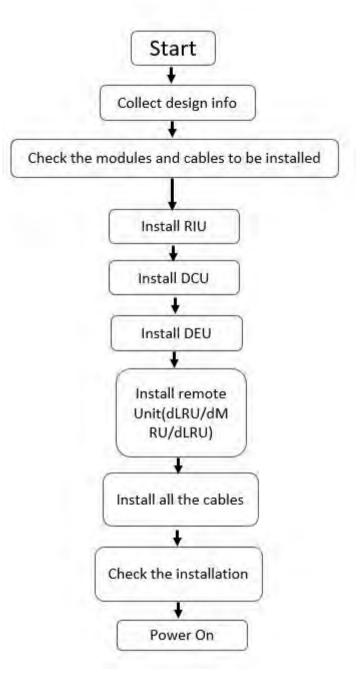


Figure 24 The installation process

2.1 Head End Units – Architecture Example

Example: 2X2 MIMO, 1 Operator

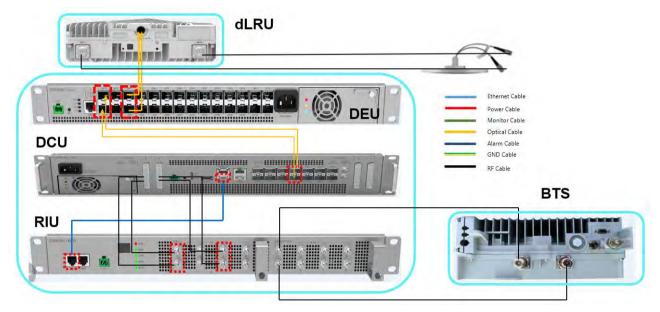


Figure 25 dLRU architecture image

2.2 RIU Installation

Example of system connection

See 2.1 example: 2x2 MIMO

Contact the site designer for cable connection topology of the system.

> To install the RIU, follow these steps:

- 1. Verify the box contents, see 2.2.1
- 2. Mount the RIU, see 2.2.2
- 3. Connection RIU cable, see 2.2.3

2.2.1 Verify Box Contents

Open the package and verify that all items in the table below are available.

- *Notes:
- Refer to APPENDIX B: Ordering information for details.
- See the example of package unpacking under the table.

Table 1:	RIU	Package	Items List
TUDIC 1.	1110	i ucituge	Items List

Item	Quantity	Image	Part Number			
HARDWARE – provided in the box						
RIU unit	1					
Ethernet Communication Cable	1		Connected to the DCU or RIU of next slave device			
DC Power Adapter	1					
HARDWARE – not provided						
4 screws #8 or 4mm (For attachment to rack)	4	<u> </u>				
SOFTWARE						
NA						
Required TOOLS						
Cross Screwdriver						



2.2.2 Mount the RIU

Place the RIU horizontally in the 19-inch rack, align the four holes on the lugs on both sides of the equipment with the nuts, install the M6 screws and fasten them.

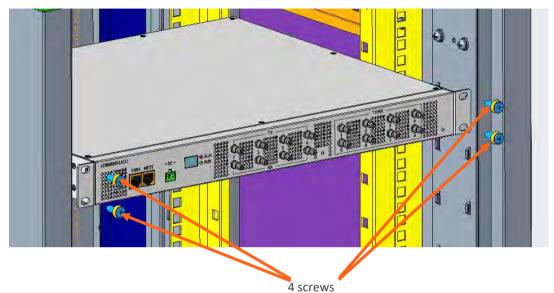


Figure 26. RIU rack Installation

1) Connect the RF cables on the chassis with M3 screws, and sort out the RF cables.

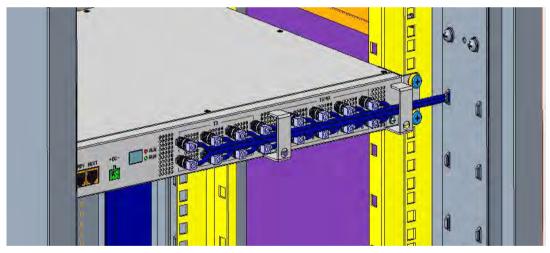


Figure 27 RIU rack Installation with cables

2.2.3 RIU Cable Connection

Connect the external cable as the following diagram shows.

PREV RIU NEXT RIU External F	10	TOBTS
		Ground Bar

Figure 28 RIU cable connection

Cable list for RI	U			
Cable	One End		The Other End	
Cable	Connector	Connected to	Connector	Connected to
GND cable	OT terminal (M4)	Ground screw on the RIU	OT terminal (M4)	Ground terminal on the external ground bar
DC power cable (indoor)	Phoenix connector	DC power input socket on the RIU	2-pin plug	External power input socket
RF cable	QMA connector	Simplex radio connectors	Cluster RF connector	DCU
	QMA connector	Duplexer radio connectors	Required for BTS	BTS
Ethernet communication cable	Communication		Communication port (RJ45 x 2)	RIU/DCU

2.3 DCU Installation

> Example of system connection

See 2.1 for the installation example (2x2 MIMO).

> Follow these steps to install the DCU:

- 1. Verify the box contents, see 2.3.1
- 2. Mount the DCU, see 2.3.2
- 3. Connect the DCU cable, see 2.3.3

2.3.1 Verify Box Contents

Open the package and verify that all the items in the table below are available:

Table: DCU Package Items List

Item	Quantity	Image	Part Number
HARDWARE – provided in the box			
DCU unit	1		
Ethernet Communication Cable	1		
DC Power Adapter	1	C. A	
HARDWARE – not provided			
4 Screws #8 or 4mm (For ceiling mounting)	4		
SFP+ Pluggable transceivers (Hot-pluggable optical transceiver module) Support 24.3 Gbps line rate, single mode	1		
Optical cables Up to 10km LC/UPC SM DX	1~14		
SOFTWARE			
NA			
Required Tools			
Cross Screwdriver	1		

2.3.2 Mount the DCU

Step 1: Take the DCU out of the package.



Figure 29 DCU image

Step 2: Put the DCU horizontally into the rack, tighten the M6 screws as shown below, and the installation is completed.



Figure 30 Installation diagram of DCU in the Rack

Step 3: Plug in the RF cable plug (RF cable not shown in the below), as shown in Figure 31.

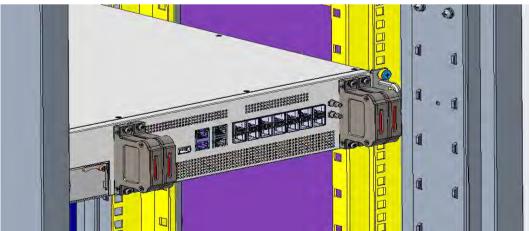


Figure 31 DCU RF cable plug installation

2.3.3 DCU Cable Connection

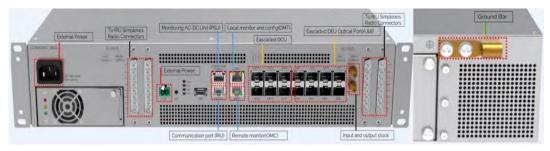


Figure 32 DCU cable connection

Cable List of I	Dual DCU			
Cable	One End		The Other End	
Cable	Connector	Connected to	Connector	Connected to
GND cable	OT terminal (M4)	Ground screw on the RIU	OT terminal (M4)	Ground terminal on the external grounding bar
DC power cable (indoor)	Phoenix connector	DC power input socket on the RIU	2-pin plug	External power input socket
AC power	US Type socket +	AC IN	Depending on power device	External power device
(indoor)	Switch x 1	100V~240V, 1.3A- 0.6A,50/60Hz	(100V-240V,50Hz/60Hz)	(100V- 240V,50Hz/60Hz)
		IRFC1~8		
		SISO TX/RX 1~4		
RF Cable	Cluster RF connector	SISO TX/RX 5~8	QMA Connector	RIU
		MIMO TX/RX 1~4	1	
		MIMO TX/RX 5~8		

2.4 DEU Installation

Example of system connection

See 2.1 for the installation example (2x2 MIMO).

> To install the HEU, follow these steps:

- Verify the box contents, see 2.4.1
- Mount the DEU, see 2.4,2
- Connect the DEU cable, see 2.4.3

2.4.1 Verify Box Contents

1. Open the package and verify that all items the table below are available:

Table 1: DEU Package Items List

Item	Quantity	Image	Part Number
HARDWARE – provided in the box			
DEU unit	1		
DC Power Adapter			
HARDWARE – not provided	1	1	
4 Screws #8 or 4mm (For ceiling mounting)	4		
SFP+ Pluggable transceivers (Hot-pluggable optical transceiver module) Support for 24.3 Gbps line rate, single mode	1		
Optical cables Up to 10k meters LC/UPC SM DX			
SOFTWARE	1		
NA			
TOOLS Required			
Cross Screwdriver			

2.4.2 Mount the DEU

1. Take the DEU out of the package.



Figure 32. Rack Installation -Step1

2. Mount the DEU in the rack with 4 pcs of M6 screws.



Figure 33. Rack Installation- Step 2

3. Install the DEU in the rack.



Figure 34 Rack Installation Step- 3

2.4.3 DEU Cable Connection

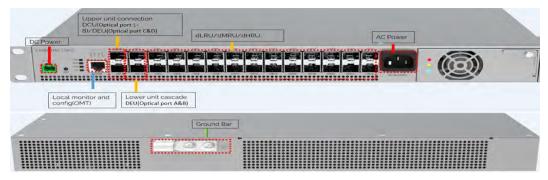


Figure 35 DEU cable connection

Cable List of I	Dual DEU			
	One End		The Other End	
Cable	Connector	Connected to	Connector	Connected to
GND cable	OT terminal (M4)	Ground screw on the RIU	OT terminal (M4)	Ground terminal on the external bar
AC power	US Type socket +	AC IN	Depending on power device	AC Power device
cable (indoor)	Switch x 1	100V~240V, 1.3A- 0.6A,50/60Hz	(100V-240V,50Hz/60Hz)	(100V-240V,50Hz/60Hz)
Fiber Cable	Optical port	Optical module	Optical port	dLRU/dMRU/dHRU or DEU
		-		DCU or DEU

2.5 dLRU Installation

2.5.1 Verify box Contents

1. Open the package and verify that all items in the following table are available:

Table 17: dLRU Package Items List

NO.	Description	Model	Image	Quantity
1		dLRU unit	Man and All an	1
2	-	Wall mounting bracket (may also be used for pole)		1
3	-	Left side brackets for dual-unit configuration		1
4	dLRU-2.5/3.5	Right side brackets for dual-unit configuration		1
5	Unit	Hinge	and the second s	1
6		Combiner – for dual unit configuration	Concesses	1
7		RF jumper cables		1
8		DC power adapter		1



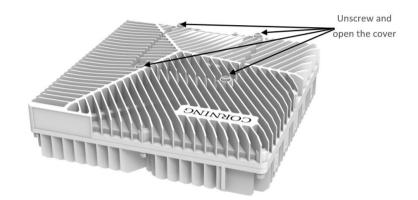
2.5.2 Mount the dLRU

The LRU may be mounted on a wall or on a pole: single or dual.

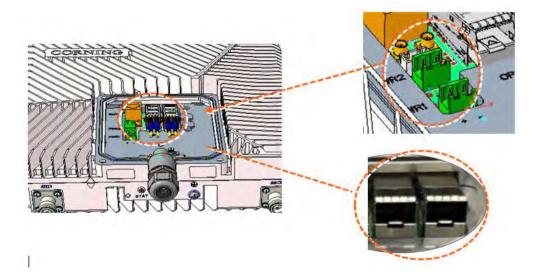
Select the configuration related to your deployment.

*Note: For dual unit installations, the internal cable must be connected before connected between the units.

1. Open the cover by unscrewing 4 screws



- 2. Connect the DC wire pair (48V) to any one of the two power connectors, via the DC power adapter (terminal block connector)
- 3. Remove the rubber stopper from the SFP+ connector located in the dLRU cable port. Connect the SFP+ LC/UPC SM DX optic cable to the dLRU optic connector.



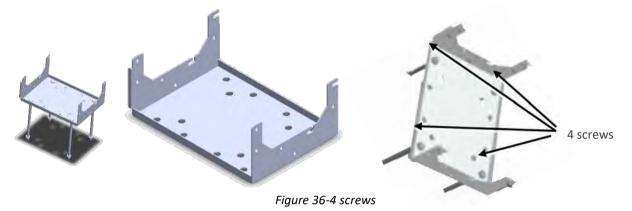
Power Socket /optical ports in dLRU



2.5.2.1 Wall Installation

• For a single unit

1) Connect the bracket to the wall with 4 screws, as shown in the figure below:



2) mount the LRU on the bracket with 4 screws.

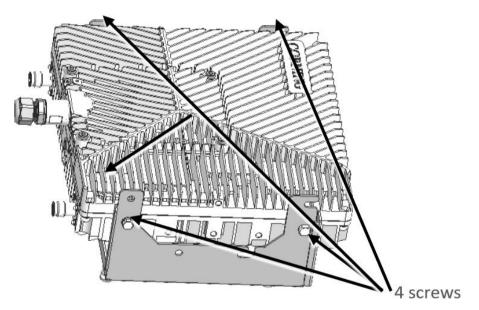


Figure 37-4 screws

- For a dual unit:
 - 1) Connect the combiner to the mounting bracket with 4 screws.

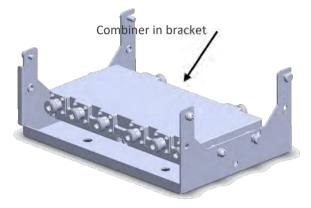


Figure 38 Combiner in the bracket

2) Connect between the low band and mid-band units with the side bracket:

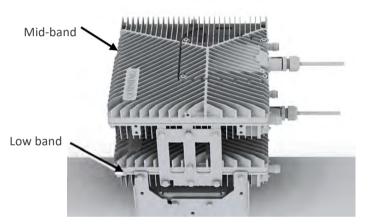


Figure 39 Combiner in the bracket

*Note: Ensure that the low band device is connected at the bottom, and the mid-band at the top. Connect between the two devices and the bracket (already carrying the combiner) with 4 screws.

2.5.2.2 Ceiling Installation

• Single unit ceiling installation

*Note: The ceiling needs to be cement board or hard wood board which enables to bear the weight of 18 pounds.

The installation is shown in Figure 41:

- Drill holes on the ceiling at a distance of 200mm*160mm according to the size of the mounting holes of bracket, then drive the expansion bolts into the holes, install the mounting bracket, pad gaskets, and lock the nuts.
- 2) Tighten the M6 bracket screws on the left and right sides of the upper part of the dLRU, and then hang the device on the mounting bracket.
- 3) Lock the device on the mounting frame with M6 combination screws, as shown below

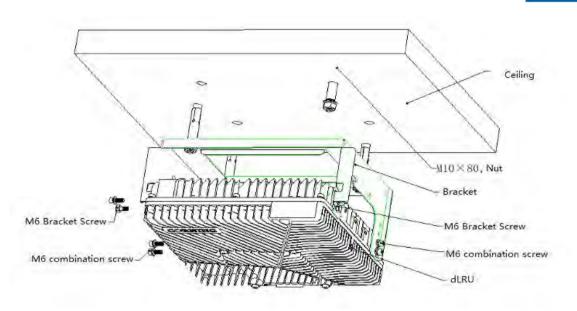


Figure 41 Single unit ceiling installation

• Dual unit combined ceiling installation

If the application scenario requires the use of low frequency and intermediate frequency devices, it is suggested to use the cascading installation.

*Note: The ceiling needs to be cement board or hard wood board which enables to bear the weight of 45 pounds.

The installation steps are as follows:

1) Assembly of right bracket and hinge

The installation of the right bracket and hinge is shown in Figure 42.

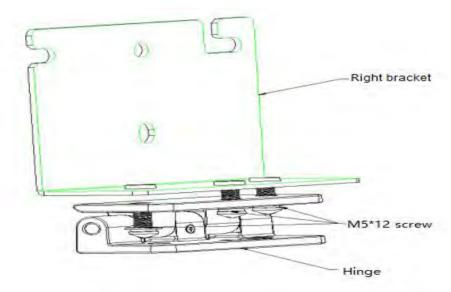


Figure 42 Right bracket and hinge installation

2) Assembly of left bracket, right bracket and equipment, as shown in Figure 43.

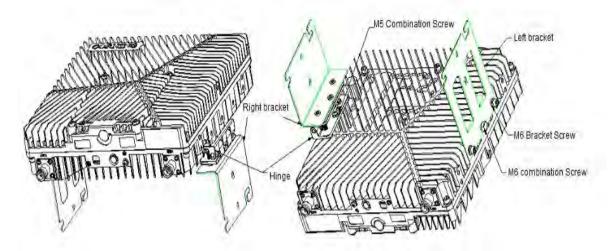


Figure 43 Installation of the left and right brackets and device bracket

3) Bracket installation:

Drill holes on the ceiling at a distance of 200mm*160mm according to the size of the mounting holes of bracket, then drive the expansion bolts into the holes, install the mounting bracket, pad gaskets, and lock nuts, as shown in Figure 44.

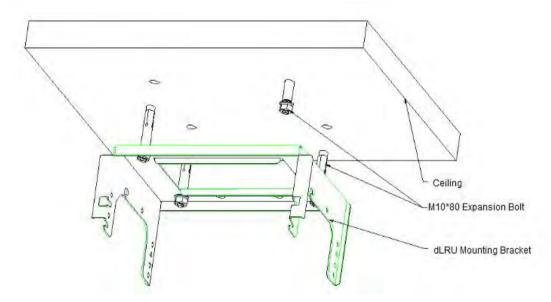


Figure 44 Mounting bracket installation diagram

4) Combiner Installation:

Tighten the M6 bracket screws in advance in the left and right screw holes on the upper side of the combiner (the upper side with two RF outlets). Then hang it in the mounting bracket as shown in Figure 45, and fasten it with M6×15 pentagonal combination screws.

*Note: If the device is installed outdoors, please connect the RF jumper cable before installing the combiner, and take waterproof measures for the connector in advance. Otherwise, it is inconvenient to take waterproof measures for the connector after the device is installed.

Corning Restricted - Controlled content (R2)

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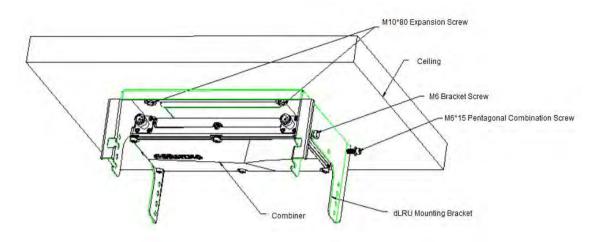


Figure 45 Combiner installation diagram

• Low Band dLRU installation

Tighten the M6 bracket screws on the left and right sides of the upper part of the dLRU, and then hang the device on the mounting bracket. as shown in the figure below.

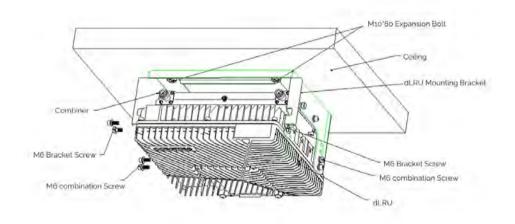


Figure 46 Low band dLRU installation

• Hang the combination

Hang the combination of the left and right brackets with four M6 bracket screws, and then use M6×15 pentagonal combination screws to fastened the second dLRU as shown in the figure below.

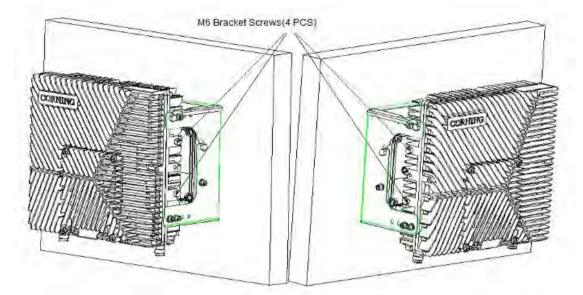


Figure 47 M6 bracket screw holes

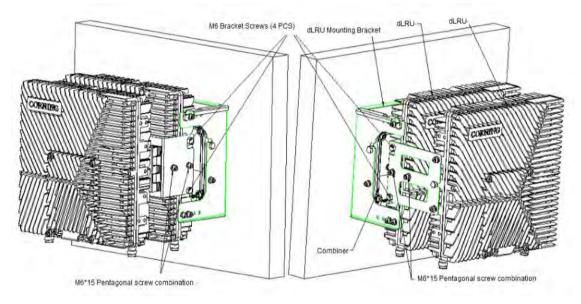


Figure 48 dLRU installation diagram

2.5.2.3 Pole Installation

Single unit pole installation

The pole mounting installation of all device is the same as the wall mounting installation above, except that the equipment is installed on a pole. As shown in Figure 49, M10 bolts, M10 nuts, elastic flat washers, and pole mounting brackets are required. They can be installed on poles from ϕ 65mm to ϕ 140mm depending on the length of the M10 bolts selected (the recommended length is 12cm and 20cm).

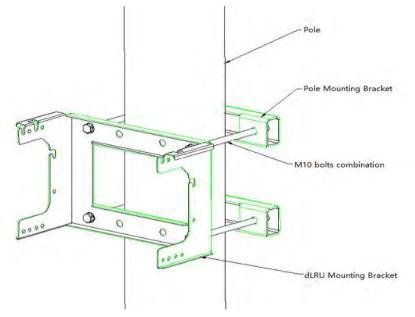


Figure 49 Pole mounting diagram

Tighten the M6 mounting screws on the left and right sides of the upper part of the device, then hang the device on the corresponding positions of the dLRU mounting bracket, and finally tighten the M6 combination screws as shown in Figure 51.

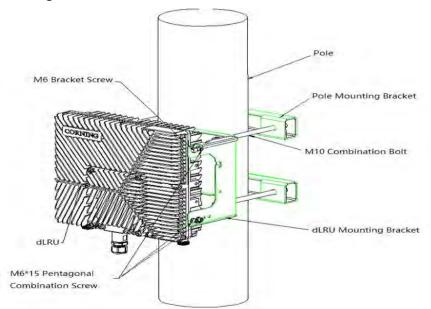


Figure 50 Diagram of pole installation for single unit



Dual unit pole installation

Before installing the bottom device, please install the combiner first. Put the M6 bracket screws on the left and right sides of the combiner, and then hang the combiner on the mounting bracket. Finally, tighten the M6×15 pentagonal combination screws, as shown in the figure below.

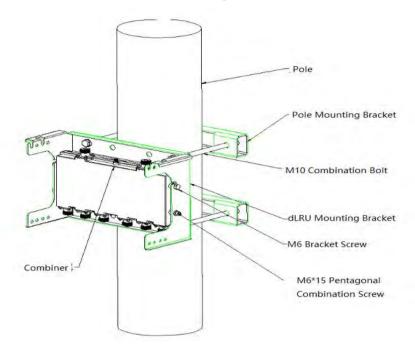


Figure 51 Installation diagram of the combiner

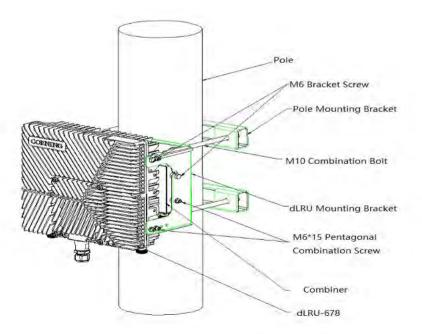


Figure 52 Installation diagram of dLRU pole

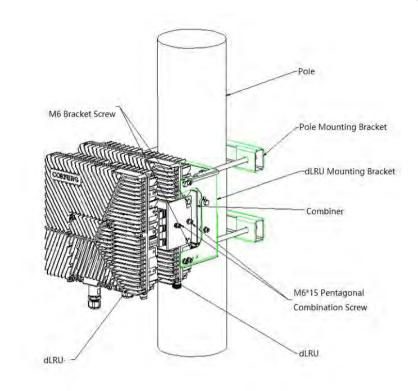


Figure 53 Dual unit installation diagram

2.5.3 Power+ SPF+ Cable

For each unit, open the cover by removing 4 screws:

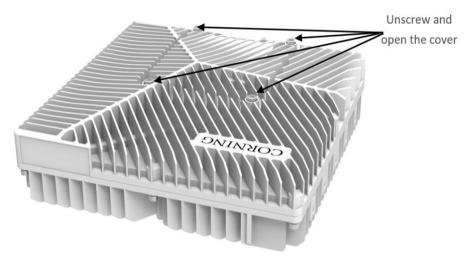


Figure 54 Connection of two units and a combiner

For each unit, connect the internal (under-cover) cables as follows:

- Power socket, see Figure 55.
- SFP+, see Figure 56.

The voltage range of the device power supply is DC36V \sim 57V.

Remove the rubber plug from the SFP+ connector located in the LRU RF port.

Connect the SFP+ LC/UPC SM DX optical cable to the LRU optical connector.

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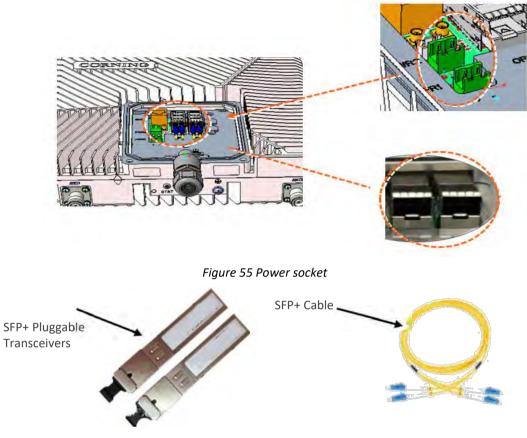


Figure 56 Remove rubber plug from the port and insert the SFP+ Pluggable Transceivers (hot-pluggable optical transceiver module) into it.

2.5.4 Connect the Ground and Antenna Cables

2.5.4.1 Ground

*Note: Ground according to local regulations.

The following additional (not supplied) tools and components are required for connecting the system ground:

- The size of ground shall meet the local and national installation requirements. The provided ground lug supports 14 AWG to 10 AWG stranded copper (or 12 AWG to 10 AWG solid) wire conductors.
- Use a wire-stripping tool to remove approximately 0.4 inch (10.9 mm) of the covering from the end of the ground.
- Insert the stripped end of the ground into the open end of the ground lug.
- Crimp the ground in the barrel of the ground lug. Verify that the ground is securely attached to the ground lug by holding and gently pulling on it.
- Prepare the other end of the ground and connect it to an appropriate ground point.

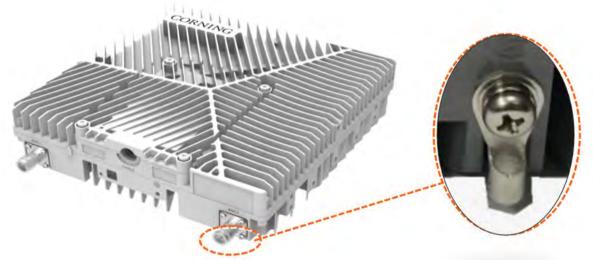


Figure 57 The ground



2.5.4.2 Antenna

Connect the MRU male 4.3-10 Type duplexed RF ANT port to the broadband antenna(s) with proper cables.



*Notes:

- To avoid MIMO disruption, ensure that the antennas are connected correctly according to the combiner labels.
- There may be some configurations/use-cases which are not required for the combiner, as there is only one type of unit (either low or mid band).

2.5.5 Combiner cables

Connect the Antenna cables as the figure shows below.

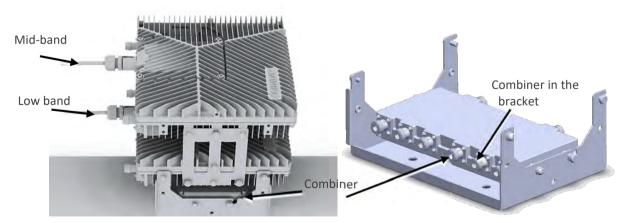
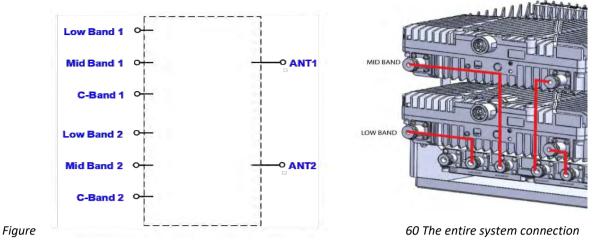


Figure 59 Combiner in the bracket



*Notes:

- To avoid MIMO disruption, ensure that the antennas are connected correctly according to the combiner labels.
- There may be some configurations/use-cases which are not required for the combiner as there is only one type of the unit (either low or mid band).

2.5.6 Verify normal operation

The LED indicator is located on the side panel of the dLRU, as shown in the figure below.



Figure 61 LED Indicator

The indicator status description is shown in table below.

LED Indicator	Status	Description
	Green	Power on or chip configuration process
	Green flashes (1time /second)	Normal operation
STAT	Green flashes (2time /second)	Identify
	Red flashes (1time /second)	Over temperature alarm
	Red	Hardware alarm

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3. GUI – General Description

This section provides general guidelines and tools for navigating the system GUI:

- Screen layout, see 3.1
- Main menu options, see 3.2.
- Default network settings, see 3.3.
- Supported access options, see 3.3

3.1 Screen Layout

The information board (located at the top of the window) lists the device information.

The Navigation board (located on the left down of the window) lists the device and their functions.

The Control board (located on the right down of the window) lists the control functions.

Beat Las	a Janei	1	Equipme System 1	ent SN Version a Version	RIU-G2-25 2 Everan_6000_RIU 1 2500T	P2.V01.00.6	00.05]	Informa	tion boa	ard
	Overview		Rid 1									_
a since have be												
shoot he was to	More	CH.	Work Mode	High Gain Mode	Max. Pwr_In	DL P_in	RF Switch	ULATT	DLATT	ALC Switch	ALC Level	0
	More	t.	E Tix/Rx	BON	37dBm	-25dBm	BOFF	⁹⁵ 20dB	¹² 20dB	CON	12/37dBm	D
	More	t 2	ETX/Rx ETX/Rx	BON. BON	37dBm 37dBm	-25dBm -25dBm	¹³ OFF ¹³ OFF	¹²⁵ 20dB ¹²⁵ 20dB	²² 20dB ²² 20dB	¹² ON ¹³ ON	¹² 37dBm ¹² 37dBm	
DCU	More > 2	1 2 3	ETx/Rx Tx/Rx Tx/Rx	CON CON CON	37dBm 37dBm 37dBm	-25dBm -25dBm -25dBm	BOFF BOFF BOFF	¹² 20dB ¹² 20dB ¹² 20dB	^{CE} 20dB ^{CE} 20dB ^{CE} 20dB	CON CON CON	BardBm BardBm BardBm	
DCU	More 2 2	t 2 3 4	ETx/Rx ETx/Rx Tx/Rx	BON BON BON BON	37dBm 37dBm 37dBm 37dBm	-25d8m -25d8m -25d8m -25d8m	BOFF BOFF BOFF BOFF	¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB	²⁰⁰⁸ 32068 2068 2068	BON BON BON BON	237dBm 237dBm 237dBm 237dBm	C
E DCU	7 3 3	t 2 3 4 5	STX/RX STX/RX STX/RX STX/RX STX/RX	BON BON BON BON BON	37dBm 37dBm 37dBm 37dBm 37dBm	-25dBm -25dBm -25dBm -25dBm -25dBm	COFF COFF COFF COFF COFF	¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048	¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB	BON BON BON BON BON	237dBm 237dBm 237dBm 237dBm 237dBm	
DCU RIU Function	7 3 3	t 2 3 4	ETXRX ETXRX ETXRX ETXRX ETXRX ETXRX ETXRX	BON BON BON BON BON	37dBm 37dBm 37dBm 37dBm	-25d8m -25d8m -25d8m -25d8m	COFF COFF COFF COFF COFF COFF	¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048	¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB	BON BON BON BON BON BON	¹² 37dBm ²³ 37dBm ²³ 37dBm ²³ 37dBm ²³ 37dBm	
E DCU E RIU	2 2 3 3 3	t 2 3 4 5	STX/RX STX/RX STX/RX STX/RX STX/RX	BON BON BON BON BON	37dBm 37dBm 37dBm 37dBm 37dBm	-25dBm -25dBm -25dBm -25dBm -25dBm	COFF COFF COFF COFF COFF	¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048 ¹²⁵ 2048	¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB ¹² 20dB	BON BON BON BON BON	237dBm 237dBm 237dBm 237dBm 237dBm	

Figure 62 RIU screen layout

3.2 Function Options

Function	Description
Device info	View the system topology and info about different system elements
Reset	Software reset for the selected device
Firmware	Upgrade or downgrade the firmware
Alarm Setting	Set the alarm including alarm enable/disable, alarm threshold
Import & Export	Import or export the config file
Log	Import or export the log file
Comm. Setting	Communication setting on the SNMP parameters
IP Setting	IP setting for the device
Site Report	Site information inventory

The function options on the Web-GUI are listed in the following table.

3.3 Supported Access Options

This section describes the HW and SW required for connecting to the HCM.

First, connecting to the HCM should be done with a laptop or a tablet.

The following browsers are supported:

- Microsoft Internet Explorer 11.0 and above
- Mozilla Firefox 42.0, 43.0 and above
- Google Chrome 45.0, 46.0 and above

After the initial configurations are done, it is recommended to establish remote access to the HCM by using the following:

LAN Ethernet connection to the HCM with a minimum connectivity and throughput capability of 256 Kbps

4. Session Access and first-time settings

When all the system elements are installed, the system administrator can login the system GUI and perform initial configurations.

It is recommended to start using Corning [®] Everon [™] 6000 and the specific steps are as follows:

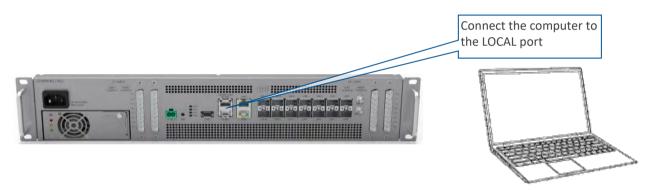
- **Open a local session to the DCU**, see chapter 4.1.
- Configure the LAN IP settings (remote management) to enable remote access, see chapter 4.2.
- Perform the initial configurations (commissioning) using the system GUI, see chapter 5.

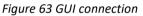
4.1 Open a Local Session

The following are the instructions for opening a local management session to perform basic system configurations via the system GUI.

> To Open the system GUI

1) Connect a computer (e.g., laptop) to the DCU OMT port via an RJ45 Cat 5 Ethernet cable as follows:





*Notes:

- The LOCAL port is set to a static IP Address by default: 192.168.8.101; Subnet Mask: 255.255.0.0. Your laptop/tablet network parameters must be set to match the subnet of the default IP address.
- The laptop/tablet IP address must be different from the LOCAL port IP address.
 - 2) Set up your laptop/tablet network parameters by following the steps below (the steps may vary slightly depending on the OS version used):
 - a. Click Start → Settings → Network & Internet



Figure 64 Network & Internet setting

Home	Ethernet	
Find a setting	Ethernet	Change adapter options
Network & Internet	Unidentified network	Change advanced sharing options
Status		Network and Sharing Center
// Wi-Fi	Connected	HomeGroup
😨 Ethernet		Windows Firewall
Dial-up		Make Windows better
ଙ୍ଚ VPN		Give us feedback
Airplane mode		
(ip) Mobile hotspot		
🕒 Data usage		
Proxy		

b. Select Ethernet → Change adapter options

- Figure 65 Ethernet setting
- c. Right click Ethernet 3 and select Properties.

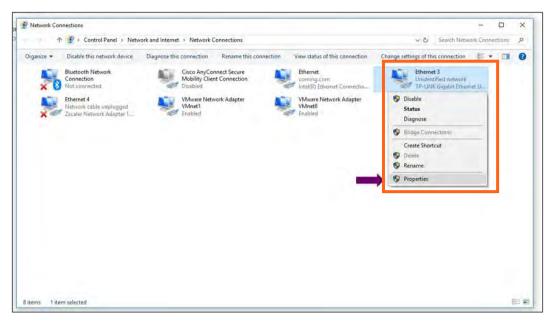


Figure 66 Ethernet 3

d. Select Internet Protocol Version 4 (TCP/IPv4) and click Properties

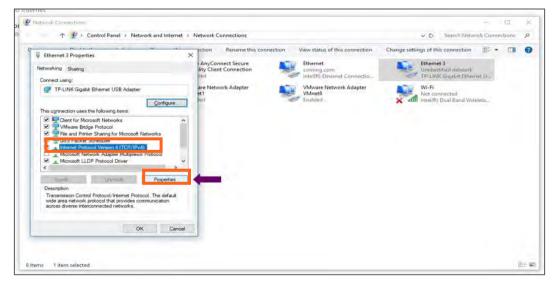


Figure 67 Ethernet 3 properties

- i. Type in the properties: 192.168.8.3 $255.255.0.0 \rightarrow \text{click OK}$
- ii. Examples of IP addresses:

- Allowed: 192.168.8.3
- Not allowed: 192.168.8.101 (this IP is used by the LOCAL port).
- iii. Click **OK** and close the control panel

T	General		
Netv Co	You can get IP settings assigned a supports this capability. Otherwis administrator for the appropriate	e, you need to ask your network	
1	ODbtain an IP address autom		
Th	Use the following IP address	5:	
Th	IP address:	192.168.8.3	
	S <u>u</u> bnet mask:	255.255.0.0	Set the IP address
	Default gateway:	· · · ·	according to the default IP address o
KK	Obtain DNS server address	automatically	the LOCAL port and
	• () Use the following DNS serve	r addresses	the subnet mask.
<	Preferred DNS server:		
	Alternative DNS server:		
C	Validate settings upon exit	Advanced.	
_		OK Can	ncel
		0.0	
		OK Cancel	

Figure 68 General setting

When the connection is established (can be verified by accessing through command prompt: cmd → ipconfig), open a browser and type in the LOCAL port default IP address in the address bar:
 192.168.8.3. Ping the IP address also works. See section 4.2 for instructions on how to continue.

5. Commissioning

Configure the DAS for each frequency during the commissioning process which requires a basic understanding of link, budgets and RF technology. Most system commissioning scenarios are covered and the process should be adjusted based on the site requirements and instructions of Corning Support.

webGUI Workflow

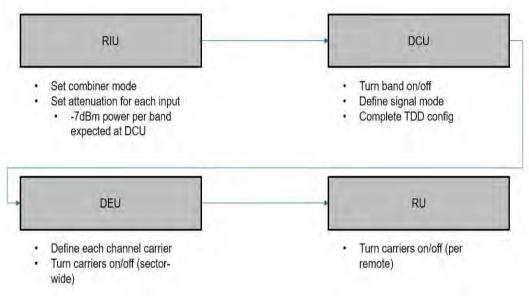


Figure 69 webGUI Workflow

*Note: In order to protect the whole system, please don't input eNodeB signal before commissioning.

Commissioning tools:

Tools	Description
Laptop	Debug tool
Network cable	Connect DCU OMT port with laptop

5.1 RIU Config

5.1.1 RIU WEB overview

Click RIU on the left side shown in the figure below to enter the RIU overview control interface where the information (e.g., RIU alarm) can be viewed. Drag the scroll bar under the information list box or the arrow in in the column of More to view more.

Configure the following parameters:

Band: Read Only. This shows the current frequency band supported by the RIU

• Combiner Mode: 8T01/4T01/2T01

CORNING EVERON	6000 SOLU	TION	ş							० 💥 🗉	debug-
In LEEL	hu	7		U ID I Number	0 1				_		
< Dashboard	Overview		RIU 1				_				
🖶 DCU	More	RIU 1	Band 2500T	Combiner Mode	Site Info.	Temperature 34℃	System Version N/A	Equipment SN 2	RIU Alarm	Fan Alarm	Tempera
Function											
🔔 User											
Program											
									© C	ORNING all ri	ght reserved

Figure 70 RIU overview

5.1.2 RIU Parameter Config

RIU parameters:

SN	RIU parameters	Ranges	Recommend values
1	Work Mode	TxRx/Tx/Rx	TxRx
2	High Gain Mode	On/Off	On
3	DL P_in	Read only	Read only
4	RF Switch	On/Off	On
5	UL ATT	0-30dB	20
6	DL ATT	0-30dB	20

	Cyerview	7	Equipme System		RIU-G2-25 2 Everon_6000_RIU 1 2500T	_P2.V01.00.	00.05]	_		
C Dashboard								ULATT	DLATT	ALC Switch		
	More	CH.	Work Mode	High Gain Mode	Max. Pwr_In 37dBm	-25dBm	RF Switch	©20dB	DLATT ⊠20dB	ALC Switch	ALC Level	DL
DCU	3	2	IZTX/Rx	BON	37dBm	-25dBm	COFF	120dB	E 20dB	BON	37dBm	-
	2	3	CTx/Rx	CON	37dBm	-25dBm	OFF	^I 20dB	20dB	CON	⊠37dBm	
II RIU		4	⊠Tx/Rx	[⊠] ON	37dBm	-25dBm	BOFF	20dB	E20dB	[™] ON	⊠37dBm	
	>	5	[™] Tx/Rx	BON	37dBm	-25dBm	COFF	[™] 20dB	[™] 20dB	CON	^I 37dBm	
Function	2	6	[™] Tx/Rx	PON	37dBm	-25dBm	COFF	C20dB	120dB	CON	^{©l} 37dBm	
		7	⊠Tx/Rx	CON	37dBm	-25dBm	COFF	20dB	[™] 20dB	BON	12/37dBm	
User	*	8	[™] Tx/Rx	EON	37dBm	-25dBm	BOFF	[®] 20dB	E20dB	CON	IIII 37dBm	
	4.1				0			1				

Figure 71 RIU RF information

5.2 DCU Config

5.2.1 DCU -> Dashboard

Click the Dashboard navigation button to enter the dashboard page shown in the figure below, where you can query the full topology of all the dependent NE connected to the DCU unit. Click NE ID in the topology, and switch to the info query and configuration management page of other NE to facilitate the user.

CORNING EVERON* 6000 SOLUTIONS	i			Q 💥 🖪 debug+
	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA 'n Everon_6000_DCU_P2,V01.00.02.10 1		
K Dashboard				Î
III RIU		90 90 90 1		
© Function	DEU3			- 1
🔔 User	-			
O Program				
			C	CORNING all right reserved

Figure 72 DCU dashboard

5.2.2 DCU Alarm

On the left navigation page of the DCU unit, click DCU \rightarrow Alarm shown in the figure below. On this page, all alarm quantities of the device are displayed to facilitate the user to query and monitor the alarm info.

COMMIND EVENOMIT GOID SOLUTIONS			Q 💱 🛤 debug-
	DCU ID 0 Equipment Mode Master Equipment Model ML-DDAS Equipment SN NA Site Info Vn System Version Everon_5000_DCU_P2-V0 Hardware Version 1	00.02 10	
- OP Info	RF Config TDD Config		
	Name	Value	in a china a c
DCU	Equipment Alarm		
	AC Alarm	2 0	
III RIU	DC Alarm	8 0 8	
III HO	DC Voltage Lower Alarm	*0	
A CONTRACT OF A	Fan Alarm 1	20	
Q Function	Fan Alarm 2	8 🙆	
	Fan Alarm 3	E .	
_≞ User	Fan Alarm 4	20	
	Temperature Alarm	10 0	
Program	Power Temperature Alarm	10 D	
	Digital HW Alarm	× •	
	Digital Unlock Alarm	3 0	A I I
	System Delay Alarm	e 😑	
	Temperature THR	1 ¹⁰ aarc	
	Power Temperature THR	Banc	
	Optical Module Temperature THR	179C	
	System Delay THR	.00000ms	
			CORNING all right reserved

Figure 73 DCU alarm info

5.2.2.1 DCU OP Info

Click the left navigation button DCU \rightarrow OP Info, as shown in the figure:

ashboard	10-1			15		DCU ID Equipment I Equipment I Equipment I Sile Info System Vers Hardware Ver	Model SN sion ersion	0 Master MU-DDAS- NA VI EVeron_60 1	00_DCU_P2 V0	1 00 02 10		0-0	-			
an account of		More	OP Port	Temperature	Tx Power	Rx Power	Tx Alarm	Rx Alarm	Sync Alarm	Manufacturer Alarm	Temperature Alarm	SN	PN	Production Date	WaveLength	Transmit
		4	A	N/A.	NA.	N/A.	20	80	20	15	10	NA.	N/A.	NA.	NA	
			5	tan.	Pail 5 -	-Ni/A	80	0.0	80	0	E	N/A	heA	162	NA.	1
		1.000	c	N9.	NA	NA	0.0	6 0		17 ()	18 🕥	8:A	NA .	NA .	RA.	
		1	D	Nº2	NR	NA	-	8 0 -	E ()	E.O	E ()	NA.	1924	PALA.	104	- (
		CQCO	E	NA	NA.	N/A	20	-0			B 🕥	NA	N/A.	N/A	NA.	
ction		1.1	F	1875	705	NIG		- 0	0	6.0	18 B	Nia	NA	N/A .	ha	
			1	MA	NG.	N/A.	12 O	60		80	E O	N/A	NA.	NA	N/A	
			2	NIA.	Nik	104	-0	20	E.	20	e 😜	NA.	HEA:	104	N/A.	1
		. 3.1	1	64A.	NiA -	N/5				10 🕥	10 😑	N/A.	N/A.	NA	NA	1
ram		1.000	4	NOL.	hel	NEA	20	20	-0	00	E 😮	N/A	MA	NA.	- TEA	1
		1.001	5	NA	N/A .	N/A	0	80	80	13 🙆	18 🕥	NA.	.NA	N/A	16A.	
		1	-6	164	Nil	.N/A	-0	= 0	=0	EQ.	80	144	144	NA	144	1
		1.1	7	46°C	-178dBm	-1.th/Ein	26	A.C. 1		00	E 😑	MF214763060023	RTXM330-215	211119	1330ere	251
		1.1		45%	0.GASSIT	51215	20	-0-	80	80	80	MF210hi010074	RTM330-215	211104	Silvinn .	25.8
		81				-										-
		_														_
		OP	1	CH 10		CH 3/4	-	CH 56		CH 710	CH 5/10	CH 11/12		13/14	CH 15/16	
		6/2		GOEF	_	150FF		SOFT.		DIELE.	POFF	10 OFF		OFF	HOFE .	
		34		OFF		SOFE		2012		CEF	OFF	S04		OFF	OFF	
		54		ROFF		CUPE		20 Life &		OFF	ROFF	COFF		DEE	POFF	
		7/1		TOFF		- COFF		OFF		CIFF.	BOEF	100F	3	OFF	BORE	

Figure 74 DCU OP info

In this interface, you can view the information of all optical ports which is convenient for users to query the alarm info of optical modules.

Click the edit icon in front of the alarm indicator to enter the alarm enabling and shielding settings page. Then click Finish to complete the setting, as shown in the following figure:

	Alam	1	OP Info	R	F Config	TDD C	onfig			-		
Г	More	OP Port	Temperature	Tx Power	Rx Power	Tx Alarm	Rx Alarm	Sync Alarm	Manufacturer Alarm	Temperature Alarm	SN	PN
	>	A	27°C	-0.73dBm	<-35dBm	8 0	2	2 0	E 🔵	12 O	RS221500160002	RTXM330-21
	8	В	N/A	N/A	N/A	20	E O	20 F	R	- ² 0	N/A	N/A
	>	С	N/A	N/A	N/A	20	2 ()		Disable O Enable		N/A	N/A
	ž	D	N/A	N/A	N/A	E O	E O	BO		2 0	N/A	N/A
	>	E	N/A	N/A	N/A	20	۳ 🕐	20		2 O	N/A	N/A
	>	F	N/A	N/A.	N/A	C O	20	C O	Finish Cancel	20	N/A	N/A
	>	1	N/A	N/A	N/A	20	20	20	ت <u>د</u>		N/A	N/A
	4	2	N/A	N/A	N/A	C 📀	C 🕥	20	20	80	N/A	N/A
	>	3	N/A	N/A	N/A	20	20	20	2 😑	1 O 1	N/A	N/A
	>	4	N/A	N/A.	N/A	20	20	20	E 📀	20	N/A	N/A
	>	5	N/A	N/A	N/A	20	20	20		2 O	N/A	N/A
	\$	6	N/A	N/A.	N/A	BO	80	BO	E O	2 <mark>0</mark> 2	N/A	N/A
	>	7	N/A	N/A	N/A	20	۳ 🕐	20	20	2 O	N/A	N/A
	>	8	N/A	N/A.	N/A	80	C O	C O	80	2 0	N/A	N/A
3	-											•
2		-										
1	OP		H 1/2	CH 3/4	CH 5/	6	CH 7/8	CH				CH 15/16
1	1/2		R	R	M		R		K E		ß	ß
	3/4		Ľ	ß	B		E		S 23		ß	Z
	5/6		ß	ß	R		ß	E			R	Ľ
	7/8		ß	ß	R		B	1	2 2		ß	ß

Figure 75 DCU \rightarrow OP Info \rightarrow Disable/Enable \rightarrow Finish/Cancel

Click OP Info \rightarrow More to view the optical module info, as shown in the figure below:

Alarm		OP Info	R	F Config	TDD C	onfig					
More	OP Port	Temperature	Tx Power	Rx Power	Tx Alarm	Rx Alarm	Sync Alarm	Manufacturer Alarm	Temperature Alarm	SN	P
	A	27℃	-0.73dBm	≪-35dBm	20		20	2 0	C ()	RS221500160002	RTXM3
		Name		107	Value						
		PN			RTXM330-2	15					
		Production Date	-	1	220407						
		WaveLength			1330nm						
		Transmission Rate	1		25.5Gbps						
		Manufactory			WTD						
	в	N/A	N/A	N/A	E.	Bo	Bo	80	60	N/A	N
2	C	N/A	N/A N/A	N/A N/A	20	C a	20	E O	E G	N/A	N
>	D	N/A	N/A	N/A	Eg	Eo	BO	Eg	20	N/A	N
>	E	N/A	N/A	N/A	20	Co	Ba	E a	80	N/A	N
2	E	N/A	N/A	N/A	60	E.	80	C O	80	N/A	N
>	1	N/A	N/A	N/A	20	E	20	20	E a	N/A	N
>	2	N/A	N/A	N/A	Ea	EG	80	66 00	80	N/A	N
- K	3	N/A	N/A	N/A	20	80	E a	2 a	20	N/A	N
3	4	N/A	N/A	N/A	Bo	120	BO	C.	E o	N/A	N
>	5	N/A	N/A.	N/A	E	12	E.	E o	20	N/A	N
3	6	N/A	N/A	N/A	80	Co	E.	Co.	20	N/A	N
~ ~	7	N/A	N/A	N/A	20	20	E.	20	20	N/A	N
	8	N/A	N/A	N/A	BO	E	E C	80	80	N/A	N
4					-						1
											_
OP		H 1/2	CH 3/4	CH 5	/6	CH 7/8	CH 9			CH 13/14	CH 15/16
1/2		B	ß		-	ß	2		2	R	ß
3/4		R	25	B		B	22		2	B	ß
5/6		2	ES	R		R	2		2	2	ß
7/8		3	B	S		S	2		3	ß	B

Figure 76 DCU → OP Info → More

The optical port source can be select by clicking shown in the figure below:

				Equipment Equipment Site Info System Vec	Mödel SM sian	0. Master MU-DDAS NA Vi Everon_60 1	00_DCU_P2 V0	1 00 02 10			-			
Ala	m		-	RF Co	orlig	TOP	Config						_	
More	OP Port	Temperature	Tx Power	Re Power	Tx Alarm	Rx Alarm	Sync Alarm	Manufacturer Alarm	Temperature Alarm	SN	PN	Production Date	WaveLength	Transmis
						-								
														7
														1
1.000	D													
	E													1
														1
														,
and the second														1
		1.0.1										1444	10.11	,
						and the second second								4
	-									1011				
														. 1
					-	-								25.5
a second	1.1	4810	0.54.5m	-5.62.98m			-0	•	•	MF210600100074	RTXM330-215	211164	1330cm	,753
														-
00		CH 10	DFF		-	THE SE	1 7	w.7#	CHERR	79149142	0	114	CB 101	
			ON		1.1									
- 56		3 OFF	-			BOFF			Porr	5011			NOFT	-
7/3		TOFF.			- L	2 OFF		pre	707	Torr		OFF	COPT	
	AV More 4	More OP Point 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Aum Aum OP Pon Temperature NA NA C NA D NA C NA D NA D NA L NA L NA J NA J NA A NA J NA J	Aurr More OP Por North NA B NA NA NA C NA NA NA D NA NA NA S NA NA NA J A NA NA J <t< td=""><td>DDU B Experiment Experiment Experiment Statum Statum St</td><td>DDUB Exponent Mac Exponent Mac Exponent Mac Bit Integration Bit Integration OP Exponent Mac Bit Integration Bit Integration OP Exponent Mac Distribution Bit Integration OP Exponent Mac Distribution Bit Integration Distribution Bit In</td><td>DDLID 0 Equipment Mode Buildows Equipment Mode Buildows Statis Mildows Statis Mildows</td><td>DDU D 0. Exponent Mase Maste Exponent Mase Maste Exponent Mase Maste Submert Mase Maste Maste Colored Master NA NA NA <</td><td>DOLID 0 Equipment Model Maria Equipment Model Maria Equipment Model Maria Statis Vite Maria Bits Vite Maria Bits Vite Maria Bits Vite Maria Bits Vite Maria Maria Ma</td><td>DCU ID 0. Experiment Mades Mades Mater Experiment Made Mater Experiment Made</td><td>DDLID 0 Equipment Mase Mate Extension Extension Extension Mate Reference Reference Reference Mate Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference</td><td></td><td></td><td></td></t<>	DDU B Experiment Experiment Experiment Statum Statum St	DDUB Exponent Mac Exponent Mac Exponent Mac Bit Integration Bit Integration OP Exponent Mac Bit Integration Bit Integration OP Exponent Mac Distribution Bit Integration OP Exponent Mac Distribution Bit Integration Distribution Bit In	DDLID 0 Equipment Mode Buildows Equipment Mode Buildows Statis Mildows Statis Mildows	DDU D 0. Exponent Mase Maste Exponent Mase Maste Exponent Mase Maste Submert Mase Maste Maste Colored Master NA NA NA <	DOLID 0 Equipment Model Maria Equipment Model Maria Equipment Model Maria Statis Vite Maria Bits Vite Maria Bits Vite Maria Bits Vite Maria Bits Vite Maria Maria Ma	DCU ID 0. Experiment Mades Mades Mater Experiment Made Mater Experiment Made	DDLID 0 Equipment Mase Mate Extension Extension Extension Mate Reference Reference Reference Mate Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Mate Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference			

Figure 77 DCU \rightarrow

5.2.2.2 DCU RF Config

Click DCU \rightarrow RF Config, as shown in the figure below:

SN	DCU parameters	Range	Recommend value
1	Band (Set based on RIU type)	2500T (2496-2690) N3500F (3450-3700) N3500G (3700-3980)	Choose based on the RIU BTS connections
2	BW (Set Based on Band)	194 MHz (2500T) 250 MHz (N3500F) 280 MHz (N3500G)	Choose based on the RIU BTS connections
3	DL Center Freq	2593 MHz (2500T) 3575 MHz (N3500F) 3840 MHz (N3500G)	Choose based on the RIU BTS connections
4	Signal Mode	FDD (not used in this release) TDD-NR TDD-LTE TDD-NR + TDD-LTE	Choose based on the RIU BTS connections
5	RF Switch	On/Off	On

)) <u></u> :		11	Bqui Equi Bite Byst	pment Modé pment Modél pment SN	6 Miester MU-DDi NA IV Everon		_P2 V01 00	02 10			-		
Deshboard.	1	lann:		DP kila	8/0-mg	TDD	Config						-	
	CH	Band	BW	DL Center Freq	Signal Mode	RF Switch	ULATT	DLATT	Max. Pwr_In.	DL Pwr_In	UL Pwr_out	High Gain Mode	DL Overload Alarm	DL Overload THP
	1	E29007	*250/Hz	25936442	¹⁵ TDD-NR	SON.	th od8	Eb0d3	ÖdBro	-40.0dBm	<45,0d8m	(CALE	E 🗿	12 10dBm
	1.2	152500	P\$250Wev	250200Pin	TODAR	CON.	HD0H	E Den	ONDes	<40 DdBm	~	POFF	8	Colline
RIU	3	BNA	18250MHz	ONH2	REDD	BON	18 ⁰⁴⁸	E OdB	OrdErm	<-43.0dBm	<-45 DdBm	ZOFF	E 🔴	10dBm
	1.161	10 MIA	2904902	01842	CCCDD .	SON .	Mode	Wode.	OdBro	⊷A0.0dBm	~45 0dEm	CIFE	30	El Mallom
Function	5	B2500T	12250WH2	25836442	12 TOD-NR	13 ON	12 Odfi	10dB	Catility	<-40.0d8m	<-45.0d8m	CEF	12 O	10:±5im
undien	0.1	152500T	152504642	26634942	ISTOD-NR.	NON .	Prode	Rode	GdBm	<-49 BdBm	45 DdB	FOFF	19 🕒	18 TIMER
	7.	BNA	12250MI4z	0.0442	BEDO	BON	05 _{0dB}	DS _{0dB}	0dBm	~~40 0dBm	-545.0dBm	COFF	E 😜	10dBm
User	10	Shirt	1026GMPtz	(Out-to-	15 FDOV	MES	PEDOR	-0d8	Odfilm	-40.0dBm	<45.068	²³ OFF	3 () 1	CE (Deplay
	- 10	BN/A	IS I BHINHA	0.842	BYDD	SON	0.048	Di Qualit	0dBm	~-40.0dBm	<-45 DetErri	CFF	9 <mark>9</mark>	10d0m
Piogram	10	R'MA	TA HOMATHIE	Online	FDD	CON	(C)pdB	Bb0 ^m	Culture	~-40.0dBm	<-45 0dBm	DEE	1 C 2	(E-10cEnn
	- 11	10065 m	194Miles	2393MHz	BIDD-NR	2 ON	15 ⁰⁴⁸	120dB	Gittern	- AD DdBm	<-45 DdBm	ROFF	13 🥥	10dEm
	121	E00007	D'IONNE C	2150MHz	CITUDIAN	SCAN	Bona	Baan	0,0Eiro	- 40 Billio	-45.005	200FF	8	CS (ridian)
	- 15	18-2300T	13 194MHz	2350A0Hz	TOD-NR	BON	100dB	100dB	DdEm	<40.0dBm	<45.0dBm	15 OFF	E 😜	10dBm
	14	12,23001	10100000	2300VP42	STORAR	25ch	BPOB	Epas	OrtHays		~40.05Em	COFF.	30	CIDEDM
	15	¹² 23007	15 194MHz	23598-62	BITTE-NR	BON	BOOR	Bods	0dBm	<-40 DdBm	<45.0d8m	2OM	80	10dBm
	1047	TE 730KIT	Biosket	73508年纪	CTOD-NR	CON.	RPURE	Ender	OATERT	-40.0dBm	<45 0:3m	1 OFF	0	10mDm
	1.1)

Figure 78 DCU \rightarrow RF Config1

5.2.2.3 DCU TDD Config

UL/DL Slot Configuration: User-defined parameters are supported, but should be the same as the operator parameters.

Aim Of the By Code Buccede Column TOD-NIX Into TOD-NIX Into TOD-NIX Into TOD-NIX Into Column State <							Equipment Mode Equipment Model Equipment SN Site Info	0 Master MU-DDAS NA In Everon_6000_DCU_P2.V01 1	1 00 62 10					[
TDU-NR line Nor OX End UOL SECONGUNED OL SEP f, lo Secial SECONGUNED Not Generation Secial SECONGUNED Ver SEC	hboard		Alam	_	OP info		RF Config	TUD Carlig		_	_	_	_	_	-	-			
1/12 2/07 2/005100300 4464 2/1022 2/3042 2/0142 </th <th></th> <th>TDD-NR</th> <th>Info</th> <th></th> <th></th> <th></th> <th></th> <th>() () () () () () () () () () () () () (</th> <th></th>		TDD-NR	Info					() () () () () () () () () () () () () (
1 12 2007 200500000 4466 21122 2004e 2004	P	More	CH.	Band	ULIDL Slot Configuration	DL SSB P_in	Special Sub Configuration	Sub Carrier Spacing	User Set CF1	User Set CF2	User Set CF3	User Set CF4	User Set CF5	User Set CF6	User Set CF7	User Set CF8	TOD SYNC OF	TOD SYNC Alarm	Work Signa
11/12 2007 200050000 4468 21122 2004e 2014e <		3	12	25007	BODDSUDDSUU	-96dBm	210.22		E OMH2	E CMHz	000MHz	CMHz	2 OMHz	BOWHZ	3 (MHz	12 OWH2	CMHz		NA
1 (314 2007 ¹² 0000,000,00 48684 ¹² 1022 ¹² 0040 ¹² 0		5	518	25007	BODOSUDOSUU	-96dBrg	B1022	P _{30kHz}	DoliHz	Bowhiz	COMHz	12 COLO	CMHz	BOWHE	CMHz	CONHE	DVHz	0	NA
		1.5	11/12	23007	CODOSUDOSUU	-96dBm	²² 10.2,2	22 30kHz	20MHz	BOWHZ	COMHz	CMHz	20MHz	PONHE	2 _{CMHz}	CONHZ	CMHz	0	NA
; 1916 2007 ²³ 0000.0000U 466m ²³ 1022 ³³ 004e ³	Ó	÷	(3)4	23007	Baaguaasuu	-98dBm	⁸ 10.22	2 30kHz	E DM-FF	² CMHz	BOWHZ	BONHE	2 _{0MHz}	III OWH2	¹² CMHz	BOWHS	DMHz	0	NA
		4	15/16	23007	CODOSUDOSUU	-96dBm	210.2.2	10 30kHz	POWHE	2 ² 0MHz	¹³ 0MHz	¹² (MHz	2 ² 0MHz	ECOVHz	CMHz	12 OMHz	0//Hz	0	NA
		-																	

Figure 79 DCU \rightarrow TDD Info

EVERON" 6	000 \$010	TIONS															٩	X 🖪 d
	10	A LAN				DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA Vi Everon_6000_DCU_P2 V01 1	\$0.02.10]					
coard d		Alam	-	QP Info		RF Config	700 Contig		-	-	-	-	_					
	TDD-NR	Info																
	Nore	CH.	Band	ULIDL Slot Configuration	DL SSB P_in	Special Sub Configuration	Sub Carrier Spacing	User Set CF1	User Set CF2	User Set CF3	User Set CF4	User Set CF5	User Set CF6	User Set CF7	User Set CF8	TED SYNC CF	TED SYNC Alarm	Work Sig
	~	12	25007	BDDOSUDOSUU	-96cBm	B1022	E 338Hz	B ONHS	CONH2	ROWHS	ROME	BOWH2	BOWHZ	ROWHE	BOWHZ	DNH2	0	NA
	F	-	Nar	e l	Value	-												
é –			User Se	L CF8	CONH													
				ROWH														
		User Set CF8																
			TOD SY/	IC CF	CNHz													
		_																
		_	TOD SYN	2022														
1			TDD SYN Work S	2022	0 NA													
	8	58		2022		B ₁₀₂₂	C 3084±	BONHS	CONH2	² 014	Romer	Ci MHz	2 _{004z}	^{II} (MHz	Contra	OWHz		NA
	8	518	Work S	ignal	NA	¹² 1022 1222	Pistone Histonez	BOWH2 BOWH2	CONHS CONHS	Ronne Ronne	Rowne Source	Downey Bowney	2 ₀₀₄₂ B _{OWH2}	E CMHz CMHz	Comes Comes	OWH2 DWH2		NA NA
	8	-	Work S 25007	enel	N A -QốdBm			1		1		Area a				100	-	

Figure 80 TDD configuration

5.2.3 DCU -> RIU

As shown in the figure, click DCU \rightarrow RIU to query and set the information of the RIU connected to the DCU unit.

CORNING EVERON ** 6000 SOLUTIONS				 Q 🔀 🖪 debug+
Real Britishing	DCU ID RIU Number	0 0		
< Dashboard	_			
I DCU			RIU No Data	
III RIU				
Function				
Luser				
Ø Program				
				© CORNING all right reserved

Figure 81 RIU overview

5.2.4 DCU -> Function

Configure the max input according to specific needs.

5.2.4.1 Device Info

Click Function \rightarrow Device Info to query the names and values of the device, as shown in the figure:

CONNING EVER	onic aligo Soburnollis			Q 💥 🖬 debug-
		DOL 102 D Equipment Mode Master Equipment Mode MuLDDAS Equipment SN NA Site info N S System Version Eveton (S000_DCU_P2 Vol 00 02 10 Hardware Version 1		
at Dashboard	Device Info	Firmware Alarm Setting Import & Export	Log Comm. Setting IP Setting S	te Report
	Device into			
I DCU		Name	Value	
		Equipment Temperature	58°C	
III RIU		Power Temperature	WC .	
		DC Voltage	52 9V	
🙆 Function		AC Input Voltage	0 BV	
		DC Power Consumption	137W	
2 User		AC Power Consumption	OW	
		Fan Speed	3300r/min	
Ø Program		Uptime	80 23.43/39 60	
No Program		Date/Time	¹²⁵ 2022-09-20 13:36:49	
		24H Reboot Time	174 A DW	
		Equipment Mode	12 Master	
		Site ID	12, GHUQHIMAR	
		DCU ID	0	
		Site Info	The	
		Longitude	[™] NA	
		Lotitude	⁷⁷ 106	
		NR1 Auto Search	12 OFF	
		NR2 Auto Search	10 field	
				8 CODMING all and provide
				© CORNING all right reserved

Figure 82 DCU \rightarrow Function \rightarrow Device Info

24h reboot time, site info, site ID, user model and device mode can be customized by users.

24H Reboot Time is set by the user which can be reset within 24 hours; Device Mode is used to set the work mode of DCU. (Note: when DCU is in master mode, it can be connected to DEU; when DCU is in slave mode, it fails to connect to DEU and work independently. It can only connect to master DCU for normal use.)

5.2.4.2 Reset

Click Function \rightarrow Reset to reset the software and hardware of DCU and clear the historical alarms.

Device Info	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA In Everon_6000_DCU_P? 1 Aam Settling Import & E		Comm. Setting IP Se	rtling Site Report
Cashboard	Item		Action		
DCU	Restore Factory Setting	įs	Reset		
	Clear History Alarm		Clear		
II RIU	DCU Hardware Reset		Reset		
Function	DCU Software Reset		Reset		
User					

Figure 83 DCU \rightarrow Function \rightarrow Reset

5.2.4.3 Firmware

Click Function \rightarrow Firmware and the firmware info can be viewed and upgraded.

NING EVERON" AREA SE	BLUTIONS								Q :	🕻 🖽 debu
		7	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA Vn Everon_6000_DC 1	U_P2 V01.00.02.10					
Dashboard	evice Info	Reset	Hirmware	Alarm Setting	Import & Export	Log Comm. Set	ing	IP Setting	Site Report	-1-
	ware Info									
CU Ma	ore Name	1	System Version	1 10	Boot Version	FPGA Vesion		System Date	Boot Date	FPGA Date
	Active	Everon_6	000 DCU P2 V01 00 02 10	Everan_600	0_DCU_P2 V01 00.00.02	Everon 6000_DCU_P2 V01	00,00.01	08/23/2022	04/26/2022	08/21/2022
U	InActive	Everon_6	000_DCU_F2 VR1 00 02:24	Everon_600	0_DCU_P2 V01 00 00.02	Everan_6000_DCU_P2 V01	00.02.01	09/18/2022	04/26/2022	09/17/2022
inction										
		s	ystem Version		Control Switch	Progress		Fil	e	
er		Everon_600	0_DCU_P2.V01.00.02.10		COFF	0%				S
ogram	Equipme	nt Model	System Version		Progress		- 1	File		
					No Data					
					Upgrade					
									CORNI	IG all right re:

Figure 84 DCU \rightarrow Function \rightarrow Firmware

Two upgrade modes are supported by 5G digital DAS products of D430 series of the system software of all NE: centralized upgrade and decentralized upgrade. The settings of the two modes can be configured in Control Switch:

INNING EVERON"	anaa satu	TICINIS								۹ :	🕻 🛤 debug-
		jj/	E E S S S	CU ID quipment Mode quipment Model quipment SN ite Info ystem Version ardware Version	0 Master MU-DDAS NA 'n Everon_6000_D4 1	CU_P2 V01.00.02.10			1		
Dashboard	Device In	nto	Reset	Farmware	Alarm Setting	Import & Export	Log Comm	Setting	IP Setting	Site Report	1
Dasiluara	Firmware	Info									
DCU	More	Name	System	Version	1	Boot Version	FPGA Vesi	ол	System Date	Boot Date	FPGA Date
		Active	Everon_6000_DCL		Everan_60	00_DCU_P2 V01 00 00.02	Everon 6000_DCU_PS	V01 00,00 01	08/23/2022	04/26/2022	08/21/2022
RIU	2	InActive	Everon_6000_DCL	P2 V01 00 02:24	Everon_60	00_DCU_P2 V01 00 00.02	Everan_6000_DCU_PS	V01 00 02 01	09/18/2022	04/26/2022	09/17/2022
Lunction											
			System Ve	ersion		Control Switch	Progress		Fil	e	
User	-		Everon_6000_DCU_I	P2.V01.00.02.10		BOFF	0%				Scan
Program	-										
Program		Equipment M	xdel	System Version		Progress			File		
	1					No Data					
						Upgrade	67				
										a convil	NG all right reser
										CORNI	vo all right res

Figure 85 Firmware upgrade configuration

1. Decentralized upgrade : the Control Switch is OFF and only the software of the current DCU unit can be upgraded in this mode. The steps to upgrade the software are the followings:

Step1: Click SCAN to import the software version to be upgraded.

Step2: Click Upgrade. When the progress of downloading the software to the device is 100% and FINISH is prompted, the software is successfully downloaded.

Step3: After the device is reset, the software will be upgraded automatically.

			,	DCU ID Equipment Mode Equipment Model Equipment SN Sits Info System Version Hardware Version	D Master MU-DDAS NA In Everon_6000_DCI 1	J_P2 V01 00 02 10		0	ſ		
ooard	Device Ir		Reset	Firmware	Alarm Setting	Import & Export	Log Comm	. Setting	IP Setting	Site Report	
	Firmware	Name	s	system Version	8	loot Version	FPGA Ves	ion	System Date	Boot Date	FPGA Da
	. 5	Active InActive		00_DCU_P2.V01.00.02.10 00_DCU_P2.V01.00.02.24		_DCU_P2 V01.06.00.02	Everon_6000_DCU_P2 Everon_6000_DCU_P2		08/23/2022	04/26/2022	08/21/202
		1							h and a		
				ICU P2 V01.00.02.10		Control Switch	Progress 0%		File	•	
							5.6	1			_
n	1	Equipment Me	odel	System Version		Progress			File		
						No Debs					
	-						_				
						Upgrade	í.				
										© CORNIN	NG all right n

Figure 86 Select file

2. Centralize upgrade: the Control Switch is ON. The system software of seven NE (RIU, DCU, DEU, DLRU-2.5, DLRU-3.5, DMRU-2.5, DMRU-3.5) in the 5G digital DAS products will be stored after they are imported into the internal storage by the users. All the slave NE (slave DCU, DEU, DLRU) connected to this seven NE will automatically take the system software to be upgraded independently.

			1	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA In Everon_6000_DCU 1	.P2.V01.00.02.10					
Dashboard	Device		Reset	Ficiniware	Alarm Setting	Import & Export	Log C	omm. Setting	IP Setting	Site Report	
DCU	Firmware										
	More	Name		System Version		ot Version DCU P2 V01 00:00.02		Vesion	System Date	Boot Date	FPGA Date
RIU	2.	Active		000_DCU_P2 V01 00 02 10 000_DCU_P2 V01 00 02 24		DCU_P2 V01 00 00 02		J_P2 V01.00.00.01	08/23/2022	04/26/2022	08/21/2022
								1			
	1			ystem Version		Control Switch	Progress		Fil	e	
User			Everon_600	0_DCU_P2 V01 00.02 10		COFF	0%				Scan
Program		_				OFF ON					
	1	Equipment Mo	del	System Version	P	ro		1	File		1
						Finten Cancel					
						Upgrade					

Figure 87 System upgrade on/off

5.2.4.4 Alarm Setting

Through Function \rightarrow Alarm Setting, setting the alarm duration can be achieved. When it is set to1~253, it shows alarm duration, with the unit of 10s. Setting to 254 indicates an immediate level alarm; Set to 0 and the alarm will not occur until 3 minutes later;

сожина вуеком= а	SBM SOLUTIONS					Q 👯 🖬 debug-
		DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA Va Everon_6000_DCU_P2 V01 00 02.10 1		1	
- Dashboard	Device Info Reset	Firmware	Alarm Setting Import & Export	Log	Comm Setting IP Setting	Site Report
I DCU	Name Alarm Detect Duration(10s)			Value ¹² Gx10s		
III RU						
O Fondon						
🚊 User						
Program						
						CORNING all right reserved

Figure 88 DCU \rightarrow Function \rightarrow Alarm Setting \rightarrow Alarm Detect Duration

5.2.4.5 Import & Export

The user can import and export DCU configuration by clicking Function \rightarrow Import & Export, as shown in figure:

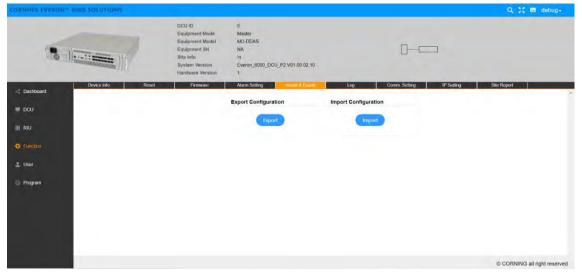


Figure 89 DCU \rightarrow Function \rightarrow Import & Export

5.2.4.6 Log

Click Function \rightarrow Log to export the log of DCU for problem analysis, as shown in the figure:

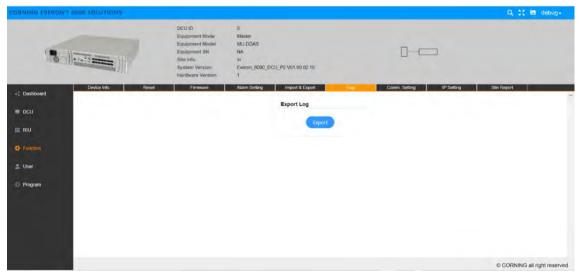


Figure 90 DCU \rightarrow Function \rightarrow Log

5.2.4.7 Comm. Setting

Click Function \rightarrow Comm. Setting to set the network management communication types, as shown in the figure:

	6000 SOLUTIONS				Q 🕽 🖬 debug-
10		DCU IB Equipment Mode Equipment SM Site Into System Version Hardware Version	0 Maxier MU-DDAS NA 19 19 7 7		
Deshboard	Device Info Reset	Firmware	Alarm Setting Import & Export L	og IP Setting	Site Report
			Communication Types 🧿 Ebernet	SNMP	
E DCU					
RIU	Name		Value		
	OMC Service IP		18 ₀₀₀₀		
	OMC Service IP Port		127035-		
	Transmission Protocol		12 _{TCP}		17
	Transmission Protocol		8:205		
	Heartbeat Detect Interval				
			2 151		
User Program	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				
User	Heartbeat Detect Interval				

Figure 91 DCU \rightarrow Function \rightarrow Comm. Setting

5.2.4.8 IP Setting

Click Function \rightarrow IP Setting to set DCU IP for OMC communication, as shown in the figure:

CORNING EVENON'S ADDI SOLUTIONS					Q 👯 🛤 debug-
	DICU ID Equipment Mode Equipment SN Site Info System Version Hardware Version	0 Master MU-DDAS NA In Everon_6000_DCU_P2:V01.00.02.10 1			
Device Info Reset	Firmware	Alarm Setting Import & Export	Log	Comm. Setting	Site Report
	Name		Value		
💷 DCU	IP Address		B 192 168 0 101		
	Default Gateway		B192 168.0 1		
III RIU	Subnet Mask		B255.255.255.0		
 Function Liber Program 					
					© CORNING all right reserved

Figure 92 DCU \rightarrow Function \rightarrow IP Setting

5.2.4.9 Site Report

Click Function \rightarrow Site Report and the site report of DCU enables it to be recognized by NMS, as shown in the following figure:

CORNING EVERON" DOUL SOLUTIONS					Q 😂 🖪 debug-
	DCU ID Equipment Mode Equipment Model Equipment SN Site info System Version Hardware Version	0 Master MU-DDAS NA Vn Everon_6000_DCU_P2.V01.00.02.10 1			
Device Info Reset	Firmware	Alarm Setting Import & Export	Log	Comm. Setting IP Setting	Sile Report
E DCU	Name Site Report Result		Value Unknow		
III RU		Re	Tion		
© Function					
A User					
Ø Program					
					© CORNING all right reserved

Figure 93 DCU \rightarrow Function \rightarrow Site Report

5.2.5 DCU -> UserInfo

5.2.5.1 Password

Click User->Password to reset the DCU password which should include capital and lower-case letters and 13 digits in length, and the recommended password is zaq1XSW2cde34.

CORNING EVERON* 5000 SOLUTIONS			Q 💱 🖬 debug+
	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Nardware Version	0 Master Mu.DDAS NA ¹⁰ Evenon_6000_DCU_P2 V01 00.02 10 1	
Passward UserInfo	LeginInfo		
		tem passout	
III RIU		profiles passed	
O Function		modify	
🚊 Disor			
💿 Program			
			CORNING all right reserved

Figure 94 DCU→User→Password

5.2.5.2 UserInfo

Click User->UserInfo to add a user and set the role and password, as shown in the following figure.

CORNING EVERON	· BODD SOLUTIONS				Q 🔀 🛤 debug-
		17	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master MLLDDAS. NA In Everon_8000_DCU_P2 V01.00.02.10 1	
- Dashboard	Password	Long-	Logintrito		
and a second second	User Name	Role	Status	Operation	
≡ DCU	admin	admin		Reser	
III RIU Ø Function				Adeliwe	
😩 Otor					
Program					
					© CORNING all right reserved

Figure 95 DCU→User→UserInfo

					Q 👯 🗷 admin+
		DCU ID Equipment Mode	0 Master		
	. All Care	de la		×	
Password	* User Name				
User Name					
admin	* Role			1911 -	
	Select				
	* Password				
	* confirm password				
1.1.1					
		Add User			
	-			_	

Figure 96 DCU \rightarrow User \rightarrow UserInfo \rightarrow Add User

5.2.5.3 LoginInfo

As shown in figure 91, click User->LoginInfo to set the maximum value of password input attempts. This function indicates that when a user logs in, the system will be locked if the times of password input exceeds the maximum.

CORNING EVERON	- 6000 SOLUTIONS	5				Q 💥 🖬 debug-
		117	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Mitsler MU.DDAS NA In Everon_6000_DCU_P2 V01.00.02.10 1	<u>I-</u>	
-: Dashboard	Password	Userinfo	Logerteite			
	Item	Value				Operation
≡ ocu	tryhitax	5				Edit
III RIU						
Ø Function						
Luser						
O Program						
						CORNING all right reserved

Figure 97 DCU DCU→User→LoginInfo

5.2.6 Program

Click Program \rightarrow Site Management to clear the site ID of the DCU reported to OMC.

CORNING EVERON" BREE SOLUTIONS					Q 💥 🖬 debug-
	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master ML-DDAS NA In Everon_6000_DCU_P2 V01.00.02.10 1		0	
	Management				
	Name		Value		
= DCU	DCU ID		0		
	Equipment SN		12 NA		
III RIU	Equipment Model		MALDDAS		
	MAC Address		100 (U. 11) 100 06 -00		
 Q. Function ▲ their ④ Oreginent 					
					CORNING all right reserved

Figure 98 DCU factory setting

CORNING EVERON = SAULI SOLUTIONS				Q 👯 🖪 debug-
	DCU ID Equipment Mode Equipment Model Equipment SN Site Info System Version Hardware Version	0 Master NU_DDAS NA In Everen_8000_DCU_P2.V01.00.02.10 1	D	
Dashboard				1
E DCU		Clear Site ID		
III RIU		Core .		
© Function				
± User				
(@ Program				
and the second se				© CORNING all right reserved

Figure 99 DCU→ Program

5.3 DEU Config

5.3.1 DEU -> Dashboard

Click the Dashboard navigation button to enter the dashboard page shown in the figure below, where you can query the full topology of all the dependent NE connected to the DEU unit. And the info query and configuration management page of other NE can be switched to after clicking NE ID in the topology.

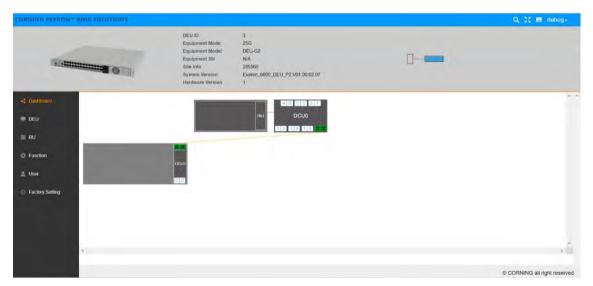


Figure 100 DEU→Dashboard

5.3.1.1 Alarm Info

NING EVENON" HORE SOLUTIONS			Q 💥 🖾 debug-
0	DEU ID 3 Equipment Mode 25G Equipment Model DEU-G2 Equipment NN NA Site Info 28565 System Version Everon_6000_DEU_P Hardware Version 1	2 V01 00 02 07	
Aliam Infis	OP Info Carrier Info		
Lasnooard	Name	Value	
DEU	Equipment Alarm		
	AC Alarm	200 C	
าน	DC Alarm	18.0	1
	Fan Alarm 1	2 C	
Function	Fan Alarm 2	12	1
uncoon	Fan Alarm 3	The second secon	
and the second	Fan Alarm 4	20	
User	Temperature Alarm	A	
A sector sector a	Power Temperature Alarm	20	
Factory Softing	DC Voltage Lower Alarm		
	Digital Unlocked Alarm	E O	
	DC Voltage Lower THR	230V	
	Temperature THR	12 BOIC	
	Power Temperature THR	10 BOAC	
	RU Temperature THR	10 sorc	
	Optical Module Temperature THR	DOC .	

Figure 101 DEU→DEU→Alarm Info

Alarms can be set and viewed in this function which are defined as follows:

- 1) Equipment Alarm: if any alarm is valid, the alarm will take effect.
- 2) AC Alarm: if the input voltage is abnormal, the alarm will take effect.
- 3) DC Alarm: if the output of the power module is abnormal, the alarm will take effect.
- 4) Fan Alarm1~4: if any fan (4 in total) in the fan module is abnormal, the alarm will take effect.
- 5) Temperature Alarm: when the device temperature is higher than the device over temperature THR (80 $^{\circ}$ C by default), the alarm will take effect.
- 6) Power Temperature Alarm 1~2: when the temperature of any PSE is higher than the device over temperature THR (80 $^{\circ}$ C by default), the alarm will take effect.
- 7) Digital Unlocked Alarm: when the device is unlocked, the alarm will take effect.

						Kinepe Kinepe Silan Ad System	mert Gener mert Gener mert Då in Spinner art Version	1 250 DEU-02 NA 200085 Elimon_0000_ 1	DEU_P2191004217				-				
unblowert	-				-												
	Mare	80	Tempetakara	Ti Press	Re Presert	Te Alarm	Rublere	Syni, Alam-	Temperature Alaen:	Manufacturer Alarm	SN	PN Internation	Revelength	Transmission Faller	Production Date	Manufactory	Restau
4	-		95	and size.	1. PTASSe	-	-0		10		are contracted	1004204-00	1700	2004	1000		2.4
			1927	- 14.4	100	1.0	10	10	1	20	76.4	714	- 14			16.6	1
1	in the second se	2	146-	194		-	-	-	-		194	104	194	100	1985-1	164	-
1.0		1	1914	194	110	-		10		20	1914	April .	194	N/A	1910	10N	1
ndion		- 2	19.0		19.4	100	20	10	10	10	isa-	150	100	19.8	198-	100	-
	1.1.1	- 3	784		1818						19.4	54	-14.4	94.	764	198-	-
*		41	100	-94	303	20	10		90		tea.	104	1954	100.	UNA.	NIK	
1 A 4 A 4 A 4 A 4 A 4 A 4 A 4 A 4 A 4 A		5	-1674	1996.1	194						19.4	144	1924	NA-	-162	-IsA	1
dary Setting	1.000		194	-	1 780						ian				(768	100	
		111	17408	1994	104						1943	194.	15A	104	1988	194	
			100	1994 1	304						- NA	194	1994	10	1998	NM.	
	i	- ik-		994	-94	- 1		20	3 0	2 0 1	164	394	- 604	- 9A		100	
	-	18	194		54						98-	195	- 195	-14	1968		-
	1000	11.	185	98							10.4	19.2	54	84	164		_
	and the second s	-0	34	ingel.	1.004						.164.	104	-		Irak.	AK.	-
		-0	- fyia	- 14.4				10			-164	124	-164	-16A	- 1418	-154	-
	-	- 18	18.5	-124	122	1		10			184	19.4	- 14	11.	1988	104	-
	in the second	- 10	19.4	34		-	-	-	-		184	194		10	100	100	-
		0	19.4	- 14	- 1.4	-		-	-		163	101		61A.		14.14	-
	in the second se	- 18	101	94.6		7.0	100	-	7.0		19.4				1964	16.0	-
	-	10	704	- 104	100	1.0	10	-		7.0	figh.	April .	84	NA	76.6	NA	-
	-		100	-			1000	10	20	20	HER.	101	100	14	Look .	1	-
		71-	-	-94-	54	10	-0		20		-193	128.	-58	-16.	-194	1 pm.	1
		- 1	199	194	1	-0	-0	-0		10	1912.		1984	108.	1948	194	-
	1.1.1	-10	1918	1994	100	2.0			2 0 1	2 C	104	Apr -	196A	3/6		- Mit -	_
	1000	- 26	. 54	and -	- 188.			-0		20 I I I	HP4-	1.00	100	- 10	198.	1.100	

5.3.1.2 OP Info

Figure 102 DEU \rightarrow DEU \rightarrow OP Info

Corning Restricted - Controlled content (R2)

CORNING

The range of optical module transmitting power (Tx PWR) is -3dBm~5dBm; The range of Rx PWR shall be greater than -10dBm. The maximum operating temperature must be lower than 80 ° C and the optical module must be correctly matched. Otherwise, an exception may occur. Alarms can be queried on this interface.

Dashboard	Alarm Info	t.	DEU ID Equipment Equipment Equipment Site Info System Ve Hardware V	Model SN	3 25G DEU-G2 N/A 285565 Everon_600 1	00_DEU_P2.V	/01.00.02.07		[- 	Q 🔀 🖻 debug
					1					
	More	Num.	Temperature	Tx Power	Rx Power	Tx Alarm	Rx Alarm	Sync Alarm	Temperature Alarm	Manufacturer Alarm
	More	Num. A	Temperature 34°C	Tx Power -1.09dBm	-2.36dBm	Tx Alarm	Rx Alarm	Sync Alarm	Temperature Alarm	Manufacturer Alarm
DEU RU				-1.09dBm		⊠ 🎱 Va				
RU			34°C Name Transmission P Production Da	-1.09dBm Rate		☑ ● Va 25.5 220	Iue Gbps 0602			
RU			34°C Name Transmission F Production Da Manufactor	-1.09dBm Rate		⊠ ● Va 25.5 220 F	Iue Gbps ₩602 FF			
			34°C Name Transmission P Production Da	-1.09dBm Rate	-2.36dBm	12 Va 25.5 220 F 2	Itue Gbps 9602 FF		8	22
RU			34°C Name Transmission F Production Da Manufactor	-1.09dBm Rate		₩ 0 25.5 220 F 2 2	Iue Gbps De02 FF L1		20 33	15 0
RU	~	A	34°C Name Transmission P Production D Manufactor Revision	-1.09dBm Rate ate y	-2.36dBm	12 Va 25.5 220 F 2	Itue Gbps 9602 FF		8	22

Click ">" under the OP Info \rightarrow More to view the optical module info, as shown in the figure below:

Figure 103 DEU \rightarrow DEU \rightarrow OP Info \rightarrow More

5.3.1.3 Carrier Info

Click Function \rightarrow Carrier Info \rightarrow Add to set uplink and downlink band information.

			0
	-	ute 🗇 Da	
	URL Conter From (Wile)	71994 	8
	1 DL Crosler Frequ;Mito)	0.	
· · · · · · · · · · · · · · · · · · ·	* 1969	2394-2	
	1 Second	TD ALC	
	1.00. ATTINO		- 4
	* DL ATT(SB)	3	4
	"(K, Dellay(NK)	9.0	A
	* D. Liningrowi	àa	4
	* MBRG	NAMON	
		0	
			3 commu in yes

Figure 104 DEU \rightarrow Function \rightarrow Carrier Info \rightarrow Add

5.3.2 DEU -> Function

5.3.2.1 Device Info

Click Function \rightarrow Device Info to view the time, latitude, longitude, and other information of 10G/25G device. The site info is defined by the user, as shown in the figure below:

RNING EVERON** 6000 SOLUTI	0115		Q 👯 🖾 debug-
	DEU ID 3		
	Equipment Mode 25G		
	Equipment Model DEU	-G2	
Lawrence of the local data	Equipment SN N/A		
	Site Info 2855	65	
	System Version Even	on_6000_DEU_P2.V01.00.02.07	
	Hardware Version 1		
Device Info	Reset Firmware Alarm	Setting Import & Export Log Site Report	
Dashboard		example a subject and and tablect	
	Name	Value	
I DEU	Temperature	42°C	
I DEU	Temperature Power Temperature	42°C 29°C	
	2.0.0		
	Power Temperature	297	
RU	Power Temperature DC Voltage	29PC 57V	
RU	Power Temperature DC Voltage AC Input Voltage	29°C 57V 90.8V	
RU	Power Temperature DC Voltage AC Input Voltage DC Power Consumption	29°C 57V 90.8V 58W	
₽ RU Function	Power Temperature DC Voltage AC Input Voltage DC Power Consumption AC Power Consumption	29°C 57V 90.8V 58W 71W	
RU Function	Power Temperature DC Voltage AC Input Voltage DC Power Consumption AC Power Consumption Equipment Mode	29°C 57V 90,8V 58W 7.1W 25G	
: RU • Function . User	Power Temperature DC Voltage AC Input Voltage DC Power Consumption AC Power Consumption Equipment Mode Fan Speed	29°C 57V 90.8V 58W 71W 25G 52060mm	
DEU RU Flunction User Factory Setting	Power Temperature DC Voltage AC Input Voltage DC Power Consumption AC Power Consumption Equipment Mode Fan Speed Date/Time	29°C 57V 90.8V 58W 71W 25G 5200/mm ⁶² 2022-09-20 13:64-67	
# RU } Function L User	Power Temperature DC Voltage AC Input Voltage DC Power Consumption AC Power Consumption Equipment Mode Fan Speed Date/Time Uptime	29°C 57V 90,8V 58W 71W 256 5206/min 622022-08-20 13:54:57 00:20(24:22:00	

Figure 105 DEU \rightarrow Function \rightarrow Device Info

5.3.2.2 Reset

Click Function \rightarrow Reset to clear the historical alarm, reset the software and hardware of the DEU, and reset the software and hardware of the RU connected to the DEU, as shown in the figure below:

		DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	c
C Dashboard	Device Info Reset Export	Log Import & Export	Alarm Setting Firmware Site	Report
	Item		Action	
DEU	Clear History Alarm		Clear	
	Software Reset		Reset	
RU	Hardware Reset		Reset	
	RU2 Software Reset		Reset	
Function	RU2 Hardware Reset		Reset	
User				



5.3.2.3 Export Log

Click DEU->Function->Export Log to export the DEU log for problem analysis, as shown in the figure below:

RNING EVERON	P* 6000 SOLUTIONS			Q 👯 🖾 admin-
		DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	C
Cashboard	Device Info Reset Export	Log Import & Export Export Log		Report
RU			Export	
User				
	— Fig	ure 107 DEU→I	Function→Export Log	5

5.3.2.4 Import & Export

Import and export the DEU configuration by clicking Function \rightarrow Import & Export, as shown in the figure below:

RNING EVERO	Nº 6000 SOLUTIONS			Q 👯 🖬 admin-
		DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	
< Dashboard	Device Info Reset		Alarm Setting Firmware Site Repor	t
DEU		Export Configuration	Import Configuration	
I RU		Export	Import	
Function				
User				

Figure 108 DEU→Function→Import & Export

5.3.2.5 Alarm Setting

Click Function \rightarrow Alarm Setting to set the DEU alarm detect duration, as shown in the figure below:

RNING EVERO	N [™] 6000 SOLUTIONS			Q 🎊 🖬 admin
		DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	a
Dashboard	Device Info Reset Export	Log Import & Export		Report
DEU	Name Alarm Detect Duration(10s)		Value ©0x10s	
RU Function				
User				
	Figu	re 109 DEU→Fi	nction→Alarm Settir	ησ

5.3.2.6 Firmware

Click Function \rightarrow Firmware and the firmware info can be viewed and upgraded.

ORNING EVERON	4** 6000 SOLUT	IONS				۹ ۵	🕻 🖪 admin-
	Device Info	Reset Expo	DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21 Varm Setting Fereware	Site Report		
< Dashboard	Name	System Version	Boot Version	FPGA Vesion	System Date	Boot Date	FPGA Date
	Active	DEUG2 V01.00.01.21	DEUG2 V01.00.00.04	DEUG2 V01.00.00.11	06/21/2022	06/15/2022	06/15/2022
DEU	MOUVO						
DEU	InActive	DEUG2_V01.00.01.20	DEUG2_V01.00.00.04	DEUG2_V01.00.00.12	06/20/2022	06/15/2022	06/17/2022
		DEUG2_V01.00.01.20	DEUG2_V01.00.00.04	DEUG2_V01.00.00.12	06/20/2022	06/15/2022	06/17/2022
III RU		DEUG2_V01.00.01.20	DEUG2_V01.00.08,04	DEUG2_V01.00.00.12 Value	06/20/2022	06/15/2022	06/17/2022
III RU	InActive		DEUG2_V01.00.08,04		06/20/2022	06/15/2022	06/17/2022
EU	InActive Name		DEUG2_V01.00.00.04	Value	06/20/2022	05/15/2022	06/17/2022
	InActive Name		DEUG2_V01.00.00.04	Value	06/20/2022 File	06/15/2022	06/17/2022

Figure 110 DEU \rightarrow Function \rightarrow Firmware

5.3.2.7 Site Report

Click Function \rightarrow Site Report and The NE of DEU can be recognized only after the site report result is reported, as shown in the figure below:

RNING EVERON	** 6000 SOLUTIONS			Q 👯 🖬 admin-
				0
		DEU ID	1	
		Equipment Mode	25G	
	-	Equipment Model	DEU9000-0100E	
		Equipment SN	N/A	
		Site Info	0000000	
		System Version	DEUG2_V01.00.01.21	
	Device Info Reset Expor	t Log Import & Export	Alarm Setting Firmware Site	Report
Dashboard				
	Name		Value	
DEU	Site Report Resul	t	[™] Unknow	
			Report	
RU				
Function				
User				
		3 -		
	Fig	ure 111 DEU→F	⁻ unction→Site Repor	t

5.3.3 DEU -> UserInfo

5.3.3.1 Password

Click User->Password to reset DEU password, as shown in in the figure below:

CORNING EVERO	N™ 6000 SOLUTIONS			Q 👯 🖬 admin+
		DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	0
< Dashboard	Password UserInfo	LoginInfo		-
💻 DEV		new password		
III RU		Confirm password		
Ø Function			modify	
💄 User				

Figure 112 DEU→User→Password

5.3.3.2 UserInfo

Click User->UserInfo to add a user to set the role and password, as shown in the figure below.

CORNING EVERON	* 6000 SOLUTION	i i			Q 👯 🖪 admin+
	A	-	DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	а
< Dashboard	Password	Userinto	LoginInfo		
and the second second	User Name	Role	Status	Operation	
🖳 DEU	admin	admin		Reset	
III RU	-			Add User	
Function					
💄 User					

Figure 113 DEU→User→UserInfo

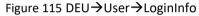
TERMINE EVERIN			
	····	DEU ID 1 Enuligment Model 25G Ballinniert Model DEI IBODI BISDIE X	0
< Dashboard	Password	* User Name	
e deu	User Name admin	* Role	
III RU		Select -	
D Function		* Password	
		* confirm password	
		Add User	
			CORNING all right reserved

Figure 114 DEU \rightarrow User \rightarrow UserInfo \rightarrow Add User

5.3.3.3 LoginInfo

Click User->Login Info to set the max value of entering the password, as shown in in the figure below:

RNING EVERON	*** 6000 SOLUTION	5			Q 🔀 🖪 admin+ S
			DEU ID Equipment Mode Equipment Model Equipment SN Site Info System Version	1 25G DEU9000-0100E N/A 00000000 DEUG2_V01.00.01.21	
< Dashboard	Password	UserInfo	LoginInfo	_	
	Item	Value			Operation
DEU	tryMax	5			Edit
II RU					
Function					



5.4 dLRU Config

5.4.1 RU -> Overview&Alarm

Click RU to enter the Overview interface and view the current status of RU alarms (e.g., link Alarm).

ORNING EVERON	6000 SOLU	TION	5						Q 👯 🖾 debug
				DEU ID RU Number	3 1			-	
Dashboard	Overview	RU	RU9 Link Alarm	Equipment Alarm	Digital HW Alarm	Temperature Alarm	Low Transmission Alarm	Overflow Alarm	DC Voltage Lower Alarm
I DEU	4	9	2 0	•	E \varTheta	2 0		C O	^B ()
Function									
User Factory Setting									
									© CORNING all right rese

Figure 116 DEU \rightarrow RU

Each alarm is defined as follows:

- Link Alarm
- RU Device Alarm
- Digital HW ALM
- Temperature Alarm
- Low Transmission Alarm
- Overflow Alarm
- DC Voltage Lower Alarm
- Drag the scroll bar to view more information (e.g., Temperature) as shown in the figure below.

				DEU ID RU Number	3 1			_	
	Overview		RU9						
Dashboard	More	RU Lin	nk Alarm	Equipment Alarm	Digital HW Alarm	Temperature Alarm	Low Transmission Alarm	Overflow Alarm	DC Voltage Lower Alarm
DEU	×		8	equipment Autom	[®] 🕤	[®] O		° O	
			Nam			alue			
		-	Temper System \			0.01.18			
unction			Equipme			0			
			Equipmen	t Model		J-G2-35			
lser			Site I	Y		²⁴ 0			
			DC VIO			6.7V			
actory Setting		F	Power Con	sumption		1W			
		ł	Power Con	sumption	-	1100	1		

Figure 117 DEU→RU

5.4.2 RU Parameter config

5.4.2.1 OP Info

The OP Info list box displays the current optical port connection status and information reading volume of the device, as shown in the figure below:

	Good Solid	/	Eq Sy: Sit	ulpment SN ulpment Mode stem Version e Info rdware Versio	V0 0	RU-G2-35 11.00.01.18			0-	-	Q 💥 🖻 debu
Dashboard	OP Info										
i deu	More	OP	Temperature	Tx Power	Rx Power	Tx Alarm	Rx Alarm	Temperature Alarm	Sync Alarm	Manufacturer Alarm	PN
	More	OP 1	Temperature 37°C	Tx Power -0.31dBm	-0.86dBm	Tx Alarm	Rx Alarm	Temperature Alarm	Sync Alarm	Manufacturer Alarm	PN SFP-25G-215-10K
		0P 1	37°C	-0.31dBm	and the second second	× O					
		0P 1		-0.31dBm	and the second second	2 0					
		0P 1	37°C Name	-0.31dBm	and the second second	2 🕜	C 📀 Value				
RU		OP 1	37℃ Name SN	-0.31dBm	and the second second	B O W112	Calue 222800046				
RU		OF 1	37℃ Name SN Manufack	-0.31dBm	and the second second	E O Will:	Calue 222800046 FFFE				
RU		1	37℃ Name SN Manufack Waveleng	-0.31dBm ory gth n Rate	and the second second	₩ W112 1 25	Contraction Contracti				
RU Function User		1	37℃ Name SN Manufack Waveleng Transmission	-0.31dBm ory. gth n Rate Date	and the second second	₩ W112 1 25	Z22800046 FFE 330nm 5.5Gbps				
DEU RU Function User Factory Setting		1	37°C Name SN Manufack Waveleng Transmission Production	-0.31dBm ory gth n Rate Date n	and the second second	₩113 1 25 2	222800046 FFE 330nm 5.5Gbps 220709				

Figure 118 RU9→OP Info

5.4.2.2 RF Info

Click RU \rightarrow RU01~08 to read various RF information of RU, as shown in the figure below:

SN	DCU parameter	Range	Recommend value
1	RF Switch	ON/OFF	ON
2	DL ATT	(0~20)	10
3	UL ATT	(0~20)	10
4	Work Mode	Normal DL force uplink UL force uplink	Normal

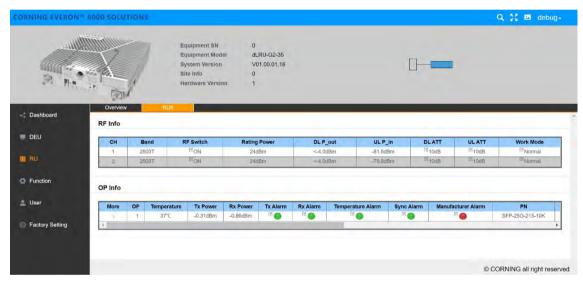


Figure 119 RF info & OP info

6. APPENDIX A: Specifications

Digital Conversion Unit (DCU-G2) \triangleright

RF donor connection: 600 MHz ~ 4000 MHz 14 x 25Gbps Optical Interface for extension/cascading Integrated OMT & remote management system



RF Specification		
Bands	Technologies	Frequency Range (MHz)
3500 MHz	LTE/NR	TDD:3400~4000
2500 MHz	LTE/NR	TDD:2496~2690
WCS	LTE/NR	UL:2305~2315, DL:2350~2360
EAWS	LTE/NR	UL:1695~1780, DL:2110~2200
PCS	LTE/NR	UL:1850~1915, DL:1930~2020
850A	LTE/NR	UL:817~849, DL:862~894
700U	LTE/NR	UL:776~798, DL:746~768
700L	LTE/NR	UL:698~716, DL:728~746
600 MHz	LTE/NR	UL:663~698, DL:617~652
Electrical Specification		
Operation Frequency	MHz	RF Cluster 1~2: 2300~4200 MHz, TDD/FDD RF Cluster 3~4: 600~2700 MHz, TDD/FDD
Input Power Range	dBm	-7~ +3
Maximum Instantaneous Bandwidth	MHz	RF Cluster 1~2: 300 MHz RF Cluster 3~4: 200 MHz
VSWR		<1.8

Interfaces and Mechanical		
CPRI Ports		8 x SFP+ (25 Gbps) to DEU
CPRI Ports		6 x SFP+ (25 Gbps) to secondary DCU
Ethernet Ports		2 x RJ45 - local monitor, remote monitor
Ethernet Ports		2 x RJ45 - to RIU, PSU
RF ports		4 x Cluster RF connectors to donor radio head Each Cluster RF connector contains 8 simplex ports to RIU
External Synchronization		2 x QMA, 10 MHz In/Out
Dimensions (H x W x D)	Inch (mm)	3.46 x 19.09 x 15.75 (88 x 485 x 400)
Weight (approx.)	Lbs (kg)	33 (15)
Powering		48V DC or AC 220/110V
Power Consumption	Watt	250
Operating Temperature		-10°C to +45°C (14°F to 113°F)
Operating Humidity		≤ 85%
Ingress Protection		IP30
Cooling		Fan
Mounting and Installation		19-in Rack mount
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1

> Distributed Extension Unit (DEU-G2)

Radio hub/router for system extension 28 x 25 Gbps Optical Interface Support DEU cascading



Interfaces and Mechanical

CPRI Ports		4 x SFP+ (25 Gbps) for DEU cascading
CPRI Ports		24 x SFP+ (25 Gbps) for dLRU/dMRU/dHRU connection
Ethernet Ports		1 x RJ45 - local & remote monitor
Dimensions (H x W x D)	Inch (mm)	1.73 x 19.09 x 14.17 (44 x 485 x 360)
Weight (approx.)	Lbs (kg)	16.75 (7.6)
Power Supply		48V DC or AC 220/110V
Power Consumption	Watt	200
Operating Temperature		-10°C to +45°C (14°F to 113°F)
Operating Humidity		≤ 85%
Ingress Protection		IP30
Cooling		Fan
Mounting and Installation		19-in Rack mount
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1



Distributed Extension Unit (DEU-G2-PS)
 Radio hub/router for system extension
 28 x 25 Gbps Optical Interface
 Support DEU cascading
 PSU for dLRU



Interfaces and Mechanical		
CPRI Ports		4 x SFP+ (25 Gbps) for DEU cascading
CPRI Ports		24 x SFP+ (25 Gbps) for dLRU/dMRU/dHRU connection
Ethernet Ports		1 x RJ45 - local & remote monitor
Dimensions (H x W x D)	Inch (mm)	3.46 x 19.09 x 14.17 (88 x 485 x 360)
Weight (approx.)	Lbs (kg)	26.46 (12)
Power Supply		Input 48V DC or AC 220/110V PSU output : 48V DC (works with AC 220/110V input)
Power Consumption	Watt	1500
Operating Temperature		-10°C to +45°C (14°F to 113°F)
Operating Humidity		≤ 85%
Ingress Protection		IP30
Cooling		Fan
Mounting and Installation		19-in Rack mount
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1

7. APPENDIX B: LED Functionality and Colour Definition

		Green	Amber
		(SYNC)	(LOS)
SFP Plug out	SFP Plug out	OFF	OFF
Optic Link Fail	1. Optic cable disconnected	OFF	ON
	2. SFP fail	OFF	ON
	2.1 SFP fault	OFF	ON
	2.2 SFP warning	OFF	ON
	2.3 SFP alarm	OFF	ON
	3. CPRI link down	OFF	ON
Optic Link Ok	1. Optic cable connected	ON	ON
	2. SFP ok	ON	ON
	3. CPRI link down	ON	ON
CPRI Link Ok	1. Optic cable connected	ON	OFF
	2. SFP ok	ON	OFF
	3. CPRI link up	ON	OFF

Table 18. Optical LED definition

Table 19. ALM/RUN/Power LED definition

LED	Description	Color
	1.Alarm	Red
ALM	2.Device detect (Identify and is controlled from DCU)	Red Flash (1Hz, 10s)
	3.No alarm	OFF
RUN	1.The system is up and running	Green Flash(1Hz)
KON	2.Software or hardware failure	OFF
Power	1.Power on	Green
Fower	2.Power off	OFF

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User Manual v1.0

> Digital Low-power Remote Units-2.5G (dLRU-G2-25)

194 MHz IBW with 2T2R MIMO

1 x 25 Gbps Optical Interface to DEU

Compact design for easy installation

RF Specification

Frequency Range	MHz	2496-2690
Max. Operating Bandwidth-Noncontiguous		Full band
Unit Configuration		2T2R
Instantaneous Bandwidth	MHz	194
Downlink Output Power	dBm	23
Attenuator Adjustable Range (1dB step)	dB	0-20
Channel Bandwidth	MHz	10/20/40/60/80/100
Uplink Noise Figure (typical)	dB	8
Uplink IIP3 (typical)	dBm	-12
VSWR		≤ 1.6
EVM (256 QAM) (TM3.1A @ Rated power)	%	< 3.5
Spurious Emission		3GPP TS 36.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7)
Interfaces and Mechanical		
CPRI Port		1 x SFP+ (25 Gbps) to DEU
Antenna Ports		2 x 4.3-10 female to external antenna
Dimensions (W x H x D)	Inch (mm)	10.6 x 10.6 x 2.95 (270 x 270 x 75)



Weight (approx.)	Lbs (kg)	11 (5)
Powering		48V DC
Power Consumption	Watt	65
Operating Temperature		-40°C to +55°C (-40°F to 131°F)
Operating Humidity		≤ 95%
Ingress Protection		IP66
Cooling		Convection
Mounting and Installation		Ceiling/Wall/Shell
Regulation		
ЕМС		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1
Radio		FCC CFR 47, Part 27



> Digital Low-power Remote Units High Band (dLRU-G2-35)

530 MHz IBW with 2T2R MIMO

2 x 25 Gbps Optical Interface to DEU

Compact design for easy installation

RF Specification

Frequency Range	MHz	3450-3980
Max. Operating Bandwidth-Noncontiguous		Full band
Unit Configuration		2T2R
Instantaneous Bandwidth	MHz	530
Downlink Output Power	dBm	27
Attenuator Adjustable Range (1dB step)	dB	0-20
Channel Bandwidth	MHz	10/20/40/50/60/80/100
Uplink Noise Figure (typical)	dB	8
Uplink IIP3 (typical)	dBm	-12
VSWR		≤1.6
EVM (256 QAM) (TM3.1A @ Rated power)	%	< 3.5
Spurious Emission		3GPP TS 36.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7)

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Interfaces and Mechanical		
CPRI Port		2 x SFP+ (25 Gbps) to DEU
Antenna Ports		2 x 4.3-10 female to external antenna
Dimensions (W x H x D)	Inch (mm)	10.6 x 10.6 x 2.95 (270 x 270 x 75)
Weight (approx.)	Lbs (kg)	11 (5)
Powering		48V DC
Power Consumption	Watt	75
Operating Temperature		-40°C to +55°C (-40°F to 131°F)
Operating Humidity		≤ 95%
Ingress Protection		IP66
Cooling		Convection
Mounting and Installation		Ceiling/Wall/Shell
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1
Radio		FCC CFR 47, Part 27

> Digital Medium-power Remote Unit-2.5GHz (dMRU-G2-25)

194 MHz IBW with 2T2R MIMO

1 x 25 Gbps Optical Interface to DEU

Compact design for easy installation

RF Specification

Frequency Range	MHz	2496-2690
Max. Operating Bandwidth-Noncontiguous		Full band
Unit Configuration		2T2R
Instantaneous Bandwidth	MHz	194
Downlink Output Power	dBm	39
Attenuator Adjustable Range (1dB step)	dB	0-20
Channel Bandwidth	MHz	10/20/40/60/80/100
Uplink Noise Figure (typical)	dB	6
Uplink IIP3 (typical)	dBm	-12
VSWR		≤1.5
EVM (256 QAM) (TM3.1A @ Rated power)	%	< 3.5
Spurious Emission		3GPP TS 36.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7)
Coupling value	dB	35



Interfaces and Mechanical		
CPRI Port		1 x SFP+ (25 Gbps) to DEU
Antenna Ports		2 x 4.3-10 female to external antenna
Coupling port		2 x QMA for testing
Dimensions (W x H x D)	Inch (mm)	17.3 x 3.5 x 14.6 (440 x 88 x 370)
Weight (approx.)	Lbs (kg)	30.8 (14)
Powering		AC 220/110V
Power Consumption	Watt	140
Operating Temperature		-40°C to +55°C (-40°F to 131°F)
Operating Humidity		≤ 95%
Ingress Protection		IP65
Cooling		Convection Fan (Optional for extreme cases)
Mounting and Installation		Wall/19-in Rack mount
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1
Radio		FCC CFR 47, Part 27

> Digital Medium-power Remote Unit High Band (dMRU-G2-35)

530 MHz IBW with 2T2R MIMO

2 x 25 Gbps Optical Interface to DEU

Compact design for easy installation

RF Specification

Frequency Range	MHz	3450-3980
Max. Operating Bandwidth-Noncontiguous		Full band
Unit Configuration		2T2R
Instantaneous Bandwidth	MHz	530
Downlink Output Power	dBm	40
Attenuator Adjustable Range (1dB step)	dB	0-20
Channel Bandwidth	MHz	10/20/40/50/60/80/100
Uplink Noise Figure (typical)	dB	8
Uplink IIP3 (typical)	dBm	-12
VSWR		≤1.5
EVM (256 QAM) (TM3.1A @ Rated power)	%	< 3.5
Spurious Emission		3GPP TS 36.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7)
Coupling value	dB	35



Interfaces and Mechanical		
CPRI Port		1 x SFP+ (25 Gbps) to DEU
Antenna Ports		2 x 4.3-10 female to external antenna
Coupling port		2 x QMA for testing
Dimensions (W x H x D)	Inch (mm)	17.3 x 3.5 x 14.6 (440 x 88 x 370)
Weight (approx.)	Lbs (kg)	33 (15)
Powering		AC 220/110V
Power Consumption	Watt	250
Operating Temperature		-40°C to +55°C (-40°F to 131°F)
Operating Humidity		≤ 95%
Ingress Protection		IP65
Cooling		Convection Fan (Optional for extreme cases)
Mounting and Installation		Wall/19-in Rack mount
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1
Radio		FCC CFR 47, Part 27

Radio Interface Unit-2.5 GHz (RIU-G2-25)
 8 input ports for donor RF signal connection
 Active ATT, input power detection & ALC protection for RF module
 Max. input power of 37 dBm/port



RF Specification **Frequency Range** MHz 2496-2690 (LTE/NR) Downlink Input Power dBm -10~37 Downlink 30 dB Insert Loss dB 40 Uplink ATT Adjustable Range (1dB step) dB 0-25 **Return Loss** dB ≤ -15 Interfaces and Mechanical **RF** input ports 8 x QMA (Duplexer) to donor signal 8 x QMA (Simplex) to DCU **RF** Output ports **Ethernet Ports** 2 x RJ45 - Upper cascade / Lower cascade Dimensions, H x W x D Inch (mm) 1.73 x 19.09 x 14.2 (44 x 485x 360) Weight (approx.) Lbs (kg) 13.2 (6) 48V DC Powering Watt 20 **Power Consumption Operating Temperature** -10°C to +45°C (14°F to 113°F)

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≤ 85%

Operating Humidity

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Ingress Protection	IP30
Cooling	Fan
Mounting and Installation	19-in Rack mount
Regulation	
EMC	EMC FCC 47 CFR Part 15 sub part B
Safety	UL62368-1

Radio Interface Unit-3.5 GHz (RIU-G2-35)
 8 input ports for donor RF signal connection
 Active ATT, input power detection & ALC protection for RF module
 Max. input power of 37 dBm/port



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RF Specification

Frequency RangerMHz3400-4000 (LTE/NR)Downlink InputdBm-10~37MarceldB30MarceldB-10UplinkdB40ATT Adjustable-gB0-25Return LossdB<-15Interfaces and U-constancedRF input portsIs a QMA (Duplexer) to donor signal					
Insert Loss Downlink dB 30 Insert Loss Uplink dB 40 ATT Adjustable Trage (1dB step) dB 0-25 Return Loss dB ≤-15	Frequency Range		MHz	3400-4000 (LTE/NR)	
Insert Loss Inse	Downlink Input Power		dBm	-10~37	
UplinkdB40ATT Adjustable Range (1dB step)dB0-25Return LossdB≤-15Interfaces and Mechanical	Insert Loss	Downlink	dB	30	
Return Loss dB ≤ -15 Interfaces and Mechanical		Uplink	dB	40	
Interfaces and Mechanical	ATT Adjustable R	Range (1dB step)	dB	0-25	
	Return Loss		dB	≤ -15	
RF input ports 8 x QMA (Duplexer) to donor signal	Interfaces and N	lechanical			
	RF input ports			8 x QMA (Duplexer) to donor signal	
RF Output ports 8 x QMA (Simplex) to DCU	RF Output ports			8 x QMA (Simplex) to DCU	
Ethernet Ports 2 x RJ45 - Upper cascade / Lower cascade	Ethernet Ports			2 x RJ45 - Upper cascade / Lower cascade	
Dimensions, H x W x D Inch (mm) 1.73 x 19.09 x 14.2 (44 x 485x 360)	Dimensions, H x W x D		Inch (mm)	1.73 x 19.09 x 14.2 (44 x 485x 360)	
Weight (approx.) Lbs (kg) 13.2 (6)	Weight (approx.))	Lbs (kg)	13.2 (6)	
Powering 48V DC	Powering			48V DC	
Power Consumption Watt 20	Power Consump	tion	Watt	20	
Operating Temperature -10°C to +45°C (14°F to 113°F)	Operating Temp	erature		-10°C to +45°C (14°F to 113°F)	
Operating Humidity ≤ 85%	Operating Humic	dity		≤ 85%	

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Ingress Protection	IP30
Cooling	Fan
Mounting and Installation	19-in Rack mount
Regulation	
EMC	EMC FCC 47 CFR Part 15 sub part B

> Antenna Multiplexer (COMB-G2-FDD-25-35)

6-in/2-out multiplexer for 2X2 MIMO

6 input ports for low, medium, and high band remote radio unit connection

2 output ports for antenna connection

Compatible with both low- and medium-power remote radio unit

Electrical Characteristics



Electrical Characteristic	S			
Port		Port1, Port4 (FDD Bands)	Port2, Port5 (2.5 Band)	Port3, Port6 (3.5 Band)
Frequency Range	MHz	617-2360	2496-2690	3450-4000
Bandwidth	MHz	1743	194	550
Insert Loss	dB	≤0.6(25°C) ≤1(-40 to +85°C)	≤0.6(25°C) ≤1(-40 to +85°C)	≤0.6(25°C) ≤1(-40 to +85°C)
Pass Band Ripple	dB	≤0.5	≤0.5	≤0.5
Out of Band Attenuation	dB	≥50@2496-2690 ≥50@3450-4000	≥50@617-2360 ≥50@3450-4000	≥50@617-2360 ≥50@2496-2690
Maximum Input Power (Per Port, Average)	W	50	15	15
PIM	dBc	-155 (@ 2x10W)		
Return Loss	dB	≥18		
Isolation	dB	≥40		
Port Type		4.3-10 F		
Impedance	Ω	50		
Mechanical Characteris	tics			



Dimensions, H x W x D	Inch (mm)	10.6 x 6.6 x 1.6 (270 x 168 x 41)
Weight (approx.)	Lbs (kg)	4.8 (2.2)
Operating Temperature		-40°C to +85°C (-40°F to 185°F)
Ingress Protection		≤ 95%
Environmental		IP66
Regulation		
EMC		EMC FCC 47 CFR Part 15 sub part B
Safety		UL62368-1

- ➢ HRU -High-Power Remote Unit
- > System performance (Head End to High power Remote Unit)



RF										
Frequency Range Name		600	700L & & First		800 /850	1900	EAWS	WCS	2500	
Frequency Uplink 698 716 798 817-849 19 Range Downlink MHz 617- 728- 746- 862-894 19	Uplink					817-849	9 1850- 1915	1695- 1780	2305- 2315	2496-2690
	4 1930- 1995	2110- 2180	2350- 2360	2450 2050						
Max. Operating Bandwidth- Non- contiguous	MHz		Full B	Full Band						
Instantaneous Bandwidth	MHz		35	18	21	32	65	70	10	100
Downlink Output Power	dBm		43	3 43		43	43	43	43	43
Attenuator Adjustable Range (1 dB step)	dB		0-20	0-20						
Pass Band Ripple (p-p)	dB		≤ 4	≤ 4						
Channel Bandwidth	MHz		5/10/	5/10/15/20					5/10/15/20 for 4G 40 or 60 for 5G	
Uplink Noise Figure (typical)	dB		6							
Uplink IIP3 (typical)	dB		-20							
VSWR			≤ 1.8							



EVM (256 QAM) (TM3. 1A@ Rated power)	%	< 3.5	
Spurious Emission		3GPP TS 36.106/25.106; 3GPP TS 38.104	V 15. 5. 0 (sections 6; 7)
Electrical Spe	cifications		
Power Consumption		OEU (Optical Expansion Unit) – connected to RFU's	50
(Typical)	Watt	RFU (RF Unit) – MIMO 2:2 for the bands 600,700,800/850, 1700. 1900, 2300, 2500TDD	220
AC voltage	AC	100-240	

Interfaces and Mechanical			
CPRI Port		4, SFP+ 10. 1Gbps	
Antenna Ports		1 ,4.3-10 female	
Dimension (W x H x D)		OEU	14.6 x 3.2 x 13.8
			(370 x 80 x 355)
	Inch	RFU except 700	19.7 x 3.2 x 13.8
	(mm)		(500 x 80 x 355)
		RFU 700	19.7 x 4. 8 x 13.8
			(500 x 121 x 355)
Mounting and installation		Wall mount	
Weight		OEU	26.4 (12)
	Lbs (Kg)	RFU except 700	39.6 (18)
		RFU 700	44 (20)
Cooling		Convection	
Environmental	·		
Operational Temperature	°F (°C)	-40° to 131° (-40° to 55°)	
Outdoor installation (Ingress Protection)		IP 65	

*Technical specs are subject to change without notice

Low Bands Combiner specifications

The Low band combiner is designed to combine the following services :600MHz,700MHz, 800/850MHz and high frequencies from the Medium Band combiner

Frequency Name	600	600 700 800/850 H						
Port Name		Port 1	Port 4					
Frequency Range	MHz	617-716	728-798	817-894	1695-2690			
Insertion Loss	dB	≤0.3						
Port Isolation	dB	≥50						
Return Loss	dB	≤20						
Pass band ripple	dB	≤0.2						
PIM	dBc	≤155@2×43dBm						
Power Capacity	Watt	250 per port						
Interface		·						
Connector		4.3-10 Mini D	IN-Female					



*Technical specs are subject to change without notice.

Medium Bands Combiner specifications

The medium band combiner is designed to combine the services: 1900, EAWS, WCS and 2.5GHz.

If a single module is required, a single input (2500) is used.

If 2 * 2.5GHz RF modules are used (to support 4G and 5G services), 2 inputs are required (2500 IN1 and 2500 IN2).

Frequency Name			1900	EAWS	wcs	2500	2500 IN1	2500 IN 2	2500 OUT
Port Name			Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port7
Frequency Range MHz		1850- 2020	1695- 1780 2110- 2200	2305- 2360	2496-269	2496-2690			
Insertion Loss	dB		≤ 0.3			≤3.3			
Port Isolation	dB		≥50				≥20, 2500 IN1 to 2500 IN2 ≥50 to other ports		
Return Loss	dB		≤20						
Pass band ripple	ripple dB			≤ 0.2					
PIM	dB		≤155@2 ×43 dBm						
Power Capacity Watt		250 per port							
Interface									
Connector			4.3-10 Mini DIN-Female						

*Technical specs are subject to change without notice.